

Library and Information Science

CLASS
XII



**CENTRAL BOARD OF
SECONDARY EDUCATION**

Shiksha Kendra, 2, Community Centre,
Preet Vihar, Delhi-110 301 India

नया आगाज़

आज समय की माँग पर
आगाज़ नया इक होगा
निरंतर योग्यता के निर्णय से
परिणाम आकलन होगा।

परिवर्तन नियम जीवन का
नियम अब नया बनेगा
अब परिणामों के भय से
नहीं बालक कोई डरेगा

निरंतर योग्यता के निर्णय से
परिणाम आकलन होगा।

बदले शिक्षा का स्वरूप
नई खिले आशा की धूप
अब किसी कोमल-से मन पर
कोई बोझ न होगा

निरंतर योग्यता के निर्णय से
परिणाम आकलन होगा।

नई राह पर चलकर मंज़िल को हमें पाना है
इस नए प्रयास को हमने सफल बनाना है
बेहतर शिक्षा से बदले देश, ऐसे इसे अपनाए
शिक्षक, शिक्षा और शिक्षित
बस आगे बढ़ते जाएँ
बस आगे बढ़ते जाएँ
बस आगे बढ़ते जाएँ.....





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CENTRAL BOARD OF SECONDARY EDUCATION

Shiksha Kendra, 2, Community Centre, Preet Vihar, Delhi-110 301 India





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Class XII

First Edition: June 2015

Price: ₹

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Published By : The Secretary, Central Board of Secondary Education
Shiksha Kendra, 2, Community Centre, Preet Vihar,
Delhi - 110301

Design & Layout : **Multi Graphics**, 8A/101, WEA Karol Bagh, New Delhi - 110005.
Phone: 011-25783846, 47503846

Printed By :

भारत का संविधान

उद्देशिका

हम, भारत के लोग, भारत को एक सम्पूर्ण प्रभुत्व-संपन्न समाजवादी पंथनिरपेक्ष लोकतंत्रात्मक गणराज्य बनाने के लिए, तथा उसके समस्त नागरिकों को:

सामाजिक, आर्थिक और राजनैतिक न्याय,
विचार, अभिव्यक्ति, विश्वास, धर्म

और उपासना की स्वतंत्रता,
प्रतिष्ठा और अवसर की समता

प्राप्त कराने के लिए

तथा उन सब में व्यक्ति की गरिमा

और राष्ट्र की एकता और अखंडता
सुनिश्चित करने वाली बंधुता बढ़ाने के लिए

दृढसंकल्प होकर अपनी इस संविधान सभा में आज तारीख 26 नवम्बर, 1949 ई० को एतद्वारा इस संविधान को अंगीकृत, अधिनियमित और आत्मार्पित करते हैं।

1. संविधान (बचालीमवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "प्रभुत्व-संपन्न लोकतंत्रात्मक गणराज्य" के स्थान पर प्रतिस्थापित।
2. संविधान (बचालीमवां संशोधन) अधिनियम, 1976 की धारा 2 द्वारा (3.1.1977) से "राष्ट्र की एकता" के स्थान पर प्रतिस्थापित।

भाग 4 क

मूल कर्तव्य

51 क. मूल कर्तव्य - भारत के प्रत्येक नागरिक का यह कर्तव्य होगा कि वह -

- (क) संविधान का पालन करे और उसके आदर्शों, संस्थाओं, राष्ट्रध्वज और राष्ट्रगान का आदर करे;
- (ख) स्वतंत्रता के लिए हमारे राष्ट्रीय आंदोलन को प्रेरित करने वाले उच्च आदर्शों को हृदय में संजोए रखे और उनका पालन करे;
- (ग) भारत की प्रभुता, एकता और अखंडता की रक्षा करे और उसे अक्षुण्ण रखे;
- (घ) देश की रक्षा करे और आह्वान किए जाने पर राष्ट्र की सेवा करे;
- (ङ) भारत के सभी लोगों में समरसता और समान भ्रातृत्व की भावना का निर्माण करे जो धर्म, भाषा और प्रदेश या वर्ग पर आधारित सभी भेदभाव से परे हों, ऐसी प्रथाओं का त्याग करे जो स्त्रियों के सम्मान के विरुद्ध हैं;
- (च) हमारी सामासिक संस्कृति की गौरवशाली परंपरा का महत्त्व समझे और उसका परिरक्षण करे;
- (छ) प्राकृतिक पर्यावरण की जिसके अंतर्गत वन, झील, नदी, और वन्य जीव हैं, रक्षा करे और उसका संवर्धन करे तथा प्राणी मात्र के प्रति दयाभाव रखे;
- (ज) वैज्ञानिक दृष्टिकोण, मानववाद और ज्ञानार्जन तथा सुधार की भावना का विकास करे;
- (झ) सार्वजनिक संपत्ति को सुरक्षित रखे और हिंसा से दूर रहे;
- (ञ) व्यक्तिगत और सामूहिक गतिविधियों के सभी क्षेत्रों में उत्कर्ष की ओर बढ़ने का सतत प्रयास करे जिससे राष्ट्र निरंतर बढ़ते हुए प्रयत्न और उपलब्धि की नई उंचाइयों को छू ले;
- ¹(ट) यदि माता-पिता या संरक्षक हैं, छह वर्ष से चौदह वर्ष तक की आयु वाले अपने, यथास्थिति, बालक या प्रतिपाल्य के लिये शिक्षा के अवसर प्रदान करे।

1. संविधान (छयासीवां संशोधन) अधिनियम, 2002 की धारा 4 द्वारा प्रतिस्थापित।

THE CONSTITUTION OF INDIA

PREAMBLE

WE, THE PEOPLE OF INDIA, having solemnly resolved to constitute India into a '**SOVEREIGN SOCIALIST SECULAR DEMOCRATIC REPUBLIC**' and to secure to all its citizens :

JUSTICE, social, economic and political;

LIBERTY of thought, expression, belief, faith and worship;

EQUALITY of status and of opportunity; and to promote among them all

FRATERNITY assuring the dignity of the individual and the² unity and integrity of the Nation;

IN OUR CONSTITUENT ASSEMBLY this twenty-sixth day of November, 1949, do **HEREBY ADOPT, ENACT AND GIVE TO OURSELVES THIS CONSTITUTION.**

-
1. Subs. by the Constitution (Forty-Second Amendment) Act, 1976, sec. 2, for "Sovereign Democratic Republic" (w.e.f. 3.1.1977)
 2. Subs. by the Constitution (Forty-Second Amendment) Act, 1976, sec. 2, for "unity of the Nation" (w.e.f. 3.1.1977)
-

THE CONSTITUTION OF INDIA

Chapter IV A

FUNDAMENTAL DUTIES

ARTICLE 51A

Fundamental Duties - It shall be the duty of every citizen of India-

- (a) to abide by the Constitution and respect its ideals and institutions, the National Flag and the National Anthem;
- (b) to cherish and follow the noble ideals which inspired our national struggle for freedom;
- (c) to uphold and protect the sovereignty, unity and integrity of India;
- (d) to defend the country and render national service when called upon to do so;
- (e) to promote harmony and the spirit of common brotherhood amongst all the people of India transcending religious, linguistic and regional or sectional diversities; to renounce practices derogatory to the dignity of women;
- (f) to value and preserve the rich heritage of our composite culture;
- (g) to protect and improve the natural environment including forests, lakes, rivers, wild life and to have compassion for living creatures;
- (h) to develop the scientific temper, humanism and the spirit of inquiry and reform;
- (i) to safeguard public property and to abjure violence;
- (j) to strive towards excellence in all spheres of individual and collective activity so that the nation constantly rises to higher levels of endeavour and achievement;
- ¹(k) who is a parent or guardian to provide opportunities for education to his/her child or, as the case may be, ward between age of 6 and 14 years.

-
1. Subs. by the Constitution (Eighty - Sixth Amendment) Act, 2002



Foreword

The CBSE has introduced **Library and Information Science** course at the senior secondary level to develop the necessary skills in learners to help them identify, locate, evaluate and use knowledge efficiently. Knowledge creation has been influenced by the recent developments in psychological, social, and economic fields, leading to an exponential growth in technology. Thus, introducing the Library and Information Science (LISc.) course at +2 level is an essential step in understanding the needs and upgradation of necessary skills.

As India is transforming into a knowledge-based society, there has been a growth in learning and research, leading to an increasing demand for Library and Information Science. Information and communication technology has changed the whole range of processes for generation, storage, transmission, retrieval and processing of information in libraries. Library and information science also has the potential of ICT applications which can improve the operational efficiency of library and information professionals, and the quality and range of services provided to users. This has steered a demand for library professionals at all levels viz. schools, colleges, universities, research and development institutions, government departments, and corporate sectors. With an increasing number of educational institutions and growth of industry, the job opportunities for librarians have increased manifold. Therefore, library professionals need to acquire excellent emerging ICT skills, a strong academic aptitude, and related competencies.

The main objective of the course is to familiarize the students with the basic concepts of **Library and Information Science**, different types of libraries, traditional library services, application of computers in libraries, modern library and information services, and web-based search. The increasing use of Internet and web technologies has inspired our objective to give our learners a greater autonomy in their learning. At +2 level, students begin to contemplate and introspect their career choices. For some students, this stage may be an initiation to choose a career in the field of library and information science, because LISc is developing as an exciting and rewarding career option now a days; but for others, it may be the foundation for higher education. They may choose either a LISc professional course or a job-oriented course. This course is designed to equip them with the necessary LIS professional skills and competencies, and enable them to make a meaningful contribution towards their personal and professional growth in the future.

One of the important aspects of this elective subject is to broaden the educational system by including Library and Information Science as a subject at the school level, which may be considered equivalent to Diploma in Library and Information Science. This elective will focus on some of the basic contents and concepts of LISc. to build a foundation for pursuing higher studies in Library and Information Science.





The course has the following objectives:

- ❖ To develop a basic understanding of theoretical and practical aspects of Library and Information Science,
- ❖ To equip the students to pursue the subject of LISc. for higher education in future, and
- ❖ To develop basic skills among students in order to enable them to work as semi- professionals in the libraries, after +2 level.

The committee hopes that the Library and Information Science, an academic elective (Code No 079), will nurture the interest of students and expose them to the nuances of skills and approaches required in this field. The elective can be opted by students as one of the four elective subjects, and, also, as an additional elective subject at the senior secondary stage, in combination with any of the subjects that are already available in the Scheme of Studies of the Board.

The teachers teaching the course need to be equipped with the effective use of course contents, teaching methodology, group and individual work, appropriate use of assessment tools, grading and record keeping, in order to benefit their students.

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Module-1 | Library Management

Unit-1: Resources and Human Resource Management

After studying this Unit, students will be able to:

- ❖ *To gain knowledge about the Library resources*
- ❖ *To explain the Collection Development Process and Procedure*
- ❖ *To enumerate Staff structure and Staffing*
- ❖ *To understand the processes of Stack Maintenance*
- ❖ *To know the details of Stock Verification*
- ❖ *To appreciate and take measures for User Education*

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- 1.1.1 **Introduction**
- 1.1.2 **Library Resources**
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- 1.1.8 **Summary**
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- 1.1.10 **Exercise**



1.1.1 Introduction

India has had a rich literary tradition, with education and research as its pillars. Dr. S. Radhakrishnan, former president of India said, "In the old days teachers of India were themselves librarians and they held the highest esteem". Information has always played an important role in the growth of the human civilization from the primitive days. It also leads to the development of economic, political, social, occupational, cultural, and many other sectors of human society. But at the same time, it is important to realize that not all information is equally relevant for everybody. In the modern age, there are various channel of information, hence, it becomes essential to identify which source of information is authentic and which is inauthentic, for that, the librarian and the library staff plays a dynamic role.

It is often said, "A library is a trinity made up of books, readers, and the staff". Out of these three components, books and staff are important for providing services to the reader, who is the third component of the trinity. An efficient management of libraries is important to achieve the societal and educational goals of a library. In order to provide better services to the users, another factor that needs to be considered is the human resource management.

In this unit, library resources and their acquisition, i.e., collection development, stock maintenance, stock verification, user education and staff structure and appointment in the library will be discussed. The other aspects of library management will be discussed in the later units.

1.1.2 Library Resources

Traditionally, a book has been considered the storehouse of information, but with the changing trends and development of technology, information started becoming available in different formats and sources. Hence the term 'book' referred in the literature of Library and Information Science has two meanings, one the representative term of information sources and another in the sense of a book which we see in physical form.

When the term 'book' is referred as representative of 'information sources', in the sense of collective noun, then it is in the context of all the materials that provides information and knowledge to people. These materials may be books, magazines, journals/periodicals, map, charts, art facts, audio-visual materials, and so on.

According to Ranganathan, a library is a public institution or establishment charged with the care and collection of books, the duty of making them accessible to those who require them, with an attempt to develop reading habits of people. The library is sometimes also called the memory of human race. Different types of library resources, their categories, characteristics, and features have already been discussed in the previous book (Class XI). Here, the collection development and its related processes and procedures will be discussed.



1.1.2.1. Collection Development

Collection development is the process of systematically building library collection to serve the varied needs of users such as studying, teaching, research, recreational, and so on. The process includes selection, acquisition, maintenance, assessment, and weeding or discarding of current and retrospective materials. It also includes planning of strategies to continue acquisition, and evaluation of collections to determine its relevance based on the needs of the library users. In the process, the library staff in the Collection Development Team has to ensure that material is not duplicated and that acquisitions are coordinated and managed in the most cost- effective manner across the entire library system.

The concept of collection development came into existence in 1980's with the realization that the collection of any library should be directed towards service instead of collection alone. The main guiding factors of collection development are users' information needs and available resources within the library. When one says available resources of a library, then one considers the existing collection, collection of associate libraries, and financial resources. For planning effective collection development of a library, it is essential to frame an exhaustive collection development policy.



Fig 1.1.1: Brief categories of library collection



1.1.2.2 Collection Development Policy

The terms Collection Development and Collection Building, are usually used interchangeably, but Collection Management is different from the above concepts. Collection Building is selection and acquisition of library materials based on user's actual needs and future requirements.

Building suitable collections for scientific and technical libraries is a process of prime importance. Many users, when asked to evaluate scientific and technical libraries, will list the strength of the collection as the major criteria. Science and technology collections are not the easiest ones to develop successfully in view of the complexity of the subjects involved, a large numbers of decision making is to be done because of the sizeable quantity of books and journals available. It is a task to select authentic resources from the 'n' number of resources, which could run a risk of being inauthentic.

1.1.3 Functions of the Collection development

The library environment is currently undergoing a rapid transformation, leading to novel ways of library collection with an emphasis on modern resources. On one side, there is an increasing demand for good library collections in terms of large amount of data/information and on the other hand, the publishing media is striving hard to support this demand at a lightning speed by way of modern publications as well as its accessibility. As a result, a large number of e-resources are published on all subject areas. Therefore, a library needs to frame logical approach for collection development. The categories listed below can be suitable for functioning the collection building in a given library:

- a) User's Analysis
- b) Selection Policies
- c) Acquisition policies
- d) Resource Sharing
- e) Weeding

a) User's Analysis

Users' analysis is the prime job in collection development, which can be received by floating a questionnaire, or holding a personal interaction sessions or interview. Once the need of the clientele is gauged, the library can then focus on its selection policies.

b) Selection Policies

The selection policy should be framed according to the basic need of the users and institutional philosophy. Participation of the users in the selection process is extremely important. At the time of selection, the financial constraints need to be taken into account, else the budget may not be spent in all the subject areas of the library holding.



c) Acquisition Policies

Acquisition policies are normally framed for vendors for a stipulated period of supply and payment. Each library has its norms of discount sought from the vendor. At the same time, library needs to check the duplicate copies or low price editions and sometimes old editions of the books (i.e. remainder title).

d) Resource Sharing

Before the collection development process begins, libraries need to take care for the resources sharing of its holding. Sometimes, libraries are a part of the Inter Library Loan or another resource sharing unit among other campus libraries.

e) Weeding

Weeding is a scientific process to know the usability of the library, the books which are not useful in the library may need to be weeded out. Besides this, the books which get damaged may be weeded out from the library stock. After weeding out the stock from the library, the library can be certain of the kind of material required for the library.

1.1.4 Human resource management (HRM)

Human resources are the vital resource for any library, because the library is utilised only by human beings. A major portion of the budget is usually spent on the staff of the library in order to provide best services. It is essential to have a well-trained and highly motivated staff to make an effective use of the sources of the library and to meet the demands of the community. The quality of human resources is the most important factor which affects the operational effectiveness of an organization. The way any organization manages these resources results in success or failure in achieving the goals. As mentioned above, a staff is the most important component out of the three components of a library. For fulfilling the goals of a library, it is necessary to manage its human resources effectively and efficiently.

The human resource management (HRM) is defined as a strategic and coherent approach to the management of an organization's most valued asset, that is, the personnel working there who individually and collectively contribute to the achievement of its objectives.

According to the Society for Human Resource Management (SHRM), the HRM is "the design of formal systems in an organization to ensure the effective and efficient use of human talent to accomplish the organizational goals". Just like any other organization, libraries too have all types of traditional HRM activities such as recruitment and selection; compensation and benefits; training and development; health and safety; employee and labour relations; and some libraries even have trainees/intern employment or volunteer management, etc.



The human resource management activity is usually the responsibility of the HR Department. For some libraries, the HR Department of the parent organization or institution provides some or all HR functions for the library while, whereas some libraries have an internal HR department and staff devoted to handle HR functions.

1.1.4.1 Functions of HRM

There are five fundamental functions of HRM in any organization, which are also applicable to libraries. These functions are:

- Human resource planning
- Staffing
- Communication
- Employee development, and
- Employee maintenance

(i) Human Resource Planning

Human resource planning is the process of assessing the type of staff needed to accomplish organisational goals. The basic human resource planning strategy is staffing and employee development. For this, analysis of the job is done. Job analysis is the process of describing the nature of a job and specifying the human requirements, such as quality and qualifications, skills and experience, etc. needed to perform it. The end product of job analysis process is the job description. A job description is a vital source of information for employees, managers, and HR professionals.

(ii) Staffing

Staffing is the process of recruitment and selection of human resources for an organization. HR planning and recruiting precedes the actual selection of staff for any position in an organisation. Recruiting is the personnel function that attracts qualified applicants to fill job vacancies. In the selection process, the most suitable candidates are selected for hiring from amongst those persons who are attracted to the organisation. HRM functionaries are involved in developing and administering methods which enable authorities to decide which applicants should be selected and which one is to be rejected for the given jobs. After selection, certain functions are performed to manage the staff and get the job done for the organization. Those functions include: orientation, training and development, performance appraisal, career planning, compensation, benefits, labour relations and record keeping.

- (a) **Orientation:** Orientation is a process that enables a new employee to accommodate in the new job environment. It is a method to acquaint new

employees with particular aspects of their new job, including pay and benefit programmes, working hours, and organization's rules and expectations.

- (b) **Training and Development:** Training and development is a process that provides employees the skills and knowledge to perform their job efficiently and effectively. Apart from this, it also provides training for new or inexperienced employees.
 - (c) **Performance Appraisal:** Performance appraisal process monitors the performance of an employee to ensure whether it is at an acceptable level. Besides providing a basis for pay, promotion, and disciplinary action, performance appraisal details are essential for the development of an employee as it is necessary to motivate and provide guidance for performance improvement.
 - (d) **Career Planning:** Career planning is the process of assessing the potential of an individual employee for growth and advancement in the organisation.
 - (e) **Compensation:** The HR personnel derive a rational method to determine how employees should be paid for performing the various jobs. Their pay package is related to the maintenance of human resources hence, it is a major consideration in HR planning.
 - (f) **Benefits:** Benefits are another form of compensation to employees other than direct pay for the work performed.
 - (g) **Labour Relations:** The term "labour relations" refers to interaction with employees who are represented by employee unions, which are also referred to as trade unions. Trade unions are associations or groups of employees who come together to obtain a voice in decisions affecting them like wages, benefits, working conditions, and other aspects of employment.
 - (h) **Record-keeping:** The oldest and most basic function of HRM is employee record-keeping. This function involves recording, maintaining, and retrieving employee related information for a number of reasons. Records which must be maintained include application forms, health and medical records, employment history (jobs held, promotions, transfers, lay-offs, etc.), seniority lists, earnings and hours of work, details of leave of absence, turnover, tardiness, and other employee data. Complete and up-to-date records are essential for most of the HRM functions.
- (iii) **Staff Communication**
- Communication is an exchange of information between various levels of management. Effective staff communication is critical for the proper functioning of



the organization. Regular and effective communication invites people to engage in discussion and provides a two way feedback between management and employees, departments, and colleagues. This, in turn, promotes not only a culture of sharing ideas and knowledge, but also making things happen. Communication is carried out by using both the informal and the formal channels.

(iv) Employee Development

The employee development function is a process of encouraging employees to acquire new or advanced skills, knowledge, and viewpoints, by providing learning and training facilities, and avenues where new ideas can be applied. This programme is basically to keep employees motivated towards the organisation as well as to further their development and growth. For this purpose, the HRM plans effective training and development programmes for the employees.

(v) Employee Maintenance

Employee Maintenance refers to the personnel information about each employee of an organization. All data related to personnel of each organization is maintained in the employees' master database and it is usually online. It allows the management of employee data such as contact information, costs involved and share of compound costs. The sum of monthly costs for an internal resource is broken down to an hourly rate that is used to calculate costs on activities (project tasks, incidents, etc.).

Thus far, the processes and procedures of HRM as practiced in the libraries have been discussed. Different libraries devise their mechanism on the basis of standard theory and practices of HRM and accordingly manage their human resources. For some libraries, staffing and its structure are well defined. Though, these practices were previously understood as Personnel Administration, however as its scope expanded the term HRM got established in practice.

1.1.4.2 Staff Structure

Staff structures vary from library to library. Every public library has its own way of providing information to the users. The State Central Library, District Library, Town Library, and Rural Library are normally governed by the State Government, like the Delhi Public Library comes under the Ministry of Culture. The staffing pattern is almost the same across various libraries. The Chief librarian or Director holds the authority of the library along with different professionals appointed in the different sections, which are namely: the classifier, cataloguer, reference librarian, and the library attendant.

An academic library is divided into three major categories: School, College, and University library. The school library is normally headed by the school librarian along with the trained library staff, who helps the librarian in day to day activities. In the college library, besides



college librarian, there is professional staff like Professional Assistant, Semi Professional Assistant, and Junior Library Assistant. The multitasking staff takes care of the different housekeeping jobs of the library.

The University library is headed by the University librarian. Besides these, there is a chief librarian, Deputy Librarian and many assistant librarians at the managerial post. The cataloguer, classifiers, reference librarian, circulation staff take care of the different housekeeping job. In a special library, besides the librarian, there are staffs like translator, subject specialist, bibliometrician appointed for the specialised library job.

The staff structure depends on the library activities. A library is like a growing organism, as it grows old the staffing structure is reviewed and new staff is recruited for the smooth running of the library.

1.1.5 Stack Maintenance

Stack maintenance in any library is one of the most important functions as it helps the users of the library to locate the required books from their place on the shelves. Books are arranged on the shelf according to their Call Number. Hence, for better shelving, it is mandatory that the Call Numbers written on the spine of books should be visible. If the spine is not thick enough to write the call number then it should be written on the left bottom corner of the cover of the book.

Usually, the shelving work of libraries is assigned to lower grade staff, student workers, sometimes even to the volunteers. Hence, it is highly recommended that these personnel should be properly trained regarding sequencing of the Call Number and the preservation aspects of books. Understanding of call number make the personnel capable of putting books at their right place while knowledge about preservation aspect make them capable of handling books carefully which extends the life of books. (Fig. 1.1.2)

Sound practices and precautions should be taken while shelving of library books:

- (i) Books should be put at their respective places as per the Call Number of the book.
- (ii) Books on the shelf should not extend beyond the edge of the shelf. These should be kept vertically straight instead of leaning.
- (iii) Shelve books spine down, shelving spine up causes the text block to come loose from the covers.
- (iv) Book support or bookends which are made of wood, steel or any other hard materials keep books vertically straight and keep them from bending. These should be put at the end of row of a book wherever required.
- (v) Books should not be packed tightly on the shelves as taking out or putting them back may damage the books.

- (vi) Books from the overcrowded shelf should be shifted to another shelf; if not possible, then report to the supervisors should be given in order to make suitable arrangements.
- (vii) In any case, the books should not be shelved in two rows in one shelf.



Fig 1.1.2: Library book shelves

Apart from these, the shelving staff should remain vigilant to find any damaged books on the shelves. Regular repair of books with minor damages saves the life of books; otherwise it may be damaged beyond repair.

1.1.6 Stock Verification

Stock verification is the systematic checking of the library's holdings to find out missing items. Each library should conduct periodic inventories, that is, stock verification in order to have an up-to-date record of library holdings, concrete data on rate of loss and to assess strengths and weaknesses in the collection.

The term 'stock verification' is referred to as 'stock taking', 'physical verification or checking', 'stock inspections', etc. Stock verification is the process of systematic checking the holdings of the library to find out the missing items. It helps in restoration of misplaced or missing items, finding out torn or worn out items for repair or binding and provides opportunity for cleaning and changing arrangement of documents. However, the main objective of stock verification process in a library is to find 'what has been lost in a given period of time from the acquired library collection'. Knowledge of lost or missing books and other library materials provide the library authorities an opportunity to take measures to stop such loss and if essential, replace the lost materials with new acquisitions. The various reasons for stock taking are discussed in the section below.

The stock verification activity is undertaken by a library according to guidelines provided

in the General Financial Rules (GFR), Government of India. Rule 194 of GFR 2005 provides the guidelines regarding the stock verification of library books. The Rule says that "complete physical verification of books should be done every year in case of libraries having not more than 20000 volumes of books. For libraries having more than 20000 volumes and up to 50000 volumes of books, such verification should be done at least once in three years. Sample physical verification at intervals of not more than three years should be done in case of libraries having more than 50000 volumes books. In case such verification reveals unusual or unreasonable shortages, complete verification shall be done."

As the modern libraries have provided open access facility to their users, chances of losing books are more. If we provide closed access to the library collection, then there would be hardly any loss, but it would be against all the Five Laws of Library Science. Hence, a certain level of loss of books or any other library materials has to be acceptable and considered as the cost paid towards providing materials via open access to the readers.

The same GFR in its Rule 194 says that loss of five volumes per one thousand volumes of books issued/consulted in a year may be taken as reasonable provided such losses are not attributable to dishonesty or negligence. However, loss of a book of a value exceeding ₹ 1,000/- (Rupees one thousand only) and rare books irrespective of value shall invariably be investigated and appropriate action taken.

1.1.6.1 Advantages of Stock Verification

R. L. Mittal (1984) in his book entitled 'Library Administration: Theory and Practice' has listed several advantages of stock verification. Those are:

- (i) It reveals the lost books.
- (ii) It enables the Librarian to replace the lost books which are essential for the library.
- (iii) It helps in the stock rectification because the misplaced books are restored to their proper places.
- (iv) It helps the library authorities in ascertaining the percentage of loss entailed by a certain service provided in a specific manner. If the loss of books in open access is less, it would be a proper guide for the library authorities to introduce open access for encouraging better use of the reading material.
- (v) It provides adequate statistics which enables the library authorities to realize the inevitability of loss of some percentage of books when these are put to use. If the books change hands quickly, there is likelihood of bigger loss.
- (vi) It also enables the library authorities to ascertain as to whether the library staff is dishonest, negligent and careless or otherwise and it further enables authorities to provide necessary remedies to check future losses which may be serious in some cases.



- (vii) It further enables the library authorities to judge the popularity of a particular subject because generally books which are used more are stolen very often.
- (viii) It enables the periodical shuffling and dusting of the books and ensures that no dust and insects accumulate, which would otherwise be injurious to the books.
- (ix) It provides opportunity to survey the book stock and worn out, torn books and books of older editions which are no longer in use can be withdrawn from the main sequence.
- (x) It further provides an opportunity to the staff members to acquaint themselves with the stock of the library so that they can provide better reference service.
- (xi) It helps updating the library catalogue and other records thereby helping in providing better reservation and inter-library loan services.
- (xii) It helps in knowing about the lost books thereby reducing irritation to library users and staff members because answers to many unsolved queries are easily available which are otherwise faced by Librarians of some best managed libraries.

1.1.6.2 Methods of Stock Verification

On the basis of various approaches, stock verification process can be put into three categories. This includes:

- (i) **Accession Number Approach:** In this approach, the staff checks the books on shelves on the basis of accession number. Here, stock verification is conducted by (a) accession register, (b) using separate register with accession numbers, and (c) preparing separate sheets which contain accession numbers consecutively.

In the first two methods, the library staff searches for the books on shelves, in sequence of accession number, in a consecutive order. It is very difficult for the library staff to find the books on shelves as books are shelved according to call number. For finding books in this approach, the staff moves from shelf to shelf and browses many books to find a particular book. It also damages the Accession Register of the library.

The third method is considered better than the previous two methods. In this method, separate sheets are prepared with Accession Numbers and two staff members are engaged. One staff member reads out the accession number and other simply strikes off that particular accession number. At the end of the process, untraced accession numbers are checked with circulation record, binding and other places where books may be available. .

- (ii) **Call number approach:** In this approach, books are checked on the basis of shelf list. Libraries maintain shelf list according to Call Number, based on which the books are also shelved. This method is easier and less time consuming.

(iii) **Information and communication technology approach:** In this approach, extensive help of technology is taken depending upon automation level and the technology a particular library uses. If a library is using barcode technology for operational purposes, then with the help of data collection unit (e.g., bar code reader) data is collected and put into the library automation software. In the same way, if a library is using RFID technology for operational purpose, then data collection unit meant for collecting data from RFID tag is used for collecting data. In this way the accession number is collected and directly compared with the original data downloaded from the library automation software.

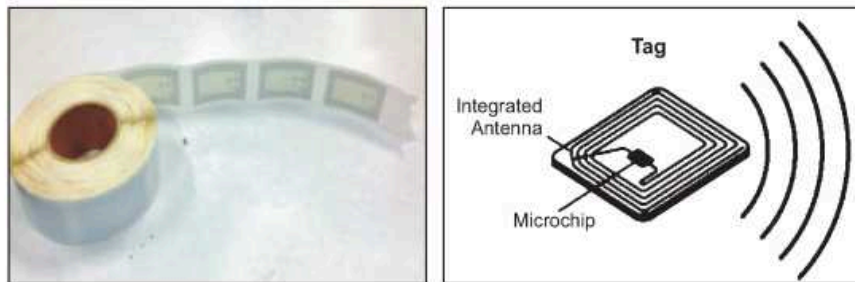


Fig 1.1.3: RFID (Radio Frequency Identification) Tag



Fig 1.1.4: RFID Reader

Once the data related to accession number is collected (whether using barcode technology or RFID), it is downloaded into the library automation software. The software itself compares the library stock with losses and prepares a final record. If a library has such



infrastructure, then the stock verification process become very easy and is less time consuming.

But, all the management, housekeeping activities, collection development can go in vain if the users are not well oriented. Therefore, user's education and orientation is an important to promote library service.

1.1.7 User Education

User education is a continuous process of educating the library user for effective utilization of library resources and its services. User education is the process whereby potential users of information are made aware of the value of information in specialized fields of activities. User education is thus, 'the instruction given to readers to help them make the best use of a library'. It may be any effort or programme which will guide and instruct existing and potential users.

1.1.7.1 Objectives of User Education

The objectives of user education are:

- (i) Make users aware of the location of the library, its resources, procedures, and services.
- (ii) Promote love for books and reading.
- (iii) Provide basic skills for collecting information i.e., current, retrospective, data or facts, etc.
- (iv) Make users aware of the different information holding agencies and their holdings.
- (v) Make users skilled in information search techniques for searching information from secondary and tertiary journals, reference sources, and other databases available online and off-line.
- (vi) Make users aware of relative merit and demerits of reading and using various materials and reference tools.
- (vii) Make users aware of information cycle, communication channels between authors and users and time taken by the process of communication channels from author to user.
- (viii) Provide strong foundation for the continued and life time self-education.

There are various types of libraries which have different resources and services to offer. It is, therefore, not possible to design one or two methods of user education programmes, which can be applied to all kinds of libraries. Hence, individual libraries design different types of user education programme for different levels of users which are based on their needs to achieve above mentioned objectives.



1.1.7.2 Types of User Education

The user education programmes are of four different categories, which are:

- User awareness programme
- Library Orientation programme
- Interest Profiling Programme
- Bibliographic instruction programme

(a) User Awareness Programme

The user awareness programme is about making the user community aware of the existence and location of a library, its resources, and services available for the users. This is done through marketing media and techniques like, organizing exhibitions, cultural activities, seminars, and library visits.

(b) Library Orientation Programme

Library orientation programme involves activities through which users are given basic skills of using library and its resources. For example, when the library catalogue of a library is automated, then, users are instructed about the use of OPAC, etc. The main objectives of user orientation are: (i) a general orientation of available facilities and resources within the library, (ii) teaching of basic skills and strategies to find required information from the resources of a particular library, (iii) teaching of organisation of the literature in various disciplines and basic reference tools in each discipline, and (iv) inform users about basic searching tools as card catalogue, serial list, OPAC, etc.

(c) Interest Profiling Programme

Interest profiling programmes is an activity to create profile of an individual or a group of individuals working on a project or conducting a research. A profile consists of keywords that collectively characterize the subject interests of the individual or a group of researchers. In this process, users are given a performa (profile card) that is filled and returned back to the library. On the basis of this card, the library creates user profiles. This profiling provides the base for bibliographic instruction programme.

(d) Bibliographic Instruction programme

Bibliographic instruction programmes are meant for advanced users for serious study. It is a programme of educating users in the systematic use of information resources. It helps the users in taking maximum advantage of library resources to meet their informational needs. Bibliographic instruction is the instruction to a user about the information resources available in particular subject, discipline, and the techniques of making use of those resources.



1.1.7.3 Methods of User Education

Nowadays, libraries adopt a number of methods to provide user education. A few of them have been listed below:

- (i) Library tour or visit
- (ii) Lecture method- may be formal/informal
- (iii) Advertising- Paper, Journal, Posters, Pamphlets, papers, journals etc.
- (iv) Workshops- About the specialized collection, electronic resources, online services, etc.
- (v) Brochures – These are brought out by most of the libraries. Brochure may contain history, use benefits, comparison, purchases, addressee in brochures and other relevant information.
- (vi) Newsletters
- (vii) Demonstration method
- (viii) Book exhibition
- (ix) Display of new arrivals
- (x) Mass media

1.1.7.4 Evaluation of User Education

Evaluation is one of the important aspects of user education. In this process, the difference in the level of knowledge and skills of the users are evaluated before and after a particular user education programme. It provides information and feedback on the impact of any such programme and helps to form basis for further improvement or change, if necessary. The techniques adopted for evaluation may differ from programme to programme but the objective of evaluation remains the same.

1.1.8 Summary

According to the concept of trinity, a library is made of three fundamental components, viz. books, users, and staff. All library resources are represented by the concept 'Book'. The third component, that is, staff is important in the sense that it brings users and library resources in contact or create environment where reader can find the required information. Hence, the study of the management of library resources and human resources is important.

Developing library resources is a continuous process. For this purpose, a collection development programme is adopted. Collection development programme is a planned process of building library resources while keeping in view the user requirements and the available resources. For this purpose, a well-defined collection development policy is



prepared, which works as guidelines for the resource selection committee and the library staff, during the process of selecting and acquiring library materials.

Human resources and their management is a complex and the most important process for running any organization including a library. There are five functions of human resource management, namely, (i.) human resource planning, (ii.) staffing, (iii.) communication, (iv.) employee development, and (v.) employee maintenance. The staffing pattern has been specified by the government or organisations from time to time, but it is dynamic in nature. National Knowledge Commission Working Group on Libraries has tried to define staffing structure suitable in Indian environment, but changes in the working environment and adoption of new technologies may lead to different patterns of staffing.

Stack maintenance is the process of maintaining library resources and placing them at their proper place. Books are placed on shelves according to their call number and each book has its unique place on the shelf. If books are not kept at proper place, it creates problem for the users and leads to extra work load for the staff. Proper shelving of books and any other library resource helps the library in providing effective and efficient services to the readers. Proper shelving, care and maintenance of the books increase the life of books and make them serviceable for longer period.

Stock verification is the process of verifying the stock of books and other library resources periodically, to find the lost, misplaced and damaged books, if any.

User education is a process of providing knowledge and skills to the users of library regarding the resources, facilities of the library, processes and procedures, and different techniques of using library resources. Under the user education programme, users are also trained in gaining skills of using information which will make them capable of carrying out the learning process themselves throughout their whole life on their own.

1.1.9 Glossary

Collection Development: It is the process of meeting information needs of library users by offering the right library items, replacing or repairing damaged or lost items and creating policies and programs that involve the collection.

IFLA: The International Federation of Library Associations and Institutions.

Human Resources: The set of individuals who make up the workforce of an organization, business sector, or economy is known as human resources.

Information Sources: Any materials containing useful information, recorded in textual, visual or audible or multimedia form in logically organised format, for knowledge development or intellectual satisfaction.

IT: Information Technology



Job Analysis: The systematic process of gathering and examining and interpreting data regarding the specific tasks comprising a job.

Library Orientation: Introducing new library members to library procedure, layout, sources and services.

OM: Office Memorandum

OPAC: Online Public Access Catalogue

User Awareness: It increases awareness about library, its resources and services.

1.1.10 Exercise

Short Answer Questions

1. Why should libraries have a collections development policy?
2. Define different library collection.
3. Define human resource management (HRM).
4. List the functions of staffing in HRM in libraries.
5. What are the categories of staff required in modern libraries?
6. Explain the need for stock maintenance.
7. Differentiate between the accession number and call number methods of stock verification.
8. Write down the methods adopted by libraries for providing user education programmes.
9. Why is it important to evaluate the user education programmes?

Long Answer Questions

1. Discuss the need for library collection development policy.
2. Discuss the functions of human resource management.
3. Give an account of sound practices and precautions to be taken while shelving of library books.
4. Describe the need and advantages of stock verification in libraries.
5. Discuss various types of user education programmes.
6. Write an essay on 'User Education in libraries'.

Module-1 | Library Management

Unit-2: Functions of Different Sections of Library

After studying this Unit, students will be able to:

- To understand the Library as an Organization
- To understand the various functions of a Library
- To enlist and explain the sections of a Library and their importance
- To explain the role of various sections of a library viz. Acquisition, Cataloguing, Circulation, Periodicals, Binding.
- To appreciate the importance of the preservation of library material

Content

- 1.2.1 Introduction
- 1.2.2 Acquisition Section
 - 1.2.2.1 Need and Purpose of Acquisition
 - 1.2.2.2 Functions of acquisition system
 - 1.2.2.3 Mode of Acquisition
 - 1.2.2.4 Records Maintenance
- 1.2.3 Cataloguing Section
 - 1.2.3.1 Functions of the Cataloguing Section
 - 1.2.3.2 Cataloguing Staff and Tools
- 1.2.4 Circulation Section
 - 1.2.4.1 Functions of Circulation Section
- 1.2.5 Periodicals Section
 - 1.2.5.1 Functions of Periodicals Section
- 1.2.6 Binding Section
- 1.2.7 Preservation Section
- 1.2.8 Maintenance Section
- 1.2.9 Summary
- 1.2.10 Glossary
- 1.2.11 Exercise



1.2.1 Introduction

Every library, irrespective of its size and type, acquires, processes, and makes available library material for use by the library users. Based on the acquired material, libraries offer various services to their respective users. A library needs a systematic organizational structure to perform its functions. The function-based structure is a common form of any library. It divides a library into functional divisions, sections, or units such as acquisition, technical processing, circulation, reference, maintenance, and so on.

In a library, the activities are grouped on the basis of job analysis into different sections, and thus executed. Such jobs are logically distributed among different sections. Usually, all kinds of libraries have seven basic departments and sections, which are: acquisition, technical processing, circulation, reference, periodicals, maintenance, administration, and accounts. Apart from these, depending upon the collection and services, some libraries also have archives, electronic collection and other sections.

These sections are made up of several sub-sections or units. The distribution of the activities under different sections varies from library to library. For example, some libraries place maintenance section with circulation section while some place it with the technical processing section. But, the technical processing section always has activities of cataloguing and classification. In this unit, we will discuss some sections and their functions, which are common to most of the libraries.

1.2.2 Acquisition Section

The acquisition section in the library is an important functional unit of collection development. It acquires relevant reading materials or information sources, such as, journals, books, electronic books, and periodicals, which are useful for the existing and potential users. Information sources include books, manuscripts, serials, journals, periodicals, newspapers, standards, specifications, patents, thesis, dissertations, maps, atlas, globes, etc. which are deemed fit for serving the existing and potential users. Well-planned acquisition should keep an account of the available funds, storing and shelving area, technological infrastructure, and availability of the staff. It is impossible for a library to buy each and every information source published in the world. So, the acquisition should be planned in such a way that the best suitable material can be procured within available resources so that the objectives of the library can be achieved.

The library also acquires information sources for preservation of intellectual heritage, depending upon its scope. The scope of the library may be local, regional, national, and global. For example, the National Library of India, situated in Kolkata has the responsibility of preserving the intellectual heritage and relevant information sources of the whole country, while a library of Kangra region of Himachal Pradesh may preserve the information sources relevant to that region only.



The types of information sources have witnessed a growth with the development of the society, where the books are no longer the only sources for a library. In different epochs, the Library and Information Science has used various terminologies, such as documents, reading materials, library materials, etc., wherein the information content of the material is more important than its visual layout. Thus, the term information source has acquired a wider coverage and meaning. Though, these terminologies have varying meanings, they have become somewhat synonymous in the text of the Library and Information Science subject. The information sources can be understood as any material, which contains useful information, recorded in textual, visual, audible, or multimedia form in logically organised format, for the purpose of knowledge development of the present as well as future generations.

1.2.2.1 Need and Purpose of Acquisition

The library has the responsibility to provide the best available information sources depending on the available financial resources. But, at the same time, the library has its limitations. A certain amount of fund is given to a library for acquiring specific information sources. Hence, the task of acquiring materials and information sources has to be accomplished within the limited resources.

The information boom has led to a tremendous increase in the volume and variety of the information material published across the world. It is, thus, impossible for an individual library to acquire all the desired available material. These publications range from general books, textbooks, reference books, maps, atlases, globe, digital and multimedia based materials, etc. Therefore, acquisition of library material needs to be planned in a proper manner. A planned acquisition system is necessary to:

- ◆ achieve the objectives of the library,
- ◆ satisfy the needs of the users of the library,
- ◆ acquire best available resources/ reading materials deemed fit for the library,
- ◆ acquire materials of preservation value within the scope of the library, and
- ◆ acquire material within the available resources (fund, space and staff).

To achieve the above mentioned purposes, a library requires a sound functional acquisition system.

1.2.2.2 Functions of acquisition system

The acquisition system performs the following basic functions to complete the entire acquisition process.

- (i) Selection, Ordering, Receiving of Documents



- (ii) Cancellation of Documents
- (iii) Accession of Documents.

i. Selection

The selection process of information sources is an important and responsible work. The process of selection revolves around the users of the library. The users' information needs may vary from library to library. As you already know, there are three categories of libraries namely public, academic, and special. Each category has different objectives and caters to the needs of different user groups. Hence, there should be a well-defined selection policy for each and every kind of library.

It needs judicious approach to select each and every information source or document to be acquired. The library should always select those materials which can be useful for a larger number of library members and can be required within the available funds. For the purpose of acquisition, it is always recommended that the library should have a written acquisition policy. The acquisition policy acts as a guiding tool for the staff associated with the selection process, as it helps to maintain standard and consistency in the collection development programme of the library. The acquisition policy should remain the guiding tool to acquire information sources for the library to fulfil their stated objectives.

The selection aids are the tools which help library staff in selecting best materials for the library. Users' demands, suggestions from the authority and different tools (bibliographies, reviews published in review journals and newspapers, etc.) can be used as selection aids. For assisting the library staff to select best reading materials for the library, there is a selection committee. The selection committee is a group of experts from different subject areas depending upon the nature of the library.

Selection in Public Libraries

The objectives of the public library have already been discussed. A public library has a wide range of users which may include children, adolescent, youth, and old aged people. The need of the users may be based on their economic class (lower, middle and higher), professional association, educational level, habitats (rural, urban, hilly region, costal region, etc.), socio-cultural and linguistic background, etc. The library is also expected to acquire the material relevant to the locality like, local history, politics, economy, socio-cultural threading, weather conditions, available professions, etc. As, a public library has the responsibility of serving the community and preserving the relevant information of the region, its approach in material selection is different from other kinds of libraries.

Selection in Academic Libraries

The academic library can be divided into three broad categories, viz. school, college



and university library. The guiding factors of the academic library are based on the educational courses and the demands of the students, faculty members, and support staff. The selection policy of a school and college library is usually around the acquisition of textbooks, materials for general studies, personality development, career choices, teaching and learning resources, materials for the support staff. Since, the universities offer undergraduate, post graduate, and research programmes, the selection of material must be done with proper care.

Selection in Special Libraries

A special library is meant to serve the information needs of the parent organization of a library. Hence, the selection of information sources is based on the short term and long term programmes of the parent organization. The library selects the materials exhaustively for short term objectives of the organization to meet its programmes at hand. For example, if an organization takes up a research project on life style of urban spaces of India, the relevant material should be selected to support the programme. Considering the long term objectives, the library selects the materials of wider scope of the organization and supports the collection development of the core area as well as other relevant subject areas of the organization.

Selection process should always focus on the long term collection development programmes of the library. On the basis of the acquisition policy, the materials should be scrutinized and lists prepared. Further approval of the selection committee or the competent authority should be taken into account and the process can be moved ahead to order the documents.

Selection Criteria and Types of Materials

The selection criteria for documentary sources are as follows:

- (i) **Authority (Authenticity):** The expertise and affiliation of the author regarding the subject of writing should be assessed.
- (ii) **Accuracy:** The content of the document should be accurate and authentic. Wrong or misleading information can be disastrous in any documents.
- (iii) **Scope:** The treatment of the subject, topic, or theme of the document should be evaluated and correlated to the users of the library. The content should be balanced in covering the extension and intention of the subject, topic, or the theme of the book. In case of some shortage or limitation in the content, it should be mentioned in the preface of the document.
- (iv) **Organization:** Information in the document should be organised on the basis of some pre-established characteristics or logic. The consistency in writing and



developing from general to specific topic makes the reading interesting and easy to understand. In the case of non-fiction books, an exhaustive index is expected.

- (v) **Format (Graphics):** The graphics illustrations are common in the documents dealing with technical data. In this case, appropriate graphs, colour patterns, sizes, etc. should be evaluated.
- (vi) **Bibliographies:** Document should be supported by references in case of non-fiction book. The format of bibliography should be standard and information should be complete.
- (vii) **Users:** While selecting a document, prospective users should be identified and ascertained that the material would be read by a large number of readers. The documents should be categorized as scholarly, popular, fiction, non-fiction, entertaining, introductory, advanced, etc.
- (viii) **Vocabulary:** The vocabulary of the document should be at par with the level of the users for whom it has been written.
- (ix) **Textbook:** The textbooks are mostly referred to by the students for knowledge in a subject area. Hence, the textbooks should be complete in terms of syllabus of the subject with accurate and authentic content. The organization of the content should be such that the students can understand easily.
- (x) **Fiction:** In the case of a book of fiction, the author, title, style, theme, plot, setting, characters, and reviews should be evaluated.
- (xi) **Multimedia:** The documents in audio, video, animation, and multimedia should be evaluated on the basis of their format. There are a number of formats for audio-video material. For example, an audio file is identified as having mp3, mid, wav, aif, etc., a video file could be mpg, mov, wmv, etc. The file format should be assessed on the basis of the equipment(s) that the library has.
- (xii) **Digital Material:** It may be ensured that a database of library material, in all formats i.e. . . . audio, video, multimedia, text, graphics or normal documents is made available in digital form. While selecting information materials in this format, the criteria of that category of material should be applied. For example, e-book should be evaluated on the basis of criteria of books. File format, arrangement, hyper-links and search engines in case of databases, display format, etc. are a few aspects, that may be used to evaluate the digital content.

Selection Aids

There are a number of selection aids available in the market to help and support the selection of information materials for a library. Depending upon the nature of



materials, aids could be selected to acquire a particular material for the library. Some of the selection aids are listed below:

- (i) National bibliographies are a list of publications, published in a country or relevant to a country if published abroad. For example, Indian National Bibliography, published by National Library of India, Kolkata; British National Bibliography, published by British Library, London, and so on.
- (ii) Subject bibliographies- are a list of materials published in a particular discipline or subject. Chemical is a subject bibliography, published by Elsevier which covers the subject chemistry; PubMed deals in life sciences and is published by National Library of Medicine, USA. Similarly, a number of subject bibliographies available for reference.
- (iii) Trade bibliographies- are published by publishers and distributors or associations, or independent organizations to promote the sales of publications. For example, Indian Books in Print, Whitaker's Books in Print, and so on.
- (iv) Book reviews- There are a number of periodicals, newspapers, and websites which publish book reviews. These reviews are critical analysis made by scholars of the subject. For example, Times Literary Supplement, Book Review Digest, and so on.
- (v) Bibliographic databases- are a list of publications in database format, searchable online or distributed on CD-ROM, DVD, etc. for offline search. For example, Ulrich's Periodical Directory, PubMed, etc. Some of the databases provide links to the information sources even if they are downloadable.

ii. Ordering

Once the selection process is complete, the ordering work begins. Before ordering the materials for acquisition, pre-order search is conducted to avoid duplicity. The materials are exhaustively searched in existing collection; in processing sections, newly received materials and so on. After the process of pre-order search is completed, a purchase order is generated and sent to the publisher directly or to an approved vendor/supplier of the library. Generating reminders of pending orders and cancellation of orders is also the part of ordering function.

iii. Receiving

The receiving function begins when ordered materials are supplied by the vendor. The materials come with bills or invoices. The supplied material and bills are tallied with the corresponding order list. In the case of printed documents, author, title, edition, publisher, price, and other details are matched with the order list. It is also



recommended that the physical condition of the material be checked while receiving them. After a thorough check and verification of material, and subsequent tally with the ordered list, an acknowledgement is issued to the supplier.

iv. Accession

Every library maintains its stock register in which the details of the acquired material are registered. This called Accession Register. The accession register has fourteen columns for recoding the bibliographical details. The materials purchased, received in exchange or gifts are also recorded in this register. An Accession number is a unique number assigned to each document available in the library. Against this number, all the details of the documents are recorded. A specimen of an accession register has been given in the records maintenance section of Module 2, Unit 3 on pages 99 and 100.

1.2.2.3 Mode of Acquisition

The method of acquisition of information sources is popularly known as 'mode of acquisition'. Traditionally, the three modes of acquisition are Purchase, Gift and Exchange. In the recent times, more methods have emerged and have established worldwide. These are online and consortia based acquisition, which are particularly functional in the digital environment. A brief description of these modes of acquisition is listed below:

i. Purchase

A library goes through a selection process, after which, the information material is made available in the library. Selected materials can be purchased directly from the publishers or their agents, distributors or any vendors depending upon the policy of the library.

ii. Gift

Non-commercial organizations, educational institutions and people who have strong affinity with the libraries from time to time donate their collection or information materials to libraries. Occasionally an author may also gift a personal copy of his/her book to the library. Sometimes, a set of information material becomes irrelevant for one institution, but it, can be relevant for another institution. In such cases, the former can donate the material to the latter. Therefore, gifting is also one of the established methods of acquiring materials.

iii. Exchange

The library may acquire materials, especially the publications of other institutions in exchange of its own publications. From time to time, libraries can exchange duplicate copies of library material. As mentioned earlier, sometimes an irrelevant material for one library may be relevant for the other one.



iv. Online Acquisition

Online acquisition method is more suitable for digital materials. In this process, a library can download material from the publishers' or vendors' portal and make payment online. For example, digital materials, print materials like books, reports, and so on.

v. Consortia Based Acquisition

In the contemporary scenario, the libraries come together, form a group and acquire e-sources collectively to save funds. This helps in providing wider number of information sources to the patron, which a single library cannot afford to acquire. Such a group of libraries is called consortia. In consortia based acquisition system, a member library pays only for its acquired resources but gets access to all the resources acquired by the group collectively. For example, there is a consortia of five libraries A, B, C, D and E, wherein library A pays for 50 e-books, B pays for 60 e-books, C pays for 45 e-books, D pays for 80 e-books and E pays for 70 E-books. So together they pay for 305 e-books. After which, each library can get access to all the 305 e-books, as per terms and conditions. Therefore, the acquisition policy should have clear cut guidelines regarding this emerging mode of acquisition.

vi. Library Consortia

The term, 'Library consortia' indicates a group of libraries working together towards a common goal, whether to expand cooperation on traditional library services (such as collection development) or electronic information services (such as digital library or e-journal consortia). Increase in user expectations for more services and gradual decrease in budgetary provisions have encouraged libraries to cooperate and share information and human resources. Consortia activities help libraries to provide users unlimited access to a wider variety of information sources, enable individual libraries to concentrate on specialized collection building of their area of concern, improve interlibrary lending and document delivery services, facilitate cooperative acquisition, control and sharing of systems, services and professional expertise. Examples: UGC-INFONET Digital Library Consortium, INDEST-AICTE Consortium, CSIR E-Journals Consortium, DRDO E-Journals Consortium, ICMR E-Consortia, IIM Consortium, Consortium for e-resources in Agriculture (CeRA), Health Sciences Library Information Networks Consortium (HELINET). At the international level, there is an informal group, currently comprising approximately 200 library consortia from around the world, called the International Coalition of Library Consortia (ICOLC).



1.2.2.4 Records Maintenance

The acquisition section of library maintains records of different functions. It uses different registers, files, forms and other stationary designed for different stages of its operations. Depending upon the requirements of a particular library, the design of stationary may vary but the accession register has a standard format.

1.2.3 Cataloguing Section

Cataloguing is the process of creating catalogue of the library holdings on the basis of catalogue rules or code adopted by a particular library. As mentioned earlier, a catalogue is a list of the holdings of a library with all the bibliographic details. It is a tool which helps users to search relevant materials on the basis of known information about a particular book or its subject area. Different catalogue entries such as title, author, collaborator, series, subjects, etc. are prepared for an easy availability of the library resource. Catalogue of a library is known as the guide map of the library resources for users of the library.

There are a number of cataloguing codes which are practiced worldwide. In India, Anglo American Cataloguing Rules (AACR) and Classified Cataloguing Code (CCC) are practised. The AACR is more popular cataloguing code as it is compatible with the International Standard Bibliographic Description (ISBD). In 1971, ISBD was recommended by the Working Group, set up by the International Meeting of Cataloguing Experts, Copenhagen, 1969. It was initially designed for monographic publications (books) but, later, it was extended to serials and non-book materials as well. Hence, ISBD has three formats now namely, ISBD (M) for monograph or book, ISBD (S) for serials and ISBD (NEM) for non-book materials. The AACR accommodates the ISBD format in cataloguing as it is more descriptive and is also easily adaptable in computerized catalogue.

Currently, libraries are undergoing a transition; information technologies are being adopted in their operations to provide services to the users. Although, not all the libraries of the world have not made this shift and a large number of libraries continue to operate manually. The libraries which have adopted the technologies and created a computerised catalogue are known as Online Public Access Catalogue (OPAC). They facilitate library resources via the medium of online search. The OPAC searched with the help of internet by any user from any given locale is called web-based OPAC. On the other hand, there are libraries which haven't undergone a computerized process and continue to create catalogue entries on cards. They provide search facility to their members manually.

In the technological era, there are many bibliographic formats available. Out of which, Machine Readable Catalogue (MARC), APA designed, practiced and promoted by Library of Congress, USA and Common Communication Format (CCF) designed and promoted by UNESCO are most popularly practised. The MARC and the CCF, both are used for cataloguing as well as exchanging bibliographic data among the libraries.



1.2.3.1 Functions of Cataloguing Section

The cataloguing section of a library is supposed to perform the following functions:

- (i) Preparing catalogue
- (ii) Labelling and Pasting
- (iii) Label Writing and Assigning Location Mark
- (iv) Cards Checking by Chief Cataloguer
- (v) Filing Catalogue Cards
- (vi) Preparation of Addition List
- (vii) Transferring Catalogued Materials to Concerned Location

Preparing Catalogue

The cataloguer prepares different cards for books or any other material acquired by the library. In the manual cataloguing system, main entry, added entries, reference entry, shelf list card and book card are prepared on catalogue cards according to the cataloguing code adopted by the library. In the computerised system, online catalogue for each and every material is created. The cataloguer also creates different authority files wherever needed. Authority files are usually created for author, collaborator, series, subject, publisher, etc.

Labelling and Pasting

The cataloguing department prepares books or any materials for service. For this purpose, different types of labels as authority stamp, spine label, due date slip, book pocket, etc. are prepared and pasted.

Label Writing and Assigning Location Mark

Different labels contain different data about the book and the library. Hence, under the label writing work, call number, collection marks such as reference, circulation or any other collection name (closed reference, textbooks, etc.), accession number or any other information are written.

Cards Checking by Chief Cataloguer

The quality of catalogue is very important as any mistake in catalogue will fail to provide required information to the users or misguide the users. Hence, the checking of entries and labels pasted on the books is carried out by the chief cataloguer. If needed, corrections are done before releasing the catalogue cards for filing and the books or any other resources for reading.

Filing Catalogue Cards

The cataloguing department files the catalogue cards as per the filing code adopted by the library. According to the heading of the catalogue entry, a card is filed at its appropriate



place in the card cabinet. Usually, the catalogue cards are filed in alphabetical and classified order. For filing the entries like author, title, subject, etc. dictionary formula is usually adopted while the entries having numbers as heading are filed in numeric order. The heading of the shelf list entry is always call number. The main entry of CCC also has the call number as the heading. These cards are thus filed in numeric order.

Shelf list is only prepared for administrative purposes; hence the cabinet of the shelf list is usually kept locked all the time. The entries prepared for searching the library materials are filed in a public catalogue cabinet.

Preparation of Addition List

The cataloguing department prepares the list of new additions to the library holdings for informing the users of the library within a stipulated period. Depending upon the policy of the library, the additions list may be released weekly, fortnightly, monthly, etc.

Transferring Catalogued Materials to Concerned Locations

Once the catalogue cards of newly acquired material are filed in the public catalogue cabinet, the material is transferred to its stipulated location. For example, books meant for circulation are transferred to the circulation department, books meant for reference are transferred to the reference department, etc.

1.2.3.2 Cataloguing Staff and Tools

Library cataloguing has to be carried out accurately and with concentration. The department should be equipped with qualified staff with good hand writing and supporting tools. In the case of computerised cataloguing, the staff should have very good knowledge of computerised cataloguing format, different authority files and ability to find data from the book and wherever needed from the cataloguing tools. The required cataloguing tools are - different kinds of bibliographies, national bibliographies, trade bibliographies, books in prints, directories of authors, publishers, and dictionaries of names as Indian names, and so on. Presently, Internet can be very helpful and can replace many cataloguing tools if the cataloguer has excellent searching skills. For example, from the catalogue of Library of Congress, USA, proper name of the author, association and affiliation of the author or collaborators, like wise many more aspects can be searched. The chief cataloguers should have suitable qualifications and experience to head the department and maintain the quality of different functions of the section.

1.2.4 Circulation Section

Circulation is one of the most important services of libraries. It allows the users to issue library books and satisfy their reading quest. It is not possible for every member of a library to use the library resources within the library, as they might have other professional and



academic commitments. Hence, the library has the mechanism to lend books and other library resources to its member for a certain period of time. This process is known as circulation. The circulation function in libraries promotes maximum and productive use of the library material.

1.2.4.1 Functions of Circulation Section

The functions of circulation section are listed below:

- (i) Registration of Members
- (ii) Lending of Resources
- (iii) Renewal of Issued Material
- (iv) Reservation of Issued Material
- (v) Charging of Overdue Fine
- (vi) Lending and Receiving Books on Inter Library Loan
- (vii) Maintenance of Records
- (viii) Maintenance of Statistics
- (ix) Miscellaneous Tasks

(i) Registration of Members

Library resources are a public property and the librarian is the custodian of this property. Therefore, it is necessary to maintain a record of the circulation of various resources. The members are required to provide their personal and professional details (name, date of birth, address, phone number, email address, profession, subject/course and so on) to the circulation section for the maintenance of the registration records. The registration details help the librarian to contact members and the professional details or the areas of interest help to identify the subject areas where the library collection has to be further developed.

The circulation section issues library cards to the registered members of the library. The cards enable them to borrow books or any other material. The number of cards issued to a member depends upon the policy of a particular library. The automated libraries have the library automations software, which pre-defines the number of documents to be issued to a particular member.

(ii) Lending of Resources

The lending of library resources to the members of the library is the main function of the circulation section (also referred to as the charging system). In this process, a member brings the required book(s) or other material to the circulation counter along with the library card(s). Against each library card one document is issued to



the concerned member and a gate pass is given for the issued material. The security personnel check the issued material and keep the gate pass in the security file. Some libraries, which do not have the gate pass system, check the document to ensure whether it has been issued or not. In the automated system of circulation, documents are issued with the help of the software and a gate pass is generated. The RFID (Radio Frequency Identification) system allows members to go out of the library, only with the issued material. In case, a member attempts to take along any unissued documents, the RFID system automatically rings an alarm to alert the security and the appropriate action may then be taken.

When a member returns a book, the librarian should match the call number and the accession number on the book and the book cards. The book card of the returned book should be inserted into the book pocket of the same book. The member is then given back his/her library card. This process is known as the discharging system.

(ii) Renewal of Issued Material

At times, a library member may desire to retain the library material beyond the due date. This may be due to several reasons and in such a case, the same material is reissued to the member. The material is usually reissued to the member if it is not required by any other member. This process is known as the renewal process. The renewal is usually done when the member presents the material at the circulation counter, or it may be requested over the telephone, through email, by post, depending upon the library's policy.

(iii) Reservation of Issued Material

Sometimes a particular book or other documents are not available for being borrowed by the members. The reason may be that the book has been acquired by the library but has not been processed, or has been issued to another member, or it is in binding or otherwise unavailable. In such cases, the circulation section reserves the particular book or any other document required by the user and when that particular document is available for circulation, the member is informed about its availability.

For reservation purpose, there is a reservation card in the library on which name of the member with membership number and details of the document are recorded. A reservation slip is generated for the same document and put with the book card or any other records of that particular document.

In the automated system, depending upon the provisions available in the software, the materials are reserved for the members. The software automatically notifies the administrator of the circulation section about the reservation. The concerned member is informed accordingly. Nowadays, the library automation software also sends a system generated SMS to the concerned member.

(iv) Charging of Overdue Fine

Most libraries have the policy to charge a fine, when an issued document is retained by the member after its due date. For this period, a charge is levied (on per day basis) and collected from the member. A due receipt is given to the member for the paid amount. Some libraries maintain an authenticated register given by the accounts department of the library or parent organisation with signature of the member against the collected money. The money is deposited in the accounts department periodically, say weekly, fortnightly, or so on.

(v) Lending and Receiving Books on Inter Library Loan

A library always tries its level best to acquire all the books and other material which may be useful to its users. But, it is impossible to acquire all the material published worldwide. This is due to two prominent reasons, which restrict maximum acquisitions, i.e., funds and space. Another reason behind this is increase in number of publications. Therefore, there is a system of resource sharing amongst libraries, called Inter Library Loan (ILL). In this system, one library requests another library for a particular book, requested by its member. As member cannot request the holding library to issue a particular document as for this purpose, the person will have to become the member of that library. Hence, the first library gets the document on loan from the holding library and issues it to the concerned member. When the member returns the document, the first library returns the document to its holding library. The whole process is known as Inter Library Loan. To put in simpler terms, ILL is the system where one library issues a book/ document to another library.

The circulation sections of both libraries perform this function and keep the records of lending-receiving and issue-return to and by libraries, that is, by first library and again getting returned by the holding library. In the process a large number of records are generated and maintained by both.

(vi) Maintenance of Records

The records of circulation section are very important for different purposes. These not only show the utilization of the library resources but also disclose the subject areas which are most utilized by the members. The records also help the library to build its collection and make other plans for future growth. The section maintains the members' registration records, issue records, overdue, ILL, and so on.

(vii) Maintenance of Statistics

The circulation section maintains different statistics generated in the section, such as, the number of members registered, number of members withdrawn, number of documents issued, overdue charges, and so on. These statistics help to prepare the annual report of the library and also catalyse the future plans for the library.



(viii) Miscellaneous Tasks

Listed below are miscellaneous tasks performed by the circulation section:

- (i) Issue of reminders and recovery of overdue documents
- (ii) Replacement or payment of lost documents or cards
- (iii) Allowing consultation facilities
- (iv) Providing lockers or carrels
- (v) Taking measures against mutilation and loss of documents
- (vi) Issuing clearance certificate

Apart from the above, jobs requiring care and maintenance of circulation area, reading room, transfer of books into the stack area, and many more, fall under the circulation section.

1.2.5 Periodicals Section

Journals or serials are also referred to as periodicals. These are publications that are published at regular intervals, that is, in series with certain frequency. The frequency may be weekly, fortnightly, monthly, quarterly, etc. Modes of acquisition of periodicals include subscription, gift and exchange. In the case of subscription, the payment of the subscription period which is usually annual is made in advance to the publisher or supplier. Hence, it needs a special management system. Libraries which subscribe to a large number of periodicals have a separate section dedicated to manage periodical acquisition and services, called a periodical section. The functions of periodical section are discussed as follows:

1.2.5.1 Functions of Periodical Section

- (i) Selection of Periodicals
- (ii) Acquisition of Periodicals
- (iii) Receiving and Recording of Periodicals
- (iv) Display of Periodicals
- (v) Shelving of Periodicals
- (vi) Indexing, Abstracting and Documentation of Periodicals
- (vii) Periodicals' Circulation
- (viii) Administration of Periodicals

(i) Selection of Periodicals and Serials

Periodical selection is the process of deciding which periodicals are to be acquired by a library. The selection of a periodical depends upon the collection development



policy of a particular library. It is always recommended that a periodical selection committee be constituted for selecting periodicals. The committee finalizes the list of periodicals to be subscribed on the basis of the needs and objectives of the parent organization, recommendations of the members and the available funds of the library.

The **Association for Information Management (ASLIB)** has recommended the following criteria for selecting periodicals:

- (a) Recommendation by specialists
- (b) Recommendation by the members of the library
- (c) Opinion of librarians of other institutions
- (d) Announcements and reviews
- (e) Consultation of list of most cited serials
- (f) Reference counting

A number of tools are available for selecting periodicals. For example, Ulrich's International Periodicals Directory, and likewise, many such directories of periodicals may be referred to. Once, the list is ready for acquisition, the process of acquisition is initiated.

(ii) Acquisition of Periodicals

There are four methods of acquiring periodicals. These are:

- (a) **By subscription:** In this method of acquisition, periodicals are subscribed directly from the publisher or vendors. The subscription amount is paid in advance (annually) to the publisher or vendor for a particular title, following which, the library receives the periodical.
- (b) **As a member of societies and institutions:** The societies and institutions send their periodicals free of cost, once a library becomes their member.
- (c) **By gift:** A number of organisations send their periodicals free of cost to libraries. Hence, if a library wishes to acquire such journals then the publishing organizations are to be requested to enrol the receiving libraries on their mailing list. This enables the libraries to receive desired periodicals as gifts.
- (d) **By exchange:** Acquiring periodicals by exchange is a method in which two organisations exchange their periodicals and other publications with each other (free of cost).

(iii) Receiving and Recording of Periodicals

As you already know, periodicals or serials are published in a series under the same title with a definite frequency. A library receives the issues of periodicals by their



frequency. For keeping track of the issues received or not received a library deploys different recording mechanisms.

In the manual system, small libraries register the receipt of issues in an alphabetical order. The bigger libraries may register periodicals in the ledger system. This system allots a page to each periodical, according to the alphabetical order of the titles. Apart from the register and ledger systems, one card and three card systems are very popular among the bigger libraries.

In one card system, the card is 6"X4" sized, bearing the following information:

Name of the Library..... Place

Title Frequency of Publication

Publisher Supplier

Vol. No & Year	Jan	Feb	Mar	April	May	Like wise
v.1 2015						
v.2 2016						
Like wise						

Verso of the Card

Title

Vol. No & Year	Subscription Amt.	Bill No. & Date	Voucher No. & Date	Reminders Sent	Bound unto..	Remarks
v.1 2015						
v.2 2016						
Like wise						

The three card system for periodical maintenance was designed by Dr. S R Ranganathan. Each card is of 5"X 3" size. The first card is known as Register Card, second Check Card and the third Classified Card. **The specimen of cards is given below.**

Register Card

Title		PAYMENT			
Publisher					
Vendor					
Class number	Periodicity number and date	Order			
Note					
Vol. and No.	Date of Pub.	Date of rect.	Vol. and No.	Date of Pub.	Date of rect.

Note: The columns for vol. and no. date of publication and date of receipt are repeated at the back of the register card.

Fig 1.2.1: Register Cards

Check Card

TITLE						PERIODICITY					
Vol. and No.	Rem Date	L's initials	Vol. and No.	Rem Date	L's initials	Vol. and No.	Rem Date	L's initials	Vol. and No.	Rem Date	L's initials

Note: The columns giving vol. and no., Rem date and L's initials are repeated at the back of the check card.

Fig 1.2.2: Check card



Classified Index Card

Cl. No.	Ans. Subs.	Per.
Title		
Vendor		
Publisher		
Vols. available		
Indexes, etc.		
Supplements, etc.		

Fig 1.2.3: Classified card

Apart from these systems, many libraries follow other systems too devised by individual libraries as per their convenience. These systems help in managing the registration and recording the details of periodicals and their issues received by the library.

In case of non-receipt of a particular issue, the library sends a reminder to the publisher or vendor and the same issue is being sent to the library by the publisher or vendor without charging any additional cost.

(iv) Display of Periodicals

The periodicals are processed after receiving, arranged alphabetically and put up in the display area. For displaying the issues of periodicals, special furniture is available in the library. In case of bigger libraries which have a large number of periodical, special furniture is kept for display and storage periodicals. A display of the latest periodicals and storage facility referred to as a pigeon hole rack is found to be most suitable in most of the libraries.

(v) Binding and Shelving of Periodicals

After all the issues are received and a particular volume of a periodical is completed, it can be bound and kept like books on shelves.

(vi) Indexing, Abstracting and Documentation of Periodicals

Some special libraries provide indexing and abstracting services or services based on indexing and abstracting and documentation of periodical articles.

(vii) Periodical Circulation

Usually, periodicals are not for circulation among the members. But, some libraries allow it. Hence, there are certain methods of circulating periodicals among the



members of the library. If the member group is very small then Routing Slip method is used. In this method, name and designation of members are printed or written on a slip and pasted on the title page. It is issued to the first member and thereafter it is passed on to next member without returning to the library. After completion of whole cycle, it comes back to the library. Apart from this, there are other methods too according to suitability of an individual library through which periodicals are circulated.

(viii) Administration of Periodicals

Administration of periodical section involves organizing the periodical section in such a way that maximum utility is derived from minimum expenditure. This function involves allocation of funds and its distribution among the subject areas of the library, allocation of staff, duty, correspondence with publisher and vendor, display, binding, storage, and all other required work for a smooth running of the section and providing services to the members.

1.2.6 Binding Section

Libraries have two major objectives, firstly, to satisfy the information needs of the users, and secondly, to preserve the intellectual heritage of the society for posterity. Both the objectives are guiding factors for keeping the library materials in good and serviceable condition. Library materials which are paper-based need special care to keep them fit for use and extend their life to serve the future generations. The library materials such as books, periodicals, maps, etc. are printed on paper, hence they are prone to damage due to excessive use, wear and tear, heat, dust, insects, pesticides, etc.

If a library collection is extensively used, wear and tear of the documents is bound to happen. Binding helps in strengthening the physique of the books and increases their life. Many large libraries have their own binderies but smaller ones have to get the books bound by professional binders. Some of the reasons of having good and attractive bindings are as follows:

- (i) To reduce the risk of mishandling
- (ii) To guard against wear and tear
- (iii) To avoid shabbiness
- (iv) To create new-cover to appeal and attract readers
- (v) To preserve perishable and frail materials
- (vi) To ensure entire satisfaction of users

Binding process is highly technical and requires lots of skills. There are eight processes involved in binding work:



- a) Collation
- b) Sewing
- c) Attaching covers
- d) Endpapers
- e) Colouring edges
- f) Headbands
- g) Hollow backs
- h) Finishing

Types of Binding

Library binding is of various kinds:

- (i) **Full Leather Binding:** Full leather binding implies that the whole cardboard is covered by leather. This kind of binding is recommended for expensive, rare and reference books.
- (ii) **Half Leather Binding:** Half leather binding implies that half of the card board is covered with leather and rest half with cloth or buckram. The back and the corner of the book are covered with leather as these portions suffer immense wear and tear. This kind of binding is for the heavy materials like back volume set of periodicals, newspapers and other serial publications.
- (iii) **Full Cloth Binding:** Full cloth binding implies that the whole card board is covered with cloth. Standards and text books are given such binding as these materials are extensively used.
- (iv) **Half Cloth Binding:** Half cloth binding implies that the spine and corners of the card board are covered with cloth and rest with other cheaper materials such as paper or other decorative materials. This kind of binding is usually given to cheaper books.

S. R. Ranganathan (1967) gave specifications for binding books for the first time or at the time of rebinding as follows:

- a) **Collation:** The book received by vendors for binding should be examined and collated, and if found in imperfect or seriously damaged condition may be returned to the library unbound. A periodical should be collated properly and the volume should be bound in correct sequence along with the index at proper place. Wrappers and advertisements in periodicals and books should be bound if the binder has been instructed, otherwise they should not.
- b) **Sewing:** Books printed on good quality paper should be sewn one sheet on (except where thinness of paper makes it necessary to sew two sheets on) with unbleached

- thread of suitable thickness over unbleached linen tapes. Straight-line machine stitching is not acceptable.
- c) **End Papers:** End papers should be of good quality, opaque paper with There should be at least one plain white leaf between each of them and the printed matter.
 - d) **Cutting Edge:** The binder should avoid cutting the edges of books unless it is really essential. Even if cutting of edges is required, the binder should leave margins as wide as possible.
 - e) **Forwarding:** Books should have French joints and tight or close flexible backs.
 - f) **Lettering:** Lettering or printing on cover should be impressed in gold colour.

There are a number of measures given by him and these measures have been incorporated in the standards prepared by Bureau of Indian Standards (previously known as Indian Standards Institute). This standard is "IS: 3050-1965: Code of practice for reinforced binding of library books and periodicals". It was again reaffirmed in 1997. For a better understanding of specifications and types of bindings, the standard should be referred.

1.2.7 Preservation Section

Books and other documentary sources of information printed on paper are prone to damage due to several reasons which reduce their shelf life. Libraries of the world face the challenge of keeping printed library materials as books, periodicals, pamphlets, newspapers, and other materials, in sound condition to extend their lives and provide services to present and future generations. Hence, preservation is an important function of every library.

Preservation involves activities which reduce the chances of damaging printed library materials to extend their shelf life and concomitantly it's utility. The reasons of damaging printed library materials may be listed as:

- (i) Environmental or Climatic Factors
- (ii) Biological Factors
- (iii) Chemical Factors
- (iv) Human Factors, and
- (v) Disasters

Environmental or Climatic Factors

The damaging agents present in environments are i) light, ii) heat, iii) humidity and moisture, iv) dust and dirt, v) water which damages the library materials and reduce their lives. Let us see how these factors damage the printed library materials.



- i. **Light:** Natural or artificial, both types of light damages the paper. When paper is exposed to sun light, the ultraviolet radiation reacts with the paper in presence of oxygen which is in the air. The cellulose of paper gets oxidized into oxycellulose, the cellulose chains are broken and the paper becomes weak and brittle. Some of the artificial light as fluorescent tube light also produces high percentage of ultraviolet radiation and damage the paper in the same way as natural sun light. Sometimes the paper gets exposed to light while photocopying and it gets damaged because of ultraviolet radiation and heat. The level of damage because of light depends on duration of exposure, intensity of light and distance from the source of light.
- ii. **Heat:** Atmospheric temperature is a damaging agent of paper. The fluctuations in the temperature is also responsible for the damage. High temperature with low humidity causes dehydration of cellulose fibres and the paper becomes brittle. Due to this, the paper loses its flexibility to such an extent that it tends to crumble on touch. On the other hand, high temperature with high humidity creates the condition for the growth of moulds. Besides atmospheric temperature, electric bulbs, used for lighting purpose also increases room temperature and becomes the damaging agent.
- iii. **Humidity and Moisture:** Water content, that is, moisture available in the atmosphere is known as humidity. Certain level of humidity is needed for flexibility of paper but high and low, both levels of humidity damage paper. Paper is made of pulp which has tendency to absorb water from the atmosphere. If there is high humidity, paper absorbs more water and thereby becomes soggy. Because of sogginess, adhesive gets weak and binding becomes loose. It also increases the size of the paper which causes spreading of ink. Sometimes, pages get stuck together and cause wear and tear. Besides these damages, fungus grows in moisture and damages paper.
- iv. **Dust and Dirt:** Dust is composed of soil, tar, metallic substances, fungus spores and moisture among other things. It is air borne and it settles down on any surface of the object. When mixed with high humidity, it gets transformed into dirt and if this dirt sticks to the surface of the paper, it becomes difficult to remove. Dust also increases water absorbing capacity of paper which leads to growth of fungus and chemical reactions which ultimately damage paper.
- v. **Water:** Water acts as a physical agent of deterioration by causing hygroscopic materials to undergo dimensional changes. Water may come from any sources like natural calamities, human negligence, from leaking roofs, defective plumbing or through open windows at the time of raining. Excessive water can damage any printed document as paper becomes soggy. Even small quantity of water may damage paper as we have studied above.

Biological Factors:

Micro-organisms, insects and rodents are different types of biological agents which damage paper and other components of printed materials such as leather, textiles or straw board used for binding. **Micro-organisms** include fungus or moulds, bacteria, etc. Fungus is a large heterogeneous group of plant organism that remains in dormant state for long periods but grows in 63-100% humidity and 15-35°C temperature. In libraries, fungal growth is known as mould or mildew and they appear as brown/black vegetative growth on paper, leather and textiles. Fungus consumes cellulose and also thrives on nutrients in leather, glues, pastes, binding threads, etc. Due to this, different components of printed material gets disoriented and damaged. Other than fungus, bacteria have the tendency to decompose cellulose in paper and binding materials.

There are certain types of insects which damage paper and binding materials of printed documents. The damaging insects are i) silverfish, ii) cockroaches, iii) booklice, iv) bookworms v) white ants and termites, vi) rodents.

- i. **Silverfish:** These insects hide in the day time and come out at night. The starch, glue and gelatine which are used in paper as sizing materials attracts this insect. It is silver or pearl grey in colour and about 8 to 10 mm in length. The insect eats the surface of the paper and adhesive used for pasting bindings and makes holes in paper, prints, photographs, catalogue cards and cardboard boxes.
- ii. **Cockroaches:** Cockroaches damage books and other print materials in darkness. They eat paper leaves, bookbinding, fabrics and other organic materials. They usually live in damp and dark places.
- iii. **Book worms:** Bookworms or the larva of beetle eat the paper and bindings of library materials by making pin holes.
- iv. **Book lice:** Book lice are grey or white coloured insects which eat paste, glue and fungus formed between the edges of inner cover of the books.
- v. **White Ants or Termites:** White Ants or Termites are insects that can eat wood, paper, cardboard, leather or any constituents of library materials. Once they start destroying the books, they can do irreparable damage in a short period. They are of two categories, viz. earth dwelling termites and wood dwelling termites. Earth dwelling termites live in the soil and their mud tunnels on the walls, book cases and furniture. Wood dwelling termites live above the ground and enter the building through cracks and openings.
- vi. **Rodents:** Rodents include mice, rats, squirrels and other similar species. Mice and rats are mainly found in libraries. They eat and destroy material made up of paper, cloth, leather, glue, etc.



Chemical Factors

Different types of chemicals like, alum, rosin, etc., are used in the process of manufacturing paper. Certain chemical compounds which have acidic effects are available in the ink used for printing. In the long run, the chemicals become agents of chemical deterioration, and damage paper and other components of printed materials.

Besides the chemicals used in paper manufacturing and printing, a number of chemicals like carbon oxide, sulphur oxide, nitrogen and hydrogen sulphides are present in the atmosphere. These chemicals react with paper in the presence of oxygen and moisture present in the atmosphere and create acidic compounds, which weaken paper and its constituents. The yellow and brittle edges of old books are caused by sulphur dioxide. Similarly, nitric acid damages the colour of ink, paper, leather and cloth.

Certain chemicals either available in paper, printing ink or in other components of books, like leather, cardboard, adhesive or in atmosphere have acidic characteristics, which over a period of time damage the components of books and other printed materials.

Human Factors

Apart from biological, chemical and atmospheric reasons, human beings too might act as damaging agents. Due to unawareness, negligence or ignorance, on the part of the library staff and library users, the printed library materials often get damaged. For example, while processing books, several stamping and pasting jobs are performed by the staff, during which, books might be damaged. Books might get damaged while being transferred from the stack area to the circulation counter or technical processing section. This may happen due to several reasons, the most probable being, over loading of a trolley. Books should always be shelved vertically. If a book is placed horizontally it might get damaged. Sharp edged furniture is another damaging agent as it becomes the reason for the wear and tear of books.

In the open access system, users are allowed to go to the shelving area and browse the library collection. Sometimes they might drop the books or place them improperly. Some readers have the habit of using saliva for turning the pages of books while reading. These are the factors which damage the books and other reading material.

Improper storage, faulty repairs, rough handling, deliberate abuse, folding the fore-edges of pages as a mark of reading, marking by pencil/pen, mutilation, vandalism are all examples of human beings damage the library resources.

Disaster

Disaster is never expected, but it occurs everywhere in the world. It can be both natural and man-made. Natural disasters like flood, earthquake, cyclone, tsunami, etc. damage the library material. Man-made disasters like fire, war and invasion, and so on damage the



library material too. For example, the great library of Nalanda University, of ancient India, was completely destroyed because of war and invasion.

Preventive Measures

It is the function of the preservation section to prevent the deterioration and damage of the printed material in a library. The preservation section should prepare an action plan and various other programmes to be executed in a time bound manner. Preservation is a continuous process, hence needs proper and perpetual attention. For each category of damaging factors, the requisite preventive measures should be taken.

Preventive Measures for Environmental Factors

- (i) **Protection from light:** Library materials should not be exposed to sunlight or powerful florescent electric light. In order to save them from sunlight, ultraviolet filter or coloured window screens should be used. Using green or lemon coloured window panes may also stop the ultraviolet rays. The standard electric light should be used in a library while reading. It is recommended to use LED bulbs which generate less heat and ultraviolet rays.
- (ii) **Temperature:** The temperature of a library should be maintained at around room temperature. Ideal temperature range for a library is considered to be 20°C to 25°C.
- (iii) **Humidity:** The relative humidity inside a library should be kept between 30%-40%. For this purpose, humidifiers or dehumidifiers may be used to control the humidity level.
- (iv) **Ventilation:** Ventilation is needed for both the library materials and the people present in a library. However, it should be controlled as uncontrolled ventilation may disturb the relative humidity, temperature and pollution level inside the library.
- (v) **Pollution:** It is always recommended that the site of a library should be in a less polluted area, where both air and sound pollution is under control. But, libraries are usually near human settlements or industries where pollution can't be avoided. Hence, it is recommended that trees and herbs should be grown around libraries. The walls should be made sound proof if the noise level is very high.
- (vi) **Dust:** Doors, windows, ventilators or any other source, which allows the passage of dust, should be kept under a check. The books and other library materials should be kept free from dust and proper dusting should be done on a regular basis. For this purpose, sand blaster or vacuum cleaner may be used.
- (vii) **Photocopier:** Exposing the pages of books to photocopying machine should be reduced, as much as possible, because it damages the spine of books.



Preventive Measures for Biological Factors

Insects, fungus and all kinds of biological pests grow in dark, damp and dingy places in libraries. The first prevention is to stop the growth of such pests. For this purpose, the house keeping work in every library should be maintained. Provision of cross ventilation and air circulation inside the library is essential. A distance of at least 15 cm should be maintained between the book racks and the wall. There should be no cracks in the walls, floor and ceiling, as they might act as a breeding place for insects. Eating and drinking should be avoided inside the library because food stuff attracts insects. Insecticidal powder or solution like lindane, should be sprayed in the dark corners, beneath bookracks and inside cupboards, periodically.

Naphthalene balls or bricks, dry neem leaves or seeds or powder and camphor tablets in muslin bags may also be used to keep pests away. Library may also use different methods of pest control for keeping insects growth in check.

Preventive Measures for Chemical Factors

It is always recommended that libraries should prefer to purchase library edition of books as paper, ink, binding and other materials used in the publication of these editions are made of less damaging chemicals. It is very difficult to put a check on the damaging chemicals present in the air. The only solution is to have a system of air conditioning, which would work round the clock. If this is not possible, then the library should keep its valuable material in cloth wraps or in cupboards. Adhesive, glue, paste, tapes, etc. of good quality should be used as they also contain damaging chemicals. Paint used for painting rack, cupboards or any library furniture should not have chemicals which can damage the printed material.

Preventive Measures for Human Factors

The human factors are the most important factor as far as preservation is concerned. Every library should organise awareness programmes for the staff and users. The staff should be trained in care and handling of library material. Proper shelving, use of trolleys for transporting books, care at the time of processing and other sound practices should be followed by staff members. In case of minor damage, like loose binding, the wear and tear of pages should be repaired immediately.

The users should be made sensitive toward care and maintenance of books. They should be informed that dropping books, keeping books in improper position, folding the corners/ edges of pages, using saliva for turning pages, and so on damage the books or any printed material and reduce its life. Users should not put any sharp object on books and they should avoid underlining the text by ink or pencil.



Preventive Measures for Disaster

Disaster may occur any time in any library. Hence, precautionary measures can reduce the extent of damage. For preventing fire inside a library, the electric wires and cables of recommended quality should be used. A library should also have fire extinguishers. Any kind of fire or open flame should be prohibited inside the library.

For preventing other disasters, standard measures should be taken. A library building should be earthquake resistant. Libraries in the flood prone areas should be on the first floor or second floor of the building. Likewise as much as possible, preventive measures should be taken to minimise damage.

Conservation

Conservation is the process of reviving damaged artefacts or any library material into a form in which they can be used again. Once any library material gets damaged, the concerned library should have a programme of conservation to bring it back to life through different treatments.

1.2.8 Maintenance Section

This section is responsible for shelving, re-shelving, maintaining orderly arrangement of the collection and taking care of all types of library material and associated equipment. In fact, the ultimate success of all other sections of a library such as acquisition, classification, cataloguing and circulation are dependent upon the efficiency of this section. If the library collection is not maintained and displayed properly it will not attract the library users and thereby the library collection will not be put to maximum use.

This section performs the following functions:

- ◆ Shelving and Display of the library material
- ◆ Maintenance of the collection
- ◆ Preservation of the library collection

Shelving and Display of the Library Material

The arrangement of books and other material on the library shelves is carried out by the maintenance section. Work involves shelving of new books received after processing, re-shelving of borrowed books returned by the members and books and other material left on the reading tables by the readers after use.

The section is also responsible for displaying current issues of periodicals as well as newspapers in the reading room and the shelving and maintenance of non-print media like films, audio cassettes, CD-ROM, DVDs, etc. The non-print media is stored away from the open book stack area. This media is usually kept in a media room or computer room, where the equipment for playing these particular media items is available.



Maintenance of Collection

Tasks relating to maintenance of collection are also handled by this section. It involves continuous monitoring of the stack rooms and display areas. Shelving and re-shelving the material, keeping the collection in order, taking out books which are not in order and re-shelving them in proper place, identifying and removing the books needing repair, regular cleaning and dusting the area and protecting the collection from dust, heat, direct sunlight, moisture, insects and pest infestation. This section is also responsible for maintenance, checking and rectification of all sign boards and library display guides.

Preservation of Library Collection

The activities related to preservation of the library material are carried out at various levels and by various departments in a library. The Maintenance Section's role in preservation is to handle the library material carefully, keep the environment in stack rooms and storage area clean (free from dust, insect and pest manifestations), and protect the material from direct sunlight.

1.2.9 Summary

A library executes its functions through different sections. Most of the libraries have eight sections, viz. acquisition, technical processing, circulation, reference, periodical, binding, care and maintenance and administration and accounts department. Apart from these sections, depending upon the nature of the collection and services, libraries may have an archive, slides, electronic collection and other departments as well. This unit has discussed acquisition, cataloguing, circulation, periodical, binding, preservation and maintenance.

The main function of acquisition section is to acquire information resources, especially books for the library. For this purpose, the section executes four functions, namely, selection, ordering, receiving and accession. The Catalogue section is responsible for creating library catalogue as per the cataloguing rules adopted by the library. In the automated system, the section creates and maintains a catalogue database. The circulation section provides the means of borrowing material to the members of a library. For this purpose, the section maintains members' database or records, organises books on shelves and keeps issue-return and various other records. The Periodical section selects periodical titles, subscribes, receives different issues and displays them. The Binding section is responsible for the binding of books, periodicals or any other material acquired by the library, which requires binding. The Preservation section is responsible for preserving books or any other printed material. Its duty is to minimise the damage that can be possibly caused to any document. In case of any damage to the library material, the section undertakes the conservation work and revives the damaged material to a usable condition through different treatments. Lastly, the Maintenance section is responsible for shelving, re-shelving, maintaining orderly arrangement of the collection and taking care of all types of the library material and associated equipment.

1.2.10 Glossary

Bindery: The department where loose issues are sent to be bound into volumes.

Blocking: To line up the spines of the books with the edge of the shelf.

Book Shelving: The act of putting books in their proper places on the shelves of a library.

Book Supports: Book supports are used to hold books upright and uniformly packed on a shelf.

Display: Putting the library material on shelves in such a way that the face of the document is visible to the user.

Maintenance: The Maintenance of library materials means continuous monitoring of the library's stack room, display of new books and arrangement of books on racks after use.

Rack: The shelves used for display of periodicals are called racks.

Set: A set consists of all the issues of periodicals belonging to a volume or a year, put together in the proper order.

Stacks: The rows of books that house the library's collection

Stock verification: The checking of library's holdings for finding out missing items in the collection.

Weeding: The act of removing books, which are not of any further use in the library.

1.2.11 Exercise

Short Answer Questions

1. List the functions of acquisition system.
2. Enumerate the various modes of library acquisition.
3. What are the advantages of library consortia based acquisition?
4. Which are the functions to be performed by the cataloguing section?
5. What is the need for filing catalogue cards?
6. Why is the reservation of library materials carried out?
7. Explain the concept of Inter Library Loan.
8. List the miscellaneous tasks performed by the circulation section.
9. Describe the need for having a separate periodicals section.
10. List the criteria for selecting periodicals as recommended by ASLIB.
11. Why does the library collection need binding?
12. Give the reasons that lead to damage of printed library materials.



13. How do human beings act as a damaging agent of the library material?
14. Why is a maintenance section needed for every library?

Long Answer Questions

1. Explain the need and purpose of acquisition of the library material.
2. Discuss the selection criteria for documentary sources.
3. Discuss the functions of cataloguing section.
4. Explain the various methods of acquiring periodicals.
5. Discuss the three card system for periodical maintenance as designed by Dr.SR Ranganathan.
6. Discuss various kinds of library binding.
7. Write a detailed account of care, handling and repair of documents.
8. Give a brief overview of the binding process required for library books.
9. Describe various preventive measures adopted by libraries against environmental factors.
10. What are the ways in which printed library material is damaged? Describe any two with appropriate examples.

Module-2 | Organization of Library Resources: Advanced

Unit-1: Library Classification

After studying this Unit, students will be able to:

- Know the concept of Main Class
- Understand the concept of Fundamental Categories
- Explain the APUPA Pattern
- Develop practical approach for classification
- Gain knowledge about practical classification from the Colon Classification (CC) and Dewey Decimal Classification (DDC) Schemes

Contents

- 2.1.1 Introduction
- 2.1.2 Main Class
 - 2.1.2.1 Facets of a Main Class
- 2.1.3 Concept of PMEST (Fundamental Category)
 - 2.1.3.1 Time
 - 2.1.3.2 Space
 - 2.1.3.3 Energy
 - 2.1.3.4 Matter
 - 2.1.3.5 Personality
- 2.1.4 APUPA pattern
- 2.1.5 Steps in Library Classification
- 2.1.6 Classification by CC & DDC
 - 2.1.6.1 Classification by CC
 - 2.1.6.2 Classification by DDC
- 2.1.7 Summary
- 2.1.8 Glossary
- 2.1.9 Exercise



2.1.1 Introduction

In our daily life, we use classification to put similar things together. Similarly, libraries may have hundreds, thousands or even lakhs of documents, which include not only books, but various other kinds of documents as well. If we do not keep these books/ documents in a systematic order, it becomes difficult to locate the document(s) required by the users. Without a proper system of classification, it will be very difficult to find a particular document amongst the hundreds or thousands of documents available in a library.

Library Classification is a technique, which helps in the proper organization and arrangement of documents and information in a systematic manner, so that the user can use sources of information effectively. The whole universe of knowledge is divided into several subject areas which are multidimensional in nature. Each classification scheme divides the universe of knowledge into different classes denoted by specific notations, symbols, numbers, and so on. The library classification helps in the following ways:-

- i. Shelf arrangement of documents
- ii. Subject analysis of documents
- iii. Aids automated and semi-automated information retrieval system,
- iv. Aids data or information retrieval, and
- v. Specifies the location of a particular document

2.1.2 Main Class

The library classification of a document consists of two steps. First, the "aboutness" of the material is ascertained, and second, a class number, based on the classification scheme, which is used in a particular library, is assigned to the material using the notation of the system. In library classification systems, each document can be placed only under one class, referred to as the main class. This is done for shelving purposes because a book can have only one physical place.

Dr. Ranganathan (1967) defined the Main Class as "the fairly homogenous conventional regions of knowledge, which together form the first order array of classes which are mutually exclusive and totally exhaustive of the field of knowledge".

The main classes in all the schemes of classification may not be the same. The classes which appear as the major divisions of the universe of knowledge are the main classes in that classified scheme. Once the knowledge is organized into a number of main classes, the next step is to mark the facets of each main class, derived from the main classes. These reflect the specific component of a subject.

2.1.2.1 Facets of a Main Class

Let us first understand what are facets and isolates in the context of library classification. Facet is a generic term used to denote the components of a basic subject, i.e., basic facet or an isolate facet of a compound subject. An isolate is any idea or idea complex to form a component of a subject, but not deemed singularly to be a subject. Isolates are of two kinds – common isolates and special isolates.

When we divide the universe of knowledge up to the stage of the Main Class, facets do not appear. But when we have to divide a Main Class, the concept of facets appears in the case of some main classes. The purpose of facets is to divide a main class into its possible divisional aspects. As the Main Class contains a number of smaller units of ideas or entities within it, one method of their division is to group them all into one consecutive sequence.

Another possible method for the division of a main class is to divide it first into its possible facets. The process can be termed as recognition of categories under a class. Therefore, any class enumerated in the first order array of a scheme of classification of the universe of knowledge is categorised as a main class.

2.1.3 Concept of PMEST (Fundamental Category)

The Colon Classification scheme contains both, the basic subjects and their facets (which contain isolates). A basic subject can stand alone but in contrast an isolate is a term that mediates a basic subject. To create a class number, the basic subject is named first. The isolates follow, entered according to a facet formula. This formula states that every isolate in every facet is a manifestation of one of the five fundamental categories – personality, matter, energy, space, and time. Personality is the distinguishing characteristic of a subject. Matter is the physical material of which a subject may be composed. Energy is any action that occurs with respect to the subject. Space is the geographic component of the location of a subject. And time is the period associated with a subject.

As mentioned above, there are five fundamental categories into which a subject or main class is divided. These are the five aspects of a subject.

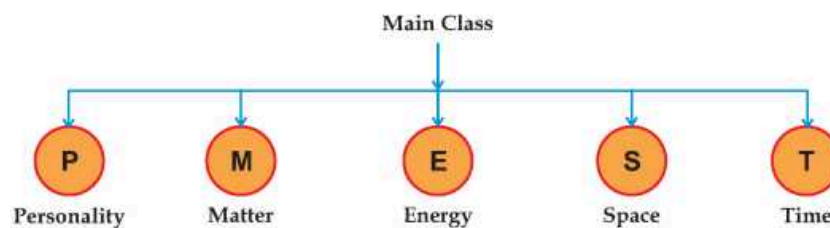


Fig 2.1.1: The five aspects of a subject



Dr. Ranganathan named the five fundamental categories as PMEST, which is, Personality, Matter, Energy, Space and Time. A subject may have a Personality aspect, a Matter aspect, an Energy aspect, a Space aspect, and a Time aspect.

2.1.3.1 Time

According to Mills, the fundamental category, Time "is usually embodied in periods". According to Dr. Ranganathan, "The fundamental category time occurs in every subject forming a local description of local history of any subject". Time indicates that the entities under different subjects must change in its structure, meaning, history development, with the progress of times.

Example: History of the 18th century is different from that of the 15th century.

2.1.3.2 Space

According to Dr. Ranganathan, "the surface of the earth is a manifestation of the category 'Space'. It occurs in every subject forming a local description or local history of any subject." Most of the subjects, if not all, get manifested in relation with continents, countries and their subdivisions.

In CC (Colon Classification), there is a schedule of Geographical Divisions which can be attached to a subject. In DDC (Dewey decimal classification), there is a space facet applicable under the class History, and throughout the scheme the facet is available under the direction divide, like 940-999.

Example: In the following examples, the term denoting space is given in brackets.

- i. Agriculture in (India) brought up to 1990
- ii. History of education in (India)

2.1.3.3 Energy

According to Mills, the fundamental category, Energy is, "a category of facets which characterize the exercise of energy, i.e., activities, operations, processes, problems, etc." Palmer and Wells feel that Energy "usually presents itself as a problem to be solved, or a mode of work or approach." Dr. Ranganathan, in his Colon Classification, calls the facet based on the characteristic Energy, the problem facet. Thus, the fundamental Energy covers the problems, action including methods, functioning, and etc. aspects of a main class. Many main classes will have certain units which deal with the problems in the subject. These problems are generally applicable to all the organs of the class.

In the class Agriculture, certain processes and actions like sowing and harvesting also come under Botany; units like physiology, and pathology are noticed in Zoology and Medicine, which deal with functioning. Isolates, which make the category Energy, are generally important actions in the subject and commend a greater influence on the subject from two



directions. One is when they are in general reference to the class and the second when they refer to the organs of the subject individually.

Dr. Ranganathan postulates that the energy aspect in a main class may manifest itself in different rounds of energy, that is, 2E= second round of energy after 1E; 3E= third round of energy after 2E and so on. In Agriculture, the energy focus 'manuring' needs to be followed by another energy facet consisting of foci (facet) such as collection, grading and application. Another example is from Medicine. Pathology or disease is a problem and therefore it is [1E] of the subject treatment and surgery, etc. are for actions on diseases themselves, and therefore, they are the [2E] of the subject.

2.1.3.4 Matter

Dr. Ranganathan postulates matter as a fundamental category capable of manifesting itself as the 'constituent of a whole'. However, Mills argues, "Matter is the category of facets which reflect substances, materials, etc. It is manifested clearly in most technologies and in many of the natural sciences; and it is generally absent from theoretical disciplines like Law, Economics, Literature, etc." Vikery feels that "Matter comprises constituent materials of all kinds."

The Matter facet is inherent in many subjects falling within a main subject. The ones enumerated in CC are: Library Science, Engineering, Sculpture, Painting and Music. The 7th edition of the Colon Classification has given large scope to the Matter facet. There are three groups of "Matter" viz. Matter Material, Matter Property and Matter Method.

For Example: In the Main class of Library Science, Matter figures as the reading material. In the class Painting, Matter figures as the materials used for painting. In the class Music, Matter figures as the musical instruments, and so on.

Dr. Ranganathan was convinced that the facet "Matter" should be expended into three groups and many isolates from the facet "Energy" be shunted to "Matter Property". The three groups of Matter are:

1. Matter Property [MP]

Ex. Main Subject	MP
Biology	Morphology
	Physiology
Education	Thinking
	Reasoning

2. Matter Method [MM]

Ex. Main Subject	MP
Chemistry	Physical Method
	Fluid Method



3. Matter Material [MM]
- | | |
|-------------------------|-----------|
| Ex. Main Subject | MP |
| Technology | Product |
| Biology | Substance |

2.1.3.5 Personality

The fundamental category 'Personality' is most concrete and the category 'Time' is the most abstract or the least concrete sector. The Personality facet indicates the core point of the subject at hand. According to Palmer and Wells, 'the term personality is used for the wholeness of any subject. Personality inheres in the subject itself and gives colour to the other fundamental concepts transforming them into concrete things.'

The Personality facet is of prime importance in many subjects, belonging to different classes, and it is the most recognizable facet for the specialists of a class. Personality is the first facet in many subjects and it is often experienced that the other facets work as attributes of personality for its further subdivision. Matter, Energy, Space, and Time are often required in relation with the personality facet. The other facets are required in lesser degree in relation to the main class. Without Personality there can be no organ, constituent, attribute, action, etc.

According to Dr. Ranganathan, if a concept cannot easily fit into the other four categories then it is probably a Personality facet. He further adds that Personality is only recognizable by elimination. After separating out the manifestation of Time, Space, Energy and Matter in the subject, the residue often turns out to be a personality facet. This may be called the Principle of Residue.

Within the Personality facet, we find a number of levels into which the whole personality is spread. These are known as levels of personality facet, P1, P2, P3, P4 and so on. The different levels are arranged with the help of the principles of helpful sequence.

Example, **Personality facet**

Main class	P1	P2	P3	P4
	Literature	Language	Form	Author work

The following example enumerates how the fundamental category, personality, is used in DDC and CC respectively:

Main class	Personality facet	DDC	CC
Psychology	Abnormal psychology	137	S6
Zoology	Vertebrate	596	K9

The fundamental category and the connecting symbols used to distinguish them in a class number are as indicated below:

Personality	:	The connecting symbol is comma (,)
Matter	:	The connecting symbol is semi-colon (;)
Energy	:	The connecting symbol is colon (:)
Space	:	The connecting symbol is period (.)
Time	:	The connecting symbol is inverted comma (')

2.1.4 APUPA pattern

Dr. Ranganathan revolutionized classification in the early 20th century by proposing a dynamic and nuanced system, which could easily adapt to new subjects and incorporate more details and sub-categories. One of his ideas was the Alien-Penumbral-Umbra-Penumbral-Alien, or APUPA system/pattern. It classifies material, based upon, how closely they relate to a specific topic. He created the APUPA pattern as a method of classifying books and documents based on their relevance to the searcher.

As per this method, documents are classified into three categories, that is, Alien, Penumbral and Umbral. Here, an Umbral document implies a relevant document, which is of main interest to the members of a library. A Penumbral document is meant for the marginal interests of the readers. This type is partially relevant and in some way or the other related to an Umbral document. An Alien document is non-relevant and thus, not required by the reader. So, we can recognize the pattern which indicates that every helpful sequence of book is Alien- Penumbral- Umbral- Penumbral- Alien, i.e., the APUPA arrangement.

The APUPA pattern, thus, arranges the most relevant documents at the center, documents of marginal relevance on both sides of the relevant document and the totally disconnected documents are far from the center. This is the best way to maintain filiation sequence. The filiation sequence implies the placement of all the entities of a field of knowledge in a definite sequence, in one line, according to the degree of their mutual affinities. A helpful sequence therefore, is said to be the one which follows the APUPA pattern. APUPA patterns are dynamic. Any book or other resource within a classification scheme can be an Umbral source and any resource can also be Penumbral or Alien, depending upon the subject.

As mentioned above, this sequence puts the most relevant records in the centre. The records which are connected with it are placed before and after it; and those which are totally disconnected are put at a distance from the Umbral. It is this kind of an APUPA arrangement, which gives the reader great satisfaction. If it manages to do so, then it is said to be in full conformity with all the Five Laws of Library Science.

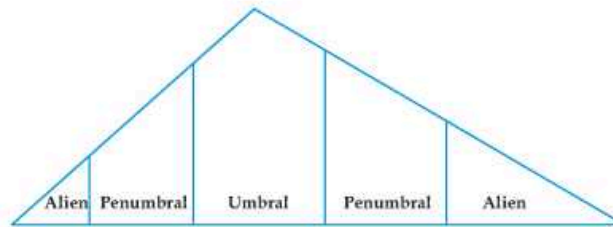


Fig 2.1.2: APUPA Arrangement

Example: If a user is seeking a book on 'growing oranges', that book is the Umbral source. Books about 'packing and transporting oranges'; a related topic but not exactly the same are Penumbral sources. Books about setting up industry for bottling orange juice would be Alien, or unrelated sources.

2.1.5 Steps in Library Classification

Dr. Ranganathan has prescribed a procedure involving nine successive steps for translating the title of the document; for analysing the title of a specific subject into facets, and for giving it an appropriate class number. The steps are as given below.

Step 0: Write down the Raw Title (= Title as found in the document).

Step 1: Full title (= Title expressing each of the relevant basic and isolate ideas in the subject of the document, arrived at by filling up all the ellipses in the Raw title). Deriving the Expressive Title from the Raw Title by filling up ellipsis such as basic class or any other facet implied in the Raw Title. This is done by breaking down composite terms into their fundamental constituent terms, according to a principle which sets a limit to the semantic depth of the fundamental terms.

Step 2: Kernel Title (= Full title except the auxiliary or apparatus words and each composite term denotes a composite idea replaced by the fundamental constituent terms, which denote its fundamental constituent ideas).

Step 3: Analysed title (= Kernel Title with each kernel term marked by a symbol, which denotes the fundamental category of which the ideas denoted by the term is a manifestation and also the round and the level to which it is assigned in conformity to the postulates of classification). This is done essentially with the help of wall picture-principle, taking two kernel terms at a time.

Step 4: Transformed Title (= Analytical Title with the kernel terms rearranged according to the symbols of analysis attached to them).

Step 5: Title in standard terms (= Transformed title with the Kernel terms replaced, wherever necessary by their respective equivalents as given in the appropriate schedules).

Step 6: Title in Facet Numbers (= Title in standard terms with the kernel terms replaced by their equivalent numbers). Deriving the title in Facet Number from the title in standard terms by translating the Basic Class Facet and every other facet into its Basic Class Number or the Isolate Number, as the case may be. This is done with the aid of the classification schedules. When any isolate is new, that is, not available in the schedule, its isolate number is constructed with the aid of the principles.

Step 7: Class number (got by removing the symbols of analysis and inserting the appropriate connecting symbols between the facet numbers in accordance with the Rules).

Step 8: Translate the synthesized class number into natural language by way of verification. In this step, carry out facet analysis of the Class Number, giving a digit by digit interpretation and verifying the correctness of the number.

Steps 0 to 4 deal with the work in the idea plane. Step 5 deals with the work in the verbal plane. Step 6 and 7 are concerned with the notational plane. Step 8 involves the examination of work in all the planes. Step 0 shows the title as it appears on the document. Under Step 1, adding the name of the main subject, if it is not included in the title and break the compound terms into their constituent terms. Under Step 2, it shows only those terms which denote kernel idea by removing other meaningless words like the auxiliary words - of, in, for, etc. The words that are used in a natural language do not require translation in the artificial language, and are omitted. In Step 3, the Kernel ideas represented by their respective terms are analysed into categories (finding out who is what). They are branded according to the postulates. Under Step 4, these terms are arranged in a sequence of concrete to abstract, about which the postulate exists. Under Step 5, the non-standard terms are replaced by the terms adopted in the scheme of classification. Under Step 6, each term is translated into numbers. In Step 7, the various isolate numbers are connected with each other by the symbols prescribed by the postulates. Lastly, Step 8 examines the entire process in the light of the postulates.

Example: Feeding of Cattle in India

Step 0: Raw Title

Feeding of Cattle in India

Step 1: Full title

Feeding of Cattle in India in Animal Husbandry

As the name of the main class was missing in the raw title, it has been added under this step.

Step 2: Kernel Title

Feeding Cattle India Animal Husbandry

The words 'of' and 'in' are auxiliary words. They are not necessary for depicting the specific subject of the document. Hence, they are omitted.



Step 3: Analysed title

Feeding [MP] cattle [P] India [S] Animal Husbandry (BC)

Feeding is a property, hence the manifestation of Matter Property; Cattle is a group of animals, hence the manifestation of Personality, India is a geographical unit, hence the manifestation of Space; Animal Husbandry is a recognized basic class.

Step 4: Transformed Title

Animal Husbandry (BC) Cattle [P] Feeding [MP] India [S]

The postulates prescribe that the BC will come first of all and the sequence of facets will be PMEST. As [E] and [T] are absent the sequence maintained is [P] [M] [S].

Step 5: Title in standard form Animal Husbandry (BC) cattle (P) feeding (MP) India (S)

All the terms used are standard terms. Therefore, there is no need for replacing them.

Step 6: Title in Numbers

From CC (6th ed.) KX (BC) 2 [P] 1 [E] 44 [S]

From DDC 636 (BC) 2 (P) 084 (E) 0954 (S)

Step 7: Synthesised Number

CC (6th ed.) KX 2:1044

DDC 636.208 40954

In CC, colon (:) was used to connect 1 of [E] and period (.) was used to connect 44 of [S]. In DDC, dot (.) is used to connect 2 (P) and 0 (zero) is used to connect 954 of (S). In 7th edition of CC semi colon (;) has been used to connect [MP] and period (.) is used to connect [S].

Step 8: Verification by reverse translation CC (6th ed.)

KX	is	Basic Class
2	is	Personality facet
1	is	Energy facet
44	is	Space facet

Meaning thereby 'Feeding of cattle in India'

DDC

636	is	Basic class
2	is	Personality facet for cattle
084	is	Problem facet for feeding
0954	is	Space facet

Meaning thereby 'Feeding of cattle in India'.

2.1.6 Classification by CC and DDC

2.1.6.1 Classification by Colon Classification (6th ed.)

The sixth edition of Colon Classification is divided into three parts, namely Part 1: Rules, Part 2: Schedules of Classification and Part 3: Schedules of Classics and Sacred Books with Special Names. Part 1 and Part 2 will be used for practical classification in this syllabus.

The entire universe of knowledge is divided into the following Main classes:

z	Generalia	△	Spiritual experience and mysticism
1.	Universe of knowledge	MZ	Humanities and social science
2.	Library Science	MZA	Humanities
3.	Book Science	N	Fine Arts
4.	Journalism	NX	Literature and language
A	Natural Science	O	Literature
AZ	Mathematical Science	P	Linguistics
B	Mathematics	Q	Religion
BZ	Physical Sciences	R	Philosophy
C	Physics	S	Psychology
D	Engineering	Σ	Social Science
E	Chemistry	T	Education
F	Technology	U	Geography
G	Biology	V	History
H	Geology	W	Political Science
Hx	Mining	X	Economics
I	Botany	Y	Sociology
J	Agriculture	Yx	Social Work
K	Zoology	Z	Law
Kx	Animal husbandry		
L	Medicine		
LX	Pharmacognosy		
M	Useful Arts		

Illustrative

- (:g) Criticism technique
- (P) Conference technique
- (r) Administration report technique
- (P) Communication theory
- (X) Management



Part 2 contains different units dedicated for Common Isolate, Time Isolate, Space Isolate, Language Isolate and different relations.

Each main class is started with the Facet formula and then facet numbers for each isolate of different fundamental categories are provided. Each main class has rules, for constructing the numbers, given in the 1st part of the Rules section.

To classify the documents/titles, we should know the steps for classification.

Practical Examples

Following examples show the synthesis of numbers:

1. Chemistry

The facet formula for the main class 'Chemistry' is E[P], [P2]: [E][2P]

Where, Foci in [P] = Substance
 Foci in [P2] = Combination
 Foci in [E][2P] = Problem

Title: Halogen derivative of Methane
 Class Number: E611,1
 Where, E = Chemistry (M.C.)
 E611 = Chemistry (M.C.) Methane [P]
 E611,1 = Chemistry (M.C.), Methane [P],
 Halogen Derivative [P2]

2. Engineering

The facet formula for the class 'D Engineering' is D [P], [P2]: [E][2P]

Foci in [P] = Work
 Foci in [P2] = Part (for all work facet except D6)
 Foci in [E][2P] = Problem

Title: Design of steel window shutters
 Class number: D38, 78: 4
 Where,
 D = Engineering (M.C.)
 D38 = Engineering (M.C.), Steel [P]
 D38,78 = Engineering(M.C.), Steel [P],
 Window shutter [P2]

D 38,78:4 = Engineering (M.C.), steel [P],
Window shelter [P2], Design [E]

3. Physics

Dr. Ranganathan has divided the main Class 'C Physics' into the following canonical divisions:

- C1 Fundamentals
- C2 Properties of matter
- C3 Sound
- C4 Heat
- C5 Light Radiation
- C6 Electricity
- C7 Magnetism
- C8 Cosmic hypothesis

Each Canonical Division has its own facet formula.

C3 sound: the facet formula for this class is C3 [P]: [E][2P]

Where, Foci in [P] = Wave length

Foci in [E][2P] = Problem

Title: Analysis of ultra sound

Class number: C 35: 38

Where,

- C = Physics (M.C.)
- C3 = Physics (M.C.), Sound (C.C.)
- C35 = Physics (M.C.), Sound (C.C.) Ultra sound [P]
- C35:38 = Physics (M.C.), Sound (C.C.) Ultra sound [P],
Analysis [E]

4. Mathematics

The main class, mathematics, has been divided into the following canonical classes:

- B1 Arithmetic
- B2 Algebra
- B3 Analysis
- B4 Other Methods
- B5 Trigonometry



- B6 Geometry
- B7 Mechanics
- B8 Physio Mathematics
- B9 Astronomy

The facet formula for **B6 Geometry** is **B6 [P]: [E][2P]**

Where, Foci in [P] = Space
 Foci in [E][2P] = Method

Title: Differential methods in three dimensional geometry
 Class number: B63:3

Where

B	=	Mathematics (M.C.)
B6	=	Mathematics (M.C.), Geometry (C.C.)
B63	=	Mathematics (M.C.), Geometry (C.C.), Three Dimensions [P]
B63:3	=	Mathematics (M.C.), Geometry (C.C.), Three Dimensions [P], Differential [E]

5. Medicine

The facet formula for the class medicine is **L [P]: [E][2P]**

Where, Foci in [P] = Organ
 Foci in [E] = Problem
 Foci in [2P] = Cause (for 4 Disease of [E])

Title: Treatment of tropical Diseases
 Class Number: L 9H: 4:6

Where

L	=	Medicine (M.C.)
L9H	=	Medicine (M.C.), Tropical (special facet)
L9H:4	=	Medicine (M.C.), Tropical (special facet), Disease [E]
L9H:4:6	=	Medicine (M.C.), Tropical (special facet), Disease [E], Treatment [2E]

6. Literature

The facet formula for the class Literature is O[P],[P]],[P3],[P4]

Where,	Foci in [P]	=	Language
	Foci in [P2]	=	Form
	Foci in [P3]	=	Author
	Foci in [P4]	=	Work

Title: Hamlet (written by Shakespeare, Author born in 1564)

Class Number: O11L, 2]64

Where,	O	=	Literature (M.C.)
	O111	=	Literature (M.C.), English [P]
	O111, 2	=	Literature (M.C.), English [P] (taken from language Isolate schedule), Drama[P2]
	O111,2]64	=	Literature (M.C.), English [P](taken from language Isolate schedule), Drama [P2], Author name [P3] (got by chronological Device)

7. Economics

The Facet formula for the class Economics is X[P]:[E][2P]

Where,	Foci in [P]	=	Business
	Foci in [E][2P]	=	Problem

Title: Value of Paper money

Class number: X61;4:7

Where,	X	=	Economics (M.C.)
	X61	=	Economics (M.C.), Money [P]
	X61;4	=	Economics (M.C.), Money [P]Paper [M]
	X61;4:7	=	Economics (M.C.), Money [P]Paper [M], value [E]

2.1.6.2 Classification of documents using DDC 19th edition

In a library, various documents including books and other reading material are arranged by their subjects. For arranging books, a classification system has to be adopted. The Dewey Decimal Classification (DDC) is the most popular classification system used all over the world. The 19th edition of DDC, published in 1979, has three volumes. Understanding of all three volumes is very essential for classifying documents efficiently. For classifying the documents, the following tasks have to be performed:



- i. To determine the specific subject of the documents to be classified, and
- ii. To assign appropriate notation from the schedules and tables to the specific subject.

Structure of DDC (19th edition)

The 19th edition of DDC has three volumes:

- Volume 1: Introduction and Tables
- Volume 2: Schedules
- Volume 3: Relative Index

Volume 1: Introduction and Tables

The editors' "Introduction" explains in detail, the structure of the scheme, its various plans, its features and provides full instructions on its use. It also provides guidance for determining the subject and subsequently, locating the appropriate class number. The 2nd part of Volume 1 has seven Auxiliary Tables. These are: 1. Standard Subdivision, 2. Areas, 3. Subdivision of individual languages, 5. Racial, Ethnic, National groups, 6. Languages, and 7. Persons.

Lastly, the three outlines of the scheme are given in the order of their increasing details. The First Summary, also called the Ten Main Classes, provides a broad outline of the division of the entire universe of knowledge as per this system. Each of these ten main classes is further divided into ten branches called divisions. Hence, there are 100 divisions in all. This is called the Second Summary or the 100 Division of DDC. Furthermore, each of these 100 divisions are divided into ten parts called sections. Hence, there are 1000 sections in all. This is called the Third Summary.

First Summary:

- 000 Generalities
- 100 Philosophy and related disciplines
- 200 Religion
- 300 Social Science
- 400 Language
- 500 Pure Sciences
- 600 Technology (Applied Science)
- 700 The Arts
- 800 Literature
- 900 General Geography and History



Second summary of the main class 300, social sciences, is as follows:

- 310 Statistics
- 320 Political Science
- 330 Economics
- 340 Law
- 350 Public Administration
- 360 Social Problems and Services
- 370 Education
- 380 Commerce
- 390 Customs, Etiquette, Folklore

Third summary of the division 330, economics is as follows:

- 330 Economics
- 331 Labour Economics
- 332 Financial Economics
- 333 Land Economics
- 334 Cooperatives
- 335 Socialism and related Systems
- 336 Public Finance
- 337 International Economics
- 338 Production
- 339 Macroeconomics and related Topics.

Volume 2: Schedules

This volume contains the division of subjects, arranged in a sequence of decimal fraction numbers from 001-999. The numbers are given in numerical order and show hierarchical relations of subjects. To understand the correct and efficient use of the schedules, it is necessary to understand the various notes and instructions provided under various entries. Any number enclosed in square brackets is no more in use. Hence, such a number is not to be used.

Example: [309] Social situation and condition
 [306] Unassigned etc.

While assigning the class number, transcription of class number is required:

- No class number consists of less than three digits, e.g., 500, 530, etc.



- When a class number extends beyond three digits a period (.) is put between the third and fourth digits, e.g., 324.3.
- To break the monotony of lengthy numbers and to aid memory a period (.) is used after the third digit.
- If a class number extends beyond six digits then after every third digits, a space is left. In other words, after the sixth digit the remaining digits are **transcribed** in 'group of three' leaving a space between two groups.

Example: 621.38800287 is actually transcribed as:

621.388 002 87

Volume 3: Relative Index

Volume 3 of DDC is the Relative Index. It is a kind of index which not only arranges the concepts and their terms in an alphabetical sequence but also shows the relationship between the terms and the context in which the subjects appear in the schedule. It makes an independent approach to classification.

Assigning class numbers with the help of tables and schedules;

There are seven auxiliary tables, which support the schedules for the formation of class numbers of documents. The schedule contains main classes and their divisions. Various instructions are provided in the schedules to build appropriate class numbers.

3.6.2.1 Tables

Tables are found in the first volume of DDC. The tables are explained with the worked out examples given below:

i. Table 1: Standard Subdivisions

Table 1 is of Standard Subdivisions. The hyphen (-) preceding each number indicates that it never stands alone. The hyphen (-) is omitted when you add a specific number from Table 1 to the base number from the schedule. The numbers from this subdivision are added directly to the base number from the schedule.

Example:

Title: History of Philosophy

Analysis:

100 - Philosophy (from schedule)

-09 (Table 1) - History

Synthesis

100+ -09

1+ -09 = 109

Class Number: 109

ii. Table 2: Area

Table 2 includes areas, regions, places in general (-1), which include physiographical features, population clusters, political and economic groups. "Add to" instruction is used at several places in the tables and schedules for the use of area subdivisions from Table 2 to the base number.

Example:

Title: Elementary education in India

Analysis:

372	Elementary education (from schedule)
372.91-99	Geographical treatment (Add "Areas" notation 1-9 from Table 2 to base number 372.9) (from schedule)
-54	India (from Table 2)

Synthesis:

$372.9 + -54 = 372.954$

Class Number: 372.954

Add 09 from Table 1 to add area from Table 2, if Geographical treatment (i.e., add 'Area' instruction) instruction is not given in the schedule of the base number.

Example:

Title: Buddhist religion sects and reform moments in Japan

Analysis:

294.39	Buddhist sects and reform movement (from schedule)
-09	Historical and geographical treatment (from Table 1)
-52	Japan (from Table 2)

Synthesis:

$294.39 + -09 + -52 = 294.390952$

Class Number: 294.390952

iii. Table 3: Subdivisions of Individual Literature

The notation from Table 3 is never used alone but may be used as required with the base number for individual literature identified by *under 810-890(schedule). Table 3 is supplemented by Table 3A which provides additional elements for building numbers with Table 3.



Example:
 Title : Idealism in English Poetry
 Analysis:
 820 English Literature (from schedule)
 -1 Poetry (from table 3)
 -13 Idealism (from table 3A)
 Synthesis:
 Dropped
 820 + -1 +13
 82 + -1 +13 = 821.13
Class Number: 821.13

iv. **Table 4: Subdivisions of Individual Languages**

Table 4 subdivisions of individual languages is never used as required with the base numbers for individual languages identified by * asterisk under 420-490 in the schedule.

Example:
 Title: French Grammar
 Analysis:
 440 = French Language
 (from schedule)
 -5 = Grammar (Table 4)
 Synthesis:
 Dropped
 440 + -5
 44 + -5 = 445
Class number: 445

v. **Table 5: Racial, Ethnic, National Groups**

The nation in this table is never used alone but may be used as required either directly or with "Add to" instruction or through the interposition of notation - 089 from Table 1, with any number from schedule

Example:
 Title: Japanese Cooking

Analysis:

641.592 = Ethnic Cooking
(from schedule)
(Add "Racial, Ethnic, National Groups" notation
03 - 99 from
Table 5 to base number 641.592)

-956 = Japanese (Table 5)

Synthesis:

$641.592 + -956 = 641.592956$

Class Number: 641.592956

vi. **Table 6: Language**

The names of languages are never used alone, but may be used with the numbers from the classifier from Table 6. The use of this table is mostly in relation to the main classes, 400 language and 800 literature.

Example:

Title: Social Status of Nepali's

Analysis:

305.7 = Social status of language groups
(Add "languages" notation 1-9 from table 6 to base
number 305.7)
(from schedule)

-9149 = Nepali (Table-6)

Synthesis:

$305.7 + -9149 = 305.79149$

Class Number: 305.79149

vii. **Table 7: Persons**

The notation from Table 7 persons is never used alone, but may be used as required with any appropriate number from the schedules with "Add to" instruction or through interposition of notation -024 from Table 1.

Example:

Title: Psychology books for teachers

Analysis:

150 = Psychology (from schedule)



-024 = Works for specific types of users (from table 1)
 (Add "persons" notations 03-99 from table 7 to the base number -024)

-372 = Teacher (from table 7)

Synthesis:
 $150 + -024 + -372$
 $15 + -024 + -372 = 150.24372$

Class Number: 150.243.72

3.6.2.2 Schedules (2nd Volume of DDC)

It contains Main Classes and their divisions.

i. Generalities000

The schedule of this main class deals with disciplines/subjects such as bibliography 010, library & information science 020, museology 060, Journalism, Publishing Newspapers 070, Books rarities 090, etc.

Example:
 Title: Classification of Botany

Analysis:
 $025.46 =$ Classification of specific disciplines and subjects
 (from schedule)
 (Add 001-999 to base number 025.46)

$581 =$ Botany (from schedule)

Synthesis:
 $025.46 + 581 = 025.46581$

Class Number: 025.46581

ii. Philosophy and Related Discipline 100

The schedule of this main class deals with disciplines/subjects such as philosophy and psychology. The other subjects are Metaphysics, Epistemology, Logic, Ethics, etc.

Example:
 Title: Hindu Philosophy

Analysis:
 $181 =$ Oriental Philosophy
 (from schedule)

181.04 - .09 = Based on specific religions
(from schedule)
(Add to base number 181.04 the number following
29 is 294 -299)

294.5 = Hinduism
(from schedule)

Synthesis:

181.0 + 294.5
181.0 + 4.5 = 181.045

Class Number: 181.045

iii. **Religion 200**

The main class Religion is mostly devoted to **Christianity** (i.e., from 210 -289). Other major religions of the world are listed at 292 - 299.

Example:

Title: Hindu Religions Group

Analysis:

294.5 = Hinduism

294.56 - .57 = Leader organisations, activities
(Add to base number 294.5 the number following
291 is 291.6- 291.7)
(from schedule)

291.61 = Religions Group

Synthesis:

294.5 + 291.61
294.5 + .61 = 294.561

Class Number: 294.561

iv. **Social Sciences 300**

The schedule of this main class deals with all the important disciplines in the social sciences. Some of the disciplines such as psychology, history and geography are listed under 150 and 900. At several places in the schedule for social sciences, there are special tables. The notation from these tables is to be applied to the divisions identified by an asterisk.



Example:

Title: Election law of India

Analysis:

342 = Constitutional and administrative law
 342.3-.9 = specific jurisdictions and area
 (Add "Area" notation 3 – 9 from table 2 to base number 342)
 (from schedule)
 -54 = India (from table 2)
 342.07 = Election Law

Synthesis:

342 + -54 + 342.07
 342 + -54 + 07 = 342.5407

Example:

Title: Admission Procedure in elementary schools

Analysis:

372 = Elementary education
 372.11-.18 = Organization and Administration
 (Add to base number 372.1 the number following 371 in 371.1 – 371.8)
 371.216 = Admission Procedure
 (from schedule)

Synthesis:

372.1 + 371.216
 372.1 + .216 = 372.1216

v. **Language 400**

The schedule of this main class includes important languages of the world. Various aspects of languages such as etymology, dictionaries, structural system, etc. are linked under Table 4 subdivisions of individual languages. Individual languages identified by an (*) asterisk in the schedules are linked under 420 – 490. They are further expanded by taking notation from Table 4.

Example:

Title: English - Telugu Dictionary

Analysis:

420 = English Language
 (from schedule)
 - 32 to - 39 **bilingual** dictionaries
 (Add "language" notation 2-9 from Table 6 to -3)
 (from Table 4)
 -94827 = Telugu (from Table 6)

Synthesis:

$420 + -3 + -94827$
 $42 + -3 + -94827 = 423.94827$

Class Number: 423.94827vi. **Pure Sciences 500**

The schedule of this main class covers different branches of pure sciences such as Mathematics, Astrology, Physics, Chemistry, Geology, Biology, Botany and Zoology. Special tables are also provided at certain places to achieve a synthesis for number building.

Example:

Title: Pathology of rose Plants

Analysis:

583.372 = *Roses
 (Add to instructed under 582 -589)
 04 = General Principles
 (listed under 582 - 589)
 (Add to 04 the number following 581 in 581.1 - 581.8)
 581.2 = Pathology

Synthesis:

$583.372 + 04 + 581.2$
 $583.372 + 04 + 2 = 583.372042$

Class Number: 583.372042



vii. Technology (Applied Science) 600

The schedule of this main class covers important subject fields such as Medical Sciences, Engineering, Agriculture, Home Economics, Management Chemical Engineering, Manufacturing and Buildings. Special tables are also available at different places.

Example:

Title: Treatment of gastric ulcers

Analysis:

6/6.334 = *Gastric ulcers
(Add as instructed under 616.1 -616.9)

06 = therapy (listed under 616.1 - 616.9)
(from schedule)

Synthesis:

$616.334 + 06 = 616.33406$

Class Number: 616.33406

viii. The Arts 700

The schedule of this main class covers important branches of fine arts viz. Civic Art, Architecture, Plastic Arts, Drawing Arts, Painting, Graphic Arts, Photography, Music and Recreational Arts. Under each art, different aspects like description, critical appraisal, techniques, procedures, apparatus equipment's and materials are listed. The fine arts have been broadly grouped under fine, decorative, literary, performing and recreational arts.

Example:

Title: Violin concerts and recitals

Analysis:

787.1 = Violin
(Add as instructed under 787 - 789)
(from schedule)

073 = Concerts and recitals
(Listed under 787-789)

Synthesis:

$787.1 + 073 = 787.1073$

ix. Literature 800

The schedule of this main class includes literature of the word including literary forms such as poetry, drama, fiction, essays etc. The basic arrangement is first by language followed by forms and period. This is supported by Table 3, Table 3A and Table 6 for specific languages. Indian literature is listed under 891 and 894.

Example:

Title: English Short Stories

Analysis:

820 = English Literature

-301 = Short Stories (Table 3)

Synthesis:

820 + -301

82 + -301 = 823.01

Class Number: 823.01**x. General Geography and History 900**

The schedule of this main class includes important subjects such as Geography, History and Biography. There are also special tables available at few places of schedules.

Example:

Title: Geography of Brazil

Analysis:

918 = *Geography of south America

(*Add as instructed under 4 - 9 from table 2 to base number 91)

(from schedule)

- 81 = Brazil

Synthesis:

918 + -81

91 + -81 = 918.1

Class Number: 918.1



2.1.7 Summary

In this unit, the concept of library classification, concept of main classes, PMEST, steps to classify documents and the APUPA pattern have been covered. The five fundamental categories- PMEST, that is, Personality, Matter, Energy, Space and Time have been discussed in detail. The Colon Classification (CC) and the Dewey Decimal Classification (DDC) schemes have also been explained. The various aspects related to classification of documents have been demonstrated with the help of suitable examples. You have been introduced to the process of synthesis in the DDC. The given examples have clearly **demonstrated** the synthesis for classification of subjects. There are many situations and provisions in the DDC where you will have to use the “add to” operations more than once on the same base number. All seven tables and ten main classes (i.e., first summary) have been explained.

2.1.8 Glossary

APUPA: An arrangement in which subjects are in the sequence: alien, penumbral, umbral, penumbral, and alien.

Book Number: The Ordinal number, which fixes the position of a document in a library, relative to the other documents having the same ultimate class.

Call Number: Call number of a book is the symbol used to fix its position relatively to the other books. It is a combination of classification number and collection number.

Classification: An orderly arrangement of entities in logical division of a subject by means of trains of characteristics. An artificial language of ordinal numbers designed to mechanize this arrangement.

Classificationist: One, who designs or devises a scheme of classification.

Classifier: One, who classifies a library book.

Class Number: An ordinal number representing the position of a class in a scheme of classification.

Collection Number: A symbol denoting any special characteristic (size, physical form, or class of users etc.) of a group of books, which because of this characteristic must be separately located.

Facet: One side of something that has many sides. In the context of faceted subject analysis, a facet is one of the many aspects of a subject.

Facet analysis: Examination of the various aspects of a subject to identify the basic characteristics by which it can be divided into sub-classes, the first step in developing a faceted classification system.



Main Class: A fairly homogeneous region of the universe of knowledge given by scheme of classification as a focus in its first order array of the universe of knowledge.

PMEST: The five main facets in S.R. Ranganathan's *Colon Classification*: Personality, Matter, Energy, Space and Time.

Wall Picture Principle: If two facets A and B of a subject are such that the concept behind B will not be operative unless the concept behind A is conceded, even as a mural picture is not possible unless the wall exists to draw upon, then the facet A should precede the facet B.

2.1.9 Exercise

Short Answer Questions

1. What is Library Classification?
2. Define 'Main Class' according to Dr. S.R. Ranganathan.
3. What are facets and isolates in the context of library classification?
4. What is PMEST?
5. Which are the three groups of the fundamental category 'Matter'?
6. Describe in brief the fundamental category 'Personality'.
7. What is the importance of APUPA pattern in library classification?
8. In how many parts is the 6th edition of the Colon Classification divided?
9. List the main classes in DDC.
10. Name all the volumes of the 19th edition of DDC.

Long Answer Questions

1. Explain the concept of main class and its facets.
2. Explain the fundamental categories in library classification.
3. Explain the APUPA Pattern?
4. Discuss the steps to be followed for classification of documents?
5. What are the different tasks that have to be performed while classifying documents?
6. Describe briefly the Colon Classification, 6th edition.
7. Give a brief account of the Structure of DDC (19th edition).
8. Explain the role of tables in the DDC.



Module-2 | Organization of Library Resources: Advanced

Unit-2: Library Cataloguing

After studying this section, students will be able to

- Explain the concept of Cataloguing
- Enumerate the methods of Cataloguing
- Explain the process of Cataloguing
- Demonstrate the MARC 21
- Learn the process of Cataloguing through AACR II and MARC 21

Contents

2.2.1 Introduction

2.2.2 Cataloguing Rules

2.2.2.1 Need

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2.2.3 Cataloguing Format

2.2.3.1 AACR-2

2.2.3.2 MARC 21

2.2.4 Summary

2.2.5 Glossary

2.2.6 Exercise

2.2.1 Introduction

Cataloguing is the process by which we create and maintain the database of books, journals, audio-visual materials, etc. that are owned by a library. Cataloguing is also an art of making or maintaining library holdings. It involves careful examination of different details of documents being catalogued and to record, describe and index it in a systematic manner. It is equally important to arrange, maintain and present the catalogue in a uniform manner. These are the spheres of activities that come under the operation that is called cataloguing.

The information contained in the library catalogue provides many access points needed for the library users, who are looking for specific documents in the library. Traditionally, the

library card catalogue provided access by the author's name, the title of a document, and the subject(s) covered in the item. Other points of access were additional authors, names of series, illustrators, and sometimes the titles of contents. Presently, computer catalogues can provide access to any part of the information contained in the record for a document in the library. This unit will discuss AACR-2 and MARC 21, the two, widely used cataloguing method for making the catalogue entries.

2.2.2 Cataloguing Rules

Cataloguing rules is a set of instructions for determining the information requirements of a library catalogue. These rules have gone through many changes over time, but the basic function of cataloguing rules is to answer the following questions:

- ❖ Which information from a bibliographic item is to be included in the entry?
- ❖ How is this information to be presented on a catalogue entry or in a cataloguing record?
- ❖ How should the entries should be sorted in the catalogue?

2.2.2.1 Need

Library catalogue is a tool that provides a better accessibility of library holdings. An efficient catalogue is almost like a key to the documents of the library. It helps users and support-staff to locate a document within a minimum time. The better the access, the more use the collection receives, and the more satisfied the user is in his or her search for information in the library.

2.2.2.2 ISBD

For a larger collection, more elaborate cataloguing rules are required. Users do not want to examine hundreds of catalogue entries or dozens of library items to find a single library holding. Currently, most cataloguing rules are similar to, or even based on, the International Standard Bibliographic Description (ISBD), a set of rules produced by the International Federation of Library Associations and Institutions (IFLA) to describe a wide range of library materials. IFLA's ISBD Review Group is responsible for maintaining the ISBD. It helps to create a bibliographic description in a standard, human-readable form, especially for use in a bibliography or a library catalogue. The chief purpose of the ISBD is to provide a standard form of bibliographic description that could be used to exchange records internationally. These rules organize the bibliographic description of an item in the following areas:

- 1) Title and statement of responsibility (author or editor)
- 2) Edition
- 3) Material specific details (for example, the scale of a map)



- 4) Publication and distribution
- 5) Physical description (for example, number of pages)
- 6) Series
- 7) Notes, and
- 8) Standard Number (ISBN)

Each book, while, being enlisted in the catalogue has to be described individually. This description is called a record of the document. An entry is a single record of a document. Entries are prepared by different cataloguing Rules/Methods/Codes. Two methods used by most of the libraries in the world are:

- AACR-2
- MARC21

The most commonly used set of cataloguing rules in the English speaking world are the Anglo-American Cataloguing Rules, 2nd Edition, or AACR-2 for short.

2.2.2.3 AACR-2

The Anglo-American Cataloguing Rules prepared by the American Library Association, the British Library, the Canadian Committee on Cataloguing, the Library Association and the Library of Congress. AACR was published for the first time in 1967. In 1978, the second edition was published as AACR-2 which was again revised in 1988 and is known as AACR-2R.

AACR-2 provides three levels of description for different areas for a document depending upon the nature and size of the library. According to the needs of a particular document or library, the different levels of description can be used. The first level provides the minimum information which is necessary to identify a given document. The second level provides all the data which may be considered necessary for description of documents forming part of the main collection of medium to large libraries in the context of libraries in developed countries. The third level provides information covering every descriptive element described in the AACR Code.

The three level of description are as follows:

First Level of Description

Minimum elements are taken for the first level of description. The general rules 1.1B, 1.1F, 1.2B, 1.3, 1.4D, 1.4F, 1.5B, 1.7 and 1.8B of AACR-2 may be used for this purpose. The following specification may be given under the first level of description:

Title proper/first statement of responsibility, if different from main entry heading in form or number or if there is no main entry heading. - Edition statement. - Material (or type of publication) specific details. - First place of Publication: First Publisher, etc., date of Publication, etc. - Extent of item. - Note(s).-Standard number.

Second Level of Description

The elements covered in the 2nd level of description are as follows:

Title proper [GMD]=parallel title: other title information/first statement of responsibility. - Edition statement/first statement of responsibility relating to the edition. - Material (or type of Publication) specific details. - First place of Publication, etc.: first Publisher, etc., Date of Publication, etc. - Extent of item: other physical details: dimensions. - (title proper of series/ statement of responsibility relating to series, ISSN of series: numbering within the series. Title of sub-series, ISSN of sub-series; numbering within sub-series). -Note(s). - Standard number.

Third Level of Description

Third level includes every possible element given in the rules that can be used in the cataloguing through AACR-2.

Position for Different Element in the Entry

The following rules for positions for the different elements in the catalogue entry should be observed:

- 1) Call Number containing Class Number, Book Number and Collection Number, if any, may be written on the upper left corner of the entry. Class Number will be written on the 4th line from the top of the card and from the left edge of the card. Book Number will be written just a line below of the Class Number. If the Class Number consists of more than 8 digits, it will be written on the 3rd line from the top of the card and may continue beyond the first and second indentation.
- 2) The head line will be used for either 1st Author or Title chosen for main entry. It will start from 1st indentation and continue from the third imaginary indentation. But when the book is entered under title, it begins from the first indentation and continues from the 2nd indentation. This type of transcription of the entry is known as hanging indentation.
- 3) The title will start from the 2nd indentation, on a line below the head line and continue from the 1st indentation.
- 4) The title and statement of responsibility area, the edition area, the material or type of publication, specific details area, and the publication, distribution, etc. area will form a single paragraph.
- 5) The physical description area will start from the 2nd indentation and continue from the 1st indentation. It will include the series area also. Both these elements will form a separate paragraph.



- 6) The note area will start from the 2nd indentation and continue from 1st indentation. If there is more than one note, those may be given in separate paragraph.

2.2.2.4 MARC 21

MARC (Machine-Readable Cataloging) standards are a set of digital formats for the description of items catalogued by libraries (such as books). It was developed by the US Library of Congress during the 1960s to create records that could be used by computers, and to share those records among libraries. By 1971, MARC formats had become the national standard for dissemination of bibliographic data in the United States, and the international standard by 1973. There are several versions of MARC in use around the world, the most predominant being MARC 21, created in 1999 as a result of the harmonization of U.S. and Canadian MARC formats, and UNIMARC, widely used in Europe. The MARC 21 family of standards now includes formats for authority records, holdings records, classification schedules, and community information, in addition to the format for bibliographic records.

MARC 21 Format for Bibliographic Data is designed to be a carrier for bibliographic information about printed and manuscript textual materials, computer files, maps, music, continuing resources, visual materials, and mixed materials. Bibliographic data commonly includes titles, names, subjects, notes, publication data, and information about the physical description of an item. As its name suggests the format aims to meet the challenge of the 21st century.

A MARC record involves three elements: the record structure, the content designation, and the data content of the record. These are described below:

Record Structure: The structure of MARC records is an implementation of national and international standards, e.g., Information interchange format (ANSI Z39.2) and format for information exchange (ISO 2709).

Content Designation: Content designation, the codes and conventions established to identify explicitly and characterize further the data elements within a record and to support the manipulation of those data, is defined in the MARC 21 formats.

Data Content: The content of most data elements is defined by standards outside the formats, e.g., Anglo-American Cataloguing Rules, Library of Congress Subject Heading, and National Library of Medicine Classification.

A MARC 21 format is a set of codes and content designators defined for encoding machine-readable records. Formats are defined for five types of data: bibliographic, holdings, authority, classification, and community information.

Bibliographic Data Format: It contains format for encoding data elements needed to describe, retrieve and control various forms of bibliographic material. It is defined for books, serials, computer files, maps, music, visual materials and mixed material.



Bibliographic format blocks

- 0xx=Control information, numbers, codes
- 1xx= Main entry
- 2xx= Title, edition, imprint
- 3xx= Physical description, etc.
- 4xx= Series statements
- 5xx= Notes
- 6xx= Subject access fields
- 7xx= Name, etc. added entries or series
- 8xx= Series added entries; holding and locations
- 9xx= Reserved for local implementation

Holding Data Format: It contains format specification for encoding data elements pertinent to holding and location data for all forms of material.

Holding format block

- 0xx= Control information, numbers, codes
- 1xx= Not defined
- 2xx= Not defined
- 3xx= Not defined
- 4xx= Not defined
- 5xx= Notes
- 6xx= Not defined
- 7xx= Not defined
- 8xx= Holdings and location data, notes
- 9xx= Reserved for local implementation.

Authority Data format: It contains format specification for encoding data elements that identify or control the content related to authority control.

Authority format blocks

- 0xx= Control information, numbers, codes
- 1xx= Heading
- 2xx= Complex see references
- 3xx= Complex see also references
- 4xx= See from tracing



- 5xx= See also from tracing
- 6xx= Reference notes, treatment, notes, etc.
- 7xx= Heading linking entries
- 8xx= Not defined
- 9xx= Reserved for local implementation

Classification Data format: It contains format specification for encoding data elements related to classification numbers and caption associated with them.

Classification format blocks

- 0xx= Control information, numbers, codes
- 1xx= Classification numbers and terms
- 2xx= Complex see references
- 3xx= Complex see also references
- 4xx= Invalid number tracing
- 5xx= Valid number tracing
- 6xx= Notes
- 7xx= Index terms and number building fields
- 8xx= Miscellaneous
- 9xx= Reserved for local implementation

Community Information Format: It provides format specification for records containing information about events, programs, services, etc. so that this information can be integrated into other public access catalogues as data in other record types.

Community information format blocks

- 0xx= Control information, Numbers, Codes
- 1xx= Primary names
- 2xx= Titles, Addresses
- 3xx= Physical information, etc.
- 4xx= Series information
- 5xx= Notes
- 6xx= Subject access fields
- 7xx= Added entries other than subject
- 8xx= Miscellaneous
- 9xx= Reserved for local implementation



Organization of the Record

A MARC record consists of three main sections: the leader, the directory and the variable fields.

The Leader

It consists of data elements containing coded information and it is identified by relative character position. The leader is fixed in length in a string of 24 characters, 00 to 23. It occurs in the beginning of each MARC record.

The Directory

It contains the tag, starting location, and length of each field within the record. It serves as road map of the data contents area. Directory information is dynamically gathered and stored in a place between the Leader and the Data contents sections. The Directory is generated programmatically by computer for locating data fields with the help of their address, which is a string of 12 numeric characters. The size of directory area varies depending on the number of times the address repeats in the directory. The directory ends with a field terminator character.

Variable fields/Data Content

The data content of a record is divided into variable fields. MARC 21 format describe two types of variable fields, viz. variable control fields and variable data fields. Control and data fields are distinguished only by structure. The data fields are separated by the field terminator which is a pre-determined special character such #, @, etc. The data content resides in the final section of a Record, and ends with the Record Terminator.

Variable fields and Tags

- The data in a MARC record is organized into fields, each identified by a three - character tag.
- The MARC 21 formats use only numeric tags.
- The tag is stored in the directory entry for the field, not in the field itself
- Variable fields are grouped into blocks or according to the first character of the tag, which identifies the function of the data within a record, e.g., main entry, added entry, subject entry. The type of information in the field, e.g., personal name, corporate name, or title, is identified by the remainder of the tag.

Variable control field

- The 00x field in the MARC 21 formats are variable control field.
- It consists of data and field terminator. It does not contain indicators and sub-field codes.



- It contains either a single data element or a series of fixed-length data elements identified by relative character position.

Variable data field

- All fields except 00x are variable data fields.
- Following four levels of content designation are provided for variable data fields in ANSI Z39.2:
 - A three character tag, stored in directory entry
 - Indicators stored in the beginning of each variable data field
 - Sub-field codes preceding each data element
 - A field terminator following the last data element in the field

2.2.3 Format of AACR-2 and MARC 21

2.2.3.1 Format of AACR-2

A library catalogue is a useful search tool for the effective use of a library. A library catalogue can just meet any one type of user approach like author approach, title approach, etc. Format provides the output in an internationally standard acceptable manner. Catalogue card of a standard size 12.5 cm x 7.5 cm, is one of a physical forms of catalogue.

1" Indention	2" Indention	Main Line
↙	↙	↙
025.00285 LAN	Lancaster, F W	
43216		Technology and management in library and information services/ F.W. Lancaster and Beth Sandore. – Urbana Champaign: University of Illinois, 1997. 322p.; 24 cm. ISBN 087-8450-9981 1. Library Services. 2. Library Science. I. Sandore, Beth. II. Title
		○ Puncj hole

Fig 2.2.1: Catalogue Card (12.5cm x 7.5 cm)



The indentation lines are drawn mainly to maintain clarity and to distinguish one line from another line while recording the details of a document in the form of a catalogue entry. Each paragraph starts from 2nd indentation and continues from 1st indentation in the description. The heading section/ leading section starts from 1st indentation and continues from 2nd indentation. AACR- 2 R never prescribes any indentions in the form of rules in the code except as a suggestion.

The structure of a main entry with the eight parts and the paragraph and elements there in is described as under:

I. Heading

- A) Author or other person or Corporate Body chosen as main entry.
- B) Title, if (A) can be ascribed

II. Body of the Entry (First paragraph)

- A) Title and Statement of responsibility area
 - (i) Title proper (including alternative title, if any)
 - (ii) General Material Designation (GMD)
 - (iii) Parallel title(s) other title information, if any
 - (iv) Statement(s) of responsibility
- B) Edition area
 - (i) Edition statement (named, numbered or a combination of both)
 - (ii) Statement of responsibility relating to the edition, but not to all editions
- C) Material (or type of publication) specific details area
 - (i) For Cartographic materials, statements of scale and projection
 - (ii) For Serial Publication, numerical and/ or alphabetical designation
- D) Publication, distribution, etc. area
 - (i) Place of Publication, distribution, etc.
 - (ii) Name of Publisher, distributor, etc.
 - (iii) Statement of function of publisher, distributor, etc. (e.g., production company)
 - (iv) Date of publication, distribution, etc. including copyright date
 - (v) Place of manufacture, name of manufacturers, date of manufacture, if name of publisher is unknown.



- III. **Physical Description Area (Second Paragraph)**
 - (i) Extent of item (e.g., number of pages, volumes, etc.)
 - (ii) Other Physical details (e.g., playing speed, etc.)
 - (iii) Dimension (e.g., height diameter)
 - (iv) Accompanying materials (e.g., teacher's guide)
- IV. **Series Area, if any** (following physical description area as continuation of second Paragraph)
 - (i) Title proper of series, parallel title (s), and other title information
 - (ii) Statement (s) of responsibility relating to series
 - (iii) ISSN of series
 - (iv) Numbering within series
 - (v) Sub-series
 - (vi) Second and following series, each in its own set of parentheses
- V. **Note area (each note is a separate paragraph)**

Necessary data that cannot be incorporated in the section.
- VI. **Standard Number and Terms of Availability Area (Paragraph following last note)**
 - (i) Standard number (e.g., ISBN, ISSN)
 - (ii) Key – title of a serial
 - (iii) Terms of availability (e.g., price)
- VII. **Tracing (Separate paragraph)**
 - (i) Subject Heading
 - (ii) Added entries for joint authors, editors, etc.
 - (iii) Title added entry or entries
 - (iv) Series added entry or entries.
- VIII. **Call Number (formatted in upper left corner of entry or on line following tracing.)**
 - (i) Classification number
 - (ii) Cutter Number and work mark, if any
- IX. **Accession Number can also be included as part of the main entry**

The place of above parts in a catalogue card is shown below.



Call Number (VIII)	Heading	Section (I)
Acc. No. (IX)		Body of The Entry (II) Physical Description (III) (Series) (IV) Notes Area (V) ISBN (VI) Tracing (VII) ○

Fig 2.2.2: Catalogue card

Outline for a main entry and an added entry for a dictionary catalogue according to AACR-2

Call No.	Main Entry Heading	
Acc. No.		Title proper (GMD). = Parallel title: Other title / statement of responsibility. -Edition / Statement of responsibility relating to edition. - Place of publication, distribution: Publisher, date of publication. Extent of item: other physical details: dimensions + accompanying Material - (series; number). Notes. ISBN. 1. Subject heading. 2. Subject heading. I Added Entry II Added Entry III Title IV Series ○

Fig 2.2.3: Catalogue card

If the main line is not sufficient to record this information, the main entry will continue in the heading after leaving two letter spaces from the second indentation. This imaginary line which is 16 spaces from left margin of the card is known as third indentation. In the tracing section, in between the items numbered in Arabic numerals and in Roman numerals two letter spaces are to be left.



Outline of Added Entry – Unit Card Method.

Call No.	Main Entry Heading	Added entry (Second line added entry, if necessary)
Acc. No.		Title.../Statement.... - Edition ... /Statement - Place...: Publisher, date of Publication. Extent of item-(series; number). Notes. ISBN. Subject heading..... ○

Fig 2.2.4: Catalogue card

When the main entry is under the title of the work as per rule, the outline entry is as follow:

Call No.		
		Title /Statement of responsibility. -edition.... - place of Publication: publisher, date. Extent... - (Series; no.). Notes ISBN Subject heading. 2..... 1.... ○

Fig 2.2.5: Catalogue card

The title statement starts from the 1st indentation of the main line and continues from the 2nd indentation, till the completion of the body of the entry. From the second line onwards the body of the entry 'hangs on' to the second indentation. This type of indentation is known as 'hanging indentation'.

2.2.3.2 MARC21 Format

MARC Format involves the logical record structure, the content designation and the data content. Content designators, field tag, Indicator 1 and 2, and sub-field code, all contribute to a computer's performance in reading the content of a bibliographic record meaningfully.

Field Tag: The Field Tag is a three digit code meant for a particular type of data. For example, Tag 100 stands for main author.



Indicators: There are two Indicators, viz. Indicator 1 and Indicator 2. These provide some supplementary information about the field content. Each indicator holds single - character code. The code may be a numeric or a lowercase alphabetic character or a blank space. Use of a blank (#) indicator is inconsistent.

Subfield Code: It identifies data elements within a field for enabling the computer to manipulate each one separately. It is composed of a sub-field delimiter and a Data Element identifier. A delimiter's function ends with passing a signal to computer predicting the presence of a Data Element Identifier, while Data Element Identifier is a Code.

Example

245	Title Statement	NR
\$ a	Title Proper/Short title	NR
\$ b	Remainder of title	NR
\$ f	Designation of Vol./Issue and/or date	NR
\$ h	Medium	NR
\$ 6	Linkage	

Examples of sub-field codes with Dollar Sign as subfield delimiter.

Variable Control Fields

The first block of fields is made under tag 00X that, contains Variable Control Fields, e.g., 001 is control number.

Variable Data Field

All fields except 00X are variable data fields. These fields consist of indicators, one or more sub-field codes, Variable data and a field terminator. The primary groupings of variable fields are as follows:

- 0XX = Control information, numbers, Codes
- 1XX = Main entry
- 2XX = Titles, edition, imprint
- 3XX = Physical description, etc.
- 4XX = Series Statements
- 5XX = Notes
- 6XX = Subject access fields
- 7XX = Name, etc. added entries or series, linking
- 8XX = Series added entries; holding and location
- 9XX = Reserved for local implementation



All fields are not required by every library. Therefore, a policy may be formed to concentrate on a set of relevant fields, indicators, subfields. The minimum required fields for book cataloguing may look something like the following:

- 020 ISBN
- 040 Cataloguing Source
- 09X Local call number
- 100 Personal Name - Main entry
- 110 Corporate Name - Main Entry
- 130 Uniform Title - Main entry
- 240 Uniform Title
- 245 Title of the work
- 246 Varying form of title
- 250 Edition Statement
- 260 Imprint, Publication, Distribution
- 300 Physical Description
- 440 Series Statement/Series Title Added entry
- 500 General Note
- 504 Bibliographic Note
- 505 Formatted contents Note
- 520 Summary Note (abstracts, etc.)
- 59X Local Notes
- 600 Subject Added entry - Personal
- 630 Subject Added Entry - Uniform Title
- 650 Subject Added Entry - Topical
- 651 Subject Added Entry - Geographic
- 69X Local Subject Access field
- 700 Personal Names - Addition Access Point
- 710 Corporate Name - Addition Access Point
- 730 Uniform Title - Addition Access Point
- 9XX Local data Elements

Example: (1)

- 010 91-12500/ Ac
- 020 0452010616: # C \$ 9.95 (\$12.99 cm)
- 082 00822.33



- 100 1 Westall, Robert
245 14 The kingdom by the sea/ #c [by] Robert west all
250 1" American ed.
260 New York: # b Farrar Straus Giroux, # c 1992, e 1990
300 175P; # c 21cm
520 During World War II, twelve year old Harry and a stray dog travel through war-torn England in search of safety
650 1 World war, 1939-1945 # Z England # v Fiction
650 1 Dogs # V fiction

2.2.4 Summary

This unit has discussed the concept, methods and process of library cataloguing. The cataloguing rules covered in this unit are similar to, or based on, the International Standard Bibliographic Description (ISBD). The two types of cataloguing rules, viz. AACR-2 and MARC 21 have been dealt in detail. It also discusses three levels of description of a document through AACR 2. An outline of the main entry and an added entry is also described.

MARC21 format has been discussed in detail. MARC stands for Machine Readable Cataloguing. MARC comprises a detailed scheme or a pattern for allocation of all bibliographic and allied elements, for example, title, author, language, etc. in an electronic file. It serves as a system of bibliographic information interchange, that is, for importing one or many records from another MARC compliant online catalogue located anywhere in the world, or exporting records to other on demand.

2.2.5 Glossary

AACR-2: Anglo-American Cataloguing Rules

Accession Number: The number given to a book from the Accession Register. It may also be a number given to an article in a periodical, or other documents which are indexed by the uniterm concept co-ordination system.

Author: The term used for the writer of a book, as distinguished from the translator, editor, etc.

Catalogue Card: A plain or ruled card which is generally of standard size 5x3 inch. It is used for making a single entry or reference in a card catalogue.

Catalogue Code: A set of rules for guidance of cataloguers in preparing entries for catalogues so as to ensure uniformity in treatment.



Cataloguer: Refers to a library professional, who determines the forms of entry and prepares the bibliographical descriptions for a catalogue, and in many libraries classifies the books and provides subject heading

IFLA: International Federation of Library Associations and Institutions

Indention: Refers to the distance from the left edge of a catalogue card at which the various parts of the entry begin. The purpose of indention is to differentiate and emphasize the various groups of information.

ISBN: International Standard Book Number

Main Card: Refers to the catalogue card which indicates the Main Entry.

MARC: Machine Readable Cataloguing

Tracing: Refers to the indication on the front or back of a main entry catalogue card which indicates the additional headings under which added entries appear.

2.2.6 Exercise

Short Answer Questions

1. What is the need of having cataloguing rules?
2. Enumerate the eight areas of bibliographic description according to ISBD.
3. Describe the second level of description in AACR-2.
4. List the items in structure of a main entry in AACR-2.
5. Explain briefly the importance of *MARC 21 Format for Bibliographic Data*.
6. What are the rules for positions for the different elements in the catalogue entry in AACR-2?
7. Explain the term 'Hanging Indention'.
8. Draw the outlines of an added entry in Unit Card System.
9. Give an example of Subfield code in MARC 21.

Long Answer Questions

1. Discuss the role of ISBD in library cataloguing.
2. State the structure of AACR-2.
3. Write schematic illustration of 2nd level of description described in AACR2.
4. Explain the elements that describe a MARC record format.
5. Enumerate and explain different types of data format in MARC 21.
6. Describe the different parts of a main entry of AACR2.

Module-2 | Organization of Library Resources: Advanced

Unit-3: Technical Processing of Documents

After studying this Unit, students will be able to:

- ❖ Explain the need of technical processing of library material
- ❖ Know the importance of record maintenance in libraries
- ❖ Explain Call Number and its components
- ❖ Learn to prepare Class Number, Book Number and Collection Number for library books
- ❖ Describe the use of preparing a catalogue of the library material
- ❖ Understand the need for physical processing of library documents

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2.3.1 Introduction

The resources in a library are procured to facilitate the teaching-learning process and to satisfy the needs of the users of a library. The documents must be processed and organized to not only make them available to the readers but to ensure an easy access too. In other words, we can say that before shelving all the documents in the library stack and making them available for circulation in the library, they need to be physically prepared.

2.3.2 Technical Processing

The preparation of documents for use in the library is called technical processing; and is done by the technical staff of the library. In technical processing, the following steps are followed:

- Accessioning (i.e., Record maintenance)
- Classification of documents
- Assigning Call Number
- Cataloguing
- Physical Processing
 - Inspection (checking), stamping property mark and labelling for circulation
 - Due date slips
 - Plastic covers, laminates or cases to protect material
 - Barcodes (in automated libraries)
 - Pasting stripes or slips

2.3.2.1 Purpose of technical processing

Before items are shelved and circulated from the library, they need to be physically prepared. The library material goes through processing so that it can be located, used, and returned to the library. Each item in the library must go through a thorough physical processing before it reaches the library stacks or the users.

The steps involved in technical processing varies in each library. The processing steps vary by the type of library too as different types of material is processed in different sections in different ways. For example, a public library would probably reinforce fiction paperbacks with vinyl book tape and protect book jackets with a vinyl laminate. Academic libraries do not usually retain the commercial book jacket because it may not be durable. Besides this, special binding by the library helps in the identification of books owned by the library.

The libraries that have automated their circulation system need revised and streamlined processing procedures. These libraries also require time saving material such as pressure sensitive labels and book jackets that can simplify processing. In order to make processing efficient in terms of time and money, libraries need to regularly evaluate their processing methods. When all processing steps are completed, the material is separated by subject or department or area and sent out for shelving, which is also called classification.

2.3.3 Record Maintenance

A permanent record should be maintained by the library staff for documents acquired by the library. As per the government order, necessary records should be maintained in the Accession Register. The process is explained in the following steps:

2.3.3.1 Accessioning

Each document in the library should be uniquely distinguished from every other document. Recording the details of a document in the register (commonly known as Accession Register) is called accessioning. The accession register is an essential and permanent record of a library. Maintenance of an accession register is also a requirement according to the Government of India decision vide Rule 113 of General Financial Rules.

2.3.3.2 Assignment of Accession Numbers

An accession register is similar to a stock register, in which every book of the library is assigned a specific number. Each item in the library should be uniquely distinguished from every other item. This helps in the process of identifying whether a given copy of an item has been returned. It also aids the inventory process of the collection.



Fig 2.3.1: Accession Register

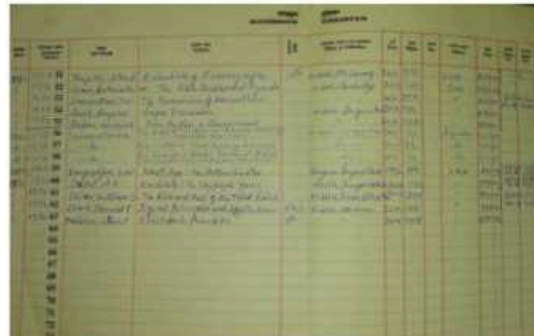


Fig 2.3.2: Information in Accession register

2.3.3.2.1 Accession numbers in manual circulation systems

In libraries with manual systems, the accession number and date should be written or stamped on the:

- ◆ Title page, last page of the book and on the confidential page, in the space provided in the ownership stamp affixed at all these three places in the book, space in the due- date slip and space in the book card.
- ◆ Circulation card and/or pocket – if it is done on both, it must be ensured that the correct card is placed in the correct item.
- ◆ Shelf list card – this is done for the inventory purposes

Accession numbers must have a unique sequence of numbers. To ensure that the numbers are not duplicated, most libraries use an accession numbering machine. The machines are available through library supply vendors. The numbering machine is a stamp that can be set to provide unique incremental sequences of numbers. By pressing a lever, one can adjust the machine to indicate the number of times that the same accession number will be repeated. The machine is then stamped on each place where the number will appear. For the next item, the machine automatically advances to the next sequential number.

Many libraries use the first 2 digits to indicate the year that an item was added to the collection and the remainder of the digits as inventory control counts for the year (e.g., 15-214, 15-215, 15-216, and 15-217). Here, '15' indicates the year 2015 and the subsequent numbers, viz. 214, 215, 216..... indicate the sequence number of documents added in the year 2015. Other libraries simply take note of the accession number at the beginning of the year and at the end of the year. This gives them the total number of processed items. Libraries which do not use accession numbers based on the date often stamp the date on the new item. This helps to indicate, when the item was acquired and can be helpful in weeding and inventory control.

2.3.3.2.2 Accession numbers in automated circulation system

In libraries with automated circulation systems, barcodes are used to provide a unique accession number for an item. Barcode labels are specific to an item. Each item in the collection is assigned a unique barcode number by the automated system, usually during the cataloguing or acquisition process. During barcode label production, the computer program associates the appropriate call number and copy number with each barcode. When the barcode labels are printed, the call number and title of each item is included on the barcode label. For the ease of application during processing, the barcodes are usually printed in their call number order.



Fig 2.3.3: Barcode label

Barcode labels are put on the library material in the following locations:

- ◆ Inside the front or back cover – this protects the barcode label from being damaged but it adds an additional job at the circulation desk as the book has to be opened to read the barcode.
- ◆ On the front or back cover – this makes it easier to circulate the item because the book does not have to be opened but the label may not be desirable.
- ◆ On both – this gives more options but increases the processing costs.

Whatever location is chosen, it should be uniform in practice. Barcode labels are applied:

- ◆ When items are received and accessed
- ◆ During cataloguing, when the location is added
- ◆ When a call number is assigned to an item.

Libraries can either purchase barcode labels or create labels in-house, using a laser or barcode printer. Purchased labels are usually photocomposed. This is done by a computer controlled graphic process which forms original images within photosensitive paper. Photocomposed labels are very durable and can stand the abrasion of repeated scanning very well. Laser printer produced labels are less durable because the barcode is printed only on the surface. Repeated scanning, dirt, abrasion and grease damages the labels, therefore, they should be protected with a clear plastic label protector.



2.3.4 Classification of Documents

The main purpose of library classification is to facilitate the use of reading material. Library classification confirms the exact location of a document in the library and it also helps to arrange documents in the most convenient order. The two main functions of library classification are shelf arrangement and notation. The details related to classification of documents have already been discussed in Unit 4 of the previous book and Unit 3 of this book.

Notation is defined as artificially ordained numbers that represent the classes (subjects) in a library classification scheme. It is essential in every scheme of classification, as it serves as a symbol for a subject. As notation makes up the class number, it can be described as the standard abbreviation of a classification scheme.

2.3.4.1 Call Number

Besides the notation in a classification scheme, library material should also include an author indicator, i.e. the first three alphabets of an author's surname. Some libraries may also add a title indicator, date of publication, and/or a copy number. All these elements together, form a Call Number.

The purpose of the call number is to provide the address for an item acquired by the library. This address is where the staff will shelve the item, and where the user can look for the item. The call number also allows a user to browse the collection, to find the available items on any given topic. The idea of creating the call number for each item in the library is that each item can have a unique address. It is the cataloguer's job to determine the specific focus of the item being catalogued, and group the various material dealing with the same topic together. It, thus, creates an organized and accessible collection.

The call number of a document consists of three parts

- (i) Classification Number/Class Number
- (ii) Book Number
- (iii) Collection Number

Therefore, we can say

Call Number = Class Number + Book Number + Collection Number

2.3.4.1.1 Class Number

The class number of a document is an ordinal number representing the position of a class in a scheme of classification used in a library and also represents the subject matter of the document. The purpose of classification is to bring related items together in a helpful sequence from the general to the specific. There are several schemes of library classification



available. The one used most widely in the libraries is the Dewey Decimal Classification (DDC). A classification scheme of Indian origin, is the Colon Classification.

2.3.4.1.2 Book Number

A book number is the ordinal number which fixes the position of a document in a library, relative to the other documents belonging to the same class. The book number adds a further detail to the book. It is usually constituted from the author's name.

2.3.4.1.3 Collection Number

The collection number is a symbol denoting any special characteristics (size, physical form, or class of users, and so on.) of a group of books, with which the books may be separately located. In other words, the mark added to the class number and book number of a book to indicate a collection, is called the collection number. The following is a sample schedule for Collection Number:

Nature of Collection	Collection Number
Under-size	Underline book number
Oversize	Over line book number
Rare Book	RB
Reading Rook	RR
Text Book	TC
Film Strip	FS

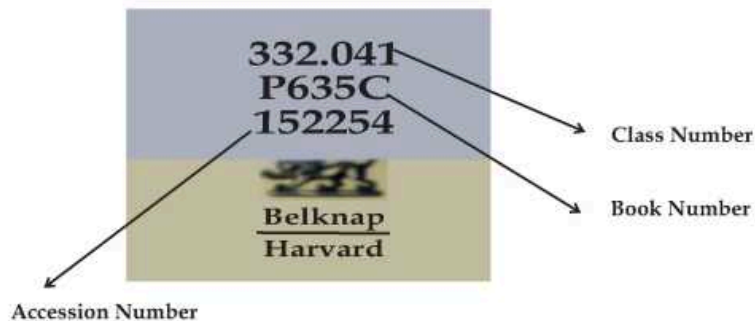


Fig 2.3.4: Call Number (Collection Number is not mentioned)



Examples

A book entitled, *A Textbook of Physics* by A. K. Kapoor, will have the following call number according to the Dewey decimal classification:

D
530
KAP

Here, D = Collection Number for main collection of lending section. It denotes the lending restrictions.

530 = Class Number for Physics

KAP = Book Number from first three alphabets of the author's surname

A book entitled, *Elementary Education* by C. M. Anand, published in 1992 will have the following call number according to the Colon Classification.

T15N92TD

Here,

T = Education

T15 = Class Number for Elementary Education

N92 = Book Number according to the year of publication, i.e., 1992

TD = Collection Number, indicating that the book belongs to the Education Department (as per a table given in Colon Classification Schedules)

2.3.5 Cataloguing

For providing access to the collection of a library, an index or list of the material available in the library has to be maintained. This index or list of the available material is called a catalogue. A library catalogue is defined as, 'A list of books, maps, stamps, sound recordings or any reading materials that constitute a library collection. Its main purpose is to record, describe and index the holdings of any library collection.'

Cataloguing is the process of preparing a catalogue, or preparing the bibliographic records, which reflect the various details of a library item. An example of a catalogue card, with items to be written at different places, is given below:



Call Number	Main Entry Heading	
Acc. No.		Title proper (GMD). = Parallel title: Other title / statement of responsibility. -Edition / Statement of responsibility relating to edition. - Place of publication, distribution: Publisher, date of publication. Extent of item: other physical details: dimensions + accompanying Material. - (series; number). Notes. ISBN. 1. Subject heading. 2. Subject heading. I Added Entry II Added Entry III Title IV Series ○

Fig 2.3.5: Catalogue card

The other details related to catalogue and cataloguing of documents have already been discussed in Unit 5 of the previous book and Unit 4 of this book.

2.3.6 Physical Processing

All library documents go through the technical processing. So, whenever required, they can be easily located, and be used and returned to the library. The steps involved in the processing of a library document may vary from library to library, depending on whether a library is using a manual or an automated circulation system. Physical processing covers inspection, stamping the property mark and labelling.

2.3.6.1 Inspection

The documents received from the suppliers should be examined for any physical defects such as damaged covers or folded pages. If the purchased document is found damaged, it may be returned to the supplier. But it can be returned only if it has not been processed by the library. These are usually replaced by the suppliers promptly.

2.3.6.2 Stamping

Most libraries, label their documents with some form of permanent identification that provides the name of the library and its address. Stamping is one of the identification marks of the library. It is done to stop theft and ensure that lost documents are returned to the library. The ownership stamps are usually put at the following places in a book:



- On the title page/back of the title page
- At the top/bottom of the confidential page chosen by the library; and
- At the last page of the book.

It can be done with a rubber stamp. Instead of a stamp, some libraries use special book plates, pasted on the inner side of the front cover.

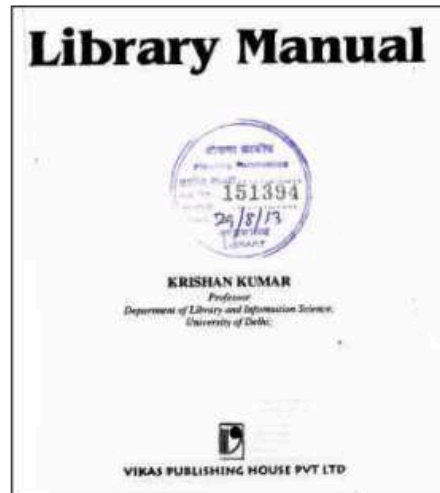


Fig 2.3.6: Stamping with a rubber stamp on the Title page and on the last page of the book

2.3.6.3 Labelling

Labelling is the process in which the following labels are pasted on the procured documents:

For Manual Circulation:

- Book plate/Ownership slip
- Due Date slip
- Book Pocket
- Spine Label
- Book Card

For Automated Circulation:

- Book plate/ Ownership slip
- Spine Label
- Barcode Label
- Electromagnetic tape (if the library uses an electromagnetic security system)



- ◊ RFID label (if the library is fully automated)

A **Book plate**, which is the prominent mark of ownership, is pasted on the inner side of the front cover.

After completing the process of classification and cataloguing, the **Barcode labels** and **Spine labels** are printed, the call number of each item is included on both the labels. The Spine label may be placed on the spine of the book ($\frac{1}{4}$ inch above the bottom). The label can be cut along the right side and the bottom, if necessary, to make it fit. If the book is too thin for putting the label on the spine, it should be placed on the upper left corner of the front cover ($\frac{1}{4}$ inch from the spine).

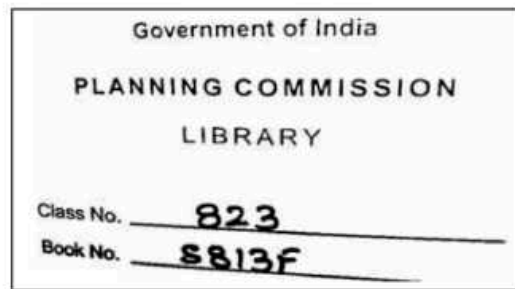


Fig 2.3.7: Book Plate / Ownership Slip

A Barcode label may have the call number, accession number and the name of the library. It may be pasted below the due-date slip or on the inner side of the front or back cover of the books. However, whatever location is chosen, it should be consistently used, so that, the circulation staff does not have to look for the barcode while checking the items. Repeated use of the document, dirt, and so on may damage the label. Therefore, it should be protected with a clear cellophane label protector.



Fig 2.3.8: Spine label



A **Book Pocket** also known as the book card cover, is pasted on the bottom of inner side of the back cover of the book. It contains the name of the library and some important library rules.

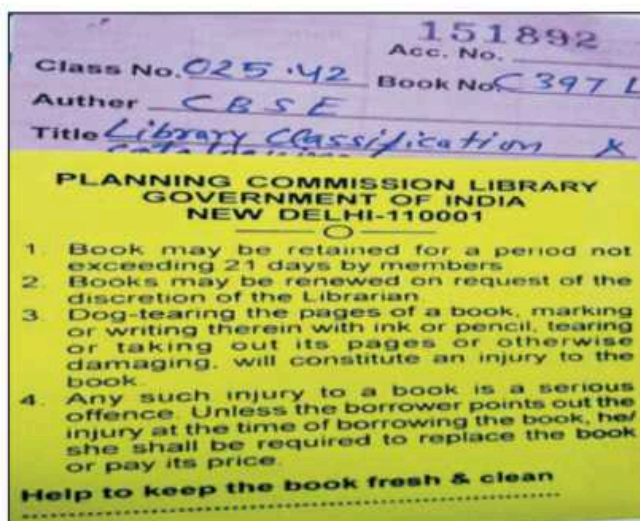


Fig 2.3.11: Book Pocket

Electromagnetic Tape is available in different shapes and sizes. For the library books the tape is most common. It can be affixed to a book, CD or DVD. During check out, if an item has not been deactivated, the electronically active gate of the library detects the strip and rings an alarm. When the items are returned, the strip is reactivated. The electromagnetic strip is usually pasted inside the books; between pages. So, the members cannot find it easily.

RFID tag is the heart of a fully automated library system. These tags are pasted on the inner side of a book's back cover or on CDs and DVDs. The RFID tag consists of a chip and an antennae. The tag can be divided into three different categories, namely, Read Only, WORM (Write One Read Many), and Read/Write tags.

Most libraries use the high frequency Read/Write tag.

2.3.7 Summary

Every library has a technical services department/division/section. This department handles acquisition, classification, cataloguing, physical processing, preservation, and maintenance of the material in the library. The manner of organising this material is called



technical processing. It includes their classification and cataloguing. The technical processing of books has been explained in this unit. The journey of a book, from procurement shelves has been discussed. The components of the call number have also been explained.

The library material in all formats - books, periodicals, videos, microfilms, sound recordings, CD- ROMs, etc. - have to be physically processed before they are 'shelf-ready'. This may entail, adding spine labels, due-date slips, circulation cards and pockets, bar codes and security strips, ownership markings, protective cases and covers and/or reinforcements. Physical processing makes the material ready for circulation and prolongs its shelf life.

2.3.8 Glossary

Accession Register: The chief record of the books added to a library. Books are numbered incrementally as they are added to the stock and entered in the register.

Barcode: A machine-readable code in the form of numbers and a pattern of parallel lines of varying widths, printed on library books and used especially for security and stock control.

Book Number: The combination of alphabets or alphabets and numbers, used to indicate an individual work in the library. The book number may consist of several parts: an indicator for the author (i.e., author's last name); an indicator for the title (when an author has published more than one work in the same subject area); the date of publication (i.e., 2014); a copy number if there is more than one copy of this particular work in the collection (i.e., copy 2).

Call Number: This is the location or address of an item on the library shelves. The call number is made up of the notation (the number indicating the subject of the book) and the book number (indicating the author and information about that particular copy). There should be a unique call number for each item in a library collection. This can be done through the use of indicators for the title, date and copy number in the book number. In short, it consists of the class number, book number and collection number of a book.

Notation: The number, or the alphabet and number combination, developed using the information given in a classification system (i.e., the schedules and tables of the DDC).

Physical Processing: The library materials in all formats have to be physically processed before they are "shelf-ready." Physical processing makes the material ready for circulation and prolongs their shelf life.

Technical Processing: The preparation of documents for use in the library is called technical processing.

RFID: Radio Frequency Identification System

2.3.9 Exercise

Short Answer Questions

1. State the need for technical processing of library material.
2. List the steps involved in technical processing of library material.
3. Explain the role of barcodes in automated circulation systems.
4. What is the main purpose of library classification?
5. Write a brief note on role of notation in library classification.
6. What does a call number consist of?
7. Define book number.
8. Explain the need for having collection number.
9. Draw a catalogue card indicating various items to be written at different places.
10. Enumerate the various aspects of physical processing of documents.
11. Why should library books be inspected before processing?
12. Give a list of various labels to be pasted on library books.
13. List the various items of information on a book card.

Long Answer Questions

1. Explain the need, purpose and steps of technical processing.
2. Write in brief note about Accession Register.
3. Give a comparative account of the assignment of accession numbers in manual and automated circulation system.
4. What is a Call Number? Explain the different parts of Call Number.
5. Discuss the process of physical processing of a document
6. Discuss the need for having various labels for library documents.



Module-3 | Library and Information Services

Unit-1: Traditional Library and Information Services

After studying this unit, students will be able to:

- Understand the need and role of information services
- Learn about the nature and functions of information services
- Study about various types of information services
- Understand responsive and anticipatory information services
- Learn about value added information services

Contents

- 3.1.1 Introduction
- 3.1.2 Information Services: Need and Role
 - 3.1.2.1 Reference and Information Services
- 3.1.3 Users' Approach to information
- 3.1.4 Types of information services
 - 3.1.4.1 Responsive Information Services
 - 3.1.4.2 Anticipatory Information Services
- 3.1.5 Value added Information Services
- 3.1.6 Summary
- 3.1.7 Glossary
- 3.1.8 Exercise

3.1.1 Introduction

An important need for human development is to seek information, and today libraries have become more than the information centres. Libraries may also be considered as service centres. Libraries have evolved from being a closed store house of documents (data-centric) to being an open destination where users are catered with information according to their needs (user-centric). Over the years, the task of the librarian has transformed from being a caretaker of information to being an information professional, who manages a system of information in multiple formats. This information is disseminated through specifically designed services as per the users' demands.



One of the prime objectives of any library is to satisfy the needs of its users and library and information services are designed to achieve this. The obligation of a library to its users is to provide information services to support their educational and recreational needs. This demands well-planned information services and proper implementation. There are basically three categories of information sources, primary, secondary, and tertiary. The method of dissemination of information is also variable. The basic methods are of two types, one is to provide information to the user in response to an expressed demand (on demand or responsive services) and the other one is to anticipate user's needs and provide them the right information (anticipatory services). The main focus of this unit would be to focus on basic categories of information their, services, needs, functions and role of information service.

3.1.2 Information Services: Need and Role

Libraries fulfil the needs of the user communities by acquiring a wide variety of information sources of diverse nature and formats, storing and preserving these sources at a suitable location, and adding value to them by organizing for easy access. The next step is to connect the users with the resources by providing direct assistance to them. Libraries provide users with information resources and in some cases leads or refers them to other information sources. The difference between a source and a resource is that a source is a raw material whereas a resource is a processed product. Sources become resources when they become relevant for the user. It should be verified and the content should be enriched with proper storage and easy retrieval. The development of a system or mechanism to acquire required sources, providing uninterrupted access to users, managing it in an organized way and customizing the resources and providing information services as per the needs of the users are the basic functions carried out successfully by any well-managed library or information centre. Information services in a library are also focused on marketing its products to the potential user or the one who demands. Making the information products marketable is a challenge before any modern library. The trends in the information required by the users of different educational, economic, and social backgrounds are to be conducted in order to decide the nature and scope of information services a library or information centre intends to provide.

3.1.2.1 Reference and Information Services

To meet informational needs of the users, libraries provide a range of services referred to as Reference and Information Services. Reference service are concerned with direct personal assistance to the users seeking information. They cover services such as assistance to the users in the use of the library and its tools, assistance in searching and locating documents, ready reference, and long range reference service, literature search and compilation of bibliography.



On the other hand, information services are provided in anticipation of various needs of the users of libraries. The current awareness services, indexing, and abstracting service are included in this category. These services are provided to users when they ask for it. The factors which affect the nature of services depend on the information-seeking behaviour, the information needs, and the service expectations of the targeted community. There are a number of ways by which a library can provide information services including direct personal assistance or reference service and referral services where the user is directed to the source, reader's advisory services, document delivery services and many other services designed in anticipation of user needs such as current awareness services, Selective Dissemination of Information (SDI), etc. There are value added information services like information repackaging (particularly in the field of business and science), subject analysis and information analysis, citation analysis, abstracting, translation, etc.

3.1.3 Users' Approach to Information

The nature and functions of an information service depends on the information and requirements of the end user. A user needs information for accomplishing certain objectives. We may classify a user's approach to information as below:

- i. **Everyday Approach:** This approach satisfies the daily information needs of the users. For example, Data on the property of a substance like colour of a substance.
- ii. **Comprehensive or Exhaustive Approach:** The purpose may be to identify a research area or to formulate a research proposal of a given subject by the users. This approach facilitates a detailed study on the field of interest.
- iii. **Current Approach:** This is the most essential approach to information for professionals and researchers. The user tries to keep abreast of what is being published from time to time in his/her area of specialization and in areas closely related to it. The knowledge about the latest advancements in the field of interest to keeps a professional up-to-date and also helps a researcher in avoiding duplication in research.

A library may device information services that are adequate to provide right information within the shortest time limit, keeping in mind the above approaches of information.

3.1.4 Types of Information Services

The variety and number of information services and products provided by modern libraries and information centres are quite large in the present era of information and knowledge explosion. The surge in knowledge creation and consumption happens in basic and interdisciplinary fields of technology, development, industry, marketing, trade and research and calls for an increase in personalized services.



Library and information services may be categorized as:

- i. Responsive services or services on demand, and
- ii. Anticipatory services

Responsive information services, also known as **passive information services**, are provided in response to the requests from the library users. **Anticipatory information services**, also known as **active information services** are provided in anticipation of the needs of the library users.

The following features and some of the important information services provided by libraries under these categories are discussed in the following sections

3.1.4.1 Responsive Information services

An information service provided in response to an expressed demand by the user is called a responsive or on demand information service. Here, the user requests an information professional to search and find out the specific information that he/she needs. A brief description of important responsive information services provided by a library is given below.

i. Reference Services

The concept of reference service was formulated in 1876 by Samuel Swett Green, librarian of Worcester Free Public Library in Massachusetts. In an article published in Library Journal, he advocated personal assistance and service by librarians to library readers. The purpose of reference service is to facilitate access to information. This is a highly personalized service, where the librarian interacts with the users in a one-to-one manner and provides access to the information. According to Dr. S. R. Ranganathan, "reference service is the establishing of contact between reader and book by personal service". The concept will get clearer when we understand the role of the library professional or the reference librarian, who delivers the reference service. Green's original paper suggested a reference librarian as the one who teaches people how to use the library resources, answers reader's questions, aids the reader in the selection of good books and promotes the library within the community.

Joan M. Reitz, in her "Dictionary of Library and Information Science" defined reference service as, "including but not limited to answering substantive questions, instructing users in the selection of appropriate tools and techniques for finding information, conducting searches on behalf of the patron, directing users to the location of library resources, assisting in the evaluation of information, referring patrons to resources outside the library when appropriate, keeping reference statistics, and participating in the development of the reference collection."

Reference services delivered by a library depend on the local situation, traditions,



kind of users, size, resources and the organizational and administrative philosophy followed by the library. The nature of service also varies from one type to another type of library. The reference services may be divided into three categories.

A. Basic services: There are several essential and minimum reference services that a library should perform. These include:

- a) Provision of general information (e.g., queries like “where is periodical section?”)
- b) Provision of specific information (consulting the documents)
- c) Assistance in the location and searching of documents (locating on the shelf and if not available, then searching in other places)
- d) Assistance in the use of library catalogue
- e) Assistance in the consultation of reference books, etc.

B. Services performed on regular basis: The reference services usually performed in a library are:

- a) **Readers' advisory service:** This is the process of recommending sources to library users based on their needs/queries. The reference librarian chooses a source which may be a book, journal, database, or website based on his/her skills, expertise and the nature of user's query.
- b) **Inter-library loan and document delivery:** Inter-library loan is the process of sharing materials between libraries. The libraries under a consortium or a mutual agreement may loan a physical item in original or a partial copy of it and deliver the same to the requesting library for a specific period of time based on certain established codes and copyright guidelines.
- c) **Reservation of documents:** This service allows a user to reserve an item of the library that has been loaned out to another user. When the item is returned, the user who reserved the same is informed and allowed to borrow it.
- d) **User Education (instruction):** User education deals with educating the user about the use of library facilities and services. In other words, this is a methodical approach to teach the users as to how to use the library effectively. There may be user education programmes on the general use of library and the use of library tools like catalogue, bibliographies, reference books, etc. Library orientation, which is given in the beginning (initiation of a freshman), is also a part of user education. But, user education is treated as a continuous service.

- e) **Compilation of Bibliographies:** This service may be on demand or in anticipation. This service will significantly help students and researchers.
- f) **Bibliographic verification and citations:** This is the process of reading, identifying, and interpreting citations to information sources, including books, manuscripts, journals, theses, web pages, or any other form of publication. During this process of verification, the reference librarian frequently finds other reference sources that cite the same publication, correct errors, and determines where to find the preferred information.
- g) **Indexing and abstracting services:** This service is mostly performed by special libraries. The abstracts and indexes of acquired publications may be prepared locally at the library. The intended users can refer to these services to find the required information.
- h) **Subject specialists:** Subject specialist reference librarians are now common in large and special libraries. They are specialists in specific subject fields or disciplines who select material for the collection as well as assist users with specialized research requirements. These service providers work closely with researchers and handle very complex questions.
- i) **Ready reference:** This service is particularly important for public libraries, where factual answers to highly specific queries are provided. (e.g., "What is the population of New Delhi?").
- j) **Library Tour:** This is a reference service given to a library visitor or a new member to understand the resources and services. The member is taken around the library under the guidance of a professional/instructor.
- k) **Holding of library exhibitions:** Exhibitions and displays are important services to attract users' attention towards new additions or previously unknown resources.
- l) **Issue of permits for library use:** This involves issuing of permits to non-members of the library to use the library for a certain period of time.
- m) **Maintenance of clippings and vertical files:** Clippings prepared from newspapers, magazines and pamphlets and vertical files containing pamphlets, prospectuses, reports, press clippings, etc., are sources of information having special importance.
- n) **Preparation of library publications:** Bringing out publications like handbooks, user guides/manuals, newsletters, bibliographies, indexing and abstracting documents, etc., and assisting other departments in their publishing activities, is an important reference service.



C. Services performed sometimes

These are information services not always provided by the library but only when the users demand. They are:

- a) Display/list of current periodicals
- b) Maintenance of special files
- c) Reproduction of documents (Photocopying, CD/DVD writing, microfilming, etc.)
- d) Translation service: Translation is a process of transforming precisely the information contents of the text from one language into another language.

ii. Referral Service

Referral service is referred to a prospective user of information source. The Concise Dictionary of Library and Information Science defines referral service as a "service which, if unable to provide the information required, refers the enquirer to another potential source or service". The distinction between a reference service and a referral service is that, in the former, the user is actually provided with the required document or information but in the latter (referral) the user is directed (referred to) the sources such as secondary publications, professional organizations, information units, research organizations or individual specialists. A referral service guides a user where to search for a resource which is presently not available in the library.

iii. Literature Search Services

Literature search service is an extension of reference service. The process of literature search starts with the library professional first understanding the nature, scope, depth and exact area of enquiry of the user by a user interview. Assessment of these indicators decides whether the search is for specific information, or for a few select references or for a comprehensive bibliographic information (mainly for research). This is followed by the formulation of a search strategy for searching different information sources. Knowledge of the subject area of search is beneficial for the librarian here. Traditionally, books, journals, theses, etc. and in modern parlance online databases, CD-ROM databases and web sites are considered as the most important sources for literature search service.

3.1.4.2 Anticipatory information Services

An information service provided for anticipating a user's needs is called an anticipatory information service. The important services under this category are given below:

i. Current Awareness Services (CAS)

The meaning of the term "current awareness" is the knowledge regarding recent



developments in a subject area of special interest to an individual. The process of current awareness function includes the reviewing of newly available resources relevant to the user community or pertinent to the programme of the organization and the selection and organization of individual items which must be brought to the attention of the user. The means for delivering this service varies depending upon the type of library. This service is concerned with the dissemination of latest information to a specialist to keep him/her up to date and well informed.

Finding relevant information has become more and more difficult for a professional, particularly in the field of science and technology. The exponential growth of scientific and technical information makes it impossible for the users to examine the information comprehensively. The need and relevance of CAS comes into effect at this point. The CAS enables the researchers to keep them up-to date and well informed. The information products delivered periodically by the libraries under CAS keep the researchers abreast of the recent developments in their field of study or work and save their valuable time. This is a perfect example of an anticipatory information service which draws a user's attention to latest trends/developments in a specific area of interest.

Current Awareness Services have two categories:

- a. **CAS directed towards individuals or group of users:** This type of CAS includes communication of information to individuals or groups through informal conversation or by telephone or mobile phone; through electronic messages (SMS), messages sent on notification form, selective dissemination of information (SDI), selective dissemination of documents, routing of documents (periodicals), etc.
- b. **CAS directed towards all users of the services:** This includes accession lists (new arrivals), bibliographies, indexing and abstracting services, literature surveys, bibliographic surveys, table of contents of periodicals, etc. The end products are current awareness bulletins which may include all the above elements.

The systematic ways to deliver a CAS are:

- (i) reviewing or scanning of documents regularly and focusing on a desired subject.
- (ii) selecting information and recording individual documents, and
- (iii) sending notification to the users about items of information of their interest.

The selected information is recorded and delivered by suitable means, such as (i) telephone calls or personal visit by the library professional; (ii) Written messages sent



on notification forms or post to call at the reference desk; (iii) routing of periodicals, selective dissemination of documents and users; (iv) preparation and publishing of library bulletins; (v) display, and (vi) view data.

ii. **Selective Dissemination of Information (SDI)**

The concept of Selective Dissemination of Information was originally given by Hans Peter Luhn in 1958. Selective Dissemination of Information (SDI) is a highly personalized service. It is a method of supplying each user or a group of users with references of documents or abstracts relating to their pre-defined areas of interest selected from documents published recently / received during the period in question. This service saves the user the effort and time of having to scan through a number of publications, and to choose the documents of interest to him. The basic concept behind SDI is the matching of information / documents with the profile of each user or group of users with same interest. A user profile and document profile are two important components of the SDI service. Then the matching items are brought to the attention of the user. The same activity can be performed effectively with the help of a computer. Commercial mechanized SDI services are available in highly information rich fields like science and technology.

During the process of SDI, the 'user profile' which comprises of a set of 'key words' organised as meticulously as the 'system' permits, describe the subject of interest, in accordance with the keywords that appear on the documents. A document is selected when two key words coincide. In an automated environment, once a search profile of the user is created and saved, relevant information is sent to the researcher automatically (and the selected databases/catalogues are updated). The effectiveness of an SDI service depends on the completeness or comprehensiveness of the user profiles and the relevance of the information; which are to be matched with each other. The SDI is considered as one of the best current awareness services available at present.

3.1.5 Value-added Information Services

'Value-added' information services are those services which have an added value to the original, in order to make them more useful for the users. These are the services or products that are provided in a collated, refined and convenient form to make them readily usable by the users. These are different from services offered in routine manner and are treated as special.

Taylor suggested three advantages of value addition to the information services. These are:

- i. Making choice easier, by labelling information and reducing noise;
- ii. Classifying a situation by providing a new structure to information;



- iii. Increasing the possibilities of better decisions by providing better quality, better formatted, and more precise information, adapted to the problem or situation.

Value added information services can be organised into the following groups:

- i. **Selection and packaging:** This is the process of selection and integration of information from different sources (internal and external) and of varied kinds (bibliographic and numeric/factual or formal and informal) to get an enriched end product with an added value.
- ii. **Subject analysis:** The added value by this service is based on the intellectual input of the analysis (by means of indexing, classifying, cataloguing, abstracting, etc.) makes the information easily accessible and more comprehensible.
- iii. **Information analysis:** Information analysis is done for improving the authenticity and usability of information. This is done by specialists in the concerned subject areas, keeping in view the requirements of the potential users of the information. The process of information analysis includes selection, evaluation, validation, standardization, summarization and synthesis.
- iv. **The user interface:** User interfaces are mechanisms built into information systems and services to enable the users to utilise these services in an effective manner. For example, user interfaces in an online bibliographic information retrieval system.
- v. **Context setting:** Context setting, by its very nature, implies a particular context and a particular user need. This service is most relevant for inter-disciplinary areas where the significance and inter-relation among individual pieces of data are assessed. This data will be converted into information.
- vi. **Information for innovation:** Innovation gives a winning edge to an organization. It is based on new ideas and new combination or interpretation of old ideas. The quality of processed information by an organization and information activities within it make their innovations fruitful.
- vii. **Information rich environment:** This will keep communication among individuals and groups more relevant and accurate. Every time access to quality information supports good decision making and better management.

The main disadvantage of a value added information system or a service is its high cost of production and delivery, which may not be affordable to all users.

The advancements in the field of Information Technology have initiated a large number of online and digital information services. Many traditional information services may become non-relevant in future due to the exponential growth of new technologies and tools. We will discuss in detail the new trends in the field of information services in the next unit.



3.1.6 Summary

The primary objective of a library as a service organization is to satisfy the information needs of users, and the information services are designed to achieve this objective. The nature and scope of any information service depends on the user's approach to information. Information services are basically categorized into responsive or on-demand services and anticipatory services. Responsive services are provided in response to the demand by the user. Major responsive information services include, reference services, referral services, and literature search. Reference services may be categorized into: (i) basic services (e.g., Provision of general and specific information, assistance in locating the document, searching the library catalogue and using a reference source), (ii) services performed usually (e.g., readers' advisory service, inter-library loan and document delivery, reservation of documents, user education, compilation of bibliographies, bibliographic verification and citation, indexing and abstracting, subject specialists, ready reference, library tour, exhibitions, issue of library use permits, maintenance of clippings and vertical files, preparation of library publications, etc.), and (iii) services performed sometimes (e.g., display of current periodicals, special files, reproduction of documents, translation service, etc.). Referral services refer a user to the right source. An information service provided by anticipating a user's needs is called an anticipatory information service. Examples are: current awareness and Selective Dissemination of Information (SDI). Value added services are different from routine services, with the addition of something special which makes them more useful. The sudden growth of technology has changed the nature of library and information services tremendously, but their role in providing the right information to the needy users remains unquestioned.

3.1.7 Glossary

Abstracting services: Short summaries of articles of periodicals, collected and organized and brought out periodically for access.

Active service: Library staff provides the service in anticipation to keep the user well-informed.

CD-ROM: Compact Disc Read Only Memory.

Indexing services: Providing access to journal articles and such other documents through organized arrangement of entries of subject headings.

Passive service: Library staff waits for the user to approach them and make a demand.

Referral Service: A service which directs enquirers to an appropriate source for the information or data required.

Reference Service: A service that is concerned with direct personal assistance to the user seeking information.



Special Libraries: The libraries that are attached to R&D organizations to serve the specialists of the R&D organization, who are actively engaged in research in a particular subject or discipline.

User Education: Imparting formal training to users for using library and its resources.

3.1.8 Exercise

Short Answer Questions

1. Name the two basic types of information services.
2. Name the three basic categories of reference services.
3. What are the factors on which reference services provided by a library should depend?
4. What is an anticipatory information service?
5. Distinguish between Every day approach, Comprehensive approach and Current approach to information.
6. What is a responsive information service?
7. Define a reference service.
8. Distinguish between library orientation and user education.
9. Write a short note on 'referral services'.
10. Write a short note on 'Current Awareness Service'.
11. How are the value added information services categorized?
12. Compare the advantages and disadvantages of value added information services.
13. Name the two types of Current Awareness Services.
14. Who set forth the concept of Selective Dissemination of Information?
15. What are 'value-added information services'?

Long Answer Questions

1. Explain the role and need of library information services.
2. How do the user approaches to information affect the information services? Discuss.
3. What is a responsive information service? Describe the major services under the category.
4. What is the role and importance of anticipatory information services in a library? Describe different types of Current Awareness Services.
5. Discuss about the value added information services and how are they categorized?



Module-3 | **Library and Information Services**

Unit-2: Modern Library and Information Services

After studying this unit, students will be able to:

- Understand the nature and scope of changes in the area of Library and Information Services
- Know about the components of Information and Communication Technologies (ICTs)
- Know the impact of ICTs on Library and Information services
- Study about the application of ICTs on delivering effective information services, viz. traditional and modern
- Learn about emerging trends and concepts in the area of Library and Information Services
- Understand the role of a modern Library Professional in providing information services in digital environment

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3.2.3.3 Services to access local/internal digital resources

3.2.4 Emerging Trends in Library and Information Services

3.2.5 Roles, Skills and Competencies of Library Professionals in providing Modern Information Services

3.2.6 Summary

3.2.7 Glossary

3.2.8 Exercise



3.2.1 Introduction

The advent of technology in the last few decades, especially the revolutionary changes that have happened in the field of Information and Communication Technologies (ICTs) have reshaped the entire system of libraries and information centres. Application of computers in libraries, which began in late 1960s, followed by the universalization of library automation, marked the beginning of the trend of modernization in library and information management. Although, the primary function of a library or information centre remains the same, i.e., to acquire, organize and provide access to information to the user, the ways through which these tasks have been carried out have changed tremendously. The first decade of 21st century witnessed the emergence of internet as the most popular source of information, whereas the present decade sees a surge in the number of people accessing it, particularly using handheld devices. The role of a library has now been transformed from the sole authority and provider of stored information to a system which facilitates access to information available in any format from any internal and external source. Newer tools, technologies and concepts which enable access to and disseminate information have emerged. Their incorporation to provide better resources and services to the users has become the hallmark of library modernization. Integration of web 2.0 tools and the emergence of concepts like hybrid library, library commons, open data, etc. are some of the trends in this direction. The involvement of today's users in the creation of new information/content through various channels demands more open information platforms and library systems. Libraries have been developing or inventing new services as per the needs of the highly demanding present generation users. In the following sections of this unit, the impact of Information and Communication Technologies on library user services and the relevance of modern trends in the field are discussed along with a brief study on the changing roles of library professionals.

3.2.2 Impact of ICTs on Library and Information Science

Historically, the industrial revolution in the second half of the twentieth century spearheaded the transformation towards a technologically advanced society. Development of such a society needed unrestricted access to information, the most valuable resource and commodity. Creation, organization and access to information became the most important activity of nations who were eager to prosper. The research in the field of Information and Communication Technologies or ICTs resulted in the development of more products and services in all spheres of human life. The impact is more evident in service oriented sectors such as health, banking, education, transportation and libraries.

Let us primarily understand the two rather interchangeably used concepts, Information Technology (IT) and Information and Communication Technologies (ICTs) by studying two definitions. The first broader definition is by UNESCO whereas the second one,



oriented towards Library and Information Science, is by the American Library Association (ALA).

UNESCO defines Information and Communication Technologies (ICTs) as “the hardware and software that enable society to create, consolidate and communicate information in multimedia formats and for various purposes”. It means, ICTs include both networks (fixed, wireless, satellite and broadcasting) and applications (internet, database management systems and multimedia tools).

The American Library Association (1983) defines Information Technology (IT) as “the application of computers and other technologies to the acquisition, organization, storage, retrieval and dissemination of information. The computers are used to process and store data, while telecommunications technology provides information communication tools, which make it possible for users to access databases and link them to other computer networks at different locations.”

The impact of the ICT's on libraries and information centres is most felt by two basic fields. These are:

- i. Management of information resources (library housekeeping operations), and
- ii. Delivery of library and information services.

The execution of library housekeeping operations such as acquisition, cataloguing, circulation, serials control, etc. are now enabled by or based on a number of information and communication technologies. The most important one is the Integrated Library Management System (ILM's). Modern libraries now function in a completely networked and automated environment where every operation is done with the help of one or many of information or communication based tools or technologies.

When we think about the delivery of library and information services, it is nearly impossible to carry them out without the help of ICTs. Internet has become the most visible and dependable information gatherer and disseminator for a researcher as well as a layman. A user can now access information at any given time from any corner of the globe with the help of a number of devices and technologies. More and more libraries are redesigning their traditional services and devising new or innovative strategies to live up to the expectations of the users. Incorporation of new ICT based user services helps them to realize these efforts.

Application of ICTs in libraries is beneficial because it:

- i. Facilitates effective control in libraries over the collection, in-house work flow and delivery of user services through Integrated Library Management System (ILM's).
- ii. Provides speedy, round the clock and easy access to information in digital formats to users.



- iii. Enables remote and flexible access to customized information to users as per their individual needs.
- iv. Facilitates access to unlimited sources of information through networking and consortia.

3.2.2.1 Components of ICTs in Libraries

The information and communication technologies used in libraries may be categorized as below:

- i. Computer Technology
- ii. Communication Technology, and
- iii. Reprographic, micrographic and printing technologies

Computer technology and its applications in libraries will be discussed in detail in later units. Some of the ICT's technologies that have direct or indirect applications in libraries are listed in Table 1.

Table 1: ICTs in Libraries

Computer Technologies	Communication Technologies	Reprographic, Micrographic and Printing Technologies
Hardware:	Audio	Reprographic
Personal Computers	Video	Micrographic
Mini/Mainframe/Super Computers	Audio-visual	Printing (traditional and modern)
Handheld devices	Radio	3D Printing
Storage: CD/DVD	Cable Television	Scanners
	Film	
	Tele-text	
Software:	Video-text	
System Software and Application Software	Telephone	
Integrated Library Management System	Cell/Mobile phone	
Digital Library Software	Smart Phones	
Digitization Software	Fax (Telefacsimile)	
e-learning Software	Tele-conferencing	
	Networking (LAN,WAN)	



Artificial Intelligence	Satellite	
Cloud Computing	Barcode	
Storage:	Smartcard	
ACD, VCD, DVD-ROM	RFID	
Flash Drives	Wireless	
E-Resources	Internet	
e-books	Email, Voice mail	
e-Journals	Instant Messaging (Chat)	
Databases (Bibliographic, Full text and multimedia)	Web 2.0/Social Media (Social Networking, Blogging, etc.)	
e-learning resources	Voice Over Internet Protocol (VOIP)	
Electronic Thesis and Dissertations (ETD)		
Library Consortia		

3.2.2.2 Impact of ICTs on Traditional Library Services

To understand the impact of ICTs on library and information services, let us first discuss some traditional or conventional library operations and services where the application of ICTs is predominant and has now become indispensable.

i. Integrated Library Management System

An Integrated Library Management System (ILMS) is also called as an Integrated Library System (ILS). An ILMS is an automated system to facilitate technical functions of a library. These functions generally include circulation, acquisitions, serials control, cataloguing, etc. An ILMS usually consists of a relational database, software to interact with that database, and two graphical user interfaces, one each for staff and another for users. In most ILMSs, separate software functions into separate modules, each of them integrated with a unified interface. An ILMS improves the efficiency of internal library operations, facilitates interoperability of information systems and provides users with easy access to library resources and services. Some of the ILMs from India and abroad are LibSys, KOHA, Evergreen, VTLS, SOUL, e-Granthalaya, Sanjay, NewGenLib, etc.

ii. Online Public Access Catalogue (OPAC)

Online Public Access Catalogue (OPAC) is an online database of library resources which can be searched by the user to locate resources in a library or on the network of



a group of libraries. The early attempts to develop online library catalogues were made by the Ohio State University in 1975 and the Dallas Public Library in 1978, which gradually replaced the card catalogues. Later, the OPAC got included as an important module in the advanced Library Management Systems. OPAC is the primary user interface of an ILMS, where the user can search the entire library catalogue, easily and quickly, using one or more search criteria (e.g., author, title, key words, class number, subject, etc.). The results are displayed in various formats such as AACR-2 and MARC. An OPAC can also be accessed from a remote computer which is on a network (LAN/WAN). When a library OPAC is provided on internet, it is called Web OPAC, where the remote user can access the catalogue and avail certain services like online renewal, reservations, loan requests, etc. from anywhere in the world with a proper internet connectivity.

iii. Reference Service

Reference service is considered as one of the most important functions of any kind of library. In-person, by post and by phone are the three most conventionally followed methods for providing reference services. The impact of ICTs on reference service is apparent in the way it is delivered to users. ICT enabled reference services are primarily computer mediated online communication between the users and the library professionals and are popularly known as “virtual reference” or “digital reference”. American Library Association defines virtual reference as a “reference service initiated electronically, often in real-time, where patrons employ computers or other Internet technologies to communicate with reference staff, without being physically present”. They are of two types, (i) synchronous, or real-time communication, like online chat using Instant Messaging (IM), Voice over IP, co-browsing and videoconferencing, and (ii) asynchronous, where the communication is send and received at different times, like e-mail, (e.g. Ask a Librarian e-mail reference), web-forms and text messaging (SMS). There are virtual reference software packages which offer customized reference services as per individual library policies. Example: Question Point software by Online Computer Library Centre (OCLC).

i. Current Awareness Service (CAS)

Current Awareness Service keep the users up-to-date in their areas of concern. This may be any online or offline resources or services that provide regular updates to users on current literature in a research field of interest. Traditional CAS includes publication of current awareness bulletins and circulation of tables of contents. Internet and the proliferation of electronic databases initiated a number of ICT enabled CAS resources and services. Libraries and database or e-content producers/distributors have developed many services which include, (i) e-



newsletters or online newsletters/bulletins, (ii) e-mail alerts, (iii) Citation indexes, (iv) RSS (Rich Site Summary) feeds from websites and online databases, (v) Saved database searches (using pre-defined search strategies as per user needs), (vi) Online peer networks (e.g. ProQuest's Community of Science), (vii) List serves, (viii) Webzines/e-zines, and (ix) Weblogs/Blogs.

v. Selective Dissemination of Information (SDI)

SDI is a type of current awareness service which involves screening of documents and the selection of the exact information, tailored to meet the specific information needs of a user or a group of users in their area of specialization, and supply of it in a personalized form. Although the concept of SDI originated in 1950s, the service became more popular in the ICT era, where it is delivered with the help of computer programmes which match the pre-designed 'user profile' with the 'document/resource profile'. The SDI service is delivered the same way as CAS is provided.

vi. Bibliographic Service

Bibliographies are essentially lists of books or other material that can be organized by author, title or subject. They are used to identify and locate a document, and to select material for developing a collection. Manual compilation of a bibliography is a tedious task and requires continuous efforts to keep it up-to-date. Bibliographic databases available online or in electronic form on CD-ROMs elude these issues and offer more search options and display formats to the users. Conventional bibliographies deal with books only, whereas these databases are digital collections of references to published literature (journal and newspaper articles, conference proceedings, reports, patents, government and legal publications, etc.). Many databases provide web based natural language and full text searches with links to the original document. Examples for some online bibliographic databases are, ERIC (Educational Resources Information Centre) by the Institute of Education Sciences (US), INSPEC by the Institution of Engineering and Technology (US), LISTA (Library, Information Science and Technology Abstract) by EBSCO, etc.

vii. Union Catalogue and Inter Library Loan(ILL)

A union catalogue consists of holdings of a group or consortium of libraries. The basic objective of such a system is to facilitate sharing of resources. A union catalogue lists the holdings of each member library, which is connected either on a network or through the Internet. Search is carried over and the result is displayed on a single user interface. The provision of inter library loan is to transact between two member libraries to lend material to each other on a short-term basis, which can be established



only with the help of a standardized union catalogue. Digitization of library holdings and web OPACs speed up the process of interlibrary loans. Examples: WorldCat by Online Computer Library Centre (OCLC), COPAC (University of Manchester, U. K.), IndCat: Online Union Catalogue of Indian Universities by Information and Library Network (INFLIBNET), and Union Catalogue of Books by Developing Library Network (DELNET).

viii. Document Delivery Service

ICT based Document Delivery Services are now common in many libraries where the requested document is delivered to the client electronically (email). The user can search the web OPAC or the union catalogue available and order for the document and get it delivered. Examples for commercial document delivery services are, British Library Document Supply Service (BLDSS), where one can obtain documents (copies of documents, images, soundtracks, etc.) online and through Science Direct.

ix. Audio Visual Services

The extent of changes in the field of audio and video (multimedia) technologies enable libraries to handle the resources more effectively in providing better service to users. Media libraries and other libraries that have collection of images, audio, films, pictures, etc. make it accessible to patrons by using latest available technologies. Multimedia resources are now stored on intranet or publically on internet and kept accessible to users. A number of hardware and software applications are used to deliver these resources.

x. Library Extension Services

Extension services are programmes or activities carried out by a library to reach out to the users who might otherwise be unaware of the resources and services. Traditional library extension services include library orientation, library tour, fairs, exhibitions, campaigns, publicity, reading clubs/groups, celebration of events, mobile library services, publications (newsletter/bulletins/guides), etc. Advent of ICT tools and technologies has made many of the library extension services more attractive and effective. Web 2.0 tools like blogs, wikis, social networks, etc. are extensively used to publicize library resources and activities. Virtual tour to the sections of the library is now a regular feature on many advanced library websites. Many libraries publish e-newsletters or e-magazines. Library orientation programmes and information literacy sessions are conducted with the help of online tools and applications.

The above discussion clearly underlines the impact of information and communication technologies on almost all traditional library services. The influence is so comprehensive that without ICT it is impossible to deliver any library services so effectively for the information needs of the users.



3.2.3 Modern Library and Information Services

Modern library and information services have been profoundly affected by the emergence of a large number of information and communication technologies and tools. Exponential growth of digital/electronic information spearheaded creation of new information products which in turn demanded new user services. The rise of Internet as a gigantic store house of information has set challenges as well as opportunities before the libraries and information centres. Web based information services take prominence as the quantity of global population which has access to Internet increases day by day. The changing preferences of today's users from print to digital/online and real-time information tend the libraries and information centres to redesign their traditional services by incorporating web based tools or developing innovative services based on these technologies.

Modern trends in library and information services can be listed under three categories:

- i. Web-based library and information services
- ii. Services to electronic/digital/web resources, and
- iii. Services to local/internal digital resources

The features of the various fast developing library services will be discussed in the following sections.

3.2.3.1 Web-based Library and Information Services

'Web' is a synonymous and popular term of World Wide Web (WWW) or Internet. The traditional method of offering library and information services has changed greatly in recent years because of the development and applications of new technology, especially the Internet and Web Technologies. The demands and expectations of users have also changed considerably. In the changed scenario, the academic libraries in India are offering new web-based library services to satisfy the users.

For this unit, "Web-based library services means library services provided using Internet as medium and library website as a gateway with the help of integrated library management systems (Madhusudhan, Nagabhushanam 2012)". In simple words, web-based library services that are modified versions of existing services and technology-driven library services (Arora, 2001). The history of web-based library and information services began in 1960s by the introduction of computers in libraries for information processing, which resulted in the creation of bibliographic databases like MEDLARS in 1963, BLAISE (British Library Automated Information Service), and the formation of online library networks, like OCLC.

In the following sections, some of the major web-based library and information services will be discussed.



i. Library Web Portals

A library web portal is a website that offers access to a broad range of information resources and services, such as online catalogues, e-journals, databases, information on new additions, programmes, etc. It acts as a gateway to the libraries web/online resources and services. Web portals have replaced the earlier static library websites, which had limited features, and now have become more interactive and user-friendly.

ii. Web OPAC and Next Generation Catalogues

Web OPAC is an Online Public Access Catalogue made available on the web. It offers the user with a 24x7 access to the library catalogue. The user can search the library catalogue and find the availability of library holdings. Simple and advanced search options are available and many of the webOPACs offer online renewal and reservation facilities to the members. A Next Generation Catalogue, also termed as Catalogue 2.0, is a single point of entry for all the library information. Here, 'information' refers to all library resources, including all bibliographic information on printed books, journals, multimedia documents but also links to full text electronic databases, digital archives, and any other library resources. These new generation catalogues use federated search engines for this one-stop searching. The users are directed to electronic and printed resources which are linked together on a single interface. Other features of the next generation catalogues are, state of the art web-interface, which is intuitive and visually appealing, enriched content (images of book covers, CD cases, book summaries, tables of contents, reviews, etc.), faceted navigation (which allow users to narrow down the search by facets, like, authors, dates, types of material, subjects, location, etc.), simple keyword search box (like popular search engines, e.g., Google) instead of controlled vocabulary, and options for advanced search, relevancy (ranking of resources using many criteria like circulation statistics, comments received, etc.), "Did you mean...?" (Spell checking of search entries and recommending other search queries), recommendations and related materials (suggestions to related materials), user contributions (ratings, reviews, comments and tagging by the users) and RSS Feeds (which give updates about new acquisitions and search updates).

Examples for Next Generation OPACs: Voyager ILS by Ex Libris, EBSCO Discovery Service (proprietary), Evergreen, Invenio, KOHA (open source).

iii. Bulletin Board Services and ListServes

A 'bulletin board' is a public discussion area where users can post messages without sending them to anyone's personal e-mail address, which can be viewed by anyone who enters the area. The entry to the area may be restricted by invitation or be kept



open. Bulletin boards are also known as forums or newsgroups. Announcements regarding library resources and activities, information on special collections, etc. can be displayed over here. These electronic bulletin boards are linked to library websites for general users and special groups.

Listserve are topic or subject oriented online forums, where messages are communicated through e-mail. These are basically discussion forums which deal with topics on academic or professional interests. One who subscribes to the listserve can send and receive emails, the process that is controlled by a programme, hosted by the parent organization/authorized individual, for example, Become a Reading Butterfly!

iv. Subject Gateways

A gateway is defined as a facility that allows easier access to network based resources in a given subject area. Subject Gateways provide high quality evaluated web resources. These act like clearing houses to quality information selected by subject experts. Basic objective of any subject gateway is to help users to locate high quality information resources available on the Internet. These are user searchable metadata databases with hyperlinks to specific information. Search may be with keywords or subject headings.

Examples: INFOPORT (INFLIBNET Subject Gateway for Indian Electronic-Resources), ipl2: Internet Public Library (IPL) and the Librarians' Internet Index (LII) (<http://www.ipl.org/>), INTUTE (Social Science Information Gateway), covering social science resources and OMNI (Organizing Medical Networked Information) covering medical resources.

v. Web based Current Awareness Service

Libraries offer web based CAS primarily through e-mails. Individual and customized email alerts are provided to the users on their area of special interest about new acquisitions of documents, table of contents of journals or new web resources available on the Internet. Many publishers also provide journal alerting service.

Example: Journal Alerting Service by Oxford University Press, Journal Table of Contents Service (tic TOCs) by JISC, National Archives, UK.

vi. Online Question and Answer Service

Web-based question and answer service is an asynchronous system that uses a web form to receive requests (questions) and responses (answers) which are sent via email to the enquirer. 'Ask a Librarian' service provided by libraries is an example for a Question and Answering Service. This is also considered as a part of the digital reference service. Example: Ask ERIC (U.S.).



ix. Webcasting

Webcasting is the method of broadcasting live audio and video in real-time, to audiences all over the world via the Internet. It is 'broadcasting' over Internet. Streaming media technology is used here to distribute a single content simultaneously to multiple viewers/listeners. There is no need to download the content before viewing. A webcast may either be distributed live or on demand. In the area of LIS, Library of Congress (LoC) offers webcasts of audio and video resources like talks on history, performing arts, culture, science and technology, through its web page for webcasts.

vii. Web based Reference Services

Providing web based reference services to users, who are sitting anywhere in the world in a 24x7 mode is now popular in many libraries. Access to in-house electronic reference sources and external digital resources like database and online reference websites, provided in a mediated way is the base of such services. Web based reference services include:

- a) **Reference websites:** These are websites that exclusively provide reference information like Britannica online (<http://www.britannica.com>), Encyclopedia.com (<http://www.encyclopedia.com/>), Infoplease (<http://www.infoplease.com>), Oxford English Dictionary (<http://www.oed.com/>).
- b) **Online Reader's Advisory Service:** The recommendations and review of the book titles and other resources by experts are posted on the library website. A search features allow the visitors to search for reviews of specific titles/resources and an online form permits the readers to submit their own review for publication on the site. Additional information on local book talks and book club is also provided with links to web sites of interest to readers.
- c) **Online Instruction Service:** Bibliographic instruction to new members is provided in an online way using web based tools and technologies. Instructional videos on the use of OPAC, resources, etc. are made available online which can be viewed/ listened by the users.

3.2.3.2 Services to access web resources

Modern libraries largely depend on web resources (also termed as electronic/digital resources) to provide up-to-date information. Almost all digital information resources are now available on a networked (internal or internet) environment. Providing access to these resources in the library or remotely on a network is one of the main services of a library. Web resources have many advantages over traditional print resources. Some are:



- a) Web resources can be interlinked and hence users get comprehensive information (e.g., journal articles can be hyperlinked with their own reference sources, external indexing/abstracting databases and other web resources).
- b) Anytime anywhere access: Digital/web resources can be accessed 24x7 and from anywhere, may be on an internal network or on internet using a remote login facility.
- c) Web/digital resources save the time of the user, physical space in a library and are easy to maintain.

Main library and information services which are intended to provide access to various web based information resources will be discussed in this section.

i. E-Books and other Downloadable Media

Merriam Webster's Dictionary defines an E-book as "a book that is read on a computer or other electronic devices. It is a book composed in or converted to digital format for display on a computer screen or a handheld device"



Fig 3.2.1: An E-reader

Encyclopaedia Britannica categorizes the method of distribution of e-books on the Internet as: (i) downloadable files that can be read offline, (ii) as live web pages that must be read online, or (iii) as web pages that are cached by a web browser for reading offline. e-books may be downloaded or accessed in a closed (proprietary) system, where the buyer or the library has to purchase the e-book from the publisher/distributor under the Digital Rights Management (DRM) Policy. Example: Amazon Kindle, Apple iBooks, etc. In an open system, e-book files may exist in only one place, but anyone can access and download the files (whether for purchase or free download), because their metadata are freely available and can be freely shared. Examples: Catalogues created in the Open Publication Distribution System (OPDS,

part of the Internet Archive's BookServer Project) and the Project Gutenberg. E-books can be read on any electronic device with a software to display their given file format. Most common e-book file formats include EPUB, (an open standard for e-books created by the International Digital Publishing Forum (IDPF)), e-Reader (Palm Digital Media), iBook (Apple), AZW (Amazon), LIT (Microsoft), PDF (Portable Document Format by Adobe), ODF (Open Document Format), MOBI (MobiPocket), etc. e-book reading devices include dedicated e-Readers, personal computers, mobile (smart) phones, hand held devices like tablet computers, and consoles attached to televisions or other screens.

The other downloadable media to which modern libraries provide access to users are:

- a) **Audio Books:** access to downloadable audio books (e.g. Audible.com, Amazon Prime)
 - b) **Music:** access to downloadable music (e.g. Freegalmusic, Napster, Spotify, Shazam)
 - c) **Digital Magazines (digital newsstand):** access to magazines in their digital form (e.g. Zinio, GTxcel)
 - d) **Movies:** streaming movie service to access, films, documentaries and other video contents (e.g. Indieflix, Netflix, HuluPlus, YouTube)
 - e) **News:** access to newspaper databases (eg: Worldcrunch)
 - f) **Learning Resources:** e-versions of test preparatory materials, guides, handouts, etc. (e.g. ThomsonGale)
- ii. **Online Database**

A database (e-database) is an organized collection of information, of a particular subject or multi-disciplinary subject areas; that can be searched and retrieved electronically with the help of searchable elements or fields. A single database may refer to a specific type or a variety of sources, including periodical articles, books, government documents, industry reports, conference proceedings, newspaper items, films, video recordings etc. A database may be dedicated to a single subject or cover several subjects. The contents may be updated in a daily/weekly/monthly manner. Libraries, based on their user needs, subscribe to these database through information retrieval service providers or database vendors/publishers. As the contents of library database are sourced from experts and professionals on the field, they are more reliable than the information that is available on some websites. Primarily, database can be: (i) Full-text database (compilations of documents or other information in the form of database in which the complete text of each referenced document like journal articles, conference proceedings, etc. is available for online viewing, printing, or



downloading), e.g., Academic Search Premier, JSTOR, Science Direct, and (ii) Bibliographic databases (databases of bibliographic records or citation information), e.g., LISTA, MEDLINE.

Databases have three categories based on the scope of the subject area they cover. They are:

- a) General interest (multi-disciplinary) database: consist of information from several subject areas and disciplines. E.g., JSTOR, Academic Search Complete, Project MUSE
- b) Discipline-specific databases: consist of materials from related subject areas. E.g., SocINDEX (sociology research database), SPORT Discuss (sport medicine and related fields).
- c) Subject-specific databases: provide in-depth information on a specific subject. E.g., Ethnic News Watch (ethnic, minority, and native press content), PsycINFO (behavioural science and mental health).

Libraries provide in-house and remote access to subscribed databases to their members. To reduce the huge subscription cost, libraries form consortia share the resources among them. INDEST (Indian Digital Library of Engineering, Science and Technology), and INFLIBNET are two examples for such library e-journal consortia. Another method to provide access to e-journals is through Aggregator services, which offer searchable databases of contents of e-journals from several publishers, and links to journal site for full text. E.g., Emerald, J-Gate.

iii. Other web-based resources

Other important web-based resources to which libraries provide access are:

a) Electronic Theses and Dissertations (ETDs)

Many Universities and research organizations in India and abroad are now digitizing their thesis and dissertations and make them available on internet for public access. One global initiative is Networked Digital Library of Theses and Dissertations (NDLTD). Indian Digital repositories of Theses and Dissertations include that of Indian Institute of Science, Bangalore, India and 'Sodhganga' at INFLIBNET Centre.

b) Open Educational Resources and other Course Materials

According to UNESCO, Open Educational Resources (OERs) are any type of educational material that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and



freely copy, use, adapt and re-share them. OERs range from textbooks to curricula, syllabi, lecture notes, assignments, tests, projects, audio, video and animation. Examples of this include MIT Open Courseware Project, World Bank Open Knowledge Repository, Open Yale Courses and NROER (National Repository or Open Educational Resources) by NCERT.

Other digital learning repositories which provide teaching and learning resources on the web include ERIC (Education Resources Information Center, USA), NDLR (National Digital Learning Resources, Ireland).

3.2.3.3 Services to access local/internal digital resources

Many libraries are developing their digital collection of documents like institutional repositories and archives of historically important documents and are making them available on intranet and on the Internet. The main digital services are:

i. Institutional Repositories

An institutional repository (IR) is an electronic archive of the scientific and scholarly output of an institution, particularly an institution, which has been stored in a searchable digital format and which can be retrieved for later use. The contents deposited in IRs include: (i) Electronic Theses and Dissertations; (ii) Conference papers and Proceedings; (iii) Preprints and post prints of journal articles; (iv) Books and Research Datasets; (v) Working papers and Reports; (vi) Teaching and Learning objects; and (vii) multimedia collections. DSpace and E-Prints are the most common software used for developing IRs. IRs make the institutional outputs open to the world. Open Access IRs around the world can be accessed at the Directory of (Academic) Open Access Repositories (Open DOAR) and Registry of Open Access Repositories (ROAR) websites. Indian examples include Dyuti (Cochin University of Science and Technology), Open Access Repository of Indian Institute of Science Research Publications (ePrints@IISC), etc.

ii. Online Exhibitions

An online exhibition or virtual exhibition or online gallery is a web based service provided by libraries, museums and archives where an exhibition of digital artefacts (photographs, paintings, documents, etc. normally owned by the institution) is conducted online. It may be viewed or visited by anyone irrespective of time and physical location. Advantages of an online exhibition over the physical one include a wider reach to the audience, saves production costs, solves conservation/preservation problems, creates a durable online record and provides anytime-anywhere access.



Examples: American Treasures of the Library of Congress, Latin American Business History by Harvard Library, Online Gallery of British Library, Columbia University Library Online Exhibitions.

iii. Web Archiving Service

Jinfang Niu (2012) describes web archiving as 'the process of gathering up data that has been recorded on the World Wide Web, storing it, ensuring the data is preserved in an archive, and making the collected data available for future research. Like the management of many other kinds of information resources, the workflow of web archiving includes appraisal and selection, acquisition, organization and storage, description and access.' Web archiving services are getting prominence, as in many occasions, the web has become the sole medium for communication, sharing and collaboration between organizations and individuals and the information published on a website may be the only place where it is available. Websites are now important records for organizations and individuals that are to be preserved for reference and posterity. The dynamic nature of the websites also warrants their preservation. Web archivists use automated tools (or web crawler softwares) to collect or harvest websites. Web crawlers go across the web and into the websites to copy and save the needed information. These archived websites are organized and made available to the users for online access. Many of the national libraries are now archiving the culturally important and country specific web contents. Proprietary web archiving software services are being utilized by companies to archive their own web content for business, heritage, regulatory, or legal purposes. The largest non-profit web archiving service available is the Internet Archive (<https://archive.org/>).

Examples for Library web archives:

- ❖ **Legal Deposit UK Web Archive:** Developed by the British Library with millions of websites obtained through an annual archiving of the entire UK domain. This was enabled by the non-print legal deposit regulations introduced by the U K Government in 2013. This archive is only accessed internally through computers on premises controlled by the library.
- ❖ **The UK Open Web Archive:** This is a smaller collection of selected websites archived by the British Library. Selected websites will continue to be added to this open access collection, again with the permission of website owners. It is available online.
- ❖ **The Australian Government Web Archive (AGWA):** A web archiving initiative of the National Library of Australia (formerly known as PANDORA).
- ❖ **The Library of Congress Web Archives (LCWA):** The early development project for LoCWeb archives was called MINERVA.



3.2.4 Emerging Trends in Library and Information Services

As discussed above, new concepts are emerging in the field of library and information science. Let us understand some important emerging trends in the area of library and information services.

i. Mobile Applications for Libraries

There is an exponential growth in the number of users, particularly in developing countries, who access internet on their mobile devices, especially on smart phones. As in the case of e-commerce and entertainment industries, modern libraries are also using mobile technologies to reach out to these customers who are on the move. For that, mobile/cellular phone based applications and services are designed and incorporated by libraries. Mobile services are “typically (and often implicitly) understood as services that make use of mobile devices and/or mobile networks”. Mobile based library services include:

- a) Mobile interface to library website: Mobile optimized library website homepages
- b) Mobile interface to library catalogue
- c) Mobile reference service: Access to mobile interfaces of important reference sources like Encyclopaedia Britannica
- d) Downloadable e-books and audio books on mobile



Fig 3.2.2: Mobile website homepage of Riverside Libraries, University of California



- e) Mobile interfaces to e-journal and other databases
- f) SMS notification services: Circulation (reminder, renewal, reservation), Current awareness, SDI, Content alerts, catalogue enquiries, SMS reference services, etc.

Some libraries also developed Mobile Apps which help the users to access library services. These apps need to be downloaded and installed in the user's mobile/handheld device. E.g., BARD Mobile (National Library Service for the Blind and Physically Handicapped (NLS), Indian Law Mobile Library etc.

ii. Application of Cloud Computing in Libraries

Merriam-Webster's Dictionary defines cloud computing as "the practice of storing regularly used computer data on multiple servers that can be accessed through the Internet". There are three service models of cloud computing services: (i) Infrastructure as a Service (IaaS), (ii) Platform as a Service (PaaS), and (iii) Software as a Service (SaaS). Types of cloud deployment models include: (i) Private Cloud (ii) Community Cloud (iii) Public Cloud, and (iv) Hybrid Cloud. Cloud computing technologies are used in libraries to:

- a) develop cloud based digital libraries/repositories (e.g. DURACLOUD)
- b) share searchable library data
- c) host websites
- d) search scholarly content (e.g., Knimbus Knowledge Cloud)
- e) store files (e.g., Dropbox, Google Doc, SkyDrive)
- f) build networks with other libraries and people
- g) support library automation through cloud based acquisition, cataloguing and processing services and hosting the entire data on the cloud which will cut down the costs for hardware and maintenance. (e.g., ExLibris, OSS Labs)

3.2.5 Roles, Skills and Competencies of Library Professionals

The roles to be performed by a library professional are multifaceted. Some are detailed here.

The traditional role of a library professional are that of a custodian who selects, organizes and provides access to print and other media, a guide who assists users in selecting and evaluating the information sources, and a public relations personnel who maintains good relations with the management, customers and other libraries and outside organizations. The core skills traditionally associated with librarians or information professionals to perform these roles include information handling skills (like cataloguing, classification,



indexing), training and facilitating skills, (like user education, instruction, referencing), evaluation skills (like evaluation of resources and services) and concern for the customer. All these conventional skills have been applied in a different way in a highly digitized and networked environment by a modern librarian or an information scientist/professional. The need of a librarian as a facilitator, rather than a custodian, with search skills, abilities to analyse and evaluate resources and match needs with sources, has become more essential since the availability of huge amount of unverified information over the web.

Some of the key roles of Library and Information professional should perform:

- i. Providing leadership and expertise in the design, development and management of knowledge based information systems.
- ii. Developing policies or participating in its development for ensuring total or selective access to information sources and services.
- iii. Building and managing library collections consisting of print, digital and web based information resources, as per the user needs.
- iv. Facilitating access to digital information systems, repositories, networks, and consortiums.
- v. Acting as a technology application leader who works with other members of the information management team to design and evaluate systems for information access that meet user needs.
- vi. Acting as a business manager who negotiates with publishers or aggregators for the most advantageous license agreements for e-journals and databases.
- vii. Educating and assisting the users to help them to make the optimum use of the available information resources (online tutorials, web based instruction, etc.).
- viii. Collaborating with users, librarians, IT people and the outside society.
- ix. Promoting and marketing the library information resources and services.
- x. Developing the library website/web interface and managing its content.

The key skills and competencies a Library and Information professional are:

- i. **Personal Skills:** Personal skills can be defined as appropriate attitudes, values and personal traits. These include being analytical, creative, technical, flexible, reflective, able to deal with a range of users, detective-like, adaptable, responsive to others' needs, enthusiastic and self-motivated.
- ii. **Generic Skills:** Generic skills can be defined as the general skills which cut through disciplines which include information literacy, communication, critical thinking, teamwork, ethics and social responsibility, problem solving and leadership.



- iii. **Professional Skills:** The basic disciplinary knowledge relates to the professional's knowledge of information resources, access, technology and management, and the ability to use this knowledge as a basis for providing the highest quality information services. There are four major competencies, each augmented with specific professional skills: (a) Managing Information Organizations, (b) Managing Information Resources, (c) Managing Information Services, and (d) Applying Information Tools and Technologies.

3.2.6 Summary

The impact of Information and Communication Technologies (ICTs) on library and information services is tremendous. Two basic areas where modern libraries hugely depend on ICTs are the management of information resources and the delivery of information services. The ICTs used in libraries may be categorized into computer technology, communication technology, and reprographic, micrographic and printing technologies. The application of ICTs on traditional library services like integrated library management systems, Online Public Access Catalogue (OPAC), Reference Services, Current Awareness Service (CAS), Selective Dissemination of Information (SDI), Bibliographic service, Union Catalogue and Inter Library Loan, document delivery services, audio visual services and library extension services are discussed in detail with examples. Modern trends in library and information services may be discussed under three categories, viz. web-based library and information services, services to access electronic/digital/web resources, and services to access local/internal digital resources. Web-based library and information services include- access to internet, library web portals, Web OPAC and Next Generation Catalogues, Bulletin Board Services and ListServes, Subject Gateways, Web based Current Awareness Service, Online Question and Answering Service, Webcasting, and Web based Reference Services. Services to access web resources include facilitating access to e-books and other downloadable media, online databases, and other web based resources such as electronic thesis and dissertations (ETDS) and open educational resources and other course materials. Services to access local/internal digital resources include institutional repositories, online exhibitions, and web archiving service. The unit also discusses emerging trends in Library and information services like application of mobiles and cloud computing in libraries. In the final section, the roles and skills of library professionals in providing modern information services was discussed in detail.

3.2.7 Glossary

Database: It is a collection of records with details of different data items which may be numeric, textual or image-based. It is usually searchable.



Digital Rights Management (DRM): DRM is a file-encryption and access-control system that locks e-books both to a customer's identity and to specific software controlled by the company.

ICT: Information and Communication Technologies

Information literacy: It is defined as a set of abilities enabling individuals to identify when information is needed and have the capacity to locate, evaluate and use effectively the needed information. In simple words, it means teaching the users how to access the card catalogue or OPAC, print resources, and retrieve information from online databases.

Internet: It is a worldwide network of interconnected computer networks connected together using recognized standards to enable electronic communication and the exchange of information.

OPAC: Online Public Access Catalogue

Web OPAC: An OPAC, which is provided on the web and can be accessed from anywhere with the help of Internet.

3.2.8 Exercise

Short Answer Type Questions

1. List the benefits of the application of ICTs in libraries.
2. List the categories of modern trends in library and information services.
3. State the advantages of OPAC.
4. List the advantages of computerized library services.
5. What are the major web-based library and information services?
6. Explain briefly the Online Electronic Databases.
7. Define Subject Gateways.
8. Enumerate the traditional roles of a library professional.

Long Answer Type Questions

1. Discuss the three components of ICTs in libraries.
2. Explain the impact of ICTs on library and information services
3. Discuss the impact of ICTs on traditional library services.
4. Explain the web based reference services.
5. Describe the role of the librarian in the Internet age.
6. Discuss the Application of Cloud Computing in Libraries
7. Discuss the key roles, skills and competencies of library and information professional.



Module-4 | **Library and Information Services**

Unit-1: Application of Computer in Library

After studying this unit, students will:

- ❖ *Know about housekeeping services*
- ❖ *Understand the importance of housekeeping services in libraries*
- ❖ *Understand the need of automation of housekeeping services in libraries*
- ❖ *Discuss the benefits of library automation*
- ❖ *Understand about open source software*
- ❖ *Know about various open source software for libraries*
- ❖ *Know about the functionality of SOUL and KOHA.*

Content

4.1.1 Introduction

4.1.2 Library Housekeeping Operations

4.1.3 Manual Library Housekeeping Operations

4.1.3.1 Acquisition

4.1.3.2 Cataloguing

4.1.3.3 Serials Control

4.1.3.4 Circulation Control

4.1.3.5 Problems in Manual Library Housekeeping Operations

4.1.4 Automation of Library Services

4.1.4.1 Acquisition

4.1.4.2 Cataloguing

4.1.4.3 Online Public Library Catalogue

4.1.4.4 Circulation

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4.1.5 Library Automation Software: SOUL (Commercial)

4.1.5.1 Introduction

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- 4.1.1 Introduction**

The Information and Communication Technology (ICT) has led to a revolution in libraries and information centers. Such applications have not only changed the scene of traditional functioning of the library, but have also enhanced the quality of library services. In this unit we will discuss the major ICT applications used in libraries.



Library automation is the general term for ICT applications in the library, which has replaced manual systems in libraries. This replacement ensures effective management and utilization of the library resources. There are many library automation software available in the market which are both proprietary and open source software. This unit offers a brief overview of SOUL and KOHA which are used to create a library database.

4.1.2 Library Housekeeping Operations

Library automation has many advantages, such as:

- i. It improves the quality, speed and effectiveness of services
- ii. Relieves professional staff from clerical work
- iii. Makes it accessible to remote users
- iv. Facilitates wider dissemination of information products and services
- v. Enables resource sharing among other library networks (Union Catalogues)
- vi. Enables rapid communication with other libraries
- vii. Improves the management of physical and financial resources.

The library of any organization deals with documents to provide information support to its users through various services. Being a service institution, it performs a number of tasks every day. Such essential routine tasks, which are of repetitive nature, are called, 'housekeeping operations'. The housekeeping operations of a library include, acquisition, cataloguing, circulation, and serials control.

It is not only essential to procure a good count of quality documents, but to facilitate their access through various services for the purpose of optimum utilization of resources as well. For this, it is also essential to ensure the quality of the services offered. Therefore, such housekeeping operations (services) require due attention of the library staff, for quality assessment and improvement, on a regular basis.

4.1.3 Manual Library Housekeeping Operations

It has been discussed in the previous units that many library services are performed manually. These library services, provided to the users without using computers as an intermediary, are known as manual library services. Manual library work involves repetition of work in different activities. Library housekeeping operations are explained in the following sections:

4.1.3.1 Acquisition

In the acquisition process, the members' requirements are understood through various methods. After identifying users' requirements, the library staff prepares a standard list of



books along with the bibliographic description. Thereafter, the list is presented before the library committee for approval. As soon as the committee approves the final list of books, the library staff prepares a purchase order (keeping in view the specialization and capability of the book supplier/vendor while mentioning specific conditions, like discount, etc.). In due course of time, the book supplier delivers all the required documents to the library. Once, the books are received from the supplier, the staff cross checks the books and compares it with the purchase order. The books are, then forwarded for accessioning, while the corresponding bill is forwarded for final payment.

4.1.3.2 Cataloguing

After the accessioning process, each book undergoes technical processing. The library staff performs classification and cataloguing work simultaneously. In the process of cataloguing, catalogue cards (main entry and added entries) are prepared based on a cataloguing standard, like AACR-2 or CCC. While preparing the catalogue card, library staff writes or types the required bibliographic description, for preparing a specific card for each book. Once, the process of preparing cards for the recently purchased books is done, the books are ready to be placed in the stacks.

4.1.3.3 Serials Control

As mentioned earlier, all periodicals or journals have their specific periodicity, which may not only vary from others but the date of delivery may also differ in case of common periodicity. For the periodicals section, it is essential to be alert and take the due action on time.

The periodicals section receives the subscribed periodicals and performs serials' check on regular basis. In this process, new issues of current periodical titles are received and their details are entered in library records (Kardex). Thus the indexing system or cataloguing system of periodicals section is updated on regular basis. All the current titles are placed in the display shelf until their volume is completed. The periodical is transferred to the binding section, when all its issues for a volume have been received. Services such as, the Current Awareness Service (CAS), Selective Dissemination of Information (SDI) Service, Indexing Service, Abstracting Service, Routing of Periodicals Service and Circulation of Bound Volumes Service are also performed.

4.1.3.4 Circulation Control

In the circulation process, documents are provided on loan to the library users. In this service, a user is allowed to borrow library documents for a specific period of time. The circulation process is controlled on the basis of a library's circulation policy. In this circulation policy, various categories of library users and types of documents are identified during technical processing. The circulation policy specifies which type of user is entitled



to get a specific type of document and for how many days. For example, in school libraries, user types are students, teachers, and staff members. The document types are text books, reference books, periodicals, periodical bound volumes, etc. It is important to understand that the circulation policy specifies the type of document entitlement, for each category of users, and the specific period of loan of documents. For example, a student can take two textbooks for a period of one week, besides he cannot get other types of documents issued. The policy also specifies that if somebody holds documents beyond the permitted time limit, he/she will be charged an overdue fine.

If a user does not return books within the due date, it is the duty of the library staff to remind him/her so that the specific book(s) may be provided to other users.

4.1.3.5 Problems in Manual Library Housekeeping Operations

In the process of performing various housekeeping tasks manually, the library staff faces the following problems:

- The bibliographic description of a book is entered repeatedly for performing different tasks like preparing list of books to be purchased, preparing purchase order, preparing catalogue cards, preparing shelf list, writing different types of reminders and in circulation process.
- It is quite difficult to issue separate reminders for each defaulter.
- If the count of current titles of the periodical section is large, it becomes difficult to memorize various aspects like their periodicity, due date of delivery, due date of sending subscription and due date of sending reminders.
- It is also difficult to maintaining cataloguing/ documentation support regularly.
- Providing additional services in various housekeeping sections like Online Public Access Catalogue (OPAC), Current Awareness Service (CAS), Selective Dissemination of Information (SDI) Service, Indexing Service, Abstracting Service, Routing of Periodicals Service, Circulation of Bound Volumes Service and Reservation of Books Service for borrowing, etc.
- Additional library support requires adequate staff members, which leads to further financial liability in manual process of housekeeping operations.

4.1.4 Automation of Library Services

Library Automation refers to the phenomenon of mechanization of traditional library activities, such as Acquisition, Cataloguing, Circulation, Serial Control, etc. The aim of automation, is to integrate these activities and minimize repetition of work. The main objective of library automation is to improve the level of service and quality of output, and to fulfil needs that cannot be achieved by manual system, such as: (i) sharing of resources,



(ii) information that appears only in electronic format (e.g. CD-ROM, Internet resources, databases, etc. Automation library services is beneficial because it:

- increases the operational efficiency
- relieves professional staff from clerical/repetitive works
- improves the quality of library services
- provides new services, which are otherwise not possible, e.g., OPAC
- improves the management of information products and services
- facilitates wider access to information for users
- facilitates wider dissemination of information products and services
- participates in resource sharing/ library networks
- enables easy communication with other libraries and professionals.

The basic activities of library automation, irrespective of the type or size of a library, are:

4.1.4.1 Acquisition

The acquisition section in a library acquires reading material (books, electronic material, maps, charts, etc.). Manual acquisition system requires the maintenance of vast amount of data, innumerable files, records, etc., which involve tedious routine and repetitive tasks. The computers can perform these tasks faster and more accurately. The following are the main tasks in the acquisition section.

- Selection of documents
- Ordering of documents
- Create purchase orders
- Claiming/cancellation of documents
- Receiving/invoice processing
- Extended procurements
- Gift tracking
- Maintaining information about all library related funds
- Tracking fund allocations and adjustments
- Expenditure out of allocated funds
- Cash balance
- Updating of fiscal information through recording of specific transactions, and
- Tracking up-to-date expenditures.



In a computerized system, bibliographic data of a document, once entered, can be used for other routine activities such as, for duplicate checking, placing orders, receiving, accessioning and importing data to the catalogue module for entering cataloguing details.

4.1.4.2 Cataloguing

Catalogues are the windows to the library collection and their automation has far reaching effect on the quality of services. In a manual environment, much valuable time of professional staff is invested in the preparation of catalogue cards for each book, sorting and filing of the catalogue cards. Checking for duplicate entries (books) is another tedious and time-consuming process. In an automated system, once the relevant data is processed and made available on the computer, the catalogue can be generated in a standard format. The exchange records with other libraries, as part of a library network and generation of various approaches, can be done easily and efficiently. The computerized catalogue can generate list of recent arrivals, print catalogue cards and prepare bibliographies.

In addition, cataloguing activities done with the use of the library automation software produces an electronic catalogue, that provides access to catalogue for users, called an Online Public Access Catalogue.

4.1.4.3 Online Public Access Catalogue

OPAC is a computerized catalogue of the library resources, available to public for searching online. In other words, OPAC is an interactive search module of an automated Integrated Library Management System (ILMS). OPAC is very dynamic, highly flexible, easy, and economical to maintain and capable to meet almost every possible approach of the user. The searching capability is fast and accurate.

4.1.4.4 Circulation

The Circulation section involves direct interaction between users and staff, and therefore requires efficient and speedy service. The main functions in the circulation section are as follows:

- Issue (charge) of documents
- Return (discharge) of documents
- Renewal of documents
- Reservation of documents
- Processing schedules
- Hold of documents
- Message notices to users



- Transaction recording devices for off-line processing, and
- Inventory control.

The transactions at the circulation desk, such as: charging (issue), discharging (return), re-issue, reservations, over-due reminders and statistics, etc., are time consuming, highly labour intensive and error prone. Automation in circulation activities benefits the library. Barcode facilities tremendously improve the speed, efficiency and accuracy of the circulation transactions.

Circulation module works with the help of two master files, i.e. database of users and books. Integration of circulation module with the library catalogue allows the library staff to know about the status of a document and also the details of the user in case it is issued to her/him. This facility helps to send notices for overdue books as an email or SMS. Late fee calculation is another activity to be performed in the circulation section for books returned after the due date.

The trend these days is towards integration of circulation control systems with other functions such as online public access systems, inter-library loans, electronic mail reminders, book reservations, book status, etc. thereby, saving the time of users. These days radio frequency identification (RFID) has also been introduced for automation in circulation that also prevents theft of books.

4.1.4.5 Serials Control

By Serials, we mean publications issued at regular intervals and intended to be continued indefinitely. Serials include journals, newspapers, annual reports, advances or progress services, proceedings of learned societies, monographic series etc.

Serials control is a very complex process, which deals with a large number of publications and expenditure.. The following are the main tasks performed in the serials control section.

- Subscription to journals
- Subscription to e-journals & database
- Subscription/renewals of journals
- Subscription/renewals of e-journals & database
- Claiming of missing issues
- Replacements of journals
- Monographic serials, and
- Invoice processing.

Further, the problem of keeping track of receipts, reminders and non-receipt claims,



periodicity change, merger of titles, etc., is a tedious task if managed manually, and thus, need special treatment under serials control.

Further, the task of serials control is most complicated in a library, which subscribes to many periodicals. The reasons for these complications have been discussed earlier. For easy processing, it is essential to have an alert system, which can alert the staff member to the required and expected action but also assist in day-to-day functioning.

Automation assists in facilitating various documentation services like indexing, CAS, SDI, etc. For example, lists of serials-subject-wise, frequency-wise, currency wise, country of origin, publisher wise, etc., can be easily generated. The automated serial control system assists in making the system efficient in the following manner:

- ◆ It reminds regarding the due date of the periodical receiving
- ◆ It sends automatic reminders and reminds the due date for the next issue
- ◆ It reminds about sending periodical subscription in advance

4.1.4.6 Reporting

In addition to the operations mentioned above, the Library automation software has to be managed in such a way that users get maximum benefit, safeguards are in place, and timely access of material is ensured. The reporting features of Library automation software includes the following:

- ◆ Various reports and statistics related to library activities
- ◆ Tools for the analysis of statistical information
- ◆ Lists of user, publishers and suppliers
- ◆ Stock verification and develops stock verification report, etc.
- ◆ Besides the above, this function generates messages for library staff and users. It also generates reports on lost books, missing books, books sent for binding, and so on for the purpose of library administration.

Today, there are a number of commercial and open access Library automation software/packages available for automating library and specially designed to support library housekeeping operations (acquisition, cataloguing, circulation, serial control, etc.). An Integrated Library Management Software/ System (ILMS) is a library automation system in which data is entered in one module to avoid data redundancy. It integrates all the library activities, routine operations and information retrieval operations of a library. Some of the significant library automation software are, Software for University Libraries (SOUL), and Koha. These are discussed and explained in this unit.

4.1.5 Library Automation Software: SOUL (Commercial)

4.1.5.1 Introduction

Software for University Libraries (SOUL) is an Integrated Library Management Software (ILMS). It is developed by the University Grants Commission's INFLIBNET Centre located at Ahmedabad. Although it was primarily developed for fulfilling the requirements of college and university libraries, it can be used by all types of academic libraries. It works under client-server environment. The latest version of this software is compliant to all popular international standards for bibliographic description, protocols relating to networking and circulation. While checking its history, its first version, SOUL 1.0 was released in 2000. Its latest version SOUL 2.0 was released in 2008.

SOUL is acquired through payment. If any institution acquires it after due payment, INFLIBNET may be installed on the desired system and sufficient training on its operations is also provided.

4.1.5.2 Features

The main features of SOUL 2.0 are:

- It provides multilingual support for Indian and other foreign languages based on UNICODE.
- It is compliant with MARC-21, AACR-II, MARC-XML, and other international standards.
- In case of protocols, it is NCIP 2.0 compliant for RFID support and other similar applications for facilitating electronic surveillance, self-check-out and check-in support.
- It is based on client-server architecture.
- It supports multi-platform for bibliographic databases like MySQL, MS-SQL, etc.
- It also supports cataloguing practice of electronic documents like e-journals, e-books, etc.
- For digital libraries, it facilitates link to full-text articles and other similar digital objects.
- It provides default templates for data entry of various types of documents.
- Users can develop reports of their choice and format.
- It also supports the process of stock verification and book bank for students.
- It provides inbuilt facility for sending reports through e-mails.
- It presents a user-friendly OPAC with simple and advanced search.
- It supports data exchange as it is ISO-2709 standard compliant.



- ❖ Its circulation is based on the concept of single window operation.
- ❖ INFLIBNET has appointed regional coordinators for all of the regions for assistance and maintenance work.
- ❖ It is provided at an affordable cost.

4.1.5.3 Procurement and Installation

4.1.5.3.1 Procurement

For procuring SOUL, one can approach Information and Libraries Network Centre (INFLIBNET), Ahmedabad. There are two versions available, that is, Limited and Full version. Limited version is useful for less than 50,000 books.

4.1.5.3.2 Installation

After purchasing SOUL from INFLIBNET, it provides on-site installation support and data conversion support on payment basis. The basic technological requirements for using SOUL are as follows:

- ❖ Computer processor: Pentium IV or higher version
- ❖ Minimum processing speed: 1.6 GHz
- ❖ Minimum RAM: 512 MB (Although recommendation is 1 GB)
- ❖ Hard disk space required: Minimum 400 MB
- ❖ Windows based operating systems like XP or Vista or 2003 or 2008 server

The various available modules (modules are separate pieces of software that piece together, to form an automated system) of SOUL 2.0 are explained in the sections ahead.

4.1.5.4 Administration

The Administration module of the SOUL 2.0 facilitates inputs from various types of SOUL users and provides support to enjoy their duties and rights. This module has been divided into three major sections, viz. User management, System Parameters and Masters. This Administration module includes the following features:

- ❖ Grouping of users based on the policy;
- ❖ Transactional rights over the systems;
- ❖ Transaction level security to users;
- ❖ Various configuration settings such as labels, e-mail and other parameters related to the software use; and
- ❖ Common master databases being used in modules.

This module enables library staff to handle all the major functions, such as



- Suggestions management;
- Order processing, cancellation and reminders;
- Receipt, Payment and budgetary control;
- Master files such as currency, vendors, publishers etc.; and
- Reports.

4.1.5.5 SOUL Log in

For performing activities on SOUL, Soul supports various categories of users, i.e. administrator, user, etc. One person, like administrator or a library user can log into the system through specific user I.D. and password. After logging into the system, he/she can perform only those tasks, which the specific user account permits. For example, a library user can only use OPAC support, while the library professional, assigned to perform the circulation task, is authorized to perform all the pre-defined activities of the concerned section. (Fig. 4.1.1)

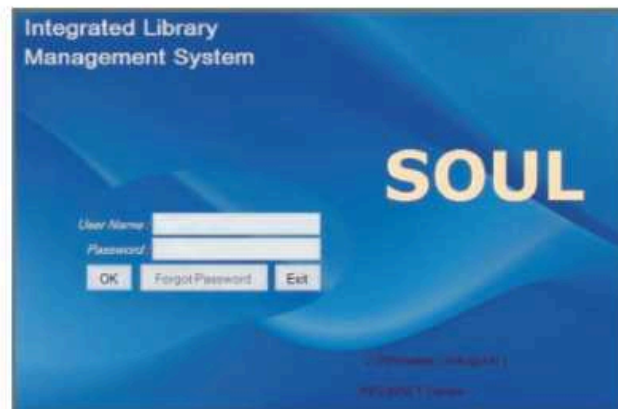


Fig 4.1.1: Snapshot of Log in Screen

4.1.5.6 Acquisition Module

The basic duties of the acquisition section of a library are to identify the documentary requirements of the library users and perform the task of book selection for the purpose of developing the library collection. In this process, SOUL provides some options to express specific requests of library users for procuring documents. Here, one can fill the blank request form, with the details of the required books and also the details of the user. (Fig. 4.1.2)



Fig 4.1.2: Snapshot of New Request Form

4.1.5.6.1 Gifted Items

In case any individual or an institution gifts a document, SOUL provides separate form to record such items. In this form, complete bibliographic description of the gifted document with the details of the donor are filled. (Fig. 4.1.3)

Fig 4.1.3: Snapshot of Gifted Document Entry Form

Ordering Process: If the request of a user is identified and accepted, it becomes essential to take approval of the library administrator/library committee. As soon as the committee grants the permission to procure the document, the system performs the ordering process. Before placing order, the database of approved suppliers with the help of separate data



sheet is developed. In the ordering process, we can select all relevant items from the approved list and generate a purchase order. (Fig. 4.1.4, 4.1.5, 4.1.6). In case, the documents are not received for a long time, a reminder is sent to the publisher or distributor of the document. (Fig. 4.1.7)

Fig 4.1.4: Snapshot of Ordering Process

Fig 4.1.5: Snapshot of Direct Approval Form



Fig 4.1.6: Snapshot of Purchase Order

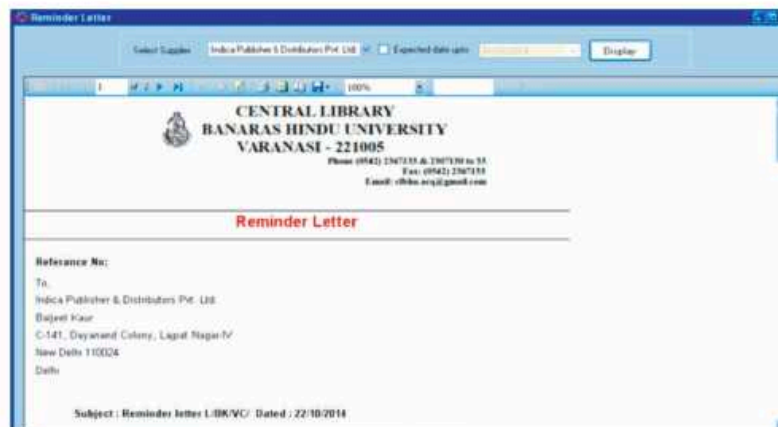


Fig 4.1.7: Snapshot of Reminder for Supply

4.1.5.7 Cataloguing Module

Catalogue module is used for retrospective conversion of library resources. It also facilitates the library staff to process newly acquired library resources. In the process of cataloguing, the library professional can fill the data entry sheet of newly arrived documents. If the bibliographic information is previously entered in the library database, there is no need to feed the bibliographic information again. (Fig. 4.1.8)



The features of the catalogue module are:

- allows cataloguers to create their own templates for data entry of different library resources
- different templates for leaders and fixed fields of MARC-21
- allows user-generated customized reports
- facilitates authority database of person name, corporate body, subject headings and series name
- supports copy cataloguing in MARC-21 format by using ISO-2709 standard
- master database of publishers
- multi-lingual database, by using Unicode Character set
- supports full MARC21 bibliographic format

Fig 4.1.8: Snapshot of Data Entry of new Title

4.1.5.8 Circulation Module

In the circulation process, SOUL allows to perform all major or minor tasks. This module takes care of all possible functions of circulation. This module covers all aspects, ranging from membership management, maintenance and status of library items, transaction, ILL, overdue charges, renewals & reminders, search status and report generation (according to



the status of the items). The circulation module is compatible with the NISO Circulation and Interchange Protocol (NCIP) version 2.0 for electronic surveillance and RFID based transaction of the items.

Some screen shots for controlling automated circulation of a library are presented in Fig.4.1.9 and 4.1.10.

Fig 4.1.9: Snapshot of Registration of New Member

Fig 4.1.10: Snapshot of Borrowing process



4.1.5.9 Serials Control Module

The management of serials is the most complicated job for a library. This module keeps track of serials in the library, effectively and efficiently. The serial control module is developed based on the KARDEX system and has the following functions built into it:

- suggestions;
- master databases;
- subscriptions;
- check-in of individual issues of journals;
- payment, reminder, binding, and title history;
- export / import by using ISO 2709 bibliographic exchange format;
- article indexing of journal/book articles;
- cataloguing of electronic journals; and
- track of the history changes of the journals.

For understanding the process, screenshot of the SOUL system is given as Fig. 4.1.11.

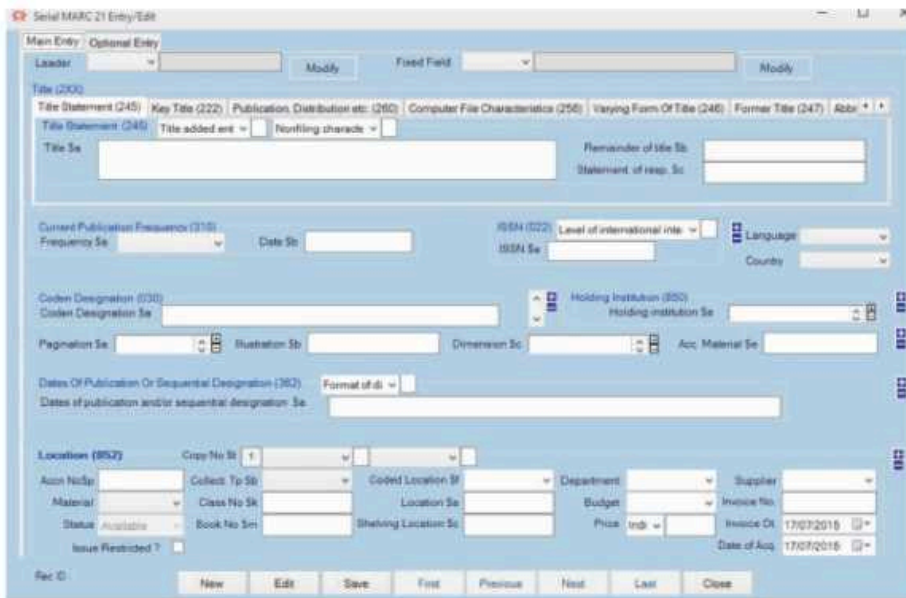


Fig 4.1.11: Snapshot of Serials control



4.1.6 Open Source Library Automation Software

4.1.6.1 Introduction

At this juncture, it is quite clear that automating the library is a fruitful solution for avoiding majority of problems. But it is also identified, that most of our libraries, especially school and public libraries, run their services with a very small budgetary/financial support. Such libraries may find it difficult to take any initiative for automating the system. In such situations, choosing open source software is the best solution.

4.1.6.2 Open Source: Meaning

Open source software is a software, available with its source code and license. Its copyright holder is provided the right to study, modify and further distribute the software to anybody for any type of purpose. Usually such software is developed in a collaborative manner and anybody can download it for use without paying any charge.

4.1.6.3 Open Source Software for Libraries

A large number of open source software are available for automating libraries. The most popular open source library automation software are: Koha, Evergreen, OPALS (Open Source Automated Library System), NextGenLib, etc. Koha, ILMS is discussed and explained in this unit.

4.1.6.4 Merits of Open Source software

The prime merits of open source software are:

- It is normally available free of cost.
- One can download it with its source code for any type of library usage.
- One is allowed to modify its source code for satisfying his/her requirements.
- Its modified version can be distributed further, it is not required to take anybody's permission.
- Being a popular solutions, it is easy to share or transfer information with others.
- One can get regular assistance from the community members or users or developers without paying any charge.

4.1.6.5 Demerits of Open Source solution

The major demerits of an open source software are as follow:

- Majority of open source software are not reliable.
- There is no dedicated support from the side of developer.
- The user must be well acquainted with the technology issues before using it.



- There are not ready to use solutions and users are bound to perform a number of tasks like installation, database designing, customization, etc. before using it.
- It is not sure that the developers will essentially provide its updates.
- It is not essential that further support will be provided free of cost.
- It is a less secured system than any other proprietary solution.

4.1.7 Library Automation Software: KOHA (Open Source)

4.1.7.1 Introduction

KOHA is one of the most popular open source library management systems. Created in 1999, it was developed in 2000 by Katipo Communications for the Horowhenua Library Trust in New Zealand. KOHA being the first open source integrated library management system, includes all the main features related to library management, like easy interface for librarians and users, Web 2.0 compliant (tagging and RSS feeds), union catalogue facility, customizable search, circulation and borrower management, full acquisitions system including budgets and pricing information, etc.

4.1.7.2 Technical Specifications

It is a web-based open source software, which is distributed under the general public license. KOHA works on Windows, UNIX, Linux and Mac OS platforms. KOHA is a comprehensive system that has the capacity to run a library intelligently, whether it is large or small, and supports copy cataloguing. It is based on the standards/protocols like Z39.50, MARC-21 and UNIMARC. KOHA also has the capacity to manage digital libraries, online and offline electronic resources.

4.1.7.3 Download and Installation

Being an open source software, KOHA may be downloaded from its web site (<http://www.koha-community.org>). The complete documentation is also available at this site. Anybody can download KOHA and install for the purpose of automating the library. A few screen shots of KOHA for performing various activities of library system are presented below:

4.1.7.3.1 Main Menu

After logging into the KOHA library management system of a library, we find the following screen. One can choose the required option for performing his/her specific task. (Fig4.1.12)

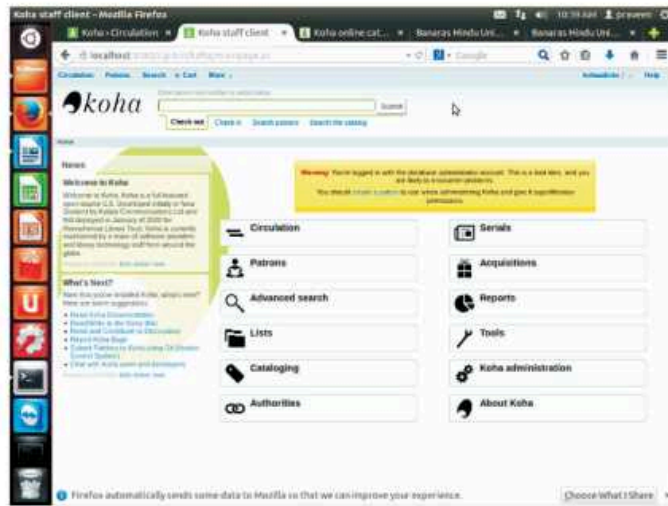


Fig 4.1.12: Snapshot of KOHA Main Menu

4.1.7.4 Acquisition Module

It is essential to do a number of tasks for performing various activities related to the acquisition process in KOHA library management system. (Fig. 4.1.13)

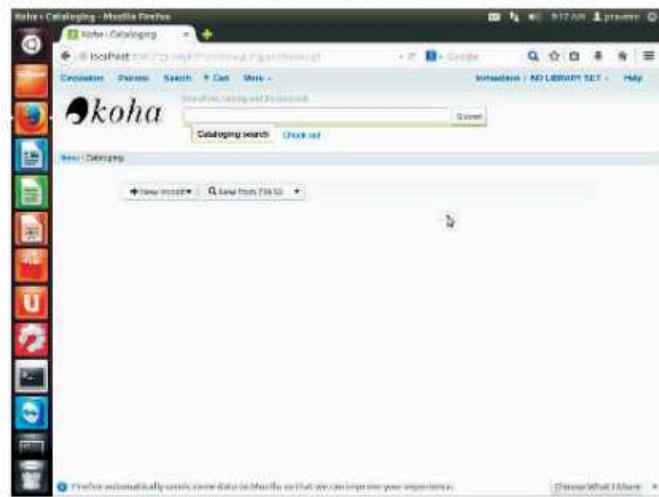


Fig 4.1.13: Snapshot of Entering a New Record



4.1.7.5 Cataloguing Module

With the help of this service, we enter bibliographic information of newly procured documents in the library database. Besides, we also provide normal as well as advanced search support to our library users for searching a desired record from the library database.

Fig. 4.1.14 and 4.1.15 are some screen shots for performing above mentioned activities.



Fig 4.1.14: Snapshot of addition of MARC record

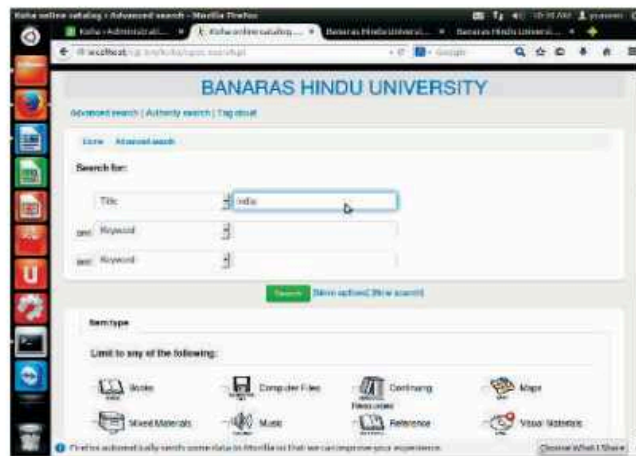


Fig 4.1.15: Snapshot of OPAC - Advanced Search



4.1.7.6 Circulation Module

Circulation activity involves the following tasks:

- Defining circulation rules for various categories of user groups with their specifications
- Registration of new user
- Issuing and returning the loaned documents
- Renewal or transfer of documents
- Keeping circulation statistics, and
- Generating reports

(Figs. 4.1.16 to 4.1.20 show various activities related to the circulation process.)

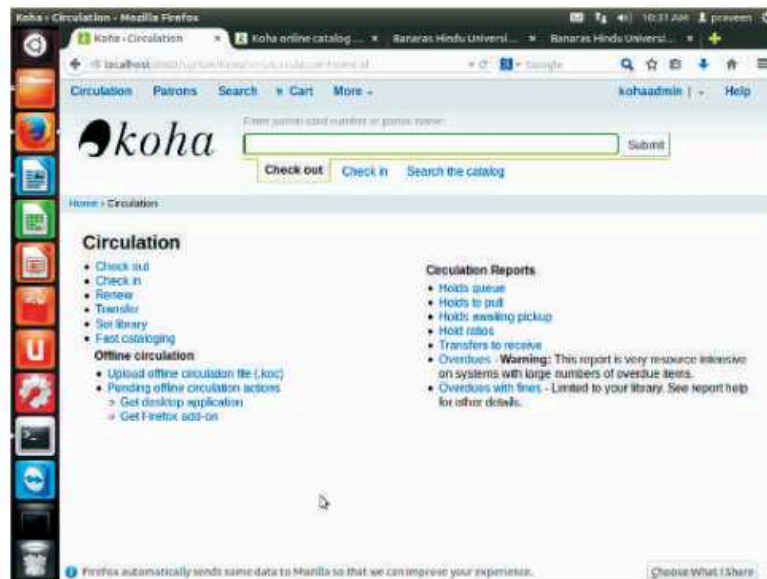


Fig 4.1.16: Snapshot of main screen of Circulation

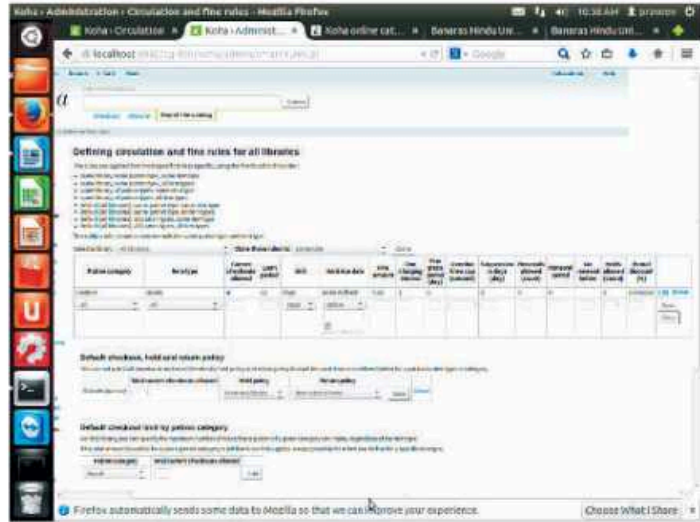


Fig 4.1.17: Snapshot of Defining Circulation Rules

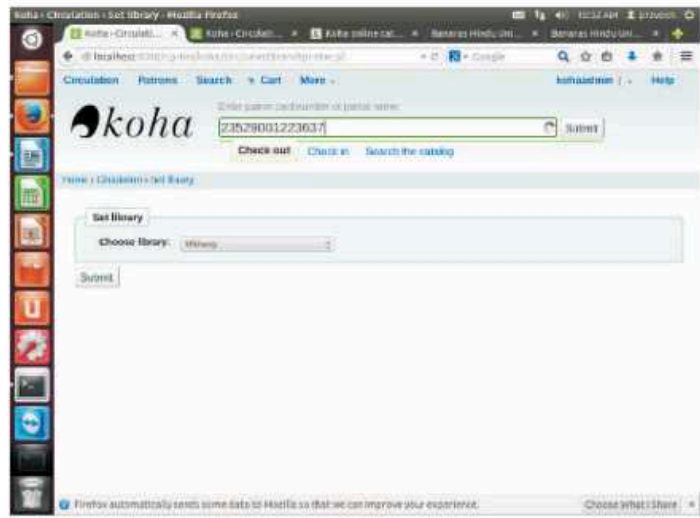


Fig 4.1.18: Snapshot of Check In/ Check Out process

4.1.7.7 Serials Control Module

For serials control, the various activities are shown in Fig. 4.1.21 and 4.1.22.



Fig 4.1. 21: Snapshot of Serials Control

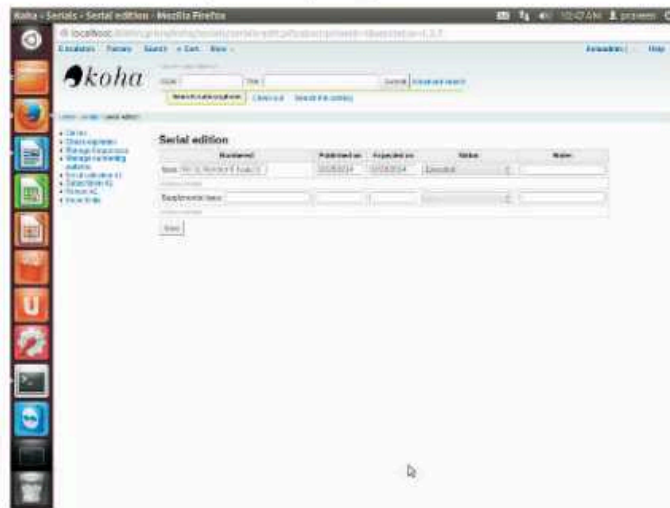


Fig 4.1.22: Snapshot of Serials Control



4.1.8 Summary

Library is a social institution, with quality information support and information services. Now-a-days, most libraries face financial problems. Hence, they are not able to initiate new services for coping with the contemporary information requirements. The major reason, as we identified, is limited count of library staff. This problem may be avoided, if we try to relieve our staff from the burden of repetitive tasks. For this, automation of libraries is the best solution. With the help of library automation, one can not only relax our library staff from burden, but also use the existing staff to introduce new services.

There are many library automation software available in the market which are both proprietary and open source. In this unit, an attempt has been made to familiarize two Library automation software, SOUL and Koha, which can be used for automating the library housekeeping operations, as well as, to provide some computer based information services in libraries. Acquisition, Cataloguing, Circulation and Serial control modules are discussed in SOUL. Open source software is a software, which is available with its source code and license. A large number of open source library automation software are available for libraries, but, Koha, ILMs is discussed and explained in this unit.

4.1.9 Glossary

Acquisition: It is the process, through which we purchase/procure new documents in the library

AACR II: Anglo-American Cataloguing Rules, Second edition

CAS: Current Awareness Service

CCC: Classified Catalogue Code: With additional Rules to Dictionary Catalogue Code

Circulation: The process of issuing and returning library documents to library patron on loan.

Housekeeping Operations: All essential routine tasks, which are of repetitive nature, are called Housekeeping operations

LAN: Local Area Network. It is a network, which connects all computer systems placed in a large hall or a building.

OPAC: Online Public Access Catalogue

SDI: Selective Dissemination of Information service

Serials Control: It is the process through which we control the collection of periodicals in the library.

4.1.10 Exercise

Short Answer Questions

1. Define library housekeeping activities.
2. Enumerate various housekeeping operations in the library.
3. Explain the different manual library housekeeping operations?
4. What are the main problems in manual library housekeeping operations?
5. What are the reasons for automating acquisition process of a library?
6. What are the prospective reasons for automating cataloguing process?
7. Discuss the Online Public Access Catalogue.
8. What type of additional services can we add to the automated circulation control?
9. What are the features included in the reporting function?
10. Discuss any five features of SOUL.
11. Discuss the essential software and hardware requirements for installing SOUL.
12. What do you understand by 'Open Source Library Automation Software'?
13. What are the different merits of an open source software?
14. What are the demerits of an open source software?
15. Discuss the various technical specifications of KOHA.

Long Answer Questions

1. Explain in detail the manual library housekeeping operations?
2. How will an automated library overcome various problems of a manually operated library system?
3. Write a note on SOUL.
4. Give a detailed account of KOHA ILMS.
5. What do you understand by library housekeeping operations? Discuss the various differences between their manual and automated processing in detail.



Module-4 | Library and Information Services

Unit-2: Web Based Search

After studying this unit, students will be able to

- Understand the need of web based services in libraries
- Know about the world wide web
- Discuss the benefits of online resources
- Understand various search features
- Know the usage of full text and its benefits
- Know about e-books and e-databases

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4.2.1 Introduction

Low-cost computers and faster Internet connections have increased the accessibility of Web-based resources, making it possible for students and researchers to work from the convenience of their own homes. Electronic resources such as digital libraries continue to evolve and proliferate, offering on-campus and distance learners a multitude of information sources such as Web-based catalogues, online full-text databases, indices, an entire plethora of electronic and digital objects. Virtual library services that include access to online reference librarians, electronic texts and full-text databases are now a reality.

At the same time, libraries find an expanding chunk of their annual budgets most Indian libraries are presently based on the model of providing access to organized collections, assist the users in information search and circulate documents within the stipulated period. In Fact, the basic challenges with web based information service, or a specific online database, frustration in search is common problem in our day to day life. And accordingly this frustration led to less use of online database. Understanding the basic of site feature, accessibility feature and data retrieval feature of an online database is more important, before initiation new search.

4.2.2 Information Search

The field of information retrieval has come a long way in the last forty years, and has enabled easier and faster information discovery. In the early years there were many doubts raised regarding the simple statistical techniques used in the field. However, for the task of finding information, these statistical techniques have indeed proven to be the most effective ones so far. Techniques developed in the field have been used in many other areas and have yielded many new technologies which are used by people on an everyday basis, e.g., web search engines, junk-email filters, news clipping services. Going forward, the field is attacking many critical problems that users face in today's information-ridden world. With exponential growth in the amount of information available, information retrieval will play an increasingly important role in future. The process is depicted in the figure below.

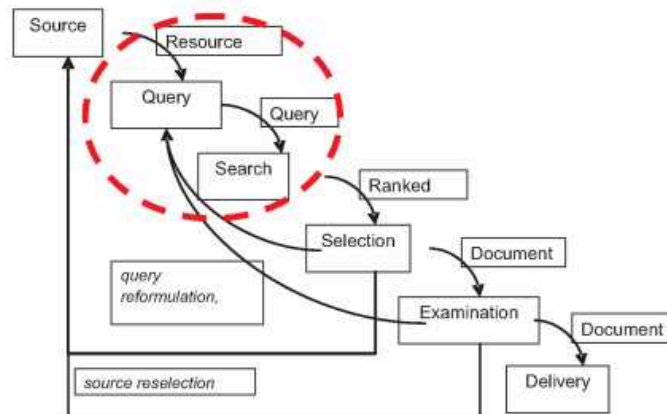


Fig 4.2.1: Search Selection and query processing

After the advent of Internet, e-publishing industry has flourished in an explosive way and large numbers of e- resources were available through Internet. Even the best libraries in the country could not subscribe to journals required by their users. In small universities access and subscription of peer reviewed foreign journals was almost nil, the situation was critical for teaching, research and development work in universities. The launch of UGC-Infonet E-Journal Consortium in 2004 has changed the entire situation and enriched the resource base of university libraries. University libraries in India have access to large number of scholarly journals from major foreign publishers for the last three years. The INFLIBNET, through UGC-Infonet E-Journals programme, has been facilitating e-resources access to more than hundred universities covering all corners of the country ranging from remote locations of Northeast and Jammu & Kashmir to universities located at metros and major cities. Thus this ambitious programme has bridged the digital divide and introduced e-journals, free of cost in university libraries Let us find different web resources available in the form of internet resources and that is available in the majority library in the country.

Web resource or internet resources can be divided in the following category.

- Website
- Bibliographic Online Databases
- Full text online databases
- Electronics Books (e-books)
- Multimedia Databases
- Electronics Theses and Dissertation



4.2.2.1 Website

Websites are very important sources of information, the sites can be browse through different search engines. Every governmental institute, agencies, authentic research institute, school websites, university websites, college websites provide information. Those site acts as an information bulletin. The information we are taking from the different web sites, it is our prime duty to provide reference for the same. On the other hand it very important that every websites are not authentic sources of information, we have to be very careful from where we are getting the information. Preferable government owned websites are most commonly used as an information sources. For Example. <http://www.india.gov.in/>, "This is the Official Portal of the Government of India, designed, developed and hosted by the National Informatics Centre (NIC), a premier ICT organization of the Government of India under the aegis of the Department of Electronics and Information Technology (DeitY), the Ministry of Communications and Information Technology".



Fig 4.2.2: National Portal of India

4.2.2.2 Bibliographic Online Databases

Bibliographic online databases plays important role in accessing union catalogue of library, reference, facts finding etc. It's concerned only with the bibliographic reference of sources. The most commonly used bibliographic online databases in India is DELNET (developing Library Network), which has its union catalogue of more than 5000 library. Besides this, ISID (Institute of Studies in Industrial Development) Journal & Newspaper Searches.

4.2.2.3 Full text online databases

A full-text database is a database that is comprised of several books, articles, journals, magazines, newspapers and other textual documents but does not include graphical



documents such as drawings, diagrams or pictures. Each of the referenced documents can be viewed, printed or downloaded online. It is also searchable by using keywords, phrases or both. Sometimes full text databases are open access (free to access) and paid access. One can access full text material from DOAJ (Directory of Open Access Journals <http://www.doaj.org/>). Some of the paid full text online databases are very popular for scholarly article, for example, IEEE/IEE Online Library/ IEL Online, Sciences Direct, Emerald etc.

4.2.2.3.1 E-database- Definition

An e-database is an organized collection of information, of a particular subject or multi-disciplinary subject areas. The information of an e-database can be searched and retrieved electronically.

4.2.2.3.2 Features of E-Database

Similar to e-book, e-database can be accessed, searched and retrieved through electronic devices like computers. We can have full text as well as bibliographic e-databases for facilitating information access. Full-text databases contain the whole content of an article such as citation information, text, illustrations, diagrams and tables. Bibliographic databases only contain citation information of an article, such as author name, journal title, publication date and page numbers.

4.2.2.3.3 Examples of E-Database

Some of the popular e-databases are shown in Figs. 4.2.3 to 4.2.6.

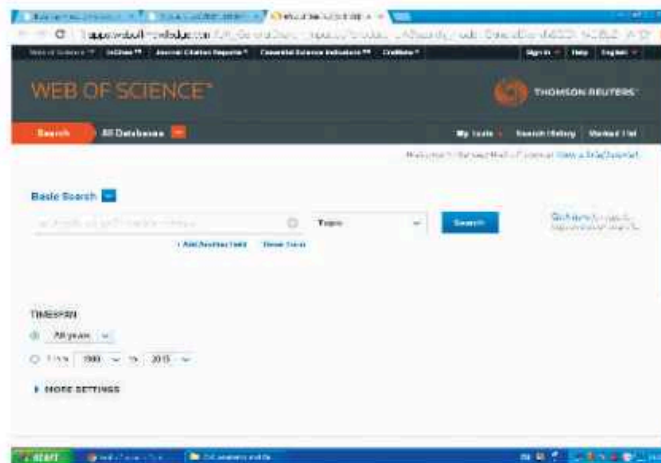


Fig 4.2.3: E-Database (Web of Science)



Fig 4.2.4: E-Database search



Fig 4.2.5: E-Database (Indian Citation Index)



4.2.2.4.3 Features of E-Books

With the help of e-books, we can save the physical storage space of the library and any reader can easily search the desired information from the complete text of e-book. Besides, one can keep thousands of e-books in easily transportable electronic storage devices like pen drive or external hard disc.

Some other features of e-books are:

- ❖ **Kindle, ipad, Sony, Kobo** are some of the reading devices for reading e-books.
- ❖ Special software is required to read e-books. PDF, HTML, Microsoft LIT and PalmOS are most popular format for e-books.
- ❖ Convenience and mobility is ensured as we can carry the entire library in our pocket.
- ❖ Some e-books can be downloaded for free or at reduced cost, however, prices for many e-books - especially bestsellers - are similar to those of hardcover books.
- ❖ Saves time.

4.2.2.4.4 Examples of E-Books

Presently millions of e-books are available in the market. In Figs. 4.2.7 to 4.2.10 the students are presented the glimpses of a popular e-book for easy upstanding. In this case you can observe step-by-step access of an e-book.

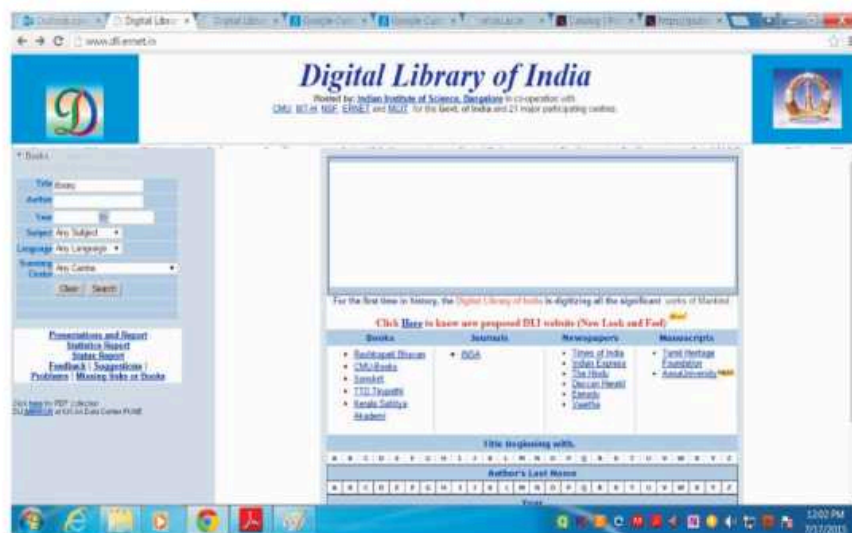


Fig 4.2.7: E-Book search



Fig 4.1.8: E-Book search



Fig 4.1.9: Cover page of an e-book



Fig 4.1.10: Content page of an e-book

4.2.2.5 Multimedia Databases

The multimedia database systems are to be used when it is required to administrate a huge amounts of multimedia data objects of different types of data media (optical storage, video tapes, audio records, etc.) so that they can be used (that is, efficiently accessed and searched) for as many applications as needed. The objects of Multimedia Data are: text, images, Graphics, sound recordings, video recordings, signals, etc. All these are digitalized and stored. For Example BBC monitoring, National Geographic Databases, Discovery channel multimedia databases etc.

4.2.2.6 Electronics Theses and Dissertation

Digital libraries of electronic theses and dissertations (ETDs) offer an alternative of output valuable academic research in University and higher education institute. The idea of E-Theses and Dissertations (ETD) is coming up in International scenario, which can be easily located, readily accessible and delivered over the web. Theses and dissertations are an important part of information resources in library. The current state of Indian ETD repository initiatives and introduces a project called Shodhganga, initiated by the Information and Library Network (INFLIBNET), an Inter-University Centre of the University Grants Commission.



4.2.3 Basic Search Features in Databases

The study has found some of the retrieval techniques, which has categories in the basic retrieval techniques, the details are given below.

4.2.3.1 Boolean Operators

Many commercial online search systems permit the formation of complex expressions by using Boolean logic to combine retrieval sets. Boolean logic is algebra of sets. In online information retrieval, Boolean logic is applied to sets of posting.

The major Boolean operator are AND, OR and NOT. If A and B are set of posting, these Boolean operators have the following meanings:

AND - A and B is set of postings and common to A and B, and is called the intersection of A and B. A and B is represented by expression $A * B$ on some search systems.

OR - A or B is the set of postings either in set A or in set B or in both sets A and B, and is called the union of A and B. A OR B is represented by the expression $A + B$ on some search systems.

NOT - A NOT B is the set of postings in set A but not in set B and is called the difference between A and B. A NOT B is represented by the expression $A - B$ on some search systems. NOT should be used with caution, since relevant records can inadvertently be eliminated with NOT.

4.2.3.2 Phrase Searching and Match Exact Word/Phrases

Phrase search and match of exact words features produce similar results, in which systems must find documents with the exact phrase to appear within the documents or any field as specified before executing the search. The phrase "digital divide" should retrieve documents with the exact terms adjacent to each other within the same document.

4.2.3.3 Field Specific Searches and Limit Field Search

Field specific searches allow users to limit their query terms to a specific field(s), which includes abstract, author, title, accession number, and subjects. Limit search is another feature that constrains a users' query into a certain requirement; for instance by limiting the search to "full text available" and "English language" documents only. Limiting the search to English language documents is available in all systems.

4.2.3.4 Truncation and Wild Card

Truncation allows a search to be conducted for all the different forms of a word having the same common root. As an example, the truncated term COMPUT* will retrieve items on COMPUTER, COMPUTING, COMPUTATION, COMPUTE, etc. A number of different

options are available for truncation, e.g. right truncation retrieves all words having the same characters at the right-hand part, e.g. 'hyl' will retrieve word like methyl, ethyl, etc. Similarly, middle truncation retrieves all words having the same characters at left and right-hand part. For example, a middle-truncated search term 'colo*r' will retrieve both the terms 'colour' and 'color'. A wild card is used to allow any letter to appear in the specific location within a word.

4.2.3.5 Proximity Search

In the text retrieval system there should be provision for adjacency/proximity searching. The purpose of what is to refine search statements by permitting the searcher to specify the context in which a terms must occur. This search facility allows the user to specify whether two search terms should occur adjacent to each other, whether one or more words occur in between the search terms, whether the search terms should occur in the same paragraphs irrespective of intervening words, and so on.

Proximity search in dialog:-

- Information (w) system (specifies that the two terms should appear in the given order next to each other in the retrieved items)
- Information (2n) system (specifies that there may be at most two intervening terms between the two search terms in the retrieved items)
- Information (F) system (specifies that the search terms should appear in the same field in the retrieved items)

4.2.3.6 Range Searching

Range searching is most useful with numerical information. It is important in selecting records within certain data ranges. The following options are usually available for range searching:

- greater than (>)
- less than (<)
- equal to (=)
- not equal to (/ = or <>)
- greater than equal to (>=)
- less than or equal to (<=)

These operator are used to prescribed a precise condition in a given search statement.



4.2.3.6 Keyword Searching

A keyword is simply a word that shows up somewhere in a record: it can be part of a name, a subject, or a title, or appear in the table of contents. This is different from a subject search, which looks for the word only in the subject heading field.

4.2.3.7 Word Stemming

Free text-searching, searches exactly as we type in to the search box, without changing it to thesaurus term. It is difficult for the end user to decide upon which all terms to key in and get the results. At this point word stemming will be needed. It is observed that in most cases, morphological variants of words have similar semantic interpretations and can be considered as equivalent for the purpose of IR applications. It also reduces the dictionary size, that is, the number of distinct terms needed for representing a set of documents. A smaller dictionary size results in a saving of storage space and processing time.

4.2.4 Recent Trends in Web Search

Students could be using the accurate, authoritative, and age-appropriate print and electronic sources provided by school and public libraries for their school research. A library database is an organized collection of electronic information that allows a user to search for a particular topic, article, or book in a variety of ways. Some databases contain the full-text of articles from journals, magazines, and newspapers, as well as books. One can access library databases off-campus too. Most of the information found by using Internet search engines is free. Library databases contain copyrighted, licensed, and proprietary information. Library pays for access to databases so that students can access the information for free.

The federated search engines is great tool, through which one get accessibility of majority of paid online databases,

The article describes the concept of federated searching and demarcates the difference between metasearching and federated searching which are synonymously used. Due to rapid growth of scholarly information, need of federated searching arises. Advantages of federated search have been described along with the search model indicating old search model and federated search model

Federated search is the simultaneous search of multiple online databases and is an emerging feature of automated, Web-based library and information retrieval systems. It is also often referred to as a portal, as opposed to simply a Web-based search engine. It is sometime termed as broadcast search, parallel search, cross reference search etc.

Example of Federated Search Engines: Google Scholar, Scopus, Liberty, Knimbus etc.



4.2.5 Summary

Information and Communication Technology has changed the whole service environment of libraries and information centres. With the advent of new ICT tools and techniques, it becomes essential for our library professionals to update the existing library collection and to introduce new ICT based library services with maximum utilization of latest technological tools and services. In terms of library collection, it becomes essential to procure e-books, e-journals and e-databases. We should utilize e-mail support for the purpose of fast and cheap dissemination of information and also for promoting better communication. Internet has become an essential tool for any information organization/industry, and thus we should try to get maximum possible support for providing quality information service to our patron.

4.2.6 Glossary

Arpanet: Its full form is Advanced Research Projects Agency Network. It was one of the world's first operational packet switching networks.

E-Database: It is an organized and systemized collection of information on a specific subject or inter related multiple subjects.

E-Book: It is a digital publication of complete book consisting text, graphics or both, readable on electronic devices like computer.

Intranet: Intranet is used for a network connection of various computers or computer networks within a specific organization.

Extranet: An Intranet, which is partially accessible for the authorized outsiders or outside users.

ISP: Internet Service Provider - a company that sells direct access to the Internet.

Web Crawler: It is known as a web spider or Web robot. The Crawler is used to collect information from a website.

WWW: The World Wide Web

4.2.7 Exercise

Short Answer Questions

1. What is the importance of Online database search?
2. How a web portal can be authoritative sources of information?
3. Discuss different form of online databases.
4. What are Full text online databases?
5. What do you mean by eBook?



6. Discuss various features of Search.
7. Differentiate between website and database.
8. Point out various Regional Internet Registries.
9. Discuss various benefits of Electronic resources.
10. Discuss Electronic Theses and Dissertation.
11. Define Boolean logic.
12. Describe the operators of Boolean logic?
13. Define Range Search.
14. Point out various features of an E-Book.
15. Discuss Word Stemming in Search.
16. What are the requirements of using E-books in the library?
17. What is the importance of WWW Governance?

Long Answer Questions

1. How Internet has changed the life of present society? Explain.
2. Write a descriptive note use of full text databases.
3. Discuss the need of Intranet for providing quality library support with proper justifications.
4. Explain the Boolean operators and their impact while connecting two keywords 'A' and 'B'.
5. Why are electronic resources considered better than print resources?
6. Write a descriptive note on different databases available as an information sources.
7. Write an essay on the utility of eBook in information profession.
8. Write a descriptive note on different basic search features of a database.

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Acknowledgement of Images:

1. E-book reader: http://g-ecx.images-amazon.com/images/G/01/kindle/dp/2012/KS/feature-reading_V398727981.jpg
2. Mobile application screenshot: <http://m.library.ucr.edu/>
3. Green Library: <http://kulc.lib.ku.ac.th/kugreencampus2013/index.php/en/highlight-ku-green-campus-/ku-green-library>

MODULE-4

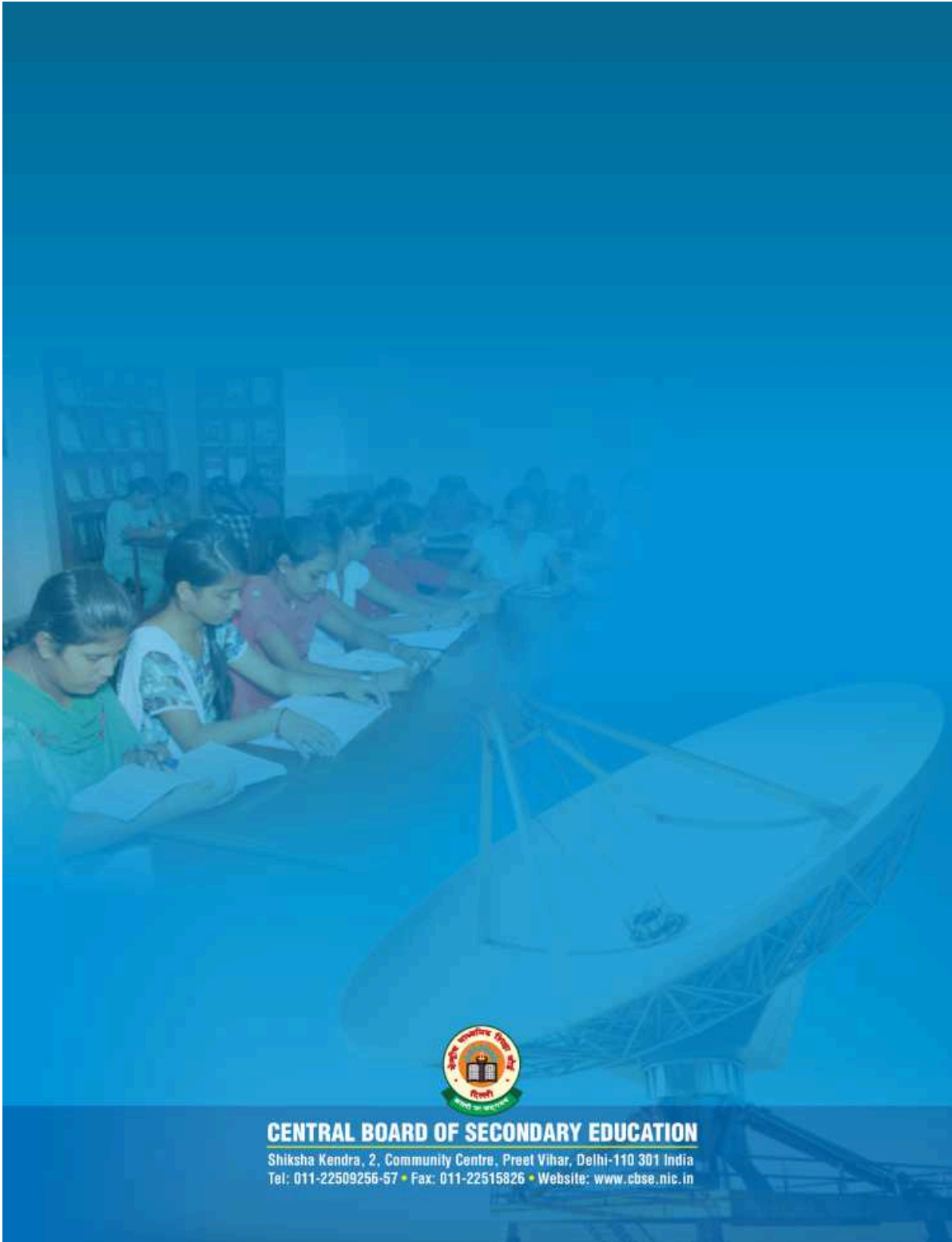
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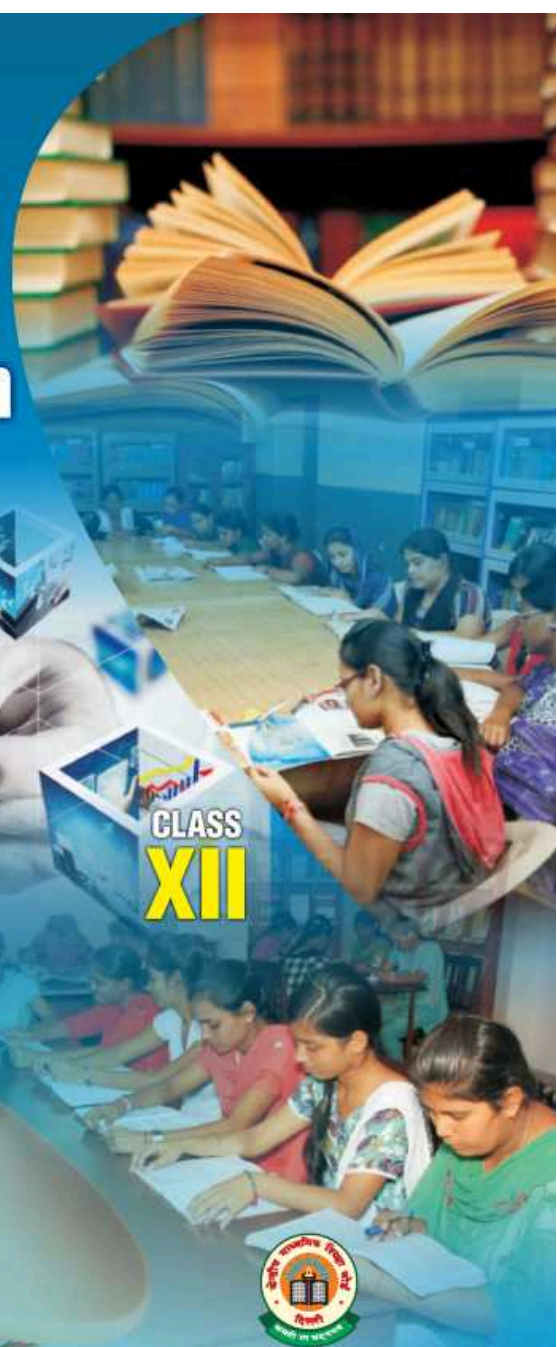




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