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# 3

## LIBRARY AUTOMATION

### INTRODUCTION

In the previous lesson, you have learnt about the computer application in various fields particularly in libraries. You have also been acquainted with Word processing, Internet and its use in searching and e-mail.

In this lesson you will learn about the automation of various activities performed in the libraries. Library is a service organization serving users to satisfy their information needs. In doing so, it continuously strives to improve and provide better services. Automation in libraries is one such effort.



### OBJECTIVES

After completing this lesson, you will be able to:

- explain the concept of library automation;
- describe the need, purpose and functions of library automation;
- enumerate the house keeping operations in an automated library;
- list library services in an automated environment; and
- discuss library automation software packages.

### 3.1 LIBRARY AUTOMATION

Library automation refers to the use of computers and other technologies to minimize human intervention in the functioning of a library. It can be defined as “the performance of an operation, a series of operations or a process by self-activating, self-controlling, or automatic means. Automation implies the use of automatic data



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processing equipment such as a computer or other labour saving devices”.

Library work consists of a number of inter-related activities, the data generated being useful in different sections. Manual work involves repetition of work in different activities. The aim of automation thus is to integrate these activities and minimize repetition of work. Integrated library softwares have appeared as packages to serve these needs.

### 3.1.1 Need

Looking back the last two decades in India, we could think and ask ourselves the question, ‘What is the need of library automation?’ The answer could be: the increasing amount of literature in different formats being published, acquired by libraries and the difficulties to control it. The increasing volume of literature made it difficult for any library to acquire and store it. Its availability in different formats required the libraries to acquire technologies to use it. The library staff used to be more busy in routine work and found less time to interact with the users. At the same time, users’ preferences, needs and demands grew which the library found hard to satisfy and that too within a time frame. Thus, there arose a need to provide far and wider access to literature in a timely manner. But to ask this question today is meaningless as no library can afford to do without automation in view of the changed information scenario.

Library automation is needed in the present day libraries due to the following:

- a) Information Explosion (Growth of documents)
- b) Availability of new techniques and technologies
- c) Lack of space
- d) To save the time of the reader
- e) To have better control over collection
- f) To avoid duplication of work
- g) For greater efficiency in various activities and services
- h) To maintain accuracy and promptness, and
- i) To share the resources with other libraries through computer networks nationally and internationally

### 3.1.2 Purpose & Functions

The purpose of library automation is to satisfy user needs in the changed information scenario. As the computer can be used to perform the various activities of the library, library automation can serve as a remedy to all the existing problems of libraries.

This can be achieved by the following functions:

- Providing access to literature in different formats;
- Processing information that appears only in electronic format (e.g. CDROM, Internet resources, databases, etc.);

- Providing far and wide access to literature not available within the confines of the library;
- Integrating different processes and activities of the library;
- Providing services outside the library also;
- Bring in efficiency and effectiveness in library activities and services;
- To improve the level of library services;
- To fulfill needs that cannot be achieved by manual systems; and
- Sharing of resources and library networking.



### INTEXT QUESTION 3.1

#### State True and False

1. The objective of automation is to avoid duplication of work.
2. Library automation saves the time of users and library staff.
3. Integrating various processes and activities of the library is an objective of library automation.

#### 3.1.3 Benefits

Library automation provides the following benefits to a library:

- Economy in library activities and services;
- Effectiveness in library services;
- Introduction of novelty in library services
- Improved services to users with reduced time lag
- Quicker cataloguing of library items
- Faster and easier access to library material
- Improvement in the variety, amount and quality of material that is available in the library's collection
- Equips libraries to face challenges posed by future developments and technologies
- Minimizing human involvement in routine chores of the library and making the staff available for more intellectual and humane activities;



### INTEXT QUESTION 3.2

#### State True and False

1. One of the benefits of library automation is that library staff can attend to more intellectual activities compared to manual system of working.



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2. Library automation makes fast and easy access to library material.

### 3.1.4 Historical Background

Library automation began with the introduction of punched cards for issue and return of books. Indexing was also automated by using semi-mechanical methods of post-coordinate indexing which involved term-entry and item entry systems. These were limited to small specialized collections. Automation of libraries was further taken up with small programs written for automating activities. The computer division of the parent organization helped in these initial efforts of automation. It expanded with the availability of commercial library software.

Organizations contributed towards library automation by developing library software packages. Mention may be made of CDS/ISIS of UNESCO that helped in spreading automation, as it was available free of cost while all other commercial packages were priced. In addition to that, training in the use of the software helped in promoting its use. National efforts towards automation were made by organizations like National Institute of Science Communication and Information Resources (NISCAIR), (Formerly known as Indian National Scientific Documentation Centre (INSDOC)) that organized numerous training programmes and also developed the software Granthalaya. Defence Scientific Information Centre (DESIDOC) developed Suchika software for its in-house use and Sanjay software for the Department of Science and Technology (DST) library. Later, INFLIBNET and National Informatics Centre (NIC) developed Software for Univ. Libraries (SOUL) and e-Granthalaya respectively.

Next in the stage of evolution was the automation of library services. Libraries developed Online Public Access Catalogues (OPACs) as a first step towards automated library services. This was followed by libraries designing and developing databases in the areas of interest of their users providing indexing services on a periodic basis. Access to online databases produced by international organizations and publishers were also provided to the users. But the databases were highly priced making it difficult for libraries to provide access to their users.

The cost of the databases led libraries to resort to resource sharing. So library networks came into being. Connecting libraries was the next stage of development in automation. Databases that were available as citations only, started appearing as full-text. It helped in global access to literature.

With the developments of IT, libraries that were stand-alone entities started functioning as networked organizations. The developments in the web technology brought libraries outside their physical confines. Libraries developed websites which made their presence felt everywhere. Through the website, access is possible anytime anywhere. A library website provides a virtual tour of the library, access to its collection through WEB-OPAC, access to databases, offers useful links to other resources and also in some cases information literacy(IL) service.

Another development is the involvement of publishers in providing value added packaged products to libraries in the form of library consortium. There are a number of consortium in different subject areas and organisations.

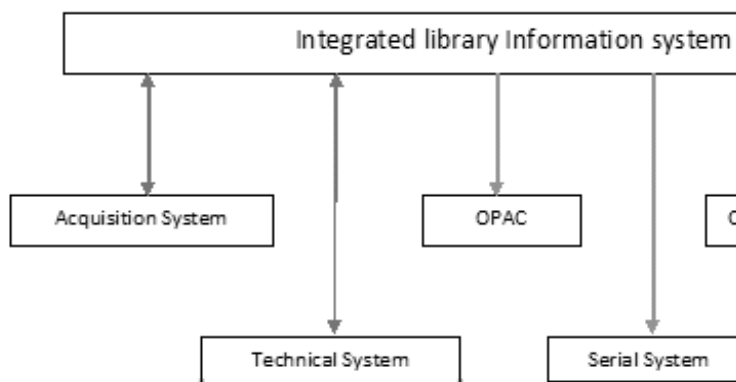
### 3.2 HOUSE KEEPING OPERATIONS

For efficient day-to-day functioning, libraries carry out various activities behind the scene and these are referred to as housekeeping operations. Most of these activities are essential for maintaining and preserving the collection. As these follow some definite routines, these can be easily computerized.

Library housekeeping is defined as “a group of basic routine operations related to acquiring, preparing, circulating and preserving the library documents for use by the library users.” The basic housekeeping activities irrespective of the type or size of a library are:

- Acquisition
- Cataloging
- Circulation
- Serials Control, and
- Management

The above mentioned activities are closely inter-connected and are to be performed in a sequence that leads to better library services. Diagrammatically, a computerized integrated library system (ILS) with various operations is shown below:



**Fig.3.1: Integrated Library System**

Let us now discuss about these in house functions.

#### 3.2.1 Acquisition

The acquisition division in a library acquires reading material (books, electronic material, maps, charts, etc). Other reading material which includes journals, newspapers, databases, e-books, etc. are acquired by the serials/ periodicals division.

Acquisition module of the computerized ILS should enable procurement of any of these material. There are different ways of procurement, viz, on approval, some important books are procured on confirmed orders and on standing order as they may be revised periodically. The acquisition module should be integrated with the



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circulation and cataloguing module so that the details of the material once fed in the computer are utilized for the databases elsewhere.

It should have provisions for receiving requests for reading material from the users and, for identifying the users (connected with the user database). Duplicate checking can be facilitated if the catalogue is integrated indicating the details, including the number of copies available. A database of book vendors, available as a master file, would enable the library to place the order. There must be options available to send reminders to the vendors in case of non-receipt of material. The budgetary details need to be indicated for processing the material and bills.

### **3.2.2 Cataloguing**

Once a book is received in the library, it is processed. Processing begins with accessioning, followed by classification and cataloguing. The software should be Machine Readable Cataloguing (MARC) compliant, enabling the library to catalogue it in a standard format and to exchange records with other libraries as part of a library network. In an automated catalogue, the concept of main and added entry is no longer valid. All the bibliographic details are available in the catalogue entry which allows access through any required field. The software should allow Boolean search which satisfies varied search needs. A library may like to have catalogue cards printed according to any format but the catalogue module should have provisions for that.

### **OPAC**

An Online Public Access Catalogue (often abbreviated as OPAC) is an online database of material held by a library or group of libraries. An OPAC contains all the bibliographic information of a library. It is, in other words, a gateway to a library's collection. According to ALA Glossary, an OPAC can be defined as "A computer based library catalogue (bibliographic database) designed to be accessed via terminals so that library users may directly and effectively search for and retrieve bibliographic records"

The OPAC can be used on a stand-alone computer as well as on the Intranet or Internet. This makes possible for a library to extend its services not only to its users but also to other interested persons of the locality, region, nation or to the entire world. OPAC or Computerized catalogue is very dynamic, in the sense, that it is highly flexible, easy and economical to maintain and is capable to meet almost every possible approach of the user. Its searching capability is very fast and accurate. It can be simultaneously used by a large number of users. The wireless technology and laptop computers now-a-days have made it quite portable. The power storage devices and the Uninterrupted Power Supply (UPS) devices have also eliminated its dependability on electricity to a great extent.

### **3.2.3 Circulation Control**

Automation in circulation activities benefits the library and users alike in saving their time. It requires master files providing database of users indicating their categories and integration of library catalogue allowing the 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 should allow sending of notices for overdue books. Fine calculation is another activity to be performed in circulation section for books returned after due date. There should be provision for these activities in the circulation module. Issue and return of books requires details of the book and that of the user. The software should allow these details to be indicated by using bar code technology. These days radio frequency identification (RFID) has also been introduced for automation in circulation that also prevents theft of books. This module should allow for implementing RFID.



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### 3.2.4 Serials Control

Serials / periodicals are published by organizations/institutions/associations. These are recurring in nature, which makes it difficult to acquire and control them. Serial Control thus needs special treatment.

Access to list of suppliers, vendors and publishers for serials is a requirement in this module. Master files need to be generated for these requirements. Budgetary provision and currency conversion is also a requirement. It should allow placing orders, receiving, accessioning and indexing the serial. The module should indicate non-receipt of a particular issue of a journal to allow reminders to be sent to the supplier/vendor. There should be provision for recording binding as well as accessioning details of the back issues of periodicals in the module.



#### Activity: 3.1

1. Visit and observe the working of a college library or any library that has been computerized. List the various housekeeping operations carried out for library automation activity.



#### INTEXT QUESTION 3.3

Write full form of words given below:

1. ILS
2. MARC
3. NIC
4. OPAC
5. RFID

### 3.2.5 Management

In addition to the operations mentioned above, the integrated library automation environment has to be organized and managed to ensure that the library documents



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are received, organized and administered regularly. The system has to be managed in such way that users get maximum benefit, safeguards are in place and timely access of material is ensured. The management module of library automation includes the following:

- Various reports and statistics
- Tools for analysis of the statistical information
- Maintenance of lists of users, publishers, and suppliers
- Stock verification and development of stock verification report
- Provide user ID & encrypted password protection
- Module level security
- Budget management
- Feedback mechanism

Besides the above, this module is required to generate messages for library staff and users. This is also required to generate reports on lost books, missing books, books sent for binding and so on for the purpose of library administration.

### 3.3 AUTOMATED SERVICES

A library after automating its routines should provide automated services, to bring in the effect of automation to the front end (user). As discussed above in the circulation division, the bar coding of books and user details enables the automated issue and return of books, which is the service any automated library can provide. Given below are some of the automated services which are provided to the users of the automated libraries : -

- a) Online Public Access Catalogue (OPAC)
- b) Web OPAC
- c) Access to databases
- d) Inter-library loan and document procurement service
- e) Internet and e-mail service
- f) Bulletin of current contents
- g) Access to electronic resources
- h) Current awareness services
- i) Selective Dissemination of Information

Let us learn a few details of some of the services mentioned above.

**OPAC** - OPAC is an interactive search module of an automated library management system. Any bibliographic record can be searched directly from a link to the database of the library or remotely through networks.



**Web OPAC** is an OPAC which is provided on the web. Any user can access it from anywhere with the help of Internet. OPAC facilitates a user to access materials while he/she is in the library, whereas Web OPAC has the advantage of being worldwide and is accessible all the time. The status of a book can be verified whether the book is issued or not, lost or transferred, etc. Here, an interface exists to provide access to the system in a manner that is complete, efficient and acceptable to the users.

**Access to databases** is another service that automated libraries provide by being part of a network or consortium. Libraries are also creating databases of organizational research and providing access to these. Some libraries are providing reference service through e-mail. Digital reference service in an online mode, i.e., 24x7 is the aim of any library. Details of other services are available in the lesson 5 on information services of library society (436).

### 3.4 LIBRARY AUTOMATION: PLANNING

It is important for a library to plan for automation well in advance. The objectives of automation should be set keeping in view the users, their demands and the resources available at hand. There can be different plans because of the above factors. It is important for a library to have futuristic plans as well.

Thorough review of literature is most important and should be the first step of library automation. Enormous literature covering application of IT in libraries is available. It also reports case studies of library automation. Visits to websites of different library software packages helps to know about their features and facilities. Discussion in conferences related to the area also helps to clarify many issues. One may also visit libraries in the vicinity for personal discussion with staff to know their experience.

A library should prepare a document, Request for Proposal (RFP) for library automation. It should include all details related to the specifications of implementing automation in the library. Automation may be done in phases and budget plans should be made accordingly. User groups, IT experts and accounts personnel should be involved in library automation. It is particularly important, because automation involves huge financial expenditure which may be difficult to get sanctioned from the authorities. Doing it in phases and showing partial results may help. Involving users may also be helpful to get approval from the authorities.

Automation for a new library to be set up is easier than for an existing library and it is all the more difficult for a library that has been in existence for a long period. The reason is that it has records that need to be checked, altered and revised as per need. Automation of previous existing records is referred to as retrospective conversion.

While planning for automation, the library should consider following issues:

- Software
- Hardware
- Whether automation to be done in-house or to be outsourced



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### Software

Careful planning is required to select software which is to be used for automation, as plenty of options are available in the market. These are:

- Commercial Software Packages
- Packages designed by a non-profit/government institution
- Open Source Software(OSS)
- Package developed in the library in-house or design of a package for the library by an external agency

There are pros and cons of each of the options, a library should weigh them and decide which one is to be adopted. OSS is the latest trend and is adopted by many libraries. Training programmes are being organized for imparting skills to handle OSS, which you may attend and learn. There are advantages of knowing the source code and international acceptance. One may modify the software as per individual requirements. Commercial software people provide training and other support. But their interest is commercial. They require payment to be made for the service rendered by them. Organisations like INFLIBNET and NIC provide software that are free of cost or have nominal cost. They also provide training and other support.

### Hardware

It is very important that the library has a futuristic view while acquiring hardware keeping in view the fast developments that have taken place in hardware technology. One should chalk out the requirements of the library and buy the best branded hardware in the available budget. Maintenance of hardware is also essential to ensure efficiency in operations. It is, therefore, better that a maintenance contract is done while buying hardware.

### In-house versus Out-sourced Automation

While carrying out library automation, a library has to decide, whether it would do it in-house or give the contract to an outside agency. Personal involvement of the librarian/library staff to the maximum extent is desirable for implementing automation. But it may not be possible to do it in-house as the library has to provide all its regular services while automating. In that case, the project has to be outsourced to an agency. There are a number of options available to choose from while outsourcing it. The past record of the agency, its consultancy charges, etc. should be considered before finalizing.



### INTEXT QUESTION 3.4

**Choose the correct option.**

1. The management module of library does not includes:
  - a) Various reports and statistics

- b) Budget Management
  - c) Serial Control
2. Which one of following is not a automated service:
- a) Web OPAC
  - b) Mobile Library(Library on wheels)
  - c) Access to e-resources



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### 3.5 LIBRARY SOFTWARE PACKAGES

As discussed above, there are different library software packages available to choose from, while automating a library. These are commercial packages, packages developed by national organisations like SOUL by INFLIBNET and e-Granthalaya by NIC. OSS are also available. KOHA is an example of OSS. Details about these packages are available on their websites. <http://www.inflibnet.ac.in/soul/>

<http://egranthalaya.nic.in/eG3.aspx>

<http://www.koha.org/>



#### Activity: 3.1

1. Visit the websites of the library automation software packages given in the section above. Learn the various advantages and disadvantages of each of one the them.



#### INTEXT QUESTION 3.5

**Choose the correct option.**

1. Which one of following is not a library software:
  - a) KOHA
  - b) SOUL
  - c) TALLY

### 3.6 STAFF TRAINING

Library automation is effective only if the staff is comfortable in handling automated operations and in providing automated services. They have to be prepared mentally to accept automation and trained to work on it. If the library opts for a commercial package, training is provided by its vendor. Otherwise, there are a number of options to train staff in library automation. There are many organisations and associations which conduct training courses of different duration.



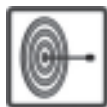
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Short-term courses which cover all aspects of library automation are also available. In these some software packages are taught. There are specific programmes on OSS like Koha. Similarly, programmes are offered to digitize libraries for which training is provided in D-Space or Green Stone Software. Library schools also provide training programmes on specific packages/ library automation and digitization. Similar courses are offered by library associations like Indian Association of Special Libraries and Information Centres (IASLIC) and Delhi Library Association (DLA) and NISCAIR. The staff may also be trained in house depending on the requirements.

### 3.7 USER ORIENTATION

Library automation is done for the users as they have to use the services of the library. They need to be oriented for using the automated services. Libraries should organize training sessions especially on the use of OPAC. Users may also be trained to search different databases. Such sessions may be organized for new users in the beginning of the session in academic libraries. Need based programmes may be organized, for which, the library may have a system of receiving feedback.

Information Literacy (IL) service is an important service provided in libraries with a view to increase usage of e-resources available in libraries. Such resources are ever expanding and have characteristics different from print resources. Their use, finding information and using them ethically is part of such IL programmes. Libraries use their websites for educating their users in using the resources and services of the library more effectively.



### WHAT YOU HAVE LEARNT

- Library automation started with small scale efforts by automating routines of the library.
- It extended with designing automated services, the first being OPAC.
- It was followed by providing information in the form of in-house bibliographic databases to the library users. Publishers started digitizing their information resources and started providing full-text services. The cost associated with these services being exorbitant, led to the formation of networks and later consortia
- Library automation packages started with individual libraries getting them designed for their needs, moving on to institutions designing integrated packages onto OSS making available the source code known for modifications as per one's needs.
- Developments in IT led to developments in automation in libraries. For example, library circulation was automated with bar coding the books and user details. RFID developments led to automating circulation further where issue and return of books is done by the user at his/her convenience. RFID also helps in locating the books and preventing their theft.

**TERMINAL EXERCISE:**

1. Describe the options available for selecting a suitable software for automating a college library.
2. Discuss the various automated library services from a computerized library.
3. Give a brief account of the various house keeping operations in library automation.

**ANSWERS TO INTEXT QUESTIONS****3.1**

1. TRUE
2. TRUE
3. TRUE

**3.2**

1. TRUE
2. TRUE

**3.3**

1. Integrated Library System
2. Machine Readable Cataloguing
3. National Informatic Centre
4. Online Public Access Catalogue
5. Radio Frequency Identification

**3.4**

1. (C)
2. (B)

**3.5**

1. (C)

**TERMS:**

The terms covered in this lesson which require further explanation are given below in an alphabetic order. The learner is required to explain each term.

**Notes**



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**House keeping Operations:**

**Information Technology (IT):**

**Library Consortium:**

**Open Source Software (OSS):**

**Retrospective Conversion:**

**Serials Control:**

**Web-OPAC:**