Chapter-9

Library Automation Software: Main Features

After studying this section, students will be able:

- *To define Library Automation*
- *To gain knowledge about the need for Library Automation*
- *To understand about the prime areas of Library Automation*
- *To understand the barrier in automating libraries*
- *To understand the criteria for choosing Library Automation Software*
- *To gain knowledge of some prominent Library Automation Software*

Content

9.1 Introduction

The fifth law of library science, according to Dr. S. R. Ranganathan, is that the library is a growing organism. In the form of growth, a library holds a natural characteristic of change. This change may be reflected in the form of improvements, modifications or advancements. As information and communication technology has revolutionised all fields of public or individual life, the library systems could not keep themselves away from this technological advancement. In this regard, automation was the first and foremost process which was invited by the library professionals in the form of remedy against traditional problems of library practices. After implementing automation, libraries have not only improved the quality of existing library operations but also introduced new and better library services for the satisfaction of its users.

The Encyclopaedia of Library and Information Science says "Automation is the technology concerned with a design and development of the process and system that minimise the necessity of human intervention in their operation."

Swihart Stanley S and Hefley Beryl F have defined the term library automation as "the processing of certain routine clerical function in the library with the assistance of computer or other mechanised or semi automatic equipment".

Therefore, we can conclude, "library automation is the process where we try to perform all library housekeeping operations with the help of library automation software in an integrated environment and with least human interference.

9.2 Need for Library Automation

Although modernisation of organisational practice is a natural process for all systems but being a service institution, it becomes essential for libraries to provide quality support for the maximum satisfaction of their users. In the present scenario, the following reasons compel the library to automate their functions:

- Information explosion
- Increase in library collection

- Inability to explore unlimited literature
- Advancements in telecommunication technology
- Wastage of users' precious time in locating information
- Inability to facilitate wider access of resources in libraries and elsewhere
- For improving the quality of library service
- For promoting cooperative efforts for better library services

9.3 Areas of Automation in Libraries

In the process of automating any organisation, ideally it becomes obvious to automate each and every activity of the same. But for designating a library and information centre as automated, it becomes essential to automate at least housekeeping activities of the library, along with their major or minor work which include:

a. Library administration
   - Activities related to:
     - Office work
     - Letter writing
     - Report writing
   - Accounts
     - Preparation of budget
     - Receipt of services
   - Other works

b. Library acquisition
   - Selection of documents
   - Placing orders
   - Checking receipt
   - Forwarding bills

c. Library cataloguing
   - Generation of catalogue cards using catalogue code
     - CCC
     - AACR II
   - Any list of subject heading
     - Sear's list

- Library of congress list of subject heading

d. Library circulation
   - Issue
   - Return
   - Reserve
   - Record keeping

e. Library serials control
   - Selection and acquisition
   - Receipt and control
   - Indexing of article
   - Circulation and routing
   - Renewal of subscription
   - Binding
   - Searching

f. Other library services
   - Current awareness services
   - Selective dissemination of information
   - Document delivery service
   - Bulletin board services
   - CD-ROM search services
   - On-line information retrieval services

9.4 Problems in Implementing Automation

According to Dr Ranganathan, the "library is a living organism" which is surrounded by 'Books', 'Staff' and 'Users'. Moreover, it is also abound with all other activities which are common in other government institutions. Keeping in view all such characteristics, we can identify the following issues which cause hurdle.

- **Institutional finance:** Being a social institution, a library cannot generate its own finance in the form of profits. Thus, it is fully dependent on its parent organisation or funding body for satisfying its financial requirements. For the purpose of automating its practices, a library requires financial support for procuring hardware and automation software, and developing infrastructure.

- **Technical know-how:** For implementing a successful automated system, the automating process not only requires an expert leadership but also well-acquainted subordinate staff of the library system. In the absence of such support, it is not possible to implement a useful automation solution.
- **Fear of new technology:** Due to the lack of training and awareness of new technology i.e. ICT, it is possible that the staff members of the library do not express their willingness to adopt it. To overcome this problem, we should make them aware of the benefits of library automation and thus motivate them to adopt it.

9.5 Criteria for Choosing Library Automation Software

After taking a decision for moving towards an automated library system, we must be very careful while finalising the automation software for our library. Once we implement any specific software, library staff and the users are bound to make use of it. A wrong decision on software selection may waste our efforts or finance. Therefore, we should take care of the following issues before taking this long lasting decision:

- **General issues**
  - Acceptability of the software
  - Cost
  - Applicability in the library system
  - Reputation of software designer
  - Reputation and goodwill of software supplier
- **Technical issues**
  - Language of the interfaces
  - Operating system
  - Requirement of hardware configuration
  - Additionally required software for implementing the automation software
  - Data storage capacity
  - Easy to use or not
- **Support provided by the software developers**
  - Availability of documentation of the product/software
  - Support for software installation by the supplier

- User training facility from the supplier/developer
- Obtainability of further modifications
- Obtainability of new versions in future
- Club/group of existing software users for discussing issues

- **Legal**
  - Registration/copyright of the product
  - Acceptable provisions of Warranty statement

9.6 Library Automation Software

9.6.1 E-Granthalaya

Primarily E-Granthalaya was started in the form of a project by National Informatics Centre, Banglore, Karnataka for providing automation support to the state-wide public libraries of Karnataka. After observing its acceptability, the library and information services division of National Informatics Center, New Delhi took the designing responsibility of E-Granthalaya for developing it as a national library automation software solution. They formed a team of expert library professionals and involved them in the designing process. Finally, they improved the quality of this software solution with enhanced and user-friendly user interface. They also simplified the workflow of various library operations. After such improvements and modifications, E-Granthalaya is now applicable to all types of libraries and information centers.

Figure 9.1: A view of E-Granthalaya Software

E-Granthalaya, the library automation software, is developed by National Informatics Centre, Department of Electronics and Information Technology, Ministry of Communications and Information Technology, Government of India. E-Granthalaya software is useful for automating housekeeping activities of all types of libraries. Through this software, library may provide its services to all types of library users. This software is equally applicable as stand-alone solution and networked solution through its client server-based database. In network based solution, its Web OPAC is installed on the server platform while the data entry program is installed on the client's system. E-Granthalaya also provides local area network or web-based data entry support for a group of libraries for implementing centralised and cooperative services. It can also provide its output in the form of union catalogue. E-Granthalaya provides Web OPAC interface for facilitating internet-based access of the institutional catalogue/OPAC. E-Granthalaya is based on Windows Operating System and is UNICODE Compliant. Therefore, it can support data entry in other local languages also.

The first version of E-Granthalaya was released with the title e-Granthalaya 1.0 in the year 2003, it was based on MS SQL Server 7. The second version of E-Granthalaya was e-Granthalaya 2.0 and released in the year 2005, it was based on MS SQL Server 2000. The third version was e-Granthalaya 3.0 and released in the year 2007, it was based on MS SQL Server 2005. Fourth and the latest version of E-Granthalaya is e-Granthalaya 4.0 released in the year 2013, it is based on MS SQL Server 2008 R2/PostGresSQL.

9.6.1.1 System requirements

For single user mode:

Hardware:

Pentium or above with backup device, Min 1 GB RAM, 40GB HDD

Operating System:

Windows XP(SP2)/Vista/win 7

Database Management System (DBMS):

MS SQL Server 2005/2008 (Express Ed)

Connectivity:

LAN/Internet Connectivity

For client server mode:

Server PC: Hardware:

High-End Server / Rack Server with 4GB RAM, 80GB HDD

Operating System:

Windows Server 2008/R2

Rationale Database Management System:

MS SQL Server 2008 R2

Connectivity:

LAN/Internet Connectivity

Barcode printer with Barcode reader

Software components:

For facilitating automation based operations, E-Granthalaya incorporates following components in its Server PC while others are installed in its client's system:

Database (MS SQL Server 2005/2008) - on Server PC (Windows 2003/2008)

Web OPAC - on Server PC

Data entry program - in client's system

9.6.1.2 Features

The most prominent features of e-Granthalaya library automation system are as follows:

- It runs on popular windows platform only (Win XP/vista/7/Server 2003/2008).
- It provides LAN or WAN based data entry support solution.
- It is UNICODE compliant and supports data entry in local language.
- It provides module - wise permission or access to its software users.
- Its work-flow is customised as per the requirements of Indian libraries.
- It provides retro-conversion as well as full cataloging mode of data entry.
- It provides authority files / master tables for authors, publishers, subjects, etc.
- It is based on multi-volume, multi-copy and child-parent relationship pattern.
- It allows scan support download of catalogue records from the internet.
- It is based on Z39.50 client search protocol.
- It prints all exhaustive reports.
- It exports records in CSV/Text File / MARC 21 / MARC XML / ISO:2709 / MS ACCESS or in EXCEL format.
- It works on common / centralised database for a number of libraries, which minimises the efforts of data entry.
- It provides the printout of the accession register.

- Its search module is built-in with basic / advance / Boolean parameters.
- It provides library statistics reports.
- CAS and SDI services can be generated through the documentation bulletin.
- It generates bibliography.
- It provides data entry statistics.
- It supports news clipping services.
- Digital library feature is integrated with it for uploading / downloading pdf documents, html documents, etc.
- It processes micro-documents and provides services like articles/chapter Indexing.
- It provides in-built serial control system for controlling the subscription of serials.
- Through its budget modules, bill register may be generated. It supports multi-budget heads.
- It can import data from any structured source.
- It supports a web based OPAC Interface with separate membership module.

9.6.1.3 Modules of e-Granthalaya

An e-Granthalaya library automation software is based on modular structure. Separate modules have been designed to perform various housekeeping activities of a library. This modular structure not only increases the functionality of all activities but also ensures a task or module specific security. It provides the following modules:

Figure 9.2: Front page of e-Granthalaya

1. Administration
2. Book acquisition
3. Cataloguing
4. Circulation
5. Serials
6. Article indexing
7. Budgets
8. Search/OPAC

9.6.2 Software for University Libraries (SOUL)

Software for University Libraries (SOUL) is an integrated library management software. It is developed by Information Libraries Network Centre (INFLIBNET), Ahmedabad. INFLIBNET centre is an Inter University Center of University Grants Commission (UGC), New Delhi. This automation software is developed for fulfilling the requirements of college libraries and university libraries. This software has user-friendly interfaces for performing various housekeeping operations. It is developed for client-server environment. SOUL is compliant to international standards for bibliographic formats and networking protocols. As it is developed by library experts and IT professionals, it provides quality solutions for all library operations in the form of independent modules. Although SOUL is developed for fulfilling the requirements of university and college libraries, it is suitable for all types of libraries. SOUL was first released in the year 2000 in CALIBER with the title SOUL 1.0.

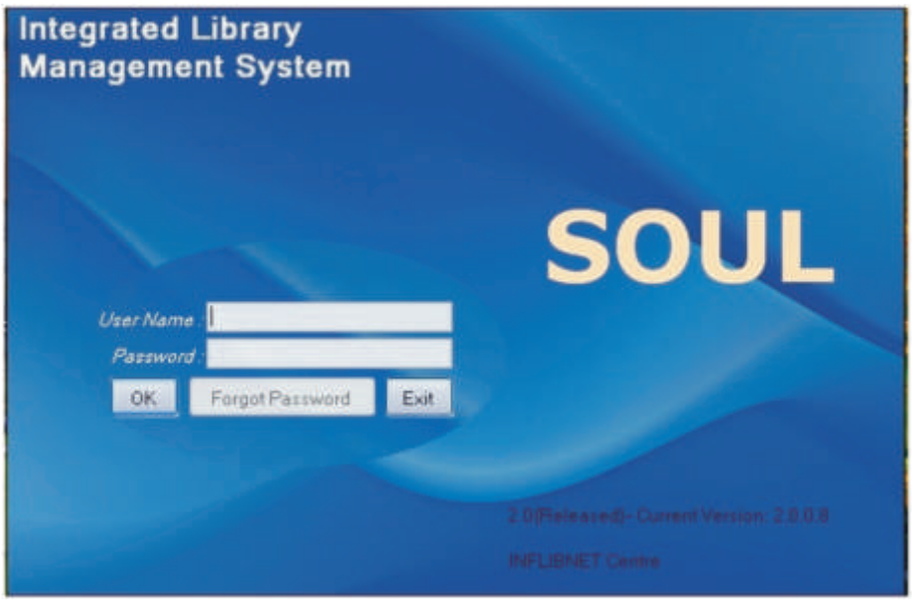

Figure 9.3: Login page of SOUL Software

Present version of SOUL is SOUL 2.0. It was released in the year 2009. The database SOUL 2.0 version is designed with the latest version of MS-SQL and MySQL. This version is compliant to popular international standards like MARC 21, Unicode based Universal Character Sets for multilingual bibliographic records and NCIP 2.0 and SIP 2 protocols for electronic surveillance.

9.6.2.1 Features of SOUL

The most prominent features of SOUL 2.0 are as follows:

- It provides multilingual support for Indian and other foreign languages which is based on UNICODE.
- It is compliant to MARC21, 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 My SQL, MS-SQL, etc.
- It also supports cataloguing practice of electronic documents like e-journals, e-books, etc.
- For supporting digital library, it facilitates link to full-text articles and other similar digital objects.
- It provides default templates for data entry of various type 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.
- As it is ISO-2709 standard compliant, it supports data exchange.
- 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 cost-effective.

9.6.2.2 Modules of SOUL 2.0 version

SOUL 2.0 is a modular library management suite. It consists of the following modules

for performing library operations. All these modules have been further divided into their sub modules for fulfilling its functional requirements:

- Administration
- OPAC
- Acquisition
- Catalogue
- Circulation
- Serial Control

9.6.2.2.1 Acquisition

This module enables the library staff to perform all major functions like:

- Order processing, order cancellation and reminder generation for suppliers;
- Receipt, payment and budgetary control;
- Suggestions management;
- Master files for currency, vendors, publishers etc.;
- Report generation.

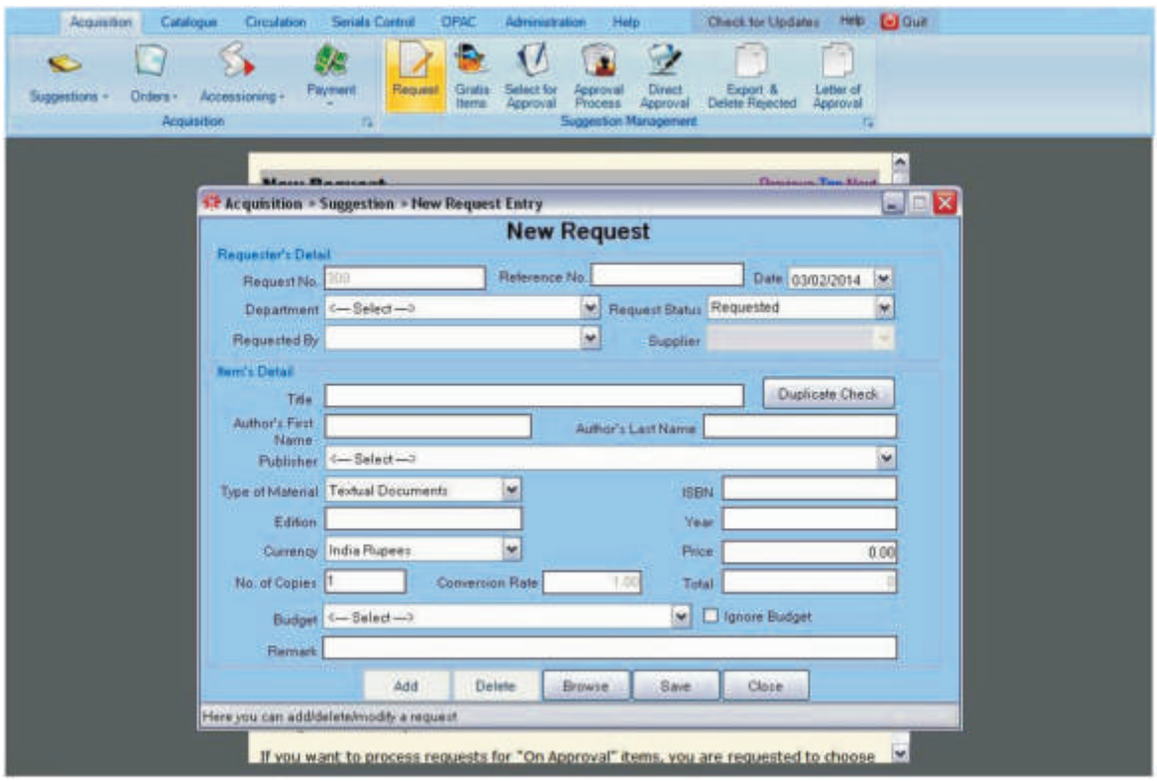

Figure 9.4: Acquisition request page: SOUL

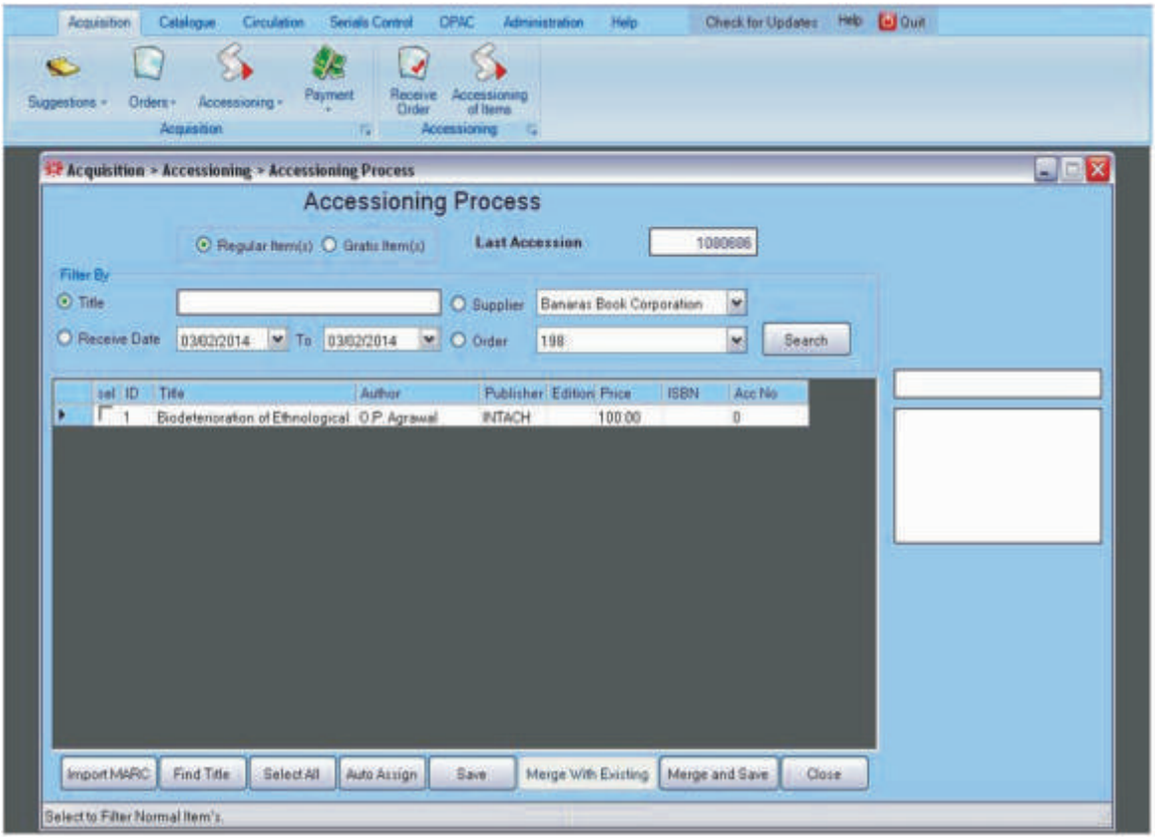

Figure 9.5: Accessioning Process: SOUL

9.6.2.2.2 Catalogue

This module is designed for retrospective conversion of documents. It provides proper support to library staff for processing recently acquired documentary resources. The main features of this module are:

- It allows library cataloguer to create their own templates for entering data.
- It is based on MARC21.
- It allows library staff to create self-customised reports.
- Due to its ISO-2709 compliant feature, it supports copy cataloguing in MARC21 format.
- It provides separate master database of publishers.
- It is a multilingual database.
- It supports MARC 21 bibliographic format.

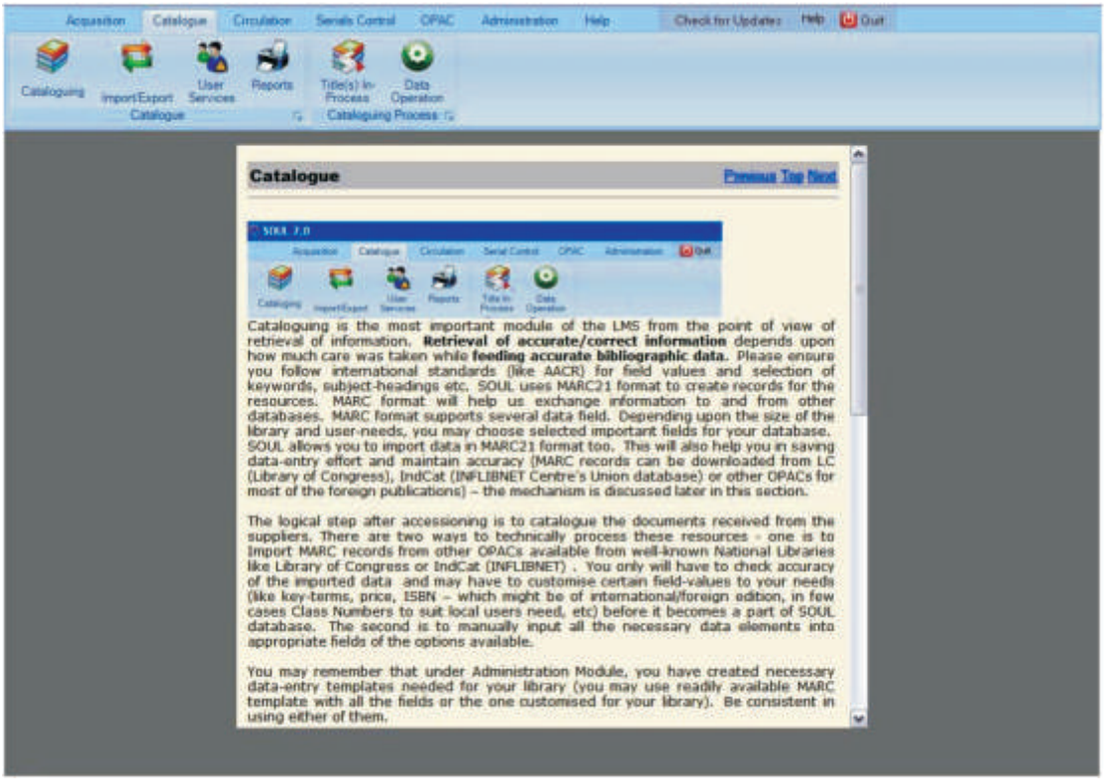

Figure 9.6: Catalogue page: SOUL

9.6.2.2.3 Circulation

The circulation module is NISO Circulation and Interchange Protocol (NCIP) version 2.0 compliant for electronic surveillance and RFID based transactions. The main functions of circulation module are:

- Providing membership for all possible types of users;
- Issue, return and reservation based transaction;
- Inter library loan;
- Calculation and payment of overdue charges;
- Generation of reminders;
- Maintenance support for items in the form of binding, lost, replacement, missing, withdrawal, etc;
- Report generation based on specific requirements.

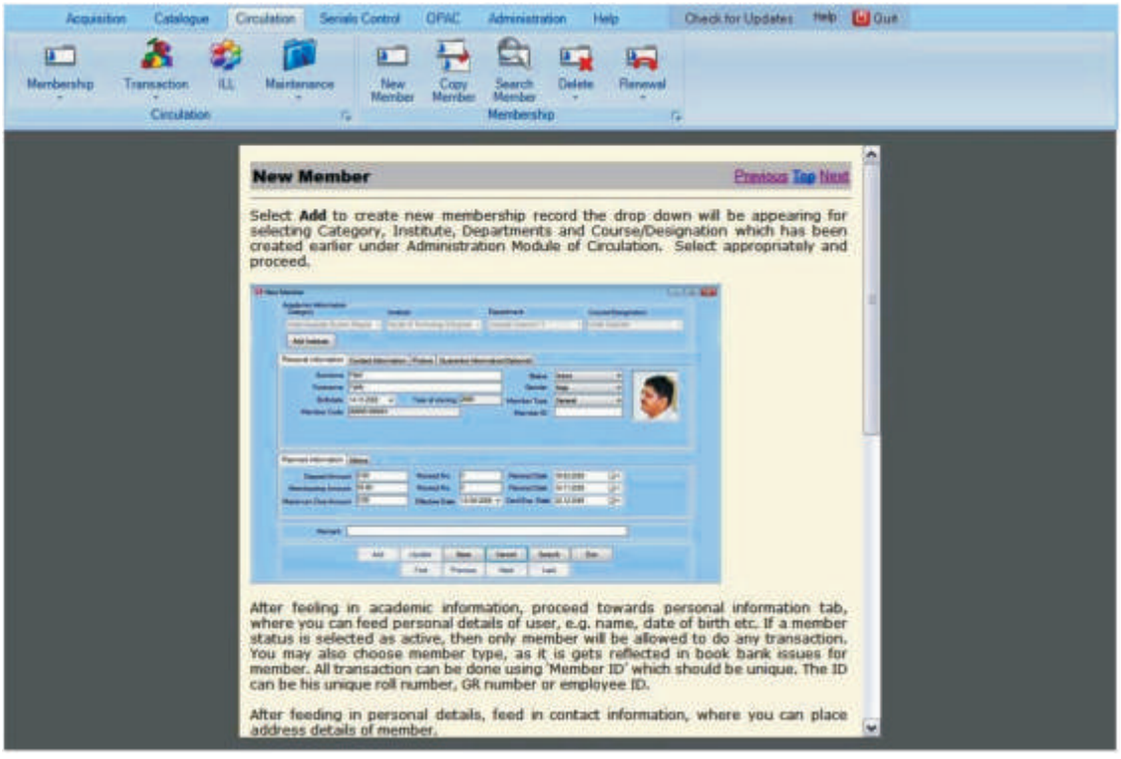

Figure 9.7: Membership page: SOUL

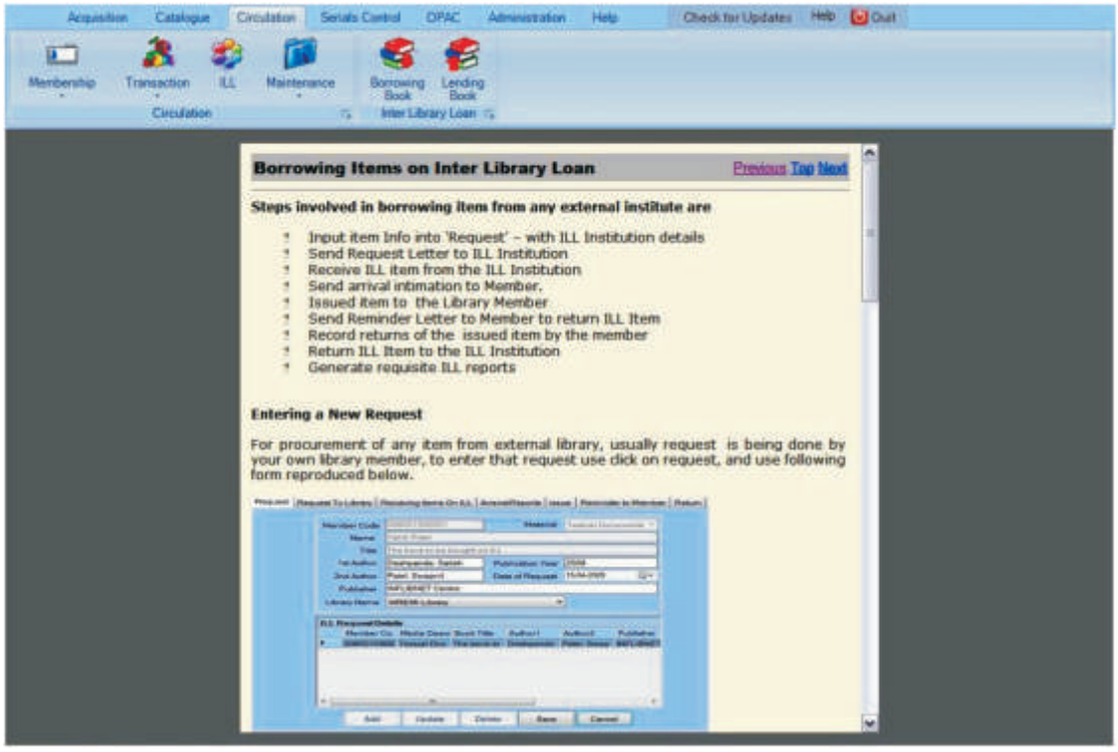

Figure 9.8: Inter Library Loan: SOUL

9.6.2.2.4 On-line Public Access Catalogue (OPAC)

The On-line Public Access Catalogue (OPAC) facility of SOUL 2.0 is very simple. It supports advanced search facility by using author, title, corporate body, conference title, keywords, subject headings, accession number, class number, series name or any combination of two or more elements. The main features of this module are as follows:

- Simple Search;
- Boolean Search;
- Advanced Boolean Search;
- Downloading and displaying of records in MS Excel, PDF or MARC-XML format; and
- Search support for the items which are in the process of acquisition.

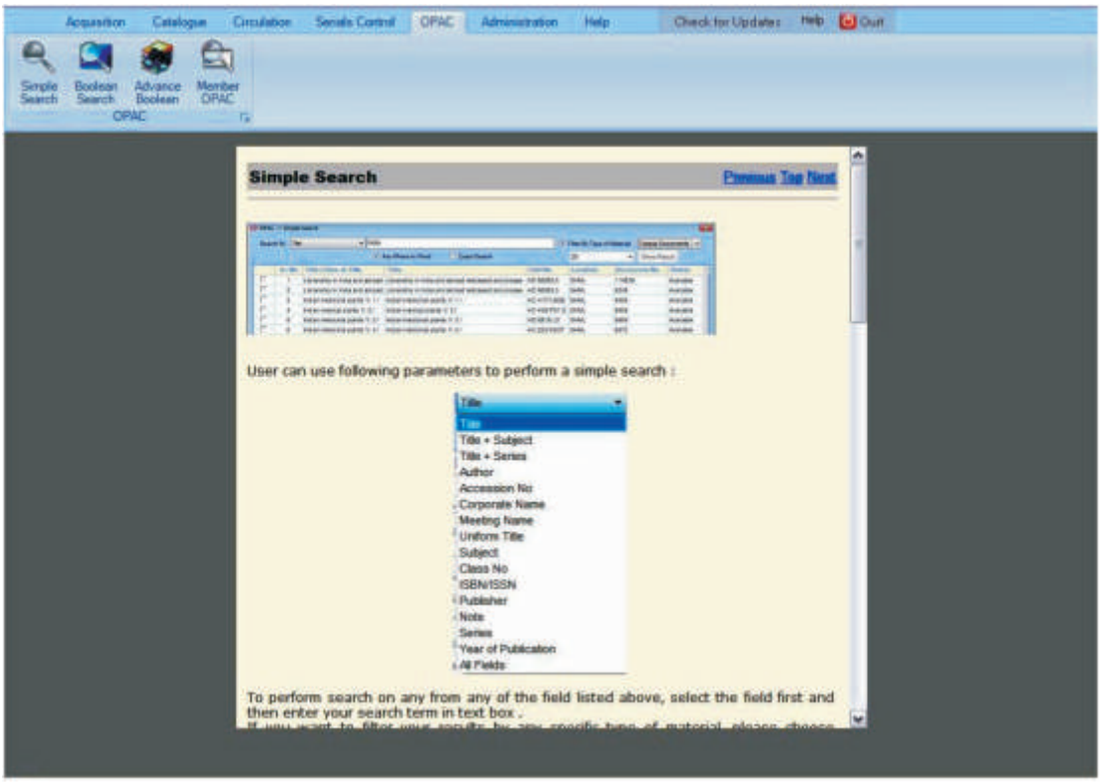

Figure 9.9: OPAC: SOUL

9.6.2.2.5 Serial Control

Management of serials is the most complex task for a library. This module assists library staff for managing serials in an effective and efficient manner. It is developed on the basis of the process of KARDEX system. The features of this module are as follows:

- It takes suggestions from users.
- It maintains the master database.
- It controls the subscriptions of serials.
- It supports check-in process of individual issue.
- Export and import support is provided by this module due to its ISO 2709 bibliographic exchange format compliant feature.
- It facilitates article indexing of journal or edited book articles.
- It supports cataloguing of electronic journals.
- It maintains history of changes in a journal.

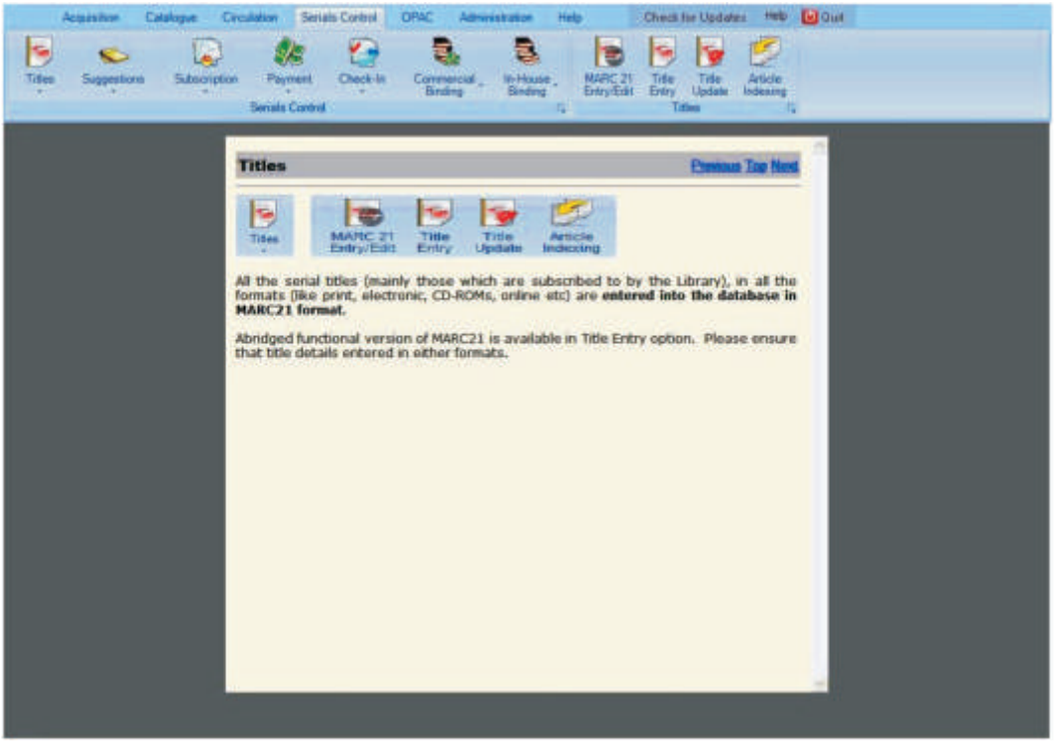

Figure 9.10: Serial Control: SOUL

9.6.2.2.6 Administration

This module of SOUL is divided into three major sections for adding new features. These sections are user management, system parameters and masters. The administration volume of SOUL 2.0 supports the following features:

- It can generate various groups of users on the basis of library policy.
- It supports transactional rights over the system.
- It facilitates transaction level security.
- In all modules, common master database is used.

Figure 9.11: Admin page: SOUL

9.6.3 LIBSYS

LIBSYS is a web-based library software which is developed by LIBSYS Ltd., Gurgaon, Haryana. LIBSYS is an integrated multi-user library management software. It has a tree structure system with each part of the system comprising different sub-parts having excellent functionality.

LIBSYS is the most useful software in India and is used by different types of libraries. It is an integrated library management software based on programming language C and C++. LIBSYS has its own bibliographic database in the MARC format. It supports various types of documents. LIBSYS provides full graphic user interface.

LIBSYS supports majority of Indian languages/scripts using ISM Publisher and GIST of C-DAC. There is also a provision of extra 'Unicode' support in LIBSYS which assists in operating both International and Indian languages/scripts. LIBSYS works on various platforms like WINDOWS (NT/2000/XP), UNIX and LINUX.

LIBSYS provides various modules for conducting operations related to acquisition, cataloguing, circulation, serials, article indexing, Web-OPAC and reports generation. It supports international standards like MARC21, Unicode, SRU-SRW, Z39.50, NCIP-NISO and SICI-Barcode.

LIBSYS is an easy to operate software, due to which each and every library personnel can use it comfortably without requiring any special computer skill. It ensures high productivity because of minimal data entry requirements, maximum possible integration of functions and powerful search support.

9.6.4 KOHA

KOHA is the first popular open source library management system, which was created in 1999 and was developed in 2000 by Katipo Communication 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 acquisition system including budgets and pricing information, etc.

It is web-based open source software, which is distributed under the general public license (GNU). 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, real or virtual. KOHA supports copy cataloguing. It is based on the standards/protocols like z39.50, MARC21 and UNIMARC. KOHA also has the capacity to manage digital libraries and online and offline electronic resources.

9.7 Summary

Being a service institution, library bound us to update our library services for providing the best, fastest and most convenient information support while exploiting latest technological advancements. After going through the above mentioned concepts it is now obvious that we can facilitate better library support in an automated library system. We can conveniently manage various problematic issues like increasing workload, information explosion, limited staff and even limited recurring financial support. We have also discussed some of the quality library automation software for developing better understanding.

9.8 Glossary

KARDEX: It is one of the library furniture which acts as a tool for maintaining serials control in the library. It was developed by Remington Rand.

RFID: RFID stands for Radio Frequency Identification technology. It is the latest technology which is used in library for implementing theft detection system.

CAS: The full form of CAS is Current Awareness Service. This is a generalised service for keeping all users aware of the advancements, updation and events in their respective libraries.

SDI: The full form of SDI is Selective Dissemination of Information. This is a specialised service for keeping a specific user aware of the addition of information of his/her interest in his/her respective library.

9.9 Exercise

Short questions

1. Define the concept of Library Automation.
2. Why is automation required in an organization?
3. Discuss the need of library automation.
4. What are the barriers in automating a library?
5. Point out various areas of automation in a library.
6. What type of support libraries are expected from the software developer?
7. Point out some essential technical issues to be considered while selecting automation software?
8. Discuss various prominent features of e-Granthalaya.
9. Write a short note on Libsys.
10. Write a short note on the history of development of e-Granthalaya.
11. Discuss various features of SOUL.
12. Write various activities of SOUL's circulation module.
13. Write a short note on KOHA.
14. Write various modules of e-Granthalaya.
15. Discuss various information searching supports of the OPAC of SOUL software.

Long questions

1. While defining library automation, discuss the need of automating a library for providing quality information support.
2. Discuss various modules of SOUL along with their functions and activities.
3. Discuss various issues to be considered while choosing suitable automation software for library in detail.
4. How can a library provide better information services in an automated environment? Discuss in detail.
5. Write an essay on the library automation software while discussing any two software?

Project Work

Setting up and Running a School Library

Project

The students are required to do this project work as a part of their academic course. This project gives simple step-by-step explanations and covers all aspects of setting up and running a library, including:

- Selecting books for the library.
- How to make a catalogue, classify books and establish simple and effective library systems.
- Arrangement of books on the shelves.
- Printing and pasting of different labels.
- How to encourage other students to involve themselves in library activities.

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Acknowledgement of Images

Figure 5.5: OPAC dialog box, LS Premia Software of Libsys.

Figure 5.6: Authors catalogue (taken from Planning Commission Library)

Figure 5.7: Authors catalogue (taken from Planning Commission Library)

Figure 5.8: OPAC of Planning Commission Library

Figure 5.9: OPAC (taken from the Delhi University Website)

Figure 5.10: OPAC (taken from the Delhi University Website)

Chapter 6: Reference and Information Sources

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Figure 1: Smith, Tim , Reference Librarian & Web Developer, Ohio University Libraries (http://www.library.ohiou.edu/research/the-research-process/primary-secondary-sources/), retrieved on 10/02/2014

Figure 2: With permission from the University Libraries, University of Maryland, http://www.lib.umd.edu/ues/guides/primary-sources , retrieved on 10/02/2014

Chapter 7: Categories of Reference Sources: Description and Scope

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Chapter 8: Computer Hardware used in Library: Concepts

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Acknowledgement of Images

Figure 8.1: http://en.wikipedia.org/wiki/Computer_monitor

Figure 8.2: http://grardnr.wordpress.com/category/week-12/

Figure 8.3: http://it.wikipedia.org/wiki/Mouse

Figure 8.4: http://computer.howstuffworks.com/inkjet-printer.htm

Figure 8.5: http://www.thnt.com.vn/may-fax-may-in-muc-in.html

Figure 8.6: Website of kenrockwell

Figure 8.7: Homepage of scanmaster

Figure 8.8: Homepage of largescanner

Figure 8.9: http://uk.shopping.com

Figure 8.10: Website of new digital photography

Figure 8.11: http://alioting.blogspot.in/2013/04/definition-of-internal-and-external.html

Figure 8.12: http://www.webopedia.com/TERM/E/external_modem.html

Figure 8.13: http://www.rfwel.com/shop/WiMax-Outdoor-CPE-2.496-2.69-GHz.html

Figure 8.14: http://www.thelifenetwork.org/about.html

Figure 8.15: http://en.wikipedia.org/wiki/Barcode_reader

Figure 8.16: http://b2binformation.blogspot.in/2013/05/barcode-printers-features-and.html

Figure 8.17: http://www.epc-rfid.info/rfid

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Acknowledgement of Images

Figure 9.1: Screenshot taken from Botanical Survey of India.

Figure 9.2: Screenshot taken from e-Granthalaya.

Figure 9.3: Screenshot taken from Software for university libraries.

Figure 9.4: Screenshot taken from Software for university libraries (acquisition module).

Figure 9.5: Screenshot taken from Software for university libraries (Accessioning process).

Figure 9.6: Screenshot taken from Software for university libraries (catalogue).

Figure 9.7: Screenshot taken from Soul (New member).

Figure 9.8: Screenshot taken from Soul (Inter library loan).

Figure 9.9: Screenshot taken from Soul (OPAC).

Figure 9.10: Screenshot taken from Soul (Serial control).

Figure 9.11: Screenshot taken from Soul (Administration module).

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