CHAPTER VI
MODEL PLAN FOR LIBRARY AUTOMATION AND NETWORKING IN DENTAL COLLEGE LIBRARIES

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CHAPTER VI
MODEL PLAN FOR LIBRARY AUTOMATION AND NETWORKING IN DENTAL COLLEGE LIBRARIES

6.1 INTRODUCTION

We are living in the Cyber age where everything is being converted to e-Farmers are getting e-Khatoni, people are making e-Friends, and friends are sending e-Greetings, passengers are purchasing e-tickets, so and so forth. In this age, ICT is being used in all spheres of our life; libraries are not the exceptions of this change. ICT provides both opportunities as well as challenges to the LIS Professionals. This is the high time to start using the ICT in libraries for better management of library activities, resources and services. ICT can provide better opportunity to the LIS professionals to show their capabilities by modernizing the libraries and providing various online library services. There are over lakhs of libraries in India, un-official sources show that there are about 54000 public libraries ranging from Village library to District and State Central Library, 1200 Universities and College Libraries, 800 Government libraries and several thousand school libraries. All these libraries are in the bad condition in terms of infrastructure, manpower, funding and modernization. These libraries are not getting due attention of Central as well as State Governments. Therefore the cost of application software is still increasing. There are number of commercial software in the market which is very costly and small / medium sized libraries can not afford them. However, now days a number of free software’s are also available, some are open-source software like KOHA which is a complete application for automation and networking of libraries. National Informatics Centre has also come-up with a Library Automation Software called as e-Granthalaya which is being given at zero cost to the libraries in India. The software is useful for automation of in-house activities in a library as well as user services. (Mahajan, 2005).

The existence of library system in India is as old as the country itself and the libraries in India have a long history, starting with the chained and closed access libraries of earlier times to the present day, hybrid, digital and virtual libraries that use the worst conditions where no computerization is being done despite the continuous
support of Raja Ram Mohan Roy Library Foundation (RRLF), Kolkata (http://rrrlf.nic.in) setup by Government of India for overall development of public libraries in India. (Bhattacharjee, 2002).

He further mentioned that out of 28 State Central Libraries (SCL), only 7 libraries (26%) have started the automation of various activities. He also mentioned that among the 29 states in India only 4 states (15%) have adopted information technology, whereas 4 out of 6 (66%) have utilized the information technology in the State Central Libraries (SCLs), No public library is having web site for accessing the OPAC over internet. Now, efforts are being made to automate all the public libraries in India in various phases using the e-Granthalaya software developed by the NIC. In the first phase, all the State Central Libraries (SCL) which are 28 in numbers scattered in various states capitals in India will be computerized. In the second phase, all the Regional Libraries (RL) and District Libraries (DL) will be covered while in the third phase all the rest of the public libraries of various levels in the respective states in India will be automated using the e-Granthalaya software. In this direction NIC Officers are organizing a series of seminars and trainings in all the states in collaboration with state authorities who are managing the public libraries in the respective states. During the seminar, DEMO of the software is given, discussion on the implementation and data entry plans, requirements of the systems, etc. are discussed with top management and state government representative and some times to the Minister of the concerned ministry/department. After acquisition of the systems required, the software is implemented. Keeping in view these entire situation related to the libraries in India, we (library professionals, library schools and library associations) need to work together to strengthen the libraries by computerizing these. (Majumdar, 2005).

6.1.1 e-Granthalaya

Libraries are the social institutions as they provide various kinds of services to the users and citizen of the city / country. Libraries have been the integral part of the education system in the society since early days. The first library in the world, as given on Wiki Answerportal (http://wiki.answers.com) was The Royal Library of Ashurbanipal, named after Ashurbanipal, the last great king of the Neo-Assyrian
Empire. In India the Nalanda Library, known as *Dharma Gunj*, was one of the oldest library, great in terms of library collection, users and research scholars. In the modern India, libraries have become the integral part of not only educational institutions but also other government setups like ministries, departments, district centers, etc. As per the un-official census of the libraries in India, there are about 54,000 public libraries, 1200 university/ departmental libraries, 12000 schools and college libraries and 800 ministries and government department’s libraries under Central and state Government, 400 Research & Development libraries. As per one estimate, only few hundred libraries are fully automated, while most of the libraries are either partially automated or yet to start the job of automation. ([http://www.egranthalaya.nic.in](http://www.egranthalaya.nic.in))

### 6.1.2 What is e-Granthalaya

e-Granthalaya is a Library Management Software which facilitates to automate not only the in-house activities of the library but also the user services. The first version of the Software was developed by the Karnataka State center of NIC, Bangalore. Later, the development was taken over by the Library and Information Services Division at National Informatics Centre, head quarter, New Delhi. ([http://www.egranthalaya.nic.in](http://www.egranthalaya.nic.in))

### 6.1.3 Technology used

e-Granthalaya has been developed on the bases of latest Microsoft Technologies. NET technology is used for design and development of various components/modules of the software. Visual Basic programming language is the prevalent language used in the software to write various interfaces using the Visual Studio 2005 development platform. e-Granthalaya Data entry interface is Windows Form application while the Web OPAC is written in ASP.NET using the NET Framework 2.0 technology.
6.1.4 Why e-Granthalaya free?

Now the question comes that how we can automate these large number of libraries exist in India we automate, for example, 54000 public libraries using commercial software which cost 5–6 lakhs per library. Keeping in view the large number of Public and Government libraries in India and also the high cost of commercial software, it becomes imperative to provide zero-cost software along with free support, training and services.

There is no such designated agency in India, Government, Professional or Private, which can provide free software and services to these Libraries. Central Governments as well as State Governments seem no serious for development of Indian Libraries. Similarly, professional bodies in LIS always engaged in over glorifying the profession than providing the solution / tools even after 35 years of Post -Ranganathan era. Also, there are many Library Networks (DELNET, CALIBNET, PUNENET, MYLIBNET, INFLIBNET, etc) in existence; however, very few provide the library services in a network environment. The simple reason is that these networks have not developed any tool/software to automate the Indian libraries and provide the services to them; they are financially poor and thus can not purchase commercial tools also. So, at NIC it has been decided to develop good library automation software and to provide the same at zero cost to the Indian libraries. Moreover, we understand that the libraries are non-profit making and social institutions and serve the society for its development.
6. 1.5 Concepts of model

Anytime a new research area gains momentum the task of defining its central notations need to be addressed. Communities can take surprisingly long time spans to come an agreement what notation like ‘object’ and ‘component’ should be encompassing. Although such efforts can be tedious and are known to endanger research meetings to stall on the definition problem already, they are necessary in order to enable communication among community members. Unless the community arrives at an agreement on its basic terms its communication will be plagued by misunderstandings both noticed and unnoticed. Without a shared conceptualization the different ontologies used by different members may potentially create the illusion of agreement where is none and raise barriers of communication where they are just accidental. For the latest trend in software development the critical question is:
What is the “M” in “Model Driven Development”?

This question sets the context for our further discussion. We are not going to be concerned what the term “Model” means for the fashion business, mathematicians, Pedagogy, etc. In software engineering “model” has traditionally been referring to an artifact formulated in a modeling language, such as UML. In general, such model descriptions are graph based and typically rendered visually. (Stachowiak, 1973).

6.1.6 Definition of model?

1. “A model can come in many shapes, sizes, and styles. It is important to emphasize that a model is not the real world but merely a human construct to help us better understand real world systems. In general all models have an information input, an information processor, and an output of expected results”.
http://serc.carleton.edu/introgeo/models/whatisamodel.html accessed on 22/11/12

2. A representation of a system that allows for investigation of the properties of the system and in some cases, prediction of future outcomes. Models are often used in quantitative analysis and technical analysis and some times also used in fundamental analysis. http://www.investorwords.com/5662/model.html accessed on 22/11/12
3. according to the famous Oxford Dictionary, it is defined as follows.

1 a three-dimensional representation of a person or thing, typically on a smaller scale.
2 (in sculpture) a figure made in clay or wax which is then reproduced in a more durable material. 3 something used as an example. 4 a simplified mathematical description of a system or process, used to assist calculations and Predictions. 5 an excellent example of a quality. 6 a person employed to display clothes by wearing them. 7 a person employed to pose for an artist. 8 a particular design or version of a product.  

http://www.tiu.ac.jp/org/forum-01/index.files/html accessed on 22/11/12

6.1.7 Kinds of models

The two kinds of models which are able to create a communication chasm between two people talking about basic notion such as “metamodel”, if they are not aware of their different mindsets, are token and types of models.

1 Token Model

Elements of token model capture singular aspects of the original’s elements. When using UML, one would use an object diagram to create a token model as the original’s elements one is interested in are captured in a one-to-one mapping and are shown with their individual attributes.

2 The Kuhne

However, using the ‘meta’ prefix in this way only makes sense if the relation established by the repeatedly applied operation is not transitive. For instance, when generalizing twice we still call the result ‘superclass’ instead of ‘supersuperclass’ or let alone ‘metaclass’. Any operation such as generalization which creates a transitive relationship among its elements is not suited to have its repeated application indicate with the ‘meta’ prefix. Token models have not been extensively used in model driven development yet but are useful for capturing system configurations or as the basis for simulations. (e.g., regarding performance). (Kuhne, 2005).
6.1.8 Components of model

Six Major Components of a Test Automation Framework are:

A test automation infrastructure, or framework, consists of test tools, equipment, test scripts, procedures, and people needed to make test automation efficient and effective. The creation and maintenance of a test automation framework are key to the success of any test automation project within an organization. The implementation of an automation framework generally requires an automation test group. The responsibility of this group is to develop test automation infrastructure, test libraries, and tests tools.

The idea behind an automation infrastructure is to ensure the following:

1. Different test tools and equipment are coordinated to work together.
2. The library of the existing test case scripts can be reused for different test projects, thus minimizing the duplication of development effort.
3. Nobody creates test scripts in their own ways.
4. Consistency is maintained across test scripts.
5. The test suite automation process is coordinated such that it is available just in time for regression testing.
6. People understand their responsibilities in automated testing.

Components of a typical test automation framework are as described in the following figure.
1) **System to Be Tested:** This is the first component of an automation infrastructure. The subsystems of the system to be tested must be stable; otherwise test automation will not be cost effective. All the subsystems must be stable and work together as a whole before the start of an automation test project.

2) **Testing Platform:** The testing platform and facilities, that is, the network setup on which the system will be tested, must be in place to carry out the test automation project. For example, a procedure to download the image of the SUT, configuration management utilities, servers, clients, routers, switches, and hubs are necessary to set up the automation environment to execute the test scripts.

3) **Test Case Library:** It is useful to compile libraries of reusable test steps of basic utilities to be used as the building blocks of automated test scripts. Each utility typically performs a distinct task to assist the automation of test cases. Examples of such utilities are ssh (secure shell) from client to server, exit from client to server, response capture, information extraction, rules for verdicts, verdict logging, error logging, cleanup, and setup.

4) **Automated Testing Practices:** The procedures describing how to automate test cases using test tools and test case libraries must be documented. A template of an automated test case is useful in order to have consistency across all the automated test cases developed by different engineers. A list of all the utilities and guidelines for using them will enable us to have better efficiency in test automation. In addition, the maintenance procedure for the library must be documented.

5) **Testing Tools:** Different types of tools are required for the development of test scripts. Examples of such tools are test automation tool, traffic generation tool, traffic monitoring tool, and support tool. The support tools include test factory, requirement analysis, defect tracking, and configuration management tools. Integration of test automation and support tools, such as defect tracking, is crucial for the automatic reporting of defects for failed test cases. Similarly, the test factory tool can generate automated test execution trends and result patterns.
6) **Test Administrator**: The automation framework administrator does the following

a) Manages test case libraries, test platforms, and test tools;
b) Maintains the inventory of templates;
c) Provides tutorials; and
d) Helps test engineers in writing test scripts using the test case libraries.
e) Provides tutorial assistance to the users of test tools and maintains a liaison with the tool vendors and the users. [http://www.softwaretestinggenius.com](http://www.softwaretestinggenius.com) accessed on 22/11/2012

### 6.1.9 The number of models available for library automation

The following numbers of models are available:

1. **Automation Marketplace 2010: New Models, Core Systems**

   In a year when a difficult economy presented fewer opportunities for immediate gains, the major industry players have defined their business strategies with fundamentally different concepts of library automation. This is no longer an industry where companies compete on the basis of the best or the most features in similar products but one where companies distinguish themselves through products and services that define different futures for their library customers.

   New models of automation are beginning to take shape, challenging the traditional integrated library system (ILS) in an industry that has long favored incremental evolution. Some new products and projects remain poised to break free from traditional models, particularly discovery products that can deliver immediate improvement to library users. [http://www.libraryjournal.com/article/CA6723662.html](http://www.libraryjournal.com/article/CA6723662.html) accessed on 22/11/2012

2. **Zero-penny model for library automation**

3. The following are latest trends to be considered for library automation

1. **Integrated library Management system**: An automation system in which the various applications share one bibliographic database.

2. **Core modules as**: Circulation, cataloguing and online public access catalogue are necessary minimums. Additional modules include acquisitions, community information, course reserves, imaging, inter-library loan (ILL), materials booking and serials. Acquisitions and serials are sometimes part of the same module and are often part of the core package, content management, e-learning etc.

3. **Client-server architecture**: Turnkey systems are quickly becoming a thing of the past. A client/server system is identified by a more powerful server machine that handles database manipulation and retrieval while leaving the user interface to the desktop client software.

4. **Z39.50**: This is a protocol for computer-to-computer information retrieval.

5. **GUI interface for all modules**: Graphical and menu-driven interfaces have or are replacing command driven interfaces in systems.

6. **MARC 21 and non-MARC compliance**: First, library systems developed to use MARC records. Now systems must allow for cataloguing formats, such as Internet resources, for which no MARC formats yet exist alongside MARC records.

7. **Web-based patron catalogue**: Patron access is greatly increased when catalogues can be accessed remotely via the World Wide Web.

8. **UNICODE**: This protocol expands the character set allowed and is essential for collections with materials in non-Roman languages.

9. **RFID (Radio Frequency Identification Technology)**: RFID is the latest technology to be used in library theft detection systems. Unlike EM (Electro-Mechanical) and RF (Radio Frequency) systems, which have been used in libraries for decades, RFID-based systems move beyond security to become tracking systems that combine security with more efficient tracking of materials throughout the library, including easier and faster charge and discharge, inventorizing, and materials handling. (Sahu, Nageswaran & Singh, 2005).
FIGURE: 6.1 MODEL PLAN FOR LIBRARY AUTOMATION

- FINANCE PROVISION
- INFRASTRUCTURE DEVELOPMENT
- BUILDING/FURNITURE/NETWORK
- SELECT THE OPERATING SYSTEM
  - SELECT THE ILM (Integrated Library Management Software), ANTIVIRUS
  - SELECT THE STANDARD FORMAT OF DATABASES
- PHASE WISE LIBRARY COLLECTION FOR DATA-ENTRY
- PHASE WISE BAR CODE PASTING TO LIBRARY COLLECTION
- MEMBERID WITH BAR-CODE
- PLANNING AND EXPERIMENTATION
- IMPLEMENT OF HOUSUE-KEEPING OPERATION
- INFORMATION SERVICES (CIRCULATION AND OPAC)
- FEEDBACK

CONTRIBUTE TO ALL THE DATABASE to UNION DATABASE FOR WEB-OPAC (PHASE-WISE)
REGULAR UPDATATION TO UNION DATABASE (SERVER)
6.2  MODEL STEPS FOR LIBRARY AUTOMATION IN
DENTAL COLLEGE LIBRARIES

6.2.1  FINANCE PROVISION
6.2.2  INFRASTRUCTURE DEVELOPMENT
6.3.3  BUILDING/FURNITURE/NETWORK
6.2.4  SELECT THE OPERATING SYSTEM
6.2.5  SELECT THE ILM (Integrated Library Management Software), ANTIVIRUS
6.2.6  SELECT THE STANDARD FORMAT OF DATABASES
6.2.7  PHASE WISE LIBRARY COLLECTION FOR DATA-ENTRY
6.2.8  PHASE WISE BARCODE PASTING TO THE LIBRARY COLLECTION
6.2.9  MEMBERID WITH BAR-CODE
6.2.10  PLANNING AND EXPERIMENTATION (TEST THE SYSTEM – CLOSE
        THE MANUAL SYSTEM STEP BY STEP)
6.2.11  IMPLEMENT OF HOUSUE-KEEPING OPERATION
6.2.12  INFORMATION SERVICES (CIRCULATION AND OPAC)
6.2.13  FEEDBACK
6.2.14  CONTRIBUTE TO ALL THE DATABASE TO UNION DATABASE FOR
        WEB-OPAC (PHASE-WISE) OR AFTER THE COMPLETION
6.2.15  REGULAR UPDATATION TO UNION DATABASE (SERVER)
6.2.1 FINANCE PROVISION

When planning for library automation and networking, sufficient funds have to be provided by the institutions or the funding agencies for purchasing of hardware, software, furniture etc. It should be noted that if sufficient funds are not available for purchasing the entire software, then the library should automate only those areas, which are of utmost importance and then later on go for overall automation modules.

6.2.2 INFRASTRUCTURE DEVELOPMENT

Infrastructure facility is also important for development of library automation. Electronic equipment comprised digital scanners, barcode scanners, UPS and printers. All the libraries have the facilities of accessing communication network services such as telephone, internet, e-mail, etc., apart from the preferred library services such as online (e-journals), OPAC, CD-ROM, audio/video and support, etc.

6.2.3 BUILDING/FURNITURE/NETWORK

All libraries should provide separate centralized computer section for library automation and networking. It also provides the facilities for adequate furniture and setup the LAN campus as well as in the libraries.

6.2.4 SELECT THE OPERATING SYSTEM

e-Granthalaya software is a Multi lingual tool to enter the data in local language supported by the Windows Operating System. Windows support 10 Indian Scripts and about 15 local languages. For data entry in local language, first you must install the “Language Pack” from the operating system CD in the server PC as well as Client PCs.
6.2.5 SELECT THE ILM (Integrated Library Management Software),

ANTIVIRUS

Selecting integrated library management software is more functional on several practical aspects. This means, final choice may not be the best suited to a particular libraries needs, features, and function and often the selection has to be for the best among those available with provision for trouble free customization. There are so many commercial software’s available in the market. It was found that all these commercial software’s were available against high license fees along with separate annual maintenance contracts, updating fees, customization charges and many other hidden costs. Also, the customer support services provided by the commonly used software suppliers in Delhi were found to be very frustrating. It is seen that the most commonly used software suppliers in Delhi have made an oligopoly and virtually control the software market in Delhi and have kept their price quite high. The management could not be convinced with these factors and also for the reason that the library budget was limited. Thus, working with open source software (OSS) seemed to be challenging and thus it was decided to use open source software (OSS) in the library. After a quick survey of the available open source software (OSS) for library automation, e-Granthalaya was chosen as the option.

6.2.6 SELECT THE STANDARD FORMAT OF DATABASES

The standards adopted by the library industry and community that facilitate data interchange between libraries and institutions, and which are supported by the most systems are MARC (Machine Readable Cataloguing) standards and Z39.50, the information search and retrieve protocol standard.

a. MARC

The Machine-Readable Cataloging (MARC) formats are standard used for the representation of bibliographic and related information for books and other library materials in machine-readable form and their communication too and from other computers.
b. Need for MARC

- The MARC standard allows libraries to share bibliographic resources with other libraries that also use it.
- It also enables libraries to easily migrate to commercially available library automation systems, a majority of which support only the MARC standard.
- A bibliographic record in MARC format will allow the application system or library automation system to:
  - Format the information correctly for printing a set of catalog cards or for displaying the information on a computer screen.
  - Search for and retrieve certain types of information within specific fields.
  - Display lists of items as required by the search.


c. Z39.50 Protocol

Z39.50 is generally defined as the information search and retrieve protocol standard used primarily by library and information related systems. The standard specifies a client/server-based protocol for searching and retrieving information from remote databases simultaneously using a single interface.

6.2.7 PHASE WISE LIBRARY COLLECTION FOR DATA-ENTRY

Library should take the data entry work in Phase wise like in First Phase: books can be entered, Second Phase: Journals, Back volumes, In the Third Phase: Dissertations, CD's, and other reading materials of the libraries.

6.2.8 PHASE WISE BARCODE PASTING TO THE COLLECTION

This Form is used to generate the Bar Code Labels and to print the same either on Bar Code / Thermal Printer or on Laser Printer. In case, you want to print the barcode labels on Bar Code printer, then you need to send us PRN File for that particular brand of printer to integrate it with the e-Granthalaya Software. The PRN file is a text file which contains the programming code / settings for each printer. The
barcode label prints the Bar code lines from accession number and Class No, Book No, Location, Library Code etc. A typical bar code label contains the following data: Library Code Bar Code lines of the Accession no Accession no Class No Location
Bar Code labels can also be printed by Laser Printer on the A4 Size Sheets where blank bar code labels are pasted in various rows and size. We have already added various sizes for laser printer. Such A4 Sheets with blank labels are available in the market.

To print the bar code labels, first display the records by pressing SEARCH button and then select the Bar Code Printer / Laser Printer and press appropriate PRINT button. It will send the output to the laser printer or will generate the output report on the screen and send it on the laser printer. Quality of the bar code labels must be checked by bar code reader before pasting on all the books and paste the barcodes phase-wise.

6.2.9 MEMBERID WITH BAR-CODE

The bar code will carry the same information as the magnetic stripe, including the subscriber’s name and ID number, benefit plan and date of birth. Unlike the magnetic stripe, which requires the member to have the card in hand, the bar code technology allows the member the option of presenting an image of the bar code. In addition to provide an additional convenience to members, bar code technology, which is becoming the new industry standard, will make the ID cards more eco-friendly. The card will be thinner yet durable, and by removing the petroleum-based magnetic stripe, it will be easier on the environment.

6.2.10 PLANNING AND EXPERIMENTATION (TEST THE SYSTEM – CLOSE THE MANUAL SYSTEM STEP BY STEP)

Software testing is an investigation conducted to provide stakeholders with information about the quality of the product or service under test. Software testing can also provide an objective independent view of the software to allow the business to
appreciate and understand the risks of software implementation. To test the library automation process successfully and to close the manual system step-by-step.

6.2.11 IMPLEMENT OF HOUSE-KEEPING OPERATION

6.2.11.1 Acquisition module

This module is used for acquiring / purchasing of new documents (books and monographs, standards, manuals, patents, etc.) in the library. For each purchasing, a Purchasing Record / Acquisition Record are created. The process of purchasing starts from checking the Duplicate documents (if any) to the following steps:-

1. Checking duplicate
2. Author Directory
3. Adding New Title
4. Generating Acquisition Record (Purchasing Record)
5. Generating Approval List (Sending the list of books to approval authority)
6. Updating the Approval List (Selected / Rejected)
7. Add Order Information
8. Generating Order
9. Receive Documents
10. Accessioning of the received documents
11. Adding Billing Information
12. Adding Payment Information

6.2.11.2 Cataloguing module

This module is used to add rest of the data elements in the cataloging records to generate full catalog records. The additional data elements constitute the foundation of the Cataloging Code being used by the library. Besides, in this module many other utilities have been provided to update / refine / complete the three main types of records:-
• Cataloging Record (Catalog Details of the Title)
• Acquisition Record (Purchasing Details of the Title)
• Holding Record (Copy / Accession Details of each copy of the Title)

**This module consists of the following menu:-**

1. Full Catalog - Used to add additional data elements in the records
2. Change Copy Status - Used to change the status of the Copy of a title
3. Update Holding Information- Used to update/modify the Holding Records
4. Retro Conversion - Used to enter the data of existing collection of the Library direct
5. Status Wise Collection- Used to view the status wise collection of the library
6. Stock Verification - Stock Verification Process
7. Bar Code Labels - Generate Bar Code labels

**6.2.11.3 Circulation Module**

This module is used to automate the Circulation Desk activities and services such as making membership, issue and return of the documents, generating over due reminders, etc. The module permission can be set using the USER form under ADMIN module.

There are various menus under this module which are given below:-

Add Groups/Faculties/Division (User Categories) of the Parent organization
Add Designations / Sub-Categories
Add Membership Record for every Member
Issue / Reserve
Return / Renew
View Circulation Transactions /Generate Over due notice
6.2.11.4 Serials module

This module is used for managing the “Subscription to the Journals, Magazines and Newspapers” in the library. The process of subscribing is slightly different from purchasing the books in the Library. While using this module, users are advised to follow the step by step process to complete the subscription, no menu should be skipped.

The module contains the following steps and menu:-

1. Check Duplicate Title
2. Add New Journal
3. Serial Start Details
4. Subscription Start Details
5. Add Acquisition Information
6. Generate Approval
7. Update Approval
8. Add Order Information
9. Generate Order form
10. Subscription maintenance
11. Schedule maintenance
12. Receive Loose Issues
13. Generate Reminder
14. Add Billing Information
15. Add Payment Information
16. Update Journal History
17. Add Journal Holding (Bound Volumes of Serials)

6.2.11.5 Budget Module

This module is used for the following functions:-
1. To add budget information on yearly basis
2. Processing of the Invoice
3. Generating Payment Request to be sent to the Accounts Section
4. Updating Payment Request / Cheque delivery to the Vendors, etc
6.2.11.6. **Database Utilities Module**

This module provides many utilities related with the database as given below:

1. How to take database backup
2. Data entry Statistics
3. How to export data in various formats
4. Feedback Manager
5. How to change database connection

6.2.12 **INFORMATION SERVICES (CIRCULATION AND OPAC)**

To facilitate the front-desk operations with a powerful yet easy-to-use circulation module is a dream of many college librarians. An automated circulation system is very attractive; as turnkey circulation modules put frequent circulation activities - loans, returns, reserves, renewals, status review, bookings, and fine processing -just a few clicks away.

The automation of a circulation system is a process, which needs great deal of planning and evaluating. The success of an automated circulation system depends considerably on the accuracy and the comprehensiveness of the resource database and borrower database as well as the power and the capacity of circulation inter phase of the software system.

The library catalogue of books and other reading material can be accessed through library Intranet and Internet (OPAC). The library catalogue is searched by author, title, publisher, keyword and year of publication. To access Web OPAC sufficient numbers of PCs are placed in the user’s area.

6.2.13 **FEEDBACK**

To take the feedback to the users using web OPAC. On this form you can allow to view the feedbacks to other users in OPAC by putting Y/N in view text box.
6.2.14 CONTRIBUTE TO ALL THE DATABASE to UNION DATABASE FOR WEB-OPAC (PHASE-WISE) or AFTER THE COMPLETION

Online Union Catalogue of Libraries is unified online library catalogues of books, theses and journals available in the libraries. The union database contains bibliographic description, location and holding information for books, journals, theses in all subjects available in the libraries. A web-based interface is designed to provide easy access to the merged catalogues. The library catalogue is a major source of bibliographic information that can be used for inter library loan, collection development as well as for copy cataloging and retro conversion of bibliographic records.

6.2.15 REGULAR UPDATATION TO UNION DATABASE (SERVER)

How to take database backup as e-Gratnhalaya uses MS SQL Server database management system to store the data of the library. Therefore, it is essential to keep the backup of the database of the library so that it can be restored later any time. The backup of the database is always performed by the System Administrator on the Server PC where database system is installed. The database must be backup on the hard disk and later the backup file must be stored in CD ROM or pen drive, etc.
FIGURE 6.2

6.3 MODEL PLAN FOR NETWORK DENTAL COLLEGE LIBRARIES

(Main server for union database is to be place at Bangalore M.R. Ambedkar Dental College, Bangalore. The maximum 13 Dental colleges are located in Bangalore.)  (Client codes see the next page)
<table>
<thead>
<tr>
<th>CLIENT</th>
<th>NAME OF THE COLLEGE LIBRARY</th>
<th>PLACE</th>
<th>LIBRARY CODE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>M.R. AMBEDKAR DENTAL COLLEGE LIBRARY</td>
<td>BANGALORE</td>
<td>T</td>
</tr>
<tr>
<td>2</td>
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Main server for union database is to be place at Bangalore M.R. Ambedkar Dental College, Bangalore. All the 35 dental college libraries are inter-connected through the Internet and if LAN infrastructure available can access on the intranet. All libraries can access the eG3 WEB OPAC or any can access all the Union Databases from any-where for Web OPAC. Networking is used for the access and share the all databases through web.

The database has used the AACR2 and MARC 21 standard.

The Web OPAC of e-Granthalaya is a “Server-Based” component and must be installed in Server PC, generally in the same PC where your database (GRANTH3) is residing. So in case you have implemented the e-Granthalaya software in Client-Server mode then it is advisable to install the Web OPAC interface in Server PC. However, in case you have implemented the eG3 in Stand-Alone mode on single PC (Windows XP/Vista, etc) then Web OPAC will be installed in Windows XP/Vista, etc. For installation and running successfully the Web OPAC interface, make sure that the PC must be installed with “Internet Information Server (IIS)”. In Server OS like Windows Server 2003, it is pre- installed while in Windows XP/vista the Internet Information Server (IIS) may be installed before installation of the Web OPAC on Client.
REFERENCES


2 http://serc.carleton.edu/introgeo/whatisamodel.html accessed on 22/11/12

3 http://www.investorwords.com/5662/model.html accessed on 22/11/12


5 http://www.slideshare.net/ata.rehman/farasat-pla accessed on 22/11/2012

6 http://www.softwaretestinggenius.com accessed on 22/11/2012

7 http://www.tiu.ac.jp/org/forum-01/index.files/html accessed on 22/11/12


13 National Informatics Centre, New Delhi
