

## DESIGN AND DEVELOPMENT OF A SCHOOL LIBRARY MANAGEMENT SYSTEM: AN APPLICATION BASED STUDY

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**Abstract:** - School library is a place where a child learns how to use a library at early stage of his life. This library is very much important for inculcating reading habits in a child. For running a school library smoothly, a library management software i.e. LMS is required in each library. Some libraries purchase a LMS from vendors and some builds their own LMS keeping in view of requirements of Library. Integrated Library Management system is a better choice as it gives the Librarian a chance to prepare the software as per their short term and long term demands. There are so many open access software are also available in the cloud but most of them are designed for bigger libraries. This study deals with the steps of designing and development of a School Library Management Software. It demonstrates the various aspects related to the designing of a school library management system in easy steps.

**Keywords :** Library management; LMS; library management software; school library; library management system; software; hardware; development of software

### Introduction

The term Library Management System is being used extensively in Library Scenario to include the application of ICT to perform some of the traditional library activities such as acquisition, cataloguing, stock verification and OPAC etc.<sup>2</sup> there are other related activities like Information Retrieval, automated indexing and indexing and networking are also included in the purview of Library Management System. Besides ICT, the information needs of the users are also playing

significant roles to redefine the objectives of libraries and their roles in this user driven information age.<sup>1</sup> Library Management System offers many opportunities to improve services to library patrons. Among other benefits, it makes materials easier for patrons to locate as well as allowing the staff to better serve patrons by facilitating a number of tasks such as acquisition, cataloguing, circulation and reference services. On the other hand, the financial and staff commitment needed to move to an automated

system or from one system to another is substantial and long lasting. Automation is very essential in a library to work smoothly but without staff support and training no system can offer its full potential. The Library Management System is used to reduce human error and to increase the efficiency of the library. This Management System is designed and developed for the issuing and returning of the books for the students of a school. The books received in the library are entered in the books entry form and the new student is registered in the student entry form. When a student wants to get the desired book, the same is issued on the basis of availability. The issuance and the due date for the returning of the book is also entered into the Book issue form under third menu Book Issue. The student has to pay the fine if any on the basis of number of days of delay deposit of the books back in the library. The navigation controls provided in all the forms to navigate through the large amount of records. If the number of records is very large then user has to just type in the search string and gets the results immediately. The editing is quite simple in this system that the user just gives required input and press the update button to update the desired field. The books and the students have given Unique IDs so that they can be accessed correctly. The main aim of this LMS is to get the correct information about the books available in the library.<sup>3</sup>

### **Importance of the Study**

As a result of applications of Information and communication technology a great shift of working conditions can be seen in the modern libraries. The new technology is tending to alter radically our school libraries. As a result our library management system is going under a major transformation in the area of information processing, storage and retrieval. This study is important in terms of finding a solution to the problem of managing a school library. It has practical approach to design and develop a school library and turning for library automation.

### **Advantages of Library Management System**

- The LMS saves labor and time for managing library.
- This LMS is for small size Library, i.e. School Library where the users are students. Easy and student friendly modules helps the school students to get in touch with their library.
- This LMS is cost effective and can be developed in a very low cost.
- Its speed and accuracy is up to the mark.
- The ease in accuracy and efficient data handling makes it one of the important LMS for school libraries.
- Great speed and promptness in handling of library operation is an important advantage of this LMS
- Duplicate data can be searched easily.

### **Importance of Library Management System**

The Libraries are spending a lot on purchasing resources. One of the major concerns is to handle the information resources using the modern ICT tools. A cost effective Library Management System helps a library manager to provide best services within no time. Since Libraries are not earning organization the benefits of having a LMS need to be looked with a different perspective. To appreciate the advantages of having a Library Management system it becomes necessary to highlight the different levels of it.<sup>4</sup>

- Library Cataloguing System
- House Keeping Operation
- Development of Digital Products
- E- Alert System

The Library Catalogue or index to the collection forms the base for the most of the activities of the Library such as acquisition, reference, bibliographic services and inter-library loan services. The users of OPAC are benefited by the fast retrieval facility of LMS. If the LMS is available on cloud, the users can have simultaneous access to the database. From the staff point of view the tedious task of printing the cards and their subsequent filing gets eliminated. It also saves space and paper. The networking of computers within the organization helps the users to browse the OPAC from any workstation. The E-alert service helps the users to get latest inputs from the library. This reduces the recurring expenditure in the process of communication to the users. Sending reminders for non- returned

publications would become easy by this system. Few public domain applications are available for this work and no additional expenditure is incurred during the whole procedure.<sup>6</sup>

### **Need of Library Management System**

- To cope with increasing demands of services
- To lessen the burden of library staff
- To allow more activities to be performed by clerical and paraprofessional staff
- To provide new forms of old services
- To improve access to existing services
- To provide new information services
- To ensure faster document delivery services

### **Area where we need Library Management System to handle**

#### **Data Base Activity**

- Creation of Database
- Online Access to Remote Database
- Downloading of Information

#### **Library Operation Modules**

- Cataloguing
- Indexing
- Circulation
- Acquisition
- Inventories
- Serial Control

### **Data Communication and Networking**

- Email
- Short Messaging System
- Tele- Conferencing

### **Management Information System**

- Computing
- Statistical analysis
- Tabulation
- Simulation

### **Other Applications**

- E- Publishing
- E- Document Delivery
- Translation services

### **Objectives and Scope of LMS**

- This system is designed to manage a small scale library i.e. a school library with modules like, acquisition, circulation, serial control, OPAC etc.
- This system will help the Library Professionals to save their time and labor
- It gives fast search results for the user's query through OPAC module.
- It will save labor and search best for the users query from the database within very shortest response time.
- This Library Management System with all its modules will help the Librarian to check and get report of each and everyday performance.

- This Library Management System is Password protected. This password is provided by the system administrator. Without password no body can access the database.
- All the users are provided a password by which they can access the OPAC. During this process, he will only access the OPAC module, rest of the modules will not be accessed by him.
- The search in OPAC will be done by a simple key word. The user can search by typing the first letter of the title for which he is searching for. Then all the relevant information can be shown as results.
- The search can be done through four search options i.e. author, title, accession number and publisher.

### **Inputs**

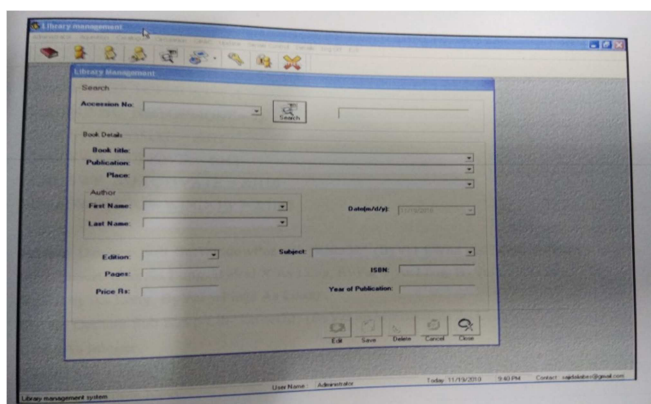
- Details of the Library
- Bibliographical details of the books and other materials
- Users' details
- Visual Basic MDI forms in various modules
- Various Search Buttons

### **Outputs**

#### **1. Acquisition Module**

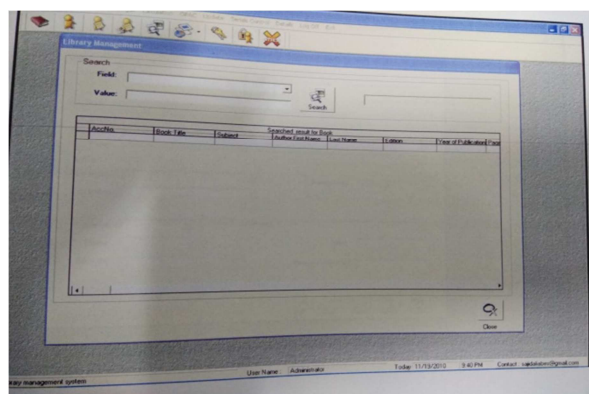
This module will help to keep records of all the collection purchased by the library. The Librarian can invite suggestion for new books

from the users. The details of the books purchased can be recorded and make them available for technical processing.



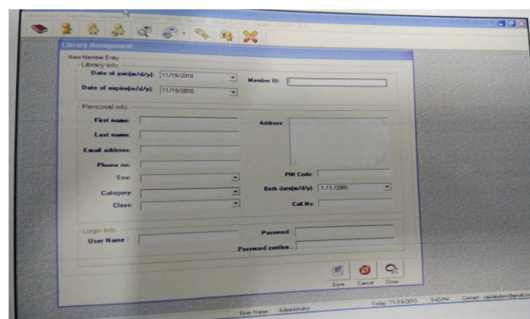
## 2. Cataloguing Module

This module will help to keep records of all bibliographic details of the books



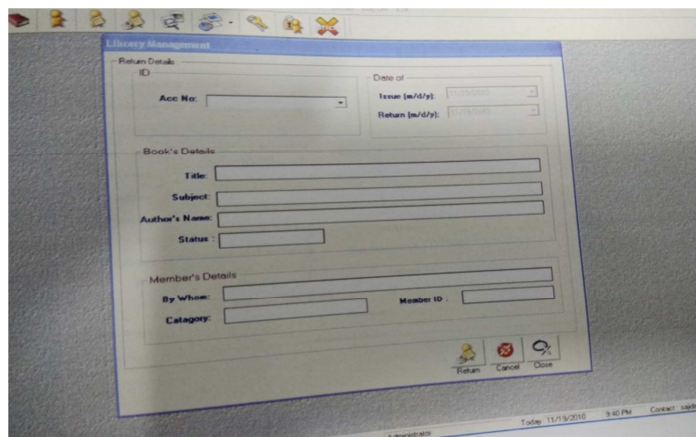
## 3. Circulation Module

This module facilitates the staff to issue books to users using barcode technology.



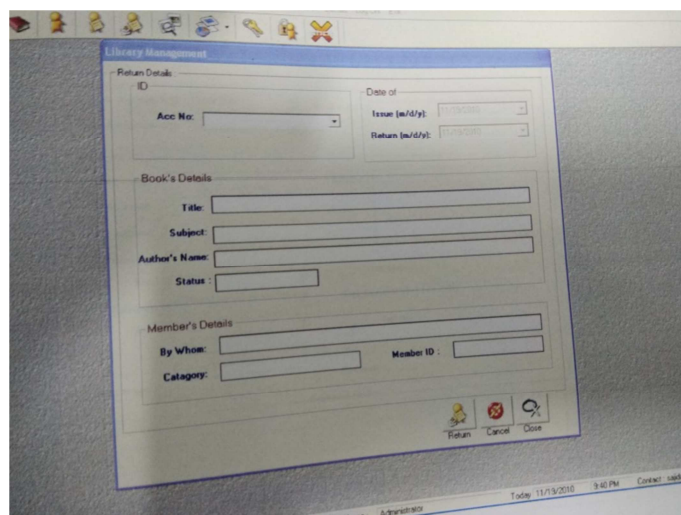
## 4. Serial Control

This module will help to keep the records of subscribed journals and newspapers.



## 5. OPAC

The OPAC gives an interface to the users to have an access to the resources of library in a systematic way by applying various search options i.e. by title, by subject or by publisher etc.



## Methodology

Programming languages are used to design and develop this Library Management Software. The language used is Visual Basic which includes MDI forms in textboxes, radio buttons, search buttons, list boxes and command buttons etc to create user interface environment and easy handling of data in Acquisition, Catalogue, Circulation, Serial Control and OPAC modules. Strong backup support will also be required. In



establishing database and retrieval of information from that database there are a variety of decisions should be taken by adding various forms in an easy formats so that any of the library personnel will not face any problem for using it.<sup>5</sup> The searching of the books available in the Library can be done through OPAC and it will be connected to all the other modules and of course with the database also so that user searches for his desired resources by using various search options. A robust processor with hard RAM should be required. Windows 10 or higher operating system can be required with certain tools like, MS Visual Studio and ORACLE.

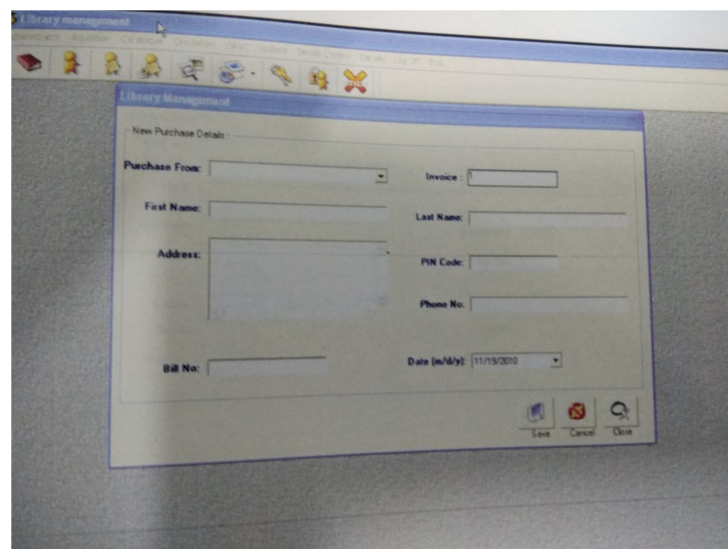


### Data Structure Used

#### Admin.mdb (Admin database File)

##### Admin:-

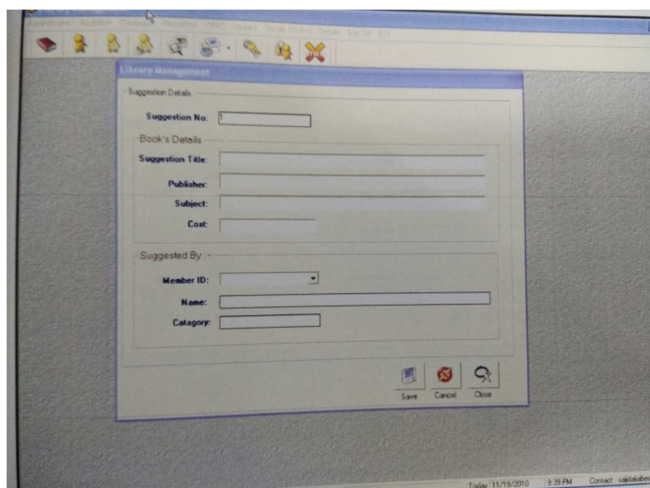
Field Name	Data Type
User Name	Text
Password	Text
Id	Number



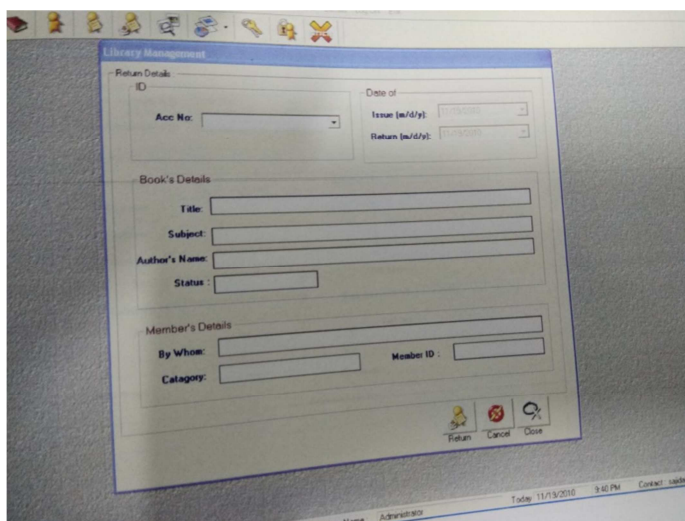
#### Library Management (Database File)

##### Books:-

Field Name	Data Type
AccNo	Number
BookTitle	Text
Publication	Text
Place	Text
AutFName	Text
AutLName	Text
Subject	Text
Edition	Text
Pages	Text
Price	Text
ISBN	Text
EDate	Date
Year	Text
Status	Text
MemberId	Number
MName	Text
Category	Text
DOI	Date
DOR	Date

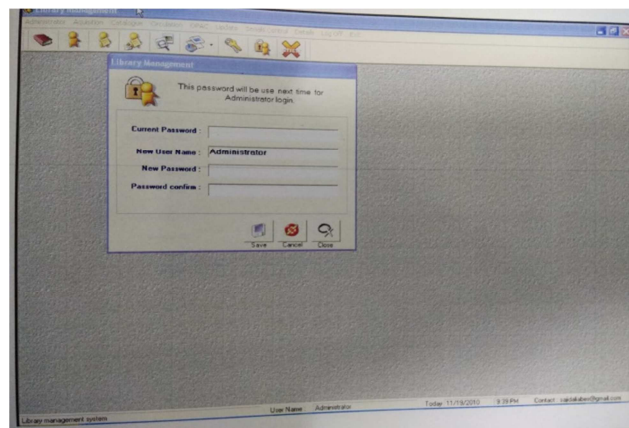
**LastId**

Field Name	Data Type
MemberId	Number
AccNo	Number
Invoice	Number
SugNo	Number
Serial	Number

**Members:-**

Field Name	Data Type
MemberId	Number
UserName	Text

Password	Text
FirstName	Text
LastName	Text
Sex	Text
Address	Text
PinCode	Text
Email	Text
Category	Text
Class	Text
Phone	Text
DOB	Date
DOJ	Date
DOE	Date
CallNo	Text
Status	Text
AccNo	Number
Title	Text
Author	Text

**Members:**

Field Name	Data Type
Invoice	Number
From	Text
FName	Text

LName	Text
Address	Text
Pincode	Text
Phone	Text
BillNo	Number
EDate	Date

**Serials:**

Field Name	Data Type
Serial	Number
Title	Text
Frequency	Text
Language	Text
Charge	Text
Publisher	Text
Place	Text
SubNo	Text
From	Date
To	Date

**Suggestions:**

Field Name	Data Type
SubNo	Number
SubTitle	Text
Publisher	Text
Subject	Text
Member Id	Number
By	Text
Category	Text
Price	Text

**Conclusion**

The Library Management System is a consolidated package for one stop solution for the day to day proceeding of a school library. One of the important aspects of a library routine is to satisfy the users. Here the users are the school students who want to access the library. To help the users for getting their desired materials on time is very important objective of a library. The library professional has to ensure that each of the users may get their desired books on time. This is only possible when a strong mechanism is developed in order to make the process of searching and retrieval fast and efficient. Unless the librarian use a robust LMS for house keeping activities, fast retrieval of information is not possible. A strong LMS gives efficient working environment for the library professionals. This will also saves time and labor to look on other activities of the library. This will help to have error free transaction of books. The OPAC gives a real time experience to the users for searching the location of their information resources. The search for the materials can be done by various search options such as author, title, and publisher or by subject. The acquisition module helps to keep records of the purchase made by the librarian. The cataloguing module will help the librarian to keep bibliographic records of the resources. The circulation module helps to check in and checkout of the resources. The serial control module helps to keep the records of magazines, journals and newspapers. The OPAC gives an interface to the users for having access to the bibliographic details



of the information resources available in the library. This LMS is quite useful for the small scale library i.e. School Library to perform day to day activities and save the time of the Librarian and the users for getting desired information resources on time.

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