

LIBSPHARE: Computerization of Library System

Md Rashid Ashraf¹ Mr Manoj Yadav²

¹M.Tech. Scholar ²Assistant Professor

^{1,2}Al-Falah School of Engineering & Tech, Faridabad, Haryana, India.

Abstract—The library played an important role in the daily teaching, scientific research and learning among teachers and students. The management of the library books information by using computer could reduce manual management mistakes and enhance the efficiency of book management greatly. It could ensure the integrity of the books information and speed up the turnover of the books resources. Therefore, using computer to manage library books information had very important significance. The database was the data integrated that was involved in an enterprise, an organization or a department. The core of library management information system was actually how to use and operation database. Our proposed system will be on the web and can be accessed any time for book search and reservation activities.

Keywords:- Management information system, database, ER Diagram, PHP.

I. INTRODUCTION

The project Online Library Management System and Public Access Catalogue (PAC) focuses on the basic need of accomplishing the task of maintaining the large stock of information in a library through a user-friendly web based interface[1,5,6]. Web based interface is a very efficient application for the management of a library which not only benefits the user of the library but also plays a major role in enabling the management of the library to work in an proficient manner[12]. This system will be a platform where users will have access to the facilities of the library from anywhere using the Internet.

The proposed system which we will call as LIBSPHARE – An Online Library Management System with Online Public Access Catalogue (OPAC) will be an Online Library management application for monitoring and controlling the transactions in an Online Library [2,3,4].

The project will be developed in PHP and content management system like wordpress or drupal, which mainly focuses on basic operations in an Online Library like adding new member, new books, and updating new information, searching books by members or any outsider using internet, can reserve for some time and facility to borrow and return books. “LIBSPHARE” will be an online application, designed to help users maintain and organize Online Library. This system will be easy to use for both beginners and advanced users. It features a familiar and well thought-out, an attractive user interface, combined with strong searching Insertion and reporting capabilities.

The report generation facility of Online Library system helps to get a good idea of which are the books borrowed by the members, how many books are in stock, which borrower didn't returned books yet, reminder and notification via SMS/email, how much late fine collected - make users possible to generate reports' hard copy/pdf format.

II. STUDY OF EXISTING SYSTEM

In existing system all the transaction of books are done manually, So taking more time for a transaction like borrowing a book or returning a book and also for searching of members and books[3]. Another major disadvantage is that to preparing the list of books borrowed and the available books in the Library will take more time, currently it is doing as a one day process for verifying all records. So after conducting the feasibility study we decided to make the manual Library management system to be computerized.

III. PROPOSED SYSTEM

Proposed system is an automated Online Library Management System with OPAC. Our software user can add members, add books, search members, search books, update information, edit information, borrow and return books in quick time on the web and proposed system has the following advantages:

- User friendly interface
- Fast access to database
- Less error
- Easy maintenance
- More Storage Capacity
- Dynamic Search facility
- Open access to book catalogue
- 24 hrs book reservation/allocation facility
- Searching can be done from any devices like ipad, mobile etc. using internet connections
- Quick transaction
- Admin and members can both use system remotely
- Notification System

Our proposed system will be on the web and can be accessed any time for some activities like book reservation, book search etc. A reminder SMSs and email notification facility will also be available to return the books.

IV. THE DESCRIPTION OF SYSTEM FUNCTION

This system was designed for the library information management of college/institute, the usage was mainly for processing the daily borrowing, returning and various query operation. After analysis the requirement of system, it had been made clear that the system must realize some function mainly as the following several aspects:

- Books borrowing treatment: lending processing returning processing;
- Information query: books information query, borrowing information query, readers information query;
- Book information management: The coding warehousing of books, the modification and delete of book Information;
- Borrowers' information management: the borrowers' information to add, modify, and delete;

- Employee's information management: the employee's information to add, modify, and delete;
- Notification: Automatically sends predefined SMS to students and staff members with library book over dues and return date. The SMS is different for students as well as for staff members.
- Online Search: Dynamic, interactive and robust search facility by title, author, publications etc.. Both staff and student can browse through the huge database simply and quickly from anywhere over internet.
- Request Reserve: Registered borrowers can make a request and reserve a book (24x7) for specified period, during which he has to collect book at library.
- Reports: Covers all the reporting part of a library administration and management.

V. IMPLEMENTATION

Through analyzing the function of the library management information system, we could draw a conclusion that was an entity of a system mainly includes books information entity, readers' information entity, borrowing information entity and employee information entity, etc.

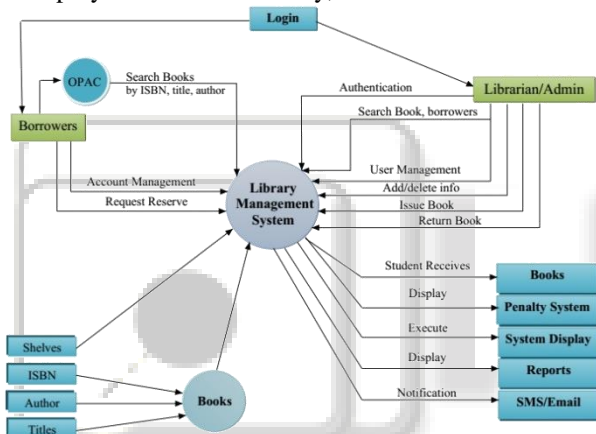


Fig. 1: Library Management System

VI. CONCEPT STRUCTURE DESIGN

The entity of this system mainly includes books information entity, borrowers' information entity, borrowing information entity and employee information entity, etc.

A. Books Information:

The book information entity recorded mainly the basic information of a book to get data which was to meet the needs of management. Among them, the "BookISBN" and Unique Library code was an only standard Numbers of a legal publication. It was considered as the entity of the primary key. "Inventory Number" referred to how many books there were in the library. "Surplus" referred to how many books could be lent out yet.

B. Borrower Information:

The Borrower information entity mainly recorded the reader's personal information and his borrowing state information from the library. Among them, "BorrowersID" was the main key. "State" tells if you could borrow books now. "ReaderType" showed the reader was a teacher, student or a worker.

C. Reader Category:

It was used to set up the restrictions about borrowing books among different category readers. Among them,

"ReaderType" was the main key. "DaysLimit" showed how many days could be borrowed. "NumberLimit" showed the number of books that could be borrowed.

Figure 4. Borrow Information E-R Diagram

D. Borrow Information:

The entity recorded which readers borrowed the book and what the date was. Among them, "BorrowDate" said the date of lending book.

E. Employee Information:

This entity said library staff's information. Among them, "EmployeeID" was employee numbers, and it was primary key; "EmployeePwd" was login password. "Employee Permissions" was used to determine that the employee could use which parts of function of the system.

F. Web Based OPAC System And Notification:

This module allows the borrowers to search the catalogue in the library and at home 24x7 and can make reservation for books for predefined period of time. System can automatically sends predefined SMS and Emails to students and staff members with library book over dues. The SMS and Emails are different for students as well as for staff members.

VII. CONCLUSION

Automation of the library activities helps in managing the library's resources in a better way at the same time saving time, money and man power. A scientific database structure was established in this paper from the college library information management for practical. Its data redundancy was less, and it had a good data consistency and operability. Combined with the front desk development tools and platform, it can realize the function of strong design and system implementation. It had been showed that library management information system's reliability and stability had been sure through the use of them, which was developed by using the database structure. It had strong practical significance and application value also. At the same time, it had a good reference to design database of management information system.

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