IMPLEMENTATION OF DIGITAL LIBRARY USING WEB SERVICE

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ABSTRACT

An application for converting traditional libraries into digital ones, the Library Management System offers rapid and accurate data to save time and effort. As an outcome of our project Digital Library, faculty or students can pre-reserve the available books. The books will be returned to the library's database if not found. The suggestion box allows faculty or students to express their needs, but only the admin can access it. They receive emails at this specific email address when they fail to deliver the volumes on time. In this case, we may retain the late charge for students who return the issued books after the due date.

Key Words: Digital Library, Library Management System.

INTRODUCTION

Many people use libraries as their primary source of learning. Users have access to books and other resources at the library. It instructs how to advocatefor their ideas in unique ways. Users can learn newthings to enhance their academic and non- academic traits. Several tedious processes reduce the library's efficiency. For instance, they constantly need physical assistance to complete any task. The notebook must contain the student ID, release and expiry dates, and book ID. Thus, converting the archive to a digital version will primarily benefit them. A tool for converting physical libraries into digital libraries is the LibraryManagement System. The digital library application helps reduce administrative expenses. Manually operating a library requires a significant quantity of effort and paperwork. Because of its user-friendly design, anyone with rudimentary computer skills can utilize the LibraryManagement System (LMS). The system's capability can be modified and configured by the user. We serve the LMS as an administrative section. The information is stored and protected inthe database, as was already stated. Data that is relevant is kept up-to-date and stored in one place.

RESEARCH STATUS

Universities in mid-level countries have well- equipped libraries with excellent infrastructure and traditional library management methods [1]. This leads to develop an online digital library management system [2]. A good interactive interface was available and users could obtain a fresh and different feeling [3]. Users need to have online connection and an email account [4] to register and use this application. Currently, the system has three modules: admin, librarian, and student. The first portion helps the administrator to set up registered users, configure registered users, issue library cards, alter book status, register racksand categories, and back up the records. The second module assists students in exploring books by enabling them to search by title, author, subject,publication, series, etc. The librarian can issue andcharge for books received after the due date in the final phase. A nice feature of the newly developeddigital library is the ability to lend and borrow materials and books from the internet. This author

[5] explained about the drawbacks of a two-layer c/s mode design include a prolonged development cycle that uses up more client resources and is difficult to install and maintain [6]. The three-layerarchitecture of the C/S model simplifies the development and maintenance of the library management system. This paper introduces the B/Sstructure of design patterns, where the user sends aservice in the client browser, the server sends data processing applications to the database, and the

database calls data or files of the databaseinformation to the web server. A server sends the page to the client using the HTTP protocol. Choosing the appropriate software system structure can improve software development, reduce costs, and improve maintainability [7].

According to this source, university administrationdemands can be met by using the C/S and B/S mixpattern. Each institution is now making progress toward the objective of a digital campus by translating the C/S pattern of the library administration system to the Web pattern, which will act as a foundation for a future digital library [8].Concurrently to our research [9], this author explained the Library System is a fast-growing database for information retrieval and preservation with the capability of admin login. This study aimsto develop and build a database for records and other facilities in the computer application andprovide numerous search selections to check the convenience of books in the library.

The author of this [10] article converts analogrecord formats to digital ones using a similar methodology to ours. Their study also includesmultimedia document conversion, whereas the scope of our article is limited to developing a digital platform for books and automating routine library operations. Although the authors [11] of this article only briefly outline the creation of a digital system, it is widely accepted and used by users.

PROPOSED SYSTEM

Our initiative consists of three modules: the Administrator Module, the Faculty Module, and the Student Module. The administrator has complete access to the system through the Administrator Module. Each individual will have a unique account through which he can access the information he needs. Content about books, such as authors and their work, the total number of copies the library holds, the number of volumes momentarily in stock, reference books and non- reference books, etc., can be beneficial. If the book is accessible, the user can check if it exists. Afterward, they can reserve their copy online if it is still available. Faculty and students may observe when books are disturbed in their modules. The suggestion box permits teachers or students to lay out what they require, and only the admin is privy to it. Receivers may receive delayed mail [12] due to delivery quantities. In this case, we may retain the late penalty for students who return the issued books after the due date. Meanwhile, the transaction takes place online.

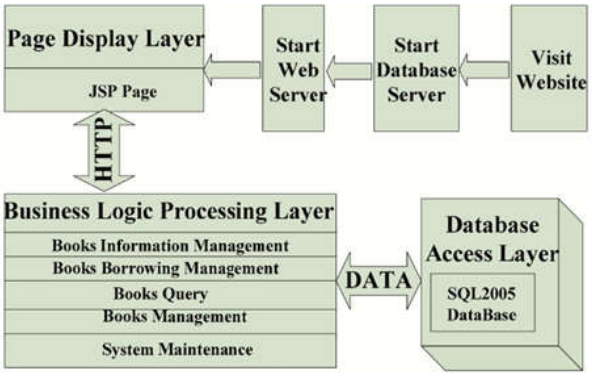


Figure-1: System Model Diagram

System architecture It consists of Page Display Layer, Business Logic Processing Layer and Database Access Layer.

The page display layer is a part of the software architecture that handles the presentation of data tothe user. It is also known as the presentation layer or the user interface layer. The page display layer transforms data and business logic into a user- friendly format. The Business Logic Processing Layer is a part of the software architecture that processes and computes business rules and logic, also known as the application layer. The Database Access Layer is a part of the software architecture that bridges the application and database; It is alsoknown as the data access layer or the persistence layer.

Three components make up the proposed system:

Admin module

This section has details about institution enrollment. The administrator has full access to everything they need. Information can be accessed, changed, removed, controlled, and managed. In this admin can send messages to students and teachers. Users receive emails when they don't submit books on time. Students who return books after the due date must pay. And the payment is through online mode.

Faculty module

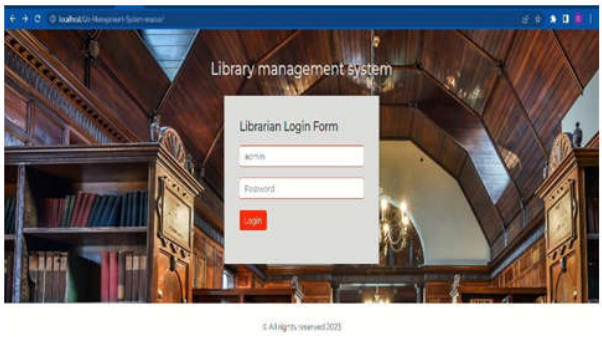
Universities are experiencing difficulty with the issue of preserving faculty credentials. Faculty have the option to register their accounts with their information. Registrant information is stored securely and will appear on the faculty home web page. Faculty can suggest needs, but only the admin knows.

Student module

You can maintain all the student's personal, academic, professional, and historical data in this module. Universities are experiencing trouble keeping track of their student's records. As a result,they have the option to fill out this student module'sregistration form to set up an account with our organization. Once the student has finished signing, the student's main page will pop up. Students can create a new password via their registration email if they lose or forget their currentpassword. The profile section's fulfillment is essential for the student module. Our administrator generates the student account in the database after the student has completed the profile section. The user may check the availability of a book and pre- reserve them [13].

EXPERIMENTAL RESULTS

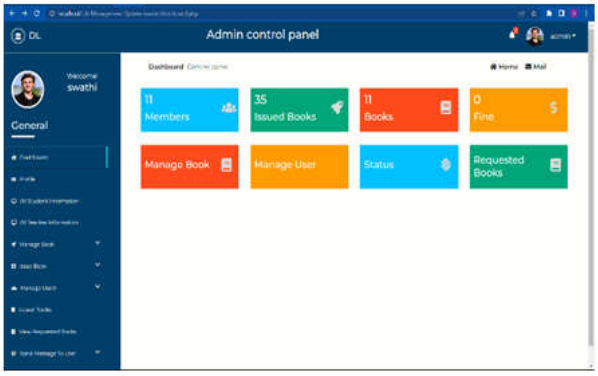
Admin Login



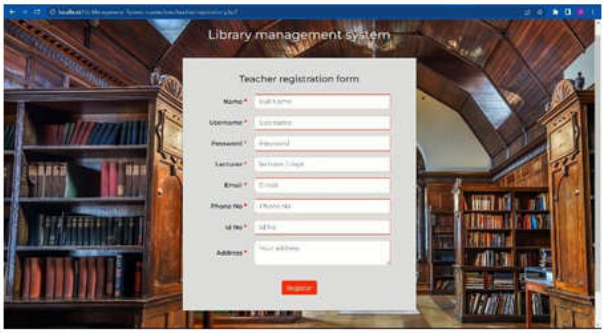
For admin login, it should be given the proper logincredentials for a successful login.

1.2 Admin Dashboard

The administrator can issue books, add new books,and check the state of fines and books in thisdashboard, which includes book information, the number of total books that have been issued, and the users' various types. The mail option in the right-hand area of this page allows the administrator to deliver emails to users.

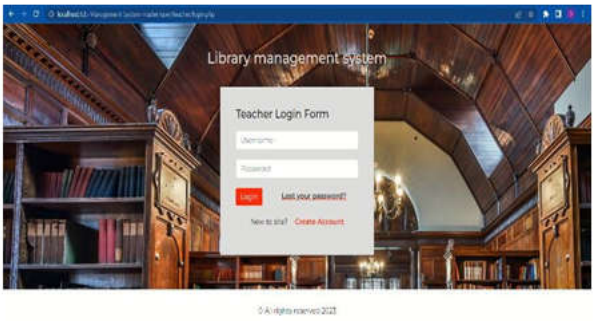


Faculty Registration



For a new user to register they need to fill thesedata as shown in the above picture.

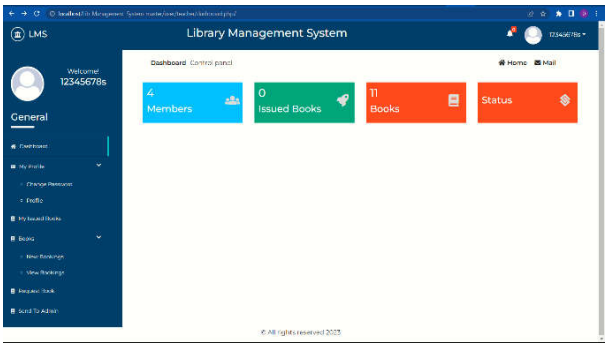
Faculty Login



If the faculty already has an account, just need to give proper login credentials to login successfully.

Faculty Dashboard

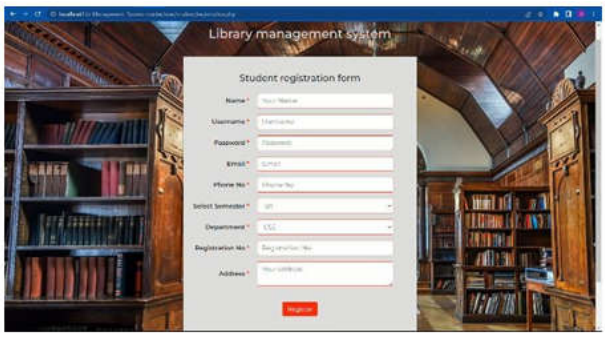
In faculty dashboard they can see the book details and availability, and then even pre-reserve the book by doing so. They can also see how many members are there.



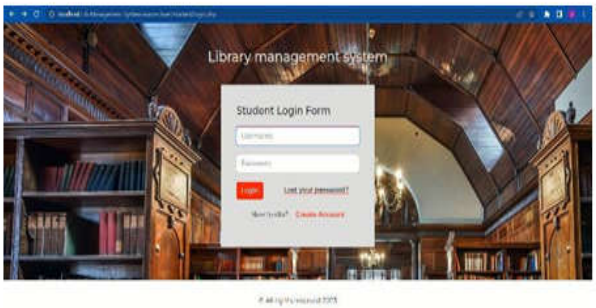
They can even modify their personal information or passcode. In case they need to log in, they can view their mailbox in the right-hand corner. Faculty can send suggestions to the admin.

Student Registration

For a new user to register they need to fill thesedata as shown in the below picture.



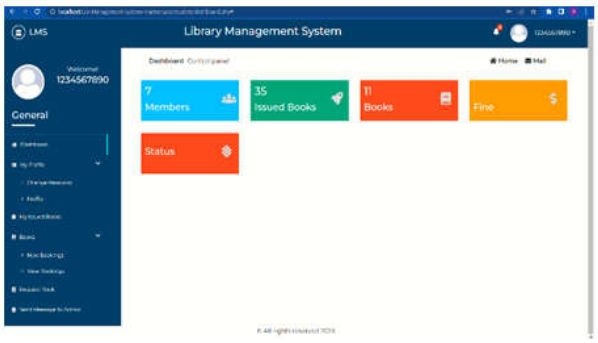
Student Login



If the student already has an account, just need togive proper login credentials to login successfully.

Student Dashboard

In student dashboard they can see the book details and availability, and then even pre-reserve the book by doing so. They can also see how many membersare there.



They can even modify their personal information or passcode. In case they need to log in, they can view their mailbox in the right-hand corner. students can send suggestions to the admin.

CONCLUSION

This paper effectively develops a digital library, which is highly relevant to university libraries. Any user, regardless of knowledge, could easily comprehend the reports of various actions, such as the availability of books, the number of duplicates, fines, etc., using this application. Users must be permitted to access services by the administrator toensure security.

FUTURE SCOPE

The future objectives for this facility include the addition of numerous features like group chat, barcode recognition, online lectures, and video tutorials, as well as an online assignment submission. These enhancements will make thefacility more interactive and better able to satisfy the needs of each user.

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