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# Library Management System Using PHP & MYSQL

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**ABSTRACT:** The Library Management System is a comprehensive solution designed to support academic libraries in their collection development and management needs. The system offers a range of tools and services, including selection, acquisition, and cataloging of materials, as well as access to a vast collection of print and electronic resources. With the Library Services System, librarians can efficiently manage their collections, reduce their workload, and enhance the user experience for students and faculty. The system's powerful search functionality and customizable interface enable libraries to tailor their services to the specific needs of their community, while the system's robust reporting capabilities provide valuable insights into library usage and resource allocation. Overall, the Library Services System is a valuable tool for any academic library seeking to streamline its operations and maximize its resources. The LMS supports the librarians to encounter all the issues concurrently. The users need not stand in a queue for a long period to return/borrow a book from the library. The single PC contains all the data's in it. The librarians have to assess the system and provide an entry in it. Through LMS the librarian can find the book in the bookshelves. The LMS is designed with the basic features such as librarian can add/view/update/delete books and students' details in it. Once he/she ingress into the system they can modify any data's in the database. The complete model is developed in Dot net technology, the C# language is used to build the front end application whereas the SQL server is exploiting as database. The authorized person can only access the LMS system, they have to log in with their user id and password. As aforementioned that the LMS is designed in a user-friendly manner, so the admin can smoothly activate the system without expert advice. Every data is storing and retrieving from the SQL database so it is highly secure. Thus our system contributes its new approach towards the digital library setup.

**KEYWORDS:-**Library automation ,Library system Library software, Resource management, User access control

## 1.INTRODUCTION

### A. Overview:

A library is a place where a huge collection of books and resources are available which can be accessible by the users. It acts as a brain for the institutions. It enhances the dissemination of knowledge and spiritual civilization among the students. The tons of books and research works are captivating the students to improve their knowledge in all perspectives. It guides the students to promote their views differently. This knowledge optimizes the student to achieve a better result in academic as well as personal skill development. Improvisation in technology causes the demand for developing a way to enhance the traditional library set up to digital one. Numerous tedious processes reduce the efficiency of the library. For example, it always needs manual support to do any activities in the traditional library. The count and details of books are scribbled in the paper for reference. Each data is fetched in the notebook for future citations. To examine any data then they have to refer the notebooks. At the same time while distributing the books to the students they have to enter into the notebook where they need to represent the book id, distribution and renewal date, and student id. The librarians/staff have to assign a tag for each book and provide an id for it. They have to align and arrange the books on the shelves and marked it. Missing or theft of the book builds a serious issue and confusion to the librarians. While collecting the book from the students they have to verify the penalties of the books.

## B. Advantage of Library Management System

1. **Simple & Easy to Use:** The Library Management System is designed to be user-friendly and easy to navigate, allowing librarians and patrons to quickly and easily find the resources they need.
2. **Increased Library Engagement:** The Library Management System promotes increased engagement with library resources by providing a seamless and intuitive user experience, as well as access to a vast collection of print and electronic resources.
3. **Efficient Cloud Data Management:** The Library Management System uses cloud-based technology to efficiently manage and store library data, enabling real-time updates and streamlined access to information from anywhere.
4. **Highly Secure, Scalable & Reliable:** The Library Management System is built on a highly secure, scalable, and reliable architecture, ensuring the integrity and availability of library resources and data.
5. **Fully Customizable:** The Library Management System is fully customizable, allowing libraries to tailor their services to the unique needs of their community.
6. **Cost-effective:** The Library Management System is a cost-effective solution that helps libraries maximize their resources and streamline their operations, reducing costs and improving efficiency.

## II. SYSTEM ANALYSIS

### A. Problem Definition:

- **Managing multiple formats of library resources:** The Library Management System is equipped to handle various formats of library resources, including print books, e-books, journals, databases, and multimedia materials. It provides automated workflows for acquisitions, cataloging, and serials management, which can streamline the processing of different formats of resources and ensure efficient management.
- **Providing access to a diverse user population:** Libraries cater to a diverse user population, including students, faculty, researchers, and other stakeholders. The Library Management System offers features such as user authentication, access controls, and remote access options, which can ensure that the right users have access to the right resources at the right time. It also provides customizable interfaces for different user groups, making it user-friendly and accessible to a wide range of users.
- **Optimizing resource utilization:** Libraries need to optimize their resource utilization to ensure that resources are used effectively and efficiently. The Library Management System offers features such as collection analysis, usage statistics, and reporting, which can help libraries in making data-driven decisions about resource allocation, weeding, and budgeting.





B. OUTPUT:

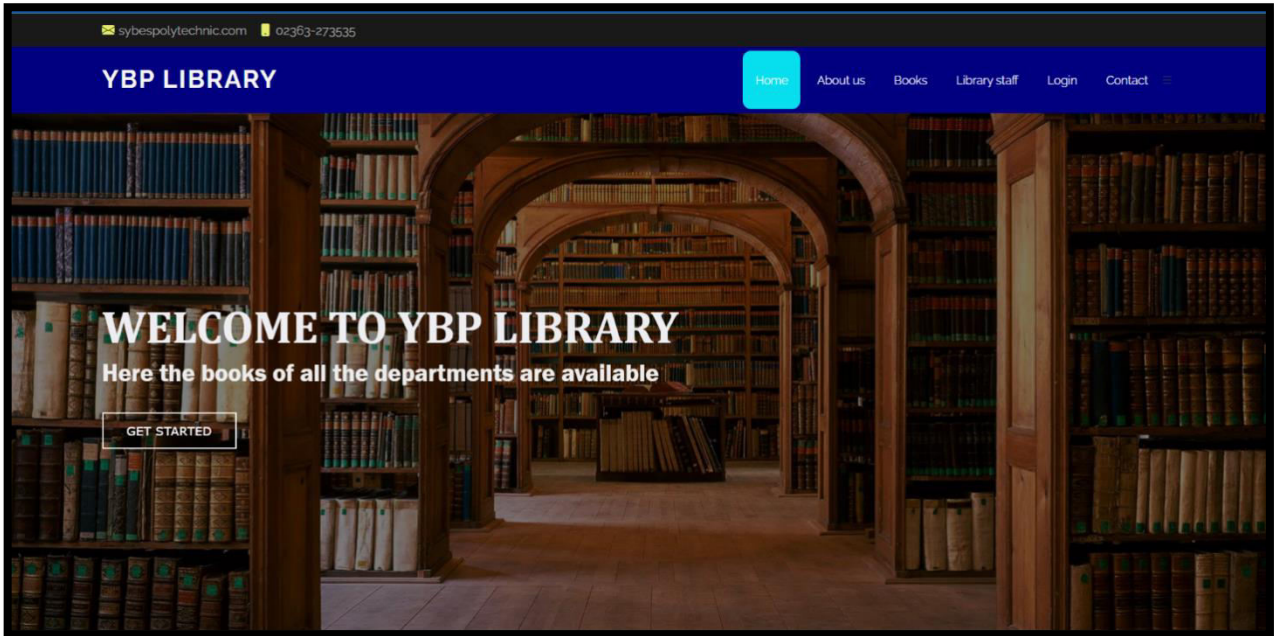


Figure 1.(HomePage)

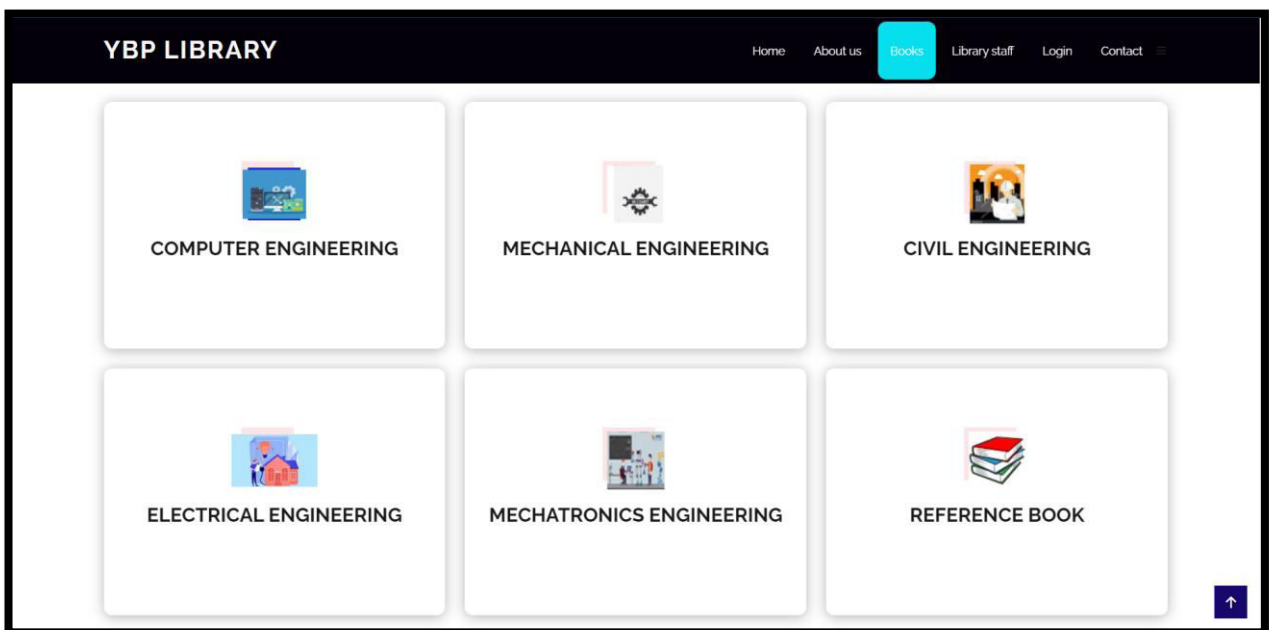


Figure 2.(Books Models)

### III. DISCUSSION

#### A. INTERPRETATION OF RESULTS:

Based on the project description, it can be inferred that the implementation of the Library Management System (LMS) was successful in automating various library activities and providing benefits to both students and staff. The system offers online access to library resources, enables students to track their borrowed books and request new books, and simplifies book searching and borrowing processes. It also streamlines administrative tasks for library staff, reducing paperwork and enhancing efficiency. Overall, the LMS implementation is expected to improve the convenience and effectiveness of library operations.

#### B. COMPARISON WITH PREVIOUS RESEARCH:

Previous research on library management systems may have focused on different technologies or approaches, such as barcode systems or proprietary software. The use of an automated system like the one described in the project, with online access and student login features, may offer unique advantages in terms of convenience, efficiency, and user empowerment. This project highlights the benefits of automating library processes and leveraging online capabilities for improved library services.

#### C. LIMITATIONS OF THE STUDY:

The project may have limitations in terms of scalability and compatibility with different library settings or sizes. Further research could investigate the adaptability and scalability of the LMS to different library contexts, such as academic libraries, public libraries, or specialized libraries. Additionally, the project may have limitations in terms of data security and privacy. Future studies could explore the implementation of robust security measures, such as data encryption and user authentication, to ensure the protection of sensitive library data.

#### D. SUGGESTIONS FOR FUTURE RESEARCH:

Further research could investigate the impact of the LMS on library users, such as students' academic performance, reading habits, and overall satisfaction with library services. This could involve conducting user surveys or collecting usage data to evaluate the effectiveness of the system in meeting the needs of library users. Future studies could also explore the potential for integrating emerging technologies, such as machine learning or artificial intelligence, into the LMS to further enhance its capabilities, such as personalized book recommendations, predictive analytics for collection development, or automated data analysis for decision-making. Research could also focus on the user experience and interface design of the LMS to ensure its usability, accessibility, and user-friendliness for a diverse range of users, including individuals with disabilities or special needs.

### IV. CONCLUSIONS AND FUTURE WORK

#### A. CONCLUSION:

The Library Management System is a cutting-edge automated library management system that brings numerous benefits to both students and staff alike. By streamlining and automating all activities that take place in the library, this innovative system revolutionizes the way libraries operate, making it more convenient and efficient for all stakeholders. One of the key advantages of the Library Management System is its online accessibility, allowing students to easily access library resources and services from anywhere, at any time. With a student login feature, students can view the status of their issued books, request new books, and track their reading progress. This empowers students to take control of their own learning and promotes self-directed learning, as they can conveniently manage their library activities online. In addition, the Library Management System simplifies the entire process of book searching and borrowing. Students can easily search for books using keywords, authors, or titles, and check the availability of books in real-time. The system also automates the book reservation and borrowing process, eliminating the need for manual book tracking and paperwork. This not only saves time but also reduces the chances of errors and enhances the overall efficiency of library operations. Furthermore, the Library Management System greatly benefits library staff by providing them with an easy-to-use and centralized platform to manage library resources and services. With just a few mouse clicks and data input into the system, library staff can perform a wide range of functions such as cataloging,

tracking book circulation, generating reports, and managing user accounts. This eliminates the need for cumbersome manual processes, reduces administrative workload, and allows library staff to focus more on providing quality services to library users.

#### **B.FUTURE WORK:**

When the librarian assigns a book to a student, the system could generate a unique QR code for that particular book. This code could then be displayed on the student's account page or sent via email or message. When the student scans the QR code using their mobile device, they will be redirected to the soft copy of the book on their device. This feature has several advantages. Firstly, it allows students to access the soft copy of the book at any time, anywhere, without having to carry the physical copy of the book. This is particularly useful for students who may not have access to the library at all times. Secondly, the QR code feature enables students to easily share the book with others, such as classmates or friends, who may need to refer to the same resource. This increases collaboration and sharing of resources among students, which is beneficial to their learning experience. Overall, the addition of a QR code feature to the Library Management System has the potential to enhance the system's functionality and provide a more convenient and user-friendly experience for students. It would also allow the library to embrace new technology and stay current with the latest trends in the library management industry.

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