LIBRARY MANAGEMENT SYSTEM

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Abstract. The Library Management System is an application for assisting a librarian in managing a book library in a university. The system would provide basic set of features to add/update members, add/update books, and manage check in specifications for the systems based on the client's statement of need. Throughout the project the focus has been on presenting information and comments in an easy and intelligible manner. The project is very useful for those who want to know about Library Management System. Library is regarded as the brain of any institute; many institutes understand the importance of the library to the growth of the institute and their esteem users (students). These projects support the general requirement of the library like acquisition, cataloging, circulation.

Keywords: library, management, system, librarians, user, book

INTRODUCTION

In today's digital age, the significance of a Library Management System (LMS) cannot be overstated. Libraries are evolving from mere repositories of books to dynamic information centers, making an efficient LMS crucial for managing resources, improving accessibility, and providing seamless user services. The system provides a centralized platform accessible over the internet, allowing librarians and patrons to access the libraries to access the library's resources remotely. One of the main objectives of a library is to develop a reliable, convenient and accurate library system. So, I want to design a library system that can help seamlessly transition from manually managed libraries to automated libraries, making them more efficient and effective. This system will make it convenient for user who do not have enough time to go the library. The system keeps a vast collection of books, journals, articles, and multimedia resources available at fingertips.

PROBLEM

The project "Library Management System" is developed in php, which mainly focuses on basic operations in a library like adding new books, and updating new information, searching books and members and return books. This project gives us the complete information about the library. MySQL is an open-source relational database management system that uses a client-server model [2]. MySQL is a database system that runs on a server. MySQL stores data in tables made up of rows and columns. It allows users

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to implement database operations on tables, rows, columns and indexes. It defines the database relationship in the form of tables (collection of rows and columns), also known as relations. It provides the referential Integrity between rows or columns of various tables. It also allows users to updates the table indexes automatically. It uses may SQL queries and combines useful information from multiple tables for the end users [3].

APPROACH

In this system, the system flow diagram is book borrower and librarian. The book borrower must login first. After logging in, the book borrower can search book that he/she wants to read. Also, the book borrower can borrow book. Moreover, the book borrower can extend the book date to return. And then, the book borrower can return book and penalty for destroying and over the return date. In addition to that, the user can give feedback. In this system, the system flow diagram is librarian. The librarian must login first. After logging in, librarian can add book and add members. And librarian can see the list related to member. Also, librarian can update and delete books. Moreover, the librarian will be able to view the list of the system. And, the librarian can see the feedback(reviews) of members who borrowed book. In addition to that, the librarian can view the book lists that members have borrowed and returned. The librarian can view how many members are logged in. In addition to that, the librarian can add and update news. Figure 1 shows the system flow diagram for book borrower and librarian.

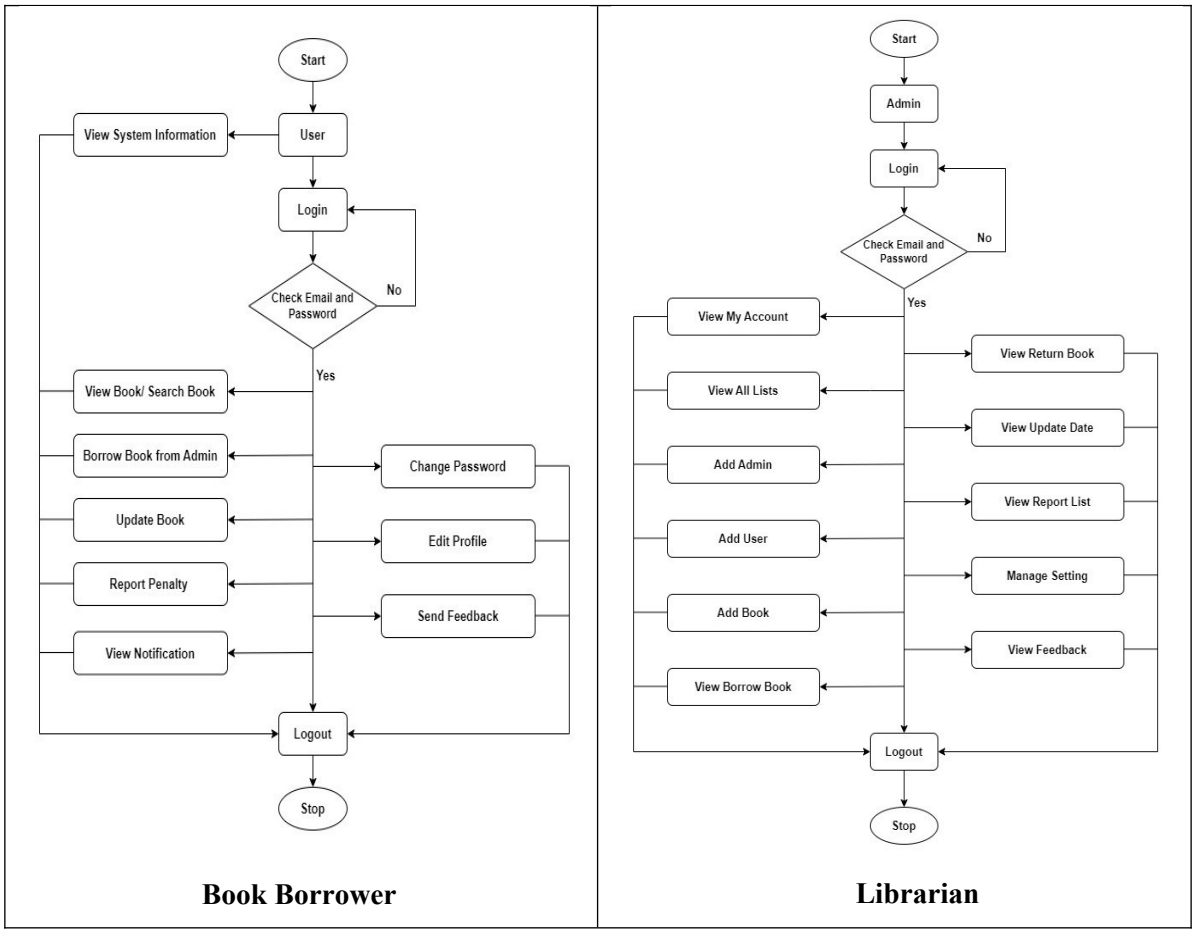

Figure 1: System Flow Diagram

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ER Diagram is a type of flowchart that illustrates how “entities” such as people, objects or concepts relate to each other within a system. It develops a conceptual design for the database. they use a defined set of symbols such as rectangles, diamonds, ovals and connecting lines to depict the interconnectedness of entities, relationships and their attributes. They mirror grammatical structure, with entities as nouns and relationships as verbs. It is high-level conceptual data model diagram. Figure 2 shows the database design of this system. In this system, twelve database tables are used to manage data. The table are admin, book, user, booklist, category, feedback, penalty, report, return_book, borrow_book, allowed_book, allowed_days.

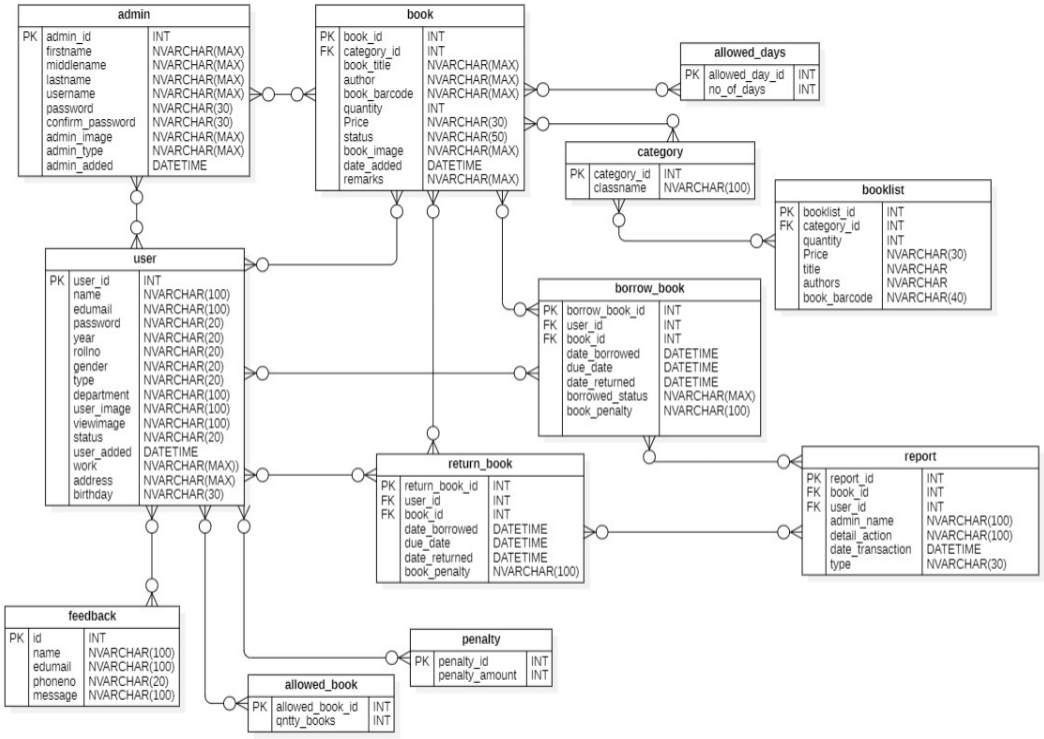

Figure 2: Database Design

RESULTS

The Library Management System stands as a cornerstone in the modernization of libraries, serving as a powerful tool to streamline operations, enhance user experiences, and facilitate access to a wealth of resources. Efficient cataloging, circulation management, and reporting capabilities are undeniable advantages of library management system [6]. Looking ahead, the future of this system holds promise with the integration of emerging technologies like artificial intelligence, blockchain, and virtual reality, paving the way for innovative solutions to further enhance library services and adapt to evolving user expectations. In essence, while mindful of its limitations, this system remains a fundamental asset in the preservation and dissemination of knowledge, empowering libraries to fulfill their mission as vital hubs of learning and community engagement in an ever-changing digital landscape [7]. Figure 3 shows the implementation of the system.

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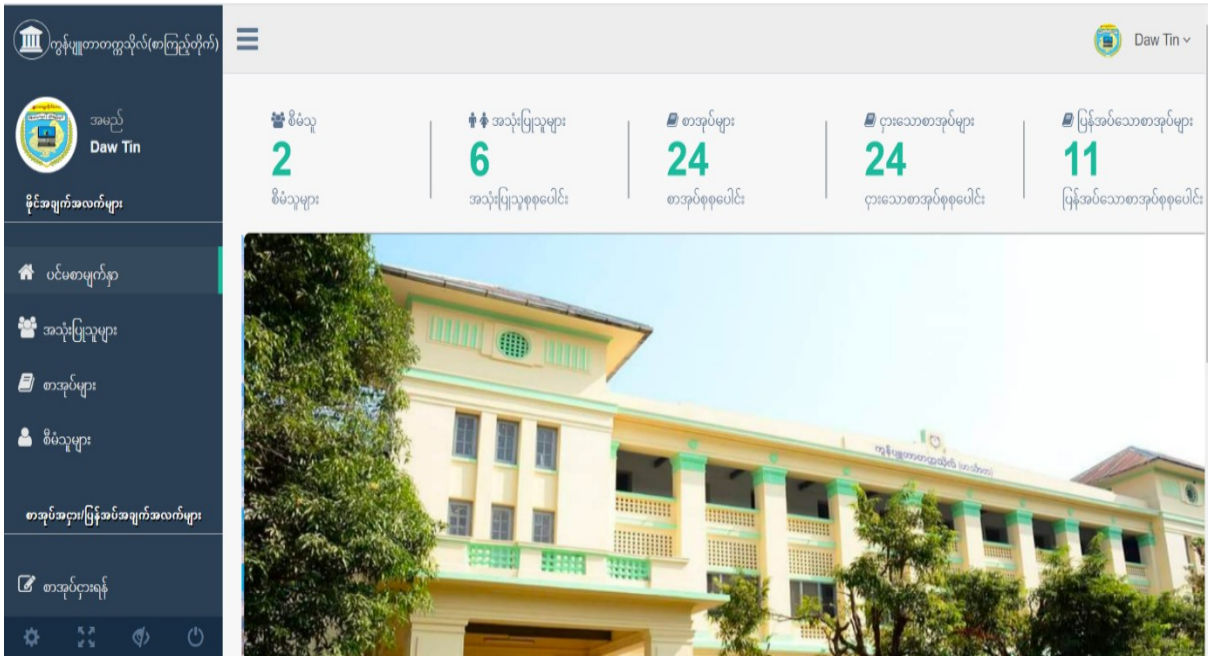

Figure 3: Implementation of the System

CONCLUSION

Library Management system is a valuable tool for educational institutions, enabling efficient management of library resources and operations. By automating tasks, streamlining processes, and enhancing accessibility, it simplifies the librarian's role and offers a seamless experience for students and staff. With its numerous benefits, this software is a cost-effective and practical solution for modern libraries, helping them adapt to the digital age while maintaining the integrity of their collections and services. The implementation of the system will considerably reduce time consumption in all library processes for members and librarians. So, the system can also be extended for all type of library users.

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