PROJECT REPORT

ON

LIBRARY MANAGEMENT SYSTEM

Bachelors of Technology in Computer Science(AI)

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DECLARATION

We hereby declare that the project entitled " Library Management System "submitted [in partial fulfillment (for U.G. courses)] for the award of degree of **Bachelors of Computer Science** to Shoolini University of Biotechnology and Management Sciences, Solan (H.P.) is Project work carried out by us under the guidance and supervision of Mr. Manashwee Tripathi.

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Contents

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Finally, heartfelt thanks to our families and friends for their endless moral support**.**

LIST OF ABBREVIATIONS AND SYMBOLS

1. PHP – Hypertext Preprocessor

2. HTML – Hypertext Markup Language

3. CSS – Cascading Style Sheets

4. SQL – Structured Query Language

5. DB – Database

6. UI – User Interface

7. UX – User Experience

8. ID – Identifier

9. HTTP – Hypertext Transfer Protocol

10. CRUD – Create, Read, Update, Delete

11. $_SESSION – PHP Global Variable used to store user session data

12. $_POST – PHP Super Global Variable used to collect form data

ABSTRACT

The Library Management System (LMS) is a software application designed to efficiently manage the operations of a library. The primary objective of this system is to automate the management of books, members, and transactions, thereby reducing manual workload and enhancing service quality.

The system enables users to search, borrow, return, and reserve books while allowing librarians to add, update, and delete records with ease. It maintains real-time data on book availability, due dates, fines, and member activity, ensuring smooth tracking and management.

The system is developed with a focus on user-friendly interfaces, secure authentication, and robust database management to support scalability and reliability.

Library Management System aims to streamline library operations, improve accessibility, and foster a more organized and efficient environment for both users and administrators.

INTRODUCTION

Library Management System (LMS) is an automated solution designed to streamline the operations of a library. Libraries play a crucial role in providing access to a wide range of knowledge, and managing this vast collection of books, journals, and other resources can be a complex and time-consuming task if done manually. The LMS is developed to simplify and optimize these operations by digitalizing processes such as book cataloging, inventory management, member registration, issue/return tracking, and fine management.

This system aims to offer an efficient platform for both library staff and users, ensuring smooth day-to-day operations. It allows users to search for books, borrow and return them, and view their current library activities. On the other hand, librarians can easily manage book records, track overdue items, issue fines, and generate reports, all from a single integrated system.

The LMS is designed to be intuitive and user-friendly, providing a seamless experience for both new and experienced users. The system is built using robust technologies to ensure data security, fast retrieval, and scalability. By automating the management of library resources, the system significantly reduces human error and administrative workload, enhancing overall efficiency and productivity. In the digital age, the Library Management System represents an essential tool for libraries to adapt to modern technological needs, ensuring better service delivery to users while maintaining a structured and organized library environment.

OBJECTIVE OF THE PROJECT:

The primary objective of the Library Management System (LMS) is to automate and streamline the core functions of a library, making the management of resources more efficient and less time-consuming. The specific objectives include:

1. **Efficient Book Management:** To provide a user-friendly platform for managing book inventories, including adding, updating, and deleting book records.
2.
3. **Member Management**: To maintain a comprehensive database of library members, enabling smooth registration, tracking of borrowings, and user activity monitoring.
4. **Automating Transactions**: To automate the process of issuing, returning, and reserving books, reducing manual errors, and enhancing user experience.
5. **Tracking Overdue Books**: To track borrowed books and their due dates, automatically generate reminders, and calculate fines for overdue items.

- **Improved Security**: To ensure that the system is secure by protecting user data and restricting access to sensitive information.

- **Enhancing User Experience:** To provide a seamless and interactive interface for users and librarians, allowing for quick access to library services.

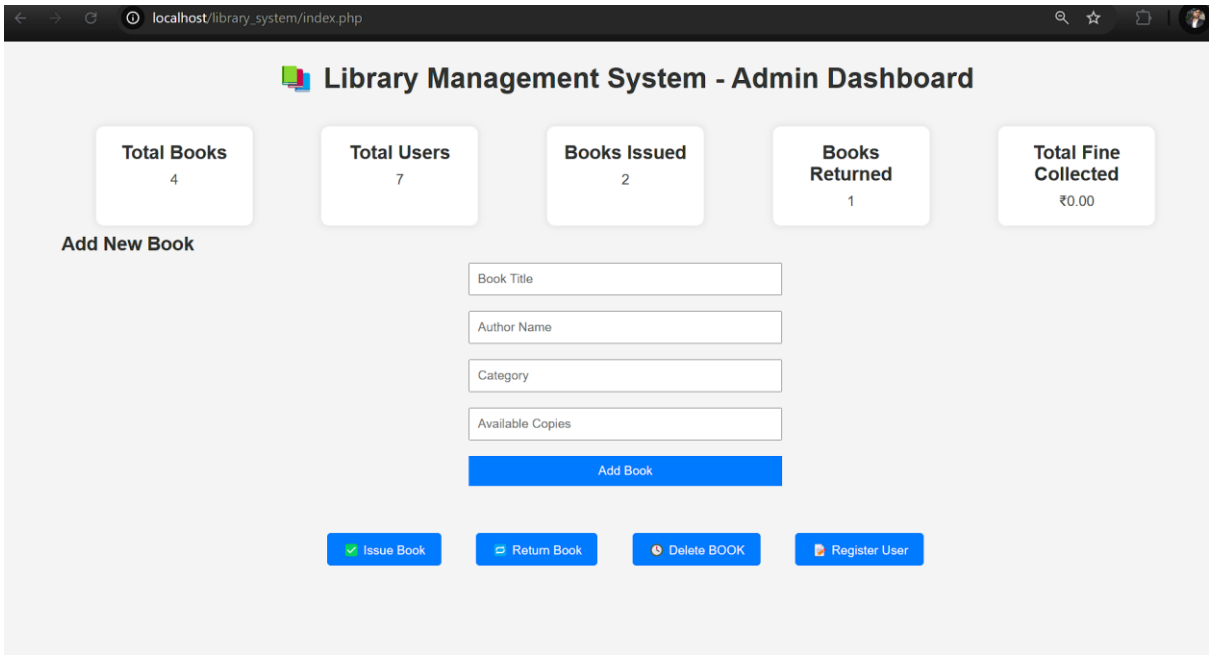
The LMS aims to reduce the administrative burden on library staff, improve resource management, and provide users with an efficient and accessible way to interact with the library.

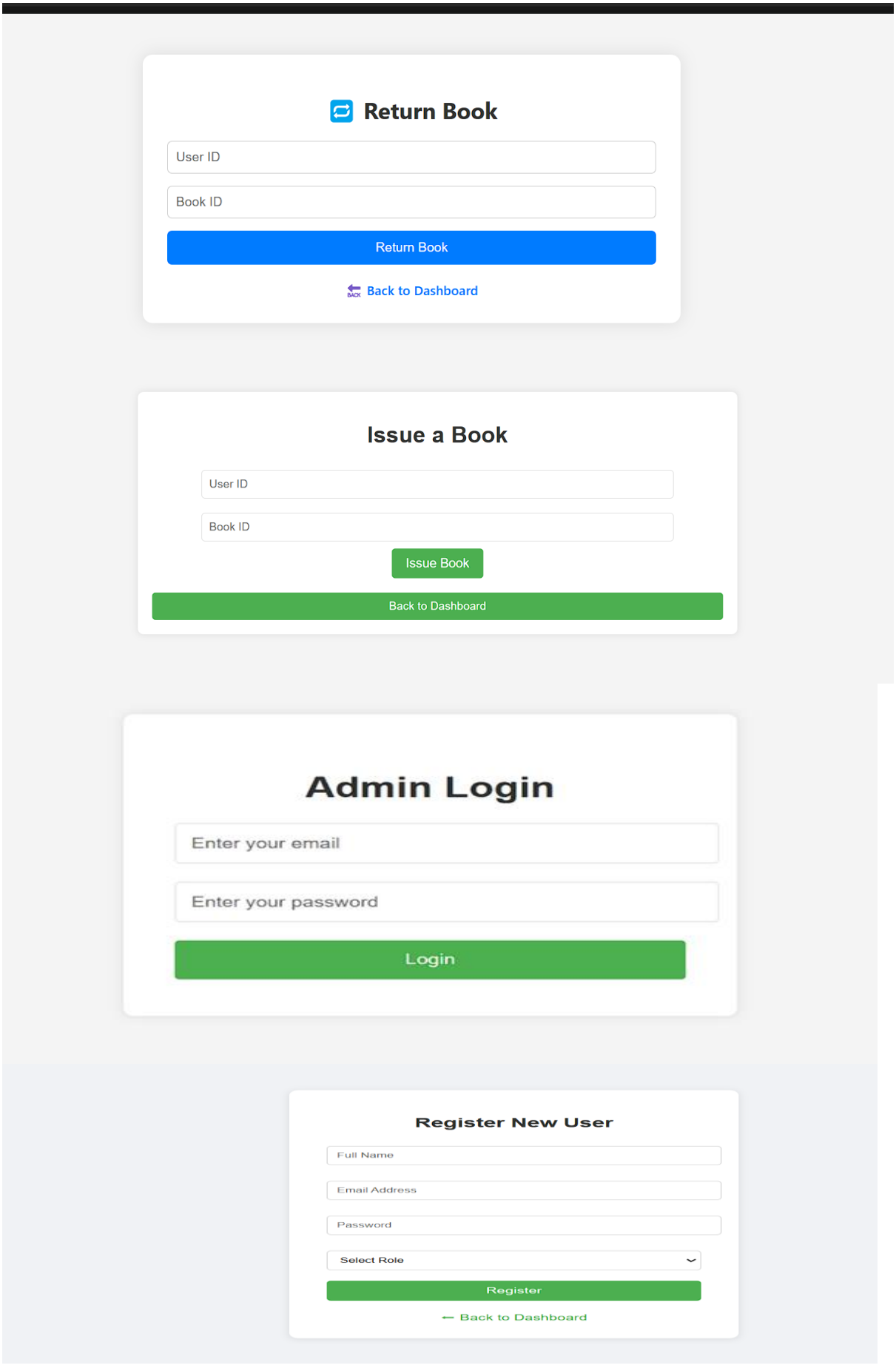
CODING

The project consists of the following PHP files:

1. **db_connect.php:** Database connection setup
2. **admin_login.php:** Admin login functionality
3. **loginuser.php**: User login functionality…
4. **register_user.php**: User registration form
5. **add_book.php:** Admin can add new books.
6. **issue_book.php:** Admin issues books to users.
7. **style.css:** Styles for frontend design.
8. **return_book.php:** Admin processes book return.

6. OUTPUT




Return Book
User ID
Book ID
Return Book
Back to Dashboard
Issue a Book
User ID
Book ID
Issue Book
Back to Dashboard
Admin Login
Enter your email
Enter your password
Login
Register New User
Full Name
Email Address
Password
Select Role
Register
Back to Dashboard

8. DATABASE

```
CREATE DATABASE library_db;
USE library_db;
CREATE TABLE Users (
   user_id INT AUTO_INCREMENT PRIMARY KEY,
   name VARCHAR(100) NOT NULL,
   email VARCHAR(100) UNIQUE NOT NULL,
   password VARCHAR(255) NOT NULL,
   role ENUM('student', 'librarian', 'admin') DEFAULT 'student',
   created_at TIMESTAMP DEFAULT CURRENT_TIMESTAMP
);

CREATE TABLE Books (
   book_id INT AUTO_INCREMENT PRIMARY KEY,
   title VARCHAR(200) NOT NULL,
   author VARCHAR(100),
   isbn VARCHAR(20) UNIQUE,
   category VARCHAR(50),
   available_copies INT DEFAULT 0,
   total_copies INT DEFAULT 0
);

CREATE TABLE Book_Loans (
   loan_id INT AUTO_INCREMENT PRIMARY KEY,
   user_id INT,
   book_id INT,
   loan_date DATE,
   due_date DATE,
   return_date DATE,
   FOREIGN KEY (user_id) REFERENCES Users(user_id),
   FOREIGN KEY (book_id) REFERENCES Books(book_id)
);
CREATE TABLE Fines (
   fine_id INT AUTO_INCREMENT PRIMARY KEY,
   loan_id INT,
   amount DECIMAL(6,2),
   paid BOOLEAN DEFAULT FALSE,
   FOREIGN KEY (loan_id) REFERENCES Book_Loans(loan_id)
);

INSERT INTO Users (name, email, password, role)
VALUES ('Aman Sharma', 'aman@example.com', 'hashed_password_here', 'student');

INSERT INTO Book_Loans (user_id, book_id, loan_date, due_date)
VALUES (1, 1, CURDATE(), DATE_ADD(CURDATE(), INTERVAL 15 DAY));

UPDATE Book_Loans
SET return_date = CURDATE()
WHERE loan_id = 1;

INSERT INTO Fines (loan_id, amount)
VALUES (1, 50.00);s
```

9. CONCLUSION

The development of the Library Management System has successfully met its objective of creating an efficient, user-friendly, and automated platform for managing all core library operations. By digitizing tasks such as book cataloguing, member registration, issue/return processing, overdue tracking, and fine calculation, the system significantly reduces manual effort and minimizes the potential for human error. It provides an organized and systematic approach to handling large volumes of data, ensuring that both library staff and patrons can access accurate information quickly and reliably. The secure, modular design of the LMS also ensures scalability, allowing the system to grow alongside the evolving needs of any library.

Future-Scope:

While the current implementation delivers a solid foundation, several enhancements can be pursued to further enrich functionality and user engagement:

- **Enhanced User Interaction**
  - Mobile application with push-notification reminders for due dates and new arrivals.
  - Personalized dashboards showing reading history, recommendations, and wish lists.
- **Digital Resource Integration**
  - Support for e-books, audio books, and online journals, with in-app reading/listening capabilities.
  - Integration with external digital libraries (e.g., Open Library APIs) for expanded access.
- **Advanced Search & Recommendation Engine**
  - Implementation of natural language search and semantic tagging to improve discovery.
  - Machine-learning–driven recommendations based on borrowing patterns and user interests.
- **Social & Collaborative Features**
  - Community reviews, ratings, and discussion forums for titles.
  - Book clubs, reading challenges, and event management modules.
- **Analytics & Reporting Dashboard**
  - **Real-time visualizations for** collection usage, popular genres, and user demographics.
  - Predictive analytics for acquisition planning based on historical trends.
- **Interoperability & Standards Compliance**
  - Support for MARC, Dublin Core, and other library metadata standards for seamless data exchange.
  - Single sign-on (SSO) integration with institutional credentials.

By pursuing these enhancements, the LMS can evolve into a comprehensive, interactive knowledge hub—transforming the way libraries deliver services and engage their communities.