LIBRARY MANAGEMENT SYSTEM

A PROJECT REPORT

Submitted by

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Under the guidance of

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In partial fulfilment for the award of the degree of

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Unitedworld School Of Computational Intelligence

KARNAVATI
UNIVERSITY

BONAFIDE CERTIFICATE

Certified that this project report "**LIBRARY MANAGEMENT SYSTEM"** is the bonafide work of **Kartik Arora (20220702136)** and **Dilip Kumar Anjana (20220702112)** who carried out the project work under my supervision as a part of Project Based Learning in Course Professional training (21BTCS24C02).

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VIVAVOCE EXAMINATION

The vivavoice examination of the project work titled "**LIBRARY MANAGEMENT SYSTEM"** submitted by **Kartik Arora (20220702136) Dilip Kumar Anjana (20220702112)** is held on_____

INTERNAL EXAMINER **EXTERNAL EXAMINER**

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I thank the **Almighty** for showering his blessing upon me in completing the project. I submit this project with a deep sense of gratitude and reverence for my beloved parents for their moral support and encouragement.

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Student team members name

KARTIK ARORA

DILIP KUMAR ANJANA

Abstract

The Intelligent Library Management System (ILMS) is a comprehensive database project designed to revolutionize traditional library operations by seamlessly integrating modern technologies. This system aims to enhance the efficiency, accessibility, and overall management of library resources through a robust and user-friendly interface.

Key Features:

1. Centralized Database Management:

ILMS incorporates a centralized and scalable database system that efficiently manages vast amounts of bibliographic data, user information, and transaction records. This ensures data integrity, security, and streamlined information retrieval.

2. User-Friendly Interface:

The system boasts an intuitive and user-friendly interface, providing a seamless experience for both library staff and patrons. The interface is designed to facilitate easy navigation, quick resource location, and simplified transaction processes.

3. Advanced Search and Recommendation Engine:

ILMS includes a sophisticated search and recommendation engine that utilizes advanced algorithms to enhance the discoverability of library resources. Users can benefit from personalized recommendations based on their reading history and preferences.

4. Real-time Transaction Tracking:

The system enables real-time tracking of library transactions, including checkouts, returns, and reservations. This feature allows library staff to monitor resource availability, manage due dates, and optimize resource allocation.

5. Automated Notifications and Reminders:

ILMS automates communication processes by sending notifications and reminders for overdue items, upcoming reservations, and other relevant updates. This proactive approach improves user engagement and helps in the timely return of borrowed materials.

6. Access Control and Security:

The system implements robust access controls to ensure the confidentiality and integrity of sensitive library data. Role-based access permissions enable administrators to define and manage user privileges, safeguarding the system from unauthorized access.

7. Integration with External Systems:

ILMS is designed to integrate seamlessly with external systems, such as online catalogs, digital repositories, and academic databases. This integration enhances the library's digital presence and extends the range of available resources.

8. Data Analytics and Reporting:

The system incorporates data analytics tools to generate insightful reports on library usage, popular genres, and resource availability. These analytics empower administrators to make informed decisions, optimize resource allocation, and enhance the overall library experience.

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Introduction

1.1 Modules

The library management system comprises several modules to cater to the needs of both users and administrators. These modules include:

- User Modules:
    - View Profile: Allows users to view their profile information such as name, contact details, and account status.
    - View Issued Books: Enables users to see the list of books they have borrowed from the library, including due dates.
    - User Dashboard: Provides a centralized dashboard for users to access various functionalities like updating profile information, changing passwords, and viewing issued books.
    - Update Password: Allows users to change their account passwords for security reasons.
    - Edit Profile: Enables users to modify their profile information such as contact number or address.
    - Change Password: Provides a separate interface for users to change their account passwords.
    - Sign up/Register: Allows new users to create an account in the library management system.
    - Logout: Enables users to securely log out of their accounts.
- Admin Modules:
    - Admin Dashboard: Provides an overview of the library system's administrative tasks and statistics.
    - Manage Authors, Books, Categories: Allows administrators to add, edit, and delete information related to authors, books, and categories.
    - Add/Delete/Edit Authors, Books, Categories: Specific interfaces for administrators to perform CRUD (Create, Read, Update, Delete) operations on author, book, and category data.
    - View Issued Books: Enables administrators to view the list of books issued to users along with due dates.

- View Not Returned Books: Provides a report of books that have not been returned by users within the expected timeframe.
- Manage Registered Users: Allows administrators to manage user accounts, including editing profiles, resetting passwords, and deactivating accounts.

System Analysis

2.1 Existing System

Before implementing the new library management system, an analysis of the existing system was conducted. The existing system lacked several key features such as user-friendly interfaces, efficient book tracking, and robust security measures. Users often faced difficulties in managing their accounts, searching for books, and receiving timely notifications about due dates.

2.2 Proposed System

The proposed library management system aims to address the shortcomings of the existing system by introducing a range of new features and enhancements. These include a modern and intuitive user interface, advanced search and filtering options for books, automated notifications for due dates, role-based access control for administrators, and improved data security measures.

Literature Survey

A thorough literature survey was conducted to review existing library management systems, software frameworks, database technologies, and best practices in system design and implementation. This survey helped in identifying industry standards, potential challenges, and innovative solutions that could be applied to the development of the new library management system.

Future Scope

While the current version of the library management system meets the initial requirements and objectives, there are several areas for future enhancement and expansion. Some of the potential future scope areas include:

- Integration with external APIs for book recommendations and reviews.
- Implementation of a mobile application for enhanced accessibility.
- Integration of RFID or barcode technology for efficient book tracking.
- Incorporation of machine learning algorithms for personalized user recommendations.
- Expansion of reporting and analytics capabilities for administrators.

Requirement Specification

5.1 Hardware Specification

The hardware requirements for running the library management system include:

- Server: Minimum 2GB RAM, Dual-core processor, 100GB HDD.
- Client Devices: Desktops, laptops, tablets, and smartphones with modern web browsers.

5.2 Software Specification

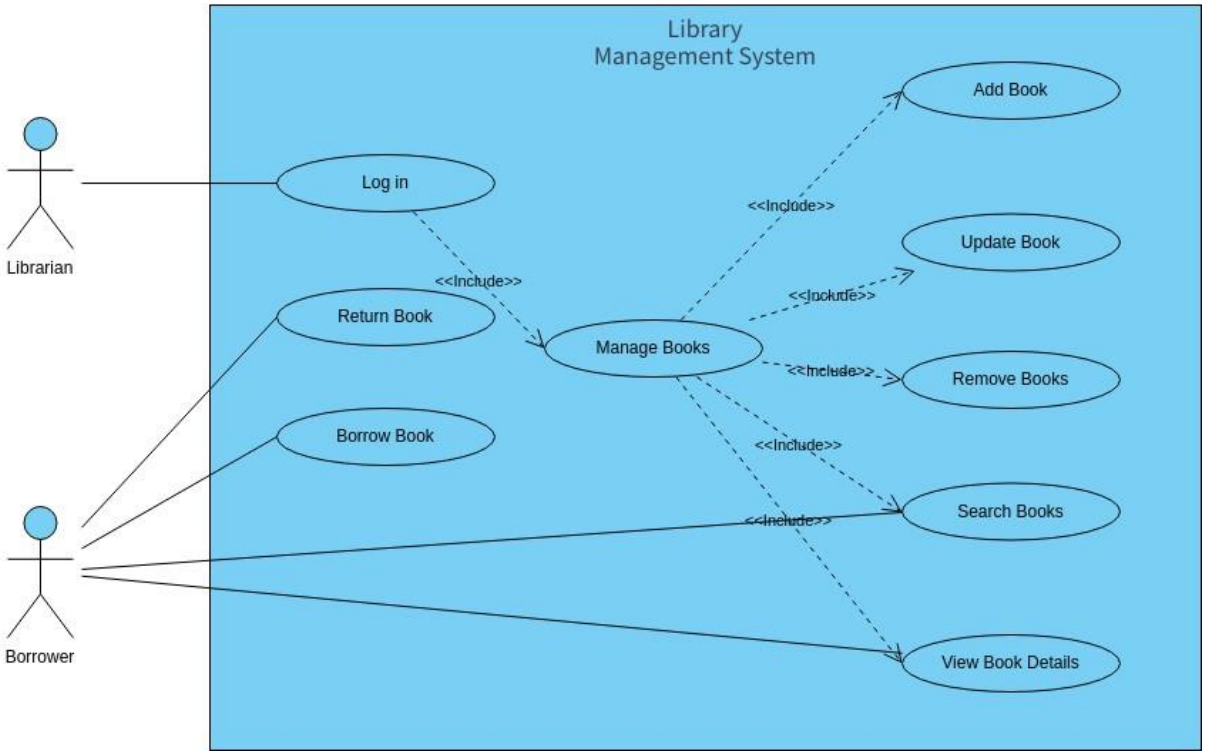
The software requirements for the library management system are:

- Operating System: Linux or Windows Server.
- Web Server: Apache or Nginx.
- Database: MySQL or PostgreSQL.
- Programming Languages: PHP, HTML, CSS, JavaScript.
- Frameworks/Libraries: Laravel (optional), Bootstrap, jQuery.

System Diagram

6.1 Use Case Diagram

The use case diagram illustrates the various actors (users and administrators) interacting with the library management system and the corresponding use cases such as login, search books, issue books, manage users, etc.



6.2 ER Diagram

The Entity-Relationship (ER) diagram represents the database schema of the library management system, including entities such as users, books, authors, categories, and their relationships.

System Implementation

7.1 Introduction

The system implementation phase involved the development of frontend interfaces using HTML, CSS, and JavaScript, backend functionalities using PHP, and database management using MySQL. The system follows the MVC (Model-View-Controller) architecture for modular and scalable development.

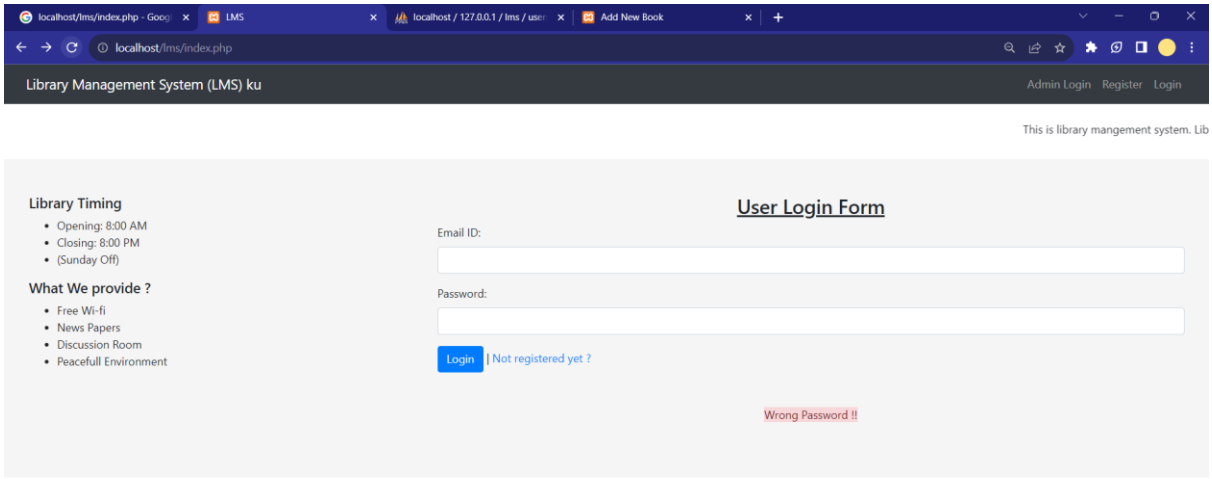
7.2 Sample Code

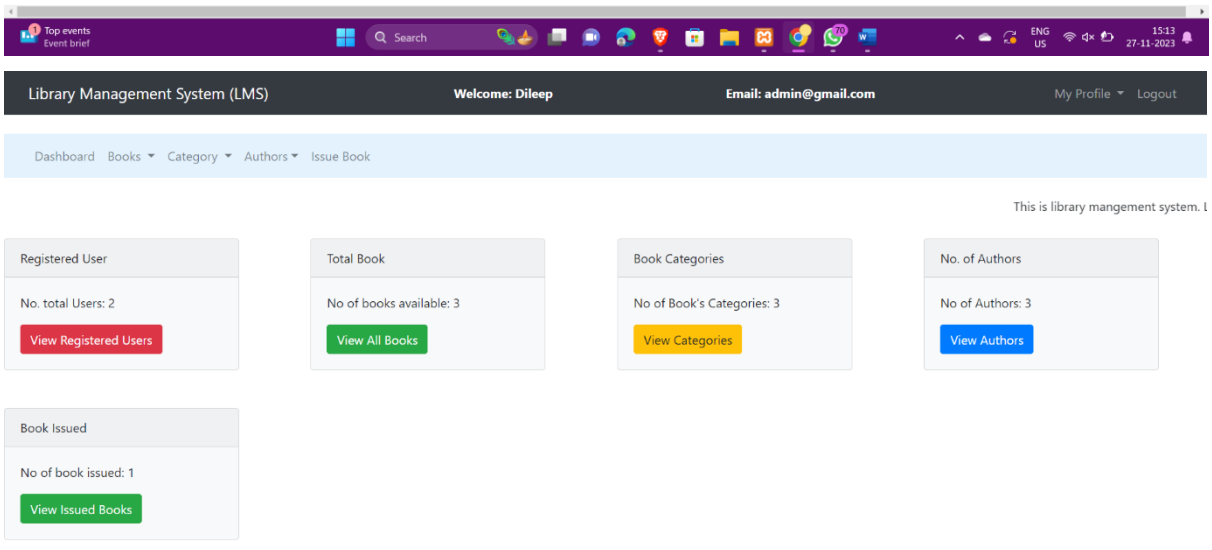
Here is an example of sample code demonstrating user authentication in PHP

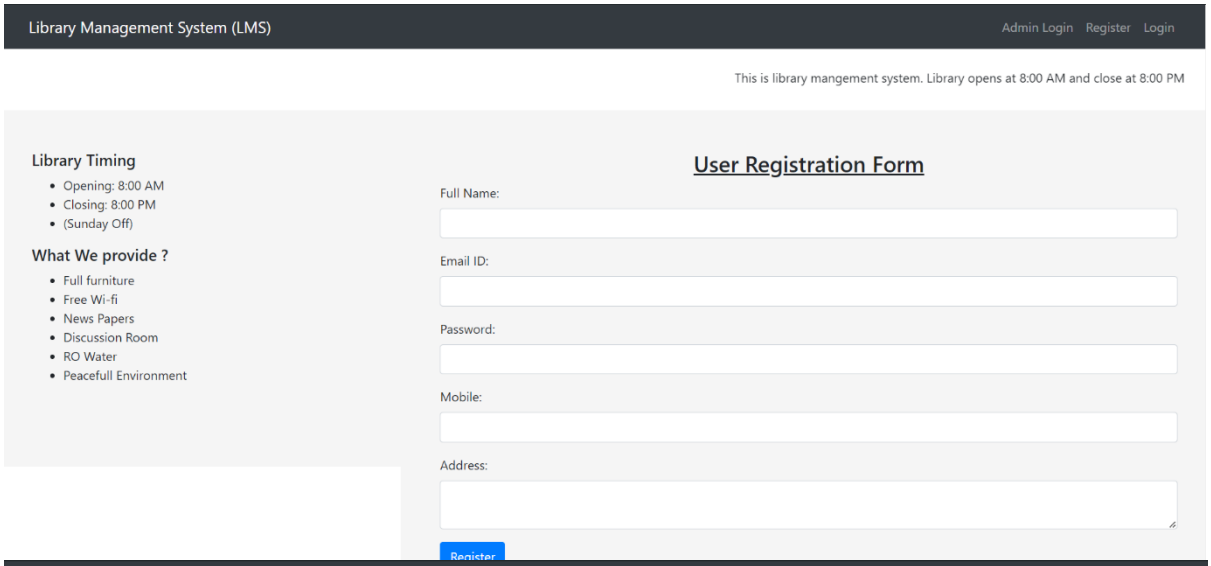
```php
<?php
session_start();

// Check if user is already logged in
if(isset($_SESSION['user_id'])) {
    header('Location: user_dashboard.php');
    exit();
}

// Validate login credentials
if($_SERVER['REQUEST_METHOD'] == 'POST') {
    $username = $_POST['username'];
    $password = $_POST['password'];

    // Perform database query to validate credentials
    // Code for database query goes here...

    // If credentials are valid, set session variables and redirect
    if(/* Validation successful */) {
        $_SESSION['user_id'] = /* Set user ID */;
        header('Location: user_dashboard.php');
        exit();
```

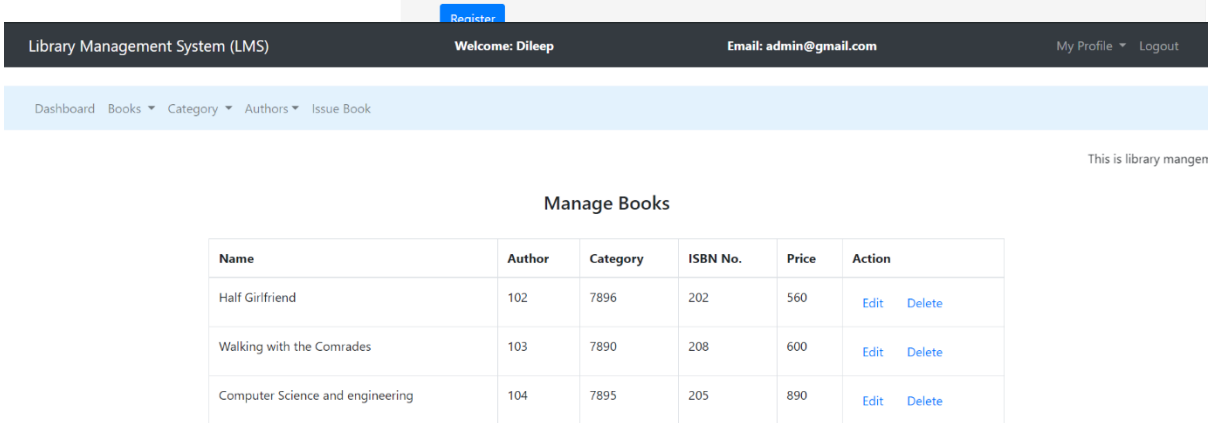
```
    } else {
        $error_message = "Invalid username or password.";
    }
}
?>
```

Sample Screenshots






Library Management System (LMS)
Admin Login
Register
Login
This is library mangement system. Library opens at 8:00 AM and close at 8:00 PM
Library Timing
Opening: 8:00 AM
Closing: 8:00 PM
(Sunday Off)
What We provide ?
Full furniture
Free Wi-fi
News Papers
Discussion Room
RO Water
Peacefull Environment
User Registration Form
Full Name:
Email ID:
Password:
Mobile:
Address:
Register


Library Management System (LMS)
Welcome: Dileep
Email: admin@gmail.com
My Profile
Logout
Dashboard
Books
Category
Authors
Issue Book
This is library mangen
Manage Books
Name
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Category
ISBN No.
Price
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102
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202
560
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103
7890
208
600
Edit
Delete
Computer Science and engineering
104
7895
205
890
Edit
Delete

Conclusion

In conclusion, the library management system project successfully addressed the requirements and objectives set forth. The system offers a user-friendly interface, efficient book management capabilities, robust security features, and scalability for future enhancements. Through systematic analysis, design, and implementation phases, the project achieved its goals and lays the foundation for ongoing improvements and innovations in library management technology.