Web Based Library Management System

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Problem in brief

- Lack of Centralized System for Book Management: The library currently does not have an integrated software solution to efficiently manage books, making tracking and organizing the collection difficult.
- Librarian Operations: Librarians struggle with unorganized tasks and activities, such as managing book inventories, tracking borrowing history, and handling member queries.
- Limited Access to Book Information: Members have limited access to real-time information on book availability and details, hindering their ability to make informed borrowing decisions.
- Inadequate Fine Management: The current system does not efficiently manage fines and overdue books, leading to inconsistencies and difficulties in enforcement.
- **Poor Communication:** There is a lack of effective communication channels between librarians and members, resulting in delays and misunderstandings.

AIM

To develop a comprehensive Library Management System (LMS) specifically designed for schools to streamline library operations and enhance resource management.

OBJECTIVES

- I. Implement secure user registration and management for students and librarians.
- 2. Provide real-time updates on book availability and inventory status.
- 3. Facilitate efficient borrowing and returning processes for library resources.
- 4. Automate fine calculations and management for overdue books.
- 5. Enable students to submit and manage articles in a dedicated section.
- 6. Allow librarians to add, update, and manage book details and inventory.
- 7. Enhance communication between students and librarians regarding resource requests and updates.
- 8. Provide a platform for students to submit articles, including functionality for article review and approval by librarians.
- 9. Allow students to view and manage their submitted articles, including tracking submission status.
- 10. Enable librarians to categorize, archive, and manage submitted articles efficiently.
- 11. Support flexible development using the Agile Scrum methodology to adapt to changing user requirements.

Proposed Solution

Below are the main and sub-modules we created from the proposed solution for the Library Management System:

1. Authentication & Authorization Module

- 1. User verification against student and teacher databases
- 2. Role-based access control to prevent unauthorized actions

2. Librarian (Admin) Dashboard

- Comprehensive interface for librarians to manage books and users
- 2. Administrative task management features
- 3. Intuitive design for efficient library operations

3. Library Home

- 1. Main interface displaying book details and availability
- 2. Chat system for communication between librarians and members
- 3. Enhanced search functionality for book availability

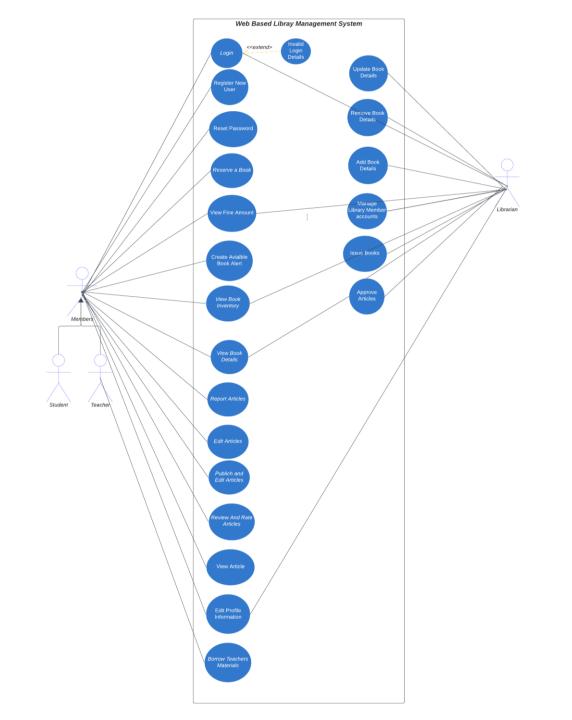
4. Article Section

- 1. Adding, editing, and managing articles
- 2. Upload and maintenance functionalities for supervisors and content creators
- 3. Comments and ratings to foster user interaction and feedback

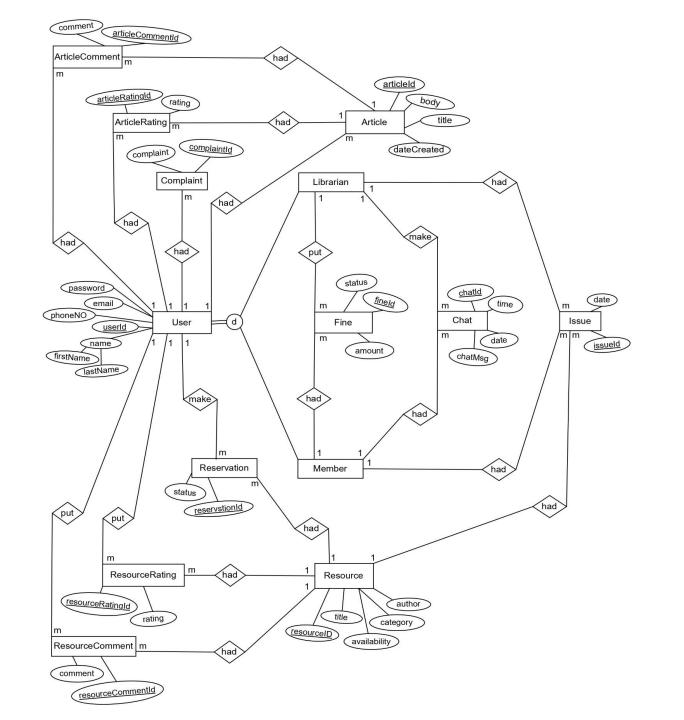
5. Member Management

- 1. Managing member accounts and profiles
- 2. Fine management for overdue books
- 3. Smooth user interactions and timely notification

Use Case Diagram

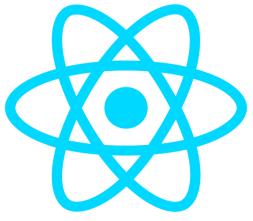


EER DIAGRAM



Technologies Used

- Figma
- React js
- Spring boot
- MySQL









Achievements

- **Efficient Library Management**: The system streamlines the management of library resources, reducing the errors associated with manual record-keeping and decentralized solutions.
- **Secure Authentication & Authorization**: By integrating Google authentication and role-based access control, the system ensures secure and controlled access to library resources.
- **Enhanced User Experience**: The intuitive interfaces for the librarian dashboard and library home make it easy for users to manage and access library resources efficiently.
- **Real-Time Availability**: The system provides real-time updates on book availability, helping users quickly find and borrow the books they need.
- Interactive Article Section: The article section allows for the addition, editing, and management of articles, fostering a rich repository of content for users.
- **Effective Fine Management**: The system simplifies fine management, ensuring timely notifications and payments, reducing overdue instances.

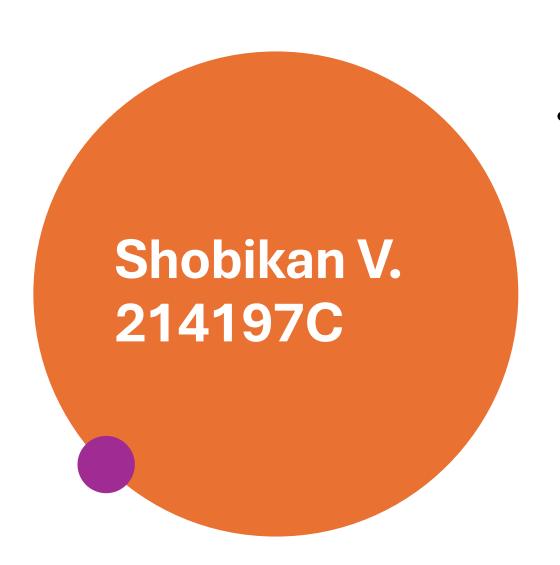


Individual Contribution



Article Section Management

- Developed the article section to allow for adding, editing, and managing articles.
- Implemented functionalities for supervisors and content creators to upload and maintain articles.
- Enabled comments and ratings for articles, fostering user interaction and feedback.



Authentication and Authorization

- Developed a secure login system with Google integration.
- Implemented user verification against student and teacher databases.
- Ensured robust permission-based access control to prevent unauthorized actions.



Librarian (Admin) Dashboard

- Created a comprehensive dashboard for librarians to manage the library system.
- Integrated features for managing books, users, and other administrative tasks.
- Ensured an intuitive interface for efficient library management.



Library Home

- Developed the main interface displaying book details and availability.
- Implemented a chat system for direct communication between librarians and members.
- Enhanced user experience by making book searches and availability checks seamless.



Member Side Functions

- Developed functionalities for managing member accounts and profiles.
- Implemented fine management for overdue books.
- Enhanced the user experience by ensuring smooth interactions and timely notifications.

Thank You



