Library Management System

1. Introduction

The Library Management System (LMS) is designed to efficiently manage library resources and provide seamless access to e-books for users. This report outlines the system's models and overall design.

Video Presentation Link:
https://drive.google.com/file/d/14TKaQSK_wOBR3ZSDdXq4nWC9zapD8ZQ6/view

2. Models Overview

User Model:

- Attributes: userid, name, username, email, password, profile_picture, authenticated, urole.
- Relationships: One-to-many with Request and Feedback.

Section Model:

- Attributes: sectionid, title, date_created, picture, description.
- Relationships: One-to-many with Book.

Book Model:

- Attributes: bookid, title, author, date_created, picture, description, pdf_file, sectionid.
- Relationships: Many-to-one with Section and one-to-many with Request and Feedback.

Request Model:

- Attributes: requestid, userid, date_created, days, bookid, status.
- Relationships: Many-to-one with User and Book.

IssuedBook Model:

- Attributes: issueid, userid, issued_by, bookid, from_date, to_date, status.
- Relationships: Many-to-one with User and Book.

Feedback Model:

- Attributes: feedbackid, userid, bookid, date_created, rating, content.
- Relationships: Many-to-one with User and Book.

3. Overall System Design

Backend: Implemented using Flask framework with SQLite database.

Authentication: User authentication is handled securely using hashed passwords and JWT tokens for reset password.

Authorization: User roles (urole) ensure proper access control, distinguishing between librarians and general users.

Librarian Dashboard: Provides administrative tools for managing sections, books, and user requests.

User Profile: Users can manage their profiles, view borrowing history, and provide feedback.

Book Request and Return: Users can request, borrow, and return e-books, with automated access revocation for overdue books.

Search Functionality: Enables users to search for sections and e-books based on various criteria for enhanced discoverability.

Validation: Data integrity and security are ensured through comprehensive validation mechanisms at both frontend and backend levels.

Styling: The application interface is designed to be user-friendly with proper login functionality and aesthetics.

4. Conclusion

The Library Management System offers a comprehensive solution for efficient library management, providing users with seamless access to e-books while enabling librarians to manage resources effectively. With robust models and a well-designed system architecture, the LMS aims to streamline library operations and enhance user satisfaction.