BookNest LMS Mad - II

Diwakar Verma
Roll No - 21f1001282
Email - 21f1001282@ds.study.iitm.ac.in

Approach to the Problem Statement:

Requirements Gathering: Understanding the needs of users (students and librarians) and defining the scope of the project.
Design: Creating the database schema, designing the API endpoints, and planning the frontend user interface.
Implementation: Developing the backend using Flask, setting up the database, and creating the frontend using HTML/CSS and JavaScript.
Testing: Ensuring the application functions correctly by writing and running test cases.
Deployment: Deploying the application on a server and making it accessible to users.

Project Name: BookNest

Overview: BookNest is an online library management system that allows users to browse, issue, and rate e-books. Librarians can manage sections, e-books, and user activities through an intuitive dashboard.

Purpose and Objectives:

- Provide a seamless user experience for browsing and issuing e-books.
- Enable librarians to manage the library efficiently.
- Send daily reminders and monthly activity reports to users and librarians.

Frameworks and Libraries Used

- Backend:
    - Flask: A micro web framework for Python used to develop the backend APIs.
    - Flask-CORS: To handle Cross-Origin Resource Sharing (CORS) issues.
    - Flask-Mail: For sending emails.
    - Celery: For handling asynchronous tasks and scheduled jobs.
    - Redis: As a message broker for Celery tasks.

- Frontend:
    - HTML/CSS: For creating the user interface.
    - JavaScript: For adding interactivity to the frontend.
    - Vue.js: A progressive JavaScript framework for building user interfaces (used for creating the frontend components).
- Database:
    - SQLite: A lightweight, disk-based database used for storing the application's data

The Database includes the following tables:

- Users: Stores user information.
- Sections: Contains different sections of the library.
- EBooks: Stores information about e-books.
- Ratings: Manages user ratings for e-books.
- Requests: Handles user requests for e-books.

Relationships:

- A user can issue multiple e-books.
- Each e-book belongs to a section.
- Users can rate multiple ebooks.
- Users can make multiple requests.

Conclusion

This BookNest App provides a comprehensive solution for managing library operations, ensuring efficient book issuance and return processes, and providing valuable insights through reports. The use of modern frameworks and libraries ensures the system is robust and scalable.