Project Report: Library Management System - V2

Student Details:

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Project Details:

Title: Library Management System - V2
Objective: The project is a multi-user web application designed to manage e-books within a digital library. The application facilitates the issuing, granting, and revoking of e-books across various sections, catering to both librarians and general users. The system aims to provide a seamless experience for users to access e-books while enabling librarian to maintain and monitor the library efficiently.

Problem Statement and Approach:

The core challenge was to develop a scalable and efficient system that could handle the management of e-books across different sections. The solution was approached by creating distinct roles for users (librarian and general user) with specific permissions and functionalities. The application was built using a combination of front-end and back-end frameworks, ensuring a responsive and secure user experience. Key functionalities include role-based access control (RBAC), section and e-book management, and automated notifications.

Frameworks and Libraries Used:

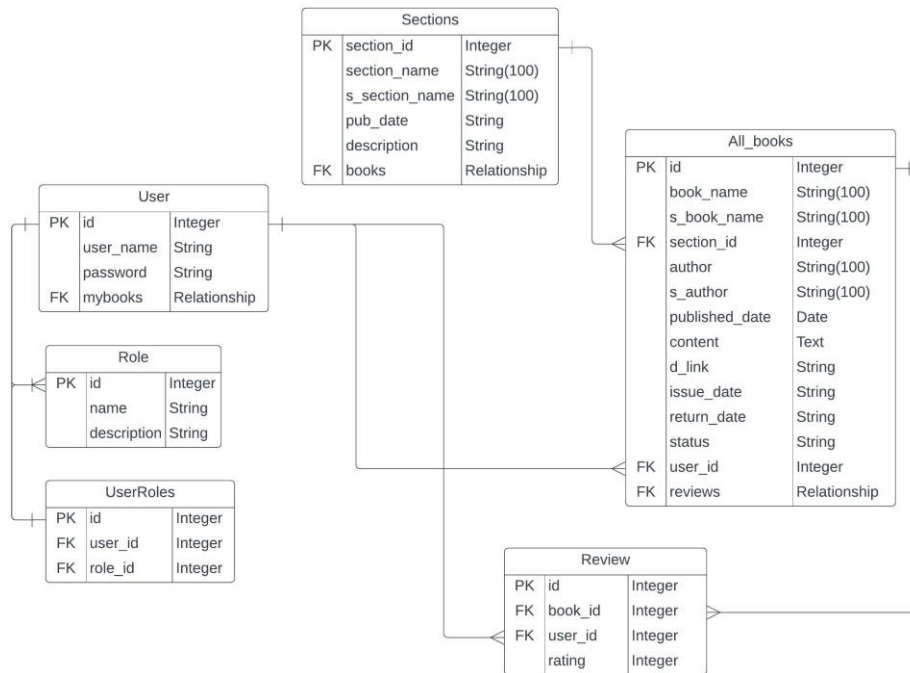SQLite for data storage
Flask for API
Vue.js for UI
Bootstrap for HTML generation and styling
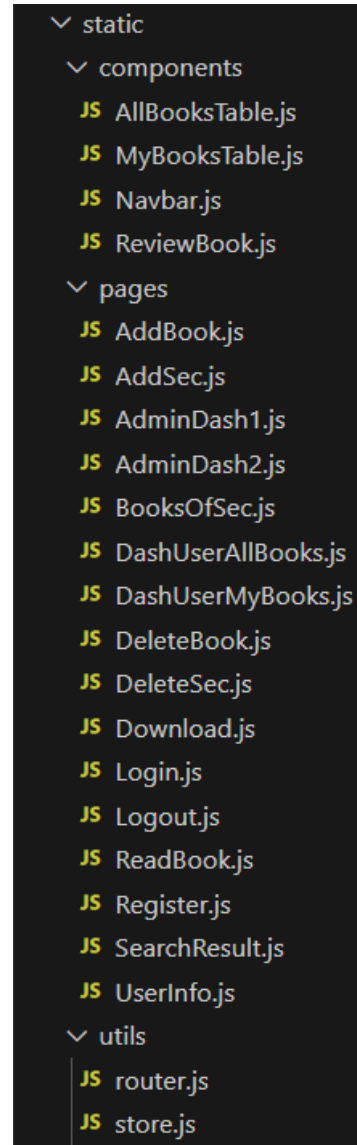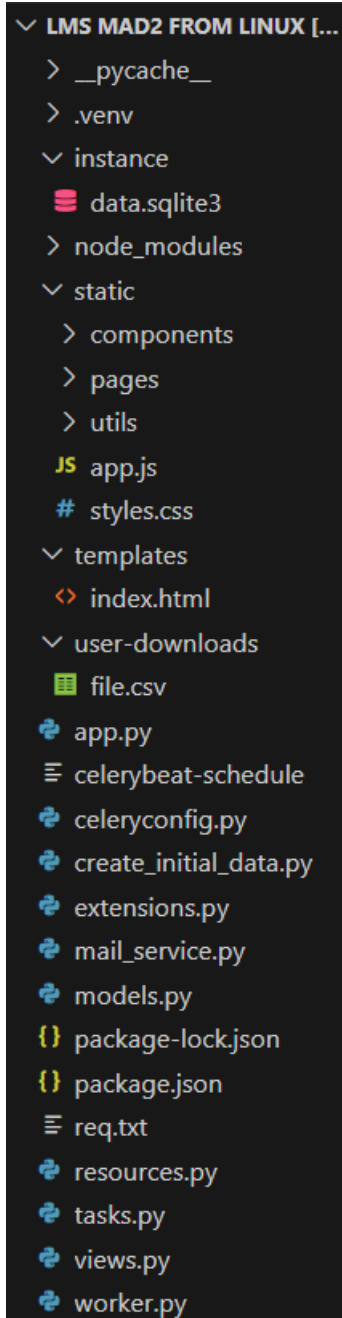Redis for caching
Celery for batch jobs

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ER Diagram:

API Resource Endpoints:

1. `/resources` : Manages retrieval and modification of library sections.

2. `/books` : Handles CRUD operations for books in the library.

3. `/user_books/<int:user_id>` : Retrieves a list of books associated with a specific user.

4. `/request_book/<int:book_id>/<int:user_id>` : Allows a user to request the issuance of a specific book.

5. `/return_book/<int:book_id>/<int:user_id>/<int:rating>` : Processes the return of a book by a user with an optional rating.

6. `/read_book/<int:book_id>` : Provides access to read a specific book online.

7. `/accept_book/<int:book_id>` : Approves a book request for issuance.

8. `/decline_book/<int:book_id>` : Declines a book request for issuance.

9. `/books_of_sec/<int:sec_id>` : Retrieves a list of books within a specific section.

10. `/user_info/<int:user_id>` : Retrieves detailed information about a specific user.

11. `/search/<int:user_id>` : Allows a user to search for books within   the library system.

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File Organization of the project:

Drive Link of the Presentation Video:

Here is brief walkthrough of the project.

https://drive.google.com/file/d/1buV7dLAdRcA9BYPHNj5xvqla-
_5Ltf0n/view?usp=sharing

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