

PROJECT REPORT FOR MODERN APPLICATION DEVELOPMENT II PROJECT

LIBRARY MANAGEMENT SYSTEM

AUTHOR

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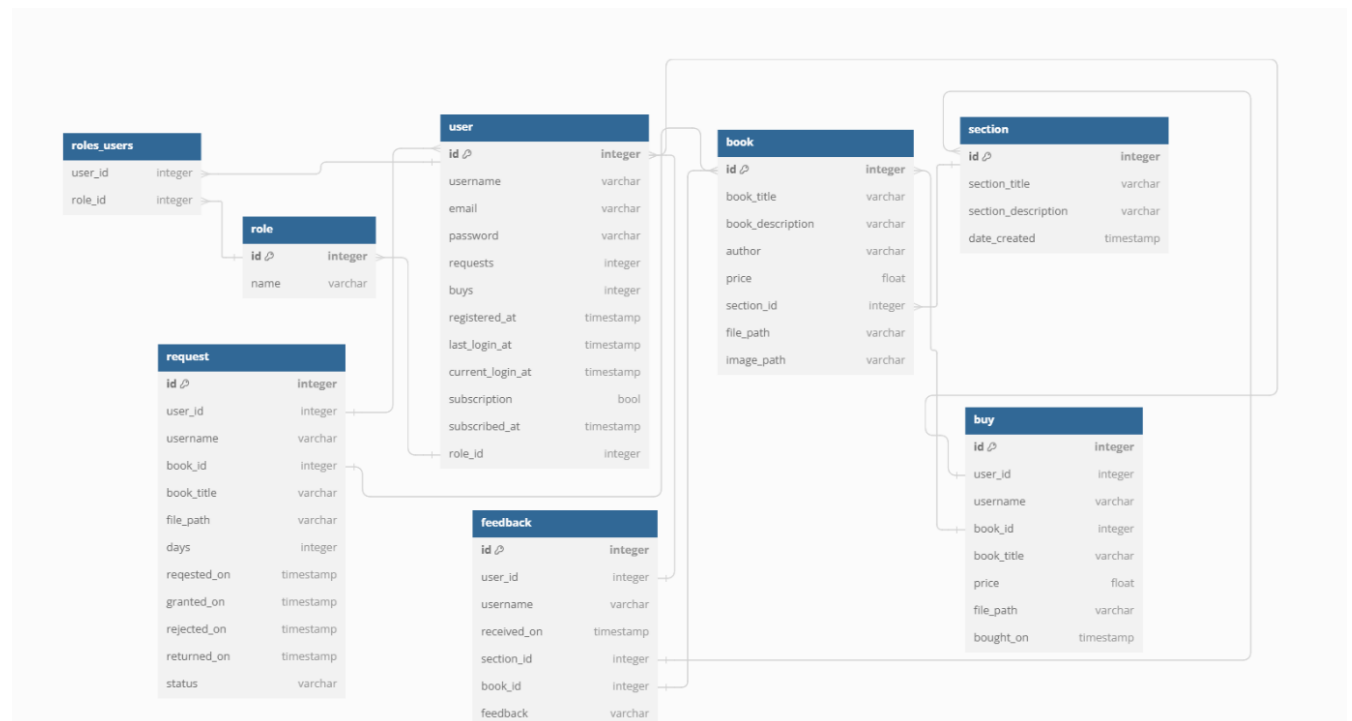
DESCRIPTION

This project is about designing a Library Management System where a librarian can add sections and books and users can request for the books to read them.

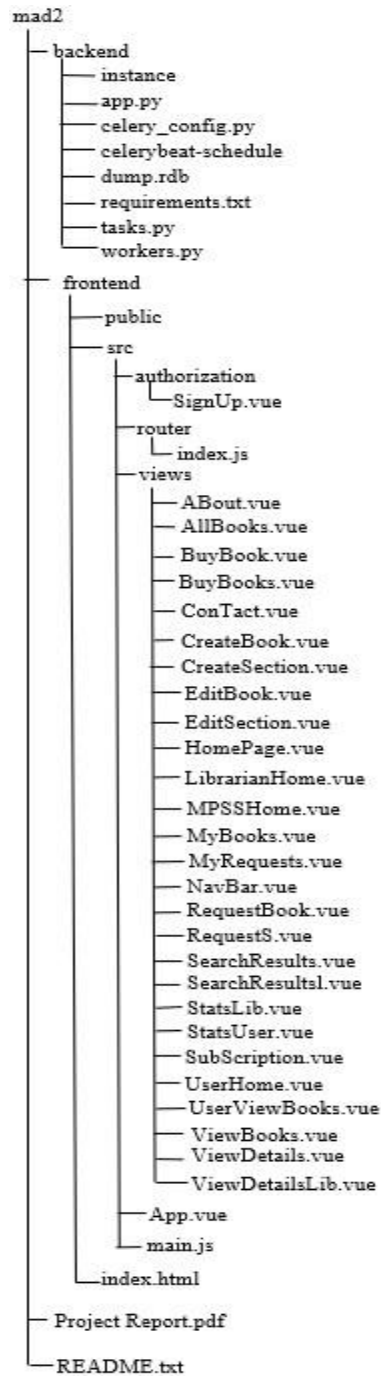
TECHNOLOGIES USED HERE

- **SQLITE** – for data storage
- **Flask** – as backend framework
- **Vue3** – as frontend framework
- **Redis & Celery** – for caching, reminders and other backend jobs
- **Bootstrap & CSS** – for styling
- **Flask-mail** – for handling email sending
- **Flask-JWT-Extended** – for implementing role-based access control

DB SCHEMA DESIGN



ARCHITECTURE



FEATURES

CORE FUNCTIONALITIES

1) Login functionalities : Two roles User and Librarian is created once the database is created. Same login page is used for both Librarian and User. New users can register to access the application. JWT based authentication is used.

2) Librarian Dashboard : The statistics page in librarian dashboard displays Total Users, Active Users, Total requests, Pending requests, Total Books bought, Total subscribers, Revenue generated from books, subscribes, Total revenue and popular Requested and bought books.

3) Section Management : The librarian can create a new section, edit and delete it.

4) e-Book Management : The librarian can create new e-book, edit and delete it.

5) Search functionality : Both users and librarian can able to search based on sections, books and author.

6) User functionalities : An user can request for a maximum of 5 books. If his/her request is granted, then the access to the book remains for requested number of days and the users can return it or after the requested days, the access will be automatically revoked. Users can give feedback for the book that they have read.

7) Librarian functionalities : Librarian can grant or reject access for a particular request, revoke the access manually.

8) Backend Jobs : Daily reminders are sent in mail for non-visited users, return reminders are sent for return-date approaching users and Monthly report is sent for librarian. A triggered job to export details of books, requests and books bought as CSV by librarian is also implemented.

9) Performance and caching : Caching is done to improve the performance of the application.

RECOMMENDED FUNCTIONALITIES :

1) HTML report : Well designed HTML reports are sent to librarian and HTML mails sent to user/librarian.

2) Buy e-book : A buy now functionality is included for the user so that if the book is bought, it remains accessible for the user forever.

3) Validation : Frontend and Backend validation is done

OPTIONAL FUNCTIONALITIES

1) Styling : Styling and aesthetics are done using simple CSS and Bootstrap

2) Subscription : An user can subscribe to the application for a price. If subscribed he/she can request for unlimited number of books.

3) Withdraw request : Request can be withdrawn by the user before librarian takes action on it.

4) Welcome email : A welcome email is sent to the user once he/she registers.

5) Request alert mail : When a user request for a book, an alert mail is sent to the librarian.

6) Book : View real PDFs and images of e-books

VIDEO LINK

Click on the below link for demo video.

https://drive.google.com/file/d/178-0TCK3m1PftDU7m8rONtb7dRaTcQYF/view?usp=drive_link