Library Management System (Web Application)

About Author

Name - Aaquifa Hassan

Roll No. - 22f1000192

Student Email ID - 22f1000192@ds.study.iitm.ac.in

Hello, I'm a Bachelor of Science (BS) Degree in Data Science and Applications student with a strong passion for web development, known for my determination and ability to thrive under pressure. I'm excited to contribute my skills to this project.

Description

The project aims to develop a comprehensive web application for managing library operations, catering to the needs of both librarians and readers. The focus is on creating a seamless and user-friendly experience in an online library management environment.

Technologies Used:

Flask: v2.0.1

Python: v3.8.5

Flask Extensions: Flask-SQLAlchemy, Flask-RESTful, Flask-Security

Frontend: HTML, CSS, Bootstrap

JavaScript and Vue.js (Frontend Framework)

Purpose of Technologies:

Flask : Chosen for its simplicity and flexibility in building web applications, providing a solid foundation for the project's backend.

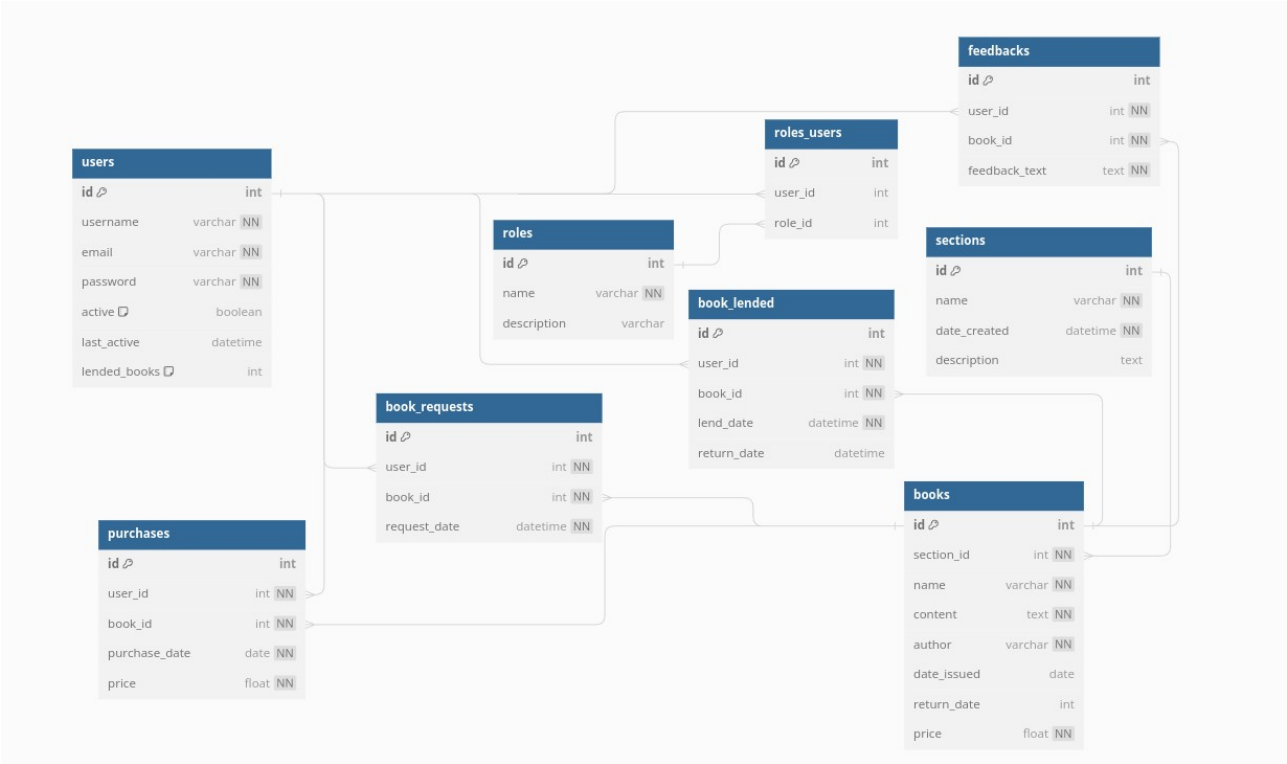
Python : Utilized as the primary programming language for its readability, extensive libraries, and compatibility with Flask.

Flask Extensions : Incorporated to add critical functionalities such as database management, RESTful APIs, and user authentication.

Frontend Technologies : HTML, CSS, and Bootstrap utilized for creating a responsive and visually appealing user interface.

JavaScript and Vue.js (Frontend Framework): Implemented dynamic and interactive user interfaces using JavaScript and Vue.js for seamless client-side interactions.

DB Schema Design



The project employs a relational database schema design to manage library operations efficiently. Key tables include User, Book, Section, BookRequest, BookLended, Feedback, Purchase, and Role, ensuring structured data management for users, books, transactions, and feedback.

API Design

The API design focuses on core functionalities, offering endpoints for user registration, authentication, book management, request handling, lending operations, feedback submission, and purchase tracking. Role-based access control ensures secure operations, distinguishing between librarian and reader roles.

Architecture and Features

The project follows a modular architecture, separating controllers, models, and templates for clarity and maintainability. Controllers handle user interactions, models manage data, and templates render views. Default features include user authentication, book browsing, request submission, lending operations, feedback submission, and purchase tracking, providing a comprehensive library management solution.

Video Link: https://drive.google.com/file/d/18J4ektyE4Pi4pPs3JbjemuHrjFP5zaSI/view?usp=sharing

Thank you