Library Management System (Web Application)

About Author:

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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:

This project involves creating a user-friendly Library Management System web application using Flask, HTML, and CSS with SQLite3 for Database management. Users can browse, search, Request and Purchase for Books. Admin functionalities allow "books" and "Section of the book" additions and deletions, streamlining application management.

Technologies used:

• **Flask**
◦ render_template
◦ redirect
◦ request
◦ url_for
◦ session

• **flask_sqlalchemy**
◦ sqlite3

• **HTML, CSS**

• **Python (3.10.12)**

These technologies are selected to build a user-friendly Library Management System web application. Flask is used for backend development, providing routing, templating, and session management. Flask-SQLAlchemy facilitates database operations via SQLite3. HTML and CSS are employed for frontend design, creating an appealing user interface, and Python (3.10.12) serves as the primary programming language for application logic.

DB Schema Design:
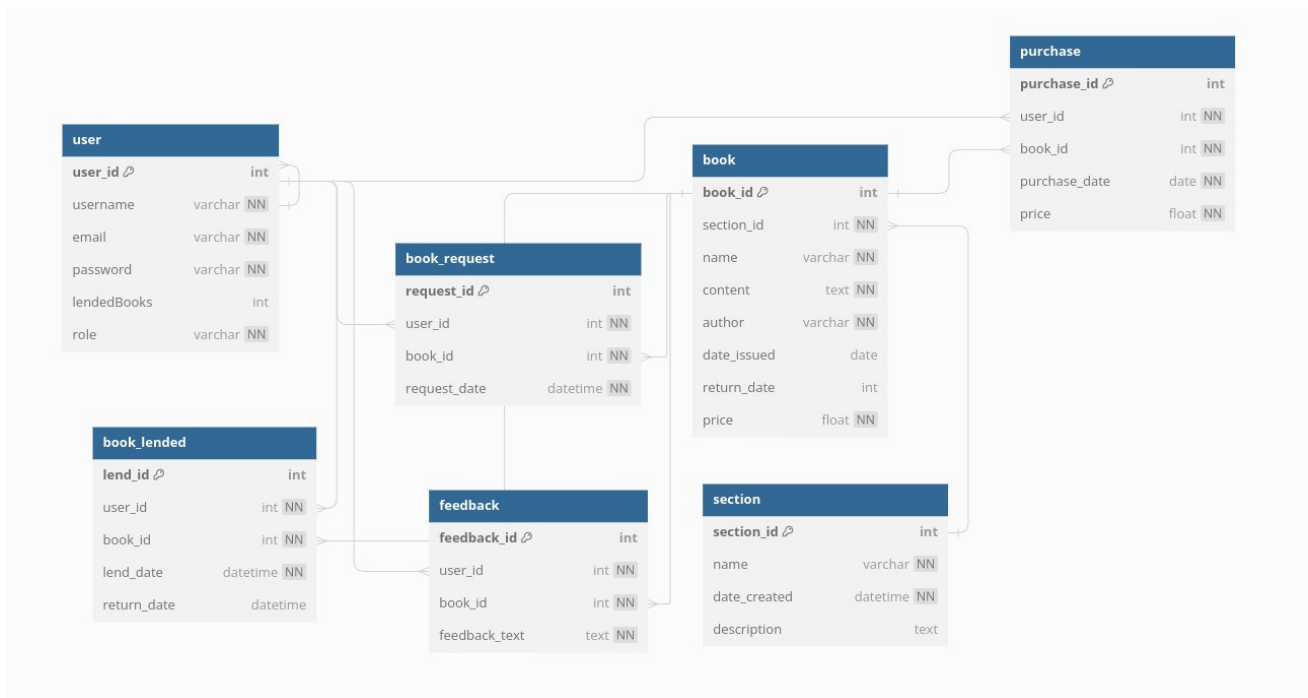
The User table is used for authorising the user to login and registering in the website. "Section" table has one to many relationship with book table because there can be multiple books associated with single Section. Same as book, Purchase, book_request and book_lended also has one to many relationship with "book" table so that the user can add multiple books to their "Purchase" and "book_request" table. "book" table consists the details of the book.

Architecture and Features:

The project is structured with clarity and organization in mind. The core logic and routing, database models are defined in the main.py file. HTML templates reside within the templates folder .Styling elements like CSS and images are neatly organized in thestatic/css directory. Data is managed using an SQLite3 database located in the instance folder, enhancing security. Additionally, a virtual environment within the env folder contains all required packages, ensuring a standardized development environment.

Users can register to the web app in a password protected way,there are different dashboards for user and admin. Admin can add book along with the Section, if needed admin can update any feature for the book and switch Section for the book, updates can be done specifically. Search option is also available for admin to search Section and Title of the book. Users can search through the Title of the book, Section of the book and price of the book and can also add the their requested and purchased book to the "book_request" and "Purchase" tables with their desired quantities. They can add multiple books among different Section. while being on "book_request" and "purchase" tables, users can cancel request. It'll show grand total at the end then users can decide to purchase the books.

Video Link: https://drive.google.com/file/d/1A6QXRGTO7h5PFzZy1d5K-_QSLY-Jw3du/view?usp=sharing

Thank you