

# Library Management System Application Report

## Author

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## Description

This project is a library management system application that allows librarians to manage the books and sections in the library. The application users can request books if the books are available and the librarian can approve the request. The application also has a feature to add new books and sections to the library. The application also has a feature to view the books and sections in the library. A RestAPI is also created for the application.

## Technologies Used

- Python: Python is used as the backend language for the application.
- HTML: The frontend of the application is created using HTML.
- CSS: Styling of the application is done using CSS.
- Bootstrap: Bootstrap is used for the frontend of the application.
- SQLite: SQLite is used as the database for the application.
- Flask
  - Flask-RESTful: Used to create the RestAPI for the application.
  - Flask-SQLAlchemy: Used to interact with the database.
  - Flask-CORS: Used to enable Cross-Origin Resource Sharing (CORS) in the application.
- Swagger: Swagger is used to document the RestAPI for the application.
- Git: Git is used for version control of the application.

## Database Schema

The database has the following tables

- `role`
  - `id`: The id of the role.
  - `name`: The name of the role.
  - `description`: The description of the role.
- `user`
  - `id`: The id of the user.
  - `name`: The name of the user.
  - `email`: The email of the user.

- password: The password of the user.
- section
  - id: The id of the section.
  - title: The name of the section.
  - date\_created: The date the section was created.
  - description: The description of the section.
  - avg\_rating: The average rating of the section.
- author
  - id: The id of the author.
  - name: The name of the author.
- book
  - id: The id of the book.
  - title: The name of the book.
  - content\_link: The link to the pdf of the book.
  - description: The description of the book.
  - bookcover\_link: The link to the cover image of the book.
  - section\_id: The id of the section to which the book belongs.
  - author: The author(s) of the book.
  - available: The availability of the book. A boolean value.
  - avg\_rating: The average rating of the book.
- book\_request
  - id: The id of the request.
  - book\_id: The id of the book requested.
  - user\_id: The id of the user who requested the book.
  - date\_requested: The date the book was requested.
  - issued: The approval status of the request. A boolean value.
  - date\_issued: The date the book was issued.
  - date\_due: The date the book is due to be returned - 7 days from the date of issue.
  - auto\_return\_timestamp: The timestamp at which the book is automatically returned if not returned by the user.
- reading\_history
  - id: The id of the reading history.
  - book\_id: The id of the book read.
  - user\_id: The id of the user who read the book.
  - date\_issued: The date the book was issued.
  - date\_returned: The date the book was returned.
- book\_rating
  - id: The id of the rating.
  - book\_id: The id of the book rated.
  - user\_id: The id of the user who rated the book.
  - rating: The rating given by the user.
- books\_bought

- `id`: The id of the book-author relationship.
- `user_id`: The id of the user who bought the book.
- `book_id`: The id of the book.

## Architecture and Features

The application has the following features

- User Management
  - User Registration
  - User Login
  - User Logout
  - User Profile
  - User Role Management
- Section Management
  - Add Section
  - View Sections
- Book Management
  - Add Book
  - View Books
  - Request Book
  - Approve Request
  - View Requests
- Book Rating
  - Rate Book
- Reading History
  - View Reading History

## Video Demo

The video demo of the application can be found in the following link: [Library Management System Application](#)