# Project Report

# Library Management System V2

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Myself Kanishkar K im currently pursuing 4th year BTech.Computer Science (Cybersecurity & Blockchain Tech) at SASTRA University,Thanjavur. I am passionate towards Animation and Game dev have some experience in those fields, Working as an AR/VR developer at ROCHE India.

Introduction
This is a multi-user web application for a Library Management System in which we can store Books, fetch and request them. This has multiple user roles management using JWT, like Librarian and User each having a different set of access controls.

Technologies used
Flask- Backend, Vue.js- Frontend, SQLite-Database, Flask_jwt- Authorization (Admin, Librarian, User), Werkzeug- Password security, Flask_cache- Caching using Redis, Celery- For batch Jobs, Bootstrap- UI, chart.js- Charts, Axios-  HTTP requests.

DB Schema Design
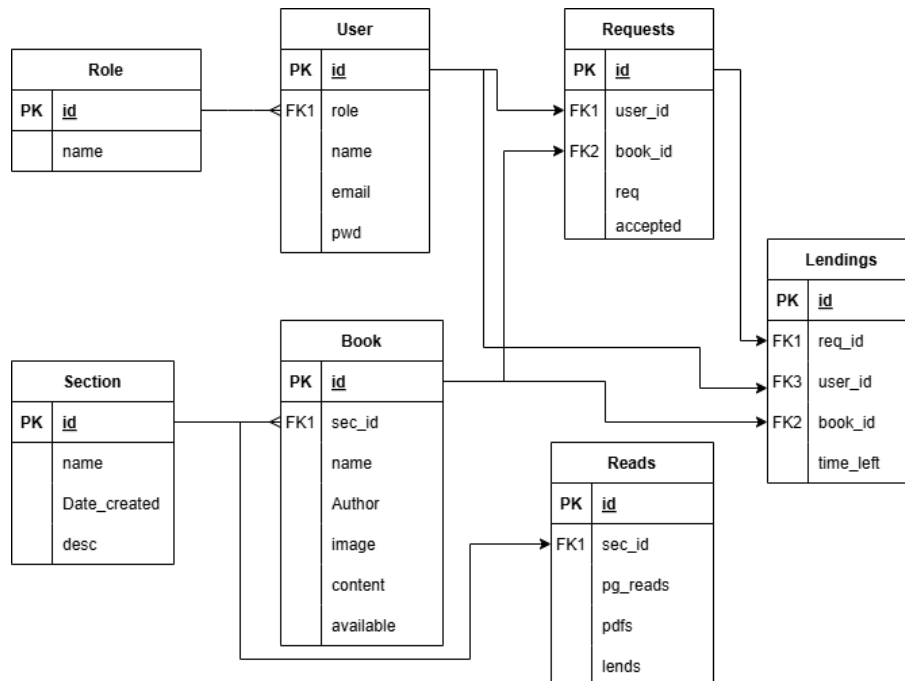


1. **Role**: Defines user roles with unique IDs and names.
2. **User**: Stores user details including name, email, password, and their role.
3. **Section**: Represents sections with names, descriptions, and creation dates.
4. **Book**: Manages books with attributes such as name, author, availability, images and content.

5. **Requests**: Tracks requests for books by users, linking users and books, and indicating whether requests are accepted by the Librarian.
6. **Lendings**: Records book lendings to users, linking to requests and tracking return times on time.
7. **Reads**: Captures reading statistics by users, including reads, pages read, PDFs requests, and books lends, used to achieve Chart for the application.

API Design

This uses API for CRUD operations on Books, Sections. To allow the Librarian to change the details after initializing them. Books or Sections can be Created by Librarians, Books can be added to a section. Retrieval of the Books and Sections is accessible by all ( ie- User and librarian), Updating the details will lead to removal of request or Lendings of that particular item from all users to avoid any discrepancy, Delete can be called by Librarian on Book or Section Leading to deletion of Such book, its request and Lending.

Architecture and Features

The project starts off with a simple Login portal through which both users and Librarian can login, to create a user, user should navigate to register and create a user, Librarian cannot be created.
Once in It takes to the user Home page, where all the books lent will be shown, from there user can search book based on name of the book, Author, or section name.
Users can read any book online or request to own them for a week at max. And will be returned once the time ends.
Librarians have power to revoke these lended books.
User can even request for a PDF of the book and the Librarian has to approve or deny it, which will be sent via mail.
Librarians can create a section by navigating to add_section, by entering the needed details.
They can create Books and assign them to sections, through the add_book.
Librarians can Monitor the Lendings by navigating to the specified url and can revoke the lendings if they want to.
Librarians have a request tab where they can view all requests to lend a book or request from PDF and approve them or Deny them.

Features:
CRUD for Section and Books.
Forgot password mail OTP to regain access to the account.
Mail for PDf request which will be sent as an attachment.
Request abd revoke for Books.
Chart to showcase the sales and user interaction.

Video

The video explains the working and features in the project:

https://drive.google.com/file/d/1zI8Bor0BFeD29o2tY-LxOP2UIhBsHcc1/view?usp=sharing