

City Library Management System - Project Documentation

Student Name

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Language

Python

Frameworks

Streamlit, Flask, SQLite, Swagger (Flasgger)

Project Type

Full Stack Python App (Database + Web UI + API)

Project Overview

The City Library Management System is a Python-based full-stack application that allows users to manage books, register members, borrow/return books, view reports, and access Swagger APIs.

Technologies Used

Frontend: Streamlit

Backend: Flask + SQLite

API Docs: Swagger (Flasgger)

Visualization: Matplotlib, Pandas

Folder Structure

db/library.db - Database

library_core_oops.py - Core OOP logic

library_db.py - DB Helper

library_app_oops.py - Streamlit UI

library_api.py - Flask API

requirements.txt - Dependencies

Features Implemented

Add/View/Delete Books

Register Members

Borrow/Return Books

Dashboard and Reports

DB Debug Panel

Swagger REST API

How to Run

1. Run Streamlit: `streamlit run library_app_oops.py`
2. Run API: `python library_api.py`
3. URLs:
 - Streamlit: `http://localhost:8501`
 - Swagger: `http://localhost:5000/apidocs`

Database Tables

`books(id, title, author, genre, available, borrower)`

`members(id, name, age, contact_info)`

`borrowed_books(id, book_id, member_id, borrow_date, return_date)`

Future Enhancements

Add JWT Authentication

Export Reports as Excel/PDF

Email Notifications

Cloud Deployment

Conclusion

This project demonstrates practical understanding of full-stack Python using Streamlit, Flask, and SQLite with API documentation via Swagger.