

Library Management System

Problem definition

Modern Application Development - I

Frameworks to be used

- Flask for application code
- Jinja2 templates + Bootstrap for HTML generation and styling
- SQLite for data storage
- All demos should be possible on your local machine using any local IDE and should not require setting up new servers for database and frontend management

Library Management System

- It is a multi-user app (one required librarian and other general users/students)
- Used for issuing e-books to users
- User can request, read, return e-books
- Librarian can add new sections/e-books, issue/revoke access for a book.
- Each Section may have
 - ID
 - Name
 - Date created
 - Description
- Each book will have
 - ID
 - Name
 - Content
 - Author(s)
 - Date issued
 - Return date.
- Every section can have a number of books
- System will automatically show recently added sections/books or based on certain rating

Terminology

- Sections
- User, Librarian = Admin
- e-Book, content
- Policies*

Similar Products in the Market:

1. [Amazon - e-books](#)

- Web, IOS and Android

2. [Book Depository](#)

- Web, IOS and Android

Refer to the wireframe given below;
[Library Management](#)

- These are meant for exploring the idea and inspiration
- Don't copy, get inspired

Core Functionality

- This will be graded
- Base requirements:
 - Librarian's Dashboard
 - General User Profile
 - Section Management
 - Book Management
 - Search functionality for section/e-books

Core - Librarian and User Login

- Form for username and password for user
- Separate form for librarian login for simplicity
- You can either use a proper login framework, or just use a simple HTML form with username and password - we are not concerned with how secure the login or the app is.
- Suitable model for user (Model that stores the type of users and differentiates them correctly based on their role)

Core - General User functionalities

- Login/Register
- View all the existing Sections/e-books
- Request/Return Books (content)
- A user can request for a maximum of 5 e-books
- A user can access a book for a specific period of time (say N hours/days/weeks).
 - For e.g. if $N = 7$ days, user can return a book before 7 days. If he/she fails to do so, the access for that will be automatically revoked after 7 days.
- User can give feedback for an e-book

Core - Librarian functionalities

- Issue one or multiple e-book(s) to a user
- Revoke access for one or multiple e-book(s) from a user
 - Storage should handle multiple languages - usually UTF-8 encoding is sufficient for this
- Edit an existing section/e-book
 - Change content, author name, no. of pages/volume etc.
- Remove an existing section/e-book
- Assign a book to a particular section
- A librarian can monitor current status of each e-book and the user it is issued to
- Available e-books in the Library

Core - Search for e-books/sections

- Ability to search for a particular section.
- Ability to search e-books based on section, author etc.

Recommended (graded)

- Download e-books as PDF for a price
- APIs for interaction with sections and books
 - CRUD on e-books/sections
 - Additional APIs for getting the creating graphs for librarian dashboard
- Validation
 - All form inputs fields - text, numbers, dates etc. with suitable messages
 - Backend validation before storing / selecting from database

Optional

- Styling and Aesthetics
- Proper login system
- Subscriptions or paid versions of the app, become author etc
- Ability of app to read books for a user (text-to-speech)

Evaluation

- Report (not more than 2 pages) describing models and overall system design
 - Include as PDF inside submission folder
- All code to be submitted on portal
- A brief (2-3 minute) video explaining how you approached the problem, what you have implemented, and any extra features
 - This will be viewed during or before the viva, so should be a clear explanation of your work
- Viva: after the video explanation, you are required to give a demo of your work, and answer any questions
 - This includes making changes as requested and running the code for a live demo
 - Other questions that may be unrelated to the project itself but are relevant for the course

Instructions

- This is a live document and will be updated with more details and FAQs (possibly including suggested wireframes, but not specific implementation details) as we proceed.
- We will freeze the problem statement on or before 7th January, beyond which any modifications to the statement will be communicated via proper announcements.
- The project has to be submitted as a single zip file.