Hackathon Documentation: Library Management System for College

# By:- Boring Asylum

# Project Overview

Our project for the hackathon is to develop a Library Management System for a IIT Dharwad. This system will facilitate book management, user management, book recommendations, Administration Control, Interactive search bar including filters and other essential functionalities to streamline library operations.

# Tech Stack

Here is the list of technologies, frameworks, and languages we are planning to use for this project:

## Frontend:

**• HTML5  
• CSS3  
• Bootstrap 5  
• JavaScript**

## Backend:

**• Flask (Python)**

## Database:

**• MongoDB**

## Machine Learning:

* **Pandas**
* **Numpy**
* **Matplotlib**
* **Scikit-learn (for developing the recommender system)**

# Roadmap

## Week 1: Project Setup and Initial Development

**Day 1-2:**- Team meeting to discuss project scope and assign roles.  
- Set up Git repository and project structure.  
- Collecting information about initial setup of Flask backend and MongoDB connection.  
**Day 3-4:**- Design basic frontend using HTML, CSS, and Bootstrap.  
**Day 5-7:**

- Implement user authentication login pages for student and admin using HTML, CSS, and Javascript.

- Login page implemented by Samarth & Prabhanshu.

-Prepare Documentation (user guide, developer guide).

## Week 2: Core Functionality Development

**Day 1-3:**-Landing page for student is also developed by Samarth

- Landing page for admin developed by Prabhanshu  
**Day 4-5:**- Develop user management functionality (view profile, update details).  
- Set up Flask routes and integrate frontend with backend for book management.  
**Day 6-7:  
-** Integrate basic search functionality for books.

## Week 3: Recommender System and Additional Features

**Day 1-3:**- Develop the recommender system using Scikit-learn.  
- Integrate recommender system with Flask backend.  
**Day 4-5:**- Implement frontend UI for displaying recommended books to users.  
**Day 6-7:**- Testing and bug fixing for recommender system and overall functionality.

-Rest of thing also added to database and remaining backend will done

## Week 4: Testing, Optimization, and Final Touches

**Day 1-2:**- Conduct thorough testing of all functionalities.  
- Optimize code and database queries for better performance.  
**Day 3-5:**  
- Finalize UI design and ensure responsiveness.

# Team Assignments

## Frontend Development

**Prabhanshu & Samarth:** HTML, CSS, Bootstrap - Responsible for designing and implementing the UI.  
**Samarth & Prabhanshu:** JavaScript - Handles client-side scripting and integrates with backend APIs.

## Backend Development

**Sachin & Samarth:** Flask, MongoDB - Develops the core backend functionalities, database schema, and integration.  
**Sachin & Samarth:** User authentication and API development - Focuses on secure user management and API endpoints.

## Machine Learning

**Sachin:** Recommender System - Develops and integrates the ML algorithm for book recommendations.

## Overall Coordinator

**Smarth: I**deas were coordinated by Samarth Chitinis.

# Conclusion

This documentation outlines our project plan, including the tech stack, roadmap, and team assignments for developing a Library Management System for a college during the hackathon. We aim to follow this plan closely to ensure timely and successful completion of the project.