TITLE:

SMARTLIB

SUB TITLE:

Simplifying library operations and enhancing the user experience through a user-friendly online platform.

TEAM MEMBERS:

Y PAVAN KUMAR	**22EG105N35**
PUJARI BASAVARAJ	**22EG105N44**
T VENKATESHWAR REDDY	**22EG105N55**
TUMMEPALLI LOKESH	**22EG105N57**

CONTENTS

1.Introduction

1.1 Background

Library management systems traces back to the late 20th century with the advent of computer technology. Before the digital era, libraries relied on manual systems for cataloging, circulation, and inventory management. However, with the increasing volume of information and the need for more efficient management, libraries began adopting computerized systems.

Library management system is a project which aims in developing a computerized system to maintain all the daily work of library. This project has many features which are generally not available in normal library management systems like facility of user login. Manual process of keeping student records, book records, account details, managing employee is very difficult. There are various problems also faced by the student in library such as finding any particular book, information whether book is available or not, searching of books using ISBN number etc. To eliminate this manual system, library management system has been developed.

Library Management System will handle all the current issues faced by the students and by its admin personnel.It has a facility of admin login through which the admin can monitor the whole system. It has a facility where student after logging in their accounts can see list of books issued and its issue date and return date .

1.2 Objectives

From a design thinking perspective, the objective of a library management system website is to create a user-centered solution that addresses the needs and pain points of both library staff and patrons. This involves understanding the user experience at every stage, from searching for resources to borrowing and returning items, and designing intuitive interfaces and workflows to enhance usability and satisfaction. Additionally, the design should prioritize accessibility, ensuring that the website is inclusive and usable for all users, regardless of their abilities or technological proficiency. By incorporating feedback from stakeholders and iterative testing, the design can evolve to better meet the evolving needs of the library community.

2.Problem Statement

2.1 Description:

Libraries face challenges in managing book inventories, user checkouts, and returns. A traditional manual system is inefficient, often resulting in errors, delays, and user dissatisfaction. There is a need for an online platform to automate these processes and provide a user-friendly interface.

2.2 Context:

With increasing digital transformation, libraries must modernize their systems to improve user experience, reduce administrative work, and make borrowing and returning books more efficient. Traditional systems fail to meet current user expectations, especially with the increasing demand for online services.

3. Research & Empathy User Insights:

- Library staff highlighted the need for a streamlined interface to manage books and user data.
- Students expressed frustration with the lack of an easy way to check book availability online.
- Users found it challenging to track due dates and fines with existing manual systems.

Say: "I can never find what I need quickly"; "It's hard to track which books I have borrowed."
Think: "There must be a more efficient way to do this."
Feel: Frustrated when unable to locate books or facing overdue fines.
Do: Visit the library in person to check for book availability, write down due dates manually.

4.Define Phase

4.1 Point of View (POV):

Users need a simplified and efficient way to search for books, manage borrowing, and receive timely reminders about due dates, while library staff require a tool that automates inventory management and administrative tasks.

4.2 Problem Statement:

How can we design an online platform that reduces the manual workload for library staff and improves the borrowing experience for users?

5.Ideate Phase

5.1 Brainstorming Process:

- Conducted brainstorming sessions with library staff, students, and frequent library users.
- Used methods such as mind mapping and user journey mapping to generate ideas for the website's features and user interface.

5.2 Idea Highlights:

- Online catalog with a search and filter function for book availability.
- User account system for tracking borrowed books, due dates, and fines.
- Automated notifications via email or SMS for reminders about due dates and returns.
- Mobile-friendly design for on-the-go access.

5.3 Prototyping

Develop prototypes of potential features, functionalities, and user interfaces for SmartLIB using low-fidelity tools such as wireframes, and paper prototypes. Iterate on these prototypes based on feedback from stakeholders and usability testing.

6.Prototype Phase

6.1 Low-Fidelity Prototypes

Low-Fidelity Prototypes for SmartLIB are given below:

- Sketch a basic search interface allowing users to search for library materials by title, author, or keyword.
- Design a book details page showing essential information like title, author, and availability status, with options for borrowing or reserving.
- Create a patron dashboard displaying account information, checked-out items, fines, and account settings.
- Draft a circulation desk interface for librarians to manage check-ins, check-outs, renewals, and holds.
- Develop an admin dashboard with key metrics, system alerts, and administrative tools for managing resources, users, and settings.

6.2 High-Fidelity Prototypes

- Craft an advanced search interface with filters and real-time suggestions.
- Design an interactive book details page with rich media and clear action buttons.
- Develop a personalized patron dashboard with borrowing history and recommendations.
- Build a customizable admin dashboard with analytics and user management tools.

6.3 User Flow Mapping

The user flow mapping for the library management system outlines clear pathways for users to search, borrow, and return books, as well as for librarians and administrators to manage resources and configurations. By detailing each step of these interactions, the system aims to streamline processes and enhance the overall user experience for both students and staff.

7.Test Phase

7.1 Performance Testing

Performance testing of the SmartLIB Involves

- Usability tests were conducted with a group of library staff and students to evaluate the website’s features.
- Gathered user feedback through surveys and observed interactions to identify usability issues.

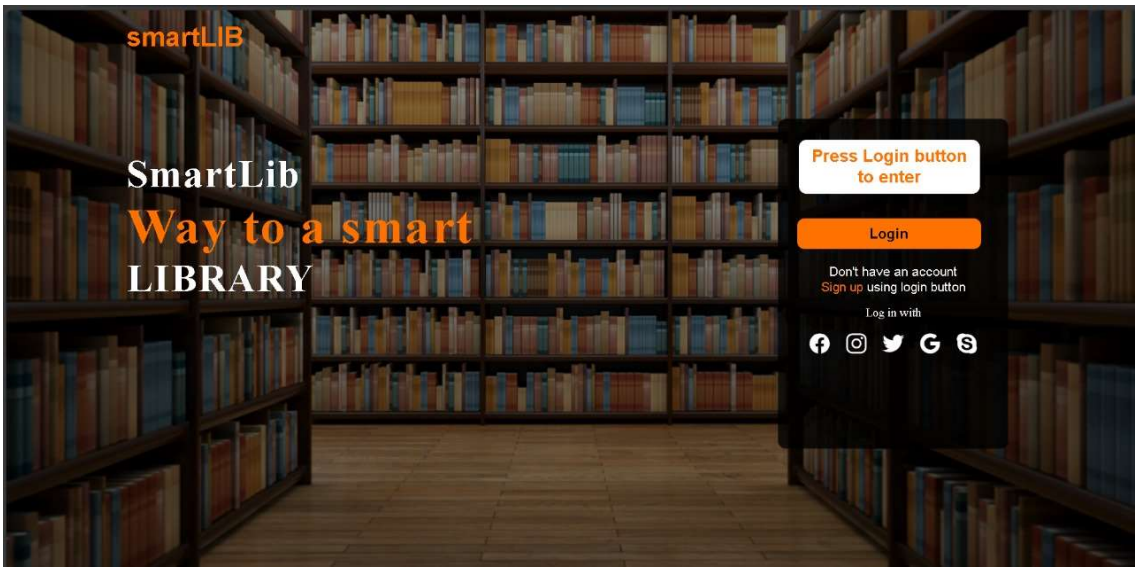
Feedback Summary:

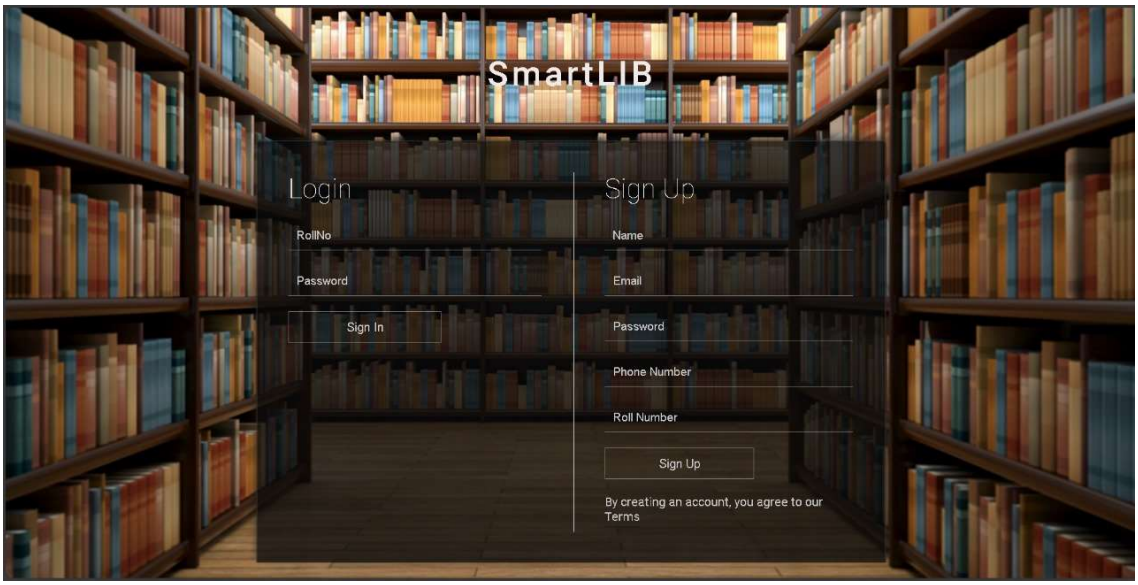
- Users appreciated the real-time book availability updates and automated notifications for due dates.
- Some users found the search feature lacking advanced filters, prompting updates to include more search options.

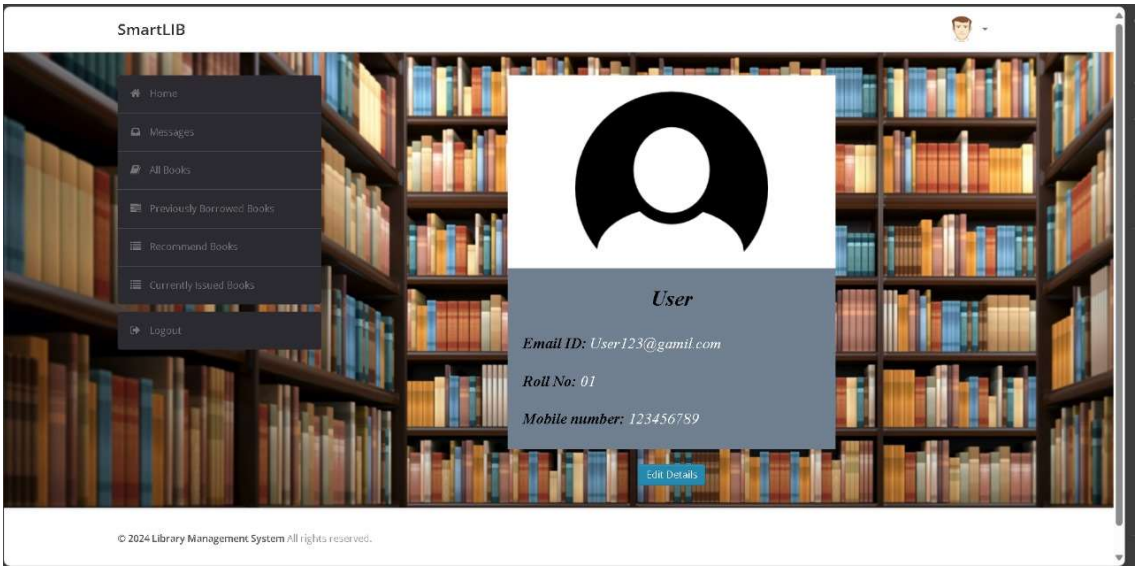
7.2 Security Testing

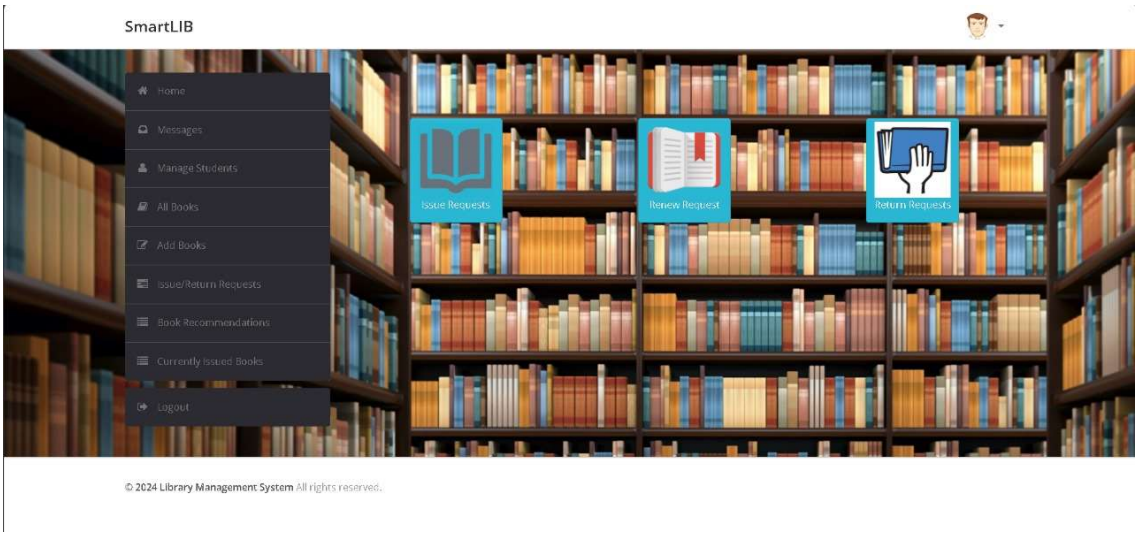
Conduct security testing to identify and mitigate potential vulnerabilities and threats to SmartLIB's data and infrastructure. Assess the platform's resilience to common security risks such as unauthorized access, data breaches, and cyber attacks, and implement security measures to protect sensitive information.

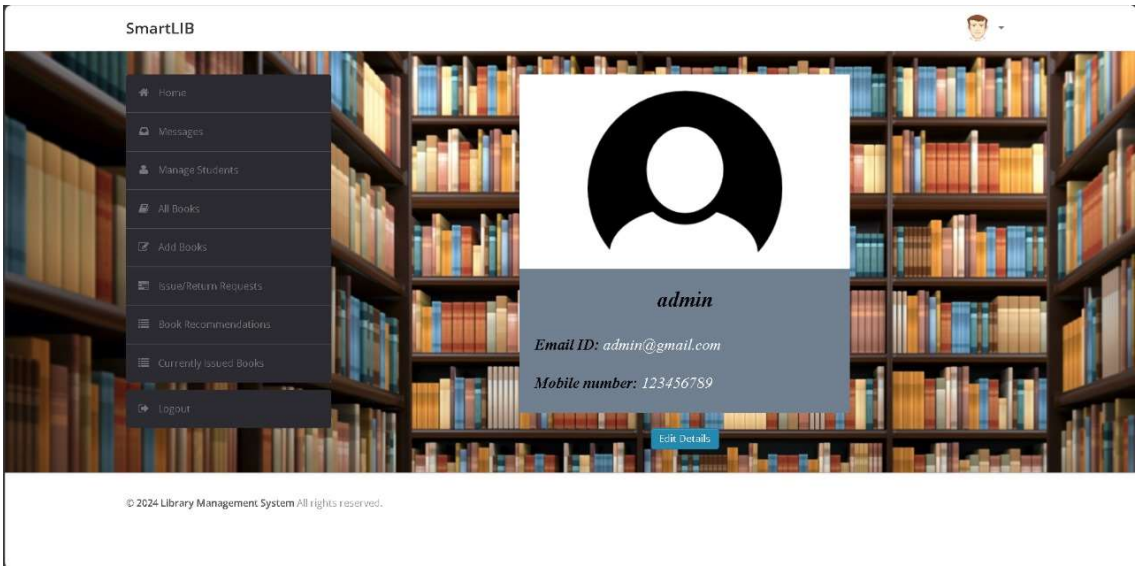
SCREENSHOTS :

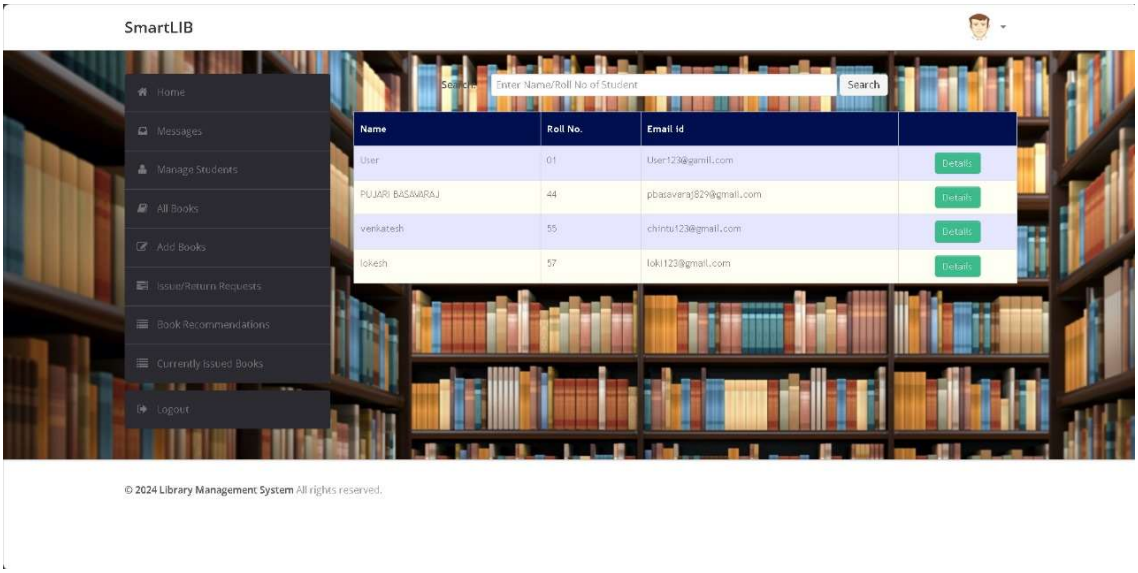


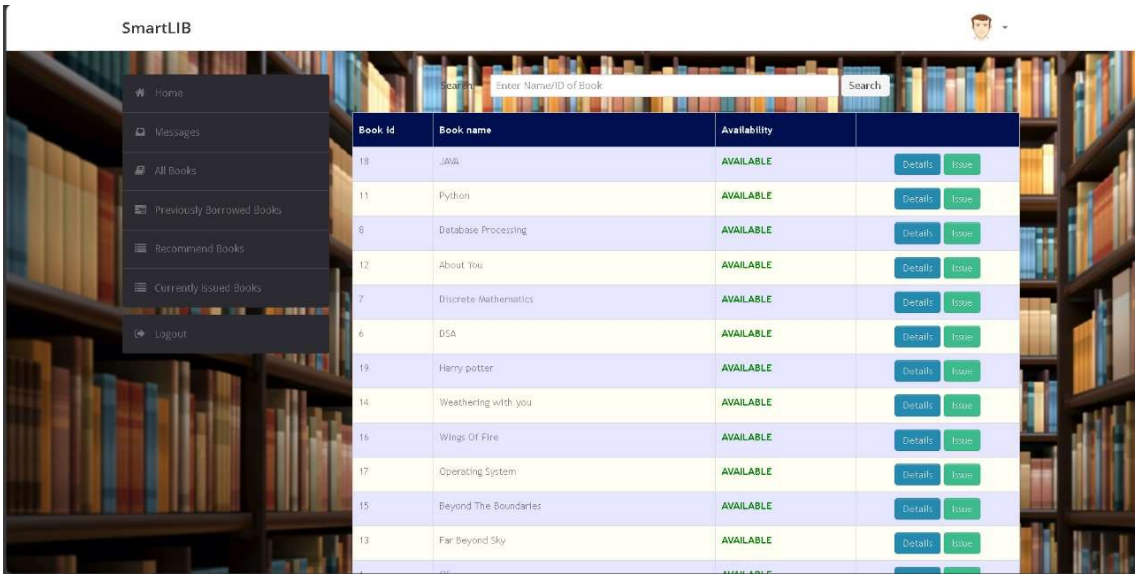


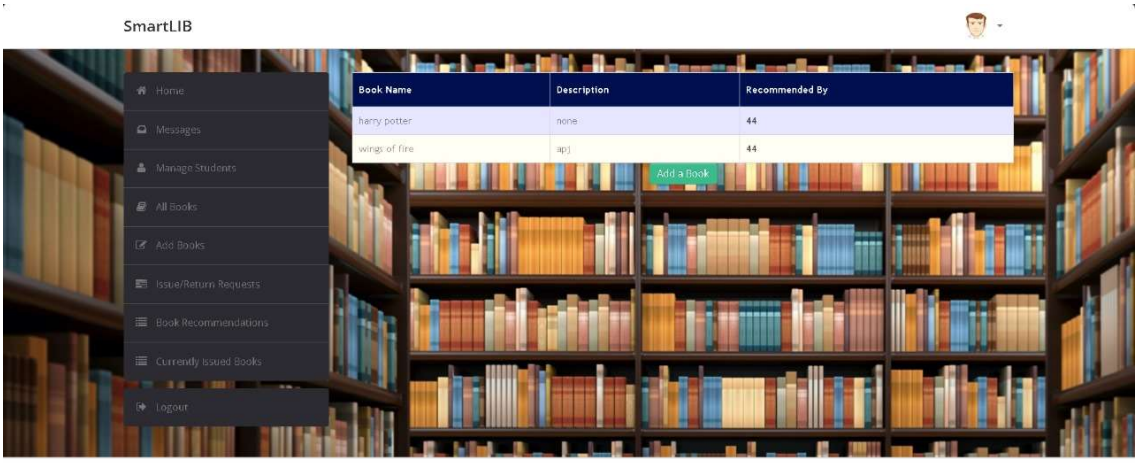

SmartLIB
Home
Messages
All Books
Previously Borrowed Books
Recommend Books
Currently Issued Books
Logout
User
Email ID: User123@gamil.com
Roll No: 01
Mobile number: 123456789
Edit Details
© 2024 Library Management System All rights reserved.

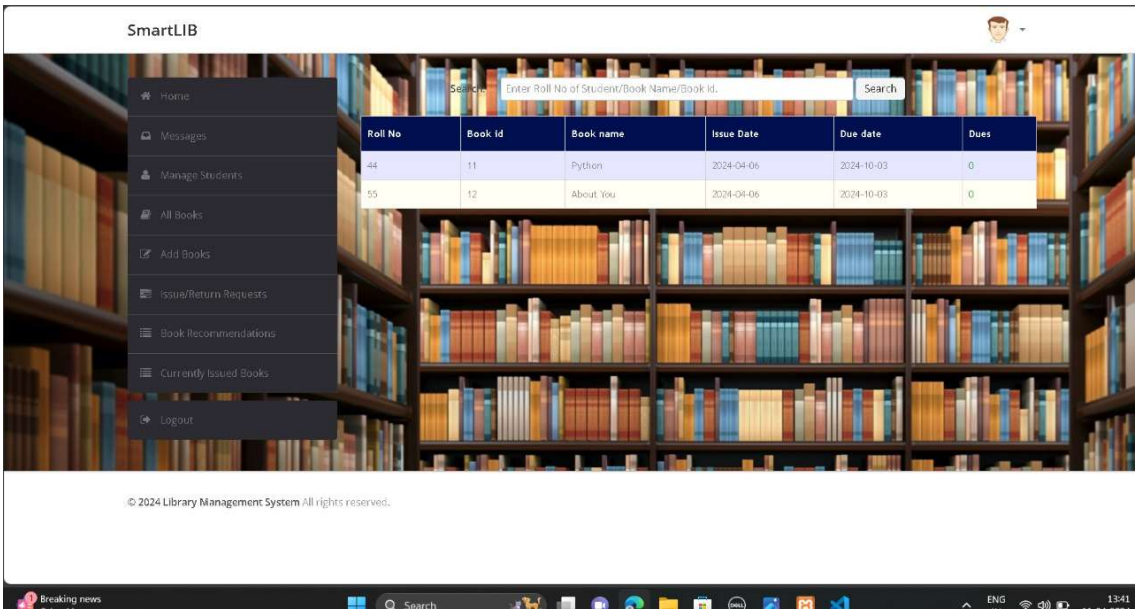

SmartLIB
Home
Messages
Manage Students
All Books
Add Books
Issue/Return Requests
Book Recommendations
Currently Issued Books
Logout
Issue Requests
Renew Request
Return Requests
© 2024 Library Management System All rights reserved.

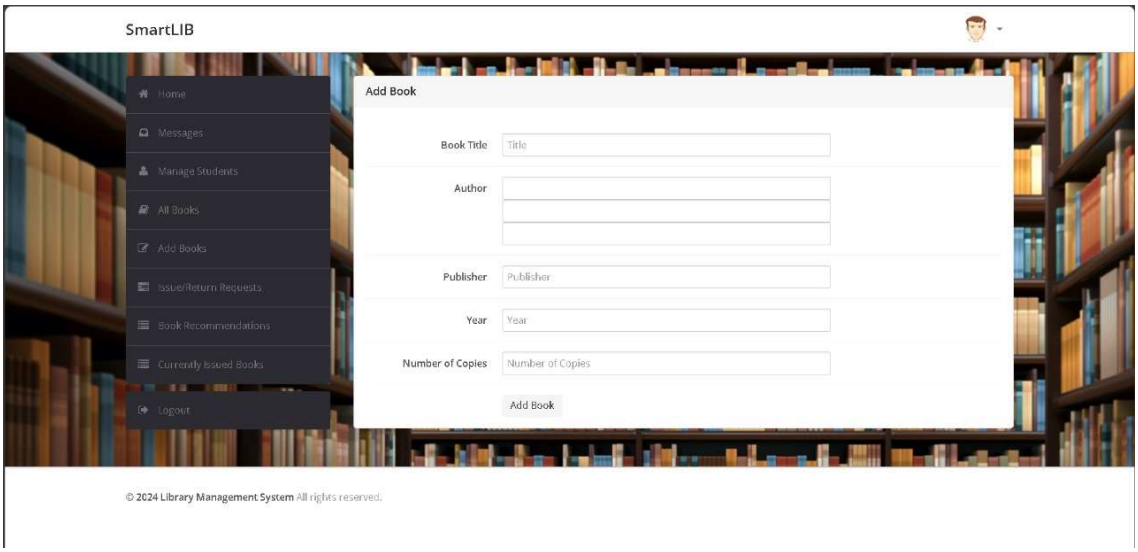

SmartLIB
Home
Messages
Manage Students
All Books
Add Books
Issue/Return Requests
Book Recommendations
Currently Issued Books
Logout
admin
Email ID: admin@gmail.com
Mobile number: 123456789
Edit Details
© 2024 Library Management System All rights reserved.

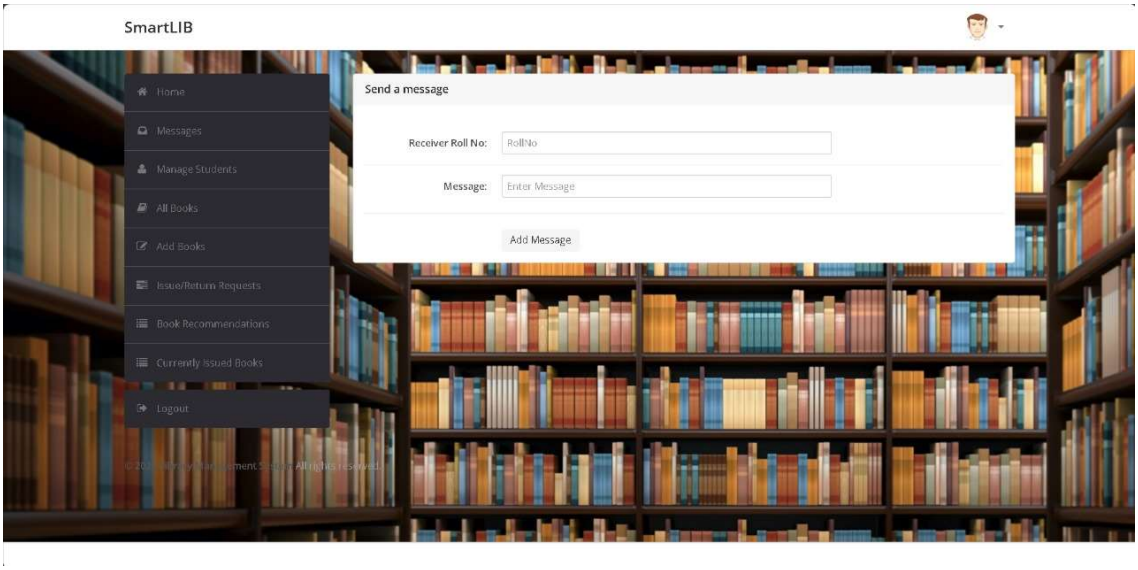

SmartLIB
Home
Messages
Manage Students
All Books
Add Books
Issue/Return Requests
Book Recommendations
Currently Issued Books
Logout
Search
Enter Name/Roll No of Student
Search
Name
Roll No.
Email id
User
01
User123@gamil.com
Details
PUJARI BASAVARAJ
44
pbasaveraj829@gmail.com
Details
venkatesh
55
chintu123@mail.com
Details
lokesh
57
lokl123@gmail.com
Details
© 2024 Library Management System All rights reserved.

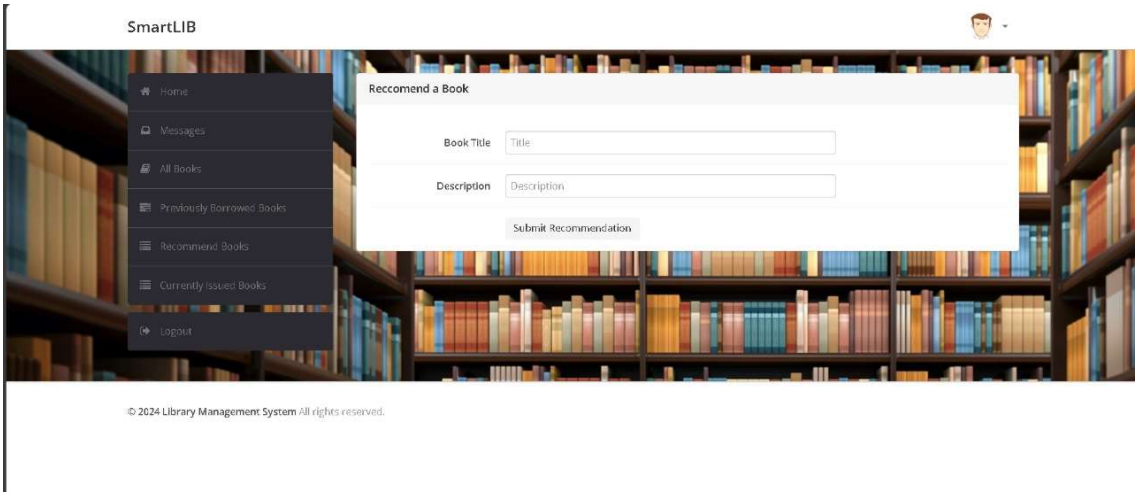





SmartLIB
Home
Messages
Manage Students
All Books
Add Books
Issue/Return Requests
Book Recommendations
Currently Issued Books
Logout
Search:
Enter Roll No of Student/Book Name/Book Id.
Search
Roll No
Book Id
Book name
Issue Date
Due date
Dues
44
11
Python
2024-04-06
2024-10-03
0
55
12
About You
2024-04-06
2024-10-03
0
© 2024 Library Management System All rights reserved.


SmartLIB
Home
Messages
Manage Students
All Books
Add Books
Issue/Return Requests
Book Recommendations
Currently Issued Books
Logout
Add Book
Book Title
Title
Author
Publisher
Publisher
Year
Year
Number of Copies
Number of Copies
Add Book
© 2024 Library Management System All rights reserved.


SmartLIB
Home
Messages
Manage Students
All Books
Add Books
Issue/Return Requests
Book Recommendations
Currently Issued Books
Logout
Send a message
Receiver Roll No:
RollNo
Message:
Enter Message
Add Message


SmartLIB
Home
Messages
All Books
Previously Borrowed Books
Recommend Books
Currently Issued Books
Logout
Reccomend a Book
Book Title
Title
Description
Description
Submit Recommendation
© 2024 Library Management System All rights reserved.

8. Final Solution

Solution Description:

The final Library Management Website includes an online catalog with real-time book availability, a user-friendly interface for managing borrowed books, and an admin dashboard for library staff to track inventory and user activities. The system also features automated notifications for due dates and overdue items.

Features:

- User-Friendly Search: Advanced filters for searching books by title, author, genre, and availability.
- Account Management: Users can log in to track borrowed books, view due dates, and request renewals.
- Admin Dashboard: Features for library staff to update inventory, generate reports, and manage user accounts.
- Automated Notifications: Reminders for approaching due dates and overdue items.

9. Reflections and Next Steps

9.1 Lessons Learned:

- Involving users in the early stages of design helped identify key pain points and improve the website's usability.
- Iterative prototyping and testing allowed for continuous improvement based on feedback.

9.2 Future Steps:

- Integrate a recommendation system to suggest books based on user preferences and borrowing history.
- Add support for e-book borrowing and digital resources.