Library Management System
Requirements and Specification Document
10/10/2023, Version - 2

Project Abstract:

This project aims to develop an advanced Library Management System (LMS) designed to streamline the efficient management of books, patrons, and loans within libraries. It is ensured that the system will remain adaptable to changing library needs by utilizing Agile methodologies. The LMS will facilitate book cataloging, patron record management, loan management with automated reminders, a user-friendly search and discovery interface, and reporting and analytics capabilities for data-driven decision-making. Ultimately, this project aims to modernize library operations by automating and enhancing various aspects of library management while ensuring flexibility and responsiveness to evolving library requirements.

Website Link:

https://prathamgarg03.github.io/Library-Management-System-CMPT-276-/adminLogin/adminLogin.html

GitHub Link:

https://github.com/prathamgarg03/Library-Management-System-CMPT-276-#library-management-system-cmpt-276-

Customer:

The primary customers of this system are librarians and library staff, who rely on the system for tasks such as book cataloging and patron management. Library patrons interact with the software to search for books, manage loans, and receive reminders for overdue items. Library administrators depend on the software for data-driven decision-making through reporting and analytics. Additionally, library vendors and book suppliers may indirectly interact with the system. Understanding the diverse needs of these customer types is critical for developing a comprehensive and user-friendly library management solution.

Competitive Analysis:

The main competitors in the Library Management System market are Koha, Evergreen, and SirsiDynix, our project differentiates itself through its Agile adaptability, automatic book retrieval from online databases, a comprehensive patron experience, and advanced search capabilities. This unique blend of features empowers libraries to efficiently adapt to evolving needs, offers a more user-friendly and informative experience, enhances resource discovery, and ultimately sets our project apart as a modern solution.

Color Code:

- Iteration 1
- Iteration 2

User Stories:

Story 1 (Admin logging into the system)

Actors Involved: Administrator - Person operating in administrative capacity (Ex. Librarians)
Precondition: Administrator is registered in the system.
Postcondition: User jumps to Admin HomePage
Iteration 1

User gets to the website using the link, and enters their login credentials, clicks the login button and jumps to the admin homepage, which displays several options such as Books Issued, Add/Remove/Modify, Manage Students, Defaulter List. (Only the Add feature has been implemented in iteration 1)

Story 2 (Admin adding a book onto the database)

Actors Involved: Administrator - Person operating in administrative capacity (Ex. Librarians)
Precondition: User is on the Admin HomePage
Postcondition: Book is added onto the table on the Webpage
Acceptance Test: A message saying 'Book Added Successfully' is displayed on the screen
Iteration 1

User clicks on the Add/Remove/Modify button on the Admin Homepage, this navigates them to another page, where they should fill out the 'Library Form' by entering the Name, Author, Publisher and Quantity of the book, in order to add the book on the existing database. After following these steps, a message saying 'Book Added Succesfully' will be displayed onto the screen and the book will be added on the table displayed on the same Webpage.

Story 3 (Student logging into the system)

Actors Involved: User - Person operating as a student.
Precondition: User is registered in the system.
Postcondition: User jumps to Student HomePage
Iteration 1

User gets to the website using the link, and clicks on the ‘Not an admin’ link to get to the student homepage and enters their login credentials, clicks the login button and jumps to the student homepage, which displays several options such as Search, Loans, Requests and Fines. (Only the Search feature has been implemented in iteration 1)

Story 4 (User searching a book in the database)

Actors Involved: User - Person operating as a student.
Precondition: User is registered in the system.
Postcondition: The book information pops up on the screen if it exists on the database.
Iteration 1

User clicks on the Search button on the Student Homepage, this navigates them to another page, where they should enter the name of the book they want to search. After following these steps, if the book exists in the database, the Name, Publisher, Author and Quantity of the book will be displayed on the screen in a table form, in case the book does not exist on the database, an error message will be displayed.

Story 5 (Admin signing up in the system)

Actors Involved: User - Person operating as a admin.
Precondition: User is on the Admin sign up page
Postcondition: The user gets registered as an admin on the system.
Acceptance Test: A success message is displayed.
Iteration 2

User fills up all the required information in the form and clicks on the sign-up button. After the sign up is successful, a message saying, "Sign Up successful. You will be redirected to the login page" will be displayed and the user will be redirected to the login page, where they can log in to the management system using their credentials.

Story 6 (Student signing up in the system)

Actors Involved: User - Person operating as a student.
Precondition: User is on the Student sign up page
Postcondition: The user gets registered as a student on the system.
Acceptance Test: A success message is displayed.
Iteration 2

User fills up all the required information in the form and clicks on the sign-up button. After the sign up is successful, a message saying, "Sign Up successful. You will be redirected to the login page" will be displayed and the user will be redirected to the login page, where they can log in to the management system using their credentials.

Story 7 (Removing a book from the system)

Actors Involved: User - Person operating as an admin.
Precondition: User is on the Add/Remove/Modify page
Postcondition: The book gets removed from the database (given it's viable).
Acceptance Test: A message is displayed depending on the request.
Iteration 2

User enters the name of the book and the quantity of how many units need to be removed, if the quantity to be removed is less than the quantity available, a message saying, "Book Removed Successfully", will be displayed and the requested function would be performed. However, in case the quantity to be removed is more than the quantity available, a message saying, "Quantity mentioned is more than the book in stock", will be displayed and nothing will be executed.

Story 8 (Loaning a book) [Partially executable]

Actors Involved: User - Person operating as a student.
Precondition: User is on the Student Search page
Postcondition: The book loaned to the student (given it's viable).
Acceptance Test: A success message is displayed.
Iteration 2

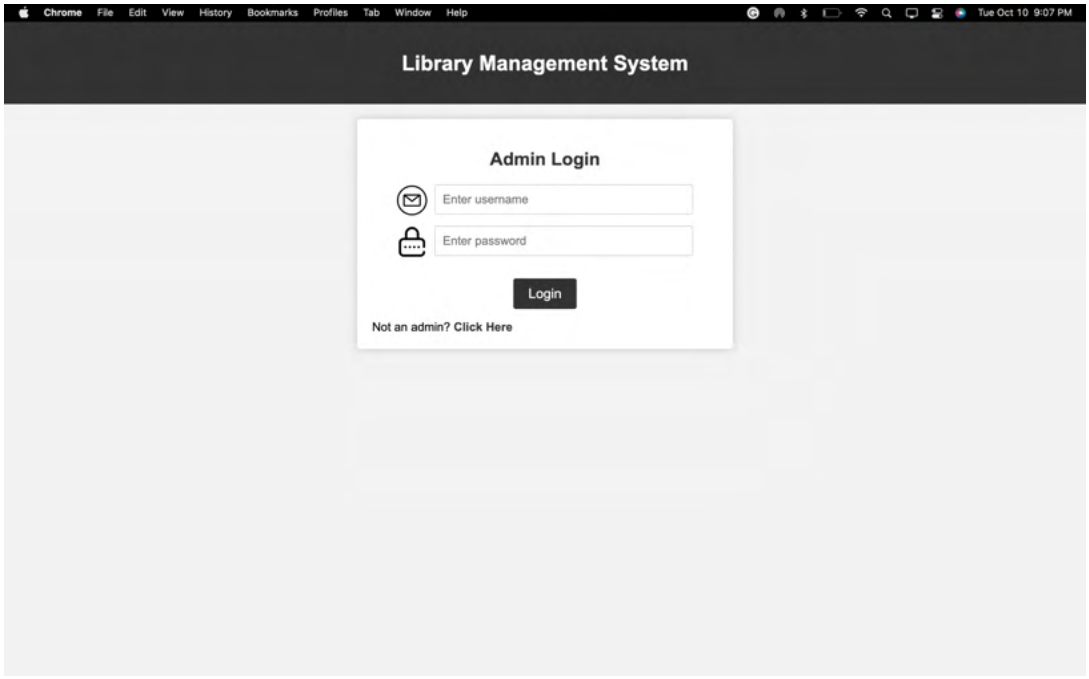
User searches the name of the book that they want to loan, after the book pops up, they can click the loan button and the book will be loaned to the student, and the quantity will be deducted by 1 from the database. A success message saying, "Book Allocated Successfully!", will be displayed.

Features to be implemented in future iterations:

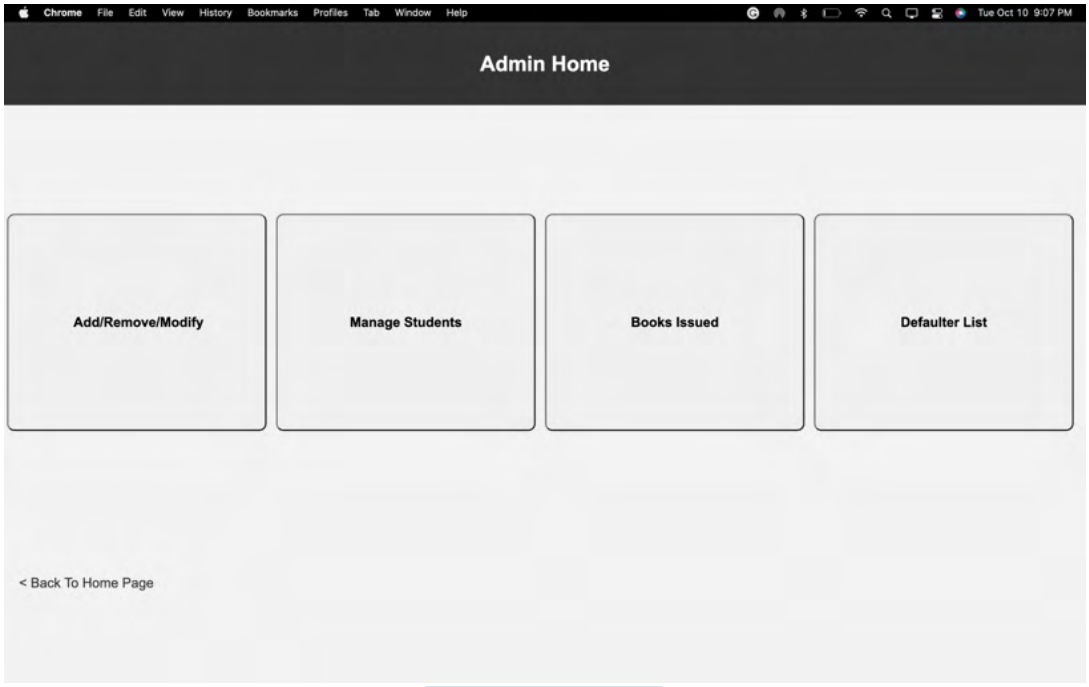
- Feature to remove and update the existing entries in the database
- Managing the loans and due dates of students
- Managing the list of books issued by the library.
- Maintaining a separate list of frequent offenders.

Note: Irrespective of the commits, all the group members contributed equally to the project by working on different pre-determined parts of the project.

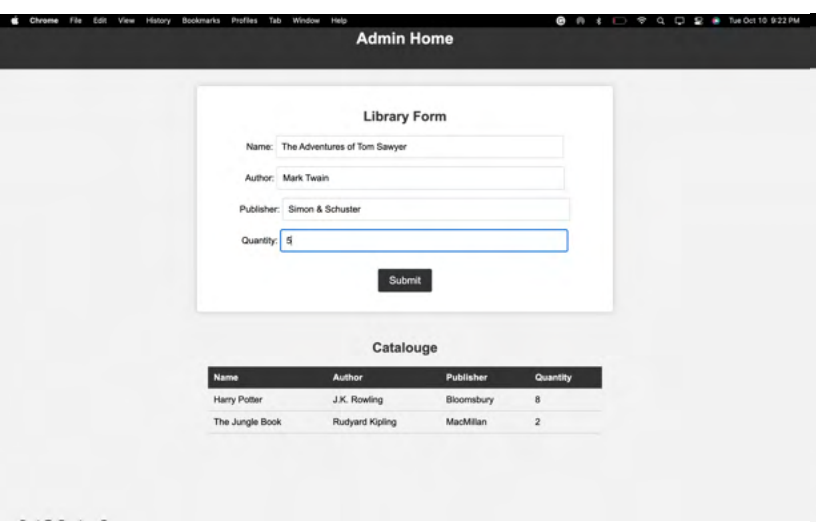
User Interface Requirements:

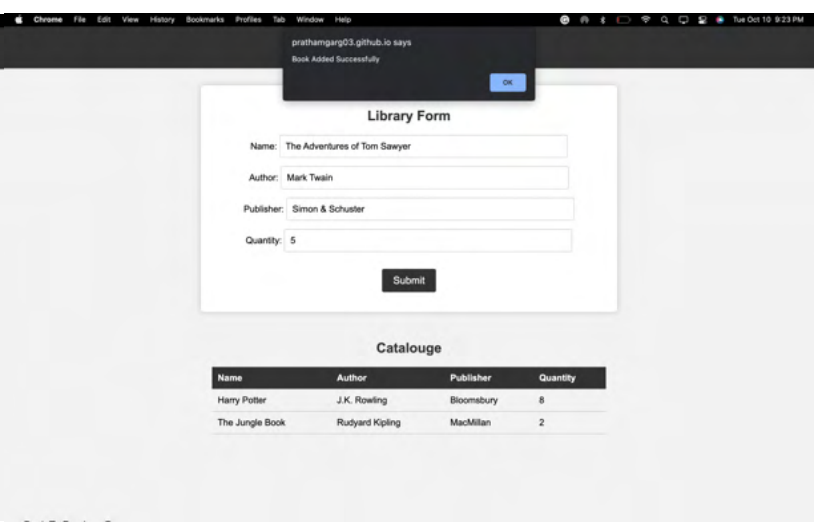


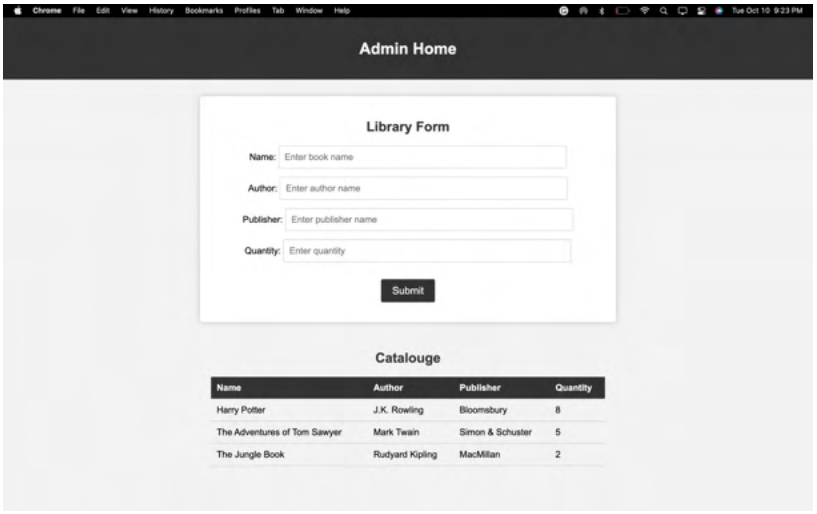
Admin Login Interface



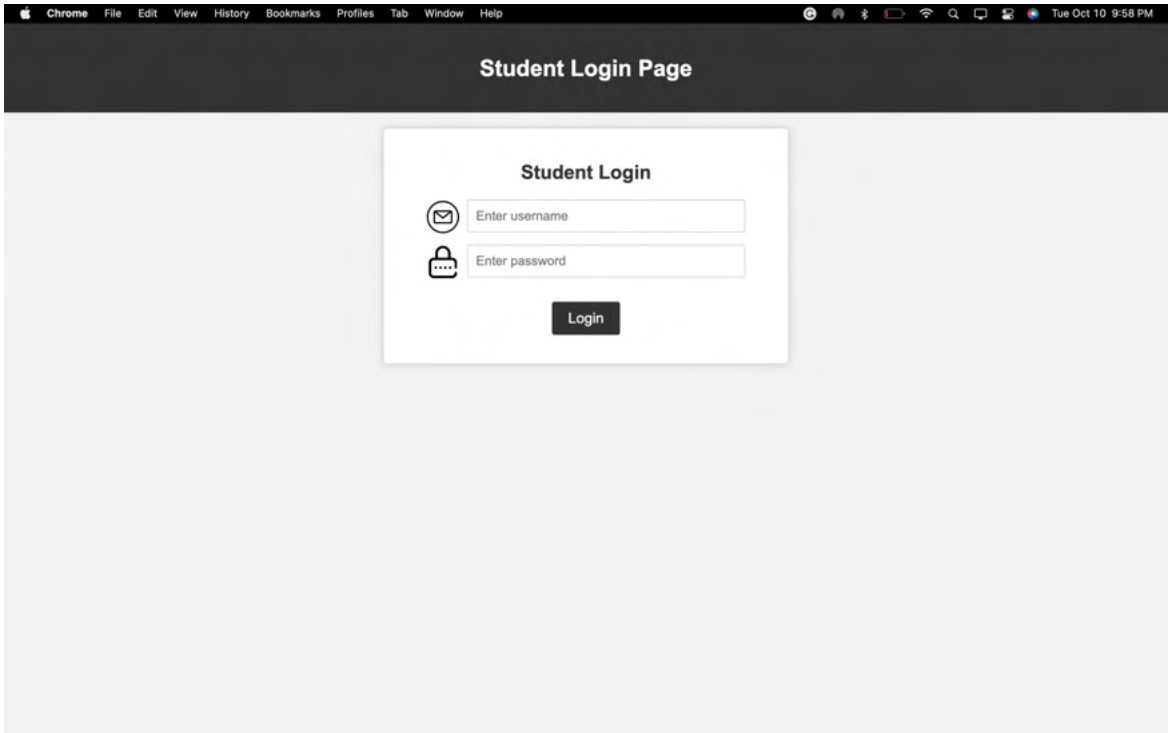
Admin Homepage



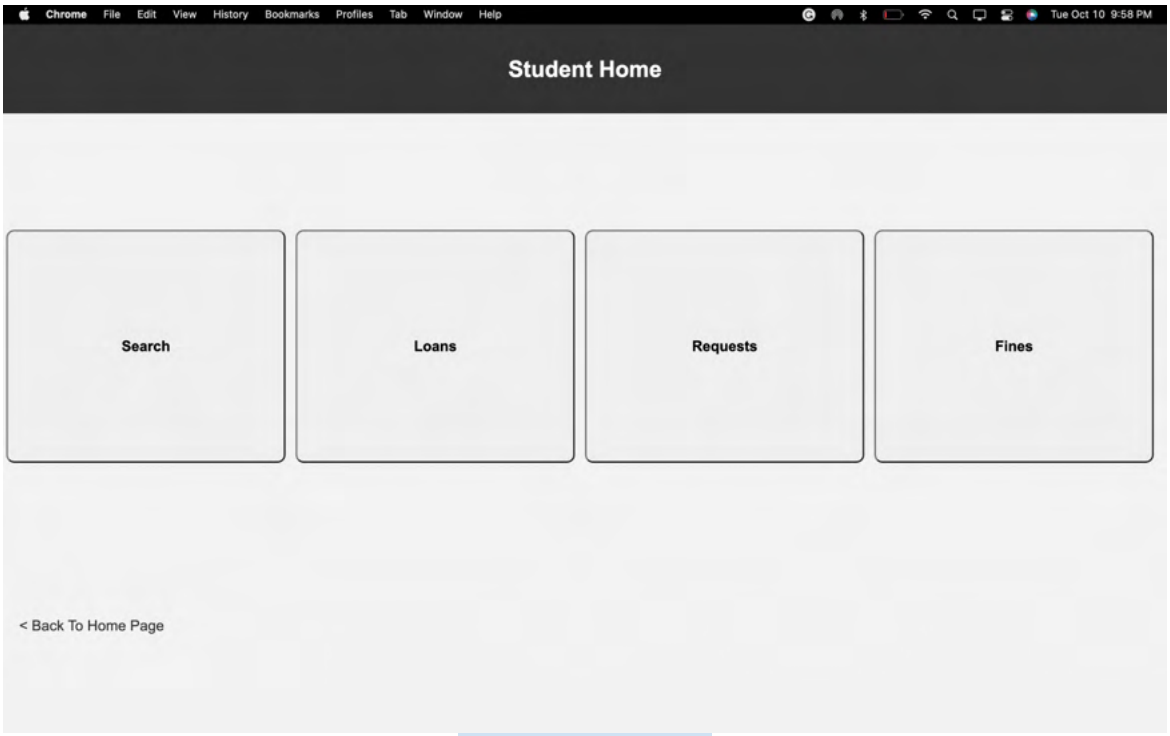




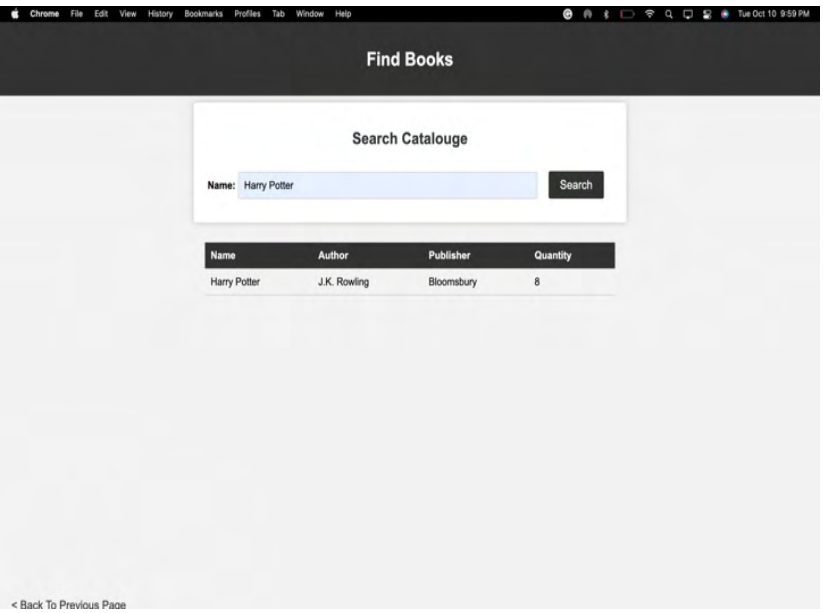
Adding a book to the database

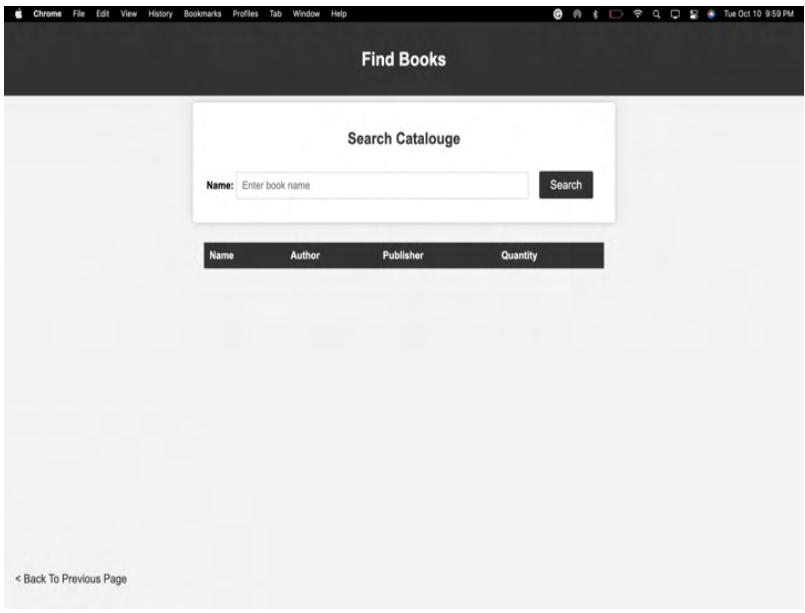


Student Login Page

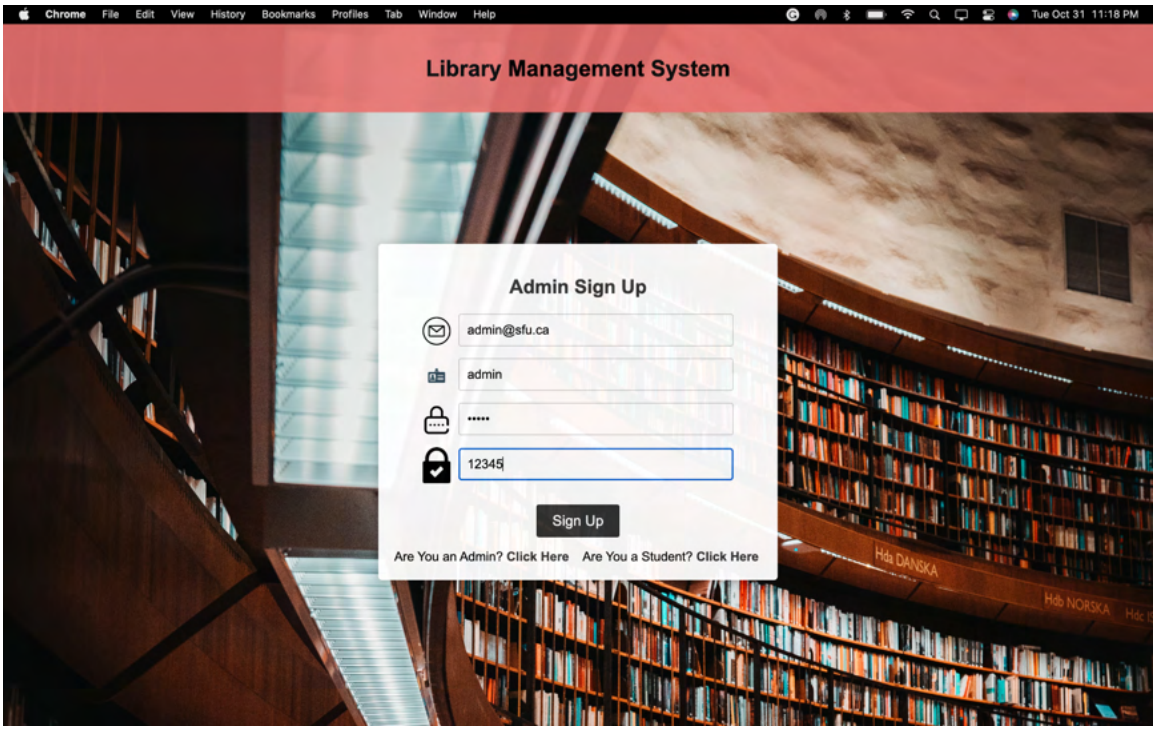


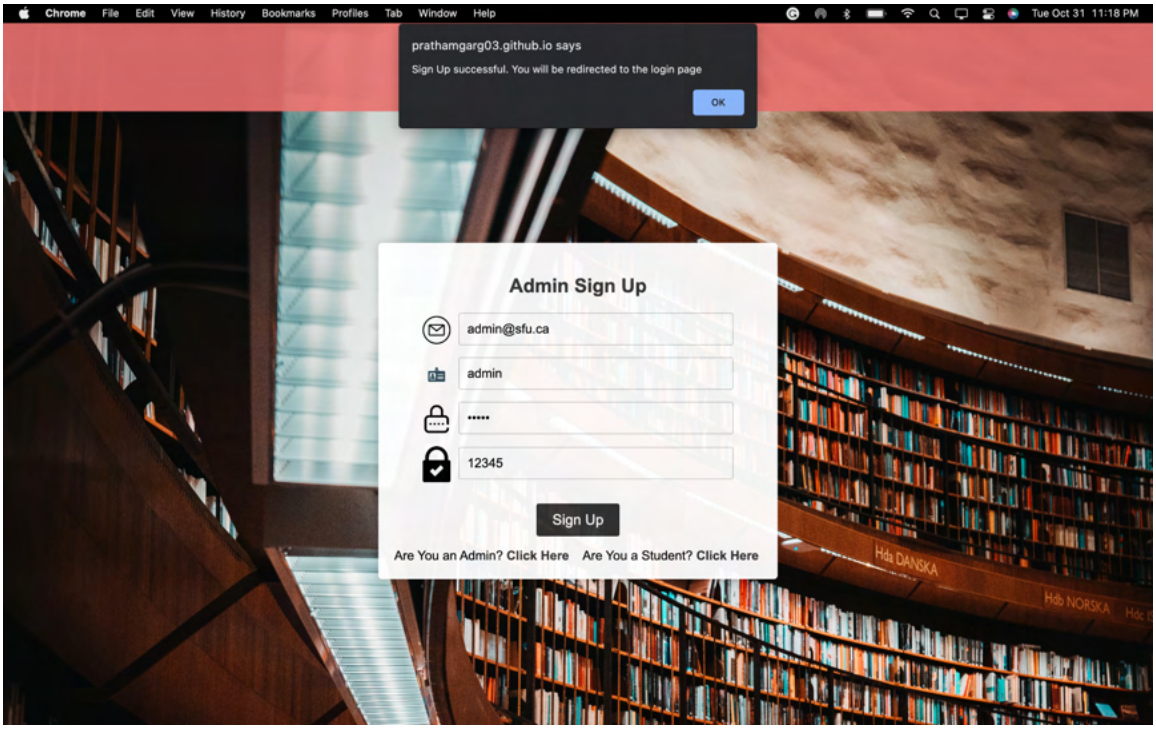
Student Home Page



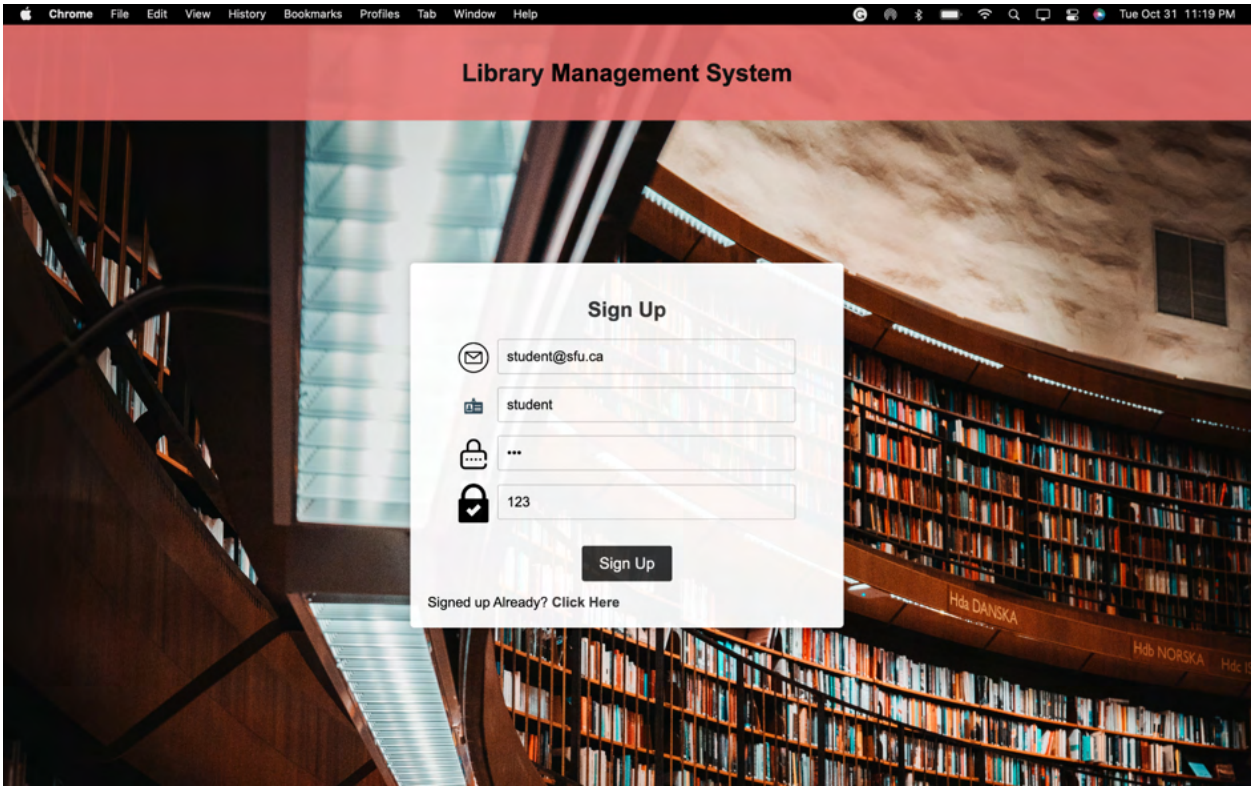


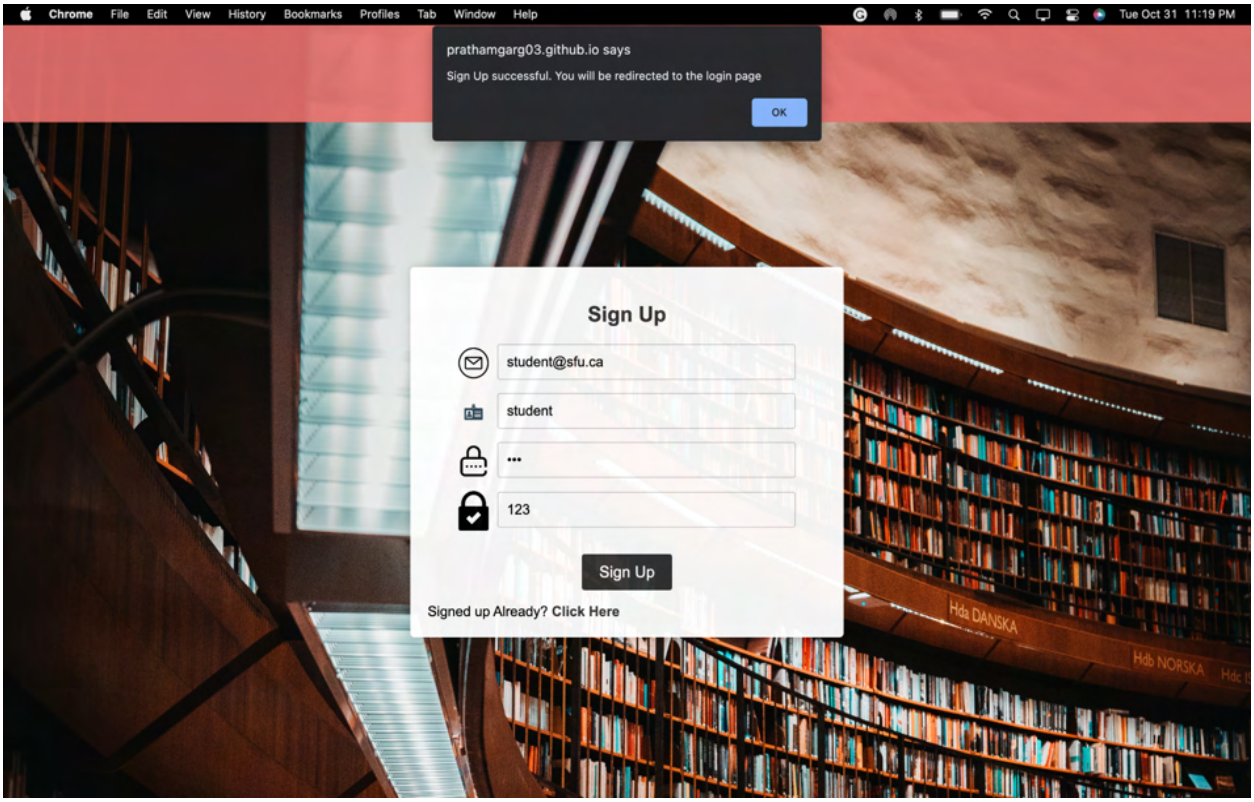
Searching a book on the Database



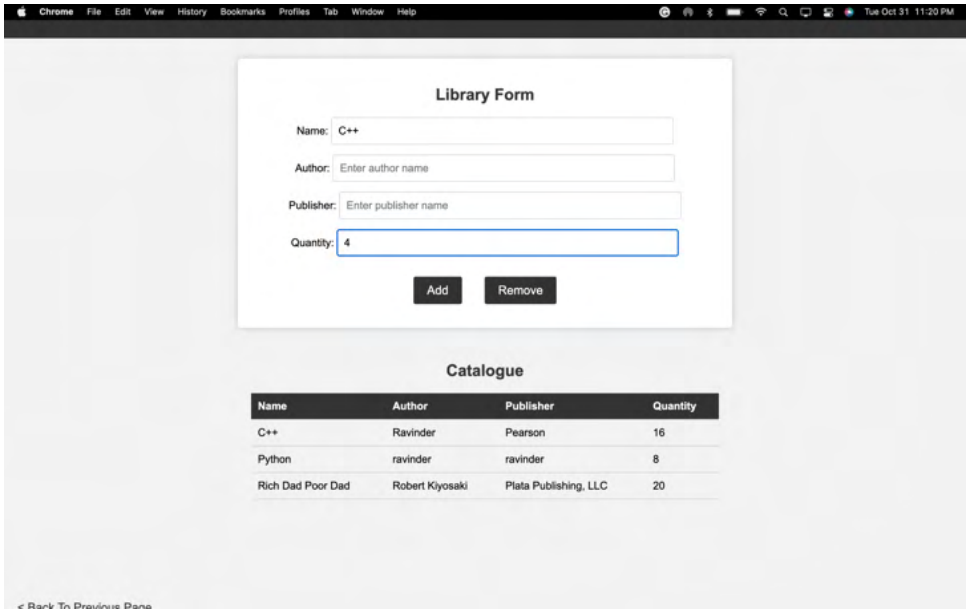


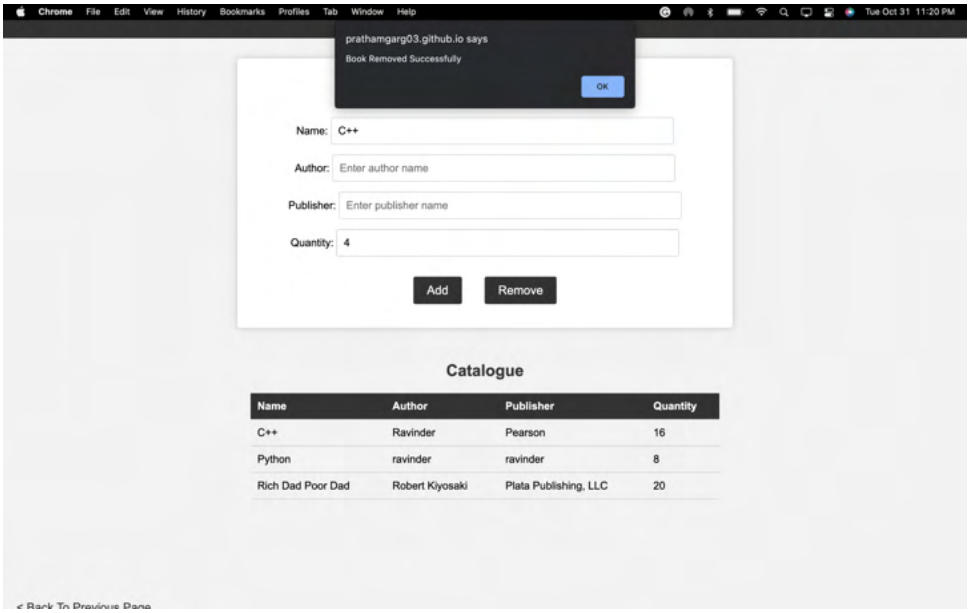
Admin Sign Up

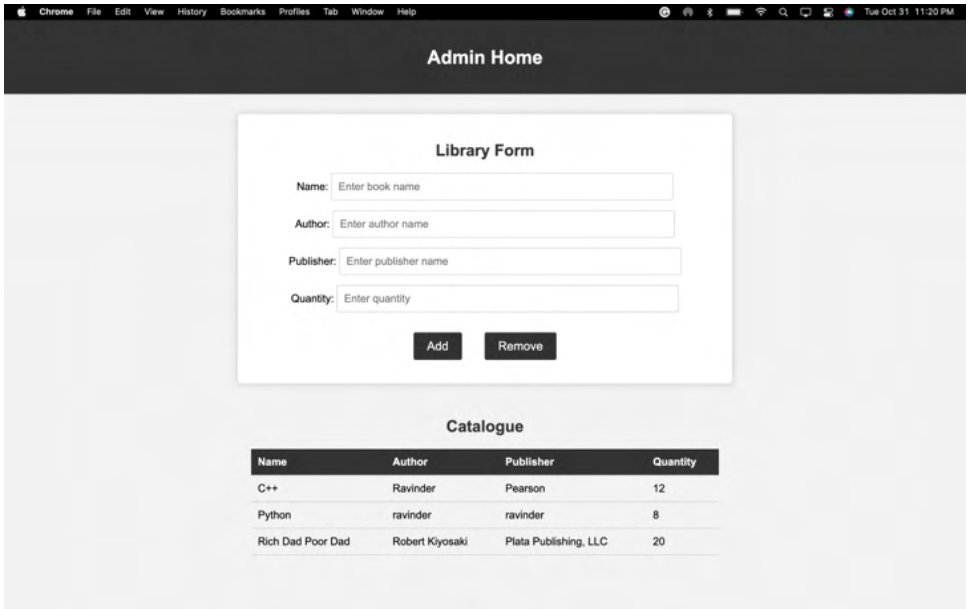




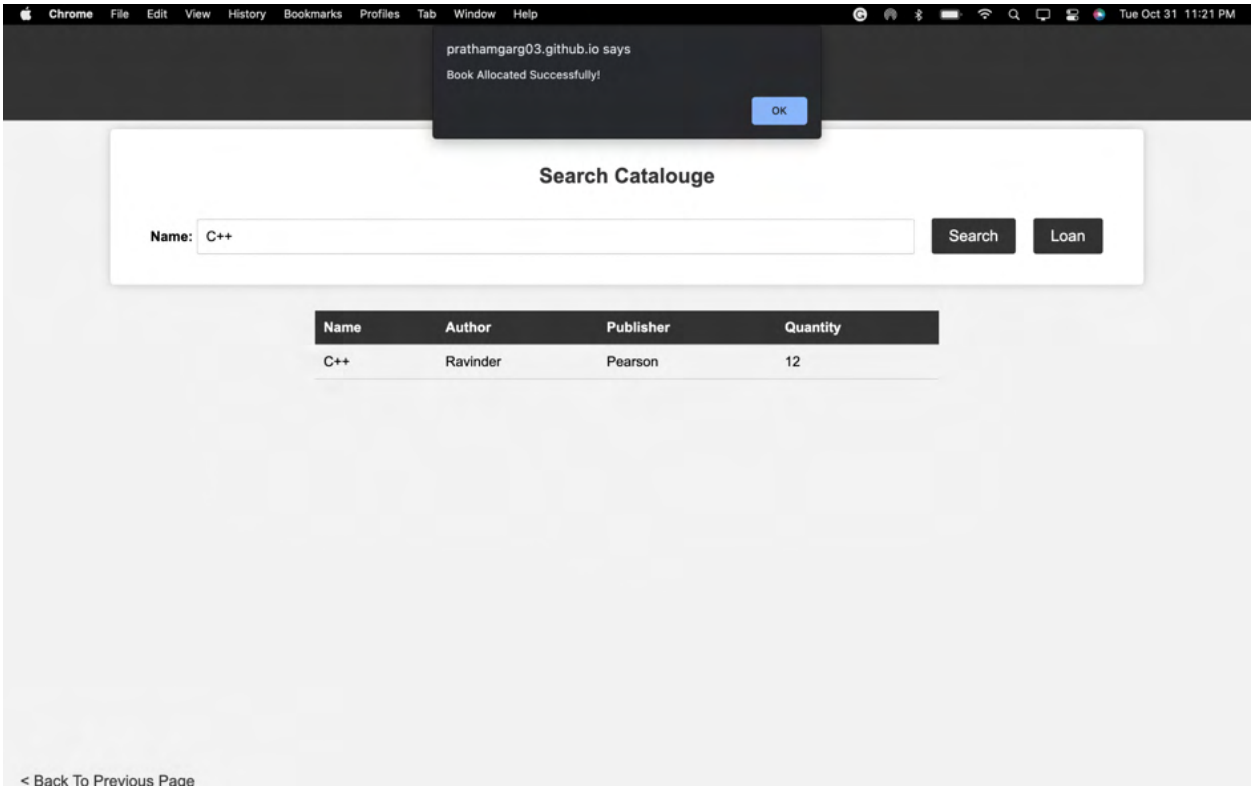
Student Sign Up

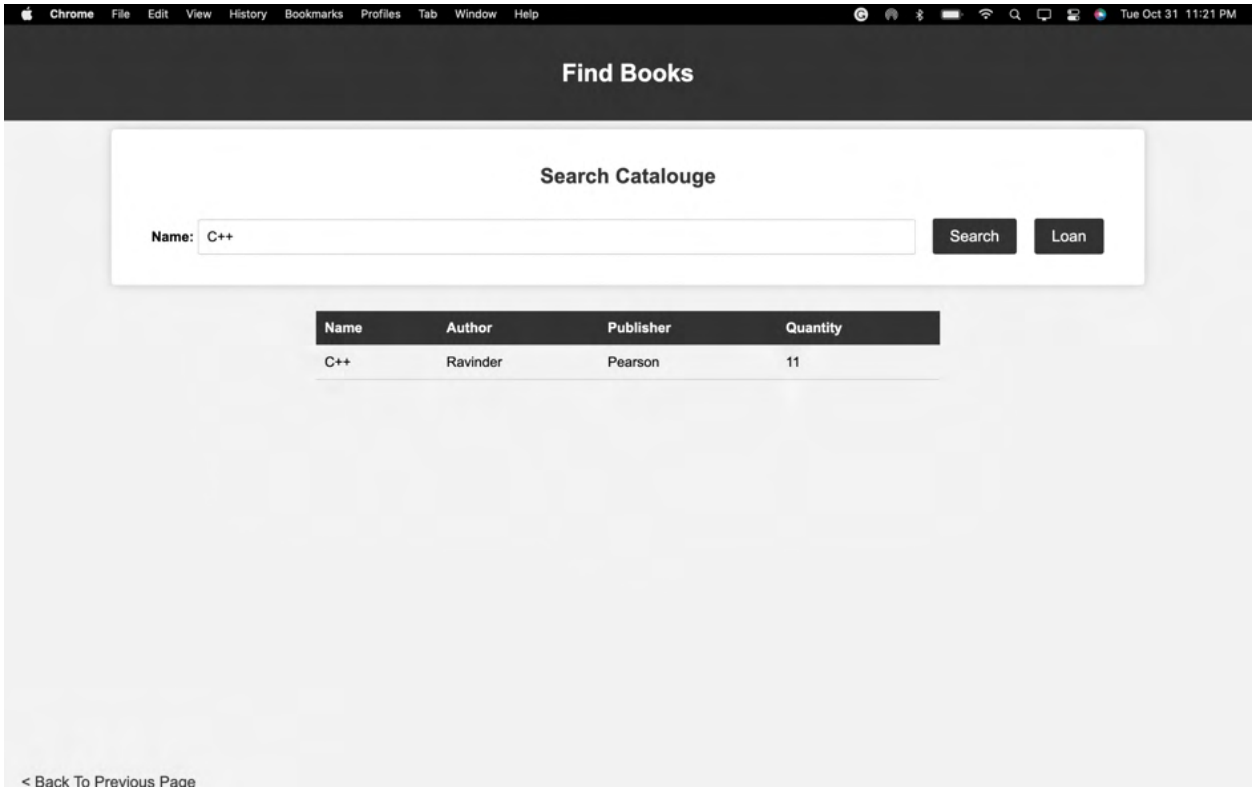






Removing a book from the Database





Loaning a Book