

# **LibMan App: Purpose, Features**

## **Technical Overview**

### **Technical Implementation Report**

**Akinaw Mengesha Gebregiorgies**

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## **1. Introduction**

The LibMan app is an Android-based library management tool aimed at streamlining library operations, enhancing user experiences, and improving efficiency for both librarians and patrons. This Technical Implementation Report focuses on the app's purpose and core features.

## **2. Purpose of the Application**

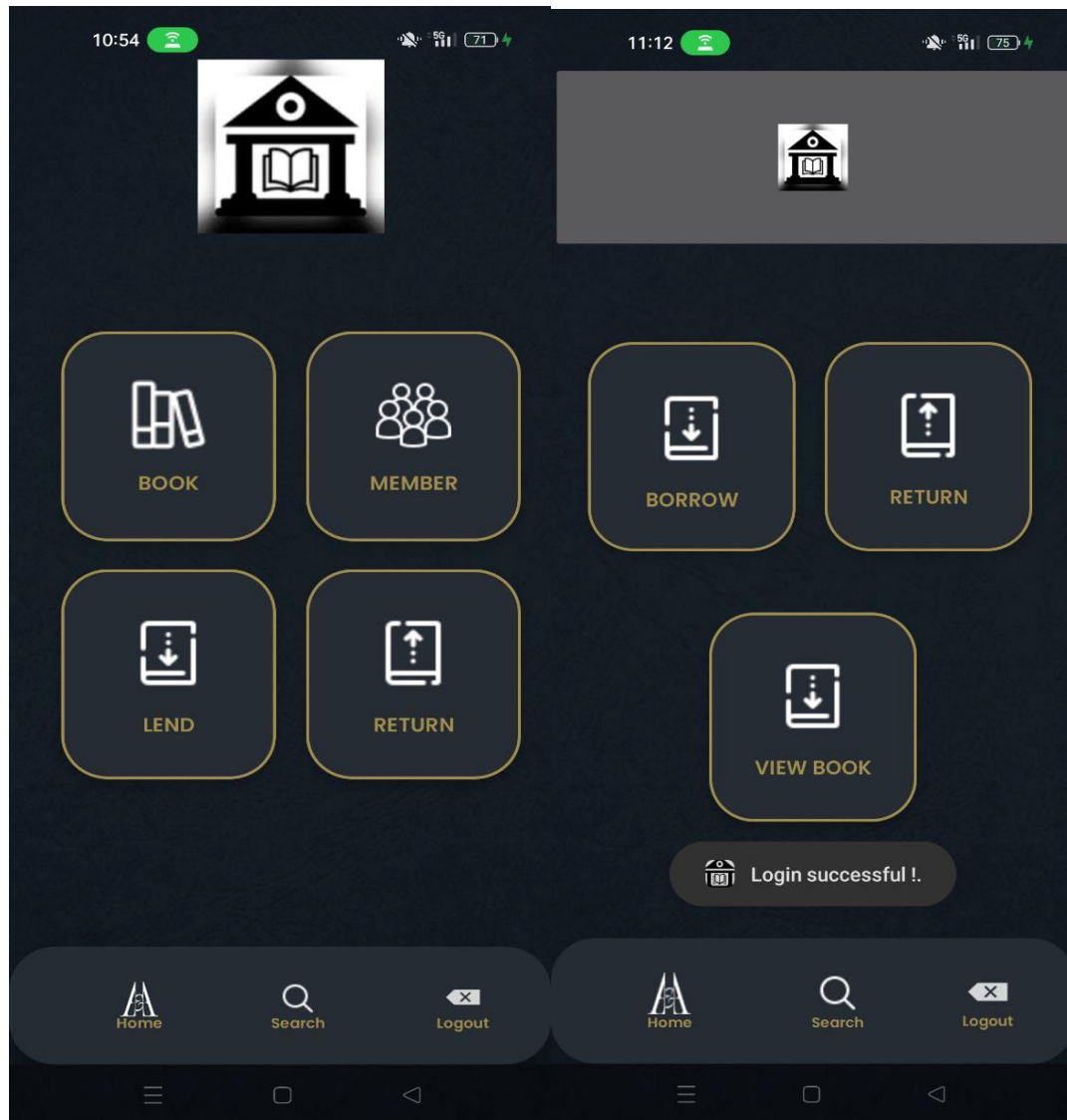
LibMan aims to digitize and modernize library management by providing a centralized platform for librarians and patrons.

Key objectives include:

- **Efficient Library Management:** LibMan streamlines essential library functions, minimizing time spent on administrative tasks while maximizing operational efficiency.
- **User-Friendly Patron Interaction:** Featuring an intuitive interface, the app empowers patrons to browse resources, reserve books, and manage their borrowing history independently.
- **Data Security and Organization:** With secure admin and user authentication and structured data handling, LibMan ensures user information is protected while maintaining an efficient and organized

system.

The app is tailored to meet the demands of modern libraries, enabling streamlined resource management, effective user engagement, and a secure experience.



**Figure 1: Home page as admin and user**

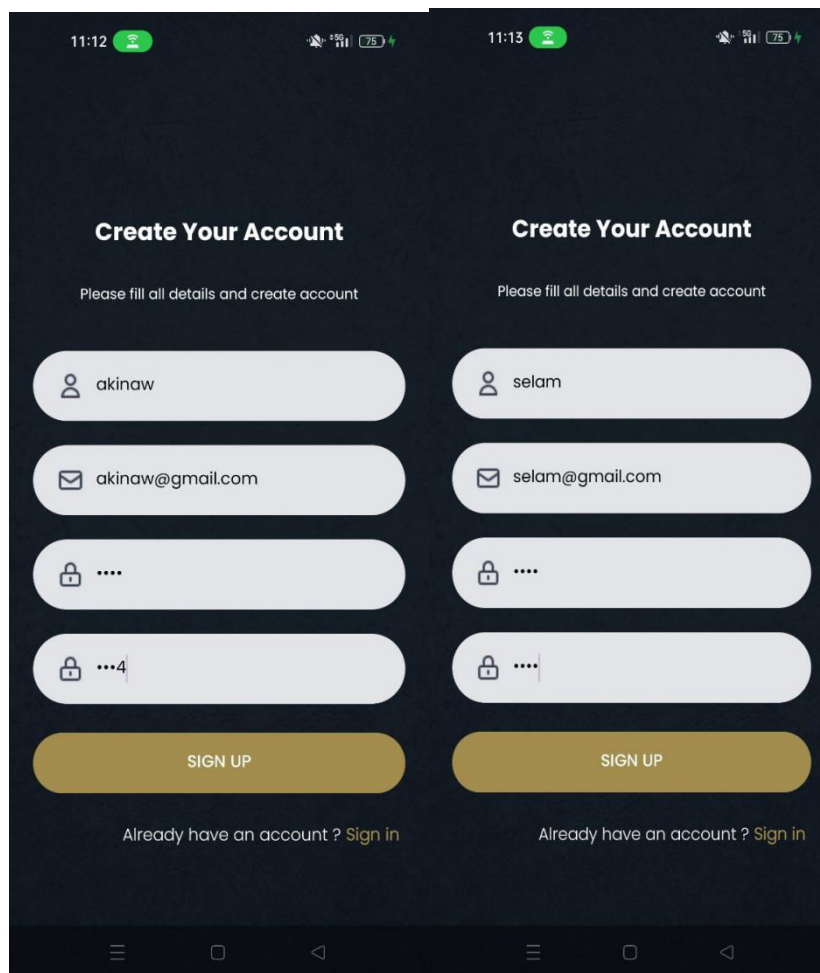
### 3. Key Features of the Application

#### Key Feature 1 - User Authentication

##### Overview

User authentication is a fundamental feature in LibMan, securing access to various app functionalities and safeguarding user data. This feature is critical for both librarians and patrons, ensuring only authorized users can access sensitive information or manage library resources.

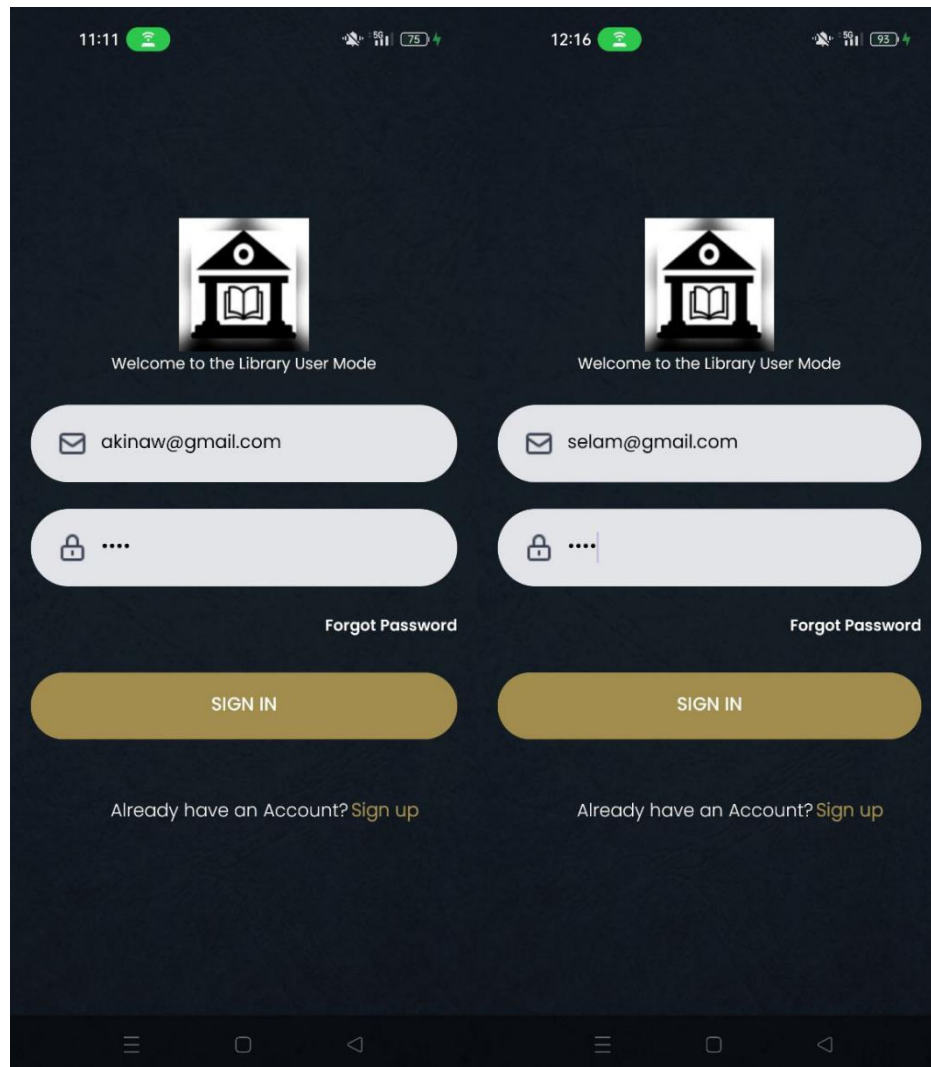
##### Functionality



**Figure 2 : User sign-up page**

The authentication system powers two key functionalities as shown at figure 2:

- User Registration: Multiple new users can create accounts to access features like book reservations, personalized recommendations for available books, and borrowing history tracking.
- Secure Login: Registered users can log in using password-protected credentials, safeguarded through secure storage mechanisms to ensure privacy and security.



**Figure 3 : User login page**

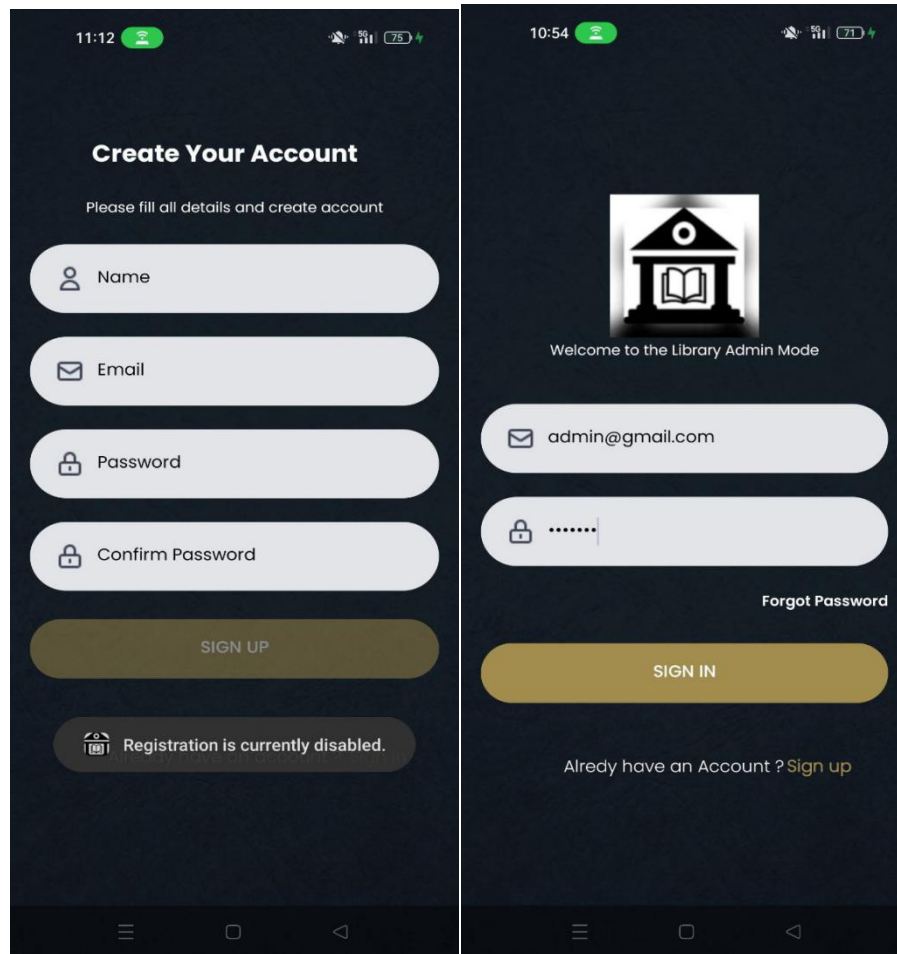
## Benefits for Users

- **Personalized Experience:** Users can manage their borrowing history, track reservations, and receive tailored recommendations based on their past activity. Unauthorized individuals are prevented from performing actions such as returning or reserving books on behalf of others.
- **Robust Data Security:** The system prioritizes the protection of user data, providing a secure and trustworthy environment.

## Administrative Access for Librarians

- **Privileged Management:** Librarians with appropriate access rights can perform critical administrative tasks, including adding, editing, or deleting book records and managing member data. They can also handle tasks such as returning reserved books without requiring user consent. In this case administrative account creation is disabled to make the app secure where assigned email and password used to access administrative privilege.





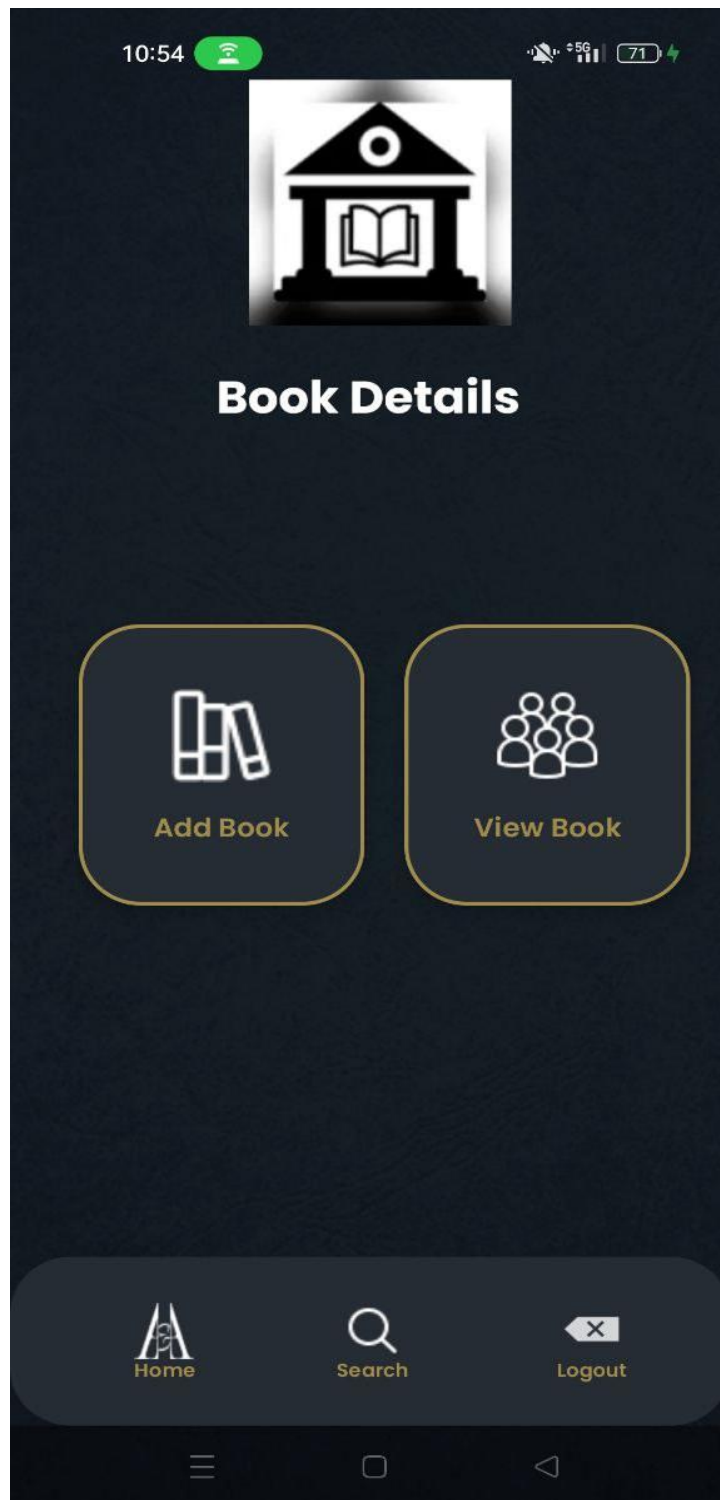
**Figure 4: Admin sign-up and login page**

The authentication system underpins the app's commitment to security and organization, enabling both users and administrators to interact with confidence and efficiency.

## **Key Feature 2 - Book Management**

### **Overview**

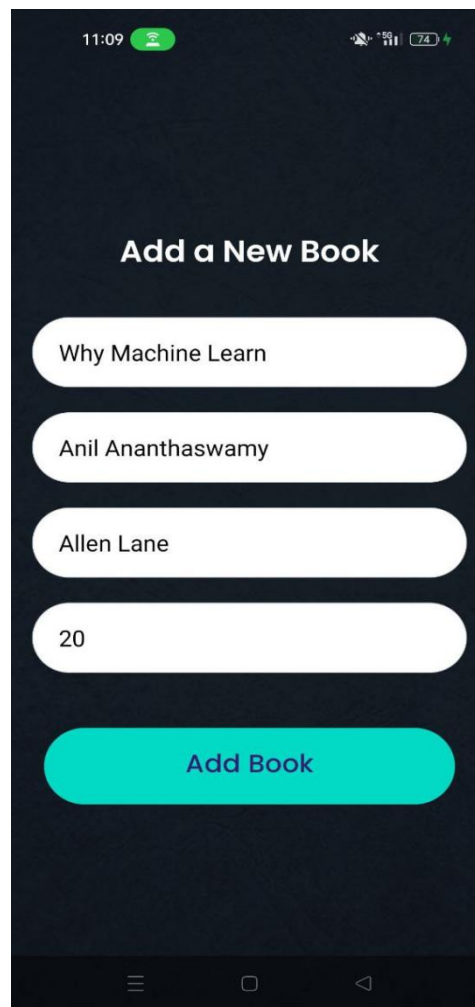
LibMan's Book Management feature is the core of the library's digital catalog, enabling librarians to systematically organize and maintain the library's book collection for easy accessibility and accurate tracking.



## Functionality

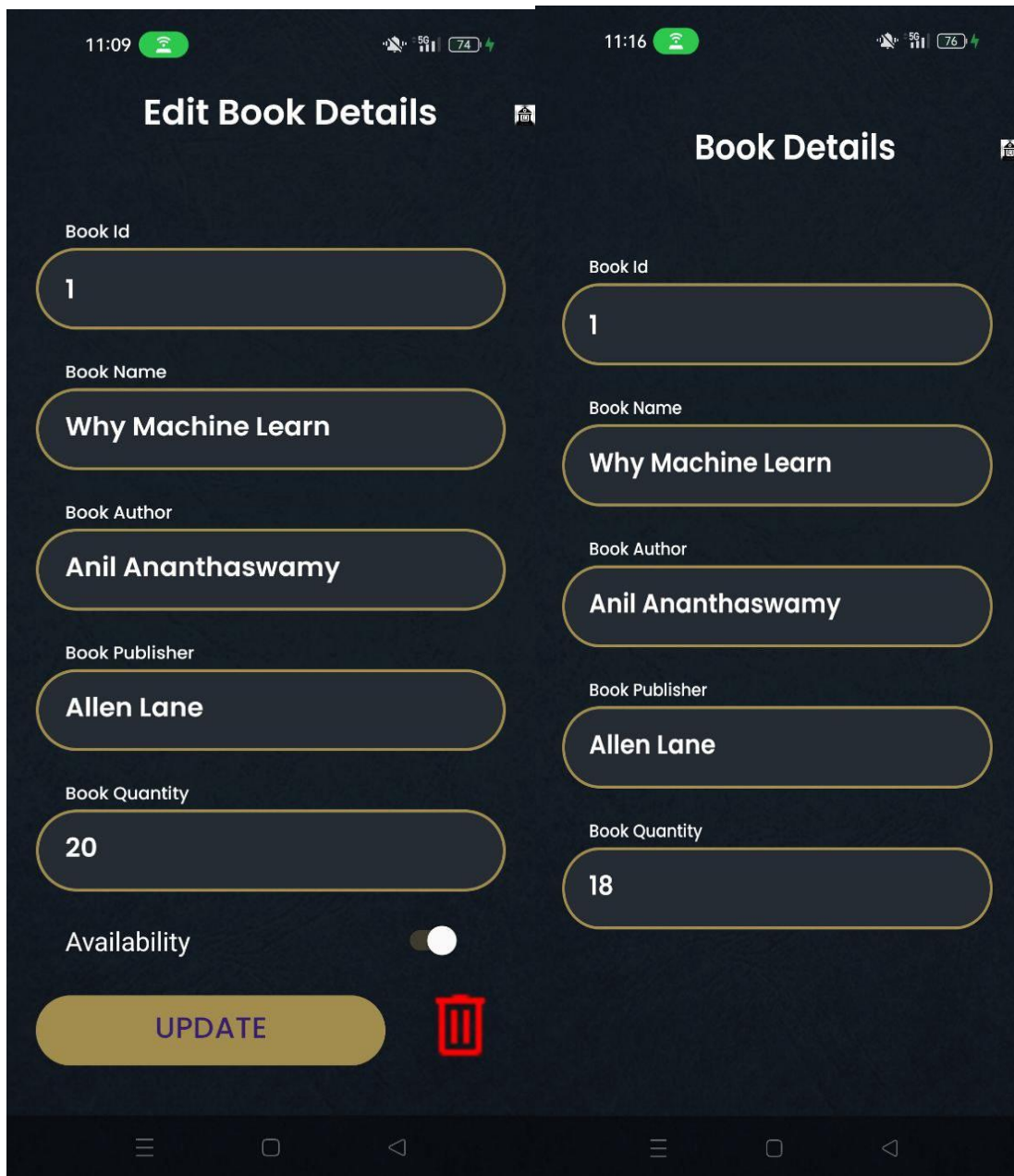
The Book Management system offers several capabilities to ensure effective cataloging for administrator:

- Adding New Books: administrator or Librarians can input comprehensive details for each book, including title, author , publisher, book quantity .

A screenshot of a mobile application interface for adding a new book. The screen has a dark blue background. At the top, the status bar shows the time 11:09, a green signal indicator, and a battery level of 74%. The main heading is "Add a New Book" in white text. Below the heading are four white rounded rectangular input fields. The first field contains the text "Why Machine Learn", the second contains "Anil Ananthaswamy", the third contains "Allen Lane", and the fourth contains "20". At the bottom of the form is a large red rounded rectangular button with the text "Add Book" in white. The bottom of the screen shows the standard Android navigation bar with three icons: a hamburger menu, a square home button, and a triangle back button.

**Figure 5 : Adding books by admin**

- Updating Book Records: This function enables librarians to keep book information up to date, including and availability status ensuring accuracy for users.



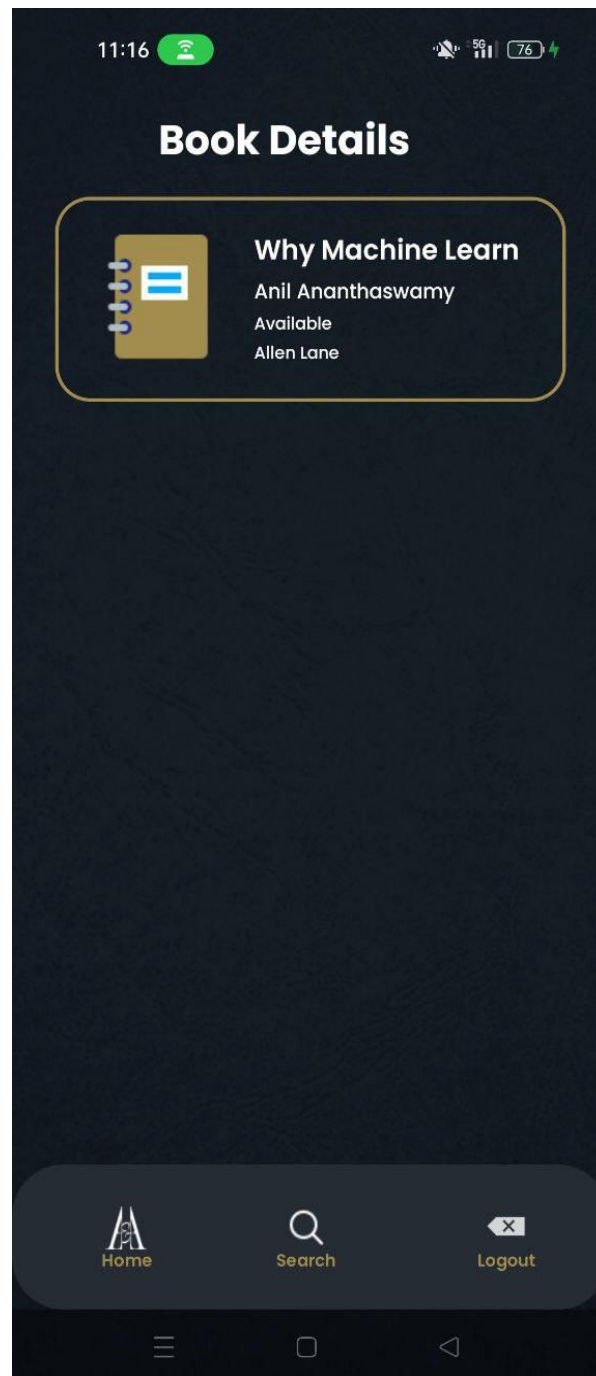
a.

b.

**Figure 6 : Updating books by admin**

- Viewing Book Details: Both patrons and librarians can view detailed information on any book in the catalog, making it simple to locate and learn about available resources. But to make sure that user cannot able to

update or delete information of any book but admin does as shown in figure 6 b.



**Figure 7 : Added book**

- **Deleting Books:** Outdated or damaged books can be removed from the catalog to maintain an accurate and relevant inventory by administrator and removed from book details section.

### **Benefits for Librarians**

**Centralized Inventory Control:** The feature serves as a centralized database for all book data, making it easy for librarians to manage and locate resources.

**Improved Access to Resources:** By organizing books by genre, author, and availability, librarians can quickly find information, improving service efficiency.

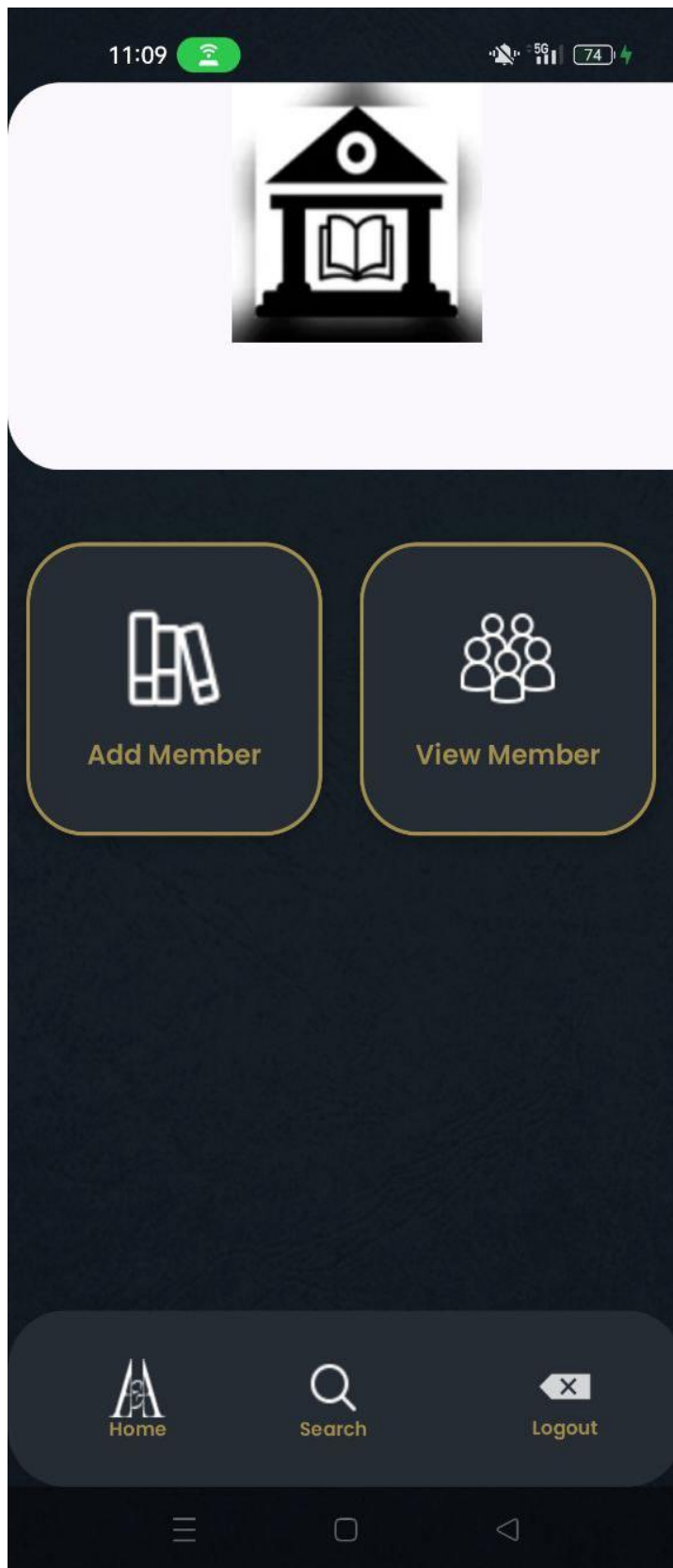
**Enhanced Patron Experience:** Patrons benefit from accurate data about book availability, making it simple to find and reserve books as needed.

The Book Management feature is essential for maintaining an orderly and user-friendly catalog, enabling the smooth operation of daily library activities.

### **Key Feature 3 - Member Management**

#### **Overview**

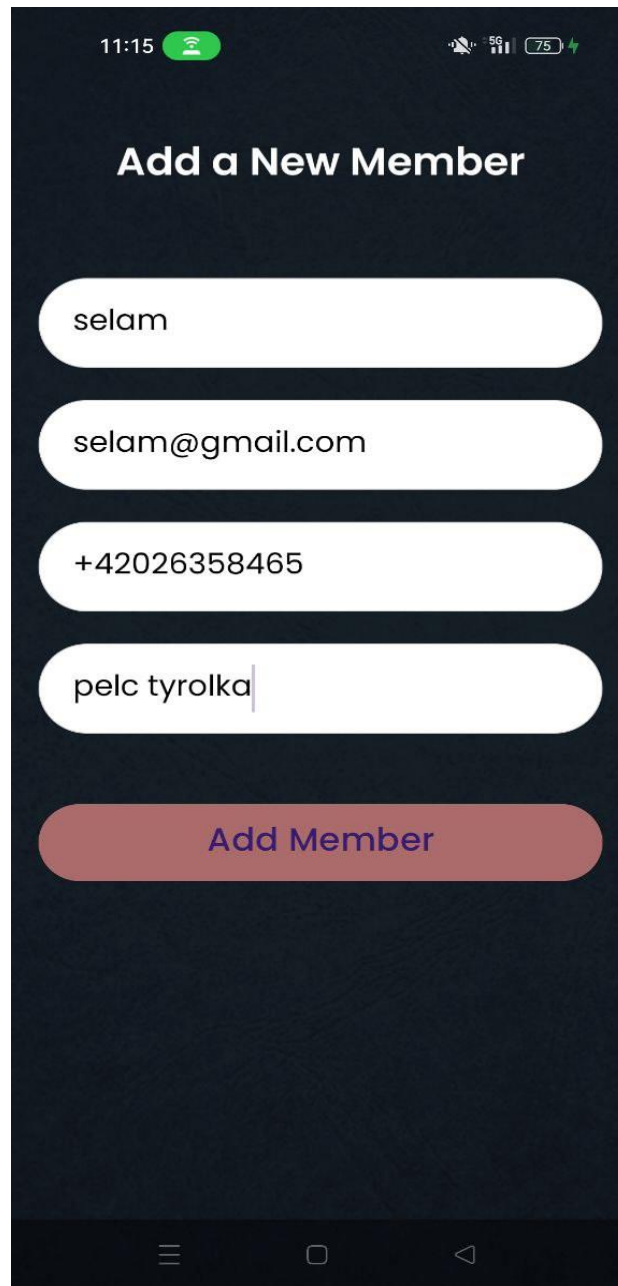
Member Management is crucial for librarians to maintain a well-organized record of all patrons, including borrowing history, outstanding fines, and membership status, building a reliable database of users.



## Functionality

This system allows librarians to:

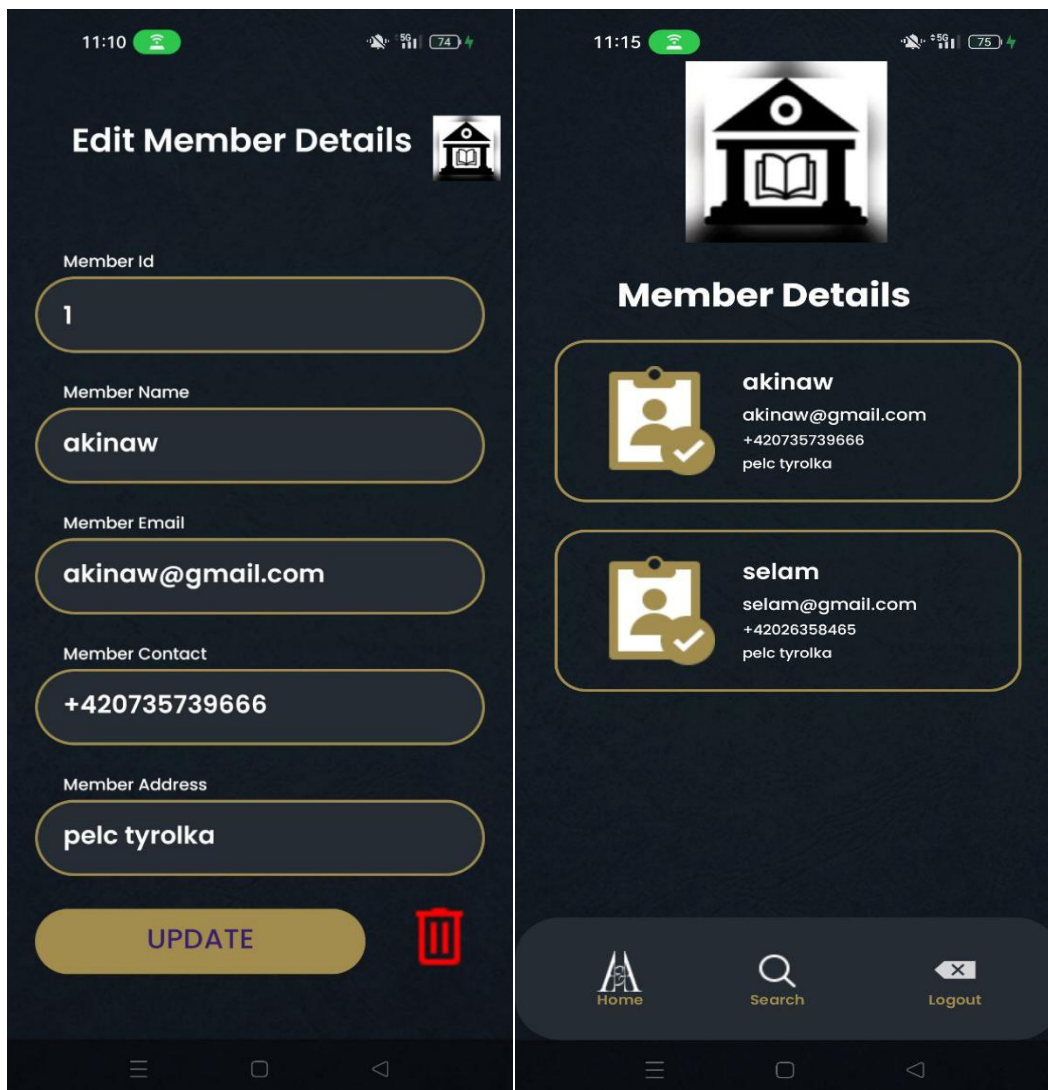
- Add New Members: Librarians can register new patrons, gathering key details like name, contact information, and membership start date.

A screenshot of a mobile application interface for adding a new member. The screen has a dark blue background. At the top, the status bar shows the time 11:15, a green Wi-Fi icon, a 5G signal icon, and a battery level of 75%. The main heading is "Add a New Member" in white text. Below the heading are four white, rounded rectangular input fields. The first field contains the text "selam". The second field contains "selam@gmail.com". The third field contains "+42026358465". The fourth field contains "pelc tyrolka" with a vertical cursor at the end. Below these fields is a large, rounded rectangular button with a reddish-brown gradient and the text "Add Member" in purple. At the bottom of the screen is a dark blue navigation bar with three white icons: a hamburger menu, a square, and a back arrow.

**Figure 8 : Adding new member**



- **Update Member Records:** Member records can be easily updated to reflect any changes, ensuring all information remains current.
- **Track Borrowing History:** Librarians can review each member's borrowing history, which helps manage outstanding loans and fines effectively.
- **Delete or Deactivate Memberships:** For policy violations or unpaid fines, librarians can restrict access, helping to maintain accountability.



**Figure 9 : Memeber detail**

## **Benefits for Libraries and Patrons**

**Efficient Record-Keeping:** Librarians can maintain accurate records of all patrons, supporting efficient member communication and engagement.

**Improved Accountability:** By tracking borrowing histories and fines, librarians enforce library policies more effectively.

**Enhanced Member Experience:** Members can enjoy easy access to their borrowing records, making interactions with library staff smoother.

LibMan's Member Management feature allows for streamlined library administration, enabling librarians to dedicate more time to engaging with patrons and enhancing library services.

## **Key Features 4 and 5 - Book Reservation and Return Systems**

### **Feature 4 - Book Reservation System**

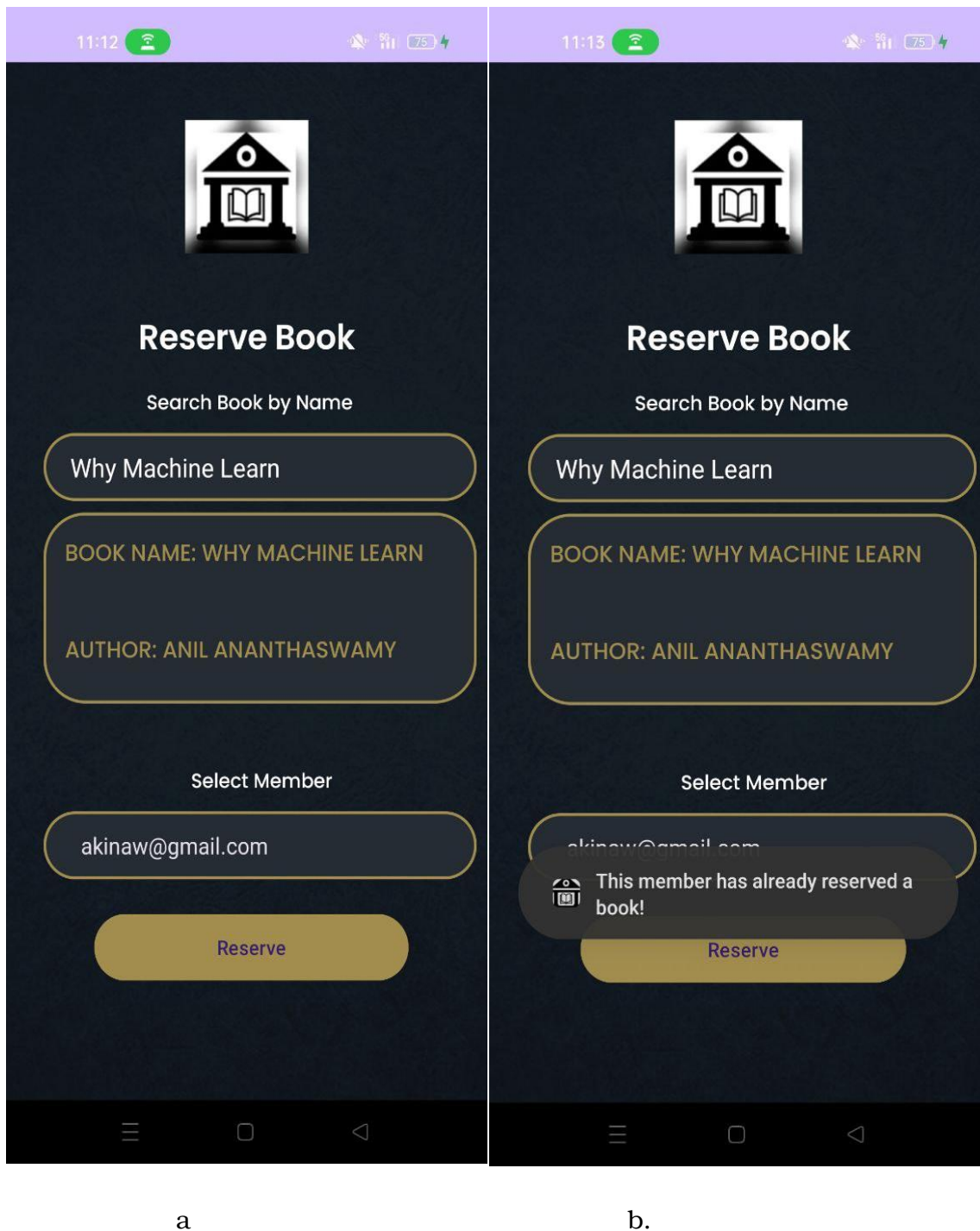
The Book Reservation feature allows patrons to reserve titles in advance, giving them assured access to popular or limited-availability books.

### **Functionality**

The reservation system enables:

- **Placing Reservations:** Patrons can view a book's current availability and place a reservation directly through the app for selected multiple member. Also user or member can make reserve books by themselves for 1 book at a time unless they should return to make reserve. Unless they get error at figure 10 b.

- Reservation Management for Librarians: Librarians can monitor active reservations, ensuring that reserved books are set aside for timely pick-up



**Figure 10: Reservation placing and management**

### **Benefits of Book Reservation**

Increased Patron Satisfaction: Patrons can reserve books and avoid wait times for popular items.

Efficient Access to Resources: The reservation system prevents overbooking and allows the library to manage demand for high-traffic titles.

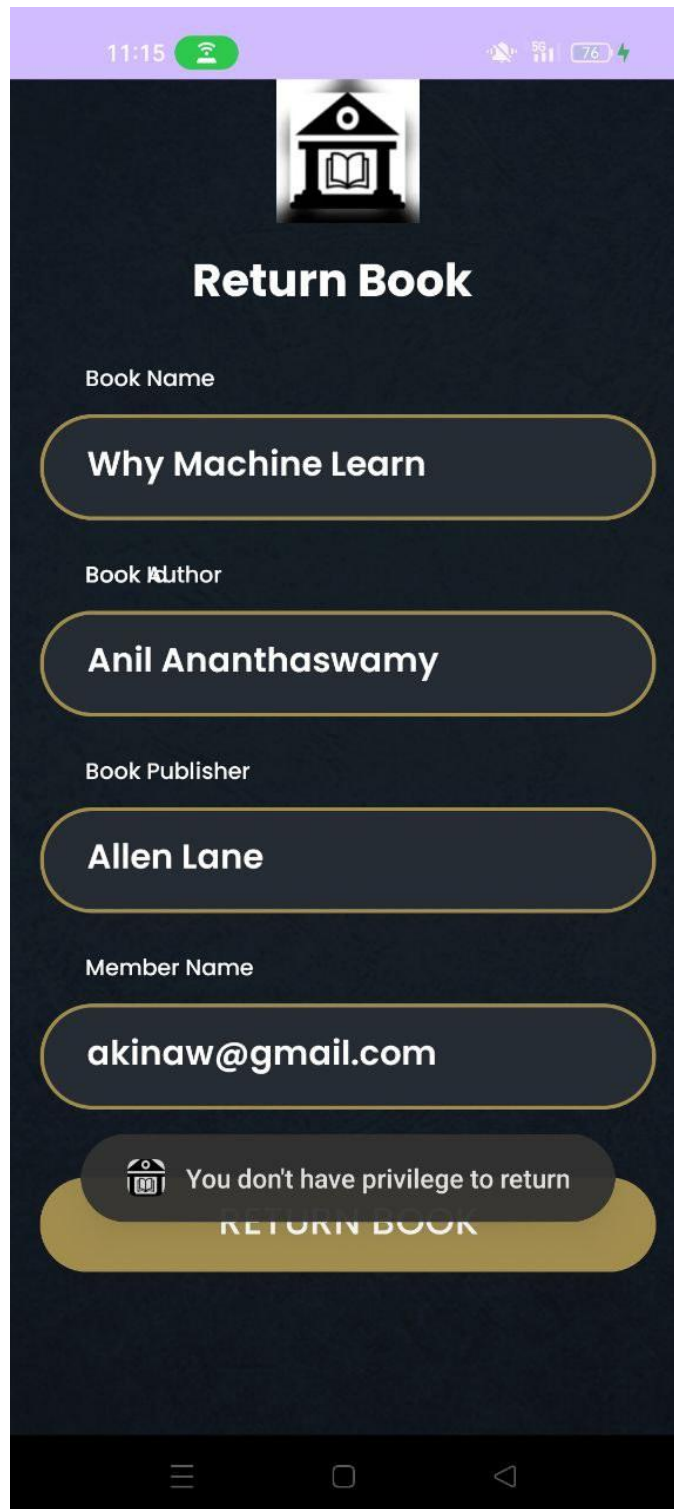
### **Feature 5 - Book Return System**

The Book Return feature simplifies the return process, making it easy for librarians to manage inventory and track due dates.

### **Functionality**

The return system includes:

- Updating Inventory upon Return: Librarians update book status in the system upon return, making the item available to other patrons. Also members can return by themselves reserved books by themselves but unable to make it if reserve done by others. In figure 11 case selam reserved the book.



**Figure 11: Reserved book return error**

### Benefits of Book Return System

- **Inventory Control:** The return system ensures that library records accurately reflect available stock.
- Together, the book reservation and return systems enable a complete, streamlined cycle for borrowing and returning resources, enhancing user experience and supporting efficient library management.

## **4. Conclusion**

The LibMan app effectively addresses the challenges of traditional library management by providing a modern, secure, and user-friendly platform tailored to meet the needs of both librarians and patrons. Through features such as user authentication, book and member management, and streamlined reservation and return systems, the application ensures a seamless library experience while improving operational efficiency.

LibMan's robust technical foundation, which includes secure data handling and an intuitive design, empowers librarians with centralized tools for managing resources while offering patrons an accessible way to engage with library services. By fostering efficient record-keeping, enhancing user engagement, and ensuring data security, LibMan achieves its objective of digitizing library operations.

Overall, the LibMan app exemplifies how technology can transform library

management, creating a centralized, reliable, and efficient system that benefits all stakeholders. With its comprehensive feature set and commitment to user satisfaction, LibMan sets a new standard for modern library solutions.

## Appendix

The published apk can be found in directory:

- LibManApp/Project/LibMan/app/build/outputs/apk/debug/

The installed application look like as seen in the figure 12



**Figure 12 : Installed application**