

# GOVERNMENT POLYTECHNIC, PUNE

(An Autonomous Institute of Government of Maharashtra)



## DEPARTMENT OF COMPUTER ENGINEERING

ACADEMIC YEAR 2022-23

PROJECT REPORT ON

**“SmartLib: Books Automation”**

SUBMITTED BY

**Enrollment Number    Name of Student**

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**UNDER THE  
GUIDANCE OF**

**Smt. K.S. Sathawane**

**(COMPUTER ENGINEERING DEPARTMENT)**

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## CERTIFICATE

This is to certify that

<b>2006024</b>	<b>Niranjan Dayanand Dangi</b>
<b>2006027</b>	<b>Neha Manish Deshpande</b>
<b>2006043</b>	<b>Vinay Arjun Hajare</b>
<b>2006048</b>	<b>Isha Rajesh Kulkarni</b>

of class Third Year (2022-23) have successfully completed the project on “**SmartLib : Books Automation**” under the guidance of “**K.S. Sathawane**” in parallel fulfillment of the requirement for the award of Diploma in Computer Engineering from Government Polytechnic, Pune.

**Smt. K.S. Sathawane**  
(Project Guide)

**Mrs.Mrunal.U.  
Kokate**  
(H.O.D)

**Dr. V.S. Bandal**  
(Principal)

## ACKNOWLEDGMENT

The success of any project depends largely on the encouragement and guidelines of many others. This research project would not have been possible without their support. We take this opportunity to express our gratitude to the people who have been instrumental in the successful completion of this project.

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We wish to thank our parents for financing our studies and helping us throughout our life for achieving perfection and excellence. Their help in making this report and project worth presentation is gratefully acknowledged. Last but not least we thank the Almighty for the continued strength we were bestowed for the completion of this project.

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## ABSTRACT

A Library Management System is a system that is used to maintain the records of the library. It contains work like the number of the available books, the number of books issued, the number of books to return or renew. It helps to maintain a database that is useful to enter new books and records of books borrowed by the members with the respective submission dates. It will reduce the manual work done by the librarian to maintain the record of the library. It allows maintaining the resources in a more operative manner that will help to save the time. It is also convenient for the librarian to manage the process of books allocation.

SmartLib is a desktop based application that will help every librarian to overcome the problem of manual entries of books and book borrowers. SmartLib has several modules such as: Add Books, Update Books, Delete Books, Issue Books, Return Books, Show Books, and Search Books. Other modules will be added as per necessity. SmartLib has the ability to add books present in library, update their details if required, delete a particular book, issue book to borrower, borrower can add 7 days buffer if he needs it for more time, return book from borrower and issue fine to borrower if they fail to return it on time, search a particular book based on either their ID or name, download books list for auditing and so on.

Even in today's digital world, we can see that the work of library is done manually and it becomes a lot of burden on the librarian to manage everything. So, Librarian can make its work easy with SmartLib. Librarian can also reduce the time that he/she spends on this work will overall increase their productivity. Thus, we can conclude that SmartLib is the need of the hour.

## Chapter 1: Literature Review

Lorraine Paterson and Boon Low, (2011) found that students have higher acceptance of mobile library services.<sup>[2]</sup>

Anna (2008) indicated that user's perception is defer by the institute to institute and the services they offered. Further, users have positive attitude towards digital library but at the same time most of them are unaware about various services offered by the digital library. It is also found that interface considered to be an important factor to use digital library.<sup>[1]</sup>

Yalan et al (2014) examined quality of digital library which define as the quality of information quality of system and overall service quality of digital library. The compression of user's perceptions towards virtual communities and digital libraries have been done understand the actual nature of e quality perceived by the users. Based on the user's perception study found that digital libraries provide better information, system and service quality than virtual communities.<sup>[4]</sup>

Asad Khan (2016) investigated the factors that influence the adoption of Digital Library among research students. The findings revealed that Interface characteristics influence cognitive response which predict student's intention of using digital library. Usefulness is directly affected by system characteristics and system quality. Finally, it is found that usefulness has highest effects on digital library usage intention.<sup>[7]</sup>

## **Chapter 2: Introduction**

### **2.1 Overview:**

Although the majority of college organization work has been mechanized, the work of librarian is still commonly done by hand due to its inherent difficulties. This approach demands significant time and efforts. The manual work is a limitation fulfillment problem in which we find a result that satisfies the given set of constraints. There have been numerals of approaches made in the earlier period to the difficulty of library management for colleges and schools. Most of the problem can be solved if the work of librarian is automated. In our project, we have developed a software in such a way that all the cumbersome tasks of the librarian such as adding a new borrower, maintaining their records, issuing a book, applying appropriate fine id the book is late, sending a reminder to borrower if the renewal or given date is 3 days left, renewing a book and so on.

### **2.2. Purpose:**

The purpose of this project is to develop an automated system for a librarian so that his time can be reduced. All the cumbersome tasks should be properly handled by the software so that a lot of work of a librarian is reduced and at the same time it becomes too easy for the librarian to manage everything.

### **2.3 Need:**

Even in today's digital world, we can see that the work of library is done manually and it becomes a lot of burden on the librarian to manage everything. So Librarian can make its work easy with SmartLib. Librarian can also reduce the time that he/she spends on this work will overall increase their productivity. Thus, we can conclude that SmartLib is the need of the hour.

## Chapter 3: Project Plan

### 3.1 Software Model:

- For this project, we have used **Incremental Model**.
- The iterative process starts with a simple implementation of a subset of the software requirements and iteratively enhances the evolving versions until the full system is implemented.
- At each iteration, design modifications are made and new functional capabilities are added. The basic idea behind this method is to develop a system through repeated cycles and in smaller portions at a time.

### 3.2 Approach to project development:

The project is developed using the following **SMART** approach:

- Specific: Gathering specific data related to the computer department
- Measurable: Taking data that can be measured like no of divisions, or buildings.
- Achievable: Achieving skills by developing each module.
- Realistic: Insert real data for testing.
- Time-bound: Completing the project within a time limit.

### 3.3 Goals:

The following goals are achieved by this project plan:

1. Software risks are documented for use in planning and tracking the software project.
2. Software project activities and commitments are planned and documented.
3. Affected groups and individuals agree to their commitments related to the software project.
4. The project is scheduled and documented.
5. Gives the desired output



### **3.4: Project Scope:**

This project is going to be used by GP Pune College in their library, as a future scope, it can later be used by universities by doing some modifications. And also can be adopted by any commercial library.

### **3.5: Project deliverables:**

- Progress Report
- Issue Report
- Weekly meeting reports
- Final project

### **3.6: Project Risks:**

- Equipment failure
- Late delivery of software
- Technology will not meet expectations
- Changes in requirements
- Deviation from software engineering standards
- Less reuse than planned

## Chapter 4: Requirement Analysis

This chapter will explore the system requirement analysis (Functional and Non-functional requirements) and requirement specification.

### 4.1 Hardware Requirements:

- System: Intel i3 or higher processor.
- Clock Speed: 2.5 GHz.
- Hard Disk: 1 GB (min).
- Ram: 1 GB (or more)

### 4.2 Software Requirements:

- Operating system: Windows 10/Windows 11
- Programming Language: Java Development Kit (JDK) 1.8 or higher
- Framework: Java Swing
- Database: MySQL Server 5.31.0 or higher
- Integrated Development Environment (IDE): NetBeans 8.51.0 or higher
- External Libraries:
  1. JDBC Driver and Connector: MySQL-JConnector-5.31.0
  2. Java Mail API: javax.mail.jar & activation-1.1.1.jar
  3. iText PDF creator API: itext-1.4.jar & itext-rtf-2.1.7.jar

### 4.3 Technology Stack:

Following is the technology stack used in project development from front end to back end:

- **NetBeans IDE:**



Apache  
**NetBeans IDE**

The NetBeans IDE is one of the prominent development tool used in Java Enterprise application development. It provides different features and interfaces for integrating different technologies databases and libraries. It provides capabilities for easy development of the Java GUI development application.

➤ **MySQL Server Database:**



The MySQL Server is a light-weight multi-tenant relational database. It supports easy access to the database in efficient manner and it can be easily integrated into application. It also shows higher performance than any other database for real-time database access. It is available under the GPL license and is supported by a huge and active community of open source developers.

➤ **Java Swing Framework:**



Java Swing is a part of Java Foundation Classes (JFC) that is used to create window-based applications. It is built on the top of AWT (Abstract Windowing Toolkit) API and entirely written in Java. Unlike AWT, Java Swing provides platform-independent and lightweight components. The Swing is a GUI widget toolkit for Java. It provides more sophisticated set of GUI components than the earlier Abstract Window Toolkit. Swing provides a look and feel that allows applications to have a look and feel unrelated to the underlying platform.

➤ **Java Mail API:**



The JavaMail is an API that is used to compose, write and read electronic message (emails). The JavaMail API provides protocol-independent and platform independent framework for sending and receiving mails. The Java Mail facility can be applied to many events. It can be used at the time of registering the user, forgot password, sending notification for important updates etc. So there can be various usage of java mail API.

## Chapter 5: System Design

### 5.1 Modules:

The *SmartLib* comprise of only single module for the librarian with all the access to privileged operations. The user can only access this by authenticating themselves and proving their identity.

#### **Librarian Module:**

The librarian can perform all operations needed in for inventory management and daily tasks. The Librarian module is decomposed of following sub-modules –

*a. Add/Update/Delete Book-*

This sub-module helps the librarian to add/update/delete the books available in the library. These helps in managing the inventory by storing and modifying the details electronically.

*b. Add/Update/Delete Borrower-*

The borrower is one of the critical component of the system, hence it is important to manage the details of borrower so that the borrowed books can be tracked efficiently so that there is no loss of books and can be fined likely.

*c. Issue Book –*

These helps in issuing the books to the patrons in much efficient manner as compare to traditional system. This does not include any overhead to the librarian of calculating the due date, it needs only Borrower ID and Book ID. The sub-module will automatically validated the same and calculate the dates for returning book and issuing book to specified patron by adding entry to database along with needed information.

*d. Return Book –*

These module returns a book issued prior to the borrowers and also calculates the fine amount based on the actual returning date and specified date. It just need two inputs Book ID and Borrower ID and system will compute and validate all details by its own without any user intervention.

*e. Renew Book –*

These module is one of the newly adopted feature as it is not implemented in many of the systems. It renews a book by adding specified buffer time for the book so that it be used by borrower for until it is read completely.

*f. Search Book –*

It helps librarian to check if book is present in the library inventory or not while issuing any book. The search can be done on two basis ID or Name whichever is convenient for the user.

*g. Show Books –*

It's like a dashboard of the complete system, which provides insight into the important information of the libraries like issued books, available books and borrowers. This information can be exported from the system in the PDF format so that it can be given as reporting or auditing information to higher authority.

*h. Send Reminder –*

These module helps the librarian by sending the email notification to the patrons who are eligible for the same. The system find out the list of the patrons who are eligible for sending email message reminder using heuristic approach. It sends 3 notification, first- three days before the return date, second- on the day of the return date and third- three days after the return date.

## **Authentication Module:**

This module helps in authenticating the user of the system using the simple register/login system based on the credentials of the users at the time of the registration. The authentication module comprises of following sub-module:

*a. Login –*

The login module checks the credentials of the users against the stored credentials in the database. Only after the valid verification the system displays the home page which is landing page of the system and contains a buttons for various operations.

*b. Register –*

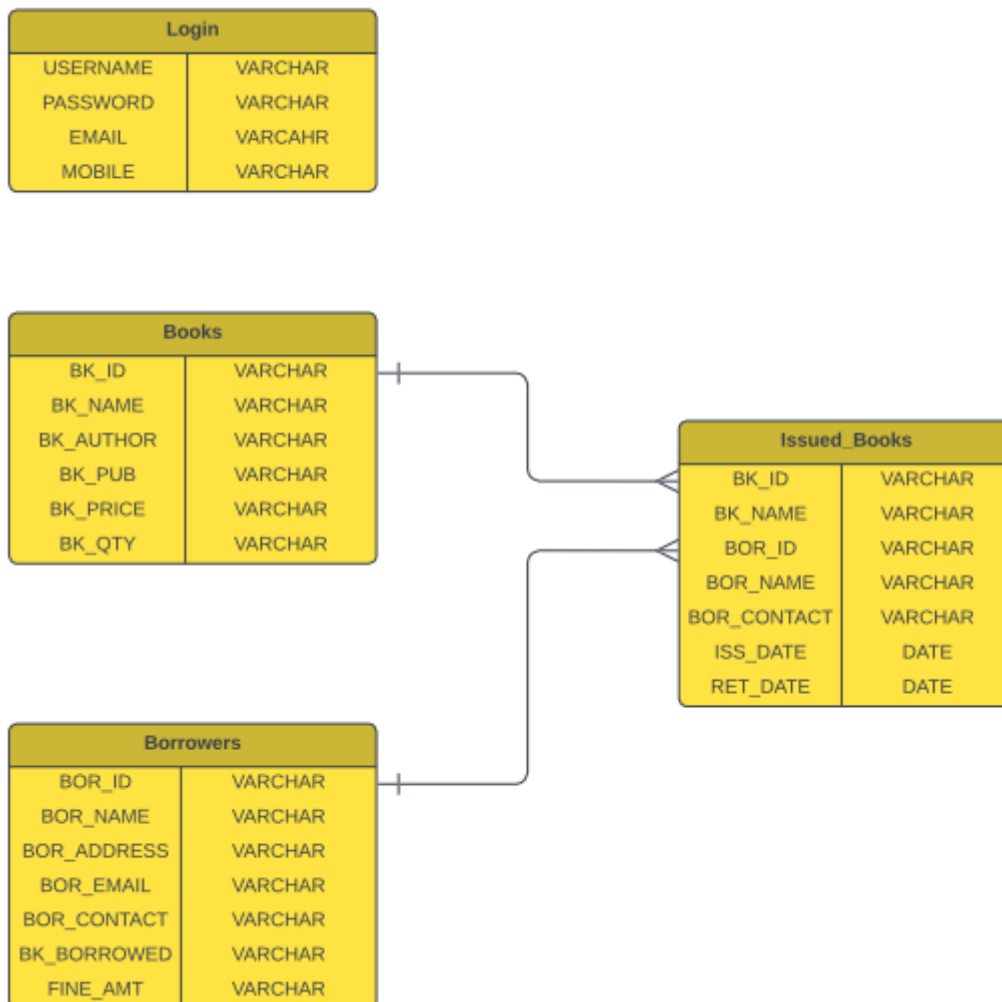
These module helps in registering the users detail in the system for further task and auditing purpose. It comprises of different data validation steps before storing user data to maintain integrity and accuracy of the data, to make application more robust.

*c. Logout –*

The logout module logouts the user from the system by invalidating the user session and this is done by maintaining the session from login to logout activity. It helps in logging the system accesses.

## 5.2 Database Design:

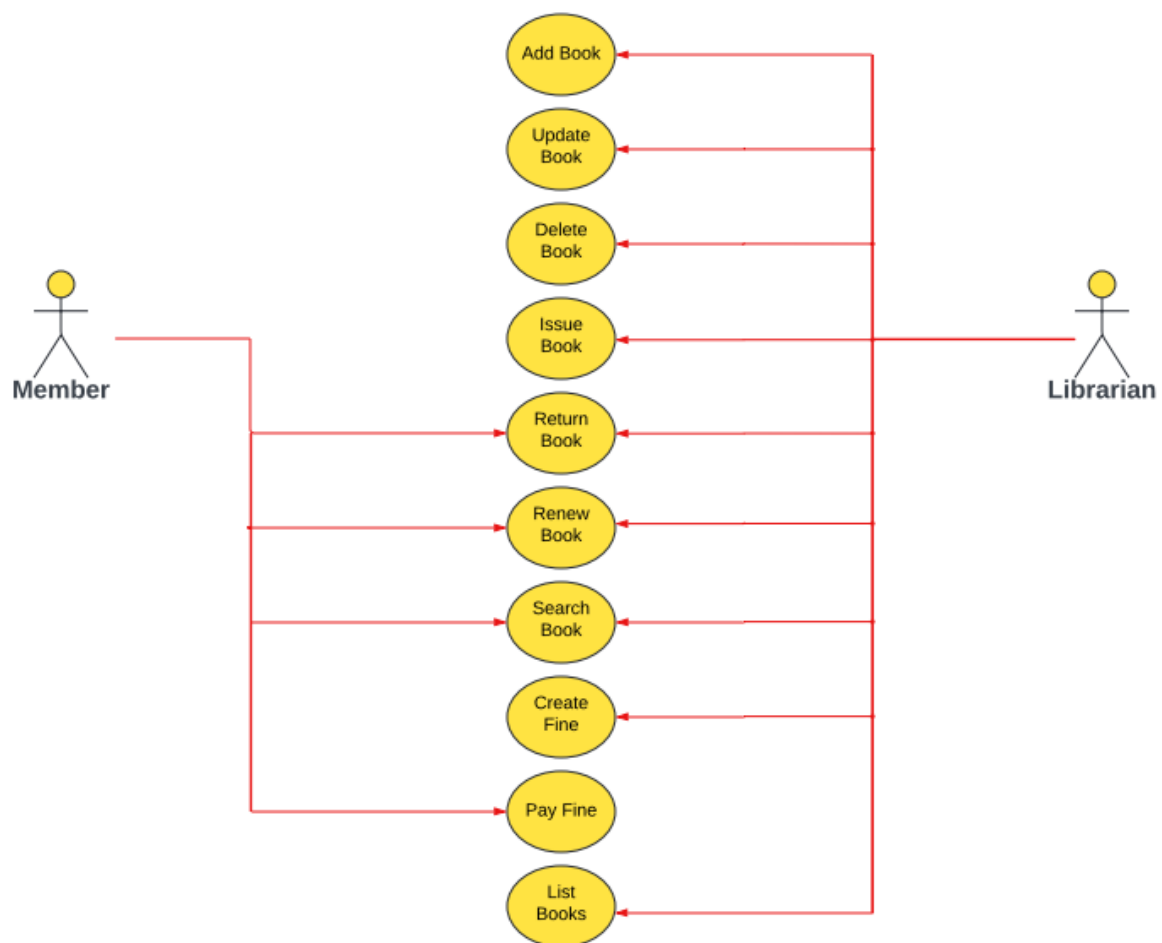
The database plays the pivotal role in the system as it stores all the information about libraries including issued books, available books and patrons or borrowers of the library. The database design helps in creating a perfect and efficient information system by specifying the architecture of the database and it is the backbone of the whole *SmartLib* application. The following Entity-Relationship diagram depicts the database architecture along with its referential and integrity constraints.



## 5.3 UML Diagrams:

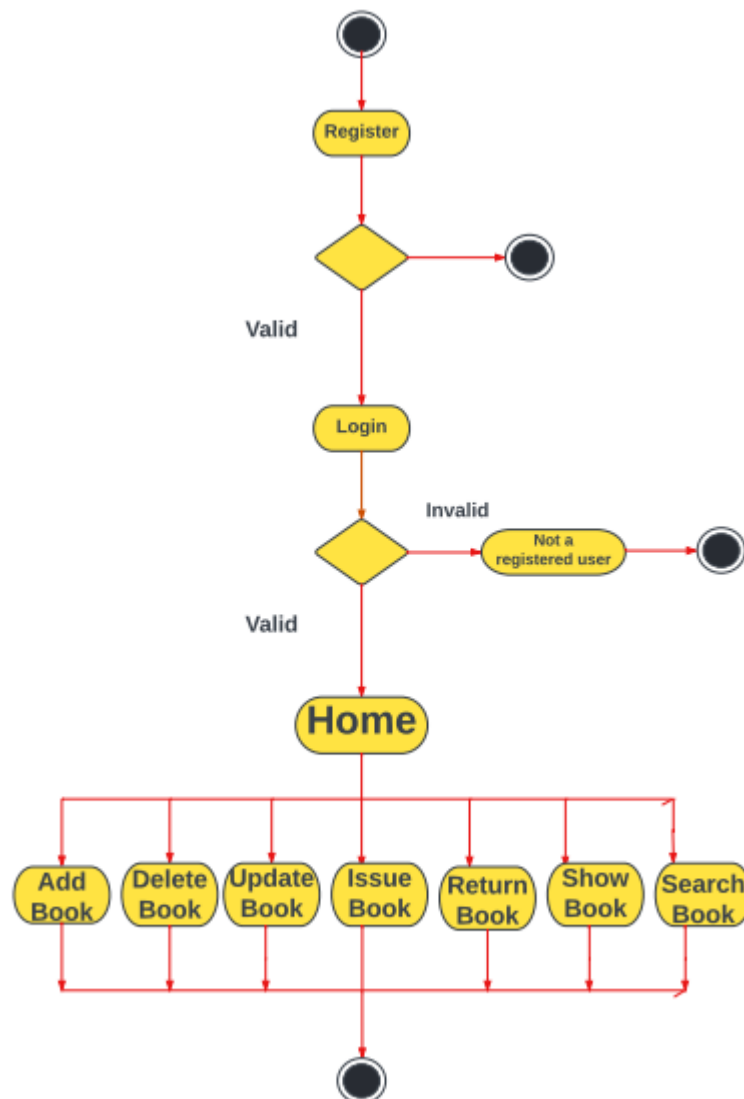
### 5.3.1 Use Case Diagram:

This diagram shows the general processes or functions that the system could do that is based on the transactions done by librarian in managing the libraries inventory and other daily tasks.



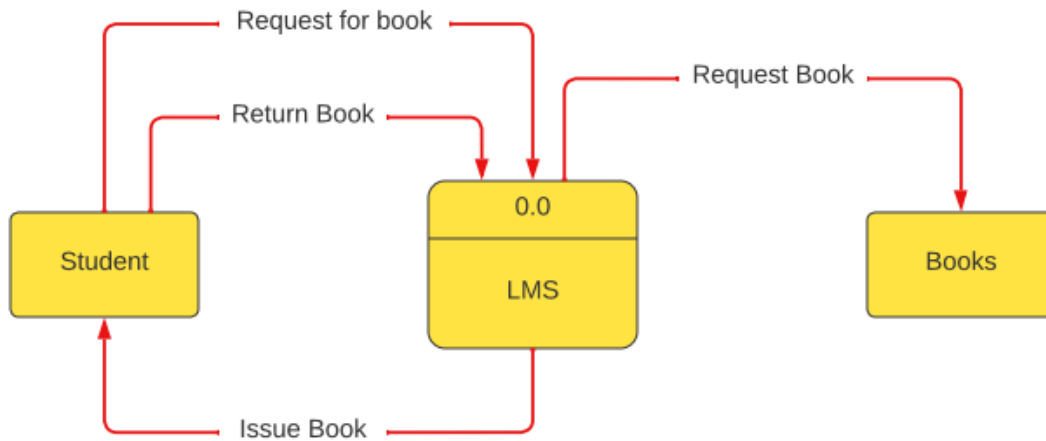


### 5.3.2 Activity Diagram:



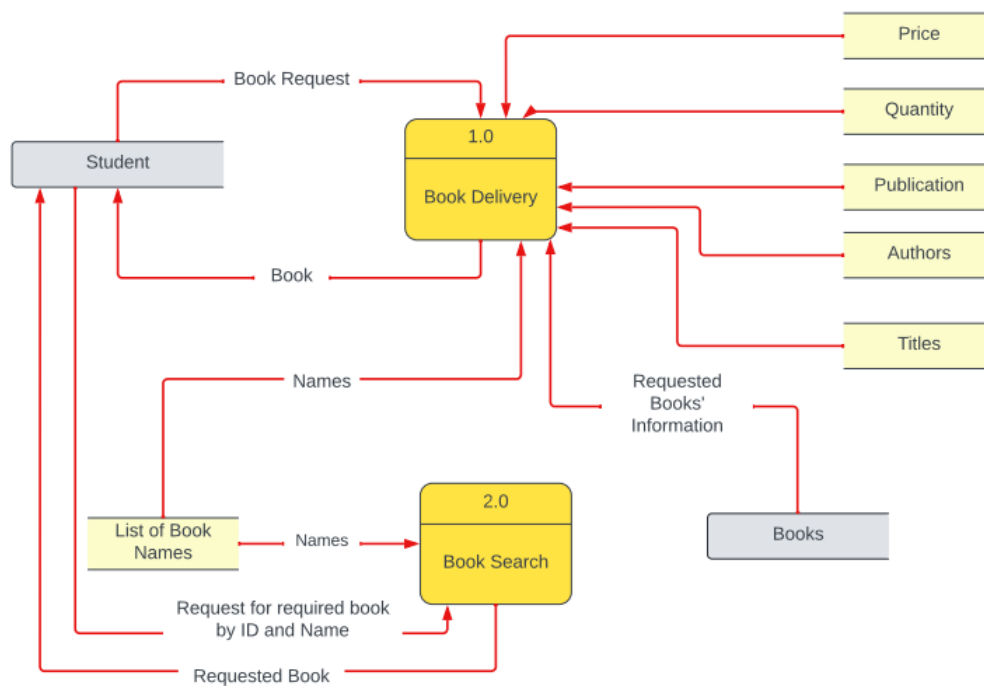
### 5.3.3 Data Flow Diagram:

DFD Level 0 -

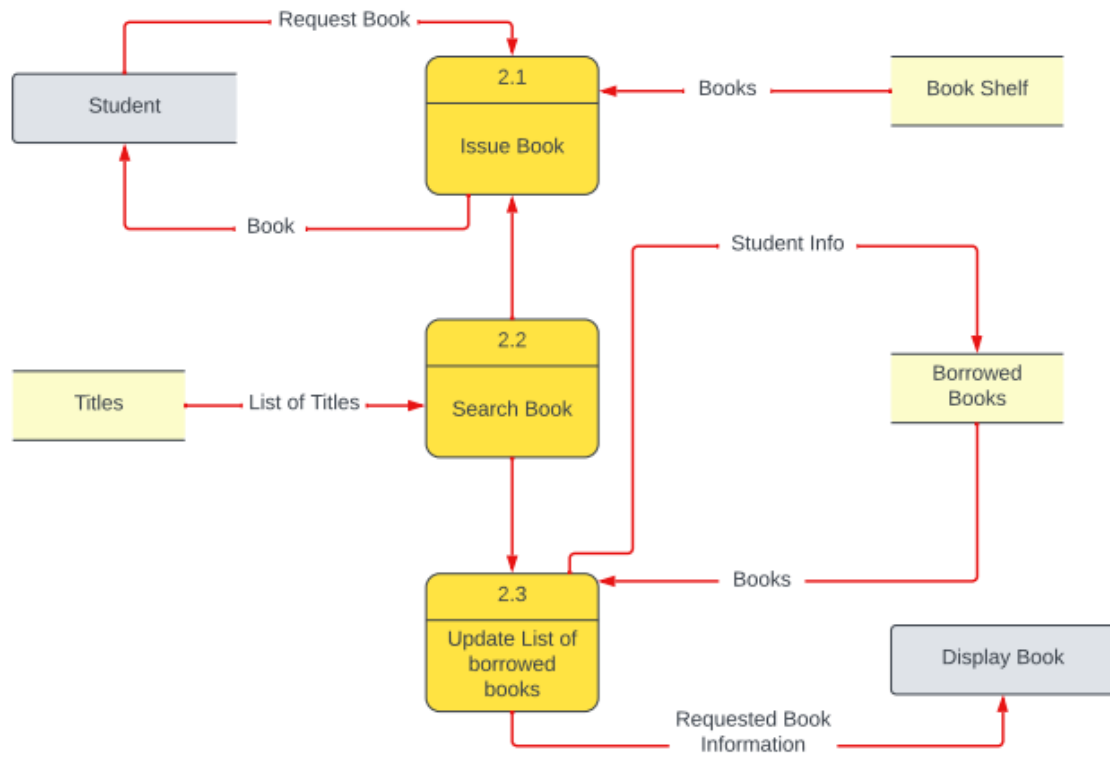


DFD Level 1 –

Level 1 DFD Diagram For LMS



## DFD Level 2 –



## Chapter 6: Testing

Sr No	ID	Testcase Objective	Step	Input	Expected Result	Actual Result	Status
1	TC_1	Check if librarian can login in or not	Click on login	Email id and password	Logged-in successfully	Logged-in successfully	Pass
2	TC_2	Check if home page is displayed with all buttons for various operations after login	View the home page	N/A	Home page is visible with all buttons included	Home page is visible with all buttons included	Pass
3	TC_3	Check if books are inserted	Click on Add Books	Book ID, Name, Author, Publication, Price and Quantity	Book added successfully	Book added successfully	Pass
4	TC_4	Check if book details are fetched on entering book ID for updating	Click on Update Books	Book ID and click on Fetch	Book details like Name, Author, Publication, Price and Quantity should be displayed in editable text fields.	Book details like Name, Author, Publication, Price and Quantity are displayed in editable text fields.	
5	TC_5	Check if book details are updated	Click on Update Books	Update the required fields.	Book details should be updated successfully.	Book details are added successfully.	Pass
6	TC_6	Check if books are deleted	Click on Delete Books	Book ID	Book record deleted successfully	Book record deleted successfully	Pass
7	TC_7	Check if the borrower records are	Click on Add Borrower	Borrower ID, Name, Address,	Borrower record must be added	Borrower record is added	Pass

		inserted		Email, Contact, Book borrowed and Fine amount	successfully.	successfully.	
8	TC_8	Check if borrower details are fetched on entering borrower ID for updating	Click on Update Borrower	Borrower ID and click on Fetch	The borrower details like Name, Address, Email, Contact, Book borrowed and fine amount must be displayed.	The borrower details like Name, Address, Email, Contact, Book borrowed and fine amount is displayed.	Pass
9	TC_9	Check if borrower details are updated	Click on Update Borrower	Update the required fields.	Borrower details updated successfully.	Borrower details updated successfully.	Pass
10	TC_10	Check if borrower record is deleted	Click on Delete Borrower	Borrower ID	Borrower record must be deleted successfully.	Borrower record deleted successfully.	Pass
11	TC_11	Check if the required book is issued not	Click on Issue Book	Enter book and borrower ID and press enter to fetch their respective details.	Book must be issued successfully.	Book is issued successfully.	Pass
12	TC_12	Check result of book being issued when quantity of books present is 0	Click on Issue Book	Enter book and borrower ID and press enter to fetch their respective details.	Book not available message must pop-up	Book not available message pops- up.	Pass
13	TC_13	Check if the book issued is returned successfully.	Click on Return Book	Book ID and Borrower ID	Book returned successfully.	Book returned successfully.	Pass
14	TC_14	Check if the book is renewed	Click on Renew	Book ID and Borrower ID	Book should be renewed successfully	Book is renewed successfully	Pass

		before its return date			and 7 days must be added to the return date.	and 7 days are added to the return date.	
15	TC_15	Check if fine is applied on returning the book after return date.	Click on Return Book	Book ID and Borrower ID	Message must be displayed as late in returning book and fine amount must be specified.	Message is displayed as late in returning book and fine amount is specified.	Pass
16	TC_16	Check if all available books are listed in Show Books option	Click on Show	N/A	All available books with their details must be listed	All available books with their details are listed.	Pass
17	TC_17	Check if all issued books are listed in Show Books option	Click on Show	N/A	All issued books with Book ID, Book Name, borrower details, issue date and return date must be displayed.	All issued books with Book ID, Book Name, borrower details, issue date and return date are displayed.	Pass
18	TC_18	Check if all borrower records are listed	Click on Show	N/A	All borrowers must be listed.	All borrowers are listed.	Pass
19	TC_19	Check if the listed records are downloaded successfully.	Click on Download	Choose file location.	The file must be downloaded at the specified location.	The file is downloaded at the specified location.	Pass
20	TC_20	Check whether the book search operation is performed successfully by providing Book ID	Click on Search Book	Book ID	Message must be displayed specifying availability of books along with quantity.	Message is displayed specifying books' availability along with its quantity	Pass
21	TC_21	Check	Click on	Book Name	Message must	Message is	Pass

		whether the book search operation is performed successfully by providing Book Name	Search Book		be displayed specifying availability of books along with quantity.	displayed specifying books' availability along with its quantity	
22	TC_22	Check if reminder email is sent to users whose books are due in 3 days.	Click on Reminder button	N/A	The first reminder email stating that the book is due in 3 days must be sent to respective borrowers.	The first reminder email stating that the book is due in 3 days is sent to respective borrowers.	Pass
23	TC_23	Check if reminder email is sent to users whose books are due today.	Click on Reminder button	N/A	The second reminder email stating that the book is due today must be sent to respective borrowers.	The second reminder email stating that the book is due today is sent to respective borrowers.	Pass
24	TC_24	Check if reminder email is sent to users whose books are overdue.	Click on Reminder button	N/A	The last reminder email stating that the book is overdue must be sent to respective borrowers.	The last reminder email stating that the book is overdue is sent to respective borrowers.	Pass
25	TC_25	Check if librarian can logout successfully.	Click on Logout button	N/A	Logged-out successfully.	Logged-out successfully.	Pass

Hence, testing is done to ensure that the application meets the technical requirements as guided by its design and development and user requirements effectively and efficiently.

## Chapter 7: User Manual

1. The librarian must login with correct credentials. If new librarian is to use this system, then he/she must first register.
2. To add new books, click Add Books button on Home Page and enter all necessary book details and click Add.
3. To update book details, click Update Books button on Home Page and enter Book ID and click Fetch. Enter new values in the fields that are to be updated and click Update.
4. To delete books, click Delete Books button and enter Book ID and click Delete.
5. To add borrower record, click Add Borrower button and enter borrower details: Borrower ID, Name, Address, Email, Contact, Book borrowed and fine amount. Click Add.
6. To update borrower details, click Update Borrower button on Home Page and enter Borrower ID. Click fetch to fetch other borrower details. Enter new values in the fields that are to be updated and click Update.
7. To delete borrower record, click Delete Borrower button on Home Page and enter Borrower ID and click Delete.
8. To issue books, click Issue Books button and enter Book ID and click enter. This will fetch the Book Name automatically. Similarly, enter Borrower ID and click enter to fetch the Borrower name and contact. Click Issue book.
9. To return books, click Return Books button and enter the Book ID and Borrower ID and click Return book. To renew the book, click Renew. This will add 7 days to the return date.
10. To view the Available Books, Issued Books and Borrowers records, click Show Books button. The list can also be downloaded. Click on Download and specify the file location for downloading.
11. To search the books, click Search Books button Enter ID or Name as per convenience and click Search.
12. To remind the borrowers of the due date for returning their books, click Reminder button. This will send reminder emails to all users whose books are due in 3 days, whose books are due today and whose books are overdue.
13. Click Logout to logout from the system.



## Chapter 8: Strengths and Limitations

### Strengths:

- **No more paperwork:**

Manual library work has a lot of paper work including library cards. This SmartLib helps users with effective library management.

- **Increases librarian's efficiencies:**

Some manual entry tasks in SmartLib have been automated like book or borrower details are fetched on entering book and borrower IDs.

- **Automated Reminder:**

This feature enables sending emails to the borrowers reminding them of the return date. The emails are sent 3 days prior the return date, on the return date and 3 days after return date stating that the book is overdue. Fine is applied accordingly.

- **Simple and easy to operate:**

SmartLib has a user-friendly interface and hence is convenient, adaptable and the person handling it can get the work done efficiently.

- **Reports can be generated and are downloadable for auditing:**

The available books, issued books and borrowers records are downloadable for auditing purposes.

- **Multi-user login:**

After a librarian is done with his/her job and logs out of the system, another librarian can login with the correct credentials and continue using the system.

### Limitations:

- **Requires more memory:**

Storing entries for each book and borrower will consume a lot of memory.

- **Sending reminder emails can take some time:**

When there are a lot of outgoing reminder emails, their delivery can be delayed by a few seconds.


- **Internet connectivity required for emails:**


Since this involves email sending, internet connectivity is required.


## Chapter 9: Outputs


Register Page



# REGISTRATION PAGE

 Username :

 E-Mail :


 Password :


 Mobile-No :


 Register  Log In


Register Page



# REGISTRATION PAGE

 Username :

 E-Mail :

 Password :

 Mobile-No :

 Register  Log In

Success  
Registered successfully !!  
OK

Login Form

# LOGIN FORM




 **E-Mail** :


 **Password** :


 Login


Login Form

# LOGIN FORM



 **E-Mail** :

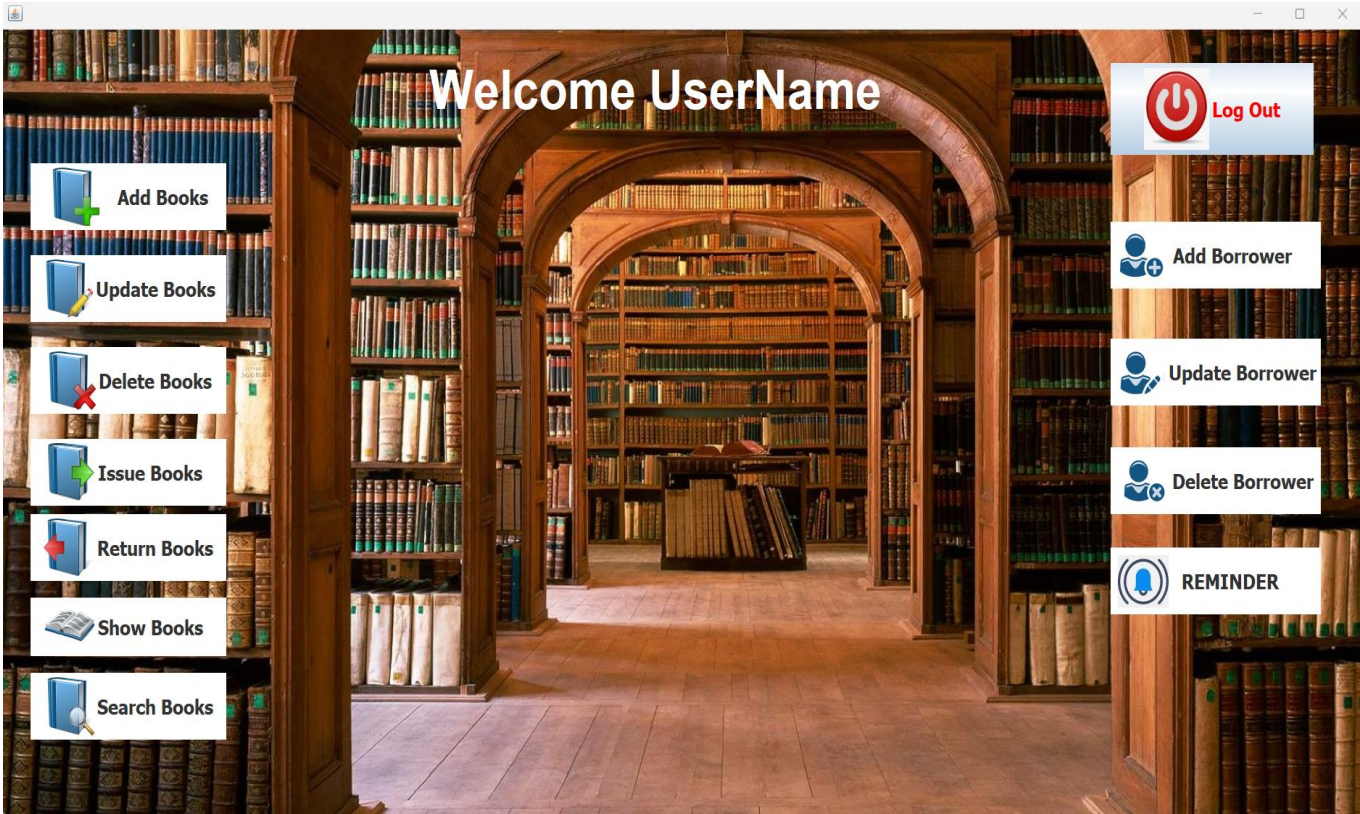
 **Password** :

 Login

Success



Login successful !!

OK



Add Books

Book ID	11
Book Name	The Blue Umbrella
Author	Ruskin Bond
Publication	Amar Chitra Katha
Price	100
Quantity	5

 Add  Close



**Add Books**

Book ID:

Book Name:

Author:

Publication:

Price:

Quantity:

**Message**  
Book Added successfully !!  
OK

Add Close

**Show Books**

Available Books		Issued Books	Borrowers			
ID	Name	Author	Publication	Price	Quantity	
1	The Alchemist	Paulo Coelho	HarperTorch	500	6	
2	Harry Potter	Harry Potter	Bloomsbury	1000	10	
3	The Brief History of Ti...	Stephan Hawking	Bantam Dell	1400	10	
4	Wings Of Fire	A.P.J.Abdul Kalam	Cocoblu	600	10	
5	The World As I See It	Albert Einsten	The Bodley Head	400	10	
6	Demystifying Computer	Achut Godbole	Tata Mcgraw-Hill	450	10	
7	Mein Kamf	Adolf Hitler	Franz Eher Nachfolger	1600	10	
8	Indian Polity	M. Lakshmikant	K Sagar	560	10	
9	Renaissance State	Girish Kuber	Harper Collins	700	10	
10	The Discovery of India	Jawarlal Nehru	Platkus	800	10	
11	The Blue Umbrella	Ruskin Bond	Amar Chitra Katha	100	5	

Show Download Close

Update Record

Book ID

11

Book Name

The Blue Umbrella

Author

Ruskin Bond

Publication

Amar Chitra Katha

Price

100

Quantity

10

Update

Close

Update Record

Book ID

11

Book Name

The Blue Umbrella

Author

Success

Publication

Book updated Successfully

Price


100

Quantity

10

Update

Close

 Show Books

Available Books


Issued Books


Borrowers

ID	Name	Author	Publication	Price	Quantity
1	The Alchemist	Paulo Coelho	HarperTorch	500	6
2	Harry Porter	Harry Porter	Bloomsbury	1000	10
3	The Brief History of Ti...	Stephan Hawking	Bantam Dell	1400	10
4	Wings Of Fire	A.P.J.Abdul Kalam	Cocoblu	600	10
5	The World As I See It	Albert Einsten	The Bodley Head	400	10
6	Demystifying Computer	Achut Godbole	Tata Mcgraw-Hill	450	10
7	Mein Kamf	Adolf Hitler	Franz Eher Nachfolger	1600	10
8	Indian Polity	M. Lakshmikant	K Sagar	560	10
9	Renaissance State	Girish Kuber	Harper Collins	700	10
10	The Discoverry of India	Jawarlal Nehru	Platkus	800	10
11	The Blue Umbrella	Ruskin Bond	Amar Chitra Katha	100	10

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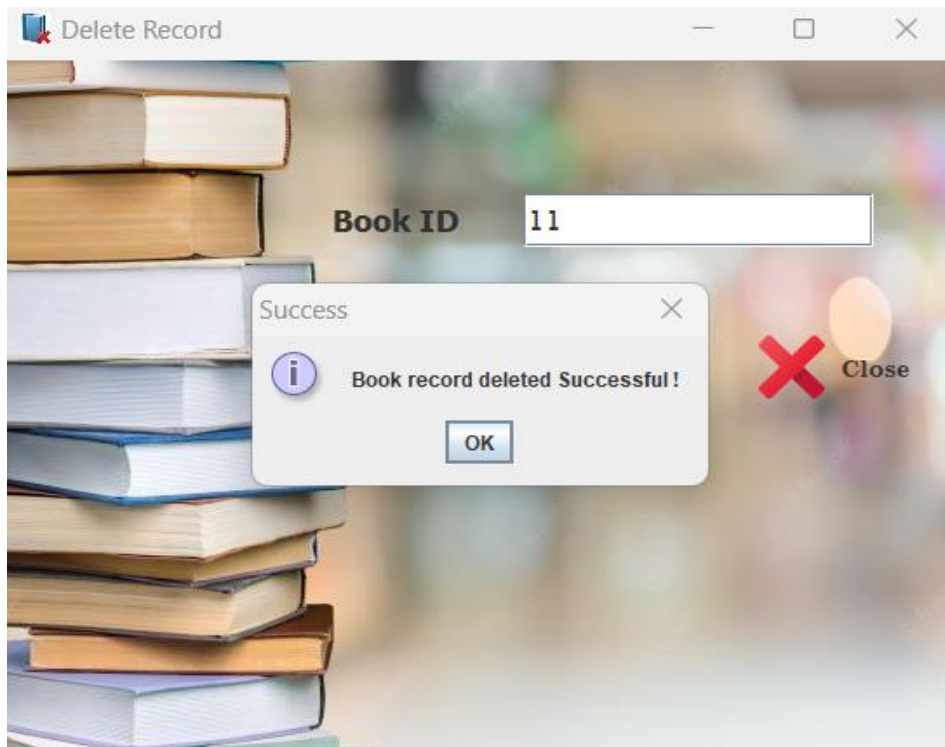
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1	The Alchemist	Paulo Coelho	HarperTorch	500	6
2	Harry Porter	Harry Porter	Bloomsbury	1000	10
3	The Brief History of Ti...	Stephan Hawlking	Bantam Dell	1400	10
4	Wings Of Fire	A.P.J.Abdul Kalam	Cocoblu	600	10
5	The World As I See It	Albert Einsten	The Bodley Head	400	10
6	Demystifying Computer	Achut Godbole	Tata Mcgraw-Hill	450	10
7	Mein Kamf	Adolf Hitler	Franz Eher Nachfolger	1600	10
8	Indian Polity	M. Lakshmikant	K Sagar	560	10
9	Renaissance State	Girish Kuber	Harper Collins	700	10
10	The Discovery of India	Jawarlal Nehru	Platkus	800	10

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Borrower Add

Borrower Id

4

Borrower Name

Vinay

Borrower Address

Pune

Borrower Email

vinayhajare2004@gmail.c

Borrower Contact

7559282625

Book Borrowed

1

Fine Amount

00

+

Add

×

Close

Borrower Add

Borrower Id

4

Borrower Name

Vinay

Borrower Address

Pune

Borrower Email

re2004@gmail.c

Borrower Contact

25

Book Borrowed

1

Fine Amount

00

+

Add

×

Close

Message

i

Borrower Added successfully !!

OK

Show Books

Available Books		Issued Books		Borrowers		
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1	Neha Deshpande	Yavatmal, Mahara...	nehadeshpande2...	8767442778	1	00
2	Niranjan	Pune	nirudangi11@gma...	9322851793	1	00
3	Isha	Pune	ishakulkarni23@g...	9607010119	1	00
4	Vinay	Pune	vinayhajare2004@...	7559282625	1	00

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Borrower Update

**Borrower Id**

**Borrower Name**

**Borrower Address**

**Borrower Email**

**Borrower Contact**

**Book Borrowed**

**Fine Amount**

Update Close

Borrower Update

Borrower Id

4

Borrower Name

Vinay

Borrower Address

Pune

Borrower

om

Borrower

Book Borrowed

2

Fine Amount

00

Success

Borrower Details updated Successfully

OK

Update

Close

Show Books

Available Books

Issued Books

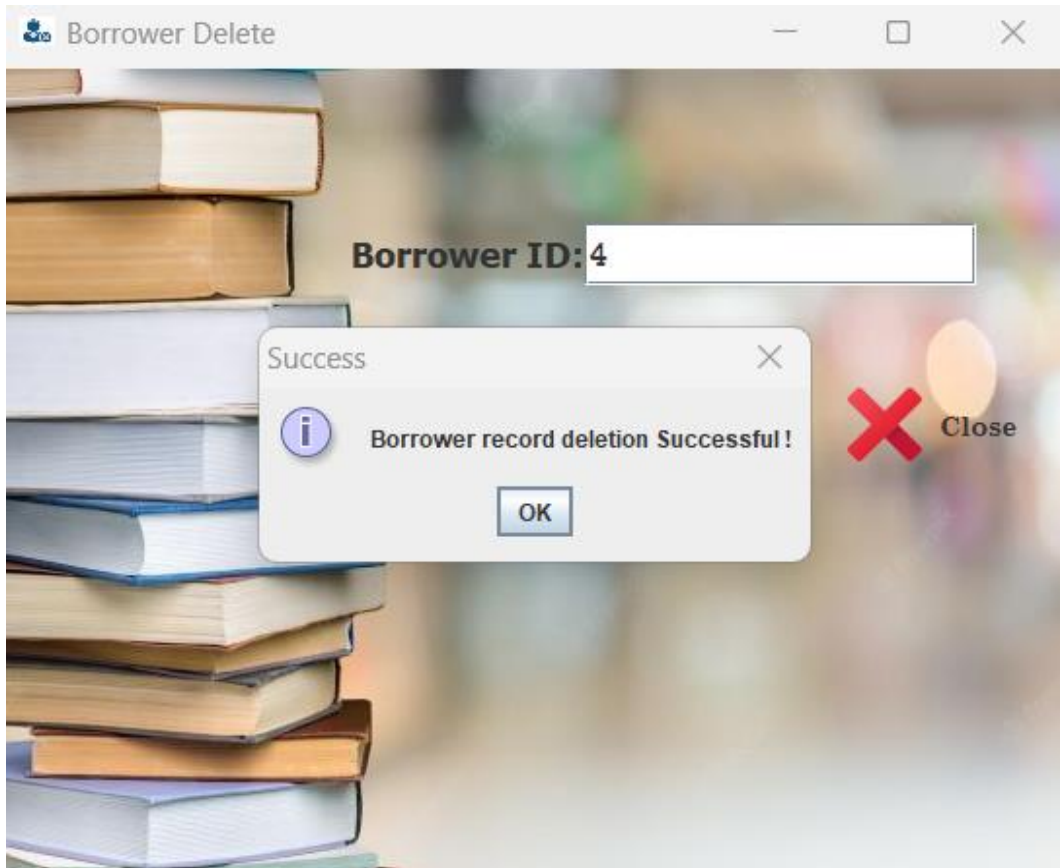
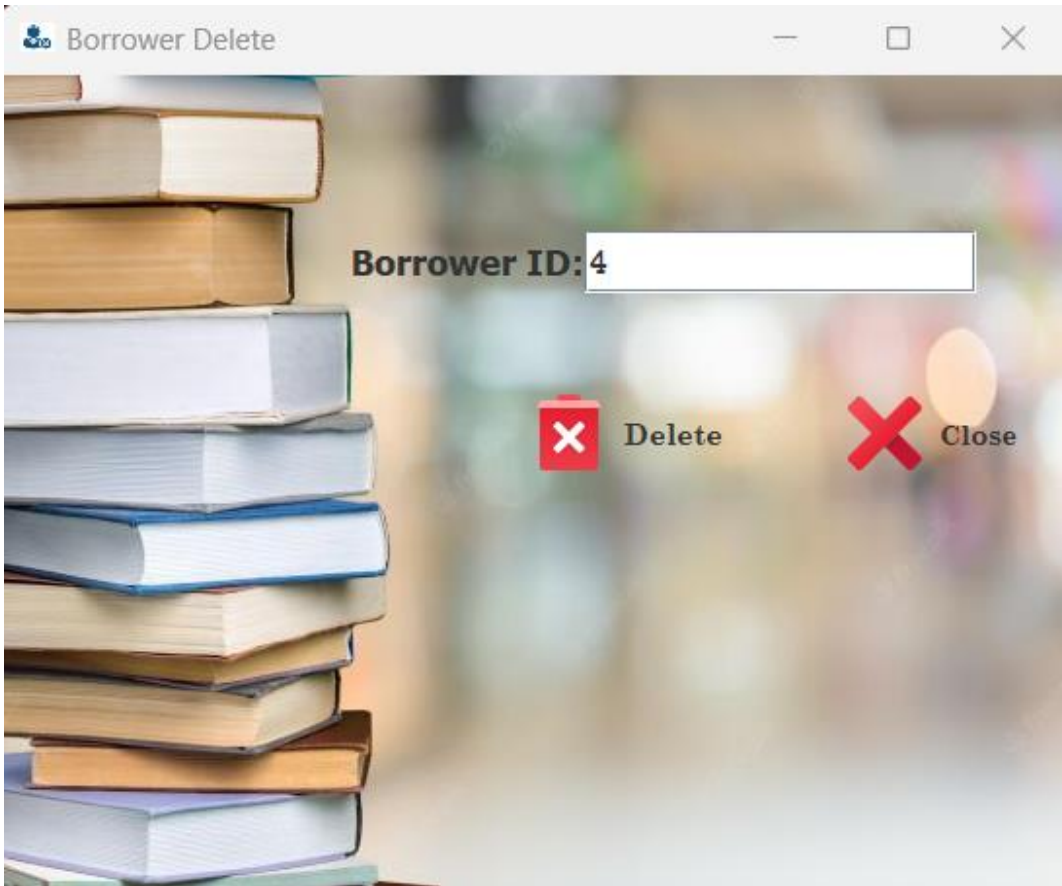
Borrowers

Borrower ID	Borrower Name	Borrower Address	Borrower Email	Borrower Contact	Books Borrowed	Total Fine
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2	Niranjan	Pune	nirudangi11@gma...	9322851793	1	00
3	Isha	Pune	ishakulkarni23@g...	9607010119	1	00
4	Vinay	Pune	vinayhajare2004@...	7559282625	2	00

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Available Books Issued Books Borrowers

Borrower ID	Borrower Name	Borrower Address	Borrower Email	Borrower Contact	Books Borrowed	Total Fine
1	Neha Deshpande	Yavatmal, Mahara...	nehadeshpande2...	8767442778	1	00
2	Niranjan	Pune	nirudangi11@gma...	9322851793	1	00
3	Isha	Pune	ishakulkarni23@g...	9607010119	1	00

Show Download Close

Issue Book

Book ID 1

Book Name The Alchemist

Borrower ID 2

Borrower Name Niranjan

Borrower Contact 9322851793

Issue Book Close

Issue Book

Book ID

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Book Name

The Alchemist

Borrower ID

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Success

Book issued Successfully

OK

Issue Book

Close

Show Books

Available Books

Issued Books

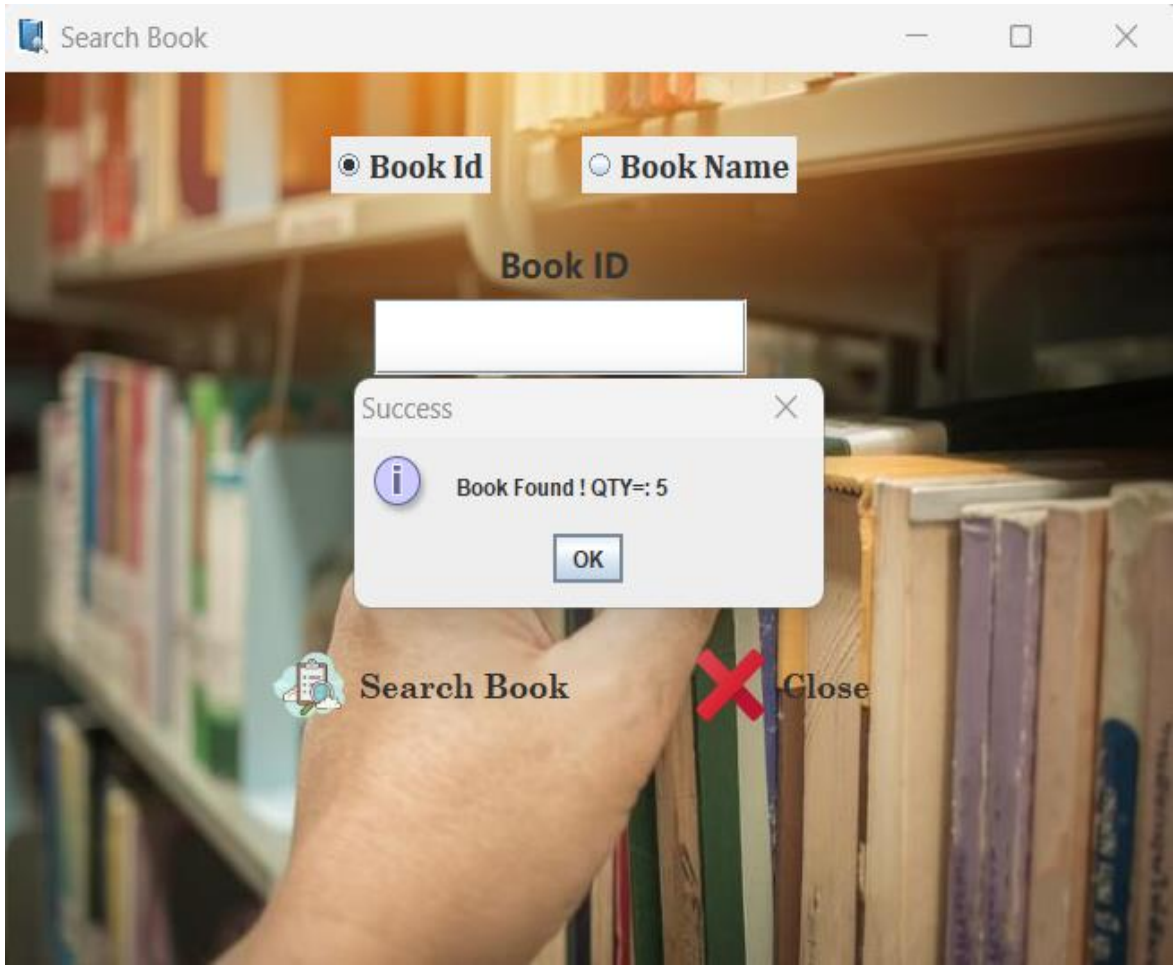
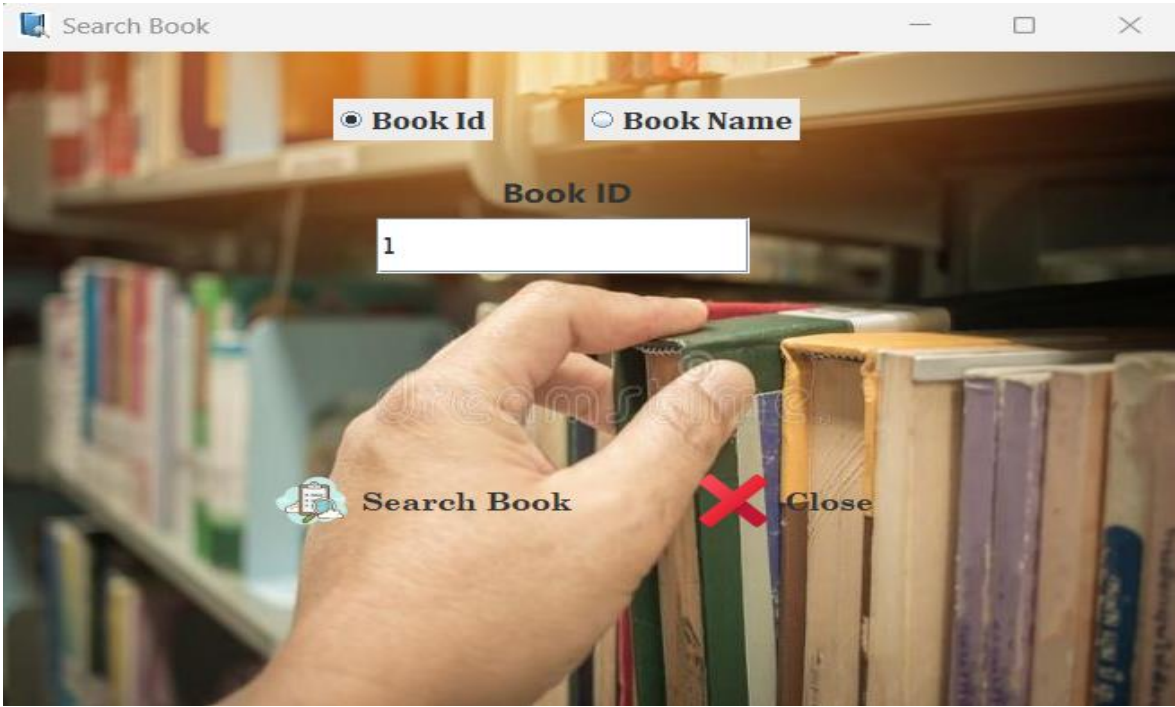
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4	Wings Of Fire	1	Neha Deshpande	8767442778	2023-04-29	2023-04-26
1	The Alchemist	3	Isha	12346678	2023-05-01	2023-05-07
1	The Alchemist	2	Niranjan	9322851793	2023-05-03	2023-05-10

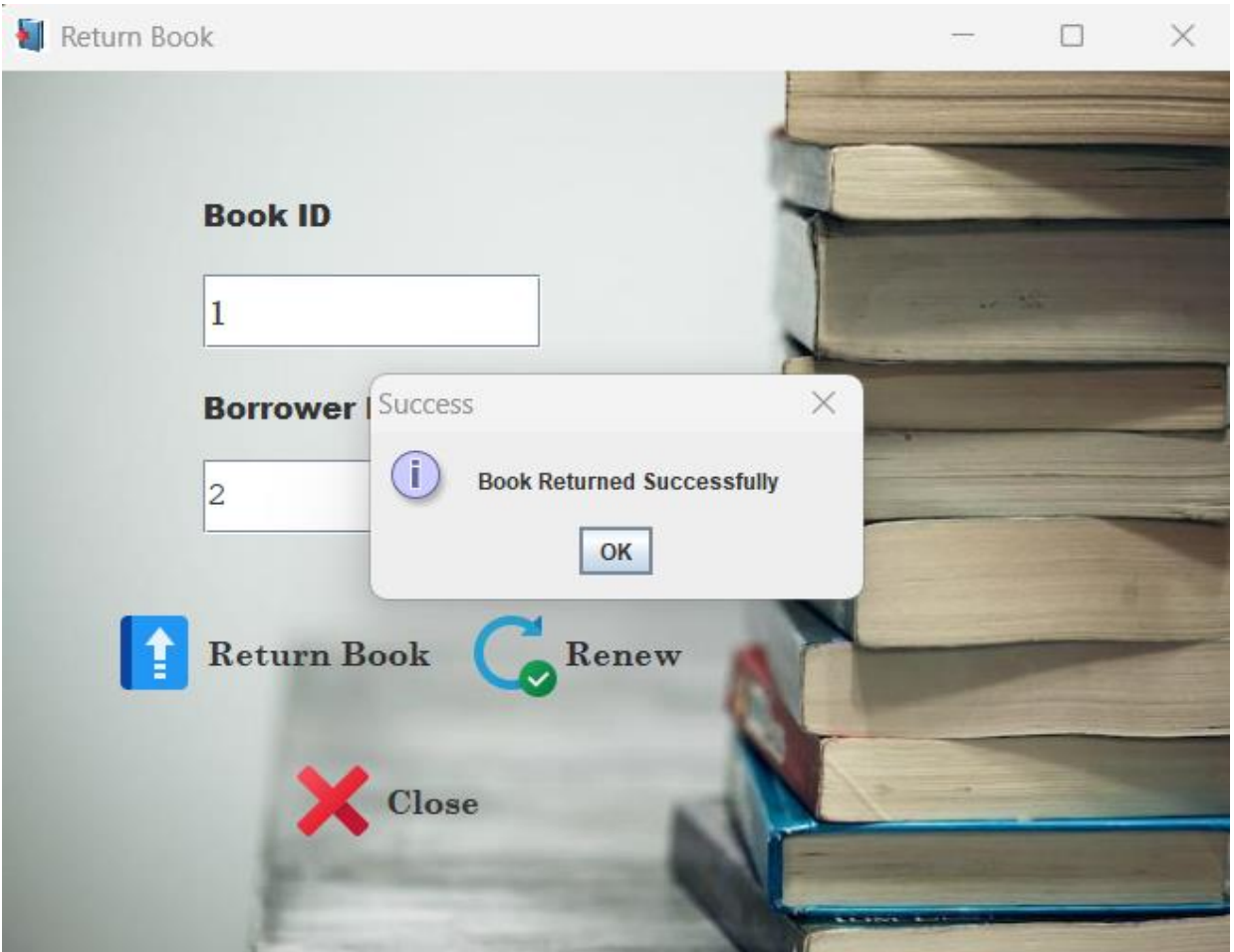
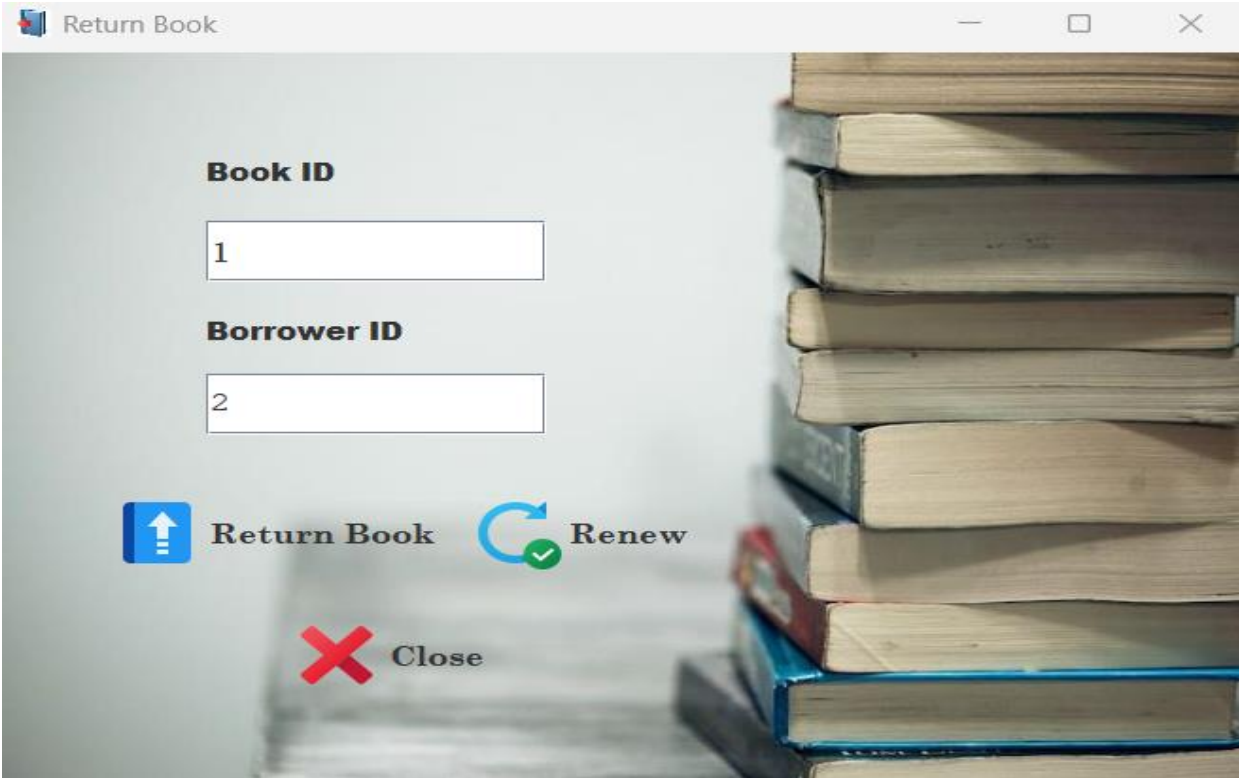
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Issued Books

Borrowers

Book ID	Book Name	Borrower ID	Borrower Name	Borrower Contact	Issue Date	Return Date
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4	Wings Of Fire	1	Neha Deshpande	8767442778	2023-04-29	2023-04-26
1	The Alchemist	3	Isha	12346678	2023-05-01	2023-05-07

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Book Id

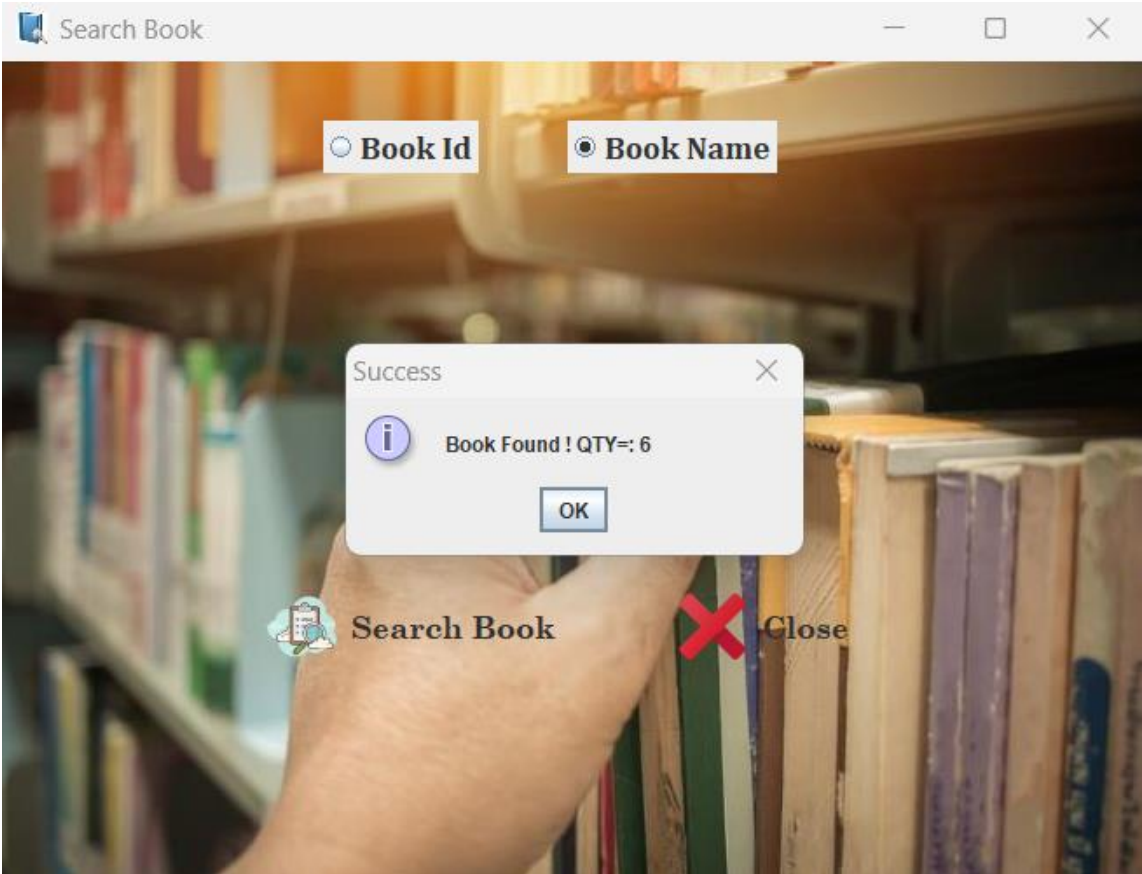
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Book Name

The Alchemist

Search Book

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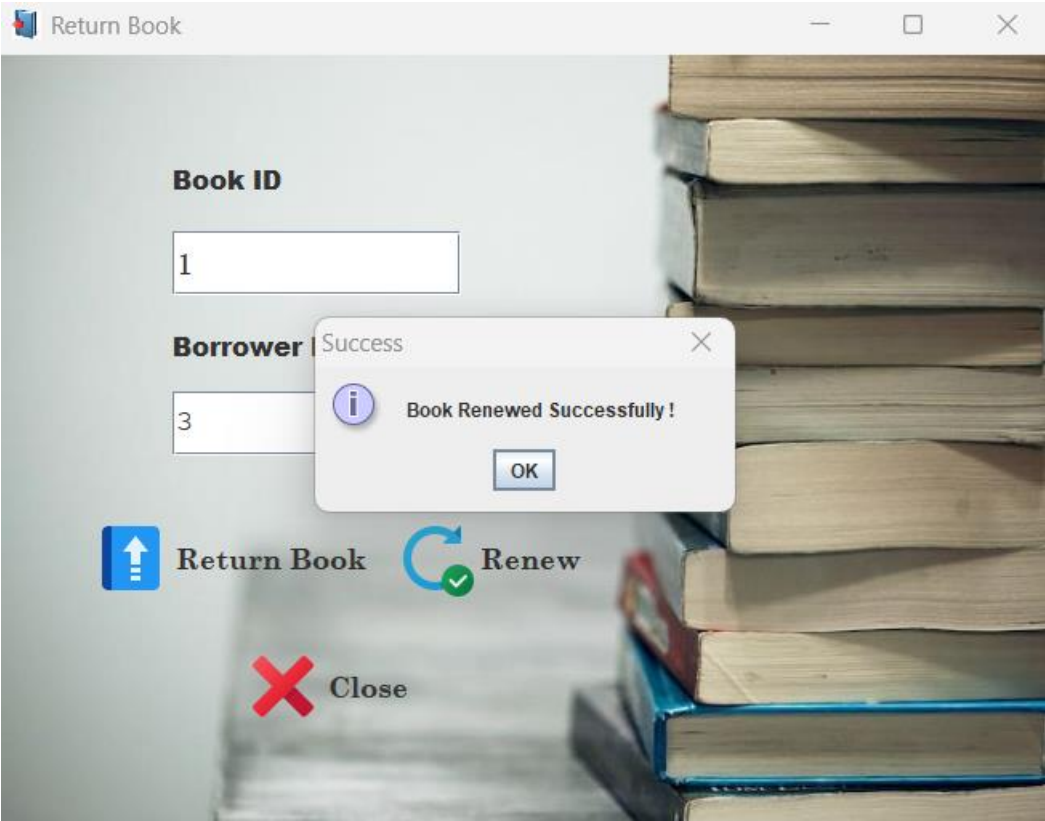
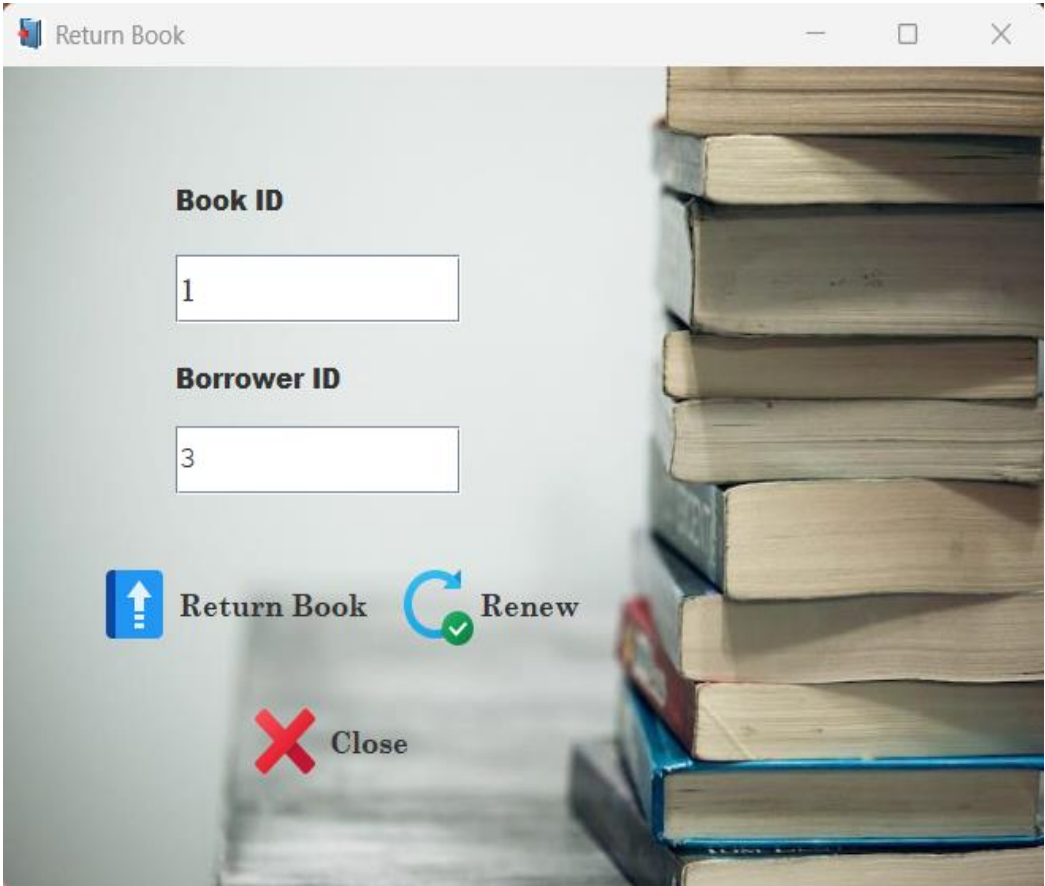
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Available Books   Issued Books   Borrowers						
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4	Wings Of Fire	1	Neha Deshpande	8767442778	2023-04-29	2023-04-26
1	The Alchemist	3	Isha	12346678	2023-05-01	2023-05-07

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Show Books

Available Books Issued Books Borrowers						
Book ID	Book Name	Borrower ID	Borrower Name	Borrower Contact	Issue Date	Return Date
2	Harry Porter	1	Neha Deshpande	8767442778	2023-04-29	2023-04-29
4	Wings Of Fire	1	Neha Deshpande	8767442778	2023-04-29	2023-04-26
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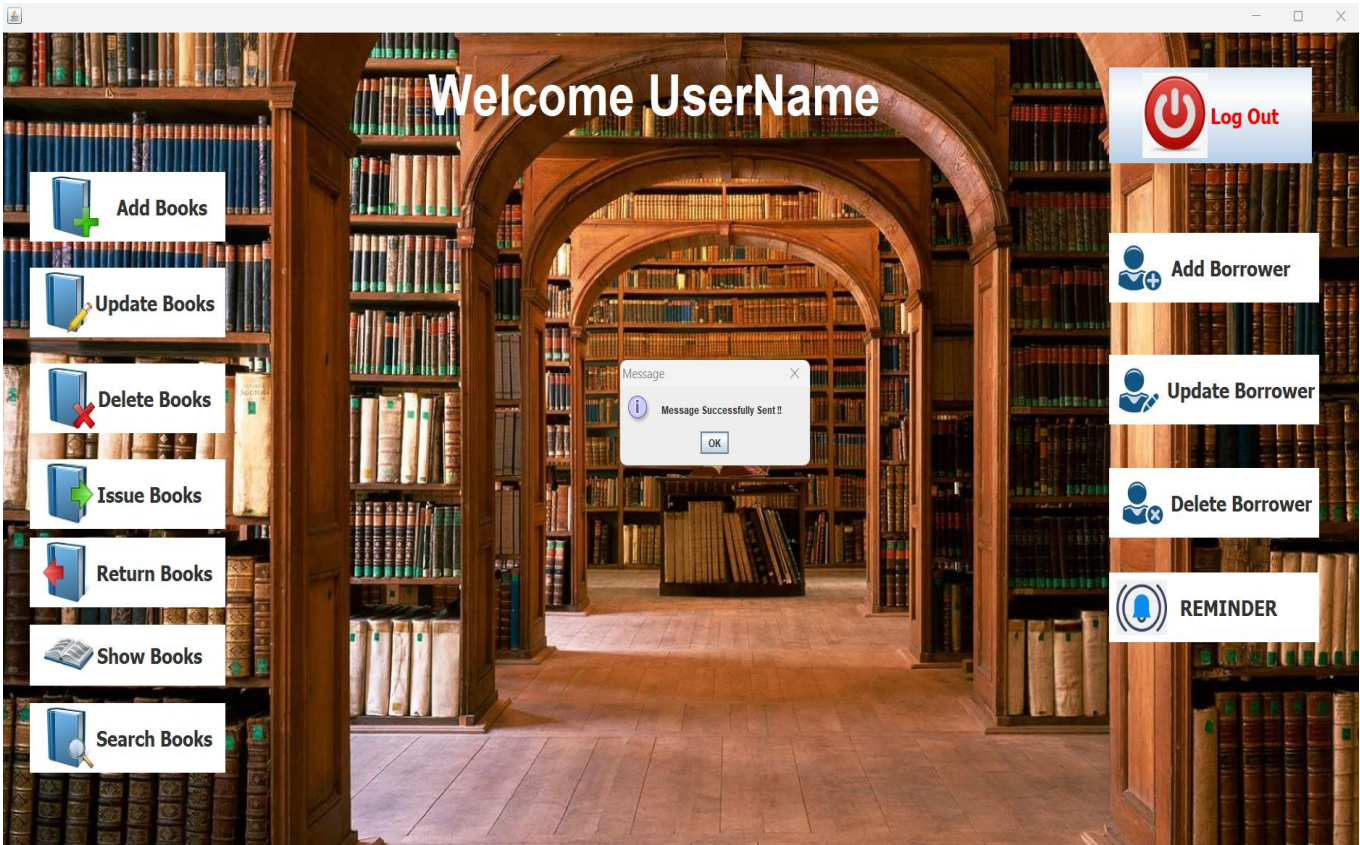
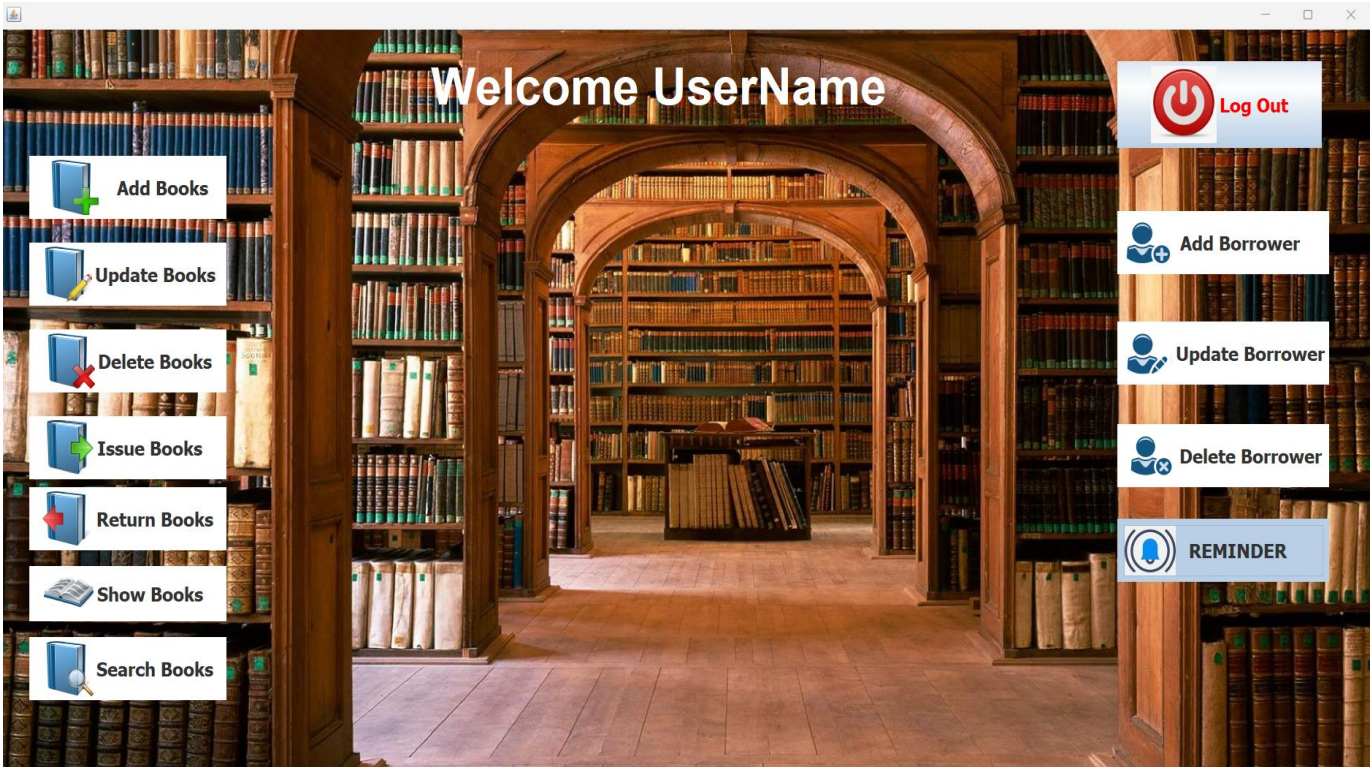
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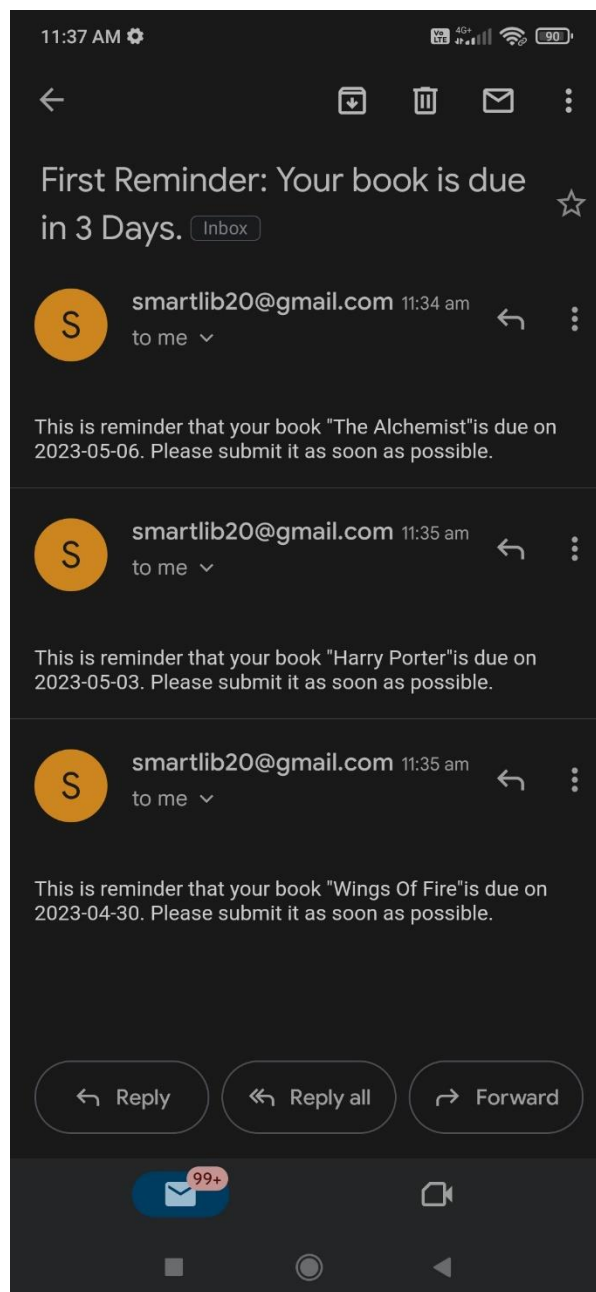
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2	Harry Porter	1	Neha Deshpande	8767442778	2023-05-03	2023-05-03
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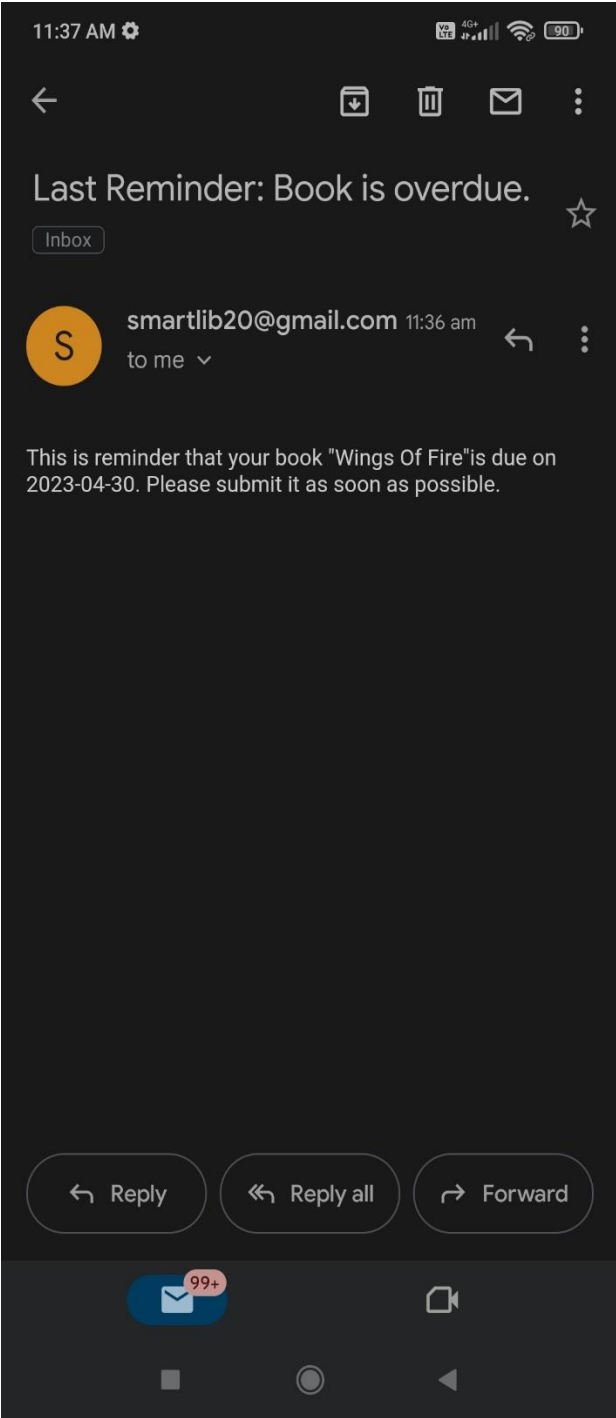
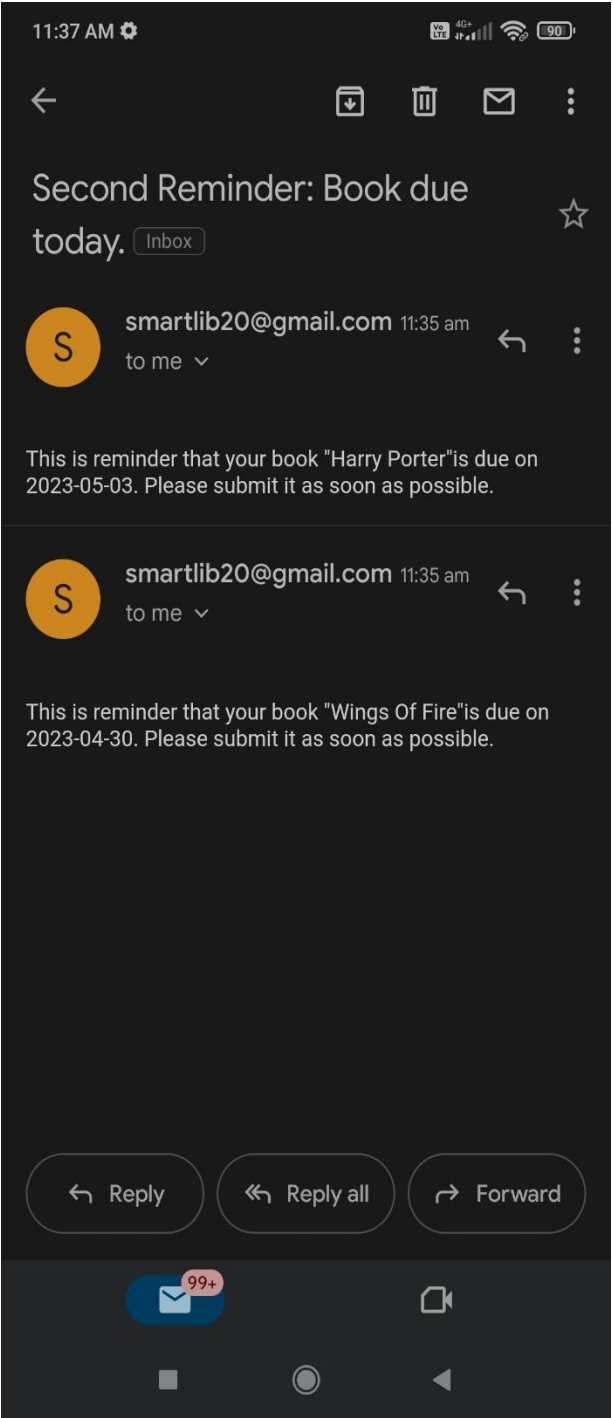
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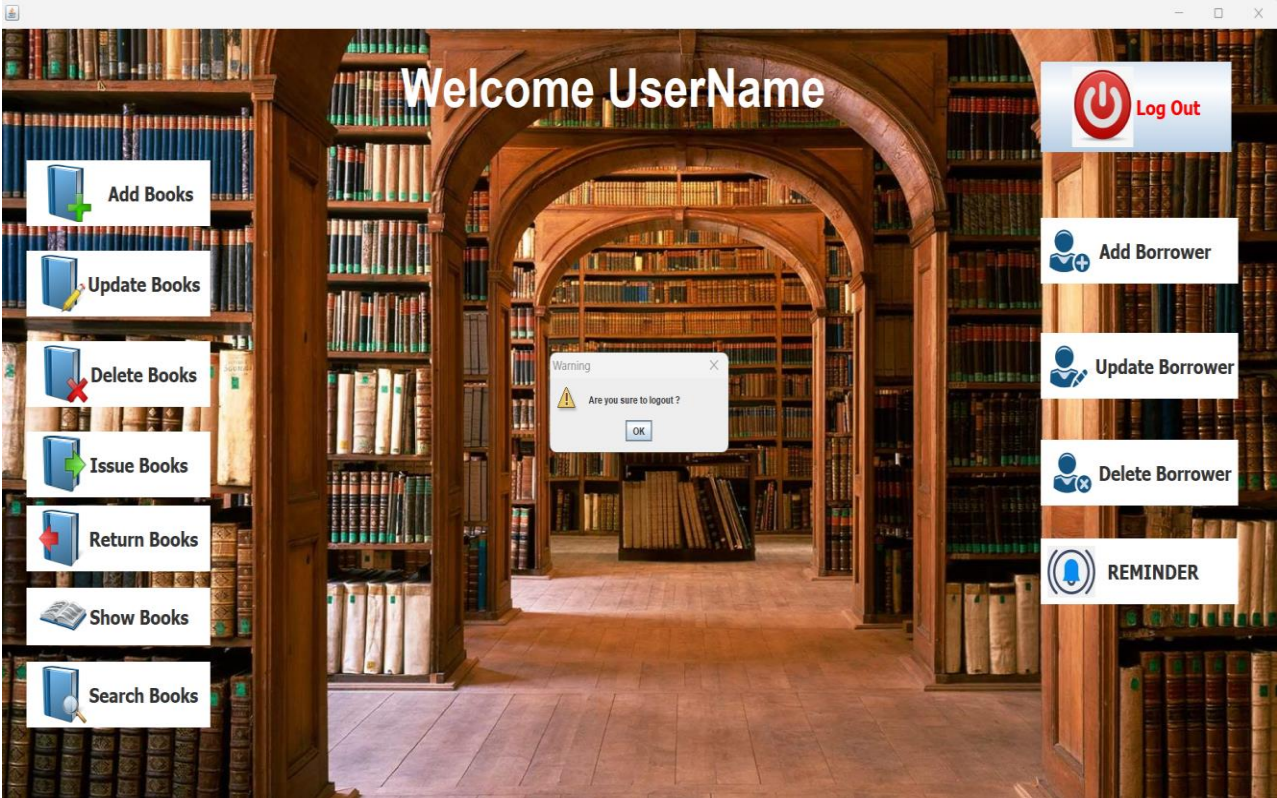


```
Output - SmartLib2.0 (run) x BAdd.java x Register.java x BUpdate.java x BDelete.java x Login.java x Home.java x Remind.jpg x DB.sql x Issue.java x Update.java x Automa...
ant -f "C:\\Users\\Neha Deshpande\\Desktop\\SEM-6\\Final_Project\\Library-Management-System-main\\SmartLib2.0\\SmartLib2.0" -Dnb
init:
Deleting: C:\\Users\\Neha Deshpande\\Desktop\\SEM-6\\Final_Project\\Library-Management-System-main\\SmartLib2.0\\SmartLib2.0\\build\\built-
deps-jar:
Updating property file: C:\\Users\\Neha Deshpande\\Desktop\\SEM-6\\Final_Project\\Library-Management-System-main\\SmartLib2.0\\SmartLib2
compile:
run:
Reminder mail sent successfully to nehadeshpande22032004@gmail.com
Reminder mail sent successfully to nehadeshpande22032004@gmail.com
Reminder mail sent successfully to nehadeshpande22032004@gmail.com
Reminder mail sent successfully to nehadeshpande22032004@gmail.com
Reminder mail sent successfully to nehadeshpande22032004@gmail.com
Reminder mail sent successfully to nehadeshpande22032004@gmail.com
```







A screenshot of a login form. The title "LOGIN FORM" is at the top, with a decorative row of colorful books below it. The form has two input fields: "E-Mail" with an envelope icon and "Password" with a key icon. Below the password field is a "Login" button with a book icon.



## Chapter 10: Future Scope

1. **Advanced Analytics and Reporting:** Enhancing the analytics and reporting capabilities of SmartLib can provide librarians with valuable insights into various aspects of library management. This includes detailed circulation statistics, user behavior patterns, popular genres, and resource utilization. Such insights can help librarians make informed decisions about collection development, resource allocation, and overall library operations.
2. **Integration with Library Management Systems:** Integrating SmartLib with existing library management systems, such as cataloging, inventory, and membership management software, can streamline administrative tasks for librarians. This integration enables seamless data synchronization, eliminating duplicate data entry and improving efficiency in day-to-day operations.
3. **Customizable Workflow Automation:** Introducing customizable workflow automation features in SmartLib can save librarians time and effort by automating routine tasks. For example, automated reminders for overdue books, reservation processing, and email notifications for upcoming events or new book arrivals can improve operational efficiency and enhance patron satisfaction.
4. **Collaboration and Communication Tools:** Adding collaboration and communication tools to SmartLib can facilitate effective communication between librarians and library staff. Features such as internal messaging, task assignment, and shared calendars can streamline internal workflows, enhance teamwork, and ensure smooth coordination among library staff members.
5. **Interlibrary Loan Management:** Incorporating an interlibrary loan management module in SmartLib can enable librarians to efficiently request and manage resource sharing between different libraries. This functionality allows librarians to expand their collection and provide access to a wider range of resources, enhancing the library's value to its patrons.
6. **Professional Development Resources:** Including a section within SmartLib dedicated to professional development resources can support librarians in staying updated with the latest trends, research, and best practices in library science. This can include access to webinars, online courses, e-books, and other educational materials to empower librarians to enhance their skills and knowledge.

## Chapter 11: Conclusion

Our proposed system, SmartLib desktop application represents an innovative and efficient solution for managing libraries in the digital age. Its user-friendly interface and advanced features provide librarians with a comprehensive toolset to streamline their operations and enhance the overall library experience for patrons. Librarians can easily catalog and organize books, track borrowing and returns, generate pdfs, and send reminders. The intuitive interface and automated processes reduce administrative burdens, allowing librarians to focus on delivering quality services. Its comprehensive features and user-friendly interface empower librarians to deliver exceptional services while fostering a love for reading and lifelong learning within their communities.

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