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## **GGC Library Management System**

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**DERGREE**

**BS Information Technology**



**Department / Degree of Computing & Information Technology**

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May Allah guide us righteous path, provide us the strength to fulfill our duties towards Him and His creation, help us to be thankful for what He has destined for us, enable us to be firm with our morals and humanity and enlist us among those He is pleased with.  
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## **DEDICATION**

This project is dedicated to our parents whose love, prayers, hopes and encouragements have always been there behind every bit of our success.

We also dedicate this dissertation to our many Teachers. We will always appreciate all they have done, especially **Miss Faiza Rasheed** for helping us develop our technology skills and for helping us to master the leader dots.

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## **DECLARATION**

We, Nouman Aziz S/O Abdul Aziz Roll No. 19721556-046, Muhammad Shahzaib Afzal S/O Muhammad Afzal Roll No. 19721556-017, Mehran Ali S/O Ishtiaq Hussain Roll N0. 19821556-002, students of BS (Information Technology), Department of Information Technology, Govt. Graduate College Jhelum Pakistan, hereby to declare that the data quoted in this Project titled “Govt Graduate College Library Management System” is based on my original work and has not yet been submitted or published elsewhere.

**Muhammad Shahzaib Afzal** \_\_\_\_\_

**Nouman Aziz** \_\_\_\_\_

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I certify that Muhammad Shahzaib Afzal Roll 19721556-017, Nouman Aziz Roll 19721556-046, Mehran Ali Roll 19821556-002, students of Bachelor of Information Technology, Department of Computing & Information Technology, University Of Gujarat Pakistan, worked under my supervision and the above stated declaration is true to the best of my knowledge.

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## PROJECT COMPLETION CERTIFICATE

It is verified that this report titled “GGC Library Management System” we certify that Nouman Aziz S/O Abdul Aziz Roll No. 19721556-046, Muhammad Shahzaib Afzal S/O Muhammad Afzal Roll No. 19721556-01, Mehran Ali S/O Ishtiaq Hussain Roll N0. 19821556-001, Students of Bachelor of Science (Information Technology), Department of Computing and Information Technology, University of Gujrat, Pakistan, contains sufficient material required for the award of above said degree.

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# **CHAPTER 1**

## **INTRODUCTION**

## **1.1. Introduction**

A library management system is a software designed to manage all the functions of a library. It helps librarians to maintain the database of new books and the books that are borrowed by members along with their due dates. This system completely automates all the library's activities, from managing the acquisition, cataloging to serial control, issued/borrowed books, returned books & due date calculation, it helps in managing the daily work process in the library. The library management system software automatically organizes the books by categories, subject, author, topic, and maintains the records with ease.

The primary functions of adding and deleting, issuing and returning of books are made simple. The processes of book indexing, cataloging, book reservations, and overdue notifications are automated. The software system makes the process simpler and more accountable. The library management system allows a library to keep track of all its books, and also manage its members. Some of the services offered by a library management system include book requests by the members of the library, and denial or issuance of the requests by the librarian.

## **1.2 Background and Existing System**

Before the advent of technology, libraries used to maintain their records manually. The manual library system was a time-consuming process and required a lot of effort from the librarians. The manual system was prone to errors, and it was difficult to keep track of the books that were borrowed by the members.

The manual system requires the librarians to maintain the records of the books that are borrowed by the members. The librarians have to manually enter the details of the books in the register, and they have to manually update the register when the books are returned.

## **1.3 Problems in Existing System**

It's important to note that these problems may vary across different Library Management System platforms, and some providers actively address these issues through updates and improvements. Institutions should carefully evaluate their specific requirements and conduct thorough research to select an LMS that best aligns with their goals and overcomes these existing problems.

- Difficult in Offering wide range of services.
- Lack of storage space.
- Too much paper wastage.
- Data Security.
- Pressure on people to be correct in all details of their work in all time.

#### **1.4 Proposed System**

Proposed Library Management System is a Computer-based system that helps in managing and organizing the resources of a library, and the specific requirements and features would vary depending on the context and needs of the institutions implementing it.

- Interactive and Engaging Features.
- Integration of Library functions in a systematic way.
- Fast and Effortless gathering of all information in the library.
- Web-Based System.
- Efficient management of the library.

#### **1.5 Main Modules**

The main modules of Library Management System are given below:

- Admin Panel
  - Perform Registration.
  - Manage Students
  - Manage Faculty Staff
  - Manage Books
  - Manage Faculty Staff
  - Manage Books
  - View Details
  - Generate Reports
  - Maintain Records

- Student Panel
  - Login
  - Profile setup
  - Search books
  - View book details
  - Reserve books
  - Borrow books
  - Renew books
  - Read books
  - Analyze Transactions
  - Logout
  
- Faculty Staff Panel
  - Login
  - Profile setup
  - Search books
  - View books details
  - Reserve books
  - Borrow books
  - Renew books
  - Read books
  - Analyze transactions
  - Logout

## **1.6 Expected Outcome**

Integrated environment is provided to Students and Faculty members. It helps them to provide a more efficient and effective way of utilizing library resources. It helps in keeping a record of all library resources, reducing paper wastage, and providing better security.

## **1.7 Tools & Technology:**

- **Tools:**

- MS Visual Studio Code
- MS Visio
- Rational Rose
- Star UML
- Mongo DB Compass
- Postman
- Figma
- MS Word

- **Technology:**

- HTML5
- CSS 3
- JavaScript
- React JS
- Node JS
- Mongo DB
- Node Mailer

## **1.8 Activity Index**

Schedule all the deliverables accordingly:

No	Activity	Duration	Deliverables
1	Project Selection	2 Weeks	.....
2	Feasibility Study	2 Weeks	.....
3	Making Proposal	2 Weeks	Proposal Documents
4	Defend Proposal	2 Weeks	Acceptance Certificate
5	Acquire Requirements	3 Weeks	Requirement Document
6	Analysis of Requirements	3 Weeks	Analysis Report
7	Identify Scope	1 Week	Scope Document
8	Write Specification	2 Weeks	Specification Document
9	Make Architecture Design	1 Week	Architecture Design
10	Make Detail Design	3 Weeks	Detail Design
11	Module Coding + Integration Coding	4 Weeks	Coding Document
12	Unit / Module Testing	1 Week	Unit Testing Report
13	Integration Testing	1 Week	Integration Testing Report
14	Final Project Defense		

# **CHAPTER 2**

## **REQUIREMENT ANALYSIS**

## **2.1 Requirement Analysis**

Requirement's analysis in systems engineering and software engineering, encompasses those tasks that go into determining the needs or conditions to meet for a new or altered product taking account of the possibly conflicting requirements of the various stakeholders, analyzing, documenting, validating and managing software or system requirements.

## **2.2 Functional Requirements**

The system should support management of all library affaire and Students and Staff activities related to their integration.

### **2.2.1 Administrator:**

Admin can perform any of the function given below:

#### **2.2.1.1 Books management**

- Search: Can search any kind of book by its Name, Title and Author Name.
- Update: Can update any books information.
- Add: Can add new Books.
- Delete: Can delete Books.
- View: Can view the Books detail.

#### **2.2.1.2 Staff management:**

- Search: Can search any information related to Staff.
- Delete: Can delete both important and unimportant things related to Staff.
- View: Can view the Staff information and activities.
- Update: Can update the Staff information.
- Add: Can add new Staff members.

### **2.2.1.3 Student management:**

- Search: Can search any information related to Students.
- Delete: Can delete both important and unimportant things related to Students.
- View: Can view the Student's information and activities.
- Update: Can update the Student information.
- Add: Can add new Students.

### **2.2.2 Students:**

Students can perform the following functions:

- Login: Students can perform Login with the help username and password.
- Search: can search books that are required.
- View: can view all the information related to books.
- Reserve: can reserve books that are needed for study purpose or other.
- Borrow: can borrow books that are needed for study purpose or other.
- Feedback: Give feedback about any book that helps others.
- Return: can return books after its study.

### **2.2.3 Faculty Staff:**

Faculty staff can perform the following functions:

- Login: Staff can perform Login with the help username and password.
- Search: can search books that are required.
- View: can view all the information related to books.
- Reserve: can reserve books that are needed for study purpose or other.
- Borrow: can borrow books that are needed for study purpose or other.
- Return: can return books after its study.

- Feedback: Give feedback about any book that helps others.
- Communicate with Students: Faculty staff can communicate with students.

### **2.3 Non-Functional Requirements**

Non-functional requirements are given below:

- **Security:**

Requirements are important factors in this system as classified data will be stored in the Database. Admin validation will be done during login to ensure that the admin is valid and only the admin has access to all the data.

- **User friendly interface:**

The system will have consistent interface formats and button sets for all forms in the application, will have a user-friendly interface for all users and viewing formats, any type of users will be able to get the information and services provided by the system.

- **Ease of use:**

The system will be easily maintained by the administrator and it shall respond as fast as possible in performing the services mentioned.

### **2.4 Use Cases**

A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. The use case is made up of a set of possible sequences of interactions between systems and users in a particular environment and related to a particular goal. It consists of a group of elements (for example, classes and interfaces) that can be used together in a way that will have an effect larger than the sum of the separate elements combined. The use case should contain all system activities that have significance to the users. A use case can be thought of as a collection of possible scenarios related to a particular goal, indeed, the use case and goal are sometimes considered to be synonymous.

**Table 1: UC\_01 Administrator Login**

<b>Use Case Name</b>	Administrator Login
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can manage the students and staff and also update their information. Database: information is inserted into the database successfully System: can work properly
<b>Pre-Condition</b>	Web Application is in running form and main interface is shown
<b>Post Condition</b>	Accounts handling & Entering information about students
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Enter user name</li><li>• Enter password</li><li>• Click on login button</li><li>• Verify username and password by system</li><li>• Admin successfully login into system/application</li></ul>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 2: UC\_02 Administrator Logout**

<b>Use Case Name</b>	Administrator Logout
<b>Scope</b>	Web App for Library Management
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can logout from the website and go to login form Database: stop the interaction with the application System: system will go to login form
<b>Pre-Condition</b>	App is in running form and the user is logged-in
<b>Post Condition</b>	Back to login page
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Login</li><li>• Select and click logout</li><li>• Admin will successfully logout</li></ul>
<b>Alternate Scenario</b>	Remain login
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 3: UC\_03 Administrator Change Password**

<b>Use Case Name</b>	Administrator Change Password
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can the change the password and fill the fields required Database: update the password System: system will update
<b>Pre-Condition</b>	Enter to the login panel
<b>Post Condition</b>	Password changed successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"> <li>• Click change password option</li> <li>• Enter Old password</li> <li>• Enter new password</li> <li>• Confirm password</li> <li>• Submit</li> </ul>
<b>Alternate Scenario</b>	N/A
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 4: UC\_04 Users Signup**

<b>Use Case Name</b>	User Signup
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can register the users that can be students and staff successfully Database: store information and update the database System: system will update
<b>Pre-Condition</b>	Enter to the login panel
<b>Post Condition</b>	Users registered successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Click on “Add User” option</li><li>• Enter Information</li><li>• Grant Permissions</li><li>• Review Information</li><li>• Registered</li></ul>
<b>Alternate Scenario</b>	N/A
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 5: UC\_05 Student Management**

<b>Use Case Name</b>	Student Management
<b>Scope</b>	We App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can update and manage the students Database: can update the Students related information System: system is updated and maintained
<b>Pre-Condition</b>	Administration login
<b>Post Condition</b>	Database updated successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• can add Students</li><li>• can delete Students</li><li>• can update Student details</li><li>• can save Students details</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 6: UC\_06 Faculty Staff Management**

<b>Use Case Name</b>	Faculty Staff Management
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can view the staff details Database: maintain the record related to staff System: system will work successfully
<b>Pre-Condition</b>	Administration Login
<b>Post Condition</b>	Database updates successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"> <li>• can add new staff</li> <li>• can delete staff</li> <li>• can update Staff details</li> <li>• can save Staff details</li> </ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 7: UC\_07 Books Management**

<b>Use Case Name</b>	Books Management
<b>Scope</b>	We App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can manage the books Database: Books information is stored in database System: provide information related to books to students and staff
<b>Pre-Condition</b>	Administration Login
<b>Post Condition</b>	Database update successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• can add new books</li><li>• can delete books</li><li>• can update book detail</li><li>• can save books details</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 8: UC\_08 Generate Reports**

<b>Use Case Name</b>	Generate Reports
<b>Scope</b>	We App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Administrator
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Administrator: can manage and generate monthly or weekly reports Database: All records is stored in database System: provide information related to books to students and staff
<b>Pre-Condition</b>	Administration Login
<b>Post Condition</b>	Database update successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• can manage transactions</li><li>• can maintain records</li><li>• can generate reports</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 9: UC\_09 User Login**

<b>Use Case Name</b>	User Login
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, Web app administrator, System
<b>Stakeholders and interests</b>	Student: can login successfully and search books Database: information related to students is stored in database successfully System: system can provide integrated environment b/w the student and library affaires
<b>Pre-Condition</b>	Web App is in running form and main interface is shown
<b>Post Condition</b>	Users can explore the App and Search the books according to their need
<b>Main success scenario</b>	<ul style="list-style-type: none"> <li>• User will enter username</li> <li>• Enter password</li> <li>• Click on login button</li> <li>• Verify username and password by system</li> <li>• student successfully login into app</li> </ul>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 10: UC\_10 User Logout**

<b>Use Case Name</b>	User Logout
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Student: can logout from the app successfully System: logout the student successfully
<b>Pre-Condition</b>	Web App is in running form and the user is logged-in
<b>Post Condition</b>	Back to login page
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Select and click logout</li><li>• User will successfully logout</li></ul>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 11: UC\_11 User Change Password**

<b>Use Case Name</b>	User Change Password
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Student: can the change the password and fill the fields required Database: update the password System: system will update
<b>Pre-Condition</b>	Enter to the login panel
<b>Post Condition</b>	Password changed successfully
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Click change password option</li><li>• Enter Old password</li><li>• Enter new password</li><li>• Confirm password</li><li>• Submit</li></ul>
<b>Alternate Scenario</b>	N/A
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 12: UC\_12 Search Books**

<b>Use Case Name</b>	Search Books
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, Web app administrator, System
<b>Stakeholders and interest</b>	User: can search books by its title, name and author name Database: information related to books is stored in database successfully System: system can maintain the information related to books
<b>Pre-Condition</b>	Enter the App as Registered Student
<b>Post Condition</b>	Book Searched
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Click search bar for searching books</li><li>• Find book according to need from searched books</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 13: UC\_13 View Book Details**

<b>Use Case Name</b>	View Book Details
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	User: can search books by its title, name and author name and view all details Database: information related to books is stored in database successfully System: system can maintain the information related to books
<b>Pre-Condition</b>	Enter the App as Registered User
<b>Post Condition</b>	Book Searched
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Click search bar for searching books</li><li>• Find book according to need from searched book</li><li>• View all details related to books that are required</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 14: UC\_14 Reserve Books**

<b>Use Case Name</b>	Reserve Books
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, System
<b>Stakeholders and interest</b>	User: can successfully reserve books Database: can store the request information System: can maintain the records
<b>Pre-Condition</b>	Enter to the Login panel
<b>Post Condition</b>	Successfully request sent
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Click the search bar to search books</li><li>• Select the books according to requirement</li><li>• Click “Reserve Book” Button</li><li>• The request will be sent to admin for reserving</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day

**Table 15: UC\_15 Issue Books**

<b>Use Case Name</b>	Issue Book
<b>Scope</b>	WebApp for Library Management System
<b>Level</b>	Admin goal
<b>Primary Actor</b>	Admin
<b>Supporting Actor</b>	Database, System
<b>Stakeholders and interest</b>	Admin: can successfully Issue books according to request. Database: can store the information of activities System: can maintain the records
<b>Pre-Condition</b>	Enter to the login panel
<b>Post Condition</b>	Successfully issue books
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Check the record of particular user and his account status.</li><li>• Select the books that you want to Issue</li><li>• Click “Issue Book” Button</li><li>• The request will be execute successfully</li></ul>
<b>Alternate Scenario</b>	Retry
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day or in some cases many times

**Table 16: UC\_16 Renew Books**

<b>Use Case Name</b>	Renew Books
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Student
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interests</b>	User: can successfully renew the book that is borrowed Database: status information related to book is stored in database successfully System: system can provide integrated environment between the User and library affairs
<b>Pre-Condition</b>	Web App is in running form and main interface is shown
<b>Post Condition</b>	Students can explore the App and Search the books and view books detail according to their need
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Borrow the books that you need</li><li>• Click “Renew Book” Button</li><li>• The request will be sent to admin Successfully</li><li>• The book is renewed Successfully</li></ul>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 17: UC\_17 Read eBooks**

<b>Use Case Name</b>	Read eBooks
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Student
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Students: can read books in online mode successfully System: store the books in database successfully
<b>Pre-Condition</b>	Web App is in running form and the main interface is shown
<b>Post Condition</b>	Student must be registered
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Login</li><li>• Search and select books that you want to read</li><li>• The book will be opened successfully</li></ul>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Special requirements</b>	Font size 12, 14 and easy to watch from 1 m distance, use windows color scheme, it is more effective.
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 18: UC\_18 Fill Clearance Form**

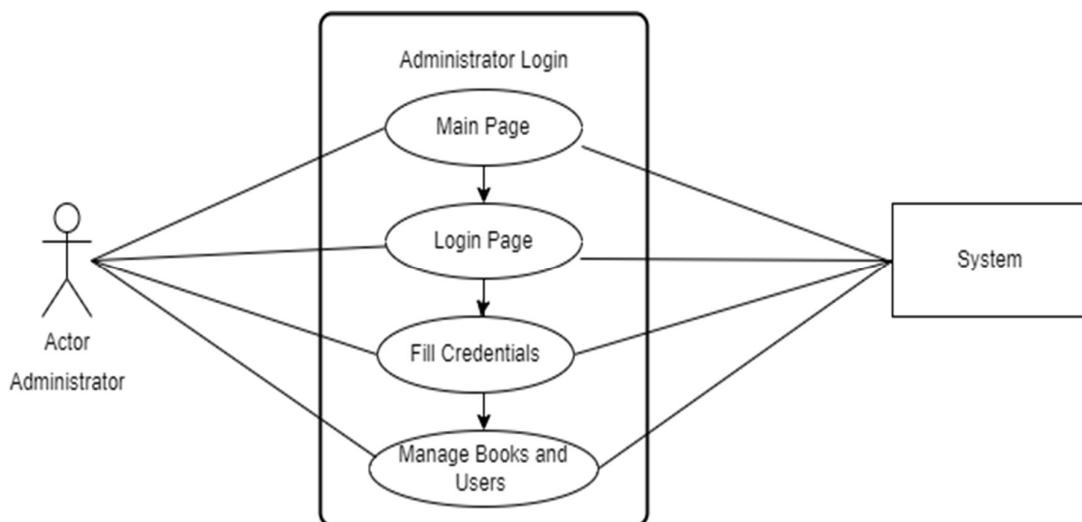
<b>Use Case Name</b>	Fill Clearance Form
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	Student
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	Students: can fill clearance form in case of passing out from the institute System: store and verify the information from database successfully
<b>Pre-Condition</b>	Web App is in running form and the main interface is shown
<b>Post Condition</b>	Student must be registered
<b>Main success scenario</b>	<ul style="list-style-type: none"> <li>• Login</li> <li>• Click “Student Panel”</li> <li>• Select clearance form and fill it with correct information</li> <li>• Click “Submit” Button</li> </ul> <p>Form will be submitted successfully</p>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Frequency of occurrence</b>	One time a day but in some cases many times

**Table 19:UC\_19 Edit Profile**

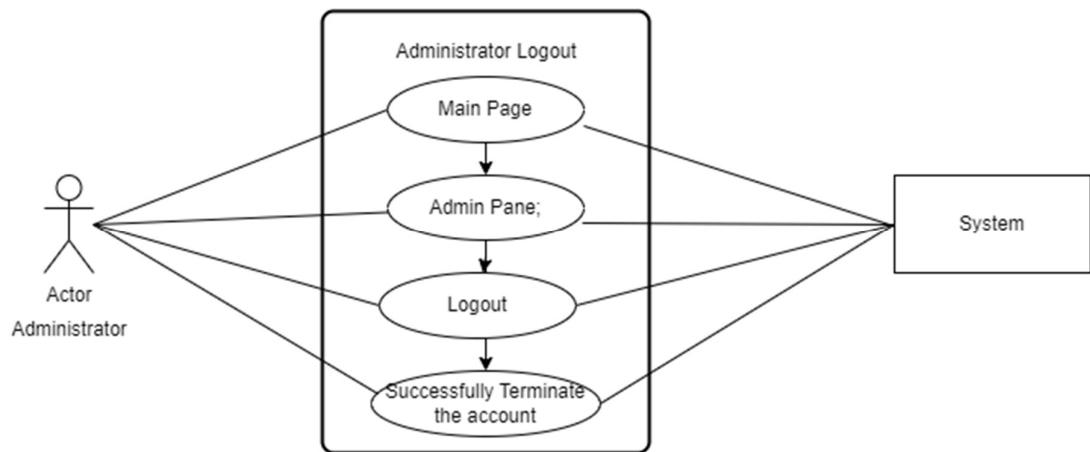
<b>Use Case Name</b>	EDIT PROFILE
<b>Scope</b>	Web App for Library Management System
<b>Level</b>	User goal
<b>Primary Actor</b>	User
<b>Supporting Actor</b>	Database, Web App administrator, System
<b>Stakeholders and interest</b>	User: can change his profile settings like profile image, username, password etc. System: store and verify the information from database successfully
<b>Pre-Condition</b>	Web App is in running form and the main interface is shown
<b>Post Condition</b>	User must be registered
<b>Main success scenario</b>	<ul style="list-style-type: none"><li>• Login</li><li>• Click “Student or Staff Panel”</li><li>• Select profile settings from the panel</li><li>• Click “Profile” Button</li></ul> <p>Changes will be done after action successfully</p>
<b>Alternate Scenario</b>	Re-enter the username or password
<b>Frequency of occurrence</b>	One time a day but in some cases many times

## Use Case Diagrams

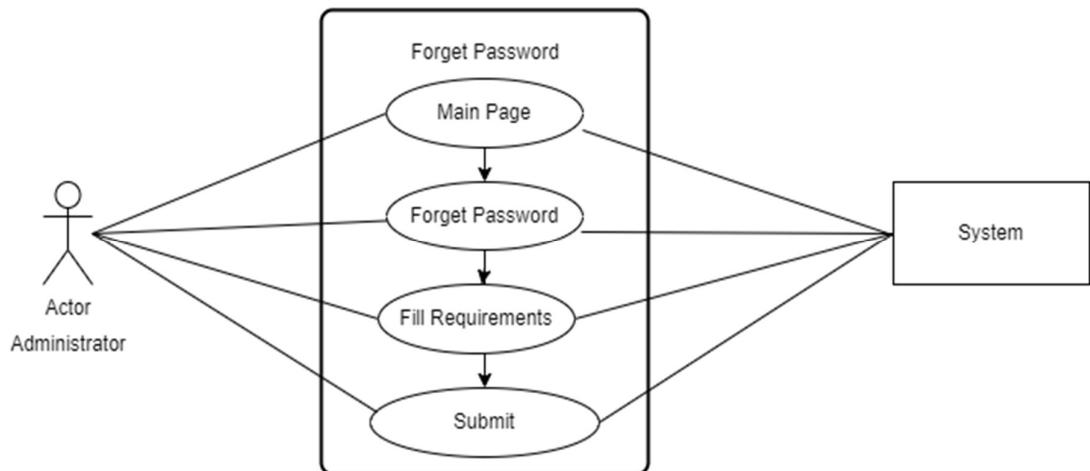
A use case diagram is a graphic depiction of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify, and organize system requirements. Use case diagrams are usually referred to as behavior diagrams used to describe a set of actions (use cases) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors).



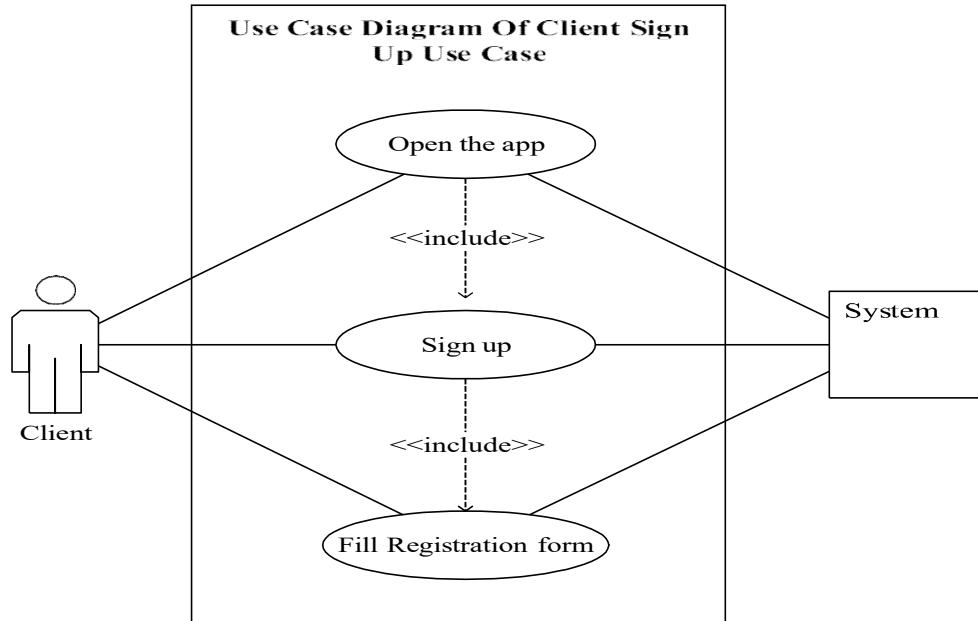
**Figure 1: Use Case Diagram of Administrator Login**



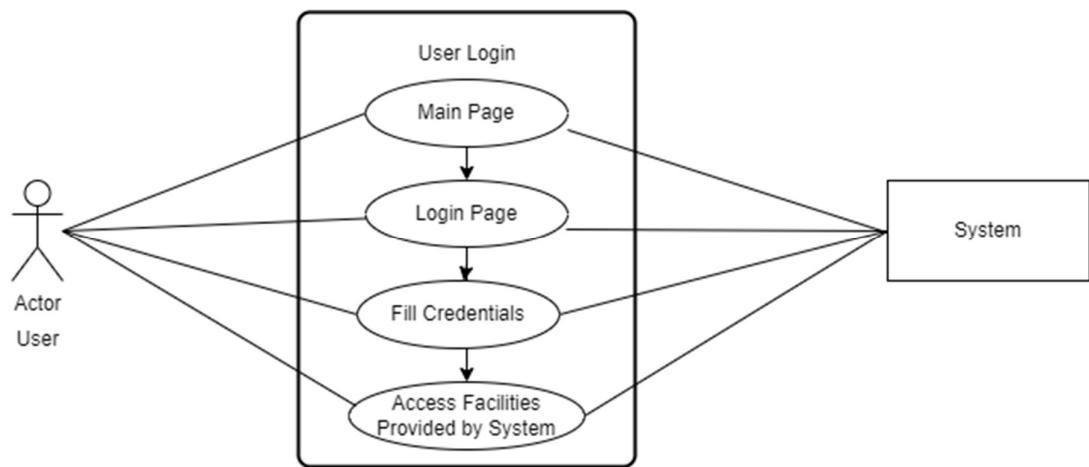
**Figure 2: Use Case Diagram of Administrator Logout**



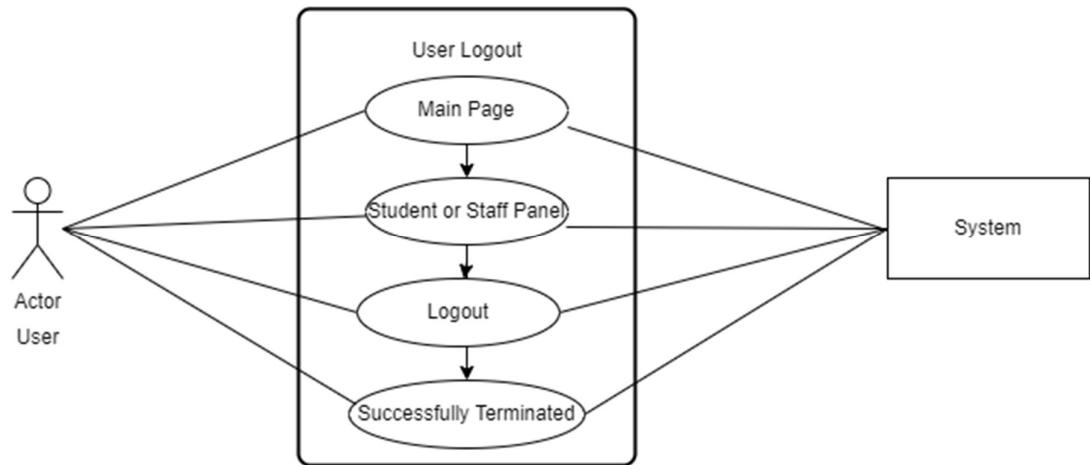
**Figure 3: Use Case Diagram of Administrator Forget Password**



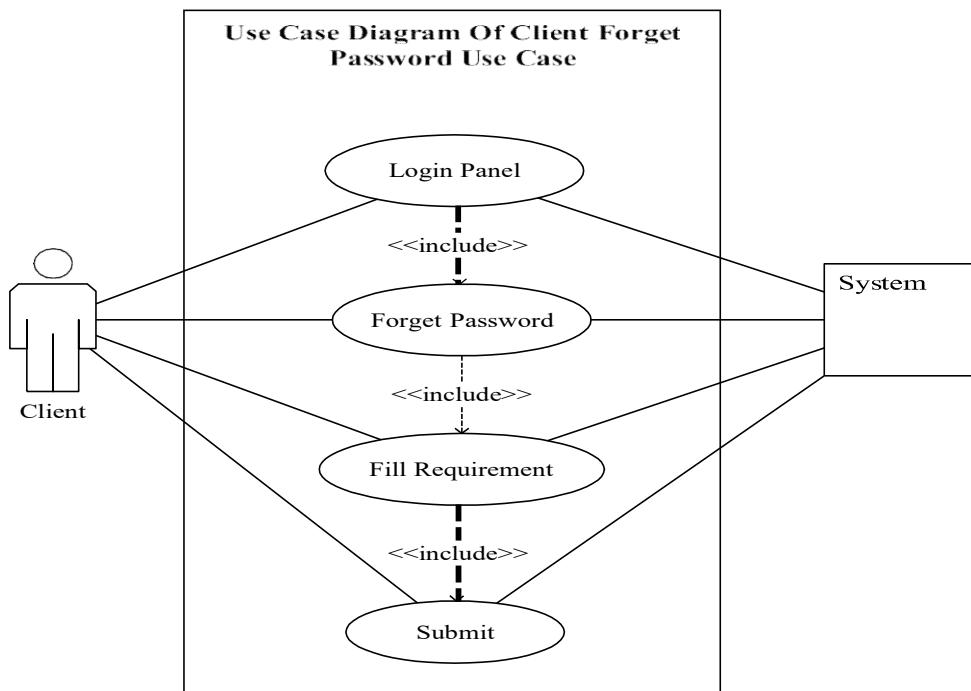
**Figure 4: Use Case Diagram of User Sign up**



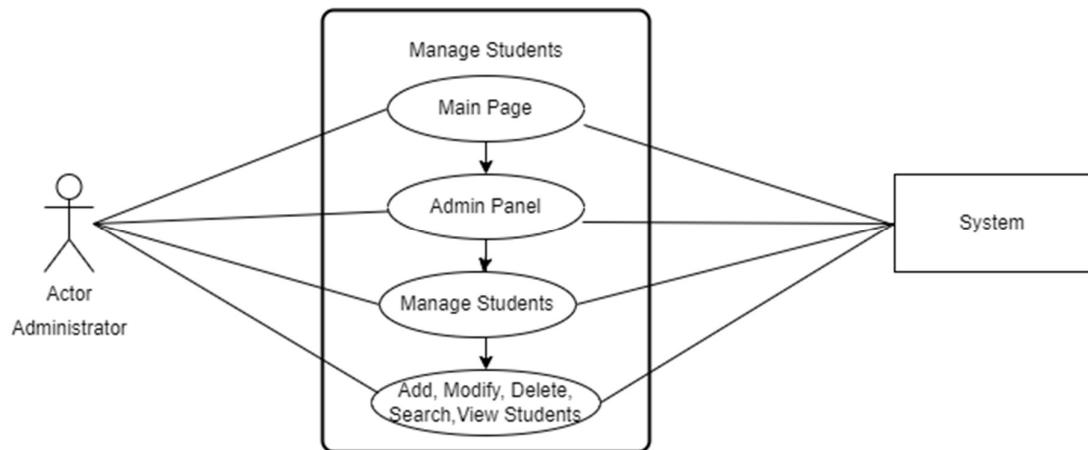
**Figure 5: Use Case Diagram of User Login**



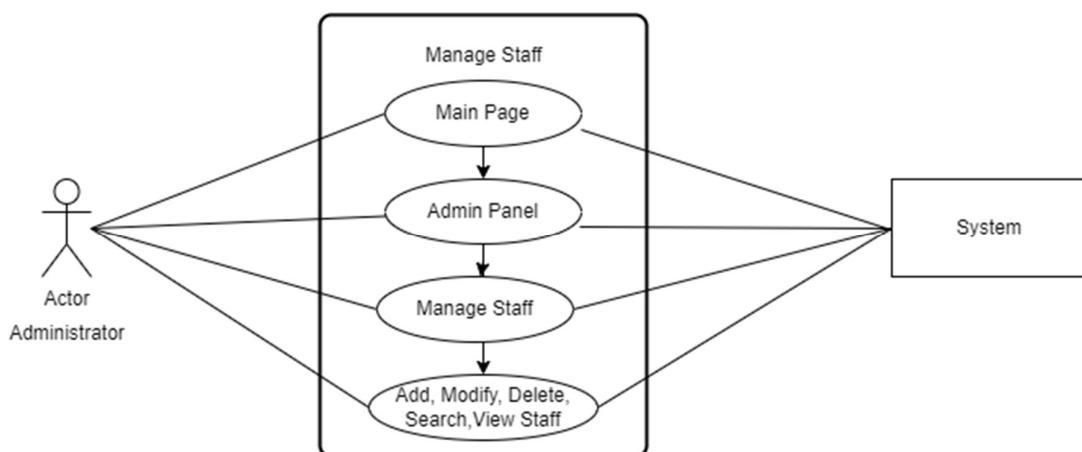
**Figure 6: Use Case Diagram of User Logout**



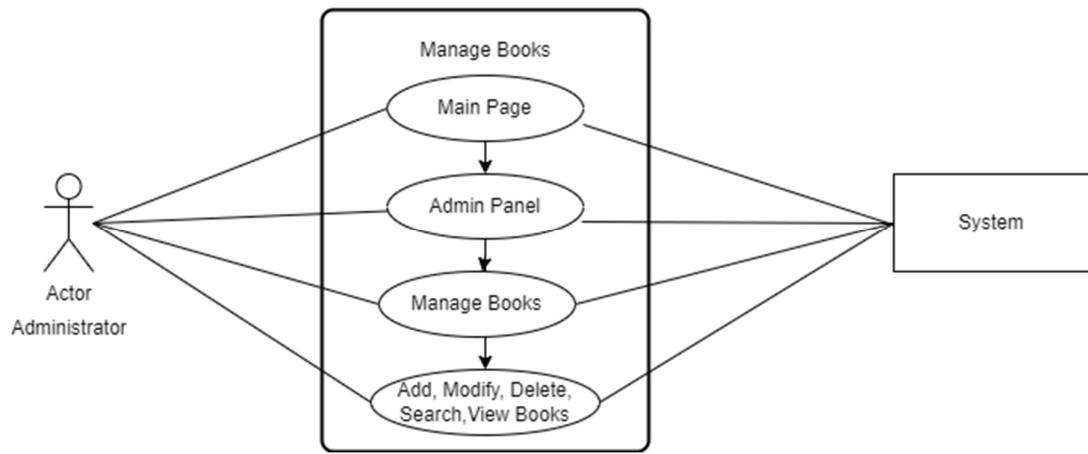
**Figure 7: Use Case Diagram of User Forget Password**



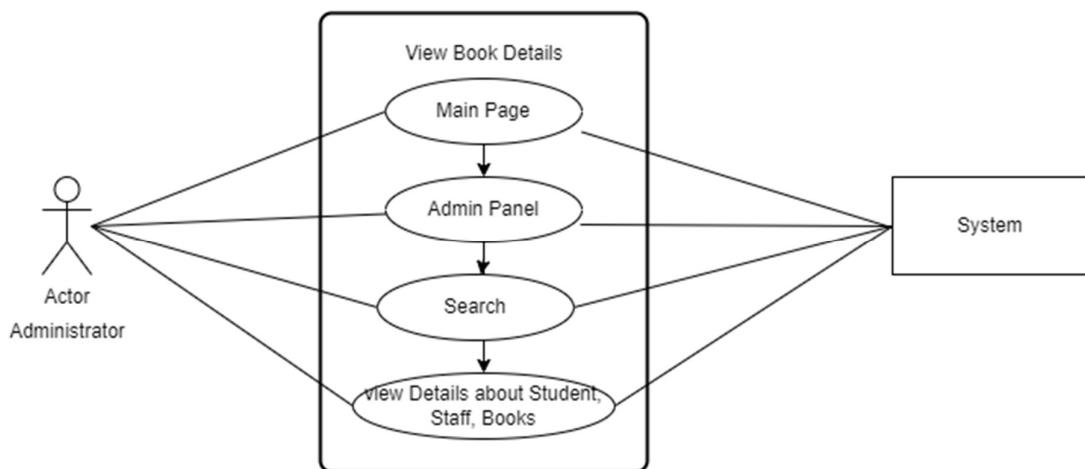
**Figure 8: Use Case Diagram of Administrator Manage Students**



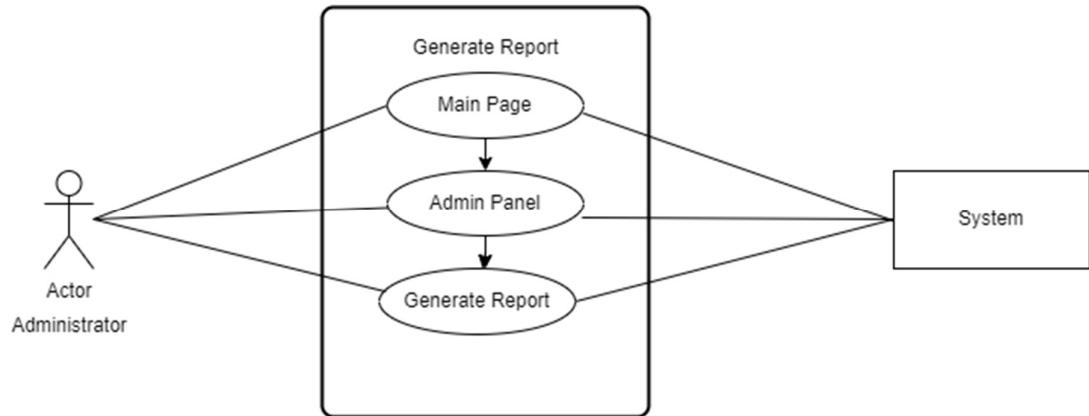
**Figure 9: Use Case Diagram of Administrator Manage Staff**



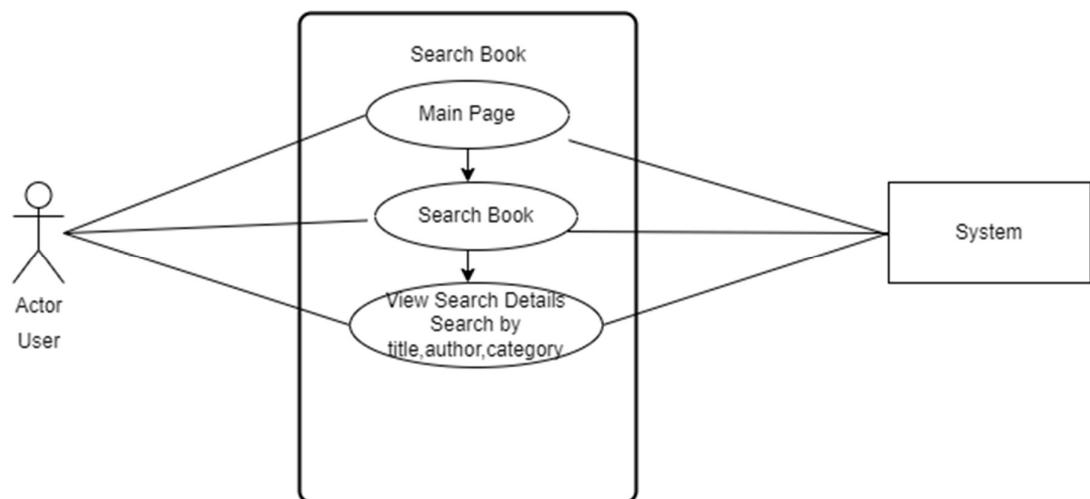
**Figure 10: Use Case Diagram of Administrator Manage Books**



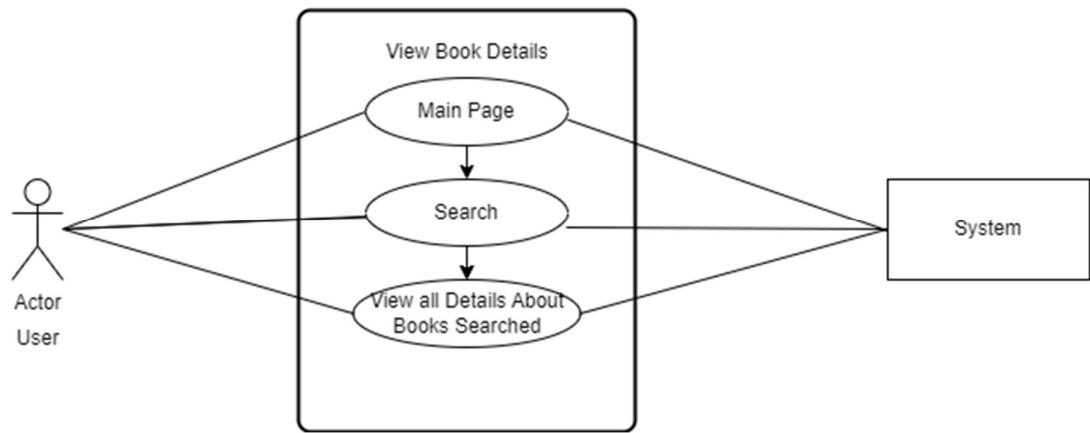
**Figure 11: Use Case Diagram of Administrator View Details**



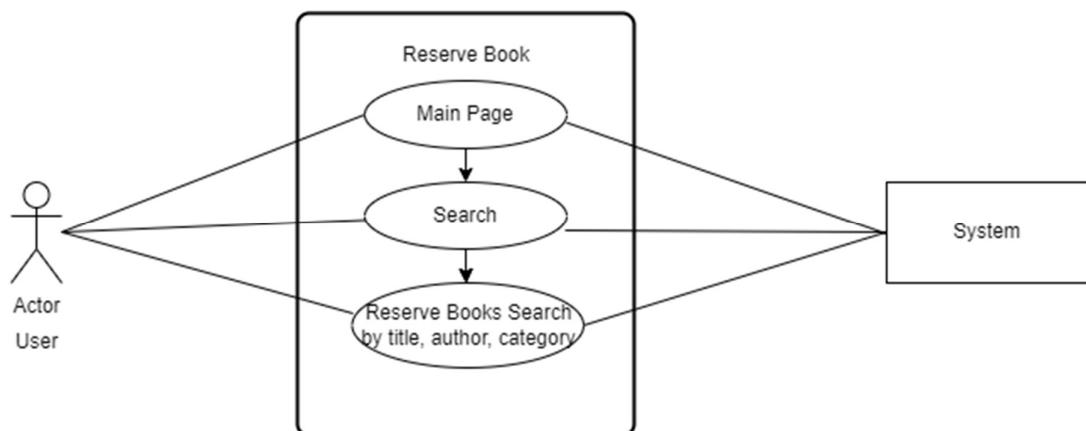
**Figure 12: Use Case Diagram of Administrator Generate Report**



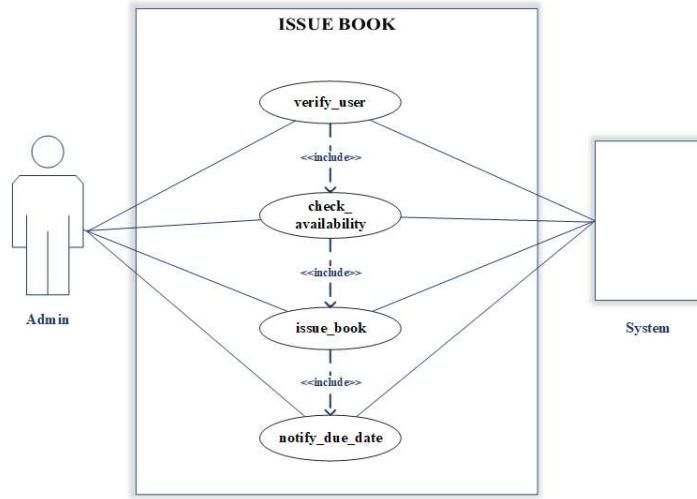
**Figure 12: Use Case Diagram of User Search Book**



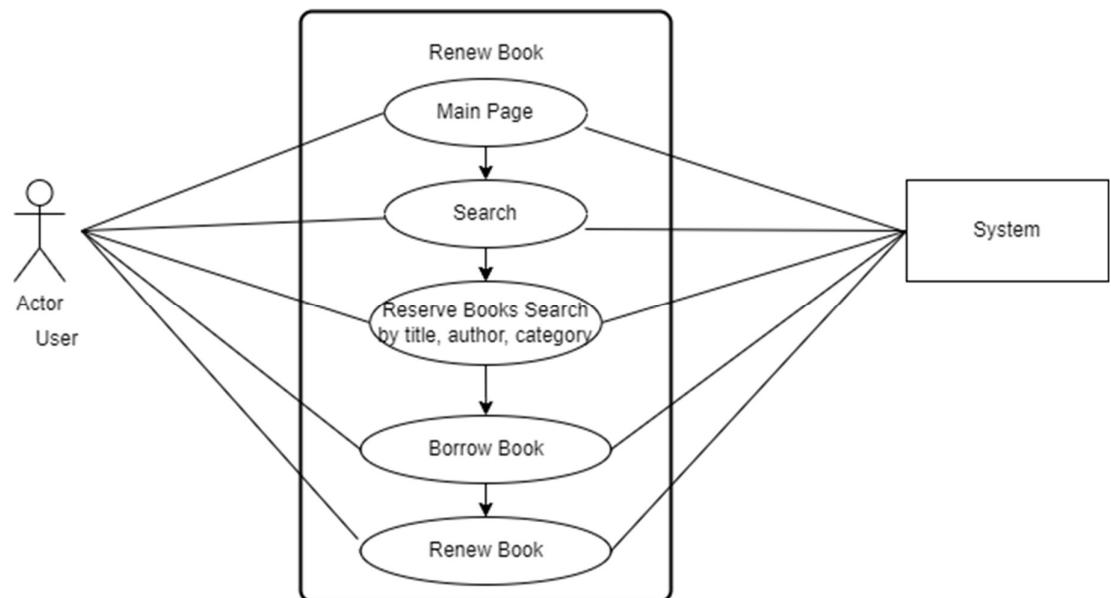
**Figure 13: Use Case Diagram of User View Book Details**



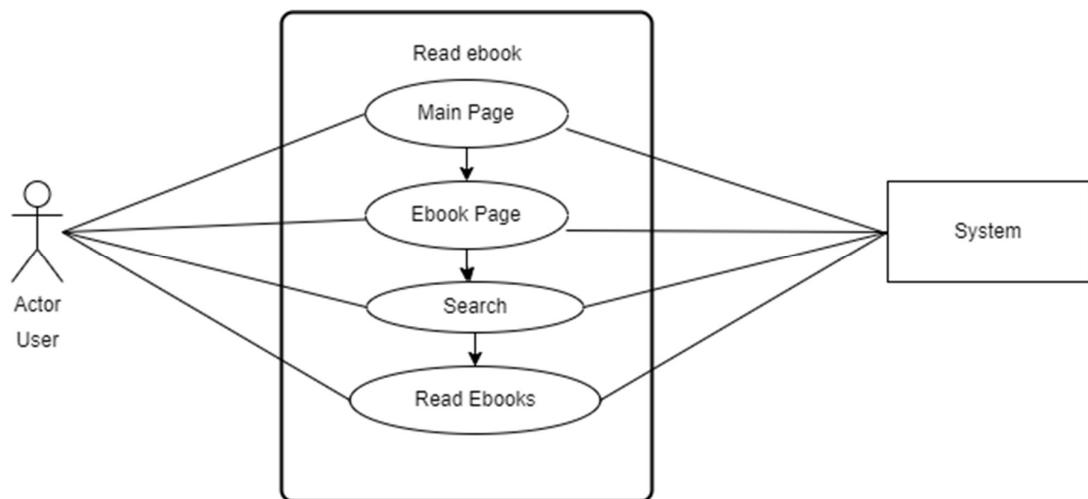
**Figure 14: Use Case Diagram of User Reserve Book**



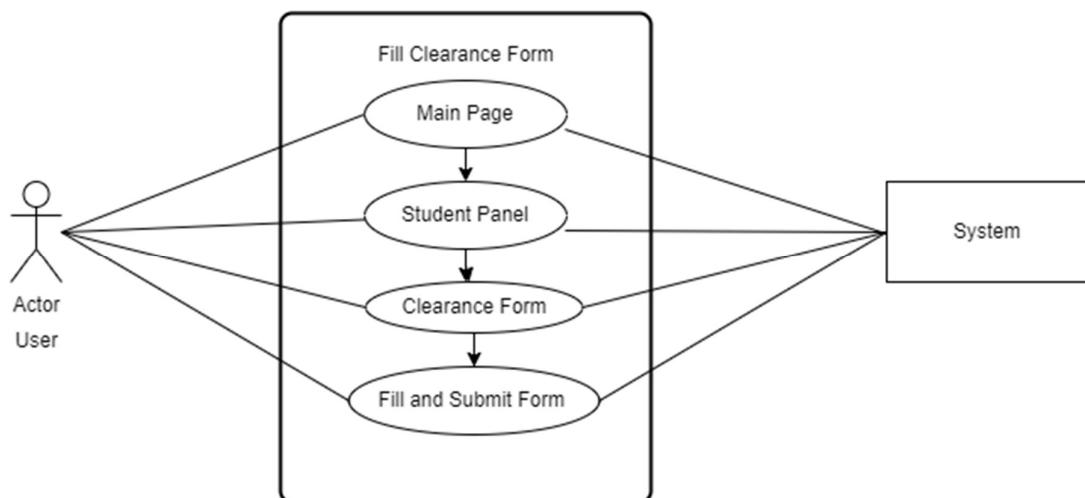
**Figure 14: Use Case Diagram of Admin Issue Book**



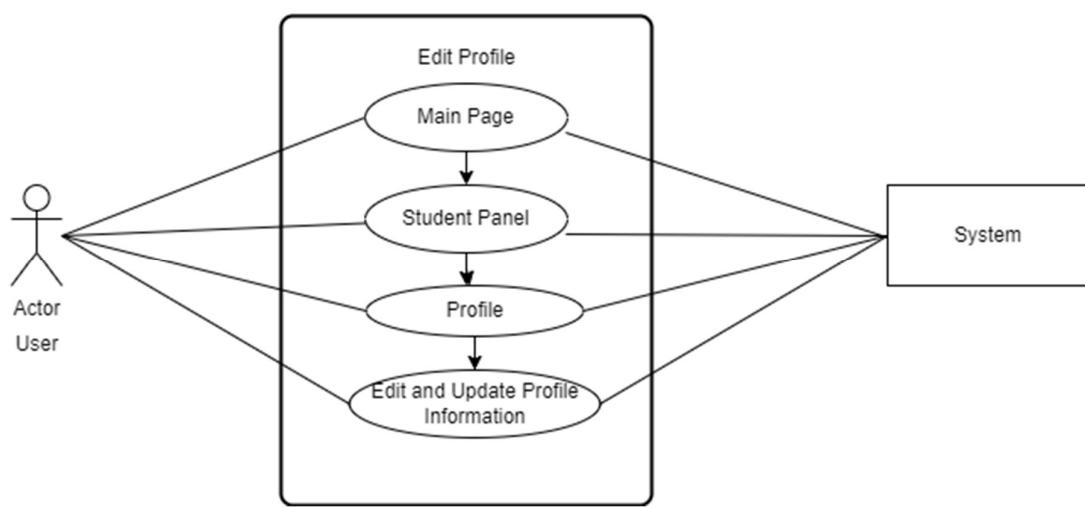
**Figure 15: Use Case Diagram of User Renew Book**



**Figure 16: Use Case Diagram of User Read eBook**



**Figure 17: Use Case Diagram of User Clearance Form**



**Figure 18: Use Case Diagram of Edit Profile**

# **CHAPTER 3**

## **DESIGN**

### 3.1 DESIGN

Methods and approaches differ depending on what you are developing but whether that involves processes in the healthcare sector or product development at a company we can say with certainty that design will help you to find new solutions.

### 3.2 Class Diagram

A class diagram models the static structure of a system. It shows relationships between classes, objects, attributes, and operations. Classes represent an abstraction of entities with common characteristics. Associations represent the relationships between classes. Classes with rectangles divided into compartments. Place the name of the class in the first partition (centered, bolded, and capitalized), list the attributes in the second partition (left-aligned, not bolded, and lowercase), and write operations into the third.

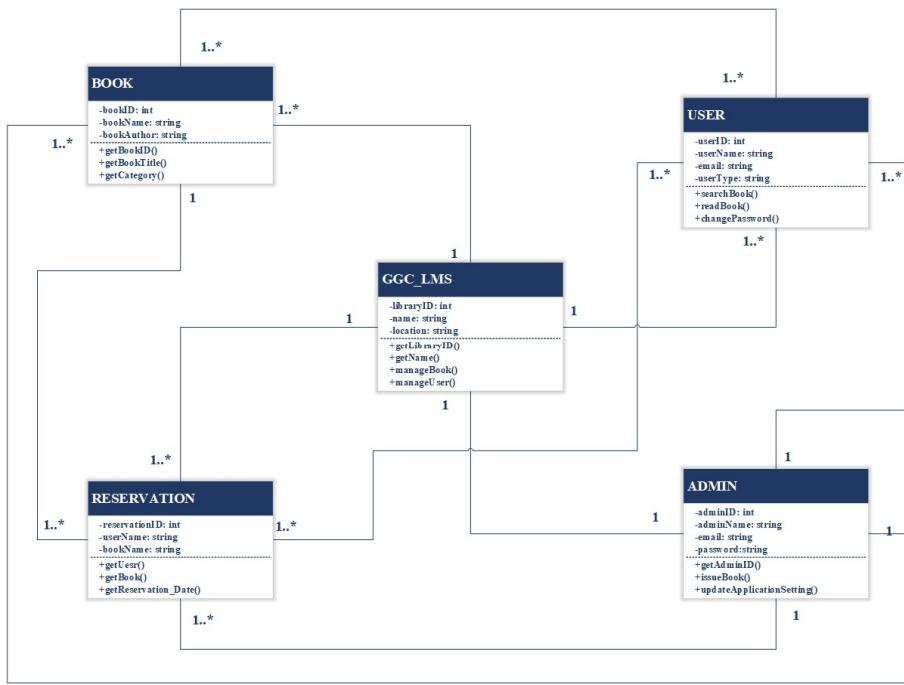


Figure 18: Class Diagram for Library Management System

### 3.3 Sequence Diagram

A Sequence diagram is an interaction diagram that shows how objects operate with one another and in what order. It is a construct of a chart. Sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically associated with use cases realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios. A collaboration diagram, also called a communication diagram or interaction diagram, is an illustration of the relationships and interactions among software objects in the Unified Modeling Language (UML)

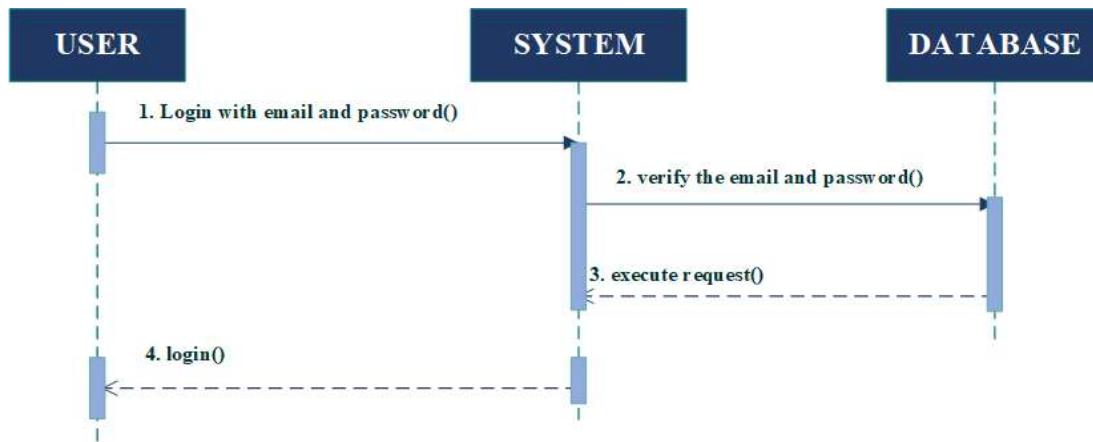
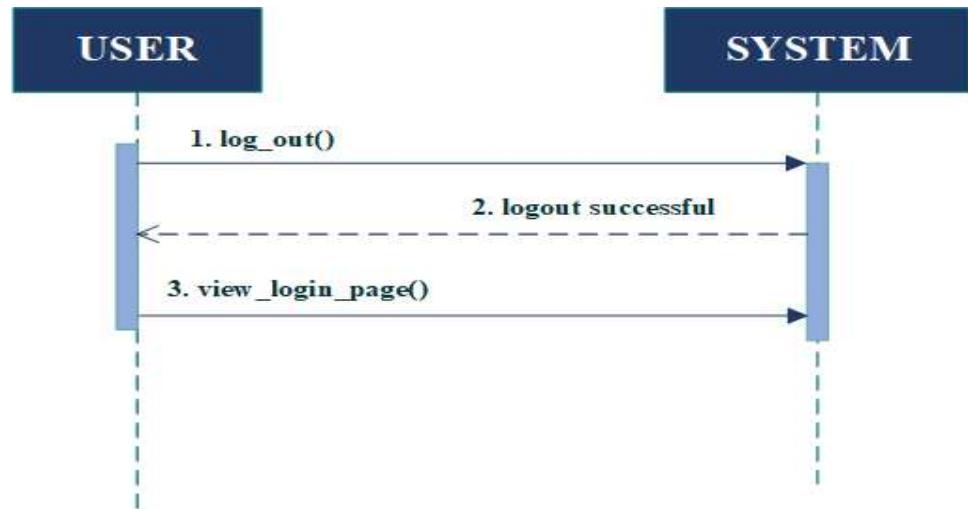
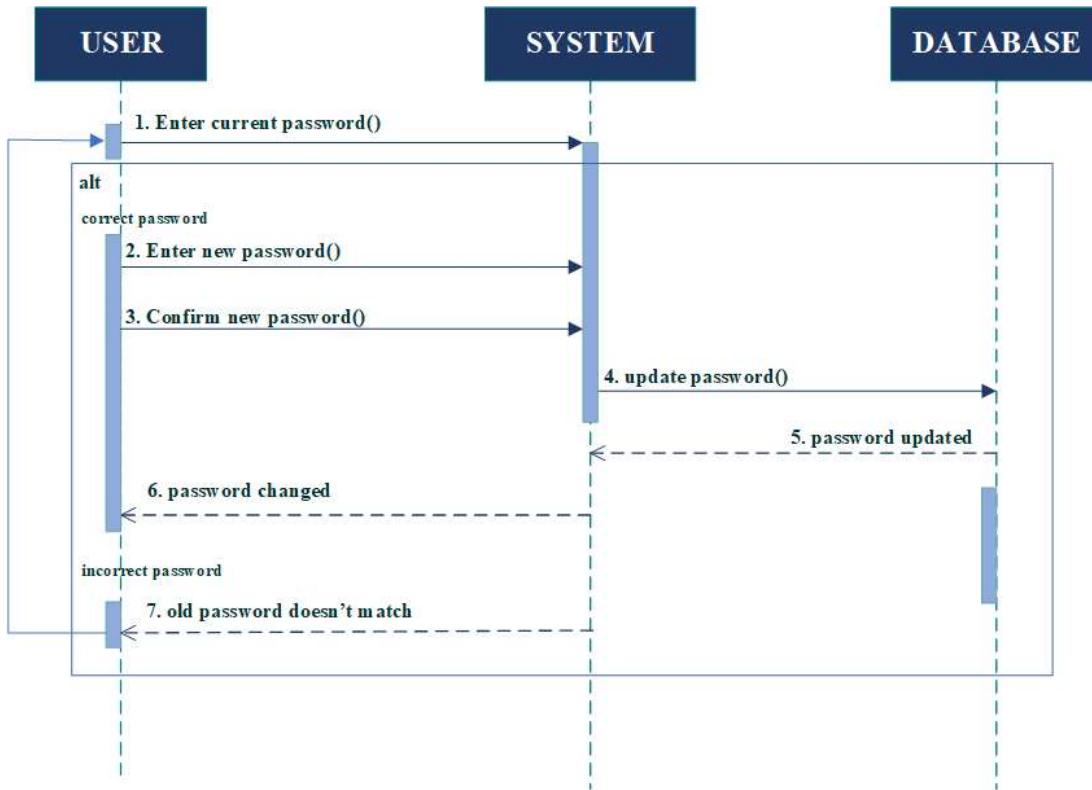


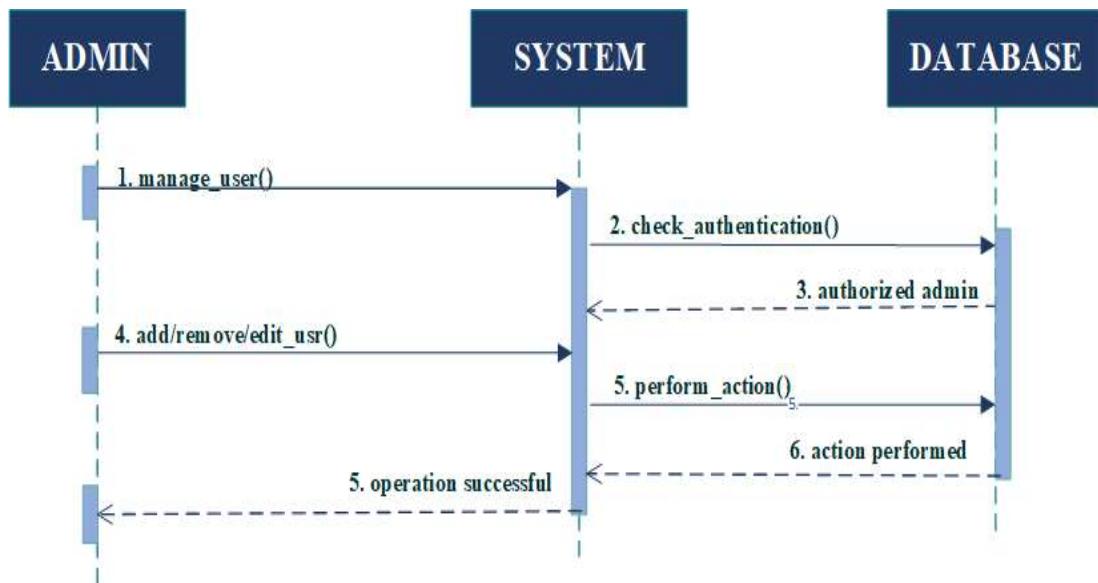
Figure 19: Sequence Diagram of Administrator Login



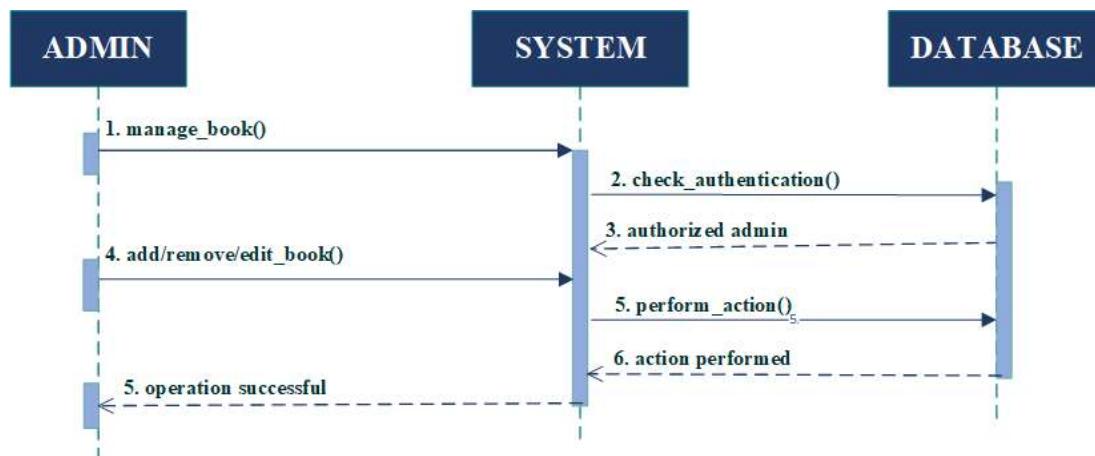
**Figure 20: Sequence Diagram of Administrator Logout**



**Figure 21: Sequence Diagram of Administrator change password**



**Figure 22: Sequence Diagram of Manage User**



**Figure 23: Sequence Diagram of Manage Book**

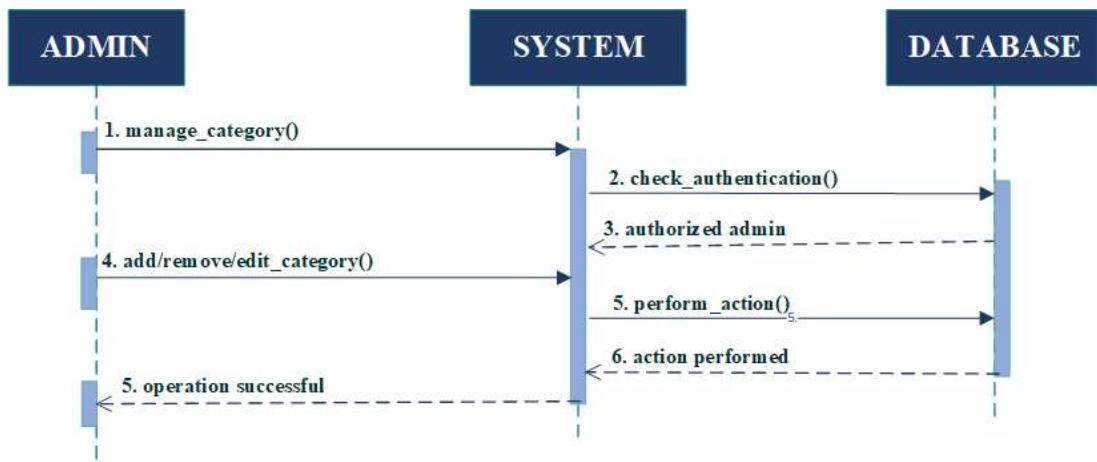


Figure 24: Sequence Diagram of Manage Category

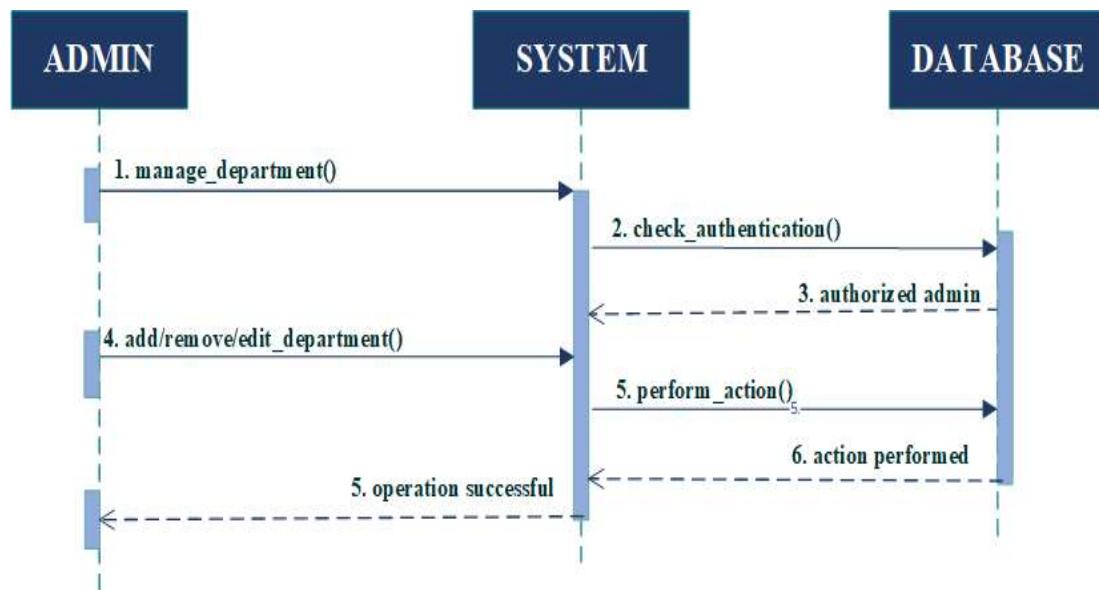
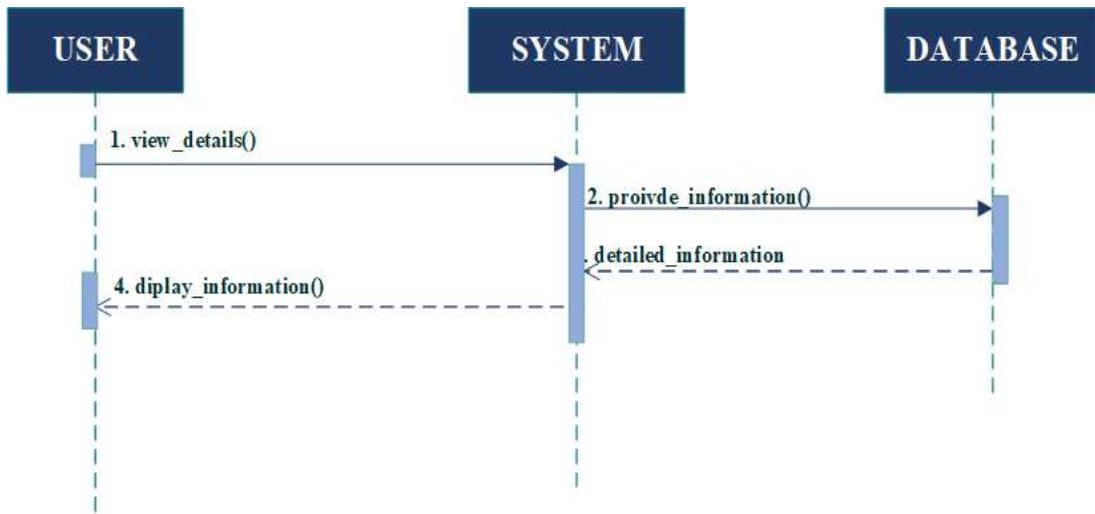
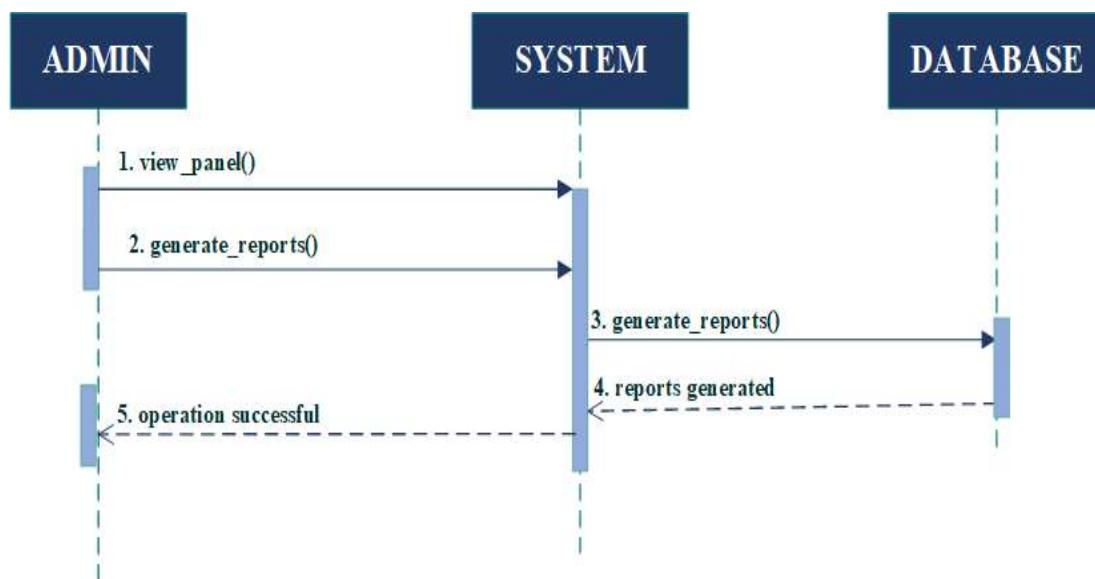


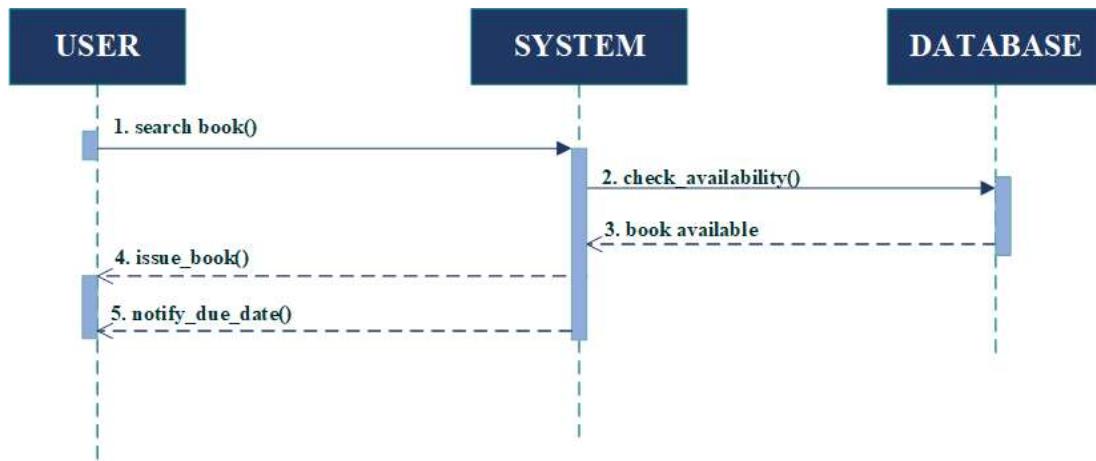
Figure 25: Sequence Diagram of Manage Department



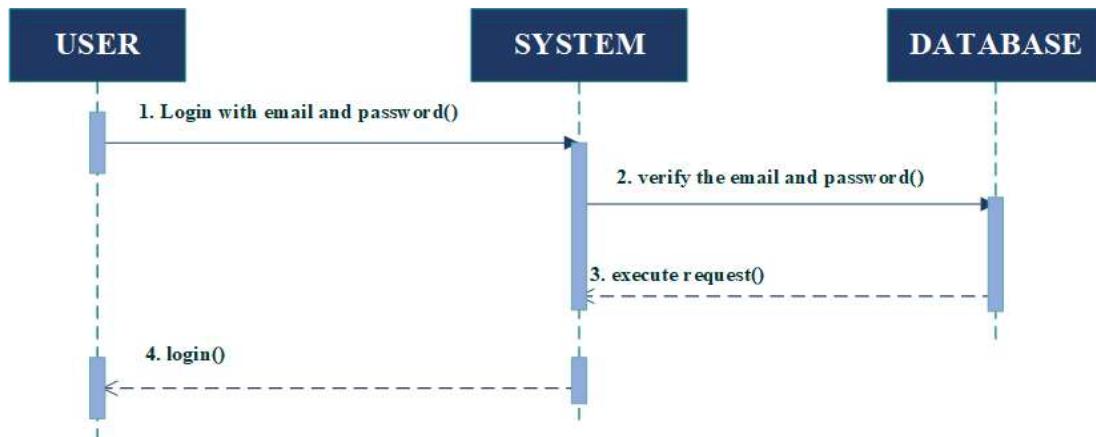
**Figure 26: Sequence Diagram of View Details**



**Figure 27: Sequence Diagram of Generate Report**



**Figure 28: Sequence Diagram of Issue Book**



**Figure 29: Sequence Diagram of User Login**

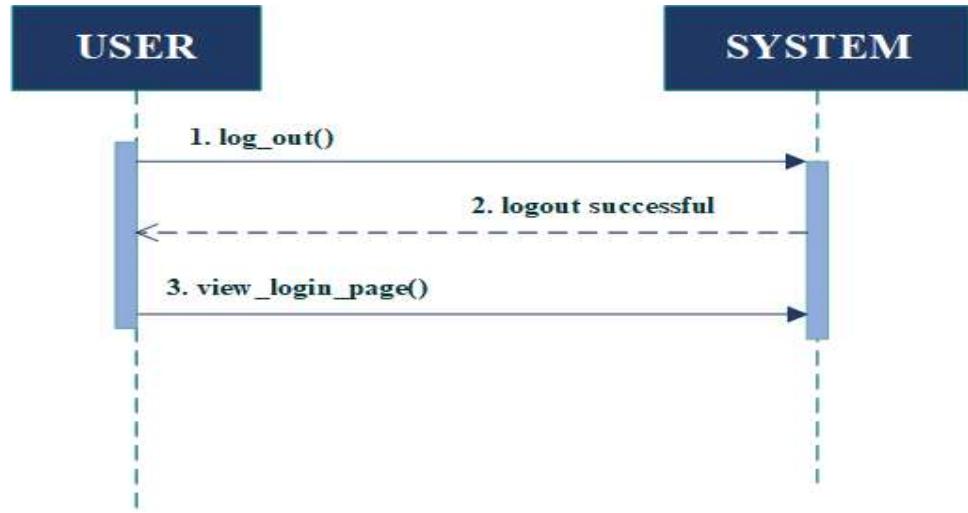


Figure 30: Sequence Diagram of User Logout

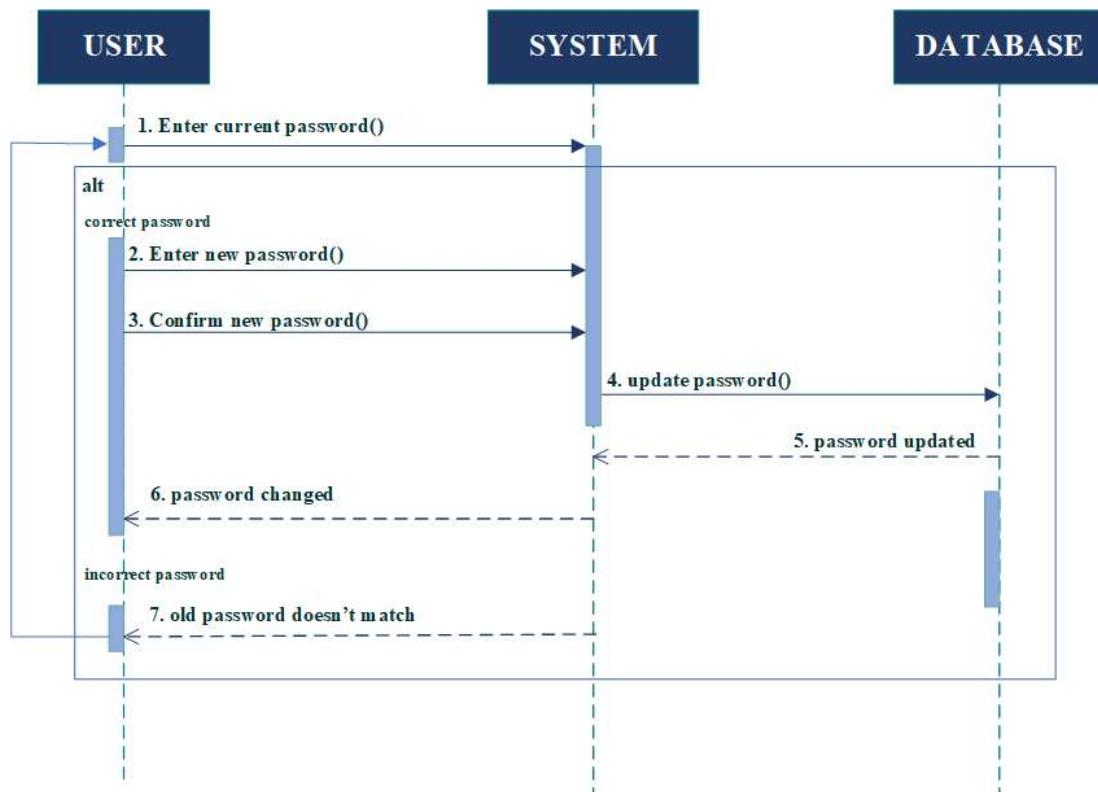


Figure 31: Sequence Diagram of Change Password

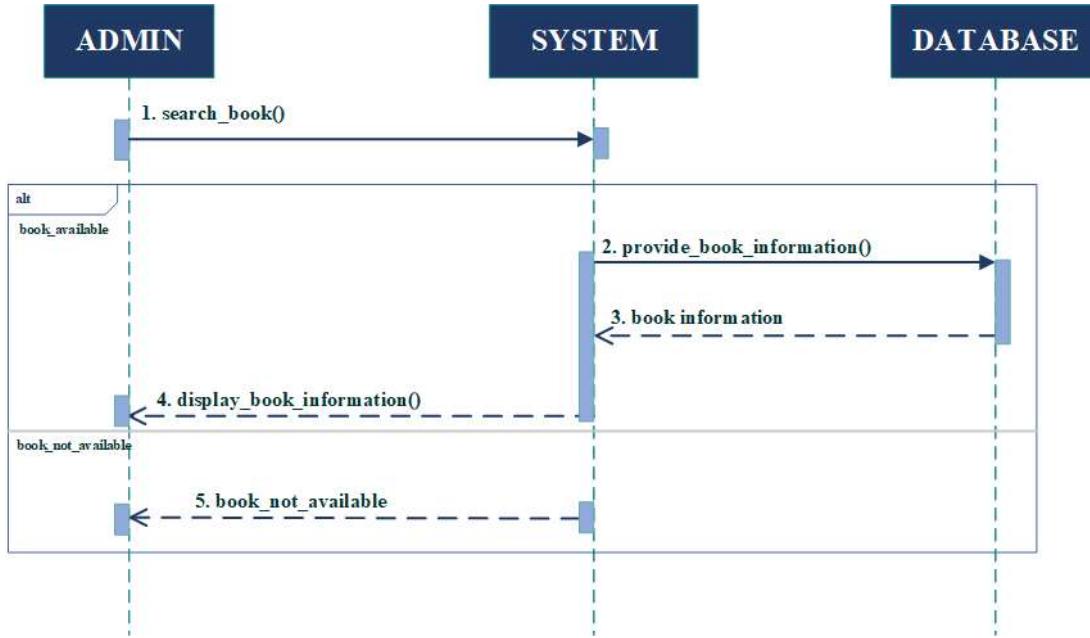


Figure 32: Sequence Diagram of Search Book

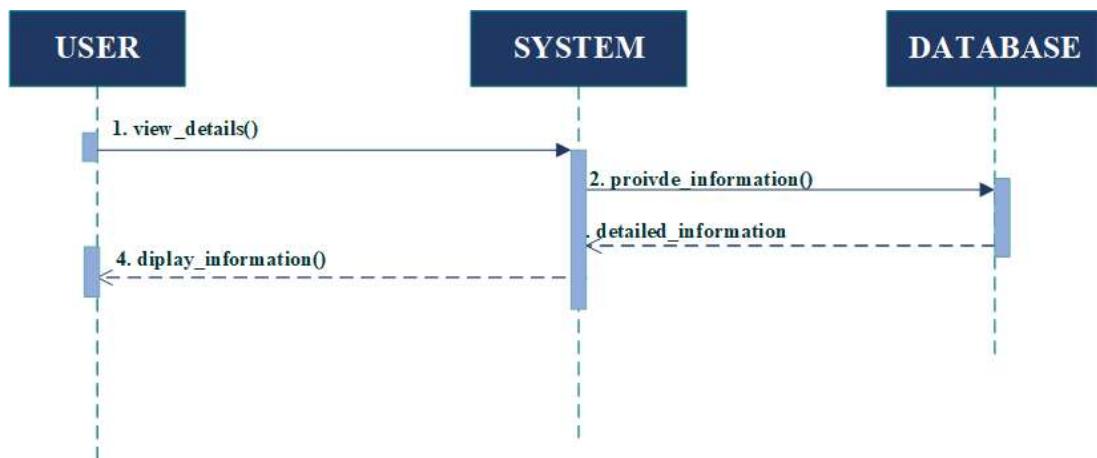


Figure 33: Sequence Diagram of User View Details

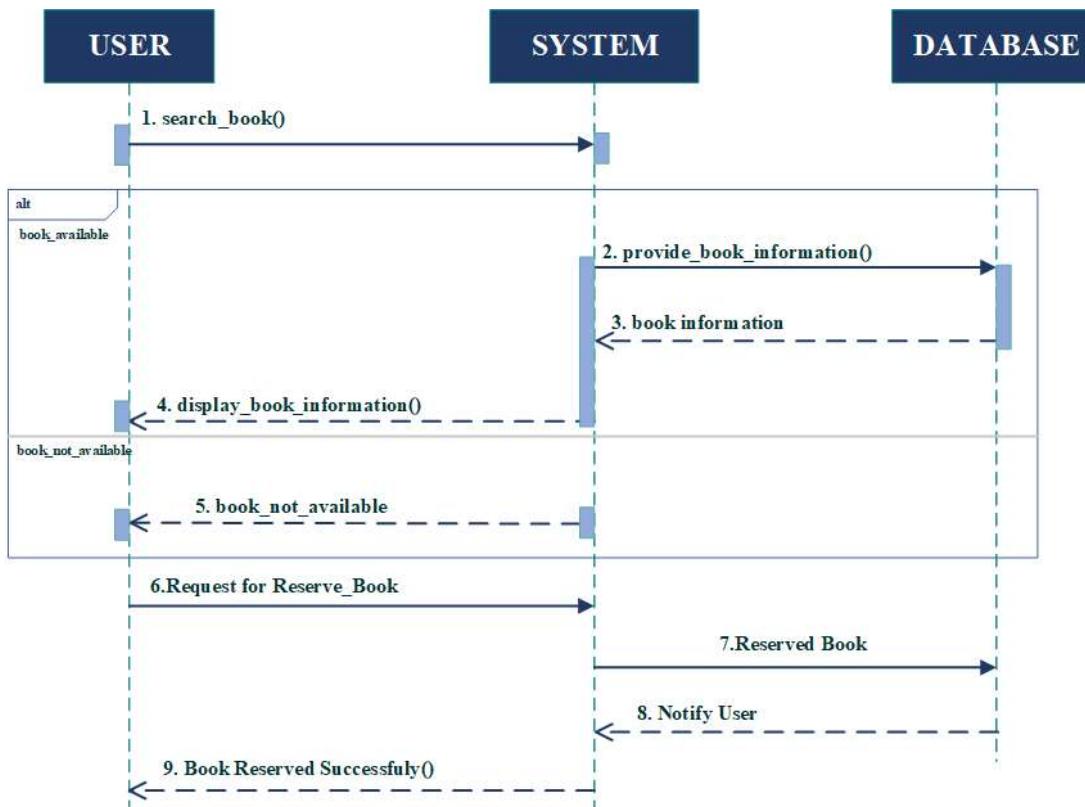


Figure 34: Sequence Diagram of Reserve Book

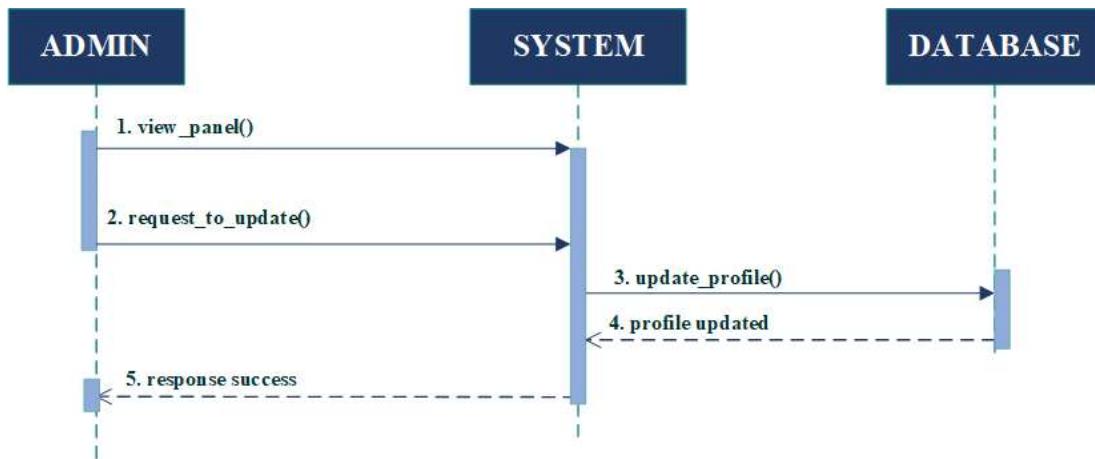


Figure 35: Sequence Diagram of Edit Profile

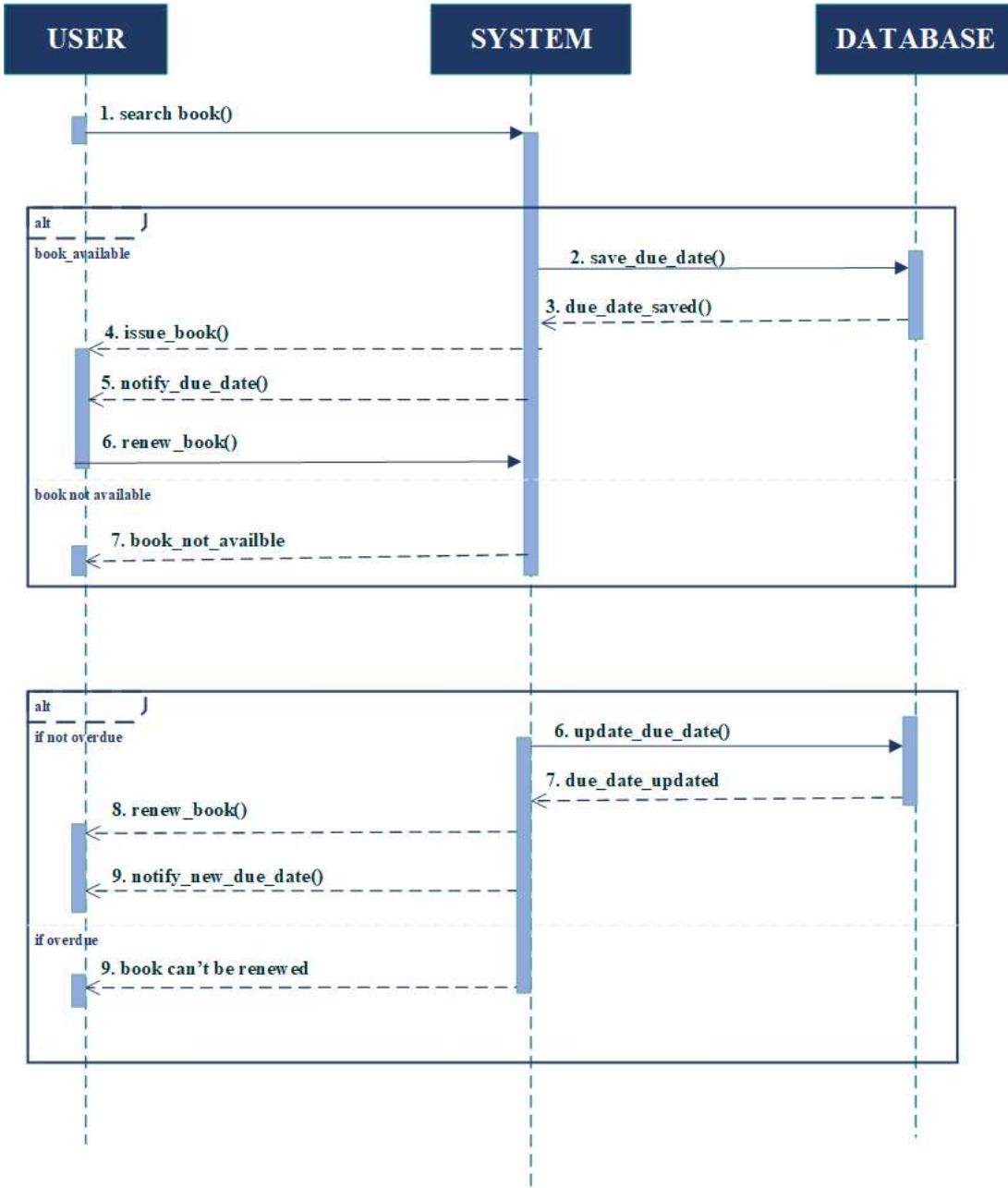
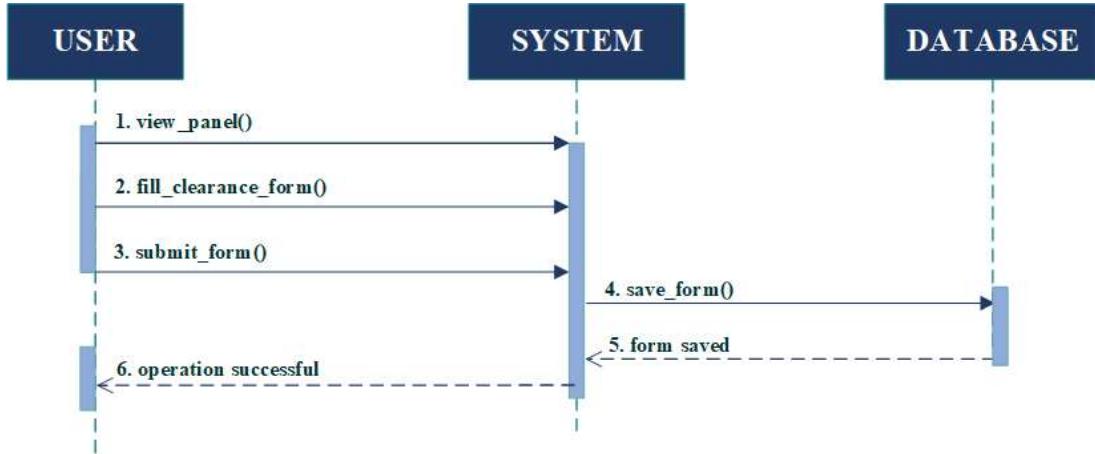


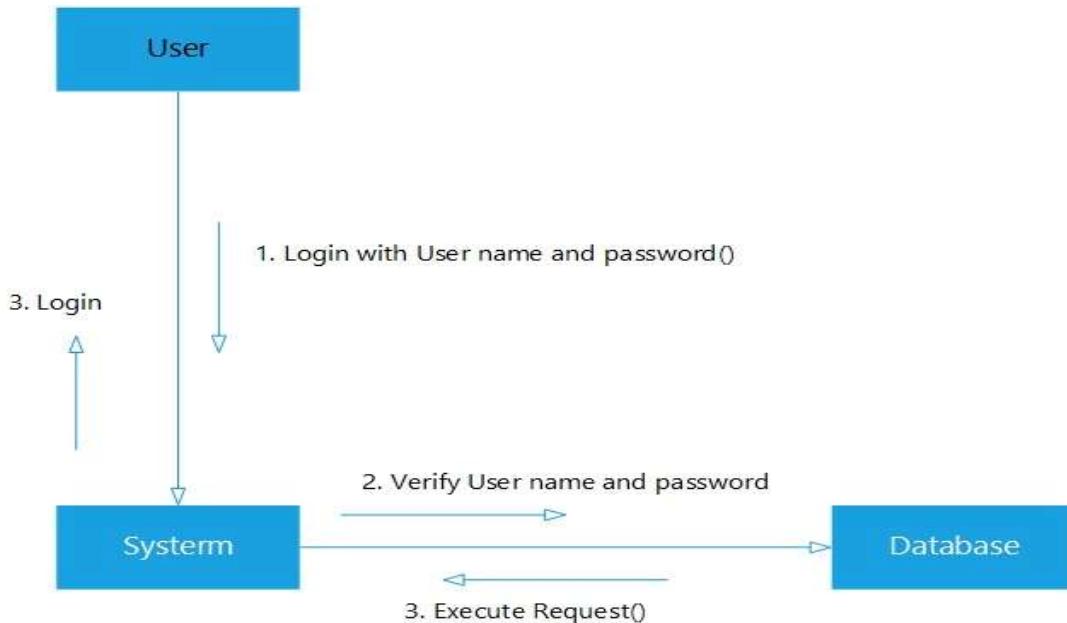
Figure 36: Sequence Diagram of Renew Book



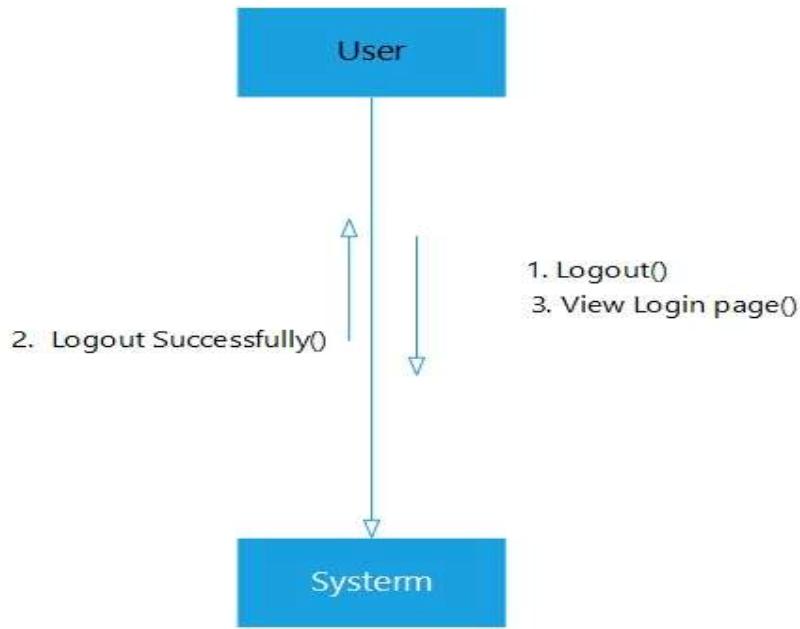
**Figure 37: Sequence Diagram of Clearance Form**

### 3.4 Collaboration Diagram

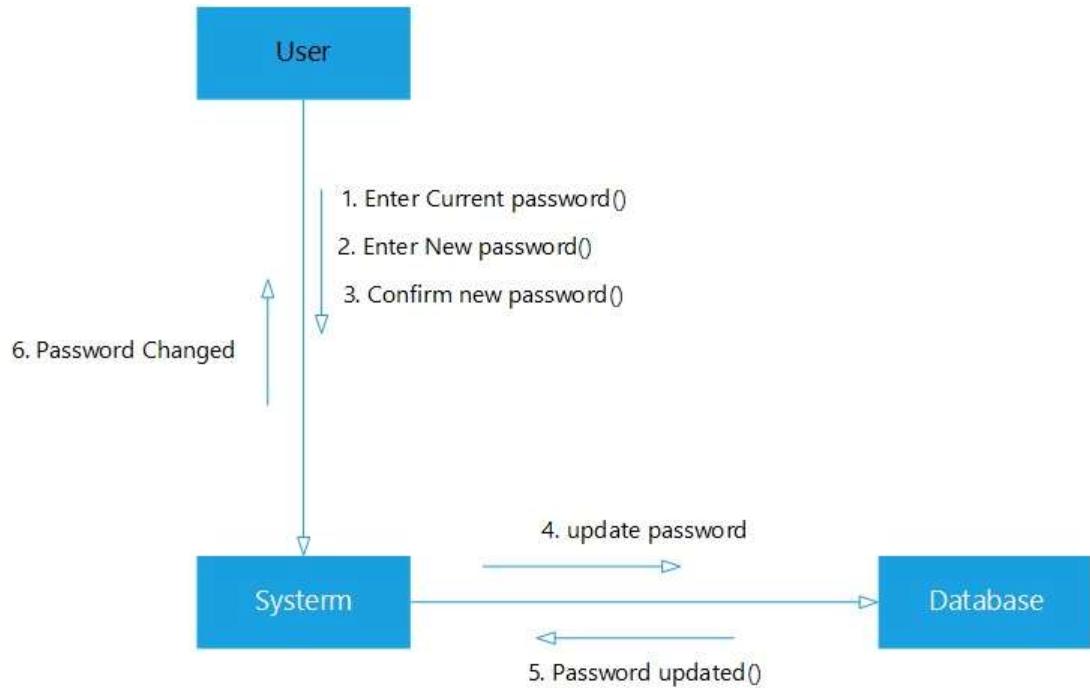
A collaboration diagram resembles a flowchart that portrays the roles, functionality and behavior of individual objects as well as the overall operation of the system in real time. Objects are shown as rectangles with naming labels inside. These labels are preceded by colons and may be underlined. The relationships between the objects are shown as lines connecting the rectangles. The messages between objects are shown as arrows connecting the relevant rectangles along with labels that define



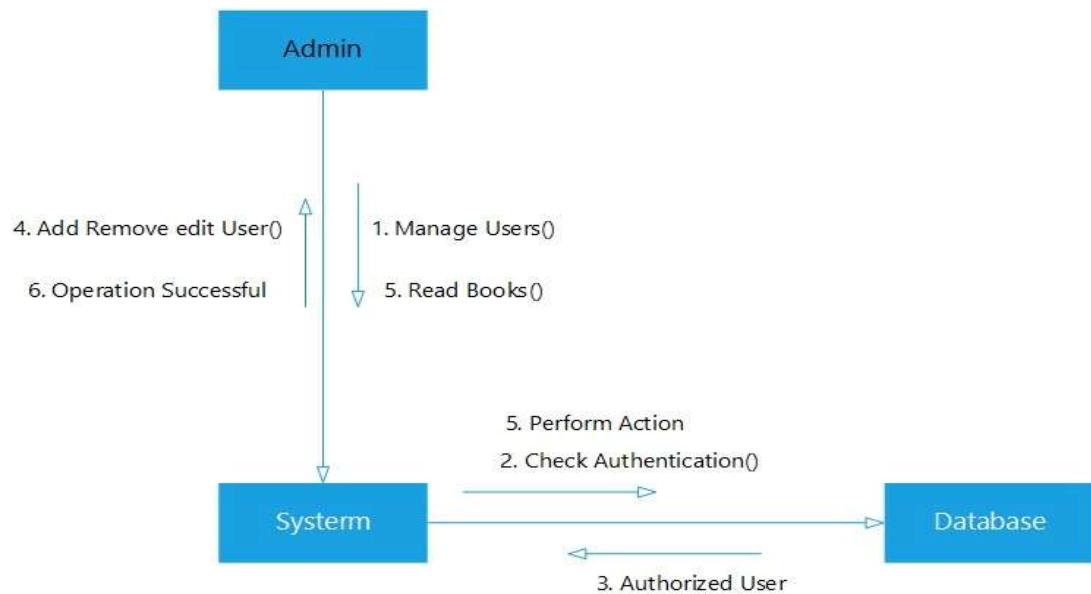
**Figure 38: Collaboration Diagram of Administrator Login**



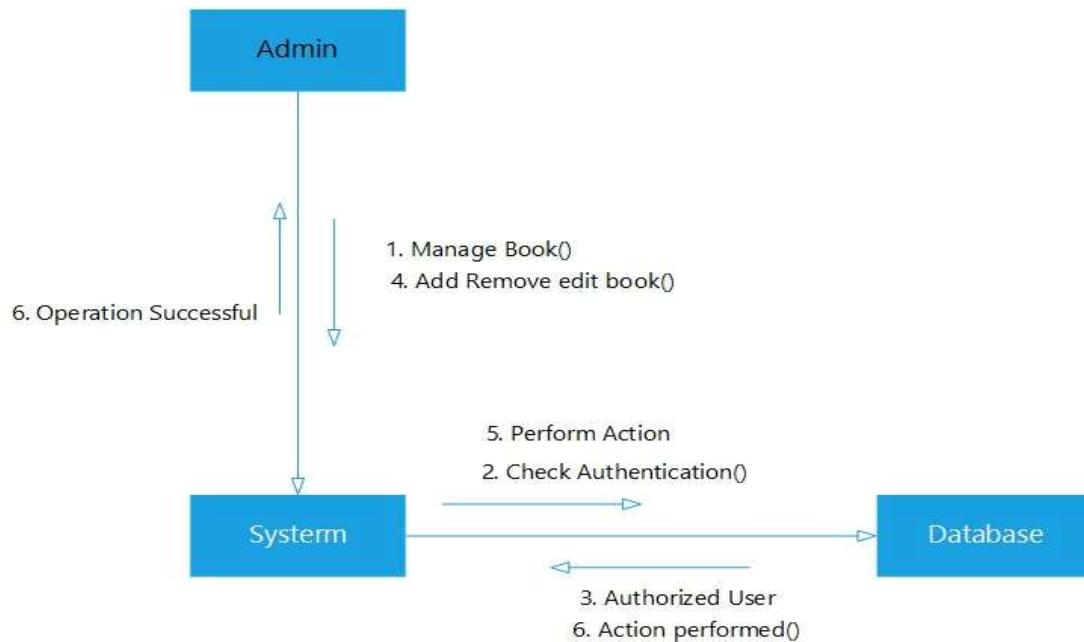
**Figure 39: Collaboration Diagram of Administrator Logout**



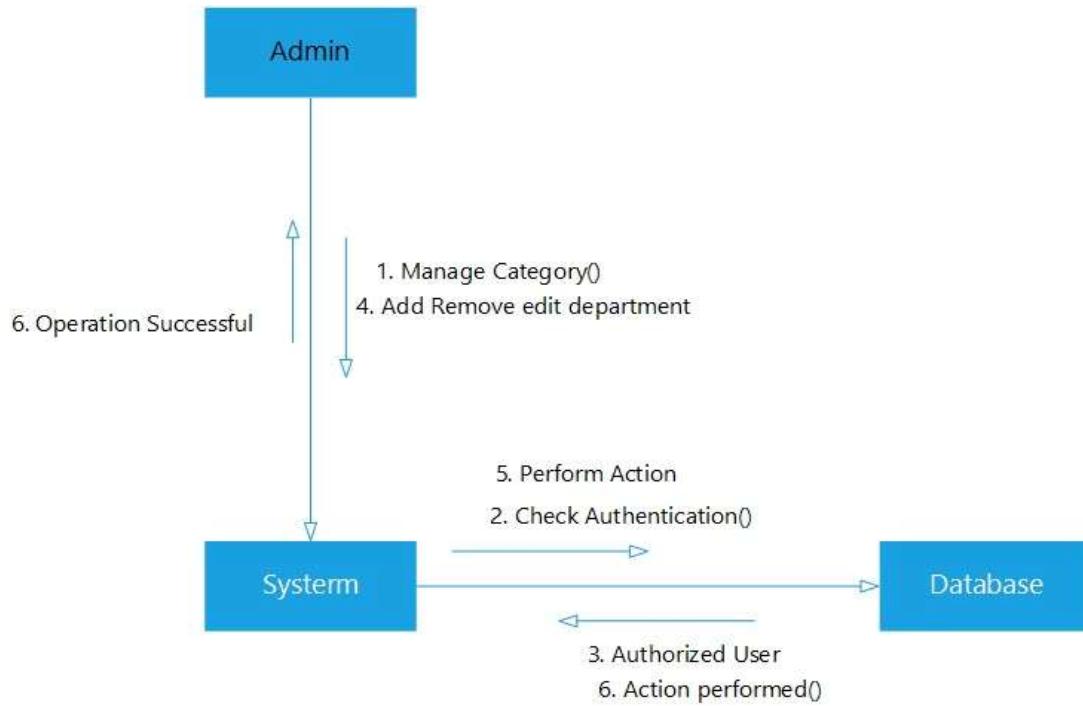
**Figure 40: Collaboration Diagram of Administrator change password**



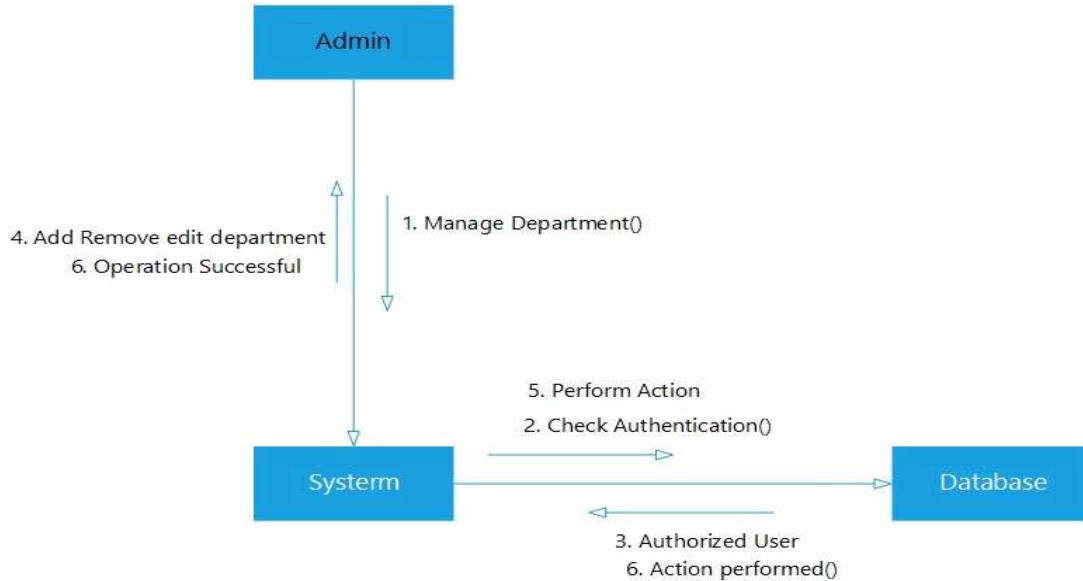
**Figure 41: Collaboration Diagram of Manage User**



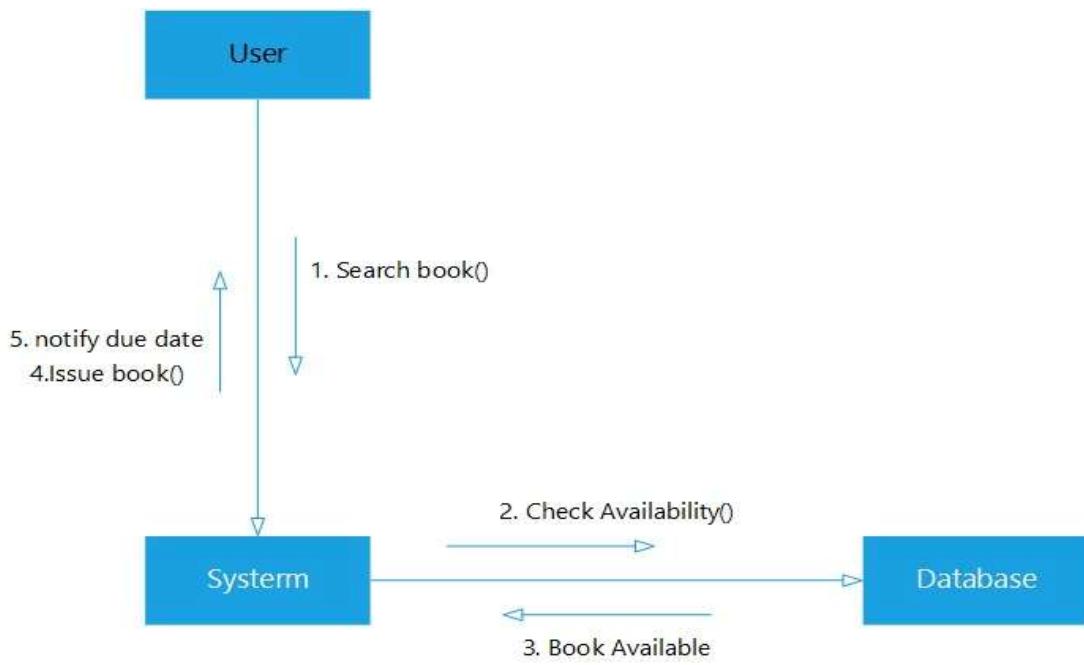
**Figure 42: Collaboration Diagram of Manage Book**



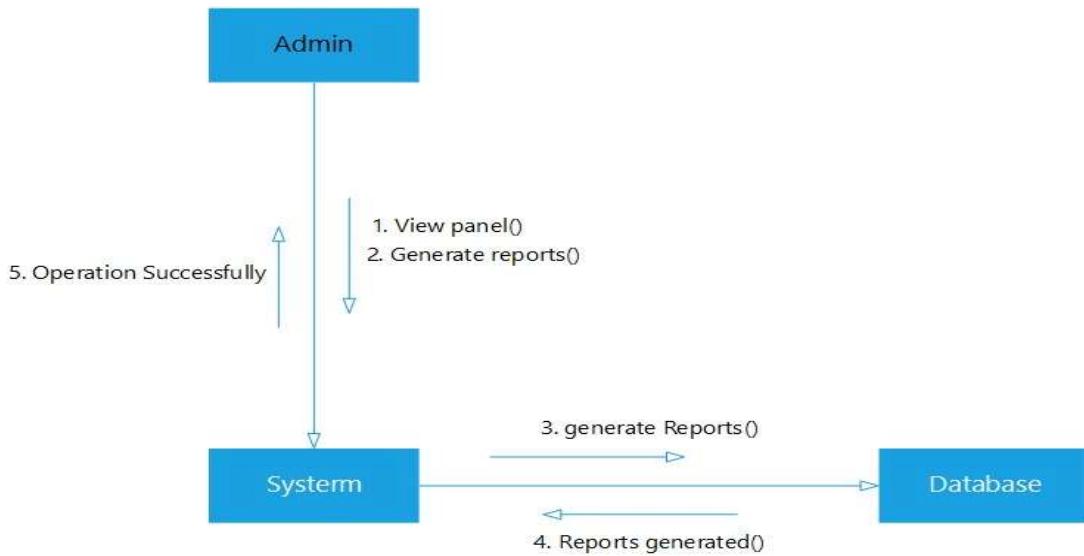
**Figure 43: Collaboration Diagram of Manage Category**



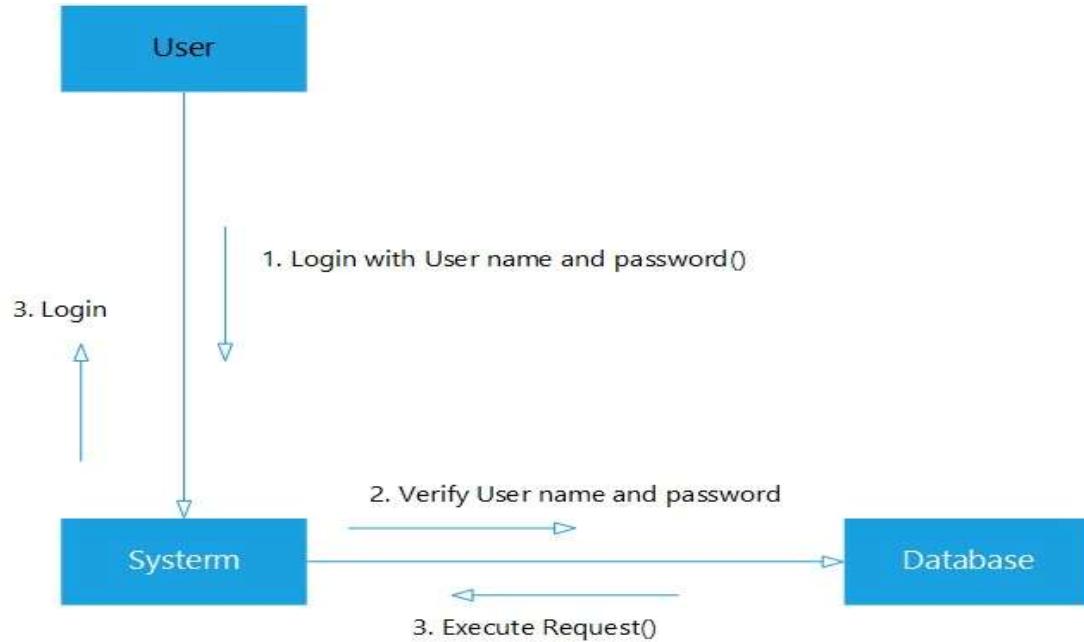
**Figure 44: Collaboration Diagram of Manage Department**



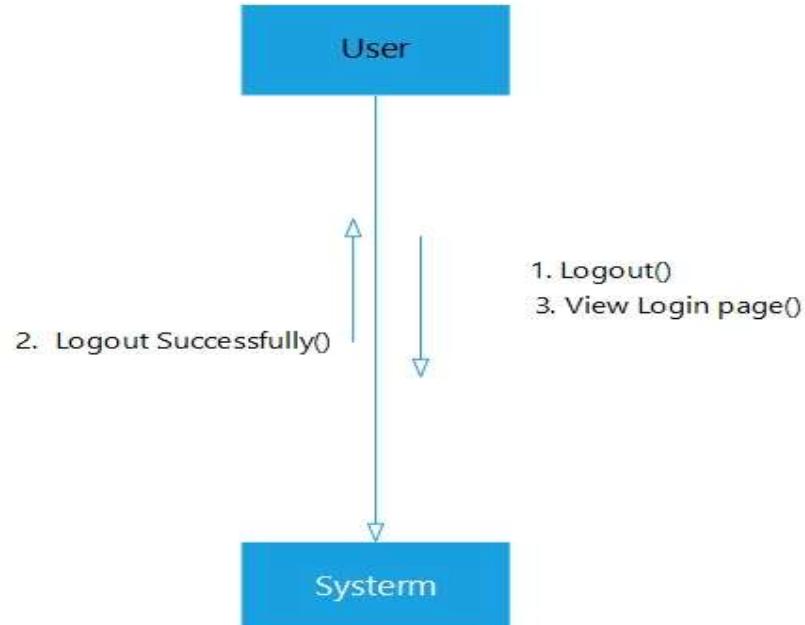
**Figure 45: Collaboration Diagram of Issue Book**



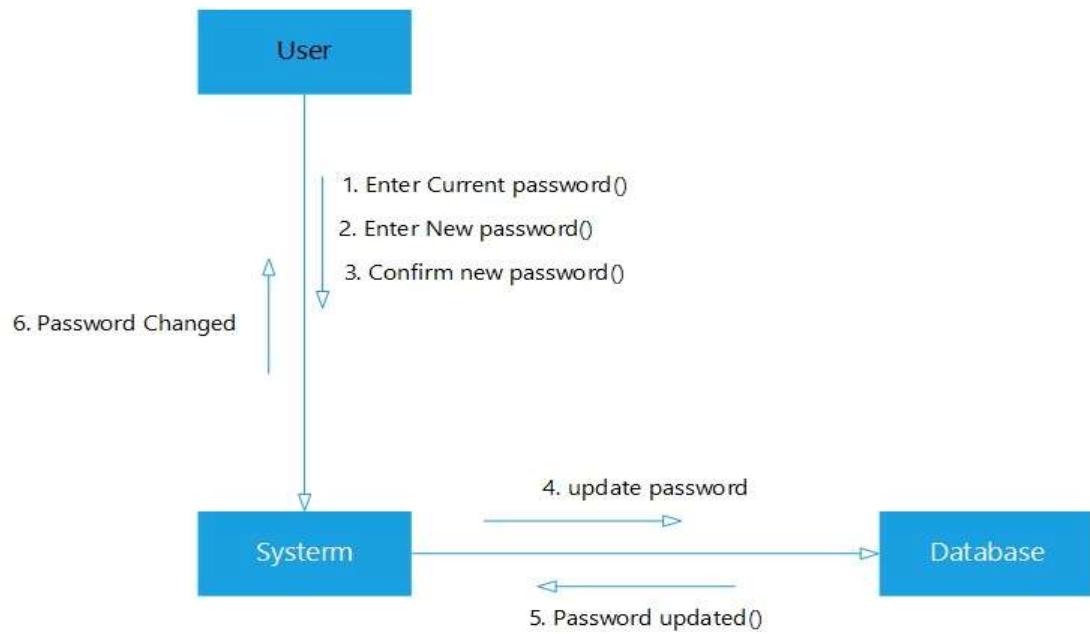
**Figure 46: Collaboration Diagram of Generate Report**



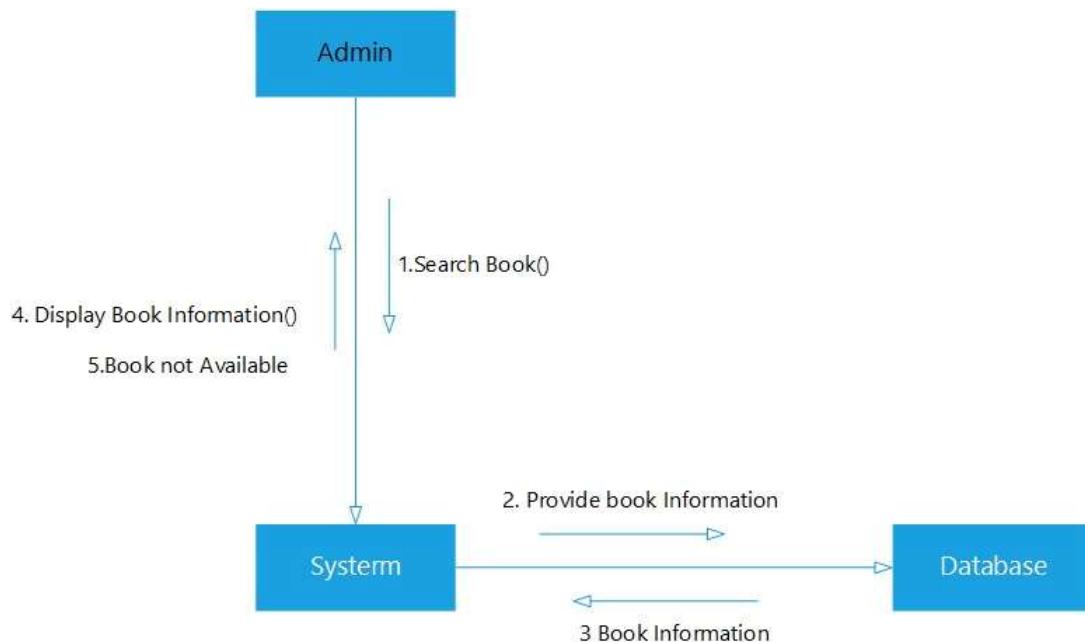
**Figure 47: Collaboration Diagram of User Login**



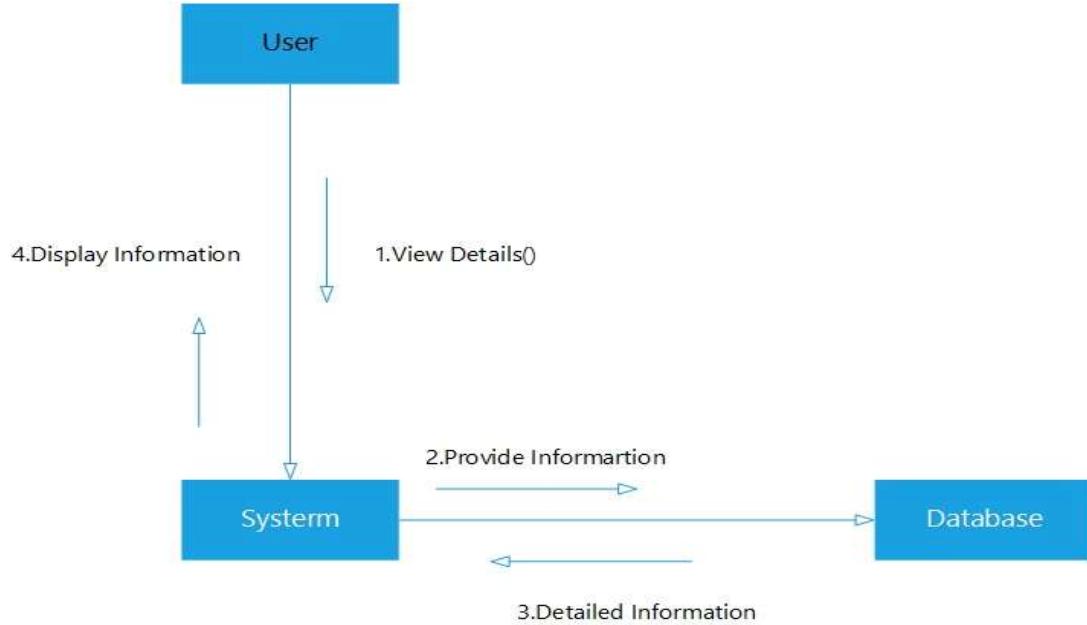
**Figure 48: Collaboration Diagram of User Logout**



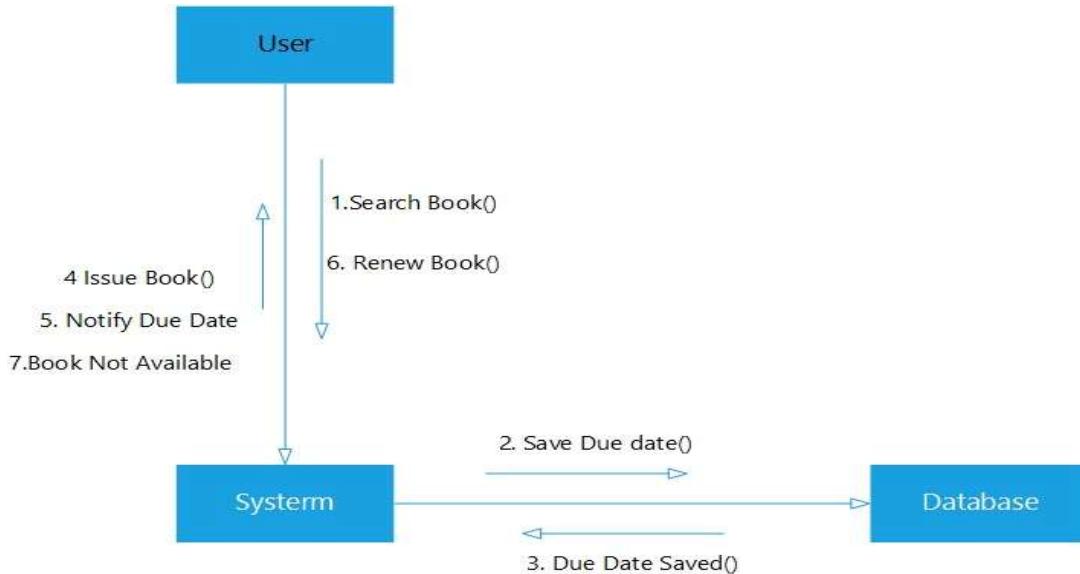
**Figure 49: Collaboration Diagram of User Search Book**



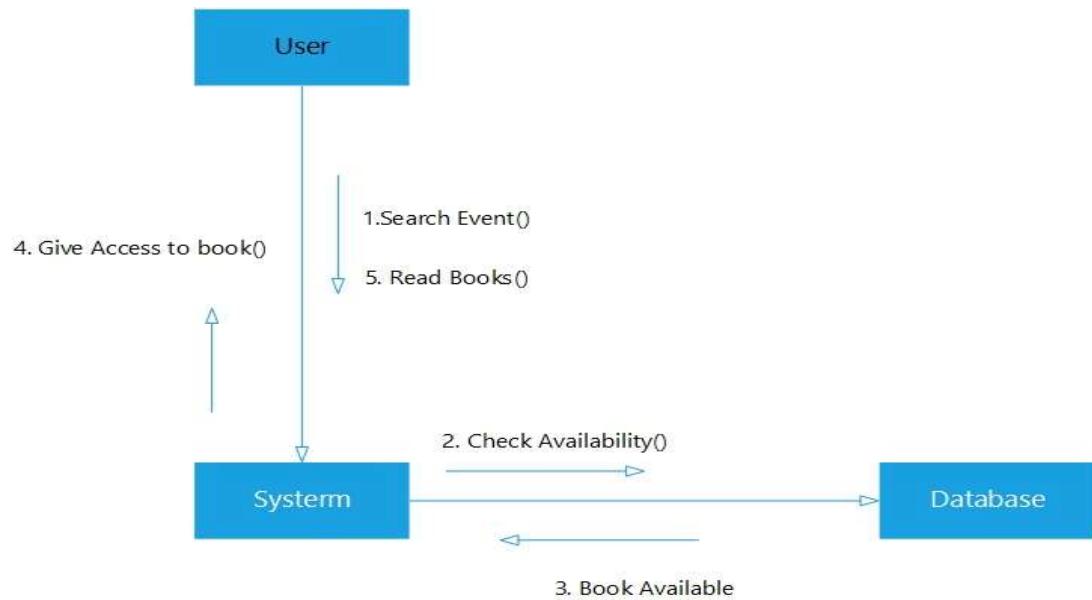
**Figure 50: Collaboration Diagram of Search Book**



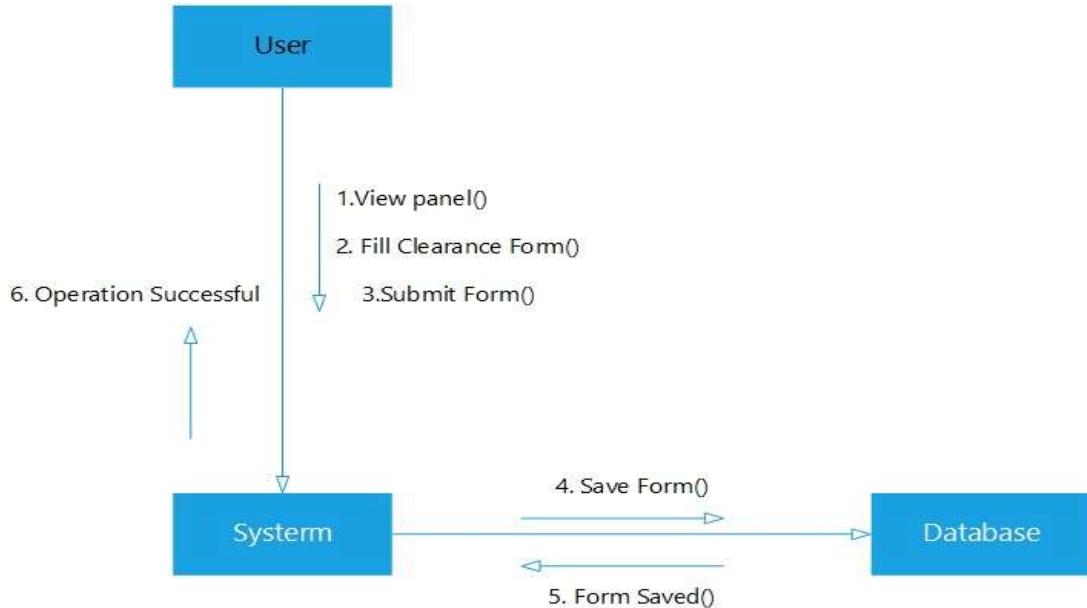
**Figure 51: Collaboration Diagram of View Details**



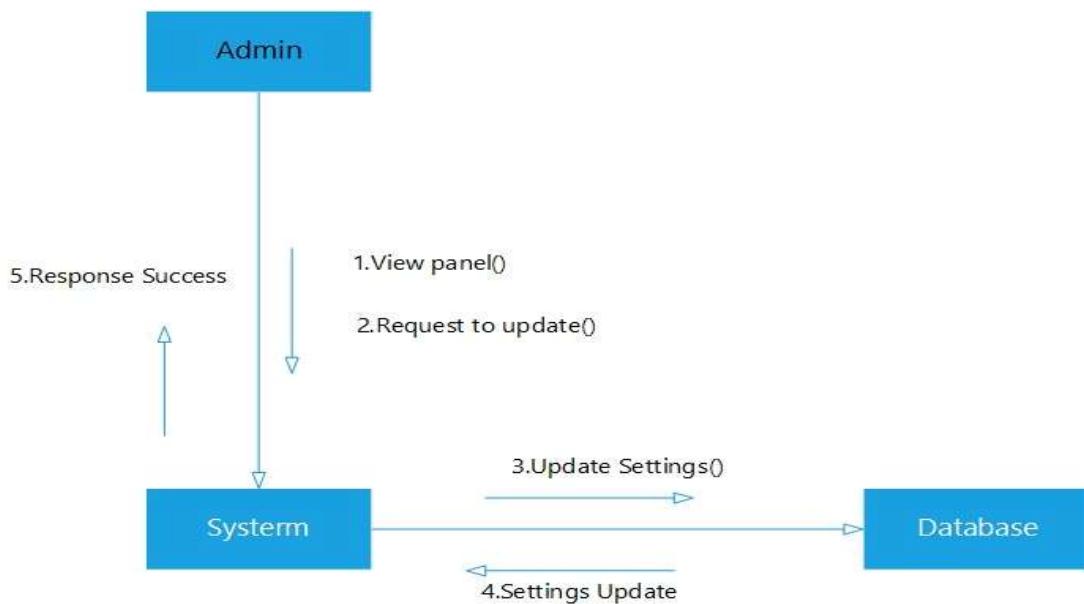
**Figure 52: Collaboration Diagram of Renew Book**



**Figure 53: Collaboration Diagram of Read E-Book**



**Figure 54: Collaboration Diagram of Clearance Form**



**Figure 55: Collaboration Diagram of Edit Profile**

# **CHAPTER 4**

## **TESTING**

## 4.1 Testing

Testing is the process of evaluating a system or its component(s) with the intent to find whether it satisfies the specified requirements or not. In simple words, testing is executing a system in order to identify any gaps, errors, or missing requirements in contrary to the actual requirements.

**Table 20: Testing Admin Login**

<b>Test Engineer:</b>	Shahzaib Afzal
<b>Test Case ID:</b>	TC-1
<b>Related UC/FR/NFR</b>	UC-01
<b>Date:</b>	05-09-2023
<b>Purpose:</b>	To Login
<b>Pre-Req.:</b>	Login as Administrator
<b>Test Data:</b>	Administrator login as their own Username or Password
<b>Steps:</b>	<ul style="list-style-type: none"><li>• Steps to carry out the test.</li><li>• Visit Login Page</li><li>• Enter email and password</li><li>• Click on login</li></ul> <p>Logged in Successfully</p>
<b>Status:</b>	Pass

**Table 21: Testing Admin Logout**

<b>Test Engineer:</b>	Nouman Aziz
<b>Test Case ID:</b>	TC-2
<b>Related UC/FR/NFR</b>	UC-02
<b>Date:</b>	05-09-2023
<b>Purpose:</b>	To logout from account
<b>Pre-Req.:</b>	Logged out from account
<b>Test Data:</b>	Back to login page
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Login</li><li>• Click on logout</li></ul> Successfully Logged out
<b>Status:</b>	Pass

**Table 22 :Testing Admin Change Password**

<b>Test Engineer:</b>	Shahzaib Afzal
<b>Test Case ID:</b>	TC-9
<b>Related UC/FR/NFR</b>	UC-09
<b>Date:</b>	00-12-2023
<b>Purpose:</b>	Change Password
<b>Pre-Req.:</b>	Login as
<b>Test Data:</b>	Administrator logged in using his username and password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Visit edit user section</li><li>• Click “Change Password” option</li><li>• Password Changed successfully</li></ul>
<b>Status</b>	Pass

**Table 23: Testing Manage Students**

<b>Test Engineer:</b>	Shahzaib Afzal
<b>Test Case ID:</b>	TC-1
<b>Related UC/FR/NFR</b>	UC-01
<b>Date:</b>	06-09-2023
<b>Purpose:</b>	To store students' details
<b>Pre-Req.:</b>	To manage students as Administrator
<b>Test Data:</b>	Administrator sign in as their own account to enter data
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Visit admin panel.</li><li>• Add students.</li><li>• Update students.</li><li>• Delete students.</li><li>• Students managed Successfully</li></ul>
<b>Status:</b>	Pass

**Table 24: Testing Manage Staff**

<b>Test Engineer:</b>	Mehran Ali
<b>Test Case ID:</b>	TC-2
<b>Related UC/FR/NFR</b>	UC-02
<b>Date:</b>	06-09-2023
<b>Purpose:</b>	To store staff details
<b>Pre-Req.:</b>	To manage staff as Administrator
<b>Test Data:</b>	Administrator sign in as their own account to enter data
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Visit admin panel.</li><li>• Add students.</li><li>• Update students.</li><li>• Delete students.</li><li>• Students managed Successfully</li></ul>
<b>Status:</b>	Pass

**Table 25: Testing Books Management**

<b>Test Engineer:</b>	Mehran Ali
<b>Test Case ID:</b>	TC-5
<b>Related UC/FR/NFR</b>	UC-05
<b>Date:</b>	06-09-2023
<b>Purpose:</b>	To store Books details
<b>Pre-Req.:</b>	To manage books as administrator
<b>Test Data:</b>	Administrator sign in as their own account to enter data
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Admin enter to the admin panel</li><li>• Admin can add book</li><li>• Admin can update book</li><li>• Admin can delete book</li><li>• Admin can modify book details</li><li>• Books are managed Successfully</li></ul>
<b>Status:</b>	Pass

**Table 26:Testing Generate Report**

<b>Test Engineer:</b>	Mehran Ali
<b>Test Case ID:</b>	TC-6
<b>Related UC/FR/NFR</b>	UC-06
<b>Date:</b>	07-09-2023
<b>Purpose:</b>	To Generate Report
<b>Pre-Req.:</b>	Generate report as administrator
<b>Test Data:</b>	Administrator sign in as their own account to create monthly report
<b>Steps:</b>	Steps to Carry out the test. <ul style="list-style-type: none"><li>• Admin enter to the admin panel</li><li>• Click on “Generate Report” Button</li><li>• Reports successfully generated</li></ul>
<b>Status:</b>	Pass

**Table 27: Testing Student Login**

<b>Test Engineer:</b>	Shahzaib Afzal
<b>Test Case ID:</b>	TC-1
<b>Related UC/FR/NFR</b>	UC-01
<b>Date:</b>	07-09-2023
<b>Purpose:</b>	To Login
<b>Pre-Req.:</b>	Login as Student
<b>Test Data:</b>	Student login as their own Username or Password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Visit Login Page</li><li>• Enter email and password</li><li>• Click on login Logged in Successfully</li></ul>
<b>Status:</b>	Pass

**Table 28: Testing Student Logout**

<b>Test Engineer:</b>	Mehran Ali
<b>Test Case ID:</b>	TC-10
<b>Related UC/FR/NFR</b>	UC-10
<b>Date:</b>	08-09-2023
<b>Purpose:</b>	To logout from Student account
<b>Pre-Req.:</b>	Logged out from Student account
<b>Test Data:</b>	Back to login page
<b>Steps:</b>	<ul style="list-style-type: none"><li>• Steps to carry out the test.</li><li>• Login</li><li>• Click on logout</li><li>• Student successfully Logged out</li></ul>
<b>Status:</b>	Pass

**Table 29: Testing Student Change Password**

<b>Test Engineer:</b>	Mehran Ali
<b>Test Case ID:</b>	TC-11
<b>Related UC/FR/NFR</b>	UC-11
<b>Date:</b>	08-09-2023
<b>Purpose:</b>	To change student password
<b>Pre-Req.:</b>	Change student password
<b>Test Data:</b>	Student use their own username and password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Click on “Forget Password” Option</li><li>• Enter Email ID</li><li>• Change Password</li><li>• Paasword Changed Successfully</li></ul>
<b>Status:</b>	Pass

**Table 30 :Testing Search Books**

<b>Test Engineer:</b>	Nouman Aziz
<b>Test Case ID:</b>	TC-11
<b>Related UC/FR/NFR</b>	UC-11
<b>Date:</b>	08-09-2023
<b>Purpose:</b>	To search books
<b>Pre-Req.:</b>	Search Books
<b>Test Data:</b>	Client use their own username and password
<b>Steps:</b>	<p>Steps to carry out the test.</p> <ul style="list-style-type: none"><li>• Click on “Search Bar” Option</li><li>• Search book by author, title, name</li><li>• Click on “Search” Button</li><li>• Searched Book appeared Successfully</li></ul>
<b>Status:</b>	Pass

**Table 31: Testing View Book Detail**

<b>Test Engineer:</b>	Nouman Aziz
<b>Test Case ID:</b>	TC-11
<b>Related UC/FR/NFR</b>	UC-11
<b>Date:</b>	08-09-2023
<b>Purpose:</b>	To view book details
<b>Pre-Req.:</b>	View Books Detail
<b>Test Data:</b>	Client use their own username and password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Click on “Search Bar” Option to search book</li><li>• Select book for details</li><li>• Got Details Successfully</li></ul>
<b>Status:</b>	Pass

**Table 32: Testing Reserve Book**

<b>Test Engineer:</b>	Nouman Aziz
<b>Test Case ID:</b>	TC-11
<b>Related UC/FR/NFR</b>	UC-11
<b>Date:</b>	08-09-2023
<b>Purpose:</b>	To reserve books
<b>Pre-Req.:</b>	Reserve Books
<b>Test Data:</b>	Client use their own username and password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Click on “Search Bar” Option to search books</li><li>• Select the book required</li><li>• Click on “Reserve Book” Option</li><li>• Book Reserved Successfully</li></ul>
<b>Status:</b>	Pass

**Table 33: Testing Borrow Book**

<b>Test Engineer:</b>	Nouman Aziz
<b>Test Case ID:</b>	TC-11
<b>Related UC/FR/NFR</b>	UC-11
<b>Date:</b>	08-09-2023
<b>Purpose:</b>	To borrow book
<b>Pre-Req.:</b>	Borrow Books
<b>Test Data:</b>	Client use their own username and password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Click on “Search Bar” Option to search books</li><li>• Select the book that required</li><li>• Click on “Borrow Book” Button</li><li>• Book Borrowed Successfully</li></ul>
<b>Status:</b>	Pass

**Table 34: Testing Renew Books**

<b>Test Engineer:</b>	Shahzaib Afzal
<b>Test Case ID:</b>	TC-11
<b>Related UC/FR/NFR</b>	UC-11
<b>Date:</b>	09-09-2023
<b>Purpose:</b>	To renew books
<b>Pre-Req.:</b>	Renew Books
<b>Test Data:</b>	Client use their own username and password
<b>Steps:</b>	Steps to carry out the test. <ul style="list-style-type: none"><li>• Select the book that you want to renew</li><li>• Click on “Renew Book” Option</li><li>• Books Renewed Successfully</li></ul>
<b>Status:</b>	Pass
<b>Purpose:</b>	To change student password
<b>Pre-Req.:</b>	Change student password
<b>Test Data:</b>	Student use their own username and password

# **CHAPTER 5**

## **CONCLUSION & FUTUREWOR**

## **5.1 Future Work:**

- **Expansion of digital collections:**

Continuously adding new and diverse digital resources, including e-books, e-journals, multimedia content, and open educational resources, to meet the evolving needs of users.
- **Mobile – friendly interfaces and services:**

Optimizing digital library systems for mobile devices, enabling users to access resources, including licensing, access, and usage tracking.
- **Integration with learning management systems:**

Connecting digital library systems with LMS platforms to provide seamless access to library resources and services for students and educators.
- **Integration of Artificial Intelligence and Machine Learning:**

Utilizing AI and ML technologies to improve search and recommendation algorithms, automate routine tasks, and provide more advanced analytics for library management.
- **Support for emerging technologies:**

Exploring the integration of technologies such as Virtual reality (VR), augmented reality (AR) and blockchain to enhance the discovery, access and use of digital library resources.
- **Enhanced metadata management:**

Developing more efficient and automated processes for metadata creation, enrichment, and maintenance to ensure accurate and comprehensive resource discovery.

## **5.2 Conclusion:**

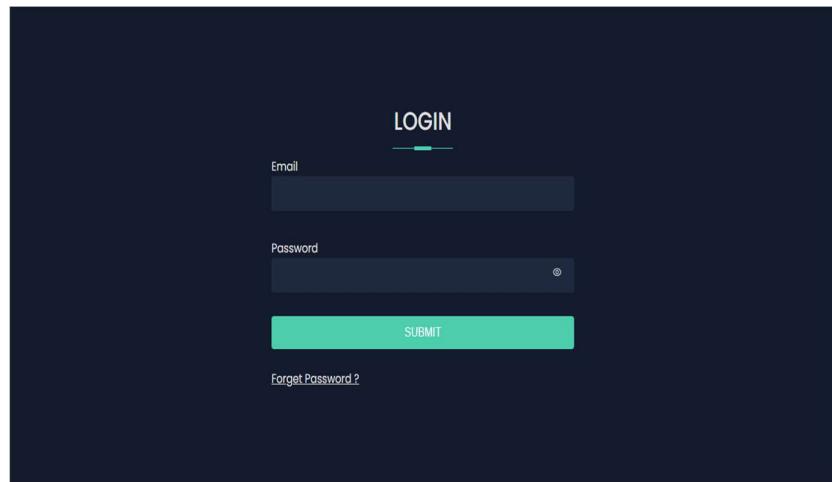
Library Management System offer several advantages over traditional library systems. They provide a practical solution to the existing issues of the traditional library system, such as slow and inefficient manual processes. They also offer improved and innovative services, converting librarians into cybrarians through automation of routine tasks. Library Systems are accessible from anywhere, at any time, and can be used to connect a digital library resource to a related resource. They can make digital library materials accessible to disparate communities.

In conclusion, digital library management systems are a necessary tool for organizations to remain relevant in a knowledge economy. They offer several advantages over traditional library systems, but also come with challenges that need to be addressed.

# **CHAPTER 6**

## **USER MANUAL**

## Login

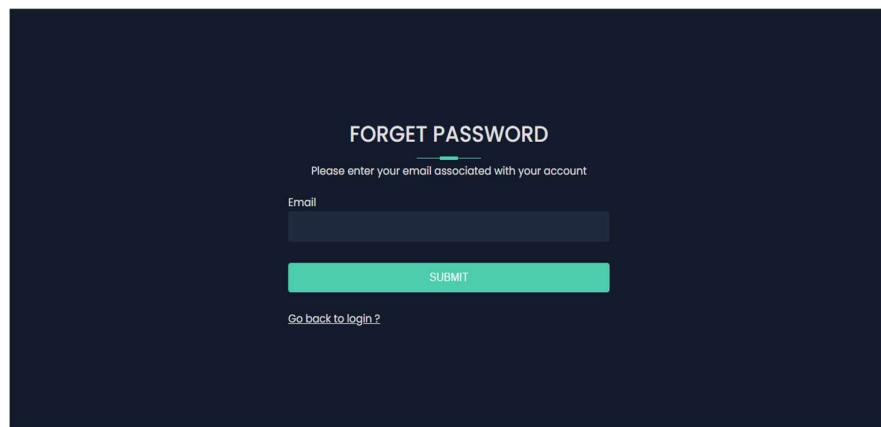


The image shows a dark-themed login form. At the top center is the word "LOGIN". Below it is a text input field labeled "Email" with a placeholder. Underneath is a password input field labeled "Password" with a visibility icon. A large green "SUBMIT" button is centered below the inputs. At the bottom left is a link "Forgot Password ?".

**Step 1:** Open Website

**Step 2:** Click Login

## Change Password

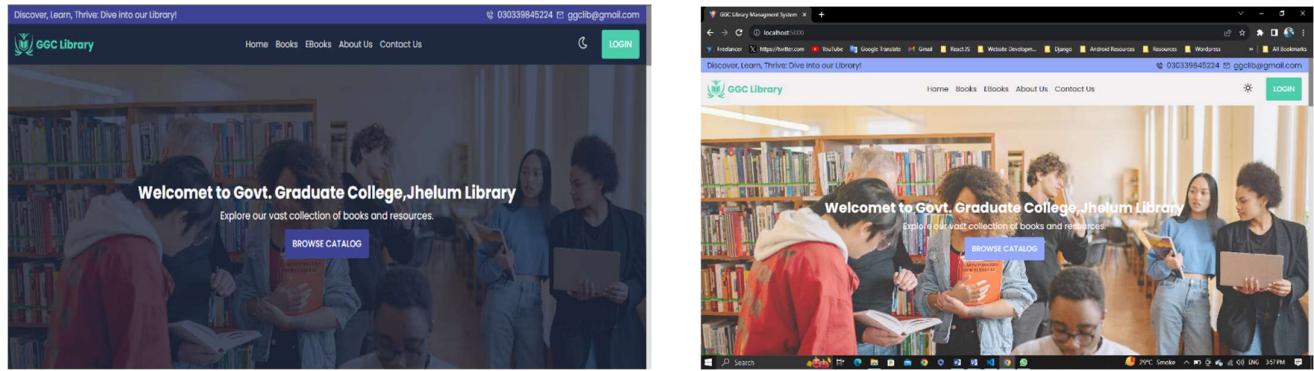


The image shows a dark-themed "FORGET PASSWORD" page. At the top center is the title "FORGET PASSWORD". Below it is a sub-instruction "Please enter your email associated with your account". There is a text input field labeled "Email" with a placeholder. A large green "SUBMIT" button is centered below the input. At the bottom left is a link "Go back to login ?".

**Step 1:** Open Website

**Step 2:** Open Login page then click on Forget Password

## Hero Section



**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on Home Page to view the hero section

**Step 4:** Click on Theme mode option to change the theme

## Home Page

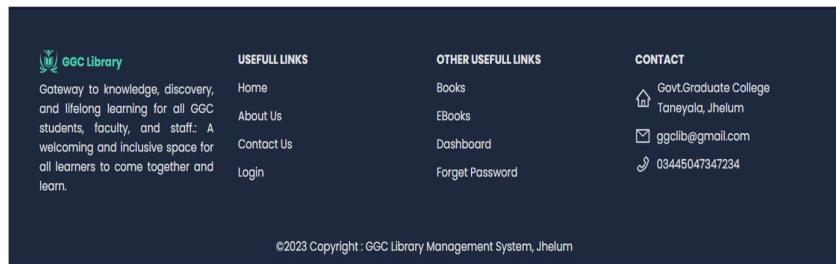


**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on Home Page and view the page

## Home page footer

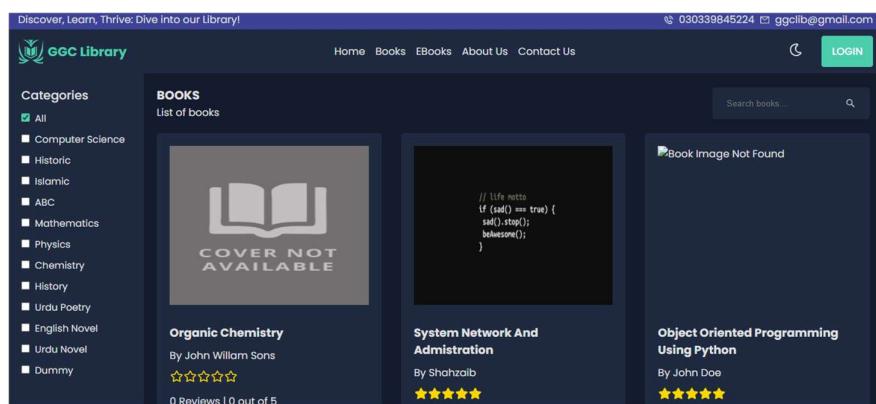


**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on Home Page and scroll it down to use the footer options

## Book Page

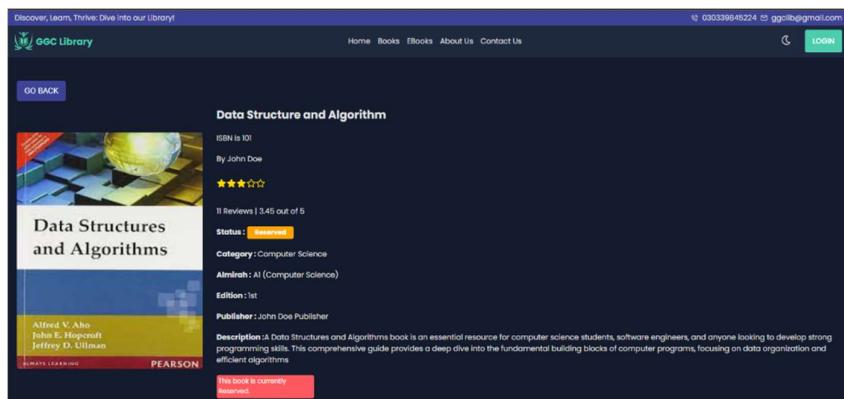


**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on Book Page from navbar and Reserve, Borrow, and Renew books

## View Book Details



**Step 1:** Open the website of GCC LMS

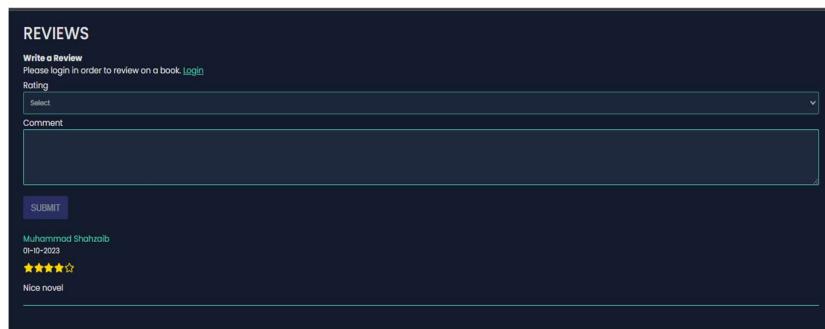
**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on Book Page from navbar

**Step 5:** Click on any book that you want to read and view its details successfully

## Reviews and Rating

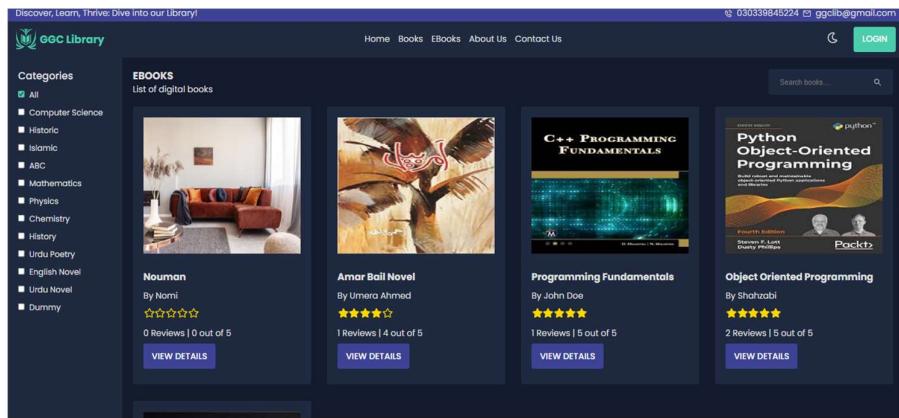


**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on Book Page from navbar and give Review and Rating to any book

## E-book Page



**Step 1:** Open the website of GCC LMS

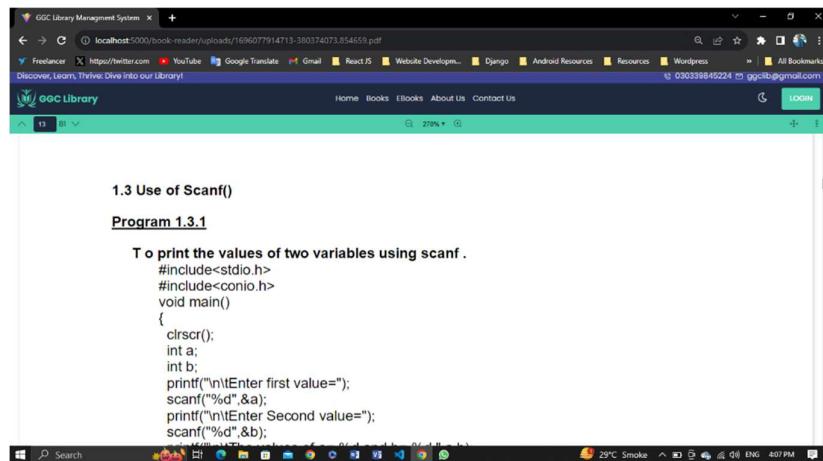
**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on E-Book Page from navbar

**Step 5:** Click on any book that you want to read and view its details successfully

## Read E-Book

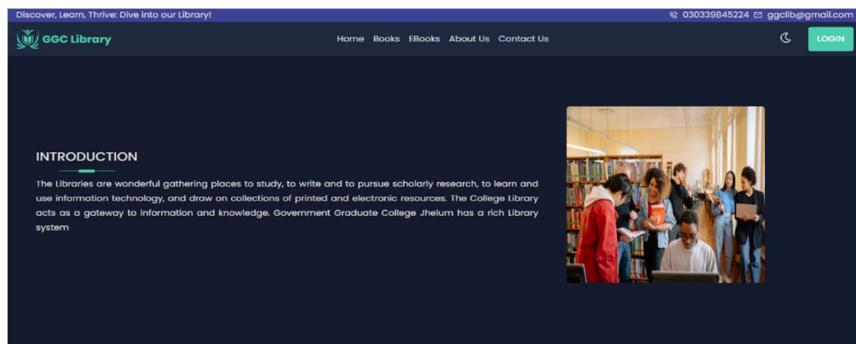


**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on E-Book Page from navbar and Open any book that you want to read in pdf format

## About Us Page

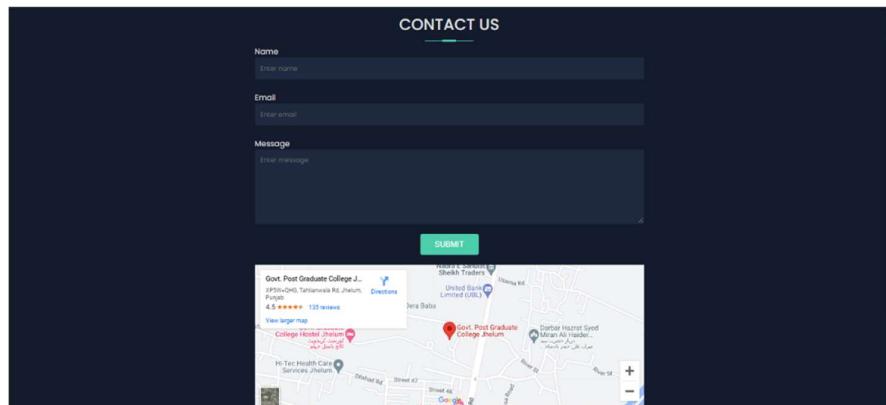


**Step 1:** Visit the Website of GCC LMS

**Step 2:** Login first if you are not Authorized

**Step 3:** Click on About Us page from navbar, then visit and read more to know us

## Contact Us Page



**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

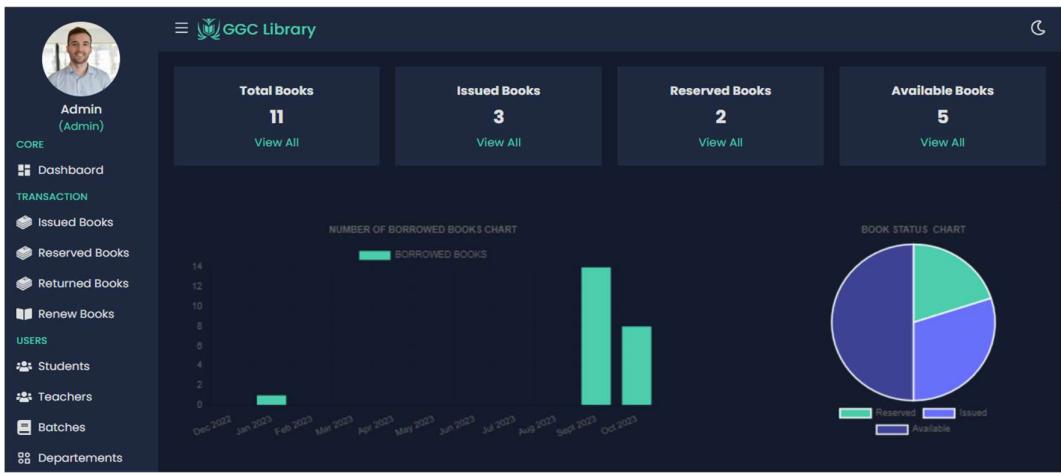
**Step 3:** Click on Login button

**Step 4:** Click on Contact Us Page from navbar

**Step 5:** Fill the requirements to contact us

**Step 6:** Click on Submit button

## Admin Dashboard



**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on hamburger Icon from navbar

**Step 5:** Click on Admin Dashboard from sidebar

## Manage Book Interface

The screenshot shows the 'MANAGE BOOKS' page of the GGC Library system. The sidebar on the left includes options like Admin (Admin), CORE (Dashboard, Transaction, Renew Books), USERS (Students, Teachers, Batches, Departments), and a profile picture of an admin. The main area has search fields for ISBN and title, and a filter by status dropdown. A table lists two books: 'Organic Chemistry' by John Willam Sons (Available) and 'System Network And Admistration' by Shahzaib (Issued). Each book row has three action buttons: a green eye icon, an orange edit icon, and a red trash icon. At the bottom, it says 'Showing 1-2 of 11 records' and has previous/next navigation buttons.

ISBN	Title	Author	Status	Actions
786	Organic Chemistry	John Willam Sons	Available	
10332	System Network And Admistration	Shahzaib	Issued	

**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on hamburger Icon from navbar

**Step 5:** Click on Admin Dashboard from sidebar

**Step 6:** Select the Manage Book option from sidebar and perform operations

## Manage Student Interface

The screenshot shows the 'MANAGE STUDENTS' page of the GGC Library system. At the top, there are three search bars: 'Search by roll number...', 'Search by name...', and 'Search by email...'. Below them are buttons for 'ADD NEW', 'EXPORT TO CSV', and 'CLEAR'. A table lists student information with columns: Roll Number, Image, Name, Father Name, Email, and Actions. The first row shows a student with Roll Number 19721556-052, Name Ahmed Raza, Father Name Muhammad Raza, and Email ahmed@gmail.com. The second row shows a student with Roll Number 1335345234, Name Babar, Father Name Azam, and Email baber@gmail.com. Each row has three action buttons: a green eye icon, a yellow edit icon, and a red delete icon. At the bottom left, it says 'Showing 5-6 of 9 records'. At the bottom right, there are 'PREVIOUS', a page number '3', and 'NEXT' buttons.

Roll Number	Image	Name	Father Name	Email	Actions
19721556-052		Ahmed Raza	Muhammad Raza	ahmed@gmail.com	
1335345234		Babar	Azam	baber@gmail.com	

**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on hamburger Icon from navbar

**Step 5:** Click on Admin Dashboard from sidebar

**Step 6:** Select the Manage Student option from sidebar and perform operations

## Issue Book Interface

The screenshot shows the 'ISSUED BOOKS' page of the GGC Library system. The interface includes a sidebar with user profile and navigation links, a search bar, and a table displaying issued books with actions like 'PAY FINE' and 'RETURN'.

ISBN	Roll Number/Email	Issued Date	Due Date	Fine	Fine Status	Actions
303	19721556-017	01-10-2023	13-10-2023	180	Not Paid	PAY FINE RETURN
104	19721556-017	05-10-2023	15-10-2023	160	Not Paid	PAY FINE RETURN

Showing 1-2 of 3 records

**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

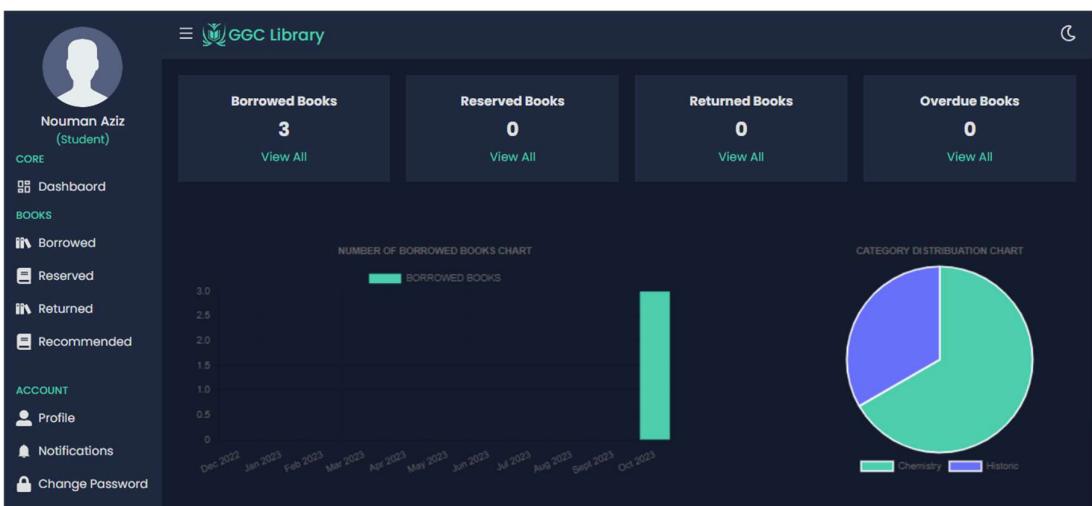
**Step 3:** Click on Login button

**Step 4:** Click on hamburger Icon from navbar

**Step 5:** Click on Admin Dashboard from sidebar

**Step 6:** Select the Issue Book option from sidebar and perform operations

## User Dashboard Interface



**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

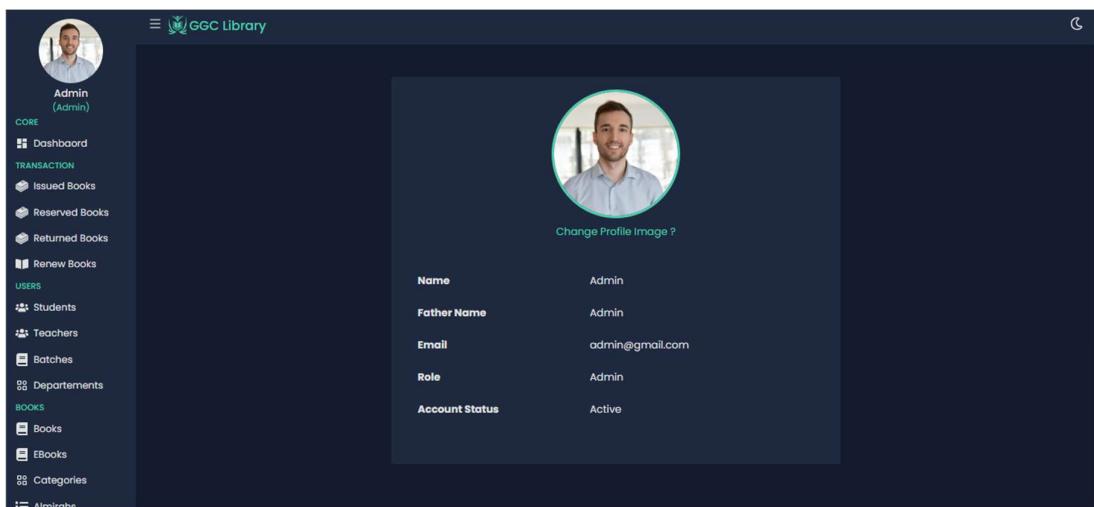
**Step 3:** Click on Login button

**Step 4:** Click on hamburger Icon from navbar

**Step 5:** Click on User Dashboard from sidebar

**Step 6:** Visit the User Dashboard and perform operations

## User Profile Interface



**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

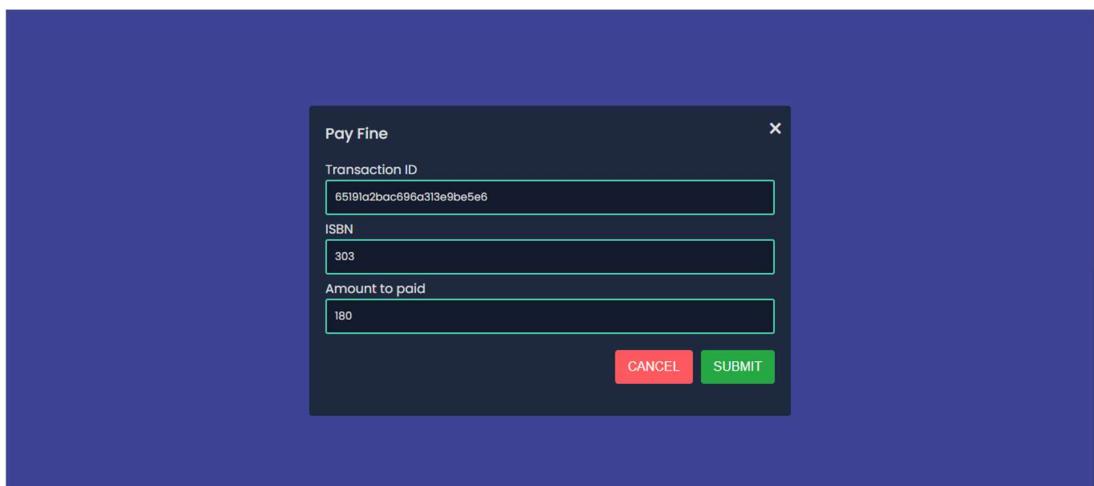
**Step 3:** Click on Login button

**Step 4:** Click on hamburger Icon from navbar

**Step 5:** Click on User Profile from sidebar

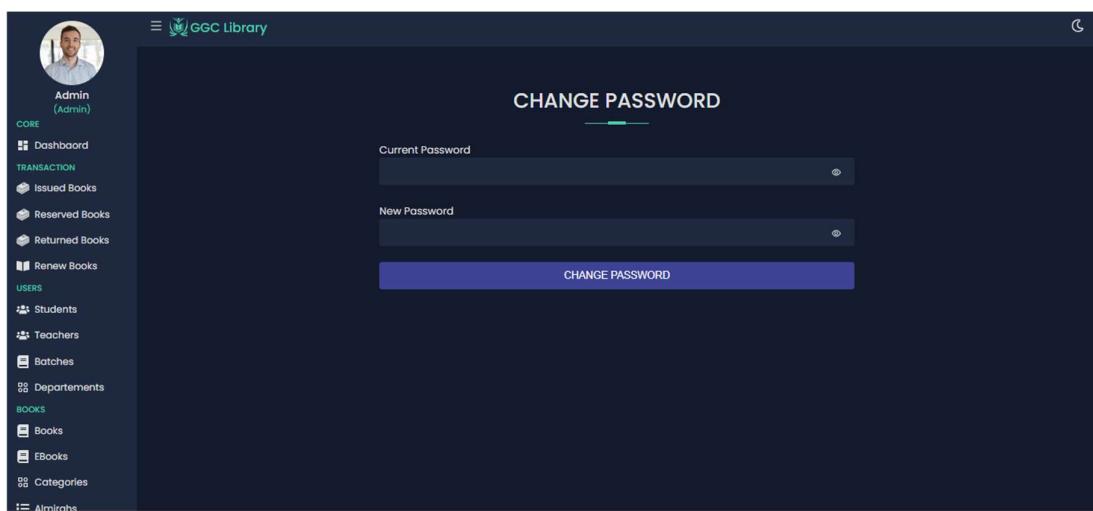
**Step 6:** Visit and read the User Profile successfully

## **Pay Fine Interface**



- Step 1:** Open the website of GCC LMS
- Step 2:** Enter Email and password for Login
- Step 3:** Click on Login button
- Step 4:** Click on Hamburger Icon from navbar
- Step 5:** Click and drag the Scroll Button
- Step 6:** Select the pay fine Option
- Step 7:** Fill the required information
- Step 8:** Click on SUBMIT Button

## Edit Profile Interface



**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on Hamburger Icon from navbar

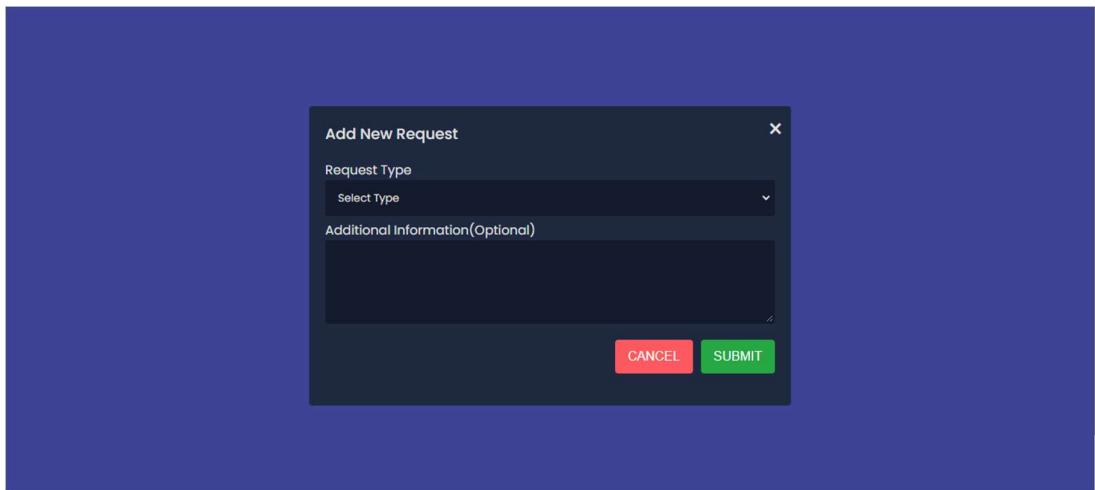
**Step 5:** Click on User Dashboard

**Step 6:** Click and drag the Scroll Button

**Step 7:** Select the Edit Profile Option

**Step 8:** Modify your Profile successfully

## **Clearance Form Interface**



**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on Hamburger Icon from navbar

**Step 5:** Click on User Dashboard

**Step 6:** Click and drag the Scroll Button

**Step 7:** Select the Clearance form Option

**Step 8:** Fill the required information

**Step 9:** Click on SUBMIT Button

## Manage Clearance Request Interface

The screenshot shows the 'MANAGE CLEARANCE REQUESTS' section of the GGC Library LMS. On the left, a sidebar menu for 'Admin (Admin)' lists categories like CORE, TRANSACTION, USERS, and BOOKS. The main area displays a summary of request status: PENDING (20), REJECTED (30), and APPROVED (1). Below this is a table with columns: Roll Number, Name, Request Type, Status, Date, and Actions. A single record is shown: Roll Number 1993939393, Name Nouman Aziz, Request Type Graduation, Status Pending, Date 31-10-2023, and Actions (Approve, Reject, View). At the bottom, it says 'Showing 1-1 of 1 records' and includes navigation buttons for PREVIOUS, 1, and NEXT.

**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on Hamburger Icon from navbar

**Step 5:** Click on Admin Dashboard

**Step 6:** Click and drag the Scroll Button

**Step 7:** Select the Manage Clearance request Option

**Step 8:** View and proceed the operation successfully

## Approved Clearance Request Interface

No.	Made By	Type	Librarian Approval	Clerk Approval	HOD Approval	Actions
1	Nouman Aziz	Graduation	Pending	Pending	Pending	DOWNLOAD

**Step 1:** Open the website of GCC LMS

**Step 2:** Enter Email and password for Login

**Step 3:** Click on Login button

**Step 4:** Click on Hamburger Icon from navbar

**Step 5:** Click on Admin Dashboard

**Step 6:** Click and drag the Scroll Button

**Step 7:** Select the Approved Clearance request Option

**Step 8:** View and proceed the operation successfully

## **REFERENCES**

- [1] "Clifton Park Halfmoon Public Library," [Online]. Available: <https://www.cphlibrary.org/>
- [2] "Brookline Libraries," [Online]. Available: <https://www.brooklinelibrary.org/>
- [3] "Public Library of Congress," [Online]. Available: <https://www.loc.gov/>