

# Project Report of Online Library Management System

**Team Name: The Violent Storms**

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## **1. Introduction**

Online library management is a project that manages and stores books information electronically according to student's needs. It is all about organizing, managing the library and library-oriented tasks. The system helps both students and library manager to keep a constant track of all the books available in the library. It allows both the admin and the student to search for the desired book. It becomes necessary for any library to keep a continuous check on the books issued and returned and even calculate fine. This task if carried out manually will be tedious and includes chances of mistakes. These errors are avoided by allowing the system to keep track of information such as issue date, last date to return the book and even fine information and thus there is no need to keep manual track of this information which thereby avoids chances of mistakes. Thus this system reduces manual work to a great extent allows smooth flow of library activities by removing chances of errors in the details.

The project Library Management System aims at developing a fully functional computerized system to maintain all the day to day activity of a library.

This project has many features which such as the facility of user login. There is an admin who will be managing the entire application's authorization and authentication, not any intruder can login and modify the data, as a login for admin is also available.

It has a facility of admin login through which the admin can monitor the whole system. It has a facility where student after logging in their accounts can see list of books issued and its issue date return date and see fine.

Overall, this project of ours is being developed to help the staff of library to maintain the library in the best way possible and also reduce the human efforts.

### **1.1 Purpose**

The purpose of this project is to provide a friendly environment to maintain the details of books and library members. The main purpose of this project is to maintain easy circulation system using computers and to provide different reports. The Library System is a package to be used by Libraries to improve the efficiency of Librarians, Library employees and Users. The system provides books catalogue and information to members and helps them decide on the books to borrow from the library. The Librarian can keep the books catalogue updated all the time so that the members get the updated information all the time.

## **2. Software Project Description**

### **2.1 Requirements**

The software requirements are description of features and functionalities of the target system. It is a condition or capability needed by a user to solve a problem or achieve an objective. Requirement convey the expectations of users from the software products. Requirements can be obvious or hidden, known or unknown, expected or unexpected from client's point of view.

Software system requirements are often classified as functional and non-functional requirements.

### **2.2 Functional Requirements**

Functional requirements refer to the functions which are mandatory to the system. Functional requirements must be able to perform on the software system. Every system must have some functional requirements. Now, we are going to mention functional requirements associating with our project.

## **1. New admin and student registered their account**

In our system there are two types of library users. But we assume our user is students. So, students should provide their valid information for registration and admin that means librarian check validate this information. If these information is correct then librarian approve the registration and account registration is successful. This process is also followed by new admin. If an old admin approves new admin then the new admin completes his/her registration process.

## **2. Admin and student user view their dashboard**

After login successfully admin and student view their dashboard. In admin's dashboard add/delete books, book request, issue details, registered students and other information will be showed. In student's dashboard issue book, book list, account, fine will showed.

## **3. Admin and student can edit their profile**

In this system admin and student can edit their username, password and other information. If they want to edit their profile first they should login the system and they should go to their profile and then they can update their profile.

## **4. Admin add or delete books**

In this system, admin is a primary actor and he/she can add new books. He/she first login the system and then add new book and status as this book is available or unavailable. Admin can delete a book. He/she enter book's ISBN number and then delete the book.

## **5. Admin issue new book and update details**

If a student sends book request, then student check this book is available or not. If this book is available accept book request and issue this book. Then finally admin update the book details.

## **6. Student view issue book and return date**

A student can view book request is accepting or not and then view issue information that means see when he/she accept the book and when he/she give book to Admin. That means we see a student can see his/her issue date and return date.

## **7. Admin can approve book request**

When a student sends book request then admin approve the book request and automatic update book's quantity.

## **8. Admin can search student**

Admin can see all student's information. If admin search a student for any purpose, he can use student ID for search a specific student and see his/her information.

## **9. Student send book request by book's ISBN number**

In this system a student sends book request to issue a new book. He/she can search book by book's id and send the book request to admin.

**10. Admin charge fine send notification to give fine**

A student can issue book by send book request. He/she can see issue date and expired date of book and if admin send mail to give fine then a student see mail about fine.

**11. Admin and student can see book list**

Admin and student can see book list. Librarian see the book list as he/she can see which books should add in the list. A student should see the book list as he/she can see which books are available and which are unavailable.

**12. Admin can approve new admin**

In a library there can be join new admin. So new admin should register the system. An existence admin can validate the new admin's information and approve the registration.

**13. Admin can see feedback**

In this system we add an amazing feature that is feedback. Admin can see the feedback of the system. That means an admin only see the feedback of our system but not give any reply.

**14. Student see their expired date and notified fine**

A student can issue book by send book request. He/she can see issue date and expired date of book and if admin send mail to give fine then a student see mail about fine.

**15. Admin and student can search book**

In this system library user search book by select department and book id. Librarian also search book in this way to see that desirable book is available or not.

**16. Student can see announcement**

If an admin add any notice then a student can see this.

**17. Student can give feedback and also see other's feedback**

We already say this feedback feature is amazing. As an user he/she can give feedback about this system and also see other's person feedback.

**18. Admin can see student's details**

An admin can see all student's details. First he/she need to login this system and then he/she can see all registered student's details.

**19. Admin and student can recover their password**

In this system librarian and a student can login by their user name and password. If they forget their password, they can recover password by click forget password and then get e link in their mail to recover the password.

**20. Student verify their email address**

When a student registration his/her account he/she should give email address and an otp is given in email. When he/she give right otp then his/her email address will be verified.

## 21. Admin can add and delete announcement

If any notice want to inform students then admin can add new announcement and if he/she wants to the notice is not to need inform now then delete an announcement.

## 2.3 Non-functional Requirement

These are basically the quality constraints that the system must satisfy according to the project contract.

### Maintainability

The user can easily maintain the application.

### Reliability

Our application will fulfill its assigned task in a given environment for input cases, assuming that the hardware and the input are free of error.

### Performance

The performance of our application is very good. It gives very fast result.

### Space

Our application size is decent compare to other existence application.

## 3. Proposed Process Model

A software process model is a simplified representation of a software process. Each model represents a process from a specific perspective.

### Types of model

1. The Incremental Development Model.
2. The spiral model.
3. Evolutionary model.
4. The phases of iterative development.
5. The principles of agile methods.
6. The Waterfall Model

### 3.1 The Waterfall Model

Waterfall is the most conventional software development methodology. In fact, it has been one of the most popular approaches for web development projects for several decades due to its plan-driven approach.

The Waterfall approach requires a lot of structure and documentation. The process is divided into several stages that form a sequence:

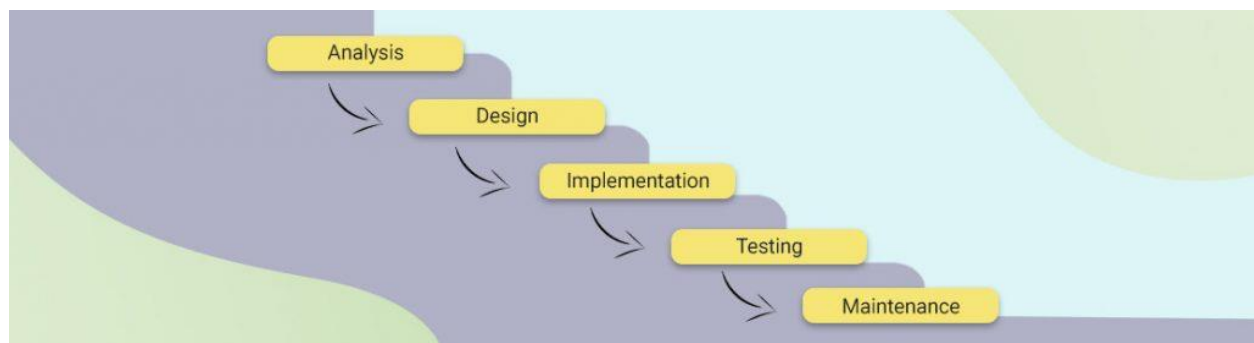


Figure1 Waterfall Model

The first stage is critical and requires a complete understanding of the project's demands and scope by both the developers and the product owners.

Waterfall lacks flexibility which means that every phase should be fully completed before moving forward to the next stage. Once any modifications are needed or any errors are detected during the course of the project, Waterfall will require a full restart. As a result, projects managed under the Waterfall method might require much more time. On the other hand, it is great for ensuring that all deliverables meet expectations and it allows for easily measuring the progress since you see the full scope of the project in advance.

Waterfall methodology is mostly used for web development projects with a clear and predefined scope, with a fixed timeframe for project completion and few iterations or revisions.

## Project Team

Team Name: The Violent Storms

## Members

- ✓ Nowal Benta Basher(BFH1825041F)
- ✓ Muinuddin (ASH1825012M)
- ✓ Md.Mynuddin(ASH182507M))

## 4.1 Proposed Timeline and Actual Timeline

Proposed timeline is the timeline which are made by guess in a time bound and actual timeline means the work history which is make after completed work.

**Table 01: Proposed Timeline Table**

Task	Deadline
Proposal	<i>Within 2<sup>nd</sup> week of February</i>
Requirement Analysis, Specification	<i>Within 3<sup>rd</sup> week of February</i>
Designing, Study	<i>Within 5<sup>th</sup> March</i>
Coding	<i>Within 25<sup>th</sup> April</i>
Final Testing	<i>Within 5<sup>th</sup> May</i>

**Note:** Educational institutions were closed due to the Corona epidemic. So it was not possible to follow the time mentioned in the proposed timeline.



**Table 02: Actual Timeline Table**

<b>Task</b>	<b>Deadline</b>
Proposal	Within 13 <sup>th</sup> February 2020
Requirement Analysis, Specification	Within 1 <sup>st</sup> March 2020
Designing, Study	Within 5 <sup>th</sup> May 2020
Coding	Within 27 <sup>th</sup> August 2020
Final Testing	Within 4 <sup>th</sup> October 2021

**Table 03 Work distribution Table**

<b>Task</b>	<b>Active Members</b>
Proposal	Nowal Benta Basher, Md Mynuddin, Muinuddin
Requirement Analysis, Specification	Nowal Benta Basher, Md Mynuddin
Designing, Study	Nowal Benta Basher, Md Mynuddin
Coding	Nowal Benta Basher
Final Testing	Nowal Benta Basher

## 4.2 Software interface

**Language Used :** PHP

**Database :** My SQL

**User Interface Design :** HTML, AJAX,JQUERY,JAVASCRIPT

**Web Browser :** Mozilla, Google Chrome, IE8,OPERA

**Software :** XAMPP Server

## 4.3 Software Project Deliverables

1. Project Proposal
2. Project Presentation
3. Software Requirement Specifications
4. Project Report
5. Source Code

## 5. Use case Diagram of OLMS



## 6. Use case description

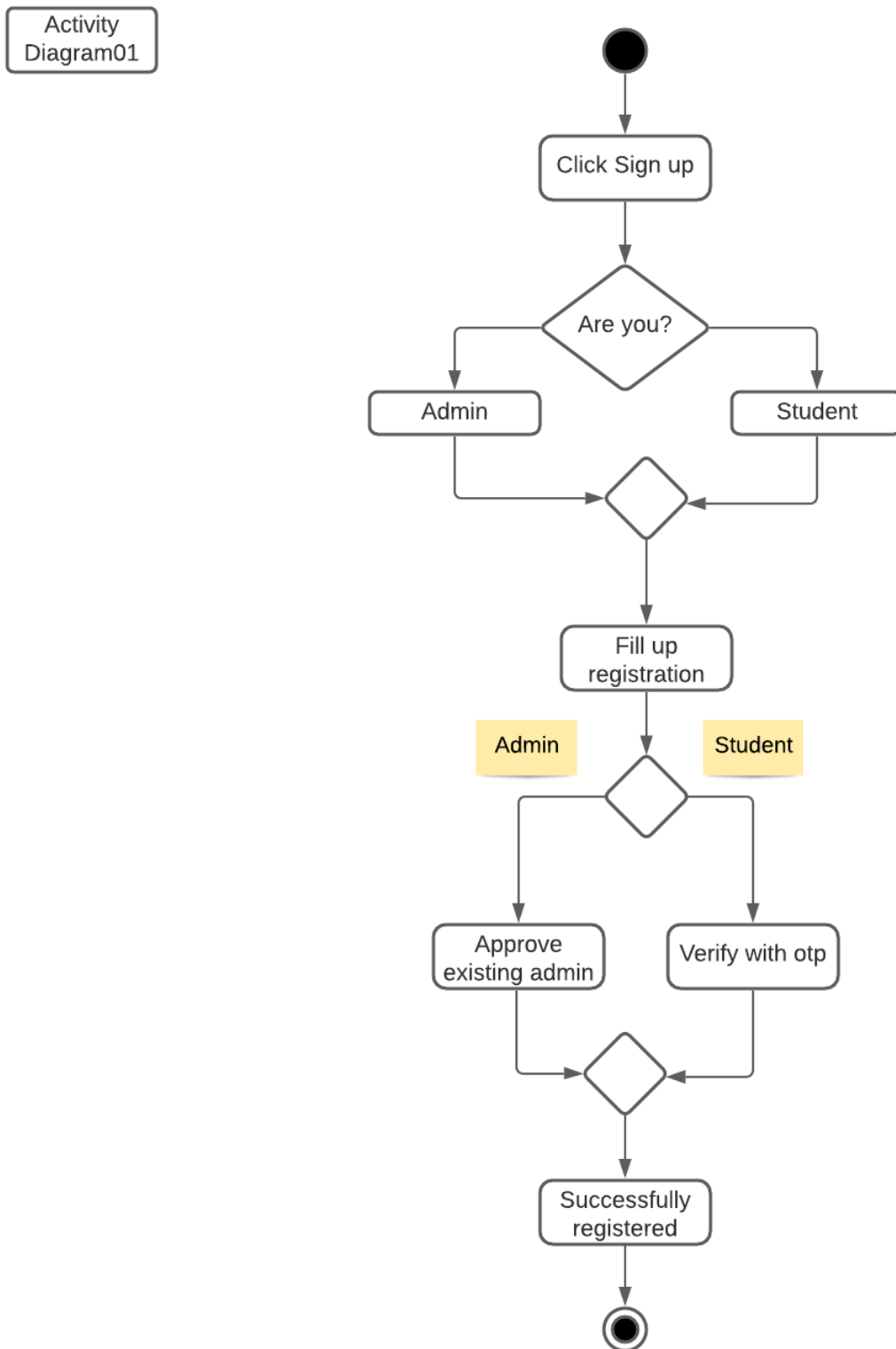
A use case is a written description of how users will perform tasks on your website. It outlines, from a user's point of view, a system's behavior as it responds to a request. Each use case is represented as a sequence of simple steps, beginning with a user's goal and ending when that goal is fulfilled.

### 6.1 Use case description 01

#### Use Case Description 01

<b>Use case</b>	Registered Account	
<b>Goal</b>	A new admin and student registered their account	
<b>Precondition</b>	A new admin and student provide their valid information	
<b>Success End Condition</b>	A new admin and student registered their account successfully	
<b>Failed End Condition</b>	A new admin and student not registered their account successfully	
<b>Primary Actor</b>	A new admin and student	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	Sign up	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	A new admin and student click sign up page
	2	They provide their valid information
	3	An existence admin check validation
	4	He/she approve new admin or new student
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.1.1 Activity Diagram 01

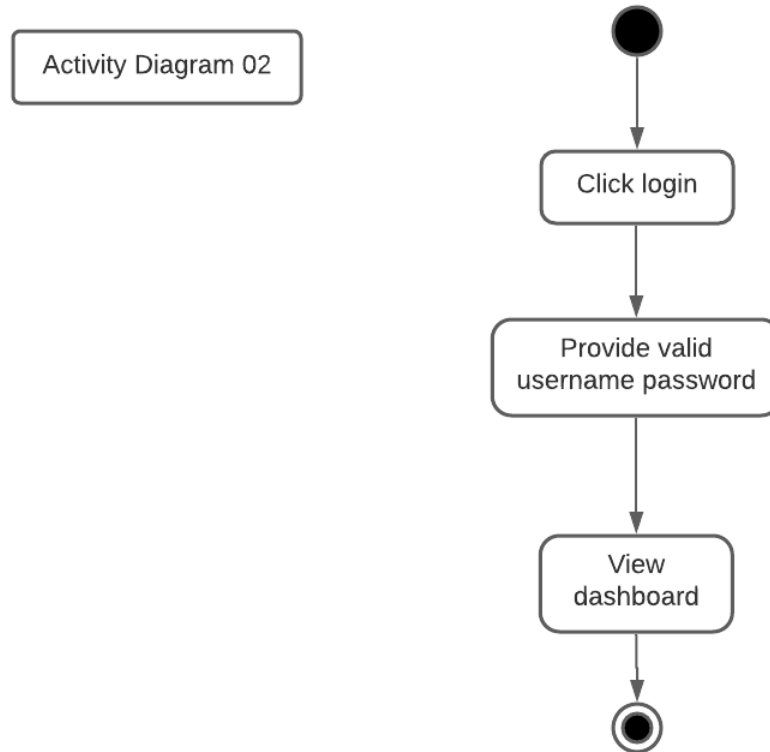


## 6.2. Use case description 02

Use Case Description 02

<b>Use case</b>	View Dashboard	
<b>Goal</b>	A new admin and student view their own dashboard	
<b>Precondition</b>	A new admin and student registered their account	
<b>Success End Condition</b>	A new admin and student login successfully	
<b>Failed End Condition</b>	A new admin and student cannot login their account	
<b>Primary Actor</b>	A new admin and student	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	A new admin and student click login
	2	They provide their valid user name and password
	3	They see their own dashboard
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.2.1 Activity Diagram 02

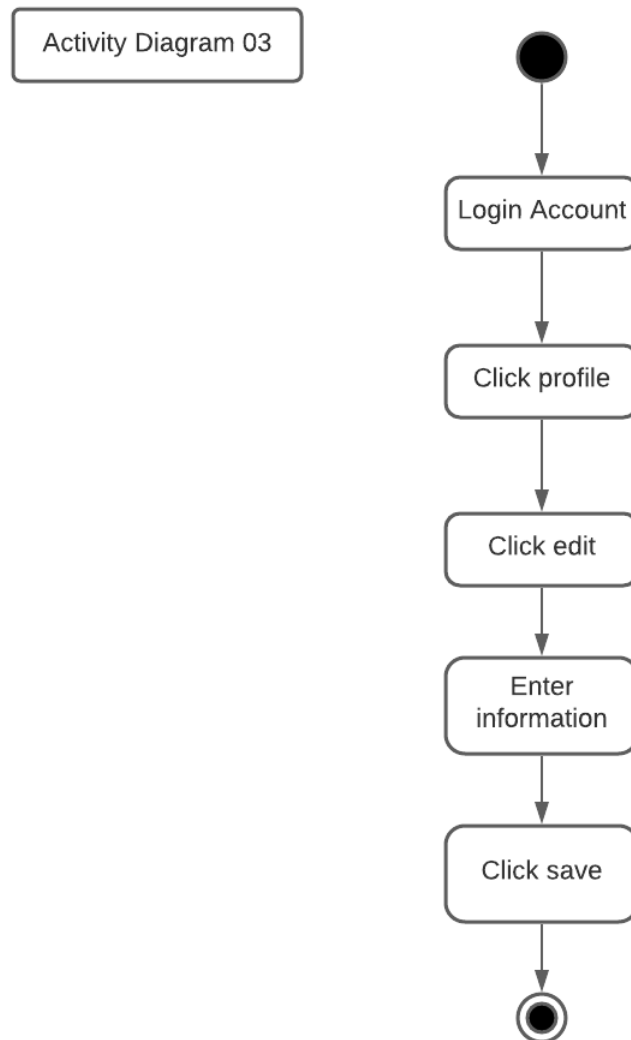


## 6.3 Use case description 03

Use Case Description 03

<b>Use case</b>	Edit profile	
<b>Goal</b>	Admin and student edit their profile	
<b>Precondition</b>	Admin and student login successfully	
<b>Success End Condition</b>	Admin and student successfully change their information	
<b>Failed End Condition</b>	Admin and student cannot change their information	
<b>Primary Actor</b>	Admin and student	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin and student login their account
	2	Click edit
	3	Change information
	4	Click save
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.3.1 Activity Diagram 03



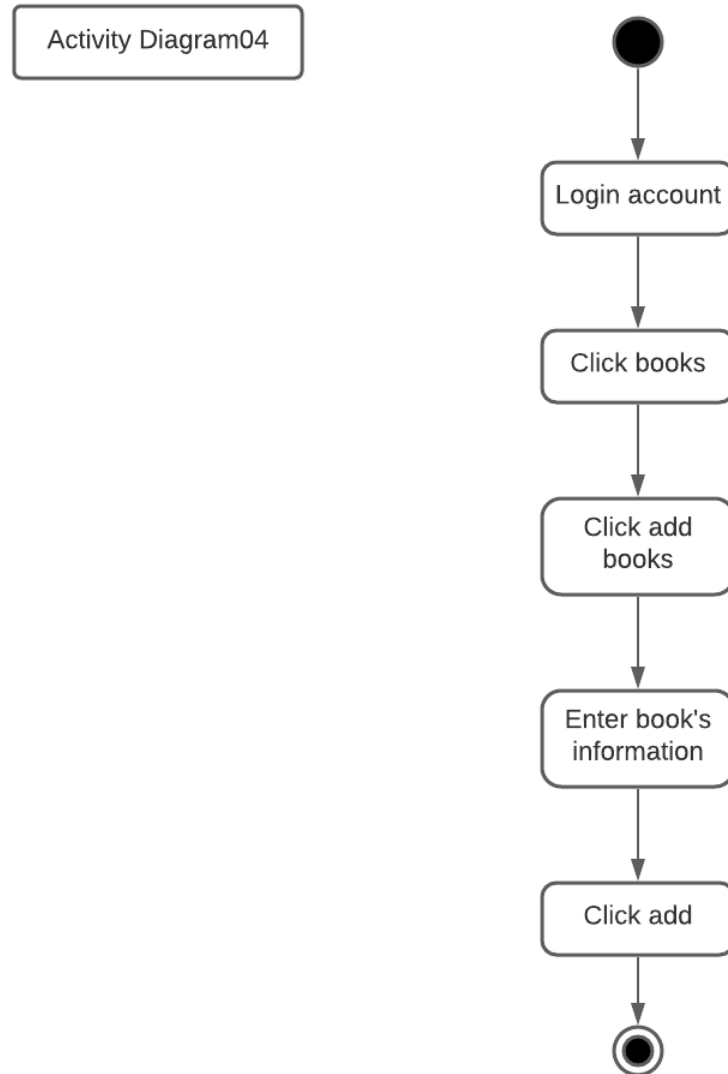


## 6.4. Use case description 04

Use Case Description 04

<b>Use case</b>	Add books	
<b>Goal</b>	Admin add new books	
<b>Precondition</b>	Admin login his/her account	
<b>Success End Condition</b>	Admin add new books successfully	
<b>Failed End Condition</b>	Admin cannot add new books	
<b>Primary Actor</b> <b>Secondary Actor</b>	Admin	
	Student	
<b>Trigger</b>	Add	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin login account
	2	Click books
	3	Click add books
	4	Entry book's all information
	5	Click add
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.4.1 Activity Diagram 04

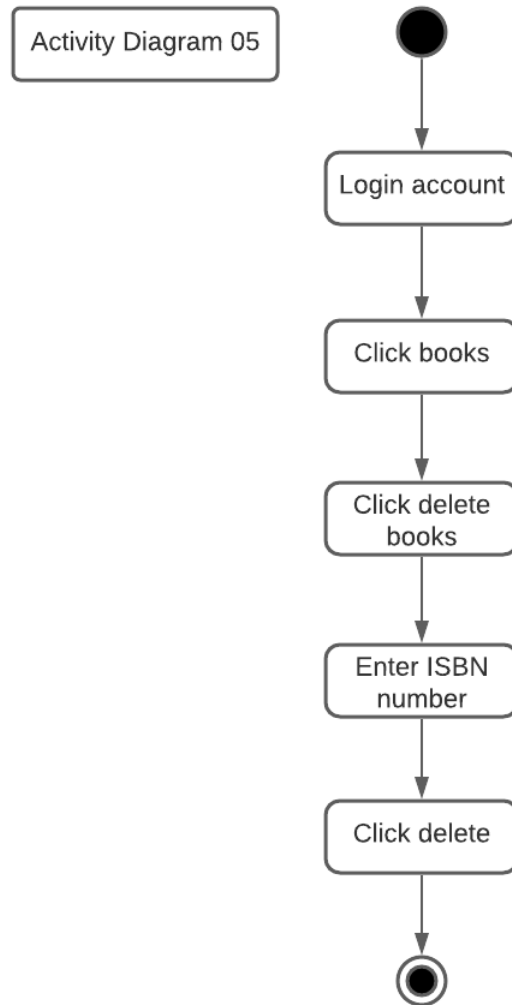


## 6.5. Use case description 05

Use Case Description 05

<b>Use case</b>	Delete books	
<b>Goal</b>	Admin delete books	
<b>Precondition</b>	Admin login his/her account	
<b>Success End Condition</b>	Admin delete a book successfully	
<b>Failed End Condition</b>	Admin cannot delete books	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	delete	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin login account
	2	Click books
	3	Click delete books
	4	Entry book's ISBN number
	5	Click delete
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.5.1 Activity Diagram 05

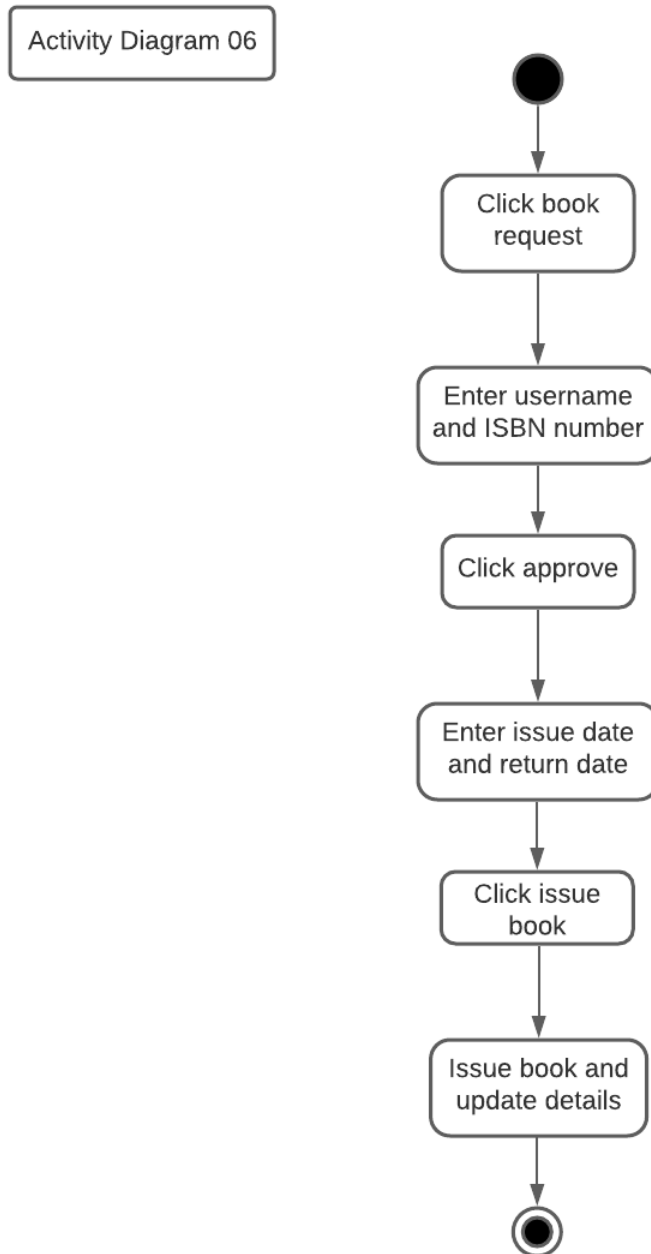


## 6.6 Use case description 06

Use Case Description 06

<b>Use case</b>	Issue new book and update details	
<b>Goal</b>	Admin issue new book and automatic update details	
<b>Precondition</b>	Admin approve book request	
<b>Success End Condition</b>	Admin issue new book and update details successfully	
<b>Failed End Condition</b>	Admin cannot issue new book and update details successfully	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	Issue book	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin click book request
	2	Entry username and ISBN number
	3	Click approve and entry issue date and return date
	4	Click issue book
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.6.1 Activity Diagram 06

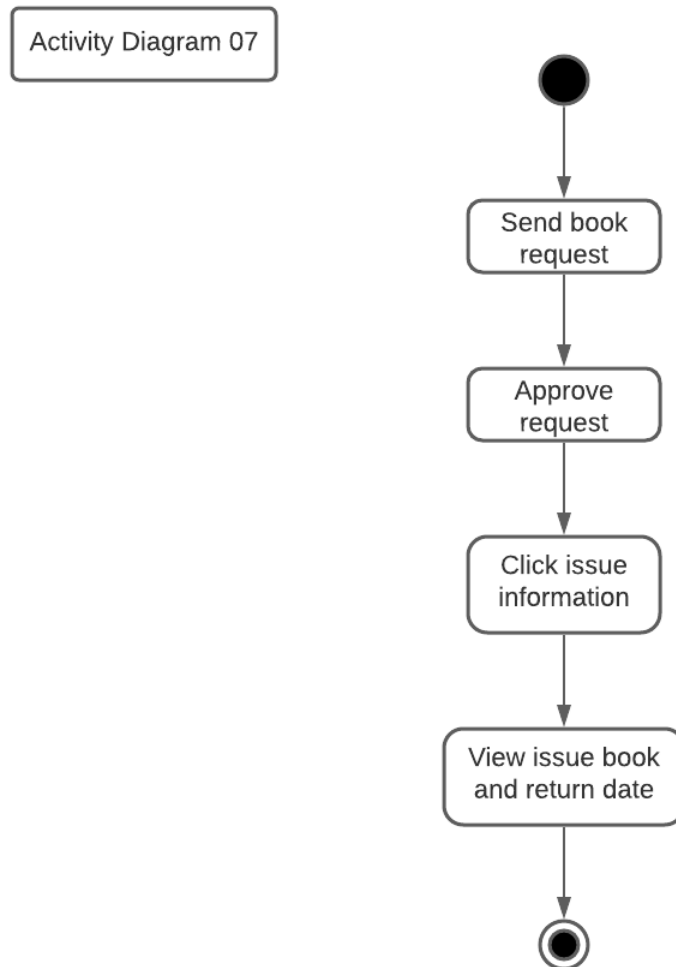


## 6.7 Use case description 07

Use Case Description 07

<b>Use case</b>	View Issue book and return date	
<b>Goal</b>	Student can view issue book and return date	
<b>Precondition</b>	Student send book request	
<b>Success End Condition</b>	Student can see issue book and return date	
<b>Failed End Condition</b>	Student cannot see issue book and return date	
<b>Primary Actor</b>	Student	
<b>Secondary Actor</b>	Admin	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student send book request
	2	Admin approve request
	3	Click issue information
	4	View issue book and return date
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.7.1 Activity diagram 07



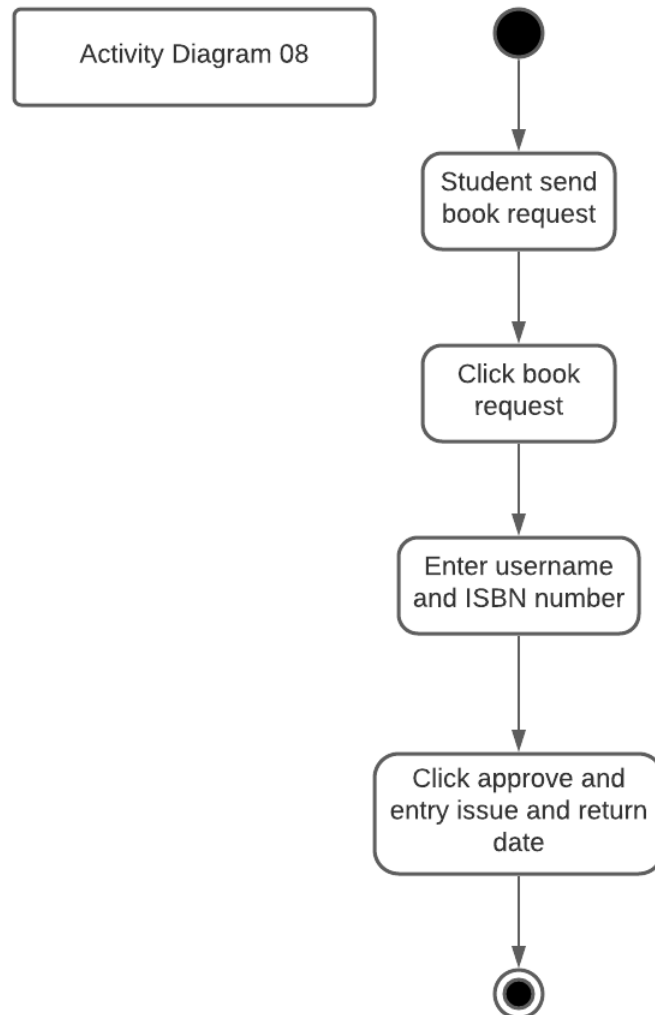


## 6.8 Use case description 08

Use Case Description 08

<b>Use case</b>	Approve book request	
<b>Goal</b>	Admin approve a new book request	
<b>Precondition</b>	Student send book request	
<b>Success End Condition</b>	Admin can approve book request successfully	
<b>Failed End Condition</b>	Admin cannot approve book request	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student send book request
	2	Admin click books request
	3	Entry username and ISBN number
	4	Click approve and entry issue date and return date
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.8.1 Activity diagram 08

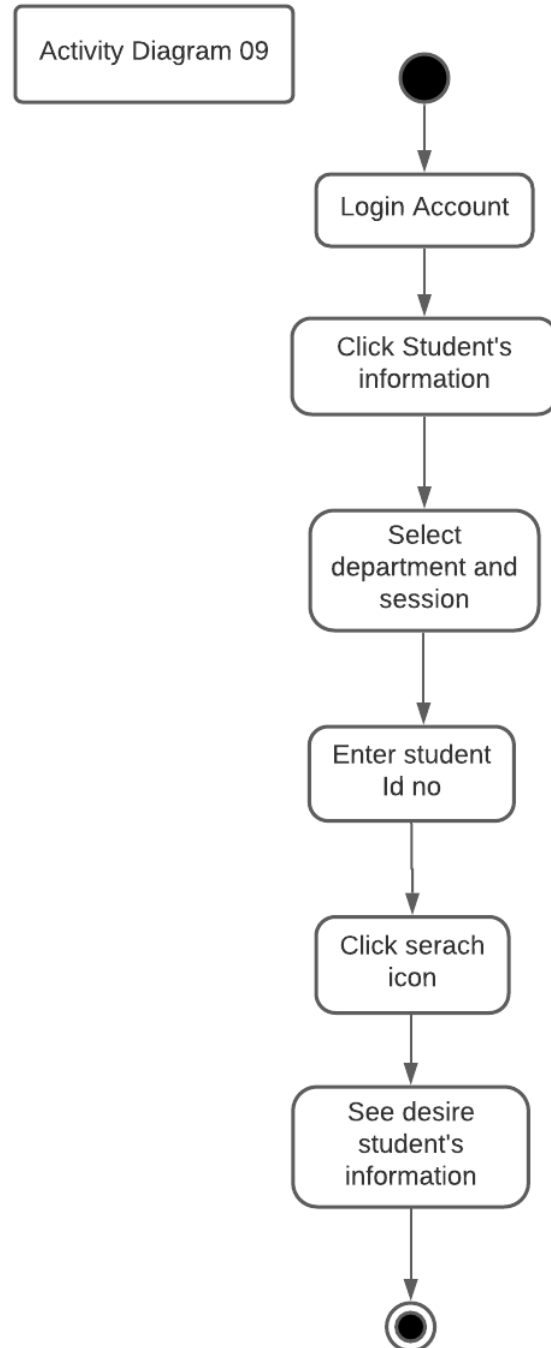


## 6.9 Use case description 09

Use Case Description 09

<b>Use case</b>	Search student	
<b>Goal</b>	Admin search a student by student Id	
<b>Precondition</b>	Student registration successfully	
<b>Success End Condition</b>	Admin search a student by id successfully	
<b>Failed End Condition</b>	Admin cannot search a student	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin click student information
	2	Admin see all student's information
	3	Search a student by student id
	4	See desire student's information
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.9.1 Activity diagram 09

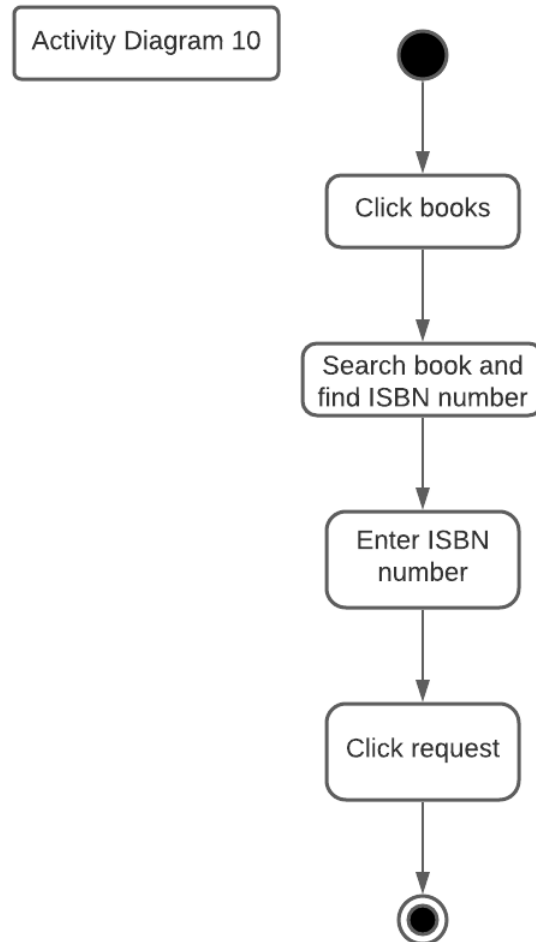


## 6.10 Use case description 10

Use Case Description 10

<b>Use case</b>	Send book request	
<b>Goal</b>	Student send book request by book's ISBN number	
<b>Precondition</b>	Student registration successfully	
<b>Success End Condition</b>	Student send book request successfully	
<b>Failed End Condition</b>	Student cannot send book request	
<b>Primary Actor</b>	Student	
<b>Secondary Actor</b>	Admin	
<b>Trigger</b>	request	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student click books
	2	Student search books and find ISBN number
	3	Enter ISBN number
	4	Click request
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.10.1 Activity diagram 10

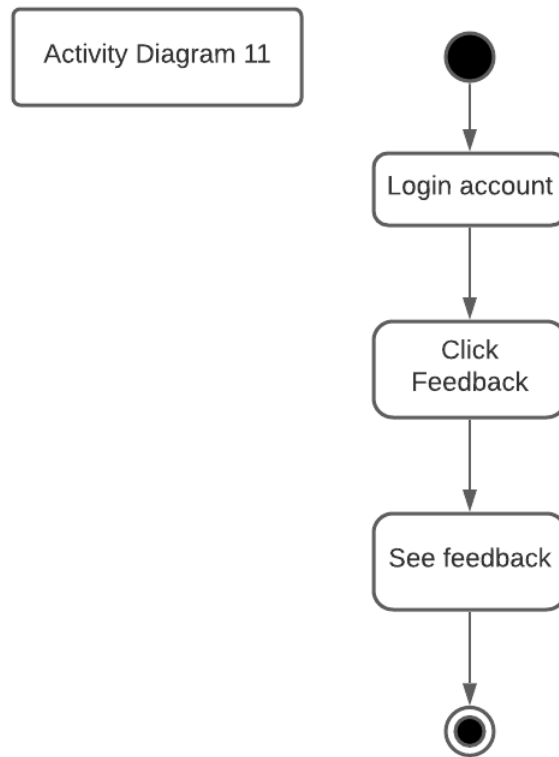


## 6.11. Use case description 11

**Use Case Description 11**

<b>Use case</b>	See Feedback	
<b>Goal</b>	Admin see student's feedback	
<b>Precondition</b>	Student give feedback	
<b>Success End Condition</b>	Admin can see feedback	
<b>Failed End Condition</b>	Admin cannot see feedback	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin click feedback
	2	See all student's feedback
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.11.1 Activity diagram 11



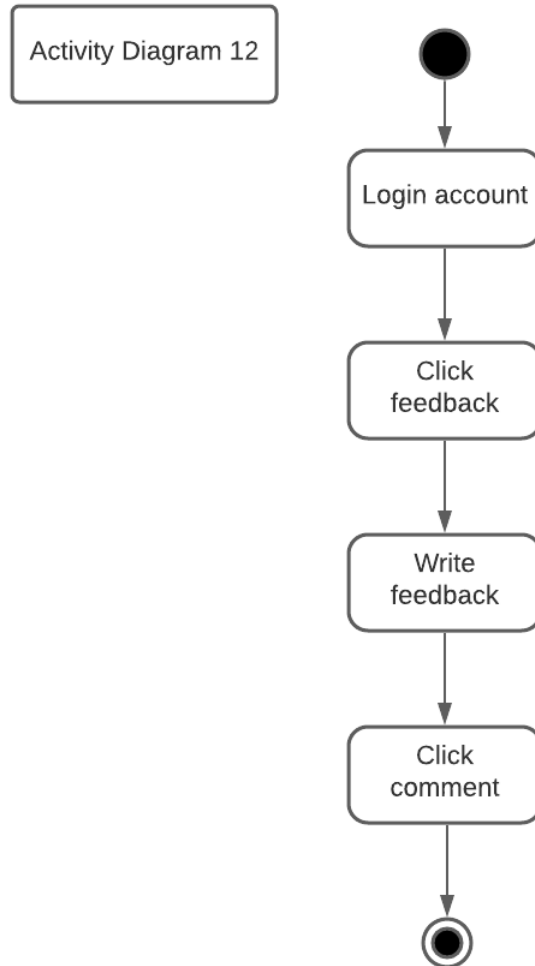


## 6.12. Use case description 12

Use Case Description 12

<b>Use case</b>	Give Feedback	
<b>Goal</b>	Student give feedback	
<b>Precondition</b>	Student login successfully	
<b>Success End Condition</b>	Student give feedback successfully	
<b>Failed End Condition</b>	Student cannot give feedback	
<b>Primary Actor</b>	Student	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	comment	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student click feedback
	2	Write feedback
	3	Click comment
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.12.1 Activity diagram 12

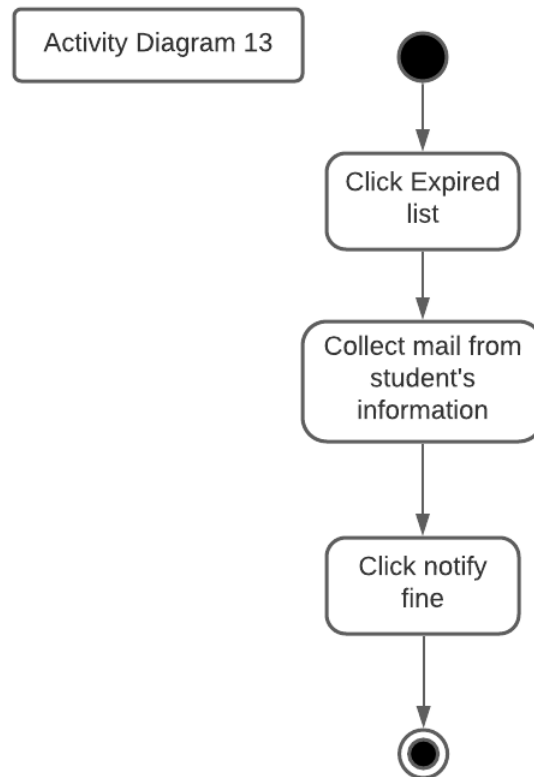


## 6.13 Use case description 13

Use Case Description 13

<b>Use case</b>	Charge fine and send notification	
<b>Goal</b>	Admin charge fine and send notification to mail	
<b>Precondition</b>	Student cannot return book in time	
<b>Success End Condition</b>	Admin charge fine and send message to mail	
<b>Failed End Condition</b>	Admin cannot charge fine and send message to mail	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	Notify fine	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin see who's book is expired
	2	Admin collect student's mail from student's information
	3	Go to fine and click notify fine and send mail to give fine
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.13.1 Activity diagram 13

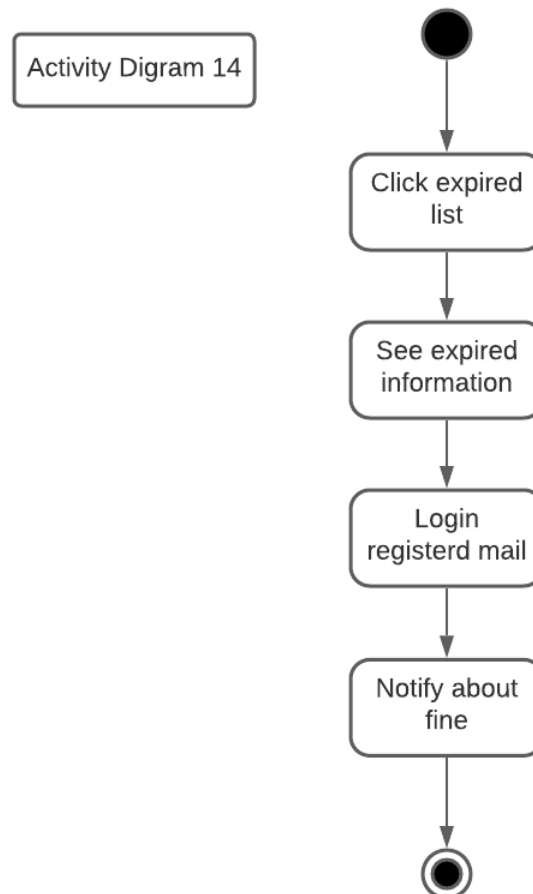


## 6.14 Use case description 14

**Use Case Description 14**

<b>Use case</b>	See expired date and notified fine	
<b>Goal</b>	Student see expired date and notified fine	
<b>Precondition</b>	Student cannot return book in time	
<b>Success End Condition</b>	Student can see expired date and notified fine	
<b>Failed End Condition</b>	Student cannot see expired date and notified fine	
<b>Primary Actor</b>	Student	
<b>Secondary Actor</b>	Admin	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student click expired list
	2	Student see book's expired date
	3	Admin mail to student to give fine
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.14.1 Activity diagram 14

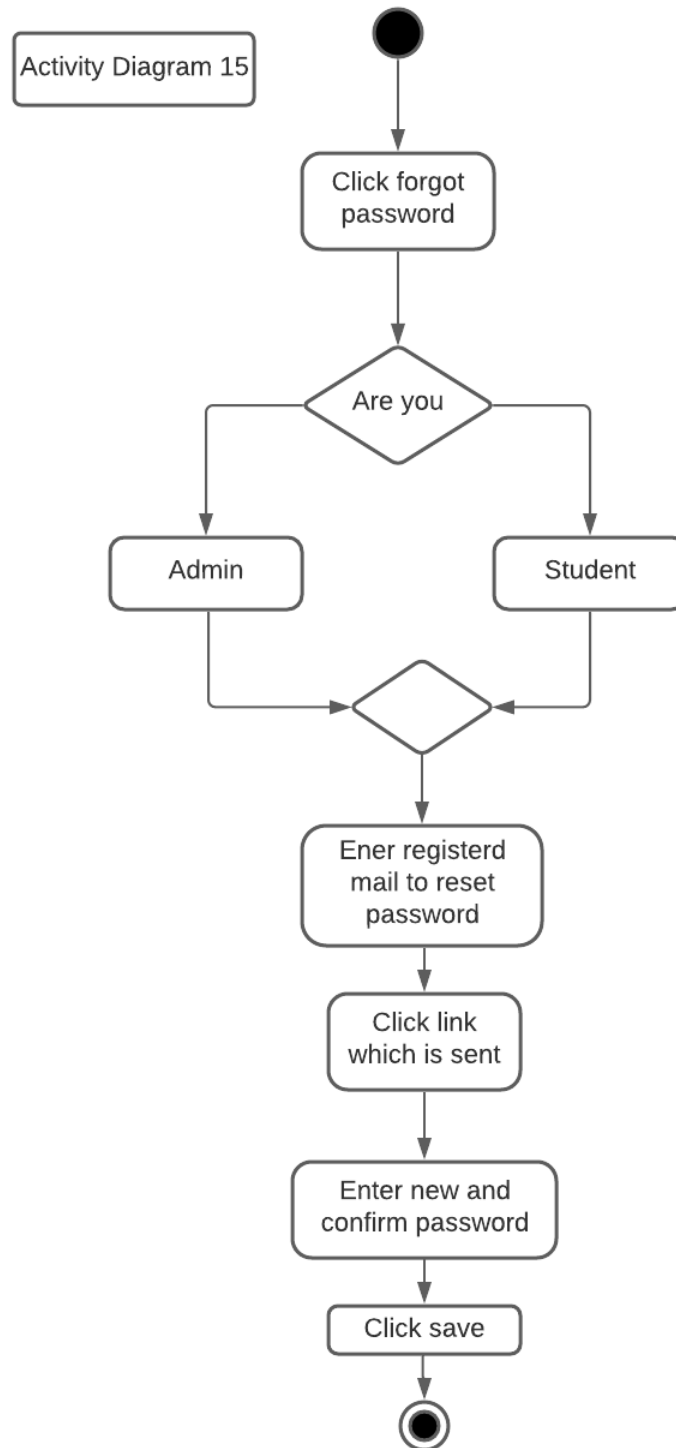


## 6.15 Use case description 15

Use Case Description 15

<b>Use case</b>	Recover password	
<b>Goal</b>	Student and admin recover their password	
<b>Precondition</b>	Student and admin registered their account successfully	
<b>Success End Condition</b>	Student and admin recover their password successfully	
<b>Failed End Condition</b>	Student and admin cannot recover their password	
<b>Primary Actor</b>	Student, admin	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student and admin click forgot password
	2	Enter email which is used for registration
	3	Find a link in email and click this link
	4	Enter new password and confirm password
	5	Click save
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.15.1 Activity diagram 15



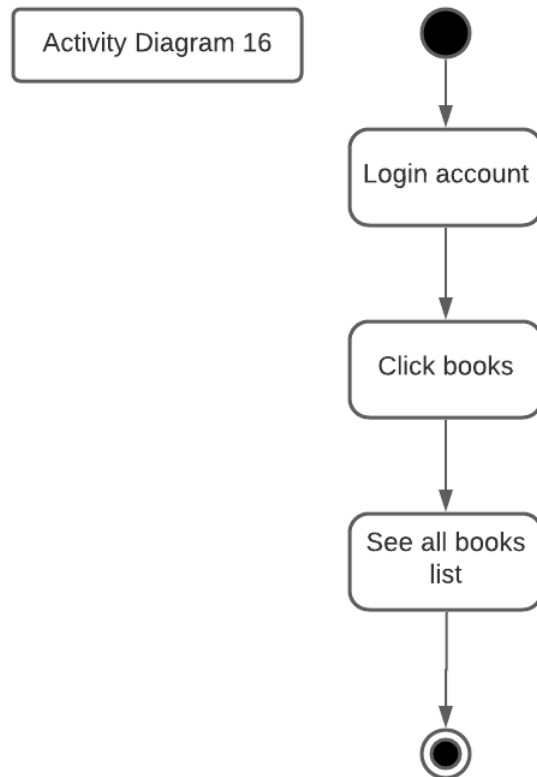


## 6.16 Use case description 16

Use Case Description 16

<b>Use case</b>	See book list	
<b>Goal</b>	Student and admin see book list	
<b>Precondition</b>	Student and admin login their account successfully	
<b>Success End Condition</b>	Student and admin can see book list	
<b>Failed End Condition</b>	Student and admin cannot see booklist	
<b>Primary Actor</b>	Student, admin	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student and admin login their account
	2	Click book
	3	See book list
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.16.1 Activity diagram 16

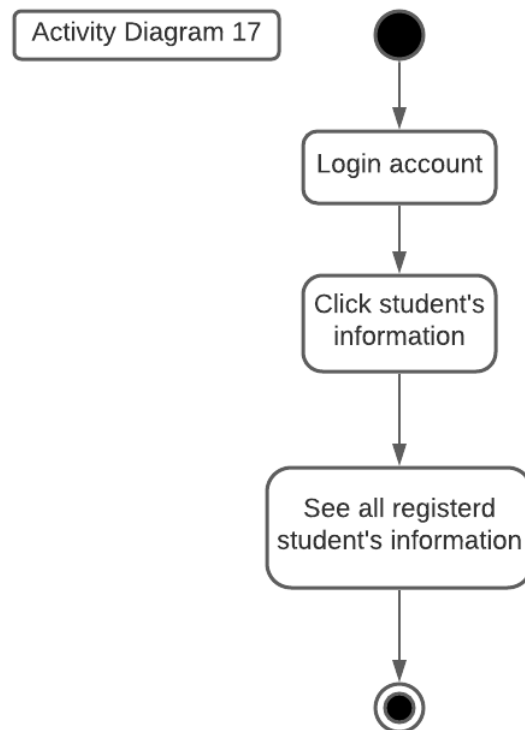


## 6.17 Use case description 17

Use Case Description 17

<b>Use case</b>	See student's details	
<b>Goal</b>	Admin see student's information	
<b>Precondition</b>	Admin account successfully	
<b>Success End Condition</b>	Admin can see student's information	
<b>Failed End Condition</b>	Admin cannot see student's information	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	Student	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin login account
	2	Click student's information
	3	See student's all information like, batch, id, session etc.
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.17.1 Activity diagram 17

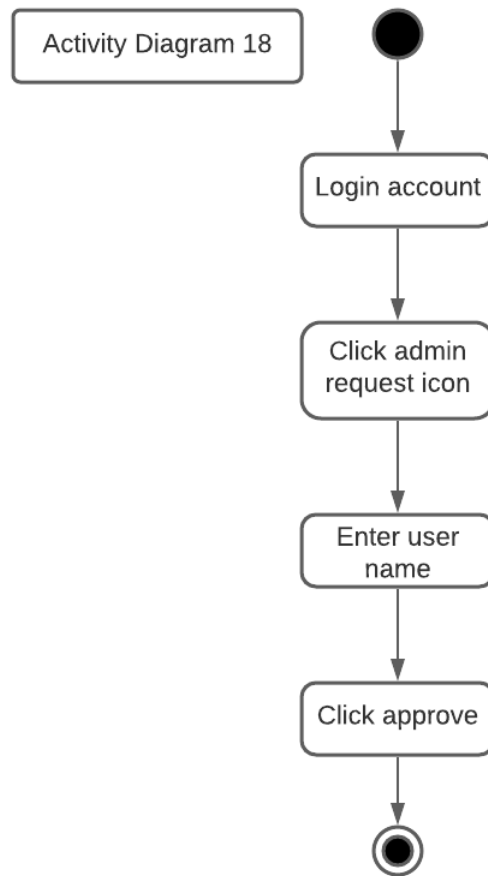


## 6.18 Use case description 18

Use Case Description 18

<b>Use case</b>	Approve new admin	
<b>Goal</b>	An existing admin approve new admin	
<b>Precondition</b>	Existing admin login successfully	
<b>Success End Condition</b>	An existing admin can approve new admin successfully	
<b>Failed End Condition</b>	An existing admin cannot approve new admin	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	approve	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Existing admin login account
	2	New admin send registration
	3	Existing admin click approve
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.18.1 Activity diagram 18

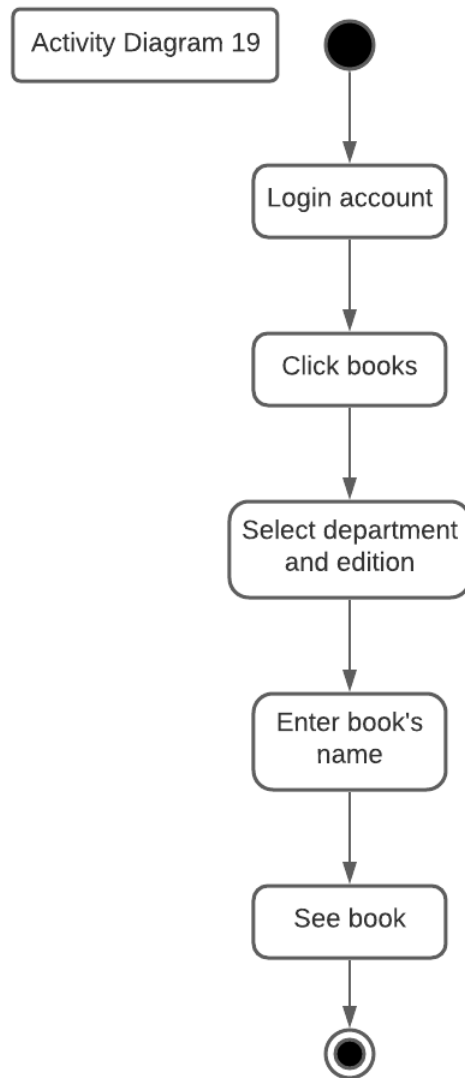


## 6.19 Use case description 19

Use Case Description 19

<b>Use case</b>	Search book	
<b>Goal</b>	Admin and student search book	
<b>Precondition</b>	Admin and student login their account	
<b>Success End Condition</b>	Admin and student can search book	
<b>Failed End Condition</b>	Admin and student cannot search book	
<b>Primary Actor</b>	Admin, student	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	search	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin and student login account
	2	Click books
	3	Select department and edition and enter book's name
	4	Click search
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.19.1 Activity diagram 19



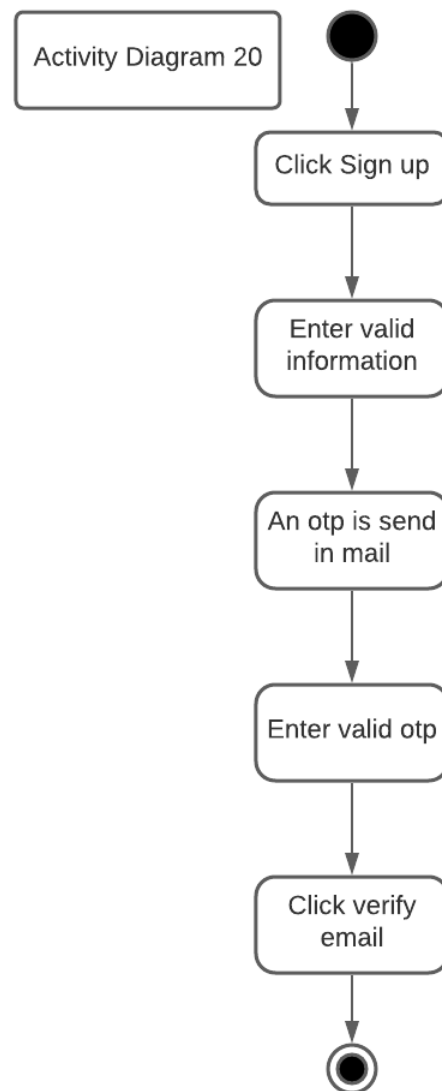


## 6.20 Use case description 20

Use Case Description 20

<b>Use case</b>	Verify email	
<b>Goal</b>	Students verify their email	
<b>Precondition</b>	Student give valid information and click sign up	
<b>Success End Condition</b>	Students verify their email successfully	
<b>Failed End Condition</b>	Students cannot verify their email	
<b>Primary Actor</b>	Student	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	Verify email	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student give valid information
	2	Click sign up
	3	An otp is send in email
	4	Enter otp
	5	Click verify email
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.20.1 Activity diagram 20

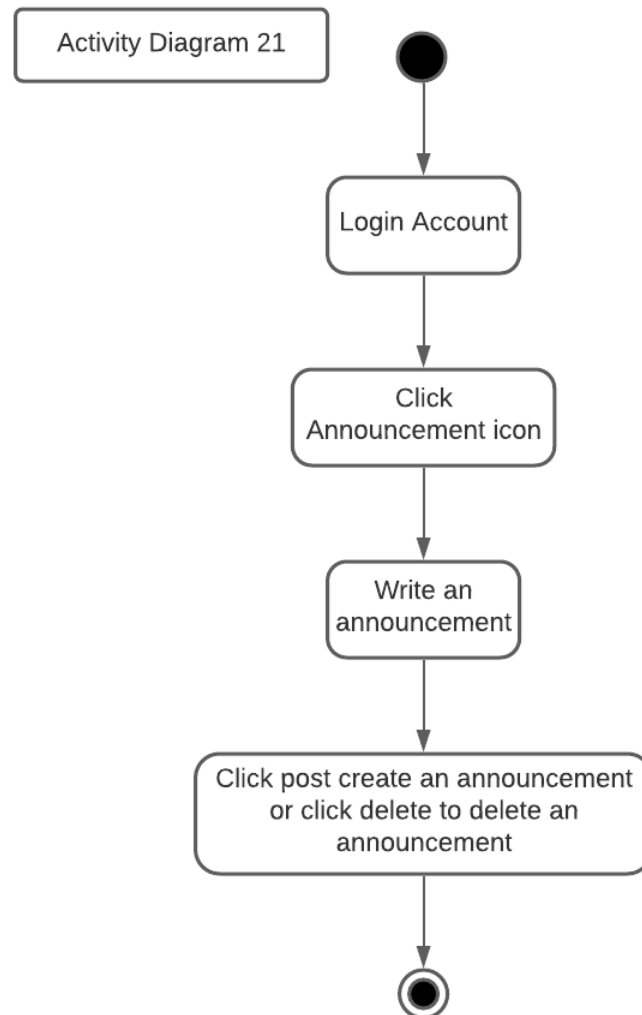


## 6.21 Use case description 21

Use Case Description 21

<b>Use case</b>	Add or delete announcement	
<b>Goal</b>	Admin add or delete an announcement	
<b>Precondition</b>	Admin login account	
<b>Success End Condition</b>	Admin add or delete an announcement successfully	
<b>Failed End Condition</b>	Admin cannot add or delete an announcement	
<b>Primary Actor</b>	Admin	
<b>Secondary Actor</b>	n/a	
<b>Trigger</b>	Post or delete	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Admin click announcement icon
	2	Post an announcement or delete an announcement
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.21.1 Activity diagram 21

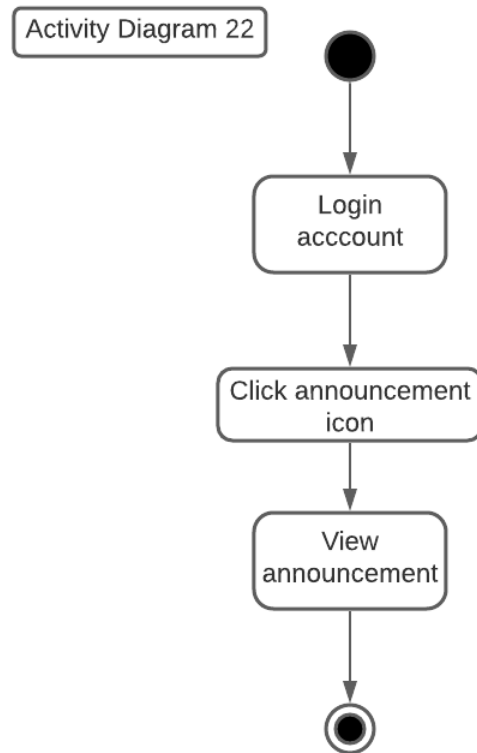


## 6.22 Use case description22

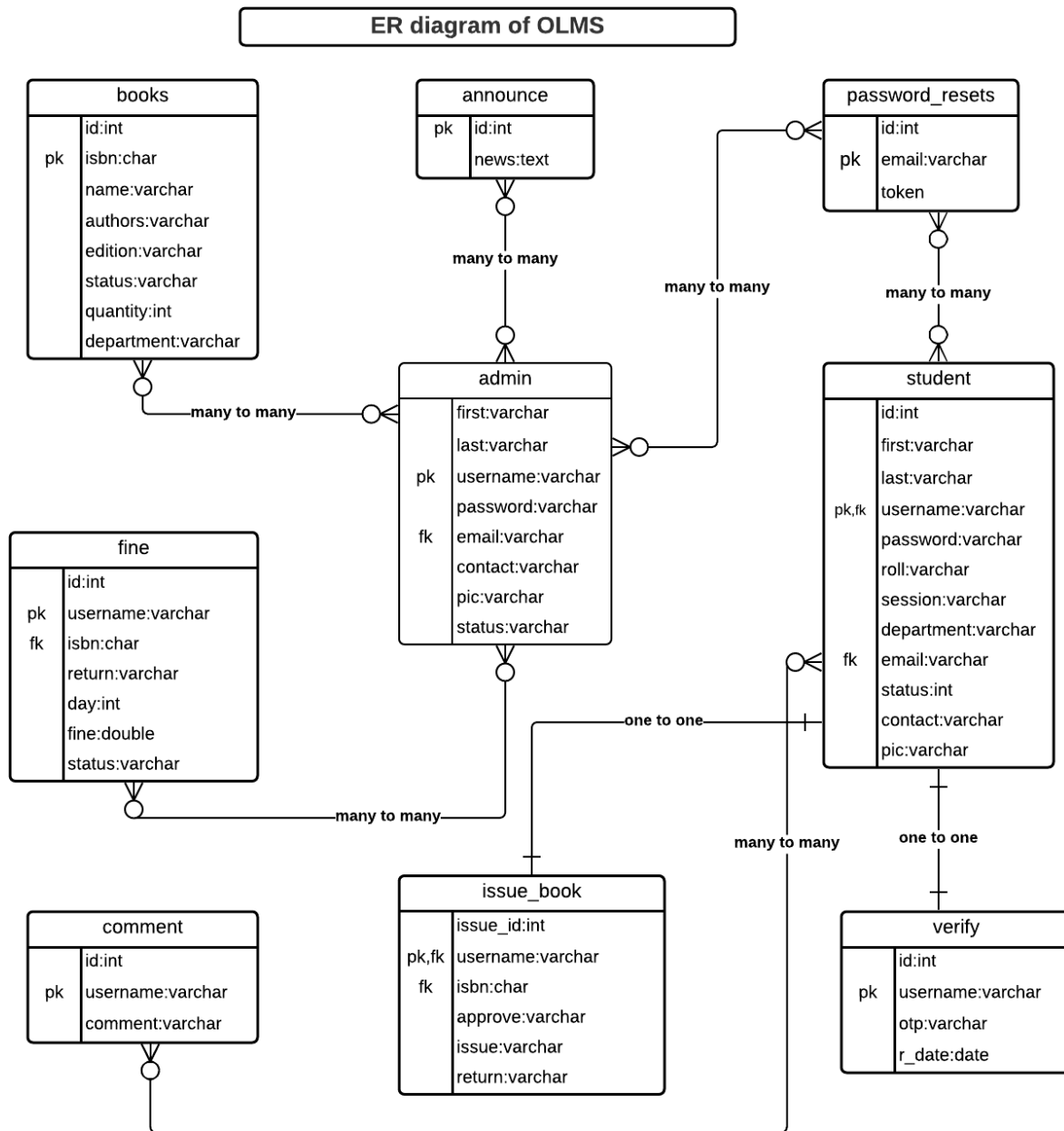
Use Case Description 22

<b>Use case</b>	See announcement	
<b>Goal</b>	Student see announcement	
<b>Precondition</b>	Student login account	
<b>Success End Condition</b>	Student can see announcement	
<b>Failed End Condition</b>	Student cannot see announcement	
<b>Primary Actor</b>	Student	
<b>Secondary Actor</b>	Admin	
<b>Trigger</b>	n/a	
<b>Main Success Flow</b>	<b>Step</b>	<b>Action</b>
	1	Student click announcement icon
	2	Student see an posted announcement
<b>Alternative Flow</b>	<b>Step</b>	<b>Action</b>
		Not applicable
<b>Quality Requirements</b>	<b>Step</b>	<b>Requirements</b>
		Not applicable

### 6.22.1 Activity diagram 22



## 7. ER Diagram of OLMS



## 8. Test Case

<b>TC1</b>	Login admin with valid username & password.
<b>TC2</b>	Login student with valid username and password
<b>TC3</b>	Provide valid information and click sign up.
<b>TC4</b>	Click profile
<b>TC5</b>	Enter valid information and click save
<b>TC6</b>	Click books
<b>TC7</b>	Click add books
<b>TC8</b>	Enter book's information and click add
<b>TC9</b>	Enter book's isbn number
<b>TC10</b>	Click delete
<b>TC11</b>	Select department and edition
<b>TC12</b>	Enter book's name
<b>TC13</b>	Enter book's isbn number
<b>TC14</b>	Click request
<b>TC15</b>	Click book request
<b>TC16</b>	Click issue information
<b>TC17</b>	Enter username and isbn number
<b>TC18</b>	Click approve
<b>TC19</b>	Enter issue date and return date
<b>TC20</b>	Click issue book
<b>TC21</b>	Click student's information
<b>TC22</b>	Select department and session
<b>TC23</b>	Enter Id no
<b>TC24</b>	Click search
<b>TC25</b>	Click delete
<b>TC26</b>	Click feedback
<b>TC27</b>	Enter comment



<b>TC28</b>	Write comment
<b>TC29</b>	Click comment
<b>TC30</b>	Click expired list
<b>TC31</b>	Enter user name and isbn number
<b>TC32</b>	Click return
<b>TC33</b>	Click fine
<b>TC34</b>	Click notify fine
<b>TC35</b>	Enter mail and write message
<b>TC36</b>	Click forgot password
<b>TC37</b>	Enter registered mail
<b>TC38</b>	Enter new and confirm password
<b>TC39</b>	Click save
<b>TC40</b>	Enter valid otp
<b>TC41</b>	Click verify
<b>TC42</b>	Click new request icon
<b>TC43</b>	Enter username and click approve
<b>TC44</b>	Click send mail
<b>TC45</b>	Click announcement icon
<b>TC46</b>	Write announcement
<b>TC47</b>	Click post
<b>TC48</b>	Select announcement
<b>TC49</b>	Click delete

## 9. Requirement Traceability Matrix

Traceability matrix or software testing traceability matrix is a document that traces and maps the relationship between two baseline documents that require a many-to-many relationship to check the completeness of the relationship.

- R1:** New admin and student registered their account
- R2:** Admin and student user view their dashboard
- R3:** Admin and student can edit their profile
- R4:** Admin add books
- R5:** Admin delete books
- R6:** Admin issue new book and update details
- R7:** Student view issue book and return date
- R8:** Admin can approve book request
- R9:** Admin can search student
- R10:** Student send book request by book's ISBN number
- R11:** Admin can see feedback
- R12:** Student can give feedback and also see other's feedback
- R13:** Admin charge fine send notification to give fine
- R14:** Student see their expired date and notified fine
- R15:** Admin and student can recover their password
- R16:** Admin and student can see book list
- R17:** Admin can see student's details
- R18:** Admin can approve new admin
- R19:** Admin and student can search book
- R20:** Student verify their email address
- R21:** Admin can add and delete announcement
- R22:** Student can see announcement

Test Case	R 1	R 2	R 3	R 4	R 5	R 6	R 7	R 8	R 9	R 10	R 11	R 12	R 13	R 14	R 15	R 16	R 17	R 18	R 19	R 20	R 21	R 22
TC1		✓	✓	✓	✓	✓		✓	✓		✓		✓		✓	✓	✓	✓			✓	
TC2		✓	✓				✓			✓		✓		✓	✓	✓			✓			✓
TC3	✓																			✓		
TC4			✓																			
TC 5			✓																			
TC6				✓	✓											✓			✓			
TC7				✓	✓																	
TC8				✓																		
TC9					✓																	
TC10					✓																	
TC11										✓									✓			
TC12										✓									✓			
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TC14							✓			✓												
TC15							✓	✓		✓												
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TC49																				✓		

## 10. Future vision

- ✓ Use barcode technology
- ✓ Updating more features like e-book reading
- ✓ Implement in Android version

## 11. Summary

The Online library management system to be developed benefits greatly the members and the librarian institute. The librarian can keep the books catalog updated all the time so that the member get the information all the time. It is more useful for all educational institutions. We hope this application can be implemented our campus and become a popular project in every campus.

## References

### Web resources

- ✓ <https://www.educative.io>
- ✓ <https://www.studocu.com>
- ✓ <https://www.quora.com>
- ✓ <https://www.freeprojectz.com>
- ✓ <http://services.lovelycoding.org>

**THE END**