

# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JnanaSangama”, Belgaum -590014, Karnataka.



## LAB REPORT on

# OBJECT ORIENTED MODELING AND DESIGN

*Submitted by*

**B V Vineeth (1BM19CS033)**

*in partial fulfillment for the award of the degree of*  
**BACHELOR OF ENGINEERING**  
*in*  
**COMPUTER SCIENCE AND ENGINEERING**



**B.M.S. COLLEGE OF ENGINEERING**  
(Autonomous Institution under VTU)  
**BENGALURU-560019**  
**April-2022 to July-2022**

**B. M. S. College of Engineering,  
Bull Temple Road, Bangalore 560019**  
(Affiliated To Visvesvaraya Technological University, Belgaum)  
**Department of Computer Science and Engineering**



**CERTIFICATE**

This is to certify that the Lab work entitled "**OBJECT ORIENTED MODELING AND DESIGN**" carried out by **B V Vineeth (1BM19CS033)**, who is a bonafide student of **B. M. S. College of Engineering**. It is partially fulfilled for the Bachelor of Engineering in Computer Science and Engineering Award of the Visvesvaraya Technological University, Belgaum during the academic year 2021-2022. The Lab report has been approved as it satisfies the academic requirements in respect of an **OBJECT ORIENTED MODELING AND DESIGN - (20CS6PCOMD)** work prescribed for the said degree.

Name of the Lab-Incharge

Designation

Department of CSE

BMSCE, Bengaluru

**Dr. Jyothi S Nayak**

Professor and Head

Department of CSE

BMSCE, Bengaluru

## Index Sheet

Sl. No.	Experiment Title	Page No.
1	<b>College Information System</b>	
2	<b>Hostel Management System</b>	
3	<b>Stock Management System</b>	
4	<b>Coffee Vending Machine</b>	
5	<b>Online Shopping System</b>	
6	<b>Railway Reservation System</b>	
7	<b>Graphics Editor</b>	

## Course Outcome

CO4	Ability to conduct practical experiments to solve a given problem using Unified Modeling language.
-----	--

# 1. College Information System

SRS:

College Information System:-

Problem Statement :-

An automated system where info on different events, users & departments can be accessed & modified by authorized people.

Requirements :-

Students :-

- View student details.
- Edit student details.
- View details of college events.
- View test scores.

Faculty :-

- View own details.
- View student details.
- Edit own details.
- Update student marks.

Department :-

- Hold Retrieve details of faculty & staff.
- Update own details.
- View & update syllabus.
- Record & store placements & rankings.

### Courses :-

- Contain course details such as name, code, department, hours of contact, etc. & stores them in DB.
- Records students registered for the course.

### Staff :-

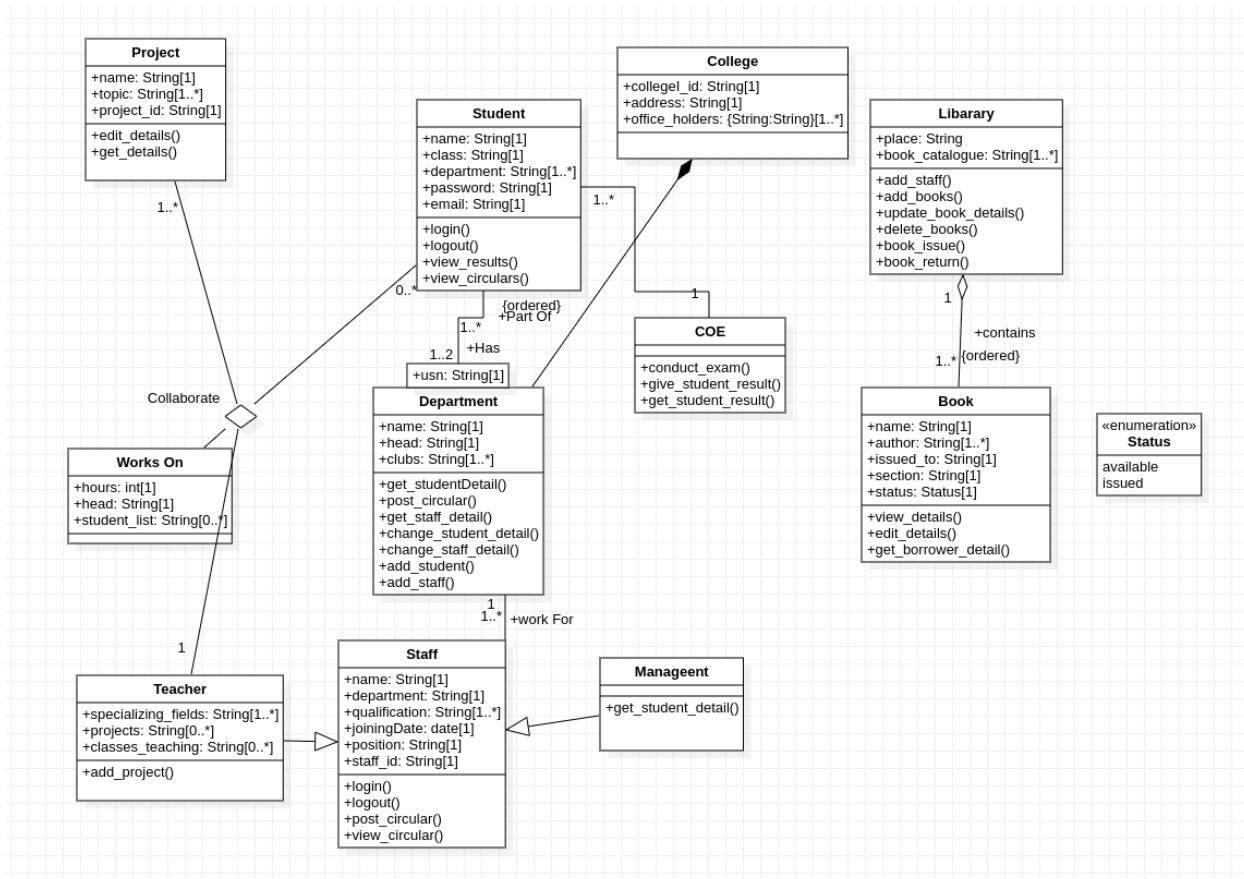
#### Hostel :-

- Maintain info on which student lives in which building, room no., etc.
- Maintain info on hostel wardens.
- Check if student has fee payment pending.
- Maintain info on whether student is present in the hostel premises @ any given time.

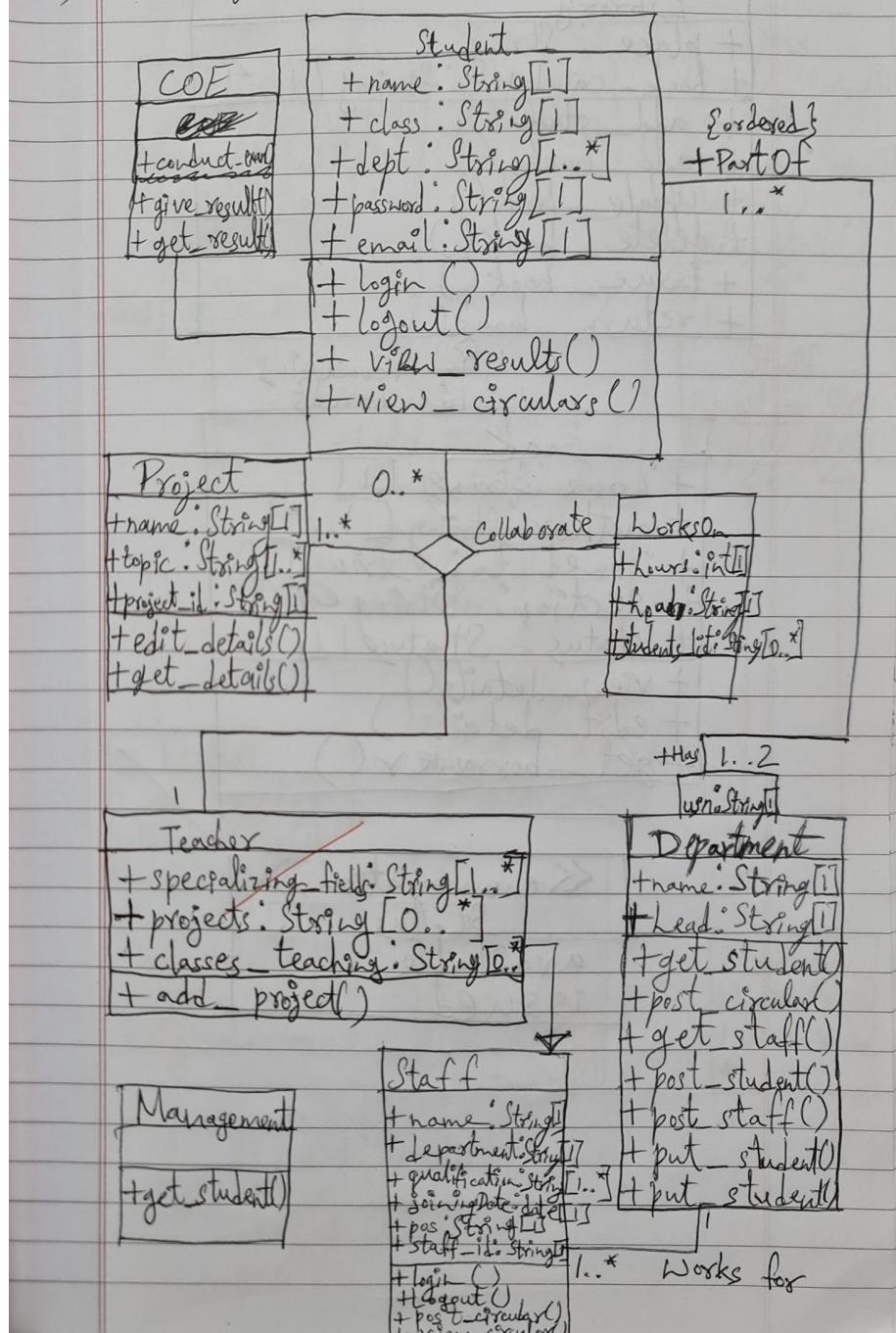
### Library :-

- Maintain database of books.
- Issue books.

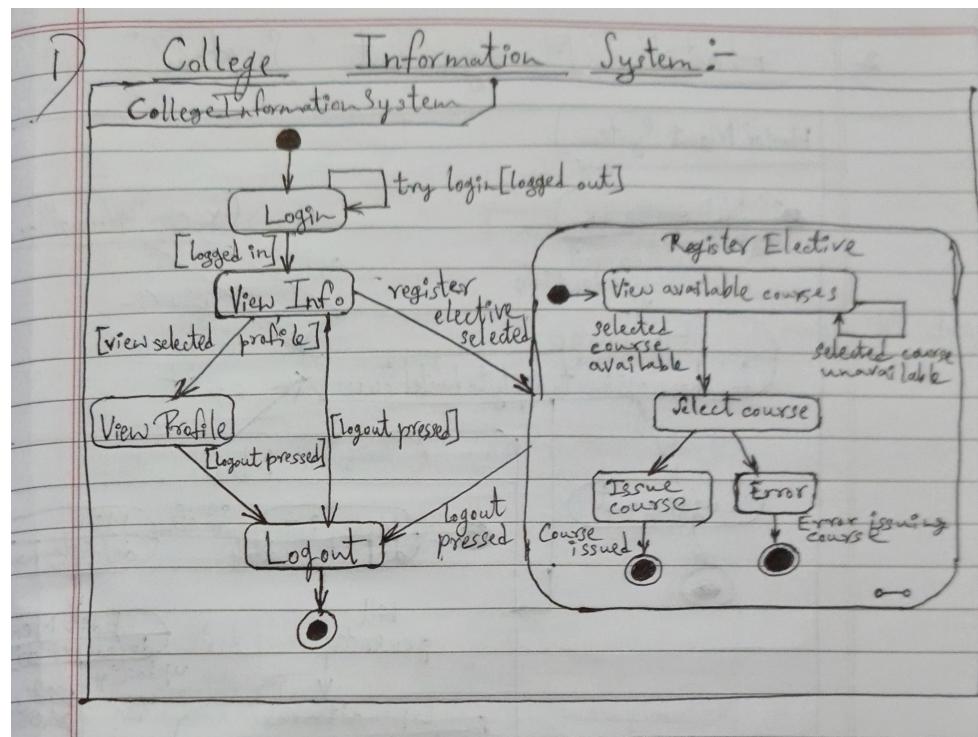
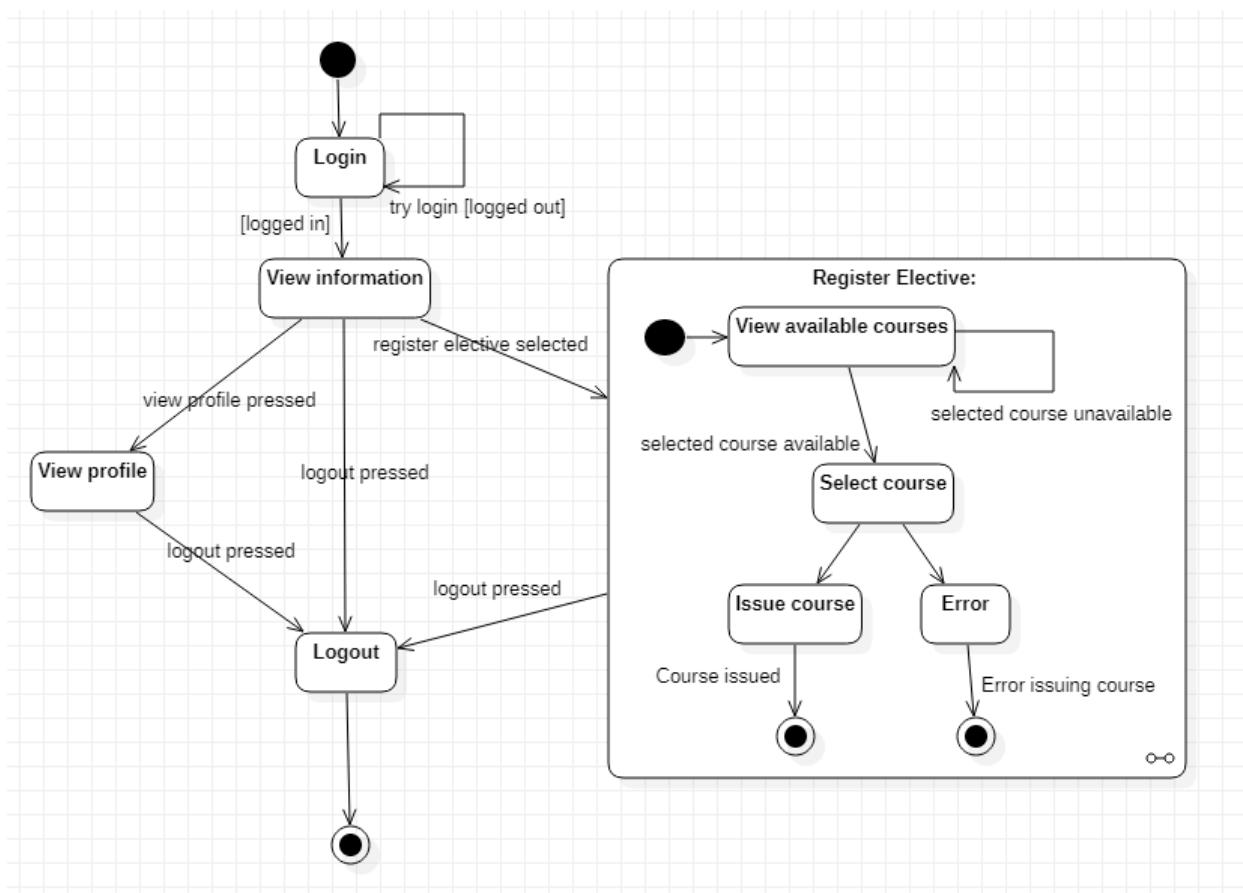
## Class Diagram:



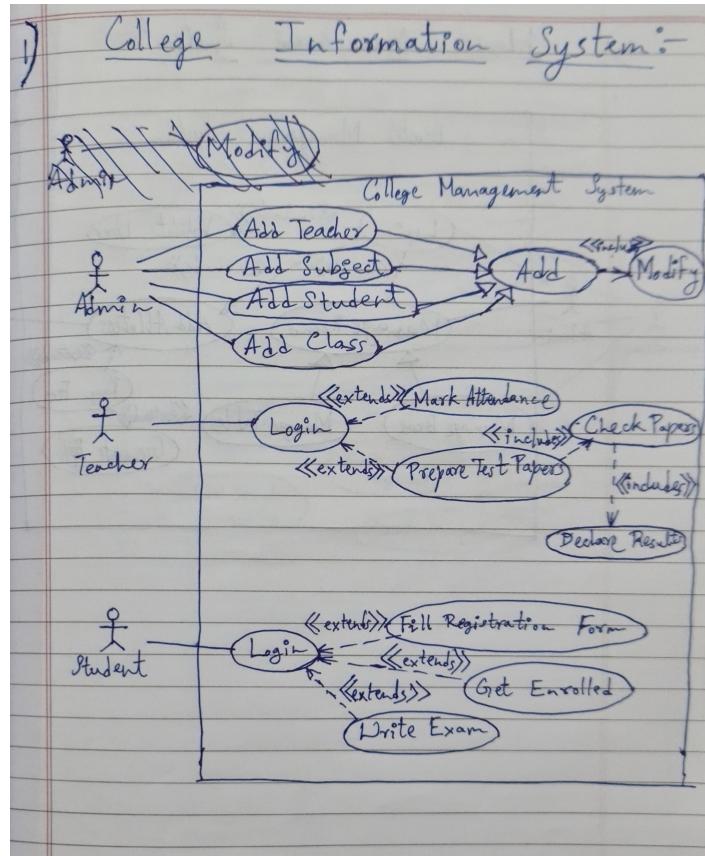
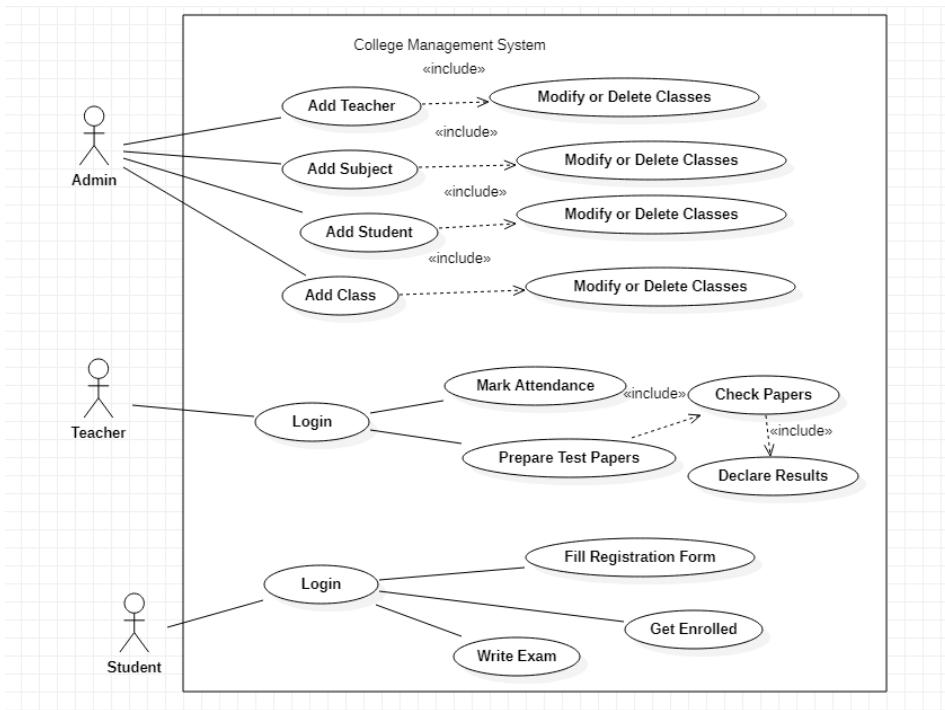
# 1) College Info System



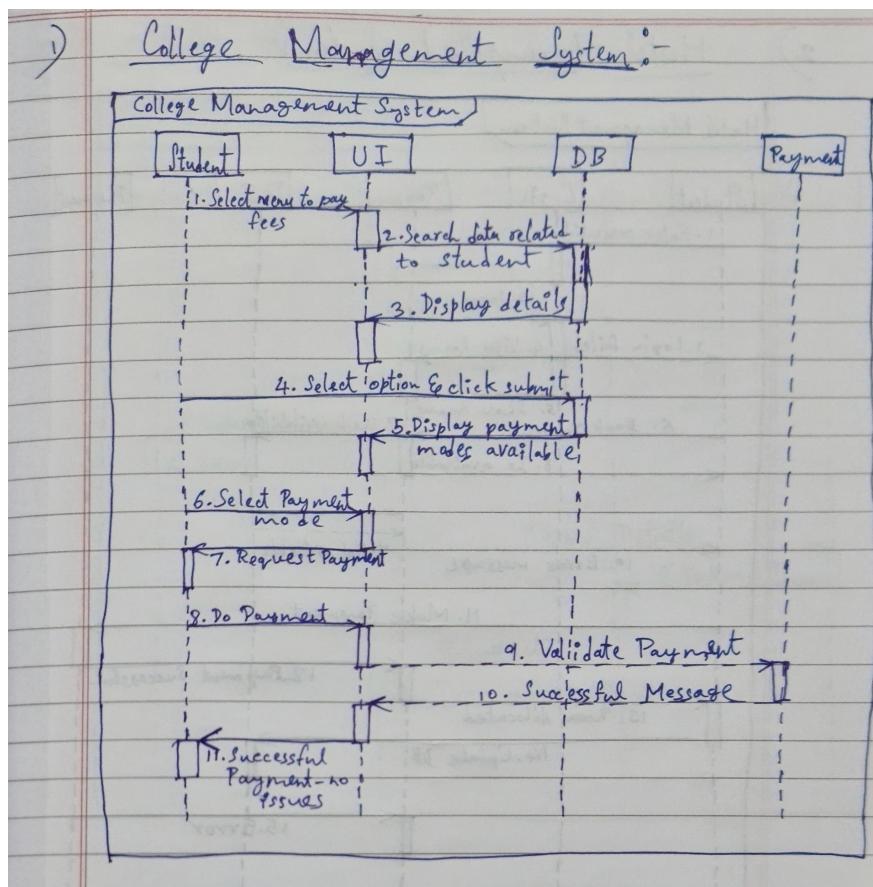
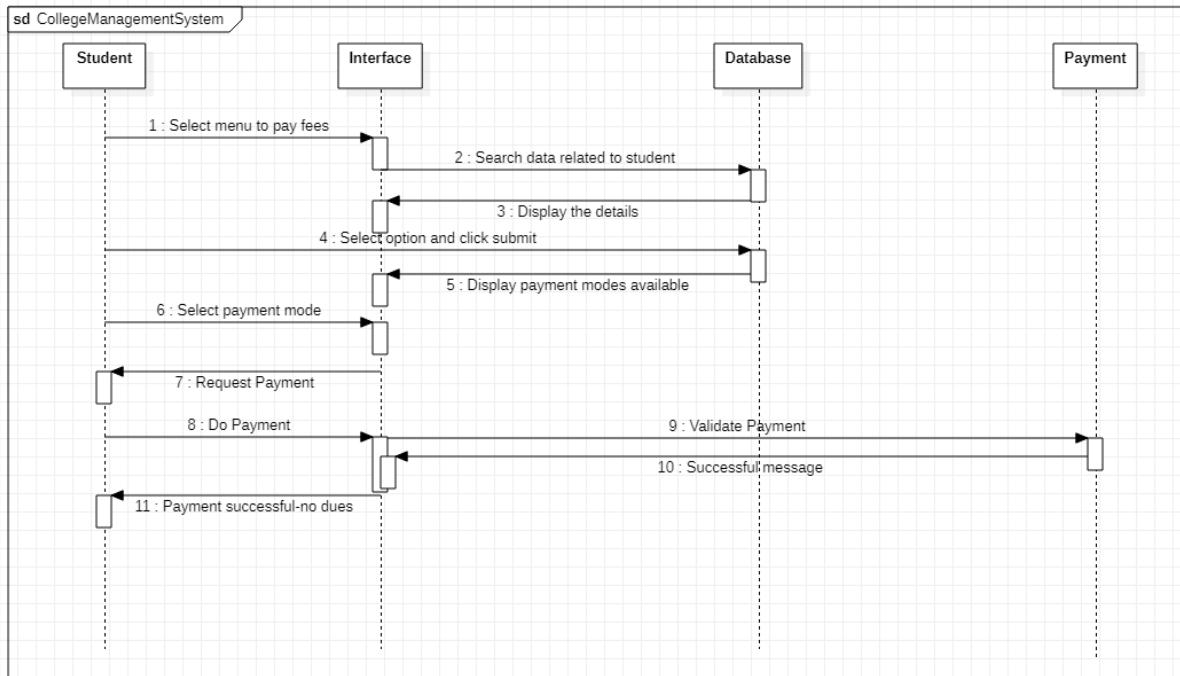
## State Diagram:



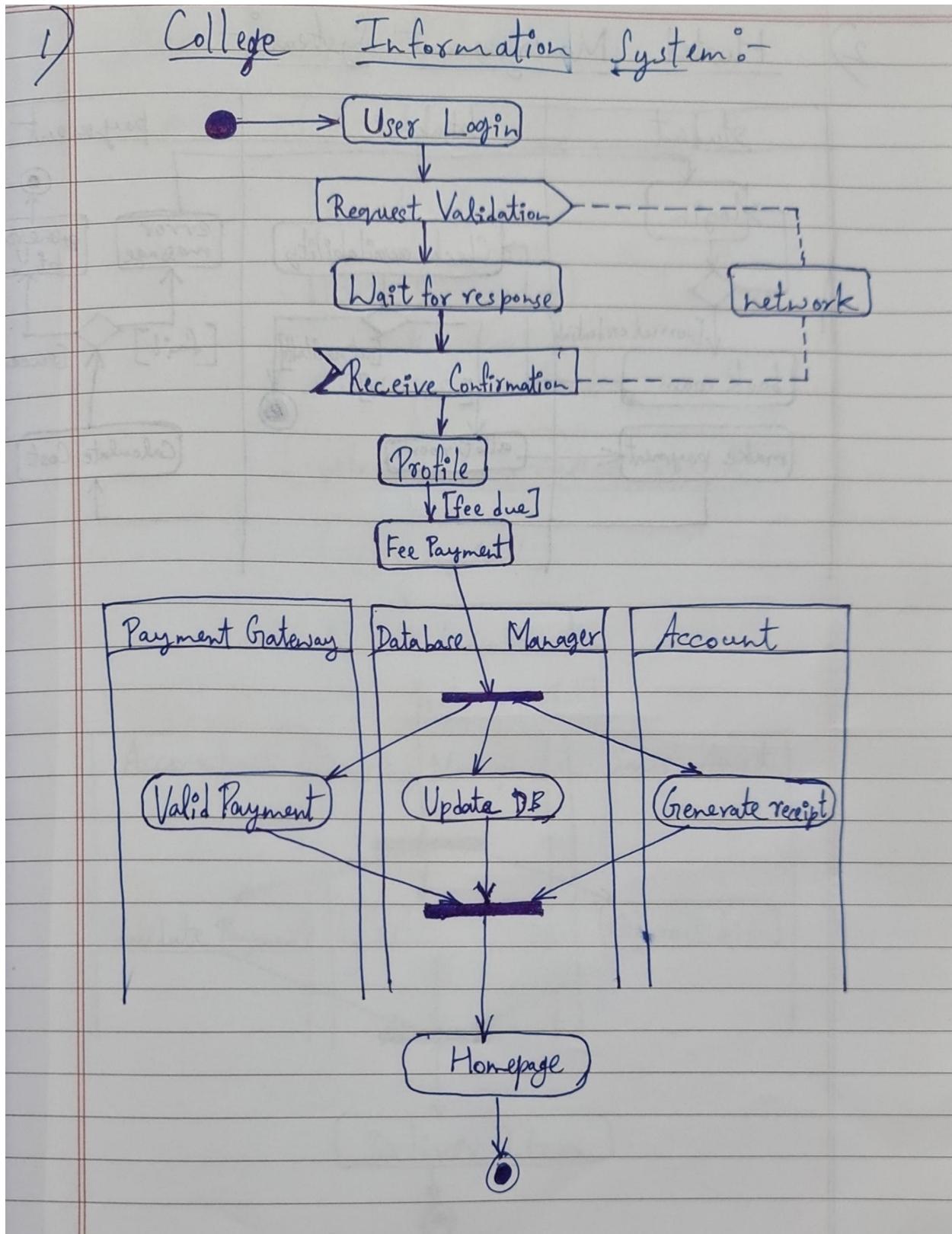
## Use-case Diagram:

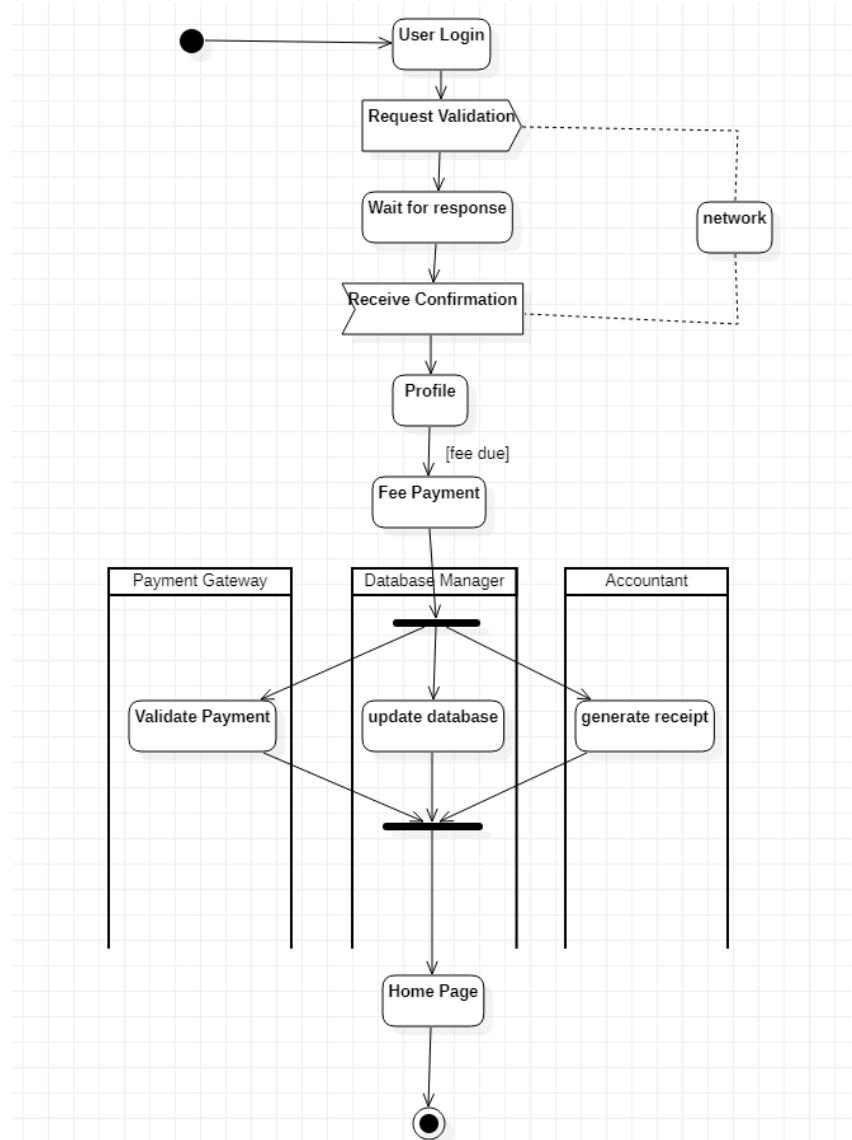


## Sequence Diagram:



## Activity Diagram:





## 2. Hostel Management System

SRS:

2) Hostel Management System :-

Problem Statement :-

Application is automated, containing info about Hostel, Hostel students, managing staff, etc. All hostel related events are posted here so they can be viewed.

Requirements :-

Students :-

- View own & their hostel details.
- View circulars after login.
- Pay fees.
- Give feedback.

Hostel :-

- Enter & edit details.
- Details include building, no. of rooms, students, warden, etc.

Payment :-

- Payment method.
- Type.
- Details of payments (Remarks).

Room :-

- Types of rooms available.
- Edit details of room & hostel building.

Staff :-

- Enter & login
- Name, Designation

Sub Classes :-

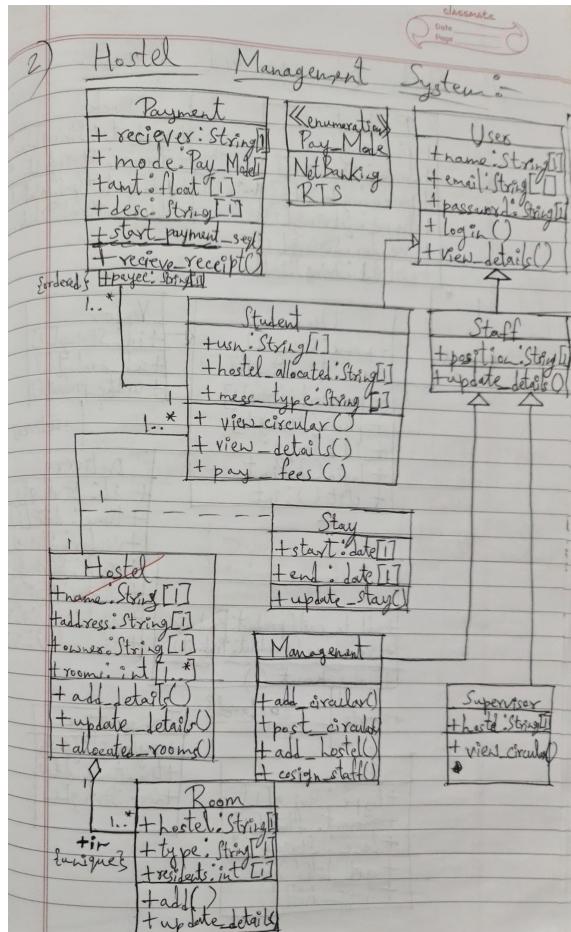
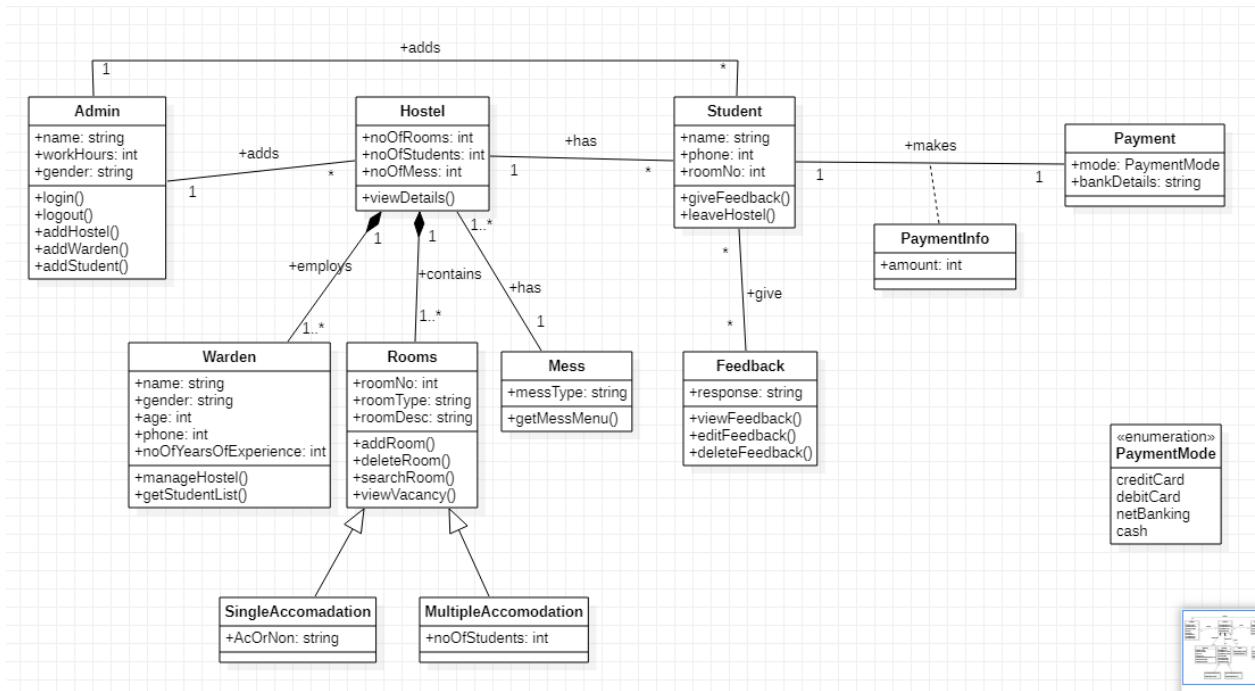
i) Management Staff :-

- Add & edit details of students
- Post circulars.

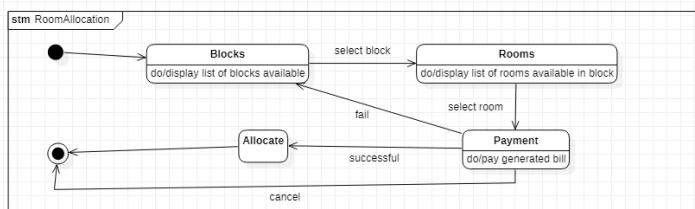
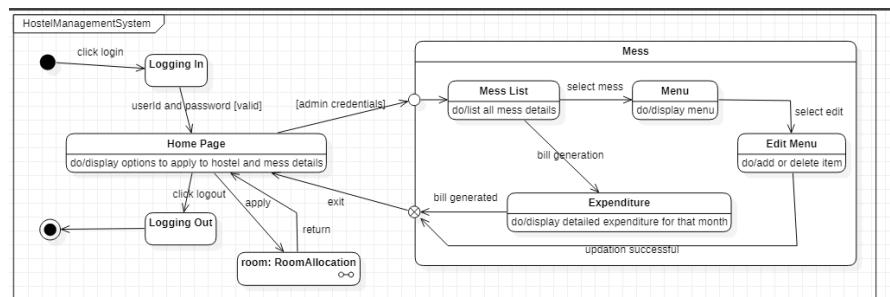
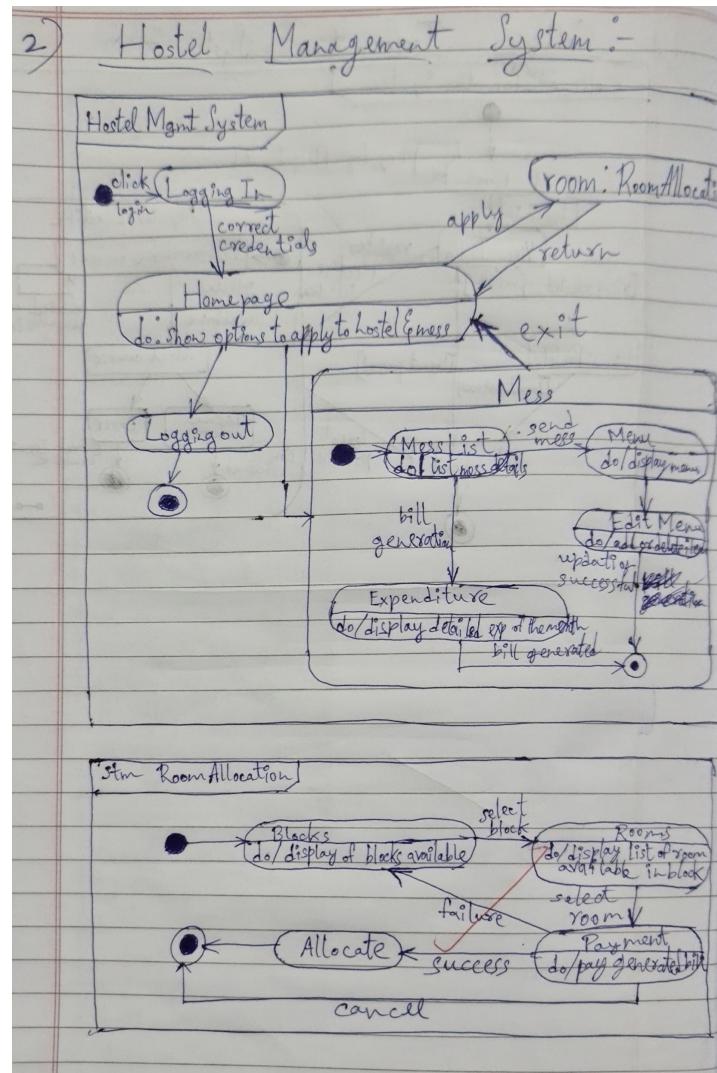
ii) Working Staff :-

- Login & view details.
- Post complaints or concerns.

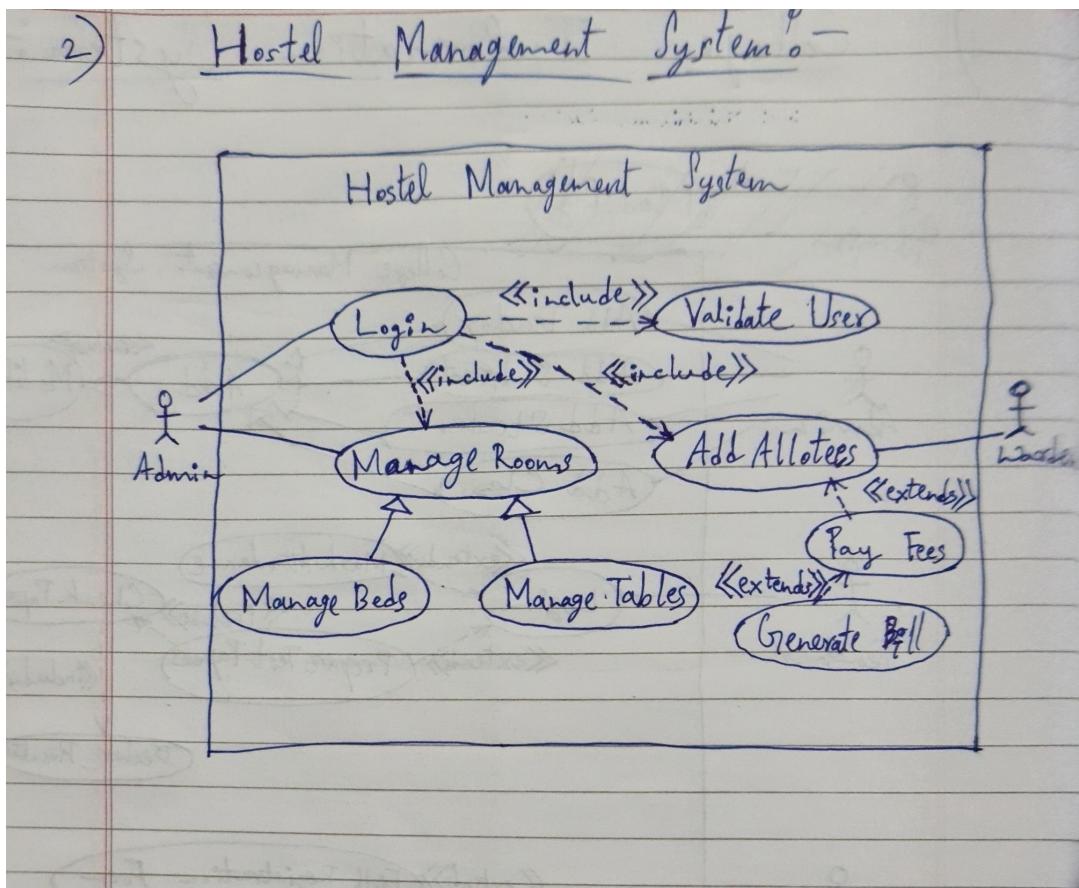
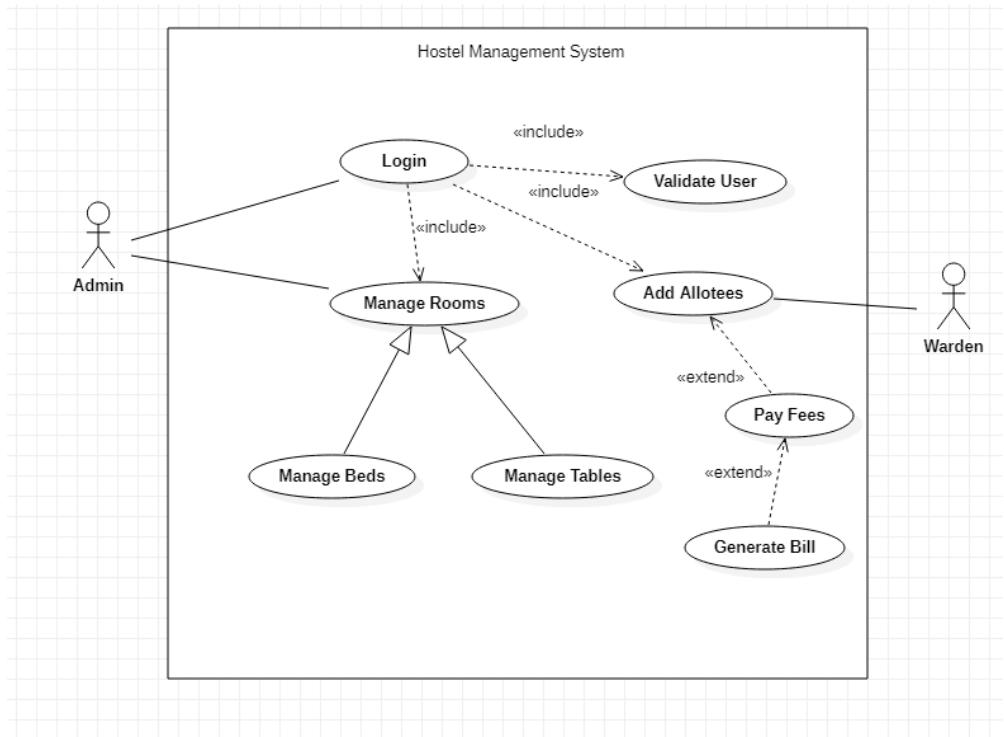
## Class Diagram:



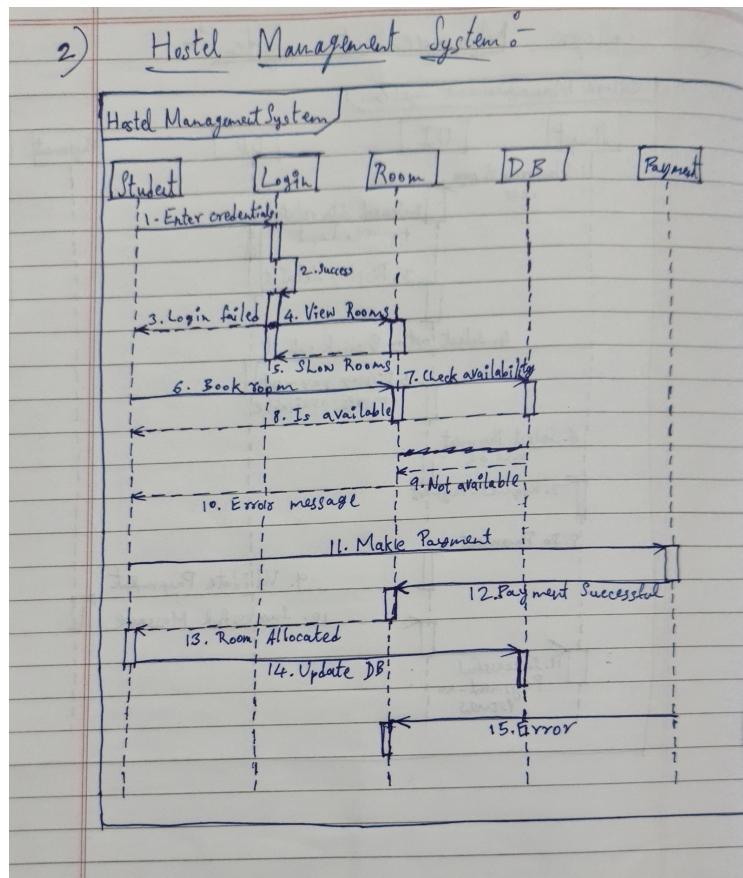
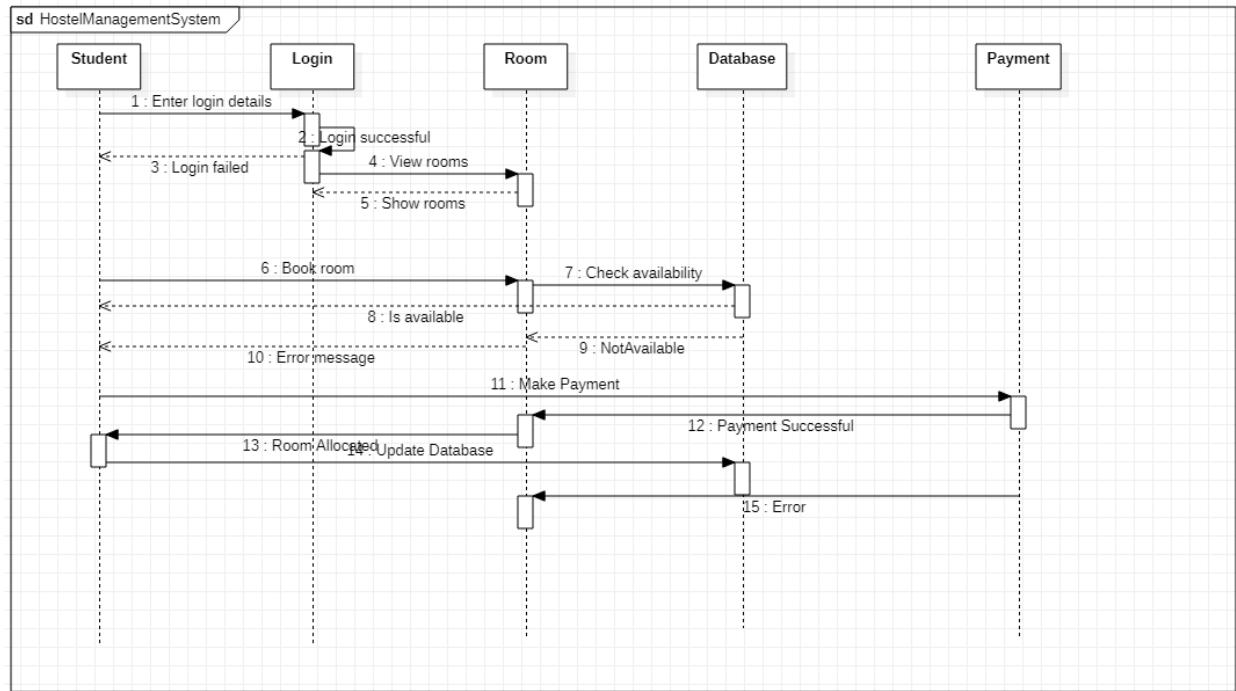
## State Diagrams:



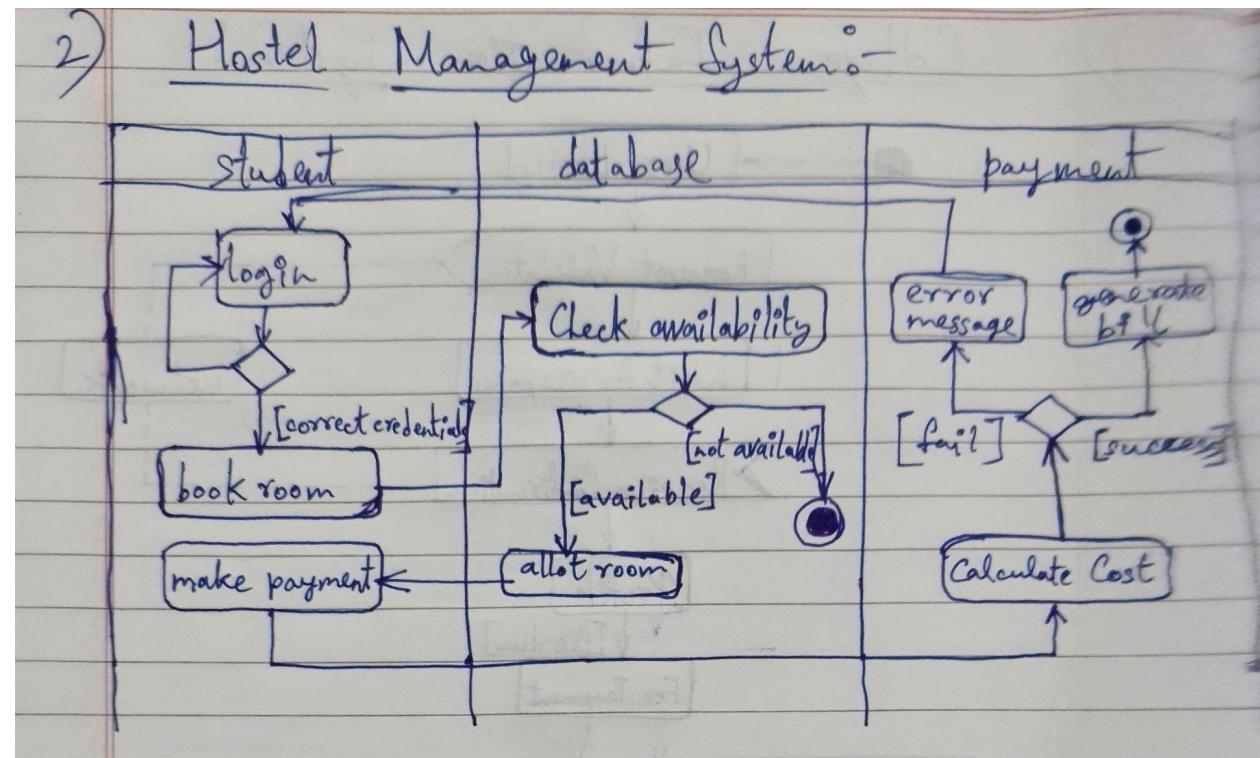
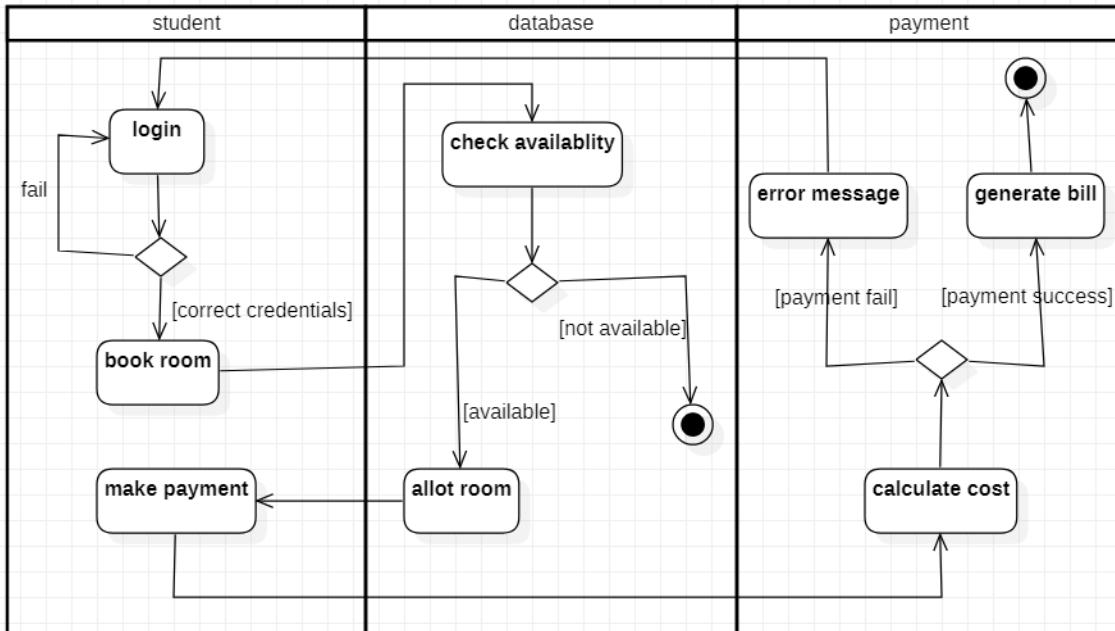
## Use-case diagram:



## Sequence Diagram:



## Activity Diagram:



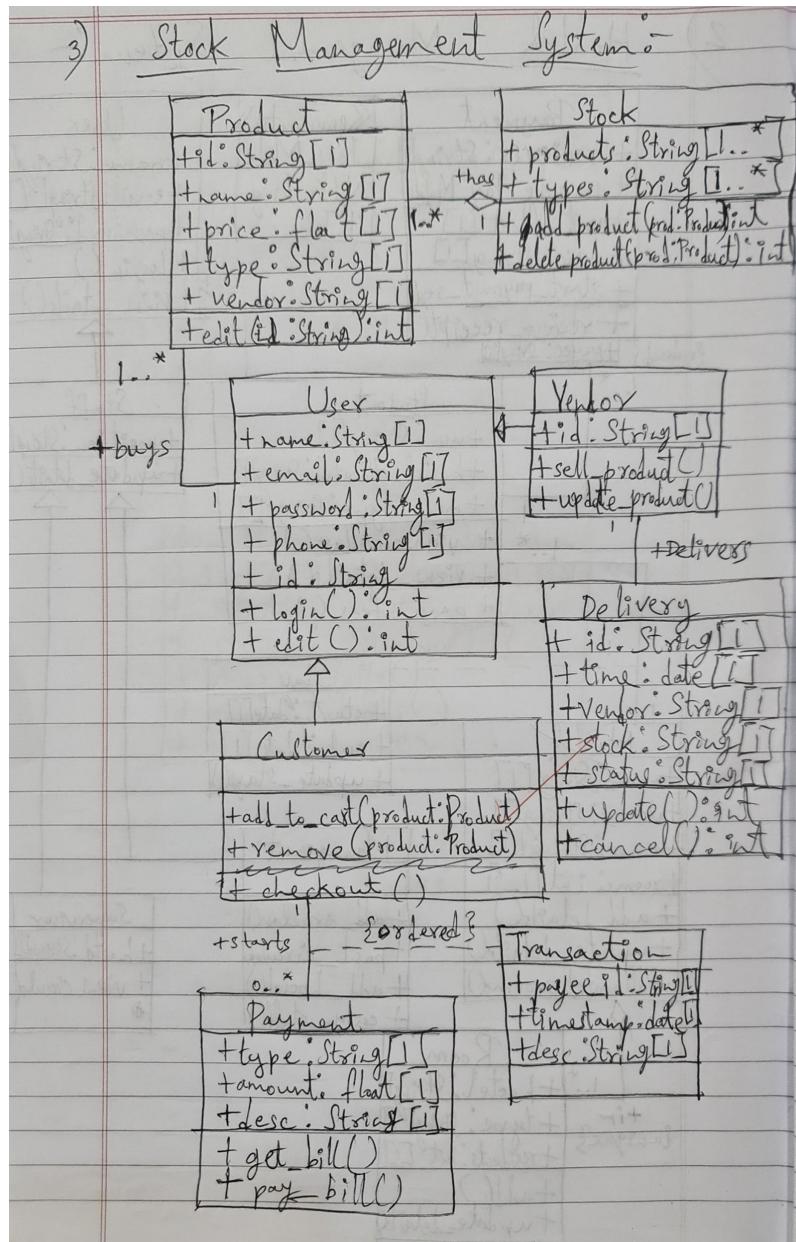
### 3. Stock Management System

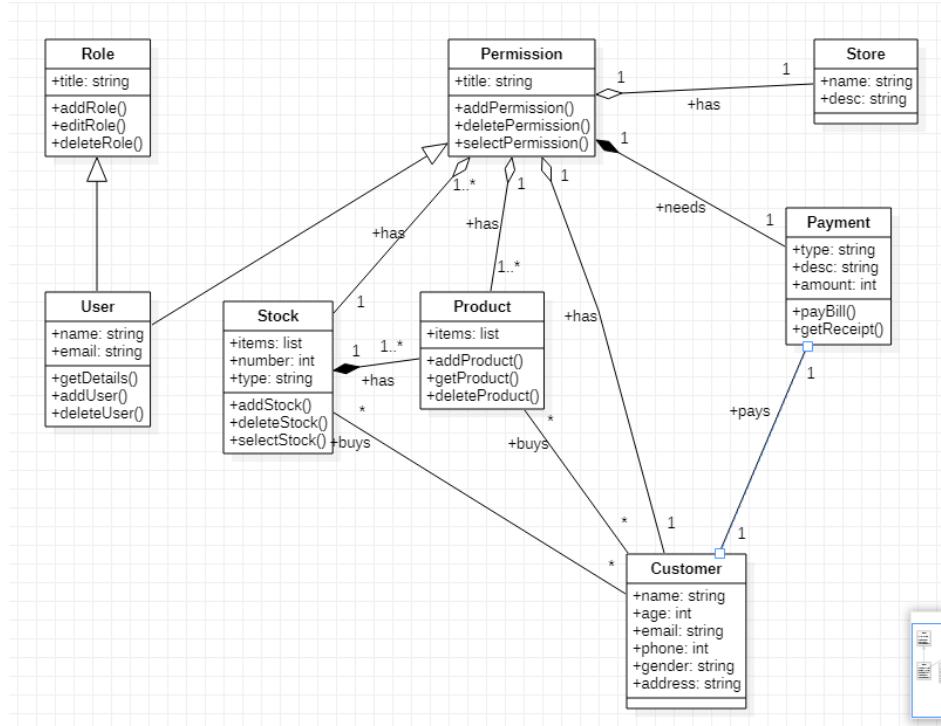
SRS:

3)	<u>Stock Management System :-</u>
	<u>Problem Statement :-</u>
	A realtime system which allows management to maintain stocks with simple & usable UI where users can buy & vendors can sell products easily.
	<u>Requirements :-</u>
	<u>Products :-</u>
	→ Add / delete products. → Edit product details.
	<u>Stock :-</u>
	→ Add / delete stocks. → View stocks.
	<u>Customers :-</u>
	→ Add / edit details → Buy / delete product from cast. → Pay for products bought.
	<u>Cast :-</u>
	→ Has details of resptive customer. → Send product to checkout.

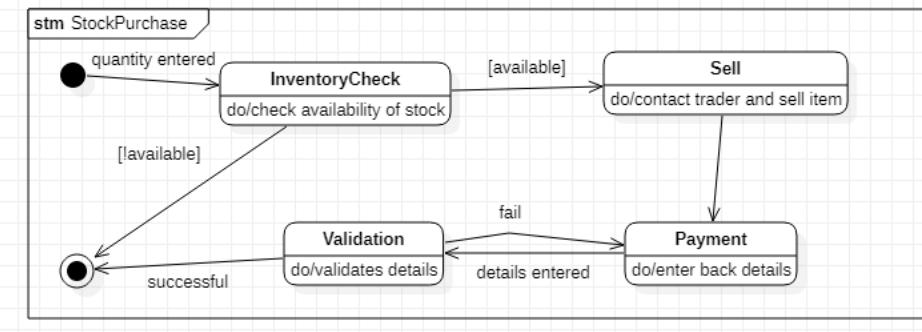
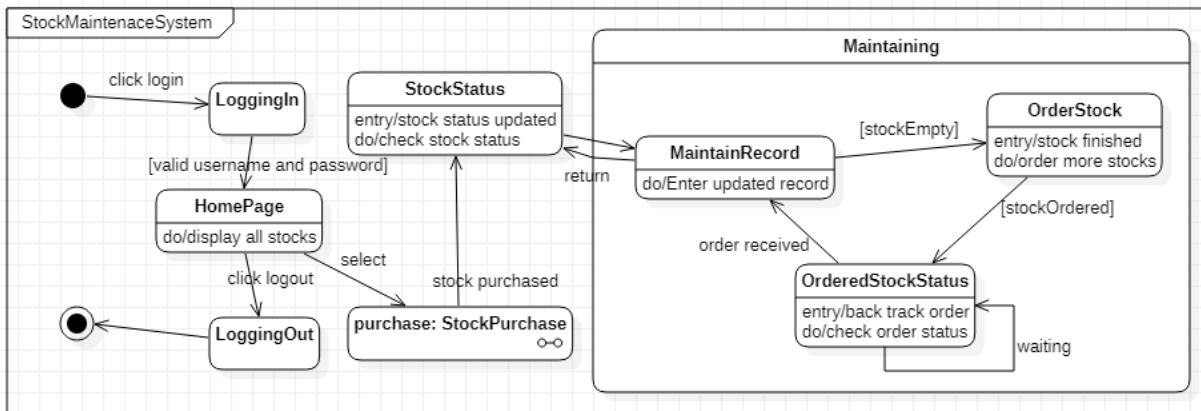
	<u>Vendor :-</u>
	→ View & edit details. → Add / delete their products or change products details.
	<u>Payments :-</u>
	→ Type amount, products. → Pay & get bill.

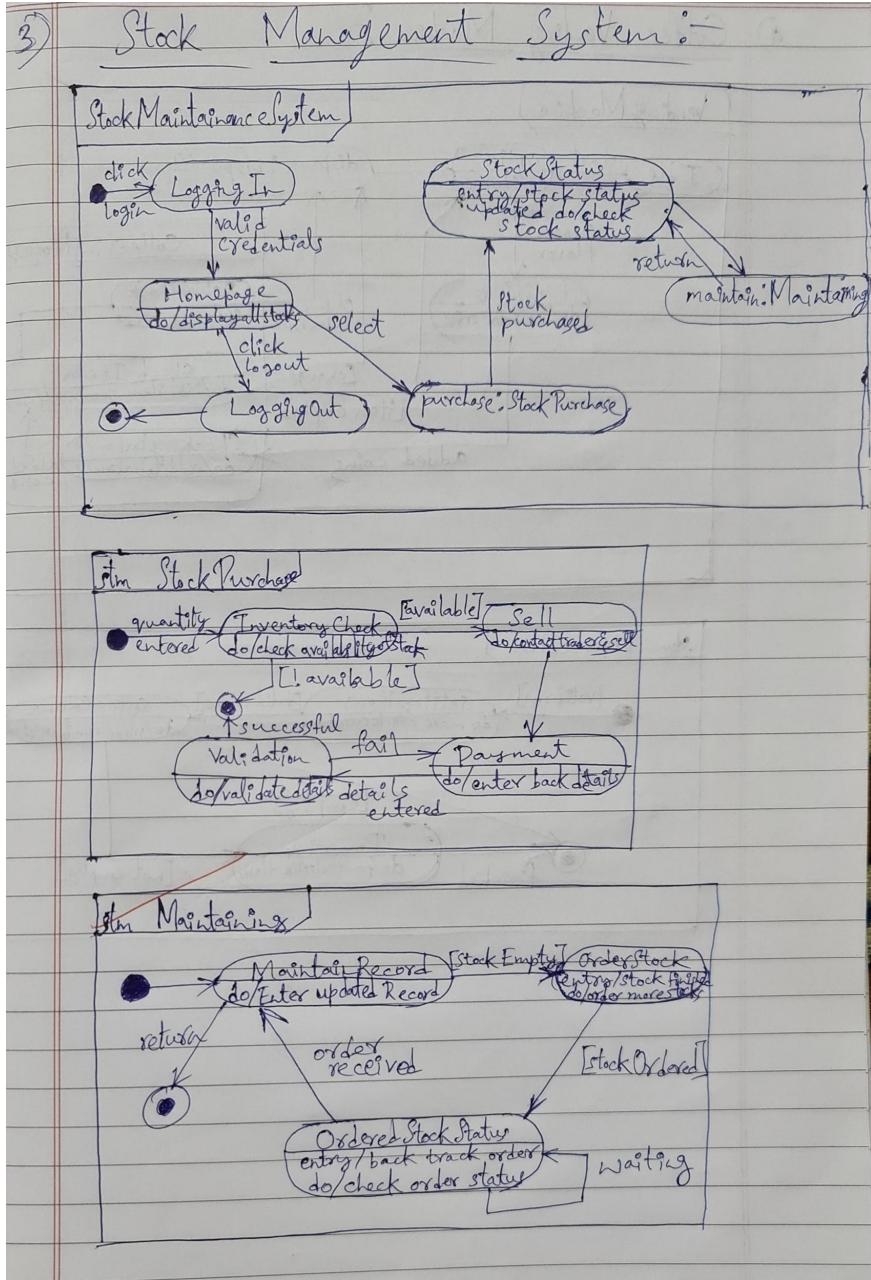
### Class diagram:



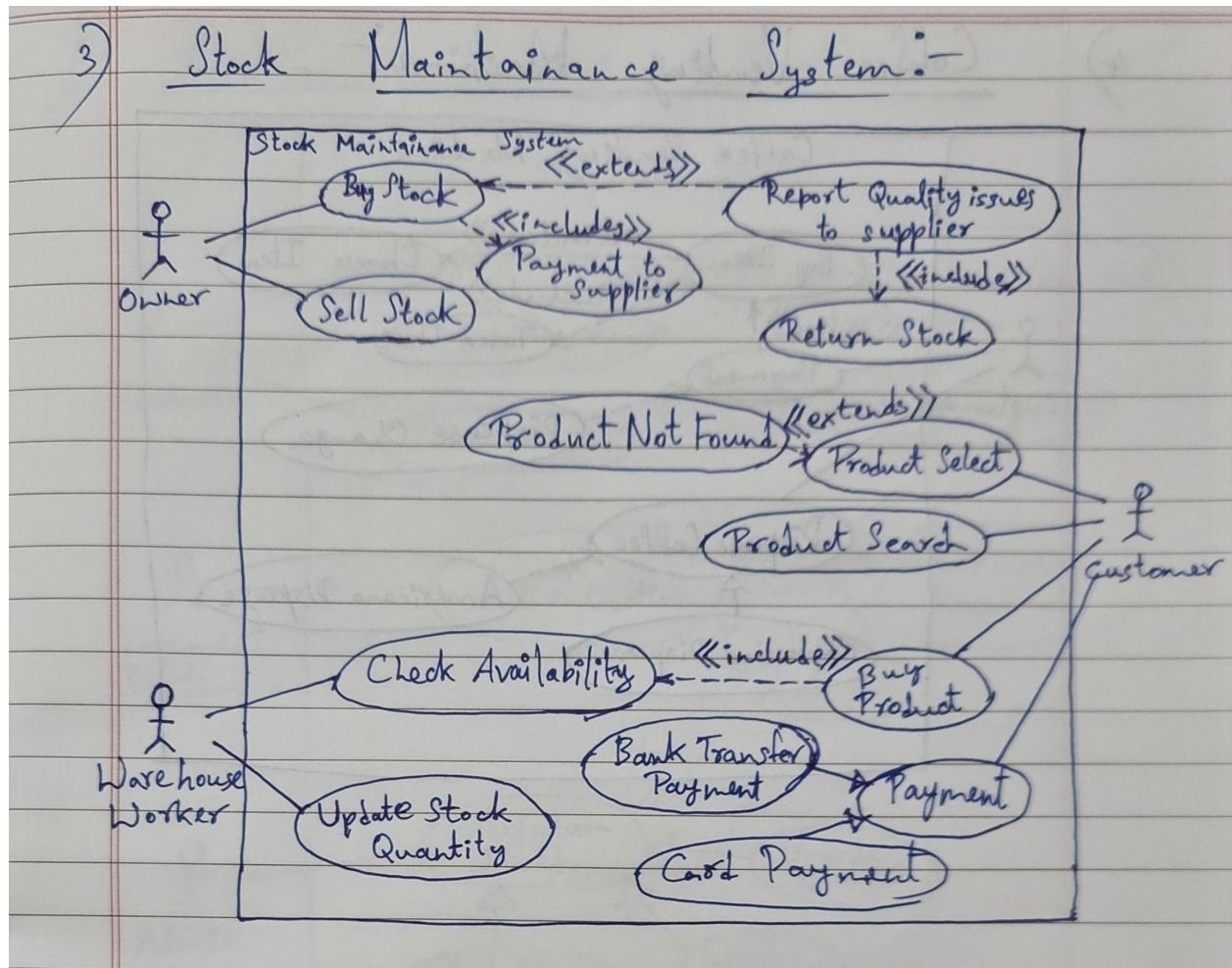
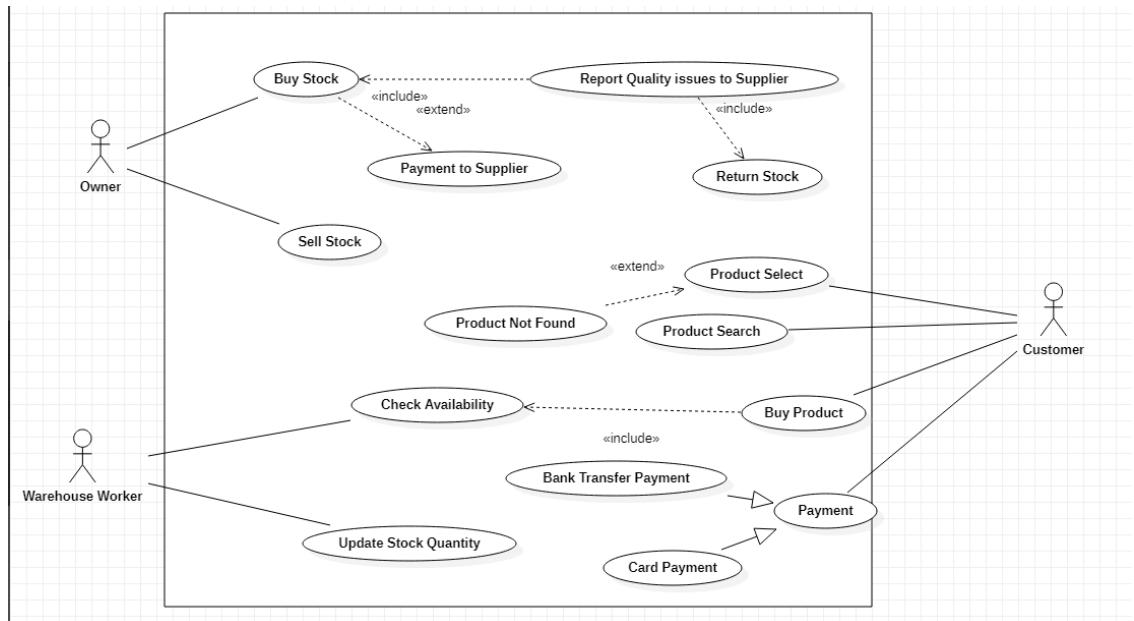


## State diagram:

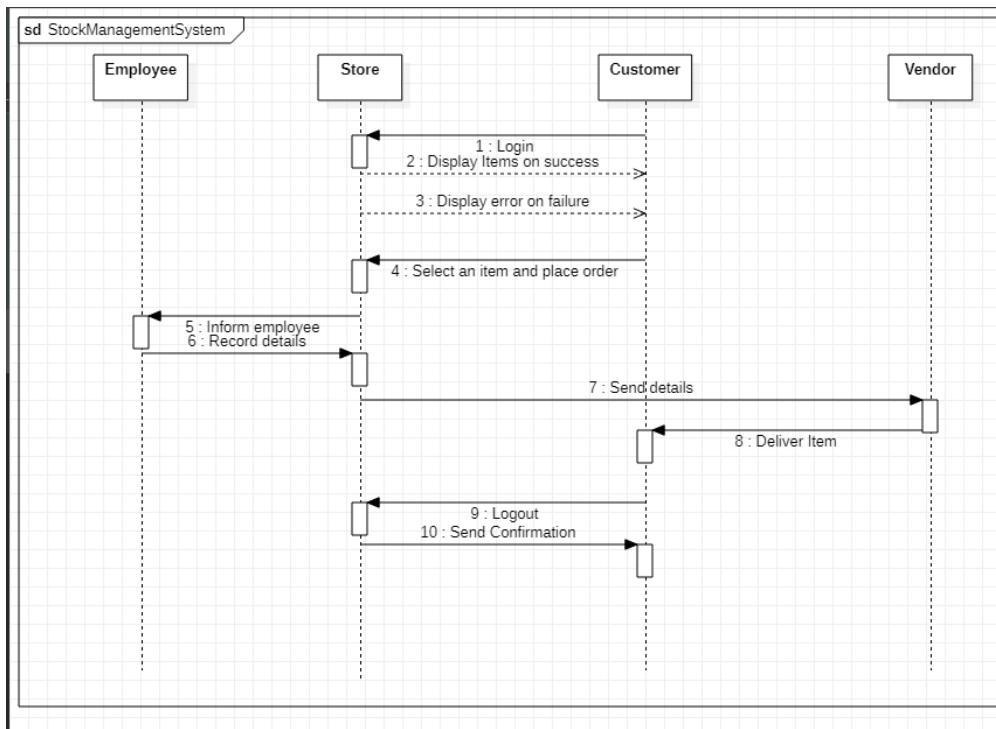
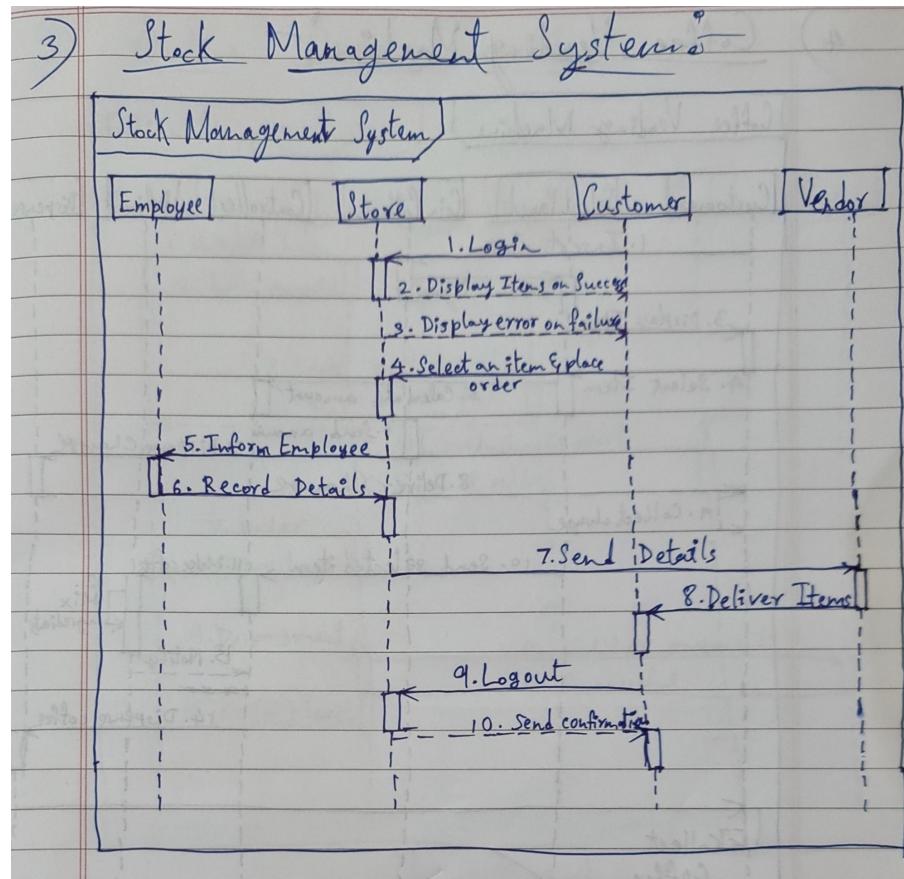




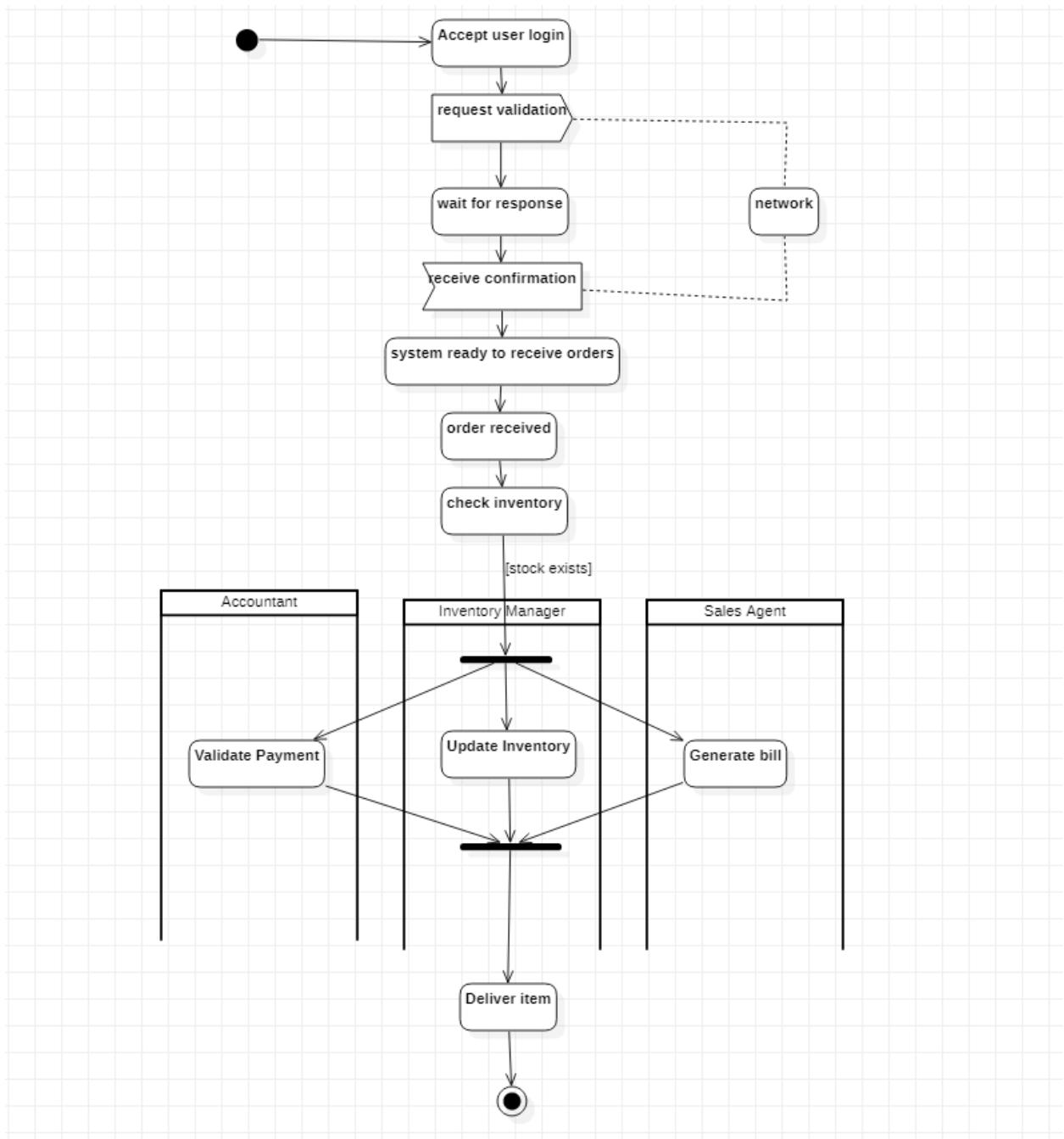
## Use-case diagram:



### Sequence diagram:

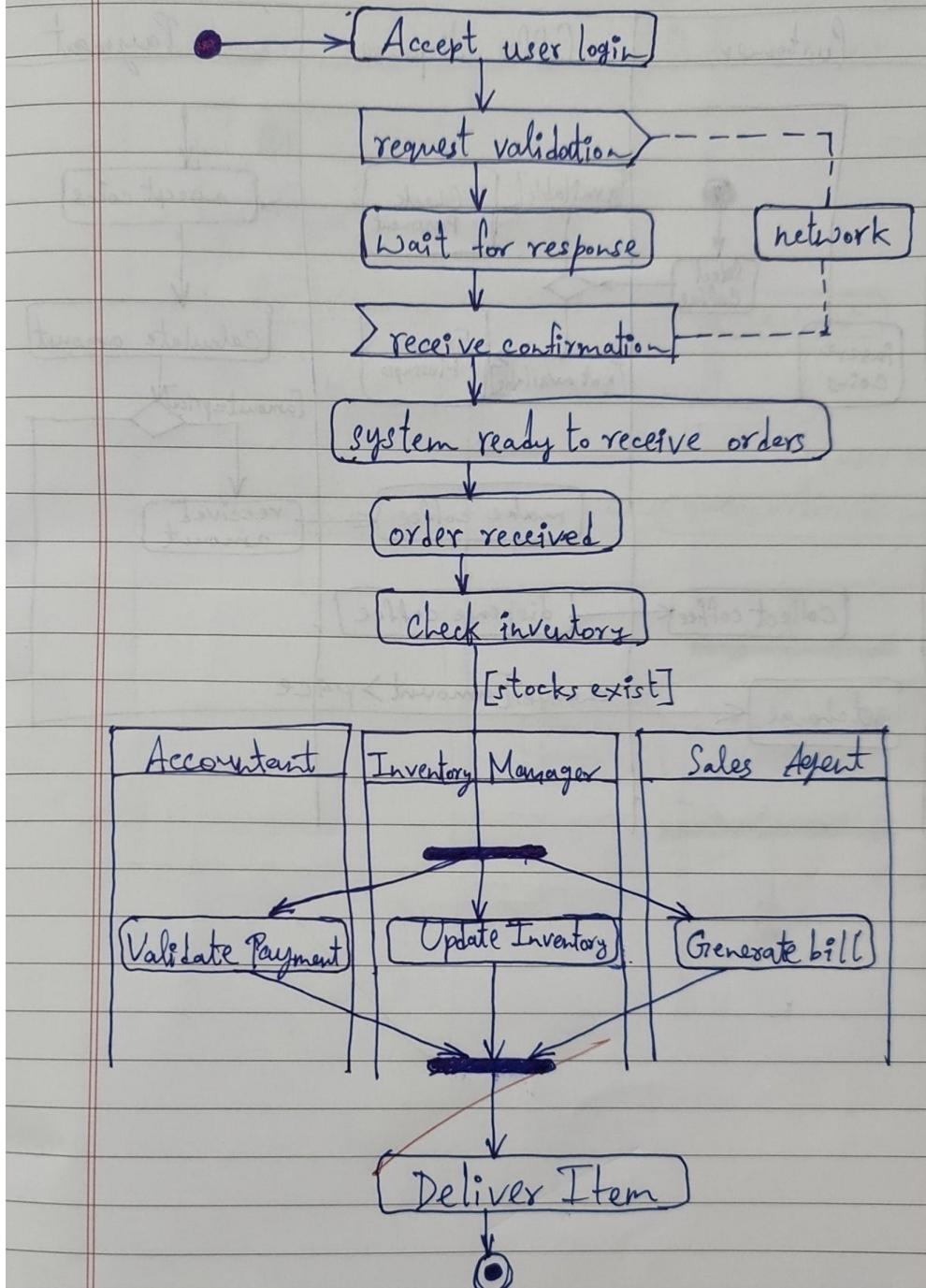


## Activity diagram:



3)

### Stock Management System



## 4. Coffee Vending Machine

SRS:

### 4) Coffee Vending Machine:-

#### Problem Statement :-

The system controls all the parts of the ~~system~~ coffee vending machine & maintains data of all required objects such as coffee, process payment & maintaining a proper feedback ~~system~~ system for maintenance.

#### Requirements :-

##### Coffee :-

- Edit details like name, list of ingredients & process

##### ~~Vending Machine :-~~

##### ~~Vending Interface :-~~

- Has a collection of buttons which trigger different actions on click.
- Can enable / disable buttons.

##### Buttons :-

- Edit button details.
- Edit status of button.

##### Coffee Makes :-

- Amount of sugar.
- Cold / Hot select

→ Starts making coffee slowly, dispenses it & releases ingredients acc. to process.

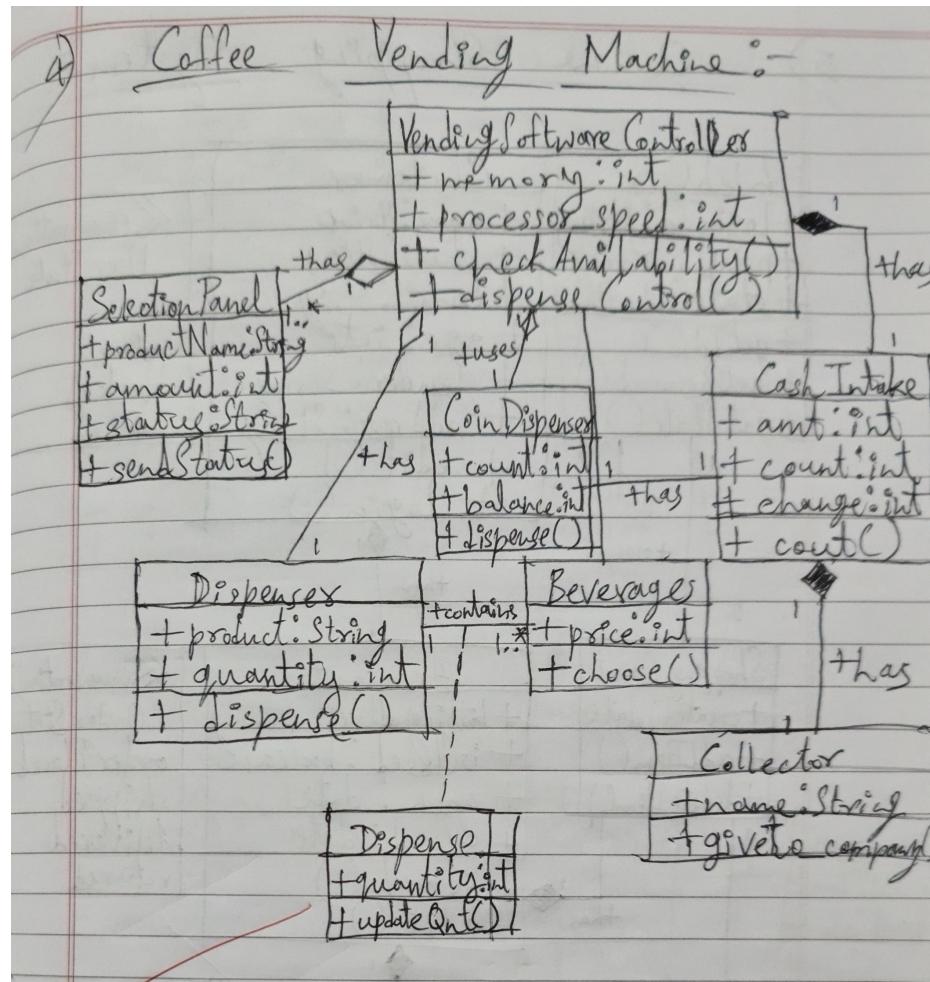
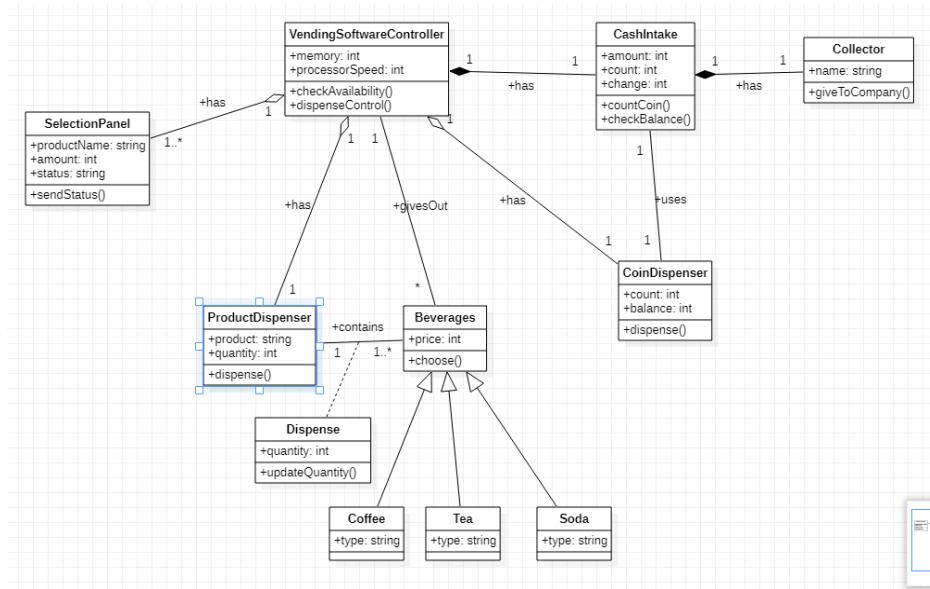
### Cashier:-

- Contains details of purchase.
- Accepts money from consumer.
- Gives a bill for the above.

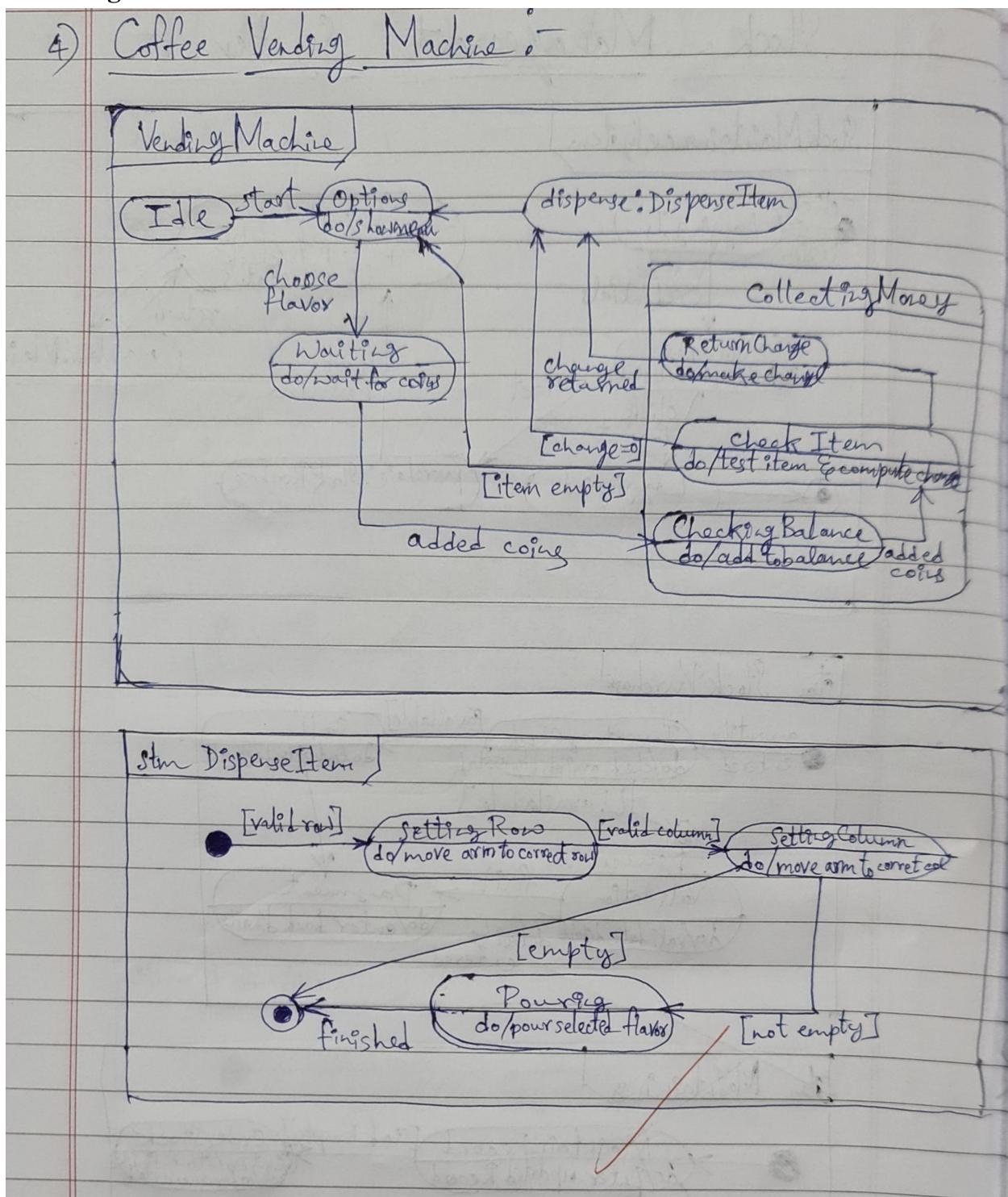
### Feedback:-

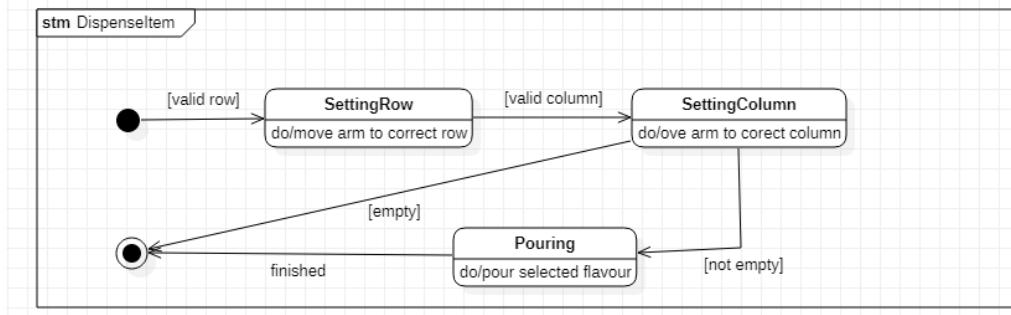
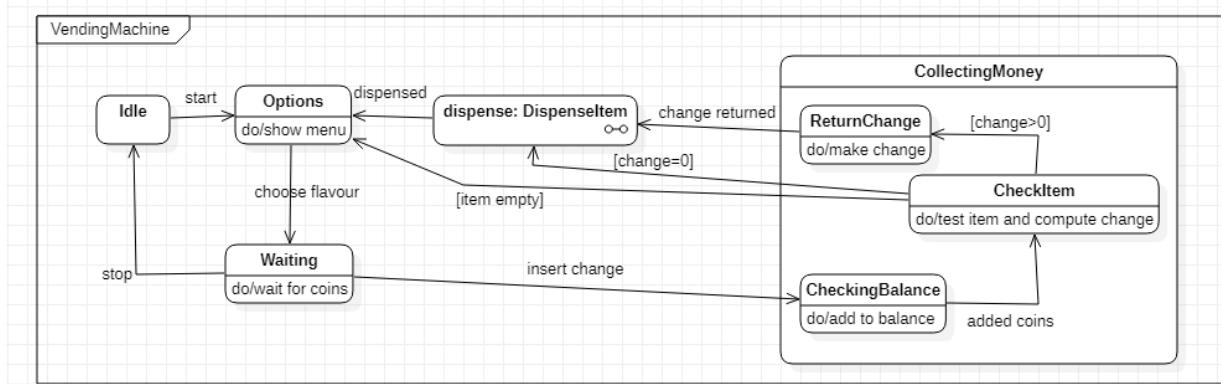
- Check amount of ingredients.
- Check system anomalies.
- Send messages regarding issues

## Class diagram:

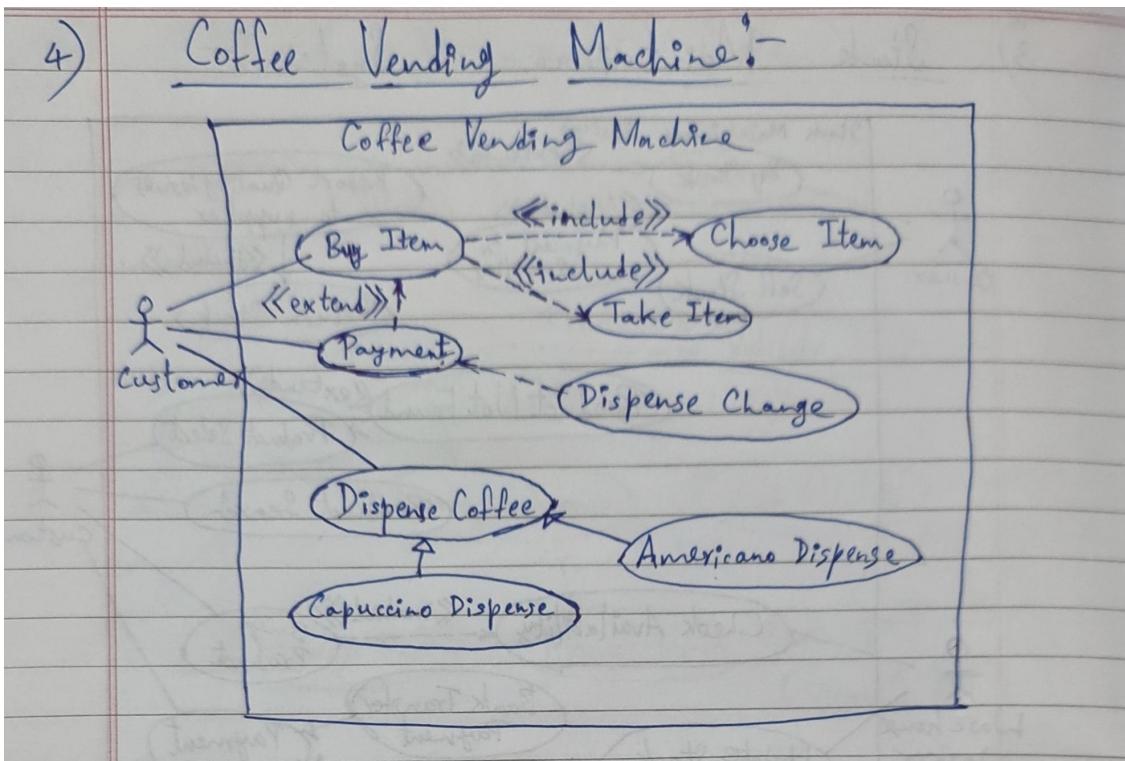
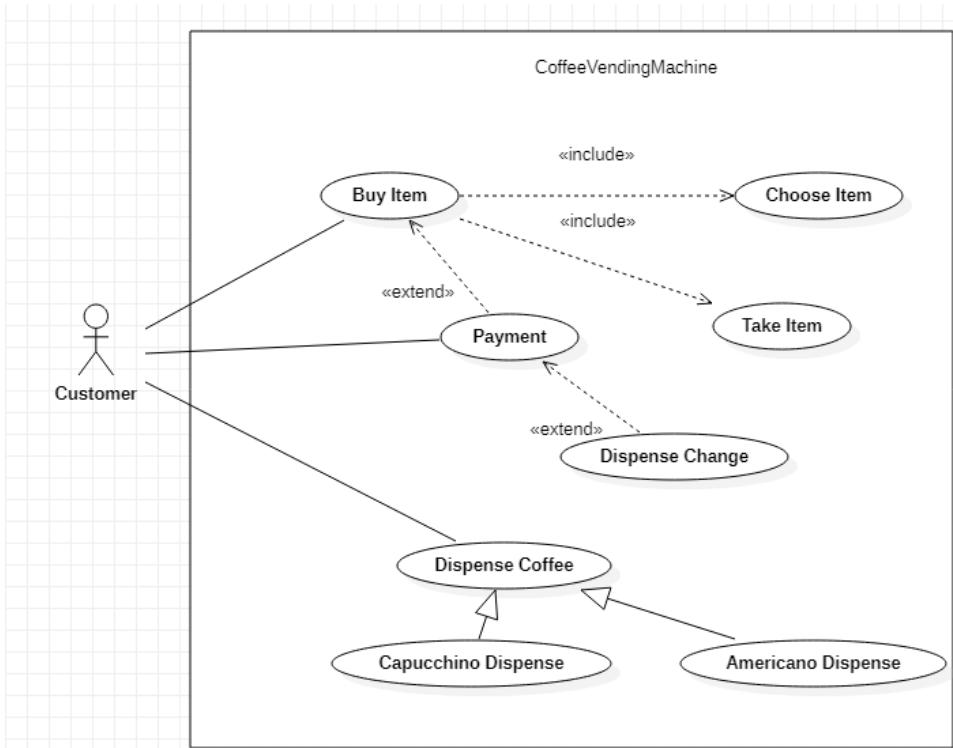


## State diagram

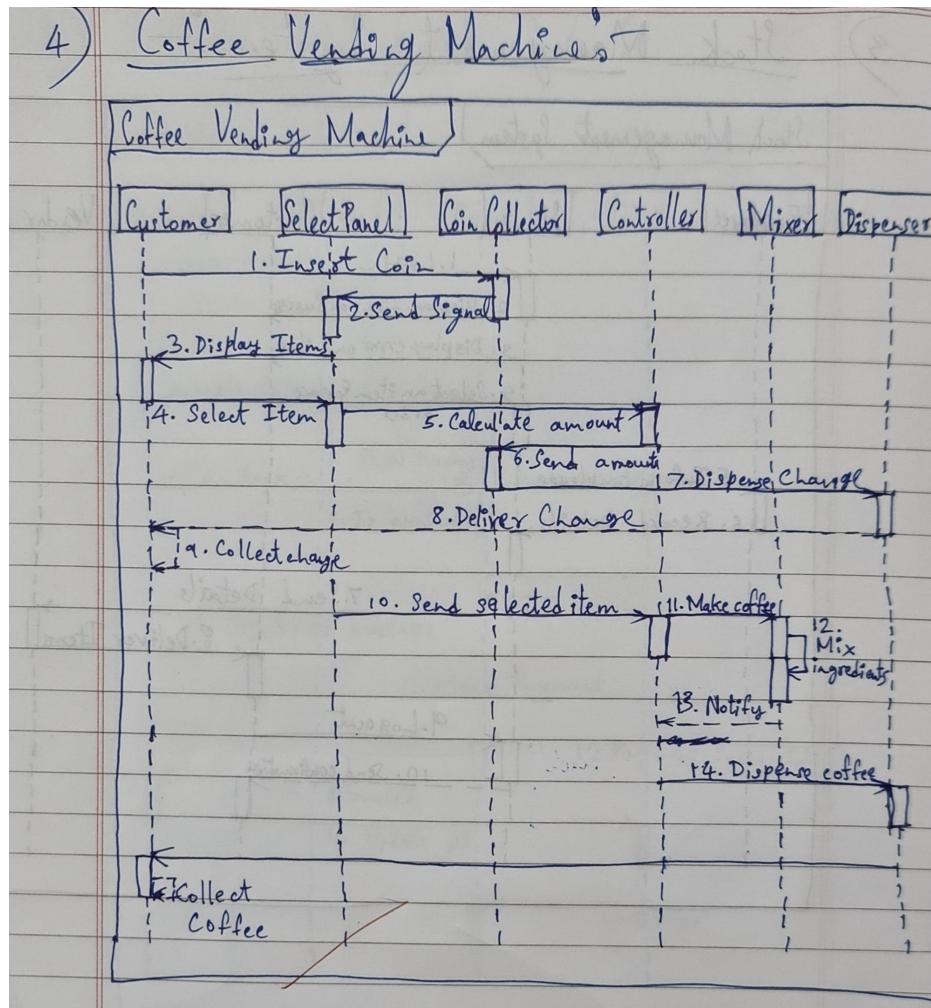
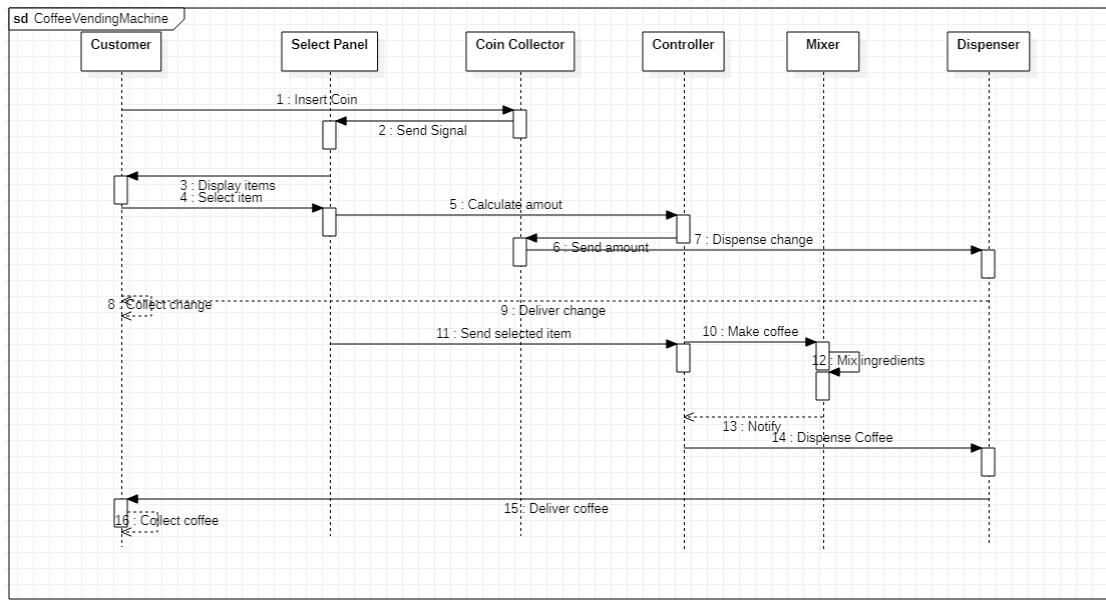




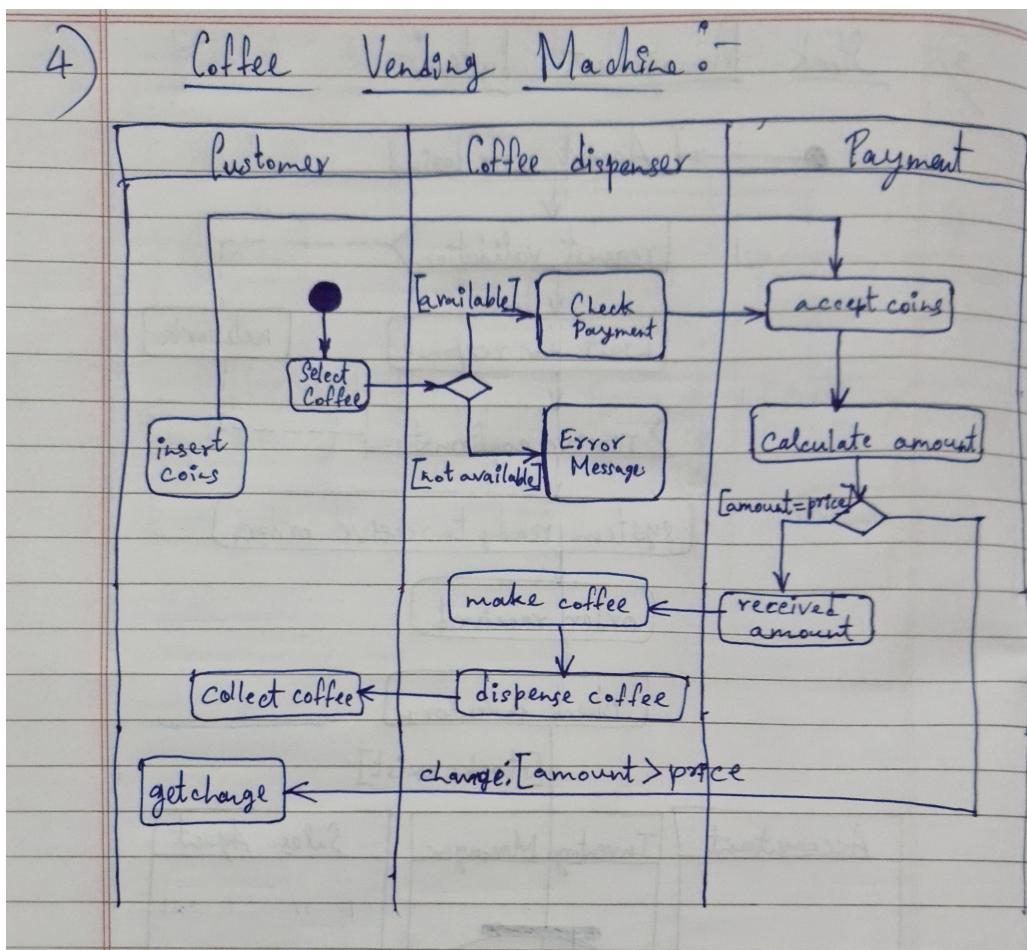
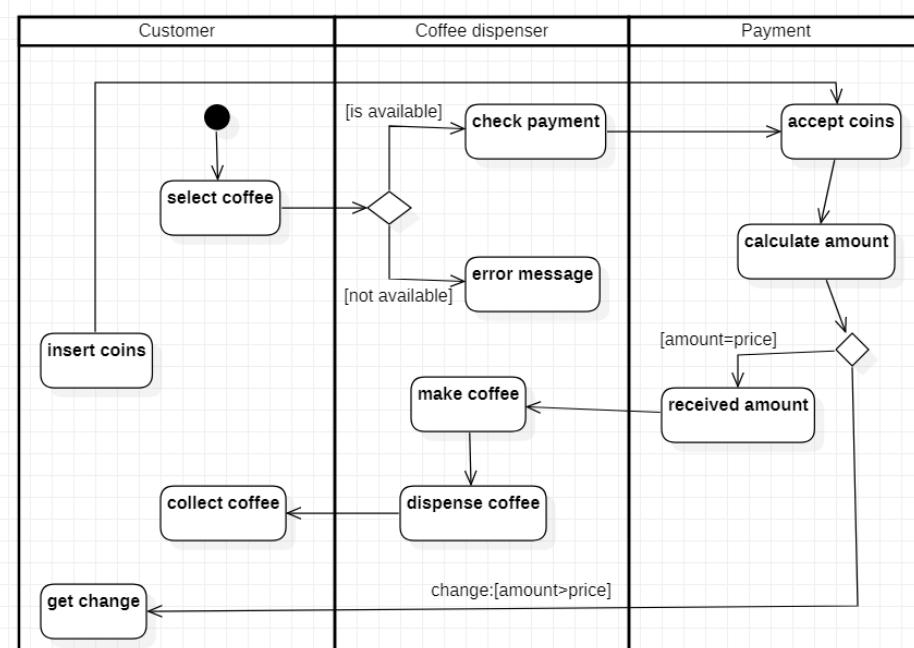
## Use-case diagram:



## Sequence diagram:



## Activity diagram:



## 5. Online Shopping System

SRS:

### 5) Online Shopping System :-

#### Problem Statement:-

A simple, automated, real-time system where user can buy & sell different products following simple steps, with secure payments & review system.

#### Requirements:-

##### User:-

- Can log in / register.
- Edit own details.

##### Sub Classes:-

i) Buyer:- Add / delete items to / from cart.

ii) Seller:- Add / delete items to catalog.

##### Product:-

- Add / edit details.
- View details of product.
- Can be reviewed.

##### Payment:-

- Has payment details - Total, products, mode, Buyer ID
- Make / Cancel payment.

### Order :-

- Has order details like Buyer ID, product list, total price, status,
- Check order status, cancel order, checkout order.

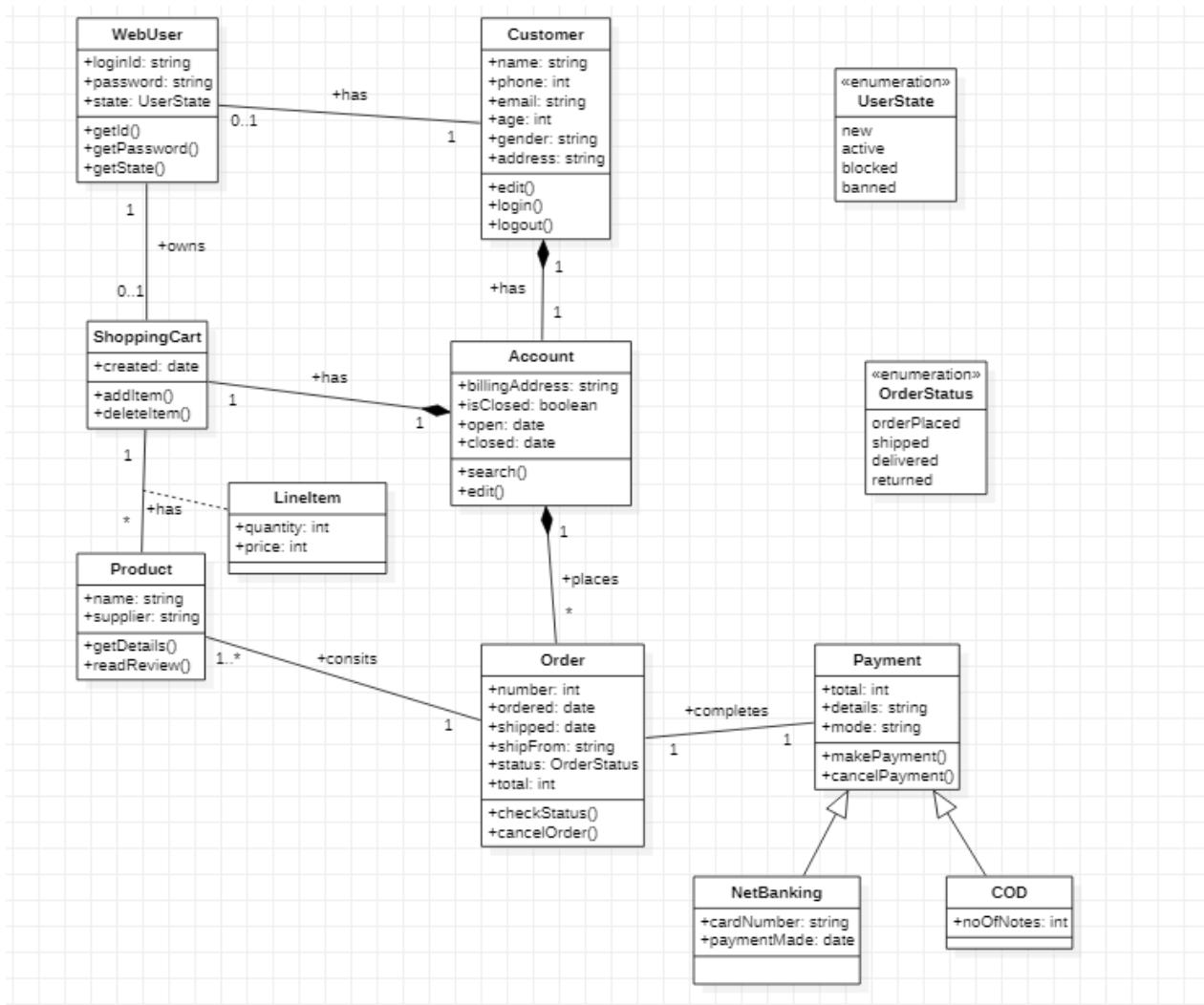
### Review :-

- Details of review - Product ID, Buyer ID, rating, review description, etc.
- Post / edit / cancel / delete / save review

### System Details :-

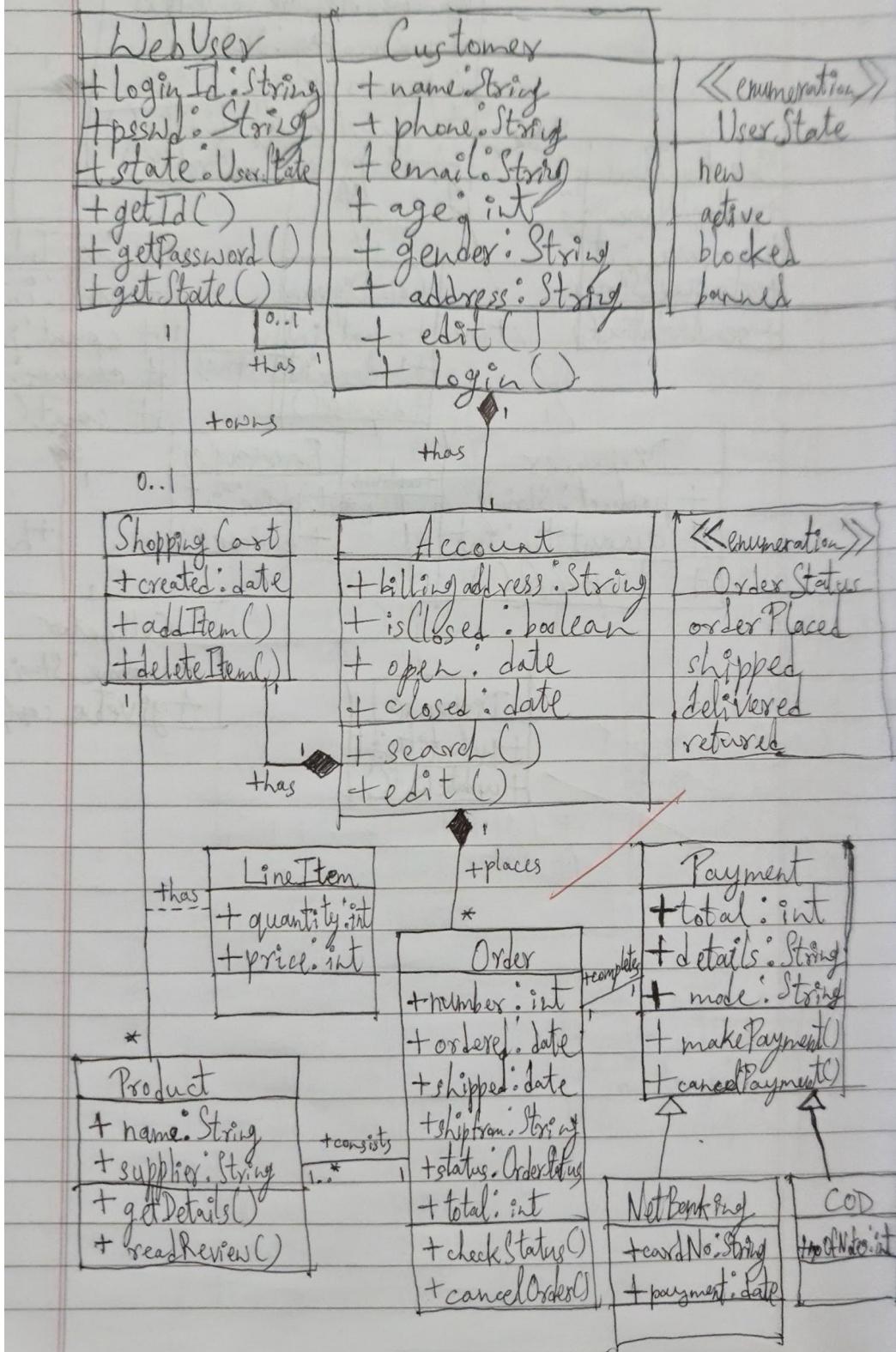
- Tools used to develop.
- Methods used to develop.

## Class Diagram:

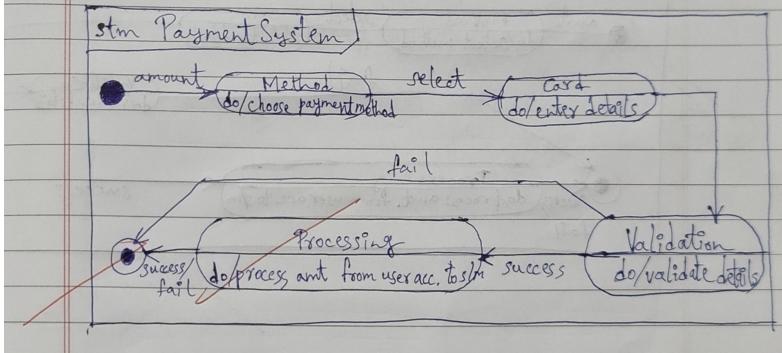
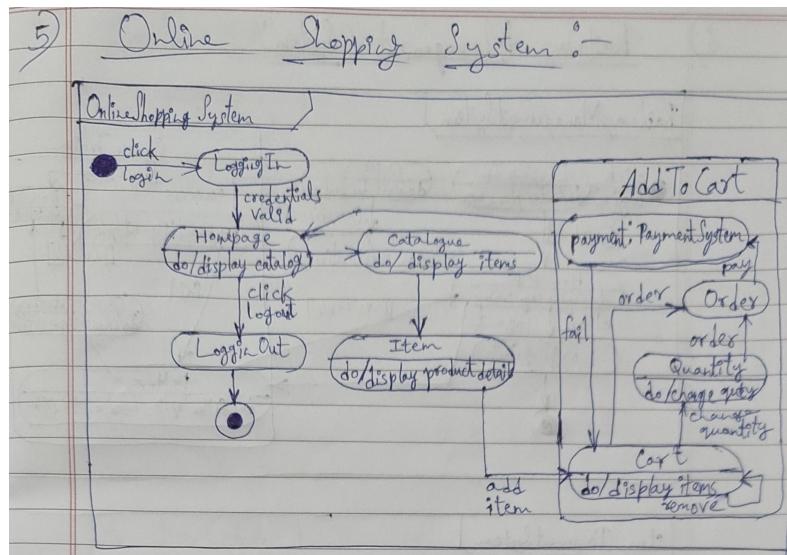
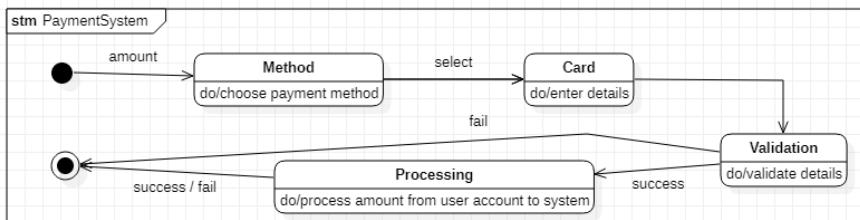
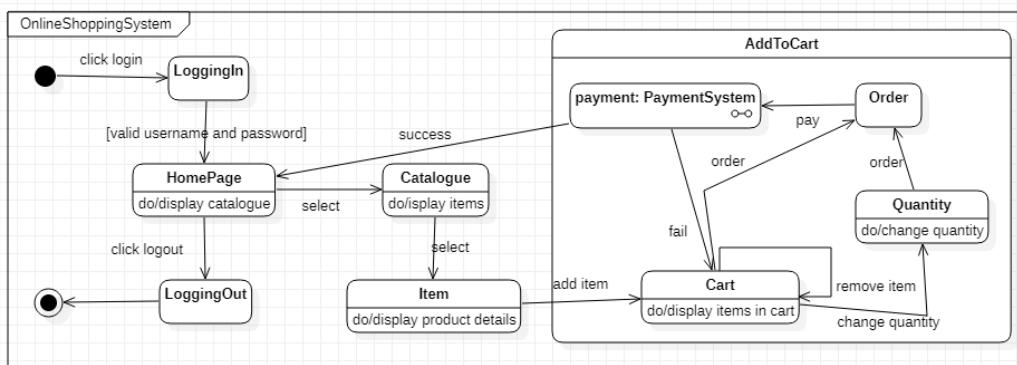


5)

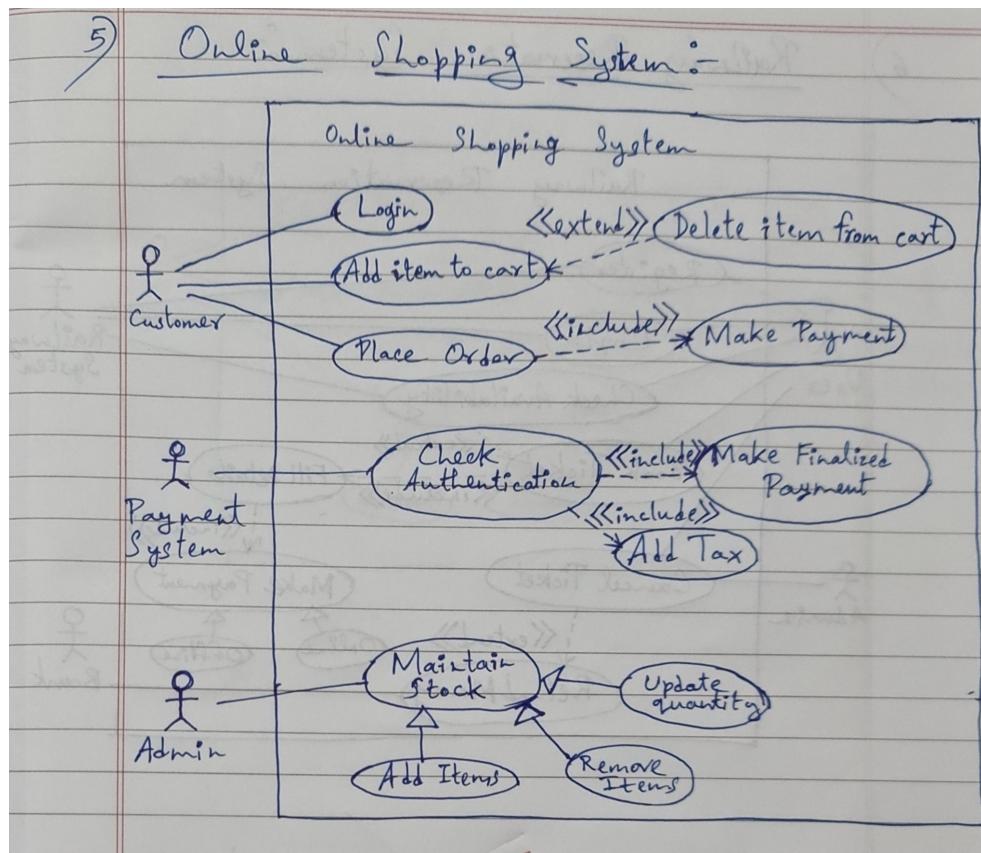
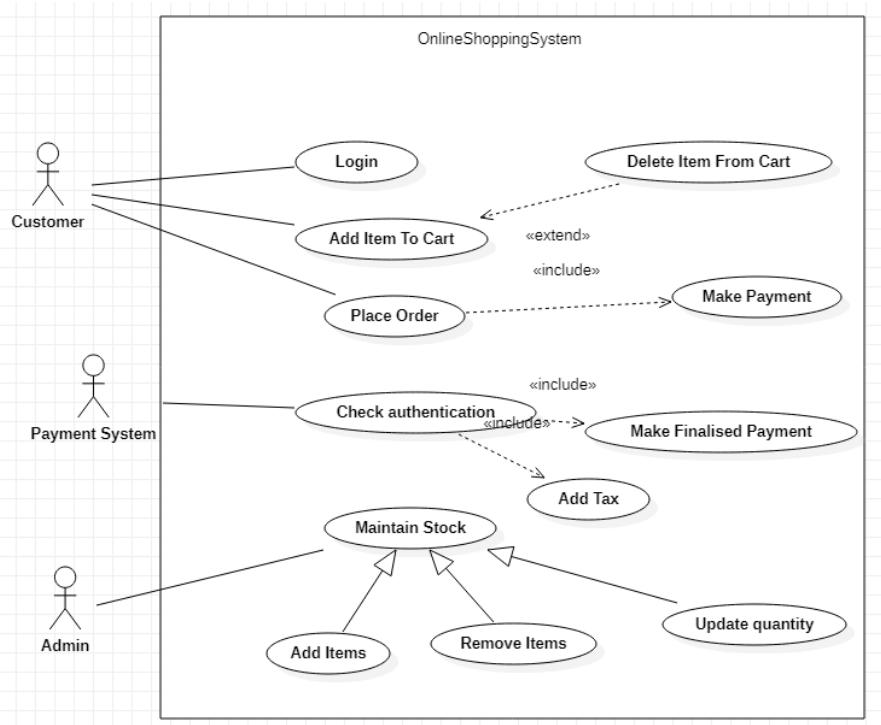
# Online Shopping System



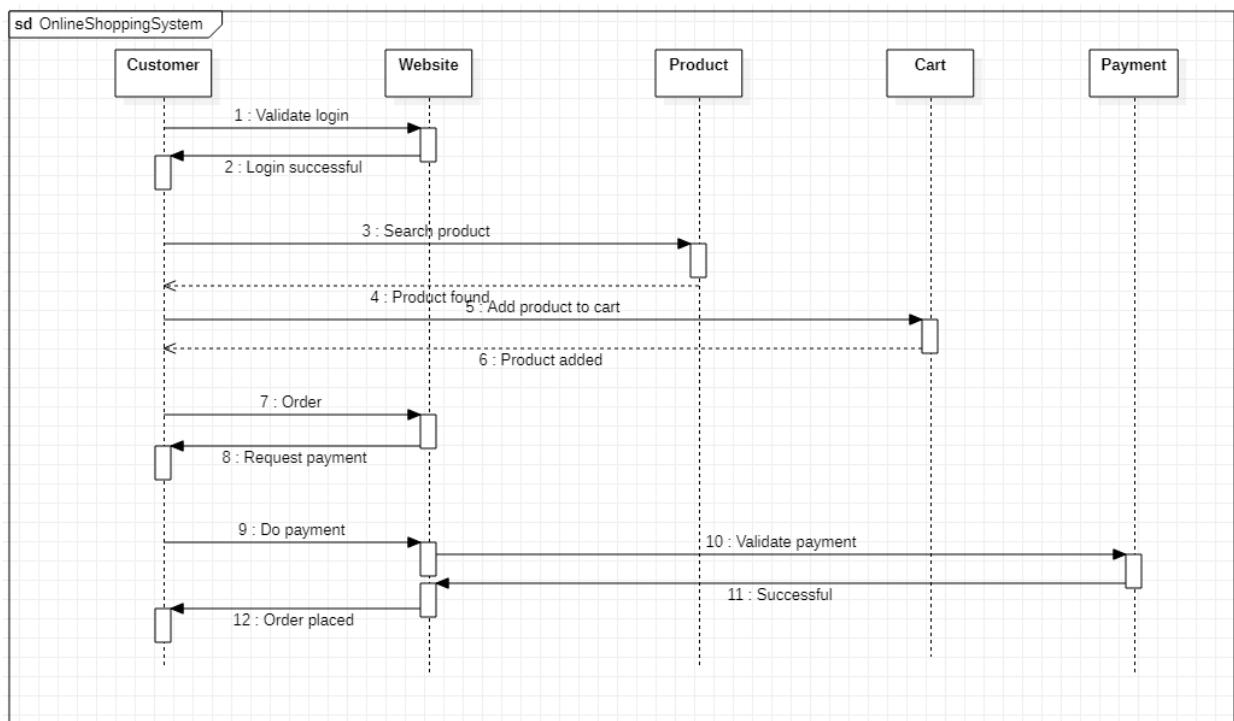
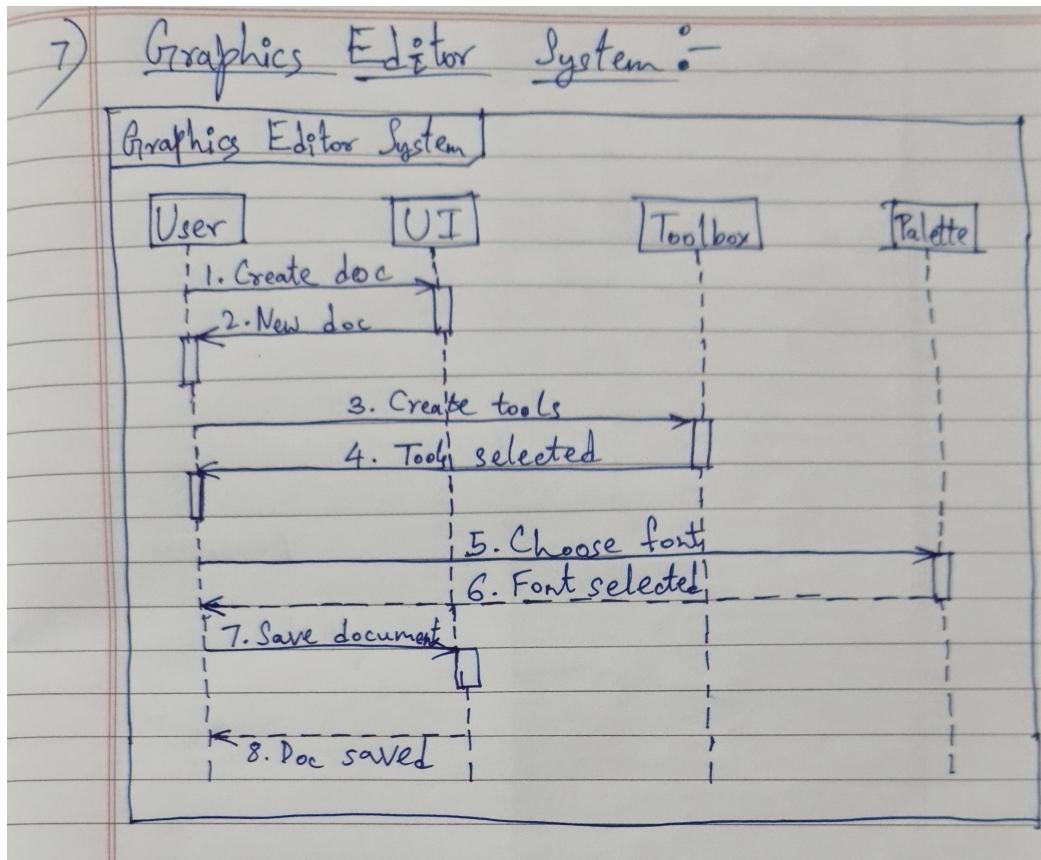
## State Diagram:



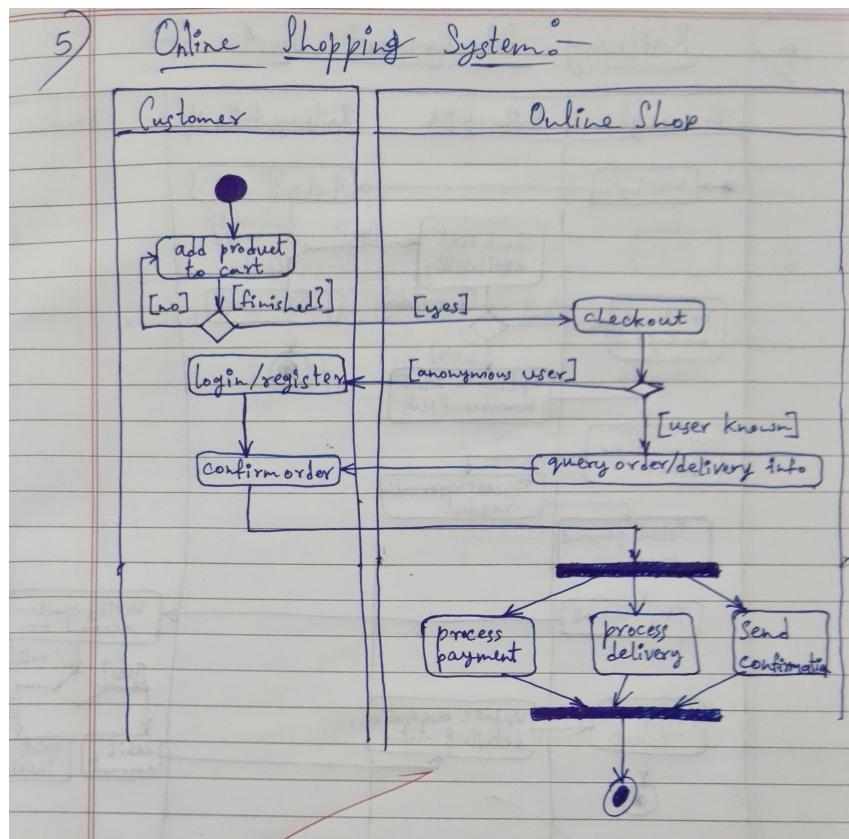
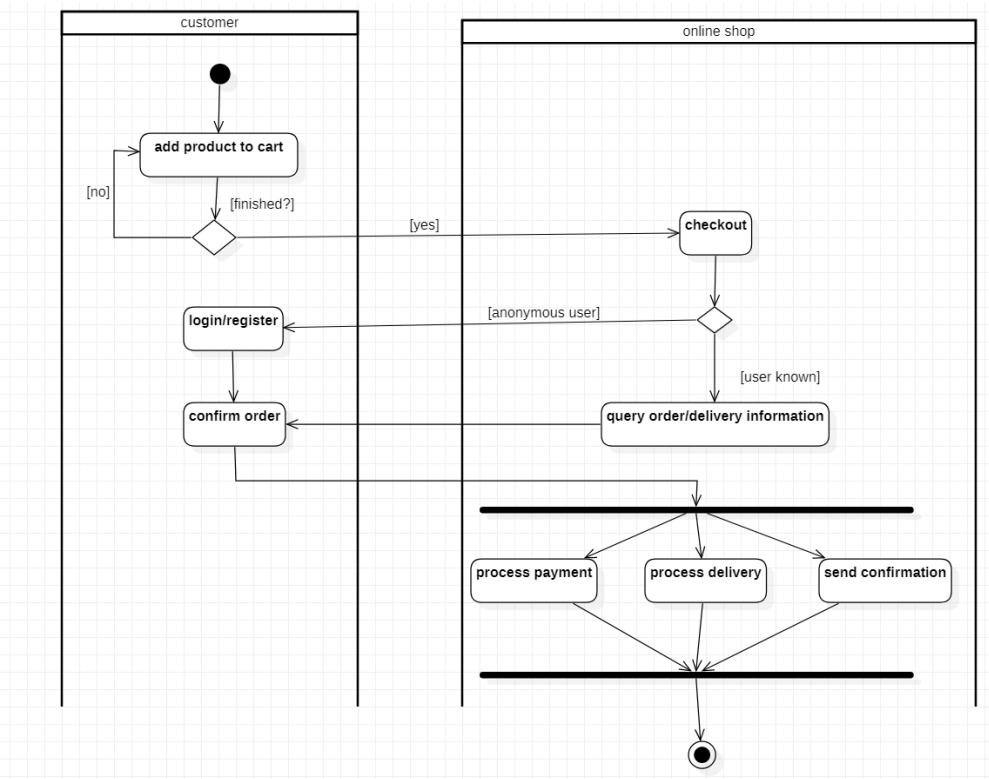
## Use-case Diagram:



## Sequence Diagram:



## Activity Diagram:



## 6. Railway Reservation System

SRS:

6)

### Railway Reservation System:-

Reservation s/m which is real-time & helps passengers book train seats for travel with simple & easy steps.

#### Requirements:-

1)

##### User:-

- Login, save & edit details - name, gender, phone, age, password, etc.
- Book / cancel / search ticket.
- Pay for booked ticket.

##### Passenger:-

- Add & edit details.
- View own details.

##### Railway body:-

- Add / edit details.
- Login / Logout from system.
- Has a password for account.

##### Train:-

- Train details stored.
- Train details update.

Train Station :-

→ Name, address & details.

Ticket :-

→ Has details of passengers & train.

→ Can be cancelled or viewed.

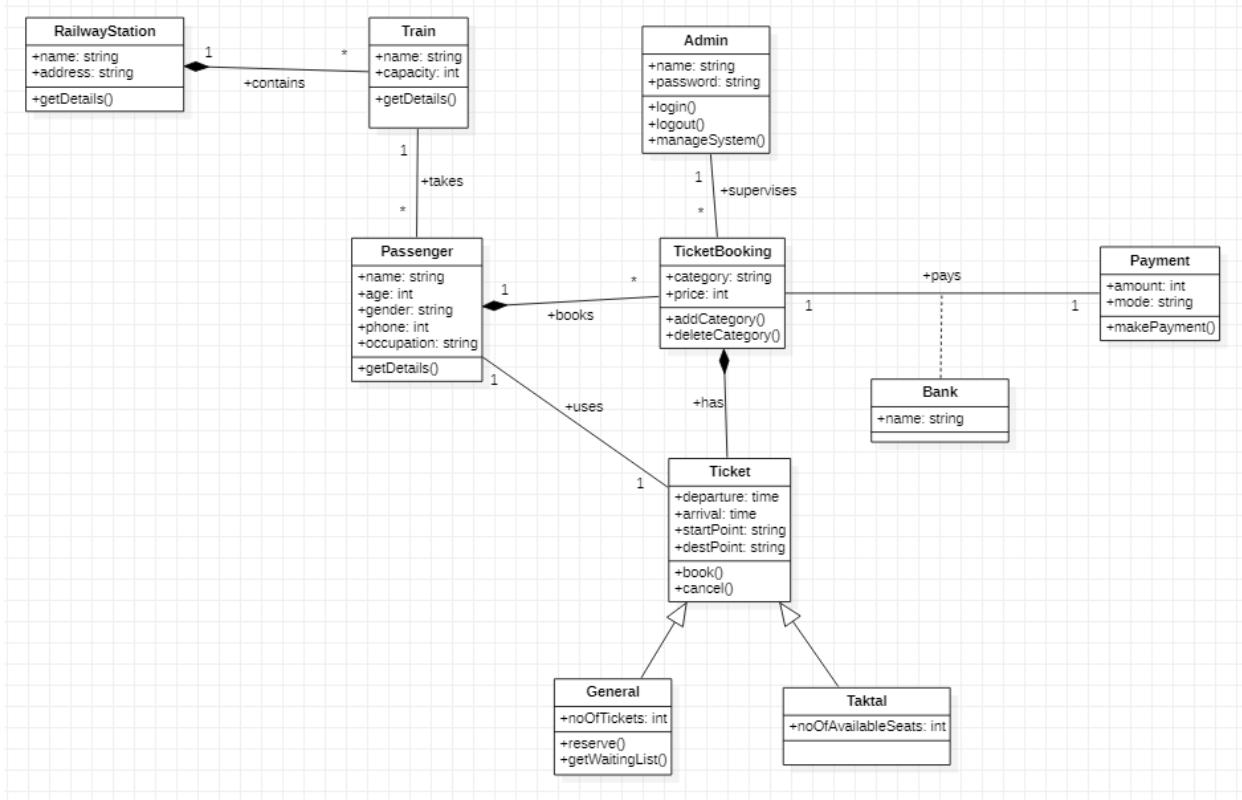
Payment :-

→ User details.

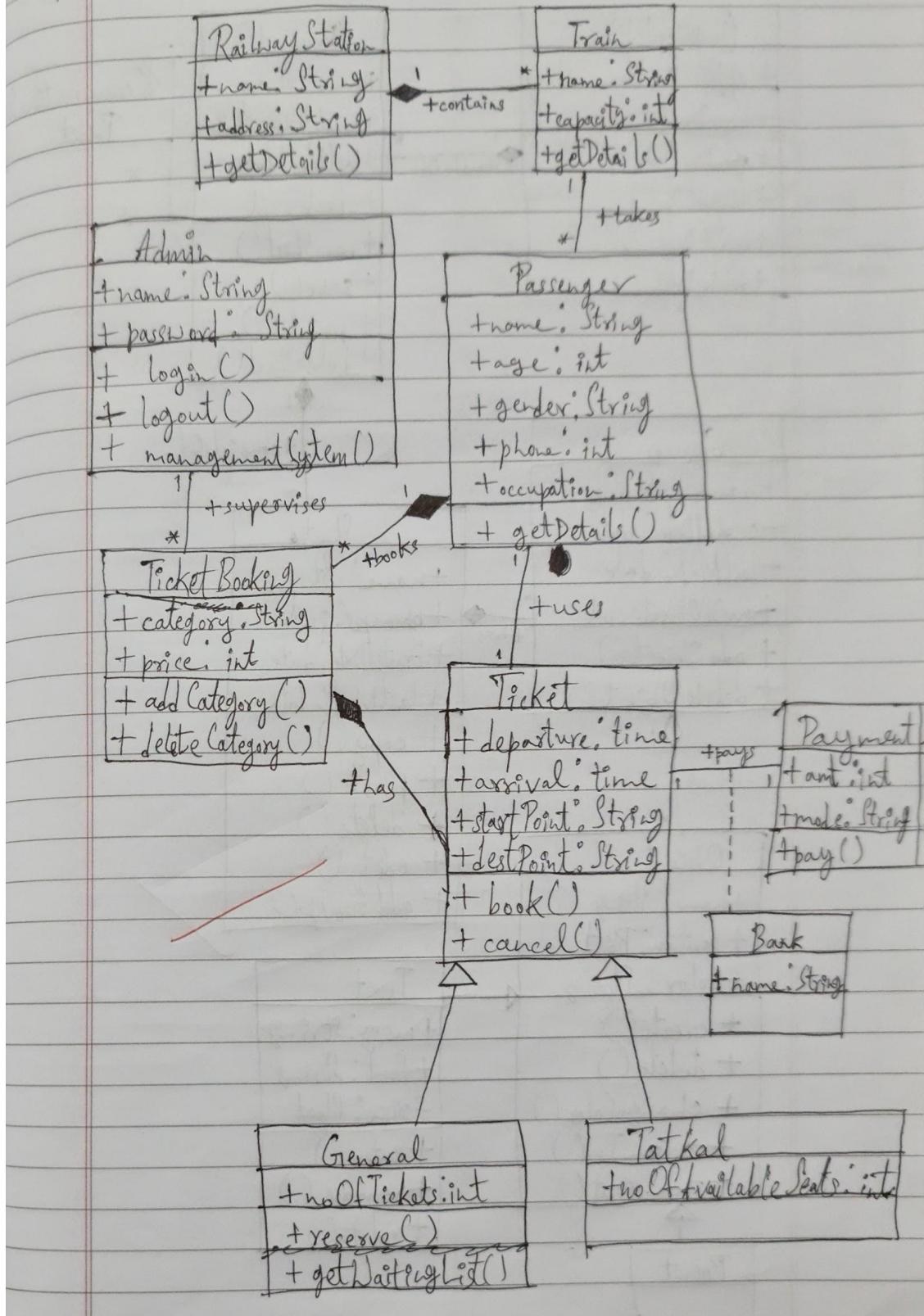
→ Shows payment sequence.

→ Gives a receipt for reservations.

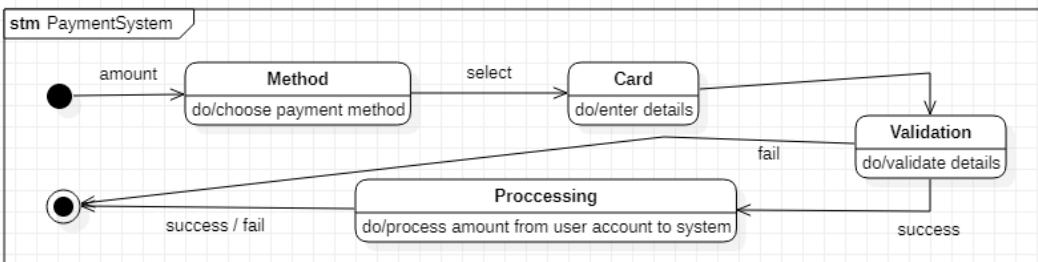
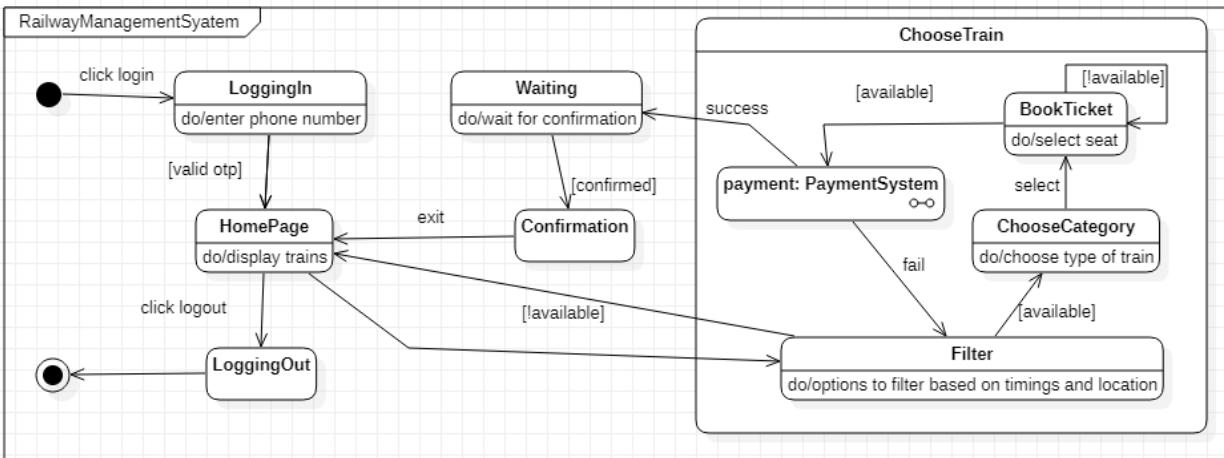
## Class Diagram:



## 6) Railway Reservation System:-

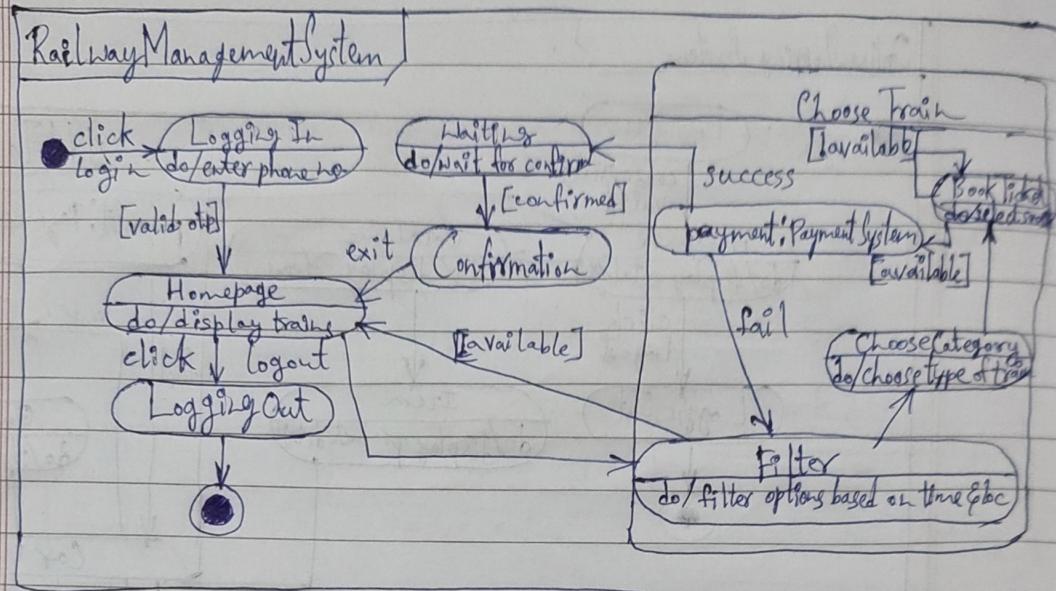


## State Diagram:

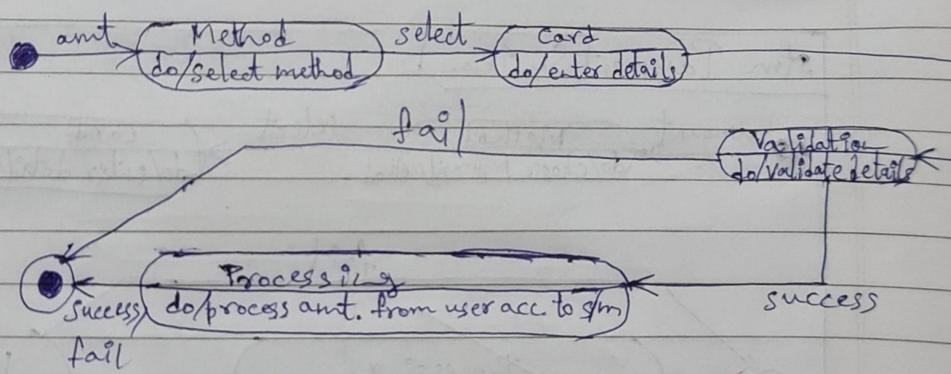


b)

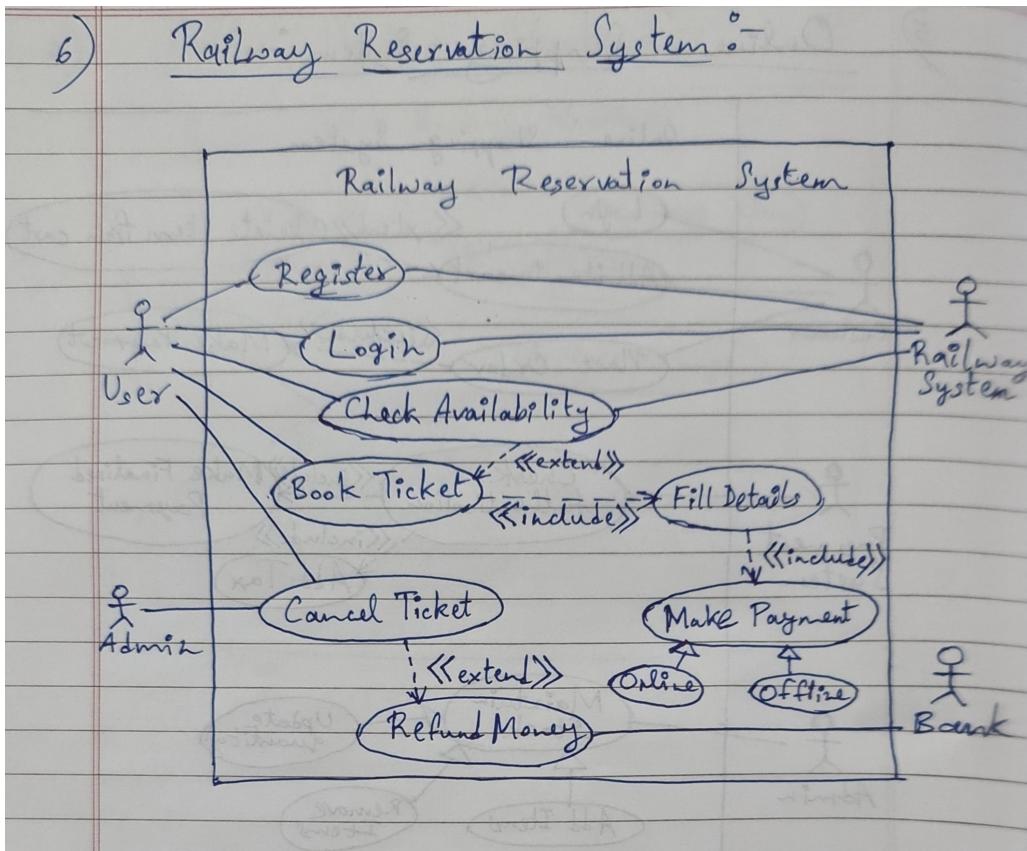
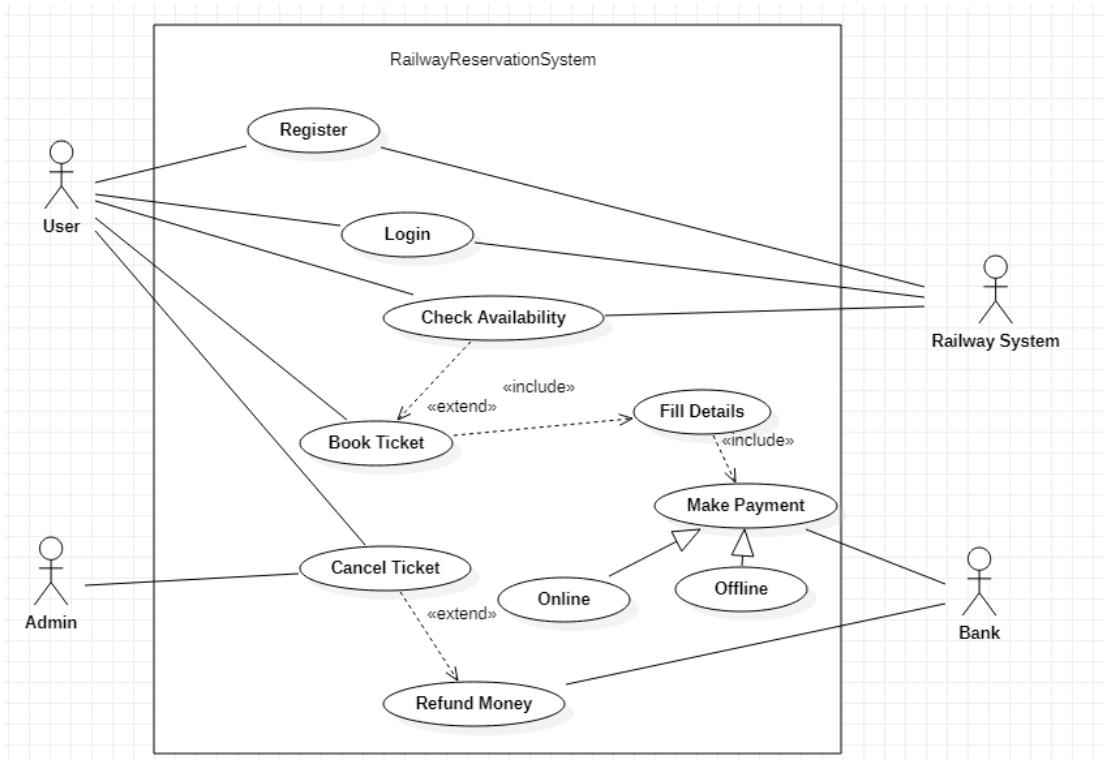
## Railway Management System:-



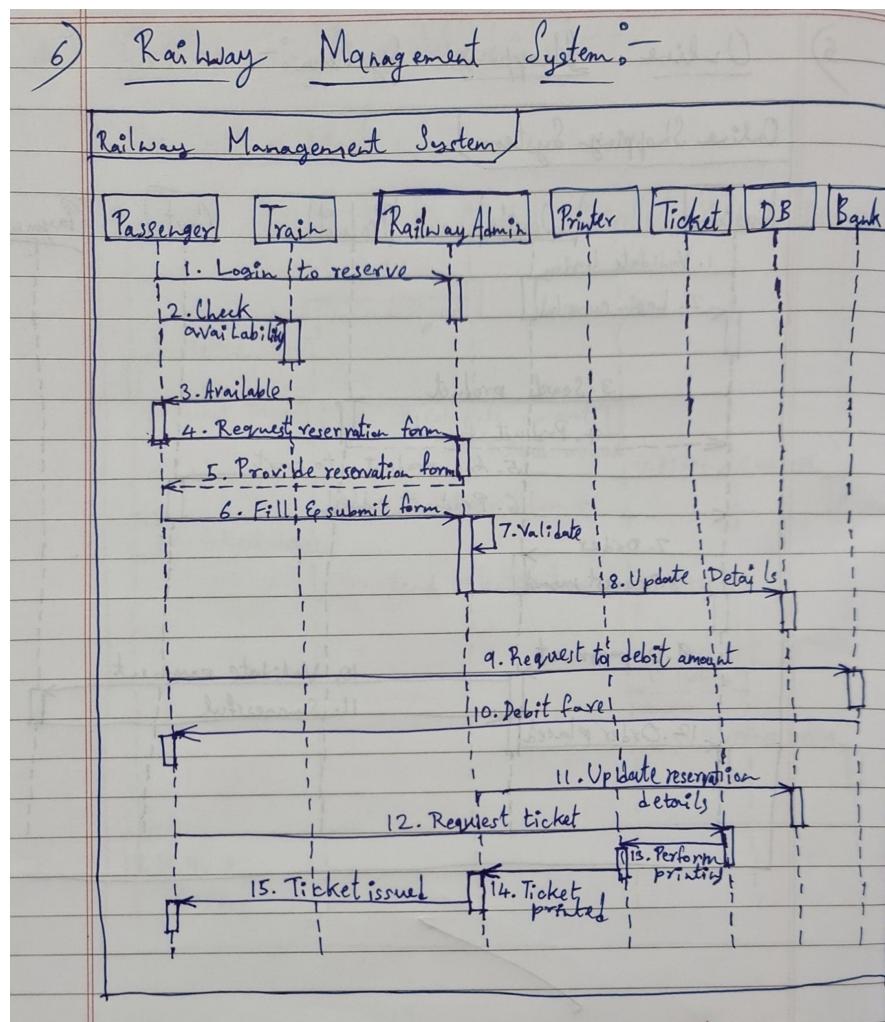
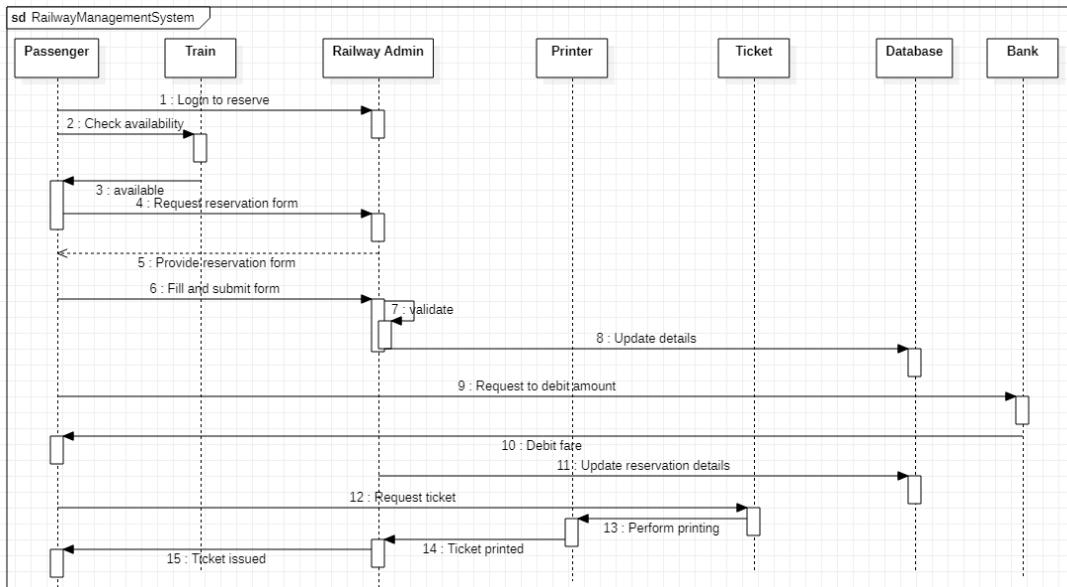
## Stm Payment System



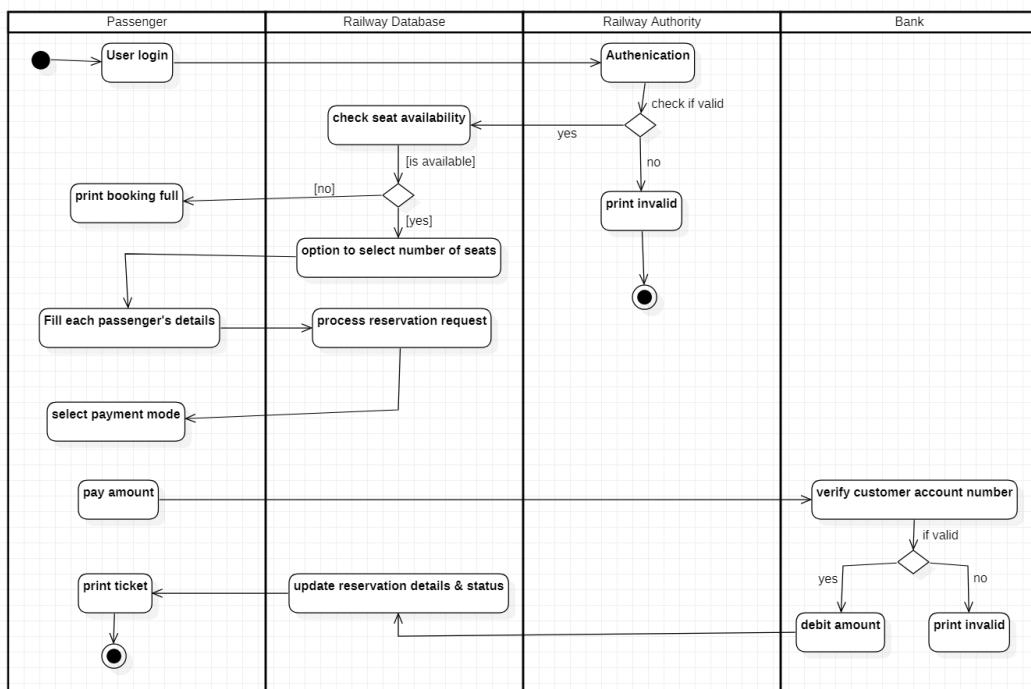
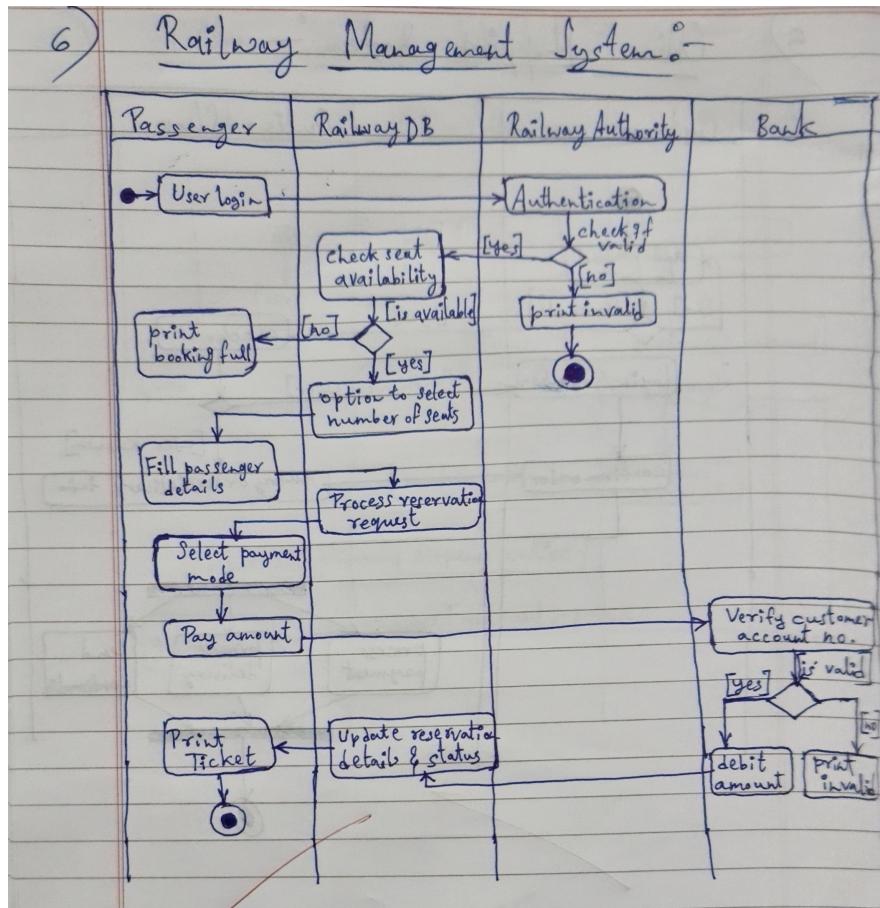
## Use-case Diagram:



## Sequence Diagram:



## Activity Diagram:



## 7. Graphics Editor

SRS:

→ Graphics Editor:-

Simple easy-to-use graphics editor which has user friendly interface with all features to make & edit graphics.

→ Requirements:-

Editor :-

- Has editor details.
- Open & edit graphics file, make new ones / delete.
- Import or export files.

File :-

- Has details like name, format, frames, size, etc.
- Has last modified data.

Frames :-

- Name, dimensions, collection of groups, etc.
- Can edit frame or ~~not~~ delete.
- Can export frames, change name.

### Group:-

- Collection of objects.
- Has details like dimension, name which can be changed.
- Can be created or deleted or exported.

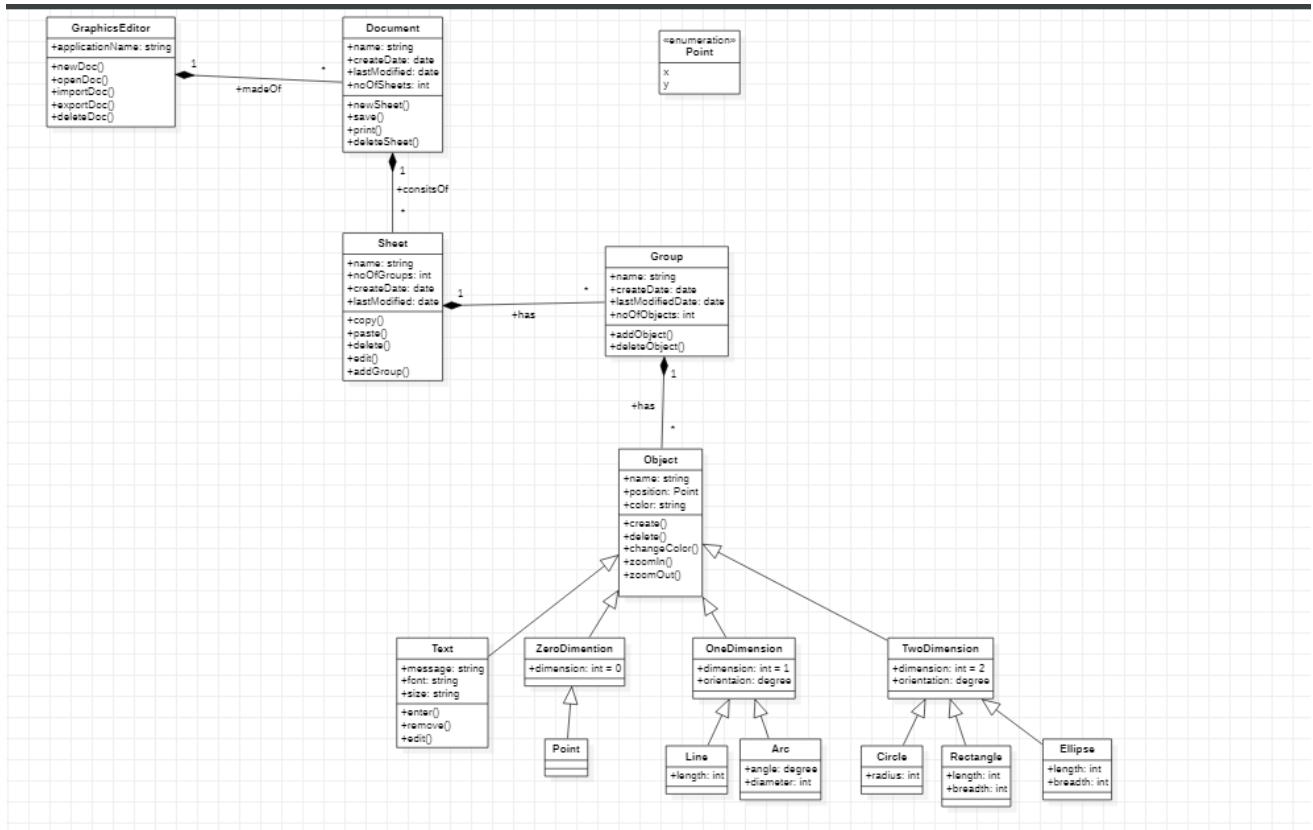
### Object:-

- Dimensions & positions, name, color, etc.
- Can be created, deleted, edited / exported, scaled.

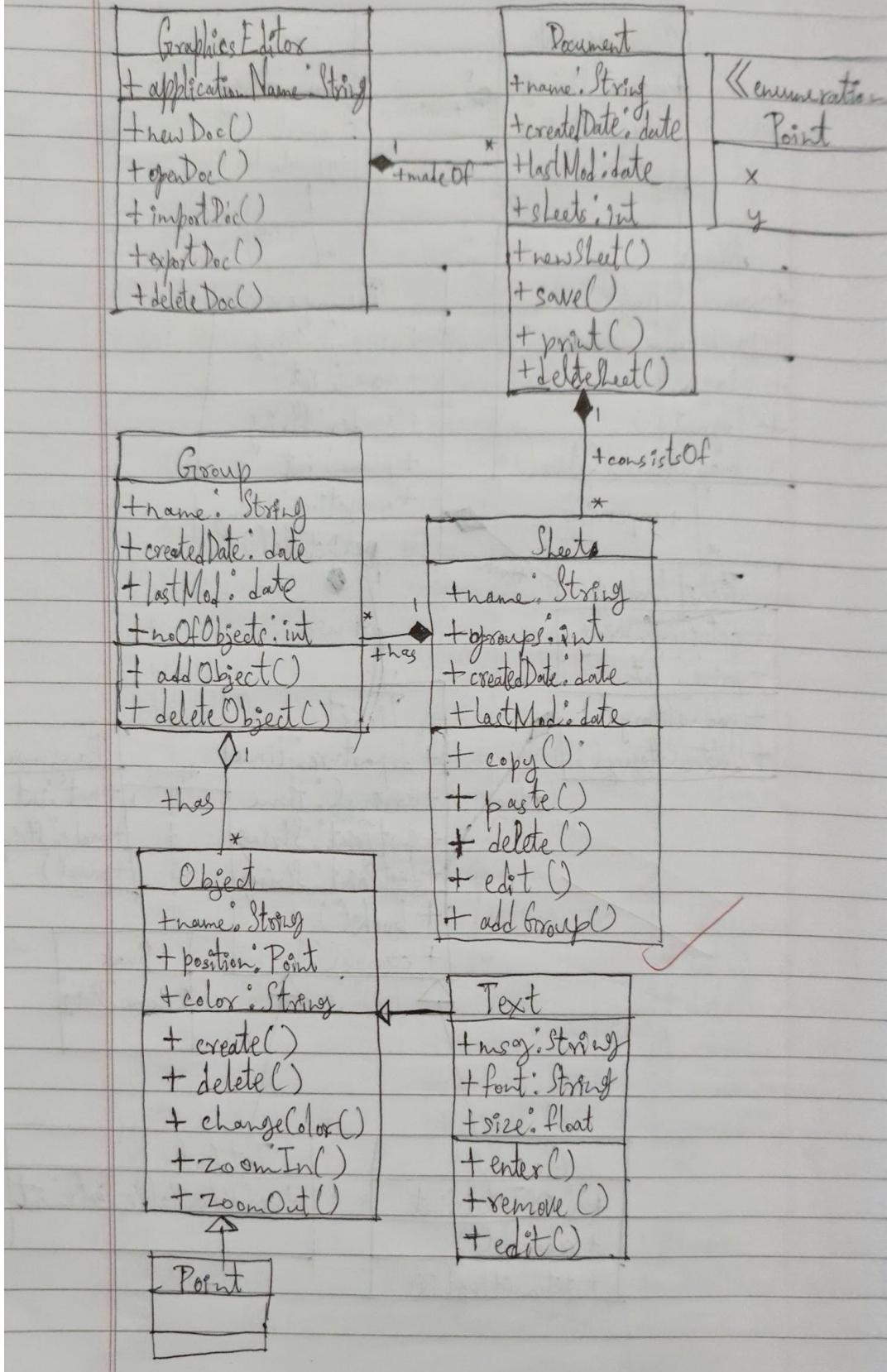
### User:-

- Has details like name, email & password.
- Has list of files.

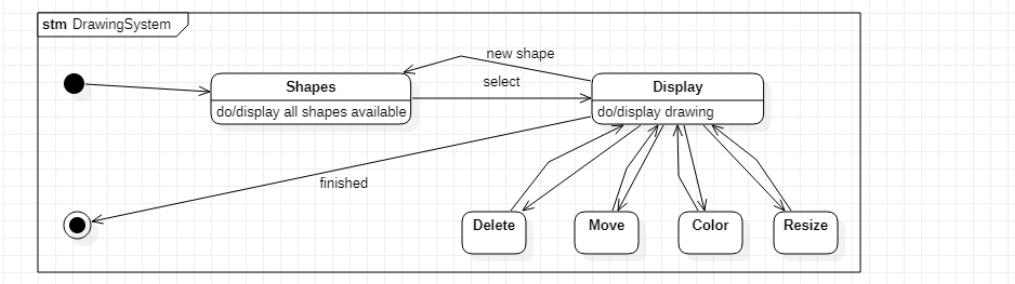
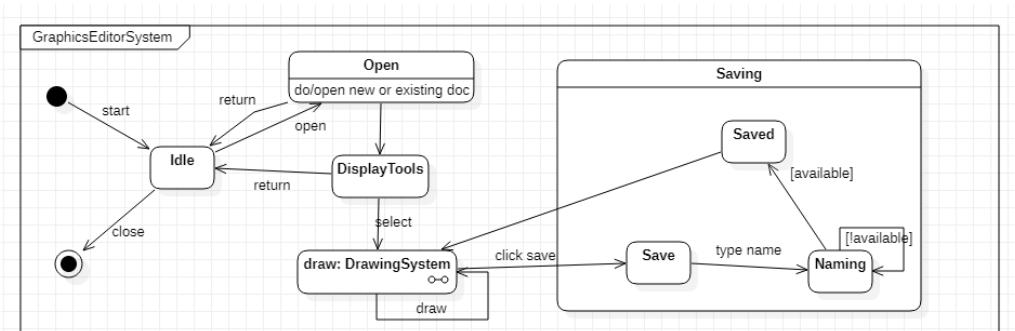
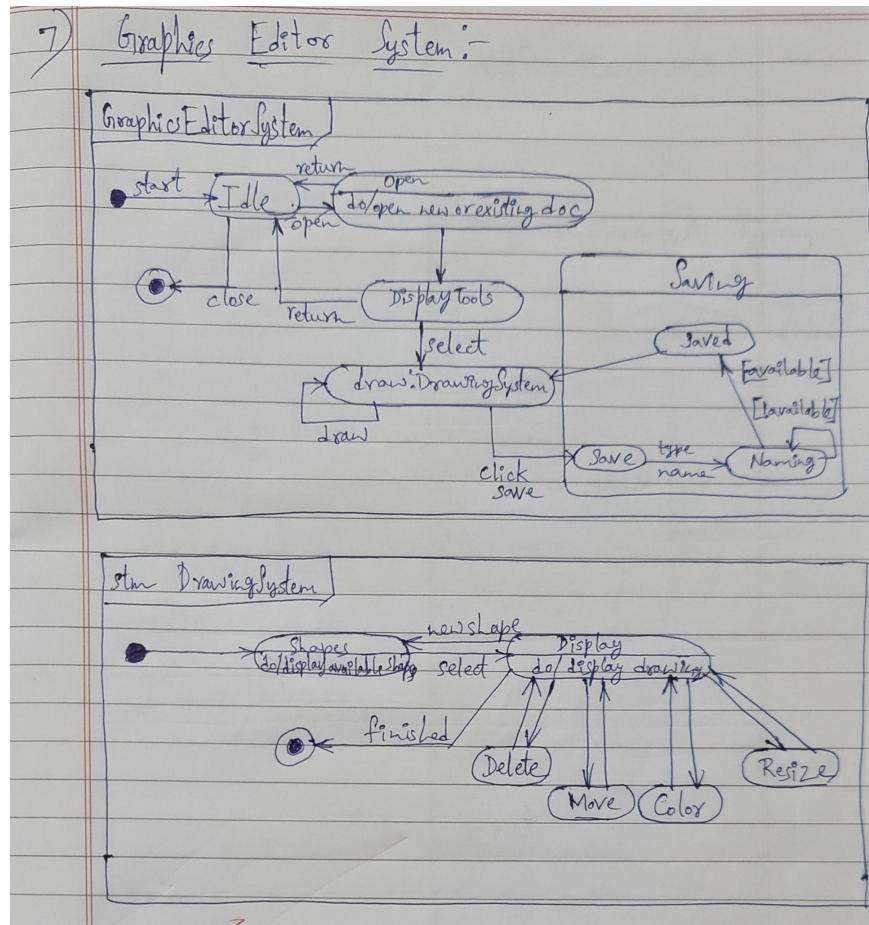
## Class Diagram:



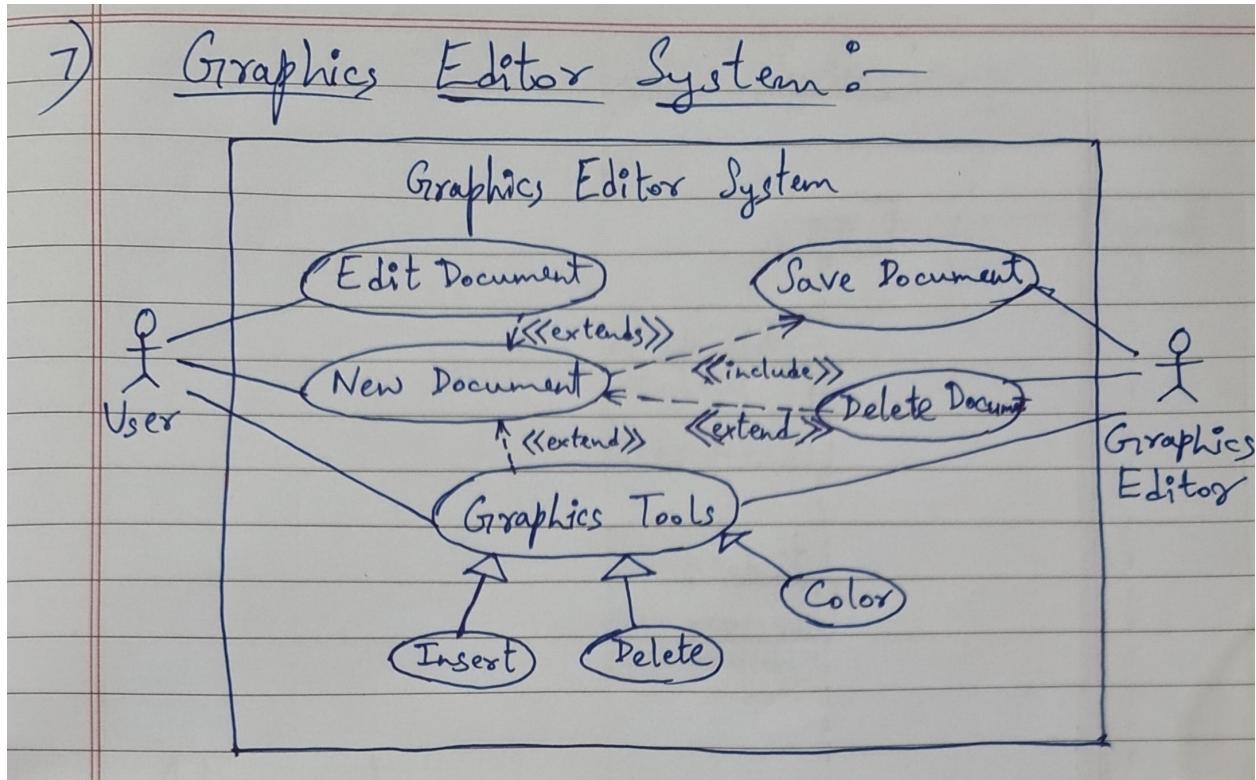
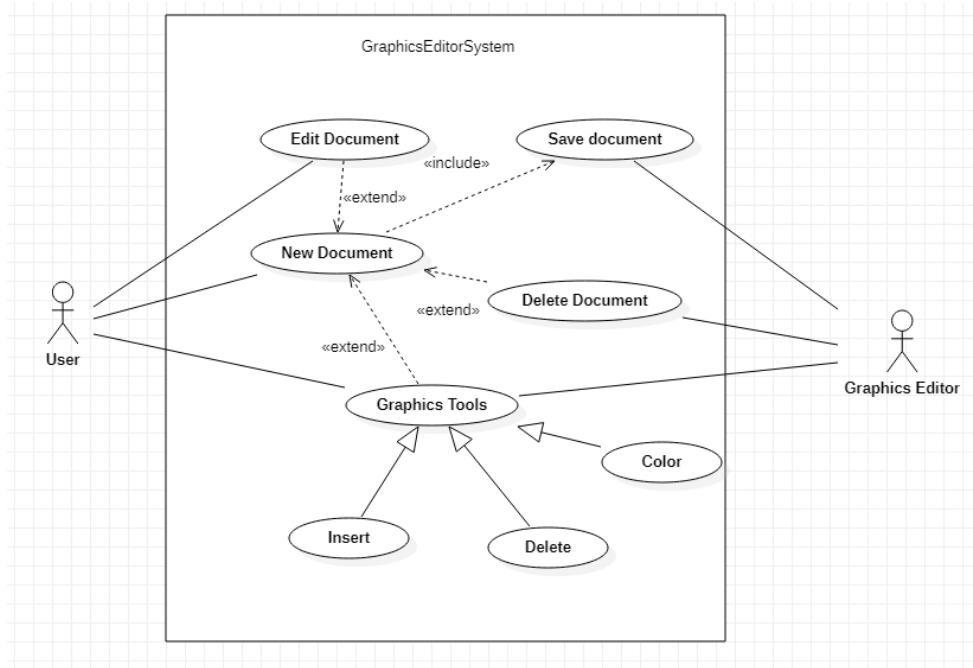
7) Graphics Editor :-



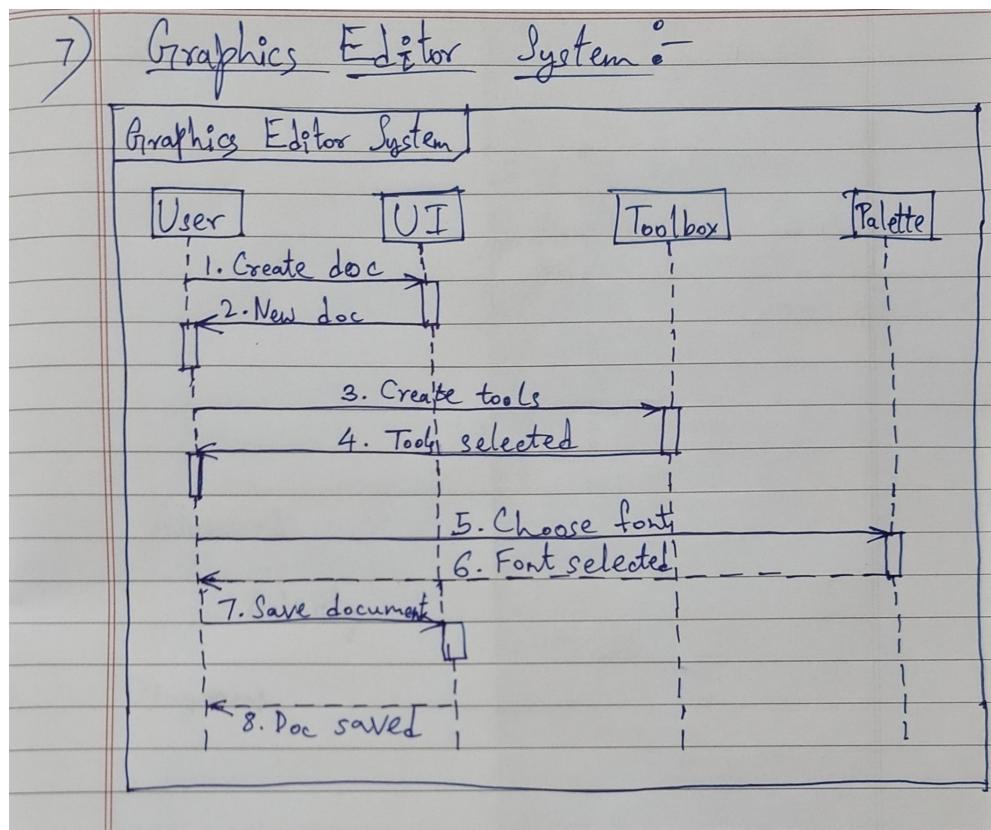
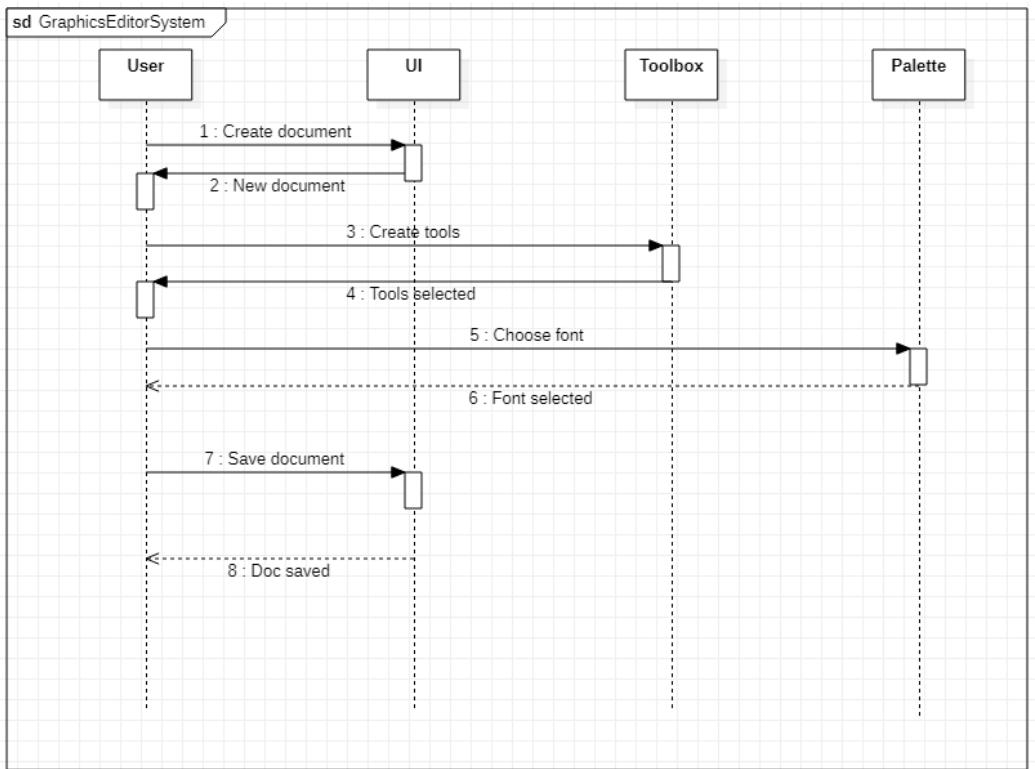
## State Diagram:



## Use-case Diagram:



## Sequence Diagram:



## Activity Diagram:

