

# .VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JnanaSangama”, Belgaum -590014, Karnataka.



## LAB REPORT

on

# OBJECT ORIENTED MODELING AND DESIGN

*Submitted by*

**SAIPRAVEEN MARNI (1BM19CS138)**

*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 **SAIPRAVEEN MARNI (1BM19CS138)**, who is bonafide student of **B. M. S. College of Engineering**. It is in partial fulfillment for the award of **Bachelor of Engineering in Computer Science and Engineering** 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.

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## Course Outcome

<b>C</b> <b>O</b> <b>4</b>	<b>Ability to conduct practical experiments to solve a given problem using Unified Modeling language.</b>
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## Exercise 1: College Information System

### 1. Write SRS

SRS :

1) College information system -  
Education system should be able to add, edit, view personal details and academic details.

Faculty : They should be able to see the courses allotted. They should be able to derive marks of students and maintain the attendance.

Coe office : They should be able to maintain records, access the and see marks of students.

Placement section : They'll have all the student details and companies information.

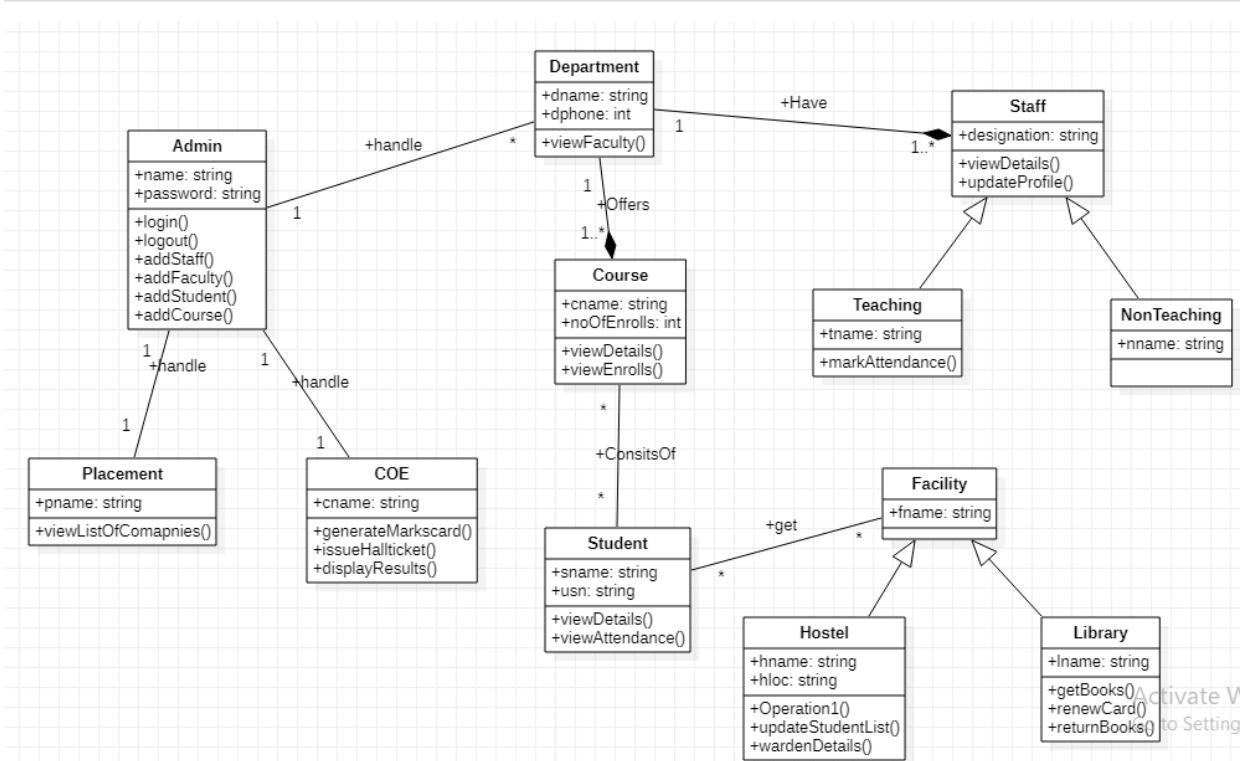
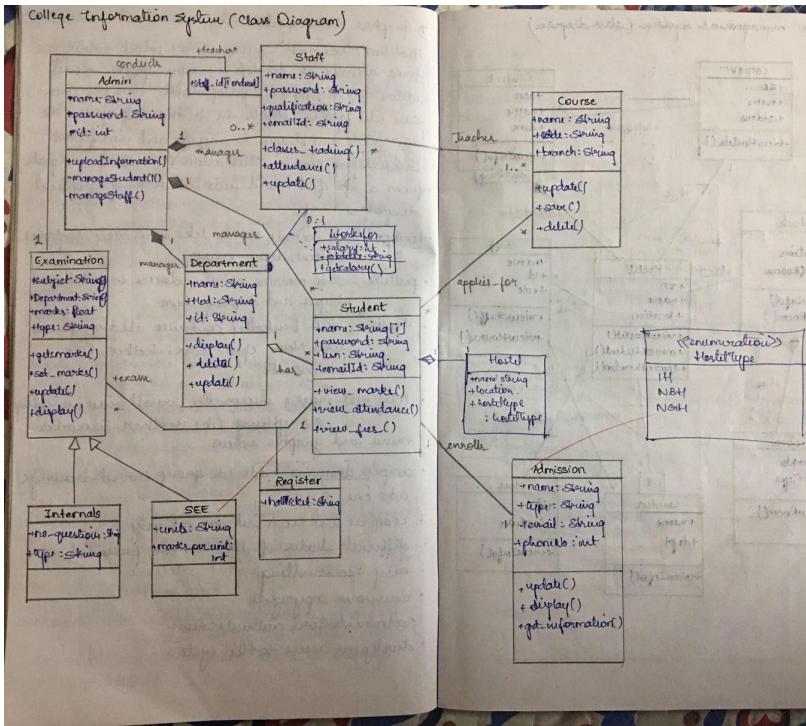
Student - view all the details given like USN, department, information about timetable, results, events, attendance.

Course - About the course, teacher, enrollment of the course.

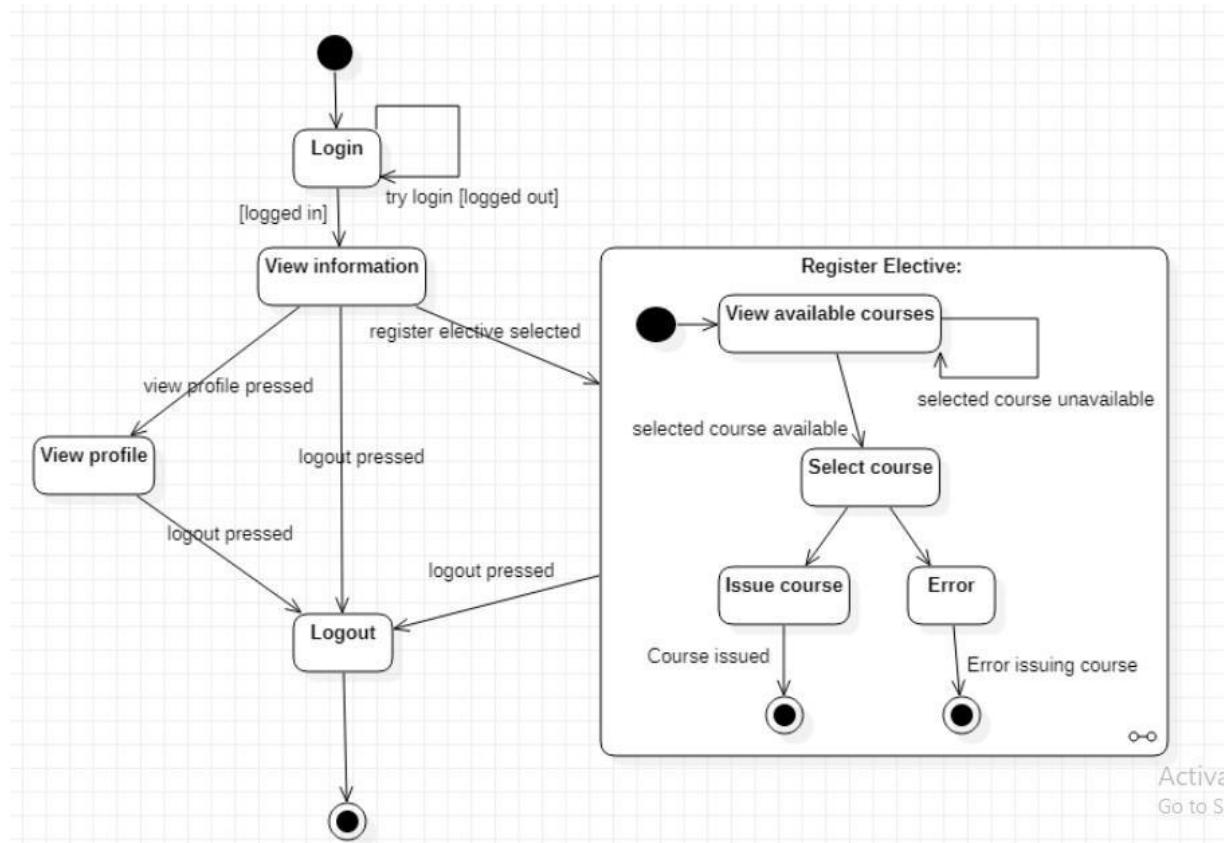
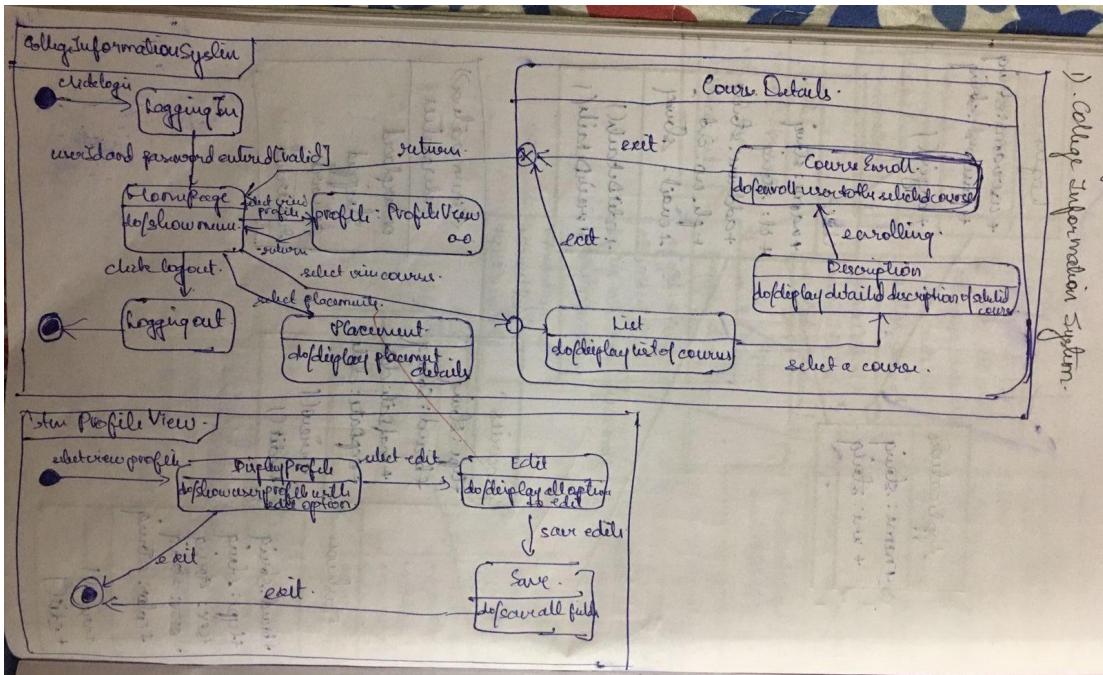
Library - about the books available, requesting, issuing, viewing books.

Problem statement : This will help in managing college activities like books, records, results, fee details, attendance and timetable information.

## 2. Draw the advanced class diagram

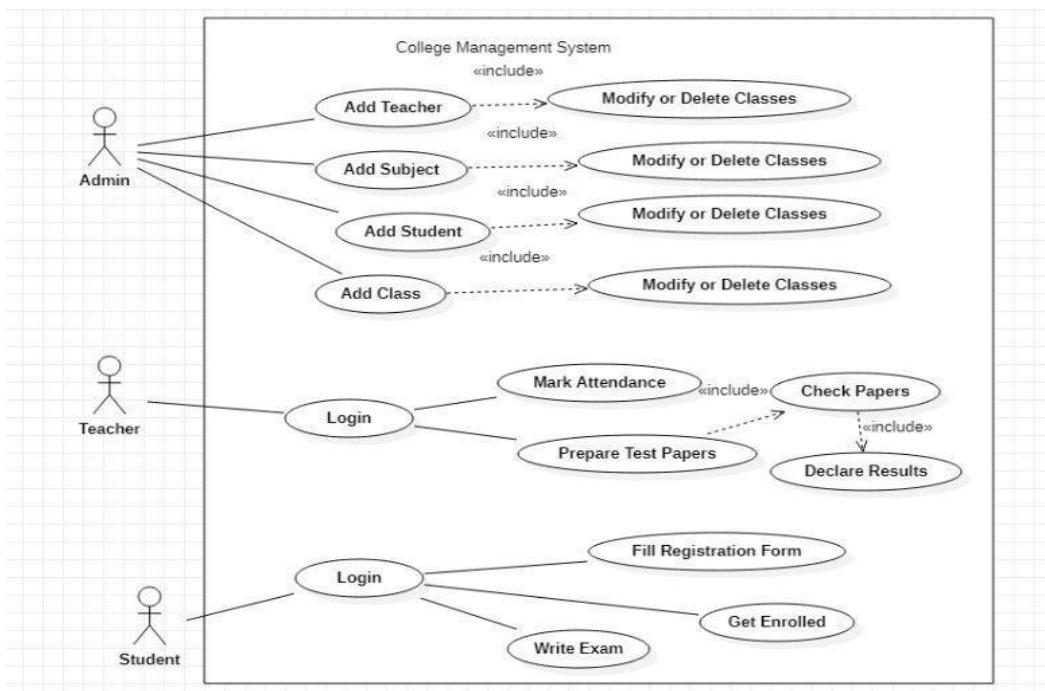
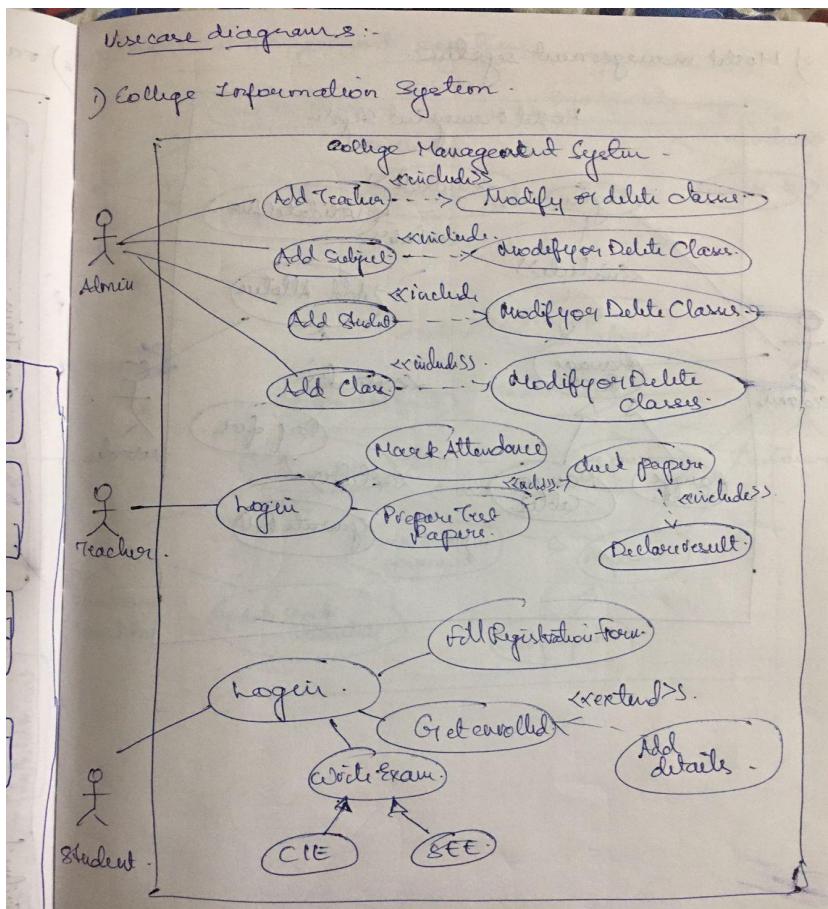


### 3. Draw the advanced state diagram

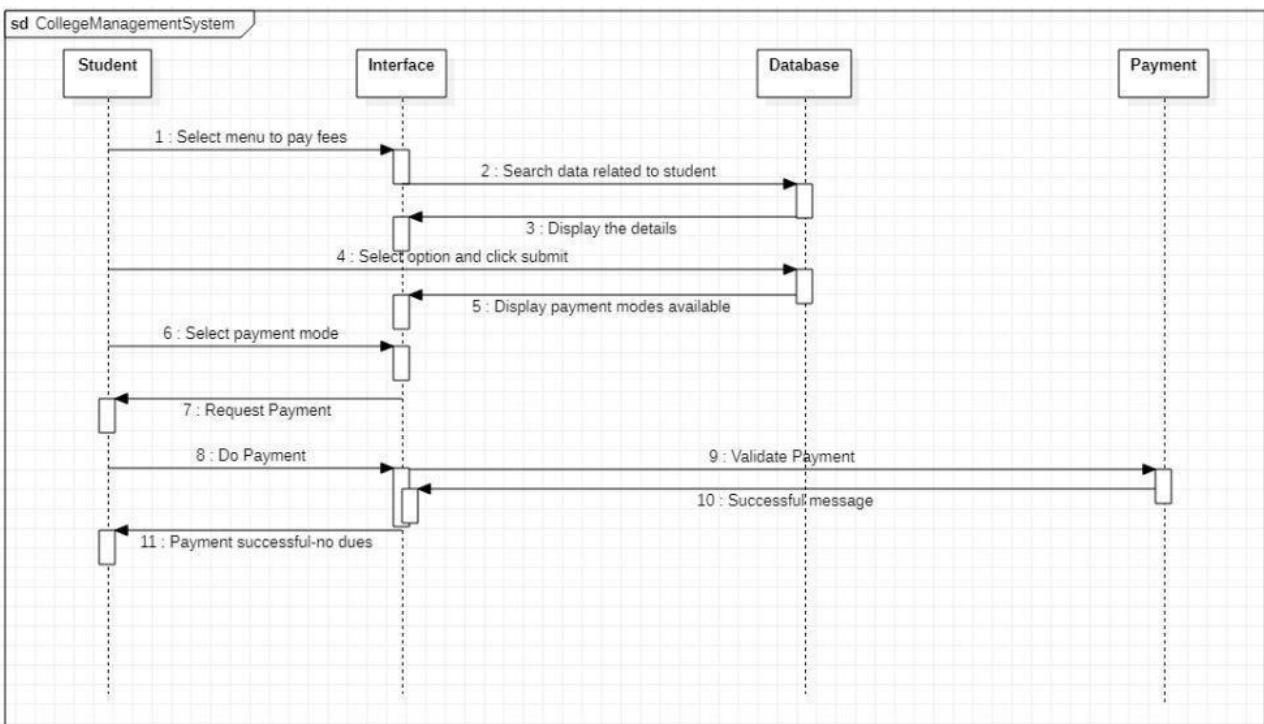
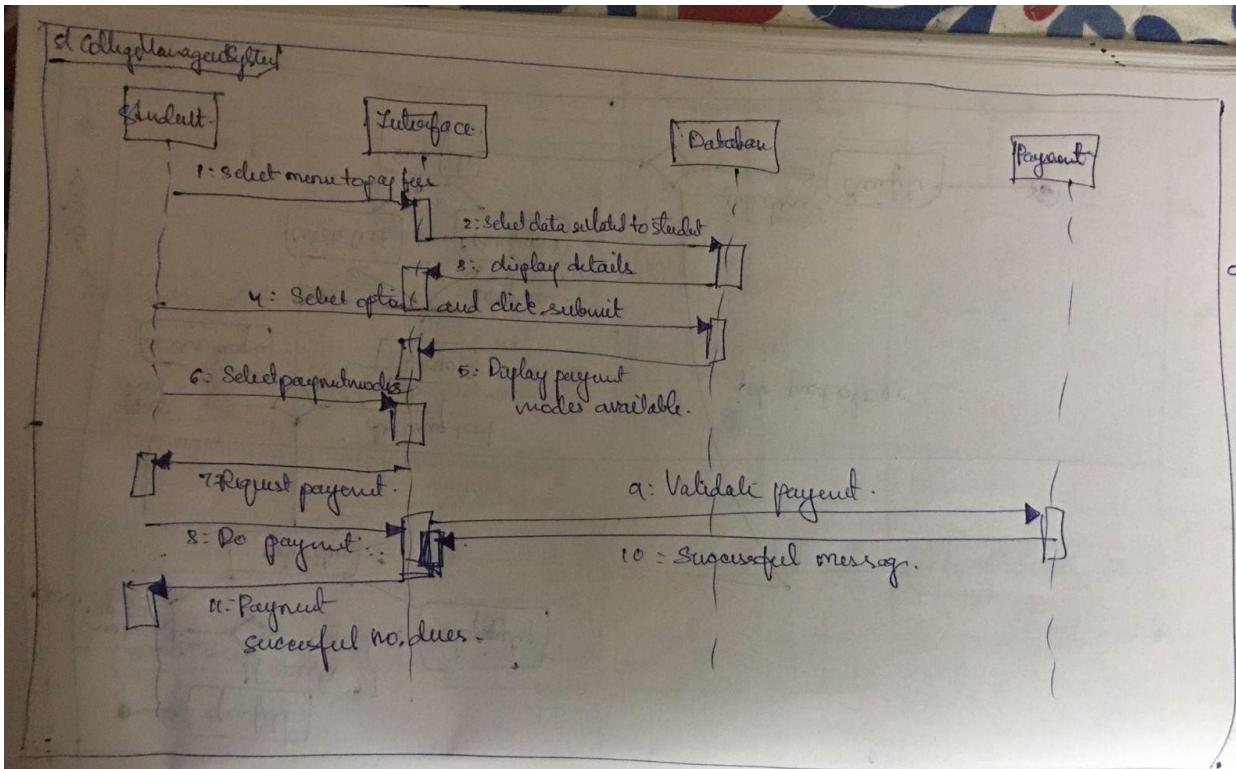


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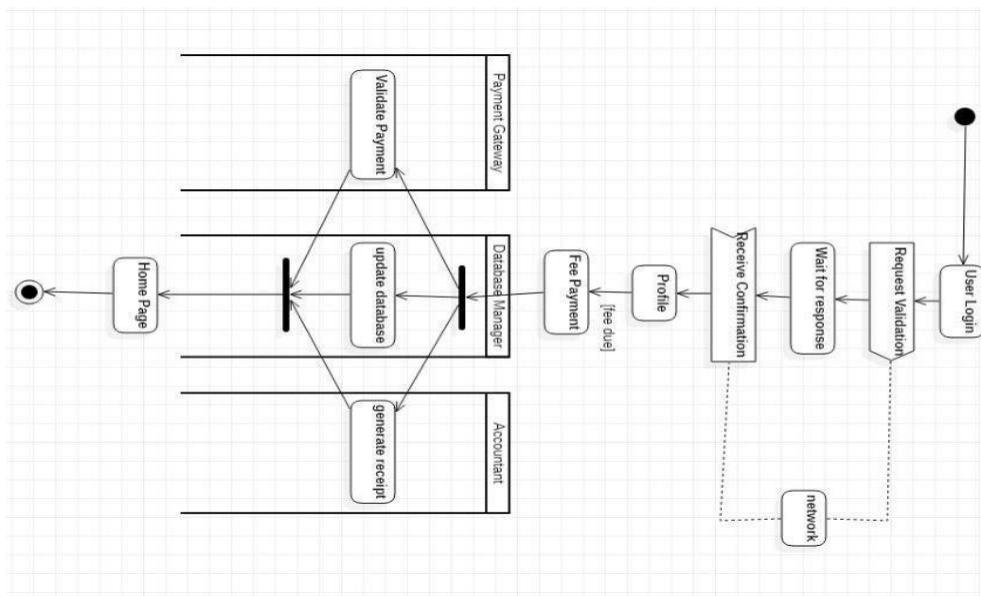
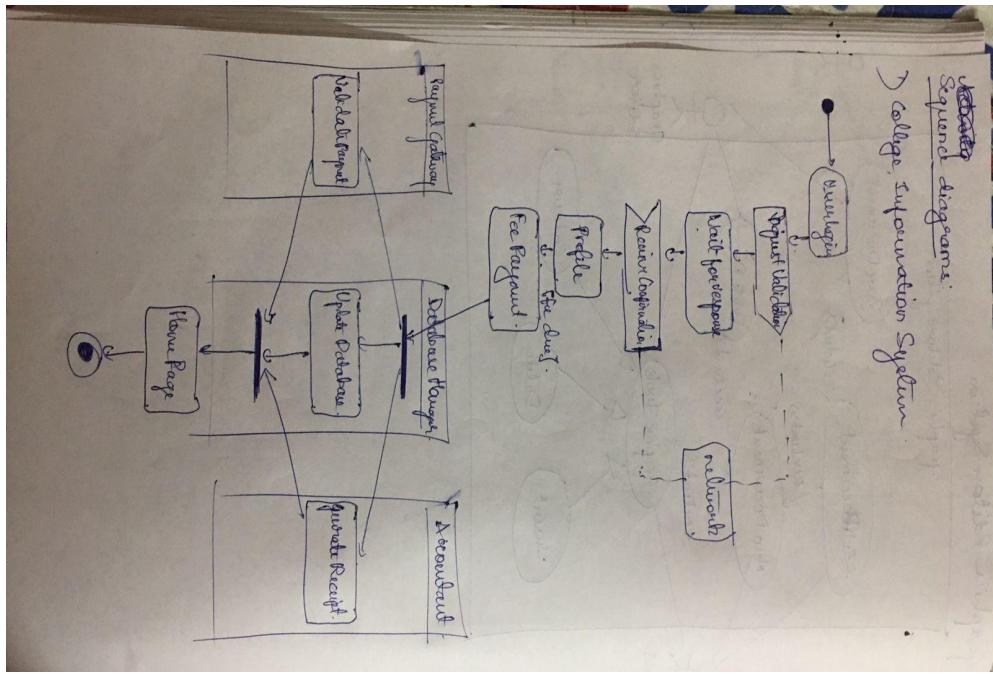
#### 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram



## Exercise 2: Hostel Management System

### 1. Write SRS

a). Hostel management System ✓

warden : they control the hostel dos and dont's  
the curfew, rules, regulation,  
granting permission, facilities and  
complaints.

Secretary: will know all the happenings in hostel  
and any changes required will  
be brought to due notice.

mess head : he maintain the mess, carries the  
student list, will be able to  
receive complaints and feedback.

staff : Each staff in the hostel will be given a  
responsibility. He should be able to view  
student list, mess details, give review,  
and complain if required.

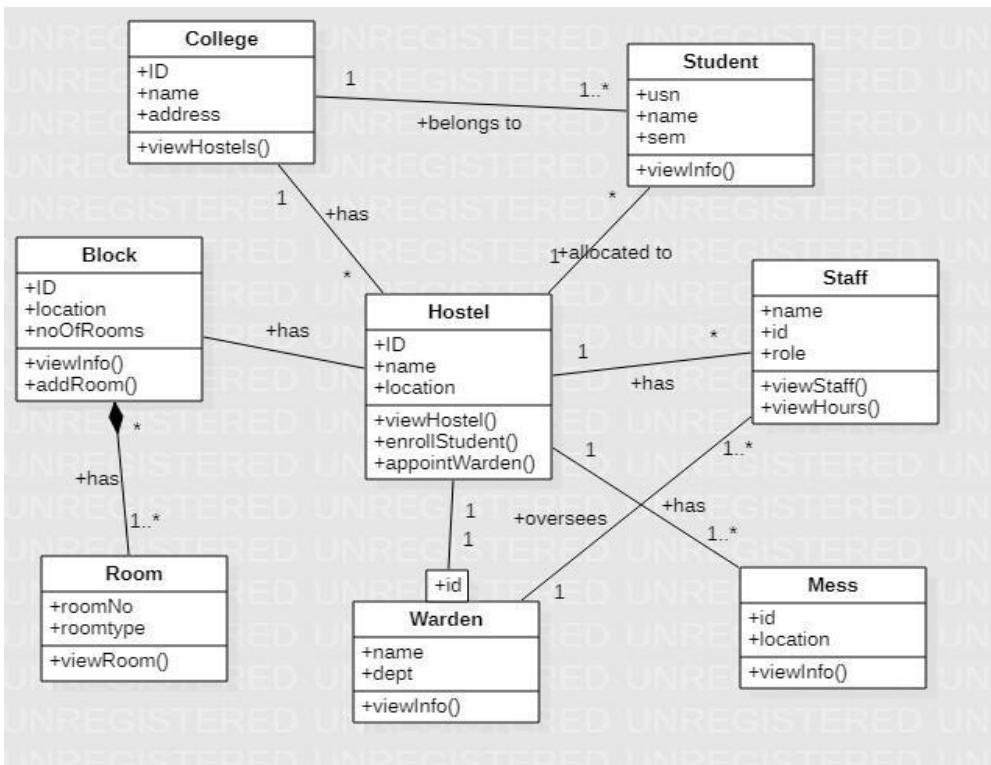
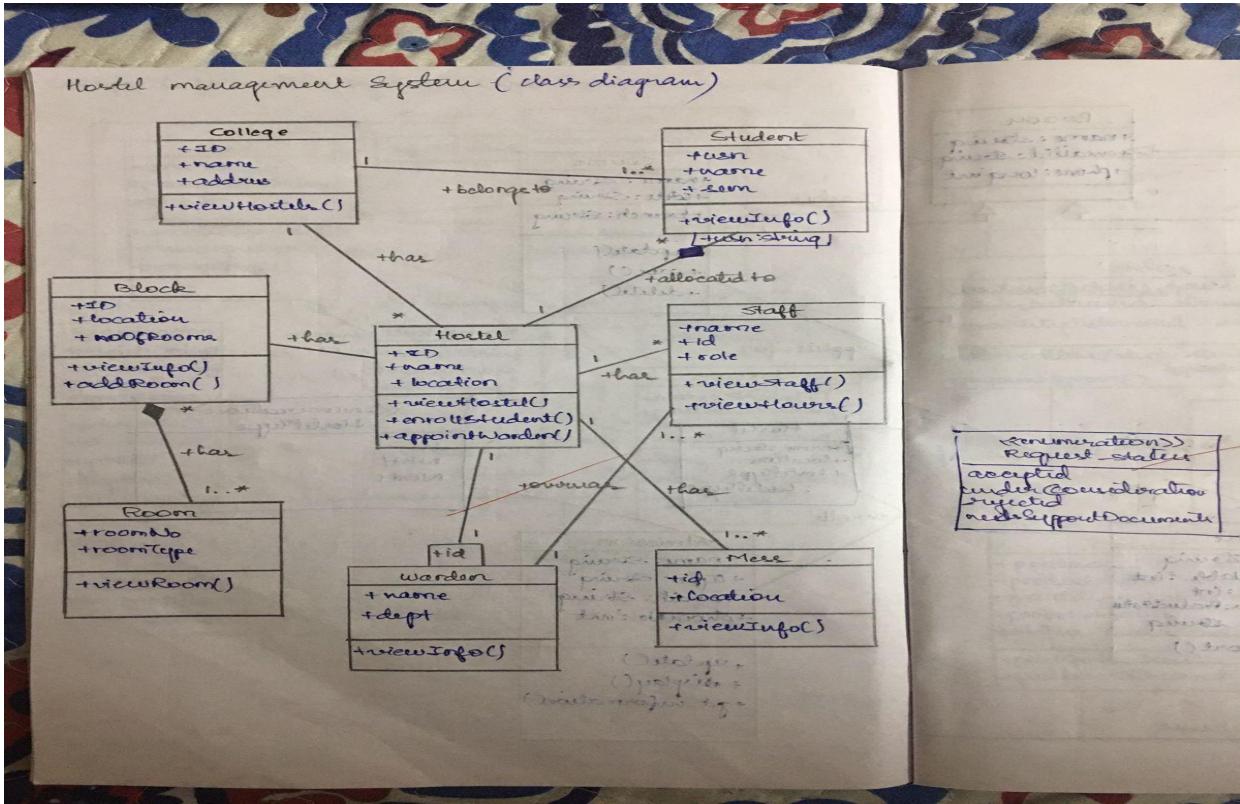
student : A student can view his profile, view  
staff information, give feedback, give complaint.

security : He will be assigned the work of  
allowing students inside the hostel and make sure  
there is safety.

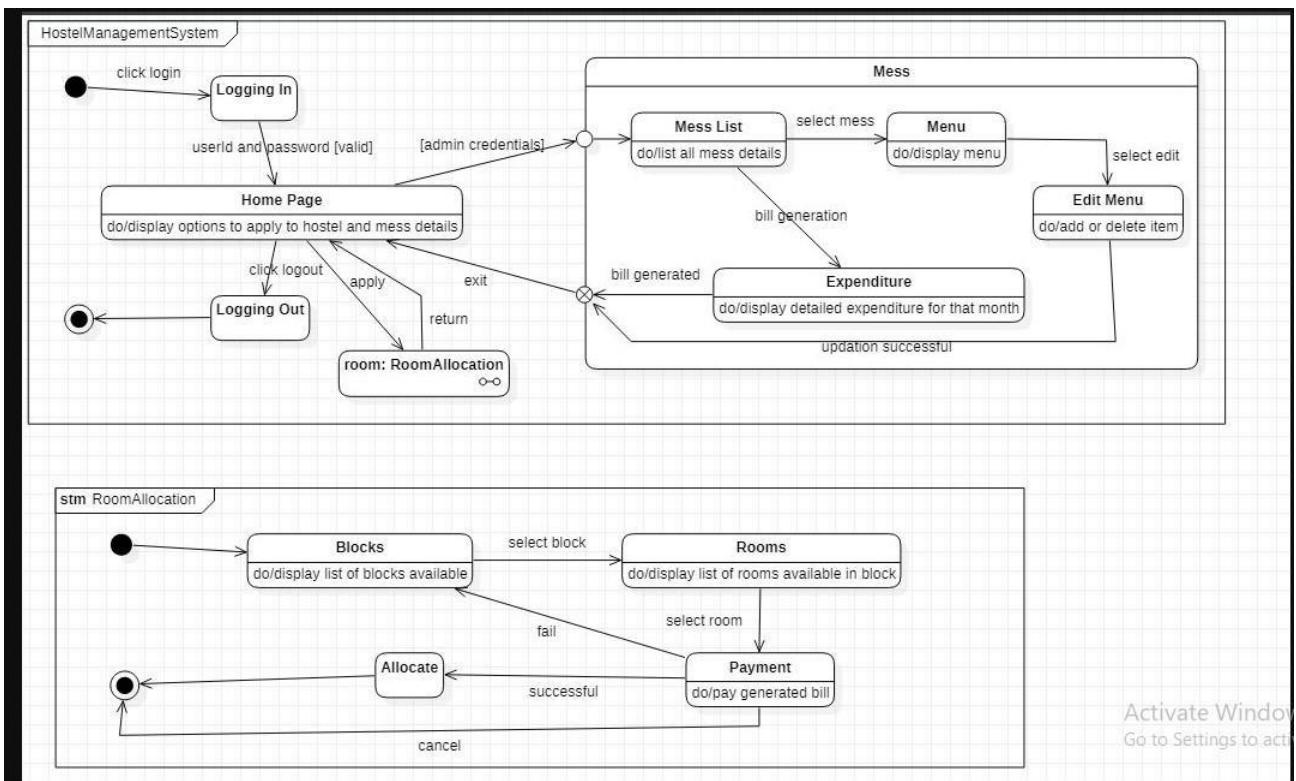
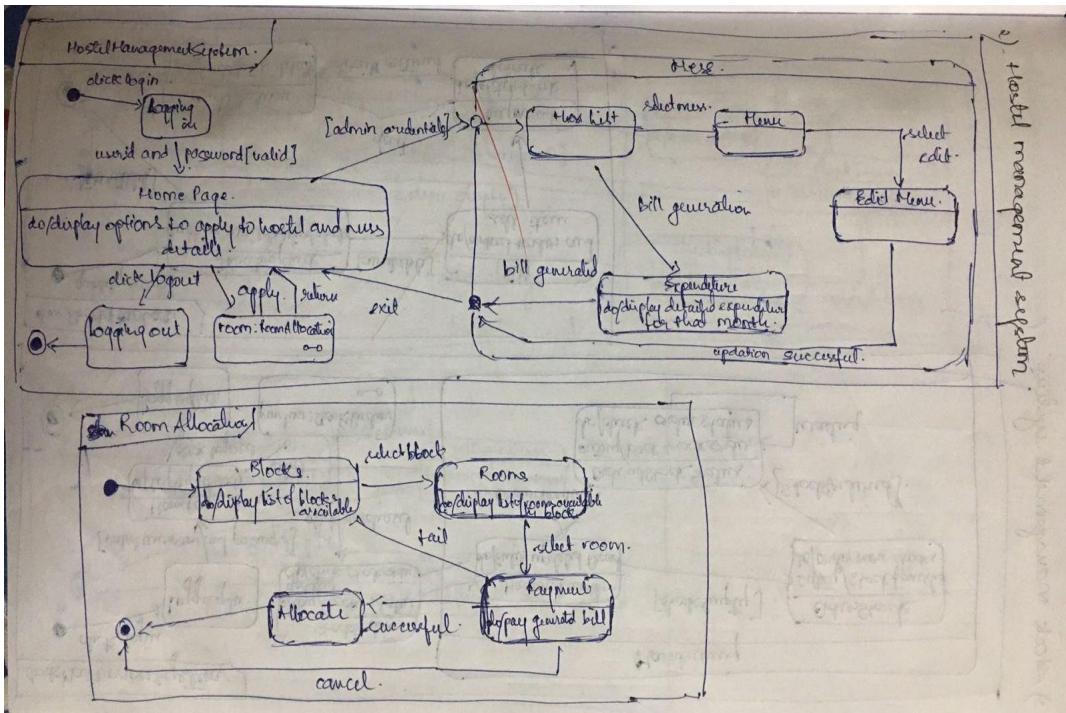
registration office : Here all the fee procedures,  
admission, complaint processes will be undertaken.  
They'll have all the details of a student and  
even the staff.

problem statement : This system is to manage  
daily activities of hostel members which includes  
staff details, student information, collecting  
feedbacks, mess management, security.

## 2. Draw the advanced class diagram

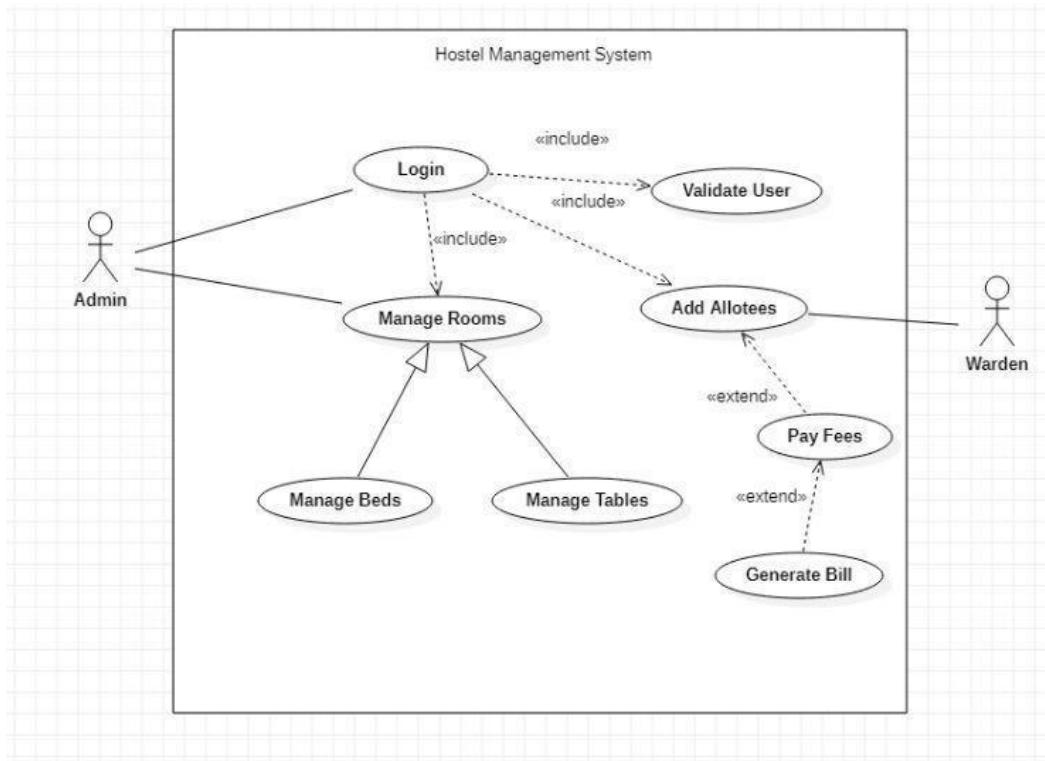
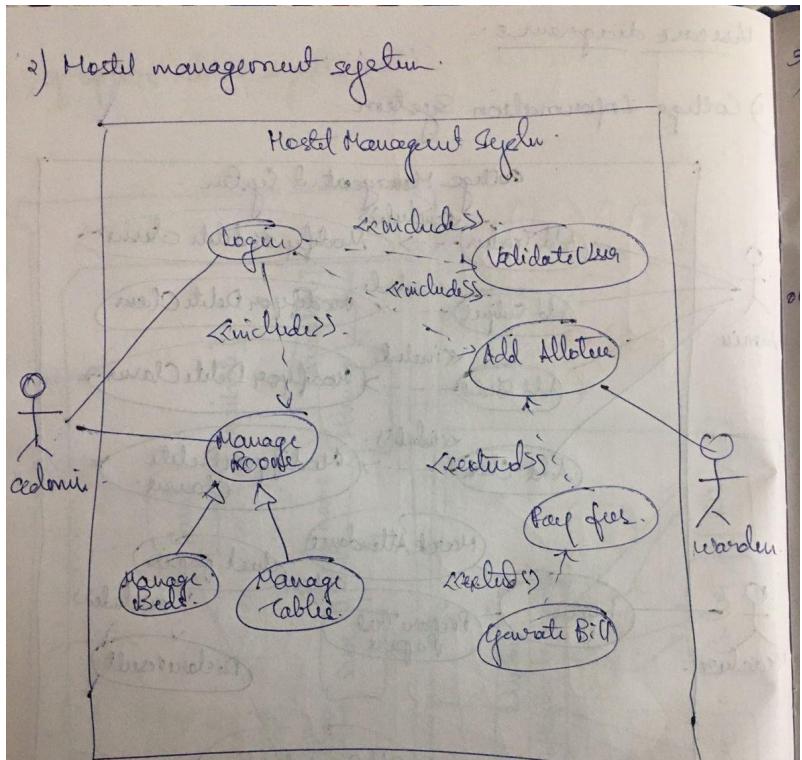


### 3. Draw the advanced state diagram

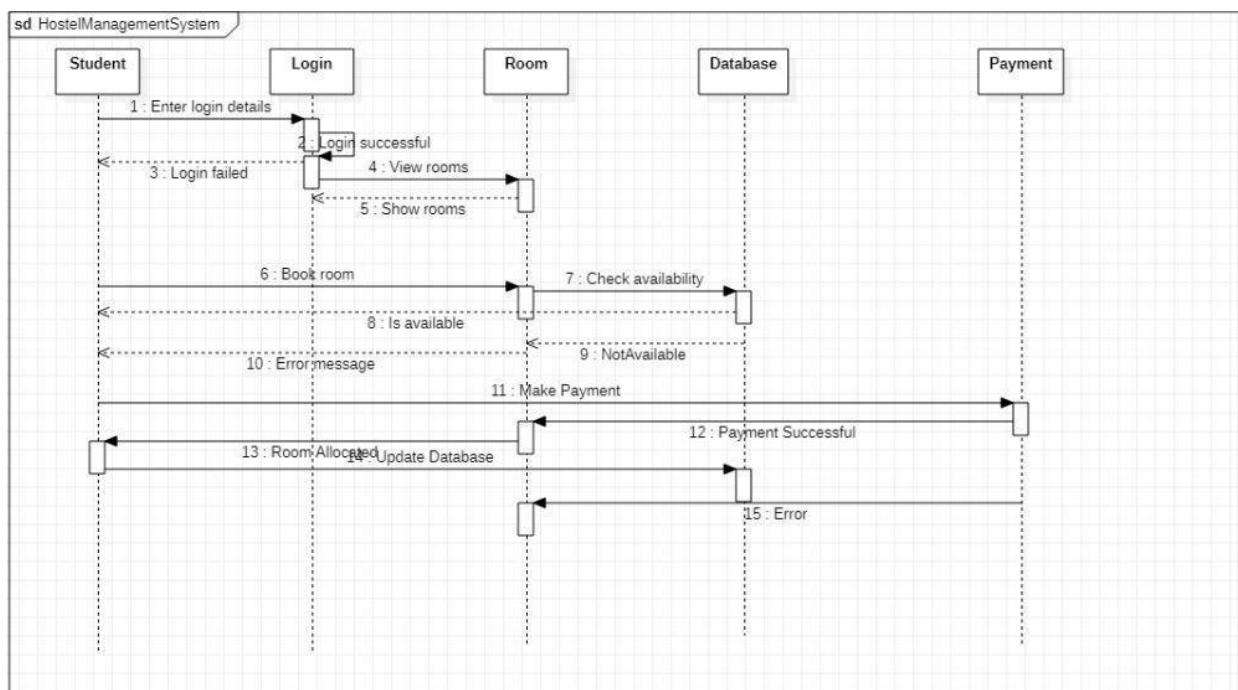
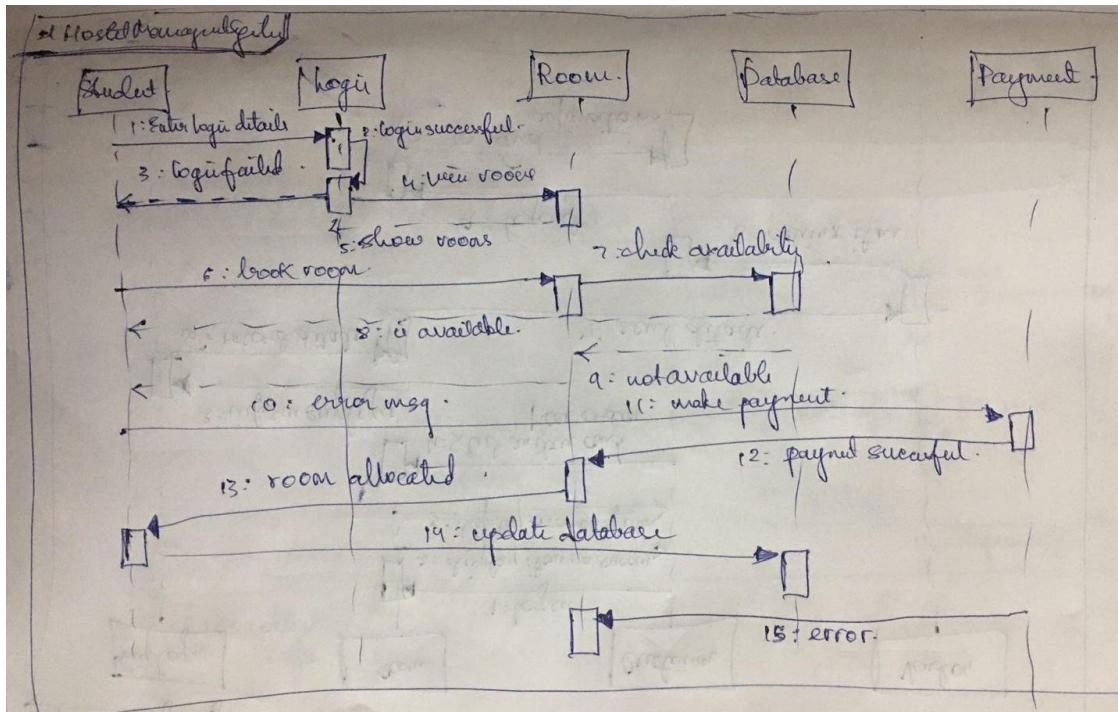


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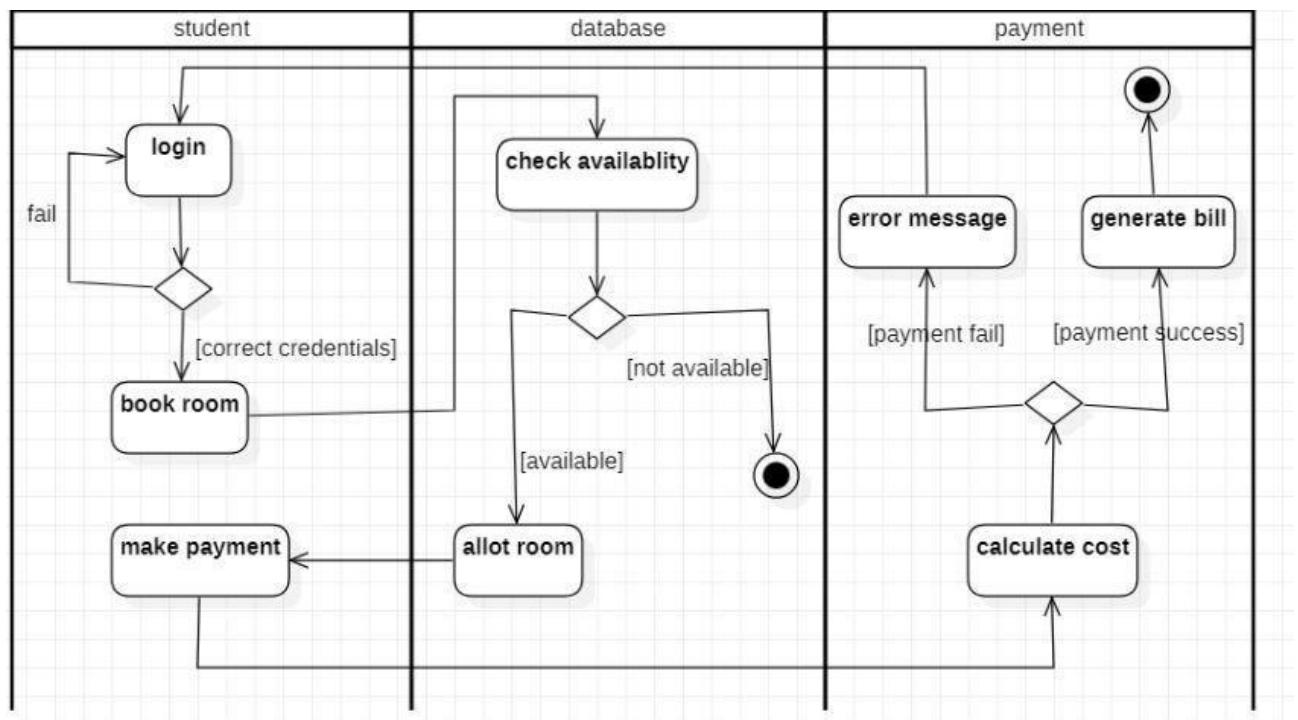
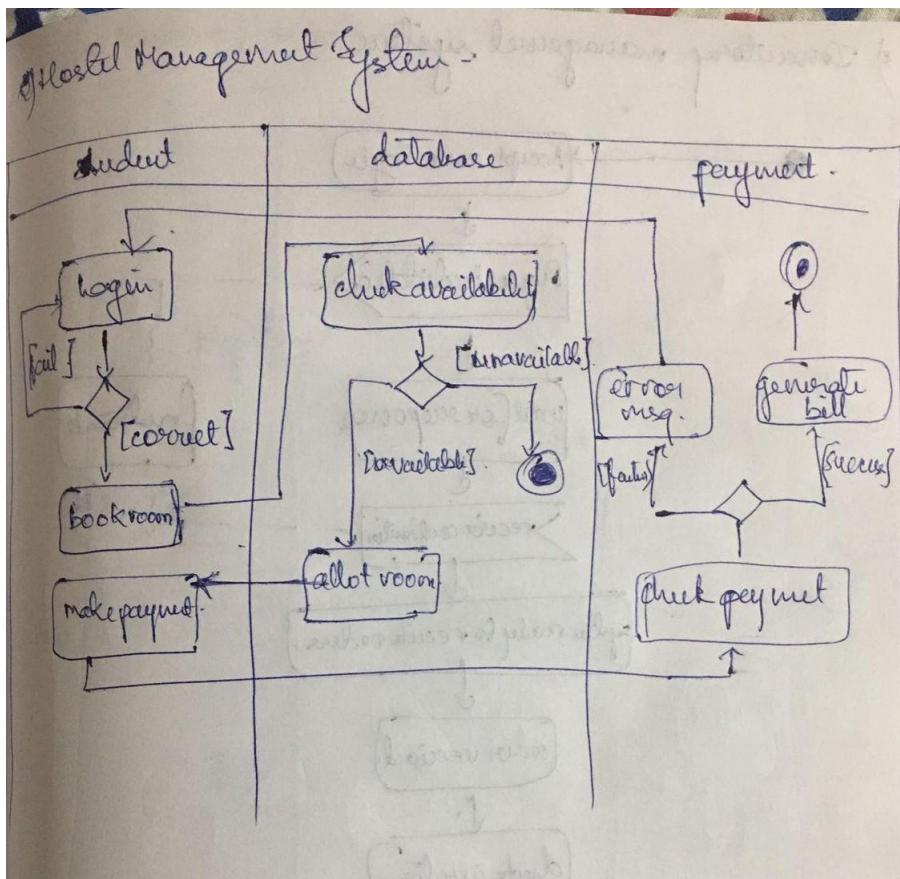
#### 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram



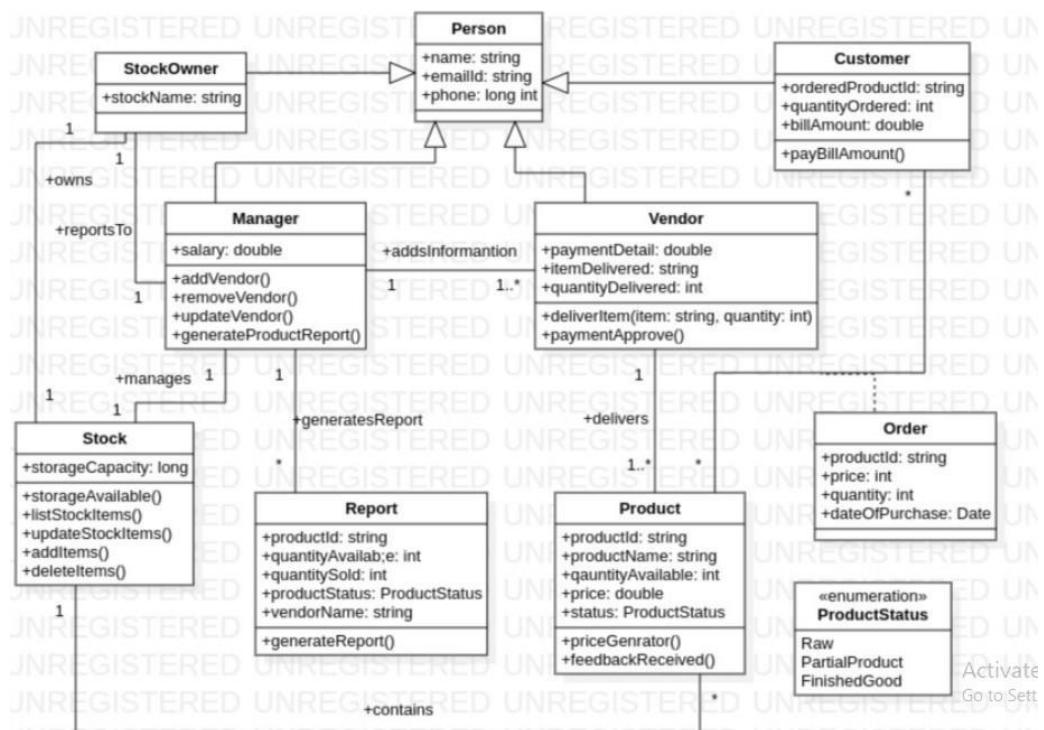
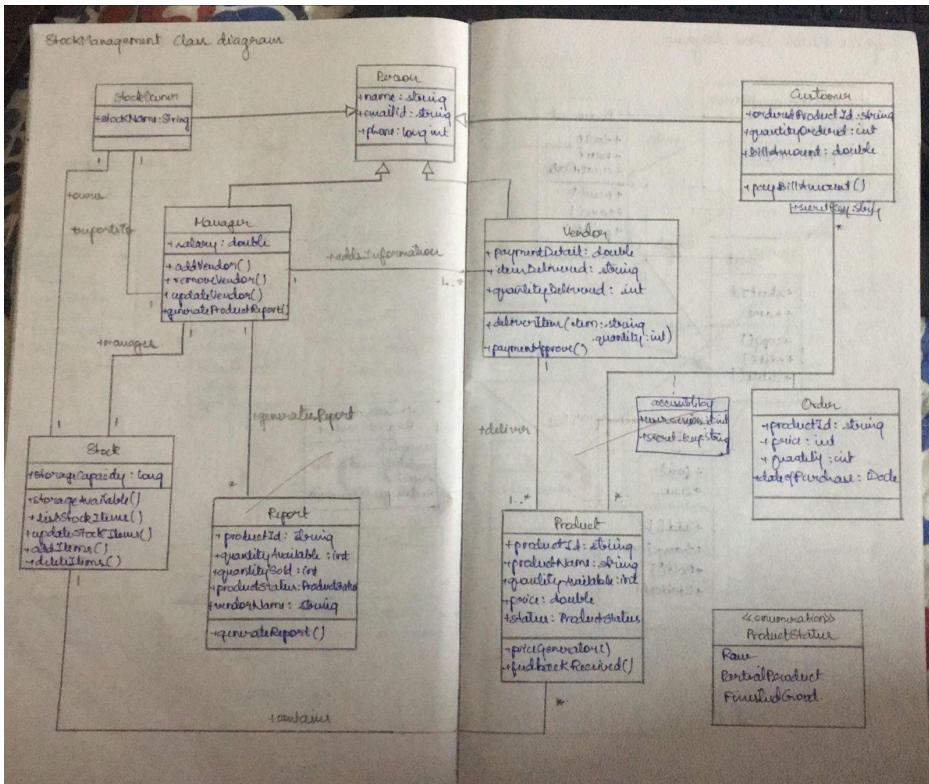
## Exercise 3: Stock Management System

### 1. Write SRS

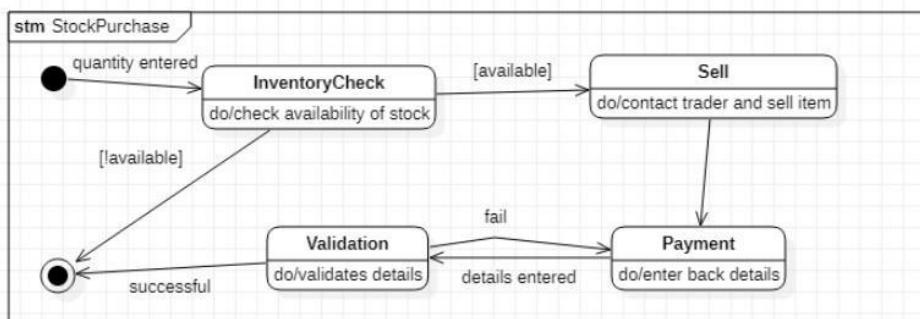
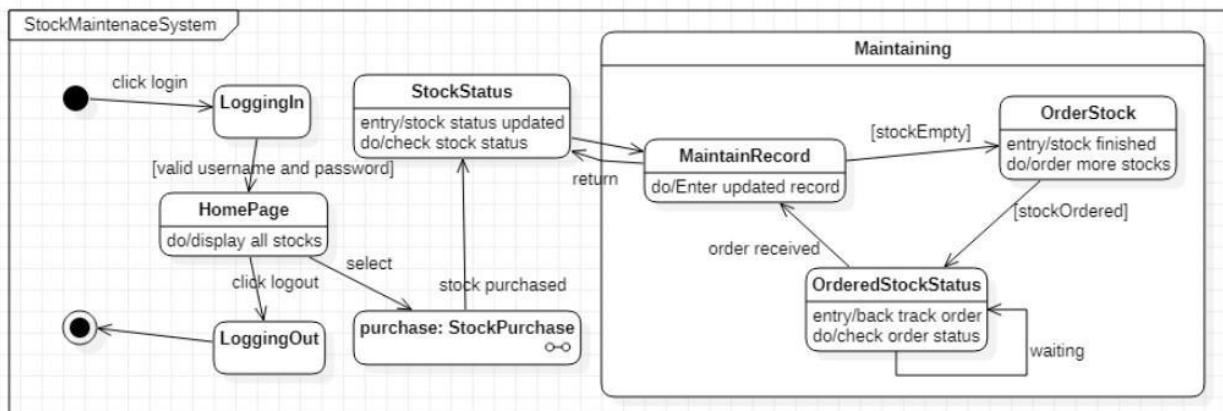
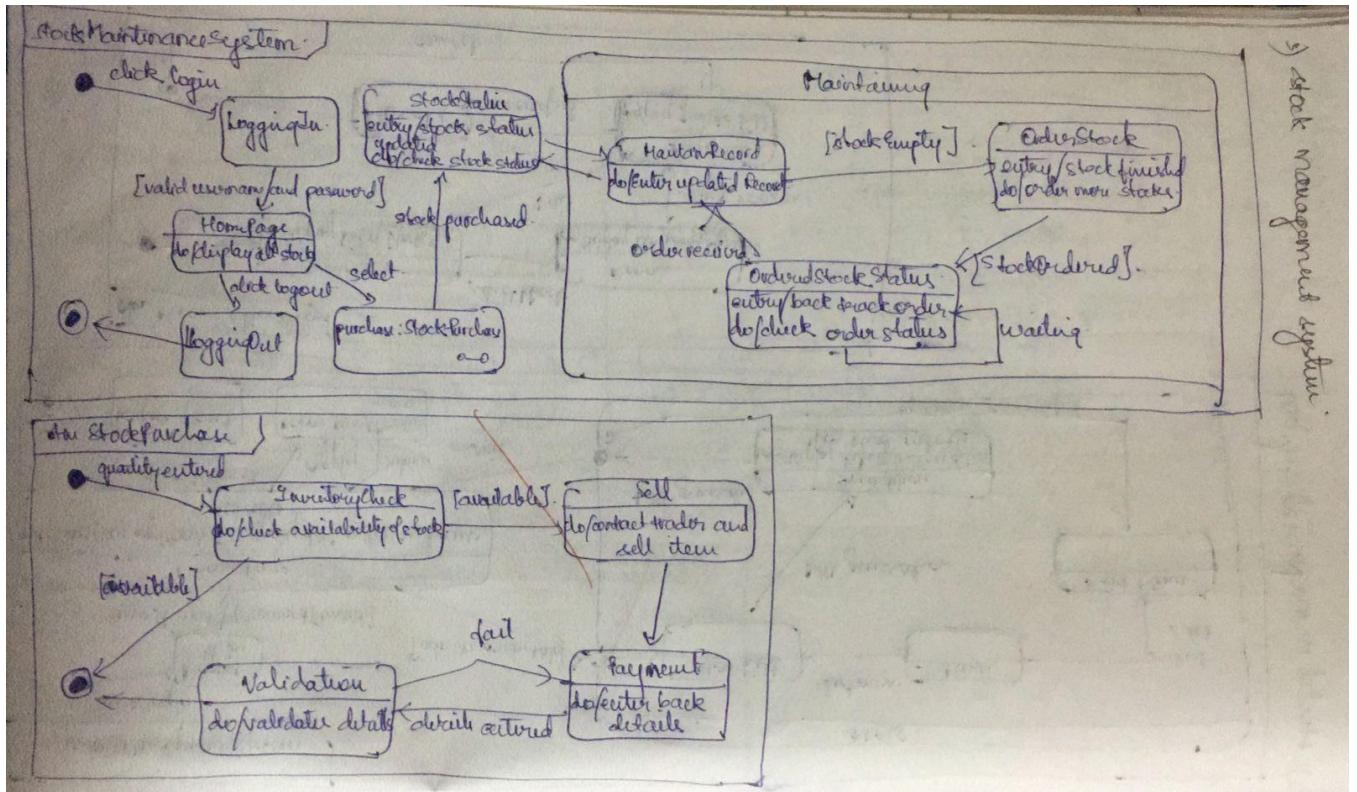
- 3). stock management system
- problem statement : It is ordering, storing, tracking, inventory management. This is basically managing items required from raw materials till finished goods.
- manager : He maintains an account on the goods, checks quality.
  - owner : owner can order, sell stocks. He can even make payments, complaint regarding quality, track orders.
  - order details : This will contain basic information about the order like quality, amount, ordered date, delivery date.
  - inventory : This will have the description of inventory management and its type will also be mentioned.
  - stock : This can be viewed, checked, modified, deleted accordingly.
  - product : This can be added, deleted, checked. Product details are also given.
  - Supplier : This person tracks order and supplier goods and collects cash.

Problem statement:

## 2. Draw the advanced class diagram

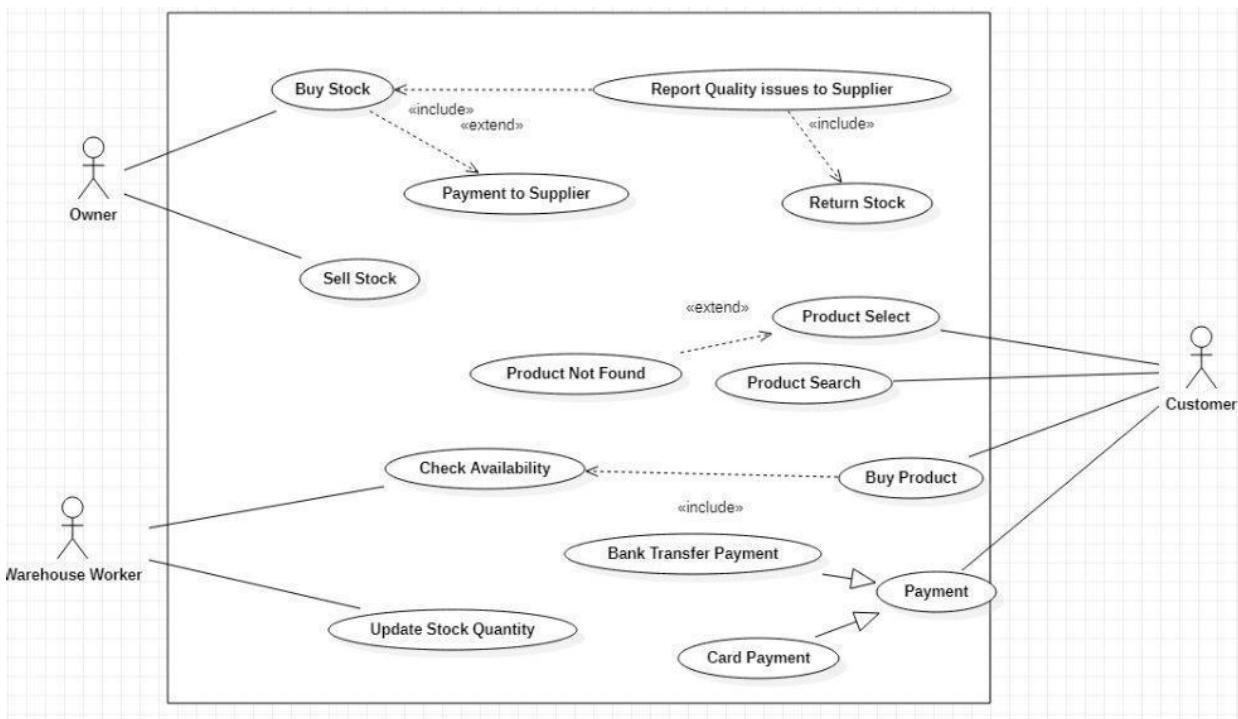
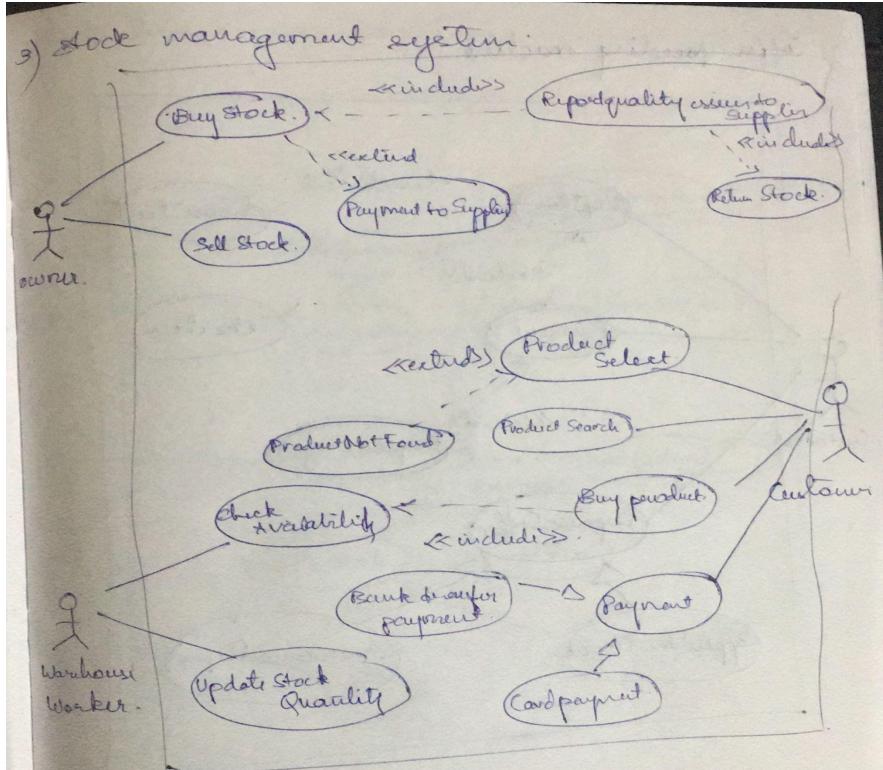


### 3. Draw the advanced state diagram

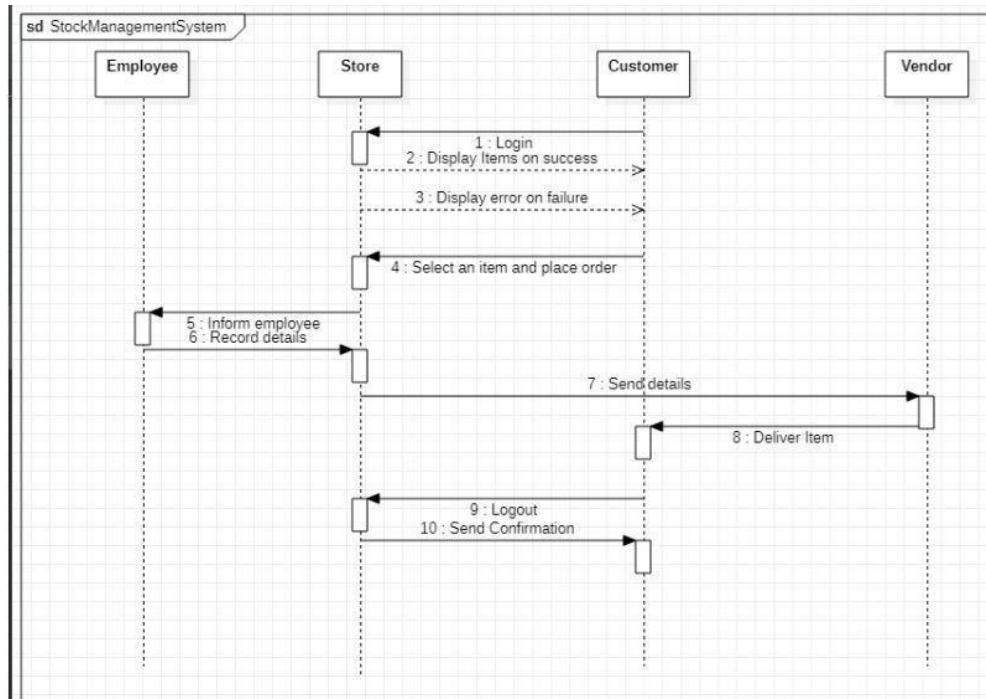
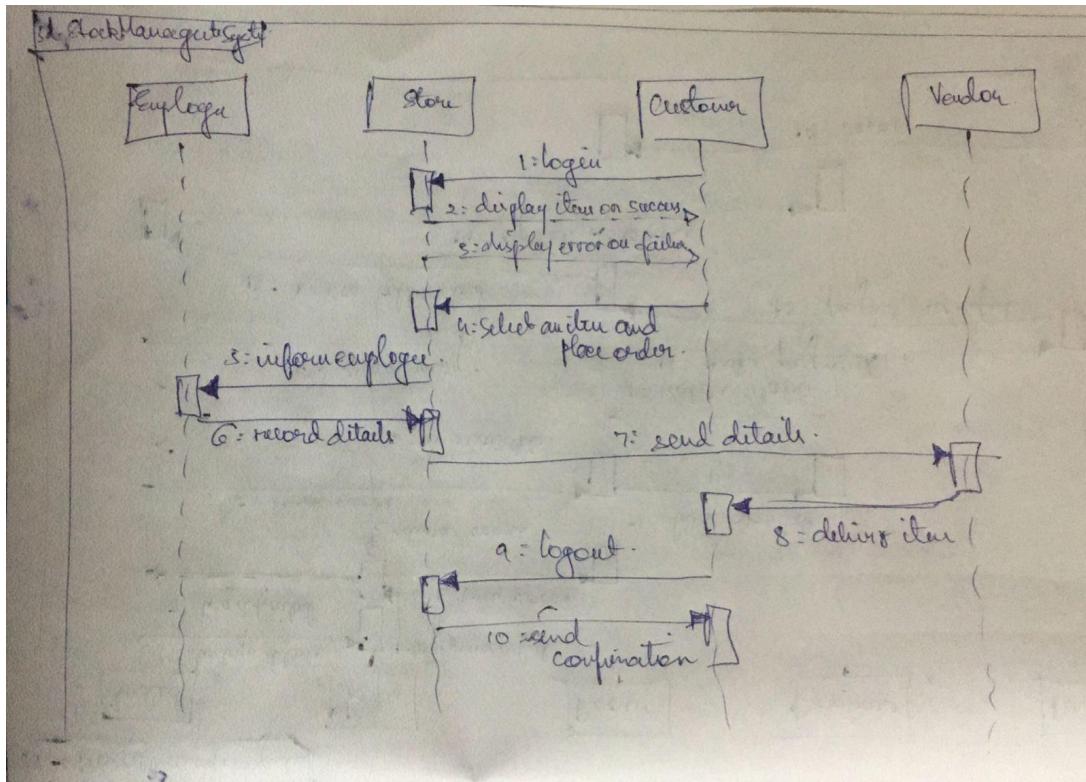


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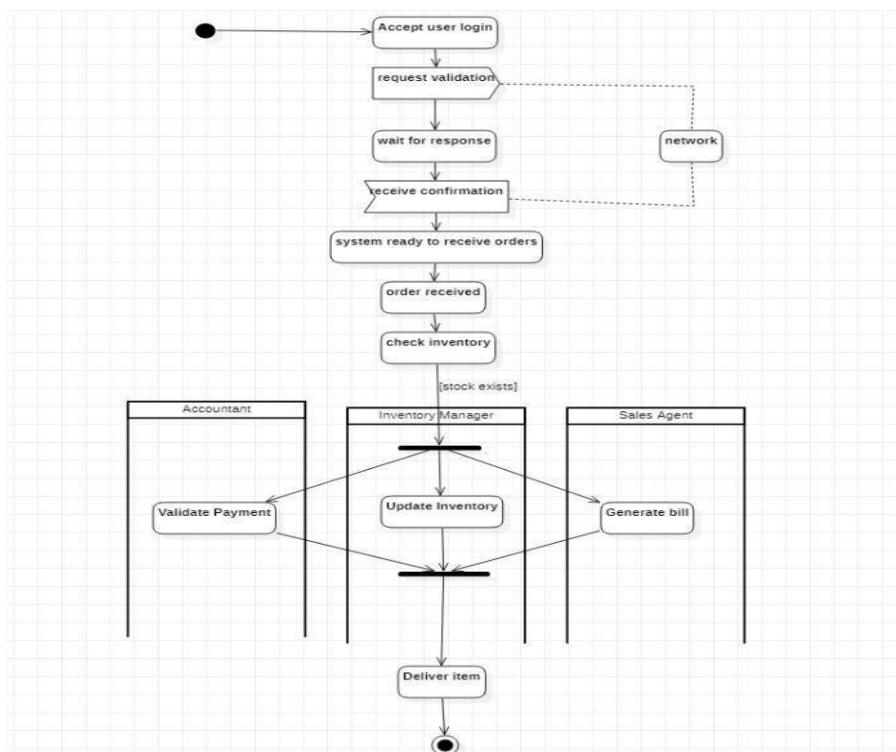
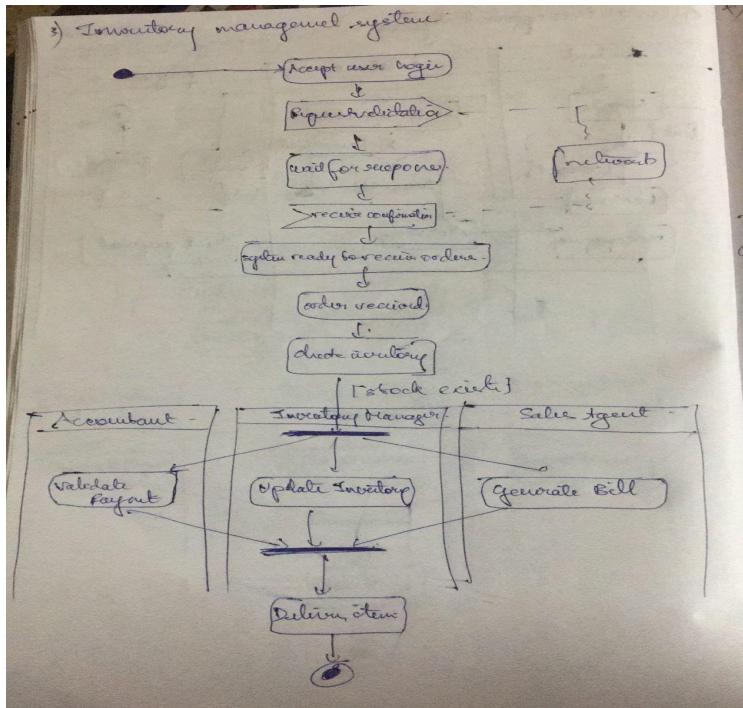
## 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram



## Exercise 4: Coffee Vending Machine

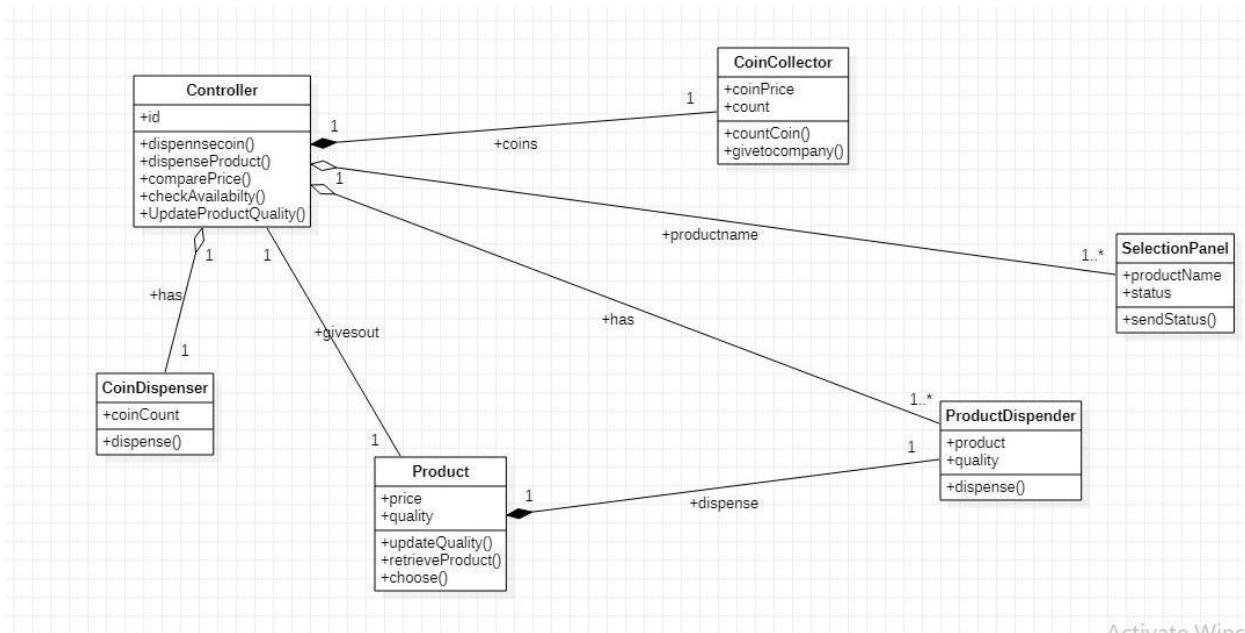
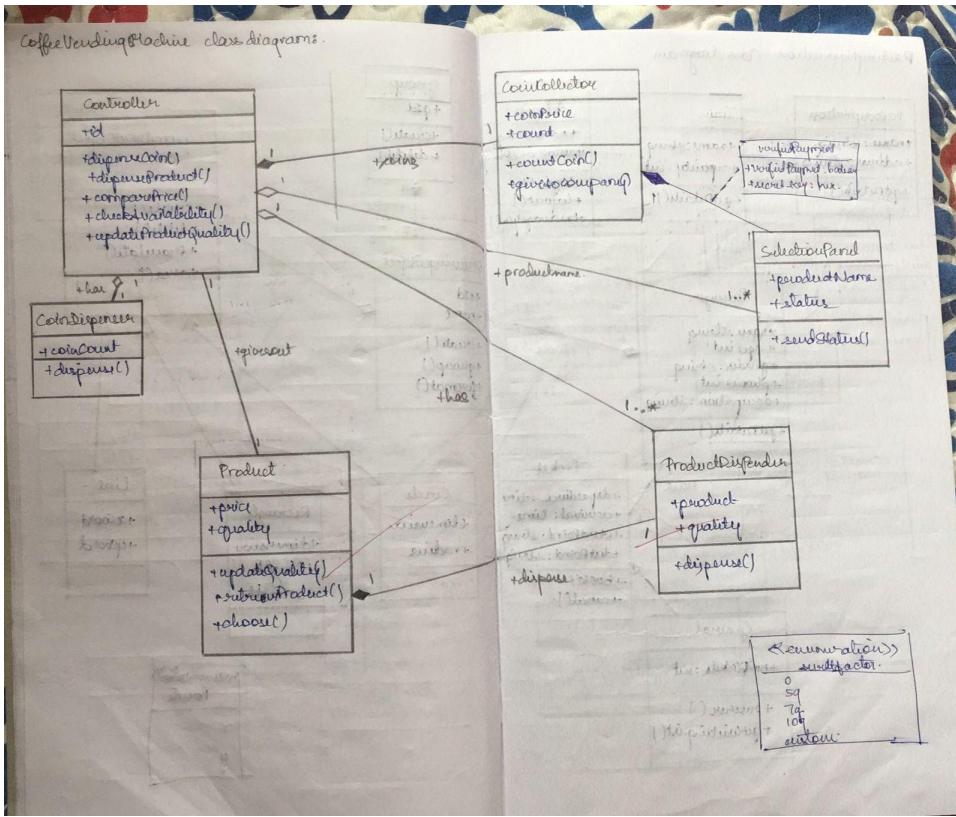
### 1. Write SRS

#### 4) coffee Vending Machine

Problem Statement: This machine is basically designed to serve coffee without much of manual effort with the help of information provided by the customer like amount of ingredients, price, type etc. Collect a coin and dispenses coffee when the button is pressed (of choice) and the payment is done.

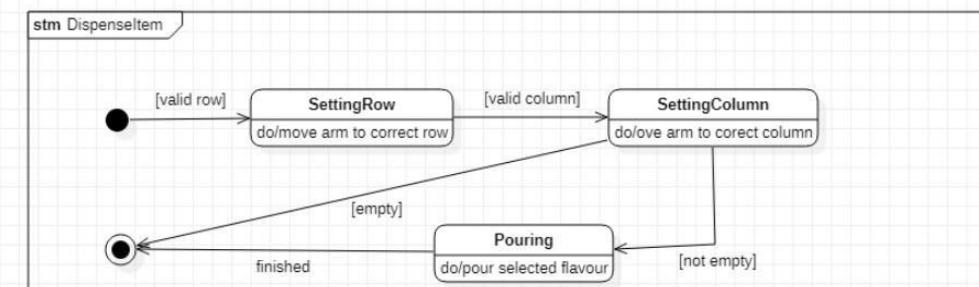
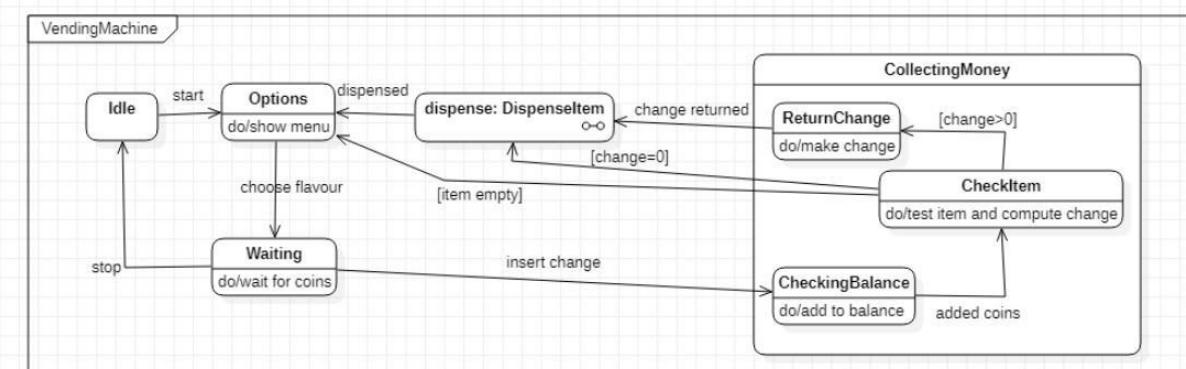
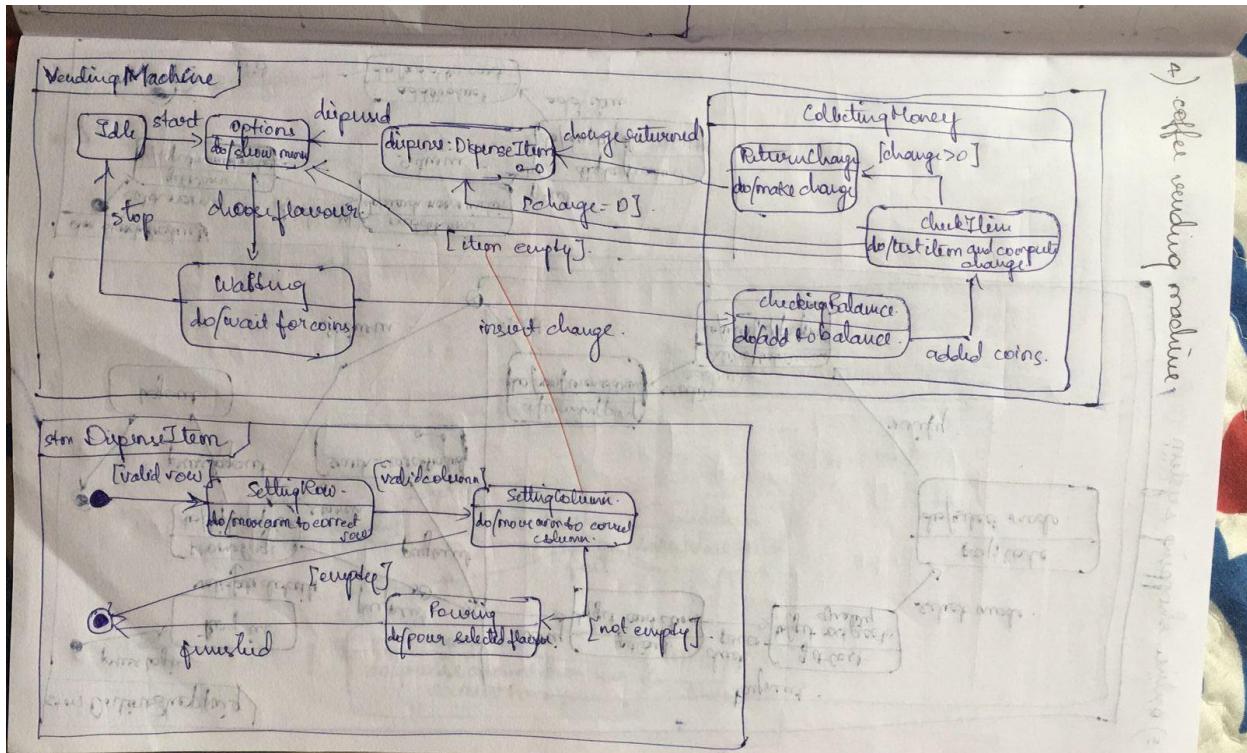
- coin collector: This will count number of coins and cost of each, gives it to company.
- selector: This will have the information of selected product.
- controller: When the coin is inserted it'll check the price, check product availability, dispense the coffee, update the quantity after each operation, release the coin back to the customer.
- dispenser: the type of coffee chosen will be dispensed.
- product: we can choose the type of coffee, amount of product and the price too. We can update after every dispense and retrieve chosen product.
- Coin Dispenser: Remaining cost will be given back to the customer.

## 2. Draw the advanced class diagram



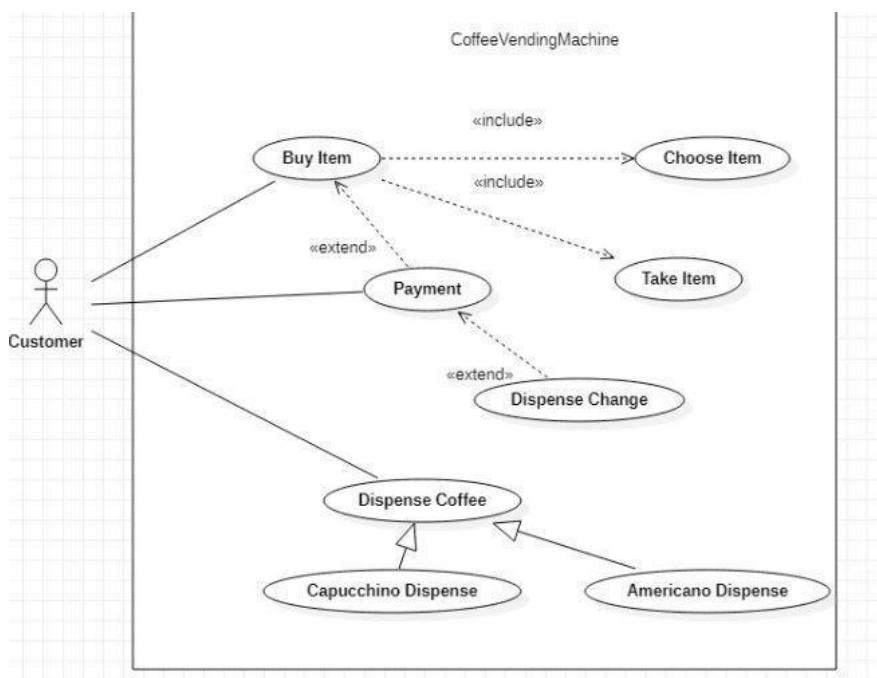
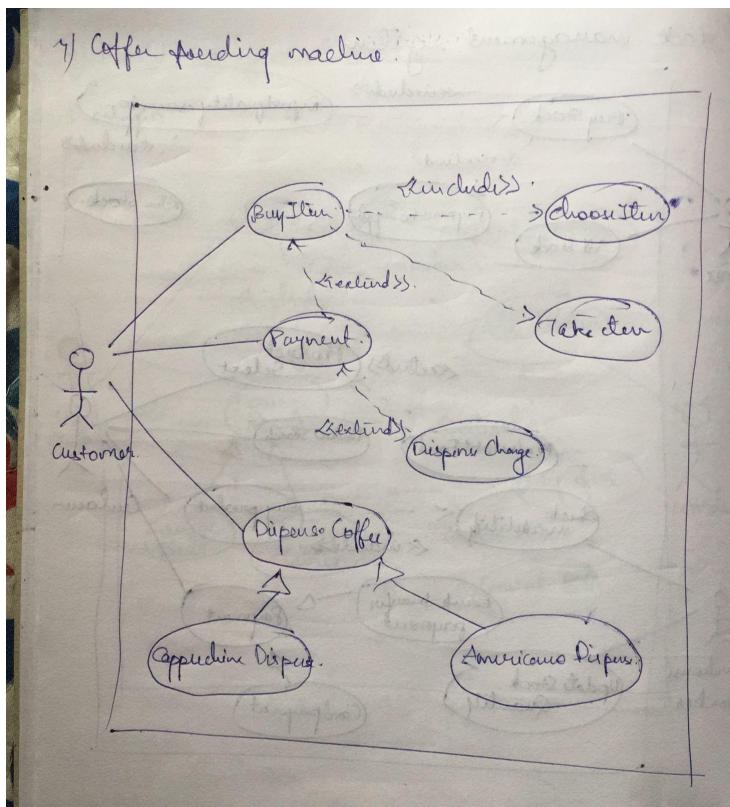
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### 3. Draw the advanced state diagram

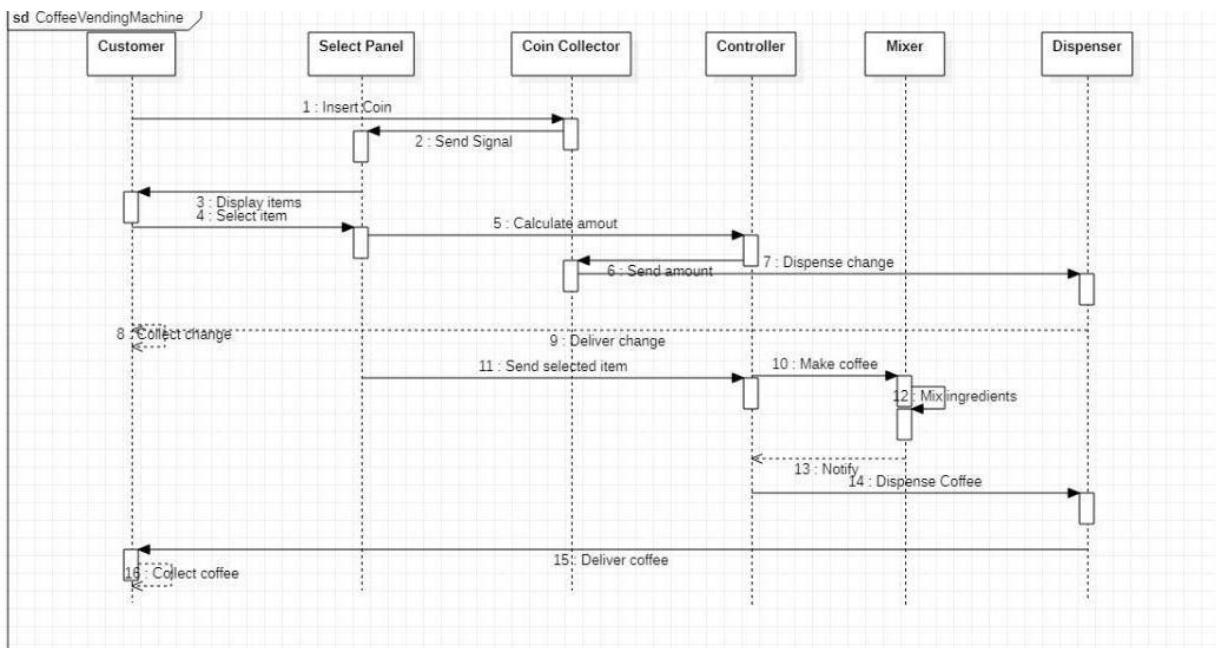
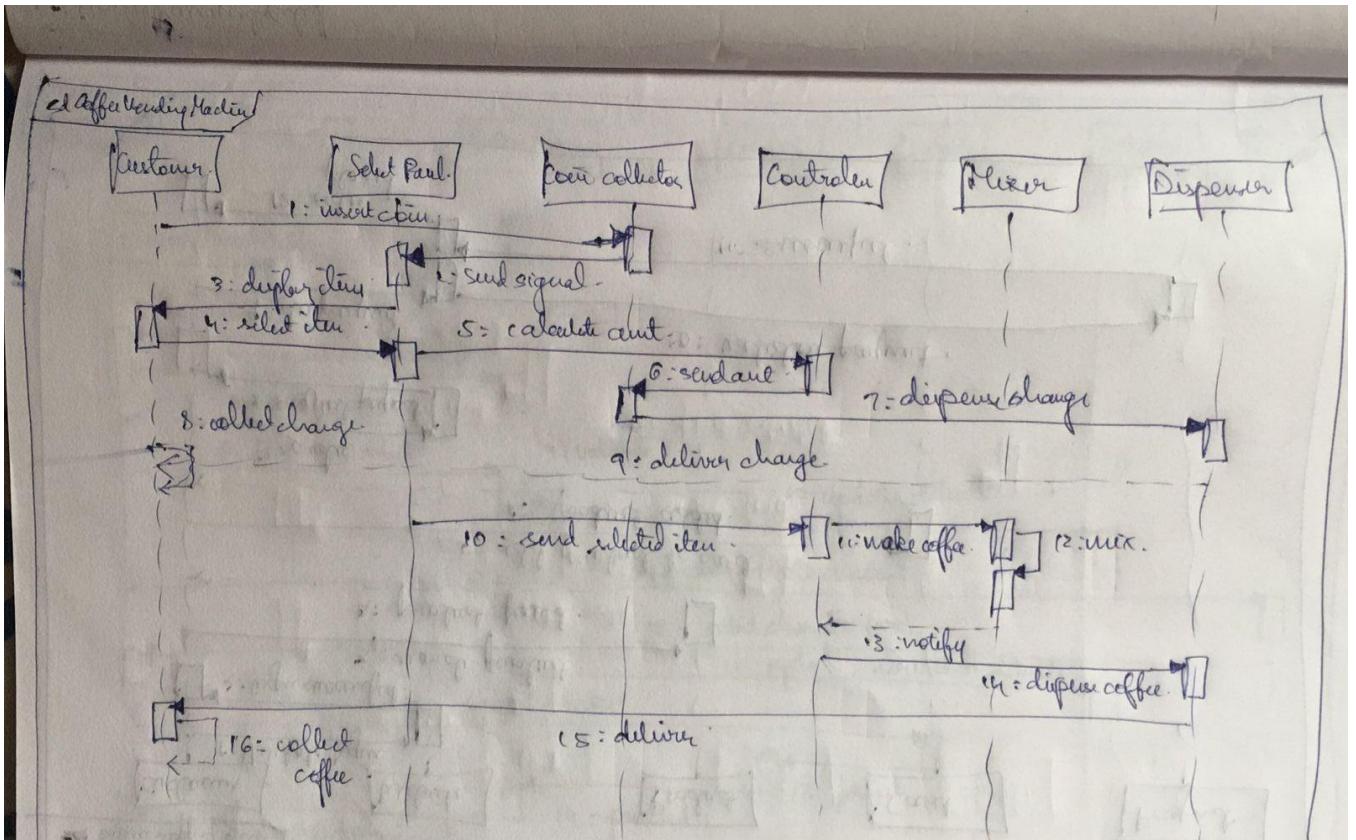


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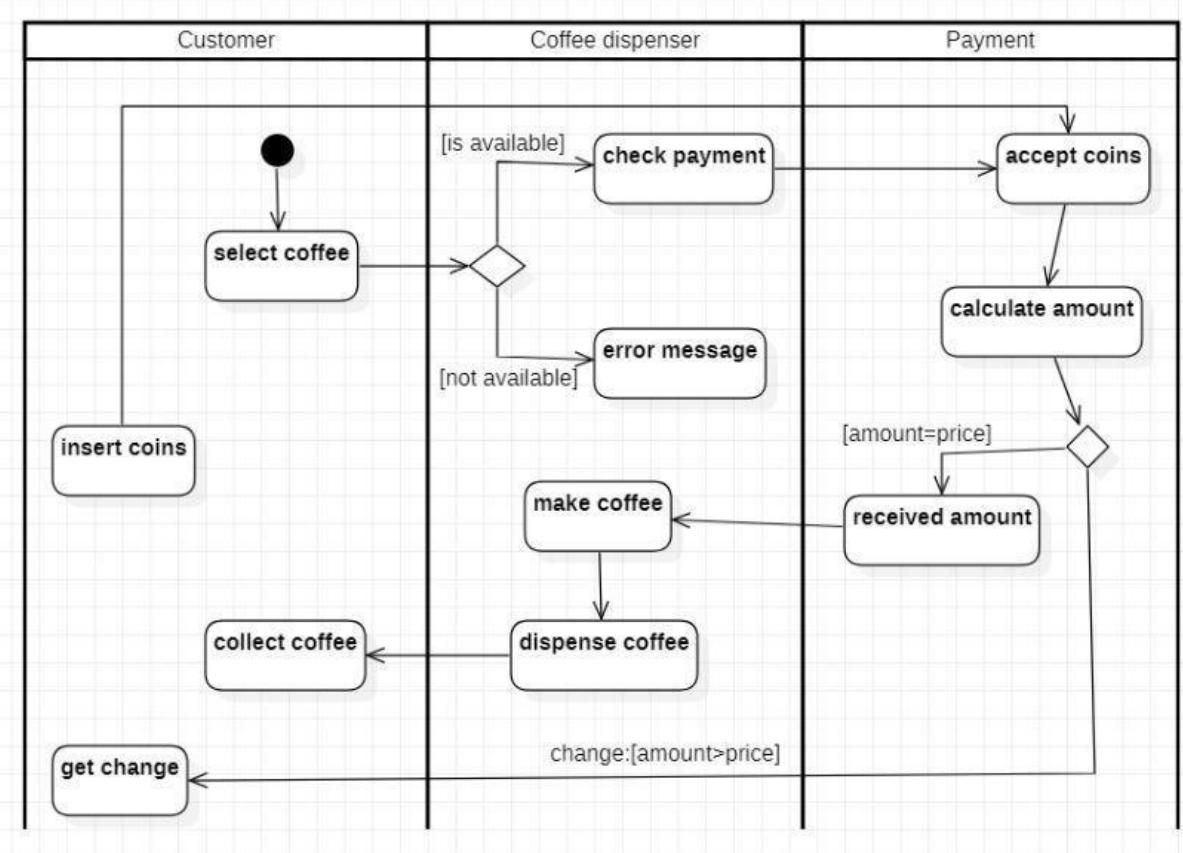
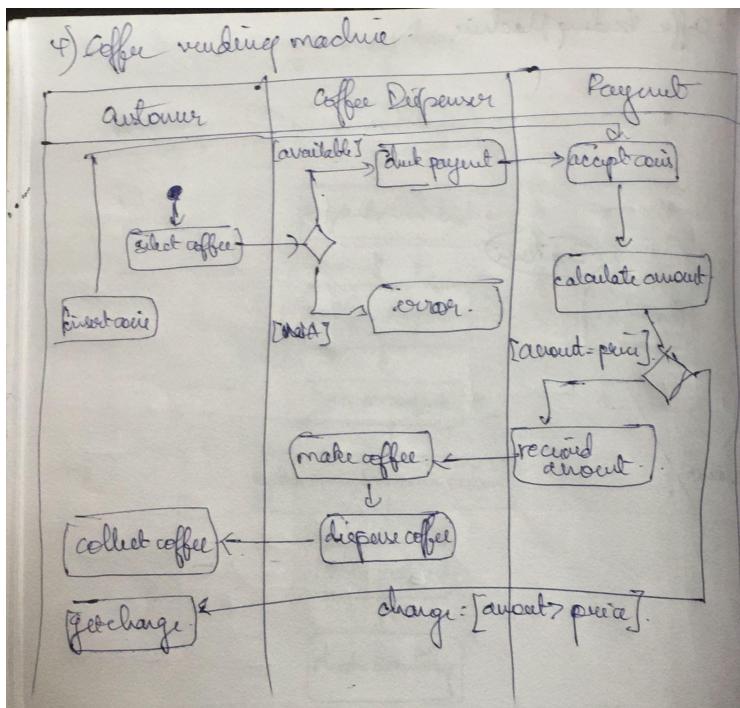
#### 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram



## Exercise 5: Online Shopping System

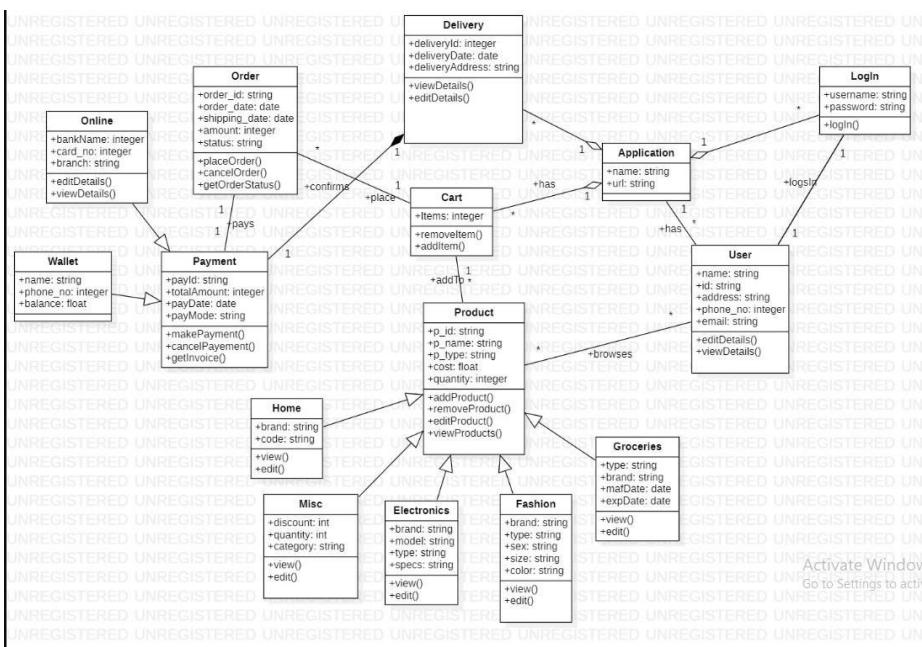
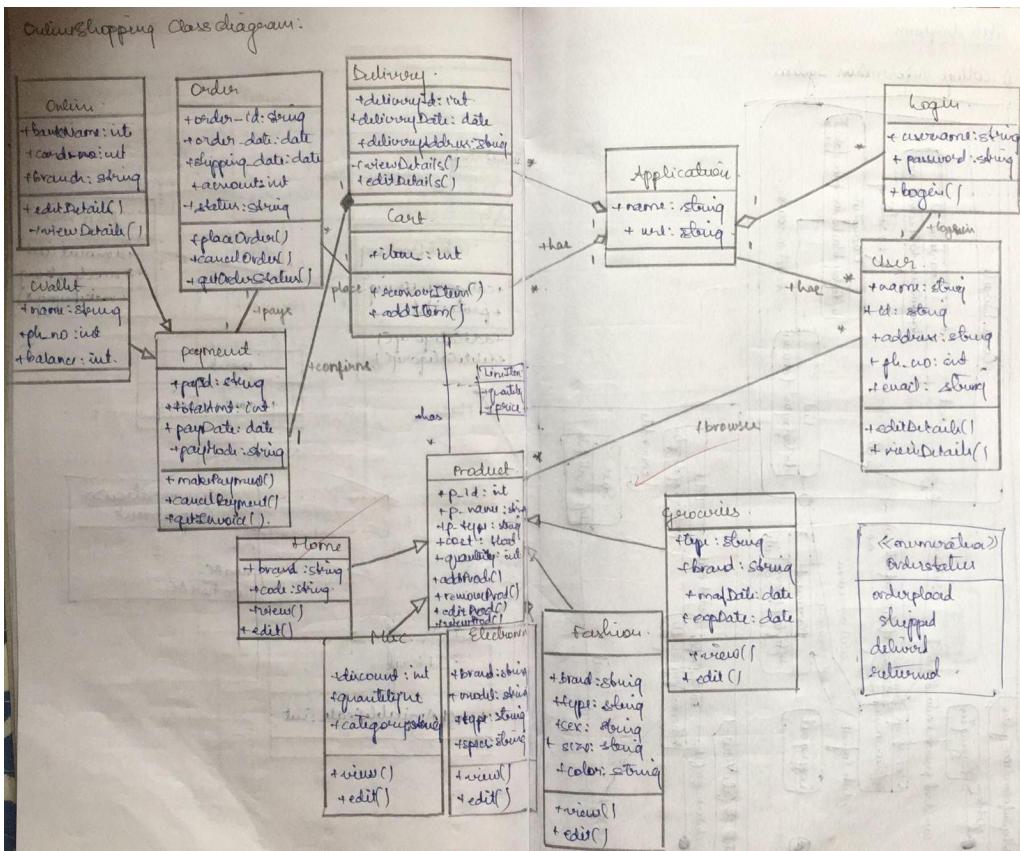
### 1. Write SRS

#### 3) Online Shopping System -

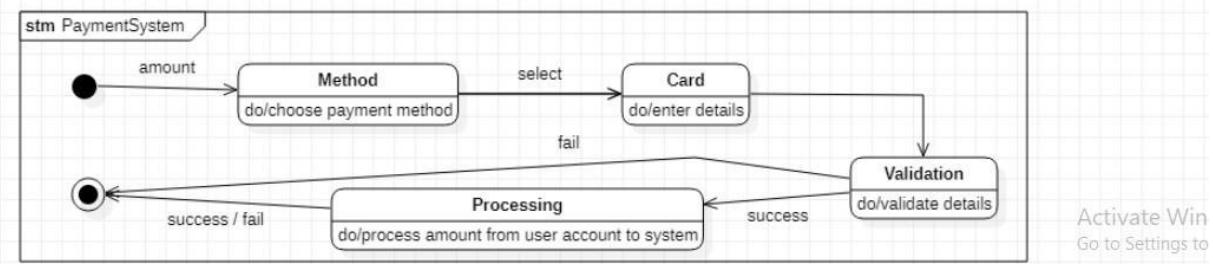
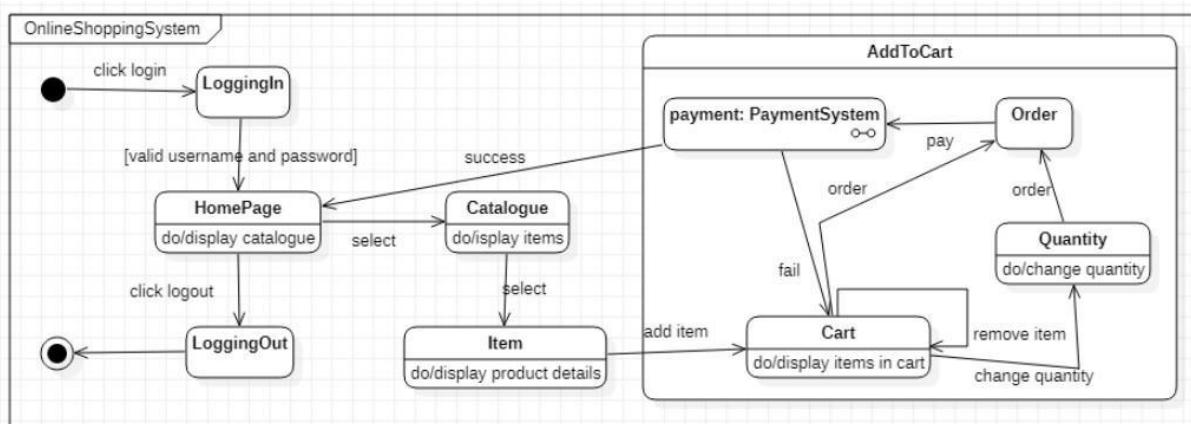
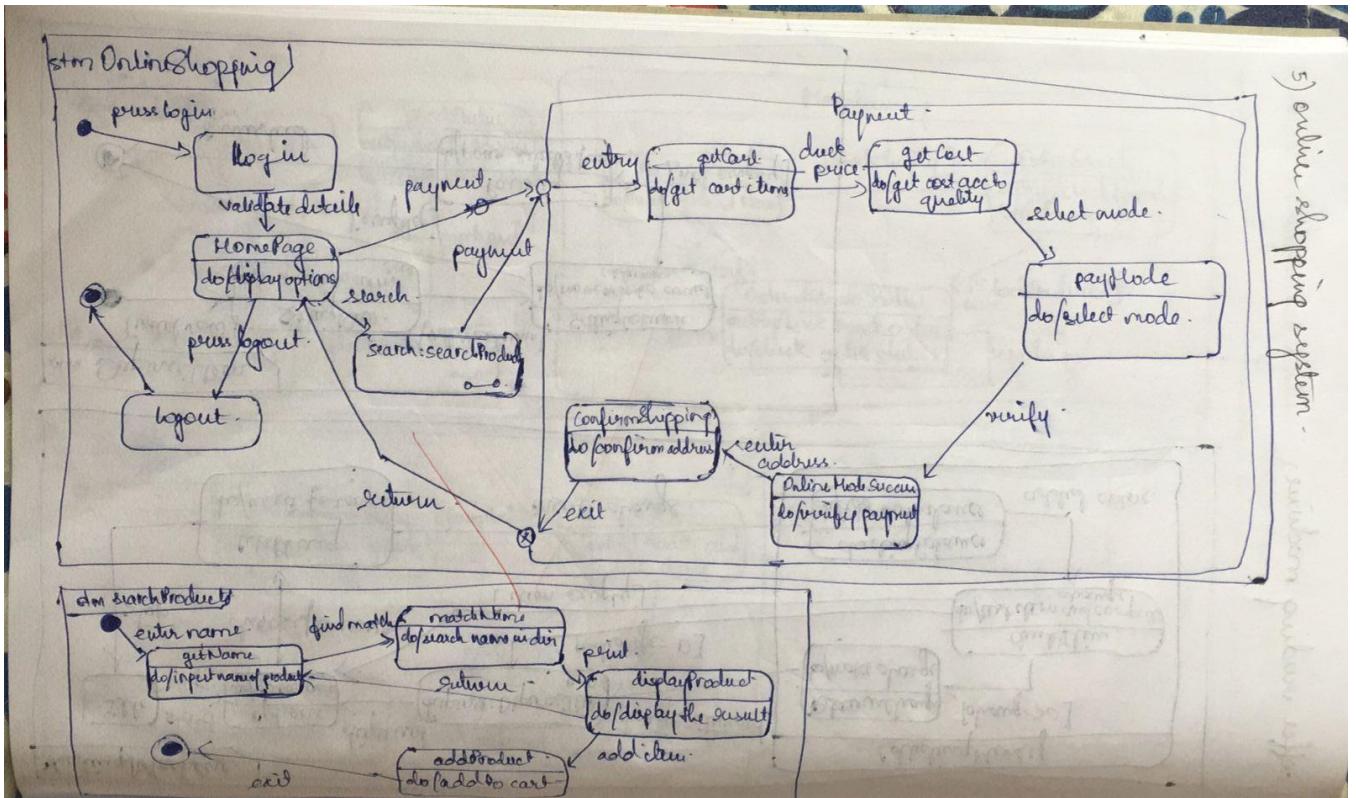
Problem Statement: This system is to reduce time, and energy as in offline shopping. We can go through products, their price, manage orders, customer service etc.

- system: Here system is handled by an user who can be admin, manager, customer.
- customer: They can register themselves online, create an account, add products to cart, update profile, manage payments etc.
- shopping cart: This displays all those products which customer planned to buy. Adding, deleting, updating, checkout, calculating can be done here.
- orders: We can see the list of items ordered, the ordered date, shipped date, expected delivery date, customer details etc. With the help of existing order details, various orders can be placed.
- orderdetails: Further details about order like quality, cost, product details etc.
- manager: He manages services for customer for example listing products, getting customer details, give order details, department details.
- shipping: All details related to shipping will be shown once the order is placed and will be able to update any changes.
- Department: Describing each department/section
- products: Image, price, quality of the product
- category: each department has various categories.

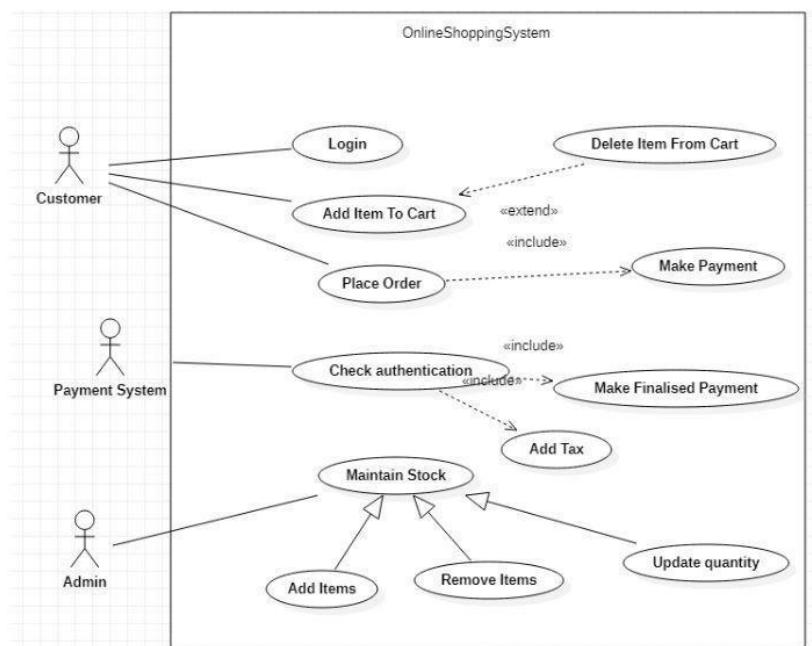
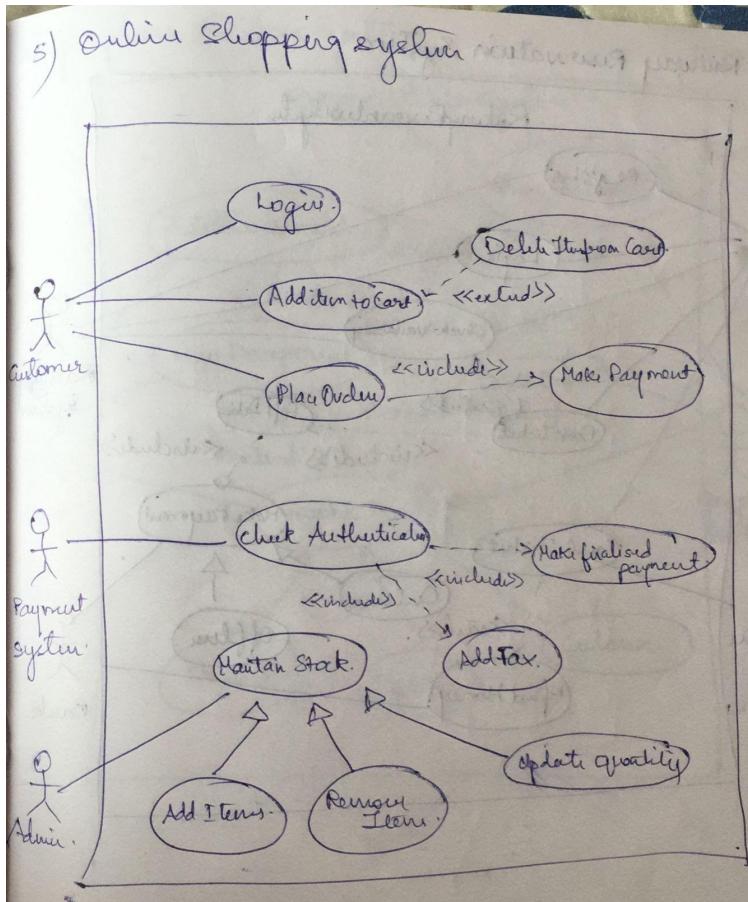
## 2. Draw the advanced class diagram



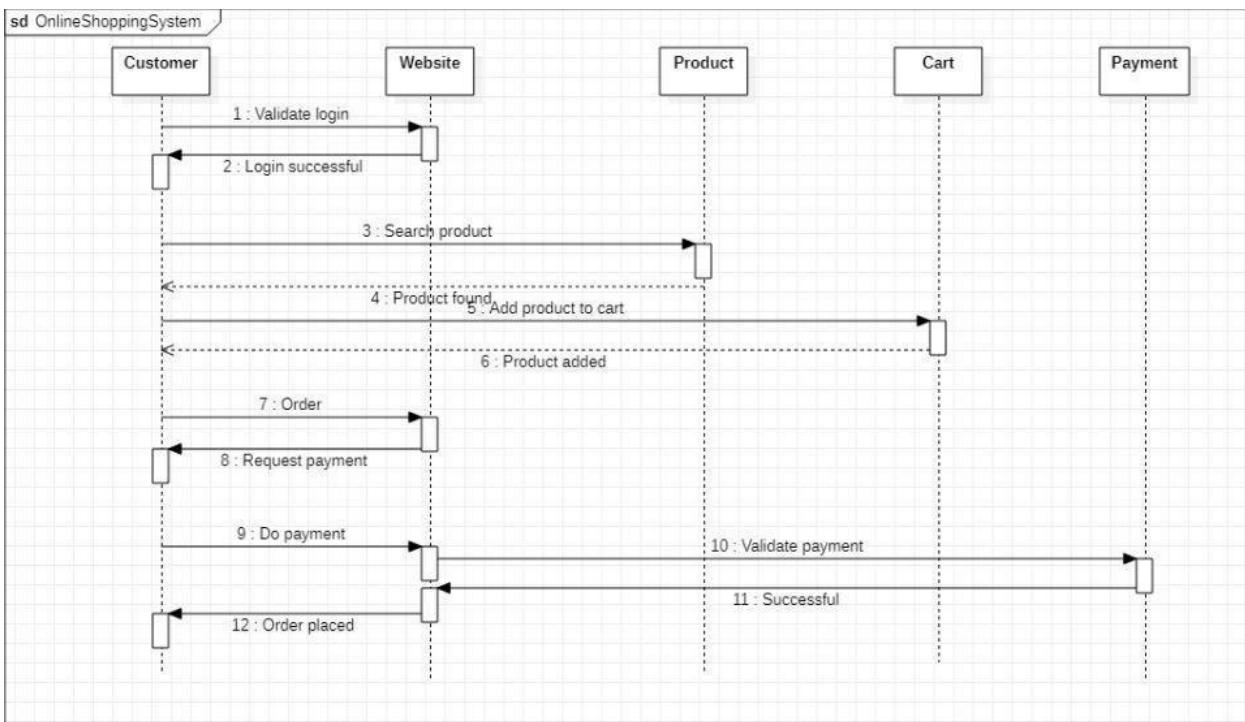
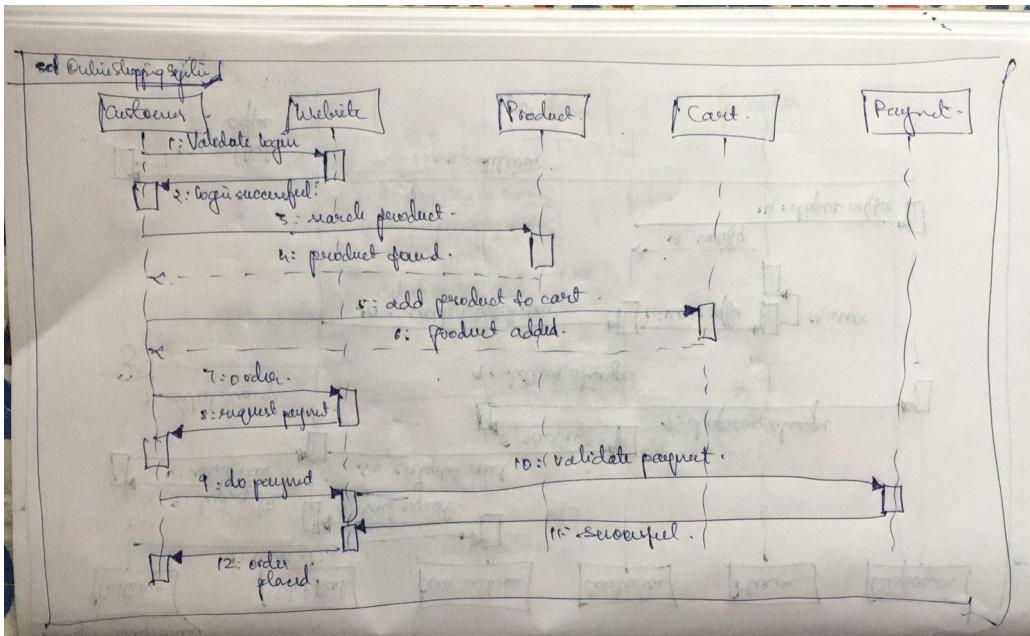
### **3. Draw the advanced state diagram**



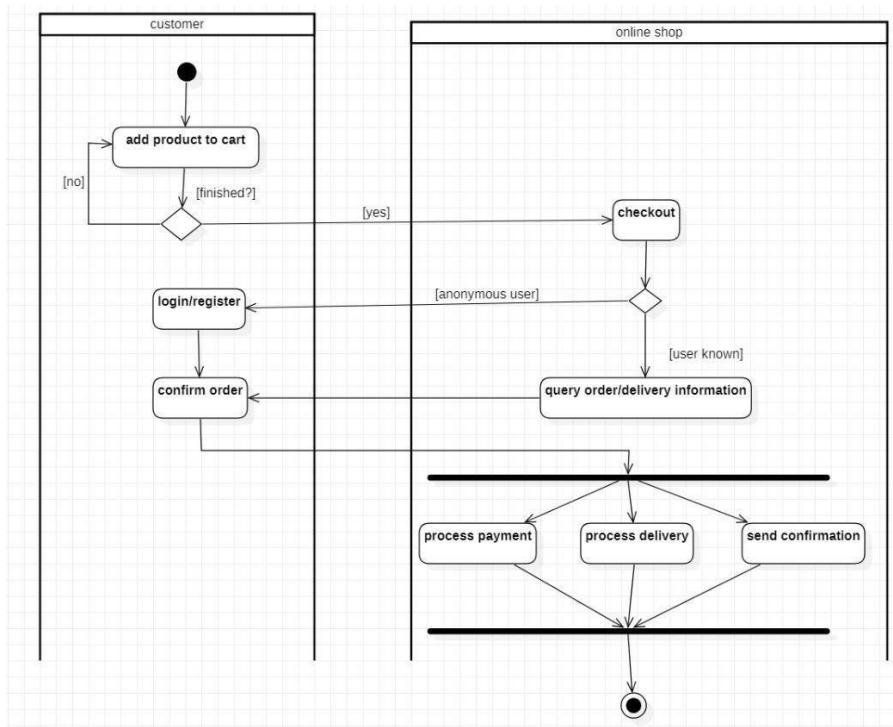
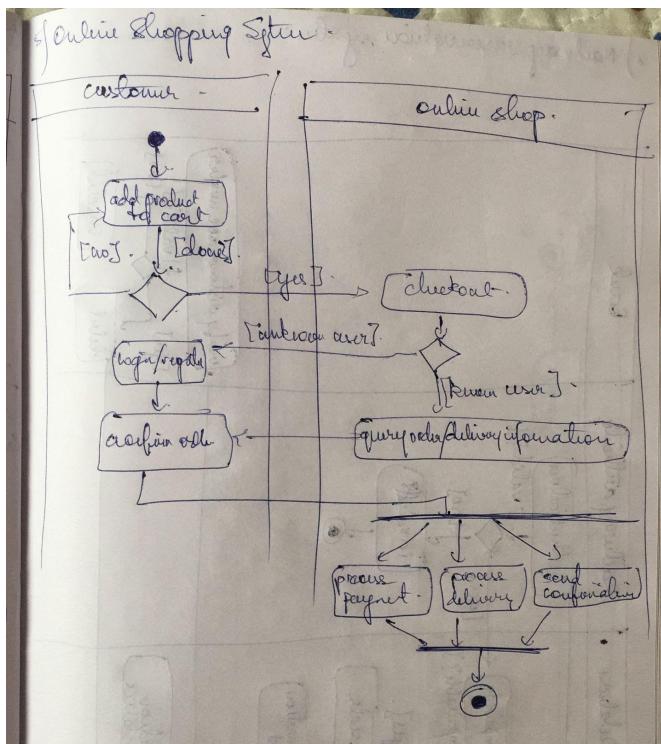
#### 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram



## Exercise 6: Railway Reservation System

### 1. Write SRS

#### 6) Railway Reservation System

Problem Statement: This is an easy, handy, user-friendly platform (online) which enables user (customer) to book tickets online itself just by one click instead of going there physically and online payment is also available.

System: provides train timings, reservation details, payment and cancellation details.

Reservation: Shows type of reservation like ~~seat~~, reservation confirmation, reservation against cancellation, waiting list reservation, online and onspot reservation.

#### Booking

class: Decides the quota, type of compartment and fare accordingly.

ticket: shows the type of ticket booked whether it is general or tatkal.

timetable: this basically shows train name, its arrival time, departure time, next upcoming train etc.

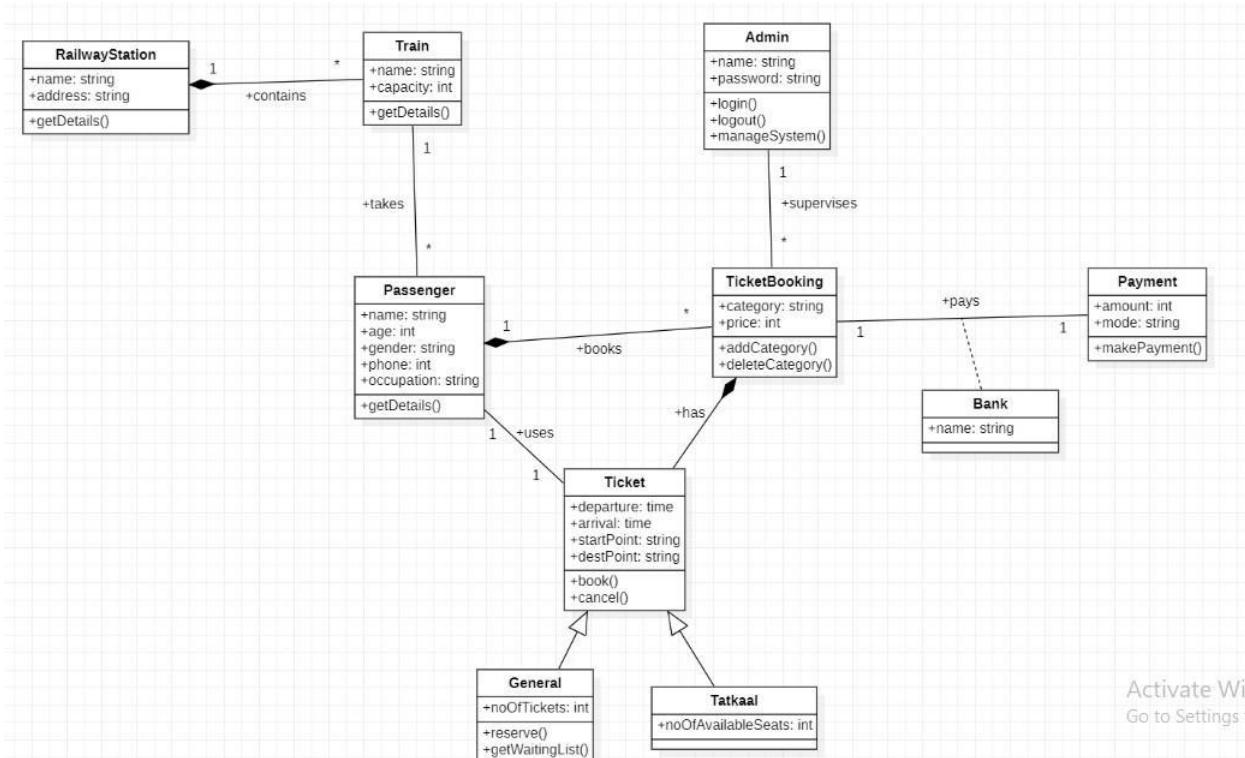
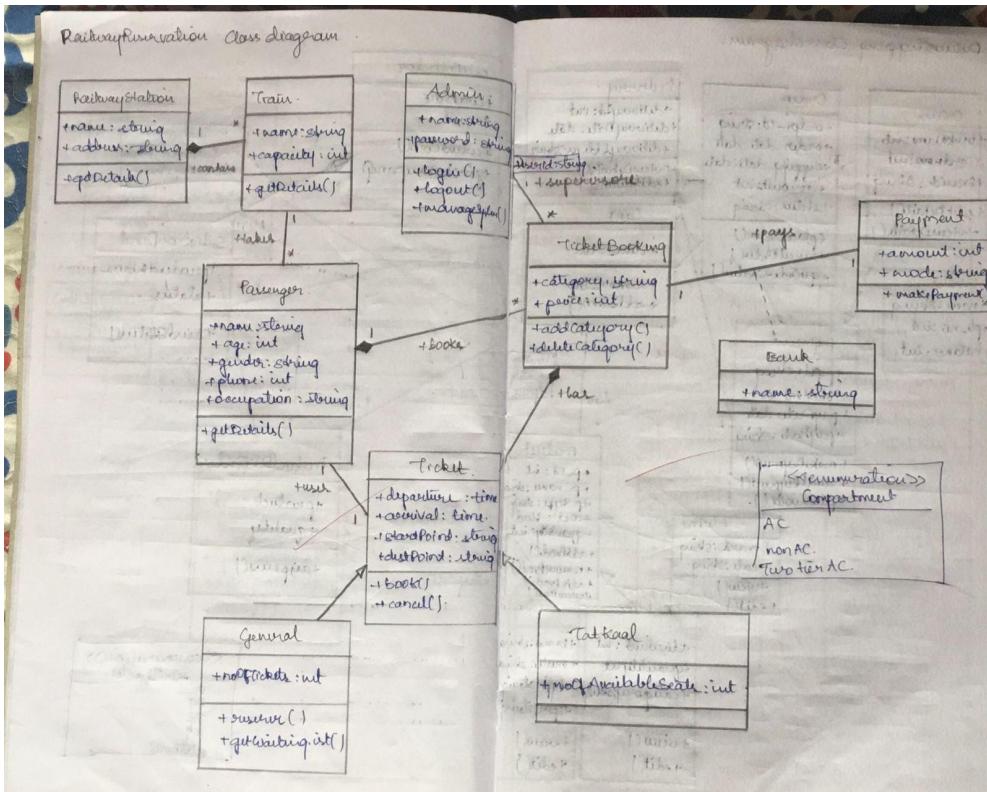
fares: displays the fare for each train between any two stations.

status: we will know the status of our allotment -

availability: mentions if a particular train is available during that time so that we can book.

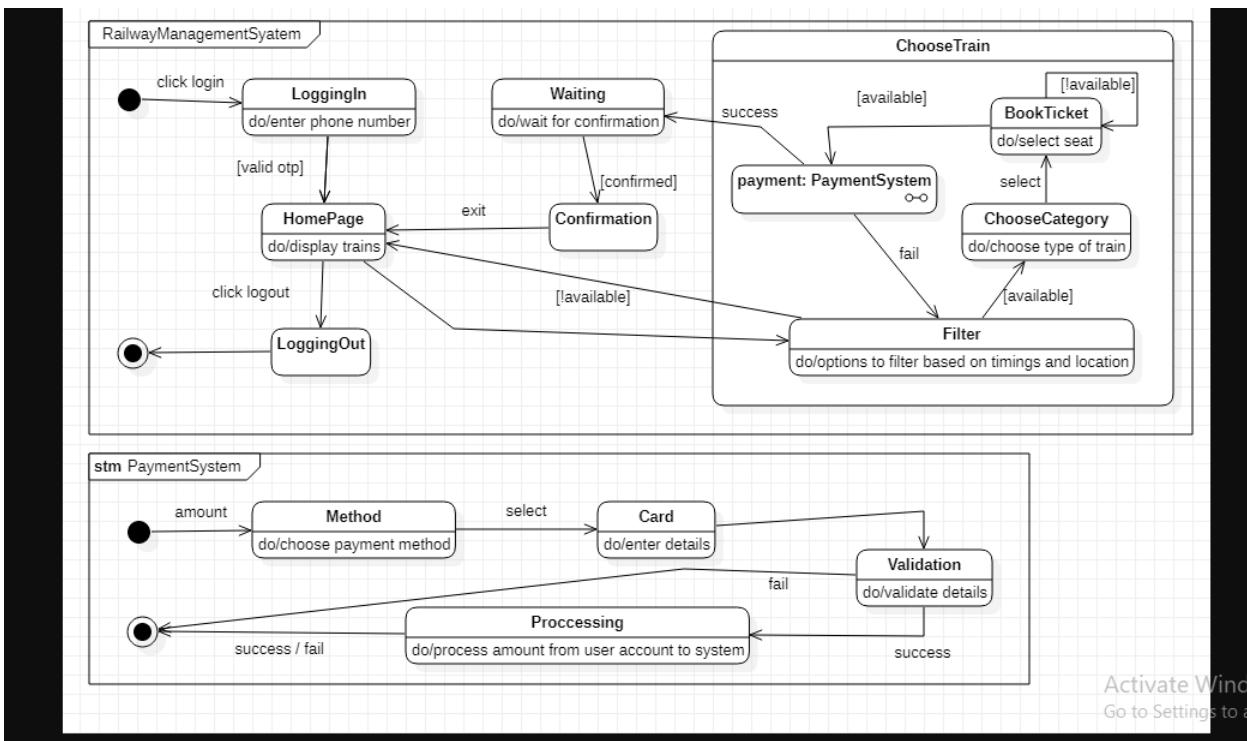
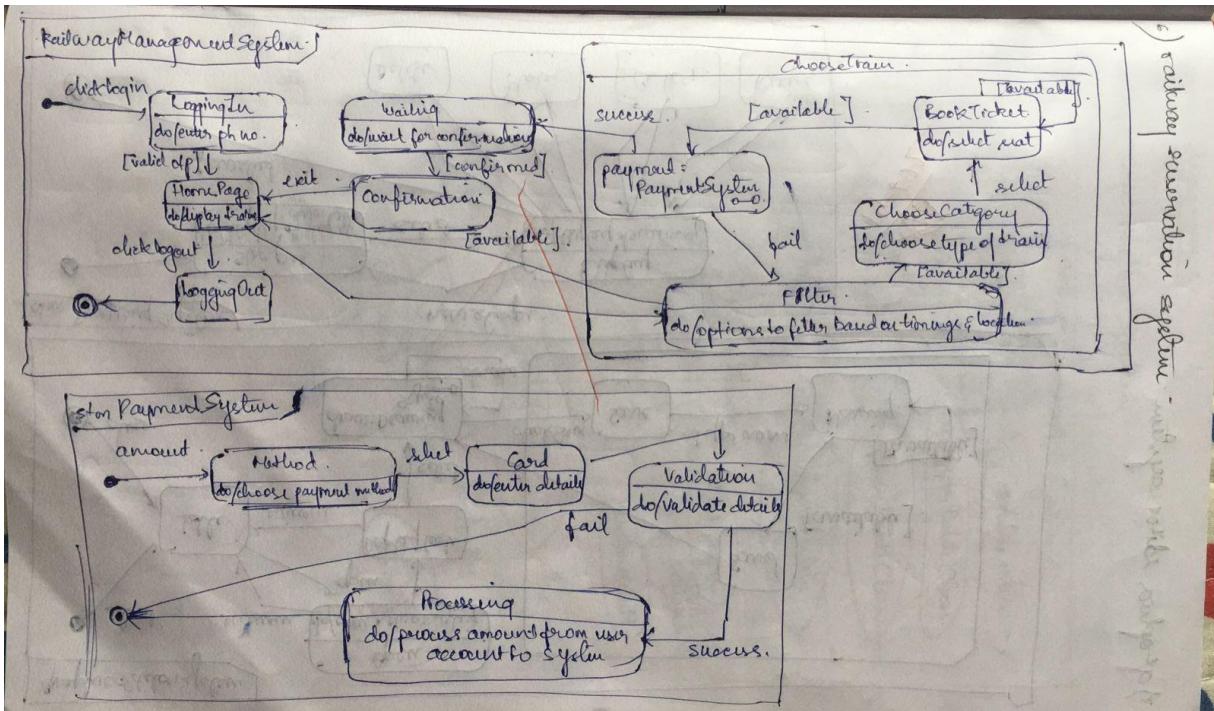
accommodation: which compartment is allotted, if its ladies or general section, ac or non ac, sleeper or sitter all such things will be mentioned.

## 2. Draw the advanced class diagram



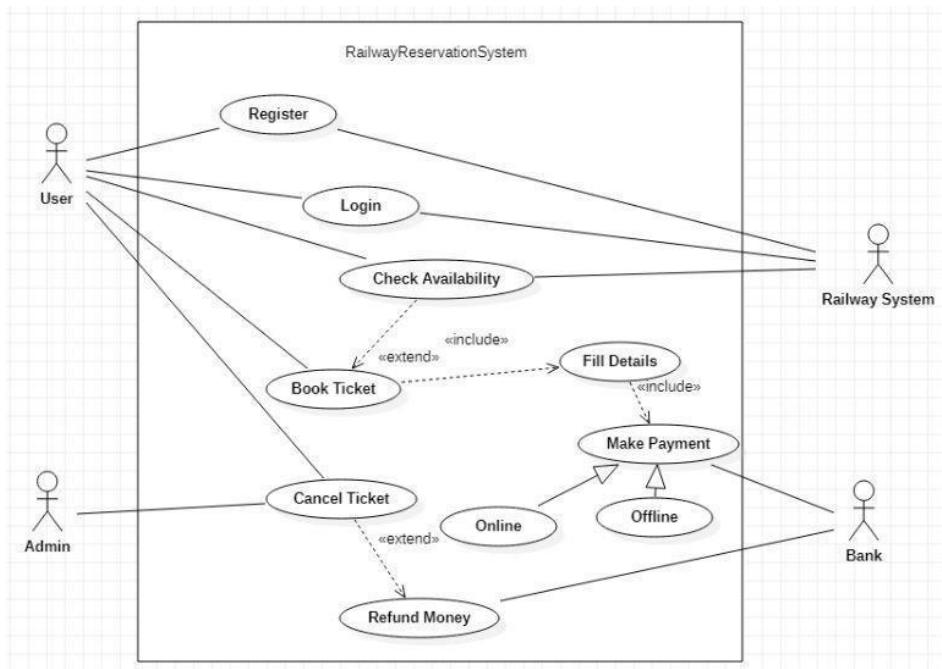
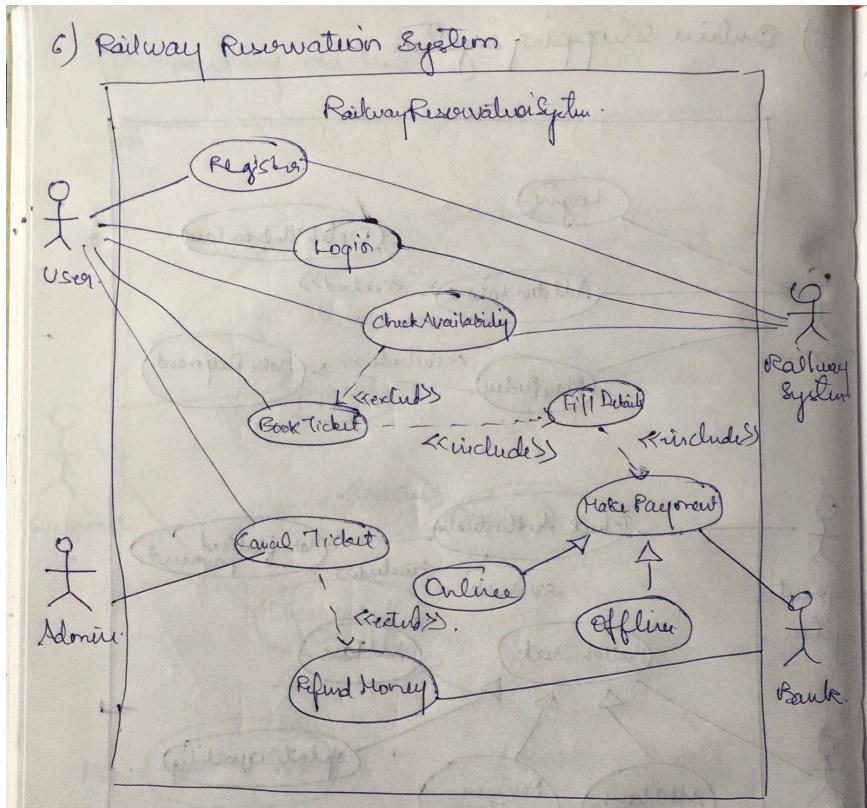
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### 3. Draw the advanced state diagram

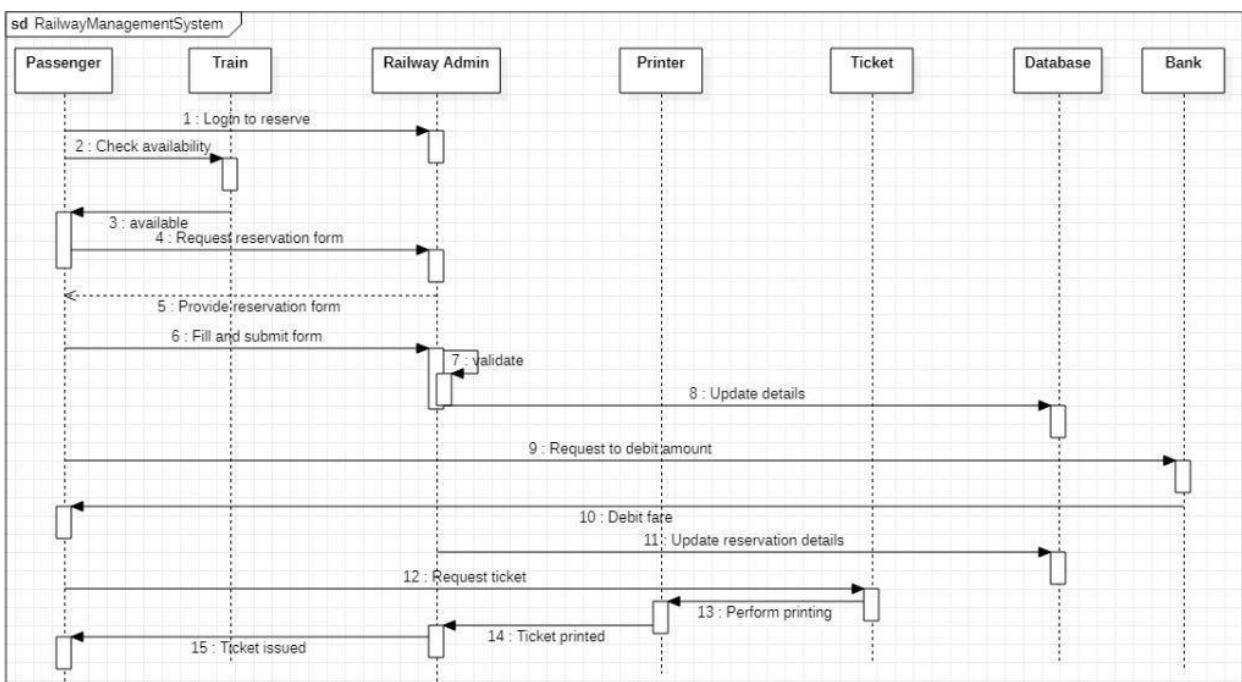
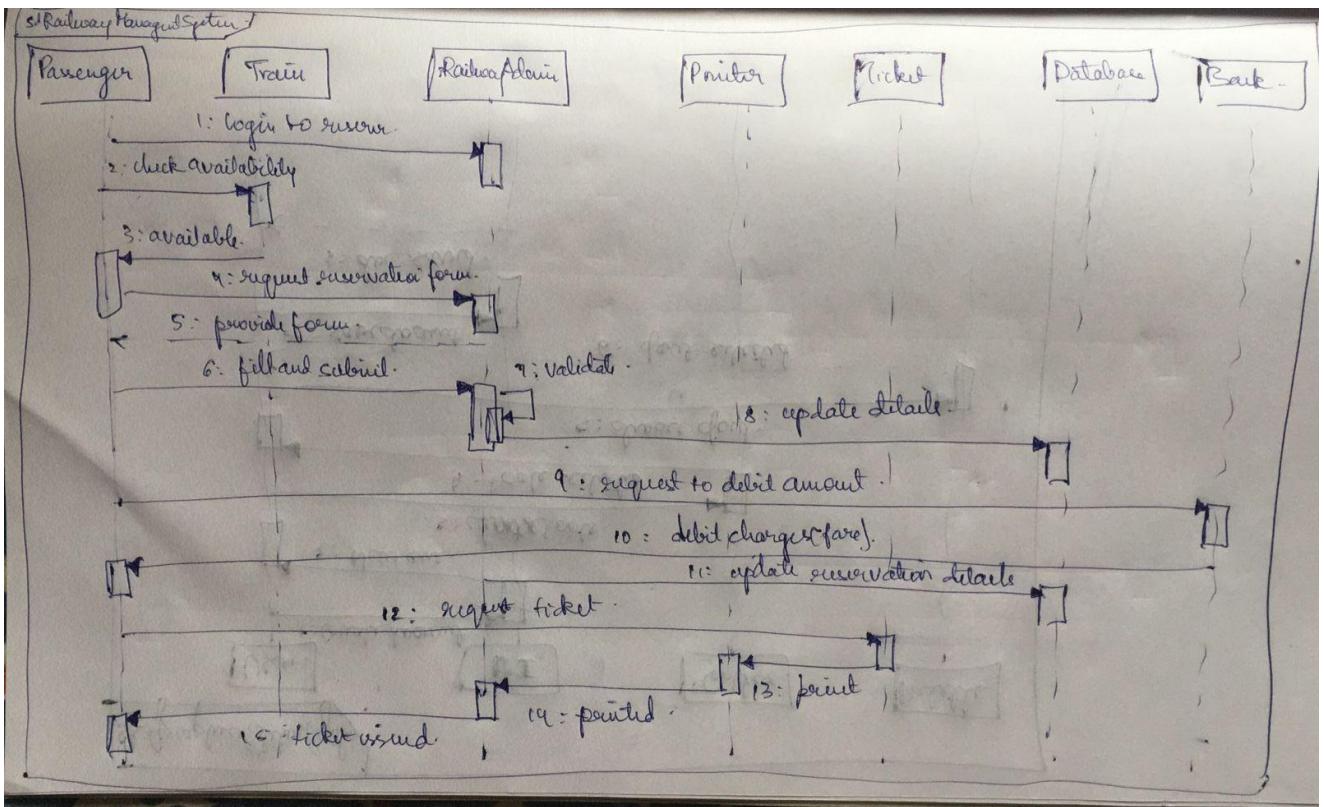


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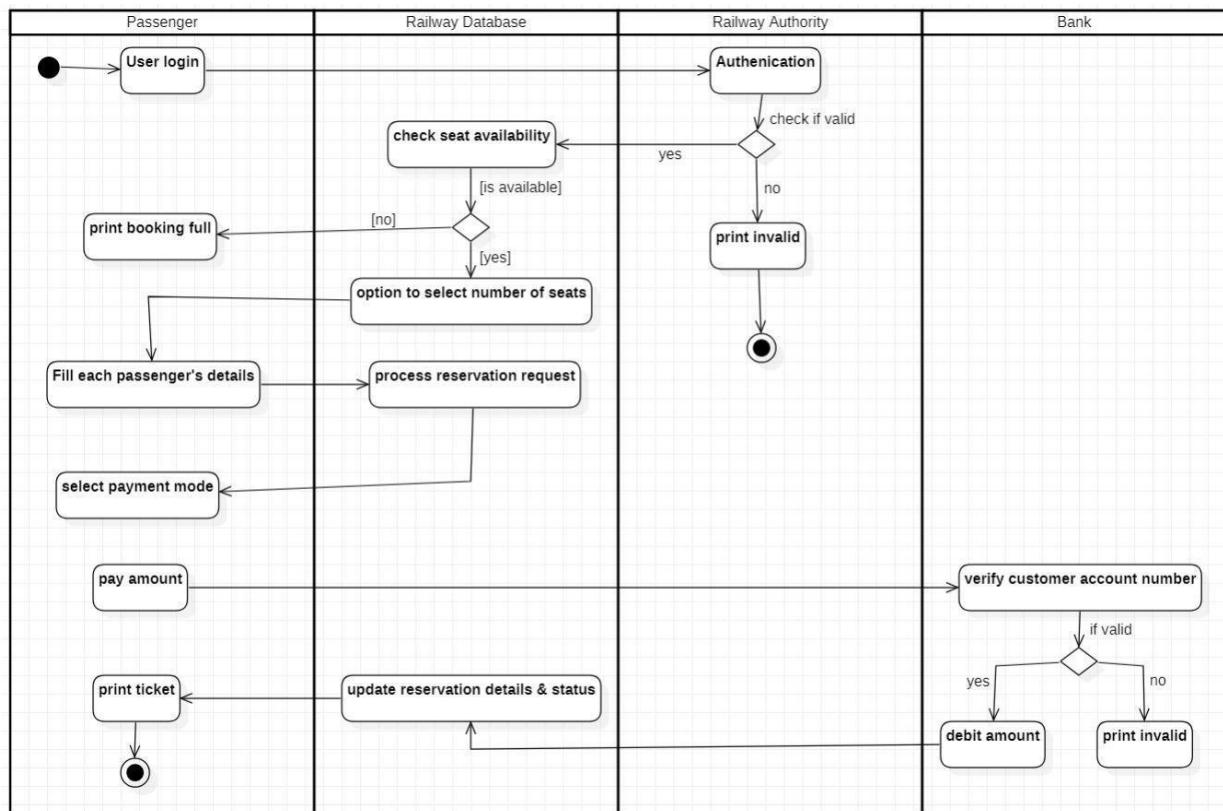
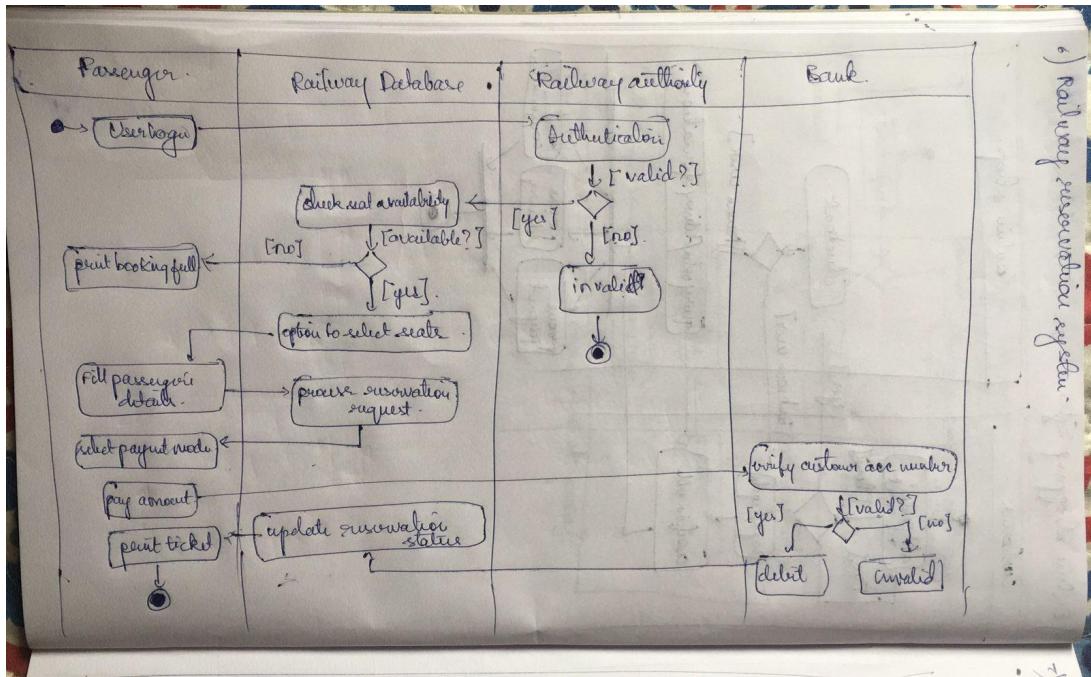
#### 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram



## Exercise 7: Graphics Editor System

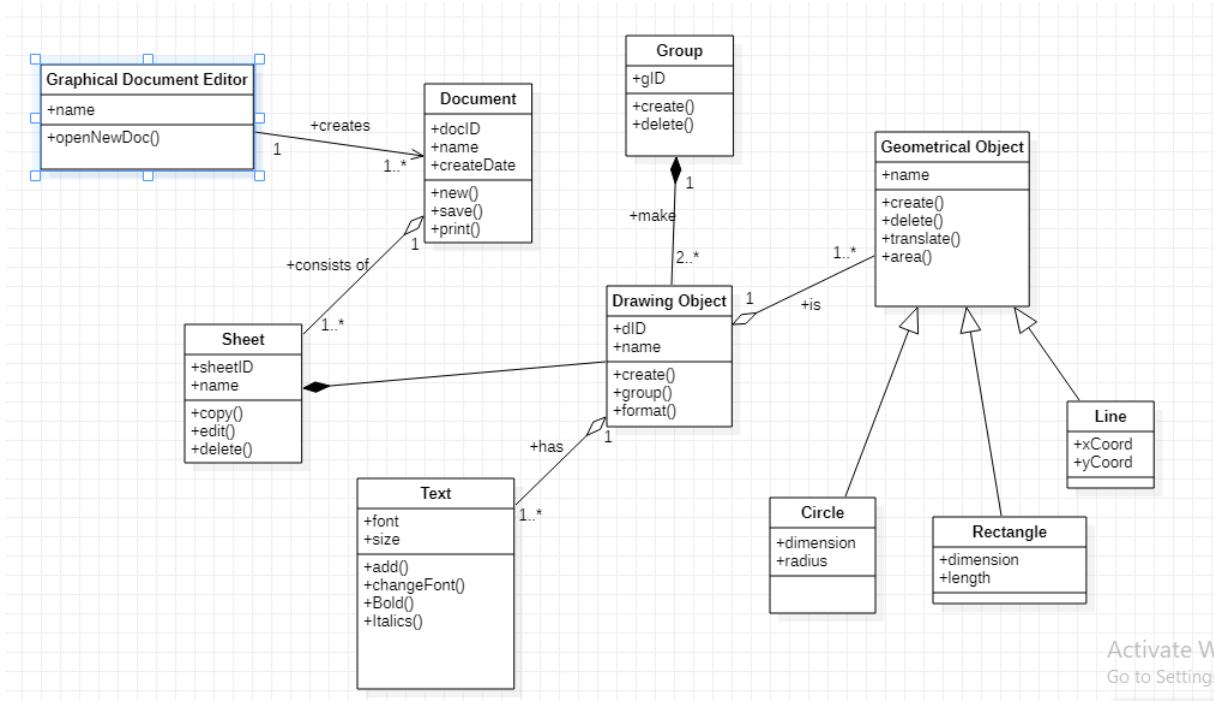
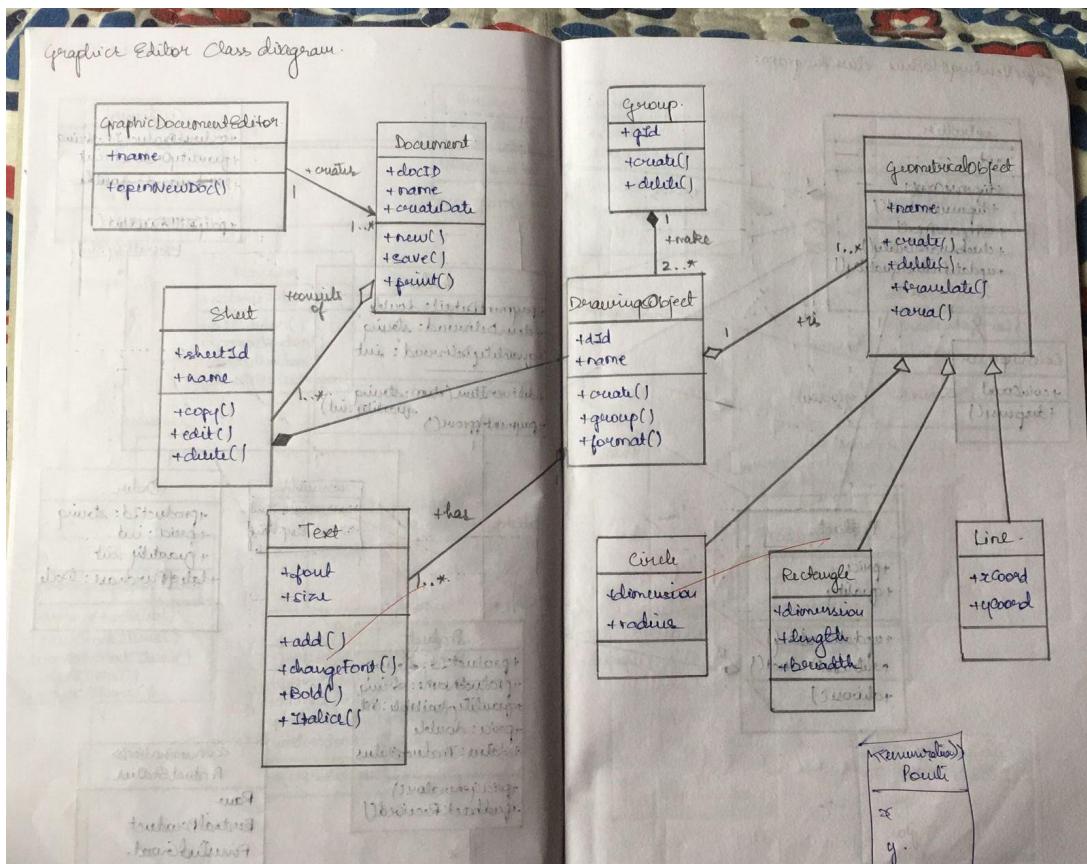
### 1. Write SRS

→ Graphics Editor System.

**Problem Statement:** This is an API which enables a programmer to develop his own graphic model editor for a specific type of model. Here the user can edit graphic objects in a drawing space. He can create any shapes to support and modify an underlying model. This allows us to drag objects from a specified model into a working graphical diagram.

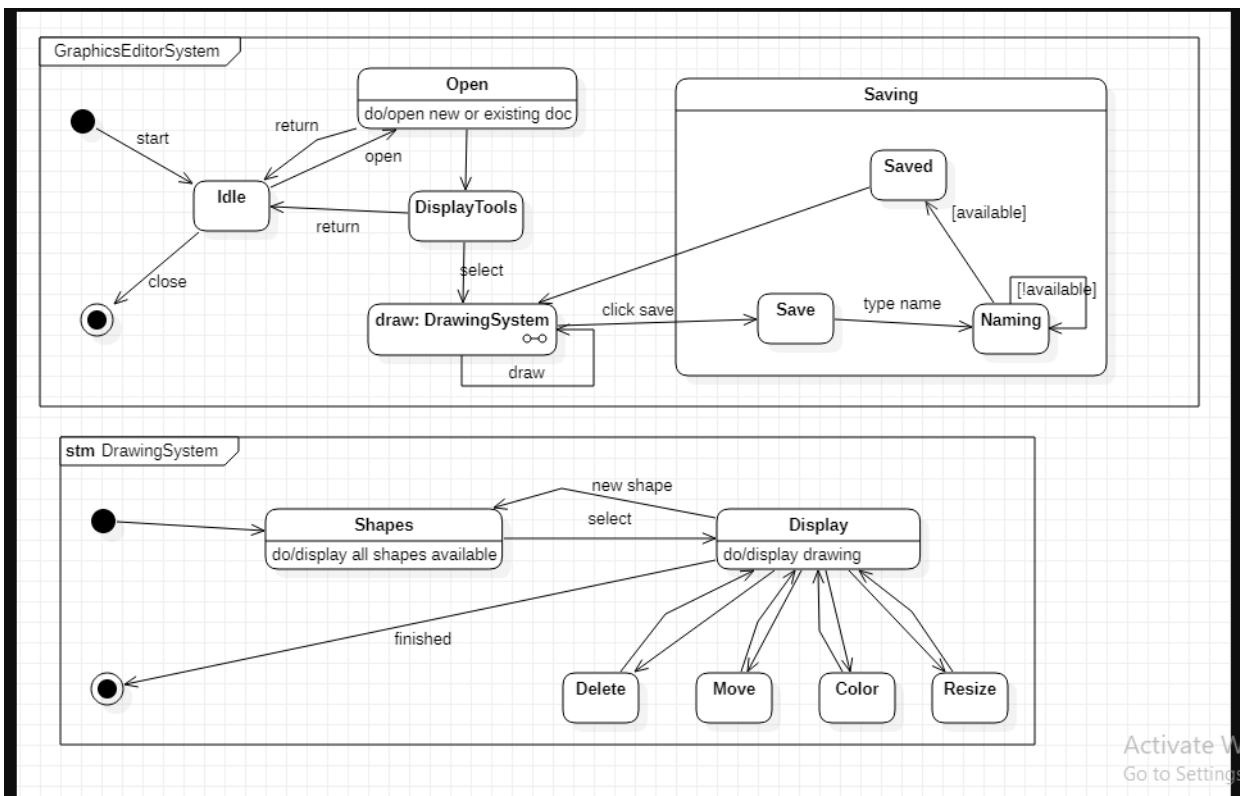
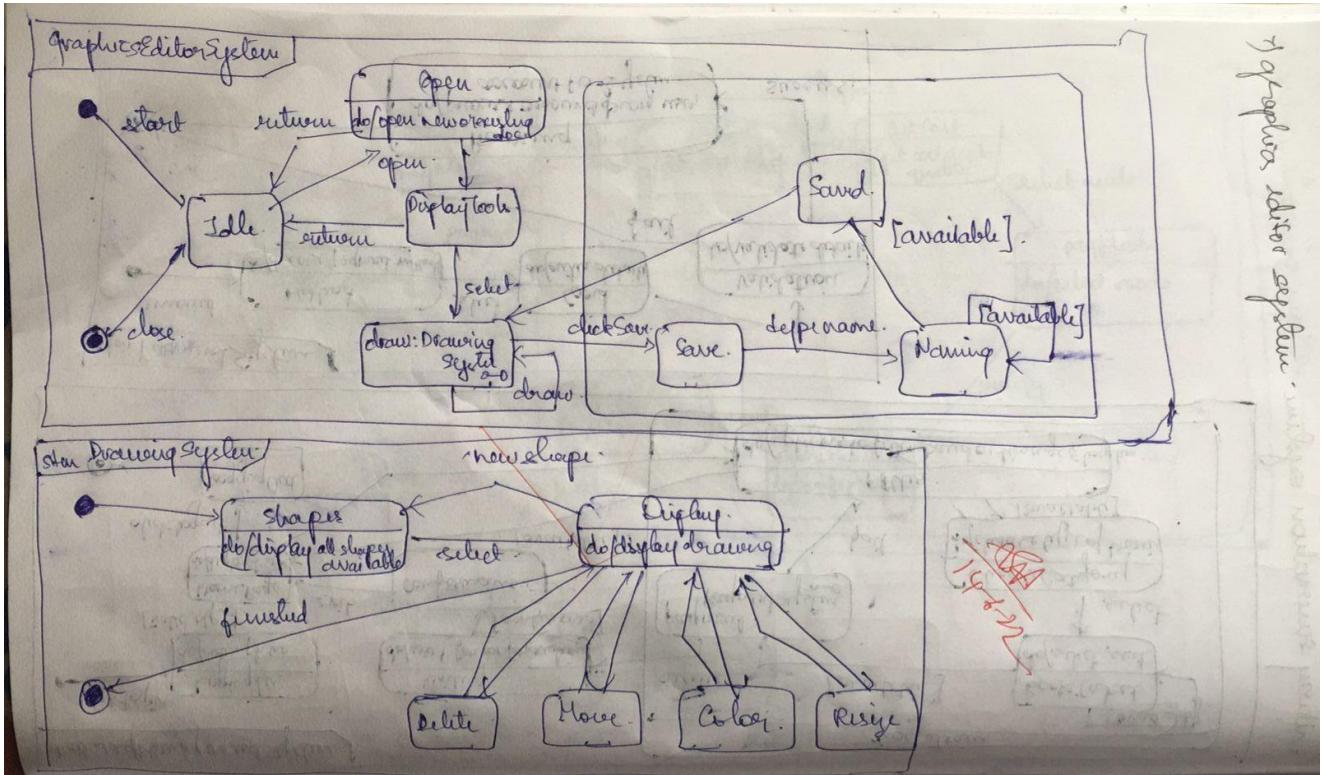
- **toolbox:** This contains tools like line, circle, rectangle, arc, text, draw, eraser.
- **palette:** This contains all the colours to fill the shape and display them.
- **toolbar:** This basically contains all the options like New, Open, Save, Toolbox, Text, toolbox etc.
- **Integrated view:** shows the overall view excluding everything like toolbar, colourbox, menu and graphic screen.
- **complex drawing:** lets us group several drawings into one.
- **zoom in and zoom out** comes handy.
- **different shades of line tool** are provided.
- **easy tool handling**.
- **consumer copyright**
- **administrator authentication**
- **developer access to the system**.

## 2. Draw the advanced class diagram



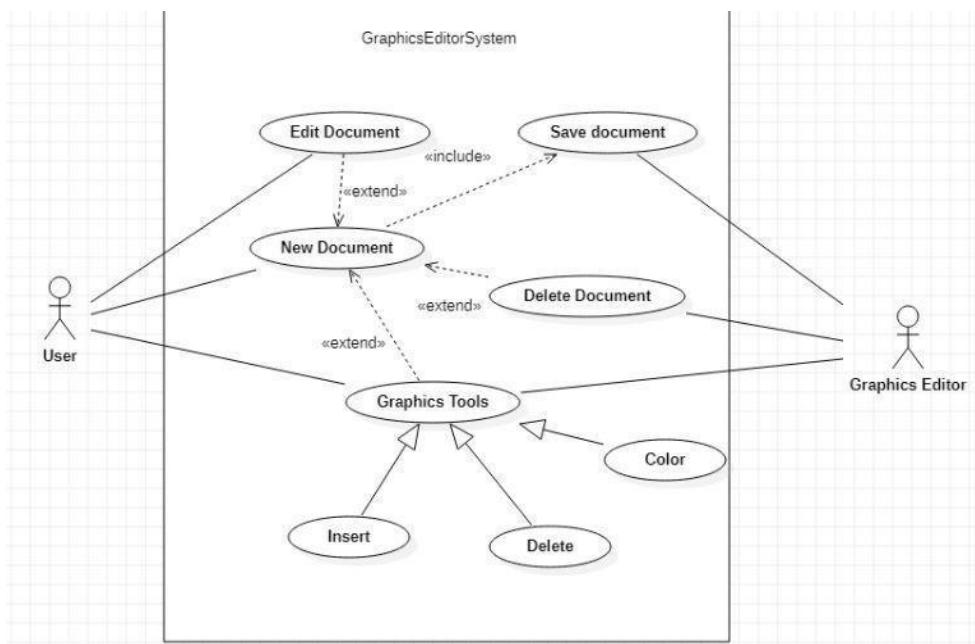
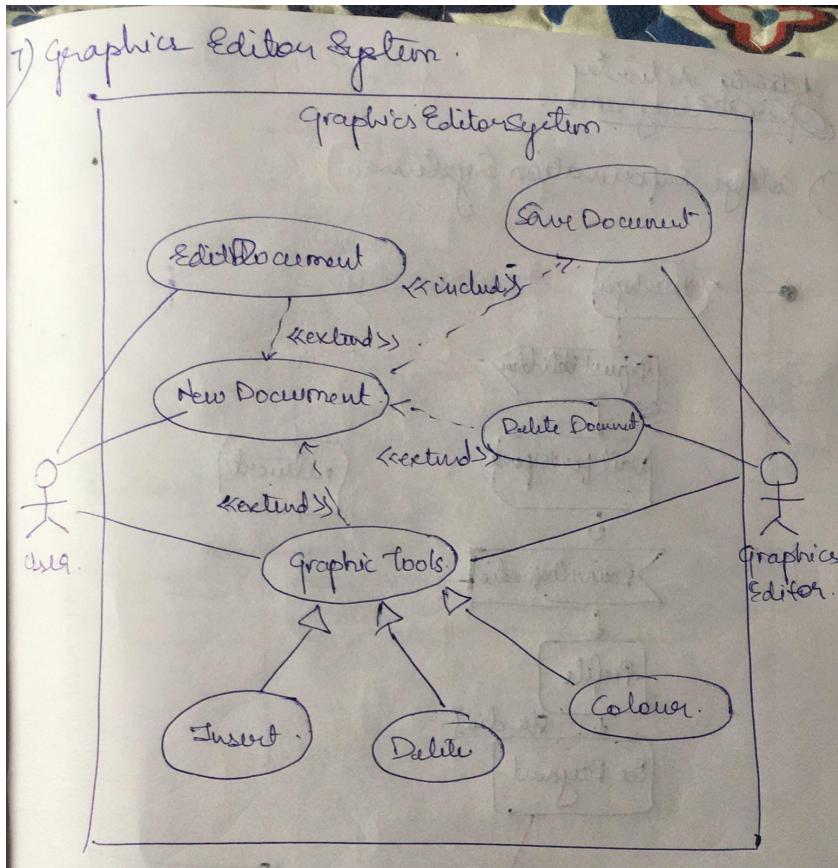
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### 3. Draw the advanced state diagram

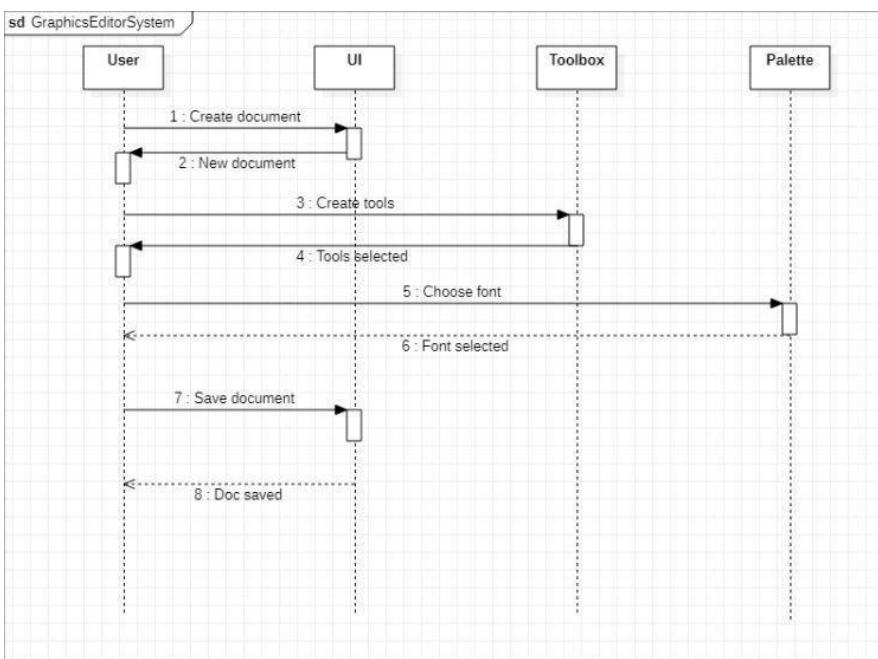
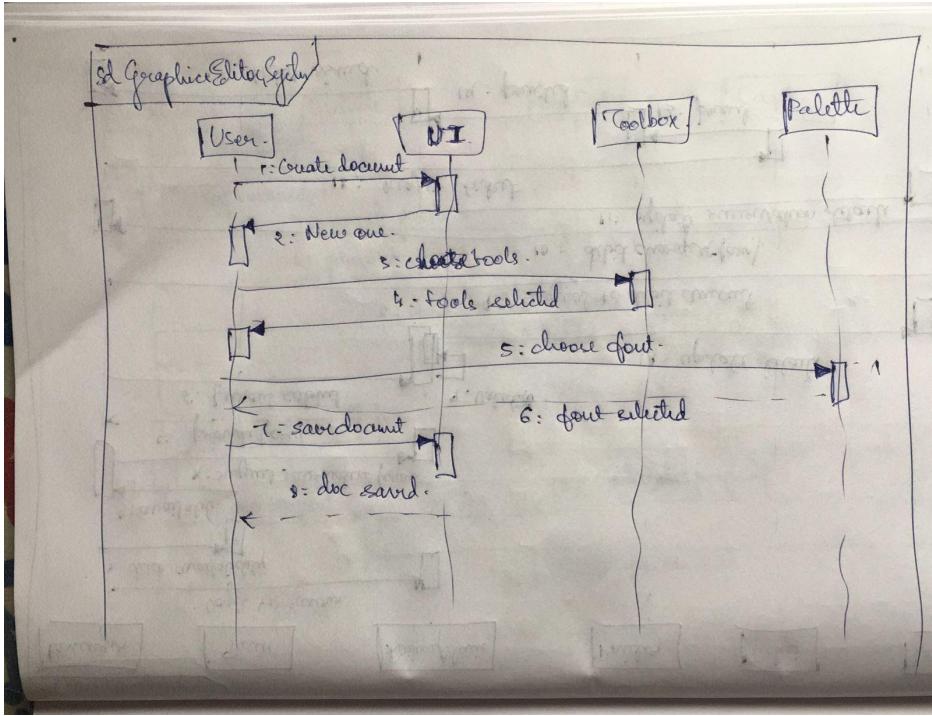


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#### 4. Draw the advanced use case diagram



## 5. Draw the advanced sequence diagram



## 6. Draw the advanced activity diagram

