

# VISVESVARAYA TECHNOLOGICAL UNIVERSITY

"JnanaSangama", Belgaum -590014, Karnataka.



**LAB REPORT on**

## **OBJECT ORIENTED MODELLING AND DESIGN**

*Submitted by*

**DEEPTHI L (1BM19CS226)**

*in partial fulfilment for the award of the degree of*

**BACHELOR OF ENGINEERING**

*in*

**COMPUTER SCIENCE AND ENGINEERING**



**B.M.S. COLLEGE OF ENGINEERING BENGALURU-560019 May-2022 to  
July-2022**

(Autonomous Institution under VTU)

**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 “LAB COURSE **Object oriented modelling & design**” carried out by **DEEPTHI L (1BM19CS226)**, who is bonafide student of **B. M. S. College of Engineering**. It is in partial fulfilment for the award of **Bachelor of Engineering in Computer Science and Engineering** of the Visvesvaraya Technological University, Belgaum during the year 2022. The Lab report has been approved as it satisfies the academic requirements in respect of Object oriented modelling and design – **(20CS6PCOMD)** work prescribed for the said degree.

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## Course Outcome

At the end of the course the student will be able to

**CO1** Ability to apply the knowledge of class, State & Interaction Modelling using Unified Modeling Language to solve a given problem.

**CO2** Ability to analyze a System for a given requirement using Unified Modeling language.

**CO3** Ability to design a given system using high level strategy.

**CO4** Ability to conduct practical experiment to solve a given problem using Unified Modeling language

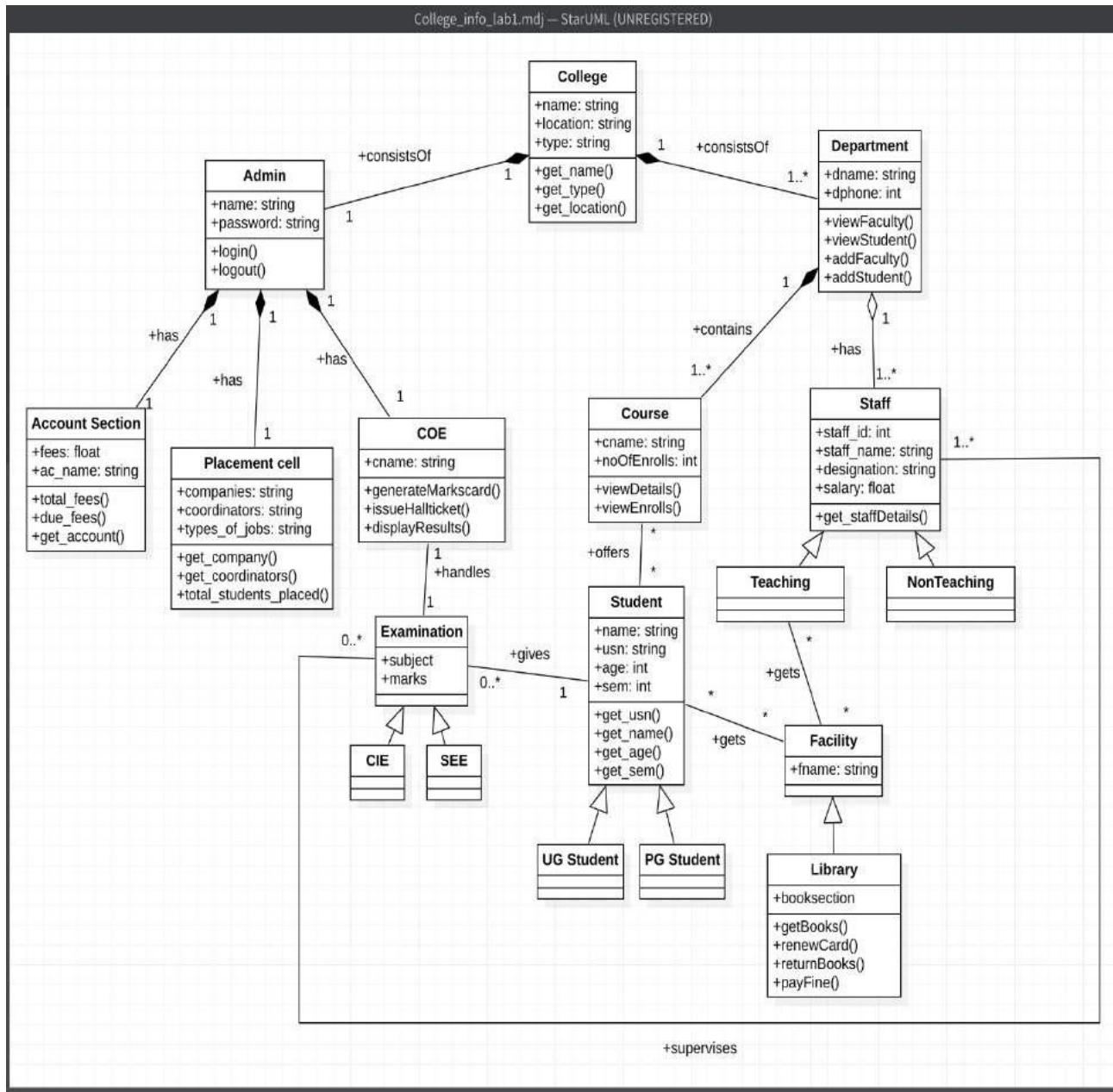
# **1. COLLEGE INFORMATION SYSTEM**

## **SRS**

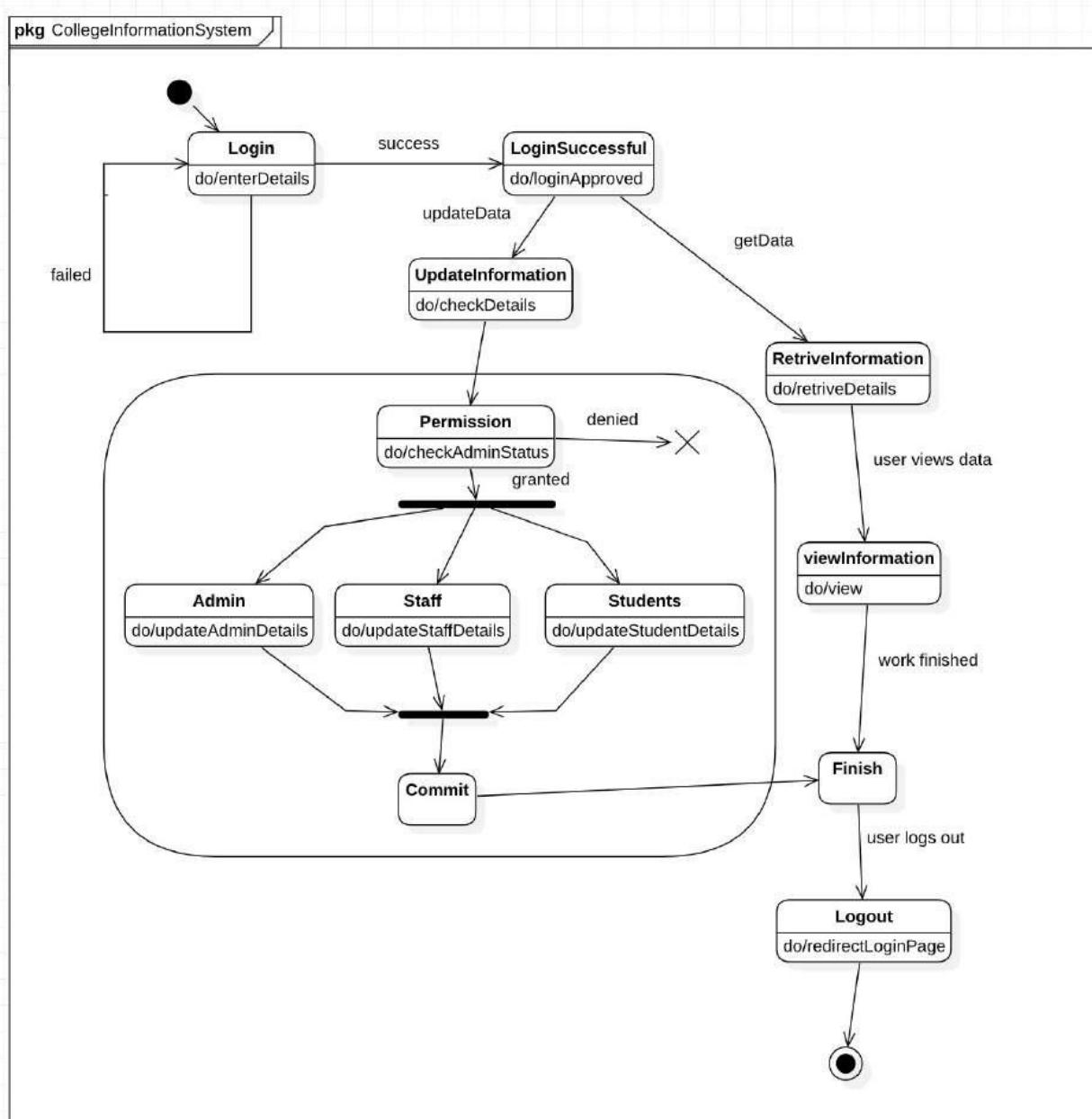
A centralized approach and system for managing, storing, accessing and updating all the information and details present in relevance to students, and teaching and non-teaching faculty, increasing efficiency and convenience of information management in educational institutions.

- Educational institutions should be able to add, edit and view student personal details, like name, age, gender, email, phone number, address and so on.
- Educational institutions should be able to add, edit and view student academic details, like USN, department, semester and registered courses.
- Faculty should be able to view all student personal details, and should be able to view and edit internal evaluation marks and attendance of students.
- The COE office should be able to view all student details, and view and edit internal and examination marks, and publish results.
- Placement section should be able to view all student details, and add companies coming to the campus for placements.
- Management section should be able to view, add and edit teaching and non-teaching staff details.
- Students should not be allowed to edit their personal or academic details.
- The system should be convenient and easy to use by students, management and faculty.
- The system should be a reliable source of information viewing (most importantly, academic grades) for students, COE and faculty

## ADVANCED CLASS DIAGRAM:-



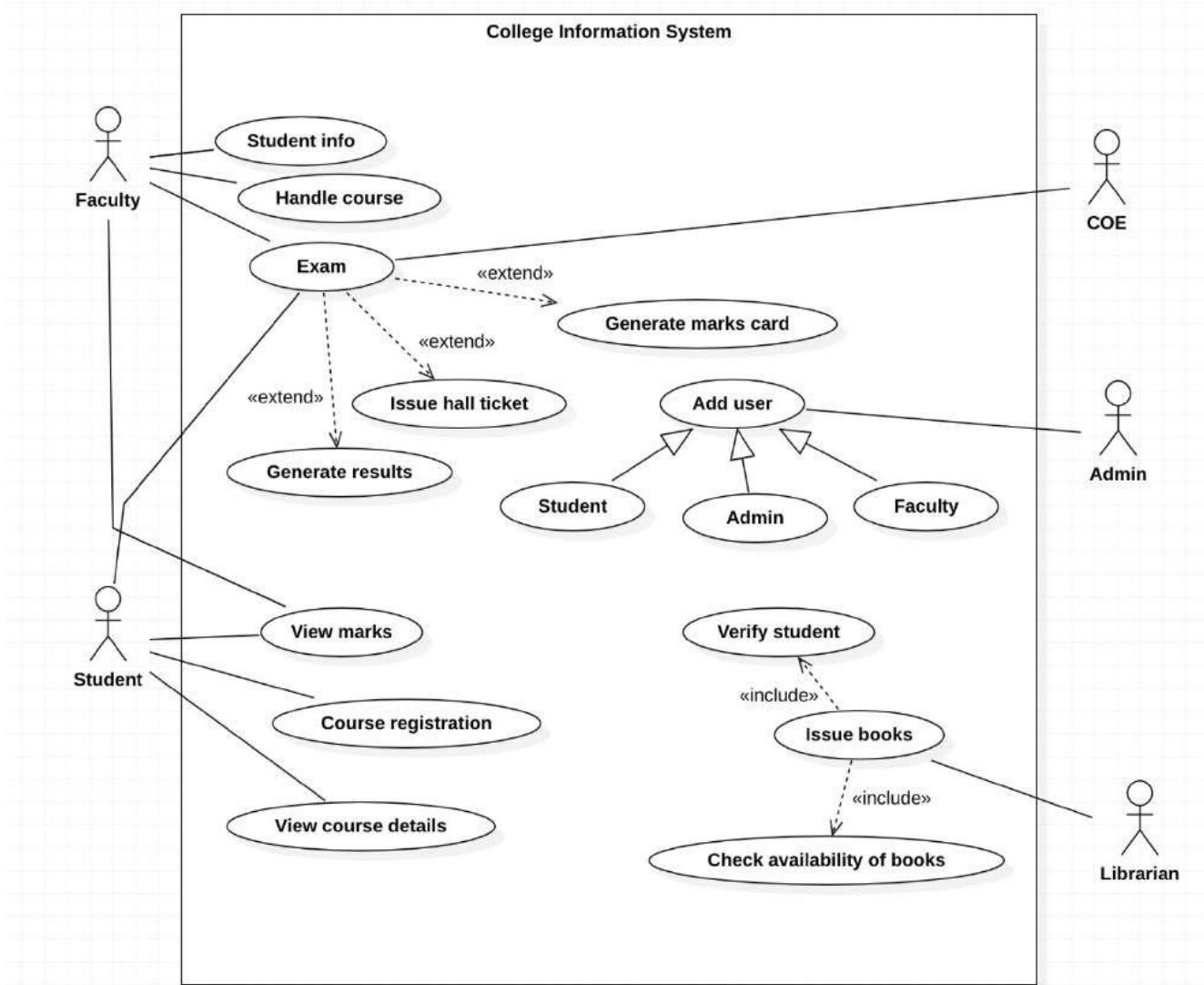
## ADVANCED STATE DIAGRAM:-



The above state diagram describes the states the admin goes through in uploading information of student, staff and department. The admin first needs to login which then leads to the validate state, where the login id and password are validated. If invalid it then goes back to the login state or goes to the get information state. Upon receiving the correct information it goes to the upload state and then to commit state to save all changes. The

admin first needs to login and be cleared of their permissions. The admin can then manage information related to the student ,teacher, or department. After necessary changes the admin can update the information and logout from the system.

## ADVANCED USE CASE DIAGRAM:



### Actors:

Admin: the person who manages everything

Student: A person who uses the system

COE: A person who is responsible for examinations

Staff: A person who works in the college

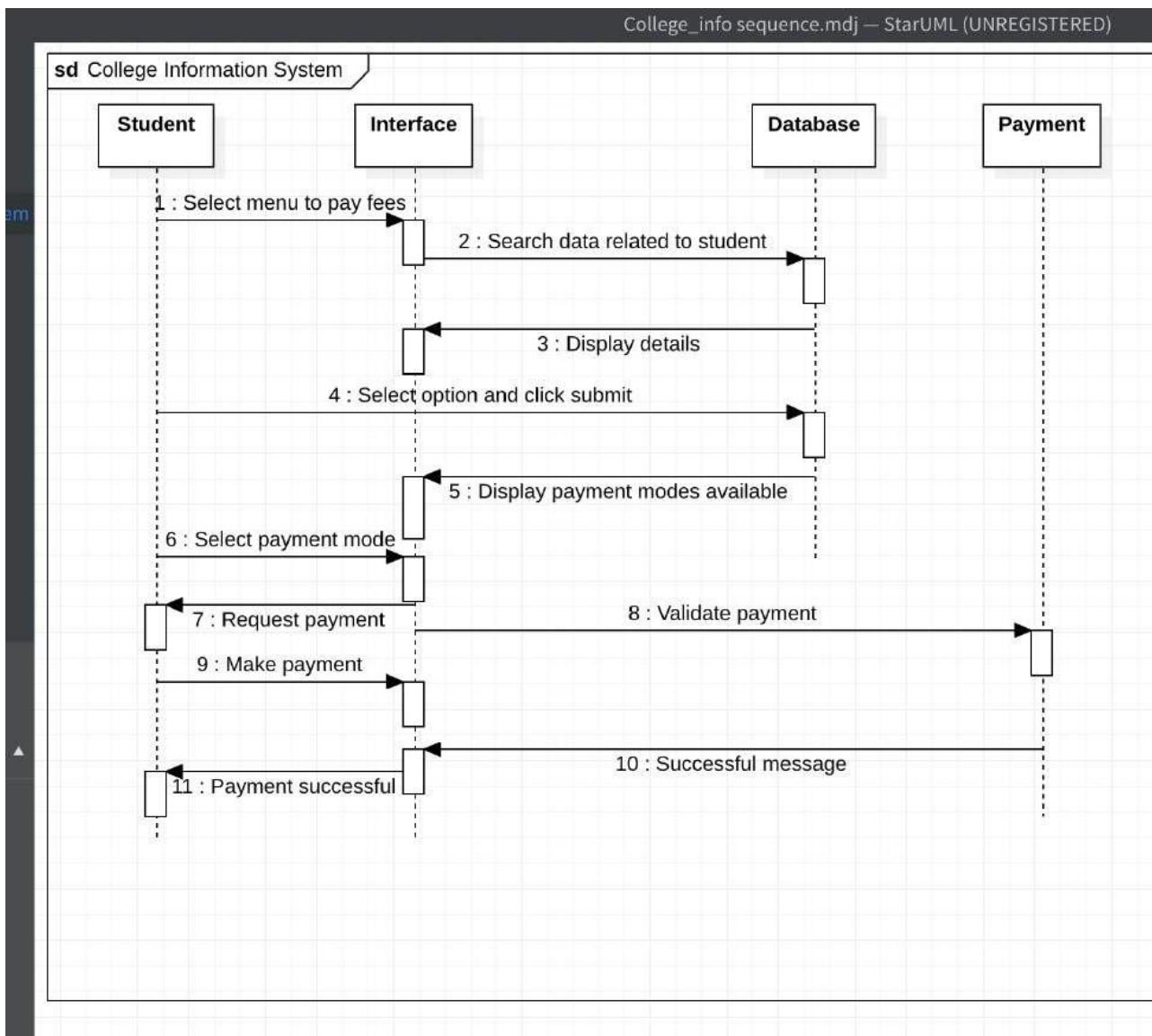
### Use Cases:

Manage details: the admin can update, insert or delete the data.

View results: displays the result of students.

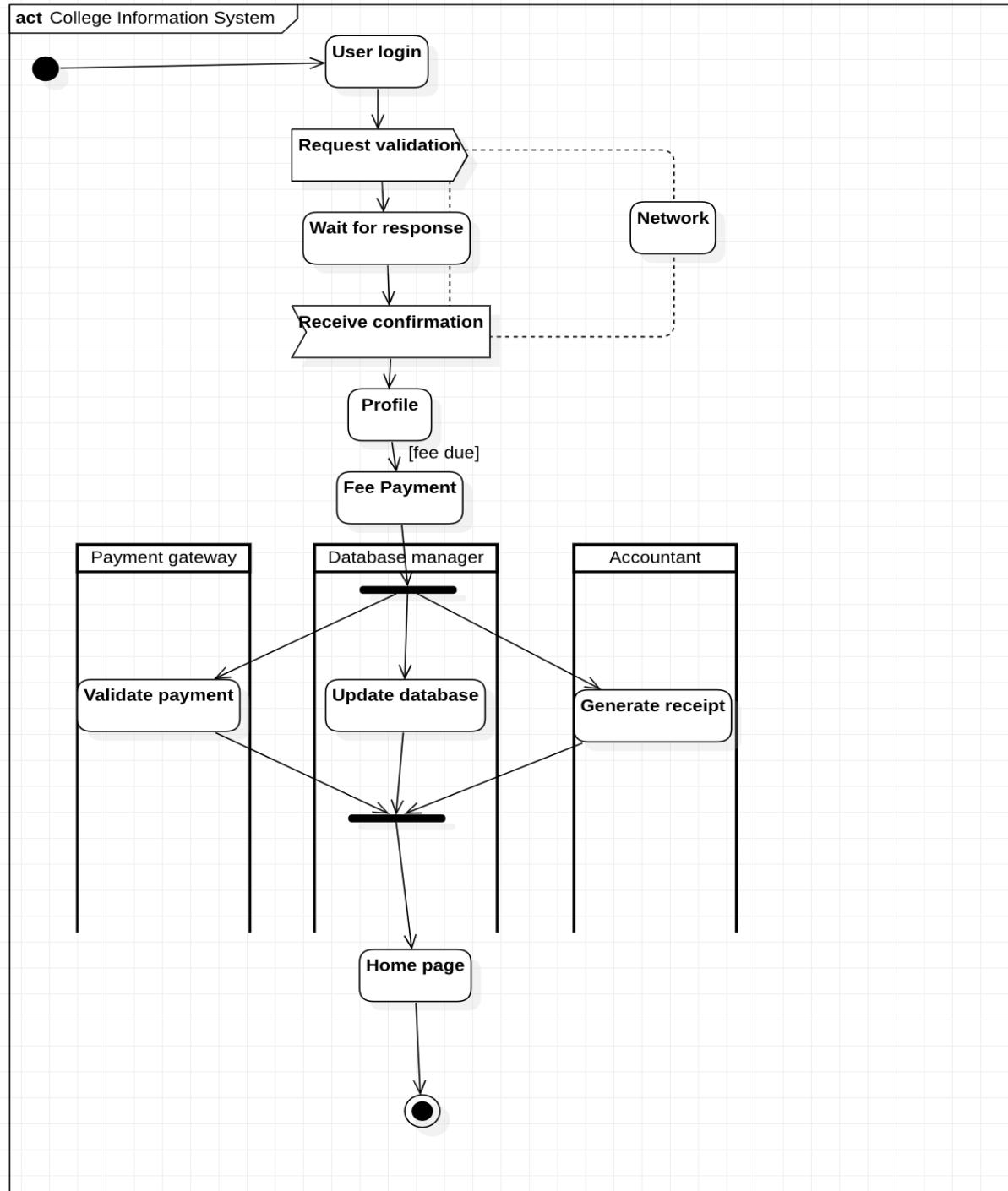
Subject details: various details related to subject is displayed.

## ADVANCED SEQUENCE DIAGRAM:



The above sequence diagram gives the interaction between objects while a user is logging into system. The user enters login information in the website which sends to the server, where the information is validated and the appropriate reply message is displayed to the user.

## ADVANCED ACTIVITY DIAGRAM



The above activity diagram has three swimlanes mainly payment gateway, database and Accountant. The accountant generates receipts. The database verifies the login information

and on success has two options. The payment gateway validates payment.

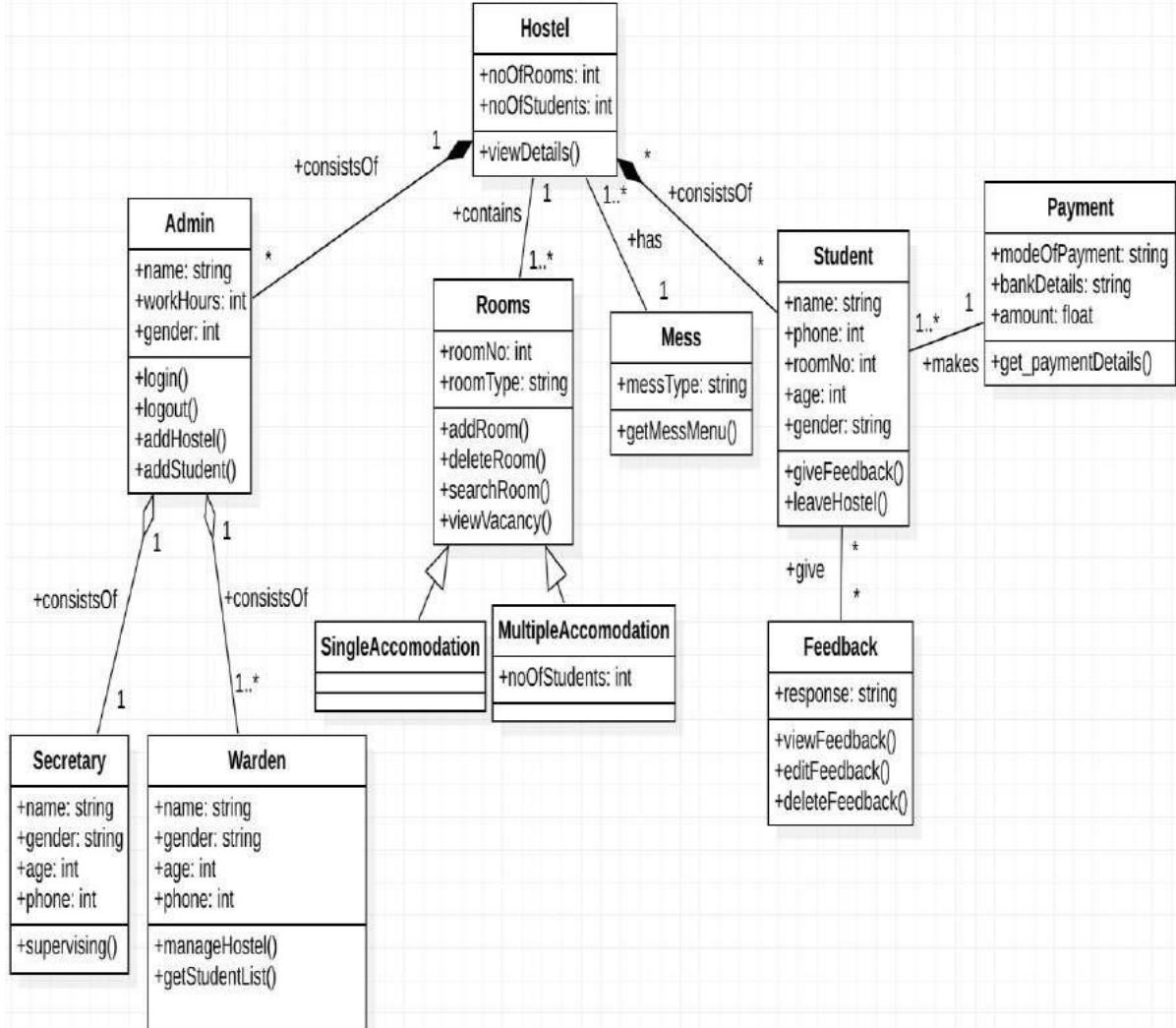
## **2. HOSTEL MANAGEMENT SYSTEM**

### **SRS**

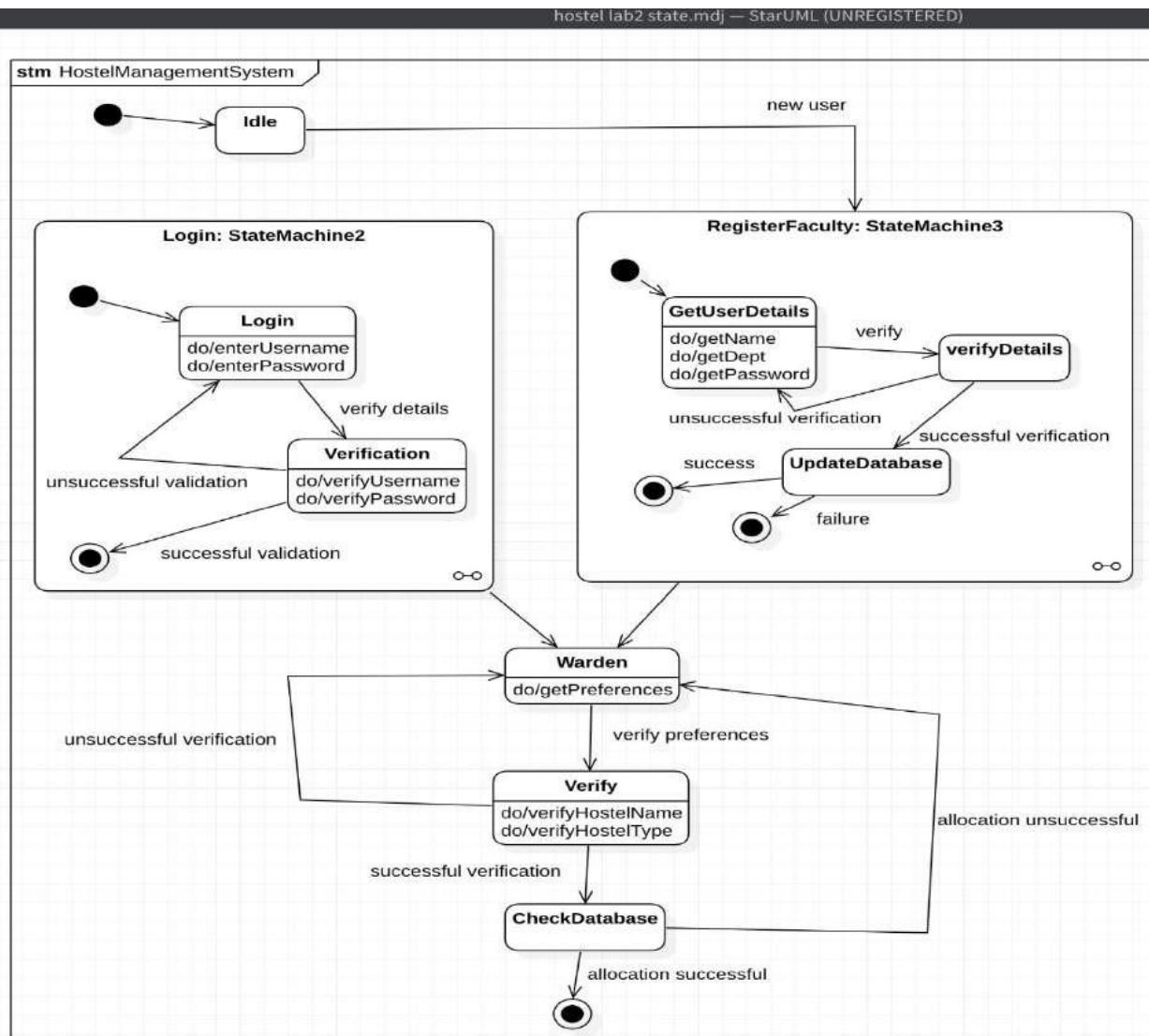
The purpose of Hostel Management System is to carry out different operations of a hostel. This system will provide ease, comfort of use to the staff of the hostel by performing all work on computer. It helps to manage student and staff records.

- Admin can login using credentials provided to him.
- Admin can allot room to students.
- Students can login using the credential provided and can give feedback about staff.
- Admin can review the feedback provided by students.
- Admin can appoint staff.
- Students can provide mess feedback.
- Mess managers can review the mess feedback.
- Mess manager can update the menu list.
- Admin can assign work to staff members.
- The system should be easy to handle.
- System should give expected performance results.
- The response time should be small.

## ADVANCED CLASS DIAGRAM:-

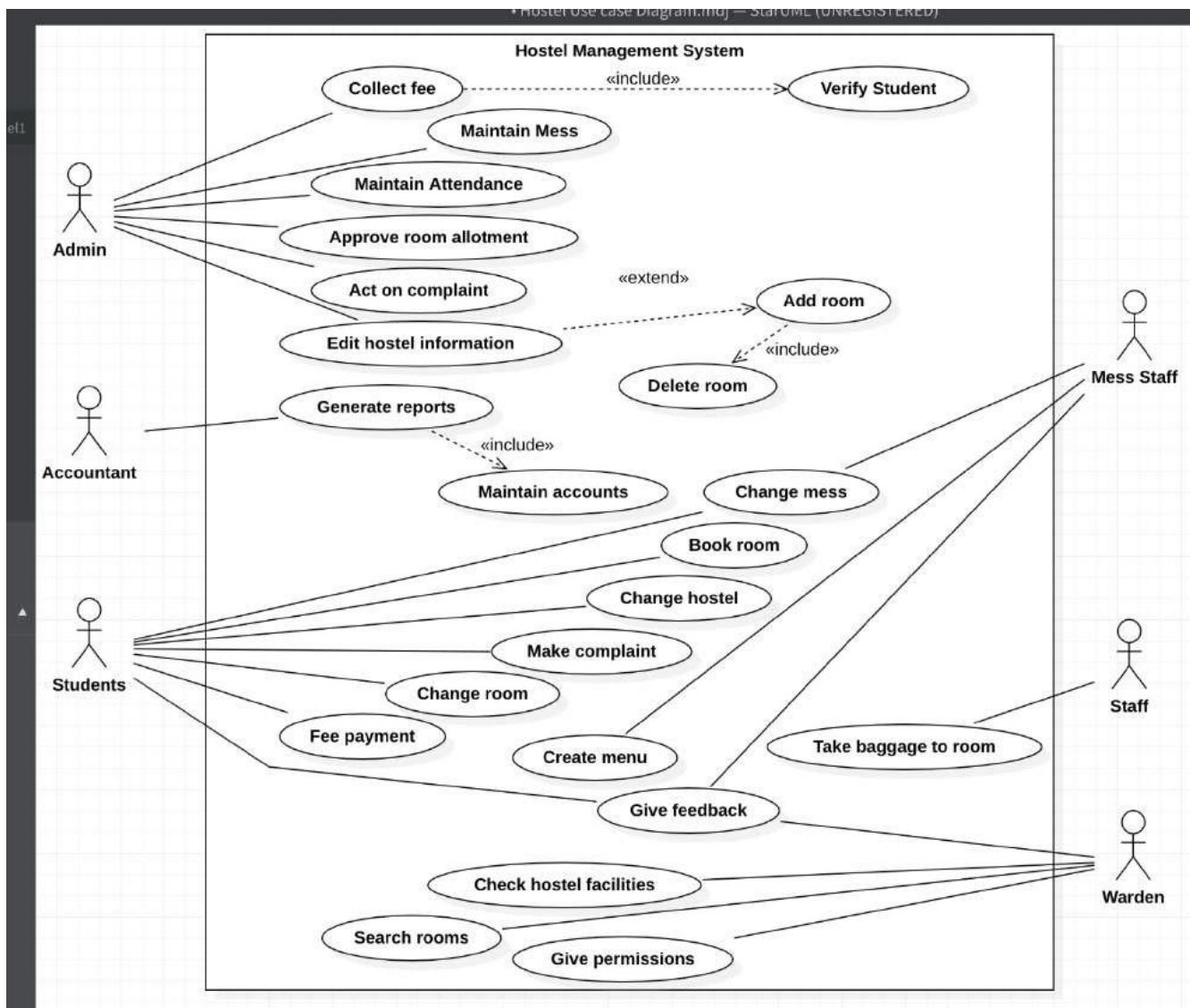


## ADVANCED STATE DIAGRAM:-



The above state diagram gives the movement of states in allotting a room to a student. The admin allots rooms for students. The admin first logs in to the database, which displays a set of options. The admin then chooses to allot rooms and finds the availability for rooms. If rooms are available then the admin allots room to the student and when successful the stu

## ADVANCED USE CASE DIAGRAM



### Actors:

Warden : the person who manages the allottees

Student : the person who uses the hostel system

### Use Cases:

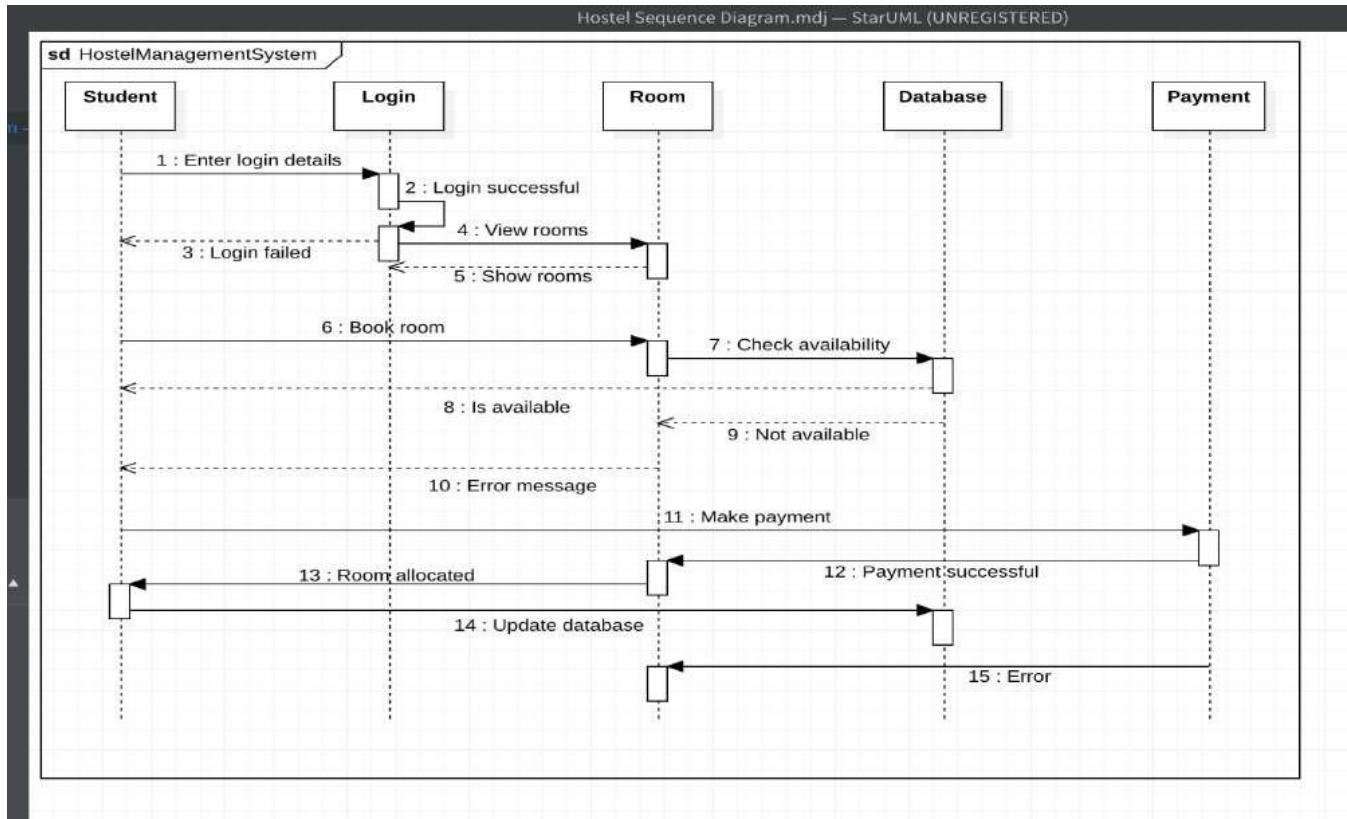
Manage hostel : allows actor to update delete or add information

Login : allows actors to login into the system.

Add allottee: the students are allotted hostel rooms

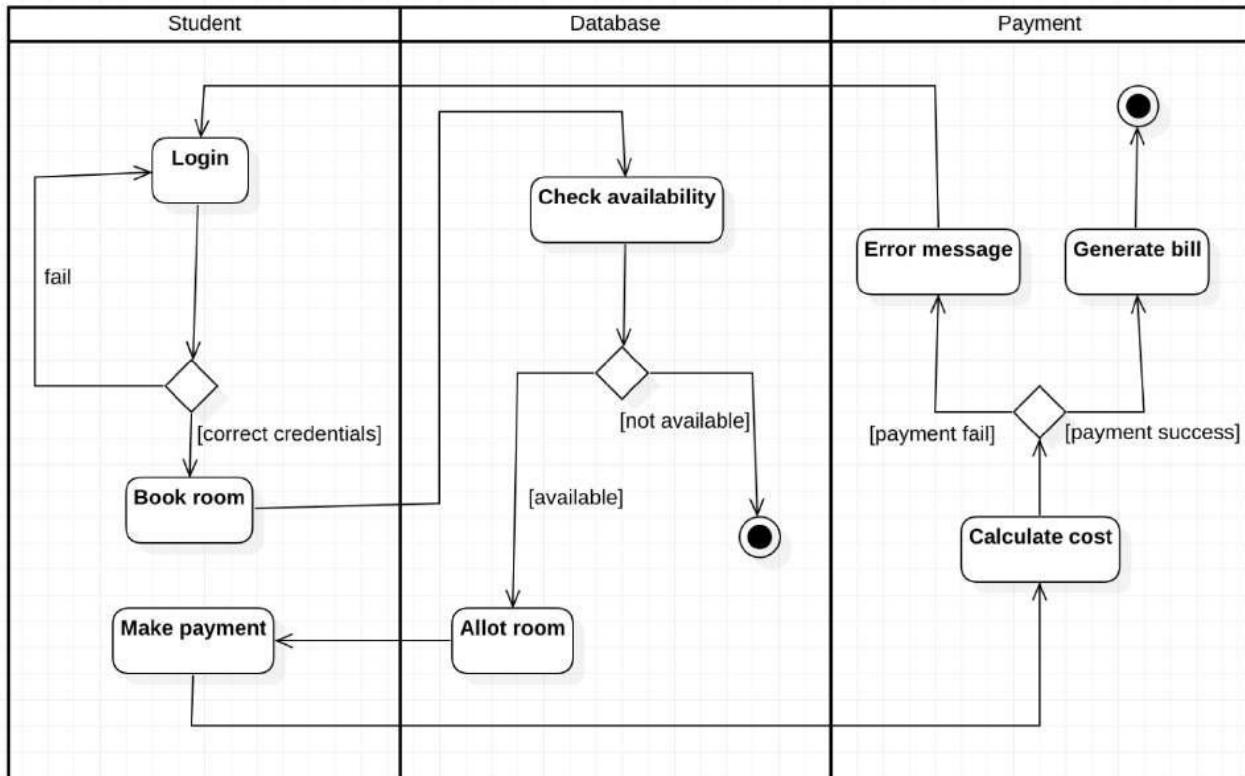
Book hostel: the student can select the hostel they wish to stay in.  
Pay fees: the fees payment is done

## ADVANCED SEQUENCE DIAGRAM



The above sequence diagram give the steps involved in a student logging in, booking a room, which is verified in the database and the payment for the same is made by the student.

## ADVANCED ACTIVITY DIAGRAM



The activity diagram tells about the activities involved in payment of fees. The above activity diagram give the steps involved in a student logging in, booking a room, which is verified in the database and the payment for the same is made by the student

### **3 STOCK MANAGEMENT SYSTEM**

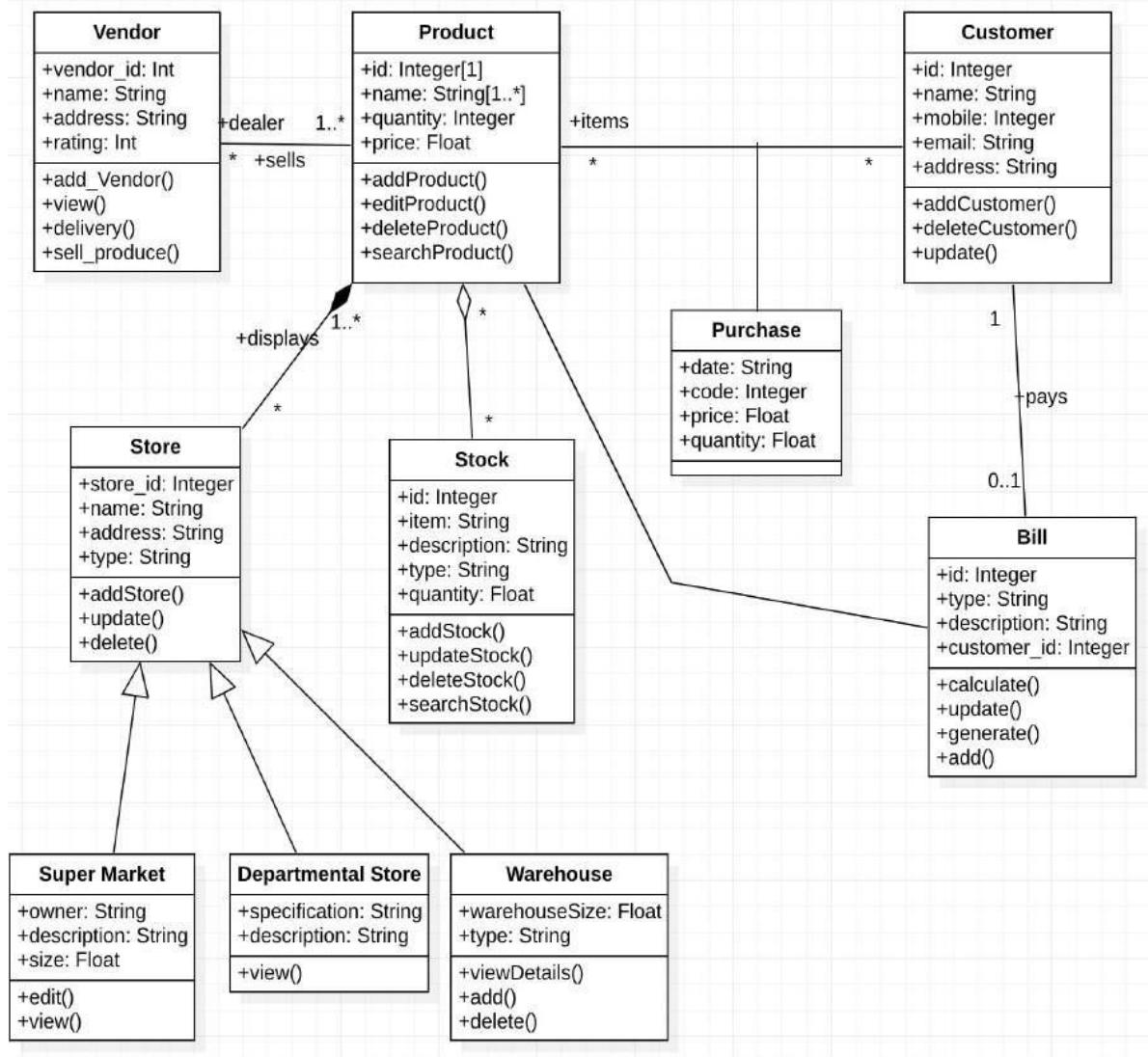
#### **SRS**

The stock maintenance system will allow the employees to record information of the items available in the store and generate reports based on the total amount of sales. The new system will have a windows-based desktop interface to allow employees to enter the information of sales, purchase orders, change employee preferences and create reports. The system retains information on all the items in the shop. The system retains the records of the cost, expiry date, vendor details, Discount, quantity. The employee maintains the information of the sale of the item. He can add the items at the right time and update the database. The customer can view the availability of the required items and the price of the items. The customer can just view them but cannot make any changes

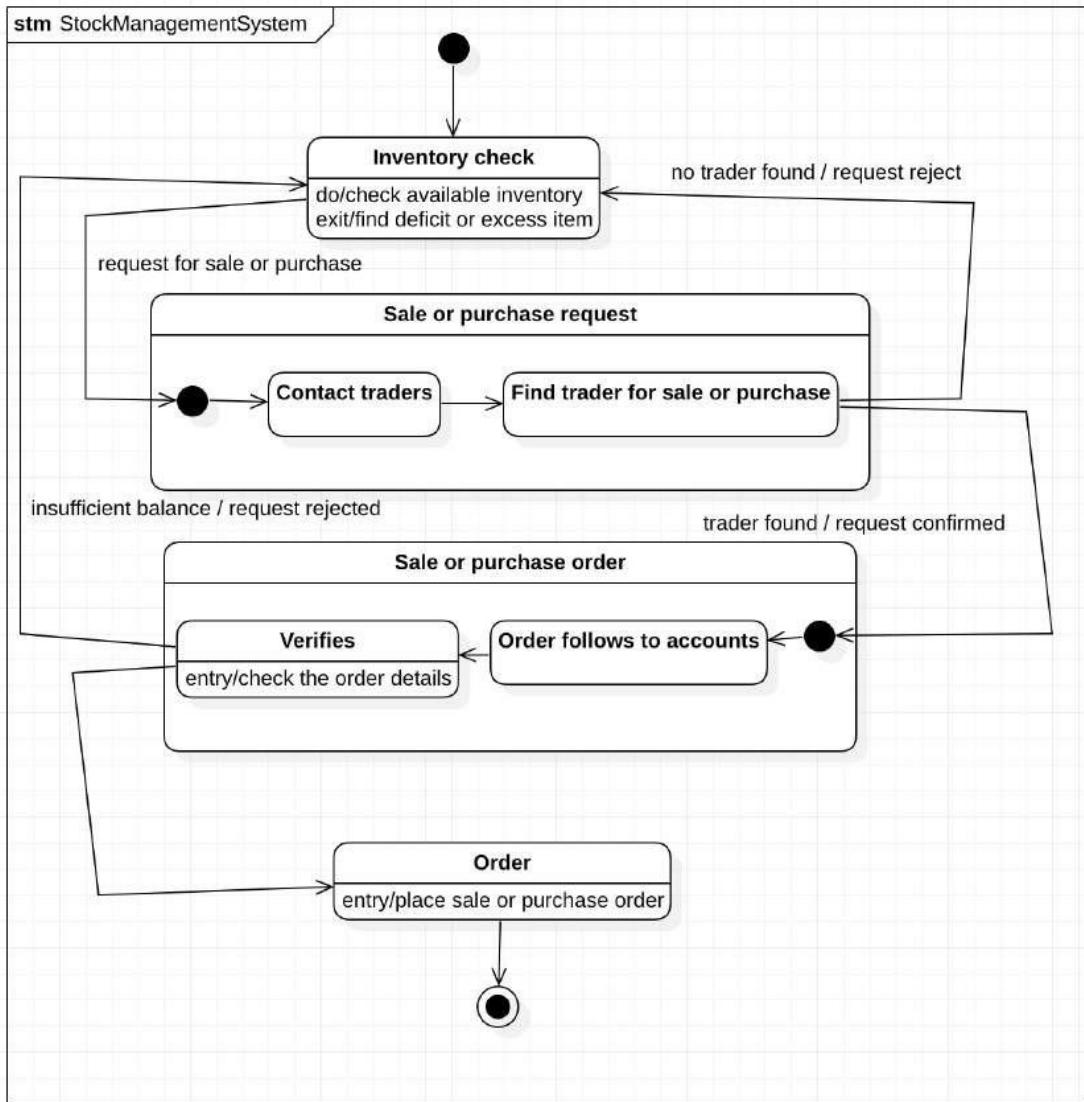
The process of stock maintenance system is that the customer logs in to the particular site to place the order for the customer product. The stock maintenance system is described sequentially through steps

- The customer logs in to the particular site.
- They fill the customer details.
- They place the orders for their product.
- The vendor logs in and views the customer details and orders

## ADVANCED CLASS DIAGRAM:-

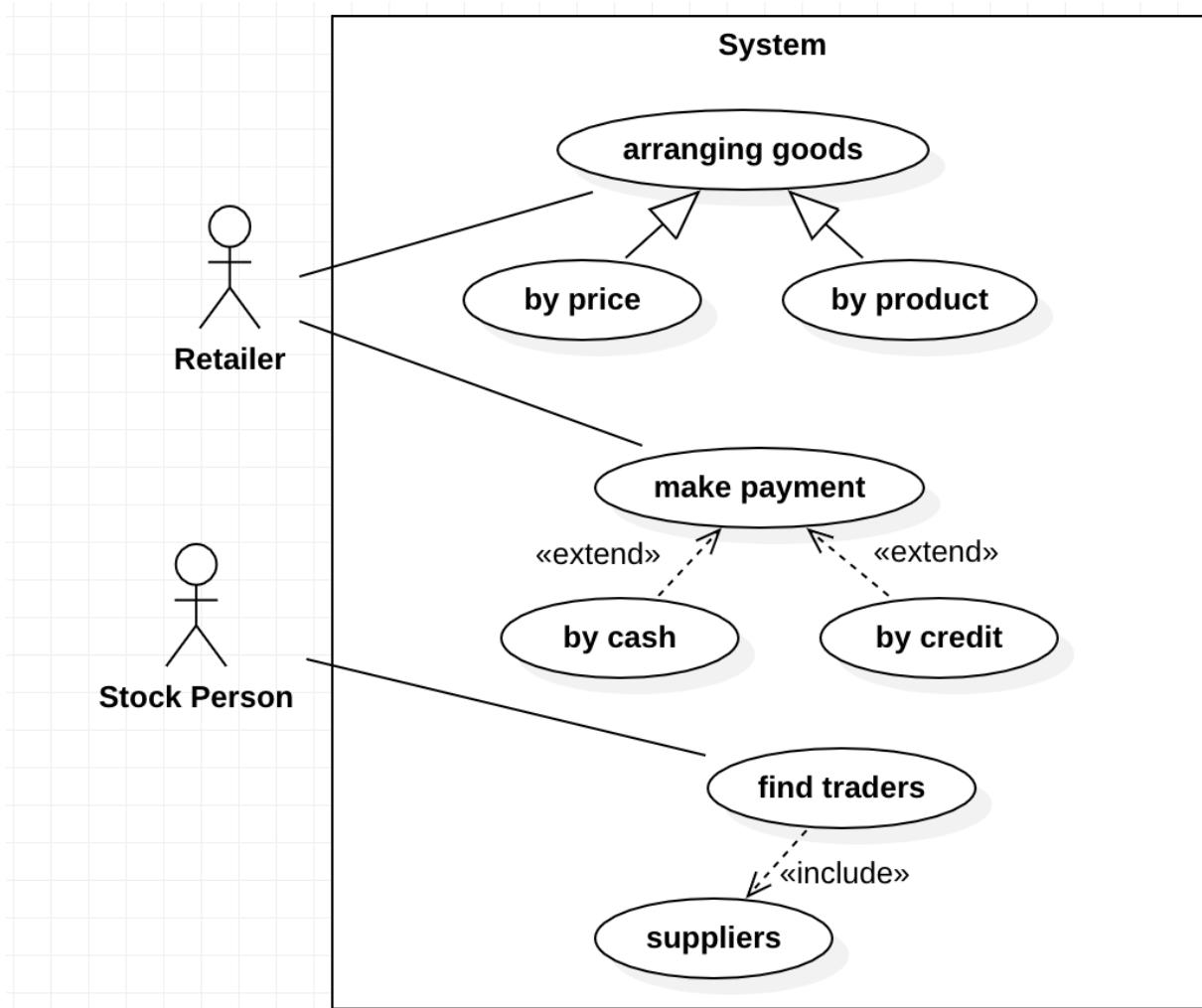


### ADVANCED STATE DIAGRAM:-



The state diagram above gives us the states involved in purchasing a product and placing the order for the same. There is first an inventory check, where stock of products is noted and if the stock is less than minimum an order is placed by first searching for suitable trader. If a suitable trader is found, the order is placed and verified by the accountant. After the accountant has verified a payment is made for the products purchased.

## ADVANCED USE CASE DIAGRAM



### Actors:

Customer: a person who purchases the products

Retailer: a person who sells the products

Warehouse Worker : a person who keeps check of the stock

### Use Cases:

Purchase item: allows a user to purchase any product

Make payment: accepts the payment

Supply stock: keeps track of the stock supplied

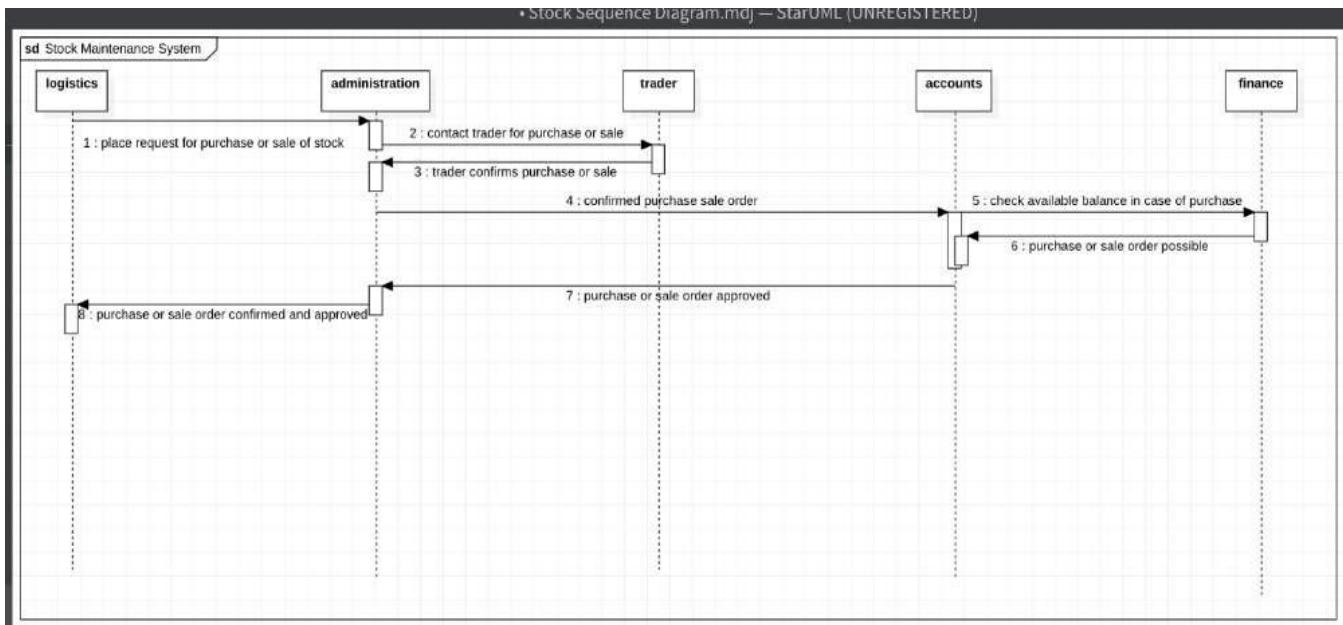
Find traders: provides a list of traders

Update stock: the stock list is updated by the stock person

Order goods: the products coming to an end are ordered

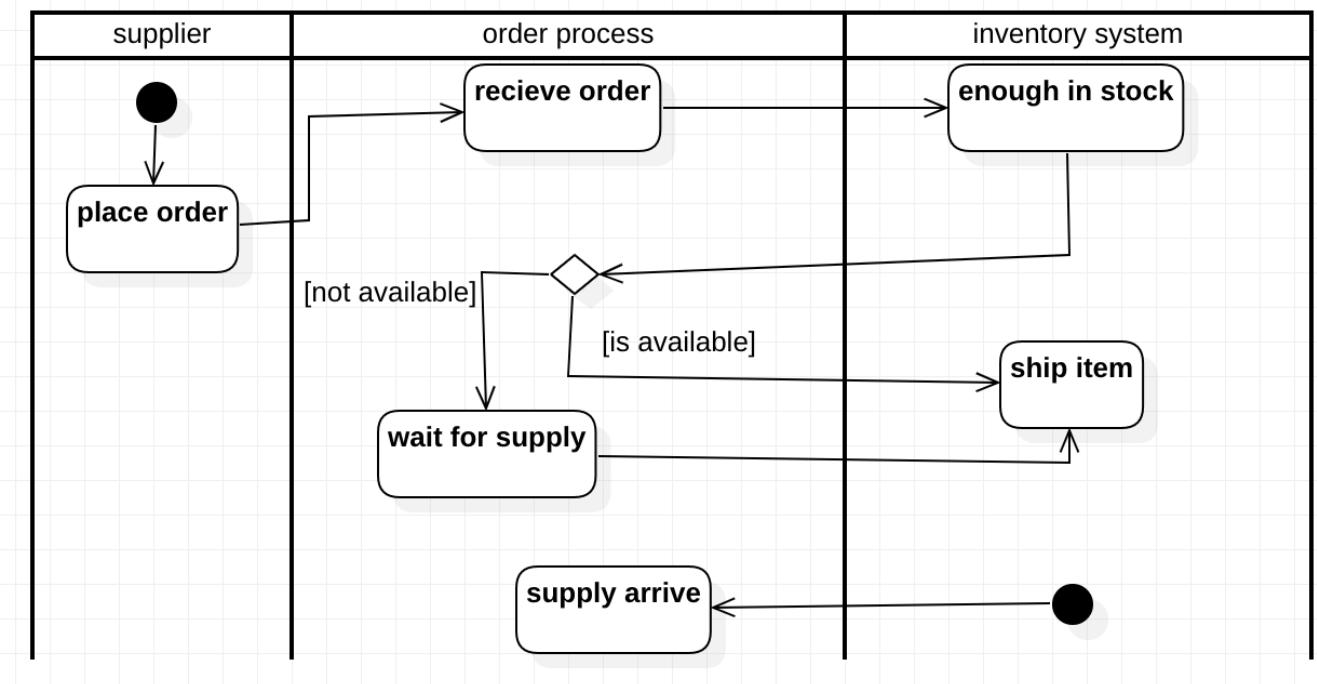
Prepare bill:a bill for products purchased is made

## ADVANCED SEQUENCE DIAGRAM



Place request for purchase/sale of stock  
 Contact seller for purchase/sale  
 Seller confirms purchase/sale  
 Confirmed purchase/sale order  
 Check available balance in case of purchase order  
 Purchase/sale order possible  
 Purchase/sale order approved  
 Purchase/sale of stock confirmed and approved.

## ADVANCED ACTIVITY DIAGRAM



The above advanced activity diagram gives us the activities involved with each swim lane. There are three swim lanes i.e supplier, order process and inventory system which have the activities of placing order, receive order and check for stock, and ship the item respectively

## **4.COFFEE VENDING SYSTEM**

### **SRS**

The Objective of the system is to prepare a coffee vending machine for commercial purpose. The system will be able to prepare coffee by processing all its required ingredients. Users will be provided with sophisticated and easy to use user interfaces.

There are many different types of coffee makers using a number of different brewing principles, in the most common devices, coffee grounds are placed in a paper or metal filter inside a funnel, which is set over a glass or ceramic coffee pot, a cooking pot in the kettle family. Cold water is poured into a separate chamber, which is then heated up to the boiling point, and directed into the funnel.

- Cash Box:Knows amount of money put in; Give change; Knows price of coffee; Turns front panel on and off.
- Front panel:Captures selection; Knows what to mix in each; Instructs mixer when to mix.
- Mixer:Knows how to talk to the dispensers.
- Dispenser [cup-, coffee powder-, sugar-, creamer-, water-]:Knows how to dispense a fixed amount, knows when it is empty.

Features :

- Small carbon footprint
- Energy saving advanced power management system
- Comprehensive drink range
- Simple user interface
- One touch servicing

Working : Coffee vending machines are quite simple and basic. The way they work is not too different to how a tabletop coffee machine or even a drip coffee machine operates. If you think about it, making coffee is simply adding together coffee beans or grounds to hot water and mixing with milk and sugar, that's exactly what a hot drink vending machine does.

Functions :

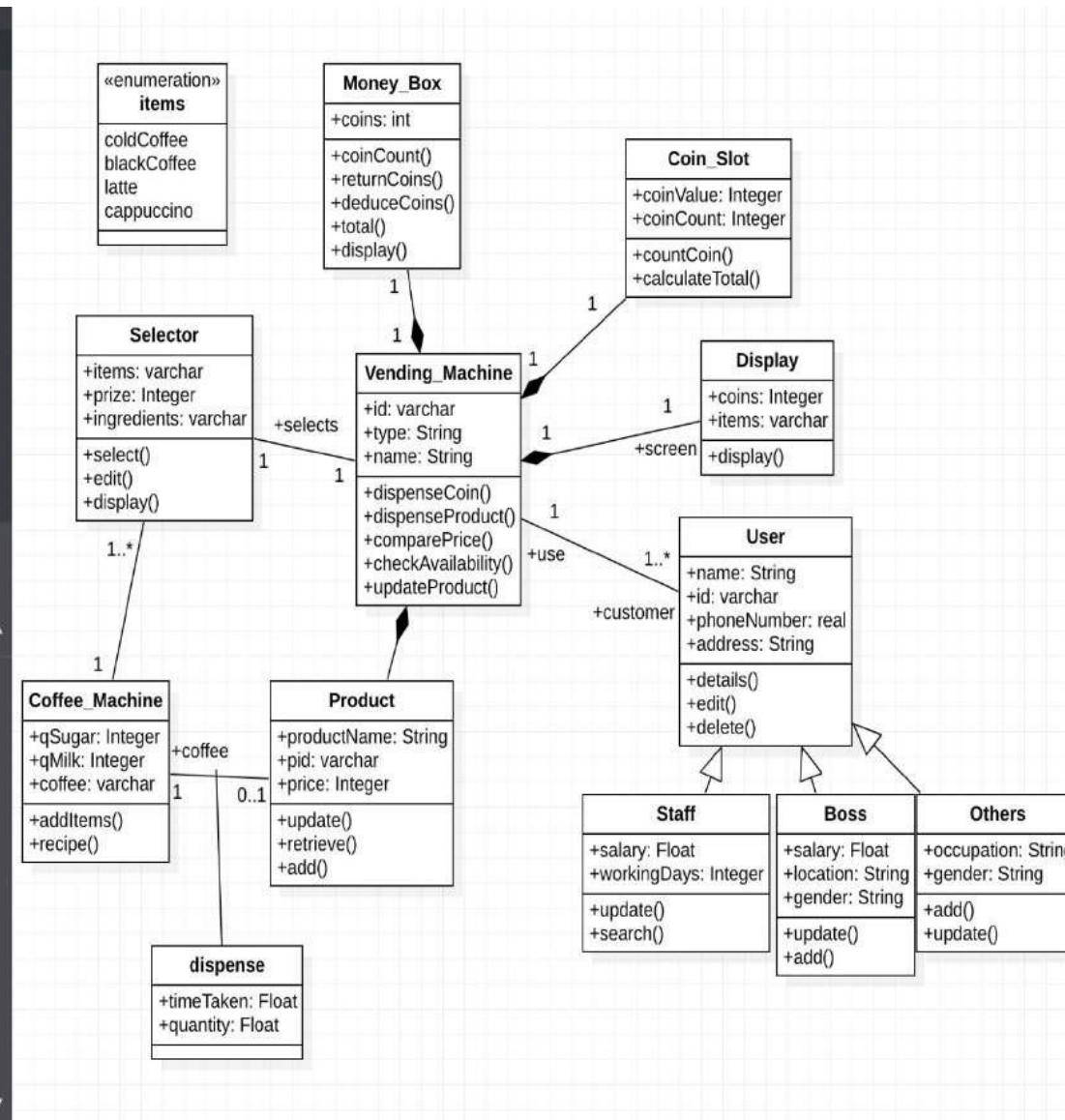
- Add heat:to heat the coffee we have 3 options. We could use a heating element where the water gravity fed into a tubular heating element, external to the water reservoir, and boiled out. Secondly, we could use a submersible heating element placed inside of the water reservoir to heat all of the water at once. Thirdly, we could use an external hot plate to heat one or multiple walls of the water reservoir and thus heat the water through surface convection.
- Direct Water:The fluids could be directed from the water reservoir to their final destination via tubing, gravity reed, and pump.

- Contain Water/Coffee: To contain the water and coffee we could use one reservoir, two reservoirs or a funnel. If one reservoir was used for both the water and coffee container, our design would be a percolating or French press coffeemaker.
- Reduce Noise: To reduce the overall noise we consider two options: noise dampening material and internal brew mechanism. To lessen the noise produced by our designs we could fill or cover the outer shell of a noise dampening material. We could also keep the brew mechanism, whether it is drip spout.

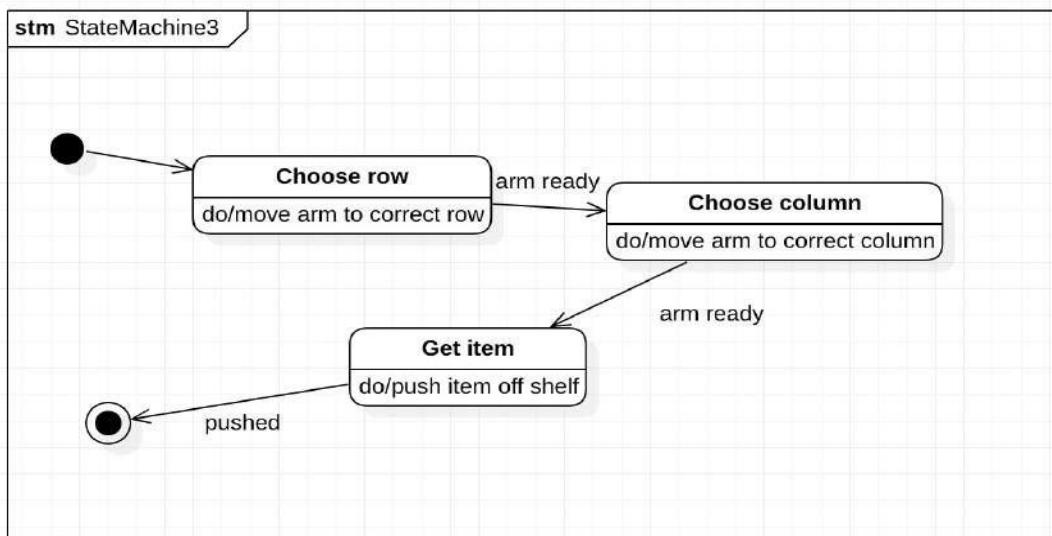
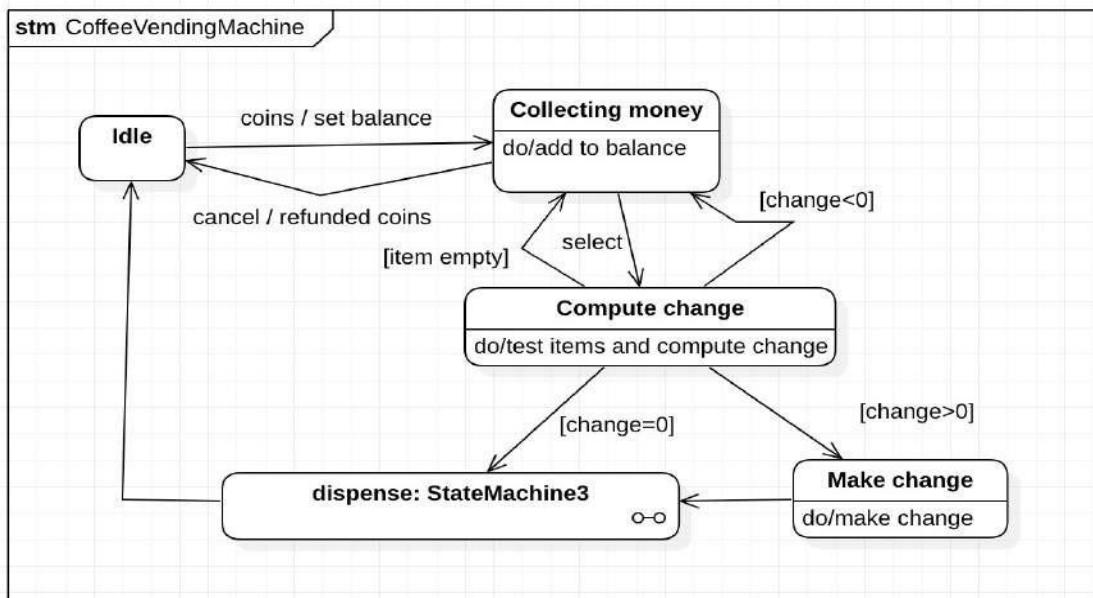
#### Maintenance:

When it comes to the ways in which coffee vending machines work, it's not all about the coffee, it's also about the upkeep and maintenance of the machine. With regular visits, suppliers should empty the cash drawer, reconcile the proceeds against sales, empty the waste grounds, refill ingredients and cups, and generally undertake any work to both the interior and exterior to keep everything running smoothly, such as ensuring there's no build up of dirt around the exterior buttons that could cause them to stick, and making sure nothing is blocking the internal sensors that could prevent some ingredients from being added to the mixing chamber.

## ADVANCED CLASS DIAGRAM:-



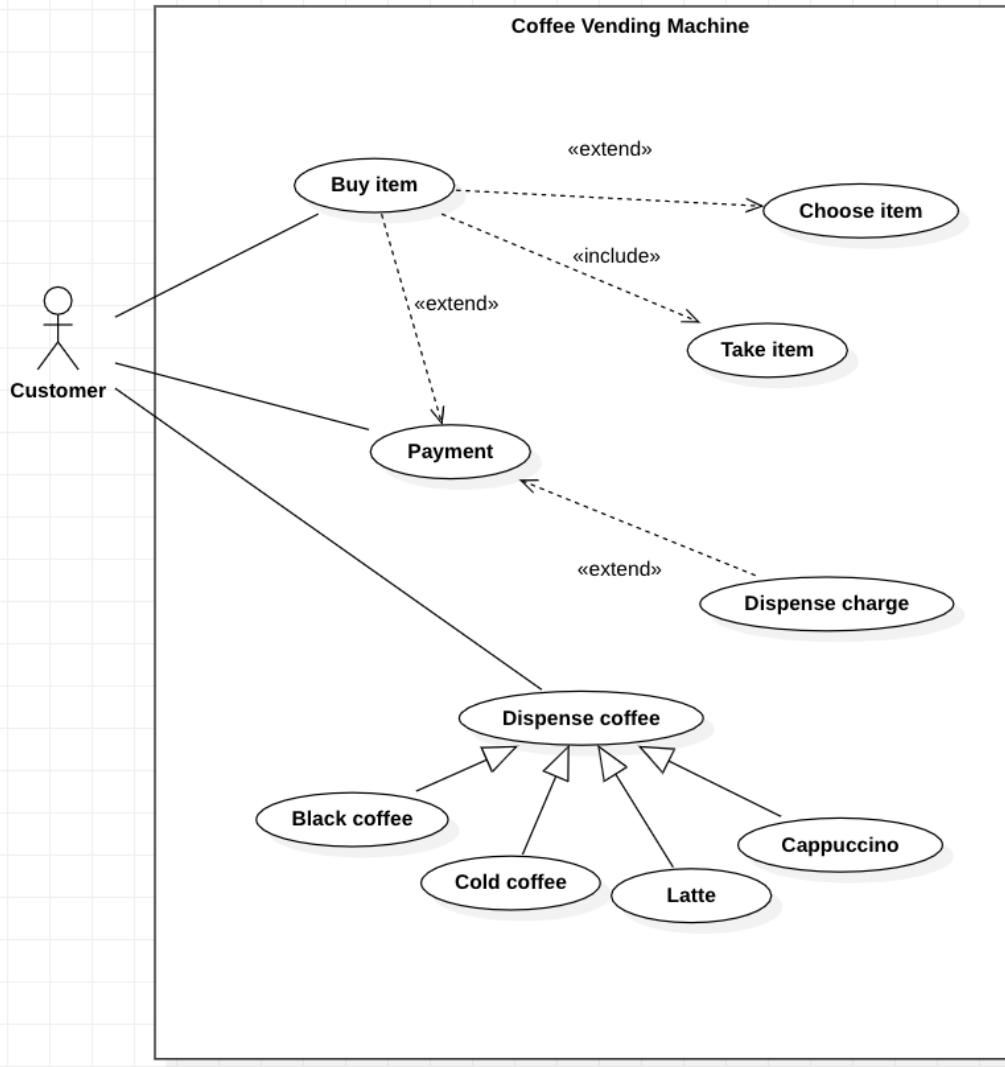
### ADVANCED STATE DIAGRAM:-



Initially the vending machine is in the waiting state. The machine displays the selected item selected by the user. When the person inserts a coin the machine adds the amount to he cumulative balance. After adding some coins, a person can select nay item. If item is empty or balance is insufficient, the machine waits for another selection. Otherwise the machine dispense the item and returns the appropriate change. The state diagram for coffee vending machine has a

submachine called dispense Item ,which has the states for dispensing an item from the vending machine. the arm of the machine first moves to an appropriate row, when ready, moves to an appropriate column and when the arm is ready it finally dispences the item from the machine.

## ADVANCED USE CASE DIAGRAM



### Actors:

Customer : a person who uses the coffee vending machine

### Use Case:

Display payment details : displays the payment details

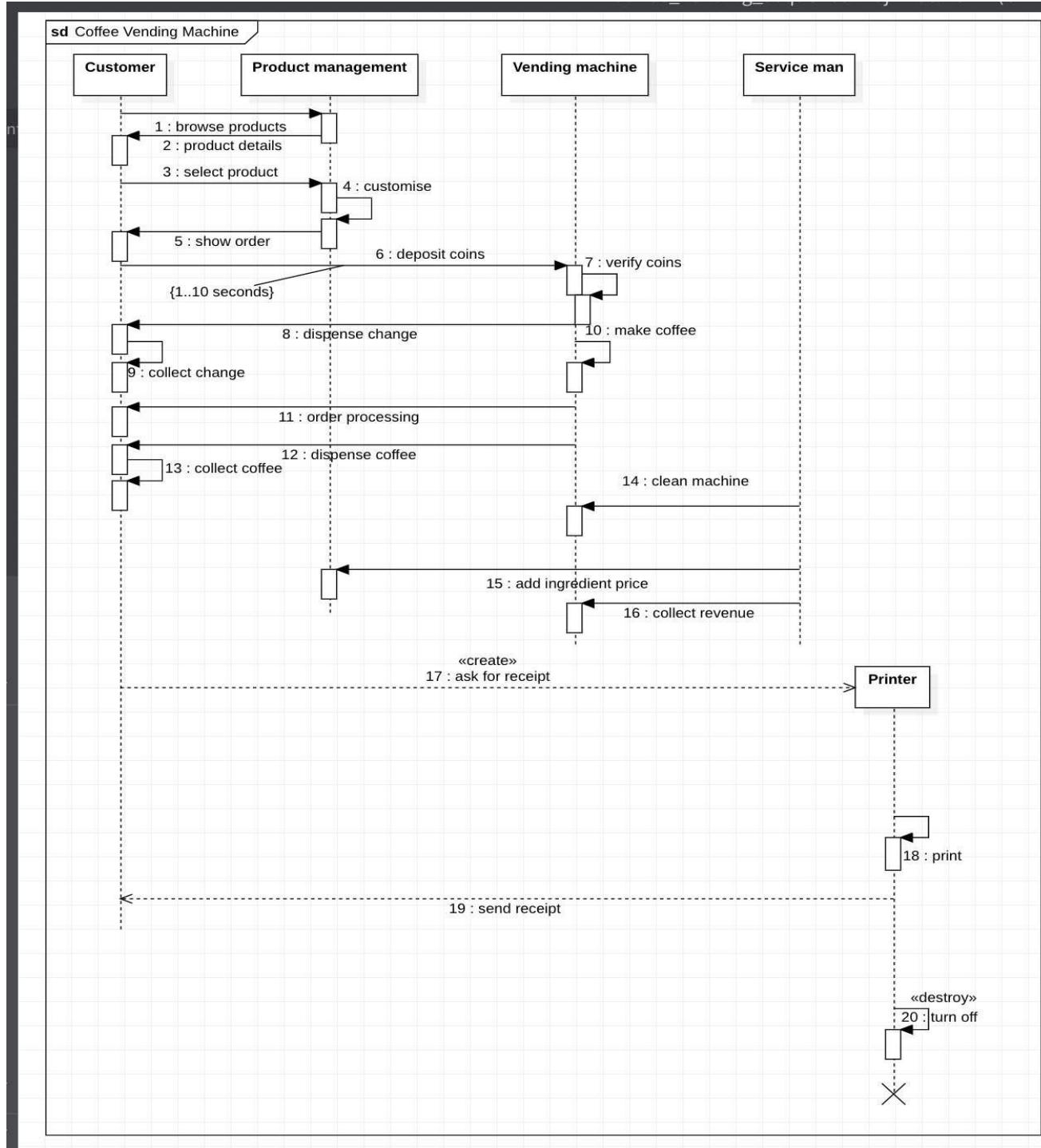
Request coffee : allows user to order their coffee

Make payment : accepts money for the coffee

Load ingredients : is the use case where the operator fills the machine with ingredients

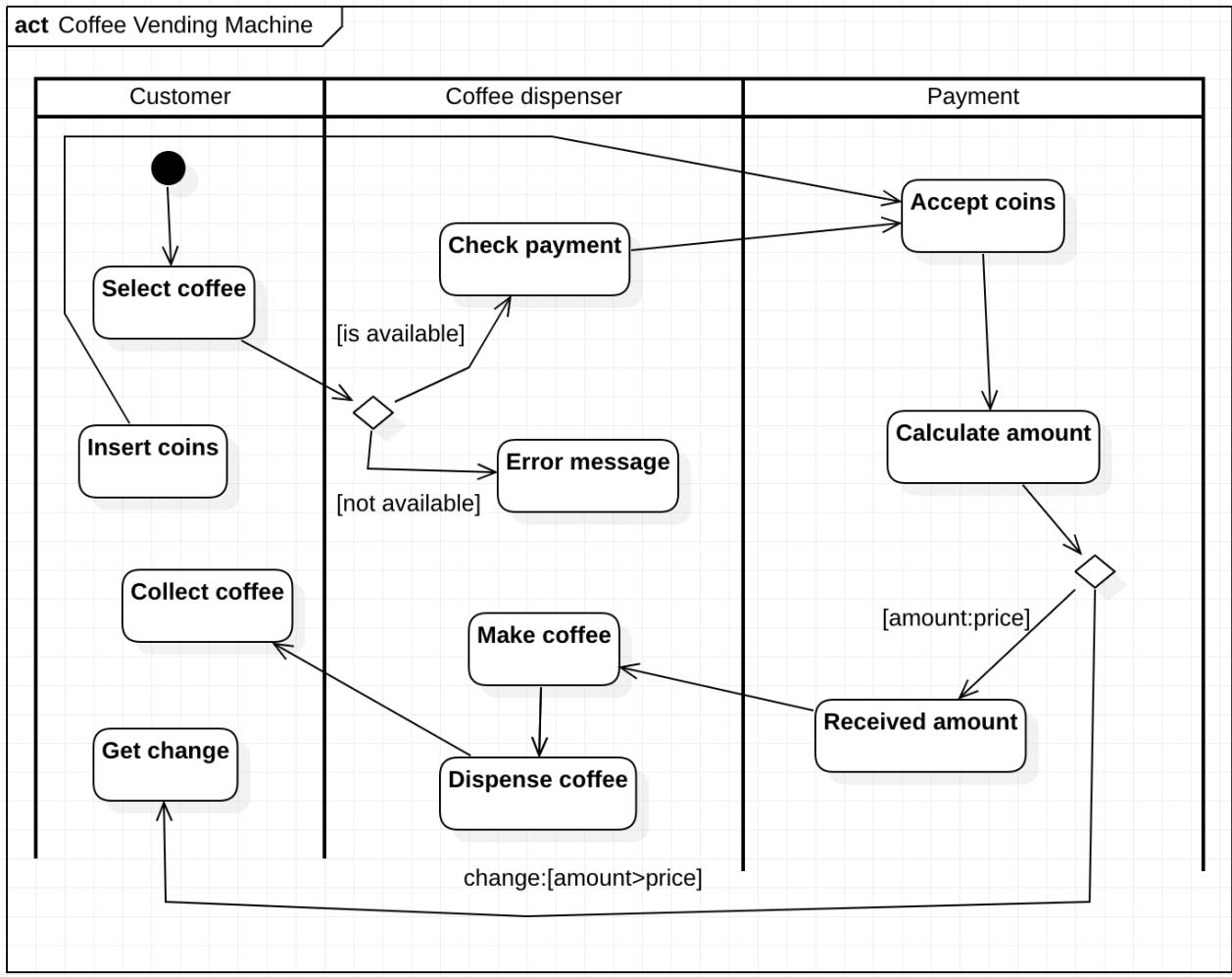
Dispense coffee : the coffee ordered is prepared and given

## ADVANCED SEQUENCE DIAGRAM



The above sequence diagram gives us the steps involved in dispensing a product from the coffee machine. First an enquiry for the product is made and if available the coins are inserted and calculated ,if correct the product is dispensed .

## ADVANCED ACTIVITY DIAGRAM



The above activity diagram gives us the steps involved in dispensing a product from the coffee machine. First an enquiry for the product is made and if available the coins are inserted and calculated , if correct the product is dispensed .

## **5.ONLINE SHOPPING SYSTEM**

### **SRS**

The online shopping system allows the users and vendors to exchange products remotely and reduces the amount of cost and time substantially.

The software provides the following facilities to the customers:

- Facilitates easy shopping online anywhere with free shipping (conditions apply).
- Provides information about the products in categories
- Can avail the facility of purchasing second hand products
- Can reserve if the particular product is not available
- Customers are provided with up to date information on the products available
- Provides email facility for future correspondence
- Provides backup facility
- Can add nearly ten products to their shopping cart at a time

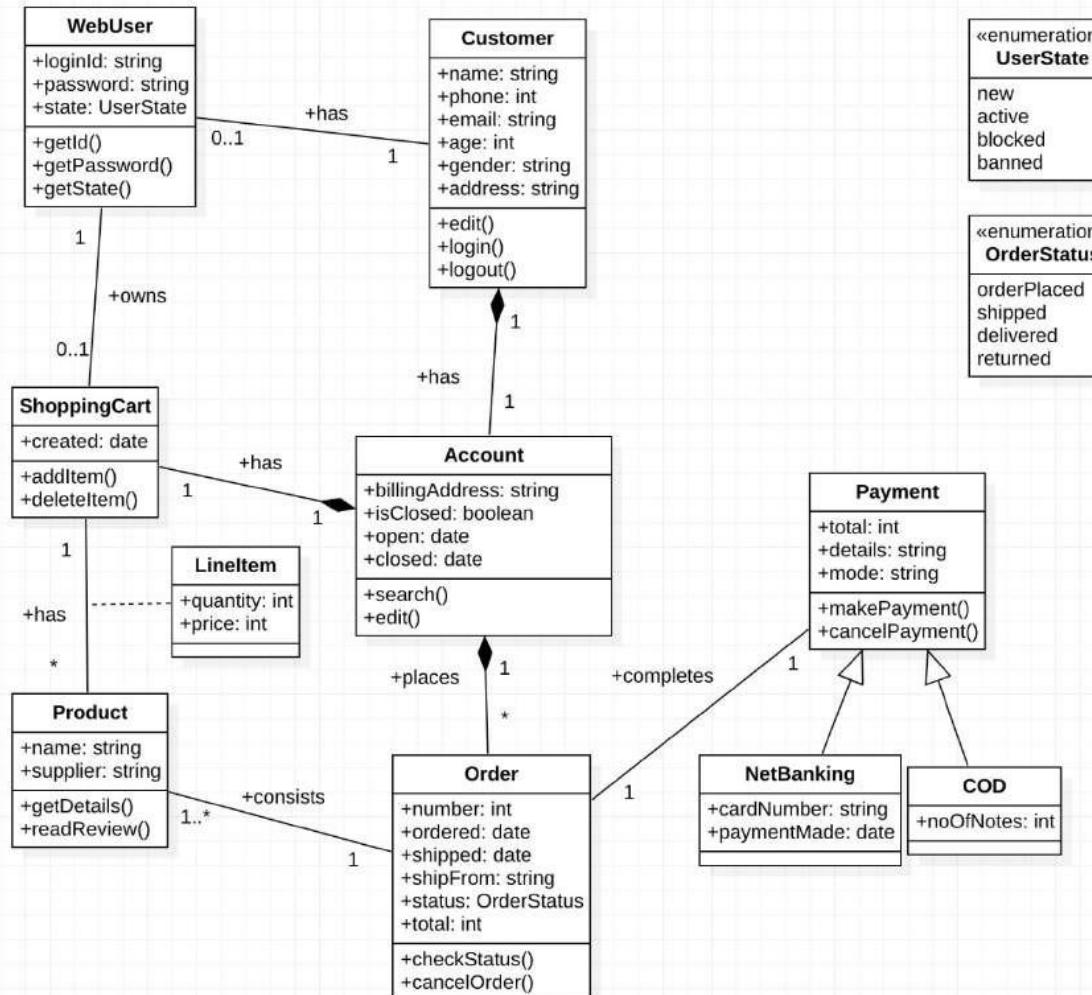
The software will not provide the following facilities to the customers:

- Cannot reserve the product for more than two days.
- Cannot reserve more than two products
- Responsibility of damages
- The product cannot be changeable once confirmed

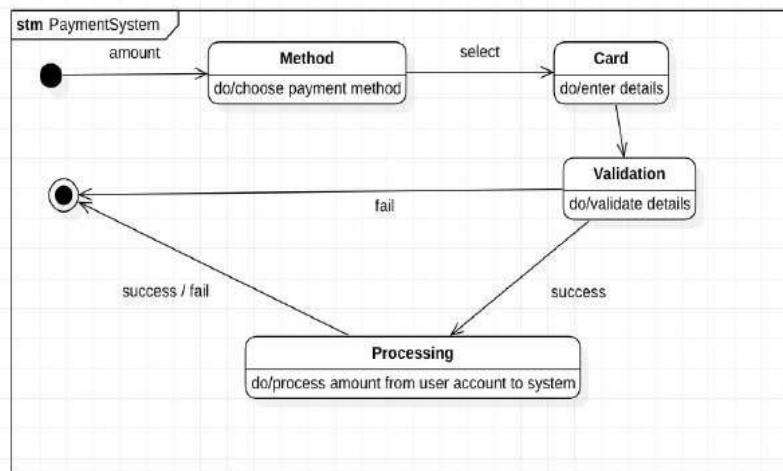
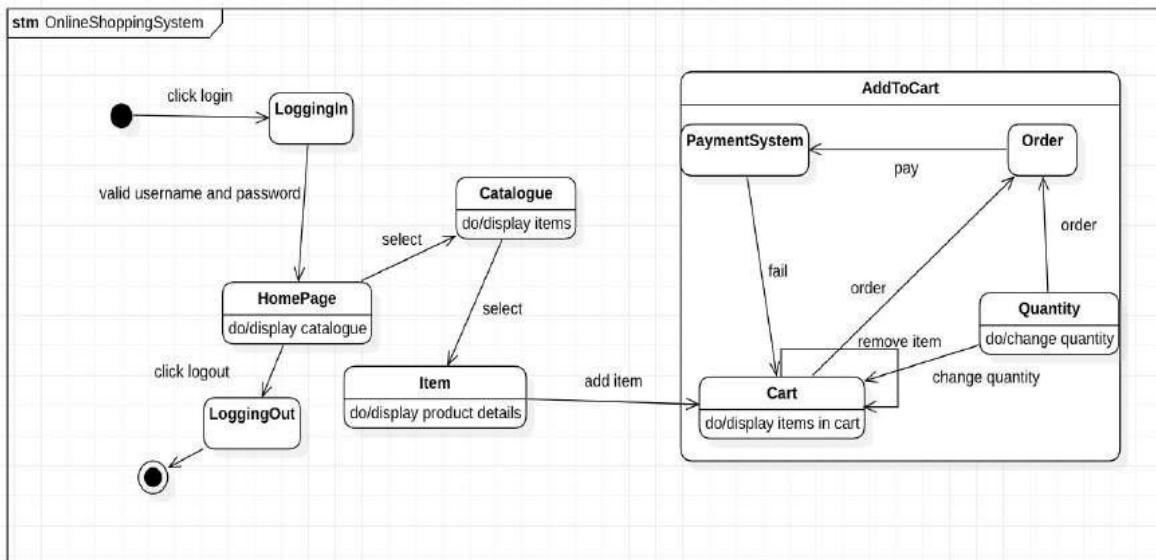
The software provides the following facilities to the merchants:

- Facilitates easy bidding facility
- Provides complete information about the customers
- Provides complete information about their products
- Can avail the facility of email correspondence
- Can avail the brand catalog facility

## ADVANCED CLASS DIAGRAM :-

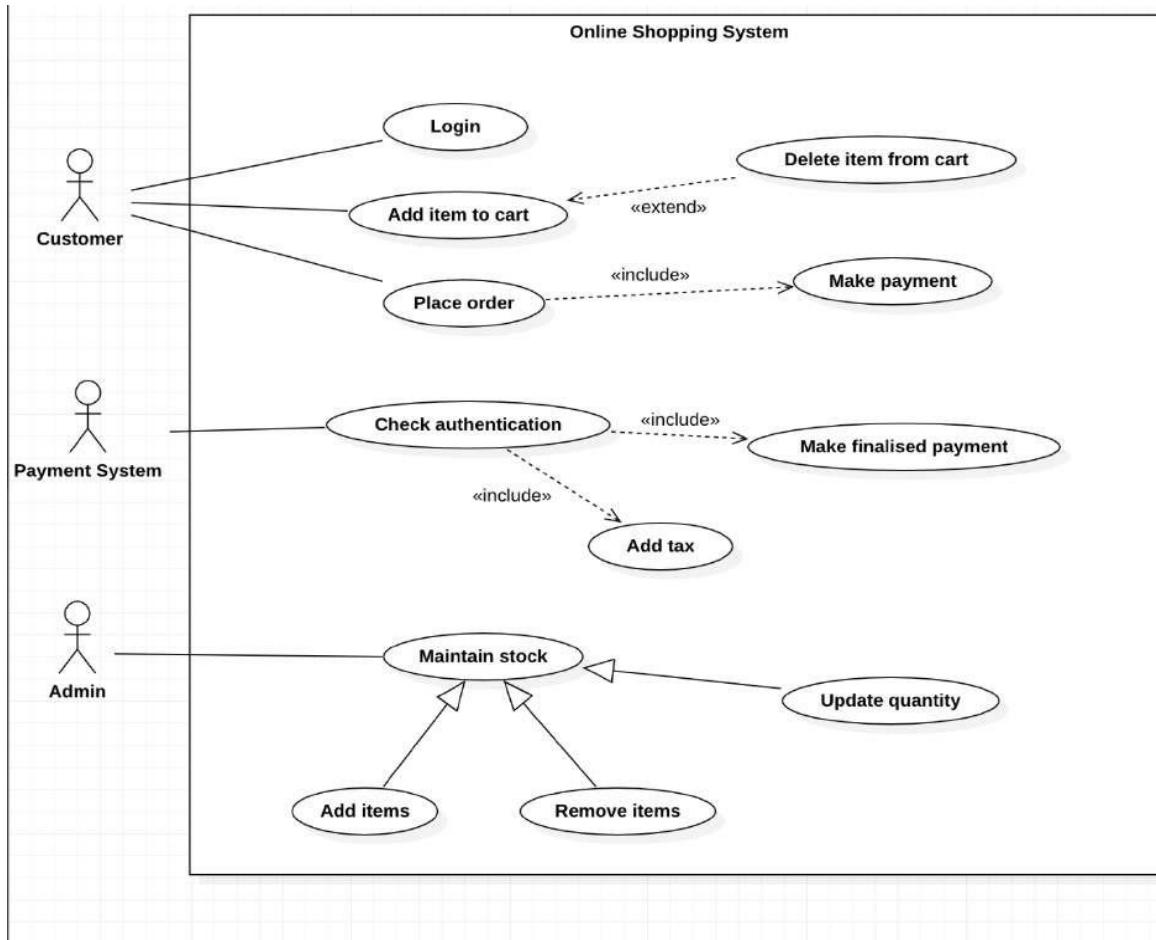


## ADVANCED STATE DIAGRAM:-



The advanced state chart diagram has states explaining the product purchase and payment. It has two sub machines i.e product selection and checkout product. Product selection allows us to select products and add them to cart. Checkout product has states explaining the payment methods and validating the methods.

## ADVANCED USE CASE DIAGRAM



### Actors:

Customer: a person who uses the online shopping system

Admin : person who maintains stock

Payment System: person who handles the payment

### Use Case:

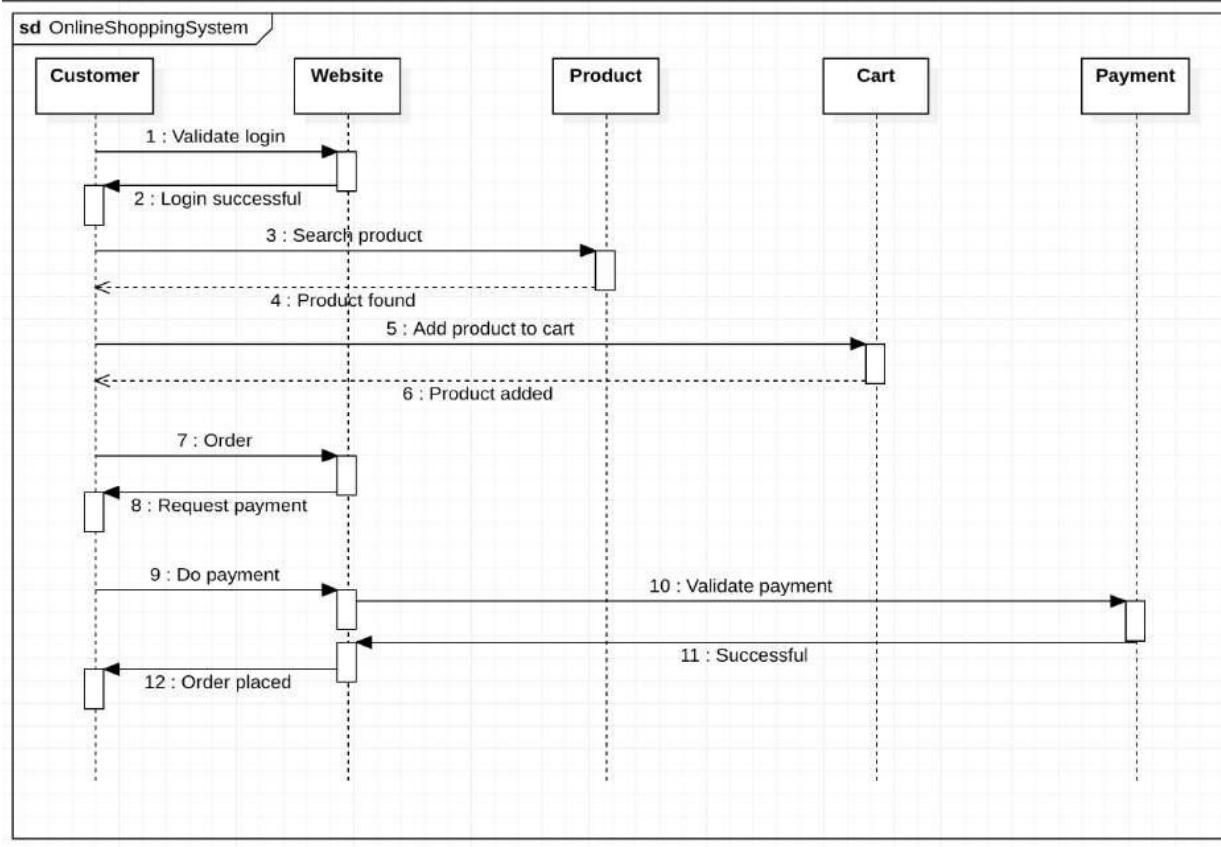
view product details : displays all product details

Place order : order the items present in the cart

Make payment : accepts payment for the products purchased

Maintain Stock : stock availability is checked

## ADVANCED SEQUENCE DIAGRAM



the customer logins into the online interface

The items are displayed

The customer adds items into cart and reply from interface is sent

The customer places the order

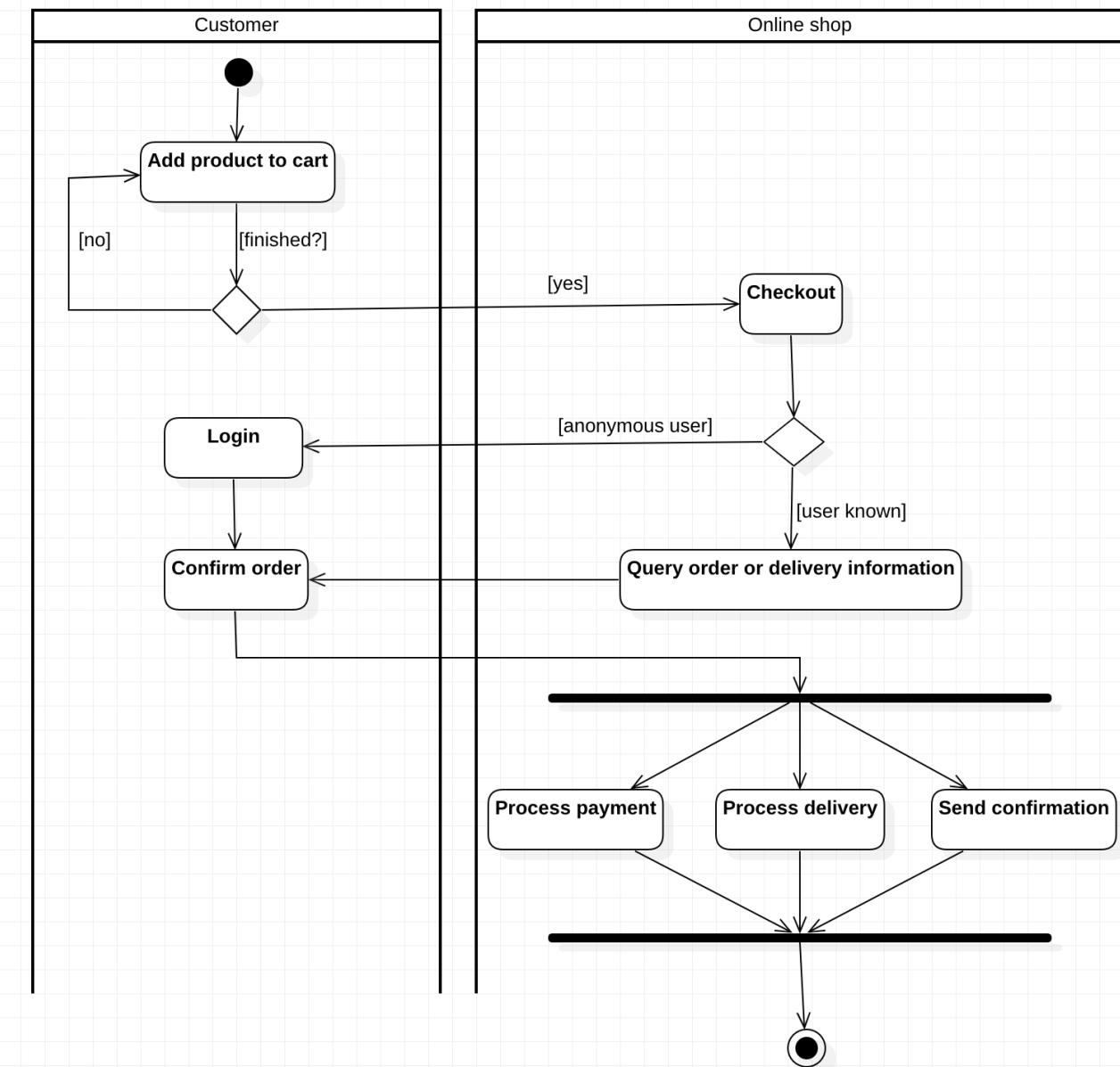
The online interface requests for payment

The customer provides details and confirmation is sent

The customer logs out

The logout confirmation

## ADVANCED ACTIVITY DIAGRAM



The advanced activity diagram has two swim lanes i.e customer and online shop. The customer can add product to basket and login/register and confirm order. The online shop can checkout the products, deliver, process payment and send confirmation to customer.

## **6.RAILWAY RESERVATION SYSTEM**

### **SRS**

To develop a user-friendly Railway Reservation System to enable passengers to book tickets online and make payment online as well.

Railway reservation system project which provides the train timing details, reservation, billing and cancellation on various types of reservation namely,

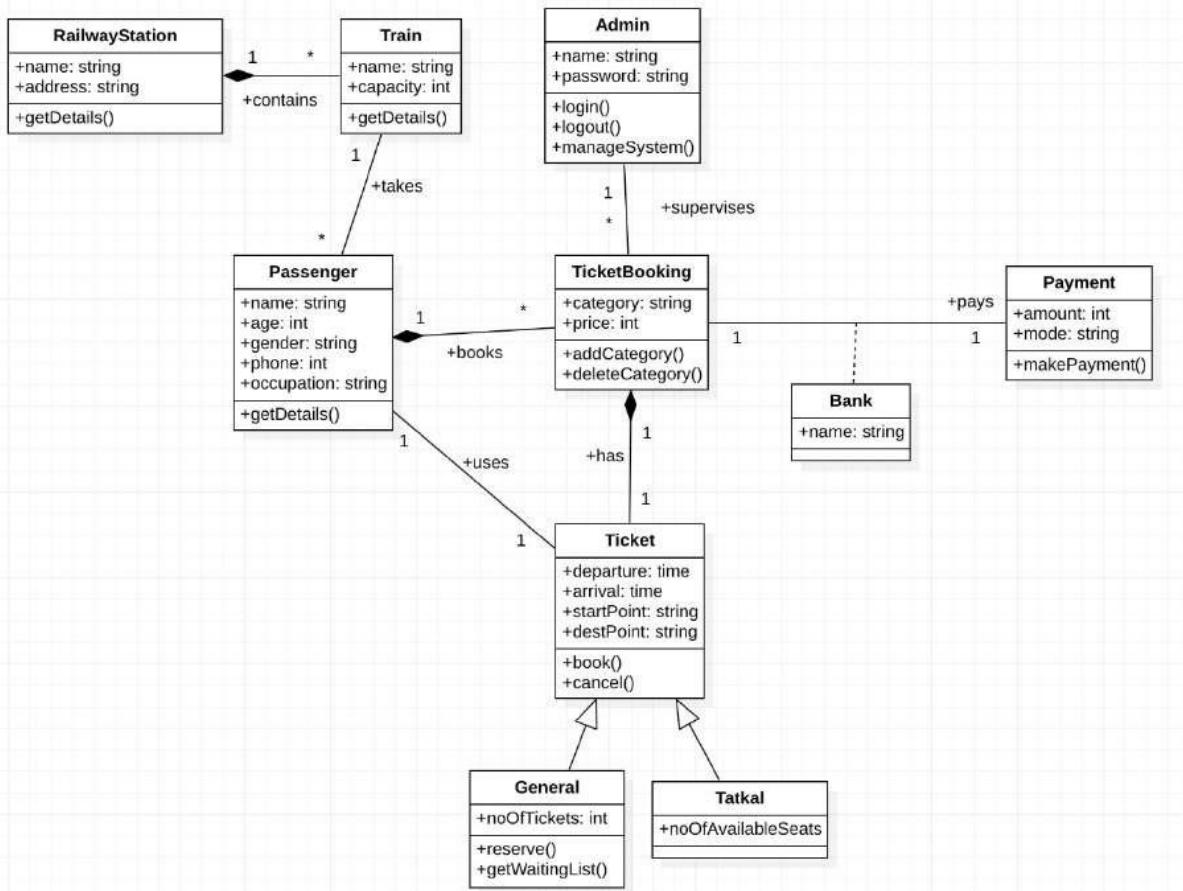
- Confirm Reservation for Seat.
- Reservation against Cancellation.
- Waiting list Reservation.
- Online Reservation.
- Tatkal Reservation

This system enables the Advance booking in any class, against general and ladies quota, on payment of fare in full for adults and children, a maximum of six berths/seats at a time, for journey between any two stations served by a train.

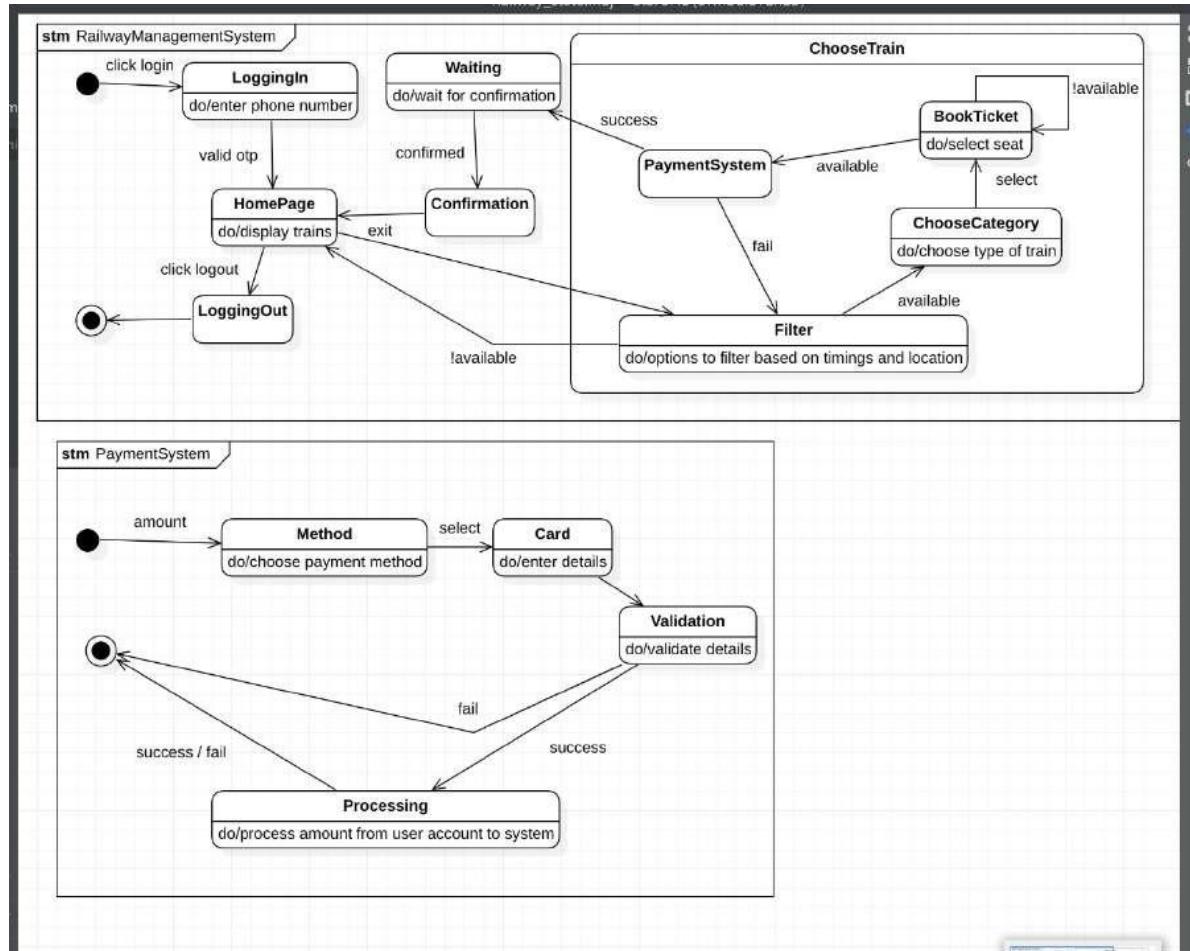
It also provides details about

1. Timetable
2. Train Fares
3. Current status of reservation position
4. Train available between a pair of stations
5. Accommodation available for a train/date combination  
Types of tickets: General and Tatkaal

## ADVANCED CLASS DIAGRAM

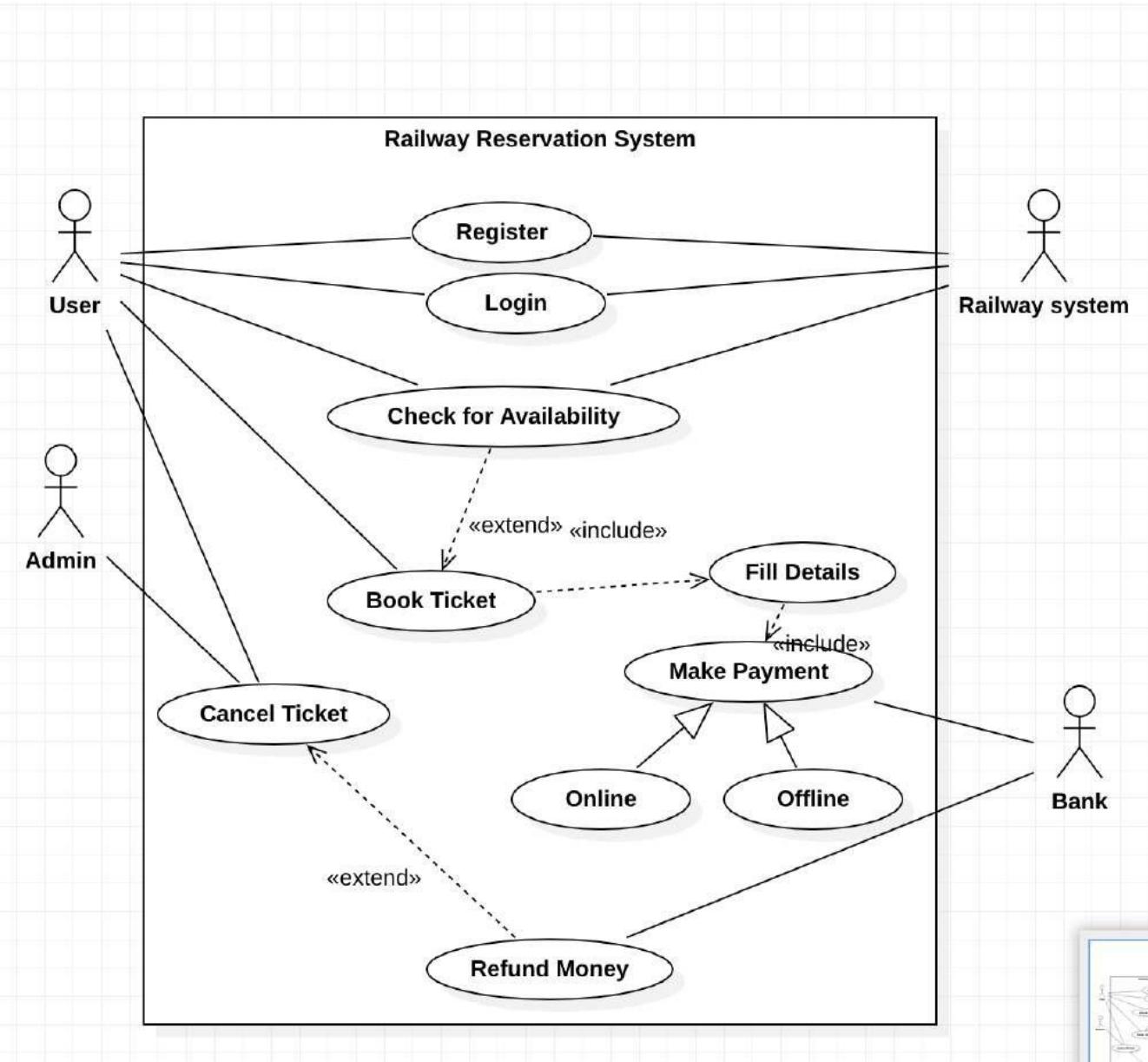


## ADVANCED STATE DIAGRAM:-



The advanced state diagram has states for paying the ticket. From the ready state the user goes to payment initiation after which the card details are accepted and an OTP is sent to the registered mobile number. On verification the money is deducted and ticket is sent to the customer.

## ADVANCED USE CASE DIAGRAM



### Actors:

User: uses the railway reservation system.

Admin: manages all information

Railway System: System that is used for train ticket reservation.

### Use Case:

Register: The first time user has to create a account in railway system.

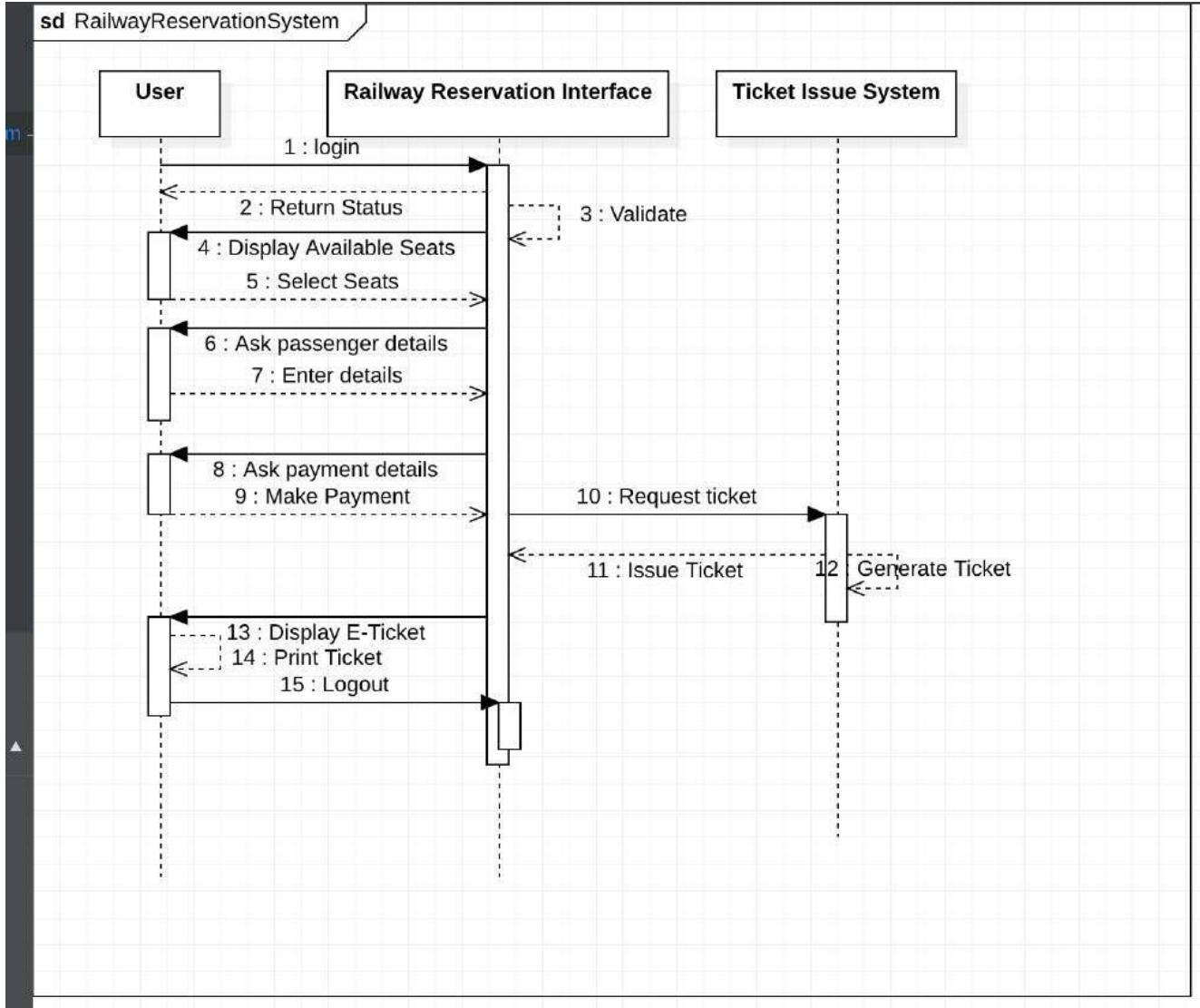
**Book Ticket:** User can select the type of coach and no of seats and book the ticket.

**Make payment:** System displays the payment details. User can make his payment

**Cancel Ticket:** User can cancel the ticket . The amount will be refunded.

**Verify login credentials:** The admin verifies the user details, if it matches with the details in database then he allows access to the system.

## ADVANCED SEQUENCE DIAGRAM



User logs into the railway reservation system.

Admin verifies the login details.

System establishes secure communication.

User checks for availability of trains .

Admin updates the train details.

System displays the train details.

User books tickets.

System displays payment details.

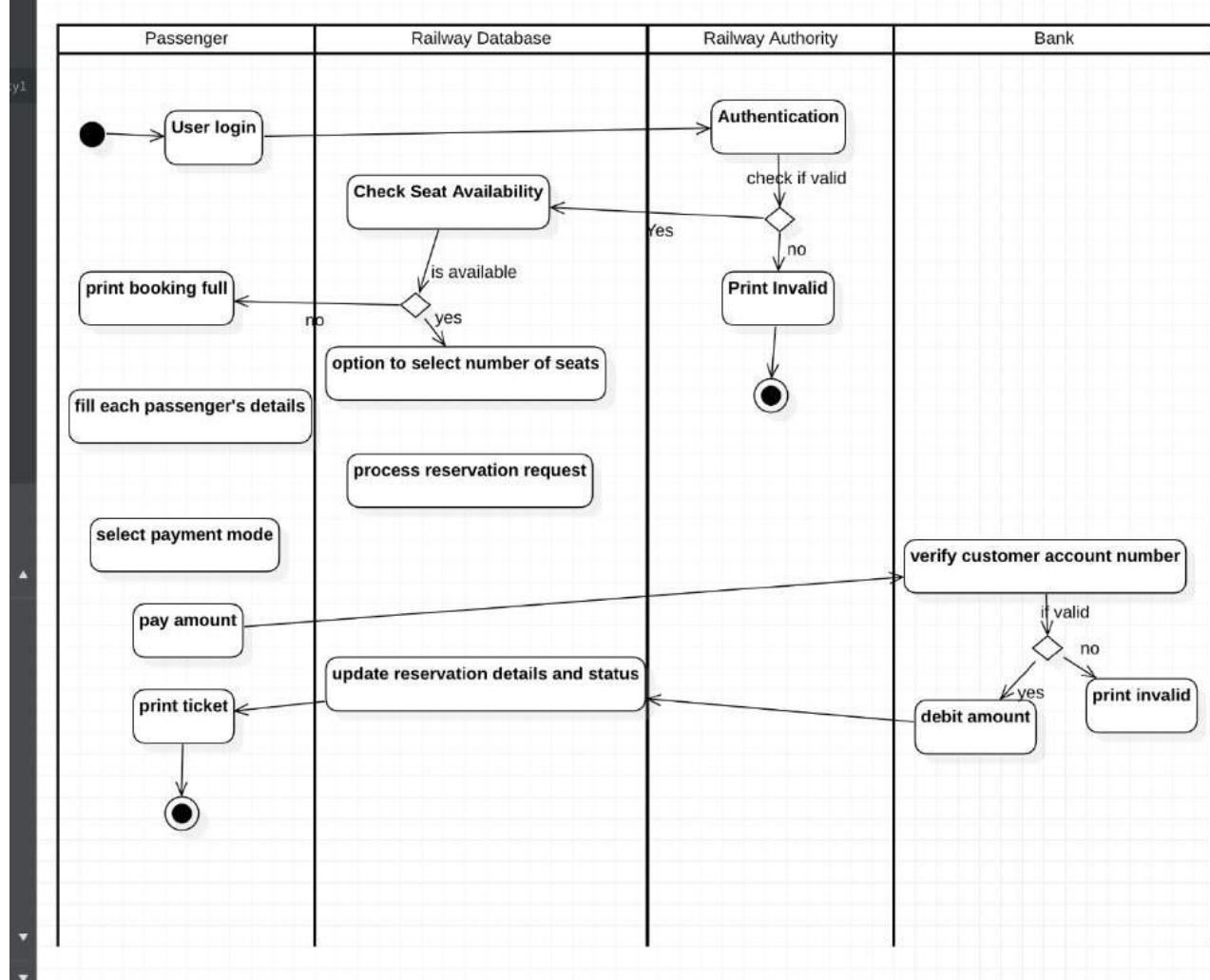
User makes the payment.

System issues the e-ticket.

User logs out .

## ADVANCED ACTIVITY DIAGRAM

Railway Reservation System Activity.mdj – StarUML (UNREGISTERED)



The activity diagram tells about the steps happening while canceling a ticket which is booked. the user first need to login and select his ticket, confirm cancellation, request refund and print the canceled ticket and logout.

## **7.GRAPHICS EDITOR SYSTEM**

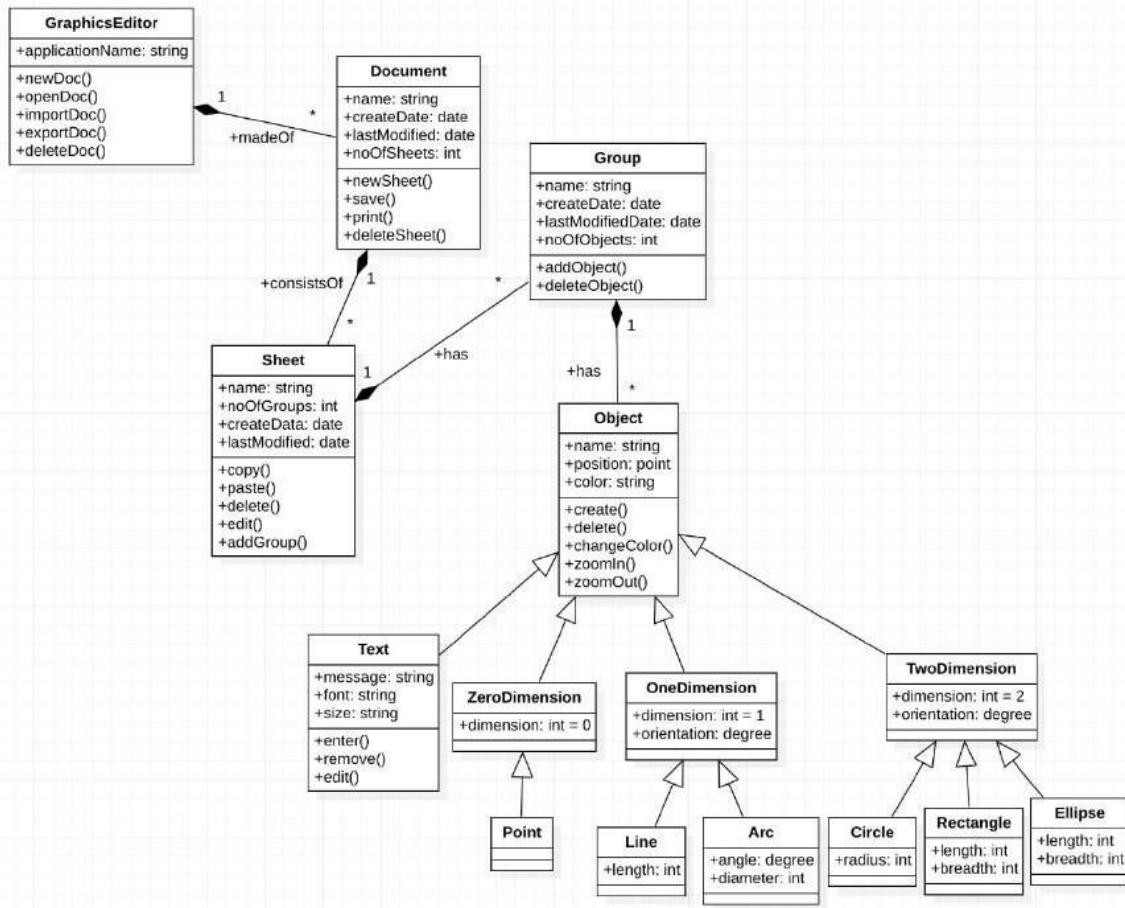
### **SRS**

The graphics editor provides an Application Programmer's Interface that enables a programmer to develop their own graphical model editor for a specific type of model. This API in turn, relies on extending the Eclipse Graphical Editing Framework to provide an environment in which the editor functions, and the programmer can create a graphical editor and palette of shapes in order to modify an underlying model. The graphical editor provides an interface with which the programmer implements said editor for a given underlying model. Such an instance of the graphical editor allows a user to drag objects from a specified model into a working graphical diagram.

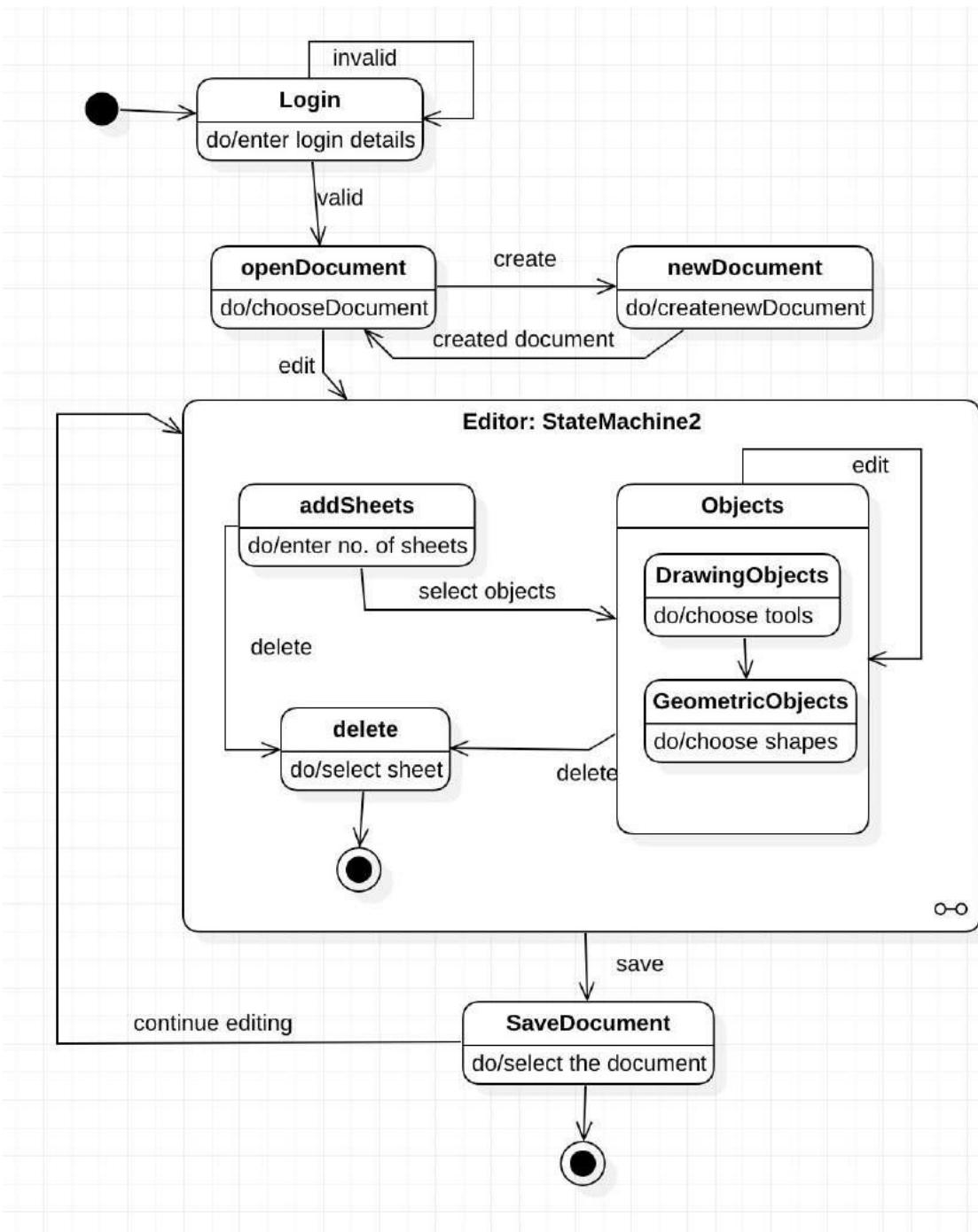
It should support following functionalities:

- It contains the toolbox which contains tools like: Line, Circle, Rectangle, Arc, Text, Draw, Eraser
- Color box or palette
- Standard toolbar with options for New, Open, Save, toolbox and Text Toolbox.
- One integrated view to users for toolbar, color box, menu, and graphic screen.
- Easy handling of tools for users.
- Ability to group several drawings into one i.e. complex drawing.
- Provision of zoom in and zoom out.
- Different shadings of line tool are provided

## ADVANCED CLASS DIAGRAM:-



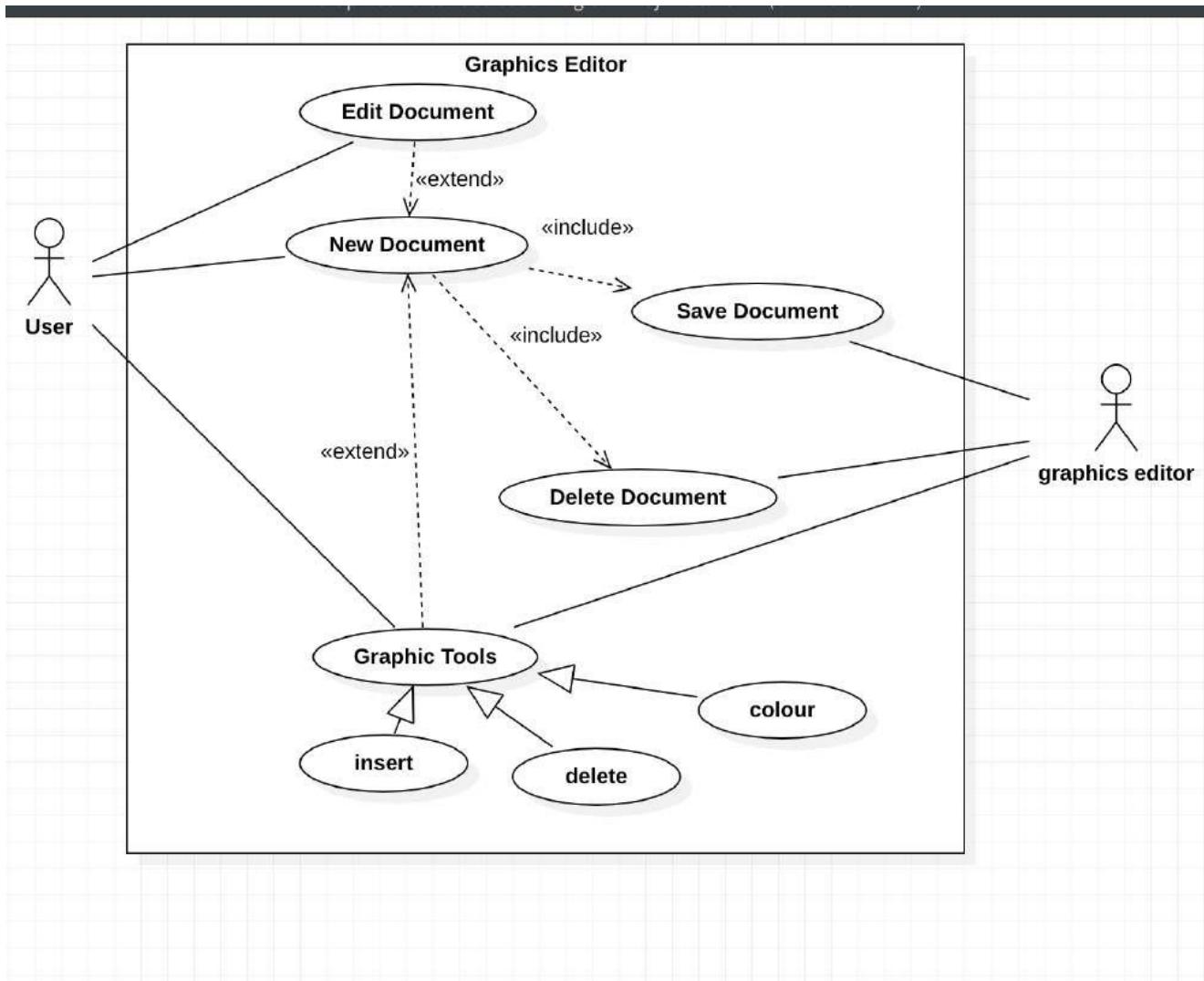
## ADVANCED STATE DIAGRAM:-



The advanced state diagram gives the states involved in making and saving a graphic file. first the user selects a new document and draws graphics. If there is a

mistake he can erase and select a color from the color palet. He can then save the file created. The diagram had a composite state called saving where the user can save the file in their desired location.

### ADVANCED USE CASE DIAGRAM



#### Actors :

User: the person who uses the graphic system

Graphics Editor: manages the system

#### Use case:

Create document : performs creation of new document

Edit document: performs

editing of document

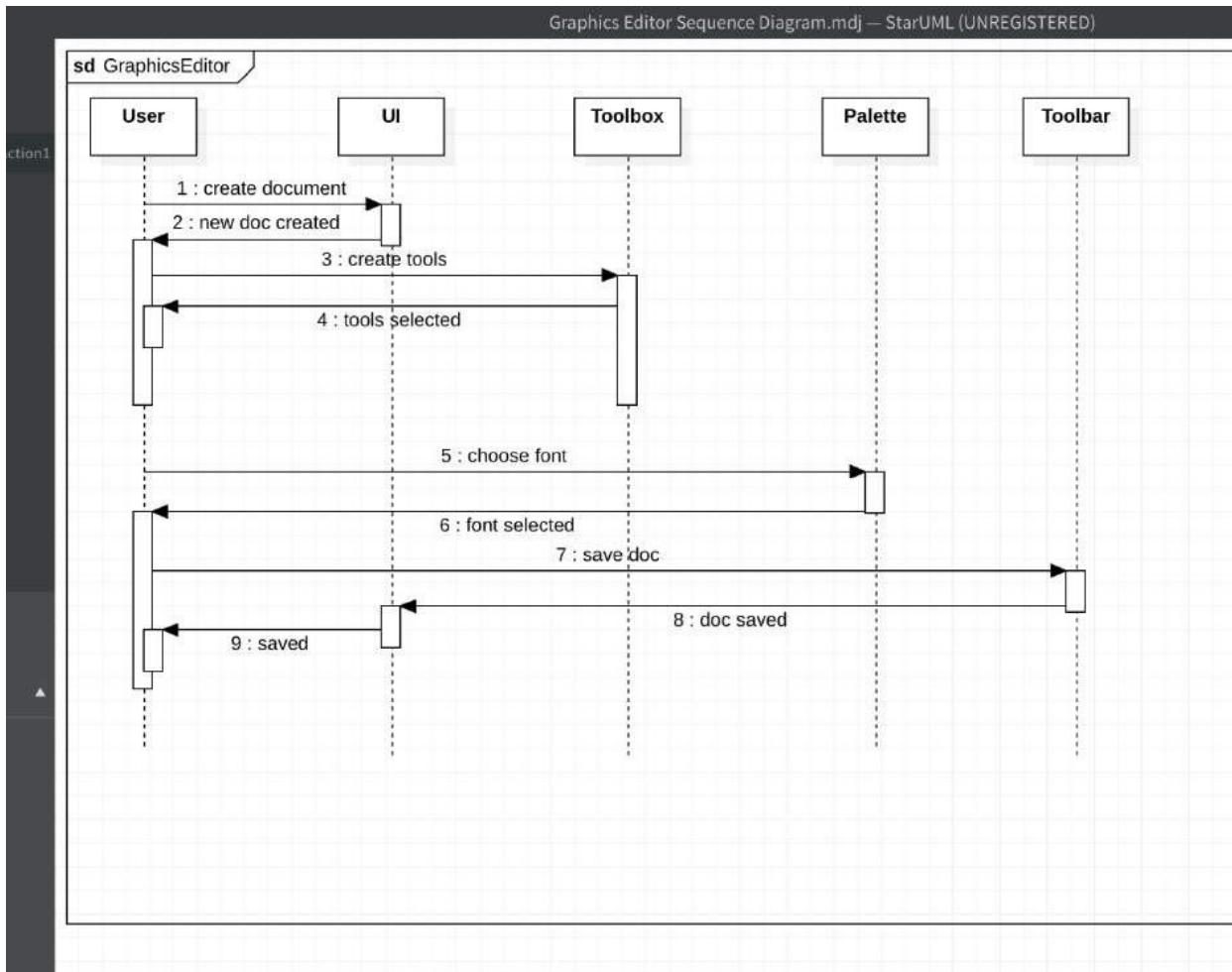
Display toolbox: displays the available tools

Add graphic object : insert a new graphic object

Choose tools from toolbox : allows user to choose tools

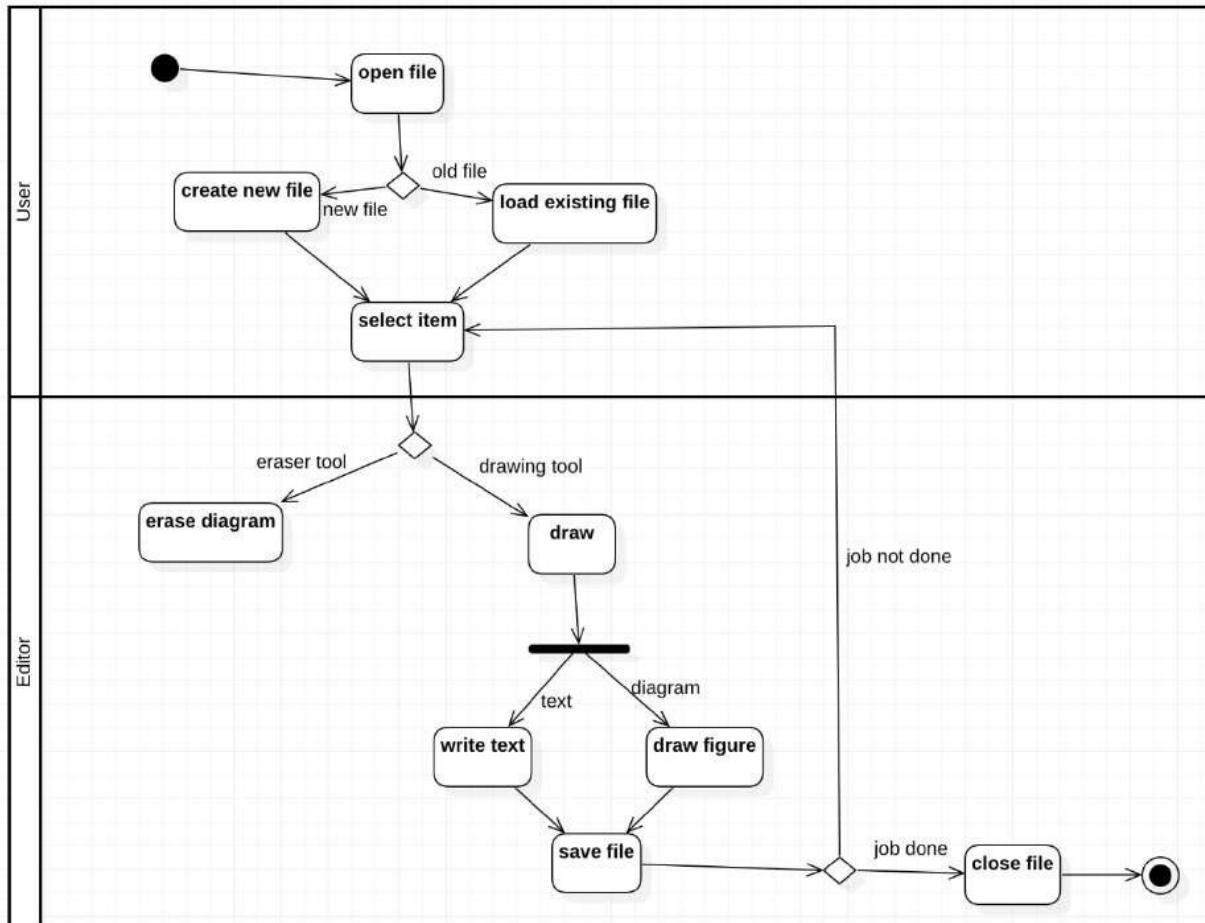
Delete document : Permanently deletes the document

## ADVANCED SEQUENCE DIAGRAM



the graphics editor displays options to user  
The user selects an option  
The graphics editor displays shapes  
The user selects a shape  
Parameters are asked by the editor  
User enters all the required parameter  
The graphics editor displays the diagram

## ADVANCED ACTIVITY DIAGRAM



The activity diagram gives the states involved in making and saving a graphic file. The user selects a new document and draws graphics. and saves the document. The diagram gives the states involved in making and saving a graphic file. The user selects a new document and draws graphics, saves the file and closes it.

## 1. College Information System

### Problem statement:

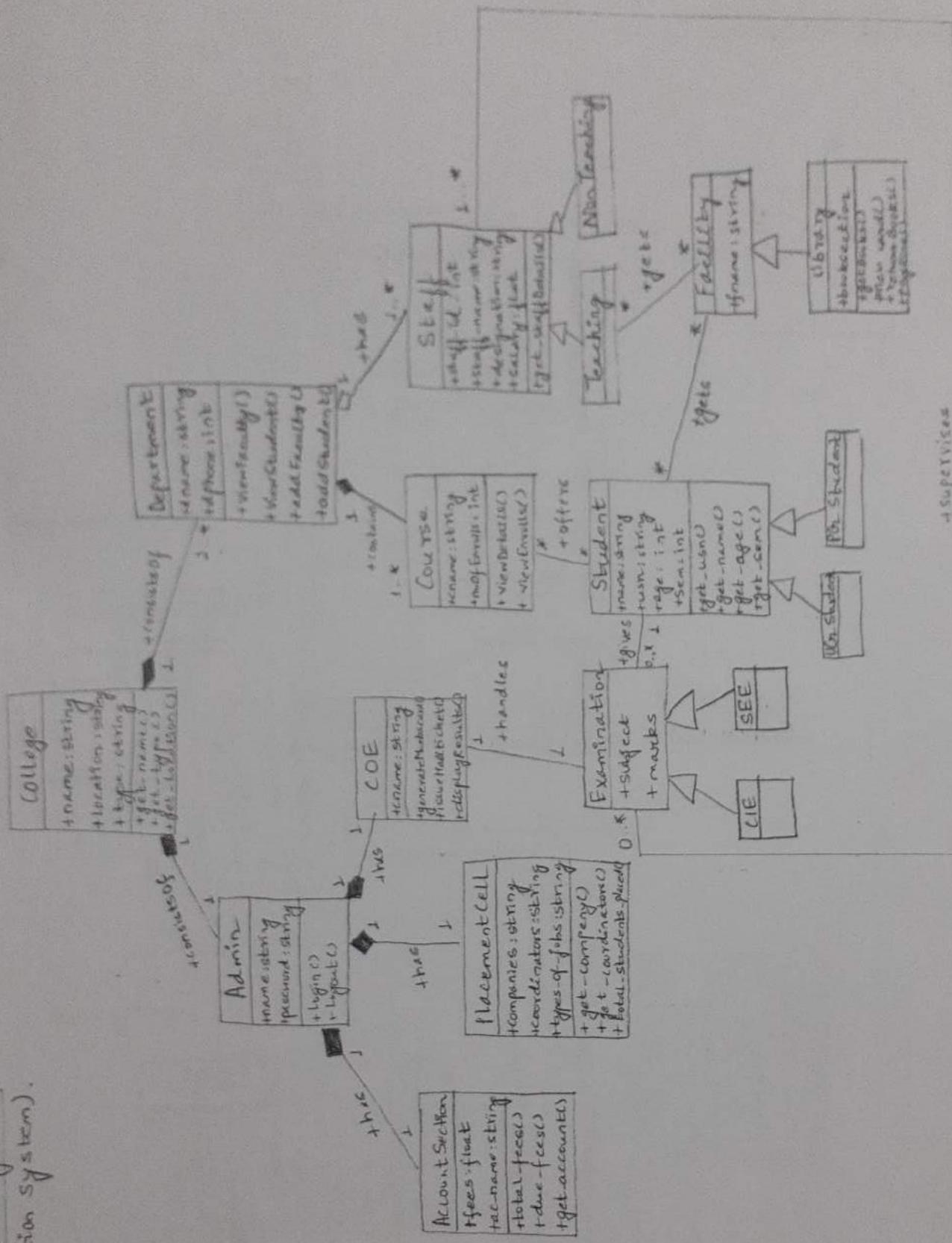
To develop a software so that all the stakeholders such as the students, alumni, faculty can access the college software without the mediation of a college staff such as the faculty, teaching and non-teaching faculty and the management.

### Software Requirements Specification (SRS):

A centralized approach and system for managing, storing, accessing and updating all the information and details present in relevance to students, teaching and non-teaching faculty, increasing efficiency and convenience of information management in educational institutions.

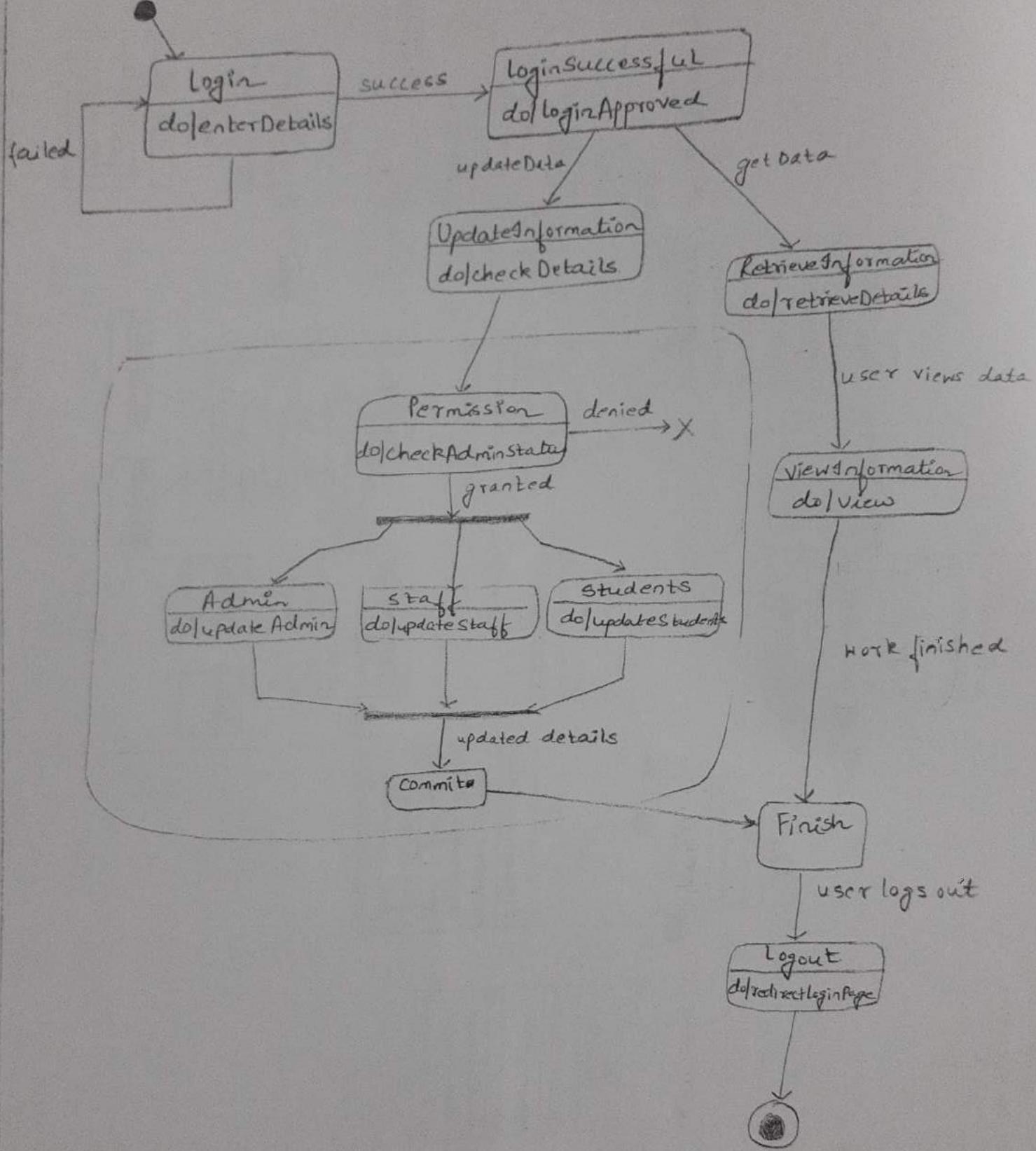
- College Information System has an admin who manages the staff, students and departments.
- The system admin can view and modify student's details like profile, fees, attendance, results. Admin can also modify details of teachers and other non-teaching staff in college.
- User authentication will be done by login using username and password which is classified by user type.
- Faculties in college teach more than one course to many students and conduct examinations for students.
- Students of the college register themselves in the department of their choice and the courses they are interested in and take admission following all the admission procedures.
- Placement cell handles the placements of the college, contacts companies, sends out forms for students to register and get placements.
- The system also has a library that allows students and faculties to issue books, read newspapers and articles.
- There are different types of examination conducted by the college for the students. Internals and Semester-End examinations are two of them.

Advanced Class Diagram:  
College Information System).

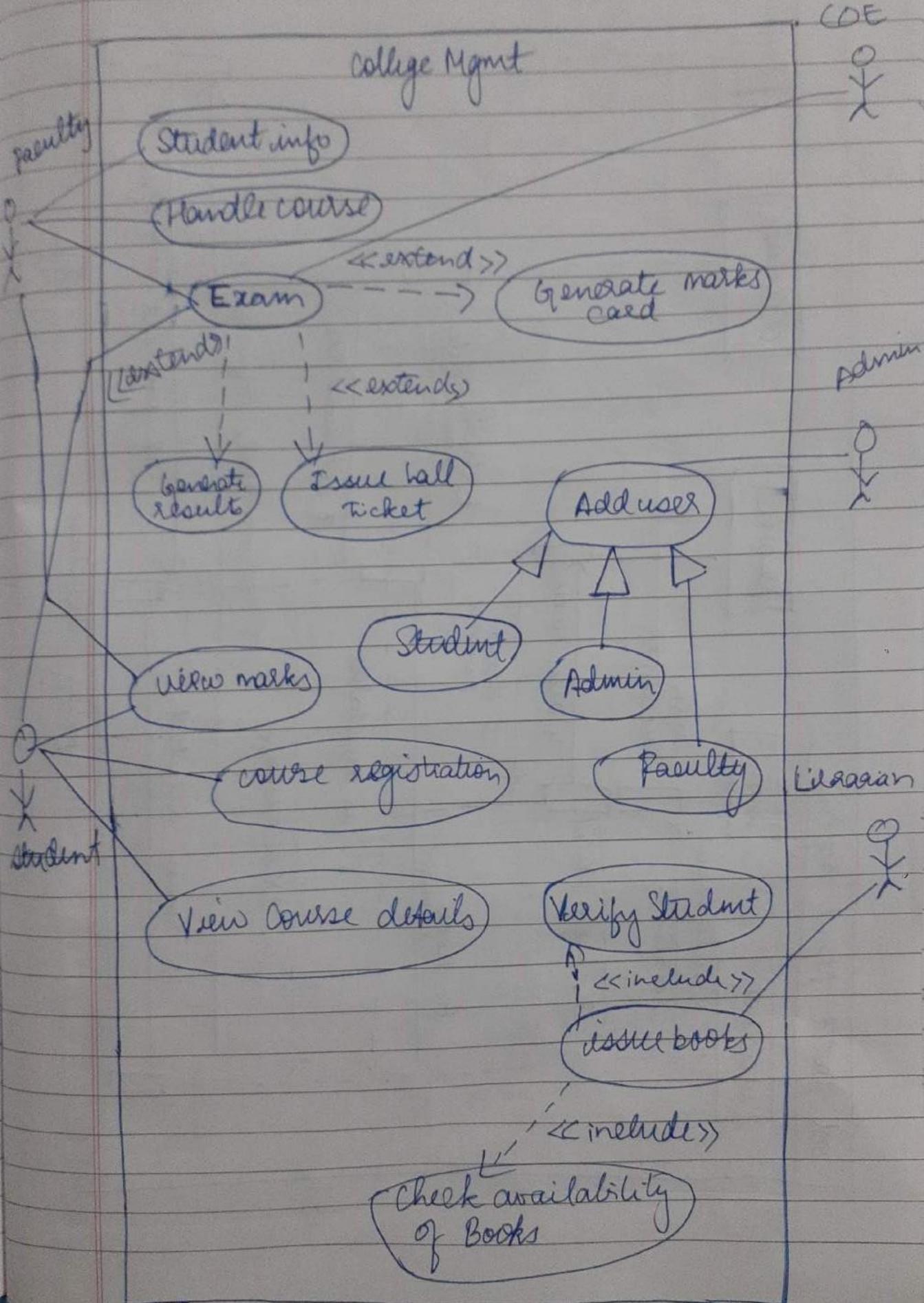


# Advanced State Diagram

College Information System



## use Case



# 8d college info mgmt system /

Student

interface

1. select amount to pay fees

2. search data related to the student

3. display fee details

4. select option & click submit

5. display payment module available

6. select payment mode

7. request payment

8. do payment

9. payment module

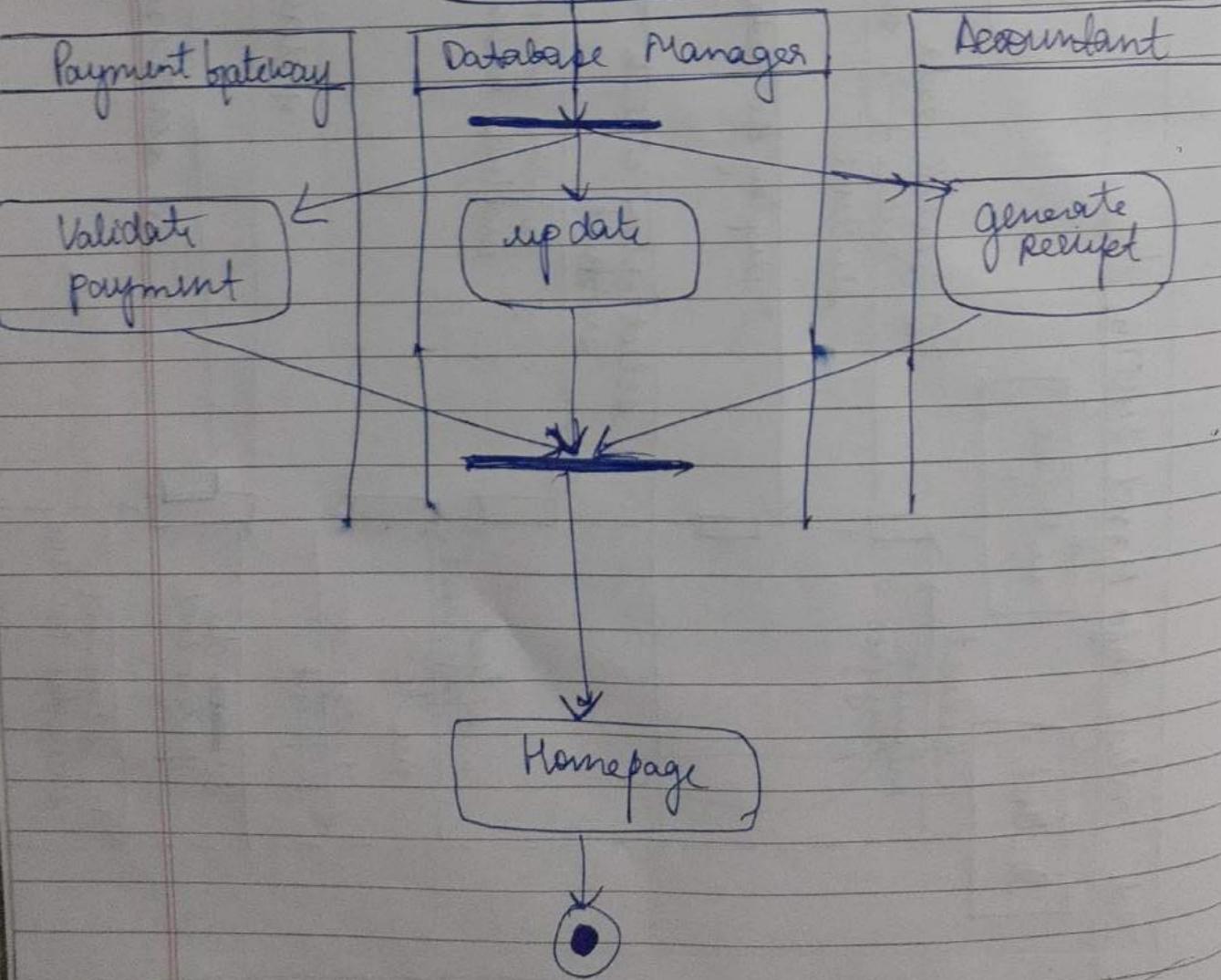
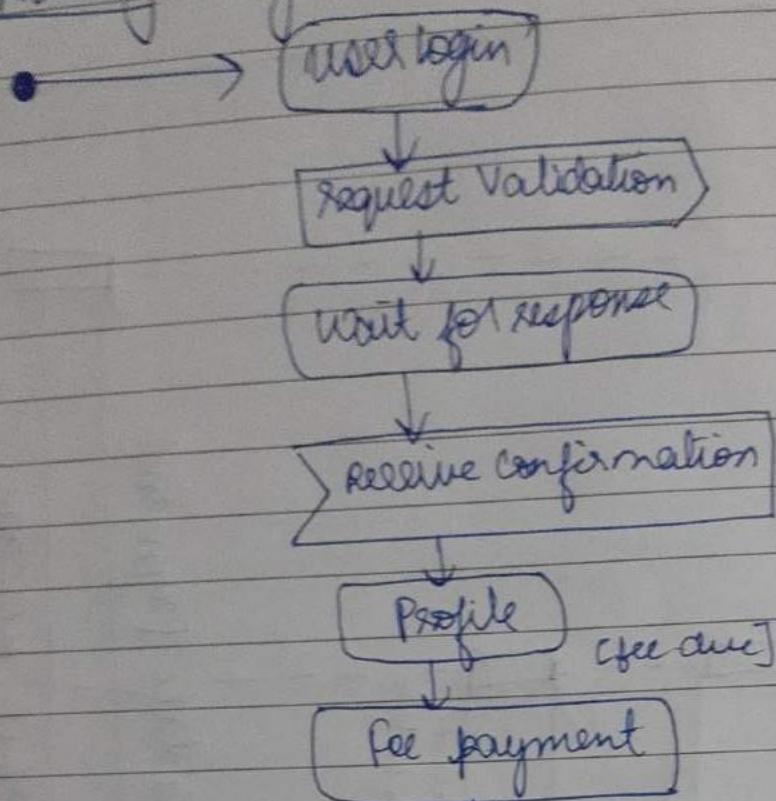
Payment

Database

# 1. College Information

sequence diagram

## Activity diagram



## 2. Hostel Management System

### Problem Statement:

To develop a software which can provide a complete facility that is needed by the hostel managerial team as well as the students. It is quite difficult to manage all the hostel activities manually without having a backup like a database which contains all the information related to each student who is staying in the hostel.

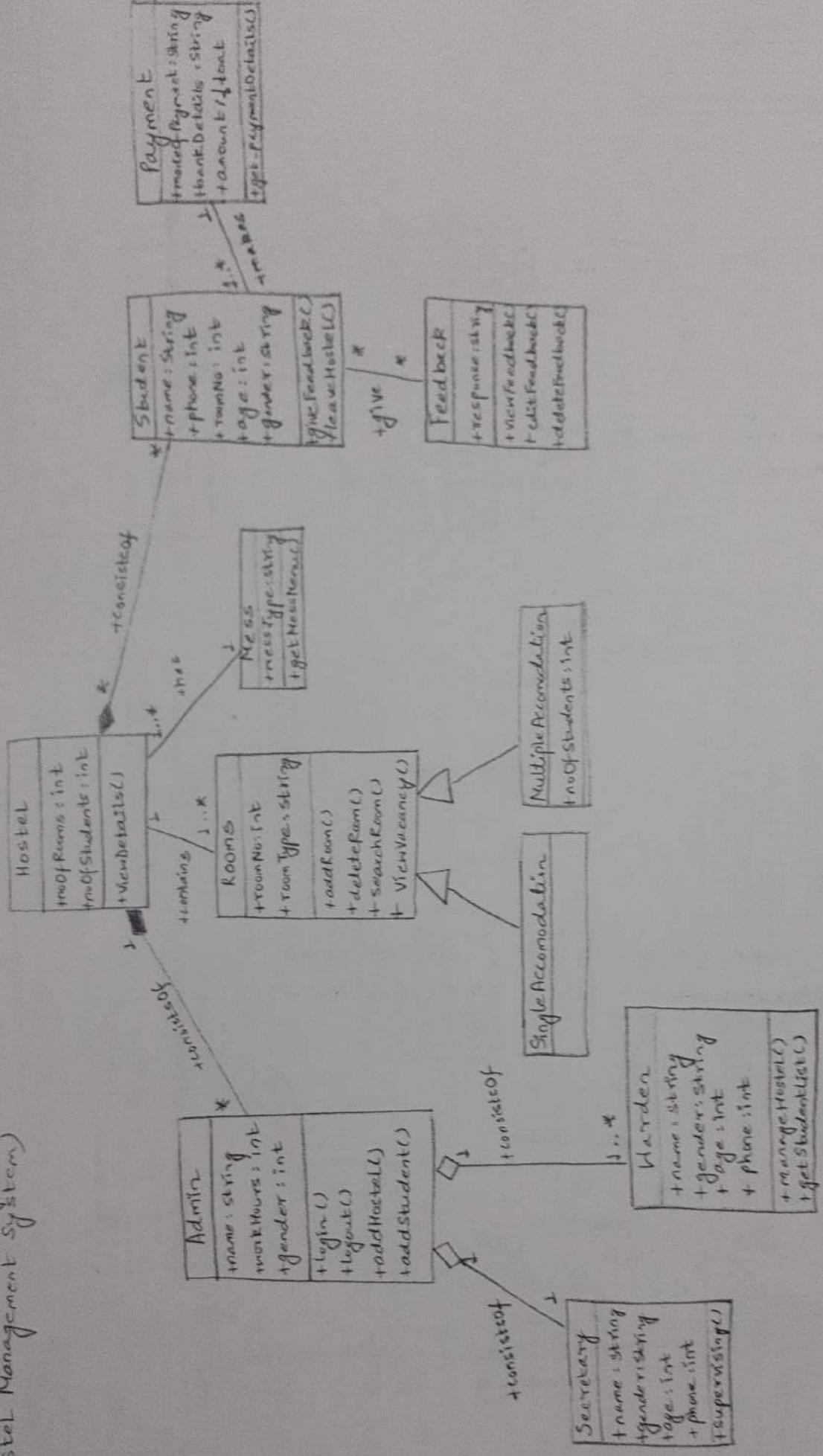
### Software Requirements Specification (SRS):

The purpose of the Hostel Management System is to carry out different operations of a hostel. This system will provide ease of use to the staff of the hostel by performing all work on computers. It helps to manage student and staff records.

- Admin can login using credentials provided to him.
- Admin can allot hostel rooms to students.
- Students can login using the credential provided and can provide feedback about the hostel staff.
- Admin can review the feedback provided by the students.
- Admin can appoint staff.
- Students can provide message feedback.
- Mess manager can update the mess list.
- Admin can assign work to staff members.
- The system should be easy to handle and maintain.
- The system should give expected performance results.
- The response time of the system should be small.

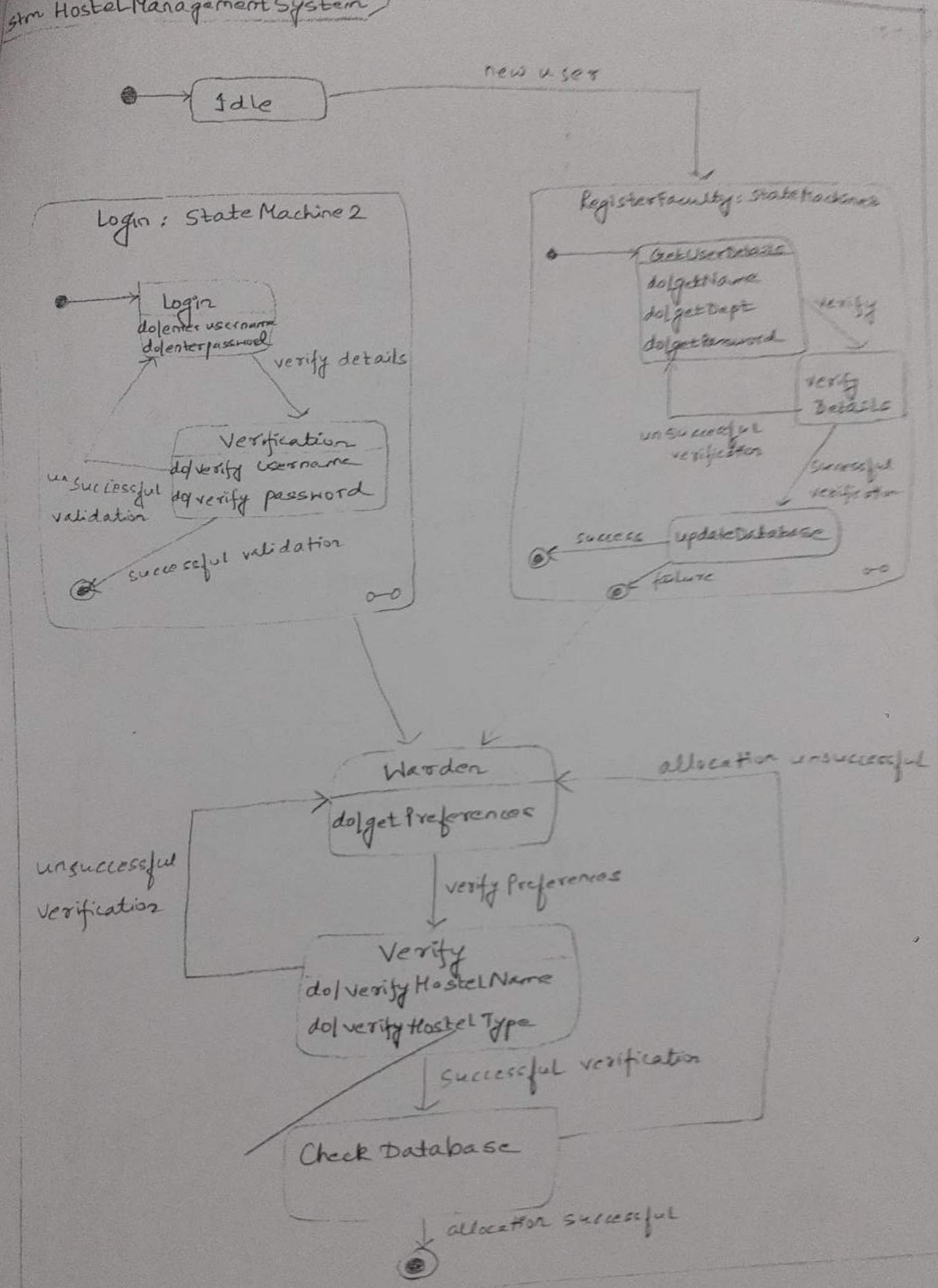
## Advanced Class Diagram

(Hostel Management System)

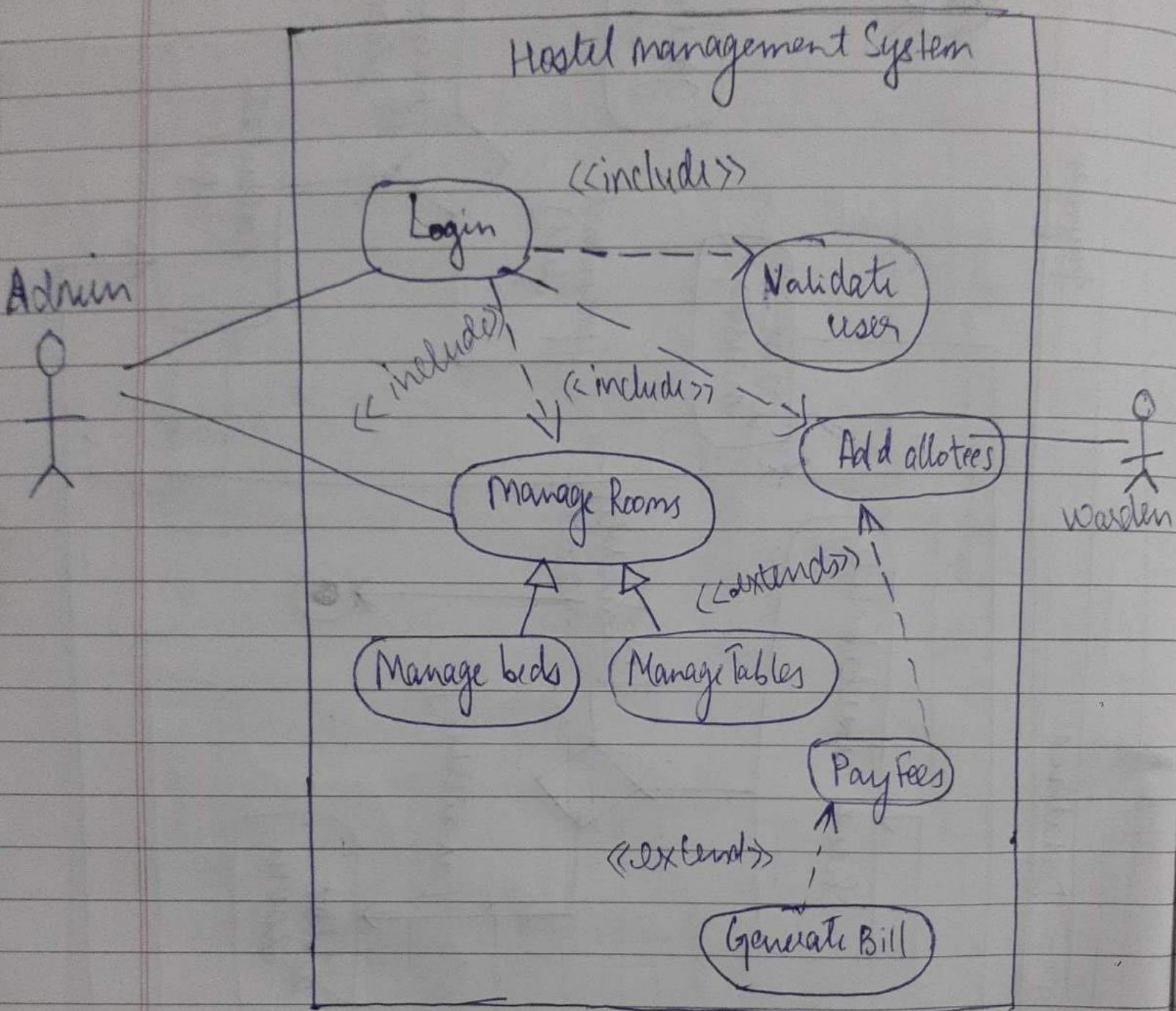


# Advanced State Diagram (Hostel Management System)

Stm Hostel Management System

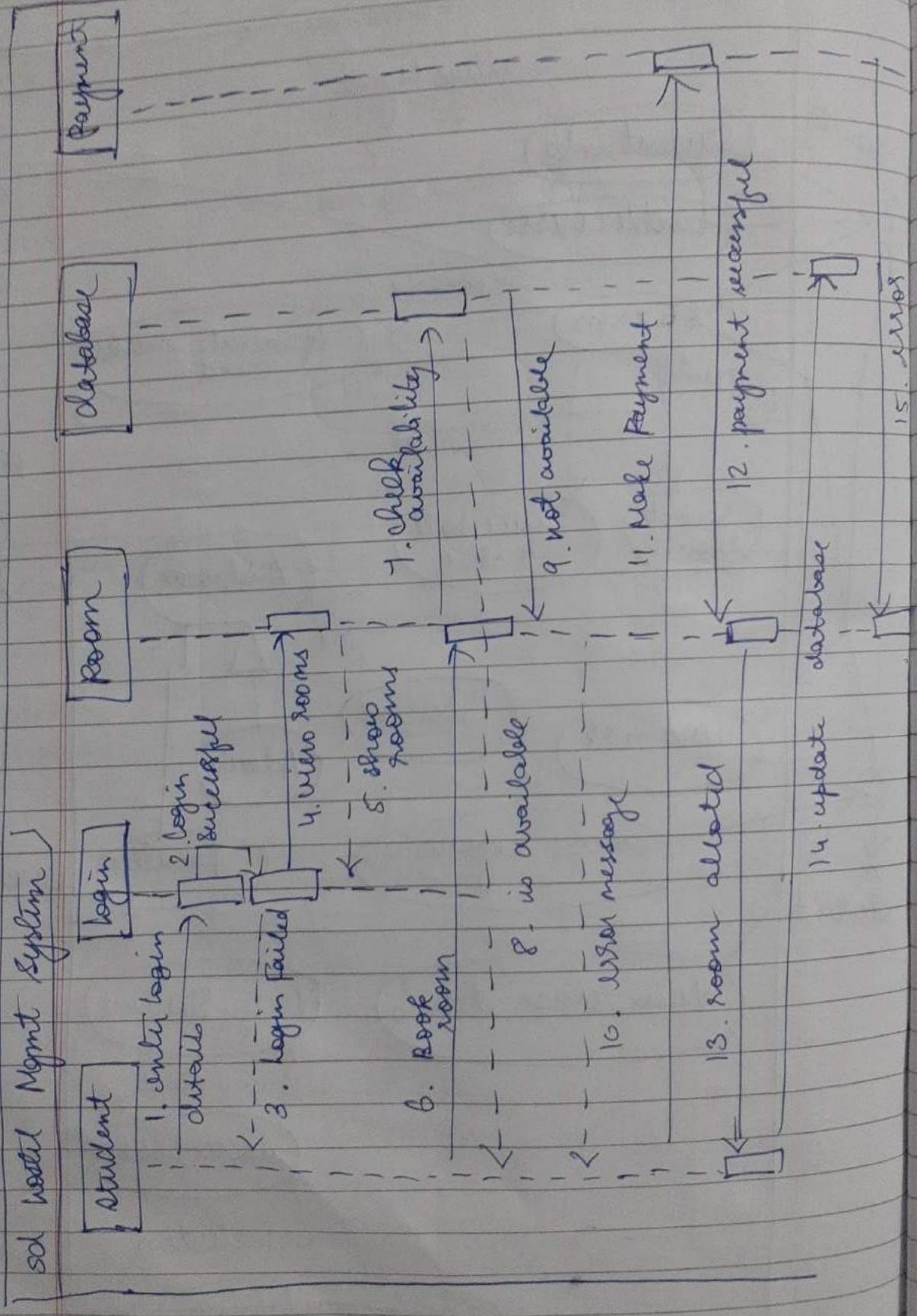


## use case diagram



## 2. Hostel Mgmt system

seguente diagram

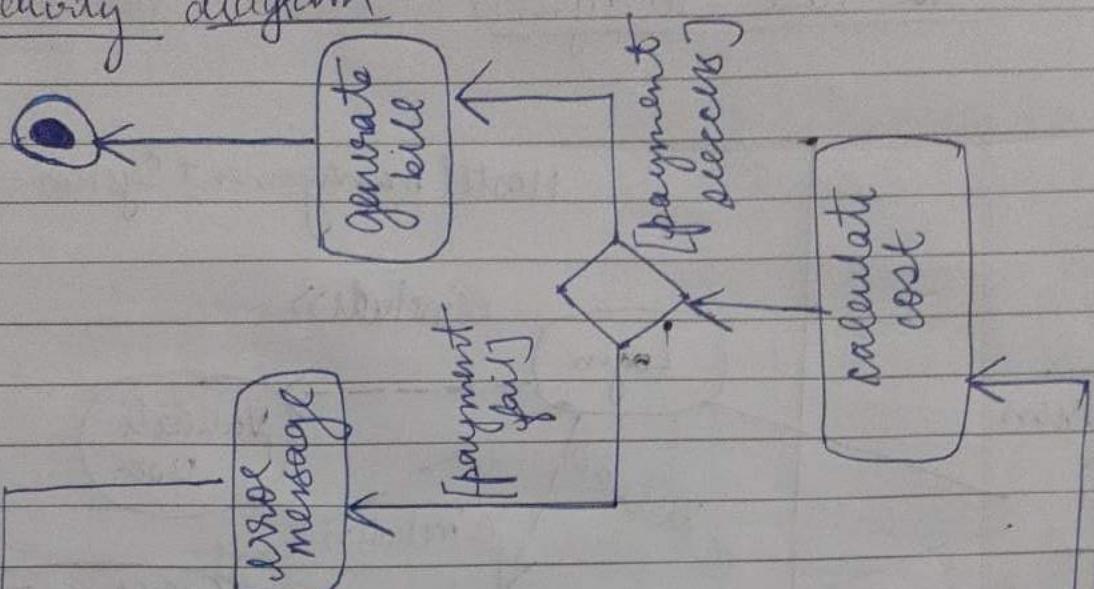


### student

### Dataflow

### Payment

activity diagram



login

fail  
[fail]  
[correct credentials]

book room

make payment

check availability

[Not available]

[available]

allot room

Problem Statement:

To develop a software that can maintain an optimal stock level, track goods during transport between locations, receive new items, manage warehouse processes such as picking, packing and shipping, preventing product spoilage and ensuring that the products are never out of stock, thereby helping in the growth of business in an efficient way.

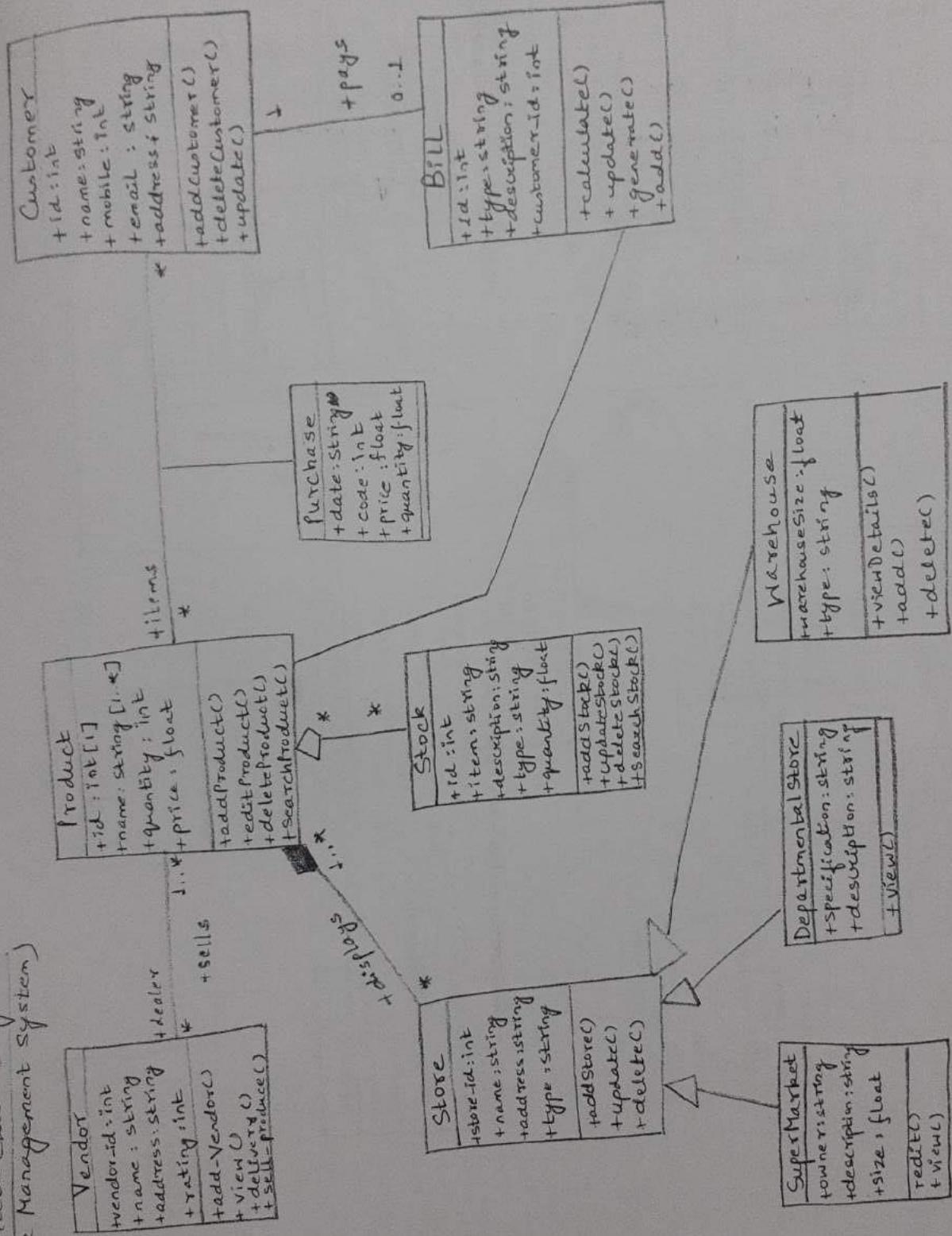
Software Requirements Specification (SRS):

- The Stock Maintenance System will allow the employees to record information of the items available in the store and generate reports based on the total amount of sales. It also allows them to enter details related to sales, purchase order, change employee preferences and create reports.
- The stock of the products is maintained separately. It deals with information about details of the product, such as name of product, ID generated, quantity, cost, etc. This information is retrieved during sales and purchase of the product.
- The customer can login, fill his/her details, can view the availability and price of the required items. Then, the customer can place an order and purchase one or more products on any day, which will have a code price and quantity.
- The customer will have to pay the bill for the products purchased. The bill number, type description and name of the customer paying the bill is maintained.
- Employee maintains information of the sale of the item. He can add items at the right time and update the database.

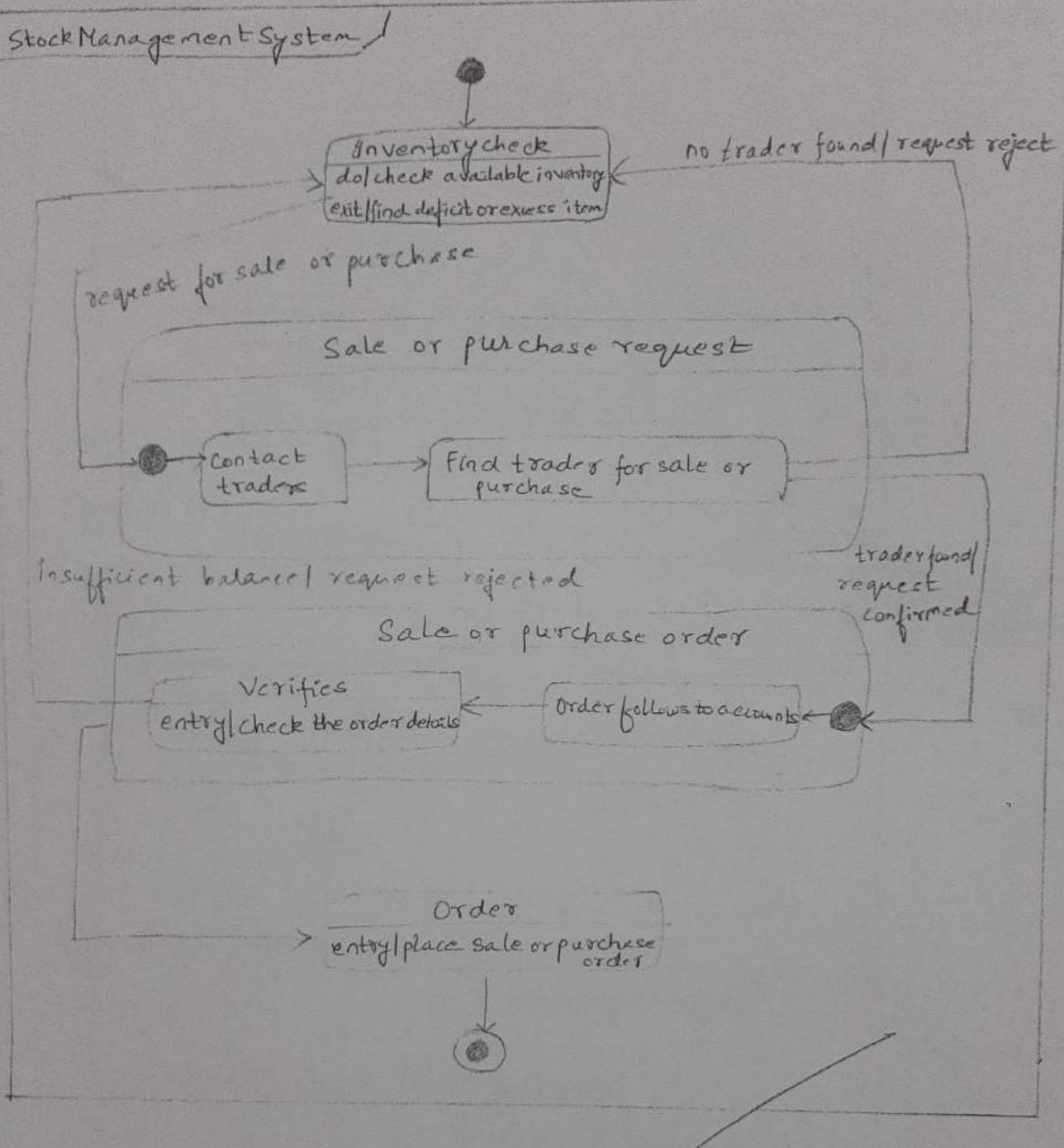
Vendor can login and view customers details and orders. He deals with information about the details of suppliers giving product to organisation. Vendor consists of details like vendor name, address, email id, etc. This information is retrieved when a purchase is done.

- Products are displayed in stores across the world. All the information related to store are used to locate any product. Stores can be of many types having different store id, name, address. Some of them are departmental stores, super markets, malls, warehouses, etc.

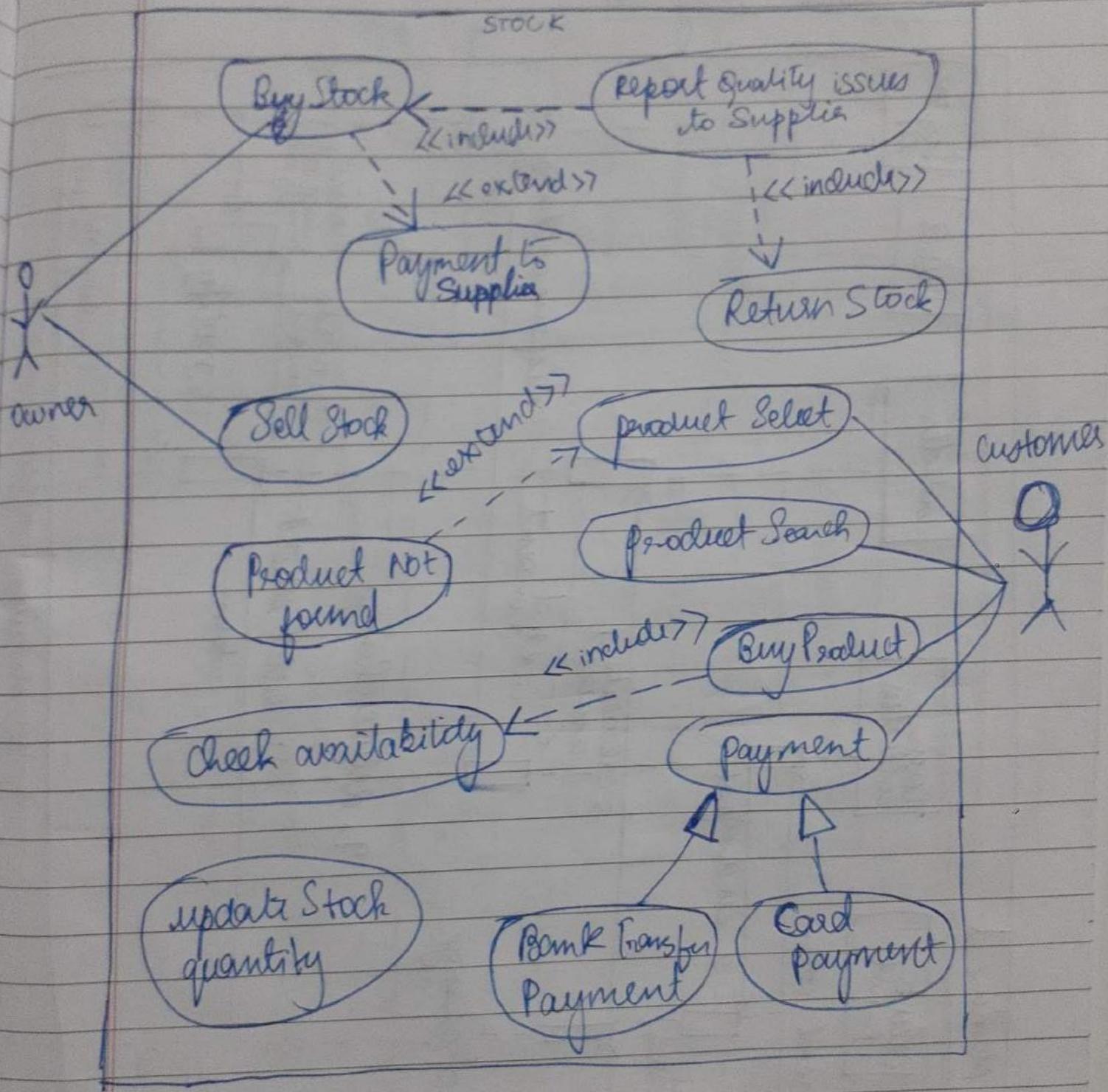
## Advanced Class Diagram: (Stock Management System)



# Advanced State Diagram (Stock Management System) :-



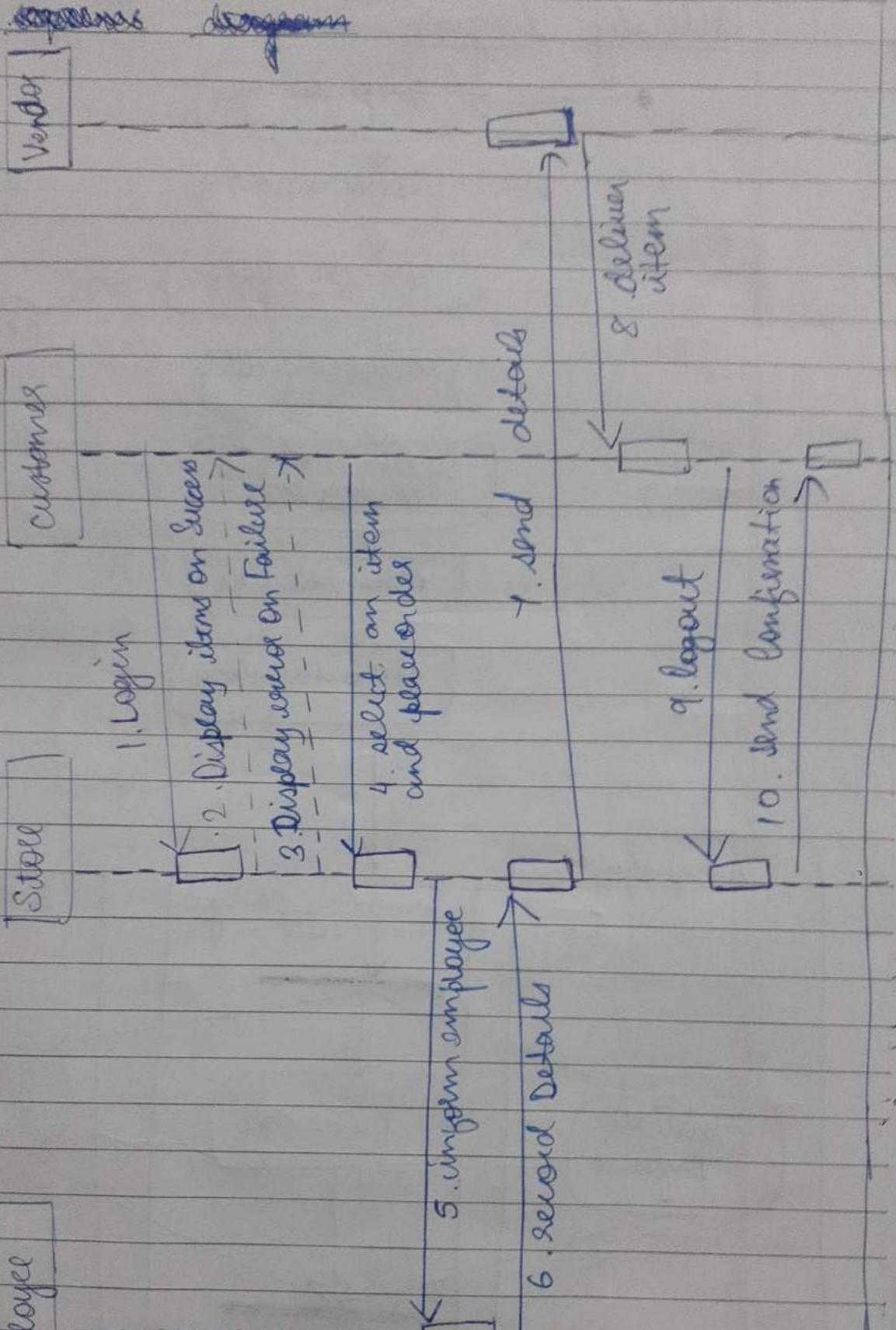
## use case



# Stock Management System

System diagram

3. Stock Mgmt System



# Activity diagram

Accept user login

request validation

wait for response

receive confirmation

System ready to receive orders

order received

check inventory

Network

Accountant

Inventory Manager

Sales Agent

Validate payment

update inventory

generate bill

(Deliver Item)

#### 4. Coffee Vending Machine

##### Problem Statement:

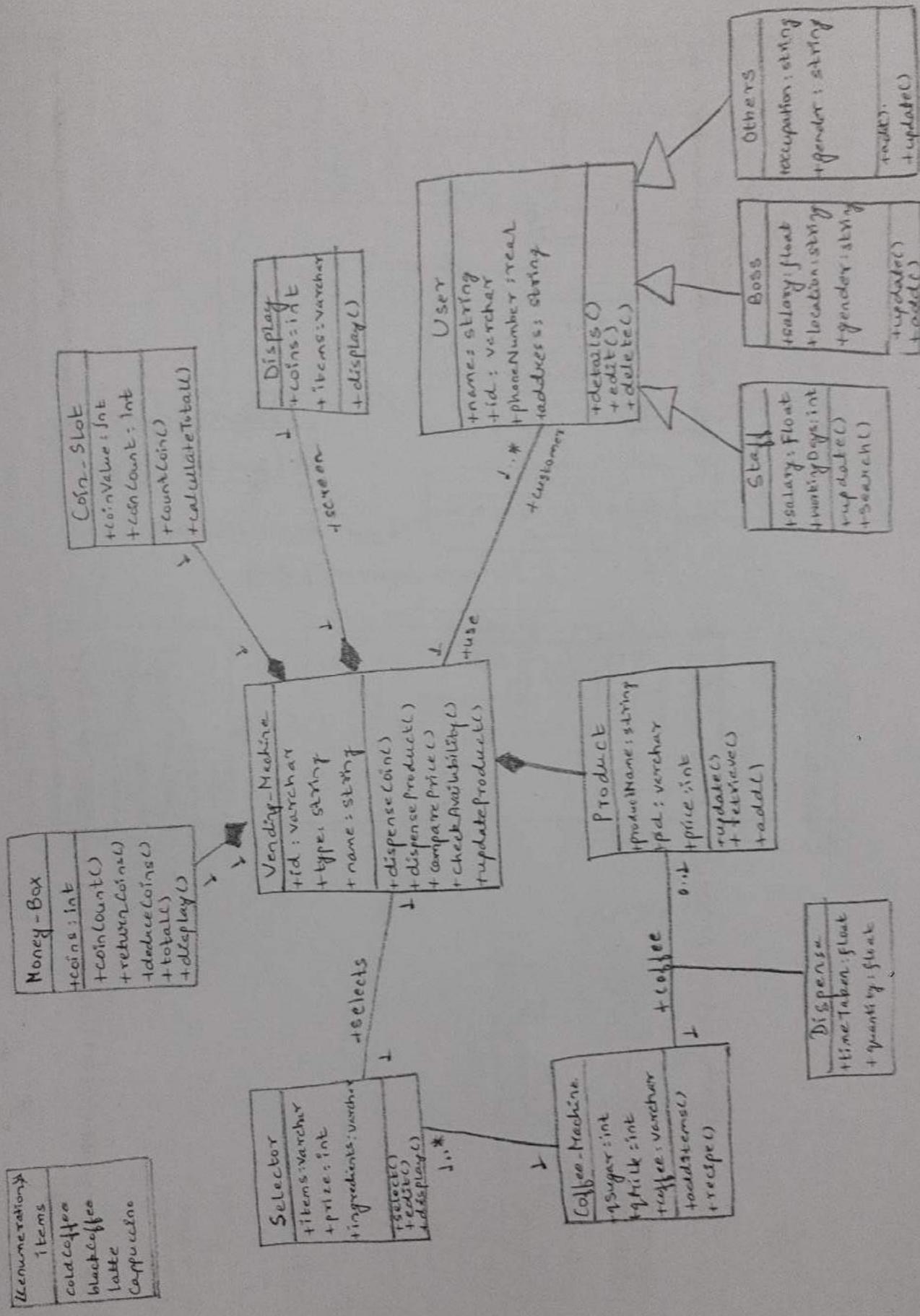
To develop a software that is convenient in places like offices, gatherings, etc where it allows different people such as employees, clients and customers to get what they need in a time and cost-saving manner, thereby saving both gas and time by avoiding a trip to the nearest coffee cafe.

##### Software Requirements Specification (SRS):

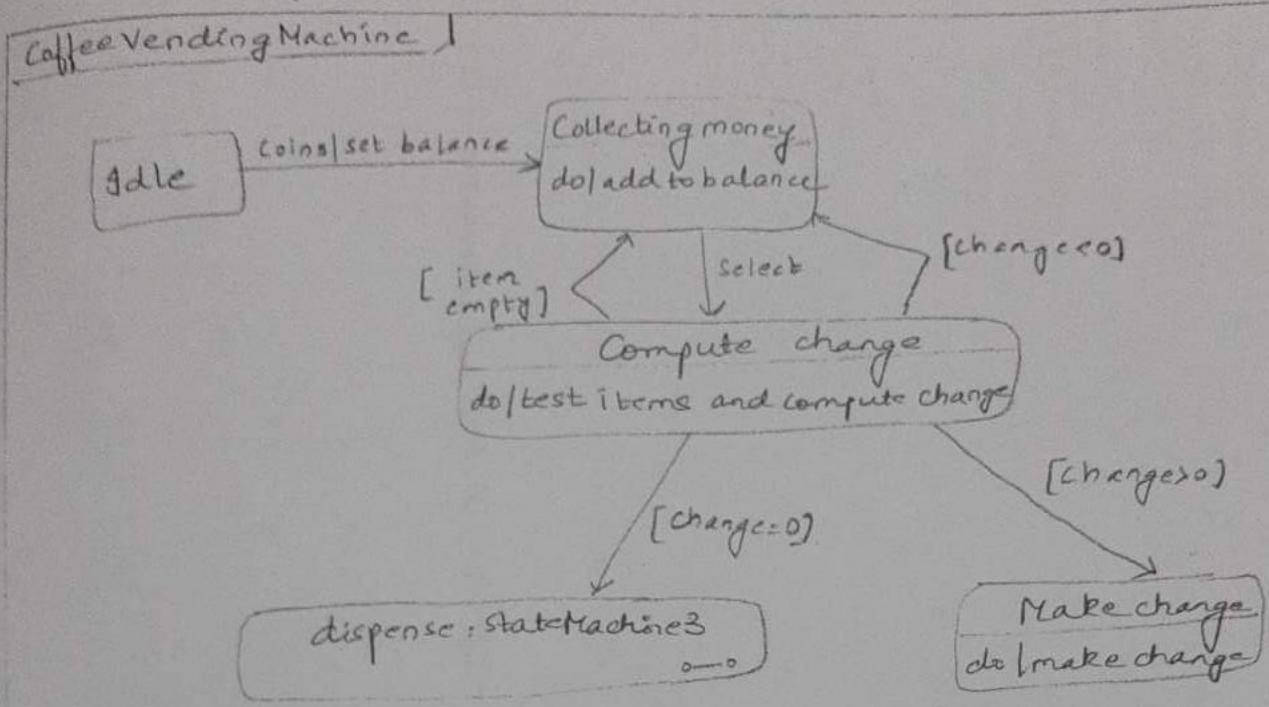
- The coffee vending machine should display all the available flavours and types of coffee and other beverages.
- The user should be able to enter their flavours of choice, without any inconvenience.
- The machine should have money box, coin slot, display screen and products, i.e. coffee.
- The user on selecting a coffee, the machine must be able to dispense the selected coffee to the user.
- There must be buttons like start, pause, coffee, tea, milk, etc. for the user to interact with the system.
- The user shall get an empty cup placed right below the filter. The user shall then be able to choose his preferred beverage from the list of options.
- The user can quit the dispense of any beverage at any time during the dispensing.
- The dispenser should accept cash, card or UPI as mode of payment.
- Once payment has been done, the system should dispense the user's choice of selected beverage into the cup, then refresh its display to show the choices again. Machine shouldn't dispense when there

- is no cup placed.
- Machine should not ask for next customer's choice until current customer's dispensing is done.
  - Machine should keep a check on the stock of commodities available and display only the ones that are available to the customer. It should send an abort to the admin if the ingredients are out of stock.
  - The admin should be able to restock commodities which are empty or in shortage.

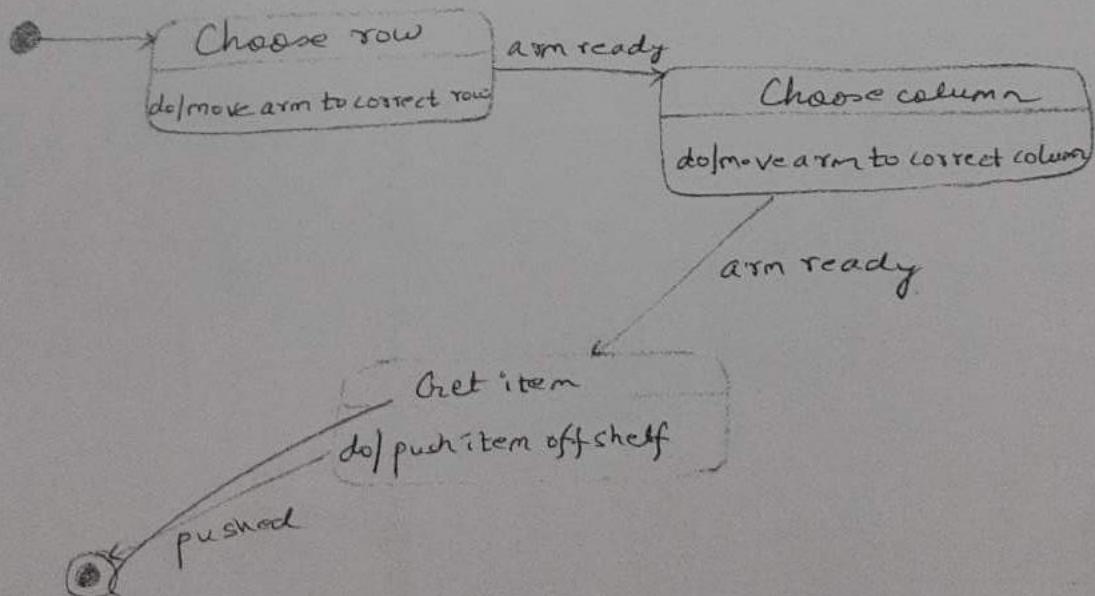
# Advanced Class Diagram Coffee Vending Machine



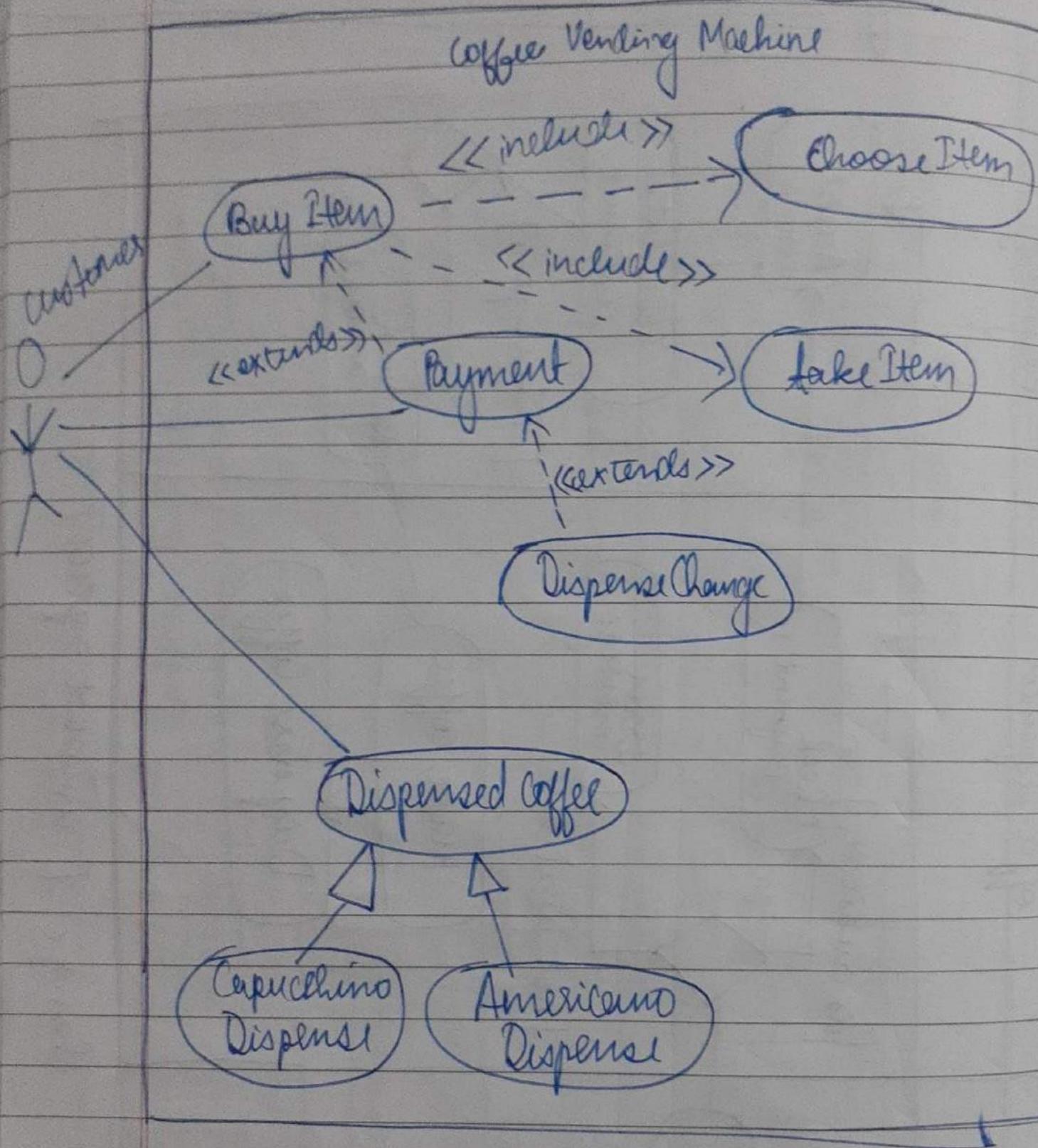
## Advanced State Diagram (coffee vending machine):-



## StateMachine3



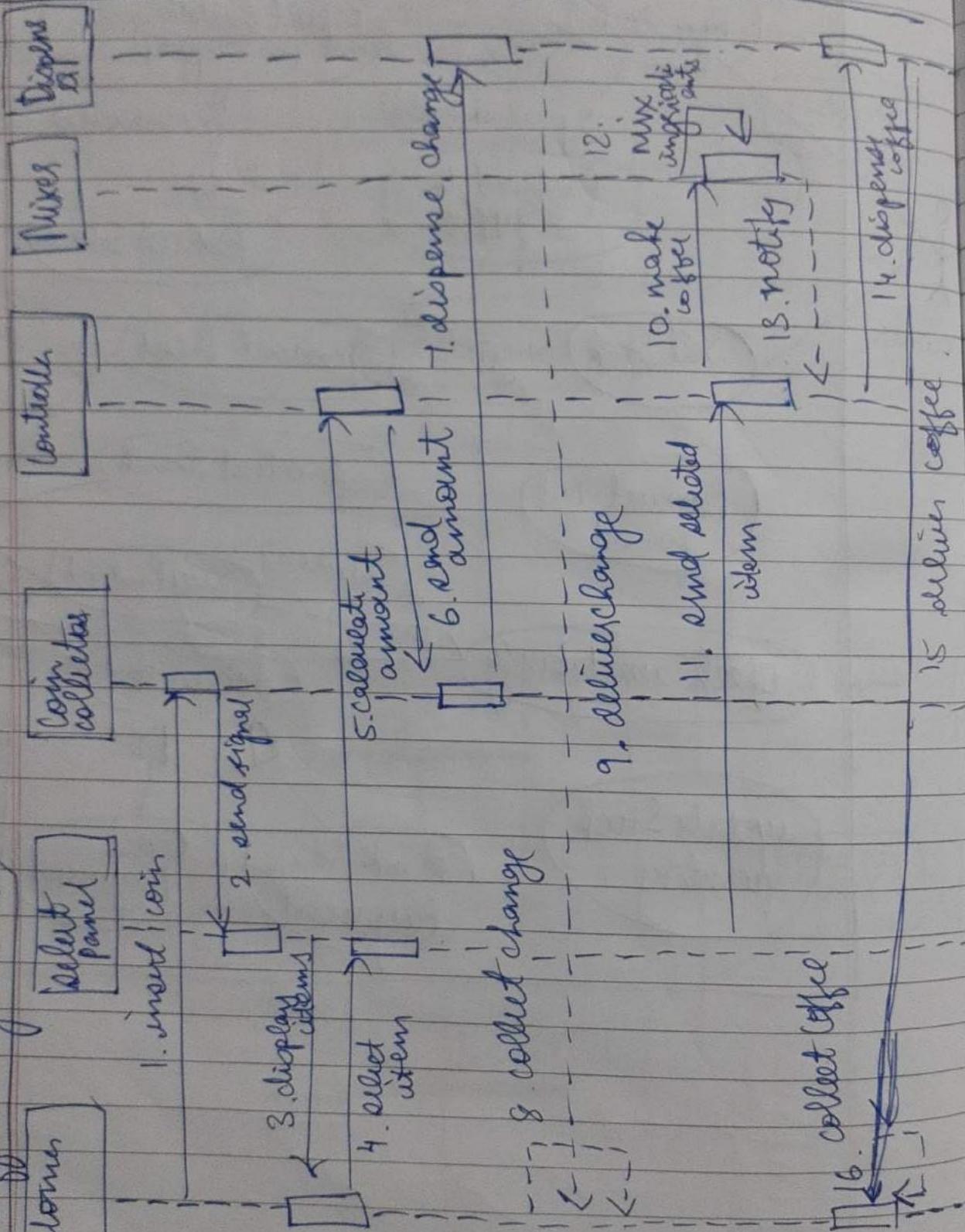
# use Case



## sd Coffee vending machine

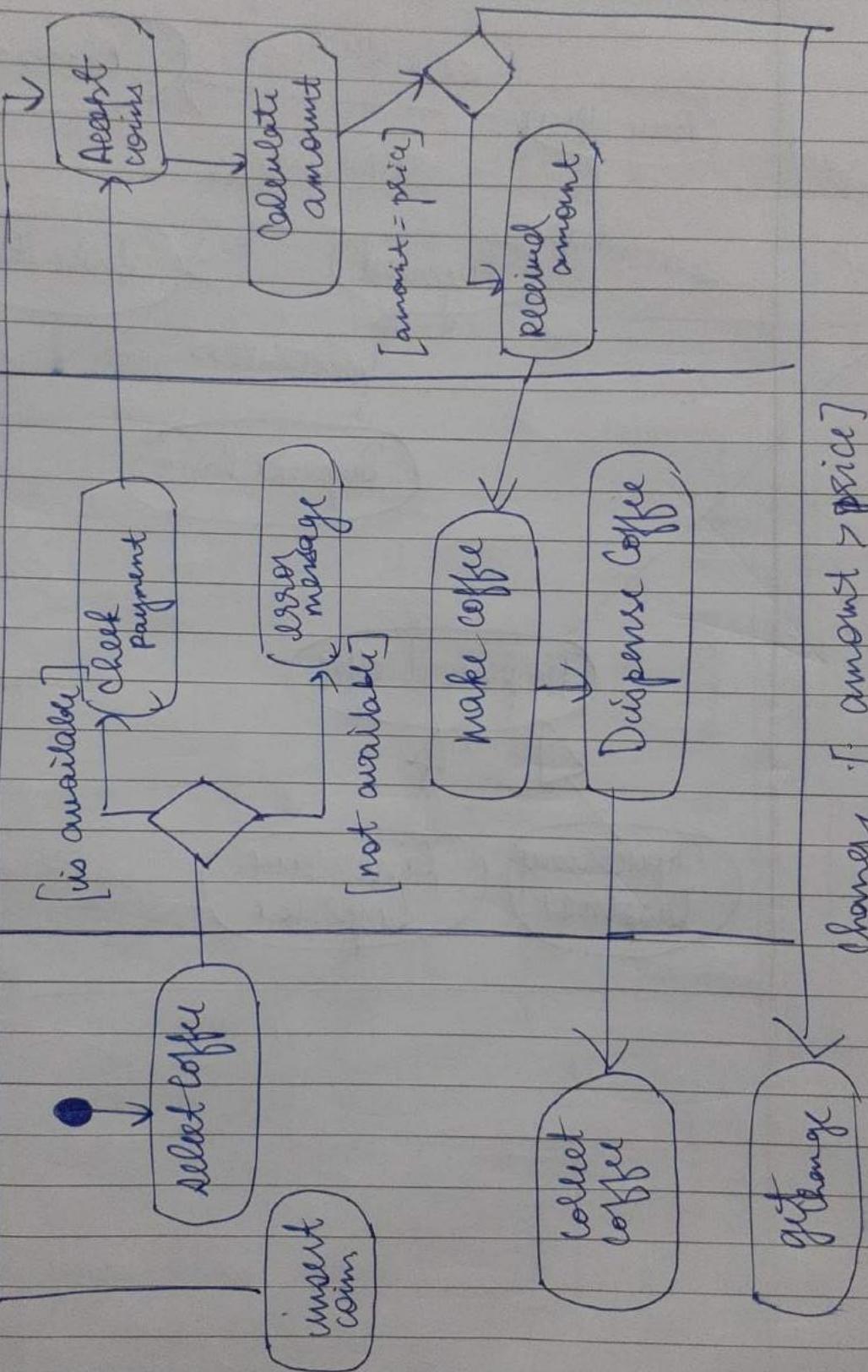
### sequence diagram

#### 4. Coffee Vending System



# activity diagram

Coffee Dispenser Payment



change : [ amount > price ]

## 5. Online Shopping System

### Problem statement:

To develop a software that enables the customer to browse the firm's range of products and services, view photos of the products, along with information about the product specifications, features and prices in an efficient manner and helping them to buy a better product.

### Software Requirements Specification (SRS):

The online shopping system allows the users and vendors to exchange products remotely and reduces the amount of cost and time substantially. The software provides the following facilities to the customers:

- Facilitates easy shopping online anywhere with free shipping (Conditions apply).
- Provides information about the products in categories
- Can avail the facility of purchasing second hand products
- Can reserve if the particular product is not available
- Customers are provided with upto date information on the products available
- Provides email facility for future correspondence
- Provides backup facility
- Can add nearly ten products to their shopping cart at a time

The software will not provide the following facilities to the customers:

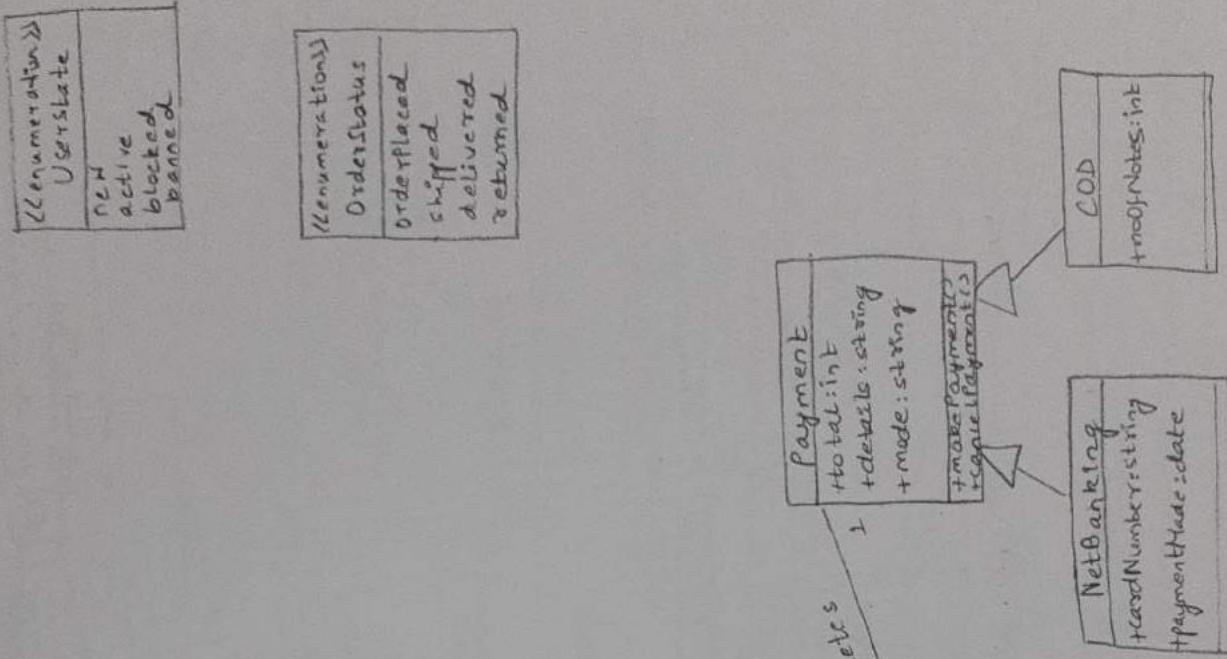
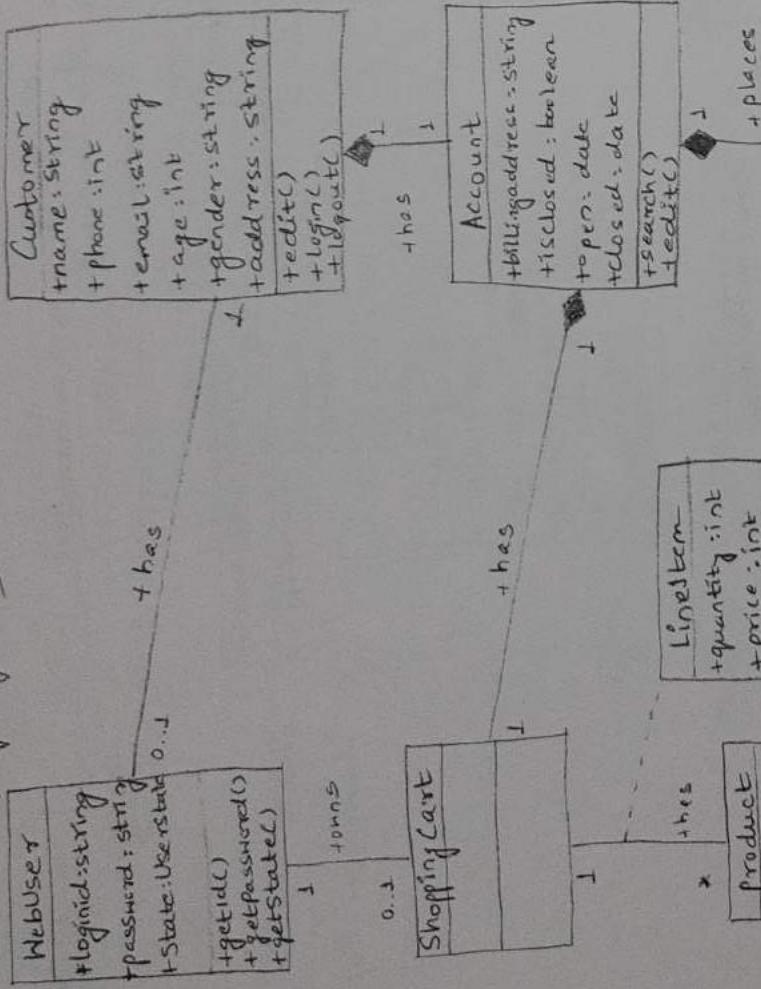
- Cannot reserve the product for more than two days.
- Cannot reserve more than two products.
- Responsibility of damages

The product cannot be changeable once confirmed

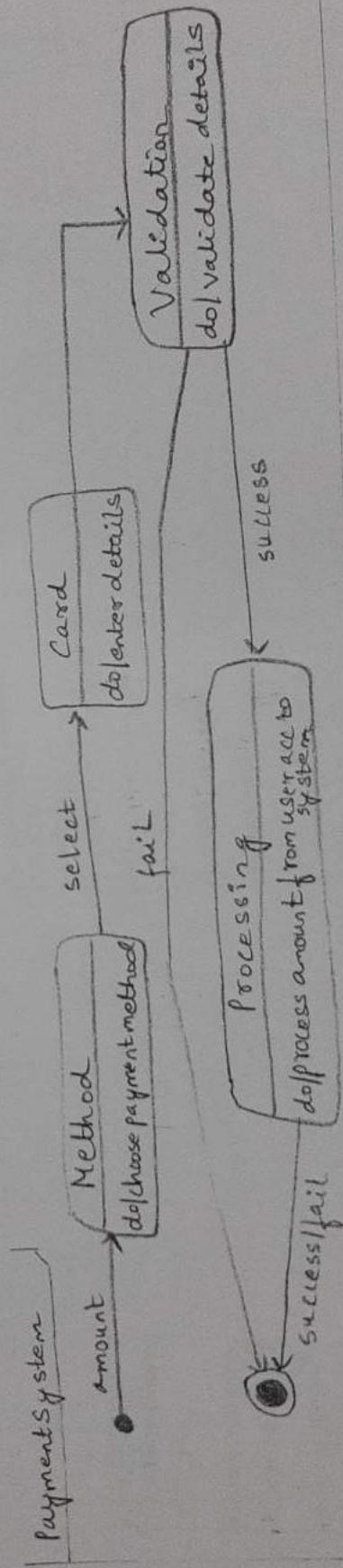
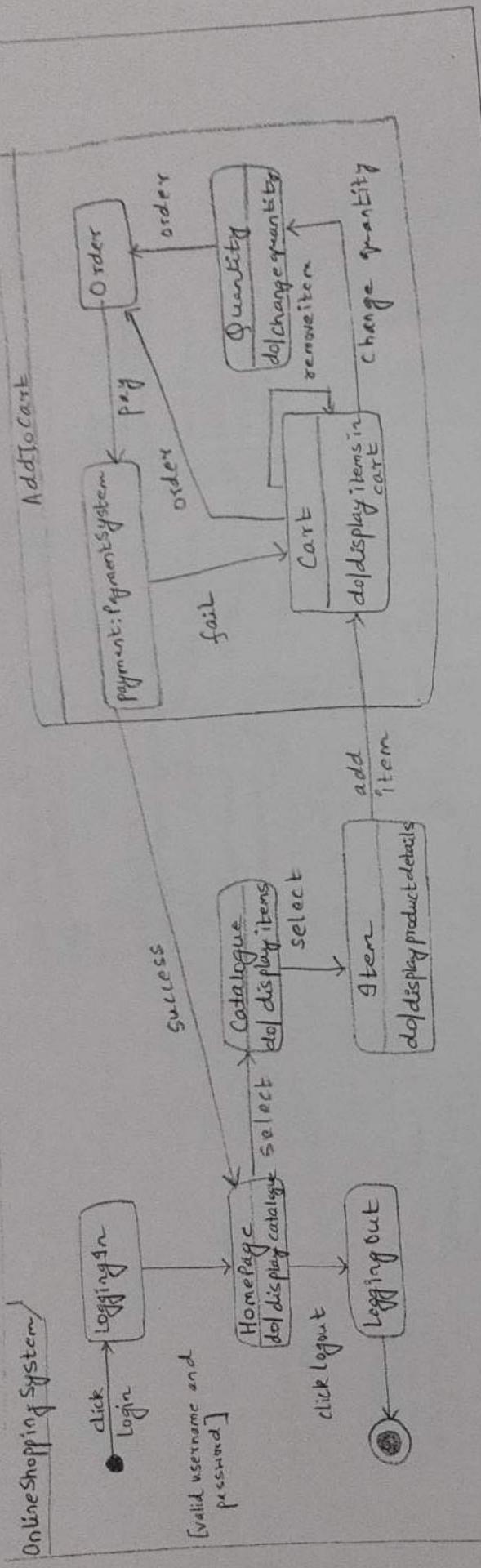
The software provides the following facilities to the merchants:

- Facilitates easy bidding facility
- Provides complete information about the customers
- Provides complete information about their products
- Can avail the facility of email correspondence & brand catalog.

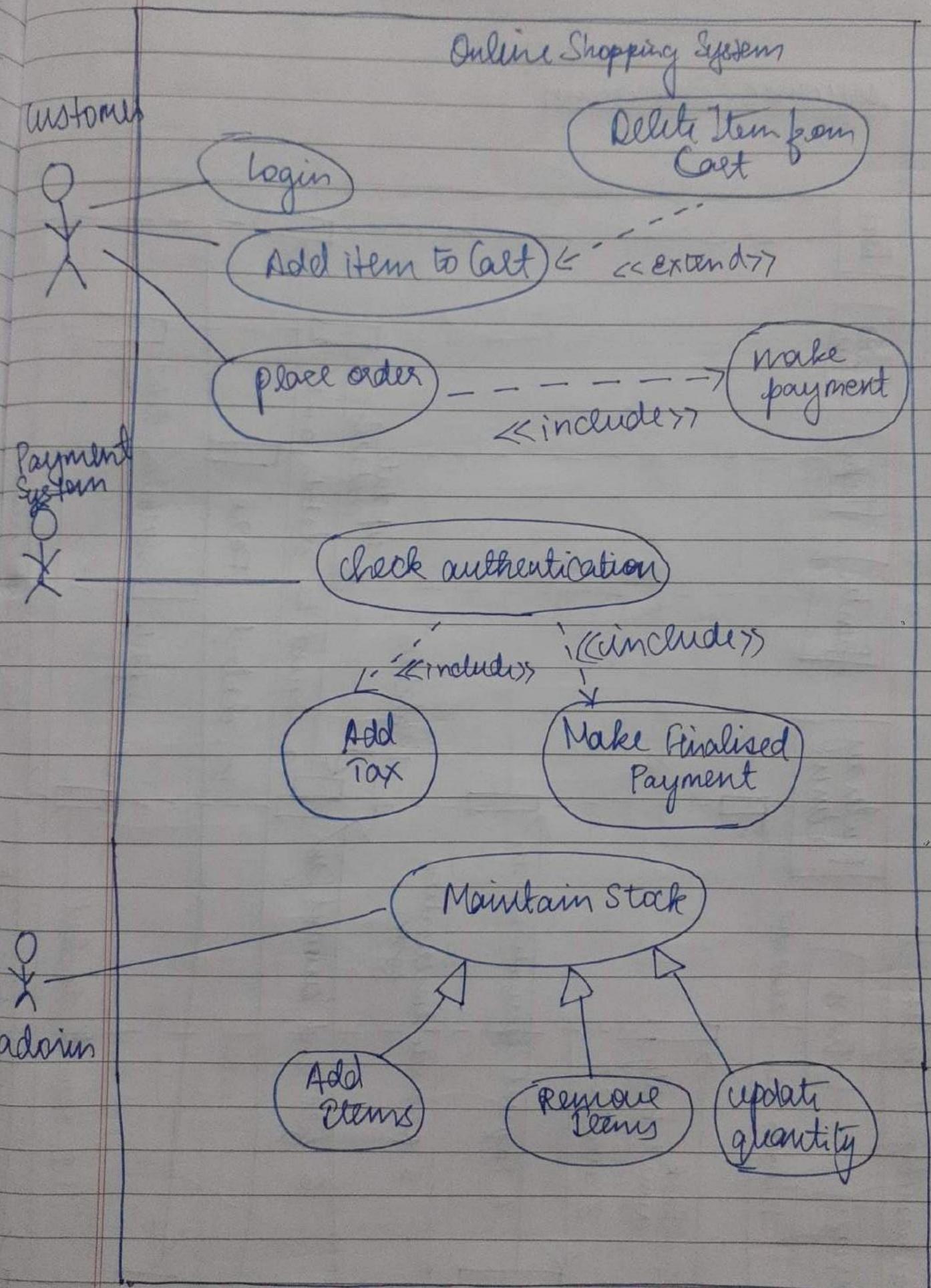
# Advanced Class Diagram - (Online Shopping System)



## Advanced State Diagram:-



## use Case :-



### SD Online Shopping System

Customer

Product

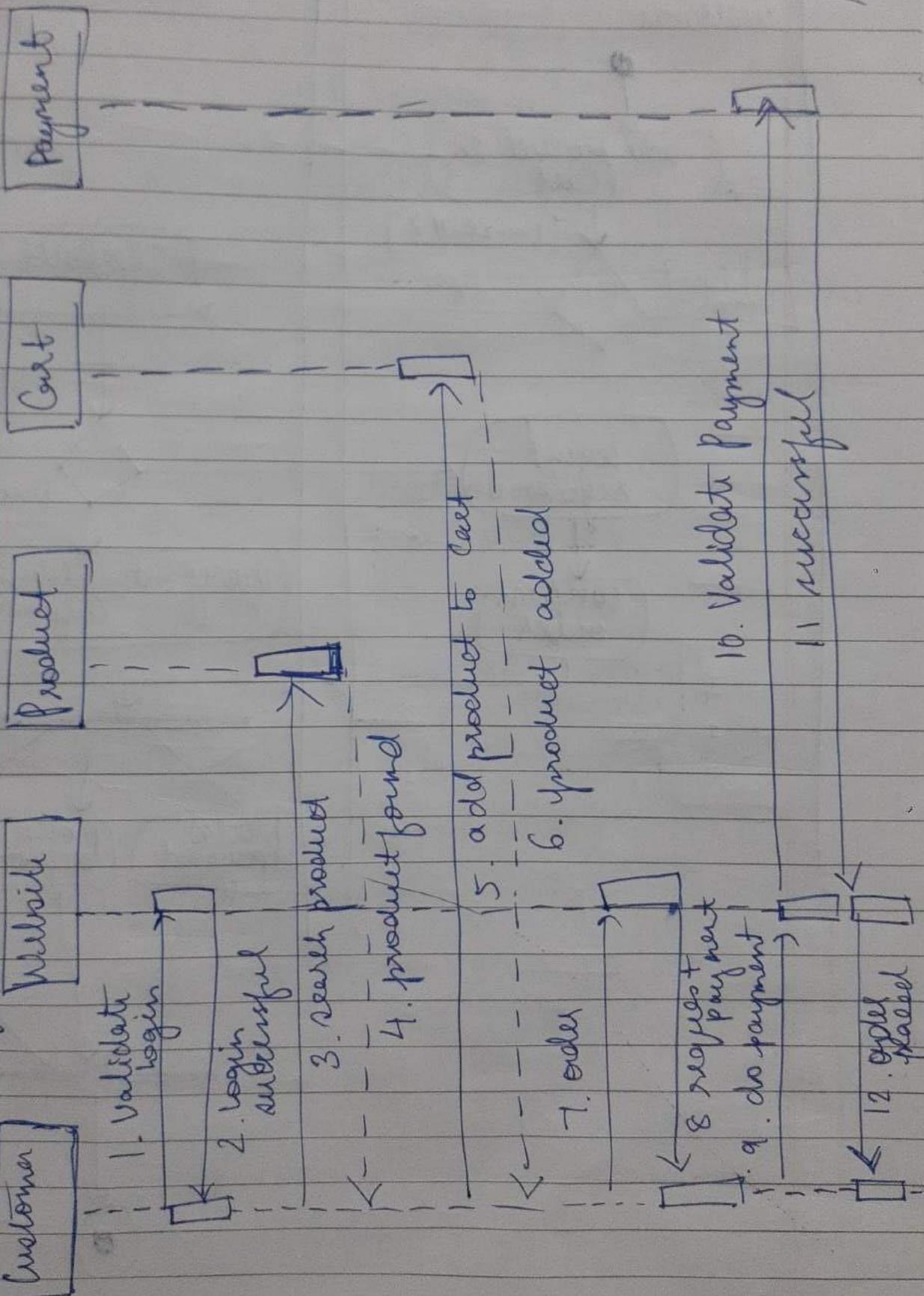
Cart

Payment

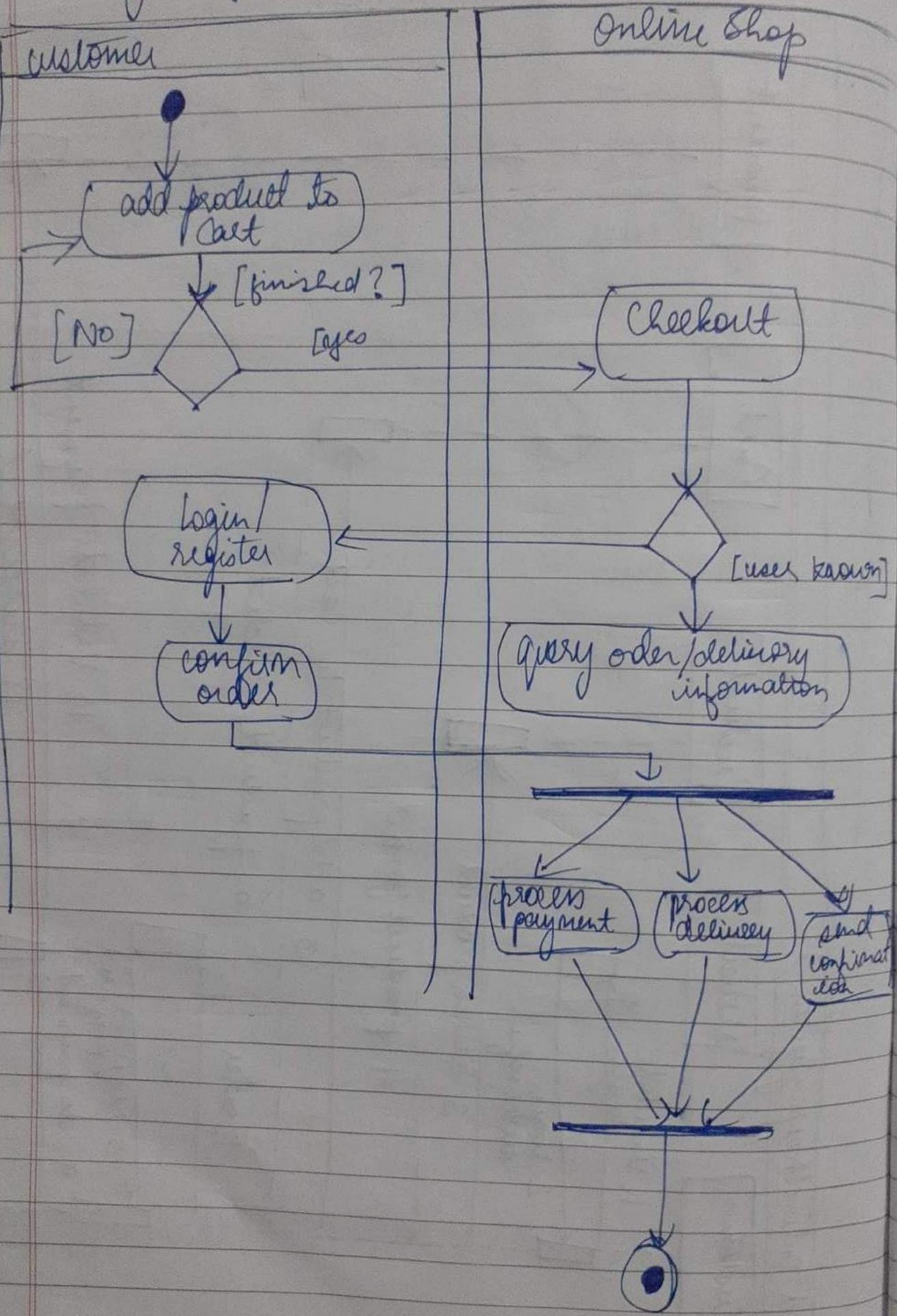
Vehicle

### 5. Online Shopping System

#### Sequence diagram



# Activity diagram



## 6. Railway Reservation System

### Problem Statement:

To develop a software that facilitates the passengers to enquire about the trains available on the basis of source and destination, booking and cancellation of tickets, enquiry about the status of the booked tickets etc. without any need of standing in long queues and hence saving time.

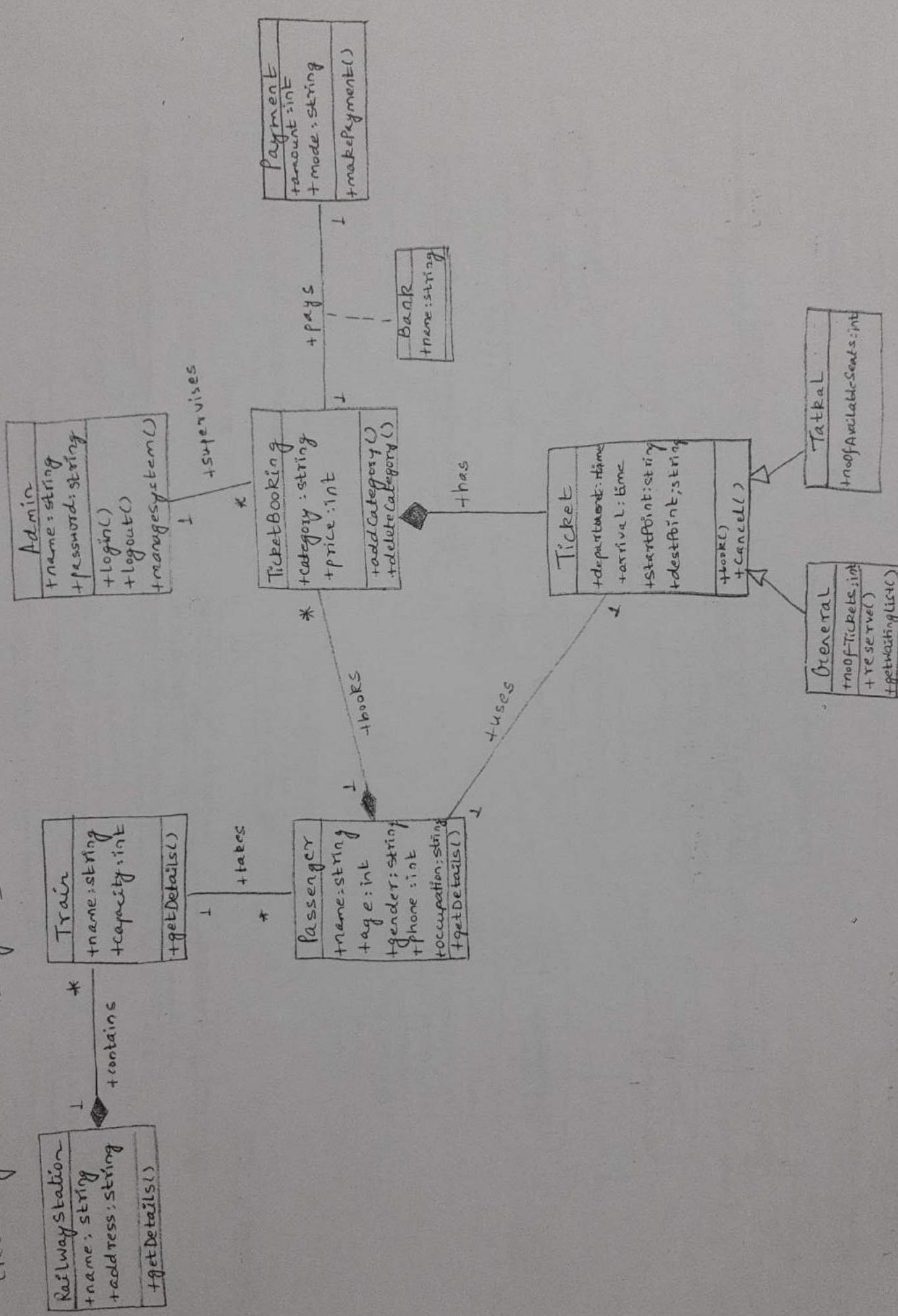
### Software Requirements Specification (SRS):

- Developing a user-friendly Railway Reservation System in order to enable passengers to book tickets online and make payment online as well.
- The system provides information to the users relating to the train timing details, availability of the trains based on the source and destination selected, reservation, billing and cancellation on various types of reservation namely, Confirm Reservation for seat, Reservation against cancellation, Waiting list Reservation, Online Reservation and Tatkal Reservation.
- The system enables advance booking in any class, against general and ladies quota, payment of fare in full, for adults and children, a maximum of six berths at a time for a journey between any two stations served by a train.
- The system provides details about timetable, train fares, current status of reservation position, train available between a pair of stations along with the accommodation that is available for a train or for a date.
- Each user should have a user id and password. Record of the users of the system should be kept in the log file. Provision should be made for a full backup.

- The customer should be able to view any trains available at any day, cost and number of tickets available.
- Tickets can be booked in two ways, i-ticket or by e-ticket booking.
- The customer can book a ticket if they are available. The customer could search for the availability of tickets, then if the tickets are available, he/she can book by filling up the form that needs customer initial details.
- i-tickets can be booked online or tickets can be booked in person at the counter.
- e-tickets are booked online and the tickets can be shown through online or a print out is needed.
- Cancellation of the ticket is possible using a form given at the reservation office.
- The system can be used to display the entire details of the trains. The information is saved and corresponding updation takes place in the database.

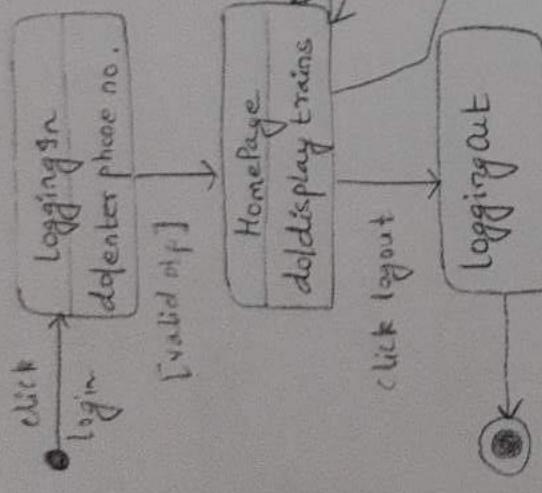
## Advanced Class Diagram :-

(Railway Reservation System)

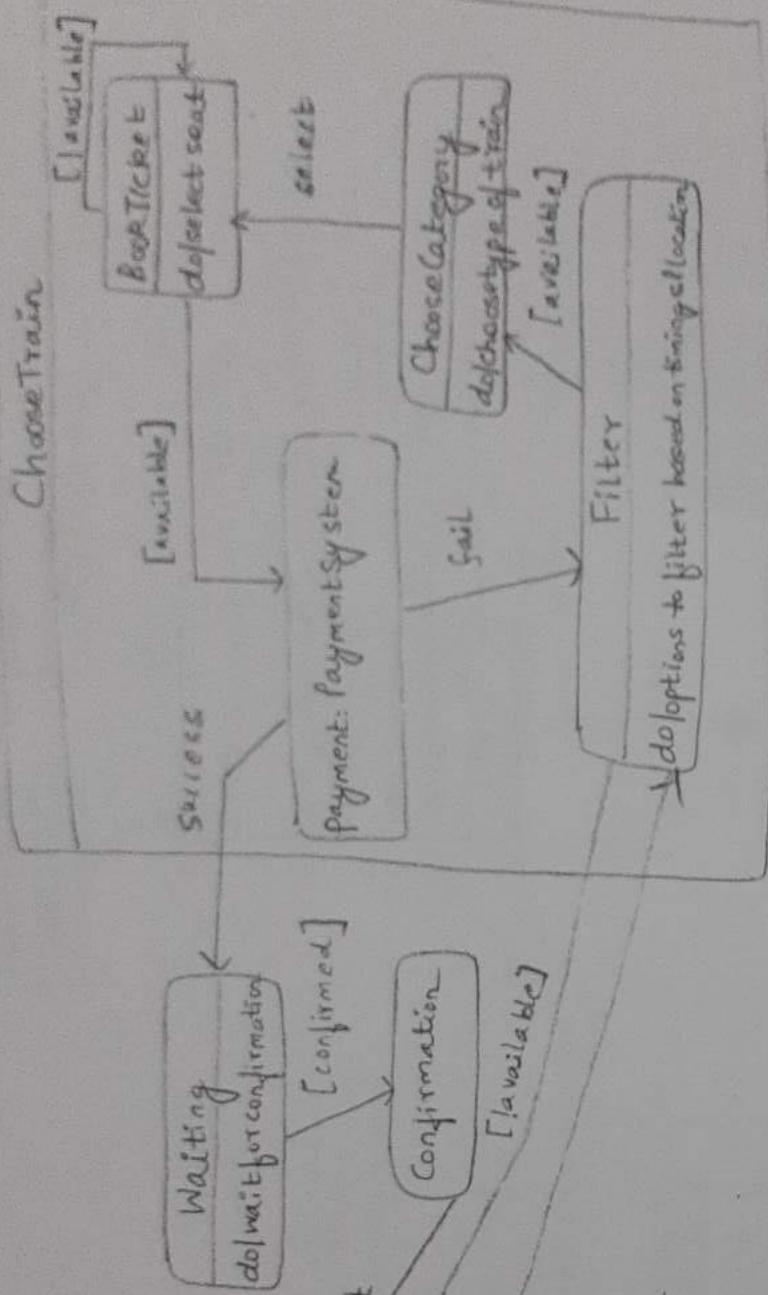


## Advanced State Diagram

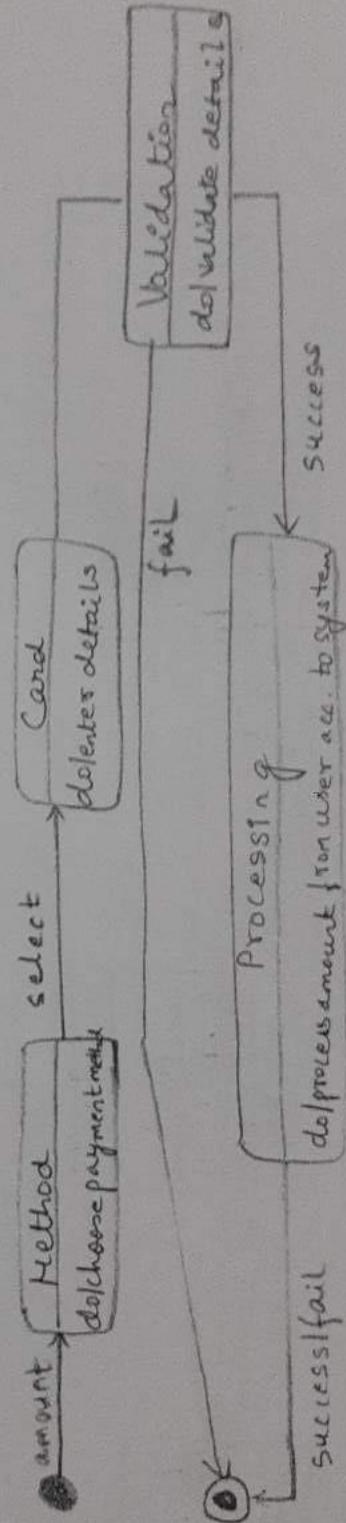
### Railway Management System



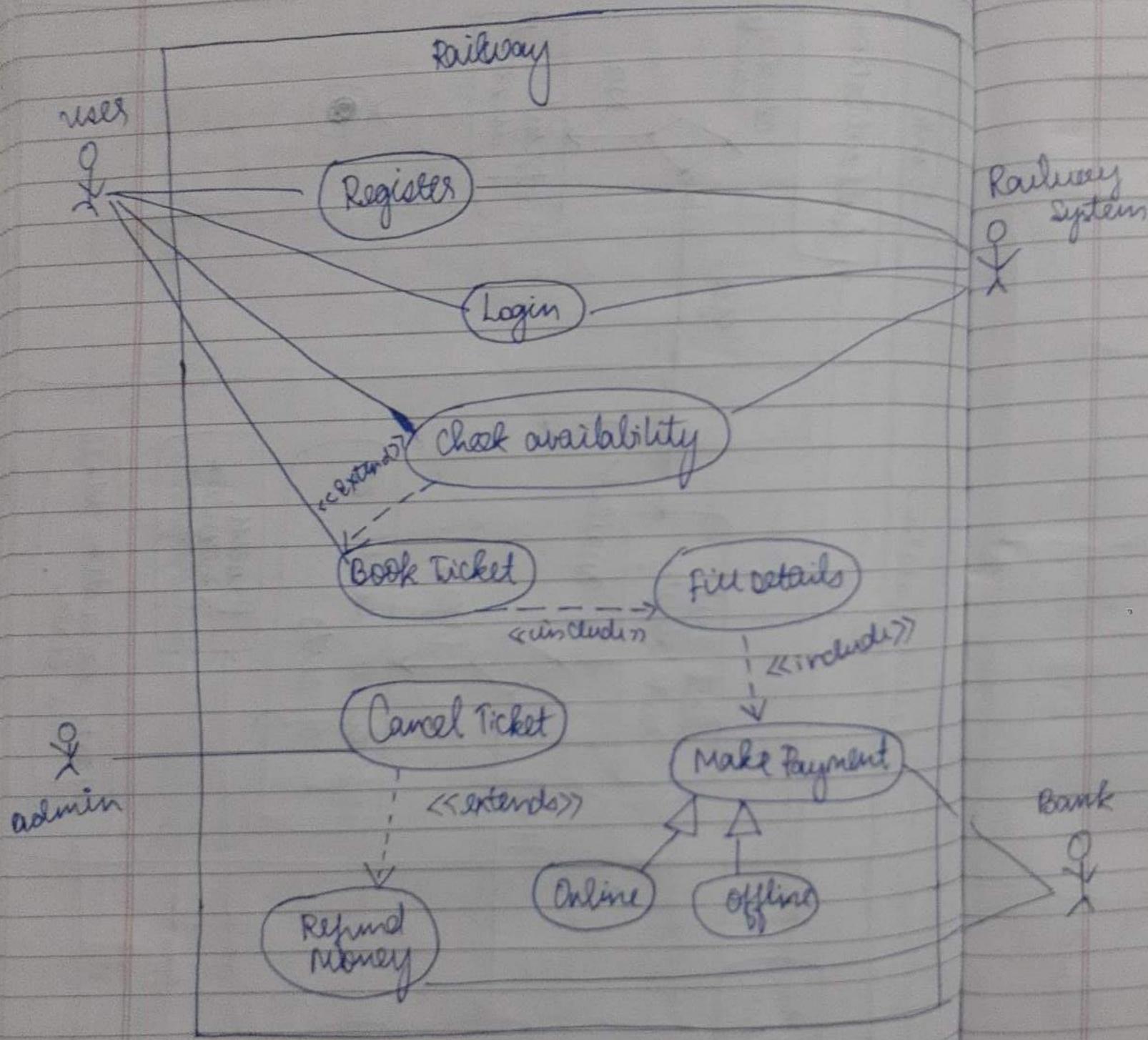
### Choose Train

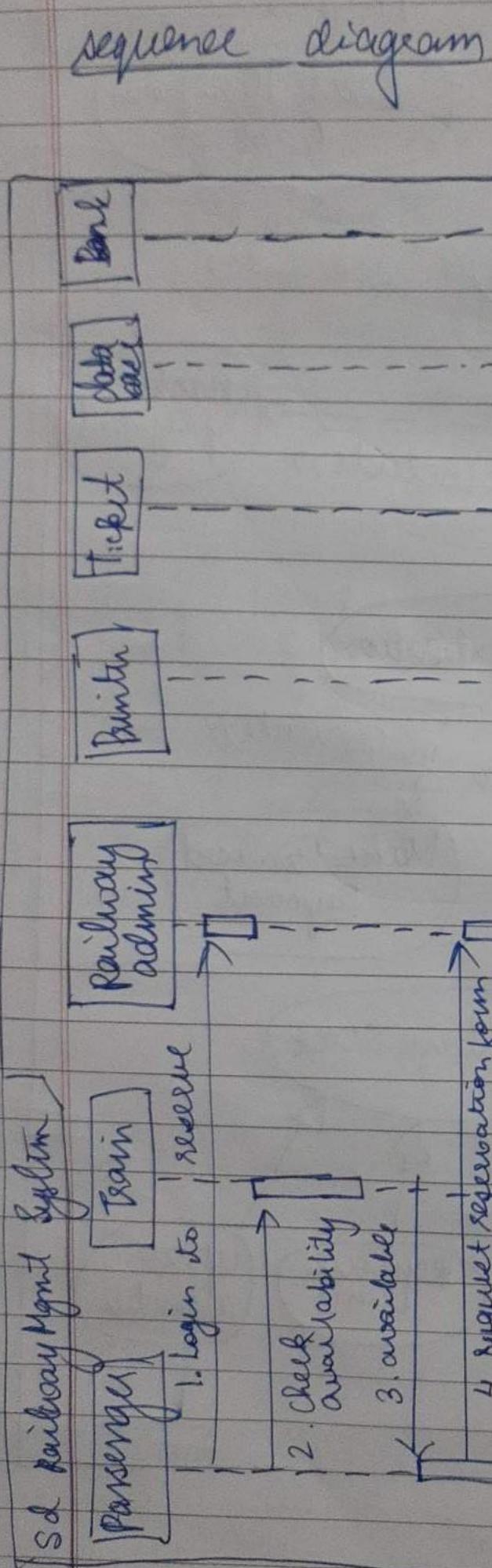


### Payment System



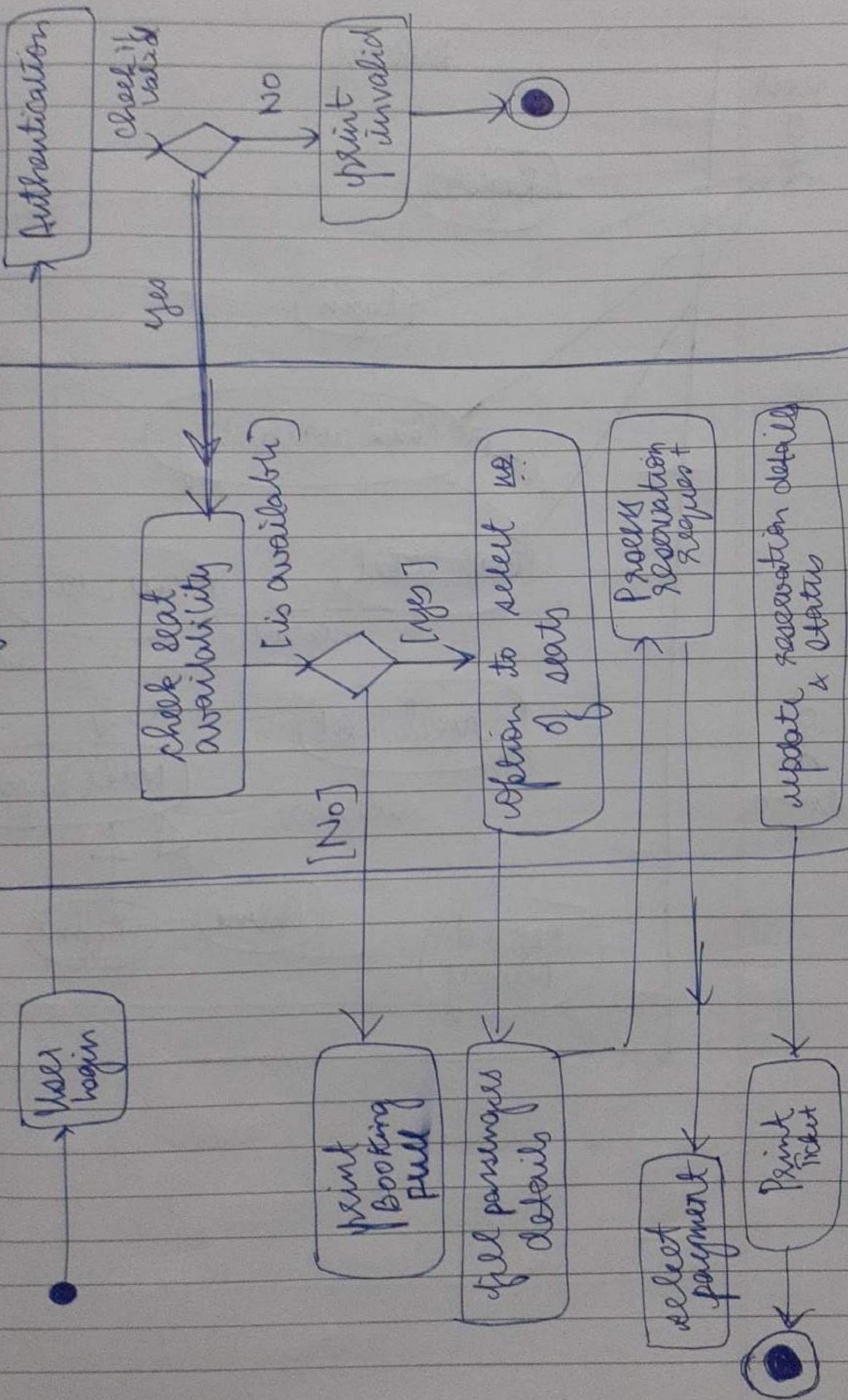
## use case:





Passenger      Railway Database      Bank

# Activity diagram



## 7. Graphics Editor

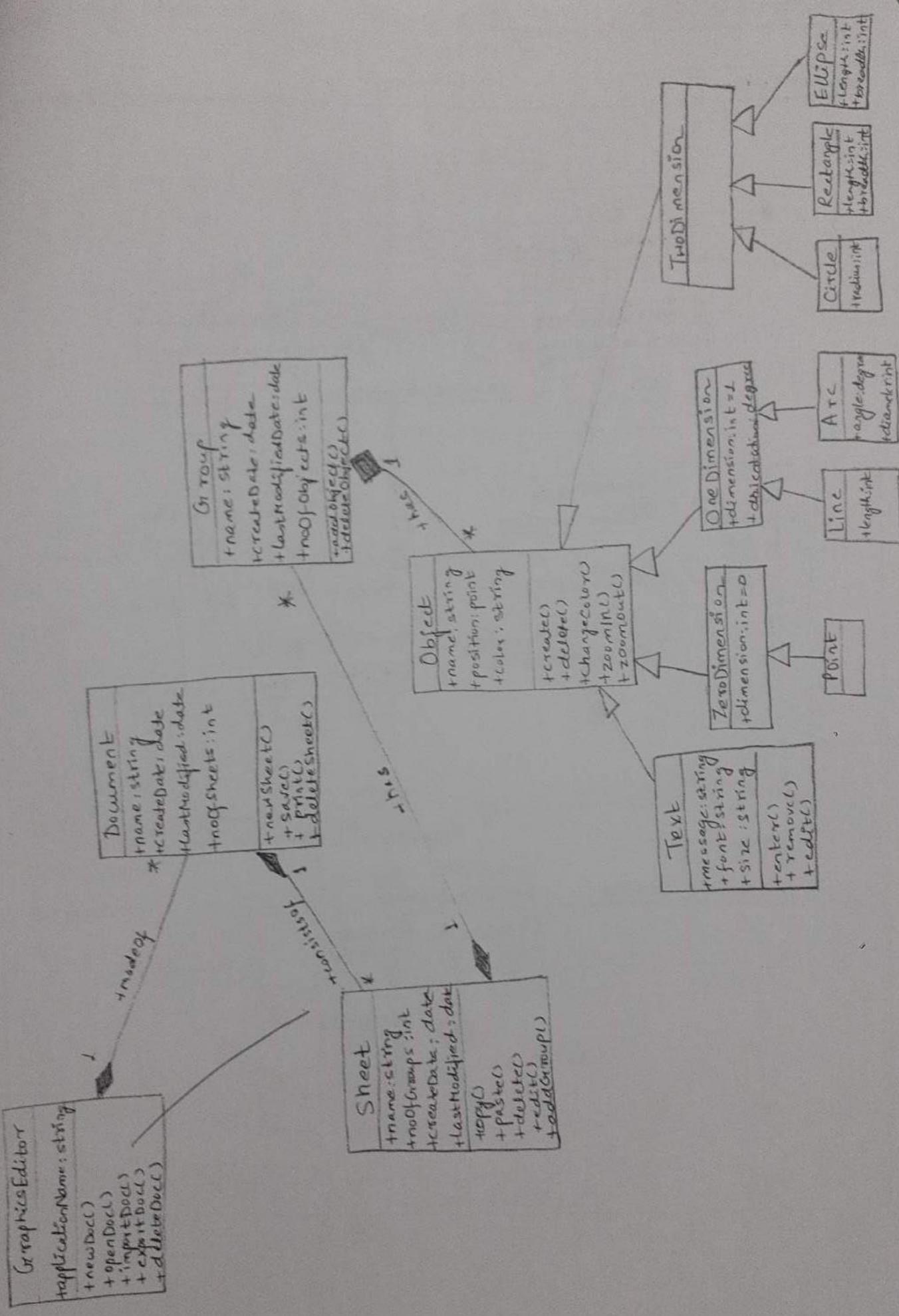
Problem statement:

To develop a software that allows a user to edit and manipulate graphical images through a variety of methods with the intention of maintaining uniqueness and creativity of a user in each design.

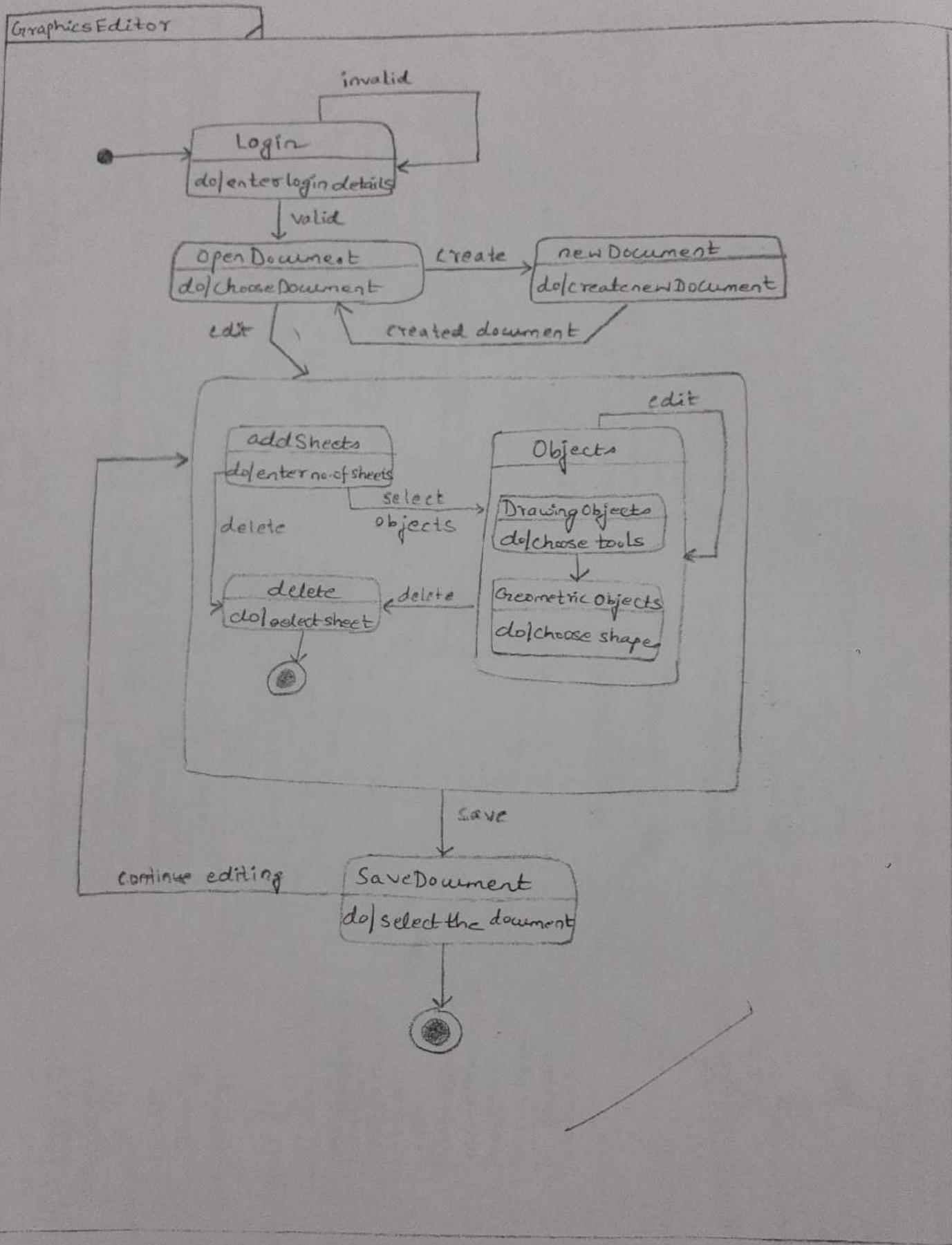
Software Requirements Specification (SRS):

- The graphics editor provides an Application Programmer's Interface that enables a programmer to develop their own graphical model editor for a specific type of model. It consists of a graphical document editor which can be used to create new document, delete a document, update or view a document.
- It contains the toolbox that contains tools like : Line, Circle, Rectangle, Arc, Text, Draw, Eraser, Color box.
- A document is made up of many sheets including these tools inside them. The sheets will be having multiple number of drawing objects, which can be created, grouped or formatted.
- A standard toolbar with options for New, Open, Save, tool box and Text Toolbox.
- The user can add or remove any changes made to the sheets using the color box supplied.
- The toolbar and editors should be easy for the user to handle.
- One integrated view is provided to the users for toolbar, color box, menu and graphic screen.
- The user will have the ability to group several drawings into one, i.e. complex drawing) or attach any photos from one to the other.

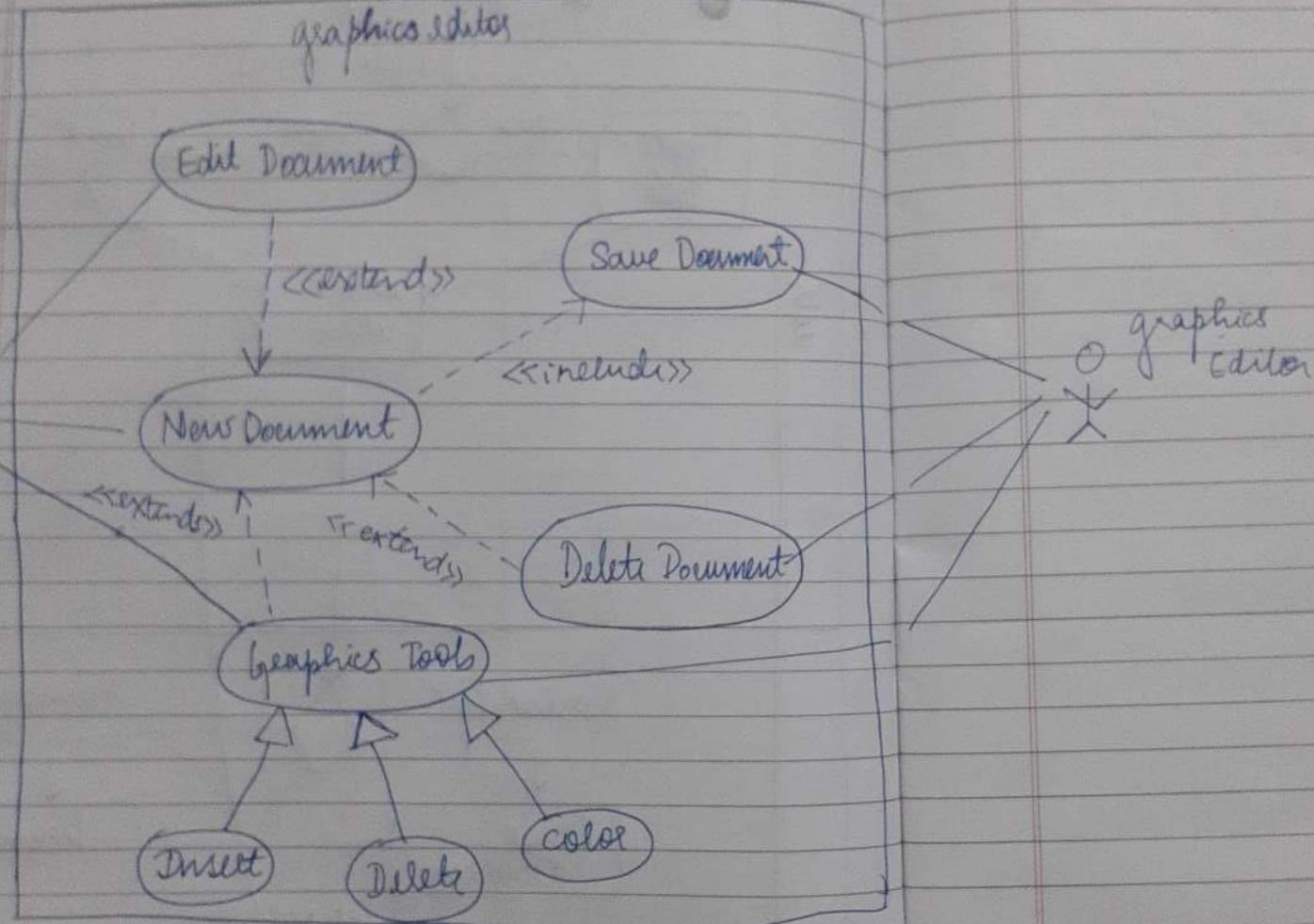
## Advanced Class Diagram - Graphics Editor



## Advanced State Diagram:-

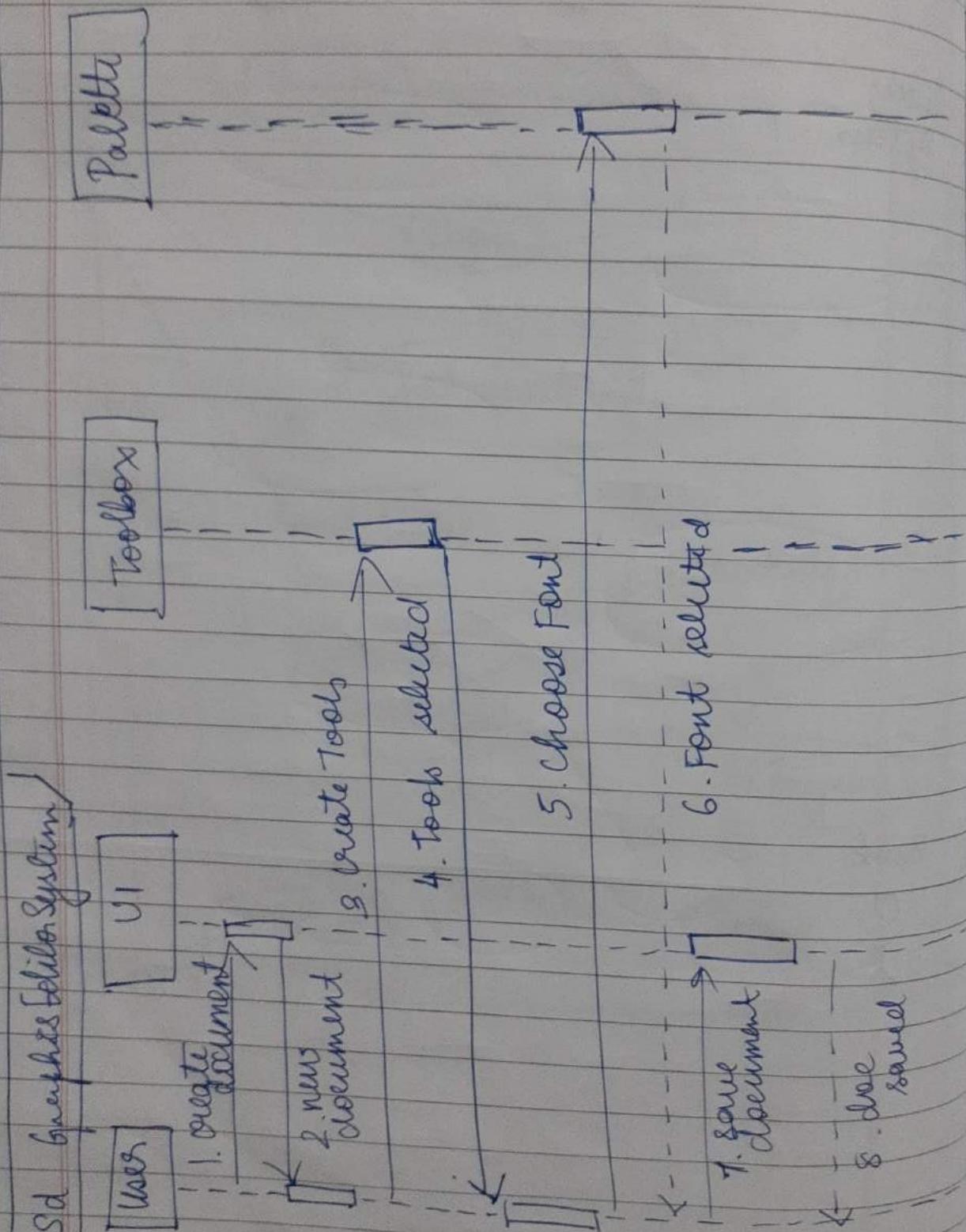


## use Case



## 7. Graphics Editor

sequence diagram



# Activity diagram

