

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

“JnanaSangama”, Belgaum -590014, Karnataka.



LAB REPORT

on

Object Oriented Analysis and Design

Submitted by

ARUNA RAVI K R (1BM19CS225)

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 “**LAB COURSE Object Oriented Analysis and Design**” carried out by **ARUNA RAVI K R (1BM19CS225)**, 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 Analysis and Design - (20CS6PCOMD)** work prescribed for the said degree.

Dr. Nandhini Vineeth
Assistant Professor
Department of CSE
BMSCE, Bengaluru

Dr. Jyothi S Nayak
Professor and Head
Department of CSE
BMSCE, Bengaluru

Index Sheet

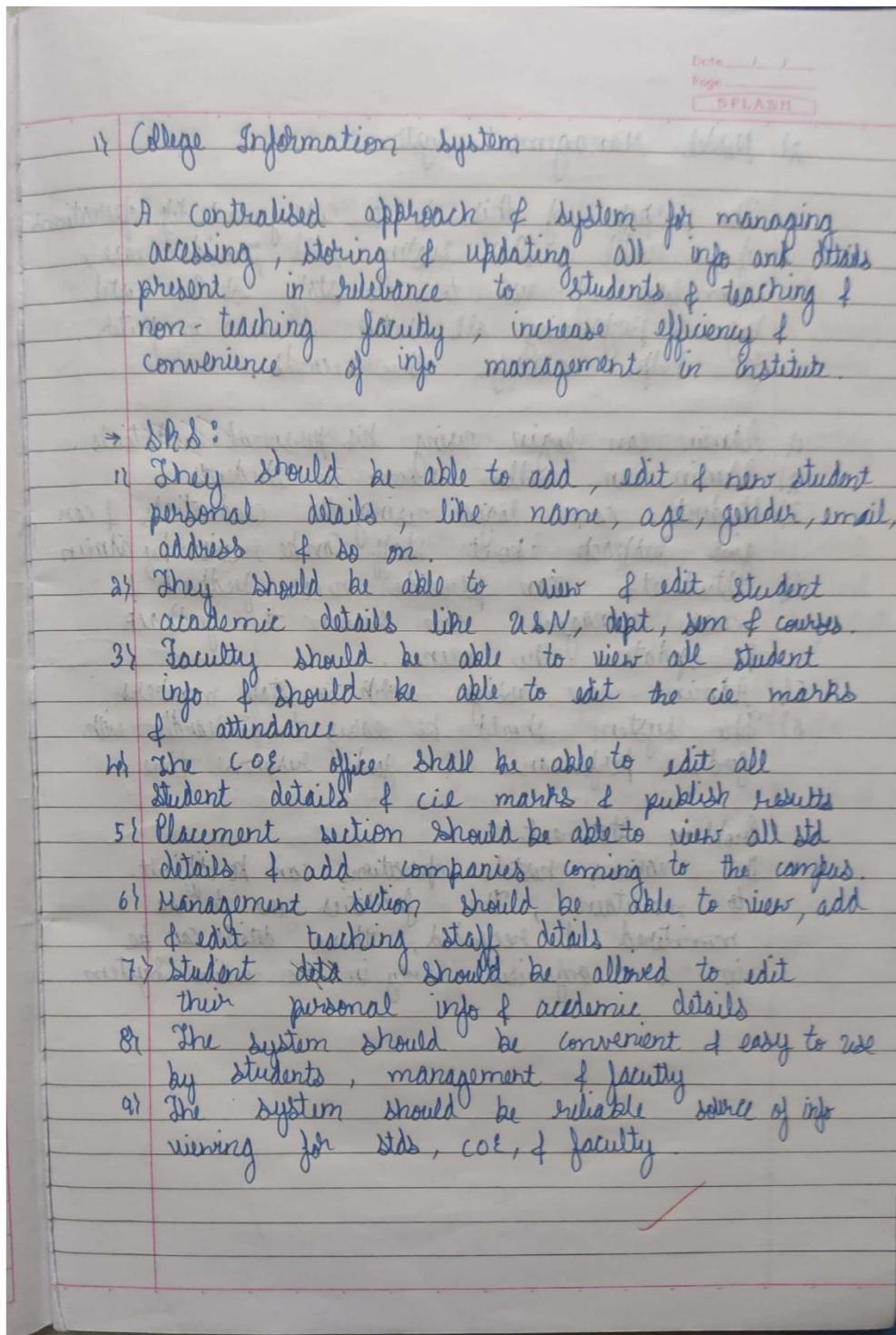
Sl. No.	Experiment Title	Page No.
1	College Information System	
2	Hostel Management System	
3	Stock Maintenance System	
4	Coffee Vending Machine	
5	Online Shopping System	
6	Railway reservation System	
7	Graphics Editor	

Course Outcome

CO4	Ability to conduct practical experiment to solve a given problem using Unified Modeling language.
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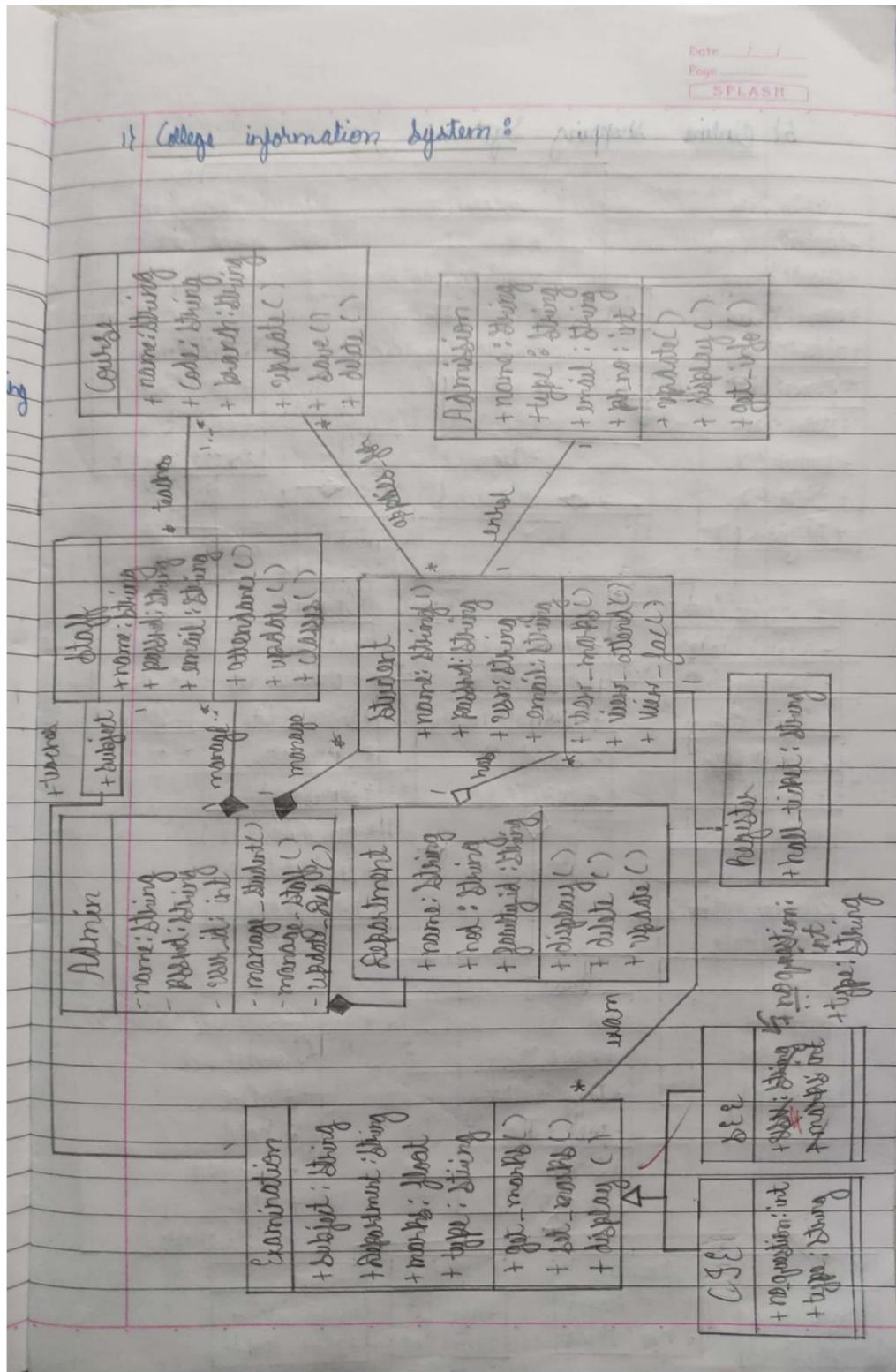
1. College Information System -

a) SRS:

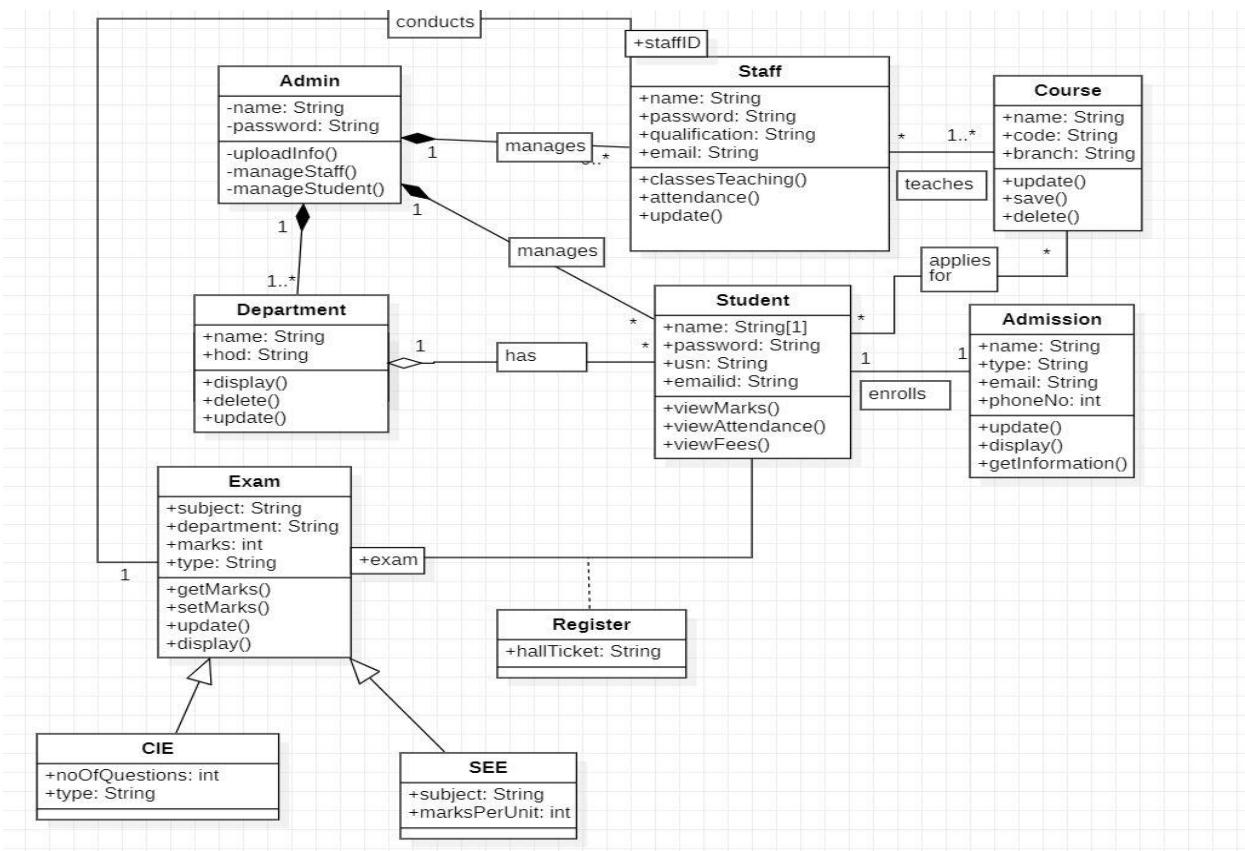


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b) Advance Class Diagram:

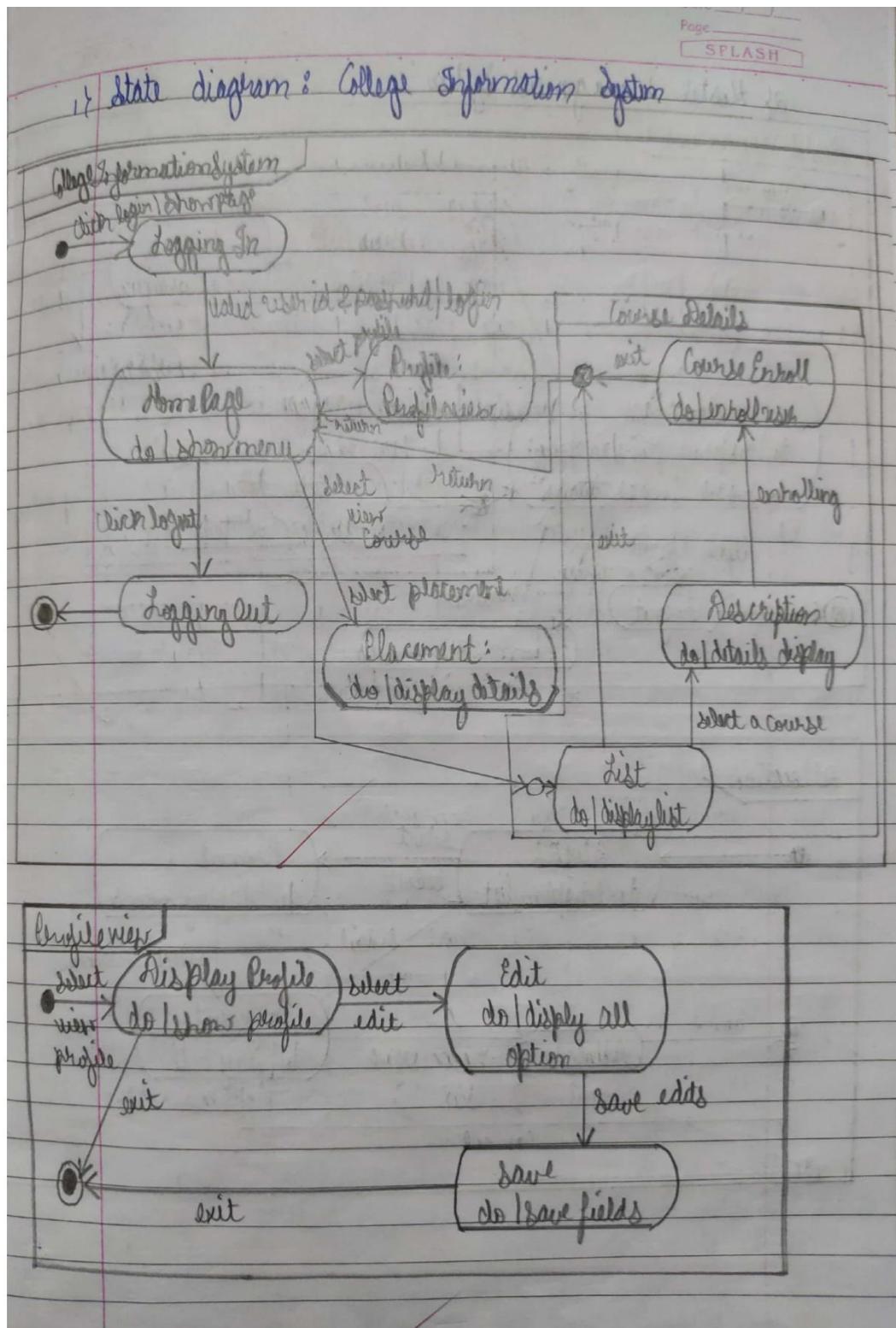


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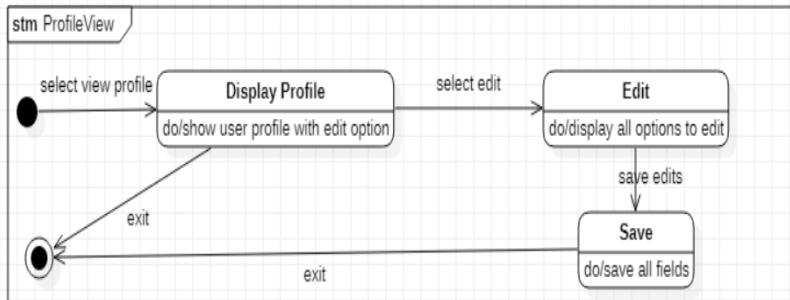
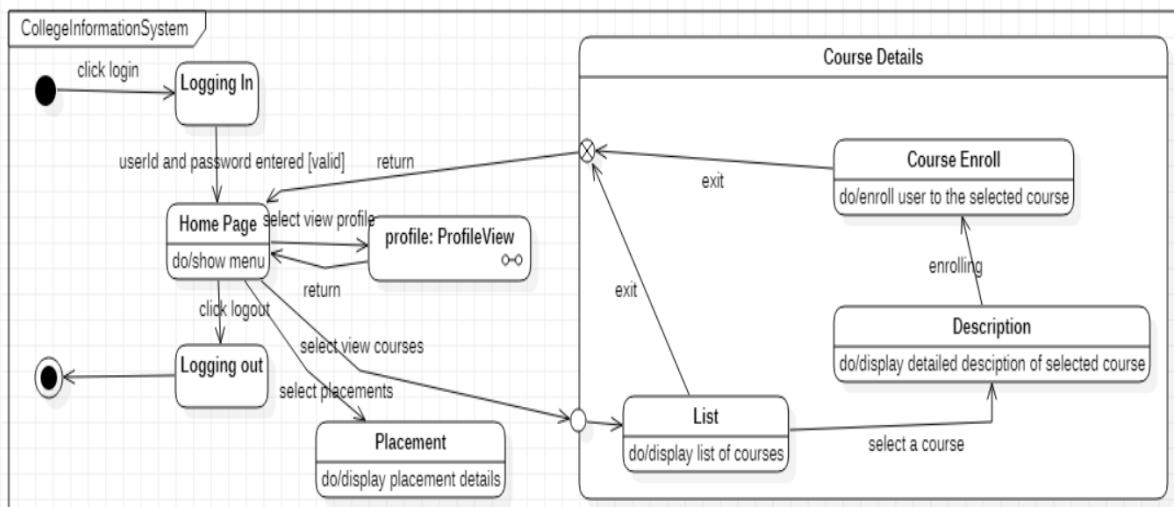


1) Under Admin, Department, Student & Staff are the components which cannot exist without the Admin class, hence its a composition. The courses are associated with Staff as they teach that course. Staff also handle the examinations of which has 2 sub-class by inheritance. Students are associated with exam, courses & admission.

c) Advance State Diagram:

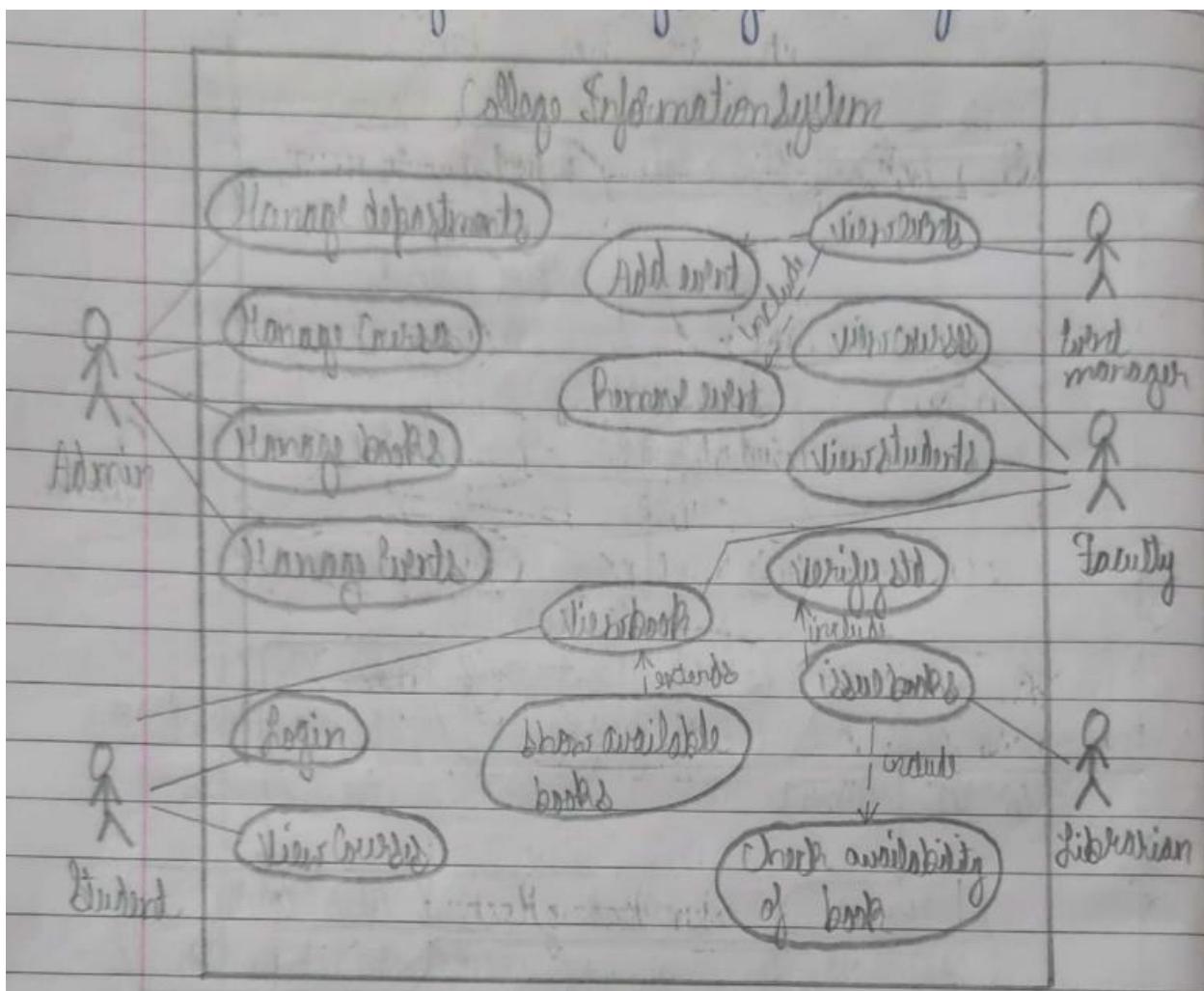


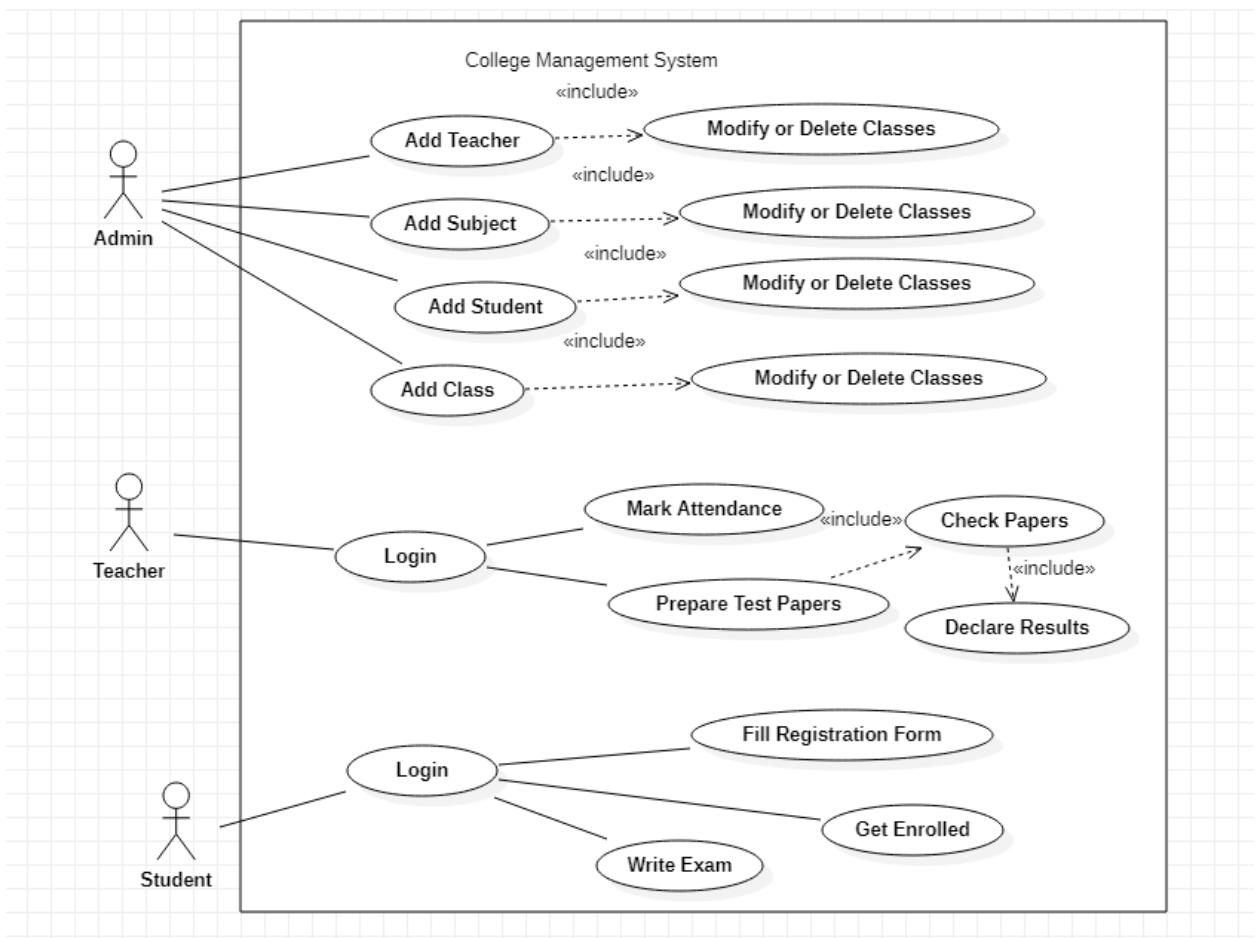
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Q) College Information System: The given state diagram explains the various states present in the case of gives a detailed explanation of course details of user profile in detail as a form of sub state machine composite machine. All the respective details of transitions are mentioned.

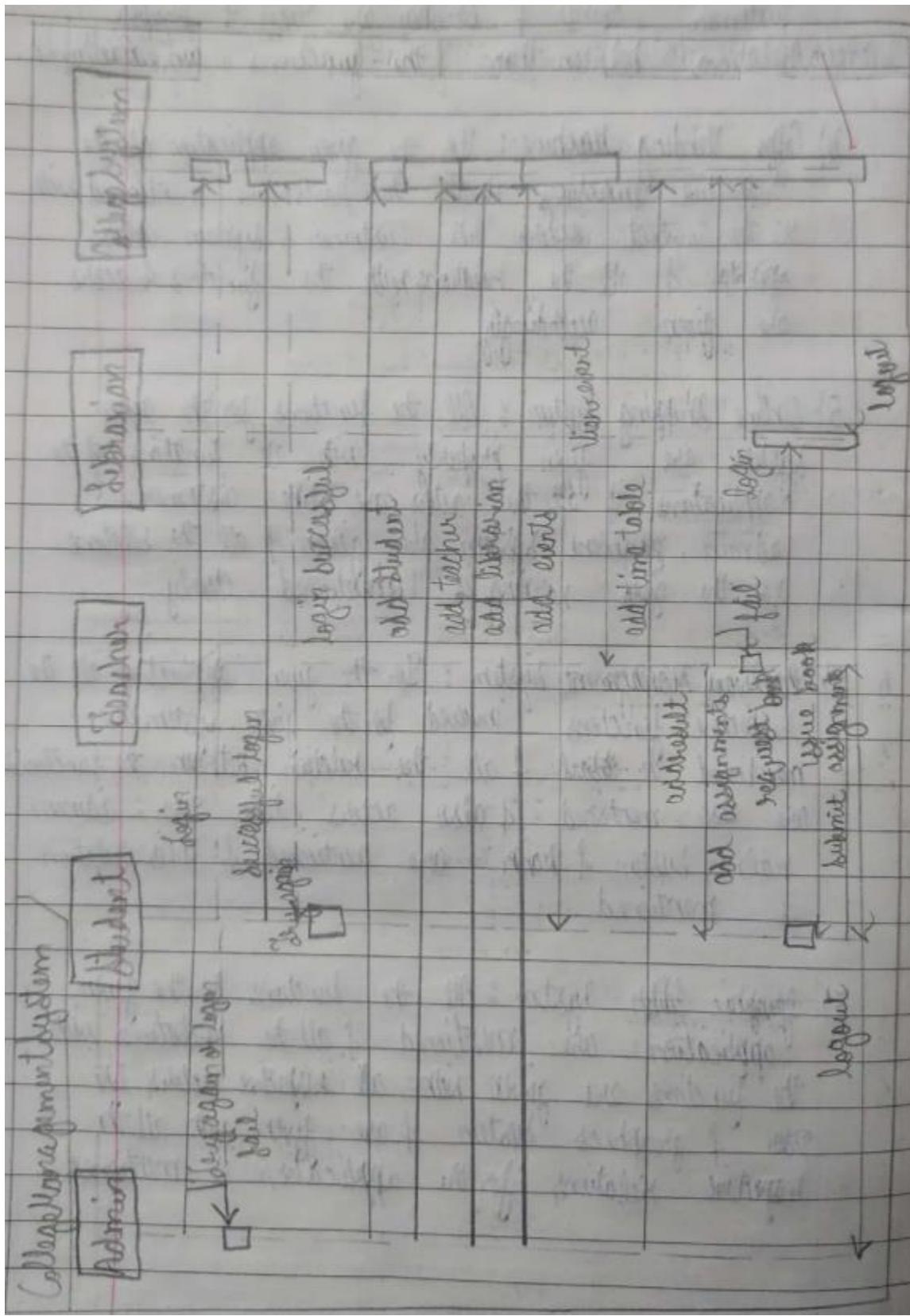
d) Advance Use Case Diagram:

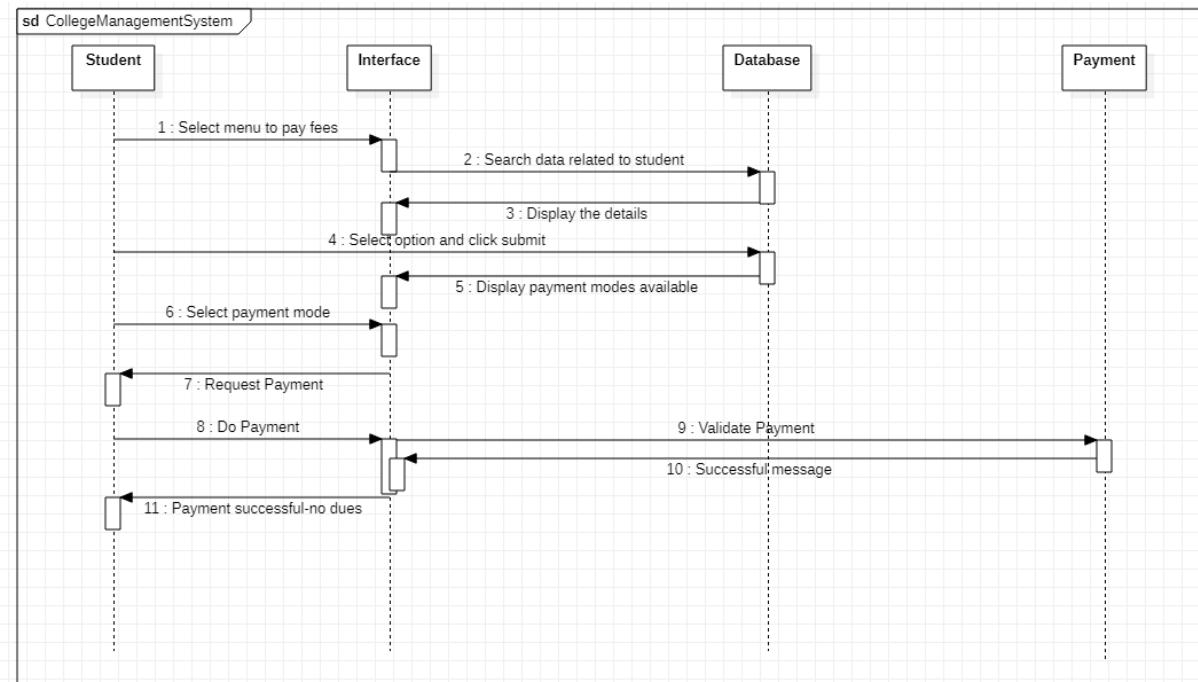




11 College Information System : All the functionalities are mentioned in the given figure & all the actors involved in the system like, student, faculty, admin, librarian, event manager & their relations with functions is mentioned.

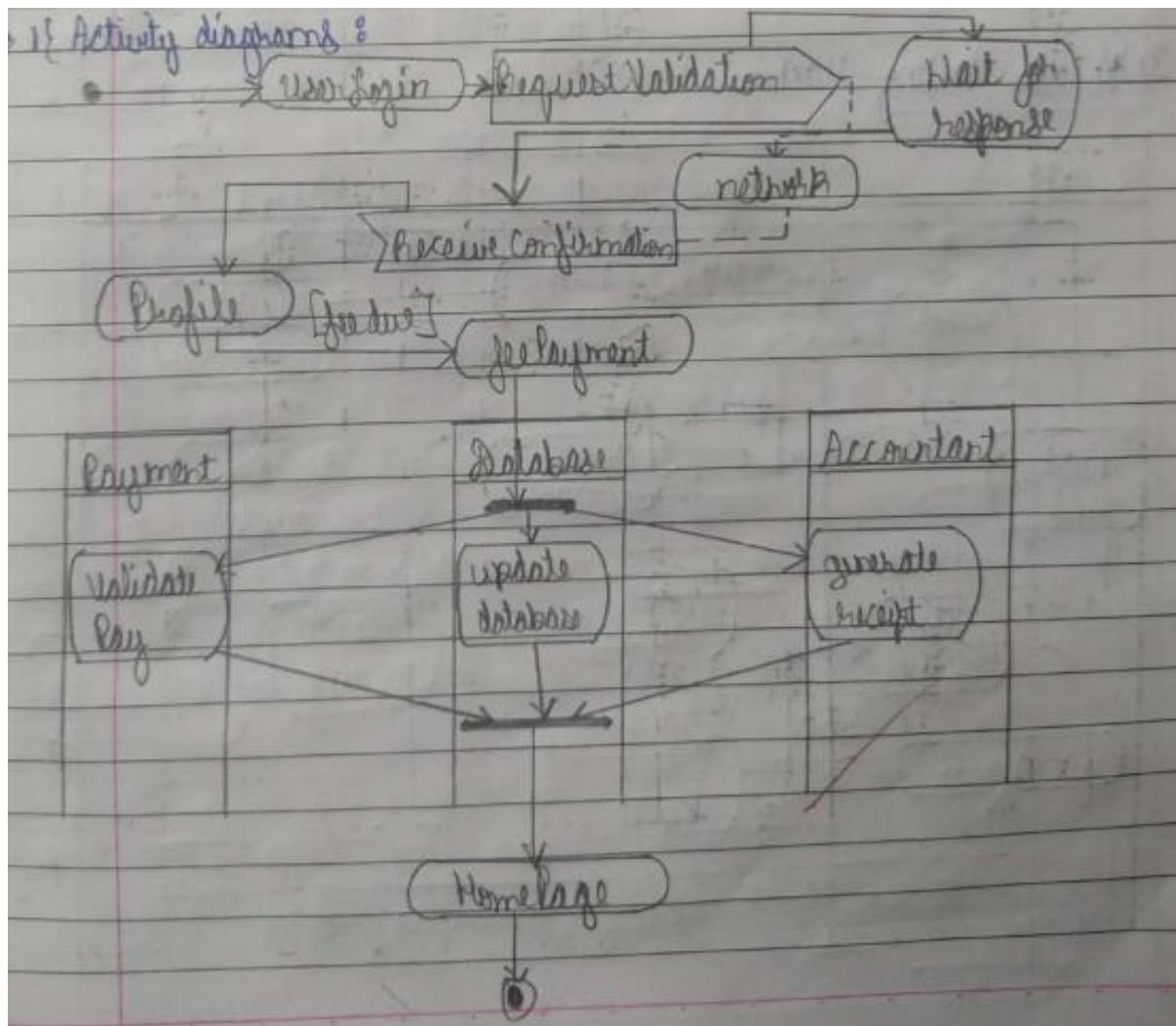
e) Sequence Diagram:

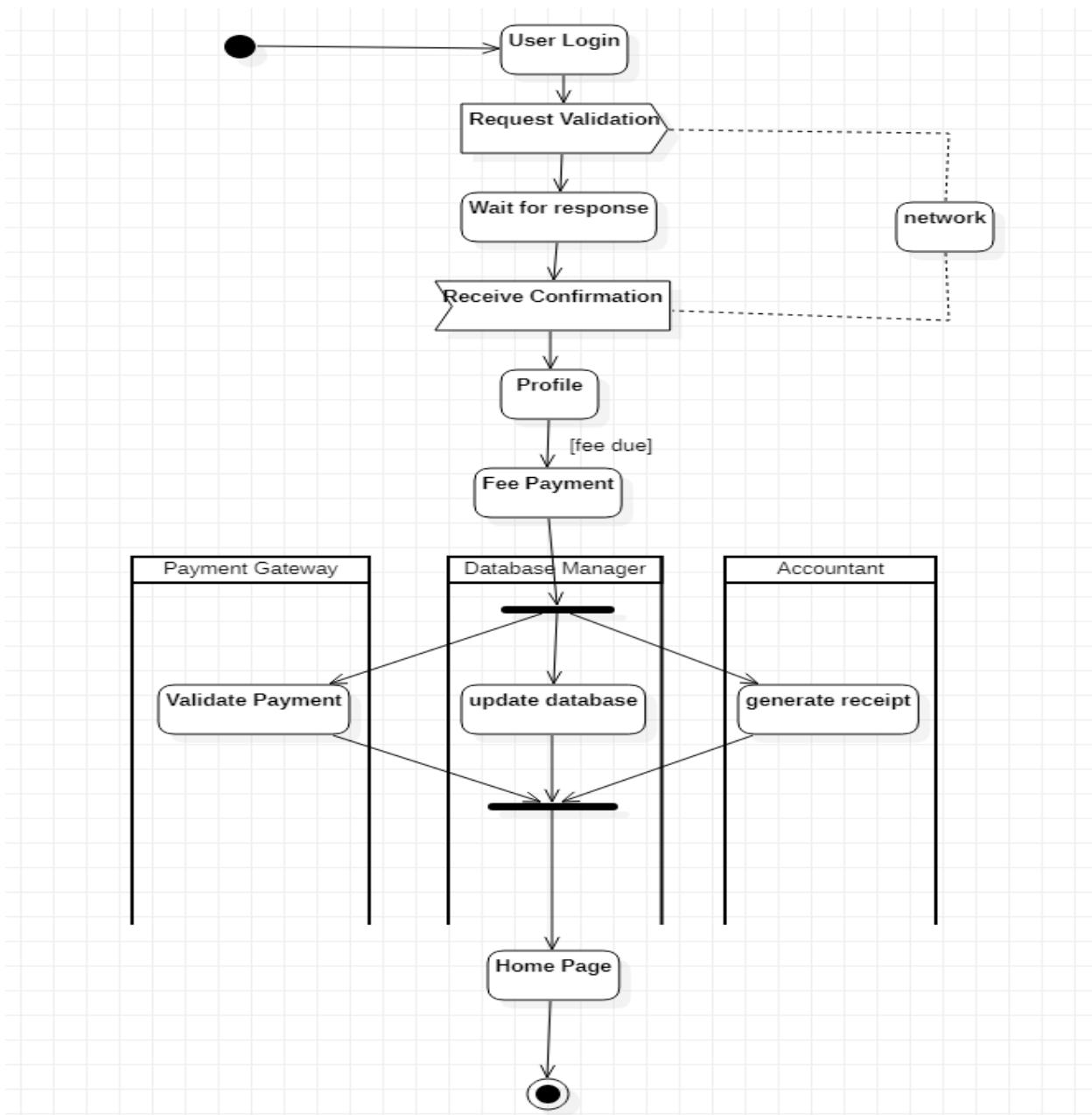




11 College Information System & The given sequence diagram shows the complete order of all the interactions taking place between the user of the system interface , database of payments & shows a detailed steps for payment , search & display in the system.

f) Activity Diagram:

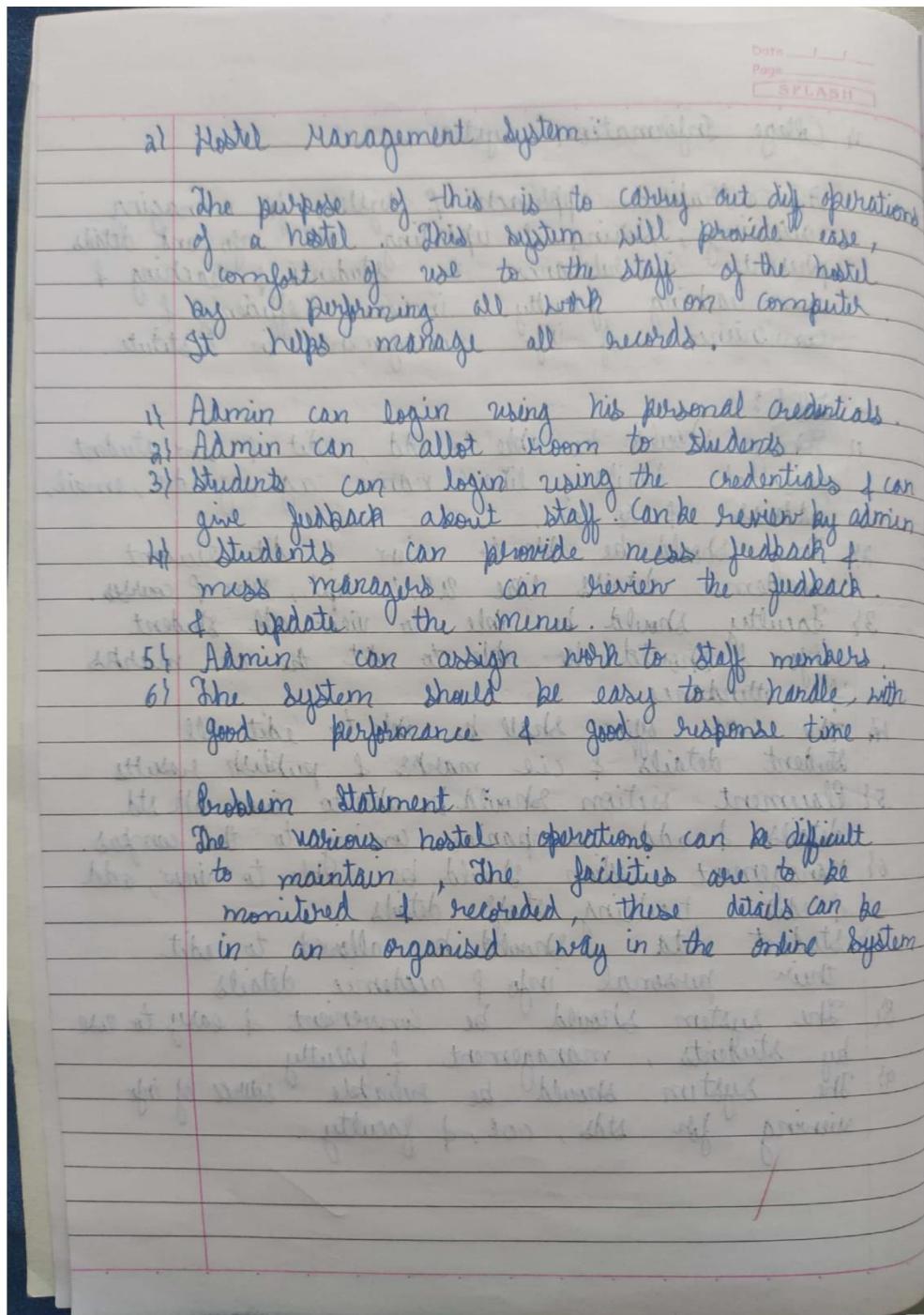




14 College Information System: The given diagram explains the complete working of the given system from start login to the end & also shows the various states of all activities in the given application & shows the registration process for the given system.

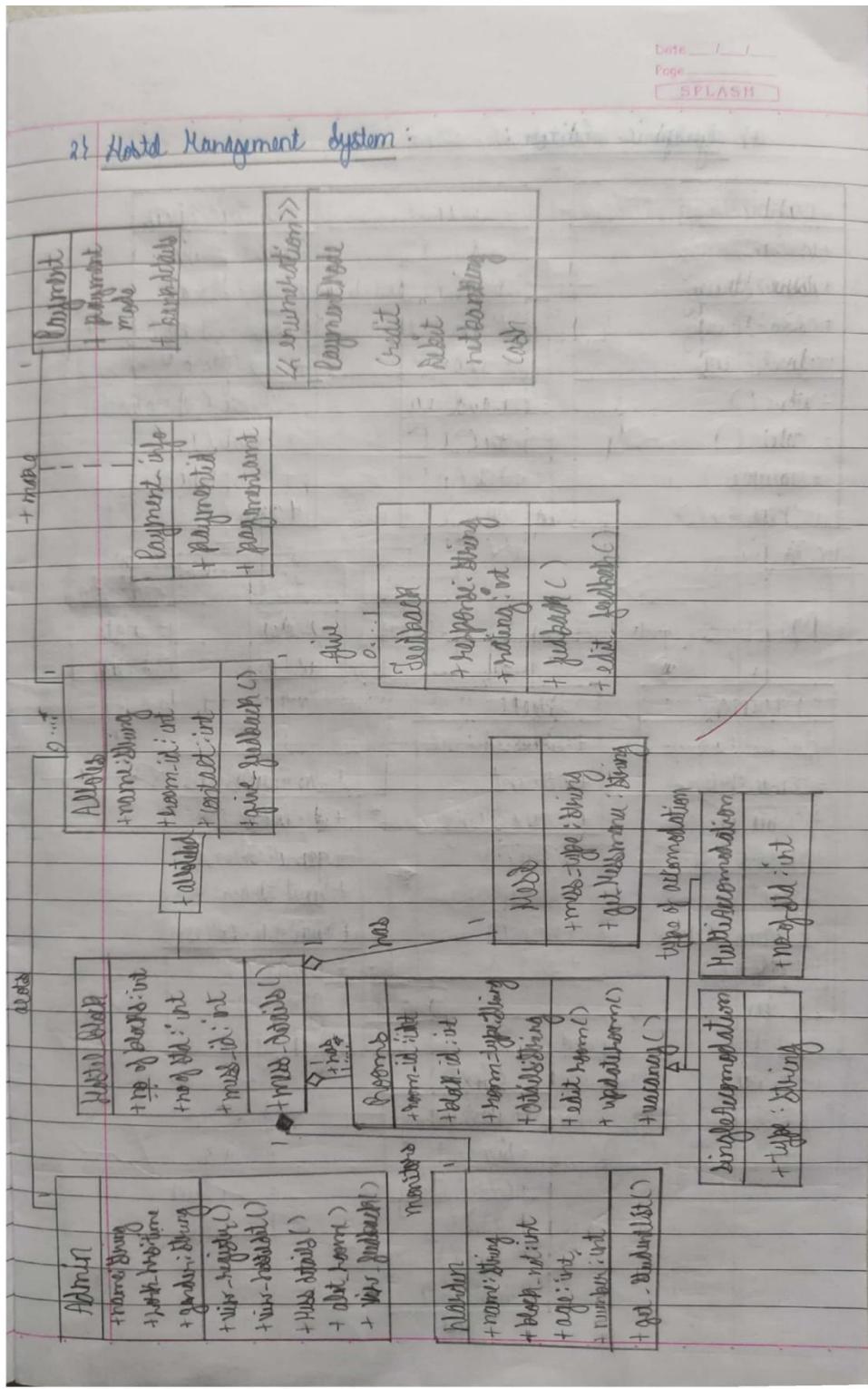
2. Hostel Management System-

a) SRS:

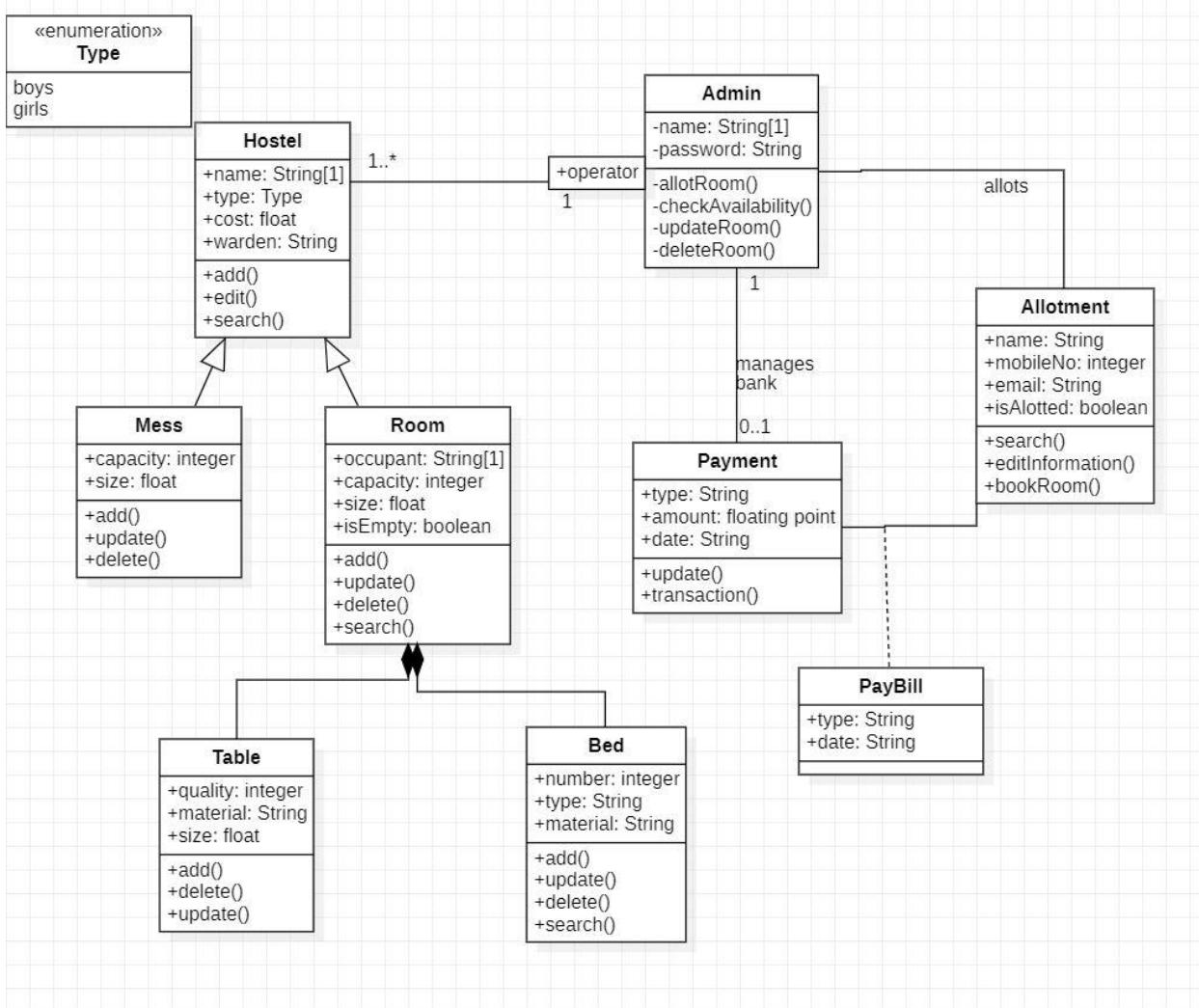


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b) Advance Class Diagram:

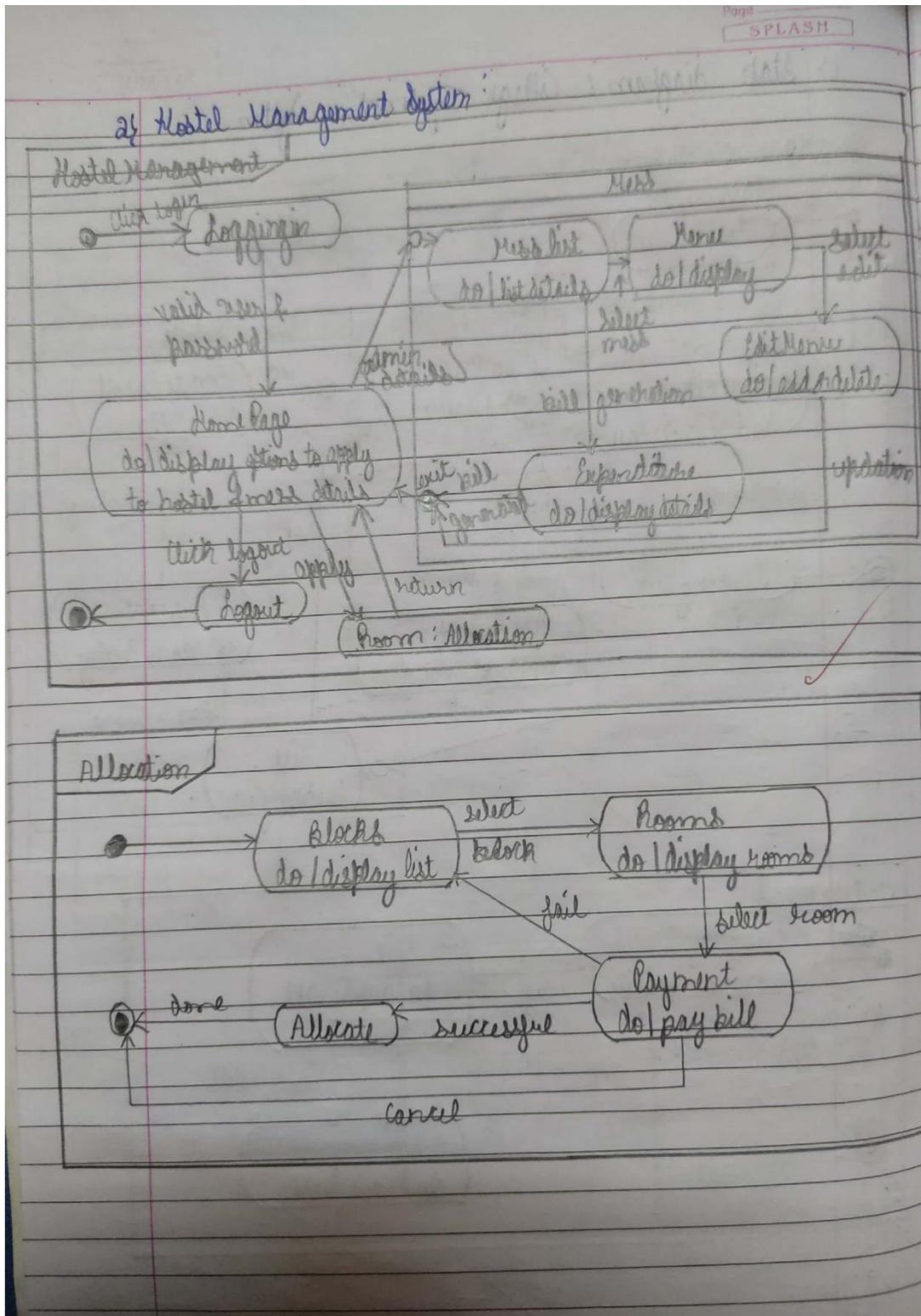


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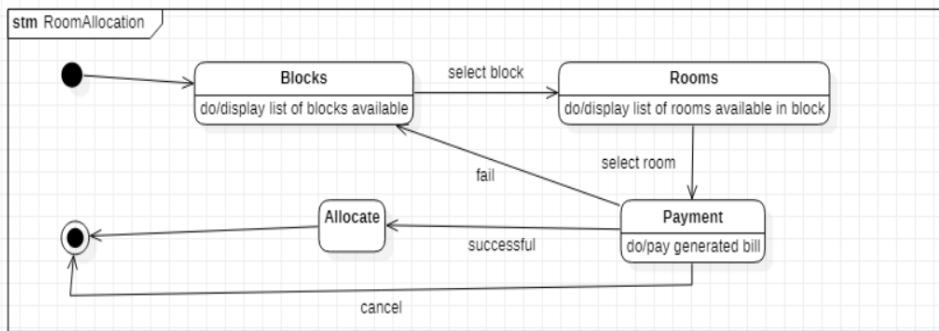
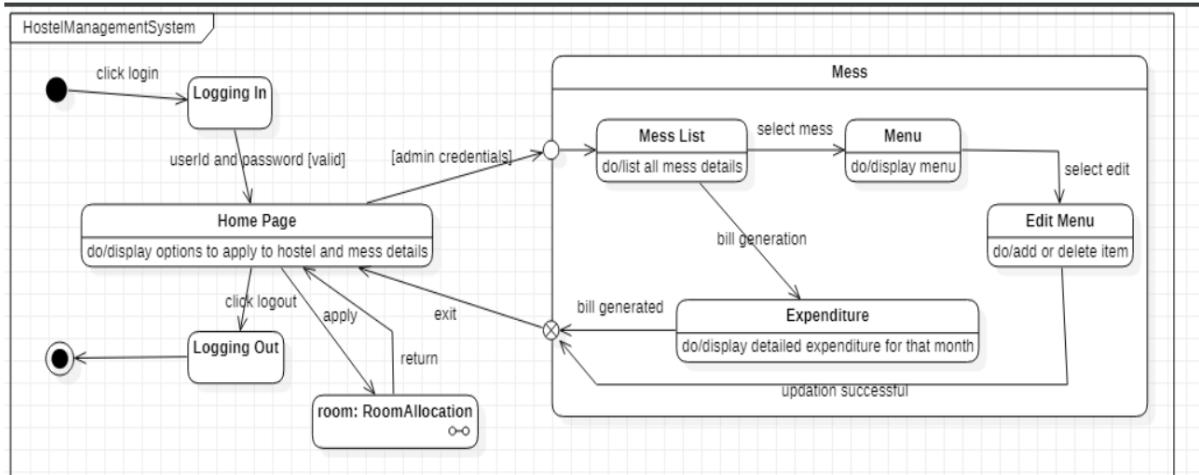


2) Admin controls & allot the room to the students hence association, which can give a feedback about the rooms so association. The students make payment through various methods enumerated list so its associated. For every hostel block a warden is assigned which is composition as one cannot exist without the other, & it has list of all the types of rooms & mess details which are aggregated, & types of rooms is shown by generalization.

c) Advance State Diagram:

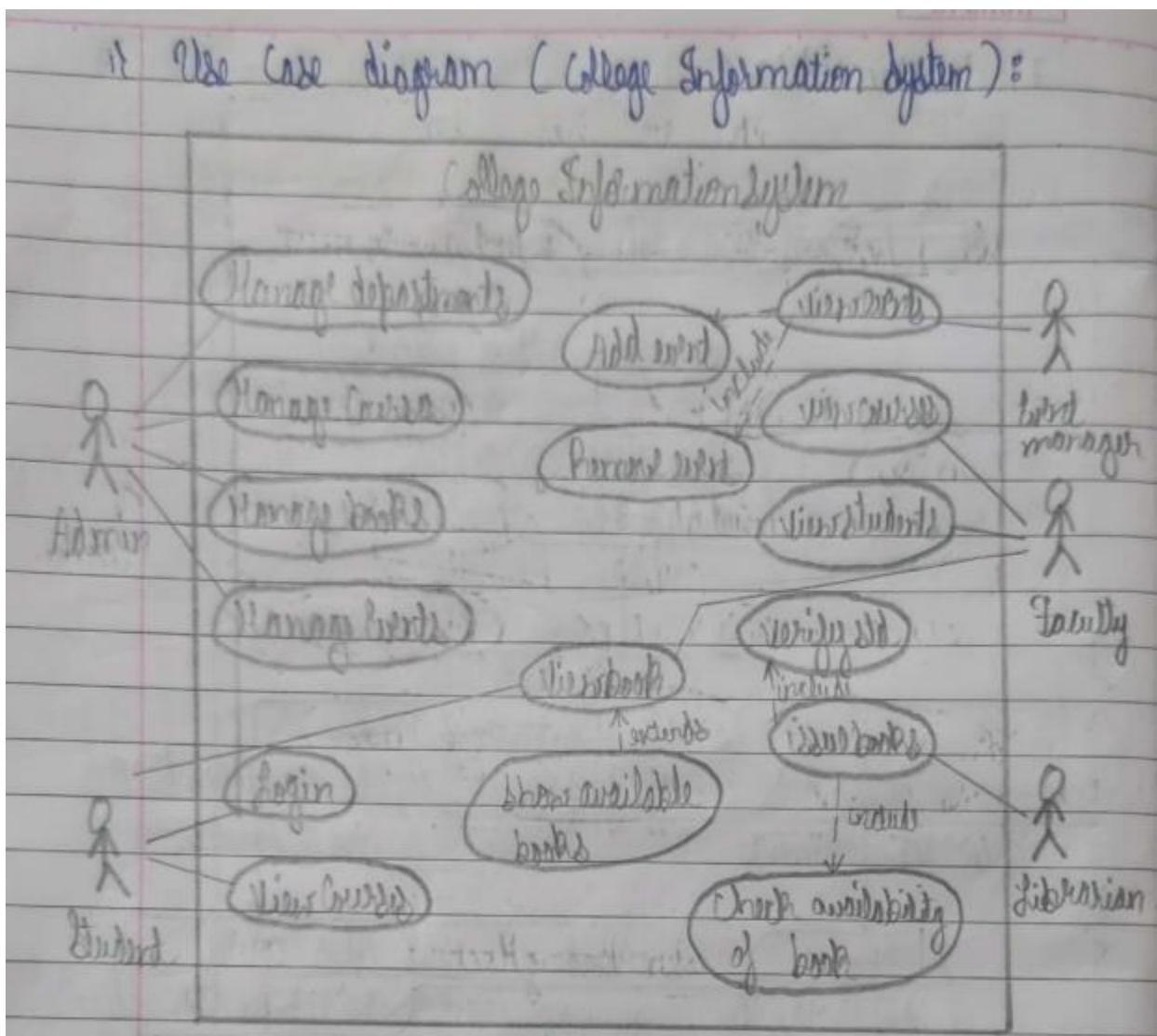


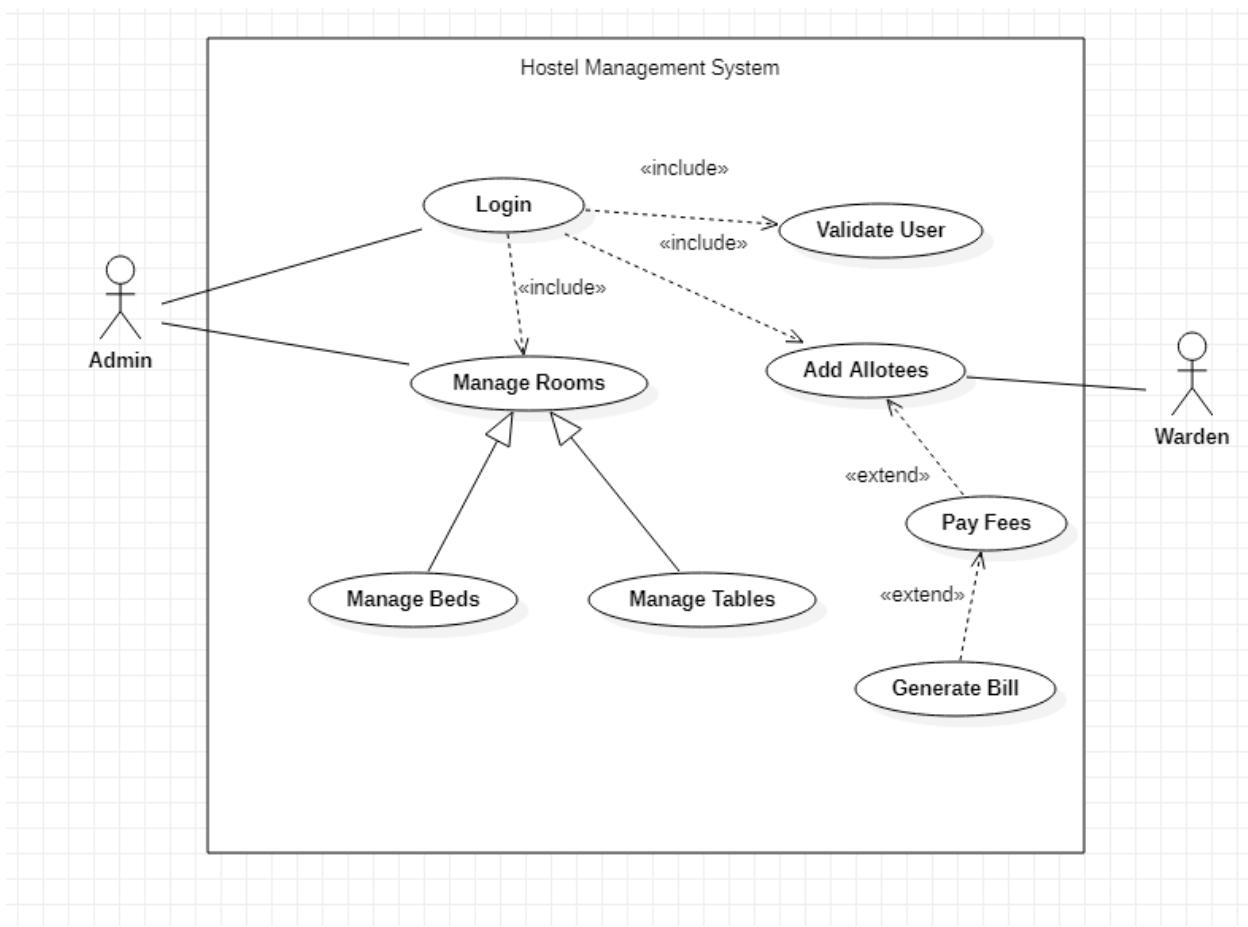
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✓ Hostel Management System : The given diagram explains the detailed description of case with respect to a room allocation & mess menu details where its explained with sub machine in depth for room allocation. All the transitions & actions are mentioned.

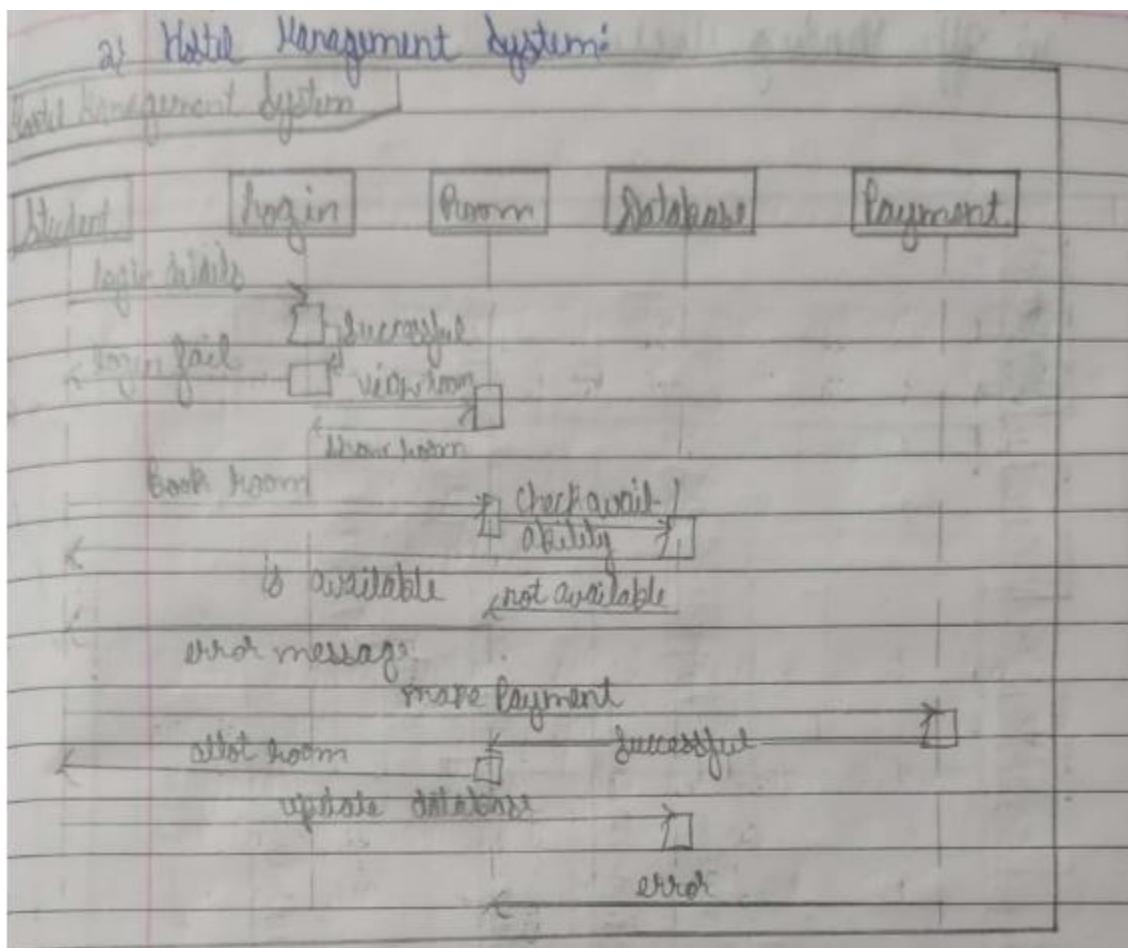
d) Advance Use Case Diagram:

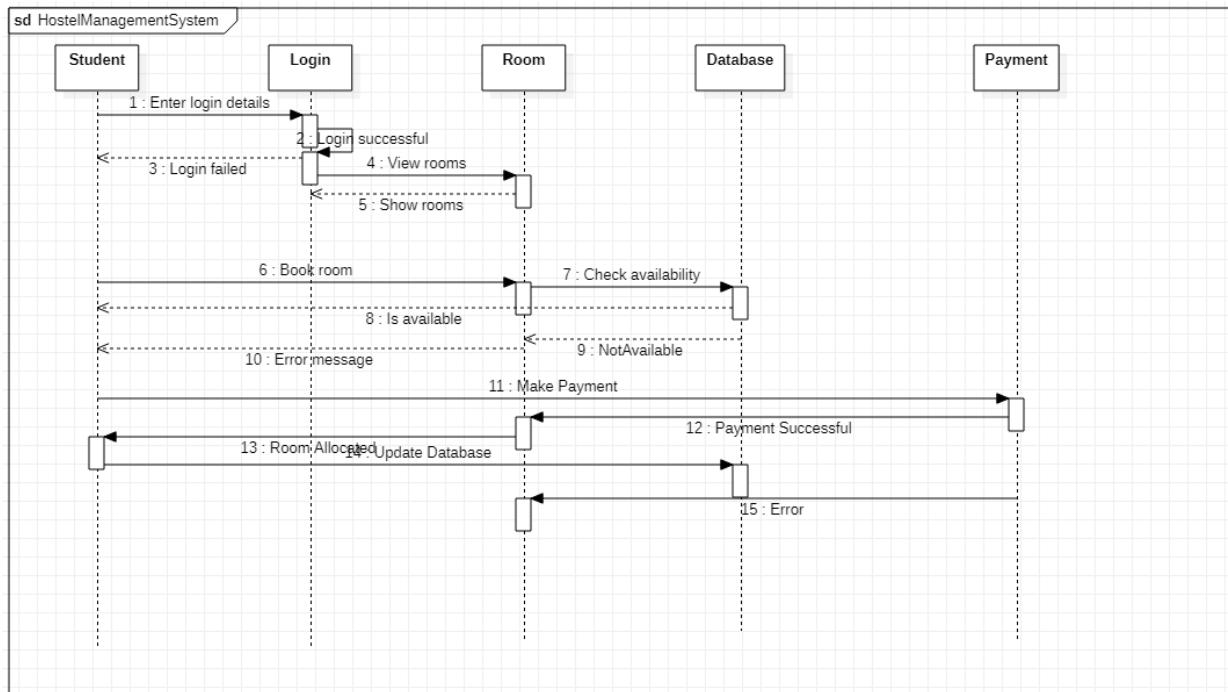




24 Hotel Management System : For the given case all the functions are mentioned & respective actors are given, like admin, warden, students & so on. The various relations with respect to the various functions are mentioned & managed properly.

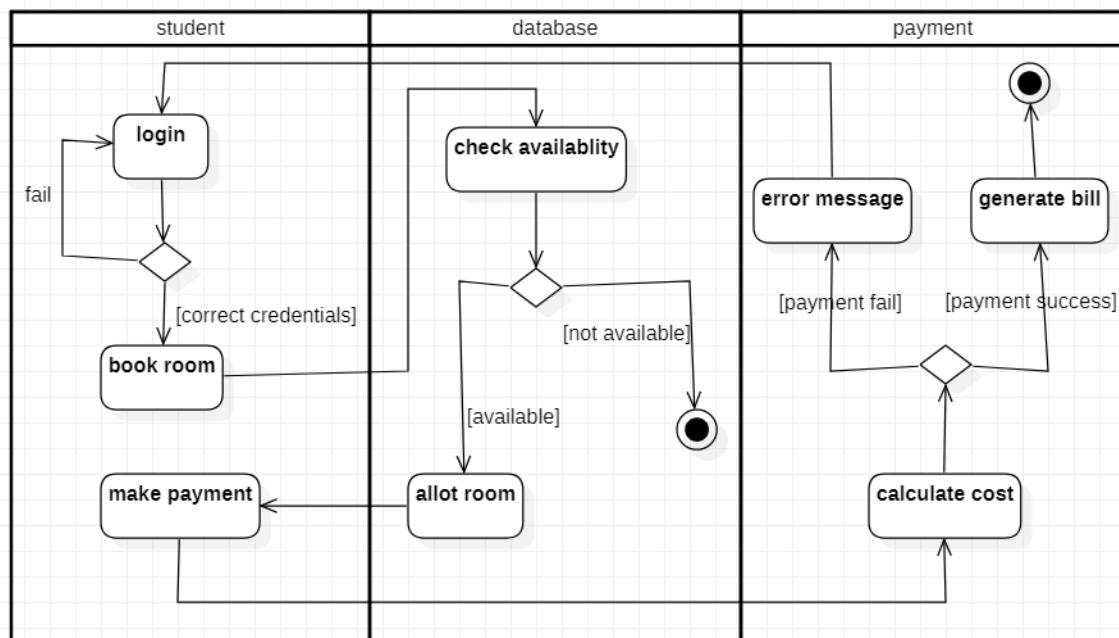
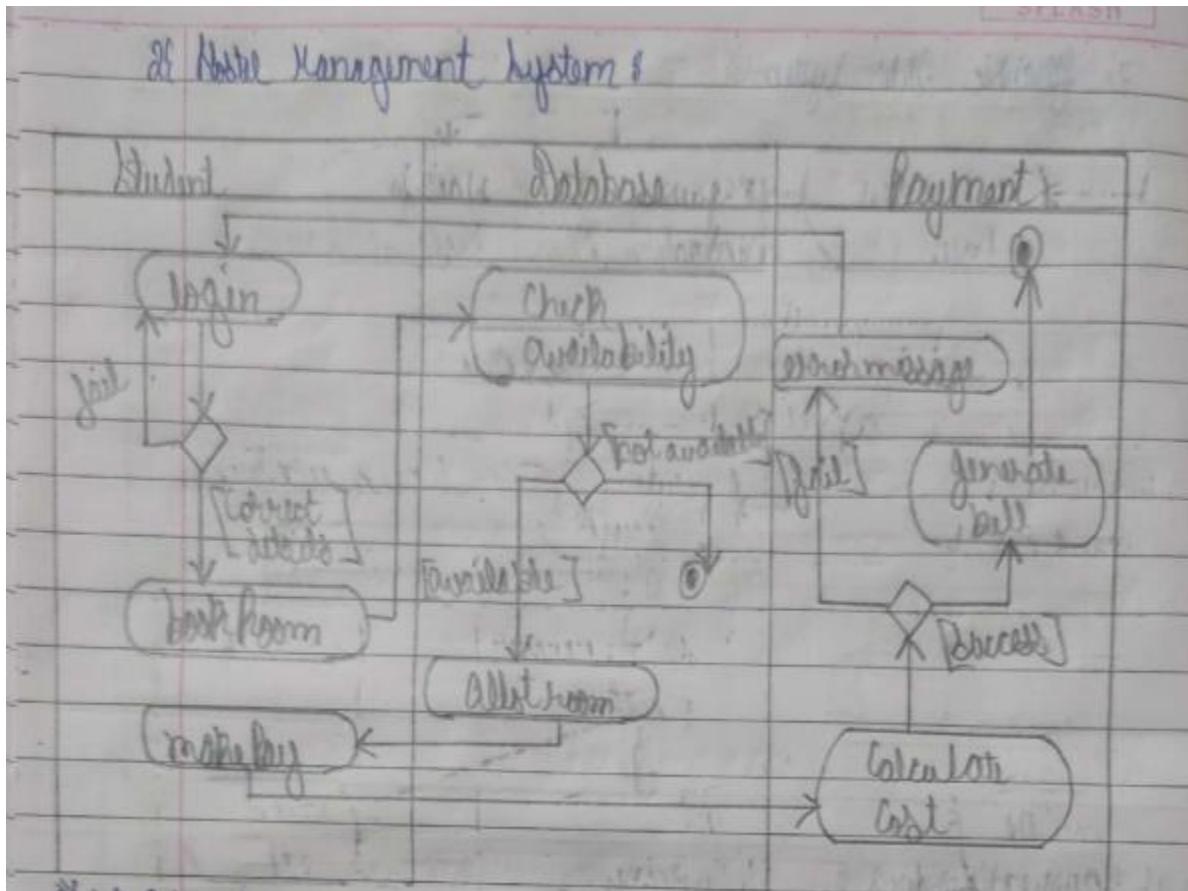
e) Sequence Diagram:





24 Hostel Management System: The given model shows the complete steps in the process of registration & select rooms & book the room for the hotel for the user & also show the details & the payment procedure with the availability of the required rooms

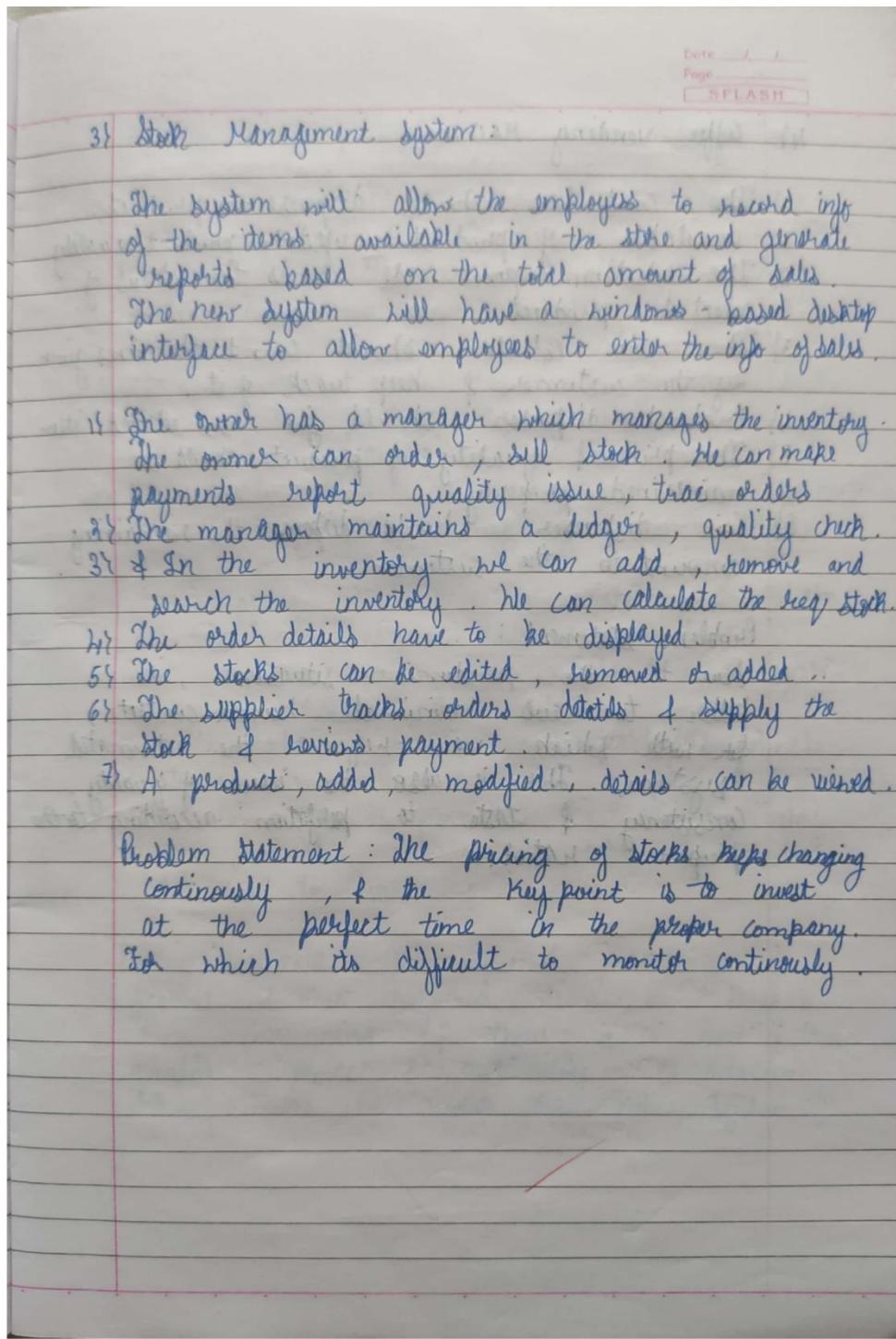
f) Activity Diagram:



8) Hostel Management System : The given figure explains the working of the application system with all the functions & interactions of actors with the system. It explains the various interactions of the Student of all the functions with the database & payment system with given conditions.

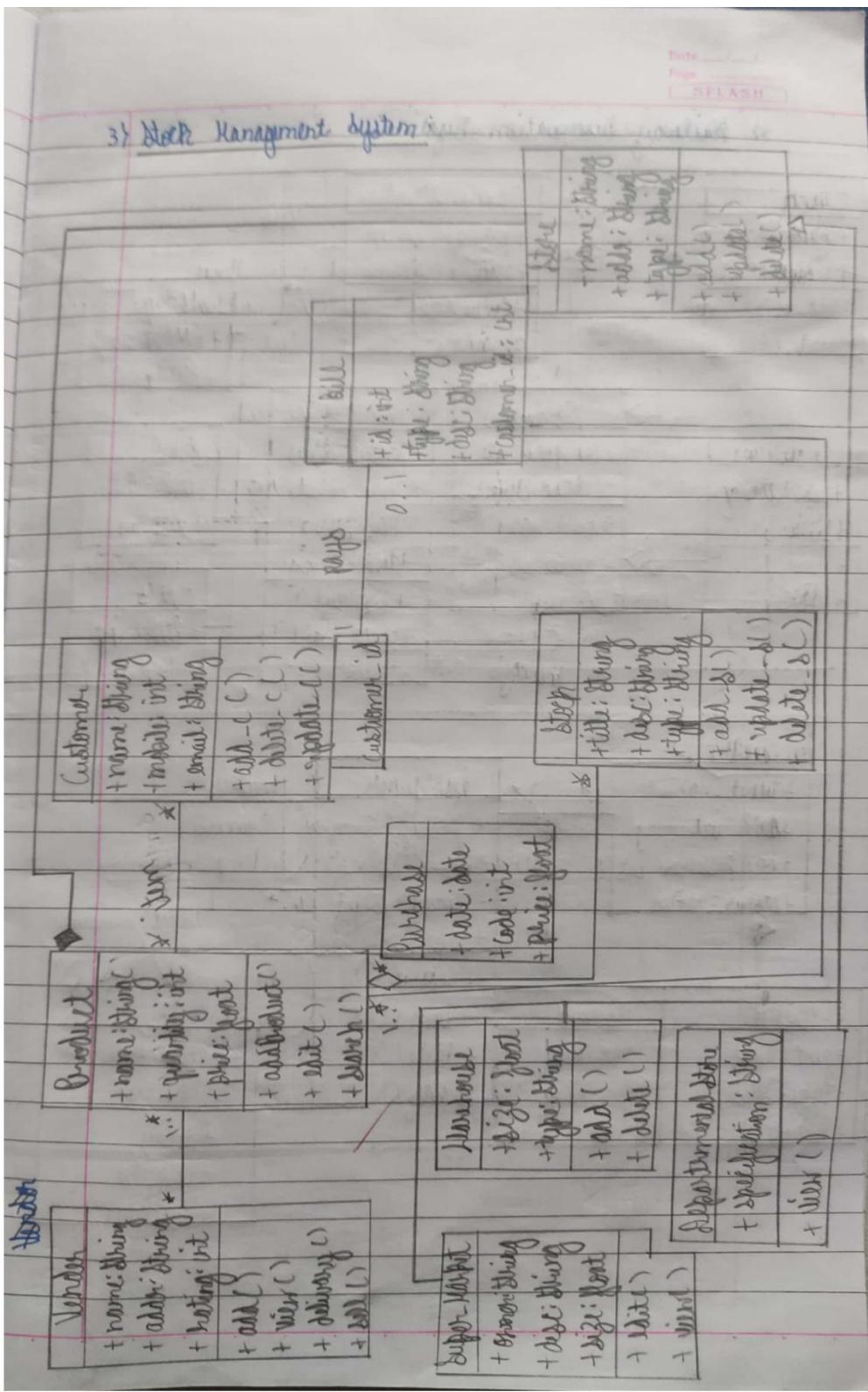
3. Stock Maintenance System-

a) SRS:

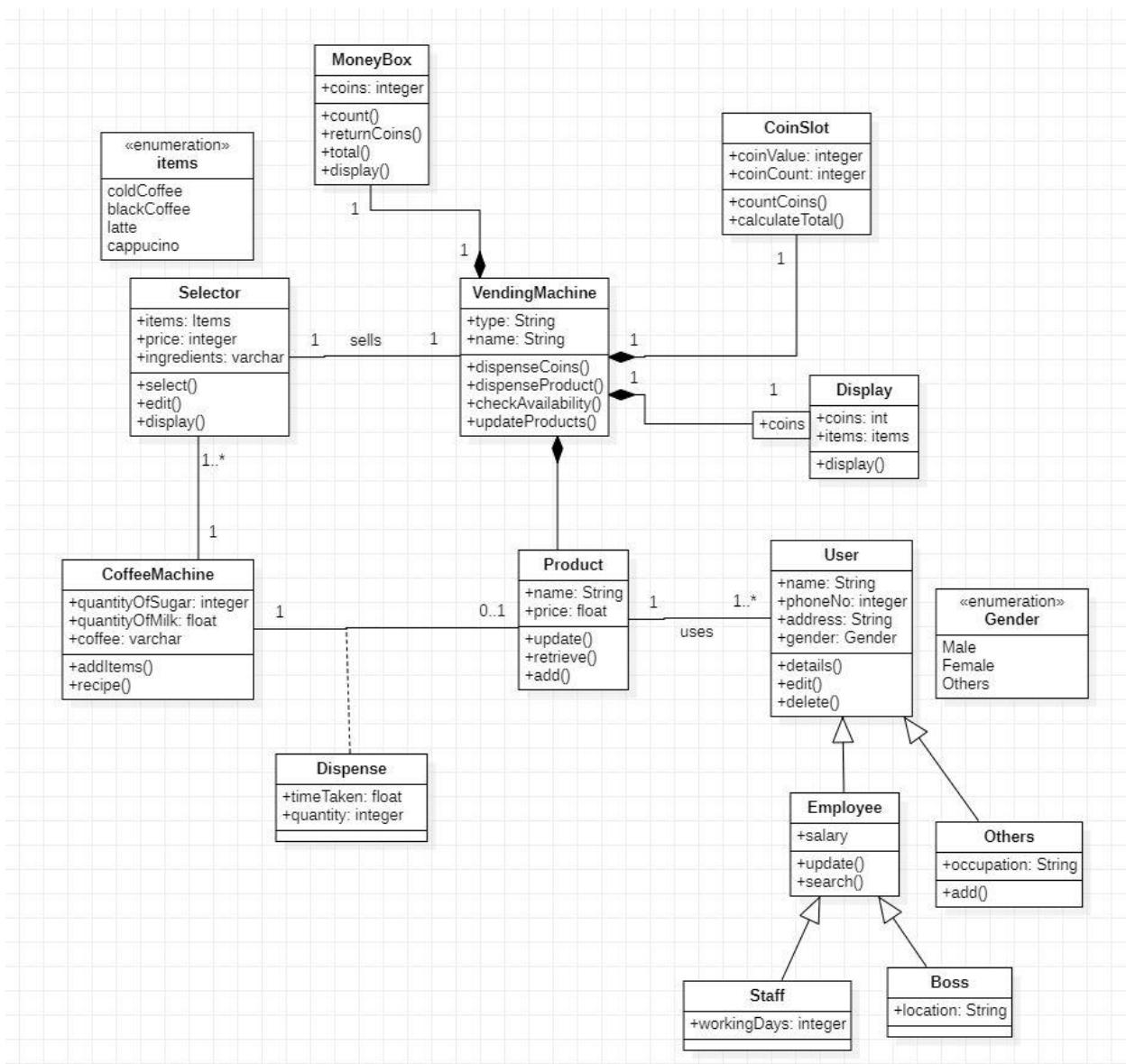


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b) Advance Class Diagram:

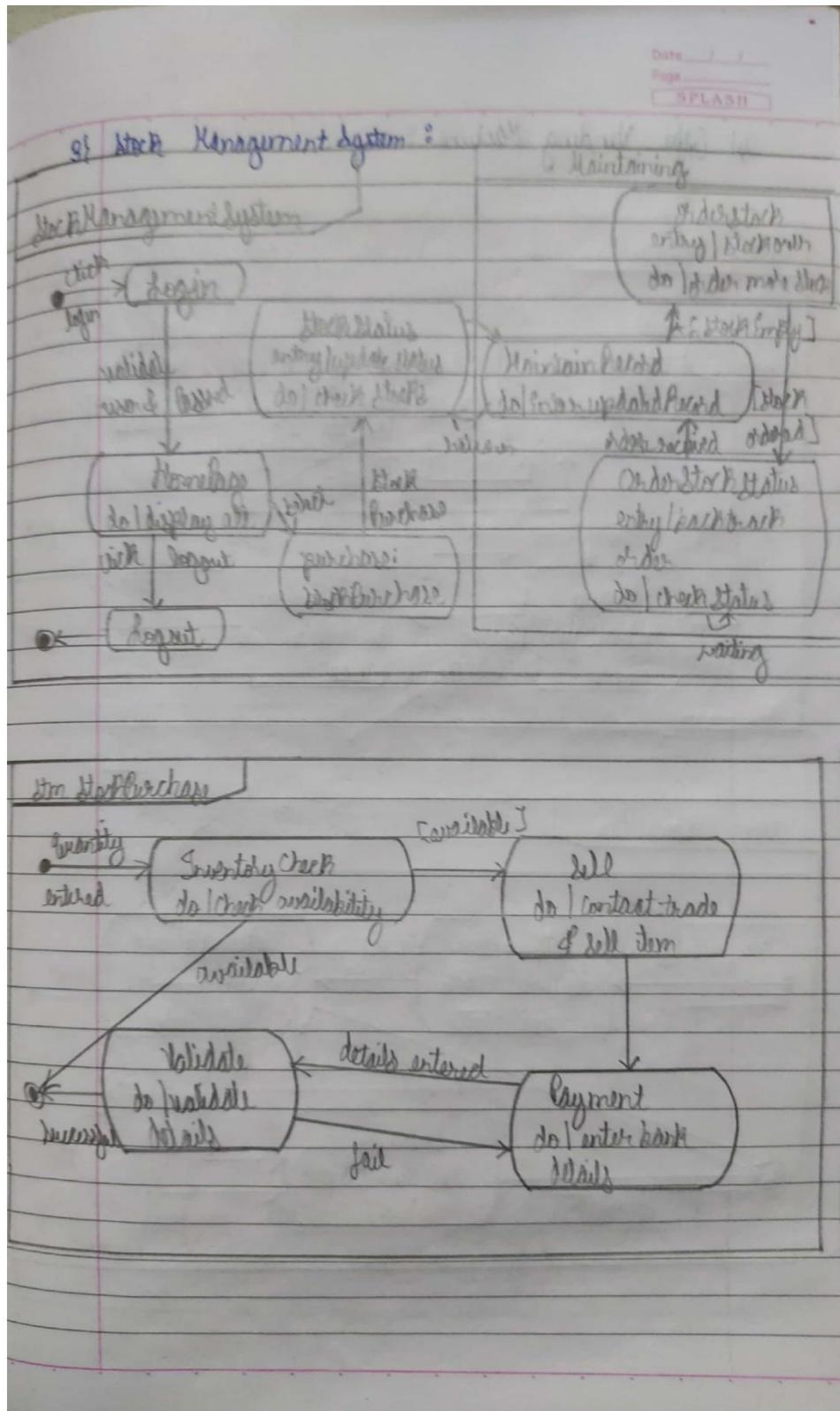


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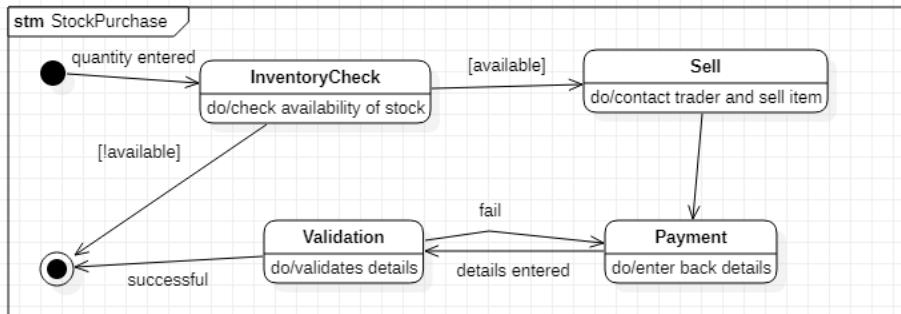
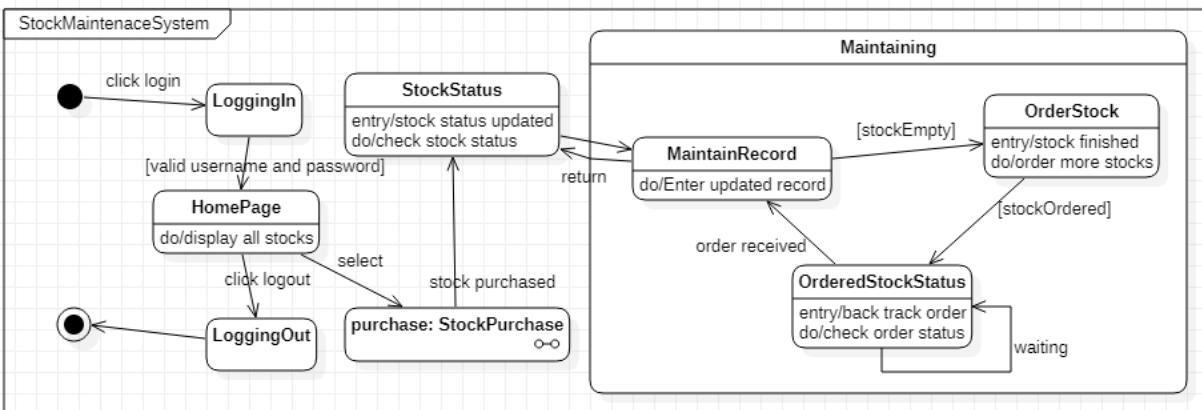


3) A store which has several substores generalised & is composed of many products which internally is associated with vendors. Every customer buys a product hence associated & pay the bill for the stock purchased. All stocks are aggregated to the product.

c) Advance State Diagram:

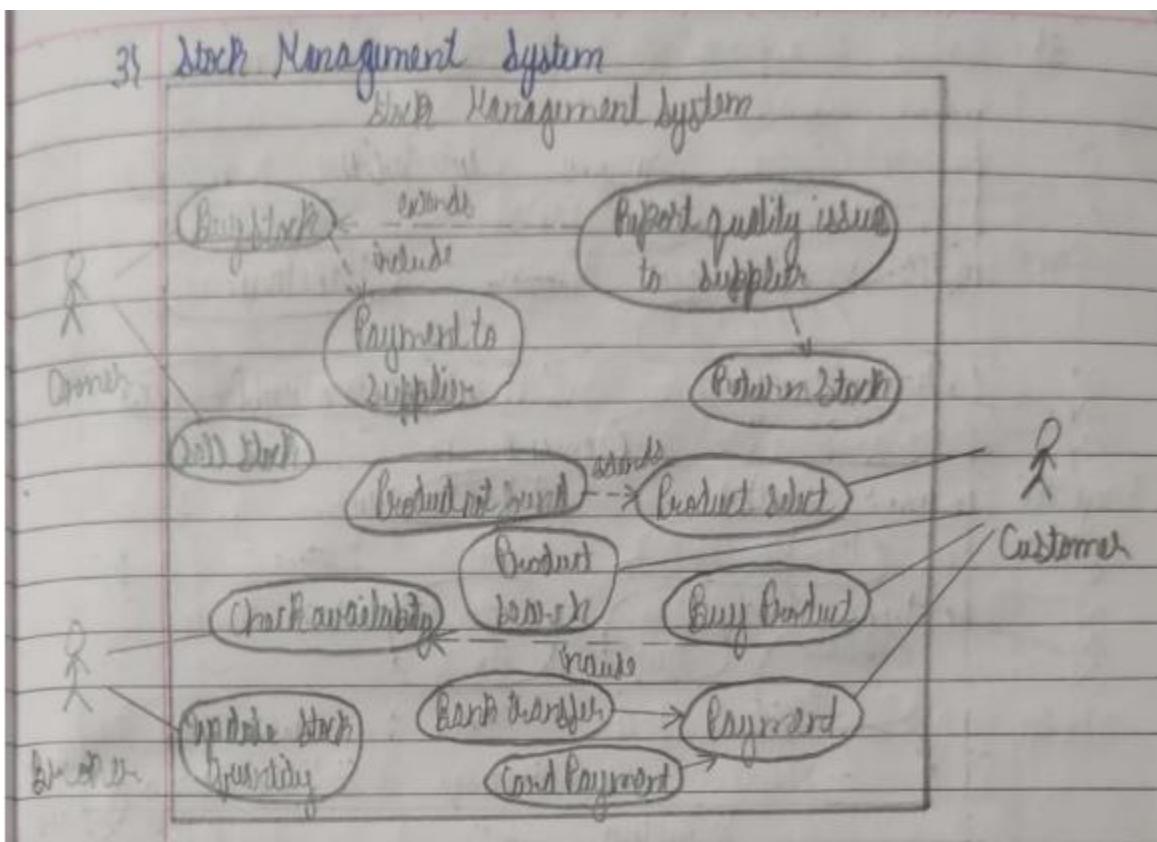


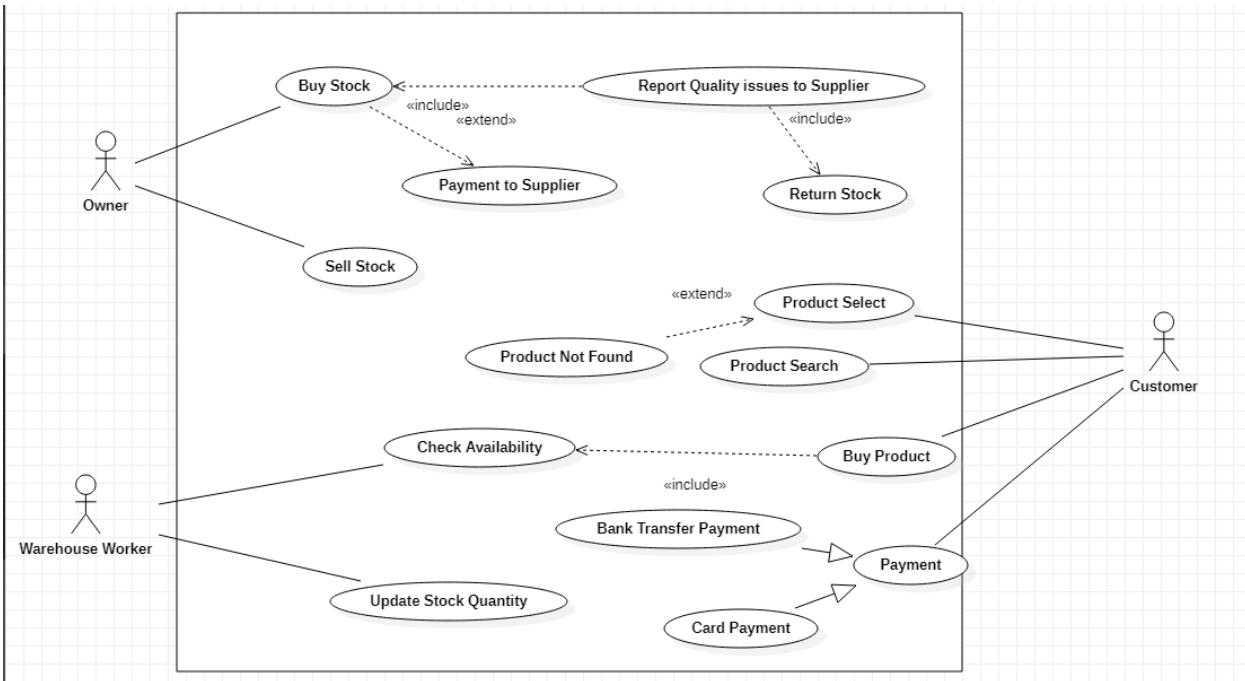
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3) Stock Management System : This machine explains a scene of maintaining stocks & the order of purchase. The details of management are mentioned in the submachine & all the respective transition & conditions are mentioned with all activities in detail.

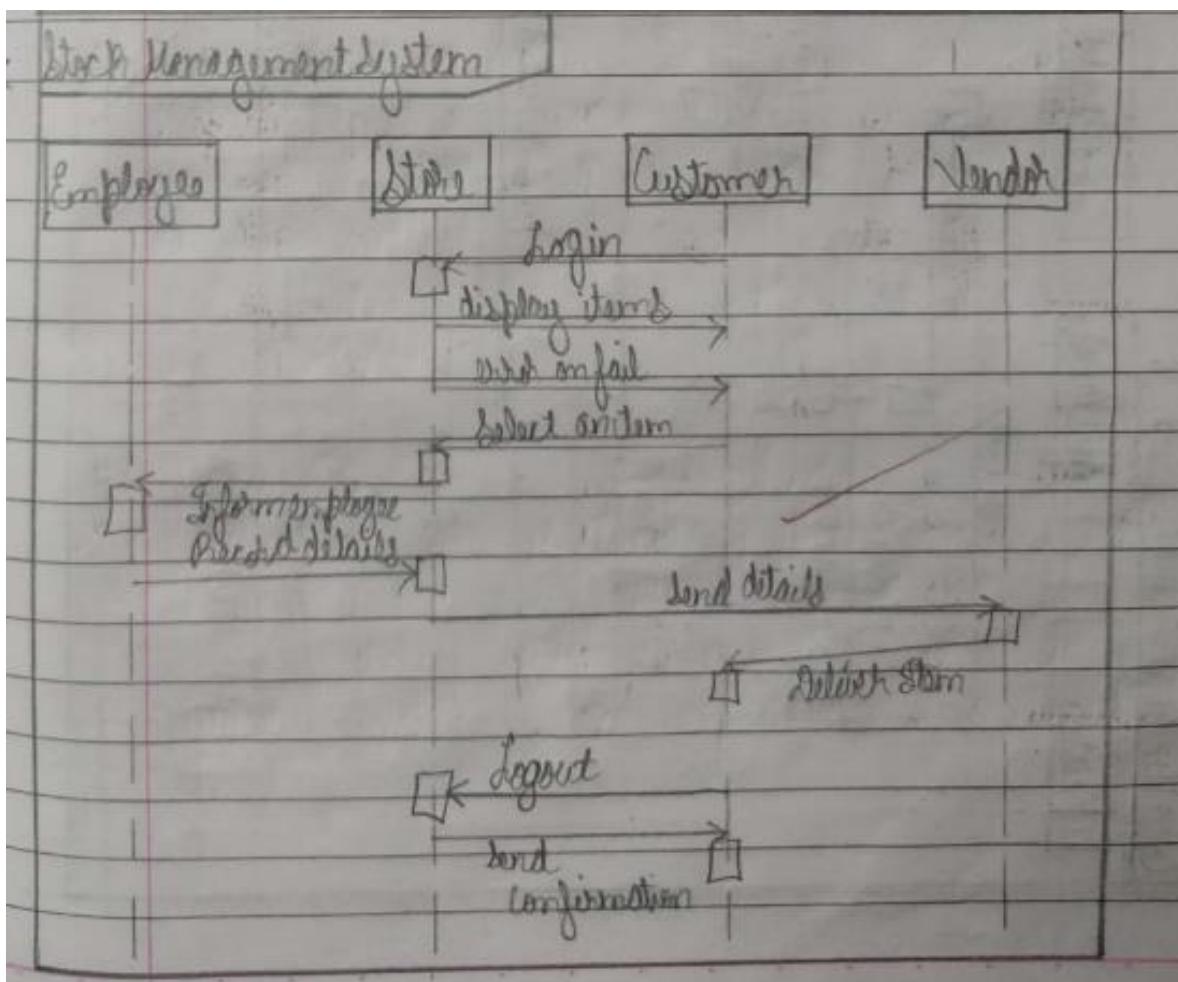
d) Advance Use Case Diagram:

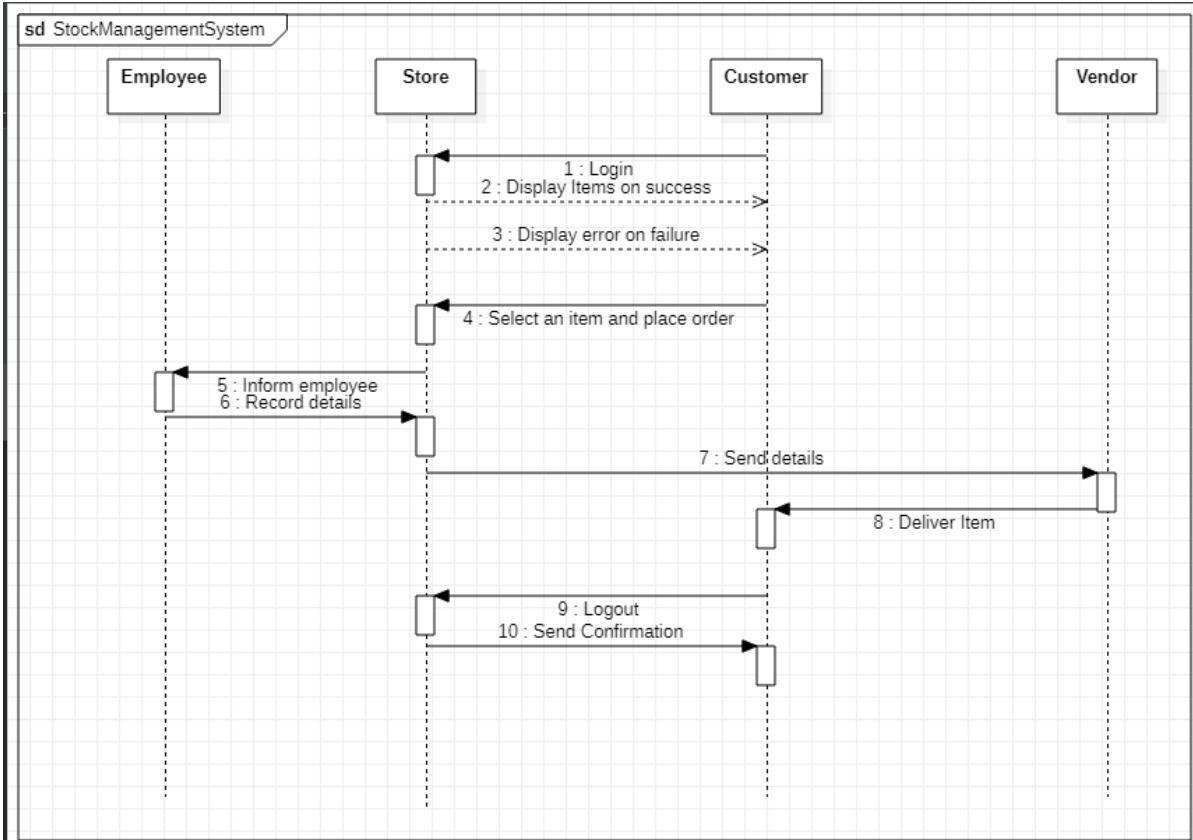




3) No Stock Management System : All the functions for the given system are mentioned & actors such as customer , owner & broker are given & proper relations between them & the functions are mentioned.

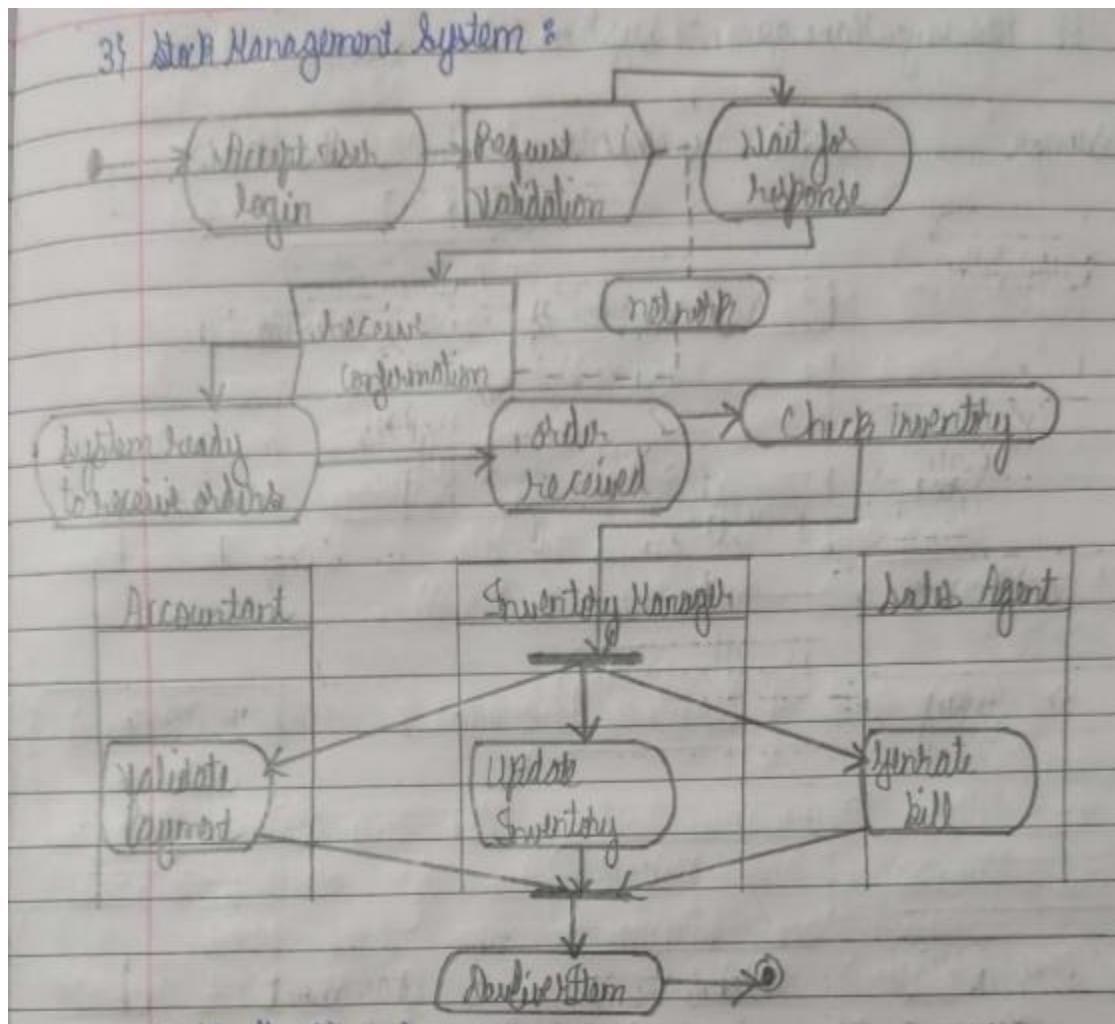
e) Sequence Diagram:

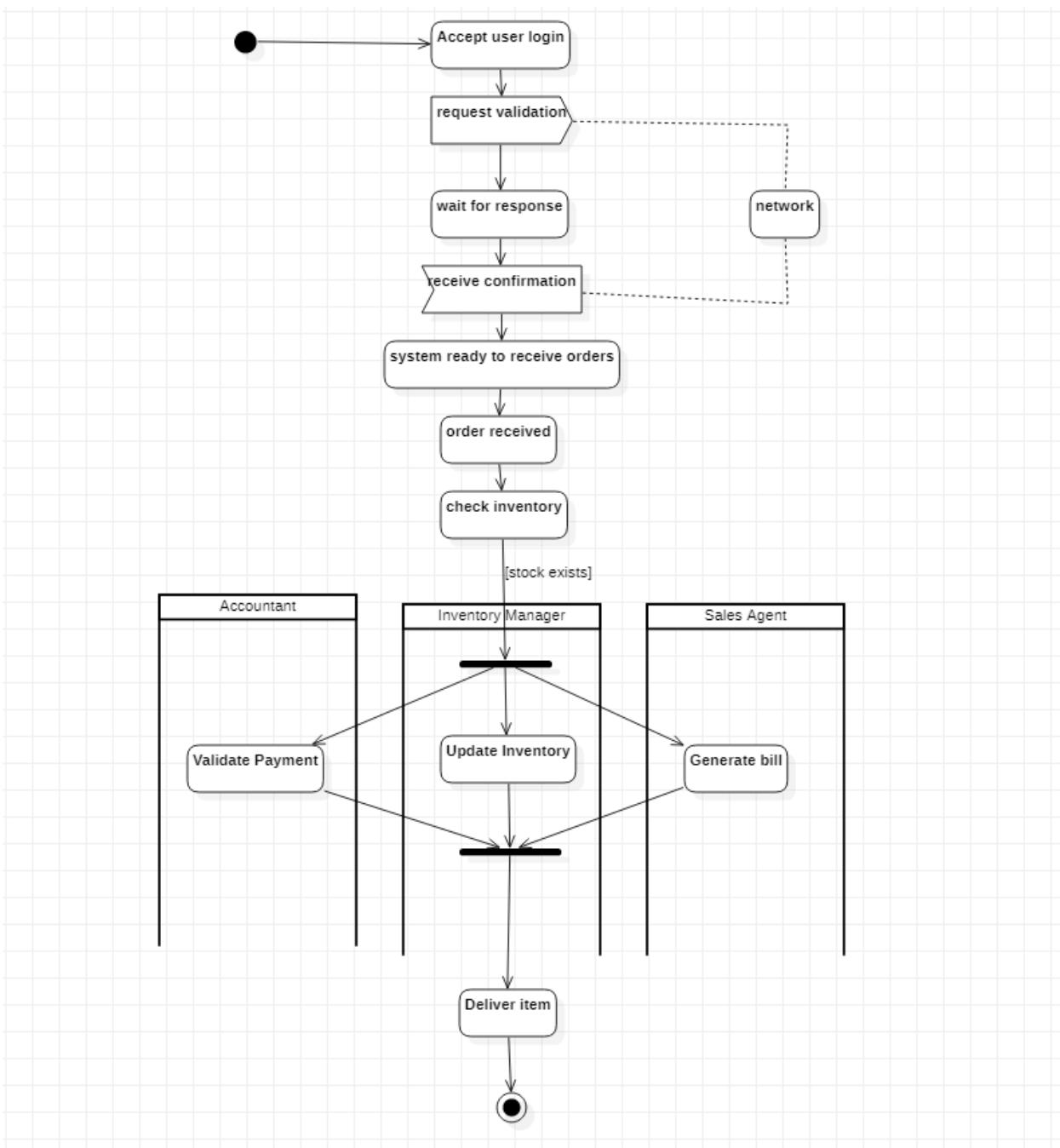




3) Stock Management System: The given model shows the complete interactions of the customer with the vendor & all the steps in the process of login, search & selecting the stocks & purchasing them. All the fields are updated accordingly.

f) Activity Diagram:

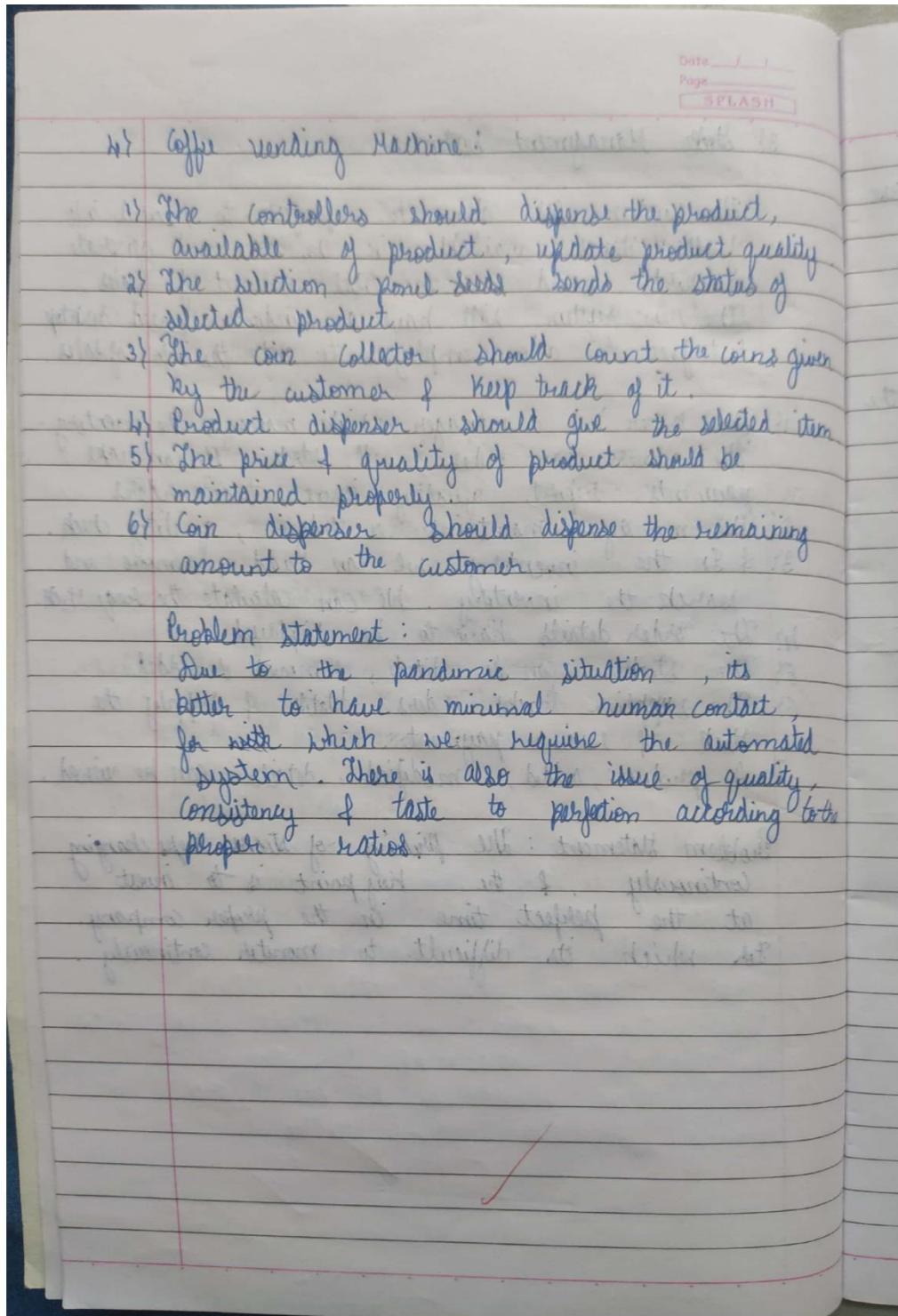




34 Stock Management System : The given interaction model gives the complete system interaction with the user & explains from login, validation to the accountant, manager, sales agent & all the other activities with respect to the system.

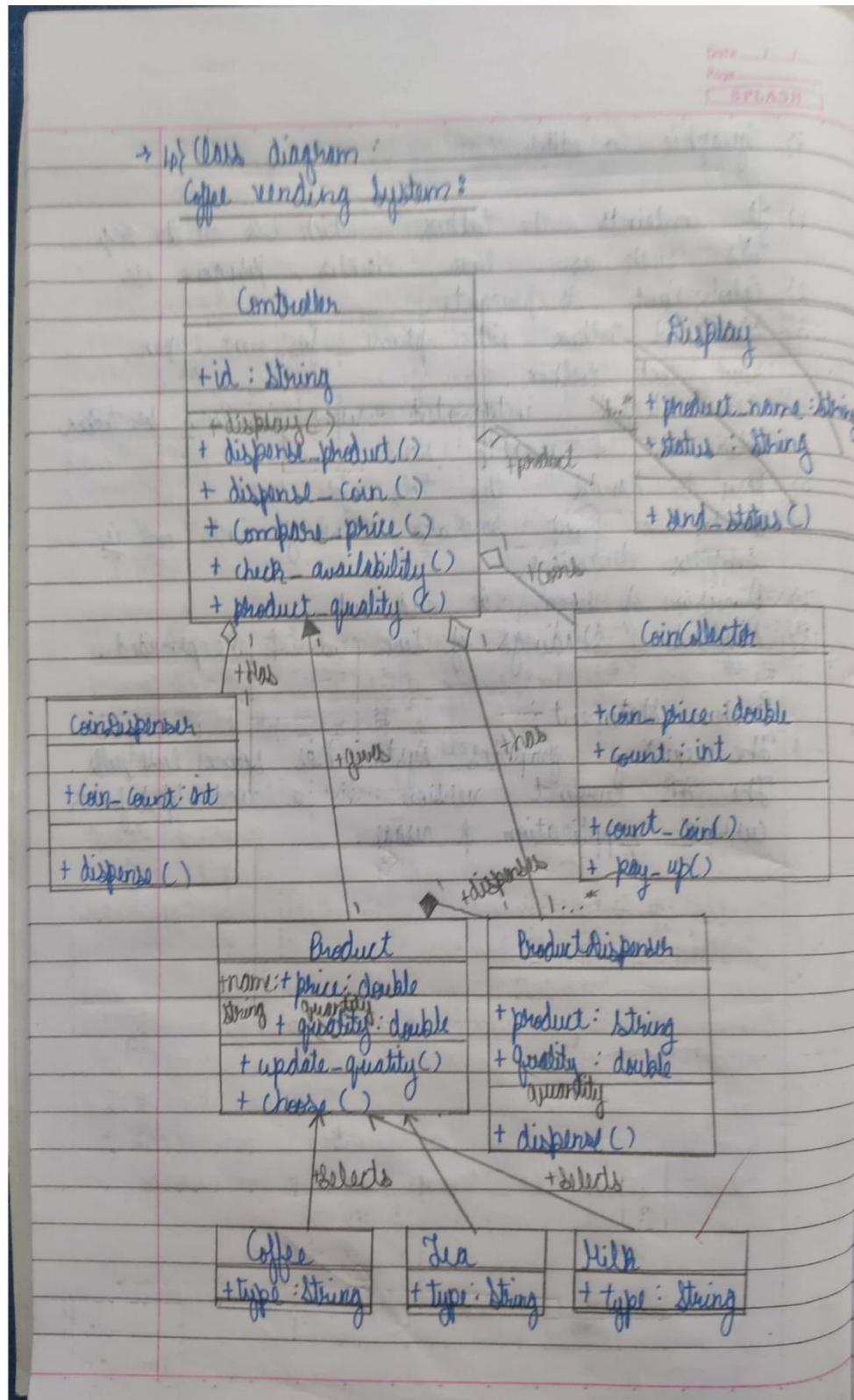
4. Coffee Vending Machine-

a) SRS:

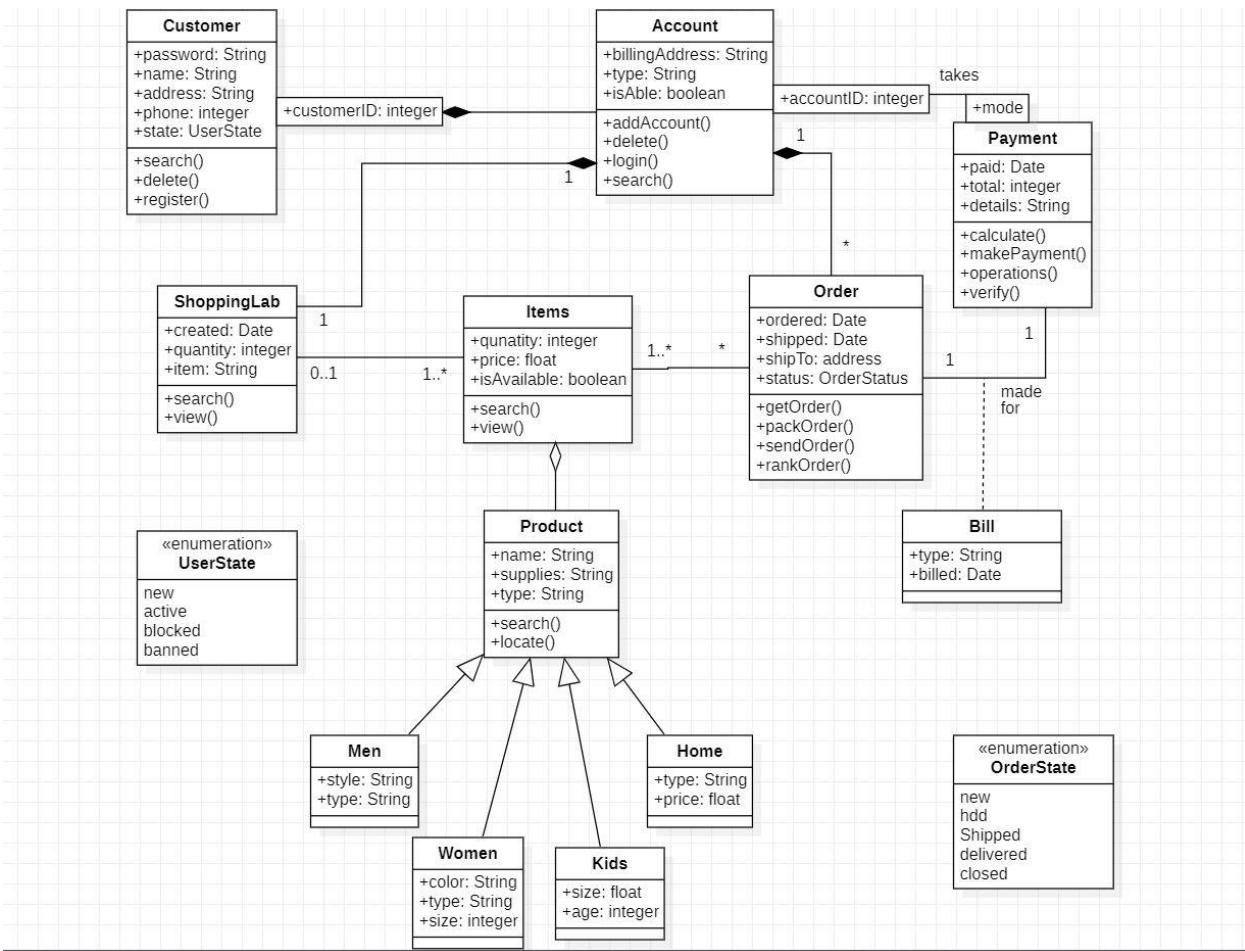


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b) Advance Class Diagram:

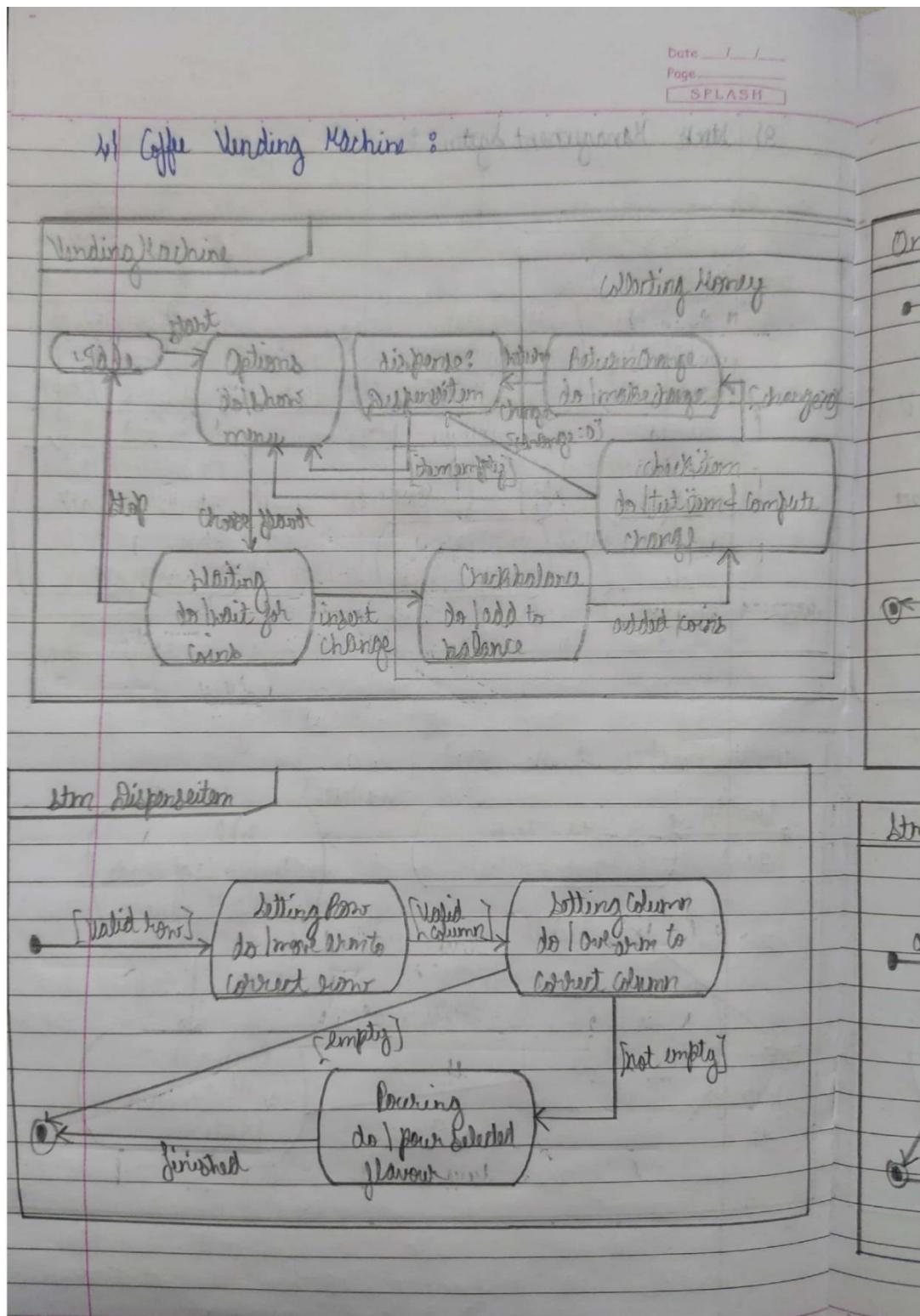


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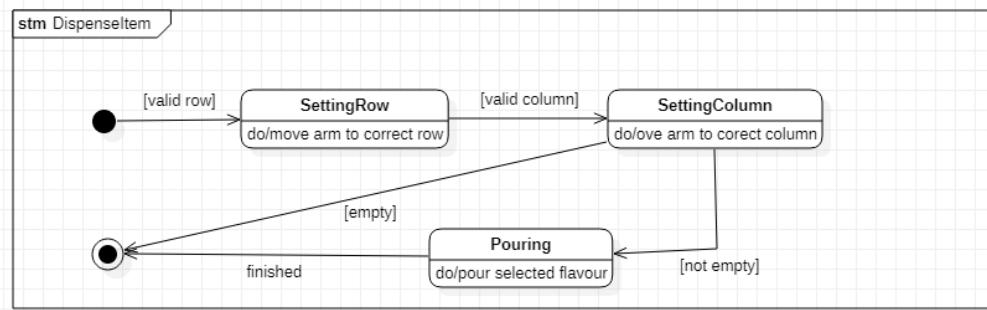
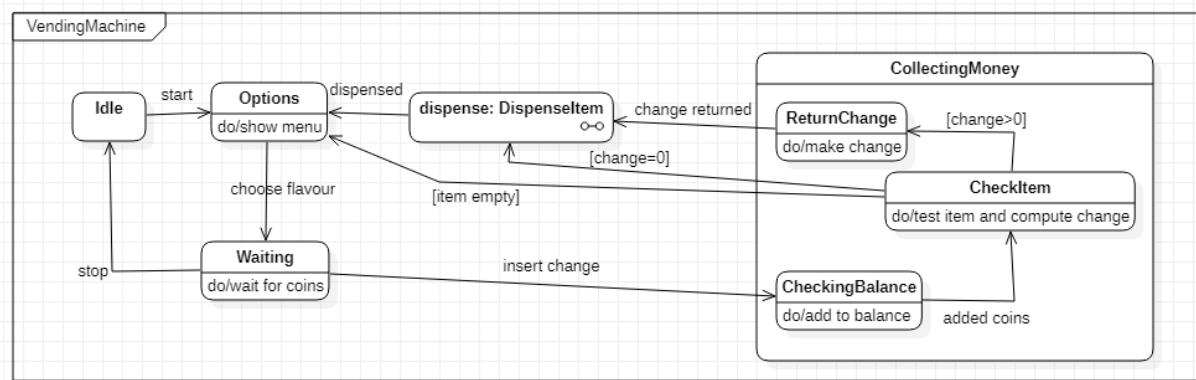


Q) A coffee vending machine has a controller which has coin, product dispenser & coin collector as independent parts, so aggregated. Which is composed of Products which is composed of coffee, tea & milk, we use association with direction to link them. Product dispenser is composed of products hence composition.

c) Advance State Diagram:

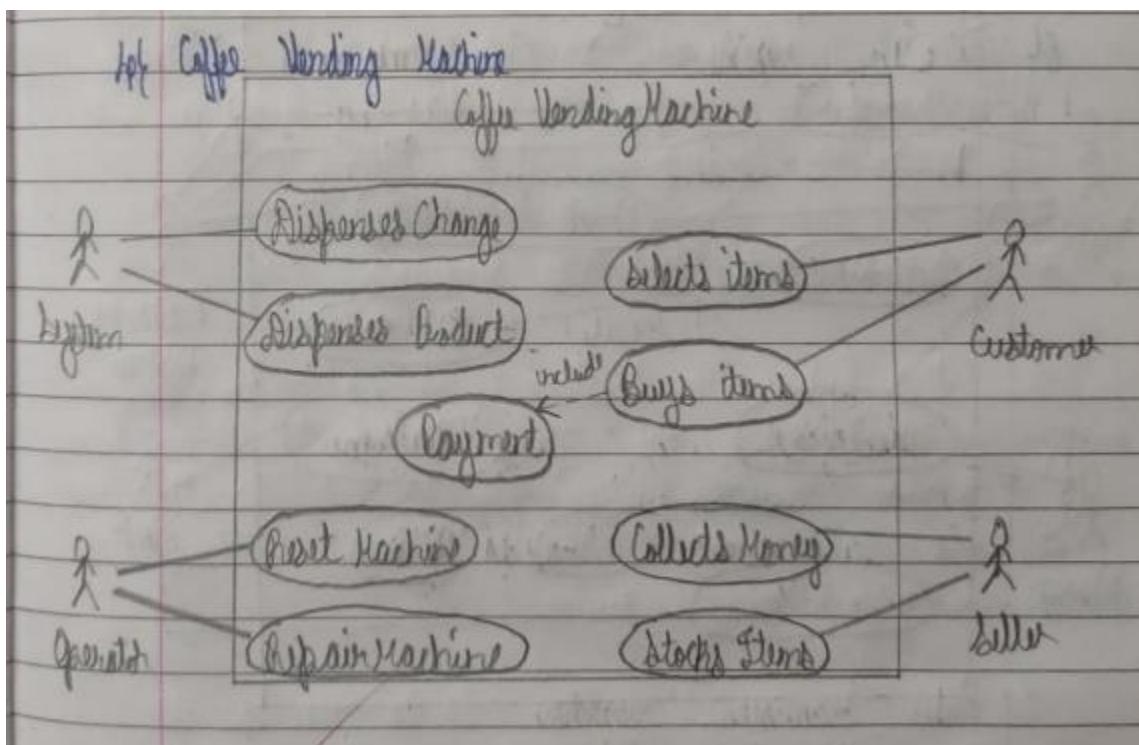


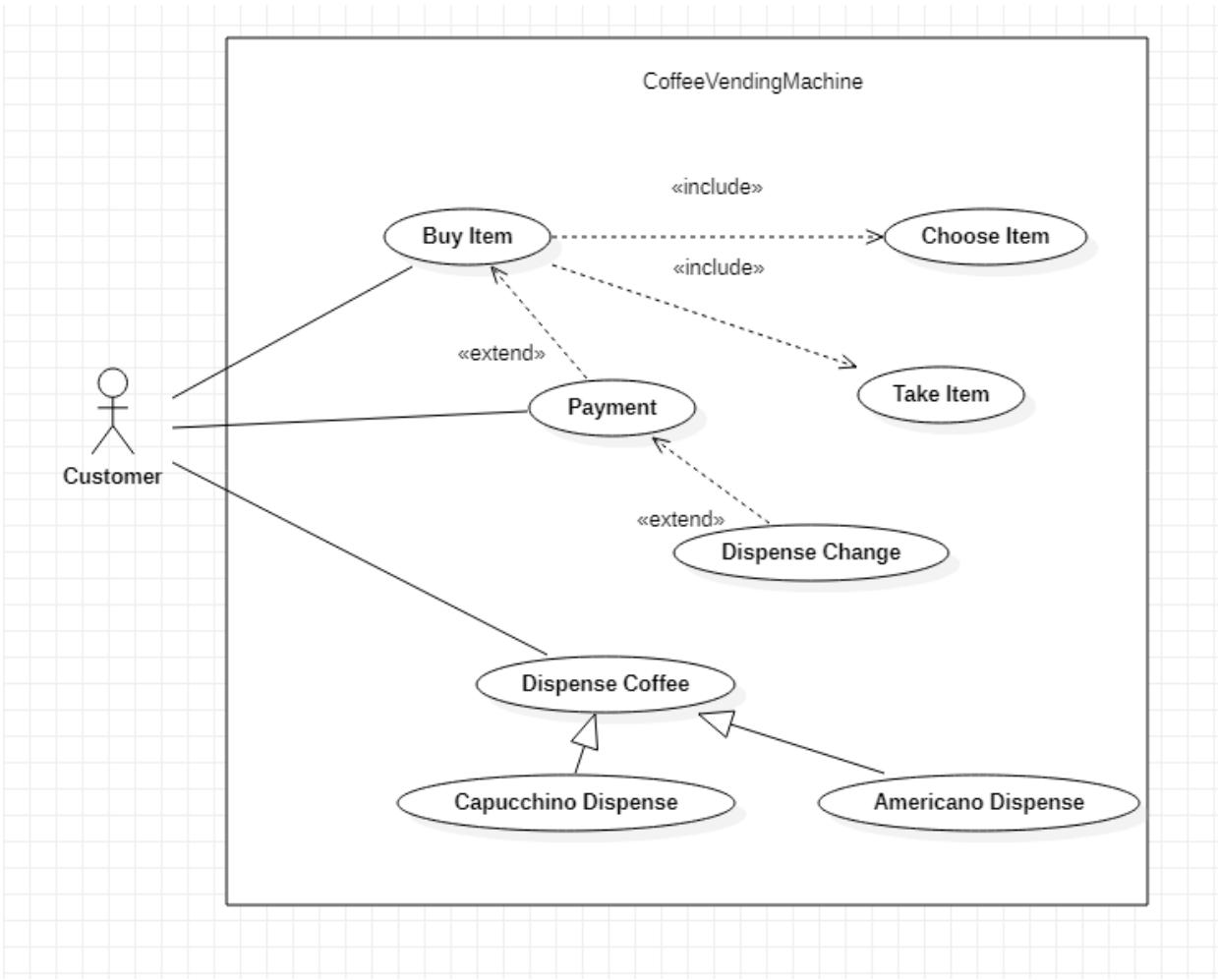
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ii) Coffee Vending Machine: In the given application all the respective functions if all the parts are mentioned with all the involved actors like Customer, system, seller, operator & all the relations with the functions & actions are given accordingly.

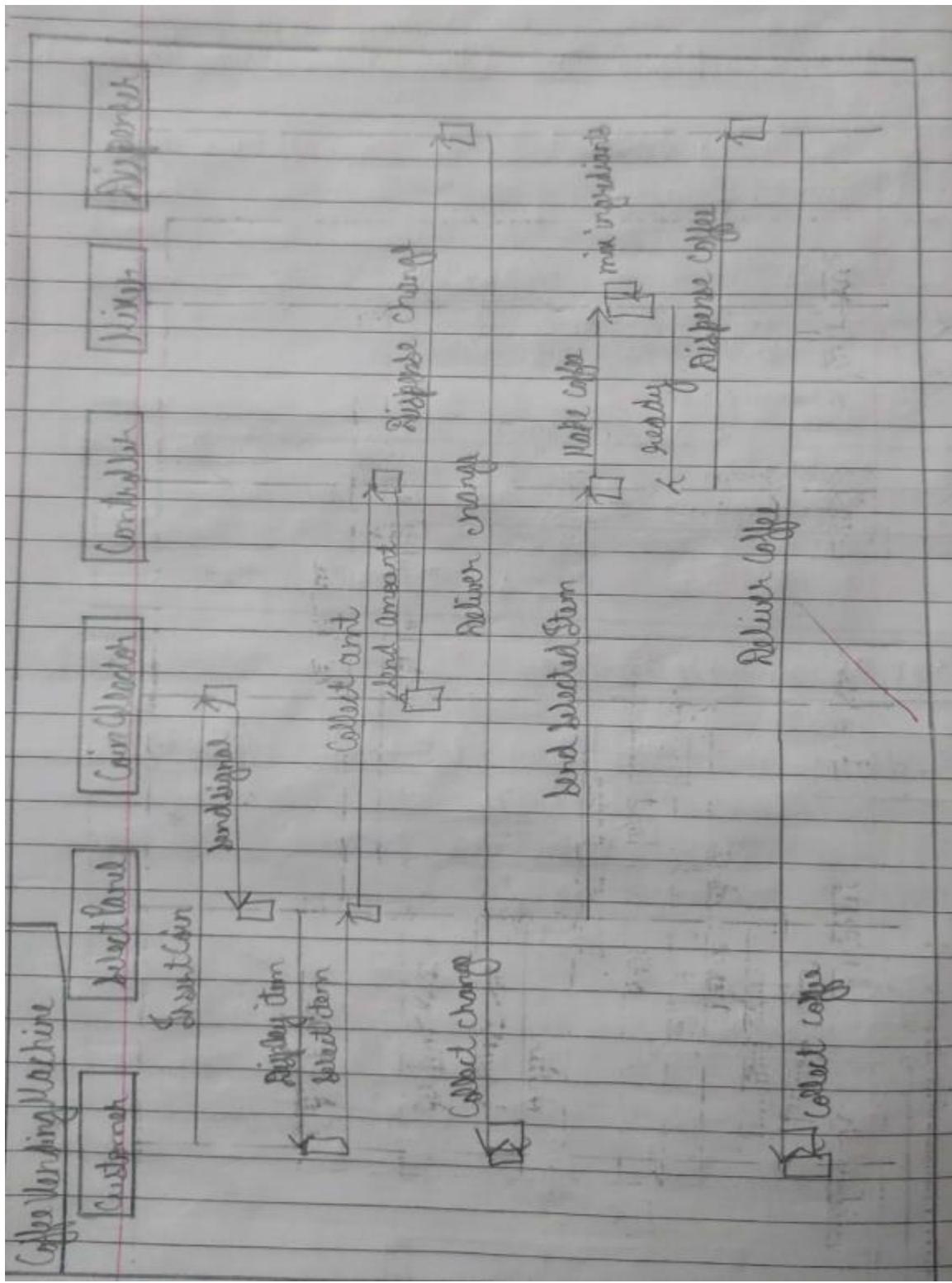
d) Advance Use Case Diagram:

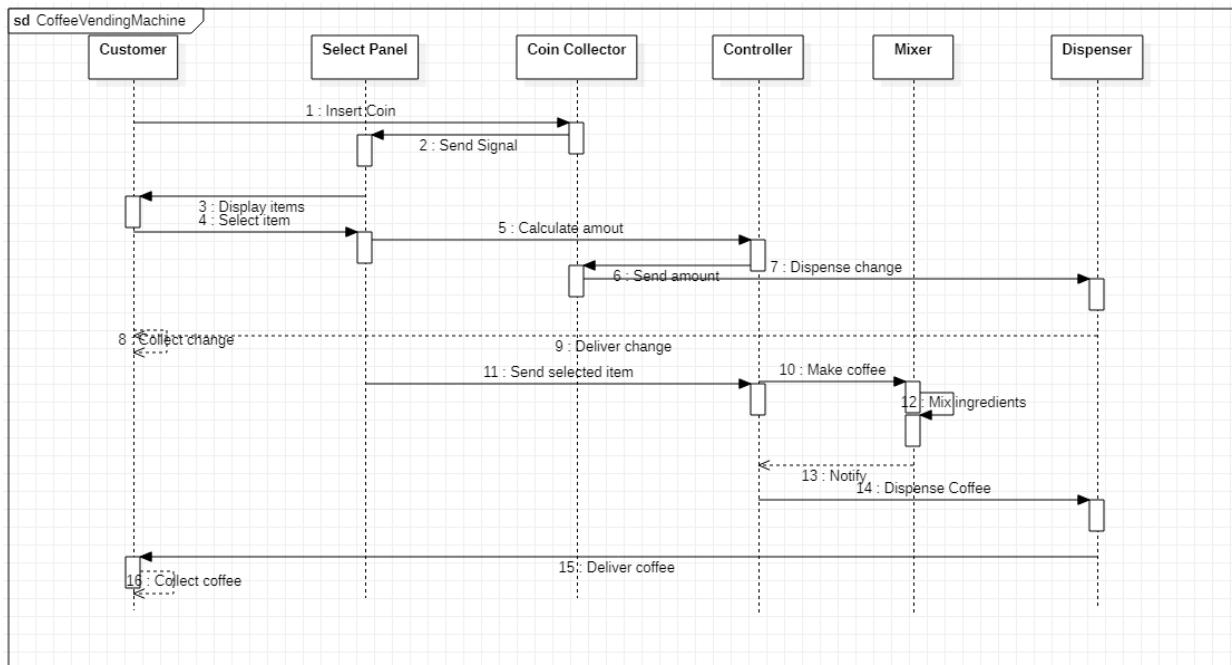




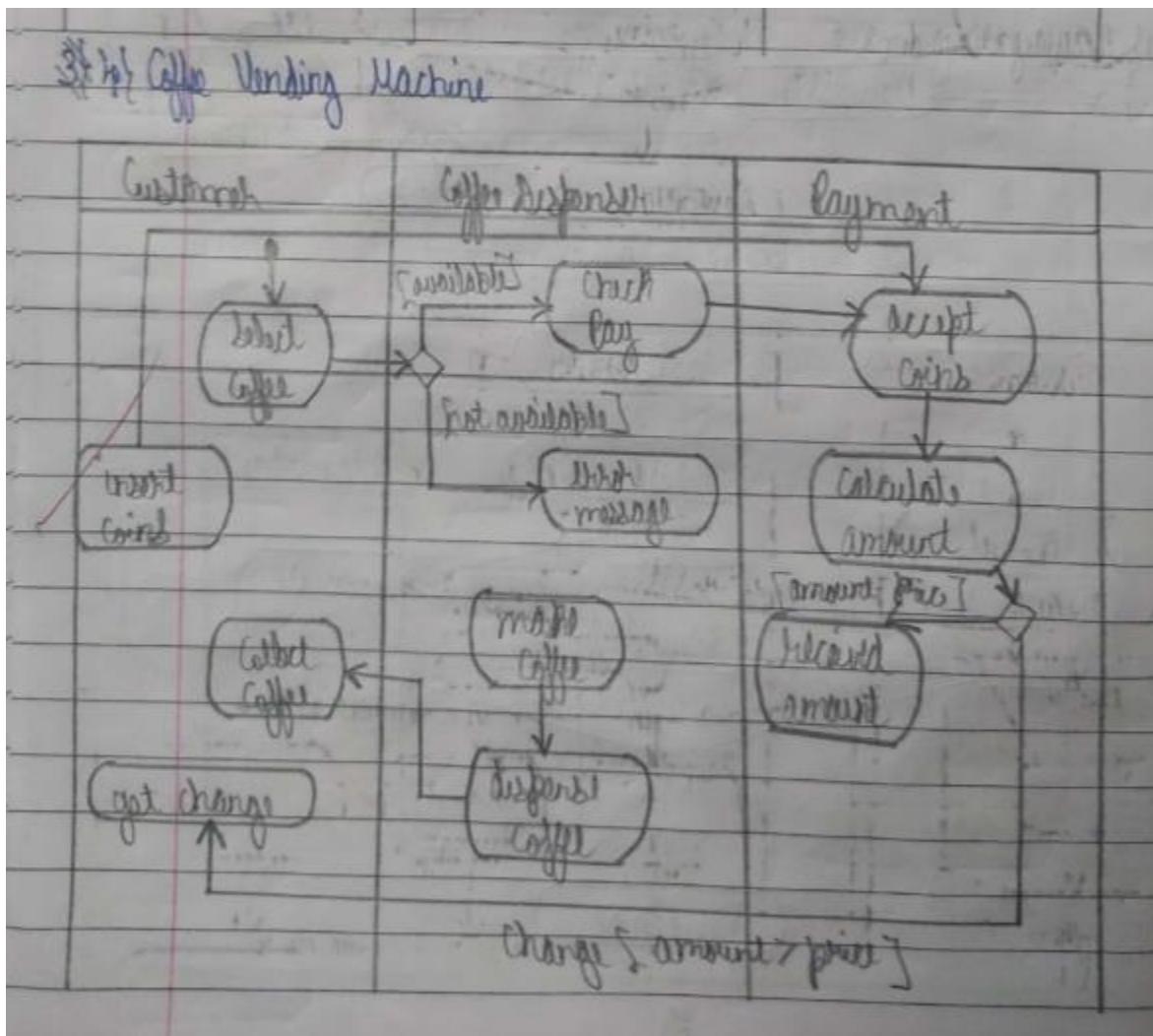
4) Coffee Vending Machine: The given model shows all the interactions of the customer with the coffee vending machine with all the given respective parts.
 4 shows the complete process of how the coffee is dispensed by the system & delivers the change.

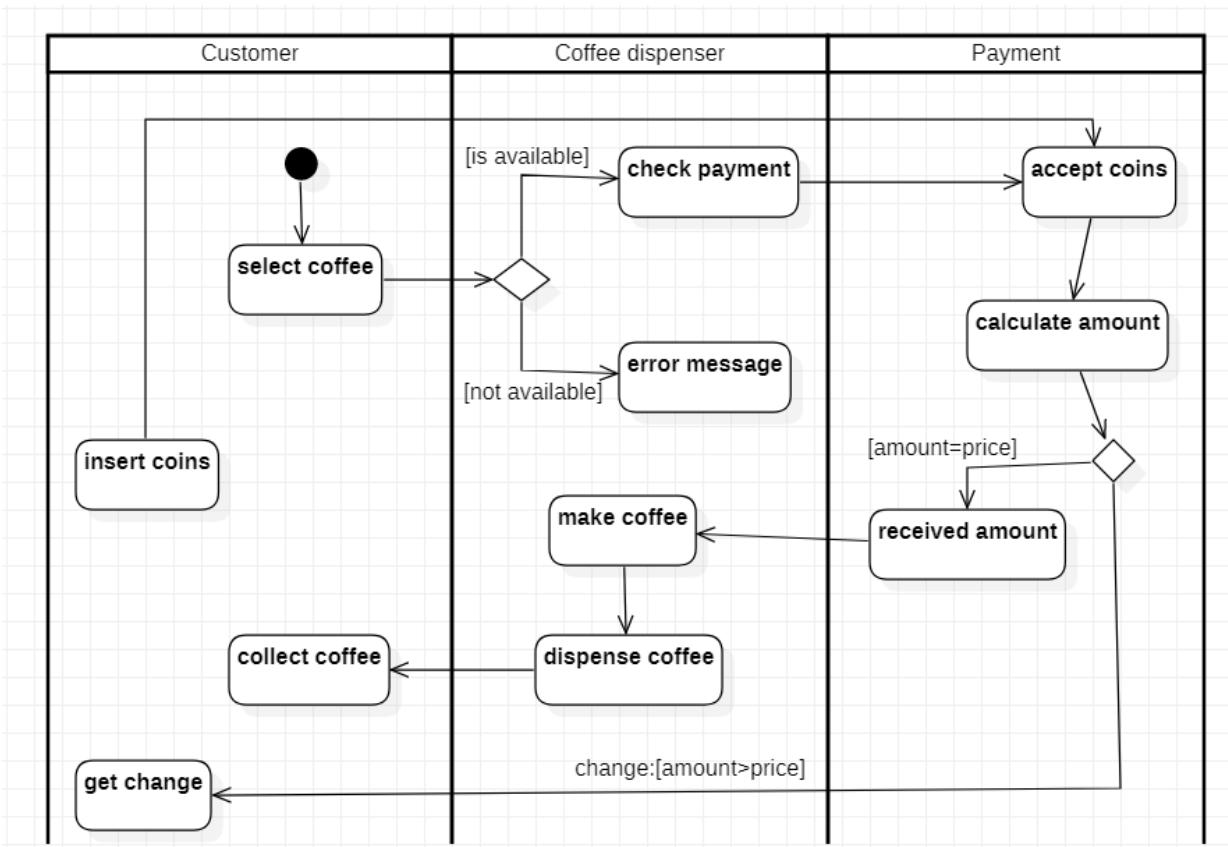
e) Sequence Diagram:





f) Activity Diagram:

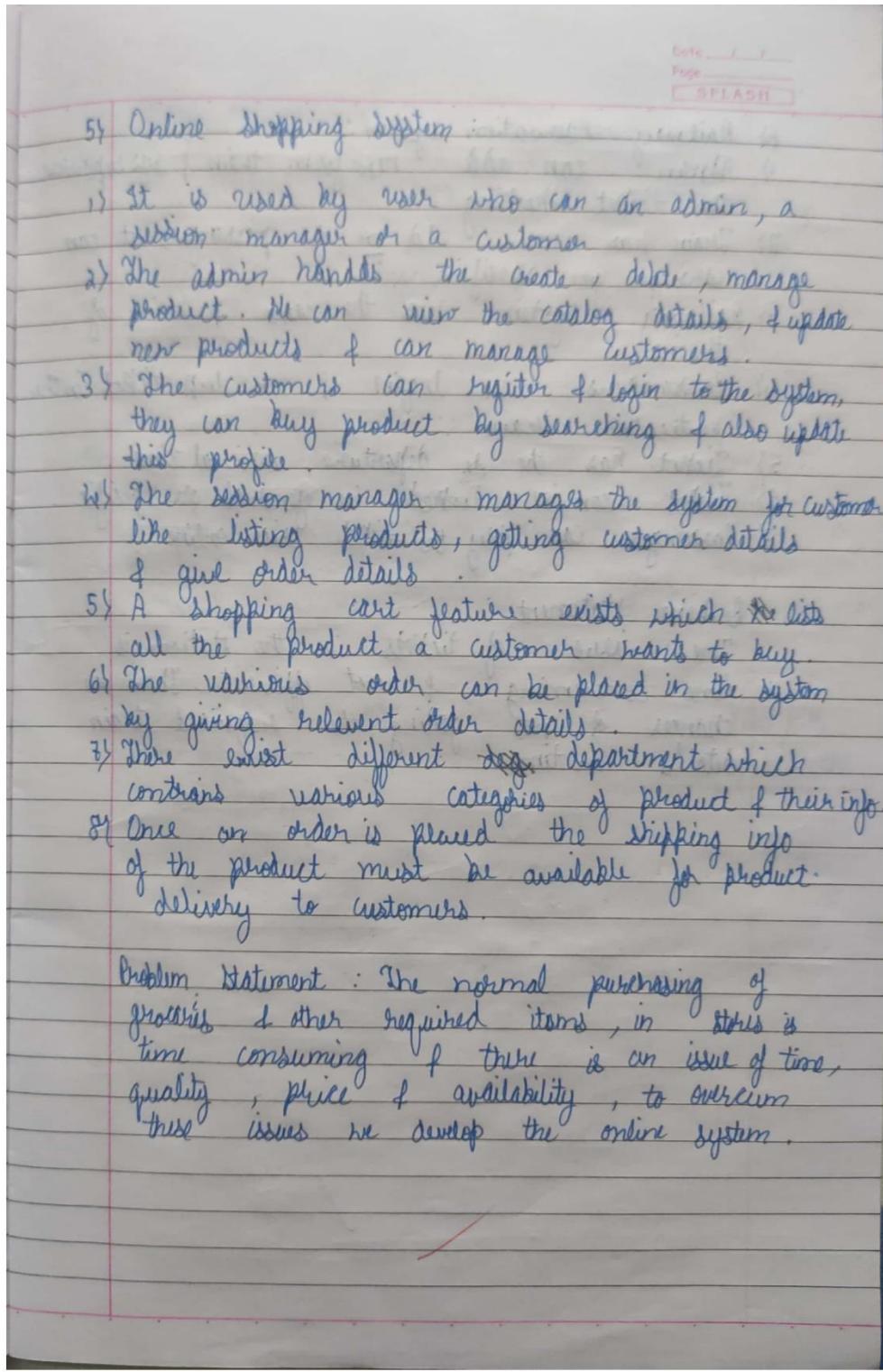




✓ ~~Top~~ Coffee Vending Machine: The given model explains the complete interaction of the customer with the system from selecting to accepting money & dispensing the amount all the functions & interactions are mentioned including for the proper working of the system.

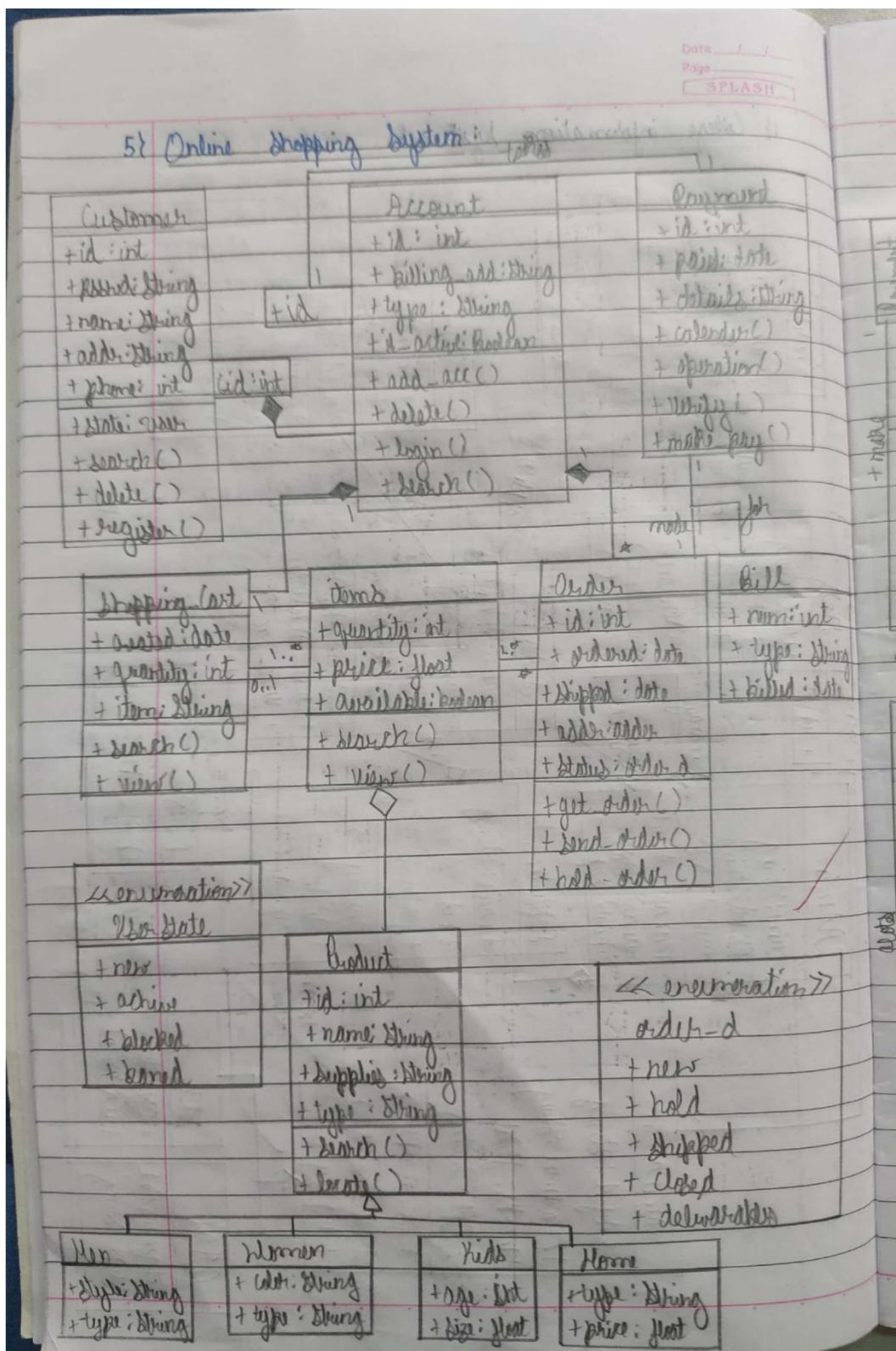
5. Online Shopping System-

a) SRS:

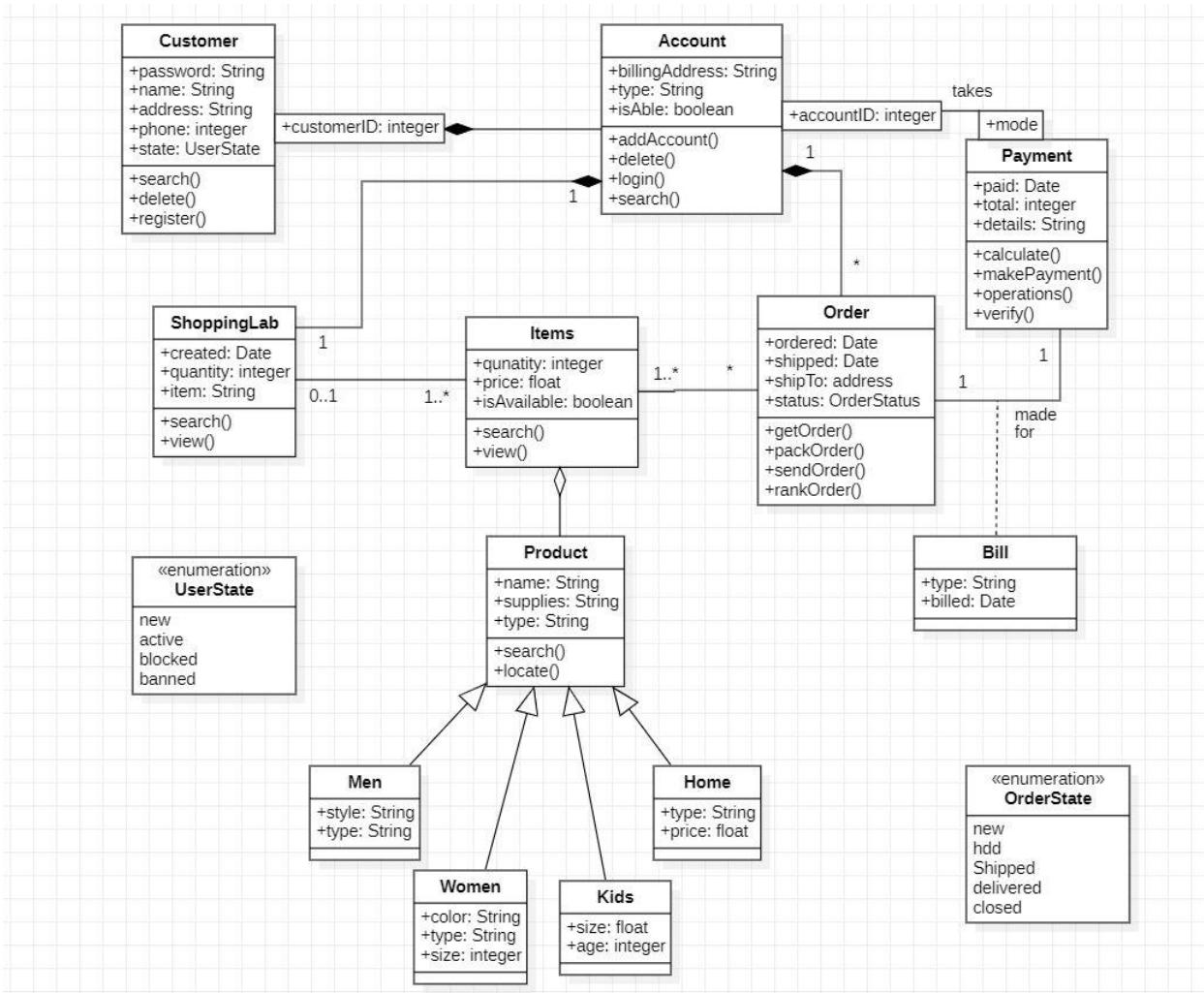


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b) Advance Class Diagram:

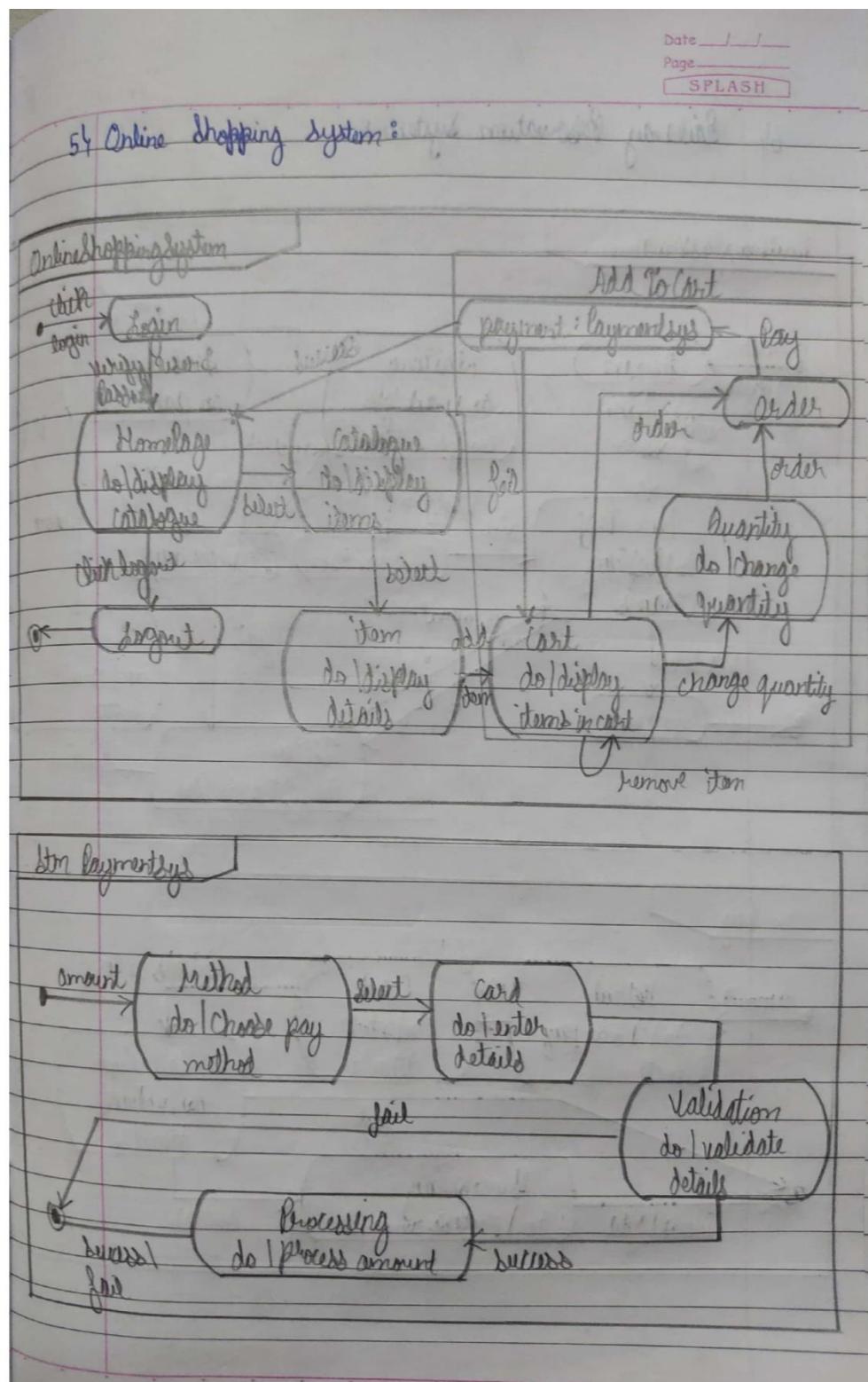


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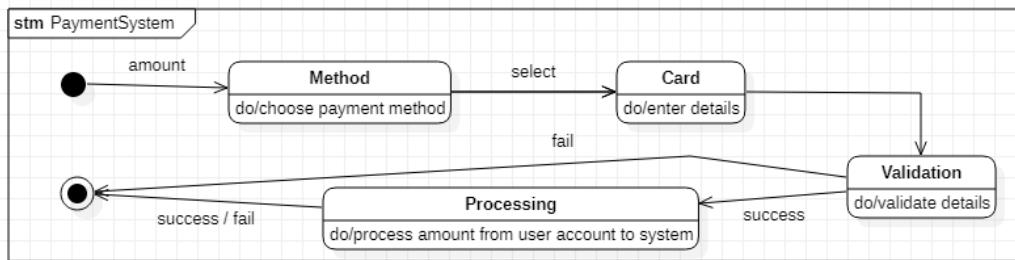
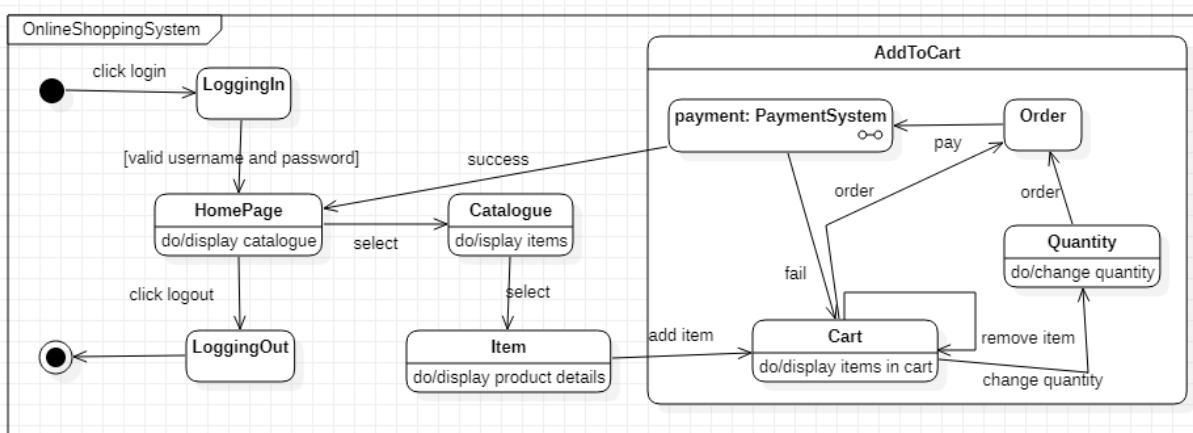


5) Every customer is linked with an account using id, whose account cannot exist without a customer, so its composition. Every account has a shopping cart & order & order is associated to items which are placed in the shopping cart. Items are aggregated with products which is generalised into various classifications. The account, payment for the order to the bill is linked by association.

c) Advance State Diagram:

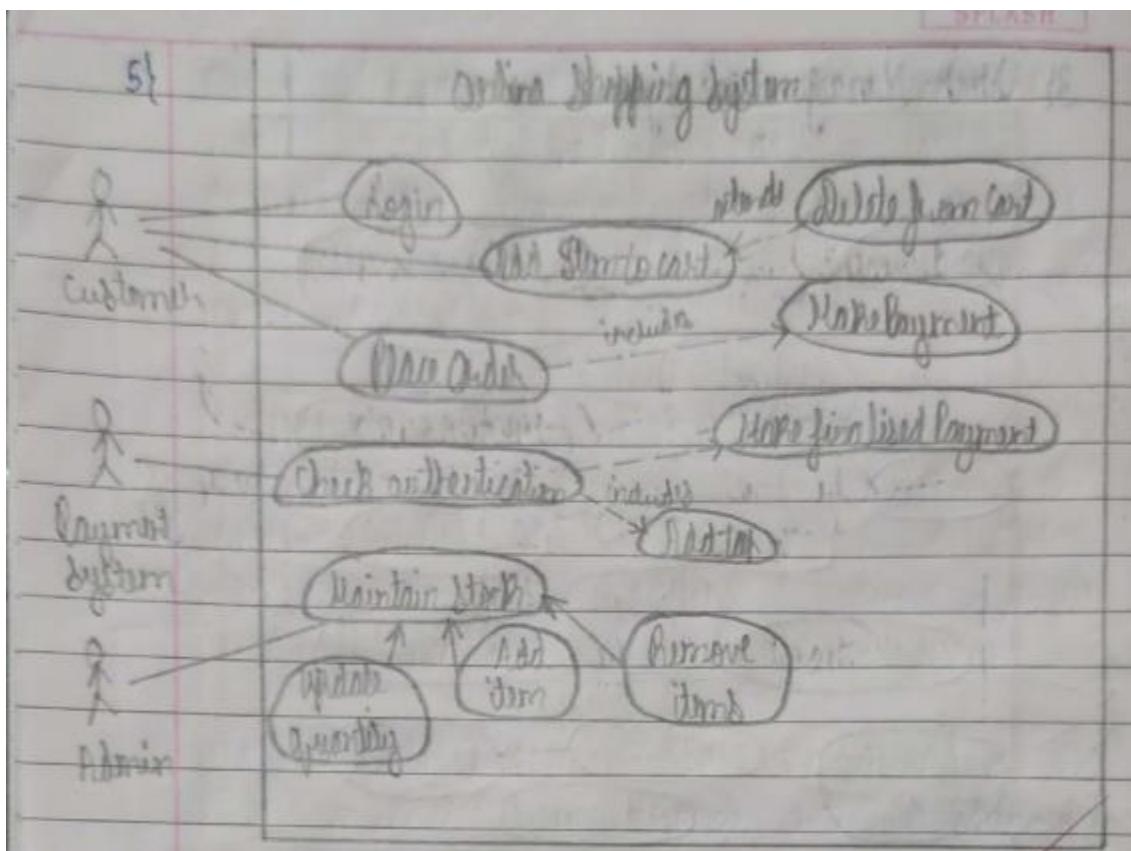


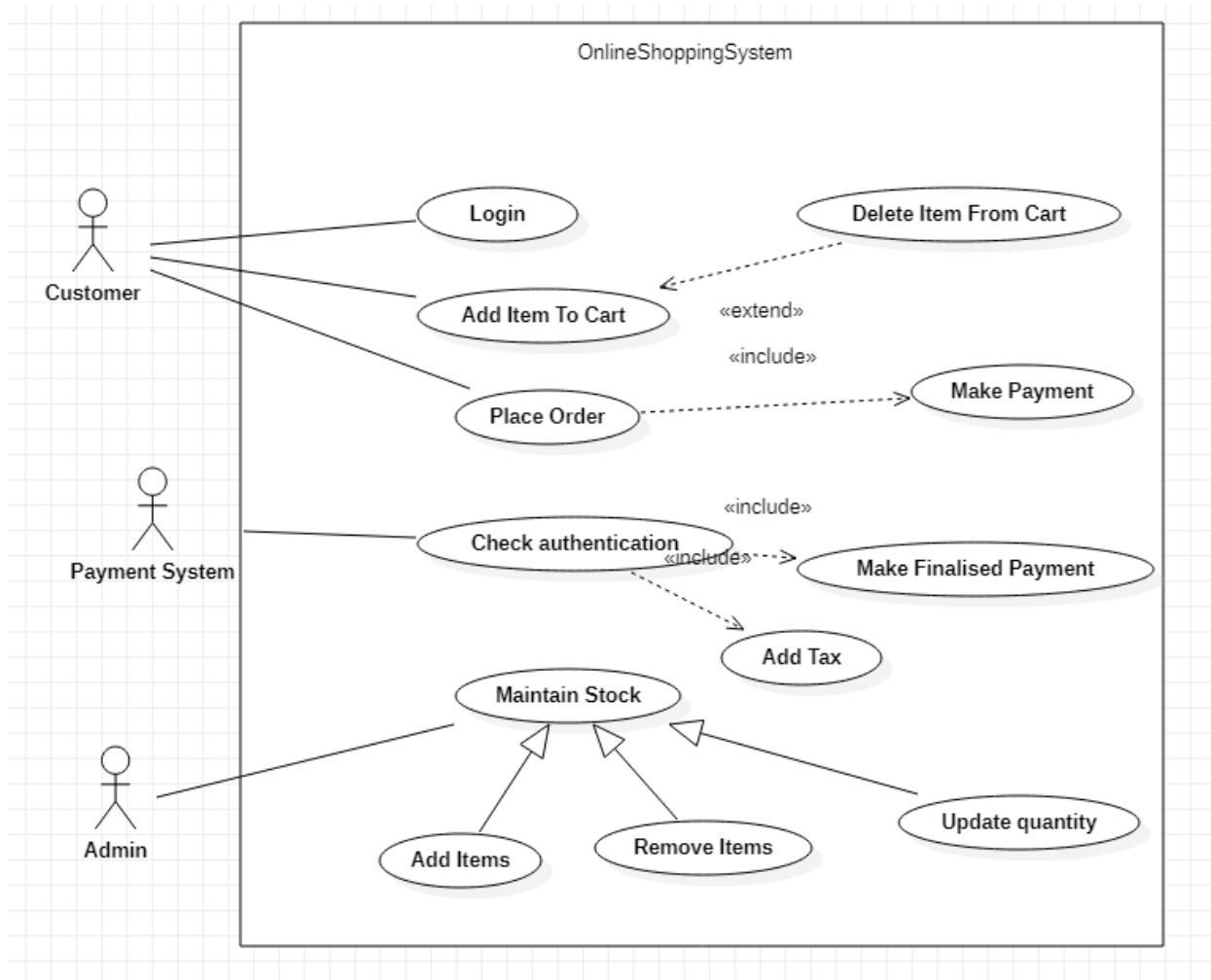
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5) Online Shopping System : The given machine model explores the an add to cart & payment system scenario with proper transitions & actions . The detailed composition & submachine model with proper details .

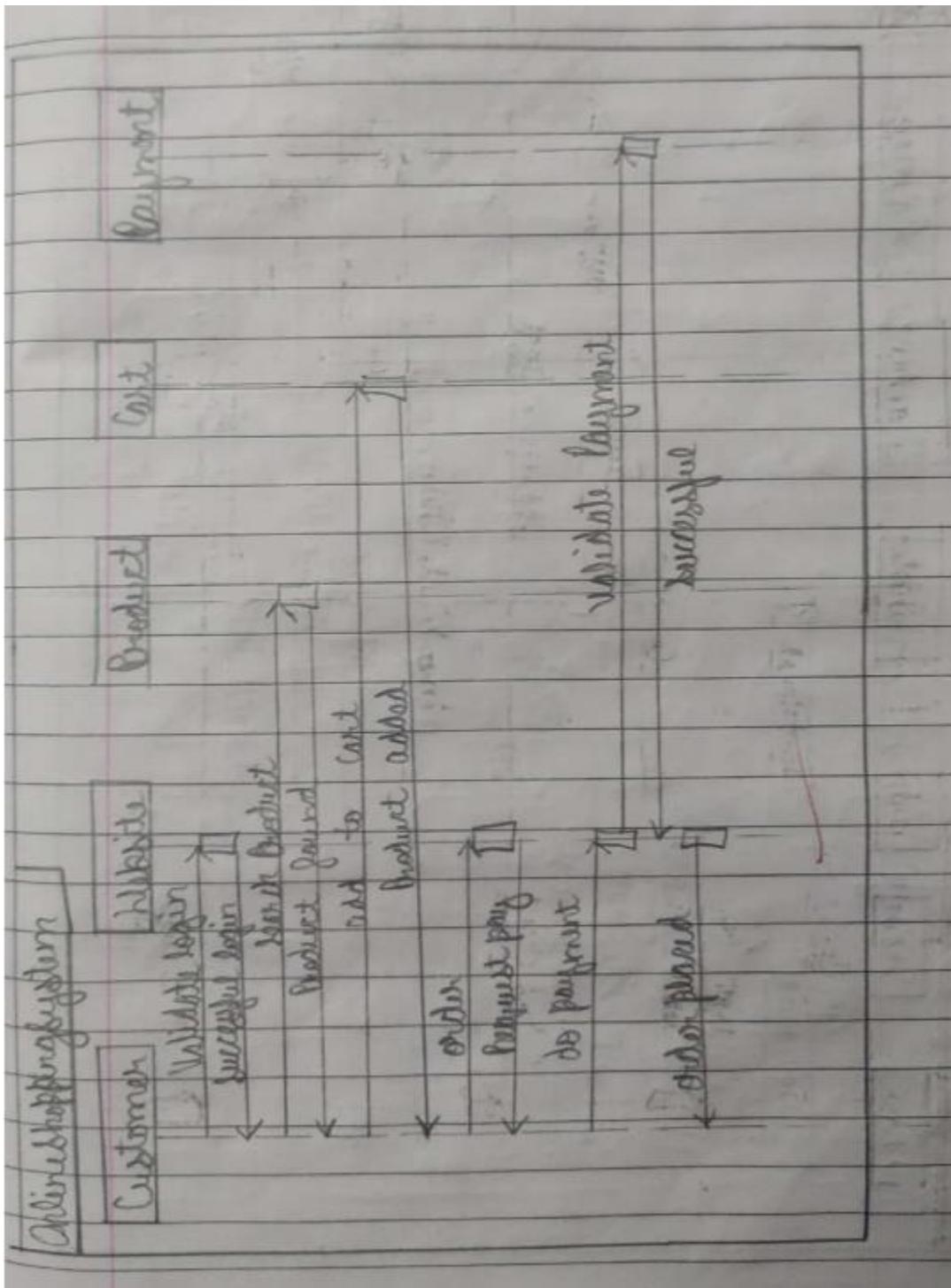
d) Advance Use Case Diagram:

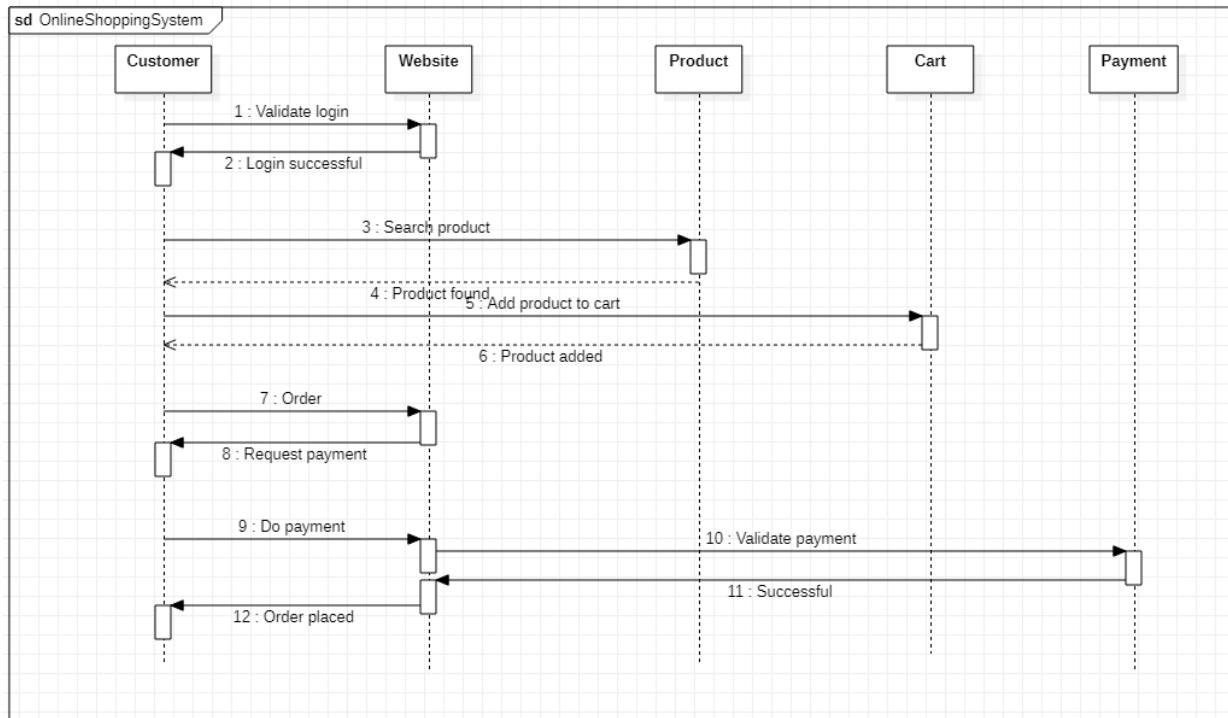




5) Online Shopping System : All the functions for the given system are given properly with all functions of the applications & all the actors are like customer, admin, payment system are given & all the relations for the given working is mentioned clearly.

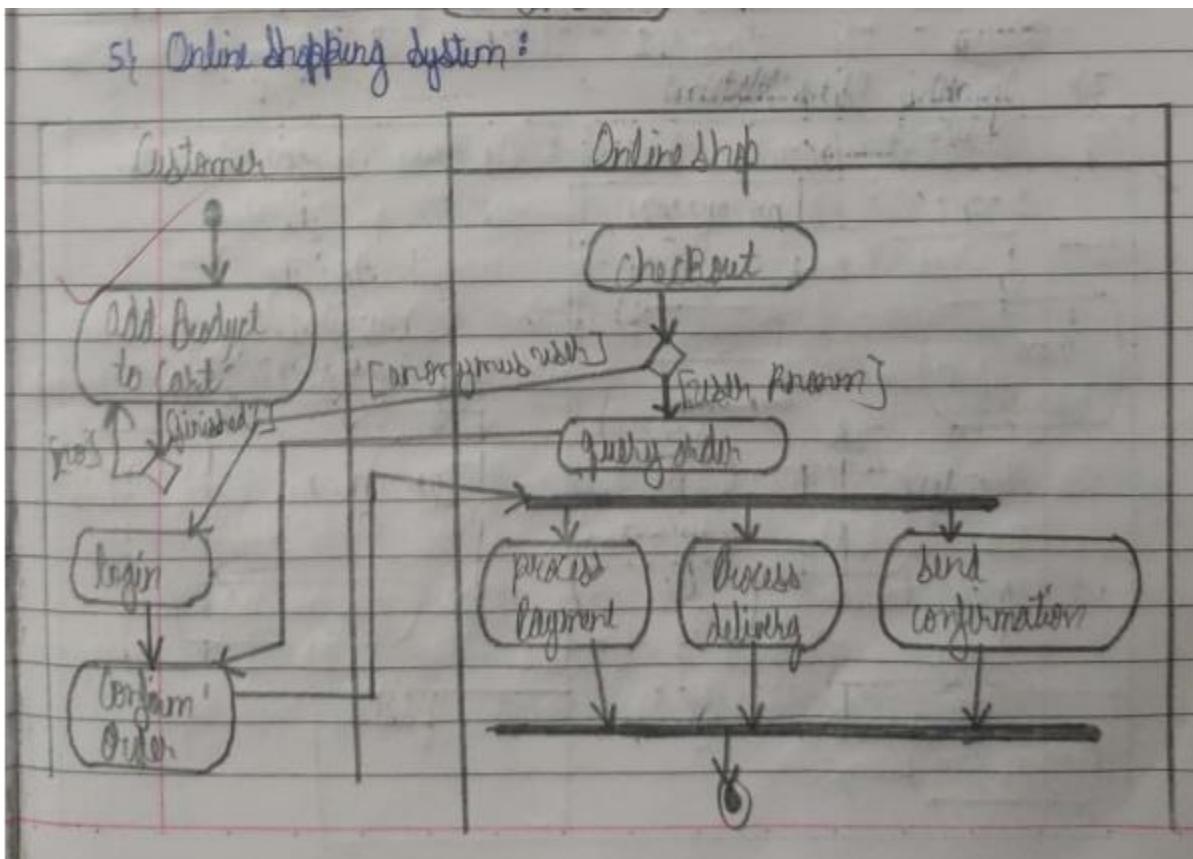
e) Sequence Diagram:

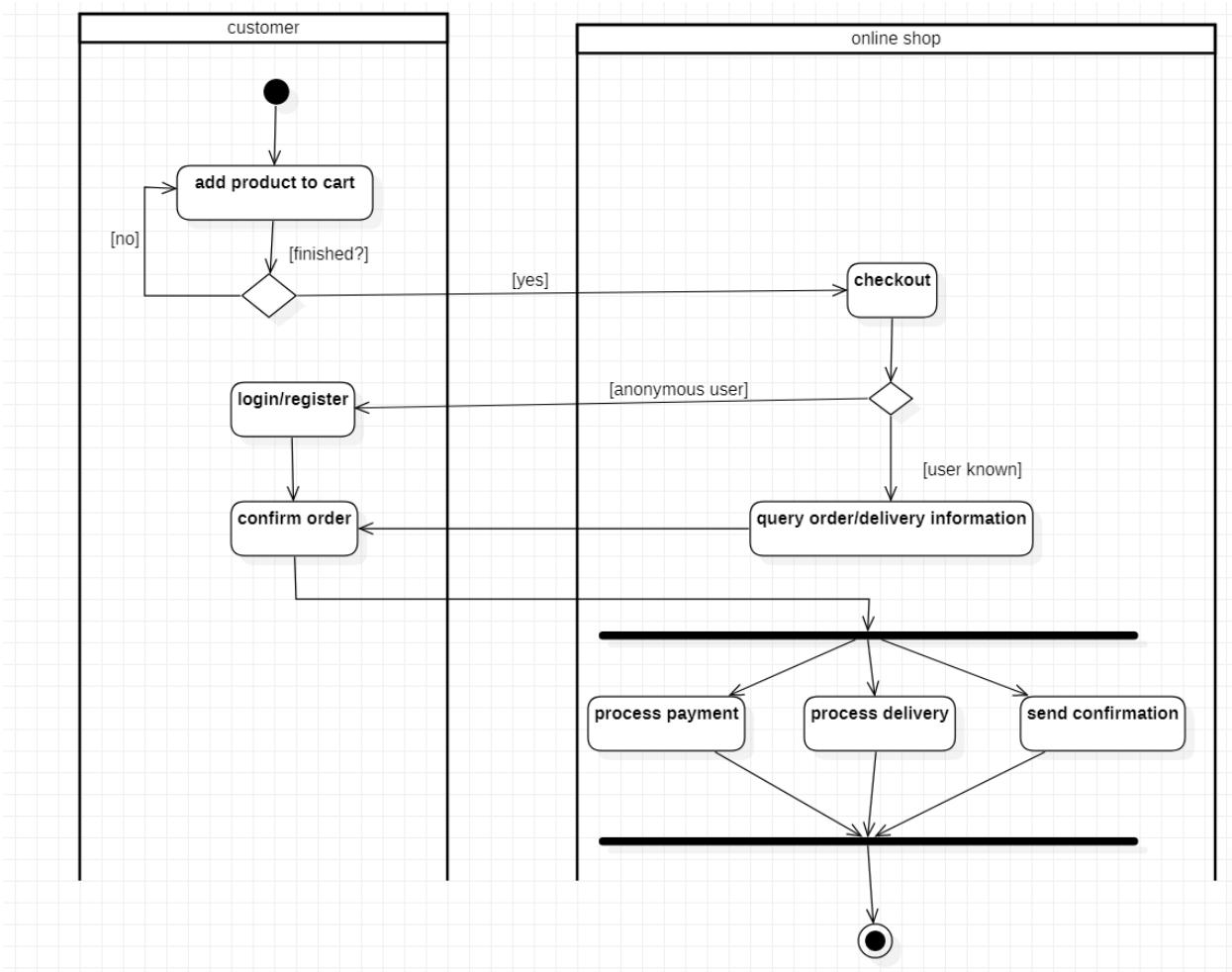




5) Online Shopping System :- The given system shows the complete interactions of the customer in the process of purchasing the products from searching to booking to payment & delivery of all the respective activities are mentioned.

f) Activity Diagram:

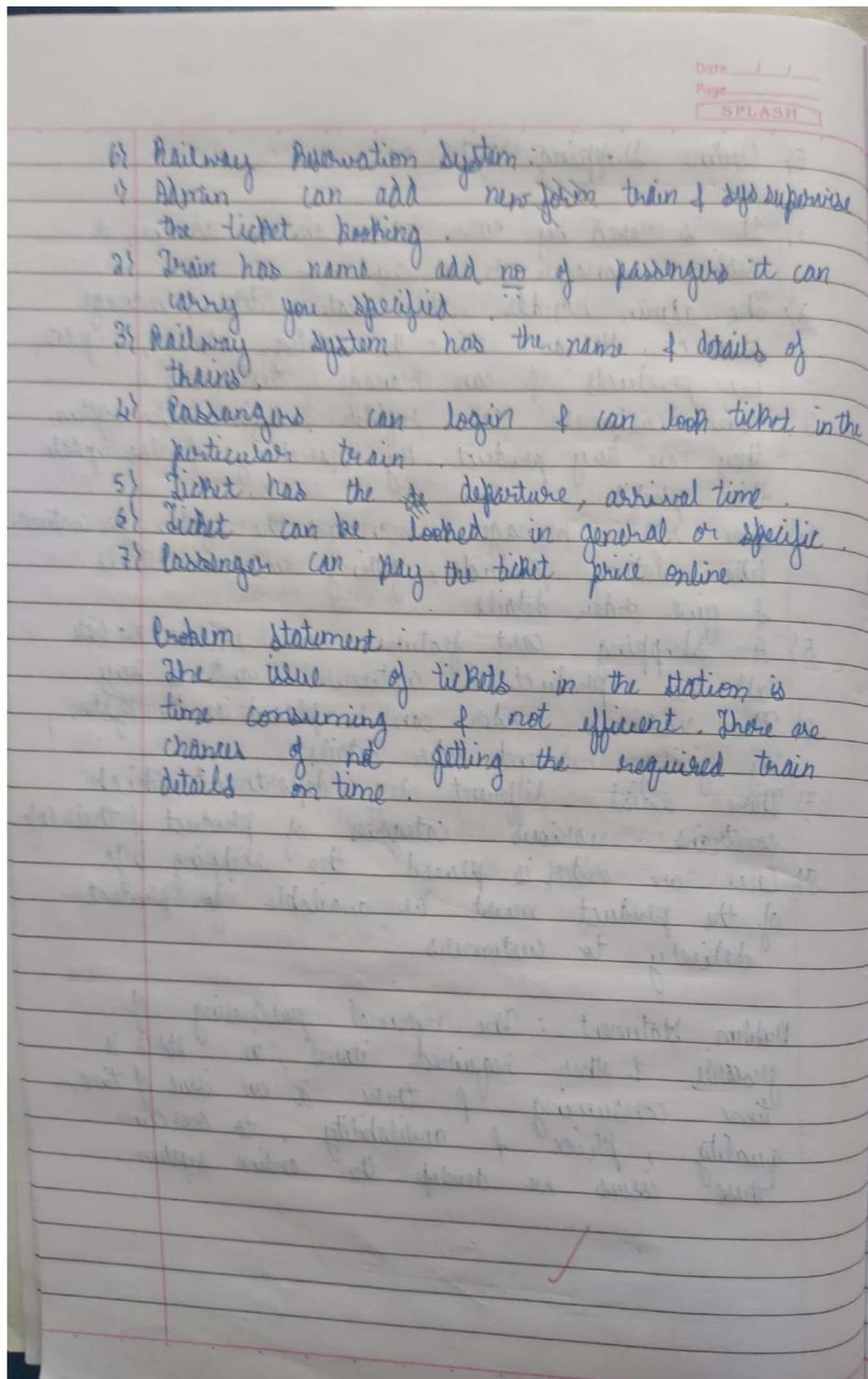




5.4 Online Shopping System : The given activity model explains the various interactions taking place during the given customer login & the shops , from add to cart to checkout & payment activity to process delivery all the given suspected interactions are mentioned .

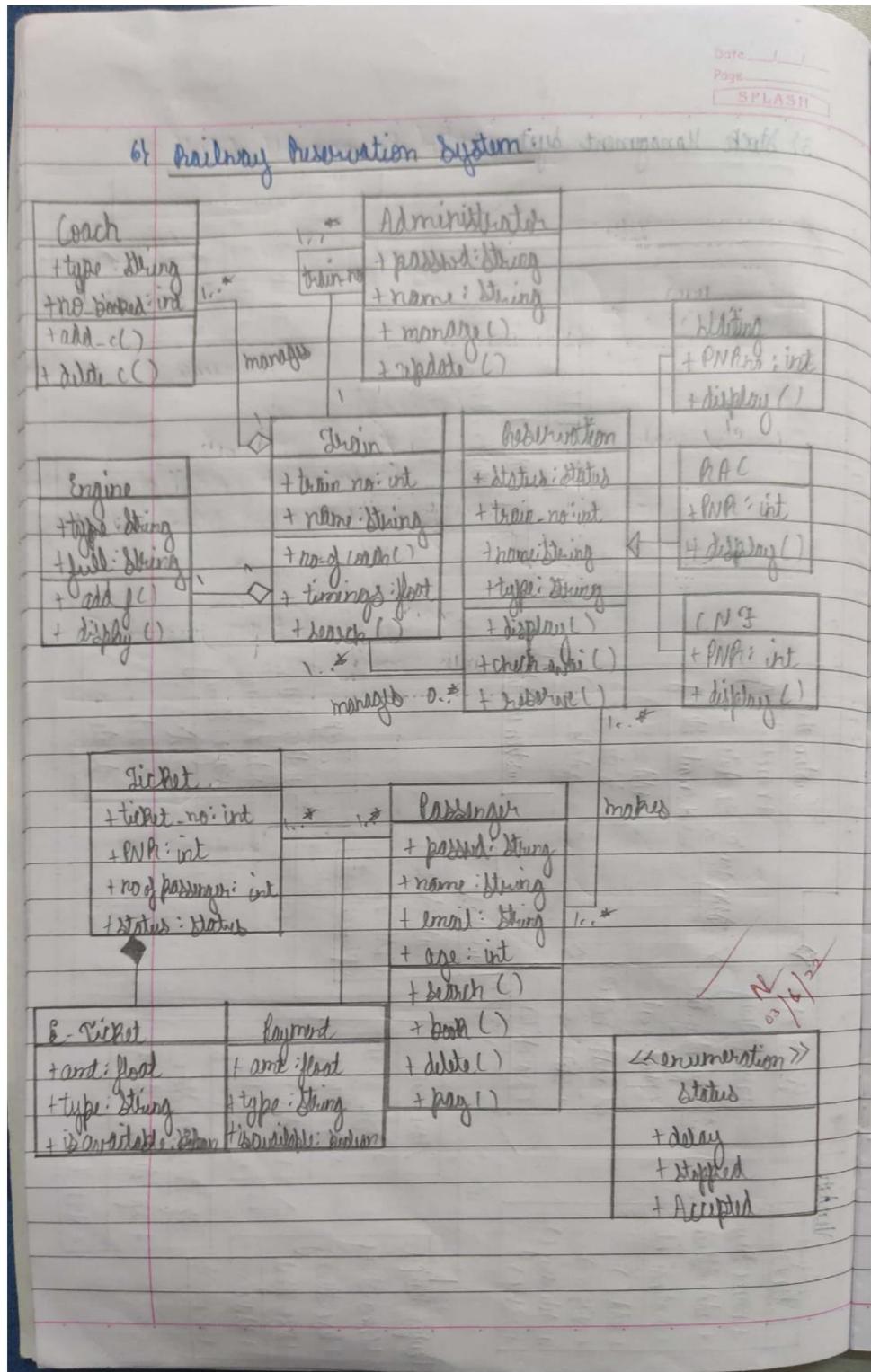
6. Railway reservation system-

a) SRS:

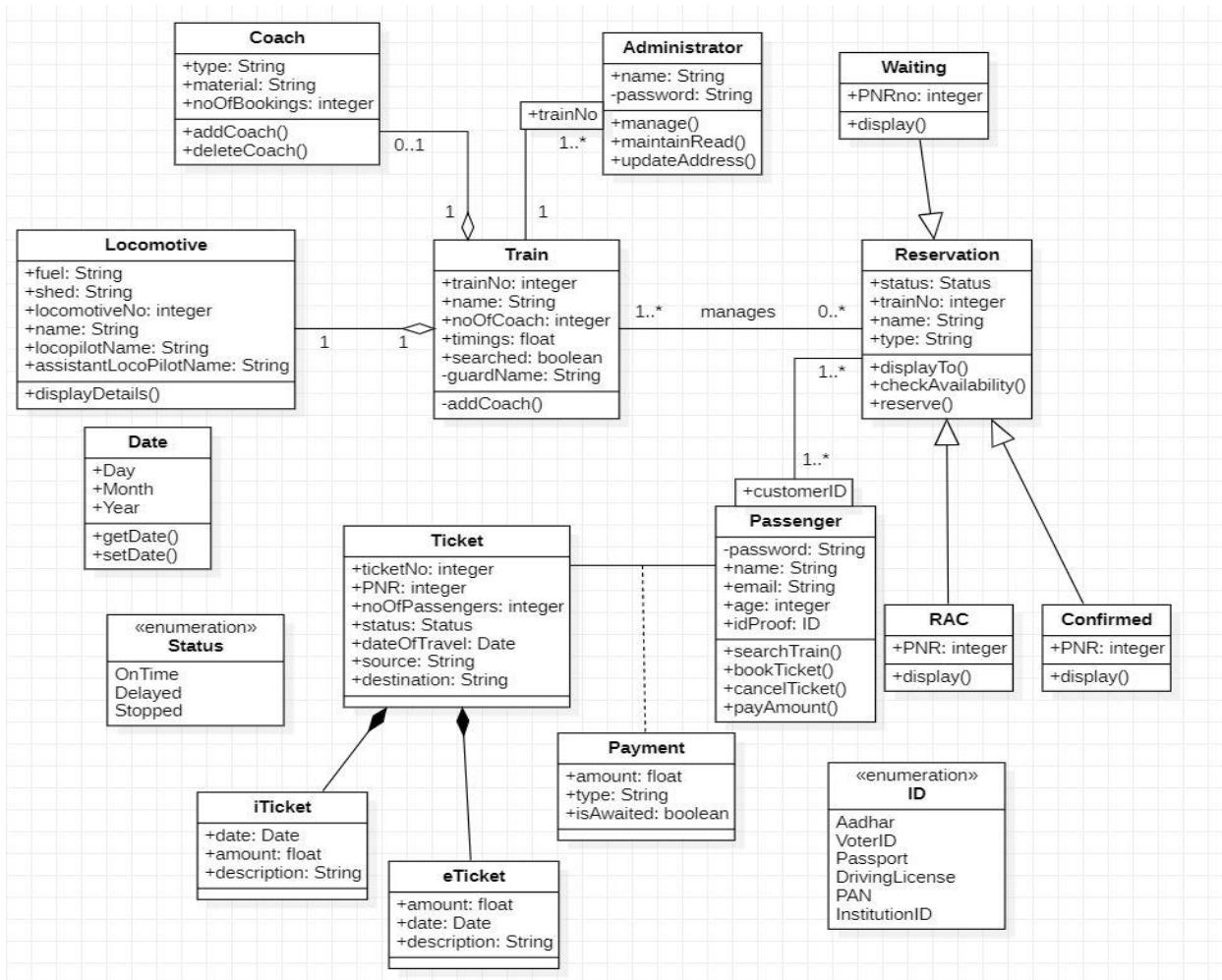


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b) Advance Class Diagram:

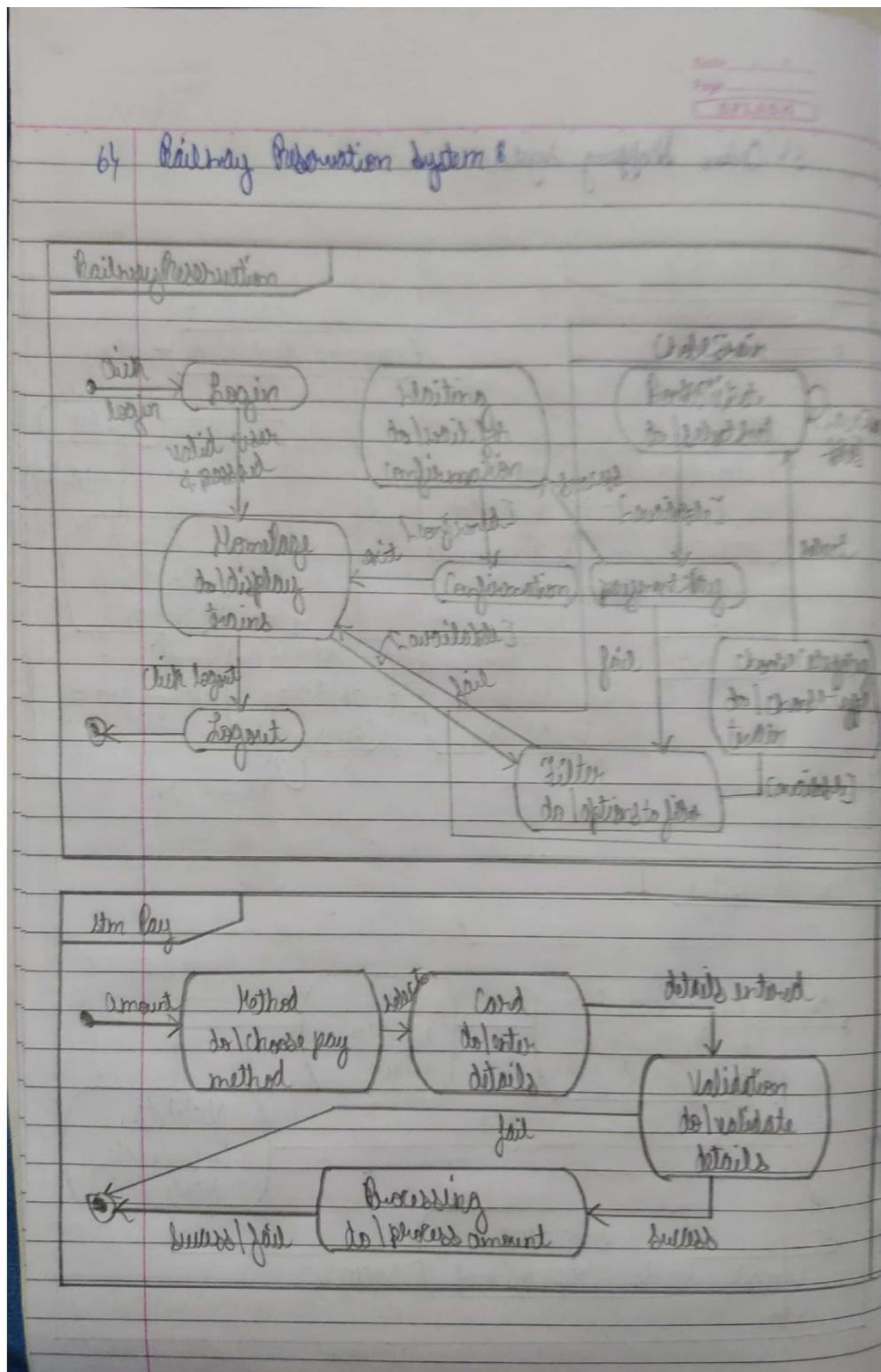


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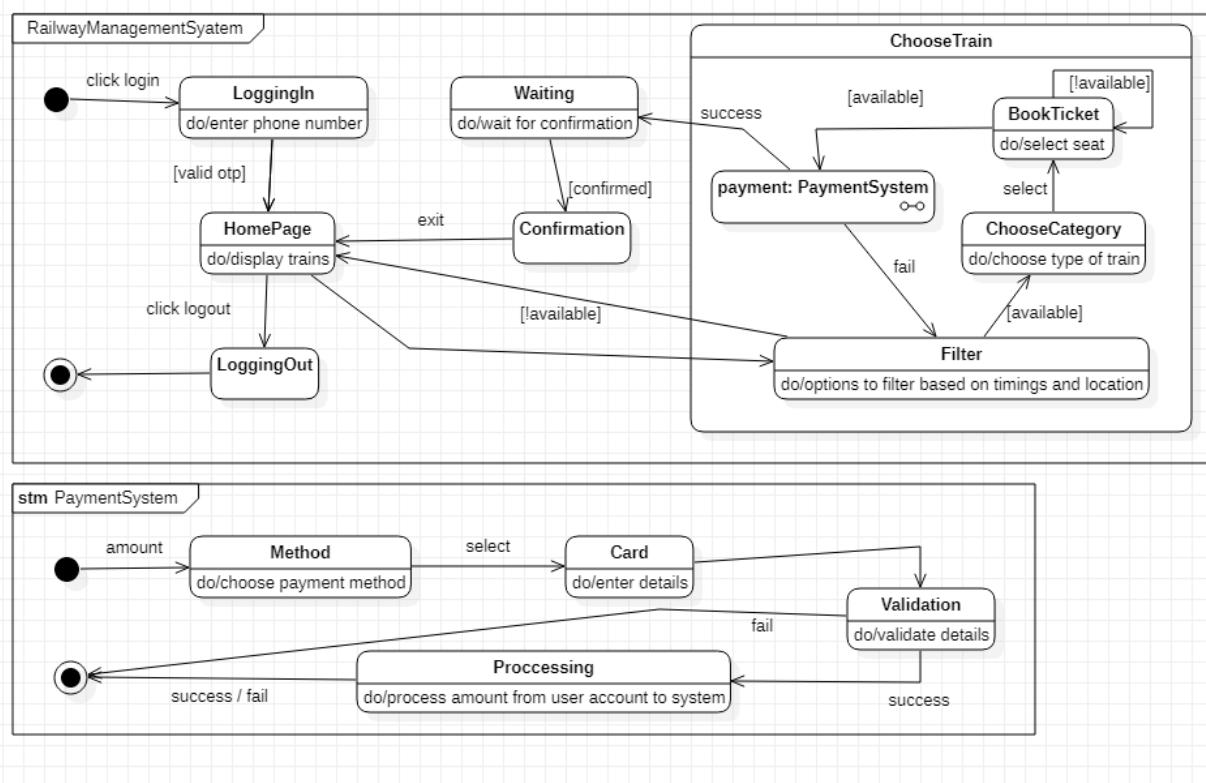


61 For every train, the reservation is linked by association, if coach & engine are a part of the train but can exist without it as well so its aggregation. Administrator is linked to every train by a train no. Reservation is generalised into waiting & AC & CNG. Passengers make reservation & book the ticket & after payment e-ticket is get hence its composition.

c) Advance State Diagram:

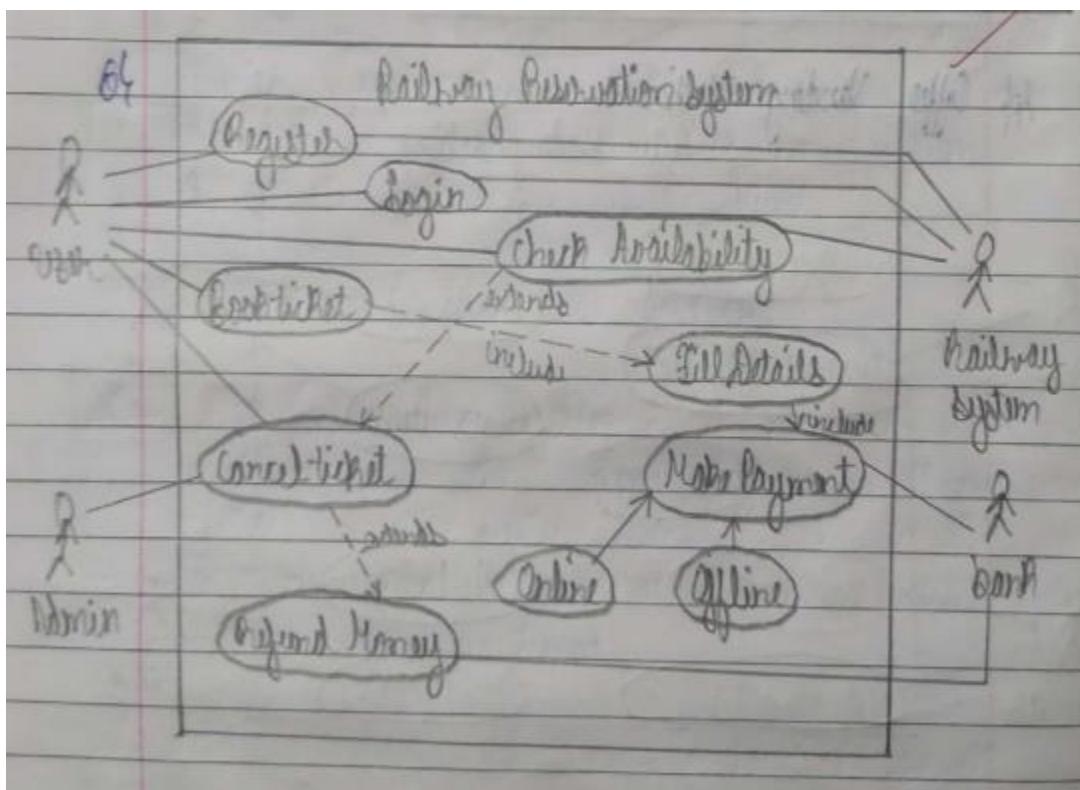


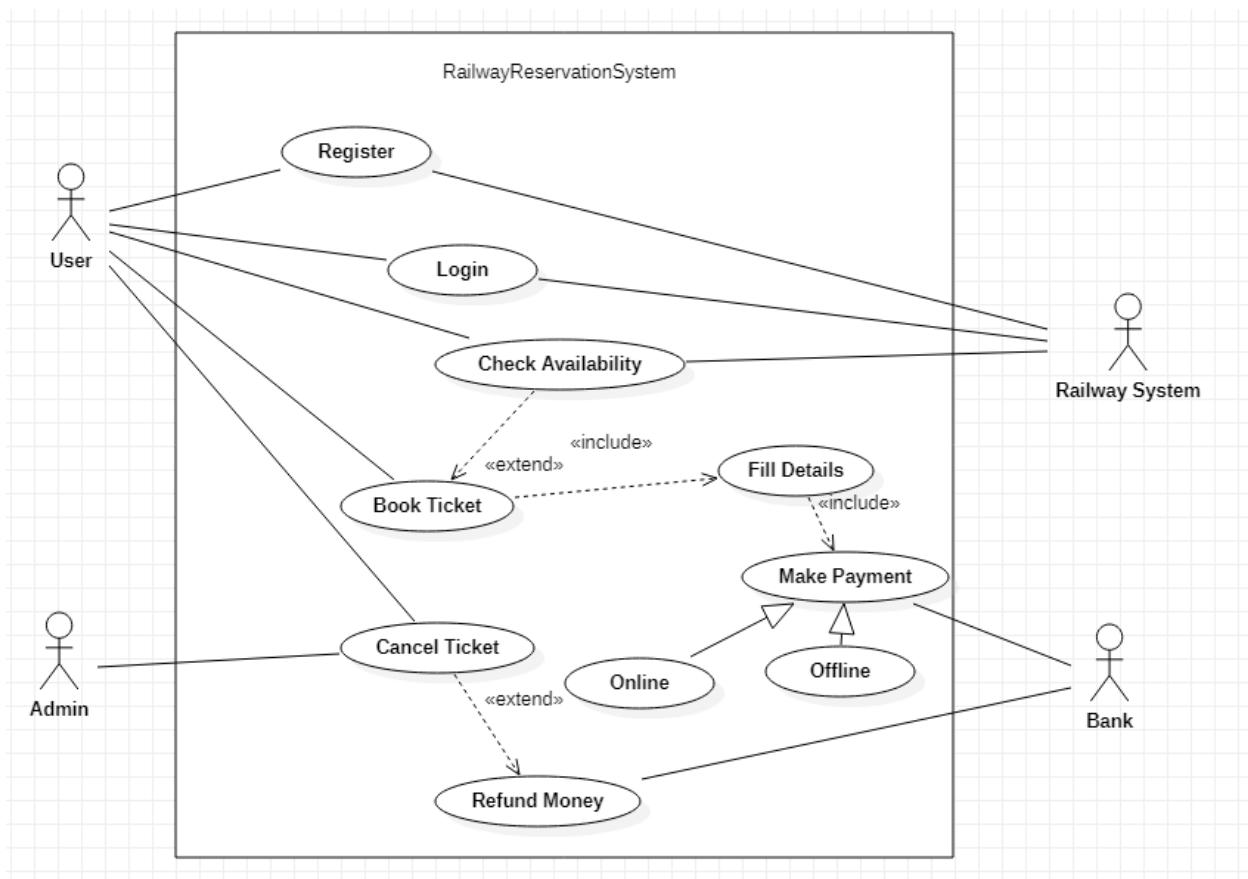
Scanned with CamScanner



62 Railway Management System: For the given case booking train & payment for reservation is the scenario selected for the expansion of state machine with all advance features & proper transitions mentioned for the detailed design.

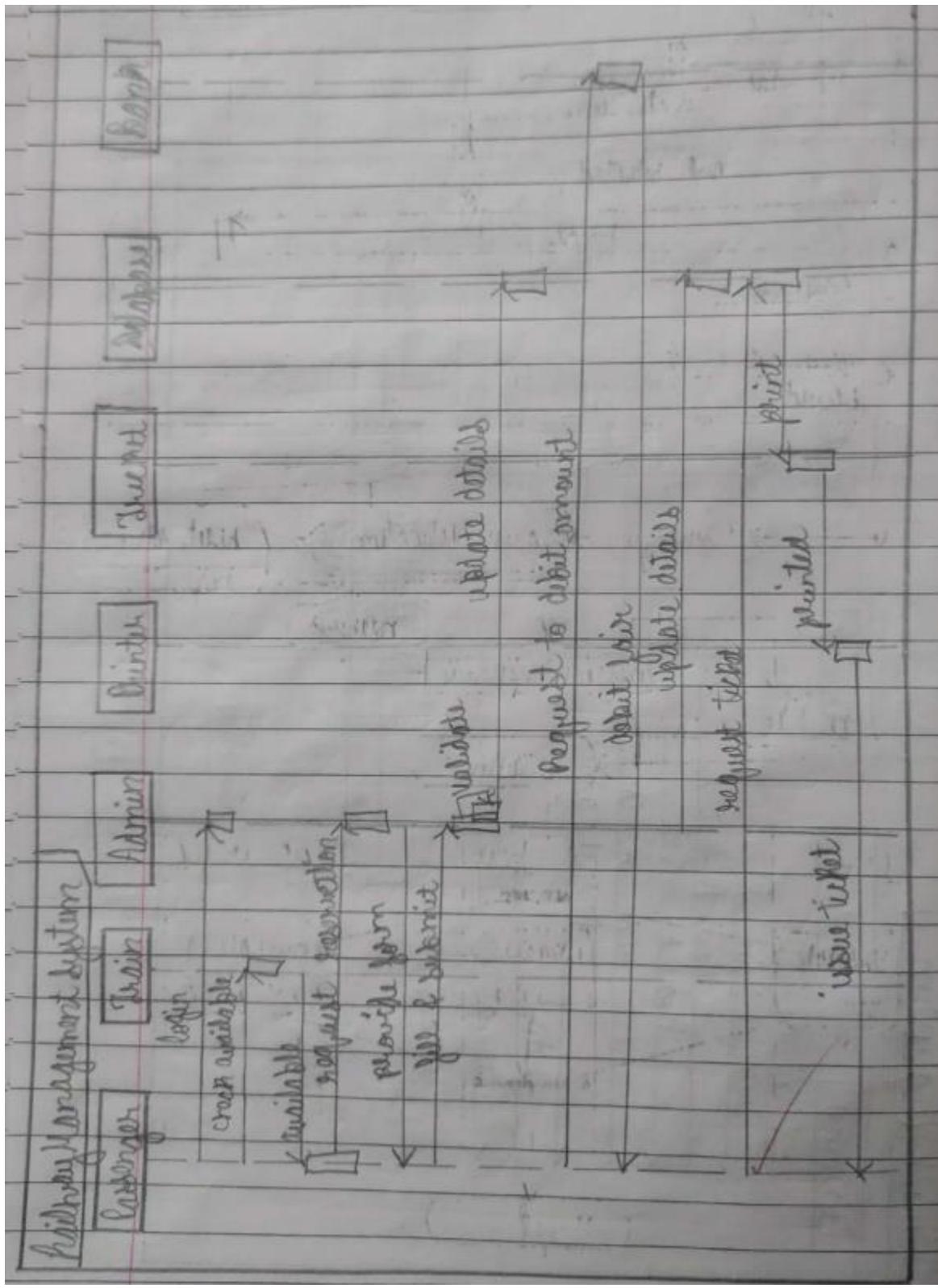
d) Advance Use Case Diagram:

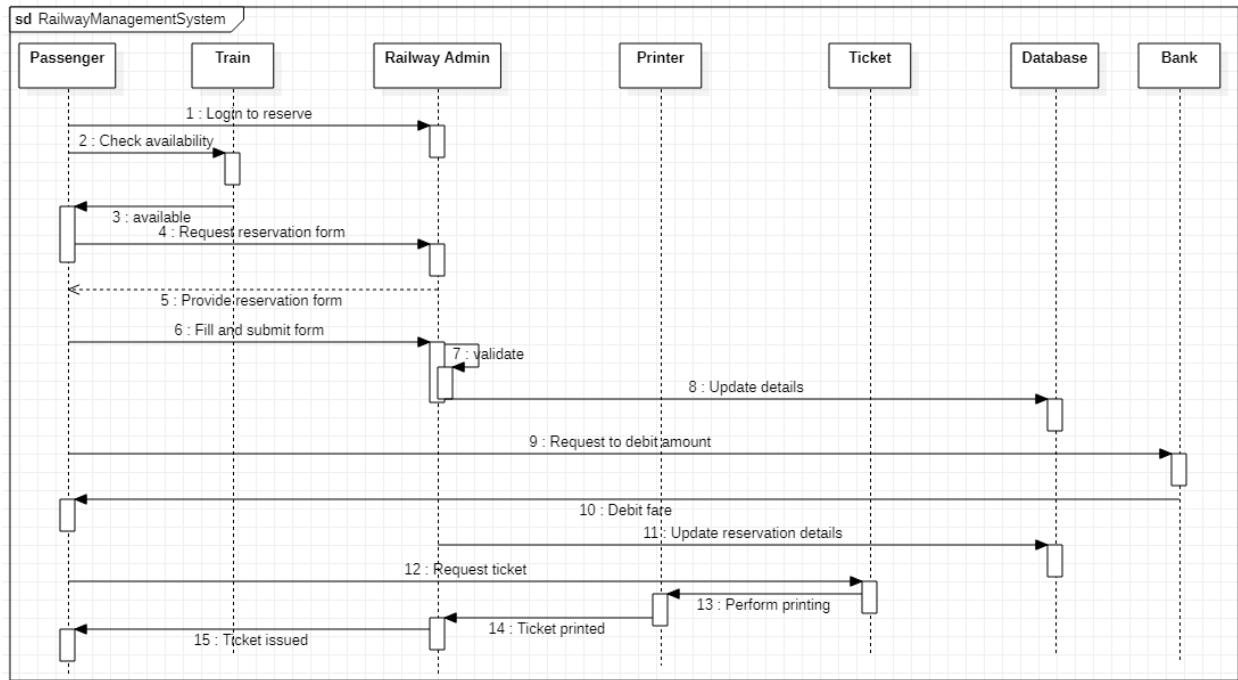




67 Railway Management system & For the given application all the respective functions involved for the given system are mentioned in detail & all the relation between the functions are also mentioned & also actors like user, admin, railway system & bank are mentioned & their relation is mentioned.

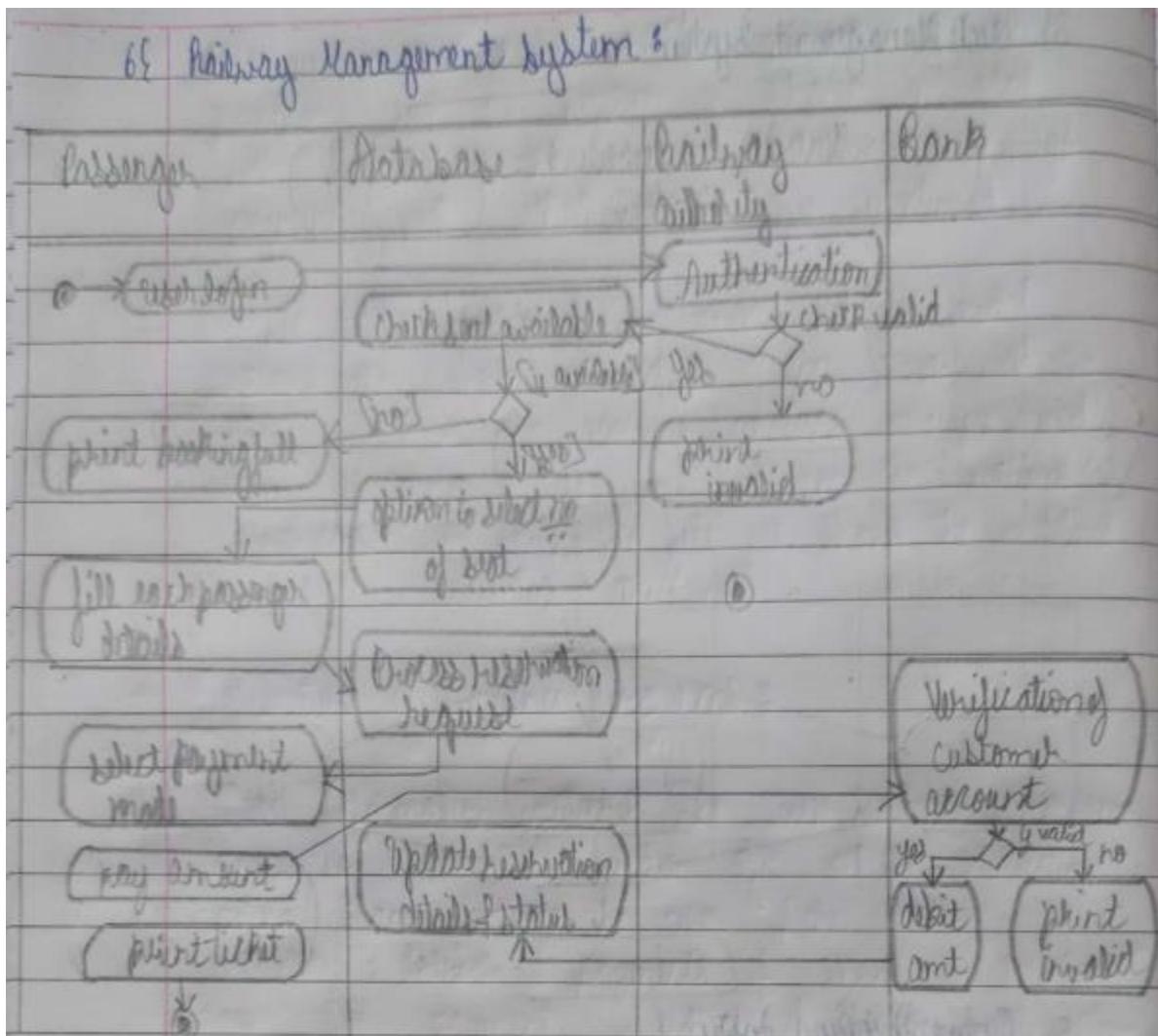
e) Sequence Diagram:

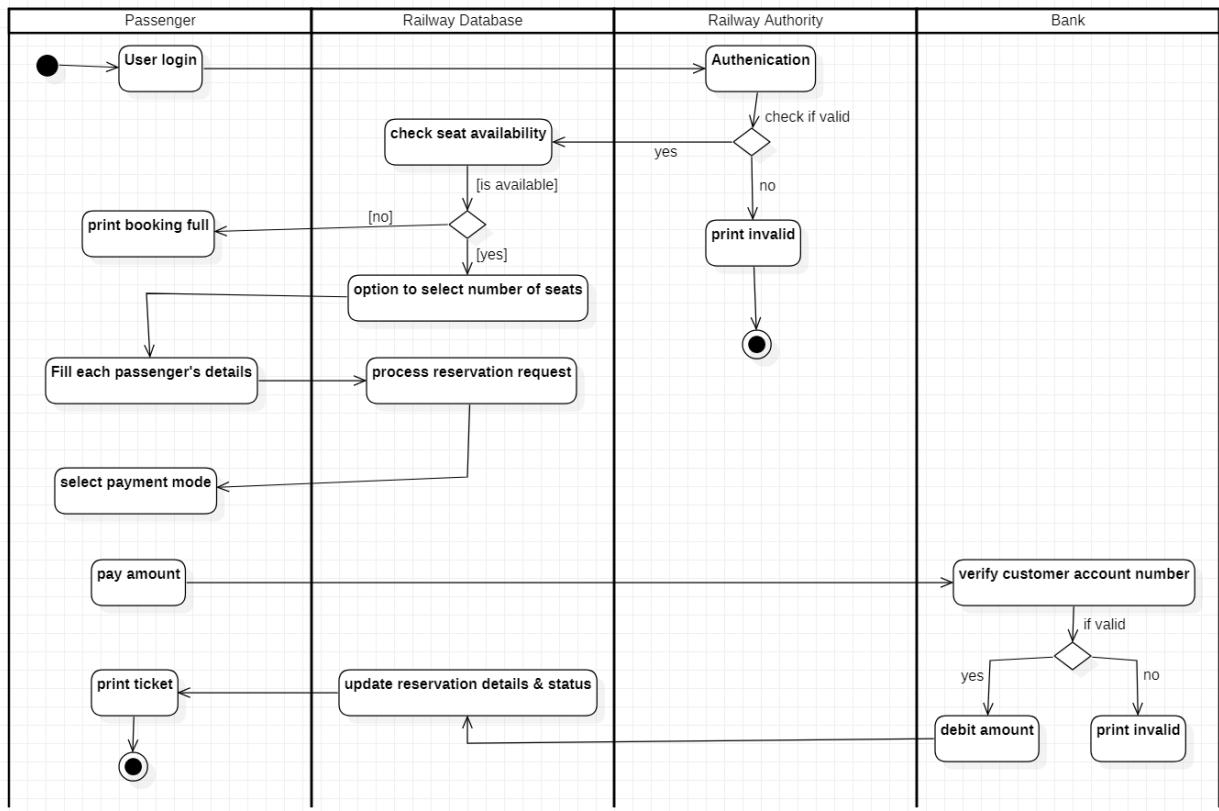




67 Railway Reservation system : The given model gives the complete interests & steps of various procedures taking place for the reservation system from login to selecting to update details to payment & issue the ticket for the passenger.

f) Activity Diagram:

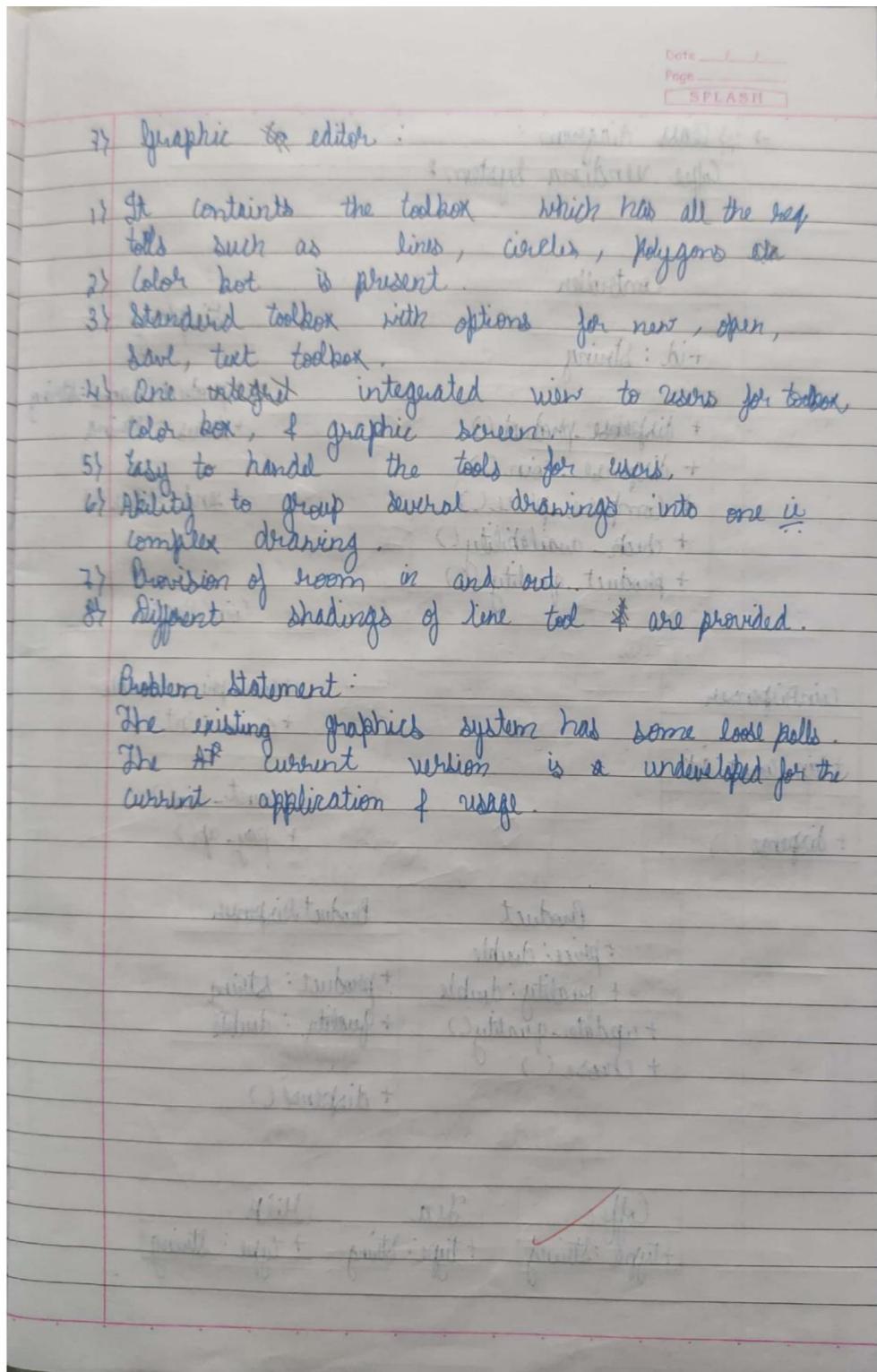




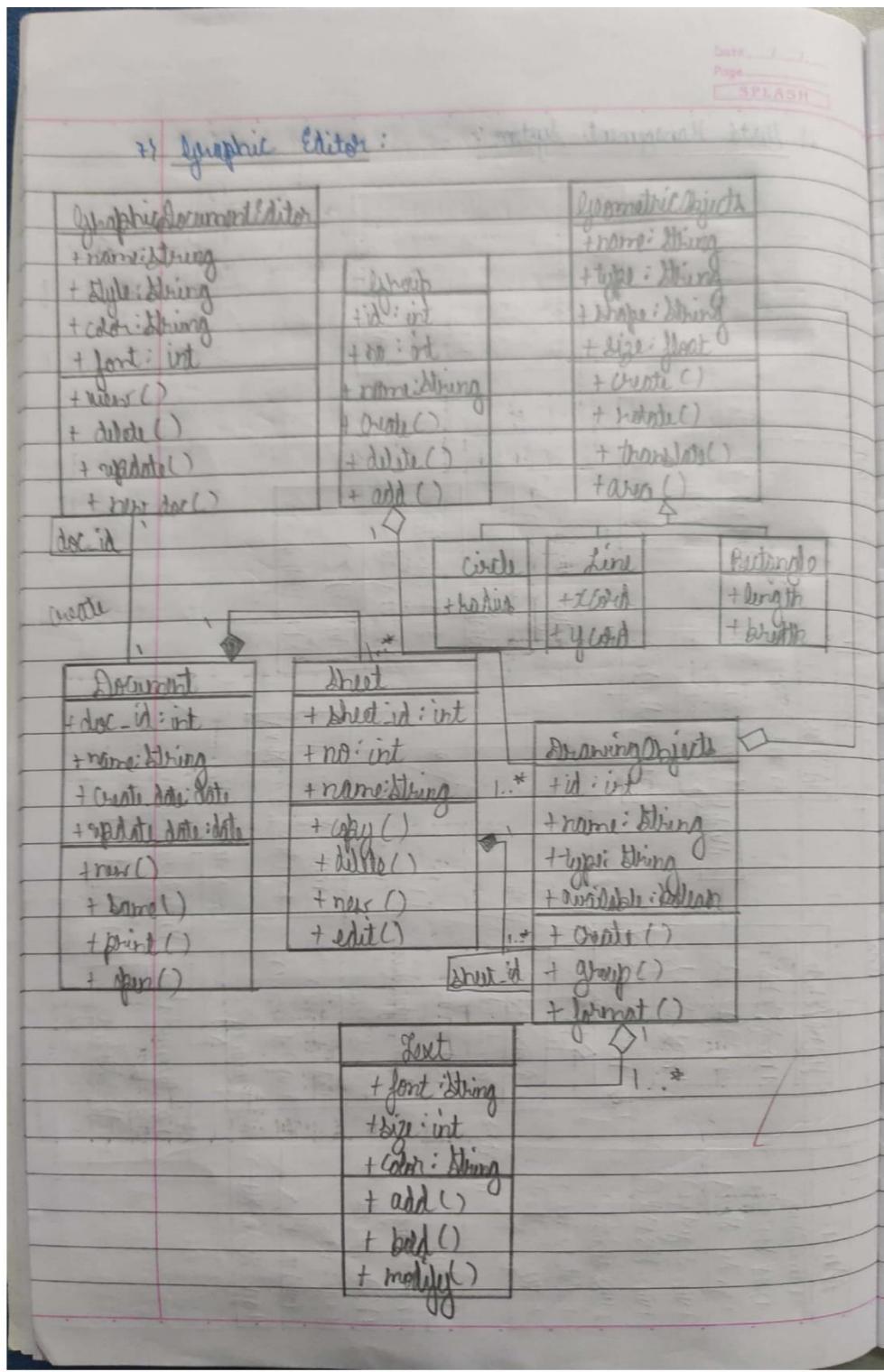
6) Railway Management System: The interaction of the passengers with the system is shown in detail with respect to the railway database, authority, payment with all conditions are mentioned.

7. Graphics Editor-

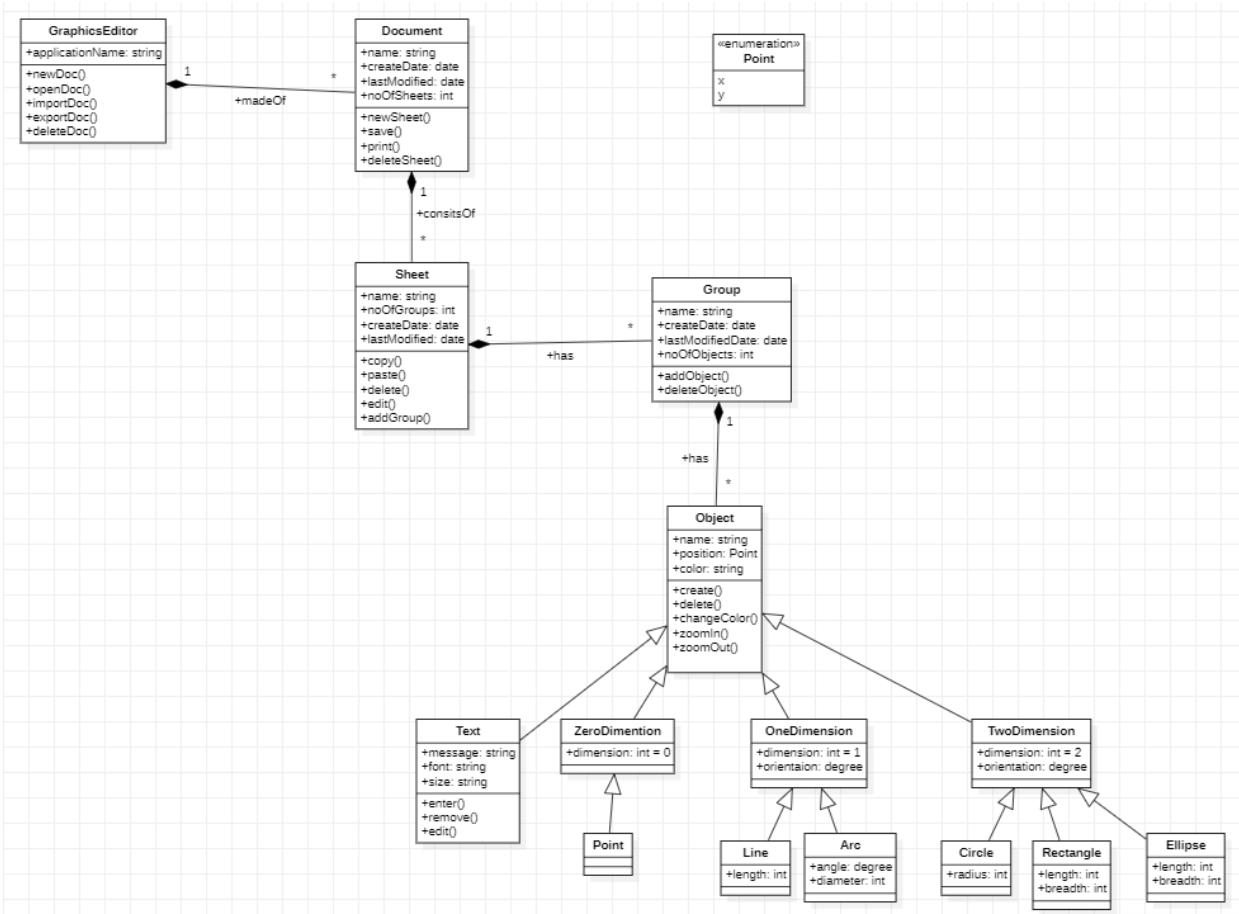
a) SRS:



b) Advance Class Diagram:

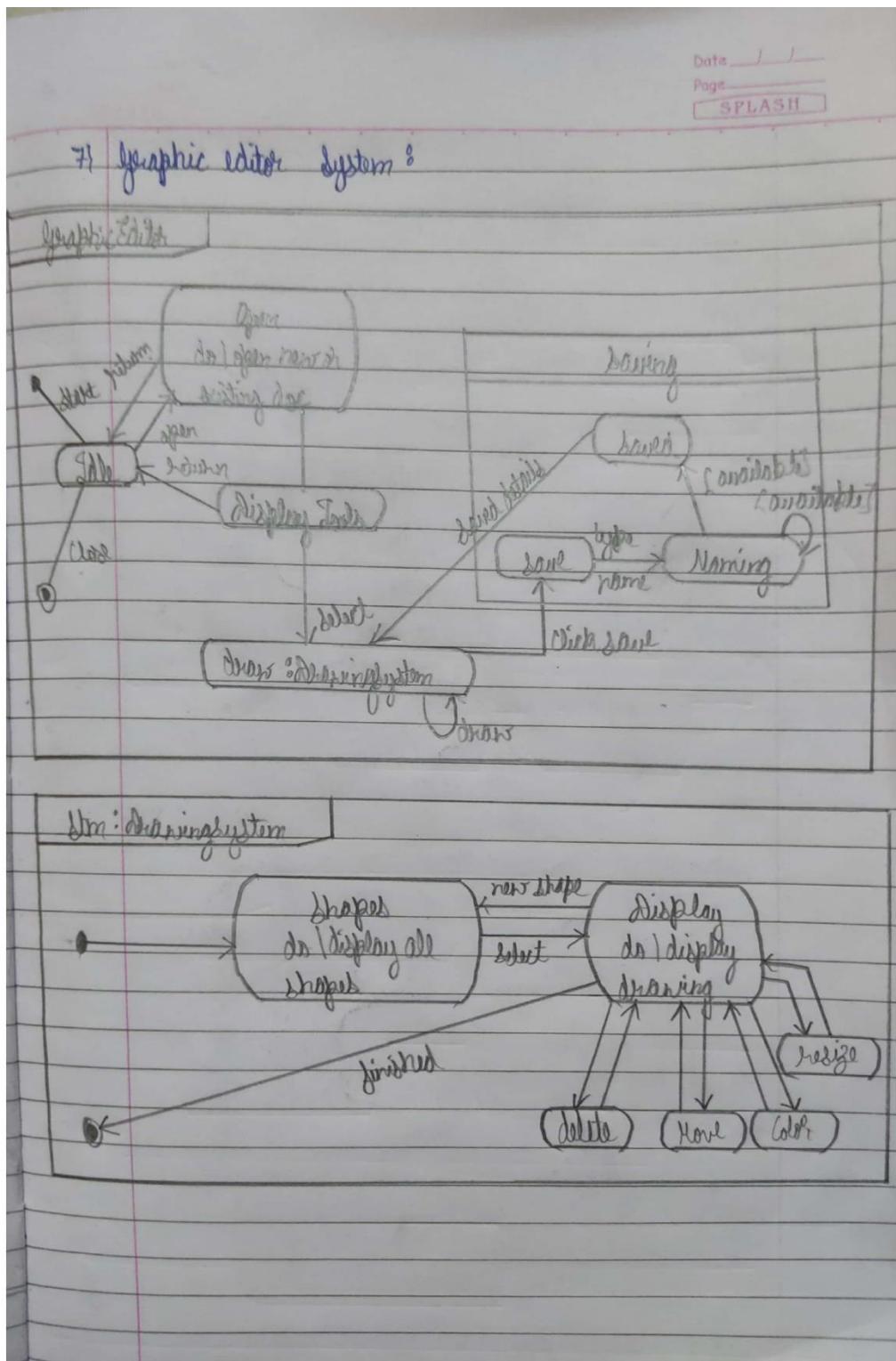


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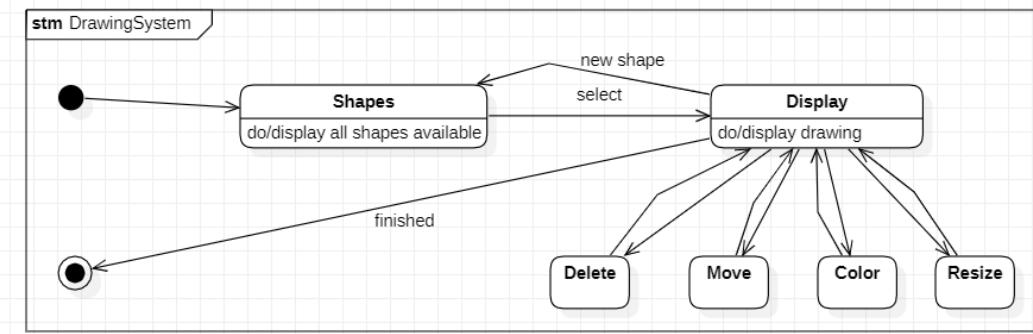
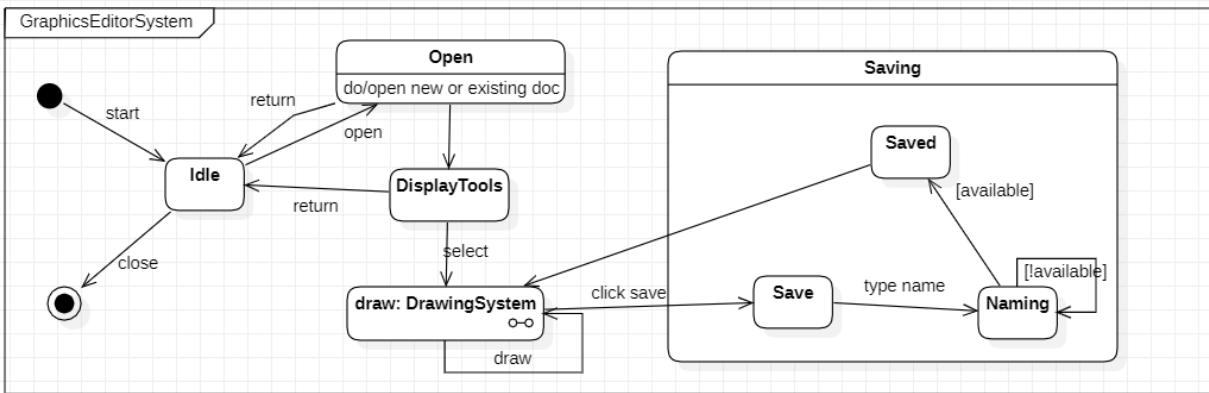


Every graphic document editor has a document with solid line association. Document is composed of sheets which is composed of drawing objects which has text, geometrical objects which is generalised into several categories, groups which are linked by aggregation.

c) Advance State Diagram:

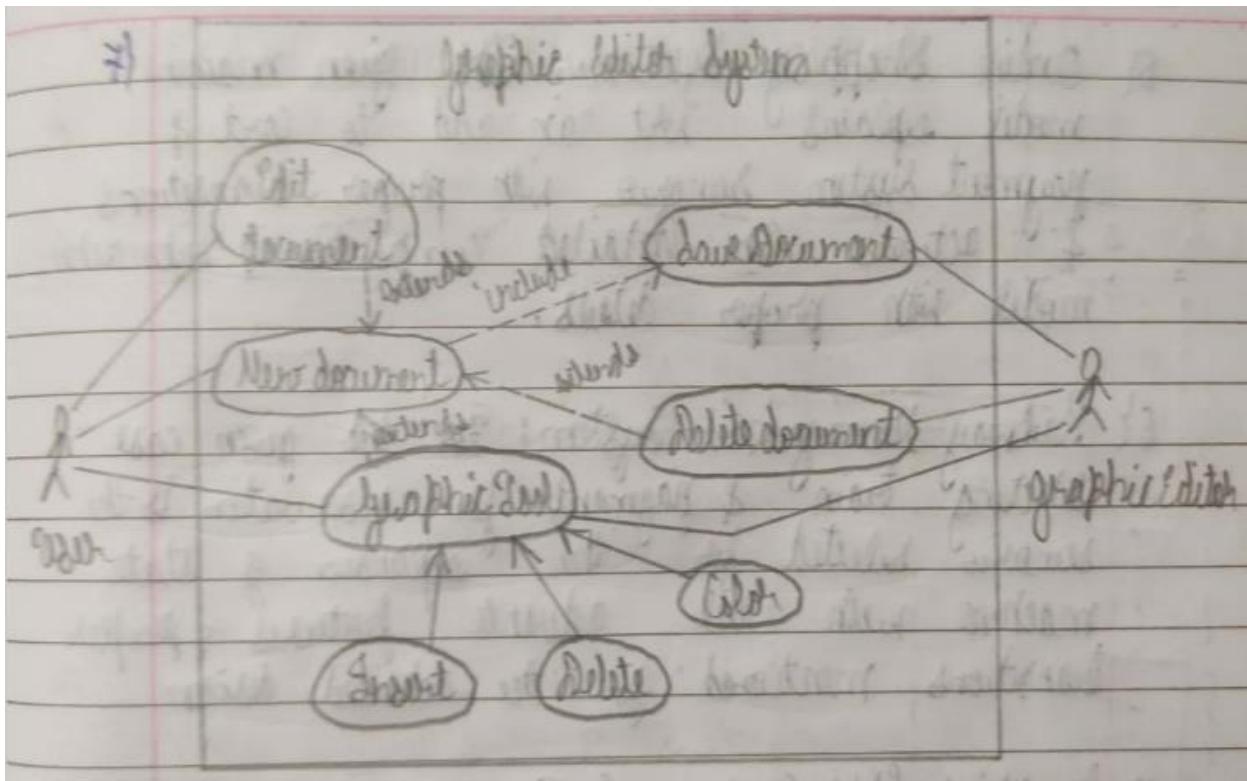


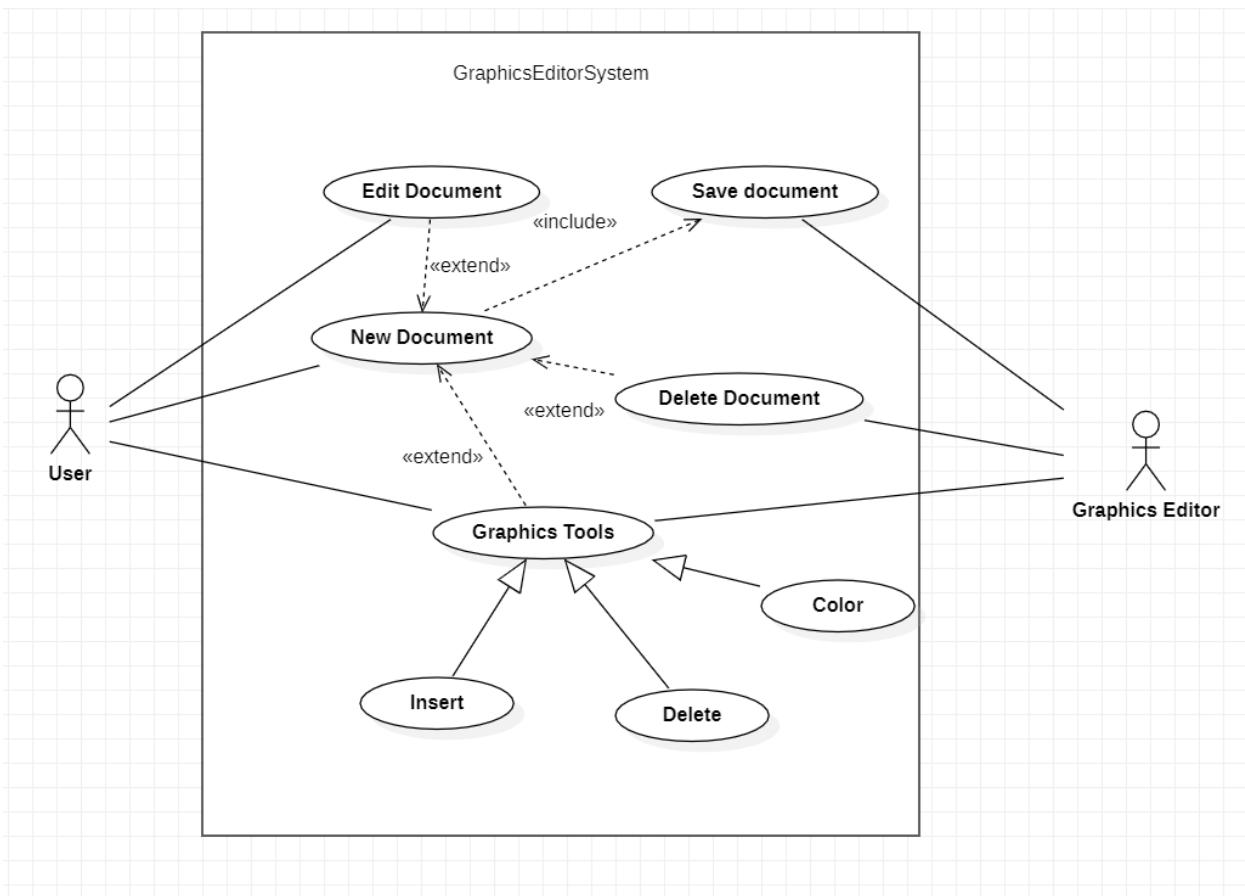
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7) **Graphics Editor System :** For the given case the state machine is drawn with a drawing of a file & drawing system as the scenario with detailed explanation with advance features included, for proper understanding of system with appropriate transitions & conditions.

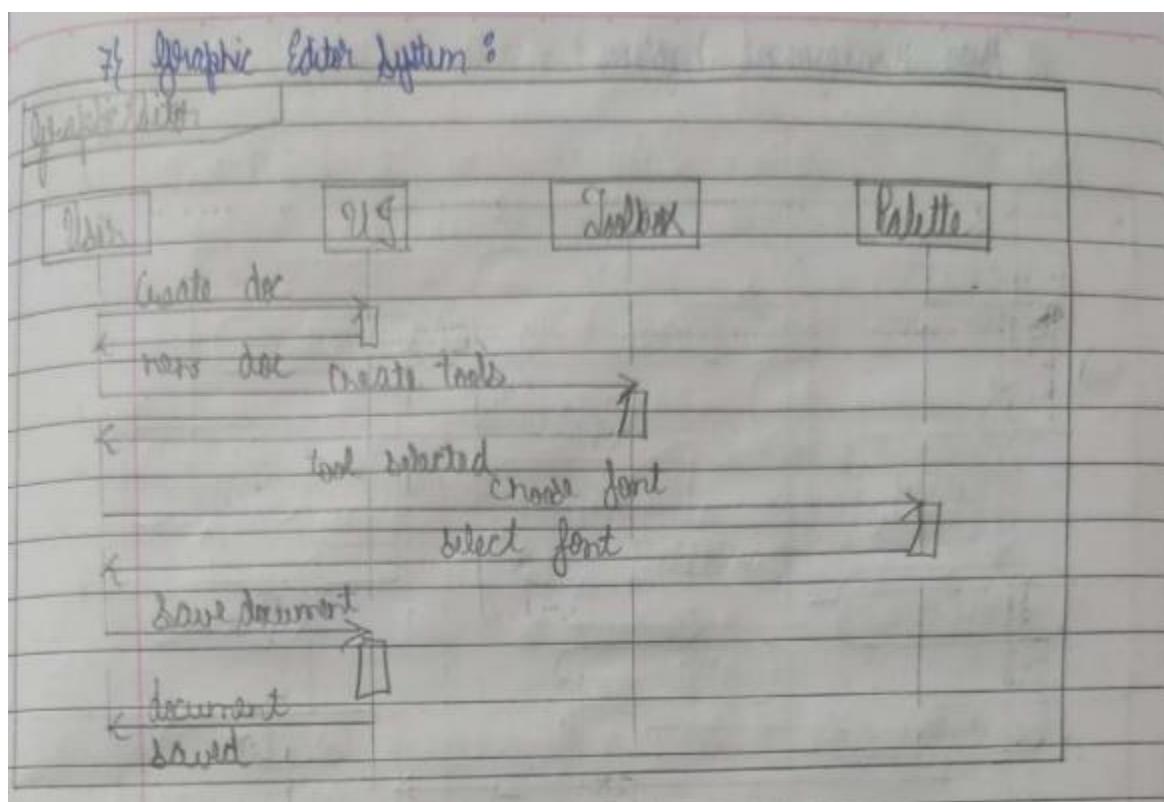
d) Advance Use Case Diagram:

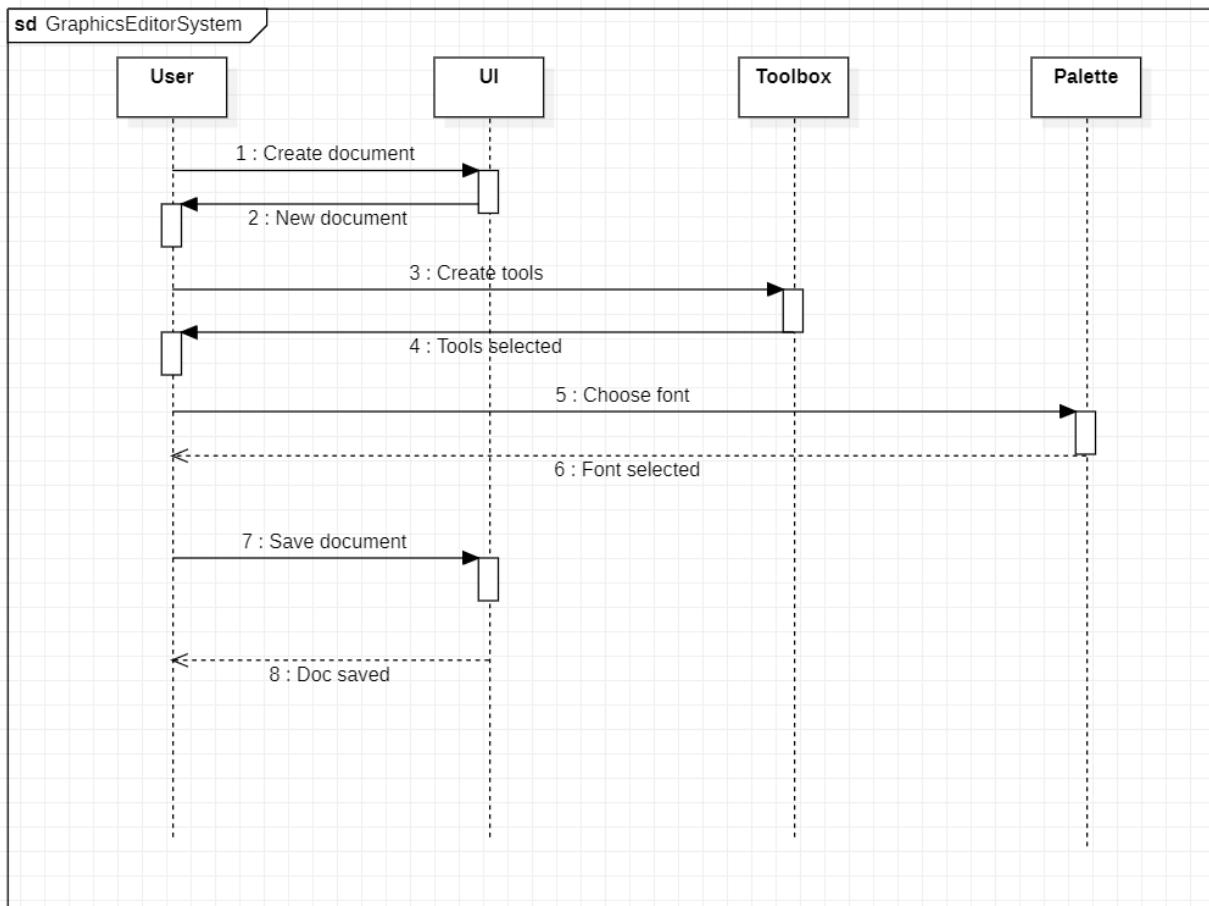




7) Graphic Editor System : All the functions for the given application are mentioned & all the relations with the functions are given with all respective actors like user of graphics system & are given with all the respective relations for the application is mentioned.

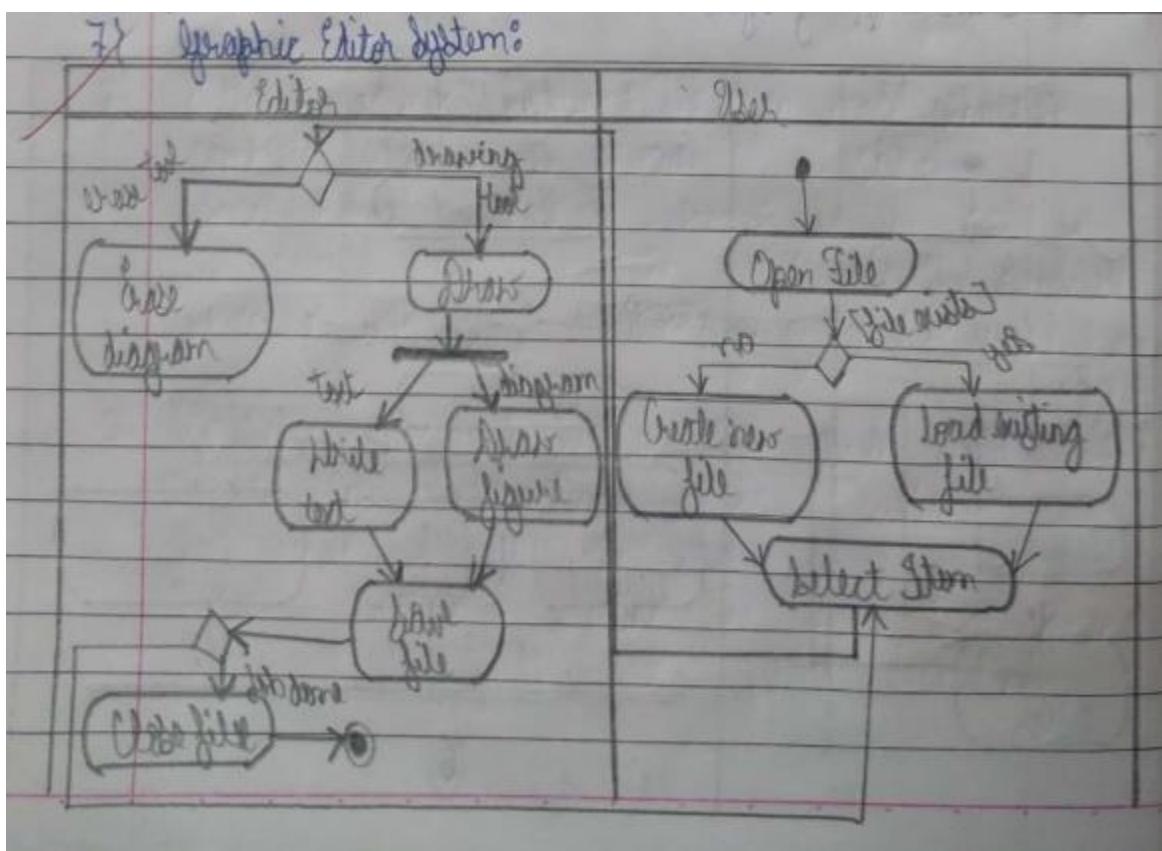
e) Sequence Diagram:

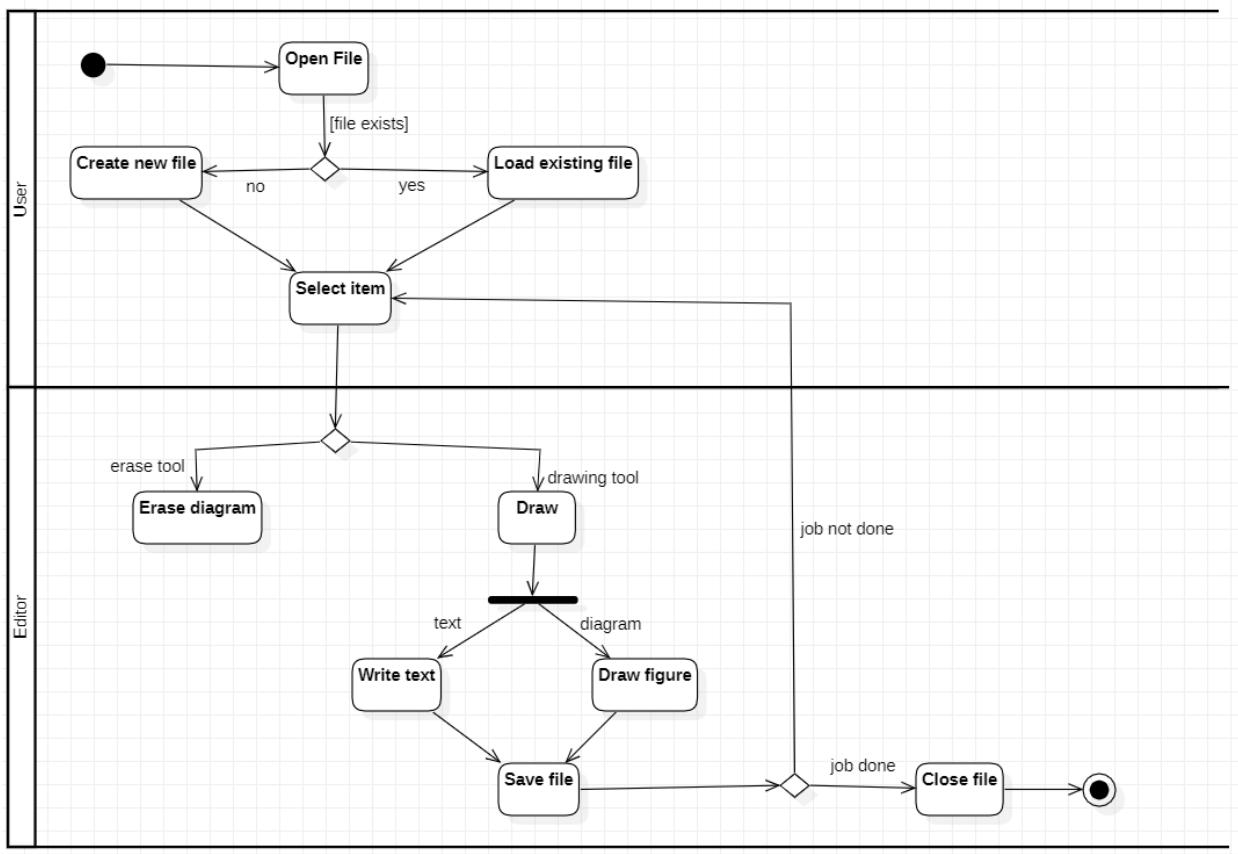




77 Graphic Editor system: The given system gives the complete interactions of the system between users of the editor , it gives a detailed step by step procedure from creating the document to make designs to saving the document to fulfill the required functions.

f) Activity Diagram:





7) Graphic Editor System : The given activity model explains the complex interactions of the user with the editor & how the various functions are performed, from creating a file to draw the various diagrams to saving the file, it shows the conditions for each activities as well.