

B.M.S. COLLEGE OF ENGINEERING BENGALURU
Autonomous Institute, Affiliated to VTU



Lab Record

Object Oriented Modelling and Design

Submitted in partial fulfillment for the 6th Semester Laboratory

Bachelor of Technology
in
Computer Science and Engineering

Submitted by:

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Mar-June 2021

B.M.S. COLLEGE OF ENGINEERING

DEPARTMENT OF COMPUTER SCIENCE AND

ENGINEERING



CERTIFICATE

This is to certify that the Object Oriented Modelling and Design(20CS6PCOMD) laboratory has been carried out by **Mohammad Tanvir (1BM18CS054)** during the 6th Semester Mar-June-2021.

Signature of the Faculty Incharge:

NAME OF THE FACULTY:

Department of Computer Science and Engineering
B.M.S. College of Engineering, Bangalore

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1. College Information System

Problem Statement

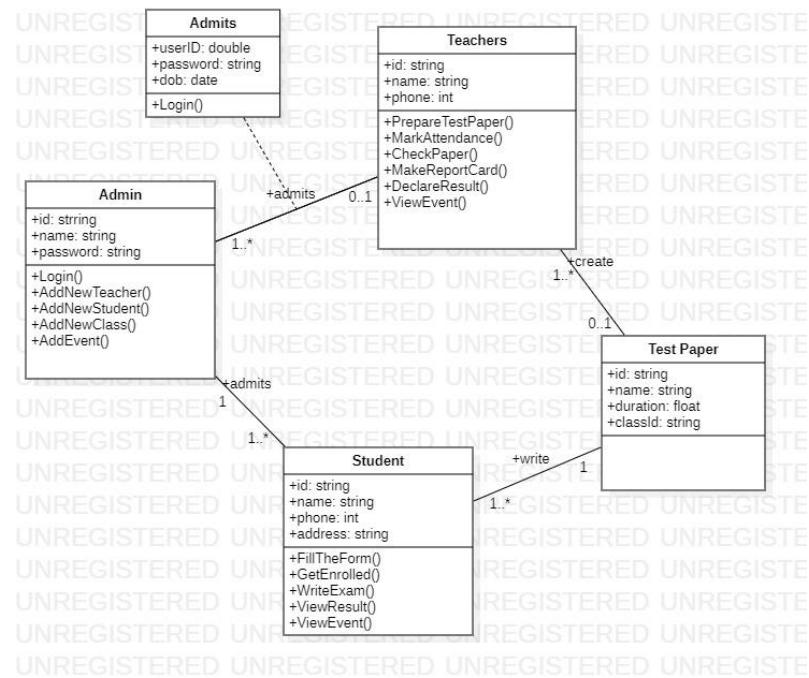
Design UML diagrams for College Information System. System Requirements Specification for the application should be provided.

SRS

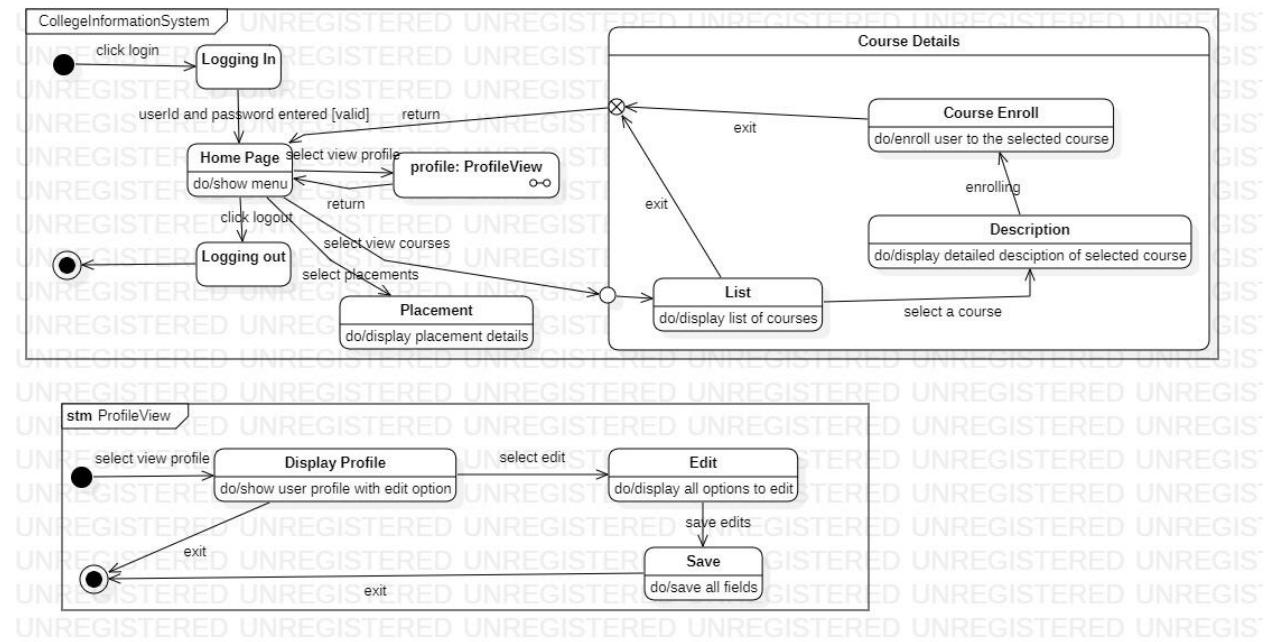
ERP system for colleges to manage their daily activities which includes the management of Employees, Students, Books, Library Records, Parents details, Assignments, Admission Process, Results and Reports, Exams, Events, Attendance, Timetable, Fees and Other reports. It provides one-point access to manage these wide range of activities both effectively and efficiently.

- The system will be used by four people - Admin, Teacher, Librarian and Student.
- Admin can login using valid credentials and perform various tasks such as Adding a Teacher , a Student or Librarian and also view them.
- Admin can also add Time table and Event Details. System allows the admin to view book requests received from Librarian.
- Teachers can also login and perform various tasks such as adding assignments, marking attendance, uploading results and viewing events.
- Librarian can log in and perform tasks such as adding single or multiple books, viewing added books, requesting a book, issuing books to students, returning issued books from students and viewing events.
- Students can access the system by providing valid credentials and access modules such as viewing their own profile, viewing books, viewing time-table, assignments, result, attendance and events.
- Superadmin is the root node who adds the college into the system with their details. They can view/delete a college from the system.

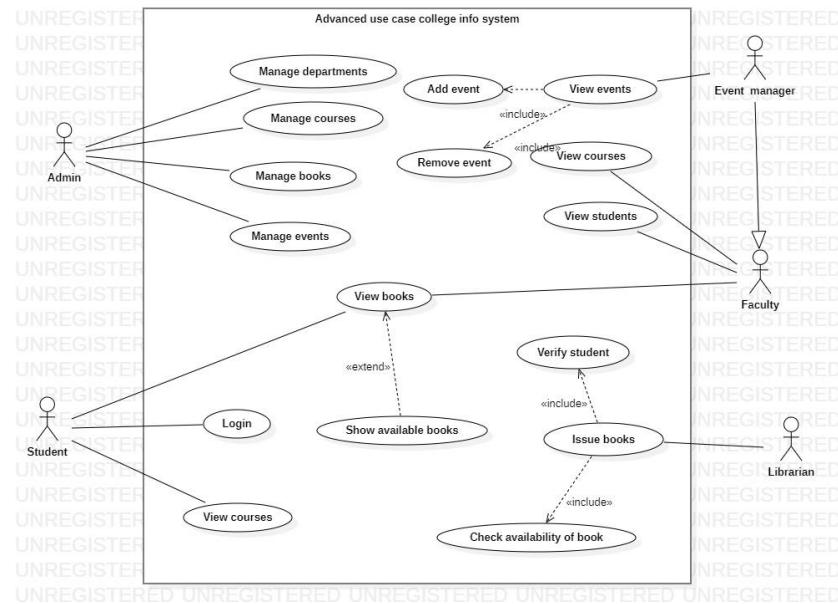
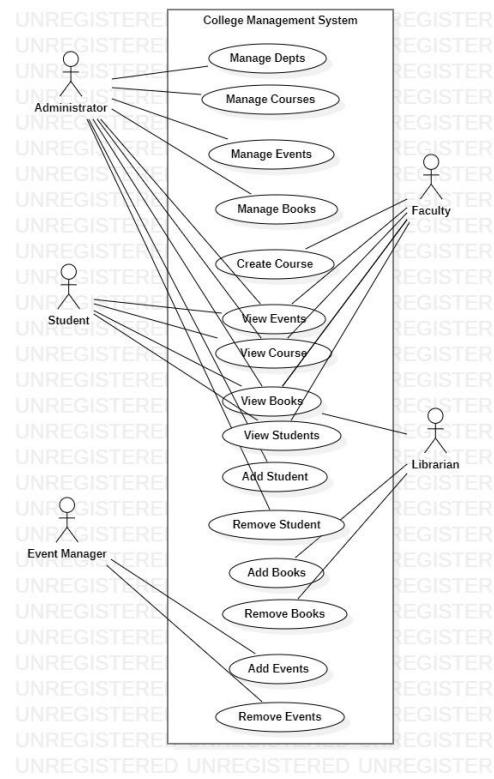
Class Diagram



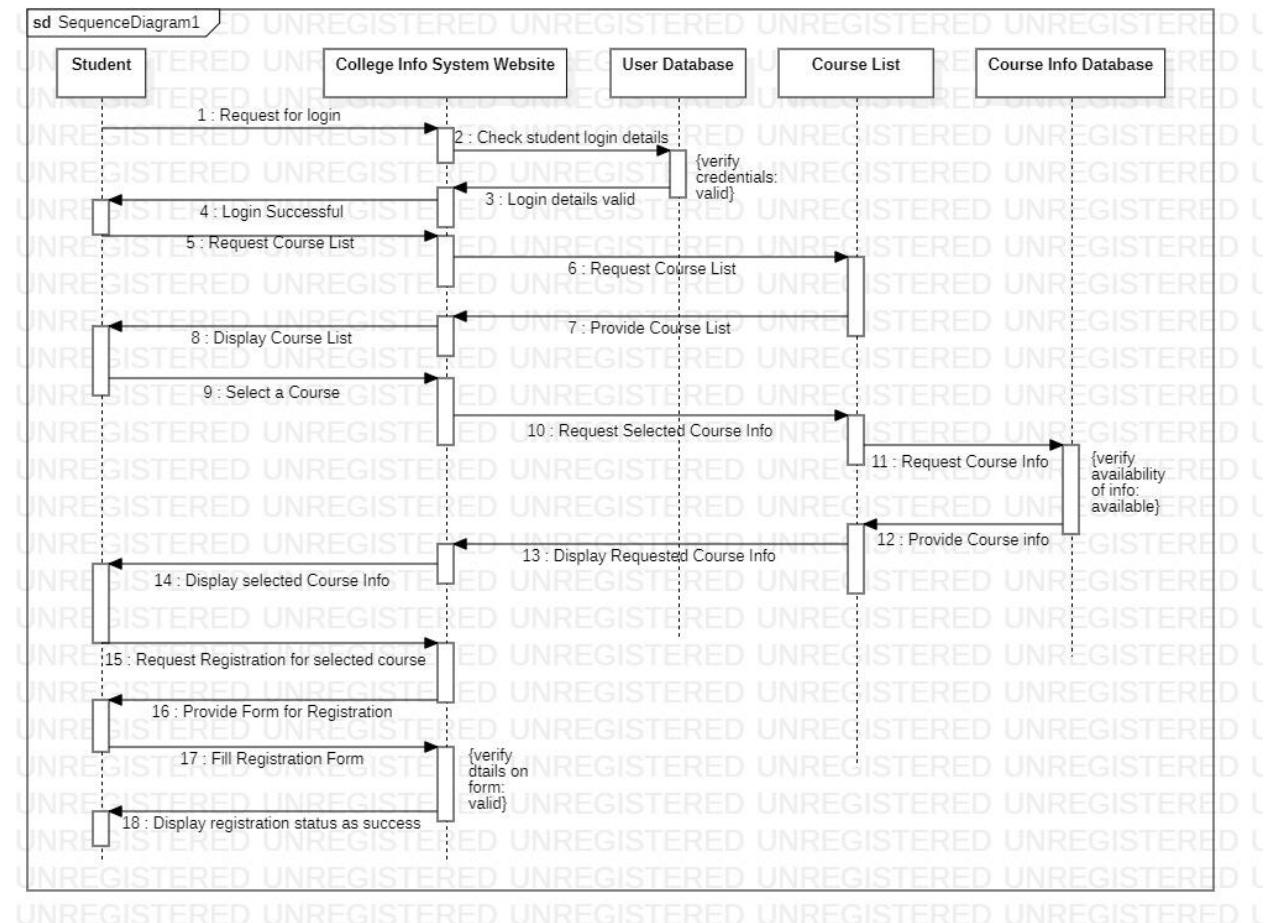
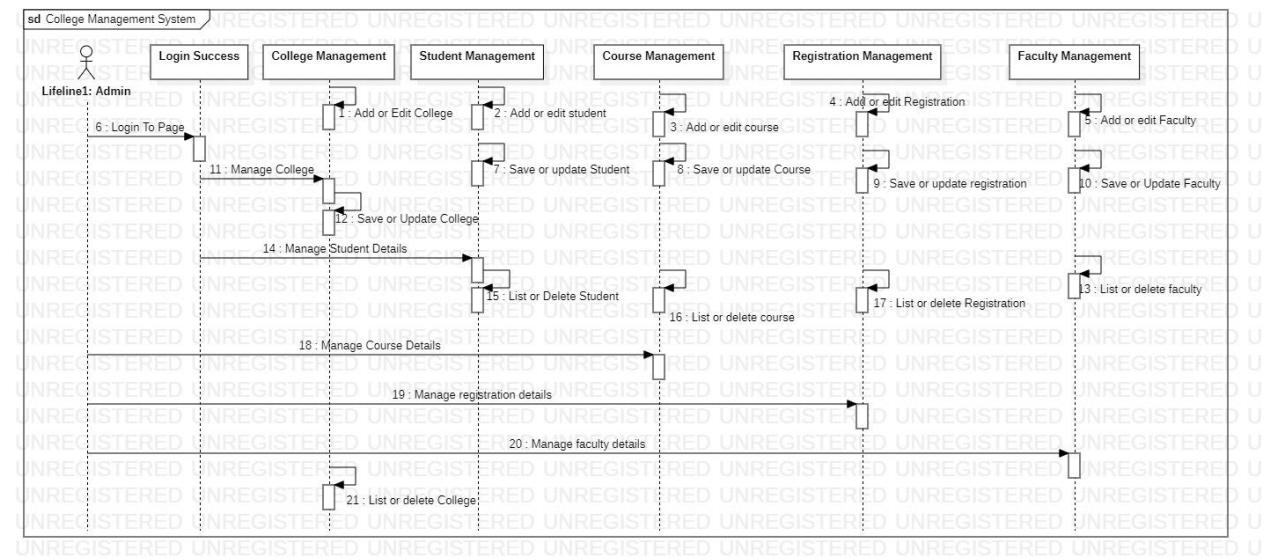
State Diagram



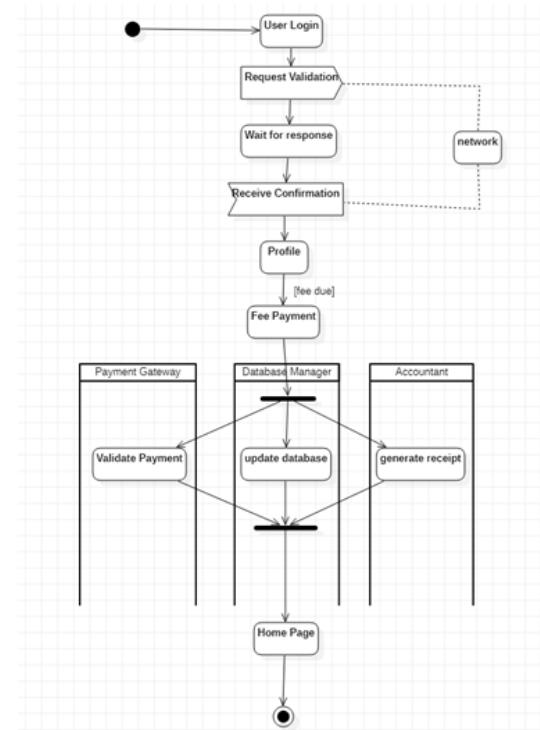
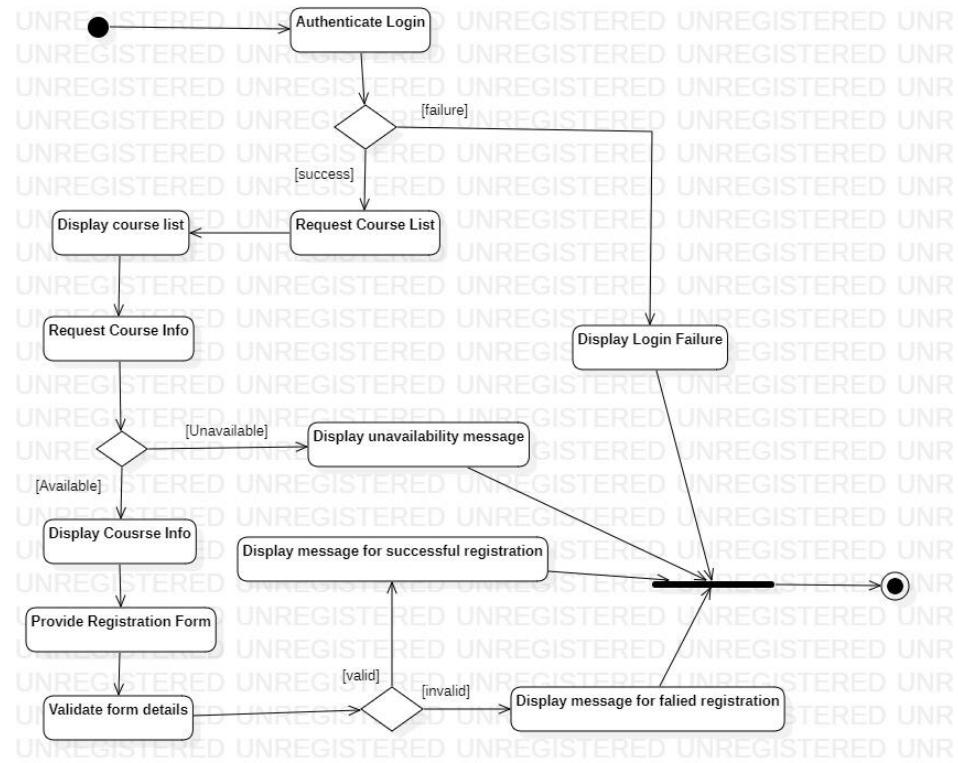
Use Case Diagram



Sequence Diagram



Activity Diagram



2. Hostel Management System

Problem Statement

Design UML diagrams for Hotel Management System. System Requirements Specification for the application should be provided.

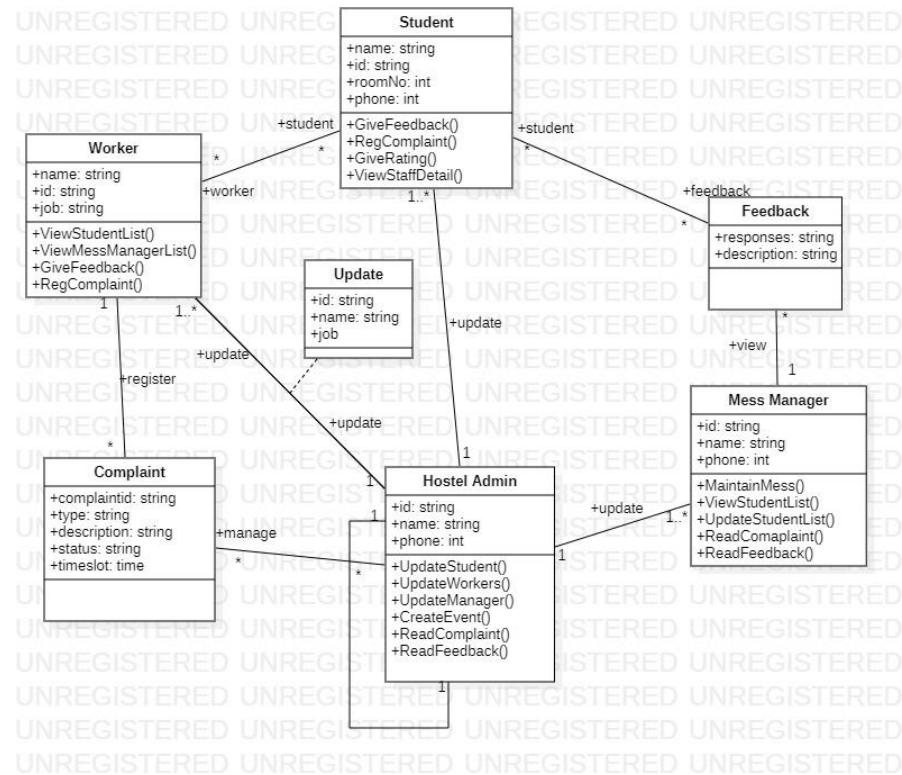
SRS

The purpose of the Hostel Management System is to carry out different operations of a hostel.

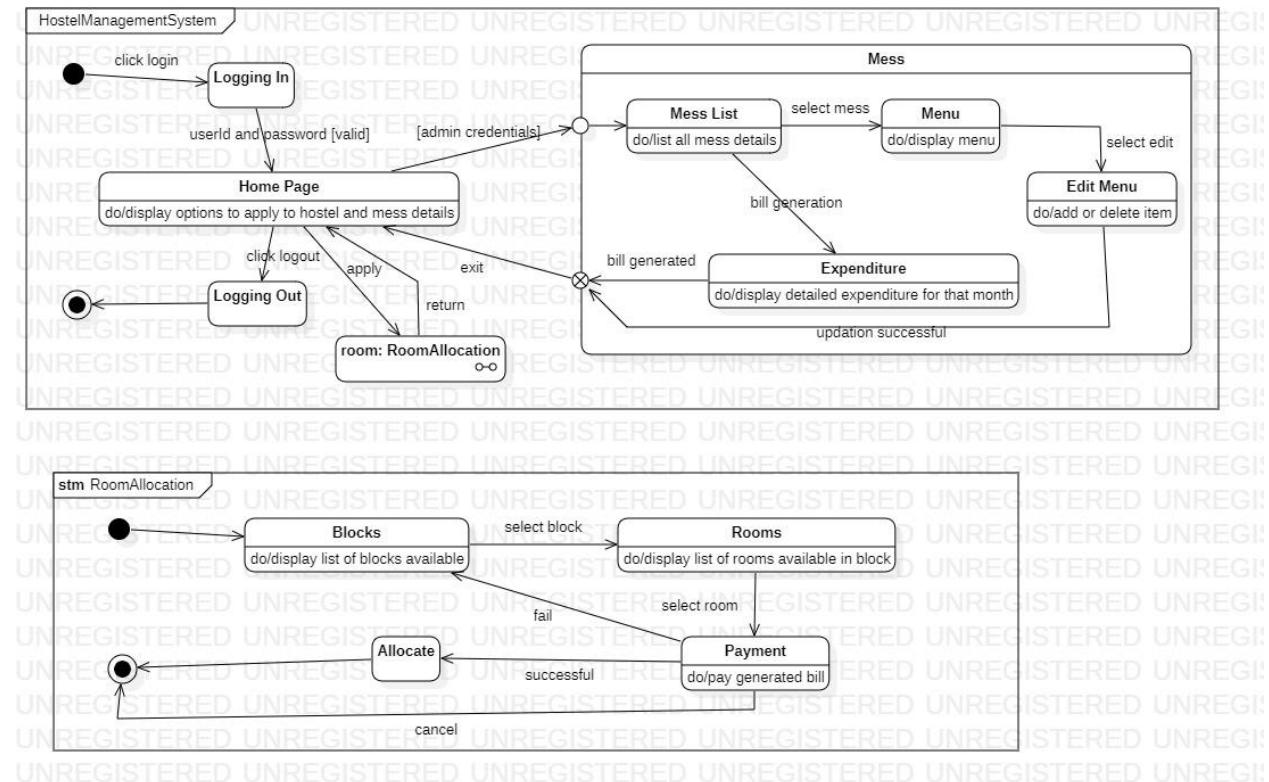
This system will provide ease of use to the staff of the hostel by performing all work on computers. It helps to manage student and staff records.

- Admin can login using credentials provided to him.
- Admin can allot 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 message 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.

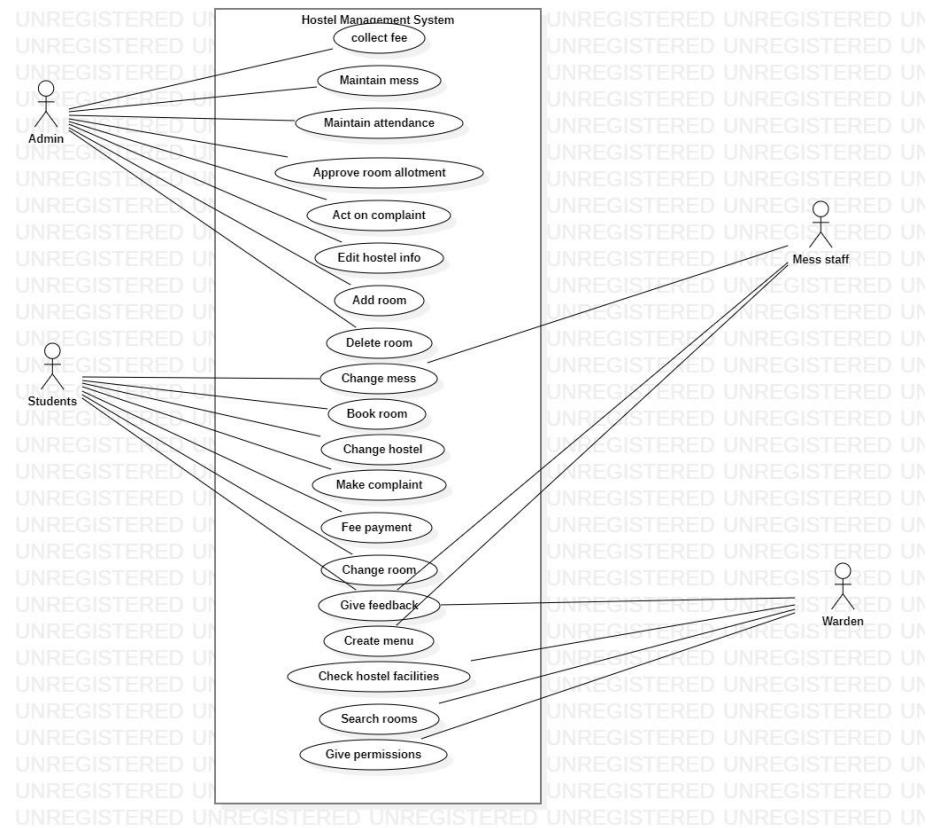
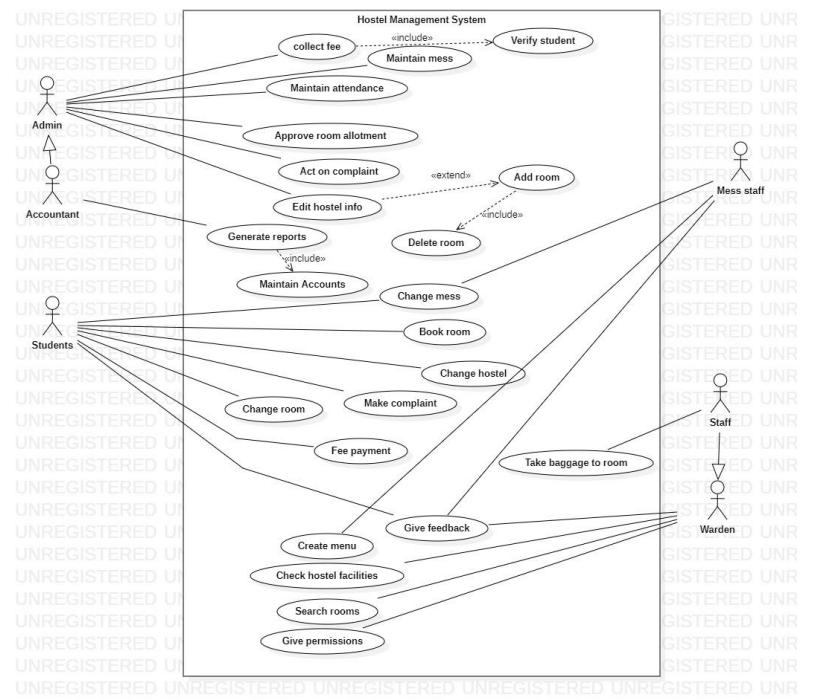
Class Diagram



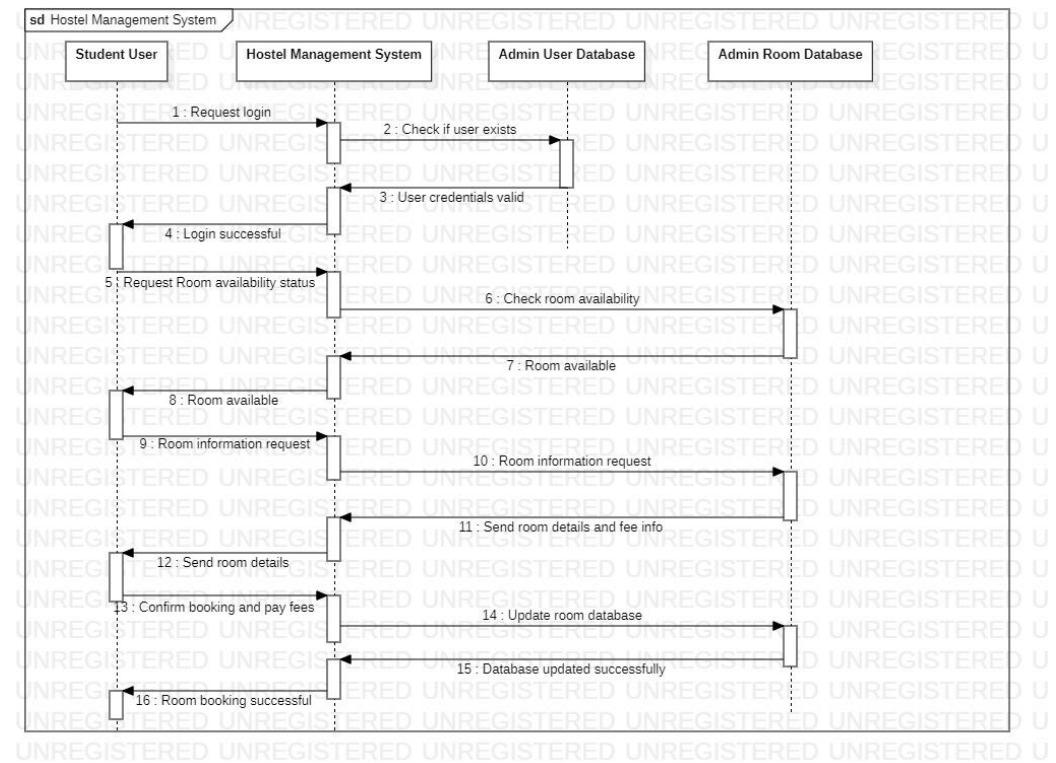
State Diagram



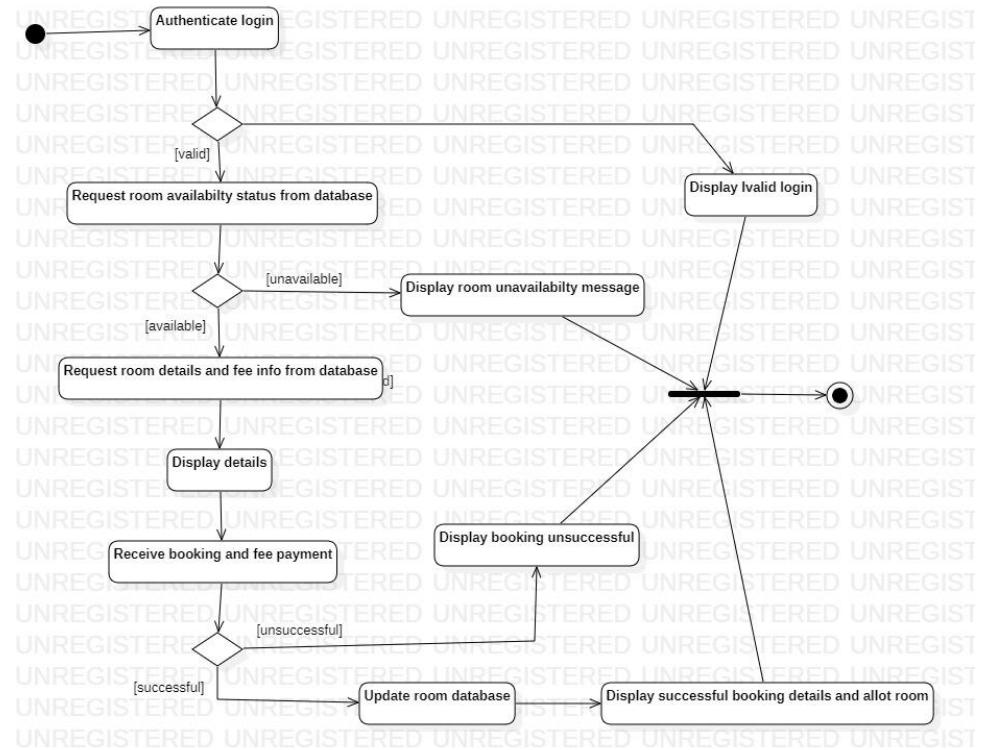
Use Case Diagram



Sequence Diagram



Activity Diagram



3. Stock Management System

Problem Statement

Design UML diagrams for Stock Maintenance System. System Requirements Specification for the application should be provided.

SRS

The stock maintenance system will allow the employees to record information of the items

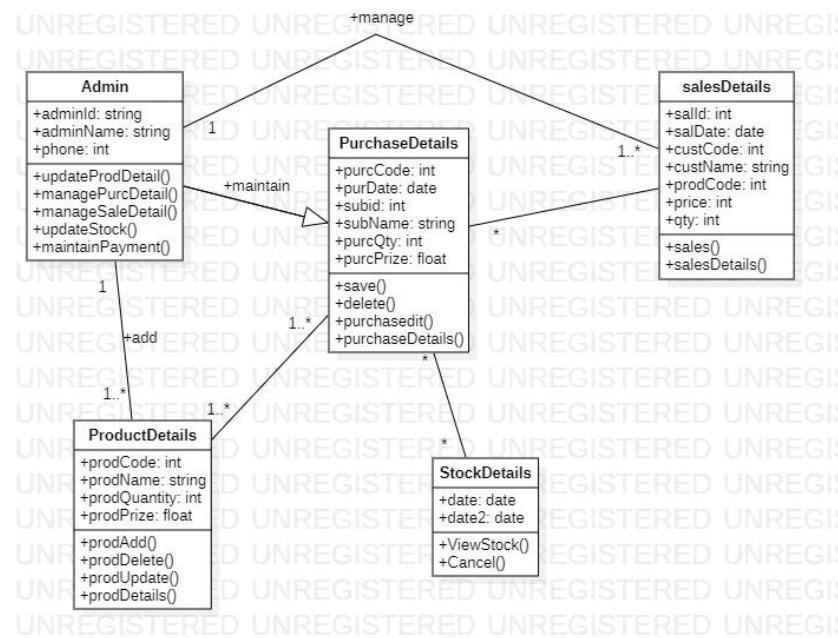
available in the store and generate reports based on the total amount of sales. The new system will have a windows-based desktop interface to allow employees to enter the information of

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.

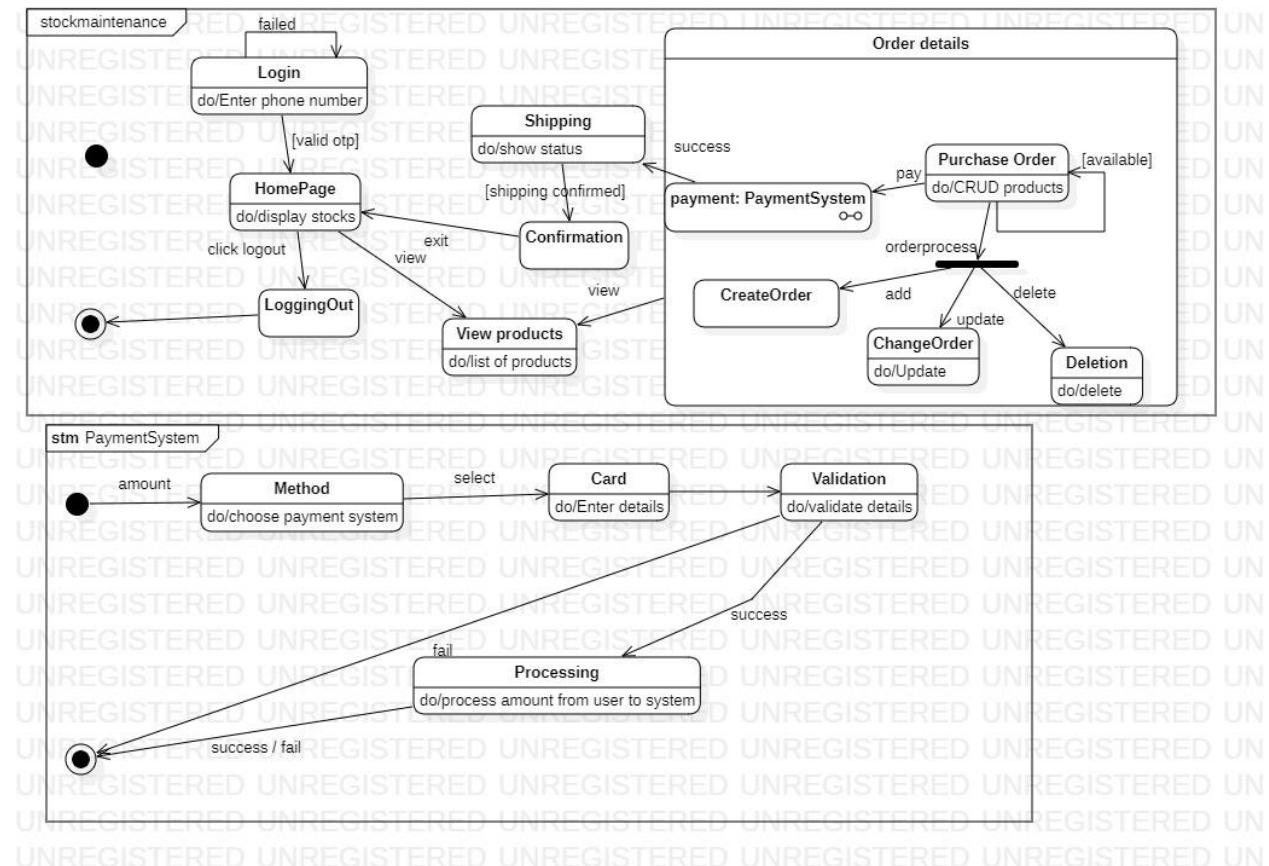
The process of the stock maintenance system is that the customer logs in to the particular site to place the order for the customer product. The stock maintenance system is described sequentially through steps

- 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

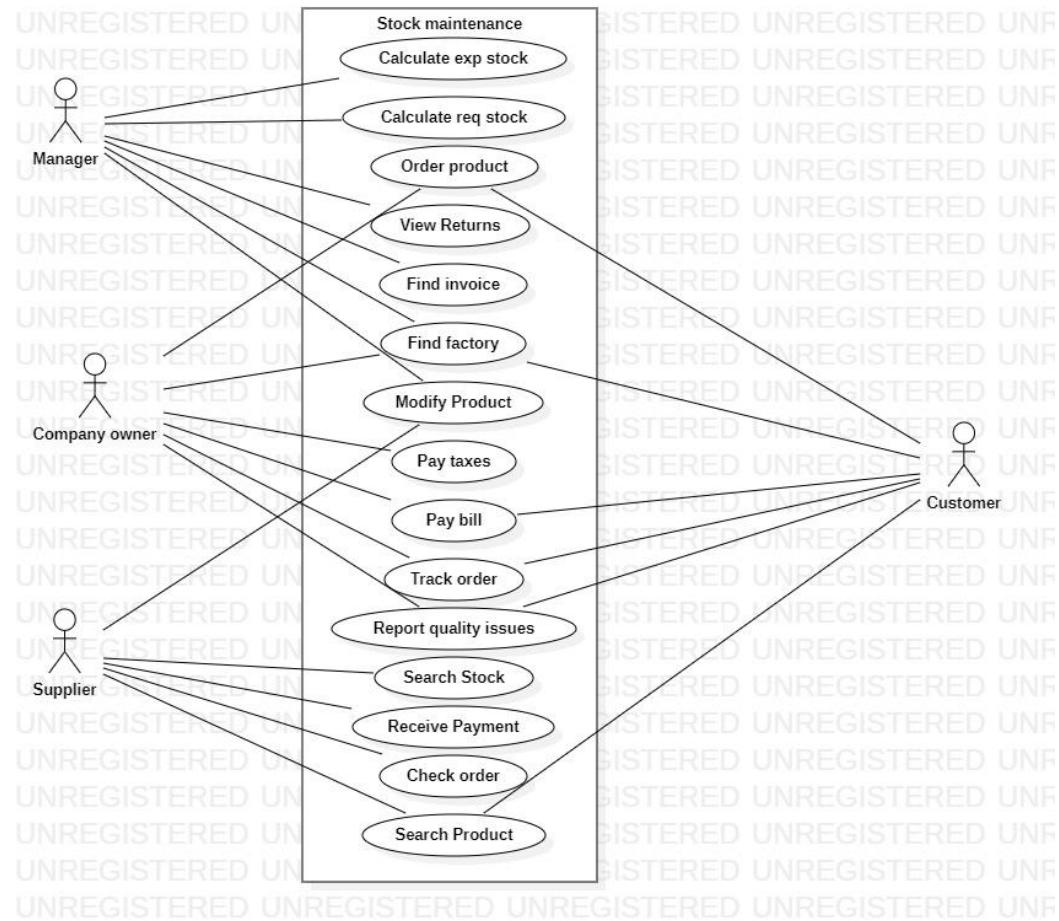
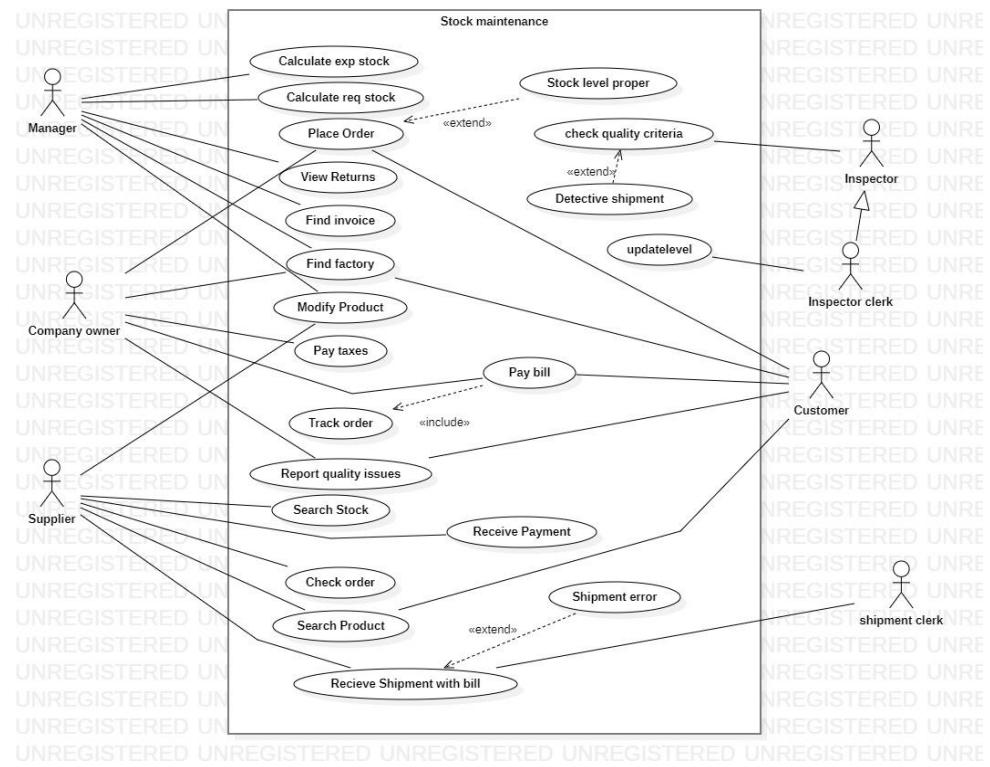
Class Diagram



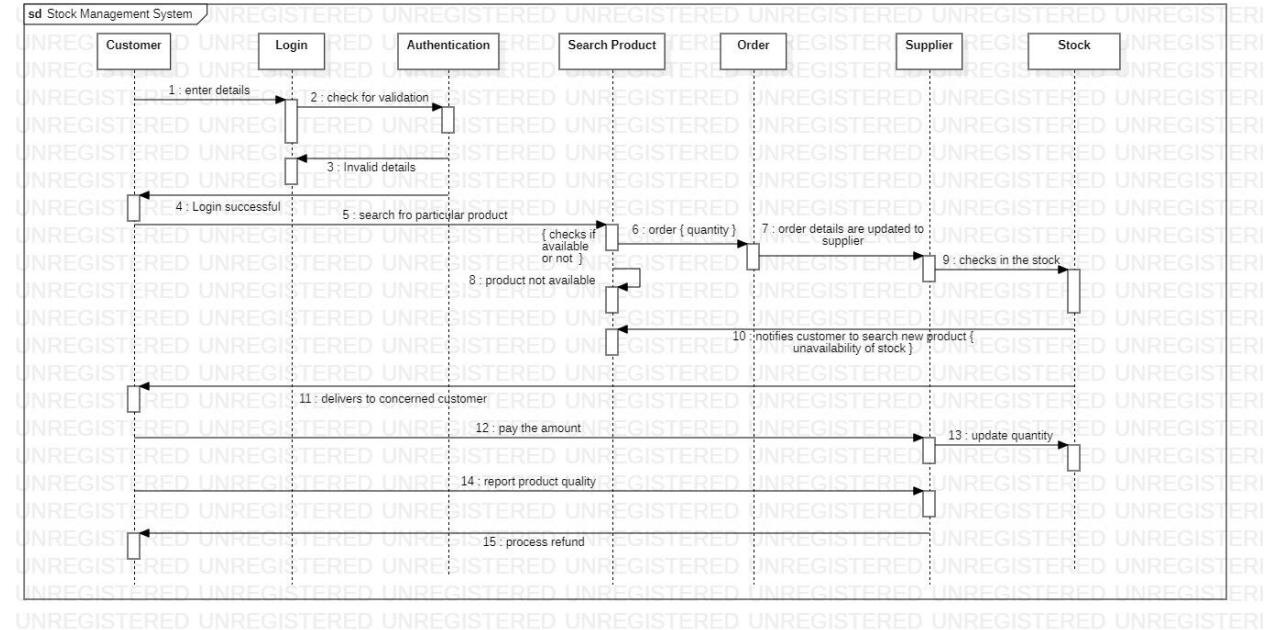
State Diagram



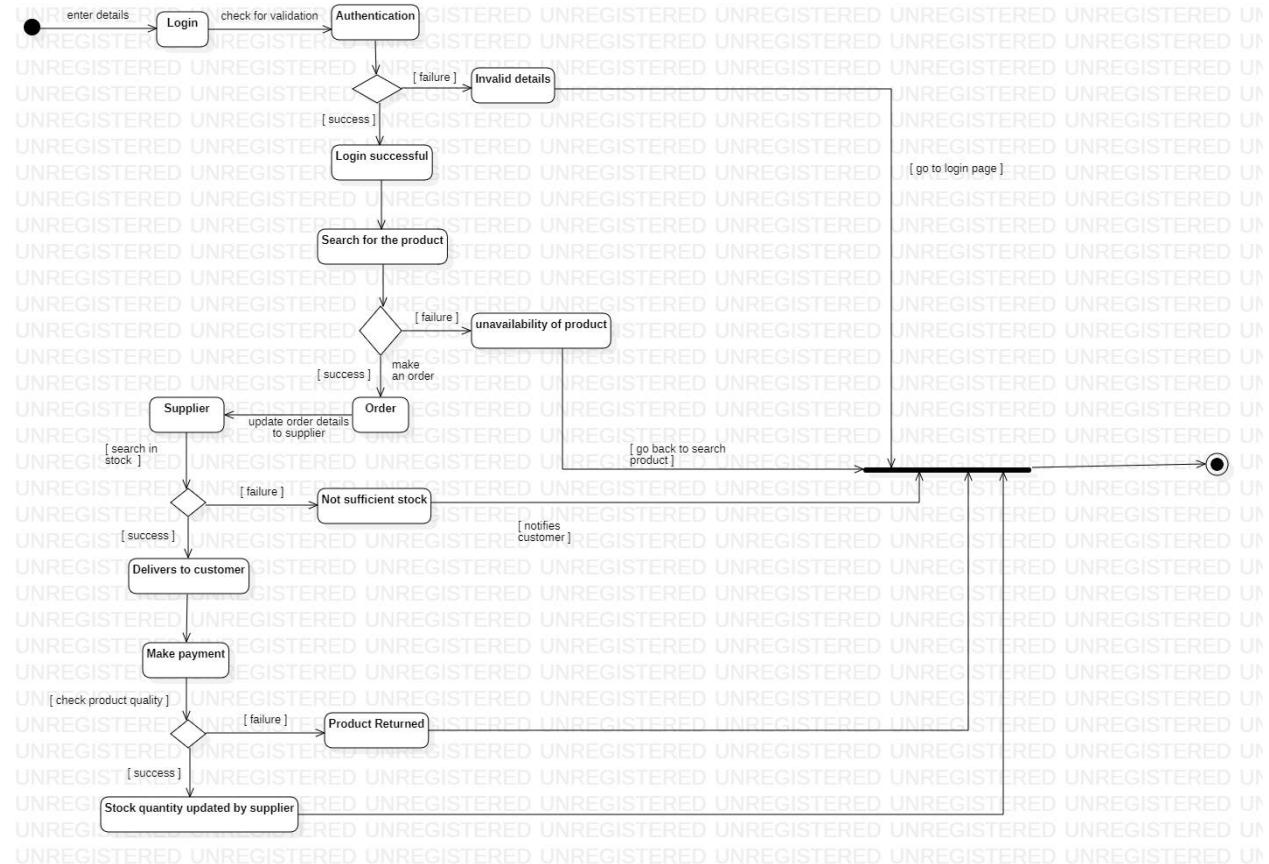
Use Case Diagram



Sequence Diagram



Activity Diagram



4. Coffee Vending Machine

Problem Statement

Design UML diagrams for Coffee Vending Machine. System Requirements Specification for the application should be provided.

SRS

The Objective of the system is to prepare a coffee vending machine for commercial purposes. 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 :

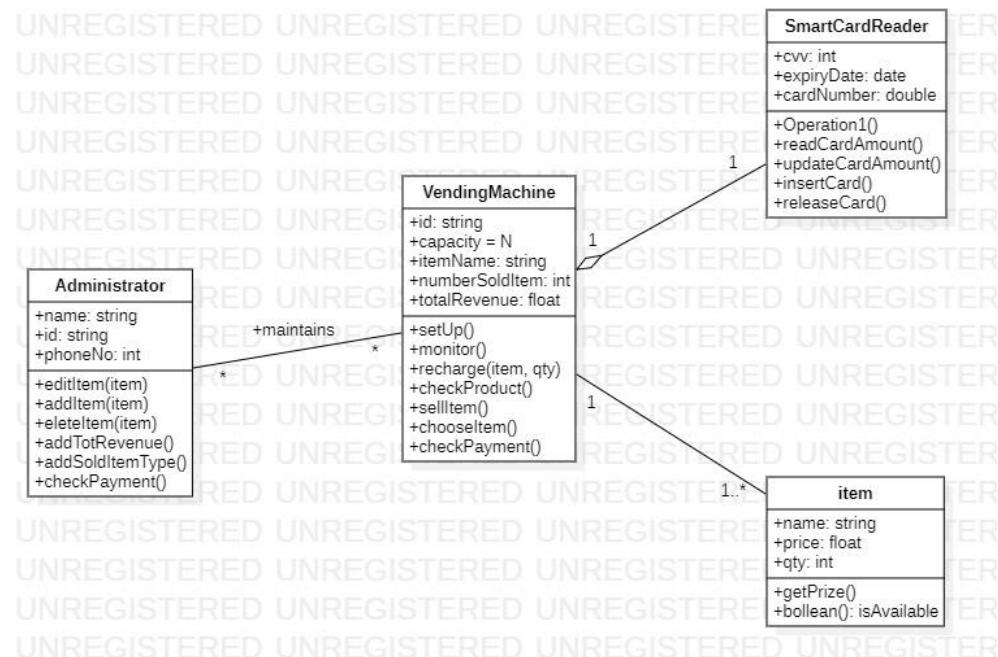
Coffee vending machines are quite simple and basic. The way they work is not too different to how a tabletop coffee machine or even a drip coffee machine operates. If you think about it, making coffee is simply adding together coffee beans or grounds to hot water and mixing with milk and sugar, that's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

Functions :

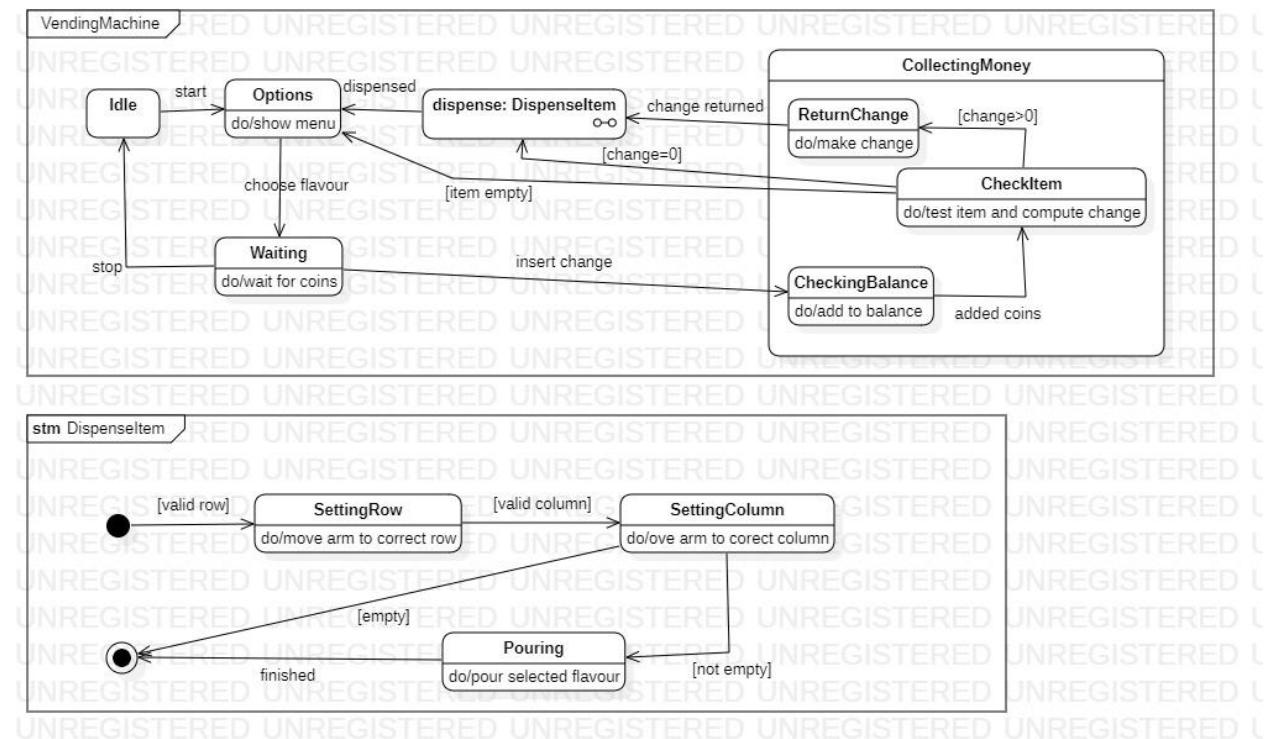
- Add heat:to heat the coffee we have 3 options. We could use a heating element where the water gravity fed into a tubular heating element, external to the water reservoir, and boiled out. Secondly, we could use a submersible heating element placed inside of the water reservoir to heat all of the water 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.

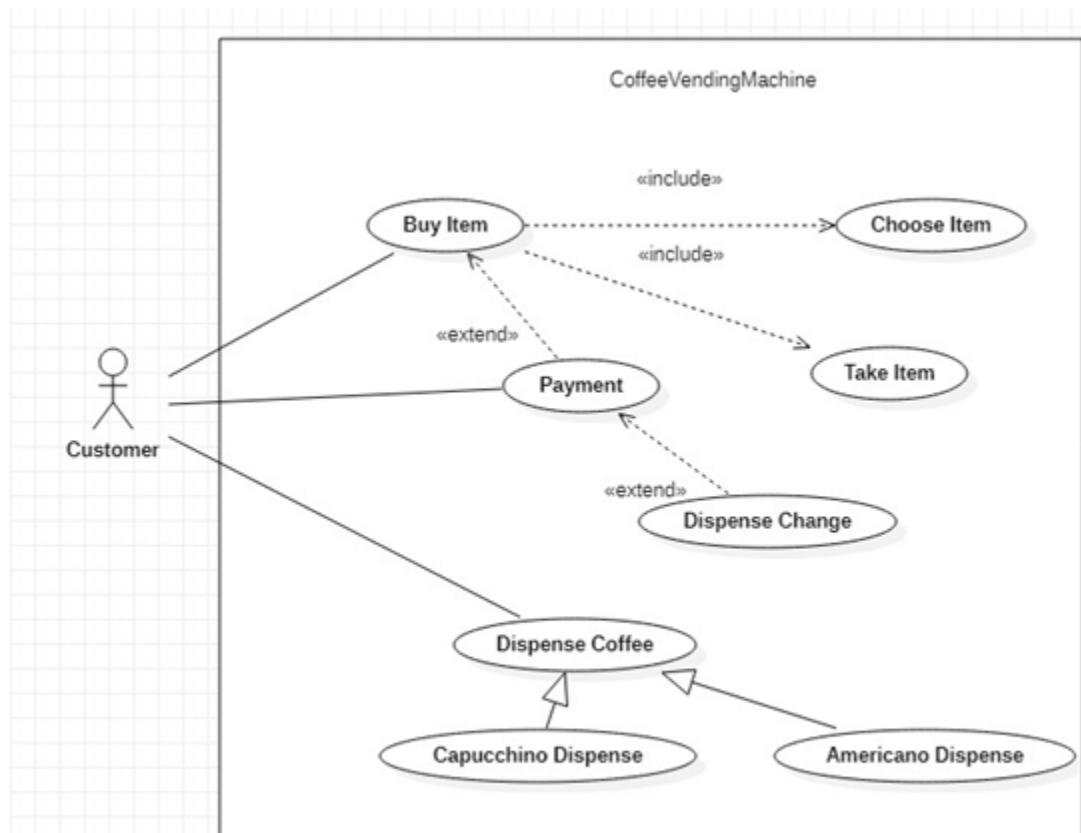
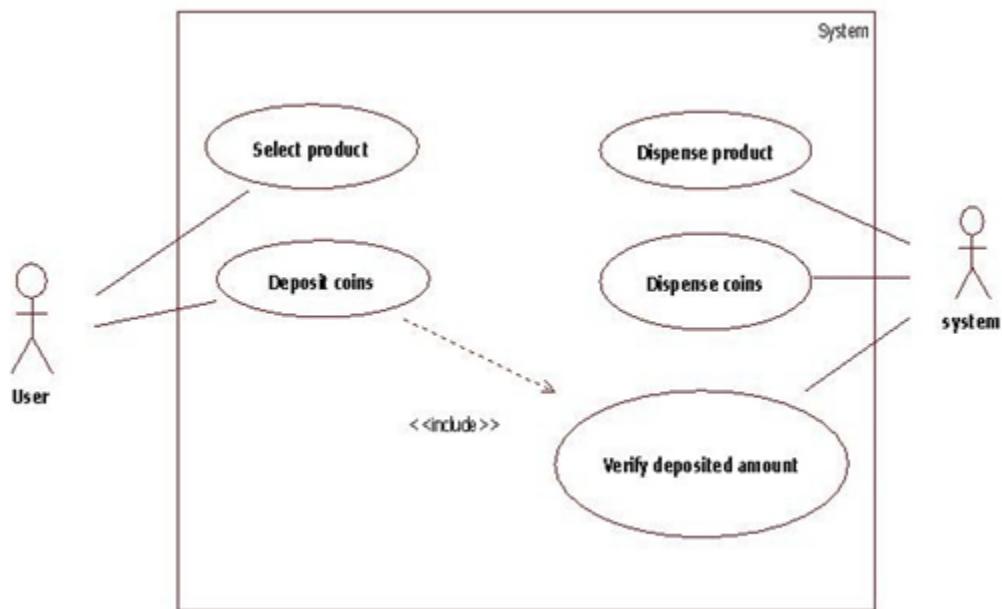
Class Diagram



State Diagram



Use Case Diagram



Sequence Diagram

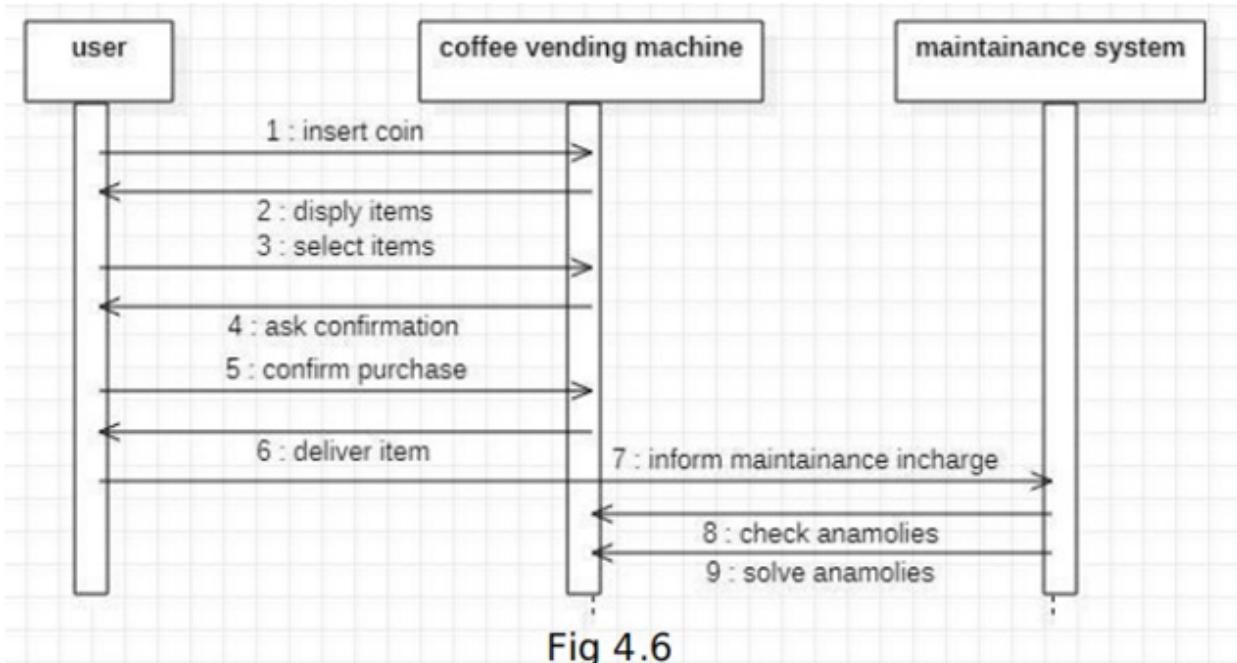
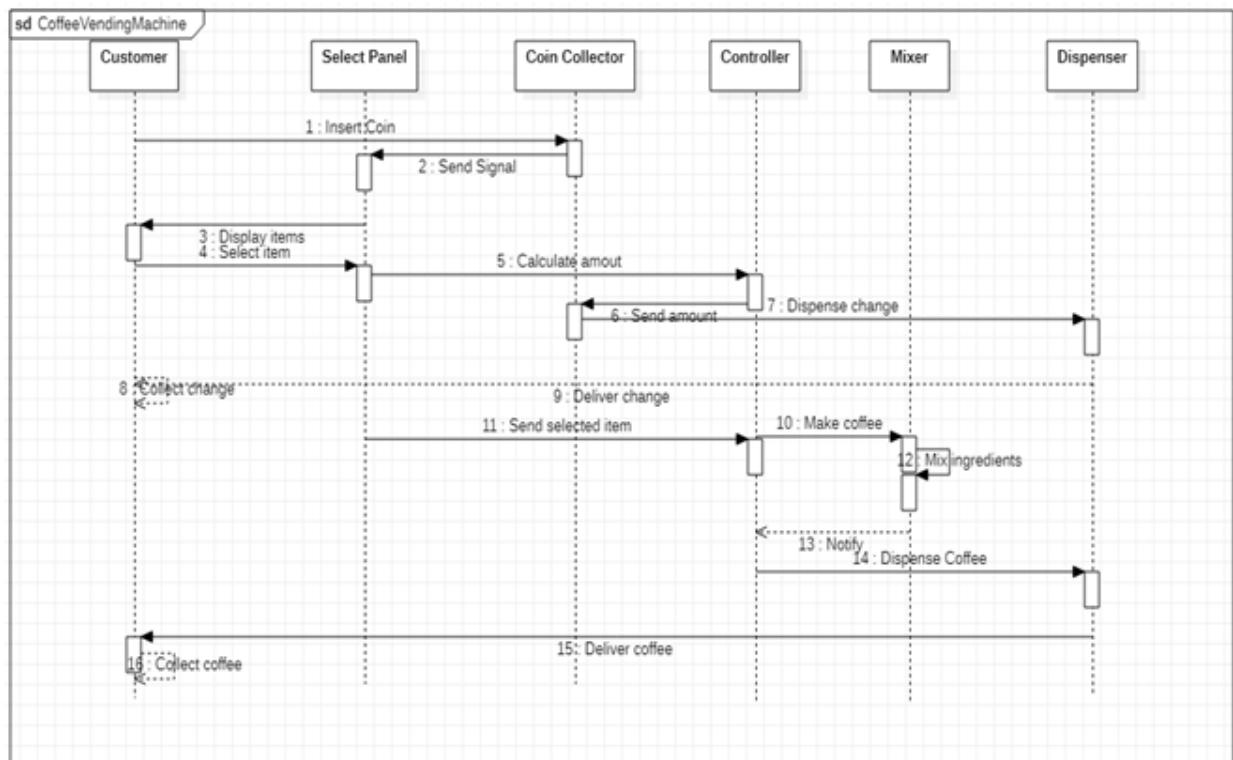
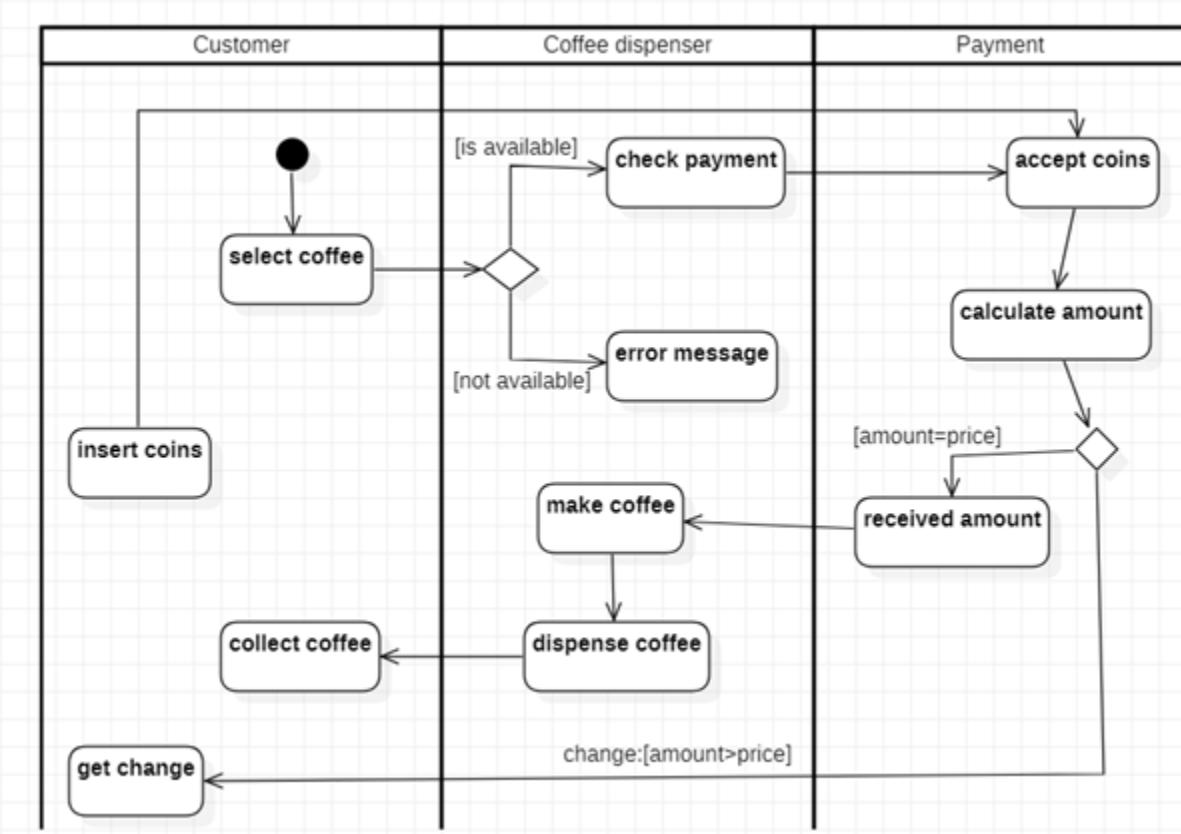
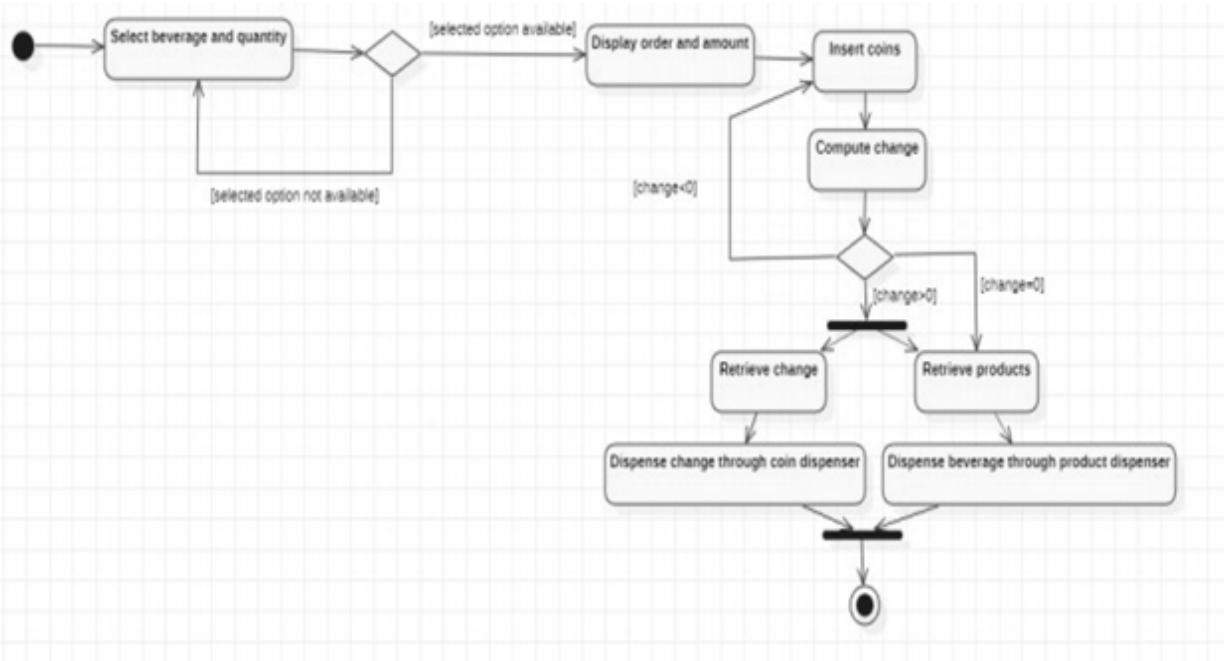


Fig 4.6



Activity Diagram



5. Online Shopping System

Problem Statement

Design UML diagrams for Online Shopping System. System Requirements Specification for the application should be provided.

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

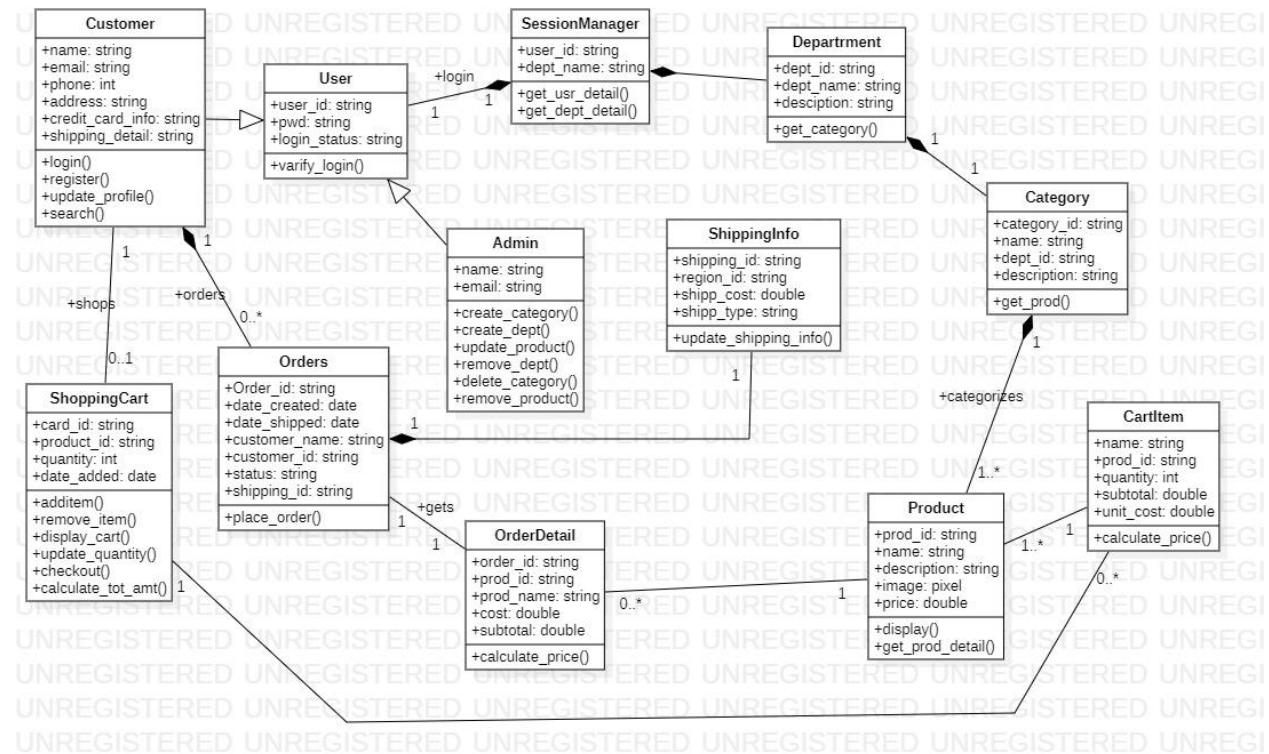
The software will not provide the following facilities to the customers:

- 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

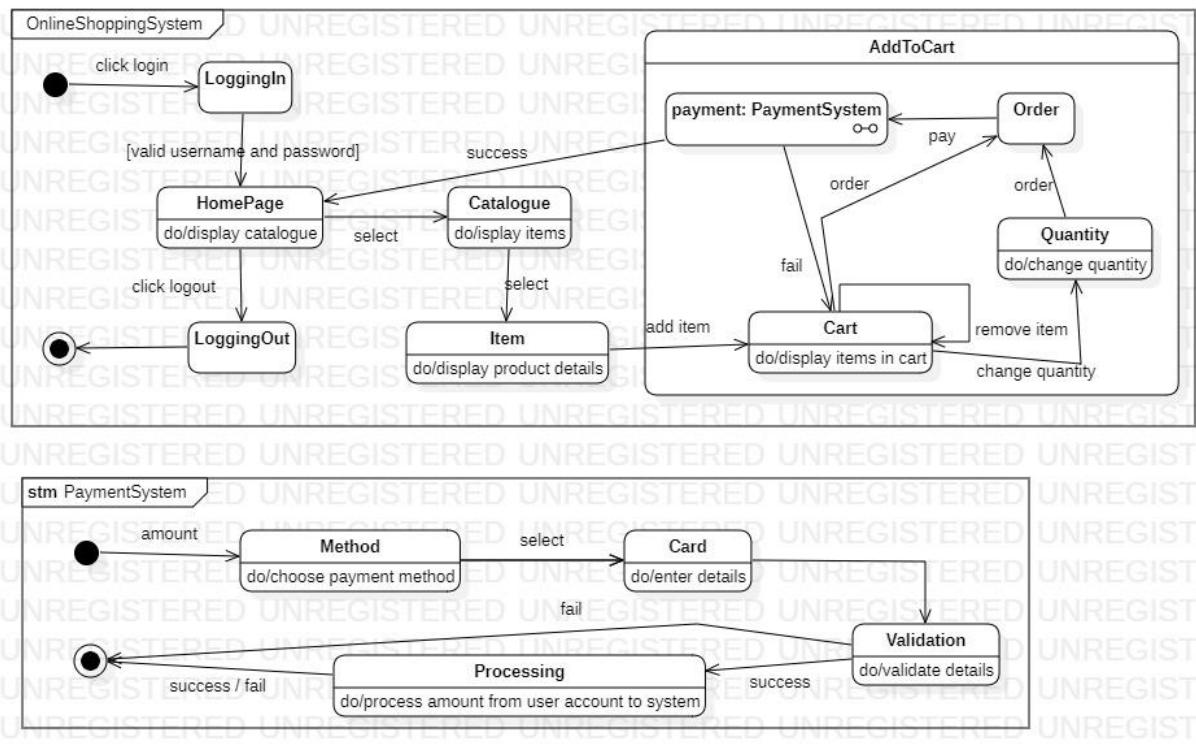
The software provides the following facilities to the merchants:

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

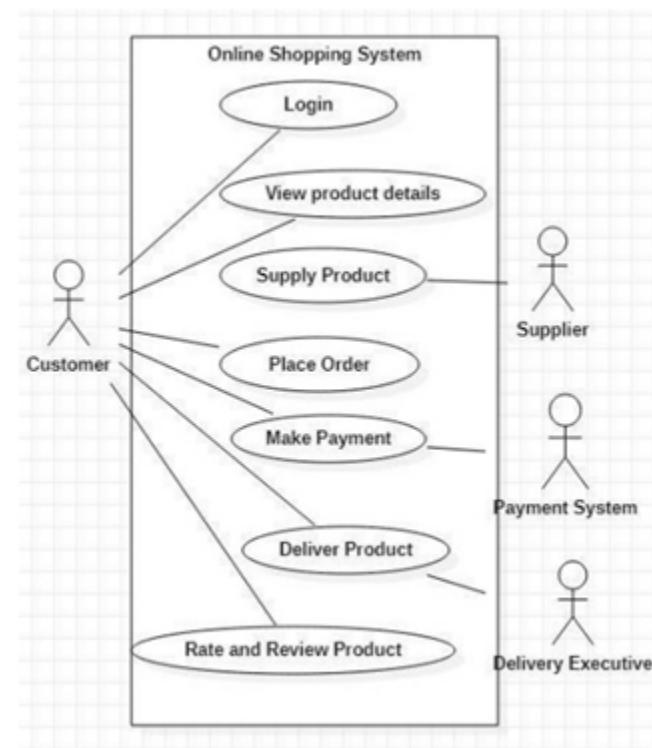
Class Diagram

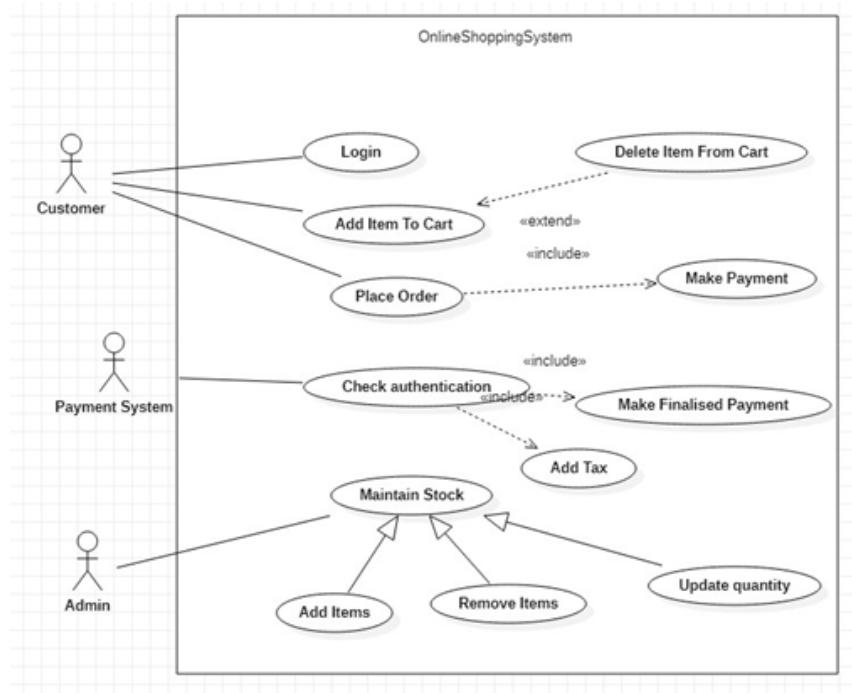


State Diagram

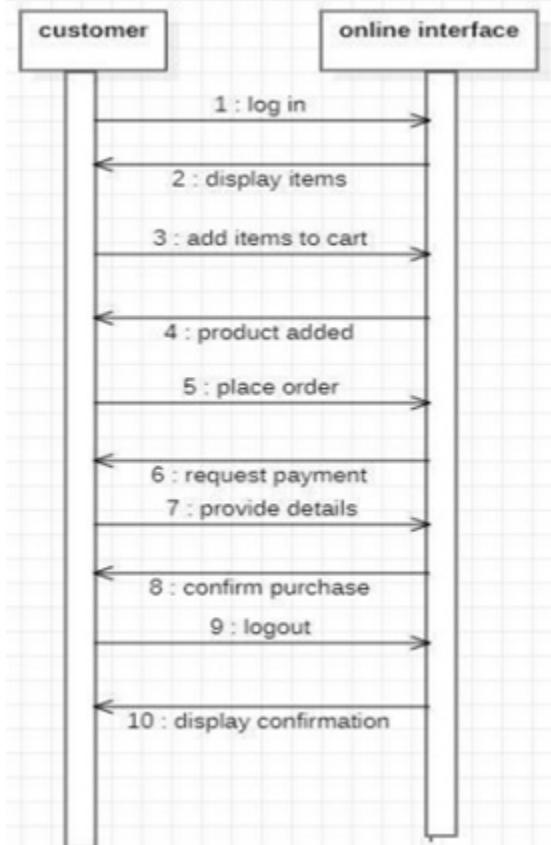


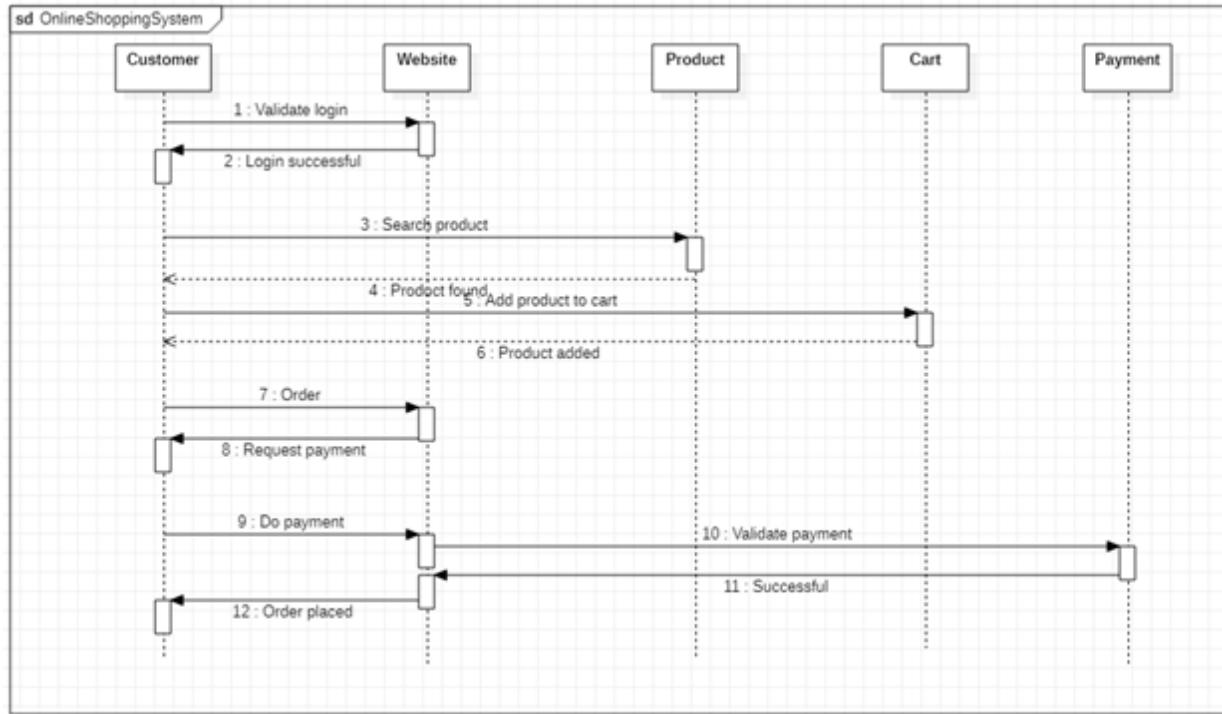
Use Case Diagram



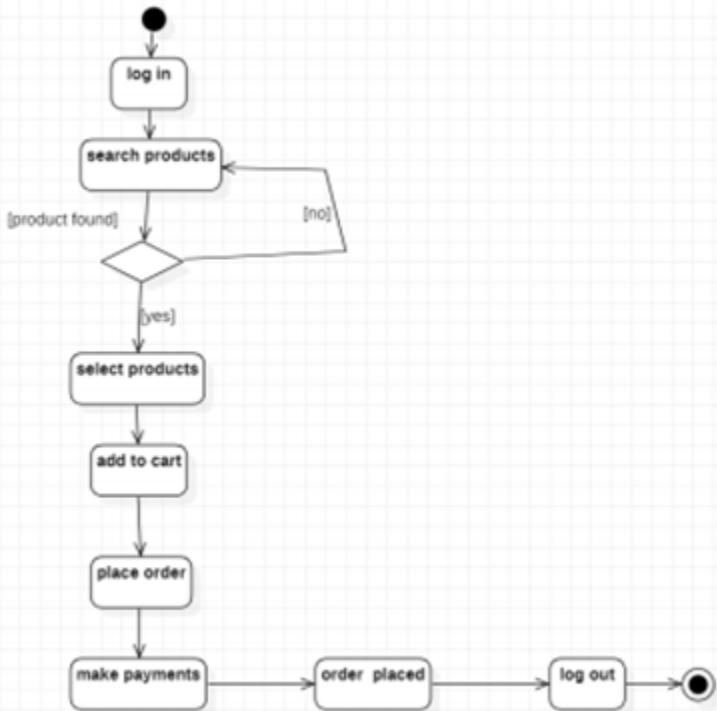


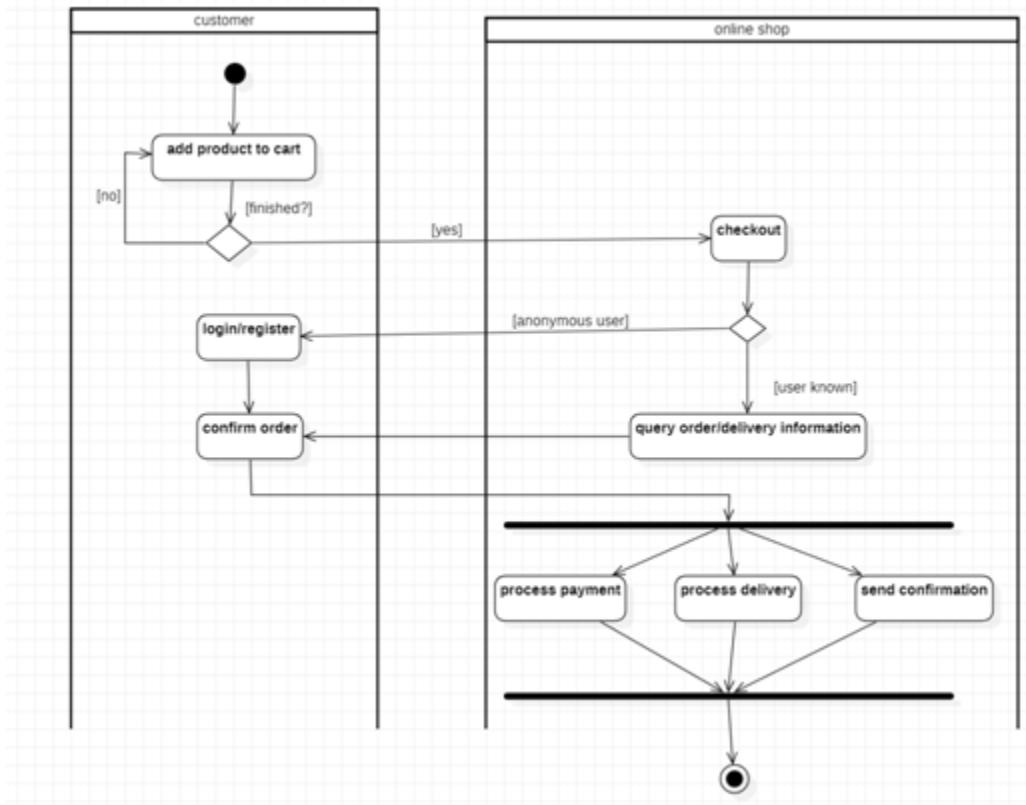
Sequence Diagram





Activity Diagram





6. Railway Reservation System

Problem Statement

Design UML diagrams for the Railway Reservation System. System Requirements Specification for the application should be provided.

SRS

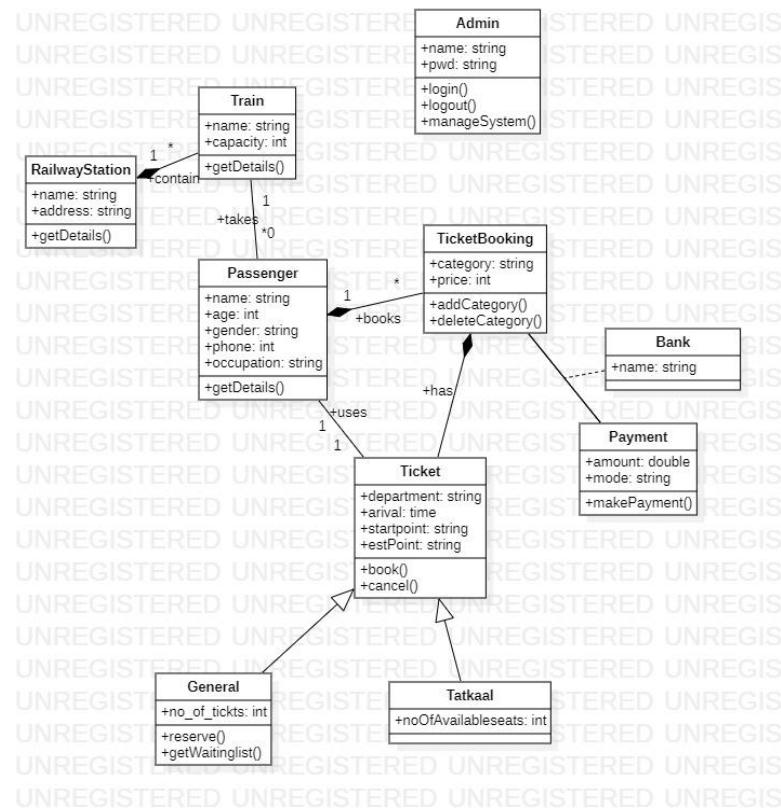
To develop a user-friendly Railway Reservation System to enable passengers to book tickets online and make payment online as well. Railway reservation system project which provides the train timing details, reservation, billing and cancellation on various types of reservation namely,

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

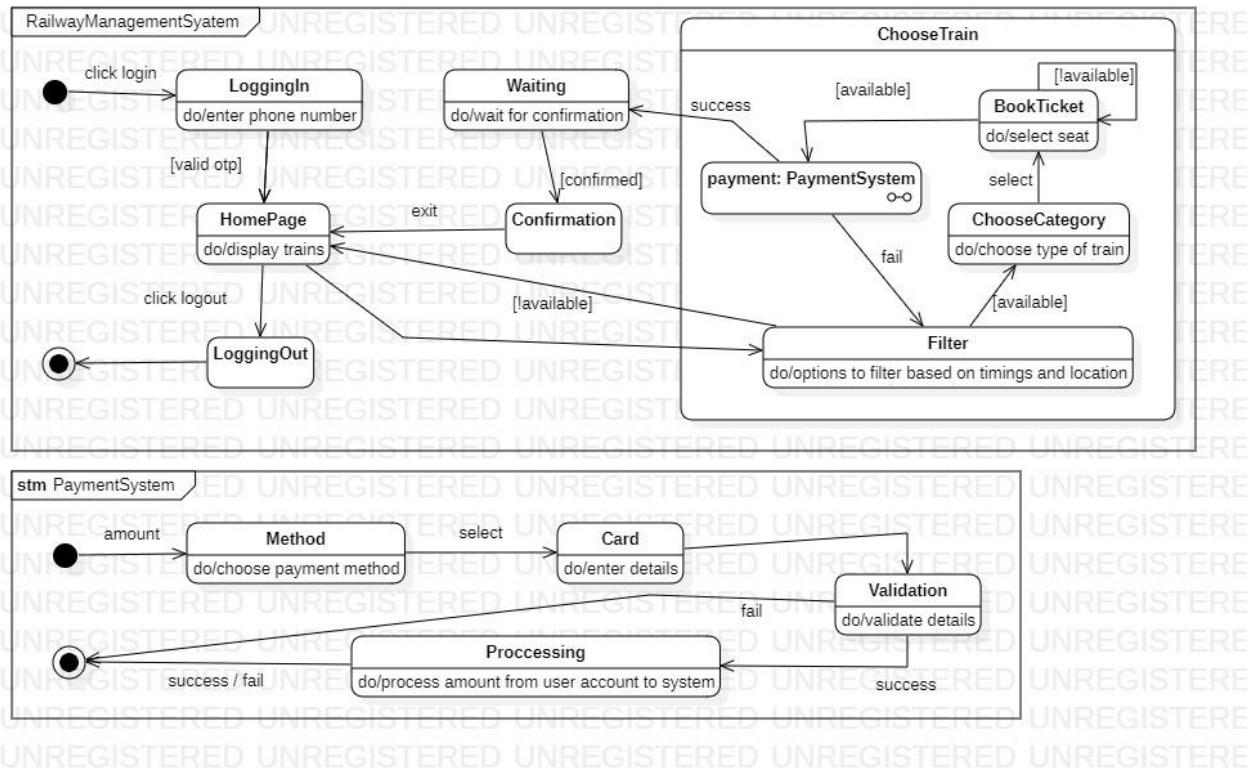
This system enables the Advance booking in any class, against general and ladies quota, on payment of fare in full for adults and children, a maximum of six berths/seats at a time, for journey between any two stations served by a train. It also provides details about

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

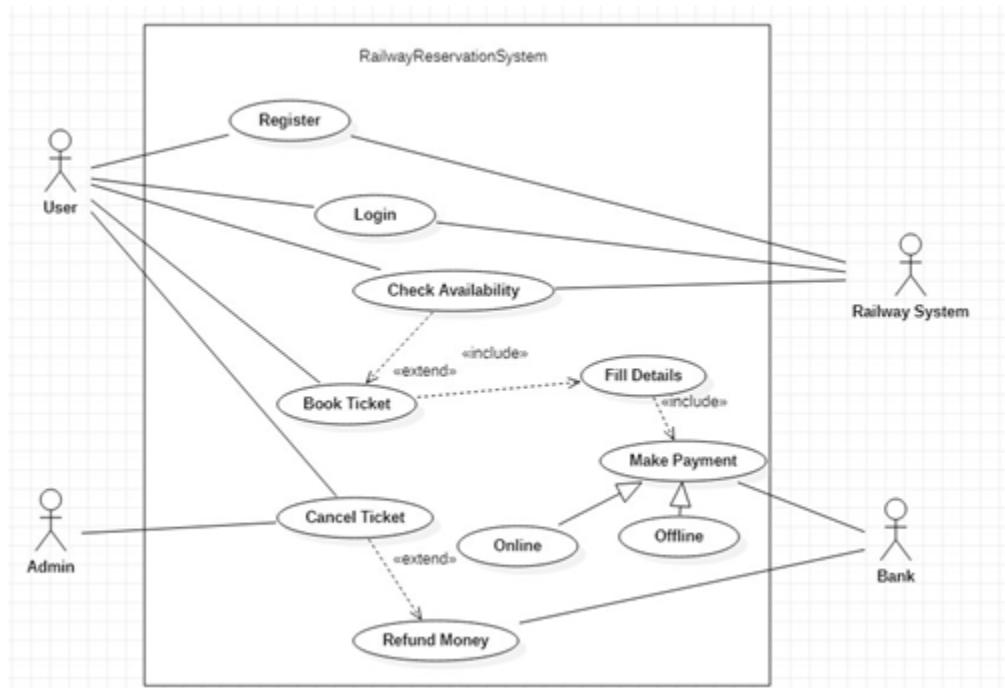
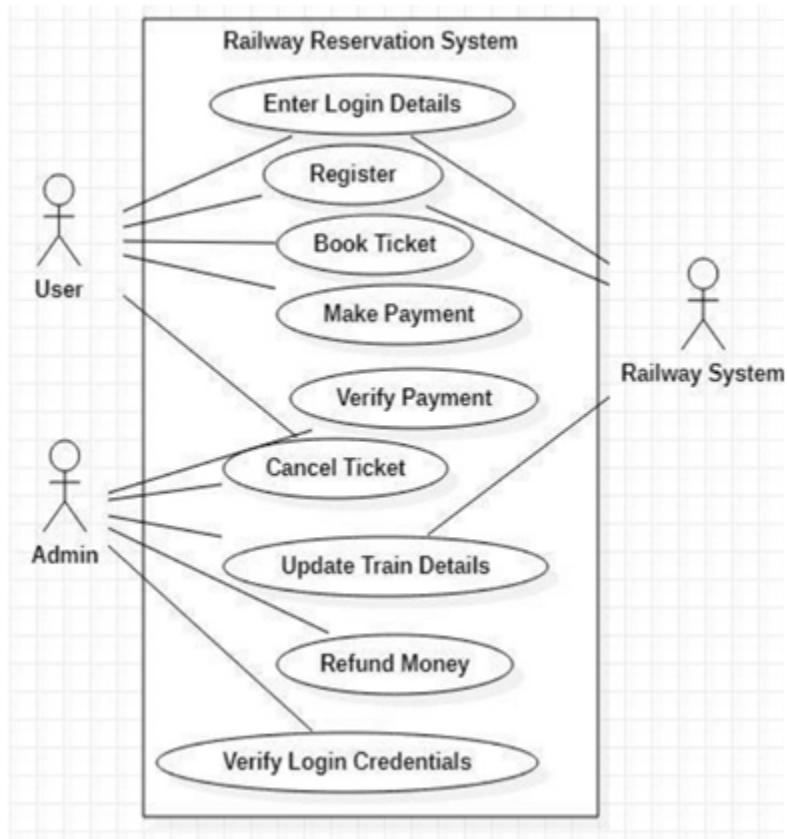
Class Diagram



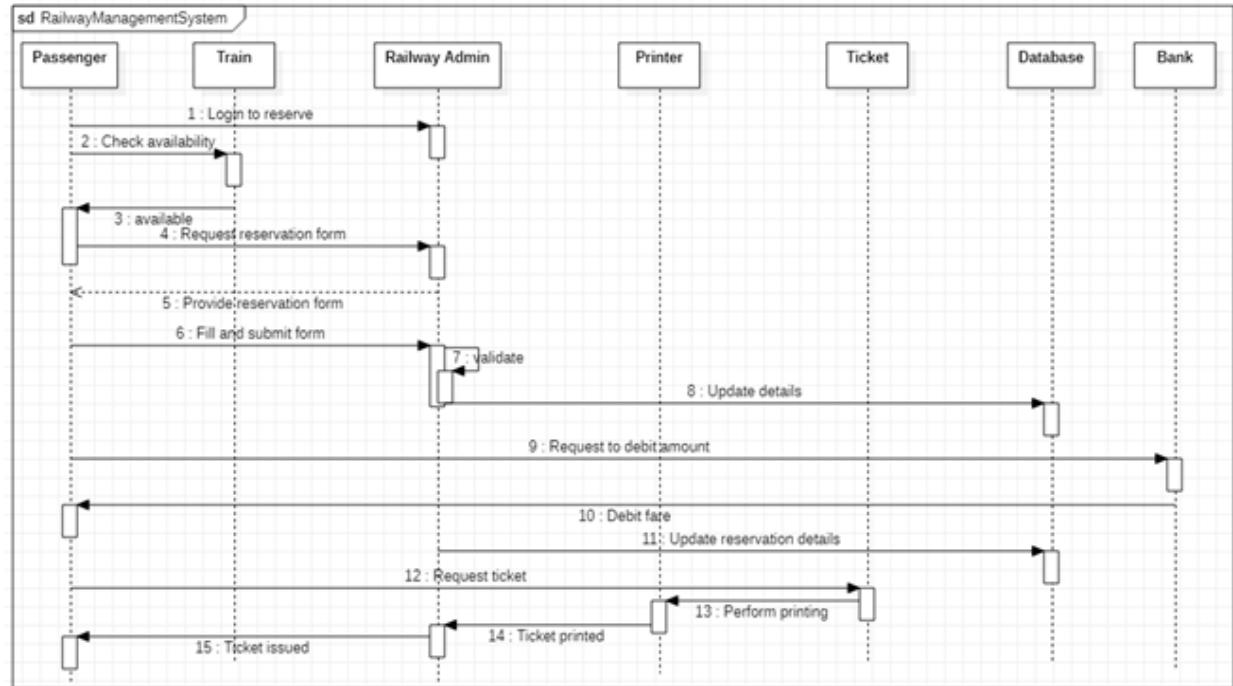
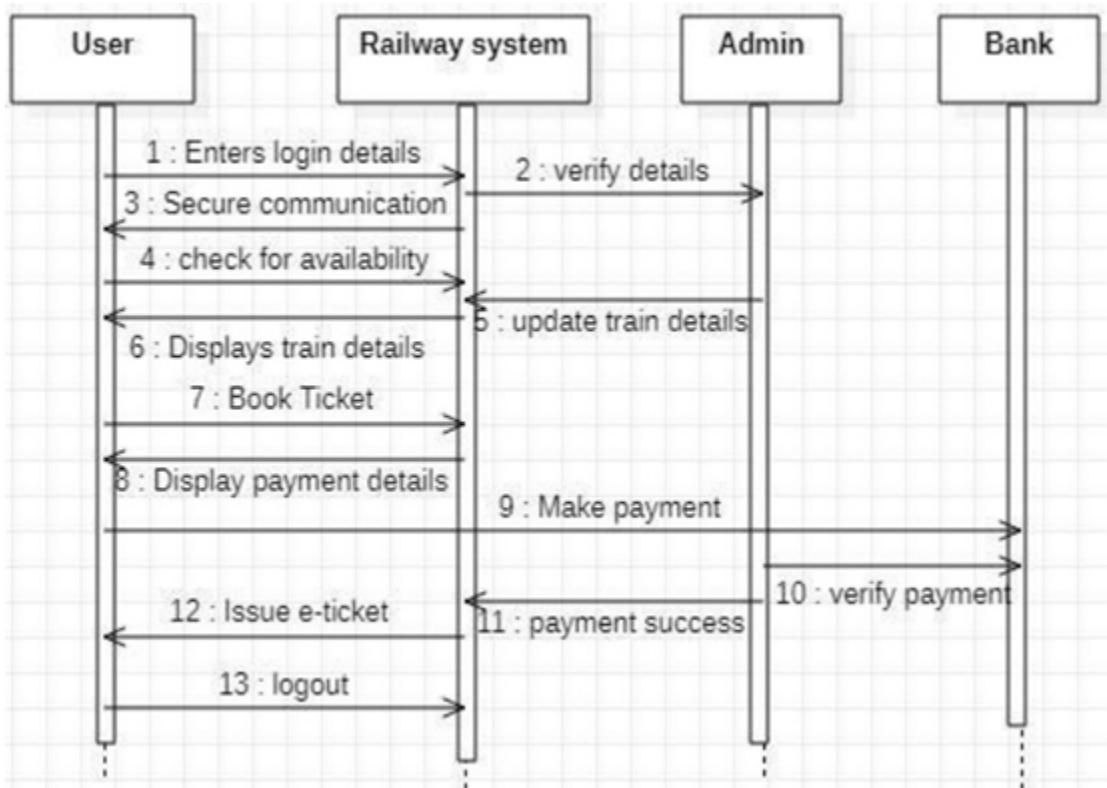
State Diagram



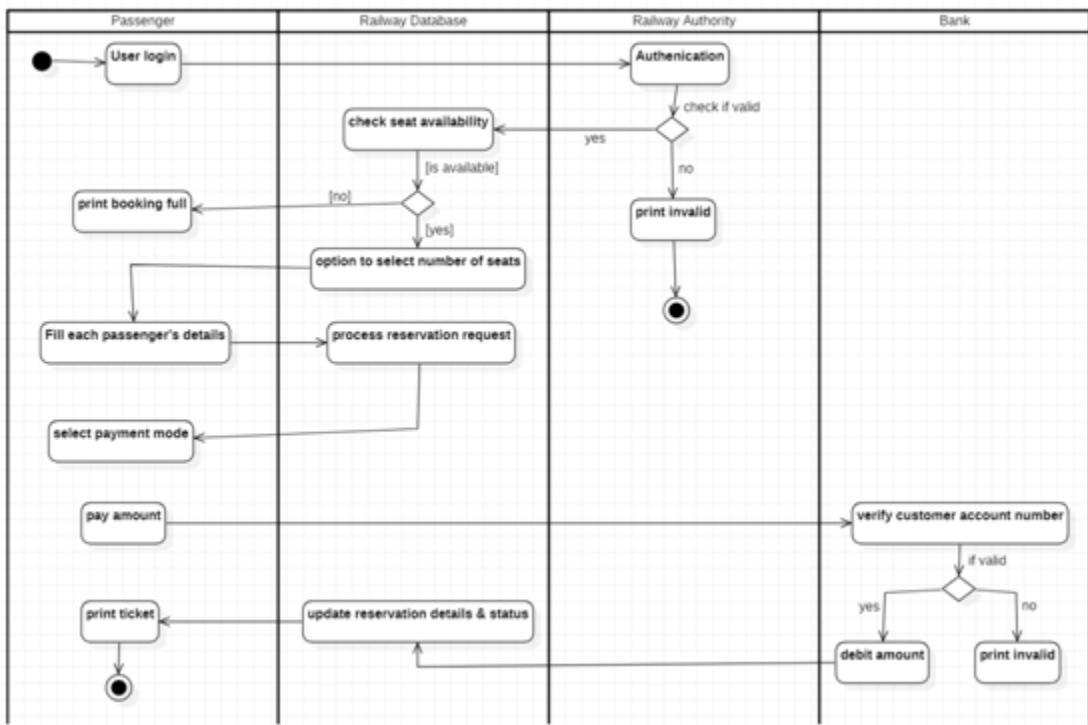
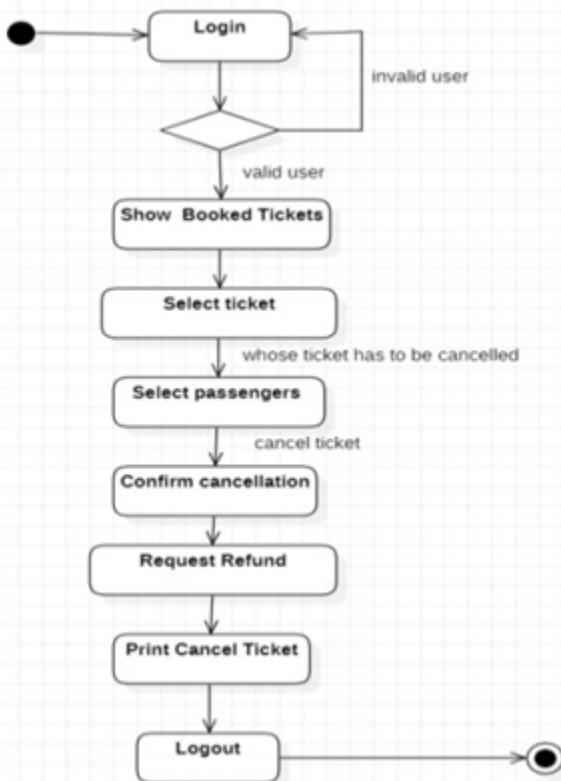
Use Case Diagram



Sequence Diagram



Activity Diagram



7. Graphics Editor

Problem Statement

Design UML diagrams for Graphics Editor System. System Requirements Specification for the application should be provided.

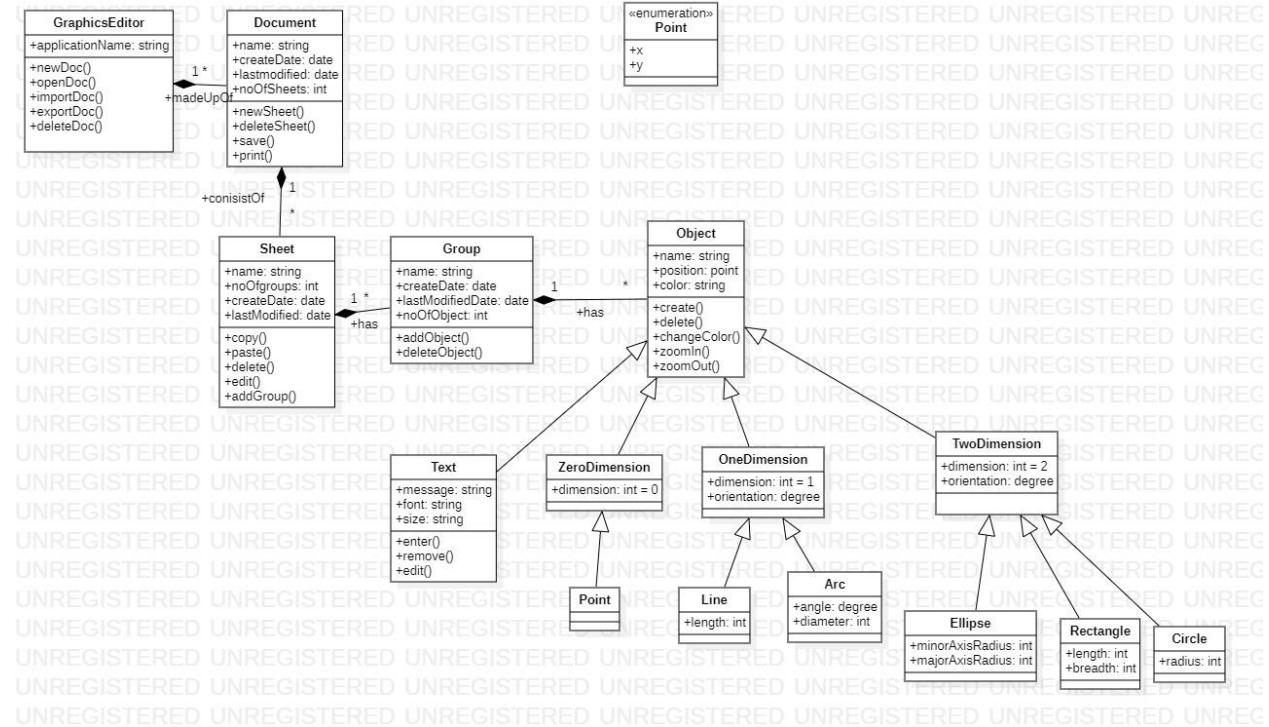
SRS

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.

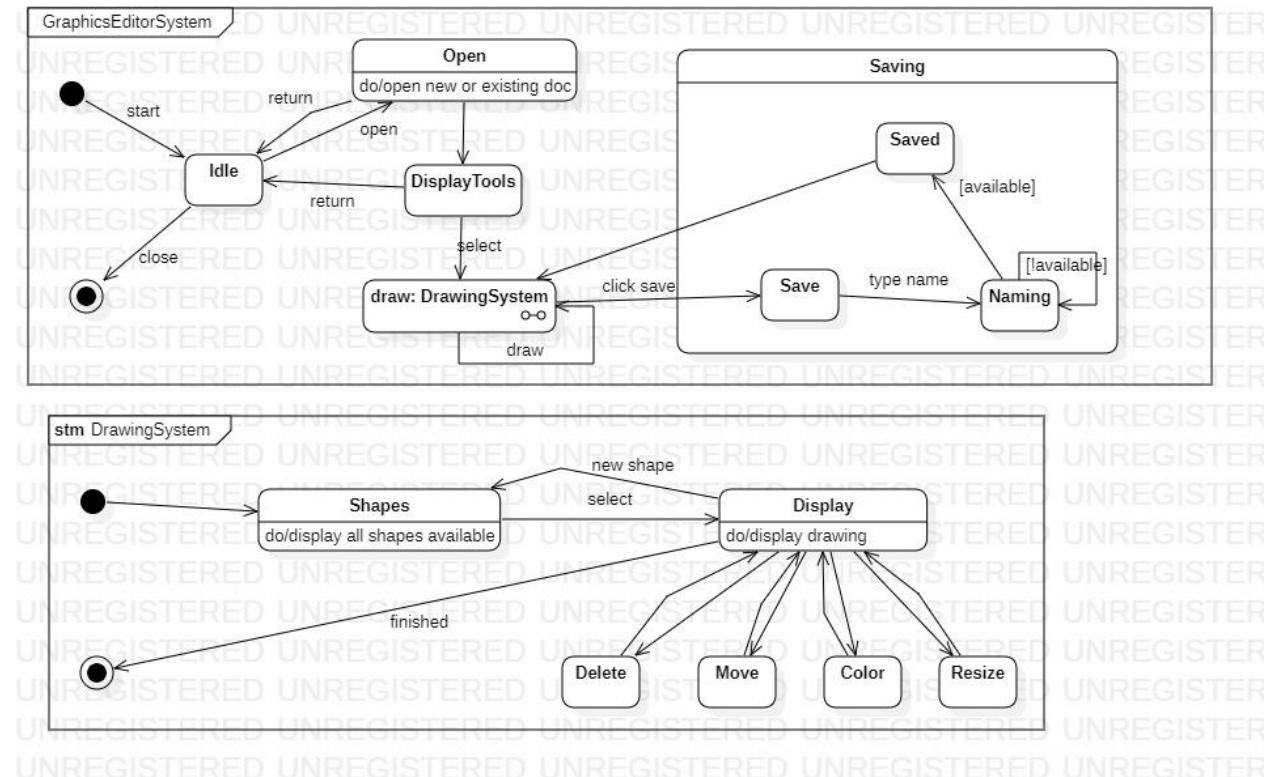
It should support following functionalities:

- 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

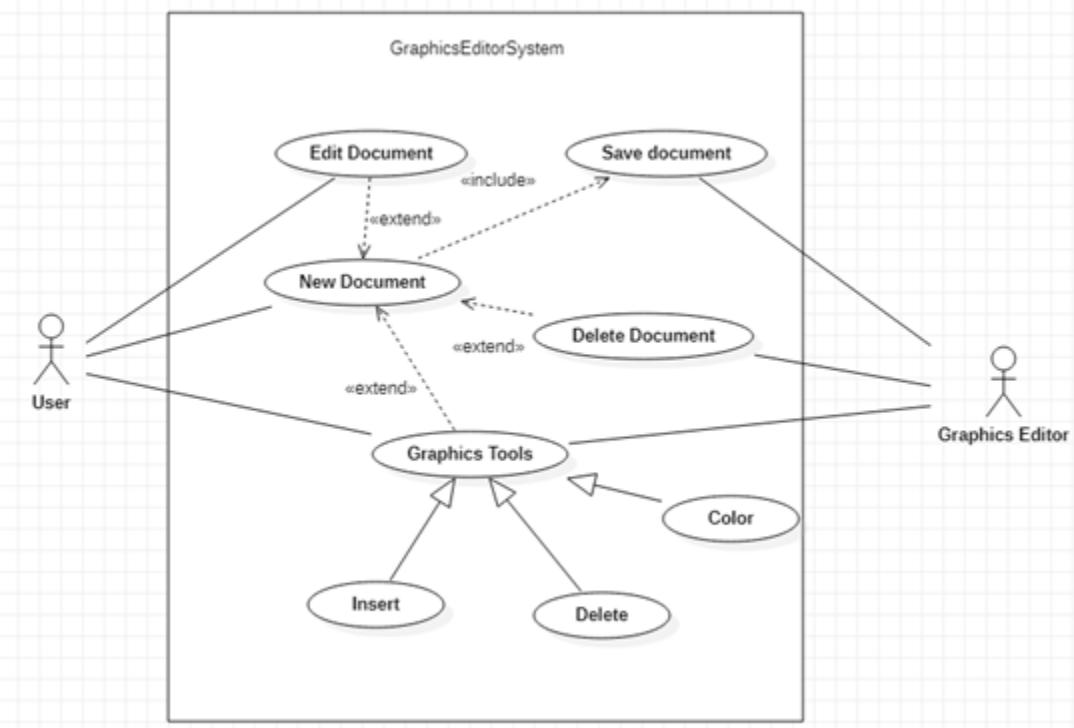
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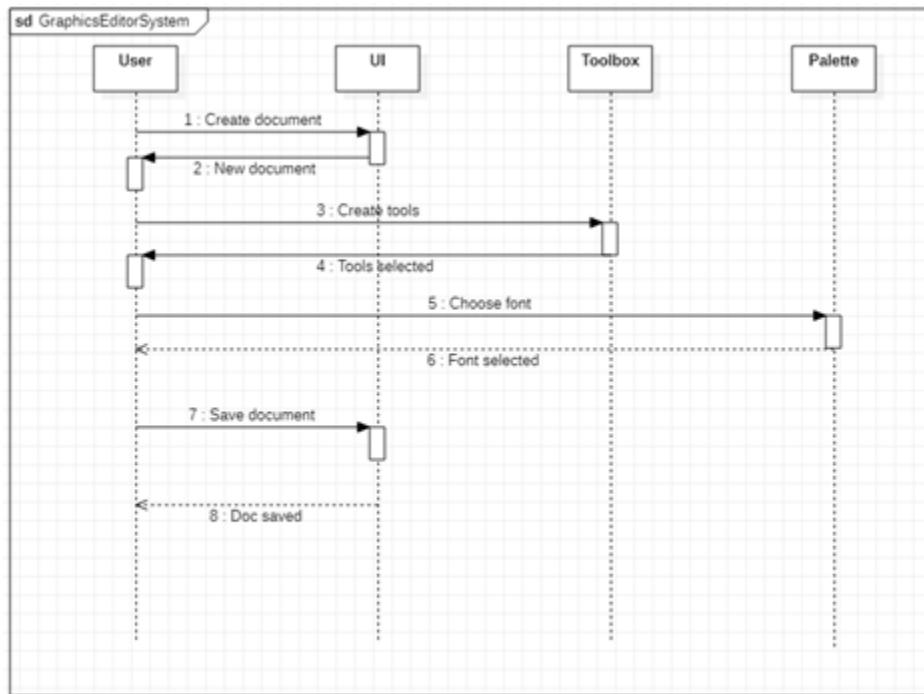
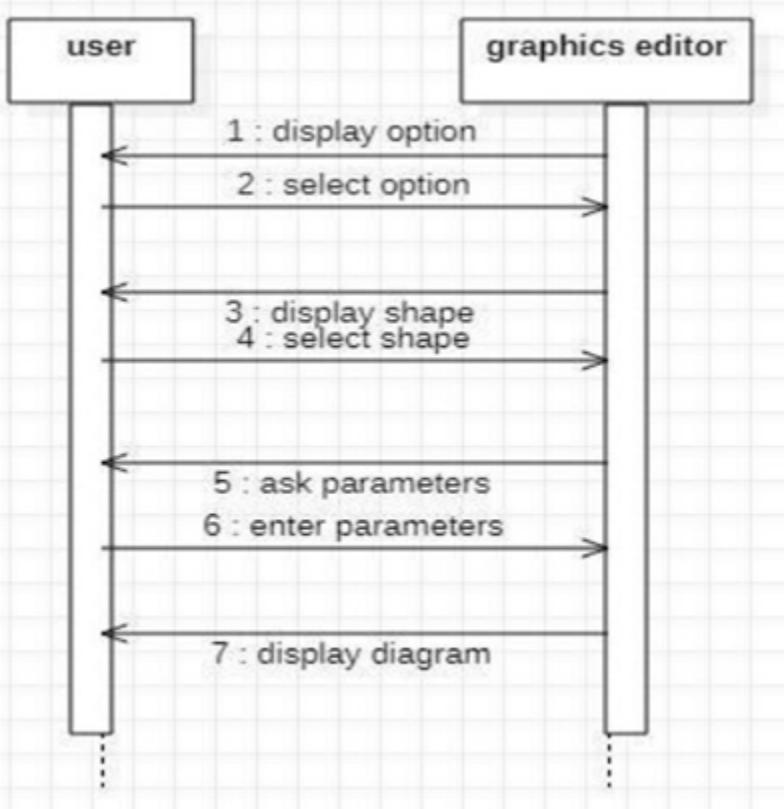
State Diagram



Use Case Diagram



Sequence Diagram



Activity Diagram

