



Project Report

Software Engineering

For Implementing SDLC while developing

Hospital Management System

(Module Login is a default module for all members and is not considered as an individual module for any one student)

Student Name : shahmeer khan (64160)

Module 2 Name : patient management

Student Name : Zain Ullah(63591)

Module 3 Name : Doctors

Student Name : Ezhar karim (63604)

Module 4 Name : Appointments

Student Name :Abdul rouf 631591

Module 5 Name : Doctor Schedule

December, 2021

Submitted to: Dr. Umema Hani

CoCIS, PAF Kiet University, Karachi, Pakistan.

Executive Summary

This report covers major "Software Development" activities on our selected Software. This project activity lasts for duration of 3.5 month time period.

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1. Project Initiation: Proposal Form	IV
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4. Monitoring (Analysis and Design) already covered in SRS 2.	VII
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1. PROJECT INITIATION: PROPOSAL FORM

Project Title: Hospital management System:

1. Motivation:

Hospital management project is being made for the case of hospitals to manage their management system. It doctor to see their appointments, maintain appointments records of patients et.

2. Functional Features

Specify the features of your project which would make it significant for the evaluators.

1. *If you are designing a project, which is in common use then you should specify those features which are making your project distinctive/unique in comparison with the existing ones "Totally a professional concept of implementing a CRUD based Product".*
2. *Indicate the utilization/benefits of your project "Will demonstrate implementation of all engineering activities expected under different pahses of SDLC on Product Development".*
3. *List down 5 unique but relevant Modules/Features for 5 members*
 - a. *Module 1: Login Authentication (Common for all members)*
 - b. *Module 2: patient management*
 - c. *Module 3: doctors*
 - d. *Module 4: Appointments*
 - e. *Module 5: Doctor Assistant*

4. *Expected Detail of all Modules to be covered by each Member*

Member 1: Login + Module 2

1. **Demonstration of Create activitvy on Module 2**
2. **Demonstration of Review activitvy on Module 2**
3. **Demonstration of Update activitvy on Module 2**
4. **Demonstration of Delete activitvy on Module 2**
5. **Demonstration of Search activitvy on Module 2**

Member 2: Login + Module 3

1. **Demonstration of Create activitvy on Module 3**
2. **Demonstration of Review activitvy on Module 3**
3. **Demonstration of Update activitvy on Module 3**
4. **Demonstration of Delete activitvy on Module 3**
5. **Demonstration of Search activitvy on Module 3**

Member 3: Login + Module 4

1. **Demonstration of Create activitvy on Module 4**
2. **Demonstration of Review activitvy on Module 4**

3. Demonstration of Update activity on Module 4
4. Demonstration of Delete activity on Module 4
5. Demonstration of Search activity on Module 4

Member 4: Login + Module 5

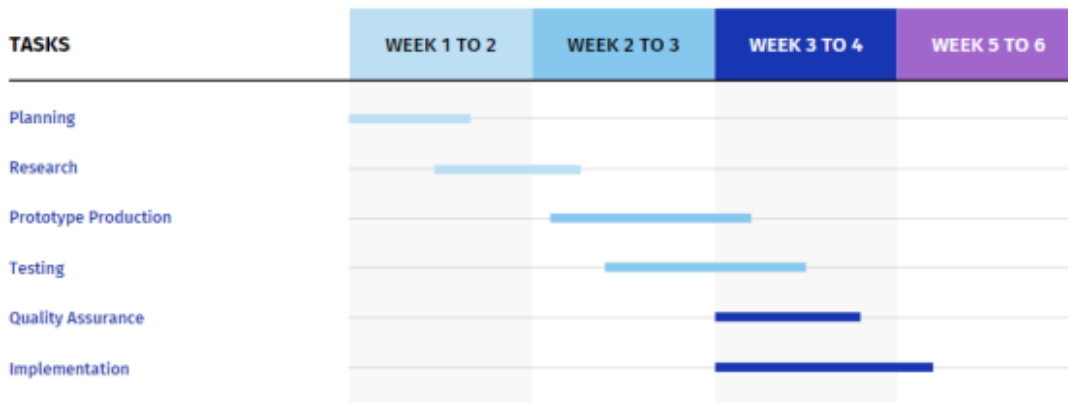
1. Demonstration of Create activity on Module 5
2. Demonstration of Review activity on Module 5
3. Demonstration of Update activity on Module 5
4. Demonstration of Delete activity on Module 5
5. Demonstration of Search activity on Module 5

Member 6: Login + Module 6

1. Demonstration of Create activity on Module 6
2. Demonstration of Review activity on Module 6
3. Demonstration of Update activity on Module 6
4. Demonstration of Delete activity on Module 6
5. Demonstration of Search activity on Module 6

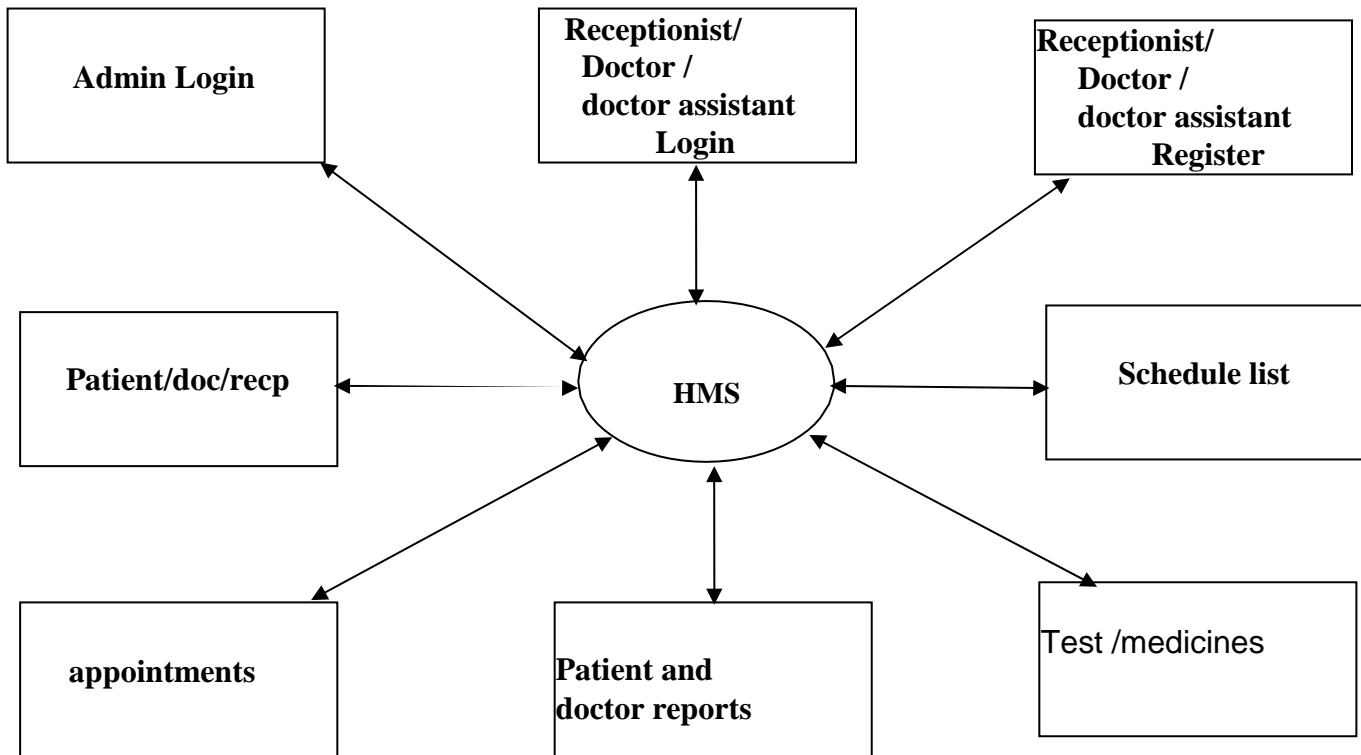
3. Project Planning

*Provide a detailed schedule for the successful completion of the project using **Gantt charts** for this purpose. (You may attach some extra sheet)*



4. Diagrammatic Representation of the Overall System

A *detailed flow diagram* of the overall system is needed



Student's Signature: zain ullah

Date: 27/March/2022

2. REQUIREMENT ENGINEERING AND CONFIGURATION MANAGEMENT

<Insert your checked SRS document here>

HOSPITAL MANAGEMENT SYSTEM



Shahmeer khan (64160)
ZainUllah (63591)
Abul Raoof(63159)
Ezhar Karim(63604)

March 20, 2022

Version	Changes Made	Date
1.0	First Pass for Review	3/12/2022
1.2	Second Pass for Review	3/15/2022
1.3	Third Pass for Review	3/18/2022
1.4	CRM Review Version	3/20/2022

Table of Contents

1. Introduction
2. The General Description
3. Specific Requirements
4. Supporting Information

1. Introduction

1.1 Purpose

- a) The purpose of this document is to describe the project which is called **Hospital Management System(HSM)**.The main purpose of this project is to implement a computer based Healthcare Consulting System which allows users to get immediate supervision and response on their health issues. Purpose of this project is like Hospital Management. This system will help the users or patients to find out appropriate doctors for several diseases/symptoms by giving all the required details like availability, contact information about the doctors who are specialized in the diseases given by the user. Admin will maintain a database which is fed with different symptoms and associated diseases. Thus, the system will identify certain diseases by asking the users to answer certain questions. On the basis of the diagnosis received, the system will give some suggestions of medicines to the user but with advice to consult the doctor. This system is very effective and beneficial in providing medical assistance. This helps the patients to
- b) maintain a healthy life by providing them with a smooth communication system between doctors and patients.
- c) This document includes detailed discussion about requirements of the project. Moreover, the SRS document explains the existing system and improvement of the existing system considering the comfort of the doctors and patients (users).

1.2 Scope In

- a) Traditional healthcare systems are unable to gratify everyone's needs due to the enormous increase in population. Despite having excellent infrastructure and innovative technologies, medical services are not affordable to everyone and out of reach of common people. One of the goals of Smart Health Consulting System is to educate the users about their medical status and to keep them health-aware. The required system entitles users to self-manage some emergency situations. It emphasizes on improving the quality and experience of the user. It helps in remote

monitoring of patients and reducing the cost of the medications for the users. With an expanding trend towards smart cities, an effective Smart Health Consulting system guarantees a healthy living for its citizens.

The **objectives** of this development effort are:

1. To provide existing clerks with a new environment in which to make reservations and easily take appointment of doctor.
2. To provide an avenue for customers to get their appointment in a more convenient way.
3. To regain control of the appointment and manage whole hospital to avoid scalping and overselling of appointments.
4. To implement a prototype of a scaled down version of the final system to test the solution and further develop requirements.
5. To collect statistics in a more efficient manner for future railroad development and construction.
6. To increase efficiency of railroads.

1.3 Scope Out

The following features will not be the part of this Project:

- 1.

1.3 Definitions, Acronyms, and Abbreviations.

HMS – Hospital Management system

APPM – AsiaPac Marketing Manager

CASE – Computer Aided Software Engineering

PP - Project Plan

SDD - Software Design Description

SRS - Software Requirement Specification

SDS – Software Design Specification

SPMP - Software Project Management Plan

GUI – Graphical User Interface

QAM – Quality Assurance Manager

PDM – Project Development Manager

PMP – Project Management Professional

TBD – To be determined

UML – Unified Modeling Language

1.4 References

- The Aga Khan University Hospital, Pakistan
<https://hospitals.aku.edu/>
- China 2000
<http://www.china2thou.com>
- Pressman, Roger S., *Software Engineering: A Practitioner's Approach*, McGraw-Hill Companies, Inc., 1997.

1.5 Overview

Chapter 2 of the SRS is a brief description of the characteristics of the software to be built, its functions, its users, its constraints and its dependencies.

Chapter 3 is about specific requirements, such as functional requirements, external interface requirements, performance requirements, and also design constraints and quality characteristics.

Finally, chapter 4 includes all the supporting information, such as the Table of Contents, the Appendices, and the Index.

2. The General Description

This **Hospital Management System(HMS)** is like an online Hospital Management System provider with easy to use customizable options and interface. The application is accessible from anywhere and it is designed to reduce the manual work and improve the quality of maintaining records and other information related to doctors or patients etc. It reduces the complexity by minimizing the time- frame in adding any information related to any government hospital or private doctor.

On the user's / patient's side, they will be able to find out the doctors available depending upon the city in which they dwell and according to their requirements i.e. the symptoms/disease they have. Different doctors for different specializations related to important parts of the body like heart, kidney, brain, liver, general physician, etc can be searched through this system with the doctor's availability timing and contact details.

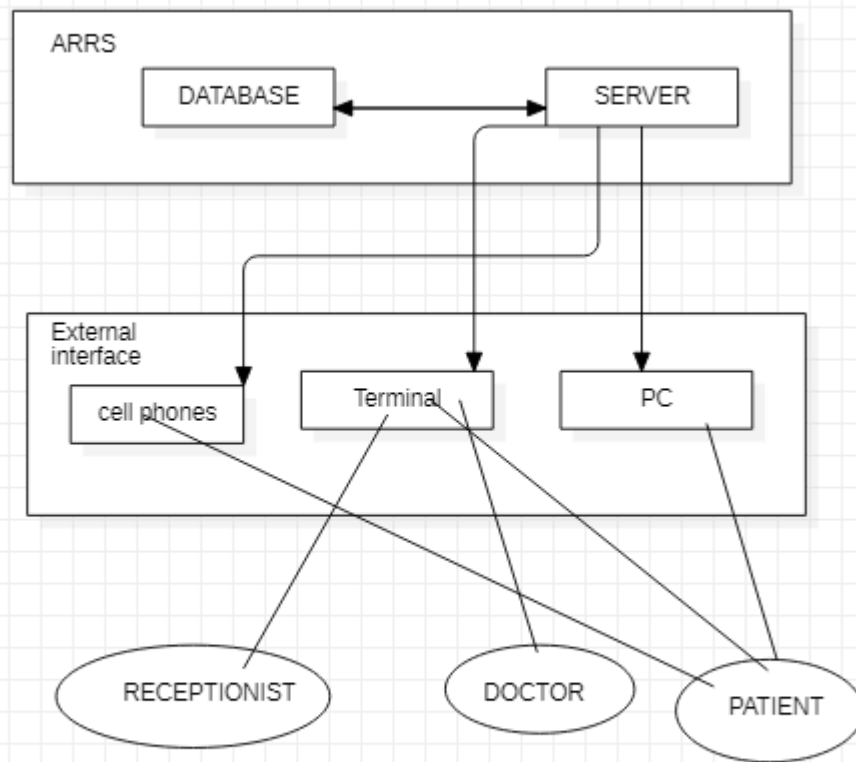
They can also check several symptoms by selecting their diseases and they can also get their diseases predicted by the system which will ask the users certain questions for accurate predictions. They can also select a disease to know the medicine specification with a recommendation to visit a doctor for further treatments. Moreover, they can also make online appointments after communicating with the respective doctor.

On the admin's side, he will be able to update the database of doctors and can also view the list of users of this application. The patient will have to enter his name before using this application and his name will be automatically added in the list of users which is accessible by admin. In addition to this, admin can also view complaints of patients and take necessary actions.

2.1 Product Perspective

The Hospital Management System diagram showing the overview of the system's modules and the relationship of the system to external interfaces is presented in Figure 2.1.

Figure 2.1 Overview/Architecture Diagram of the HMS



Functions of System Components:

Database:

- ☐ Stores data
- ☐ Provides access to data
- ☐ Updates information

Server:

- ☐ Provides access to the database
- ☐ Authenticates users
- ☐ Processes reservations
- ☐ Performs backups

External Interfaces:

Terminal

- This is the first form of the project in which admin, doctor and receptionist can go to login form after click the button
- Doctor and receptionist first register themselves after that they login with their registered name and password .after login they go to next form portal. Admin can only login by their name and pass
- This is the admin portal form and admin can add records
- After click on admin portal this form will open in this form we can add a records
- In last the data will b showed to doctors and receptionist forms

2.2 Product Functions

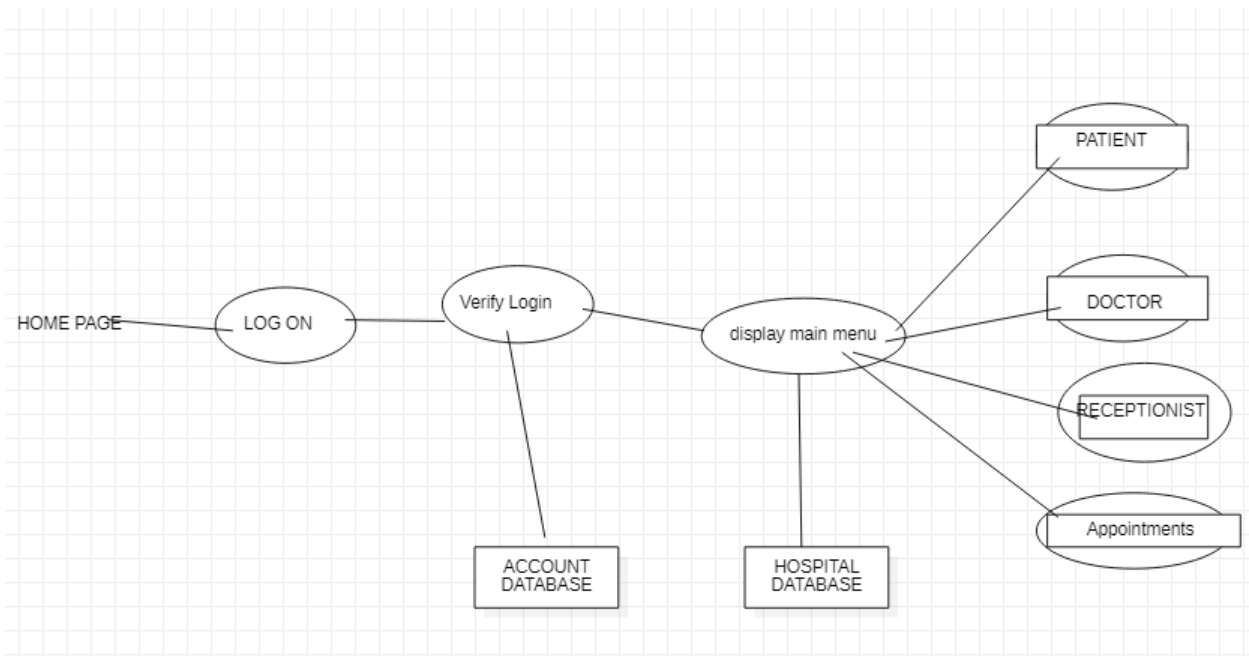
The system function in hospital management application will perform the following major function:-

- Patient Details: – It includes inpatient and outpatient details.
- Doctors details
- Receptionist details
- Registration: doctor and receptionist first register them
- Login : then they login
- Add patient
- Appointments
- Add doctors
- Add receptionist
- Treatment details
- Add doctor assistant
- Doctor assistant details
- Show appointment
- Set medical report of each patient

2.2.1 Function Relationships

Figure 2.2 to 2.6 depict the relationships among the functions to be implemented by the system.

Figure 2.2 HMS General Function Relationship/Higher Level Usecase Diagram



2.2.2 Function Descriptions (Functional Requirement Listings)

2.2.2.1 Log In Function

Description: This class is made for every one which are admin, doctors, receptionist by which they can login for their diff portal

2.2.2 Module 1: Login

Description: This function allows the admin to [Make | Drop | View | Update] for updating the database of doctors. The admin can add any doctor from any city into the database along with his/her correct information such as contact number, Address, Specifications, gender etc. The admin will also provide the email address of doctors which will be used by patients to contact the doctor for the appointments.

2.2.3 Module 2: Doctor

Description: This admin module in this module admin manage doctor and patients patient details. Admin can access all modules of project. Admin

can delete, update and add details of patients and doctors. Admin also add new doctors.

2.2.4 Module 3: Patient

Description: This function allows the Doctor to show the patient ,Appointment , receptionist details and doctor treat them . If the patient does not already have a appointment, then a new appointment is created. If the patient appointment already has a previous reservation, a new reservation is added to the list of current reservations. And last doctor give the tests and medicine after treatment

2.2.5 Module 4: Receptionist (Appointment)

Description: Its is a receptionist in which we have method of add, delete, show, and update receptionist and all the data is store in SQL server database , receptionist also have duty to set the appointments by which doctor can treat the patient according to their given appointments list and also maintain the medical reports of each patient.

2.2.6 Module 5: Doctor Schedule

Description: This function

2.3 User Characteristics

The main users of the system will be the passengers buyin, the travel agents that process reservations for passengers, and the CRM administration that access the reports generated by the system. The users are not required to have knowledge in the computer field. The graphical interface provides an easy way of using the HMS system with minimum of training.

2.4 General Constraints

The constraints for the project are:

- The functional prototype should be available after 30 days upon the arrival of the management team to China. This may prove to be a serious time constraint on the development of a successful prototype.
- Communication with the Chinese team members may prove to be difficult since some Chinese developers do not speak English and the management team does not

- speaking Chinese. Even with the presence of a translator, communication may be difficult. Absence of the translator may severely affect project development.
- Team members are restricted from bringing their own equipment, and insufficient equipment supply may hinder project development.
 - Team members are restricted to bringing only the analysts of the team to China. This might affect the project development if more people are needed or the required skills are not available.
 - The majority of the Chinese population does not have or have a limited access to the Internet.

2.5 Assumptions and Dependencies or Business Logic

The assumptions for the project are:

- Ten trains transport the passengers between three cities known as Guangzhou, Shanghai and Nanjing. These trains originate only in cities Guangzhou and Shanghai, and they make a stop at Nanjing before arriving to their destination.
- There are five classes of tickets as listed below
- Sleeping (soft) - compartment style coaches - 4 passenger per compartment
 - Sleeping (hard) - compartment style coaches - 6 passenger per compartment
- Reservation can be made up to one month before a particular trip.
 - Seats are assigned during reservation.
 - Phone reservation involves tickets being purchased within 24 hours after making the reservation. Otherwise, the reservation will be cancelled.
 - No reservations can be made 48 hours prior to the trip. Rather, it will be done on a first come first serve basis from that point on.
 - Passenger lists will be provided for conductors at each stop.
 - The expected reservations during test period may amount to approximately 25,000 per day. This volume varies by hour, day, and season.
 - Chinese Ministry will provide us with information about identification process used in China, so that it can be applied to the reservation system and scalping of tickets is avoided.
 - Network connection will always remain established.

<ADD OOAD REPORT DIAGRAMS HERE>

3. Specific Requirements

This section of the SRS contains design requirements for the **Hospital Management System**.

3.1 Functional Requirements

3.1.1 Log In Function

- a) **Description:** This function ensures that only authorized users gain access to the Hospital databases. An authorized user is a user who has an account on the system. Users include Admin, Doctor officials, Receptionist officials and Doctor Assistant. The user must type a valid username and password to gain access.

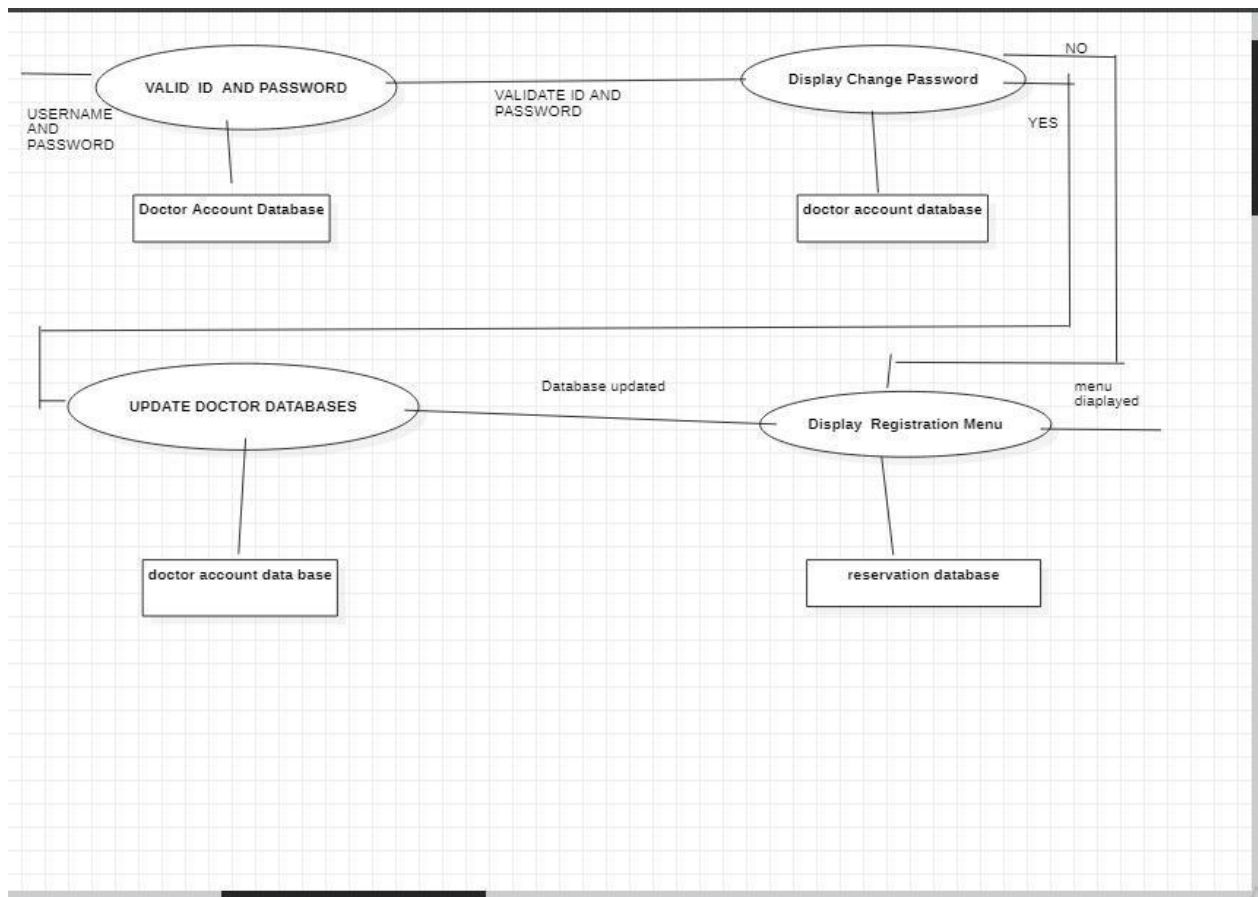
b) **Usage Scenario/ Use case Description/ Specification:**

Description	Allows access to online HMS
Inputs	Username, password
Source	1. User inputs username and password 2. Press Login Button
Alternate case	
Outputs	Successful login; unsuccessful login
Destination	None
Precondition	Authorized User
Post Condition	No change to Passenger Accounts Database
Side Effects	Failures and successful logins are sent to Reservation Database

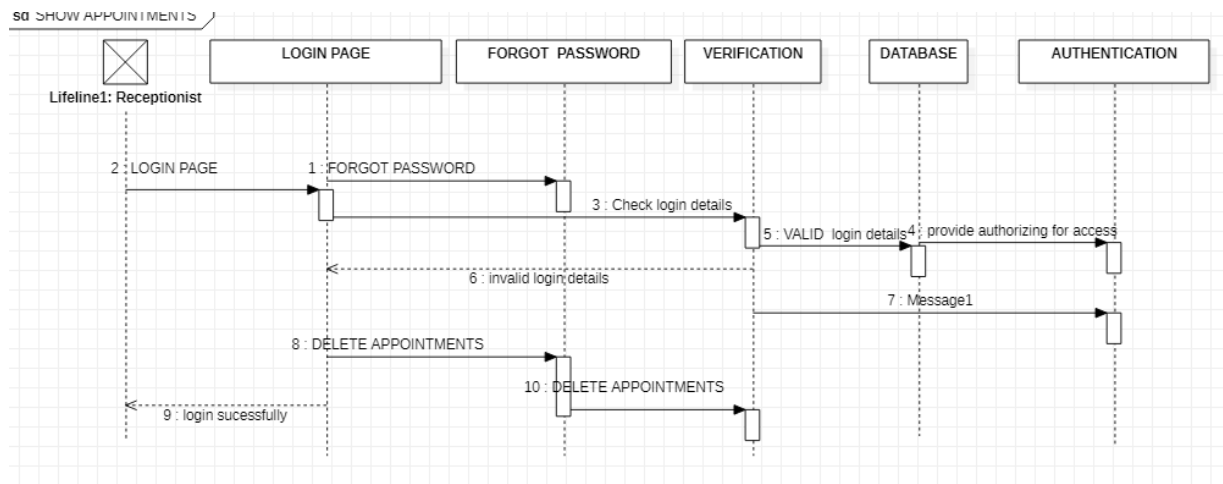
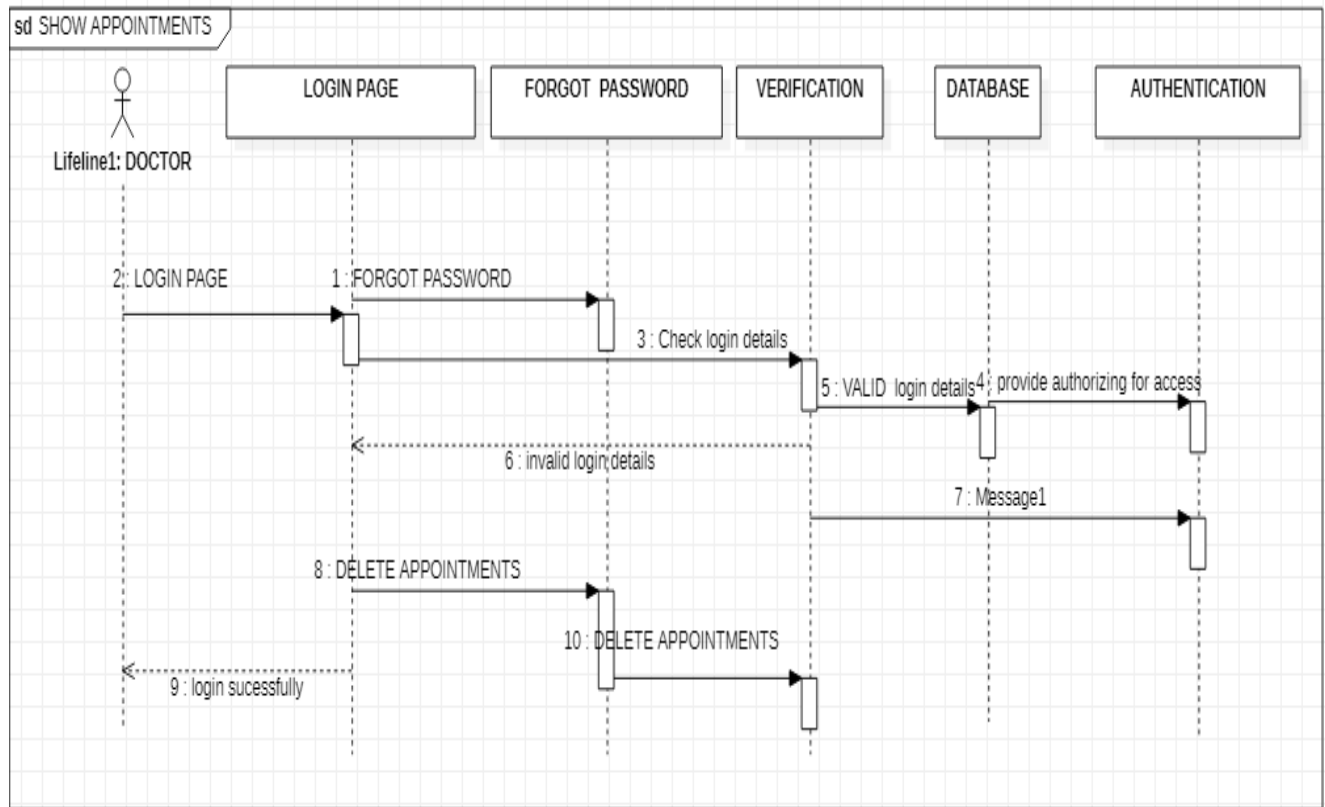
c) **Detailed Use case Diagram for Login: optional**

d) **Use case Realization for Login: optional**

e) **Flow of Event or Data Flow Diagram for Login: optional**

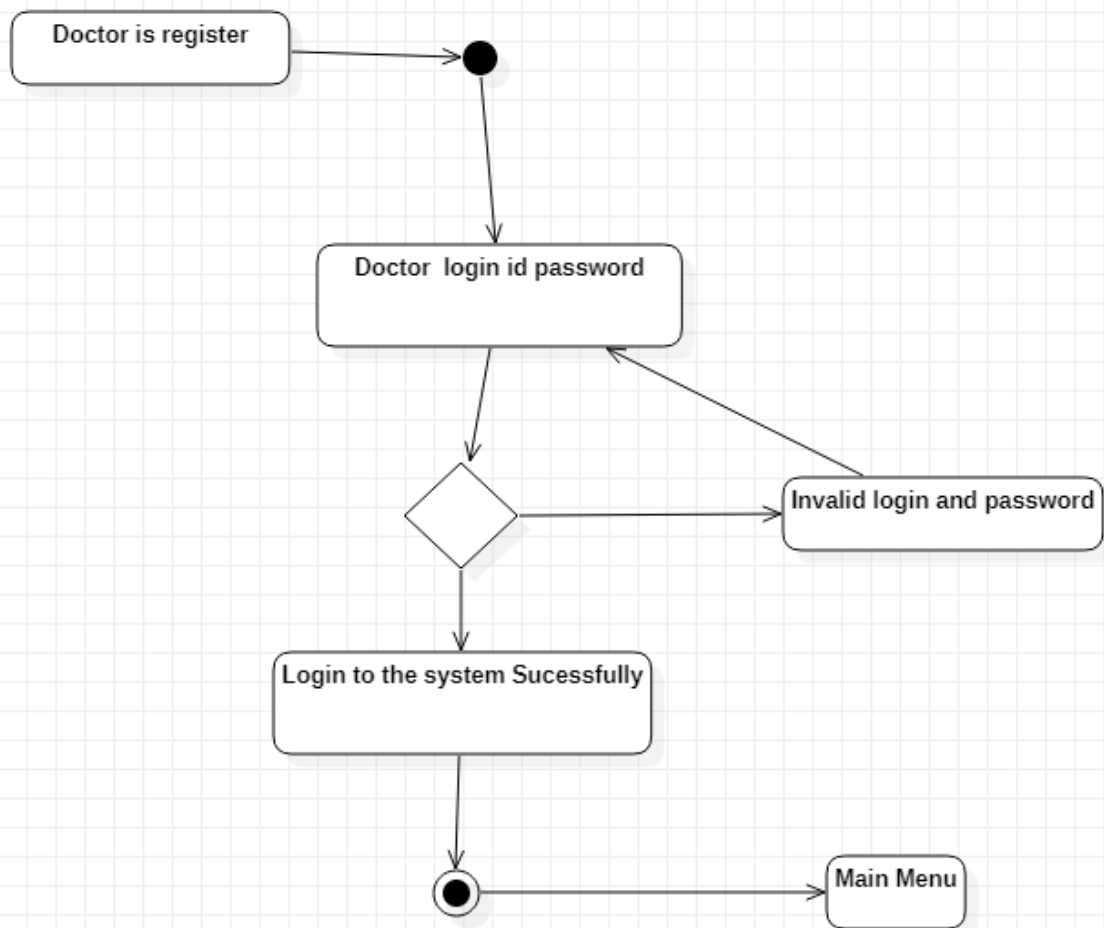


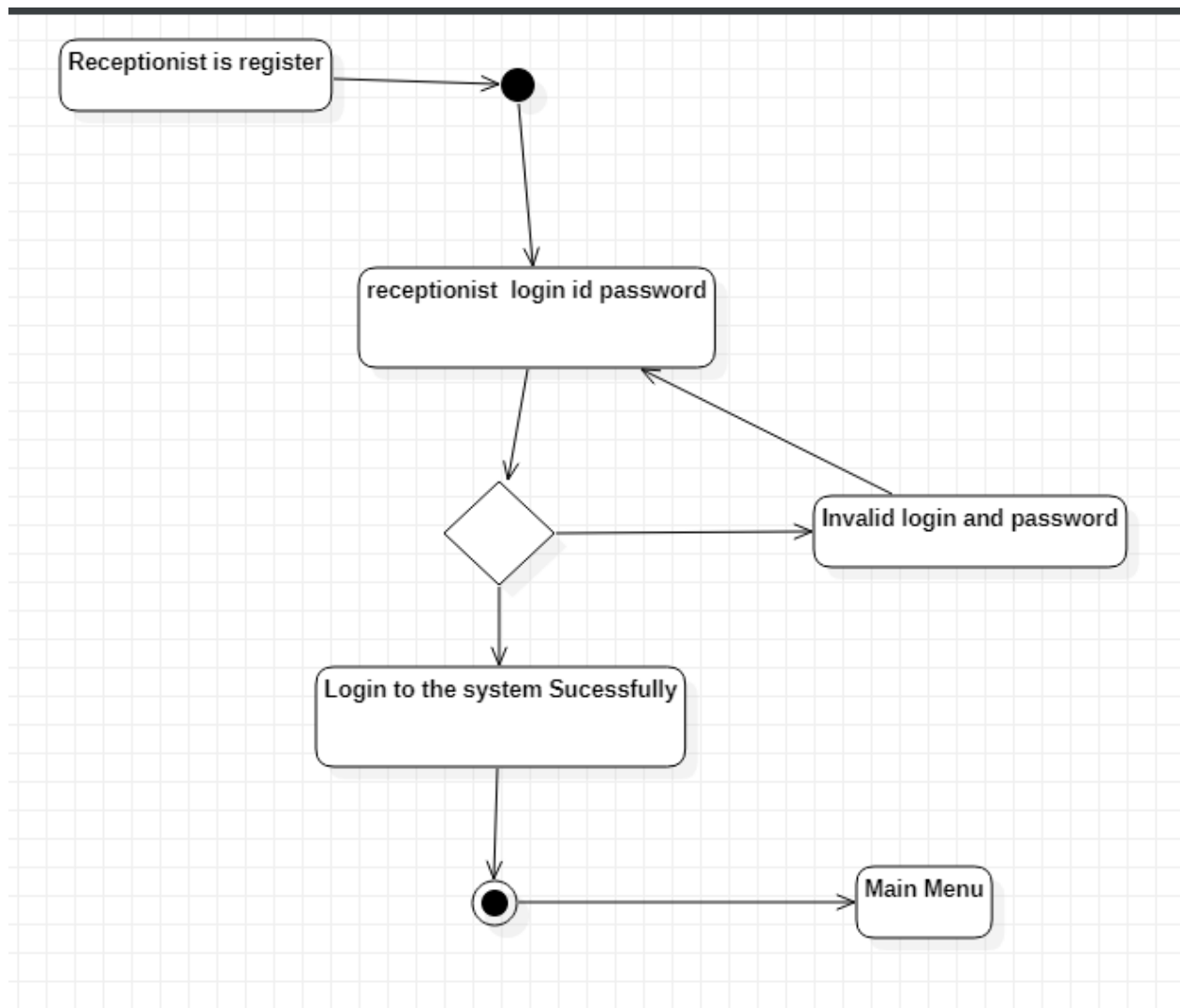
f) Sequence Diagram for Login: optional



g) Collaboration Diagram for Login: optional

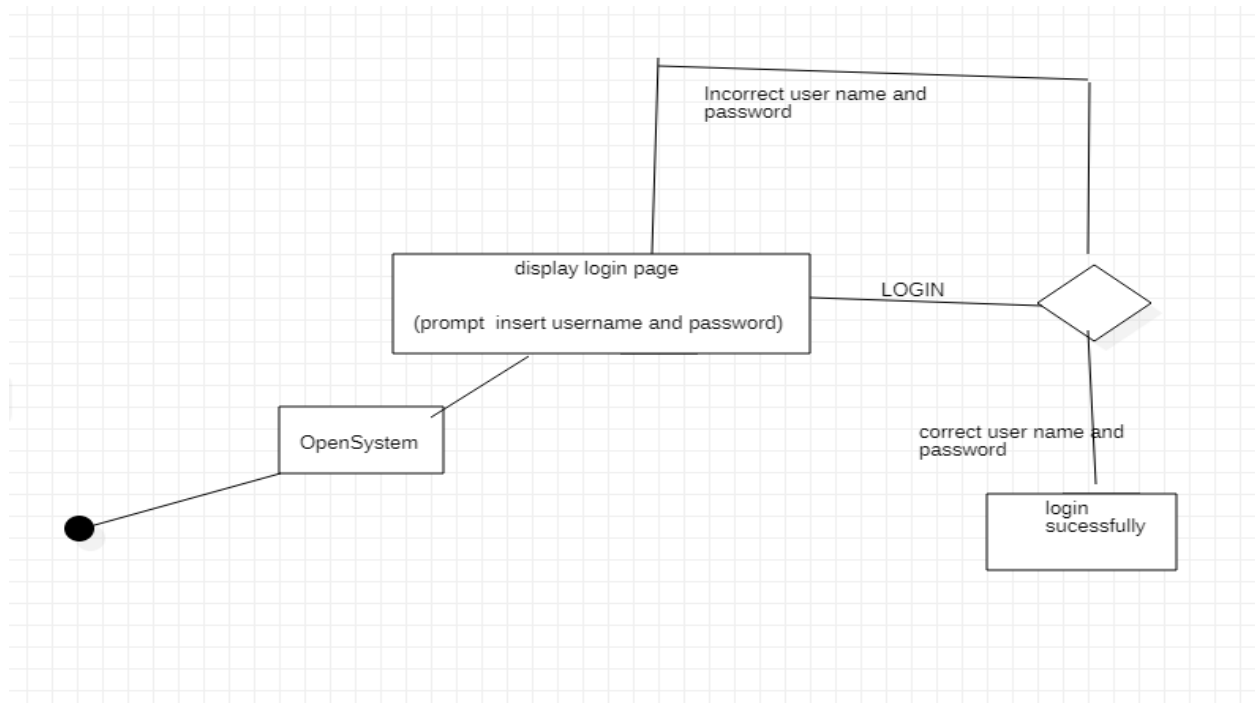
h) Activity Diagram for Login: optional





i) Class Diagram for Login: optional

j) State Chart Diagram for Login: optional



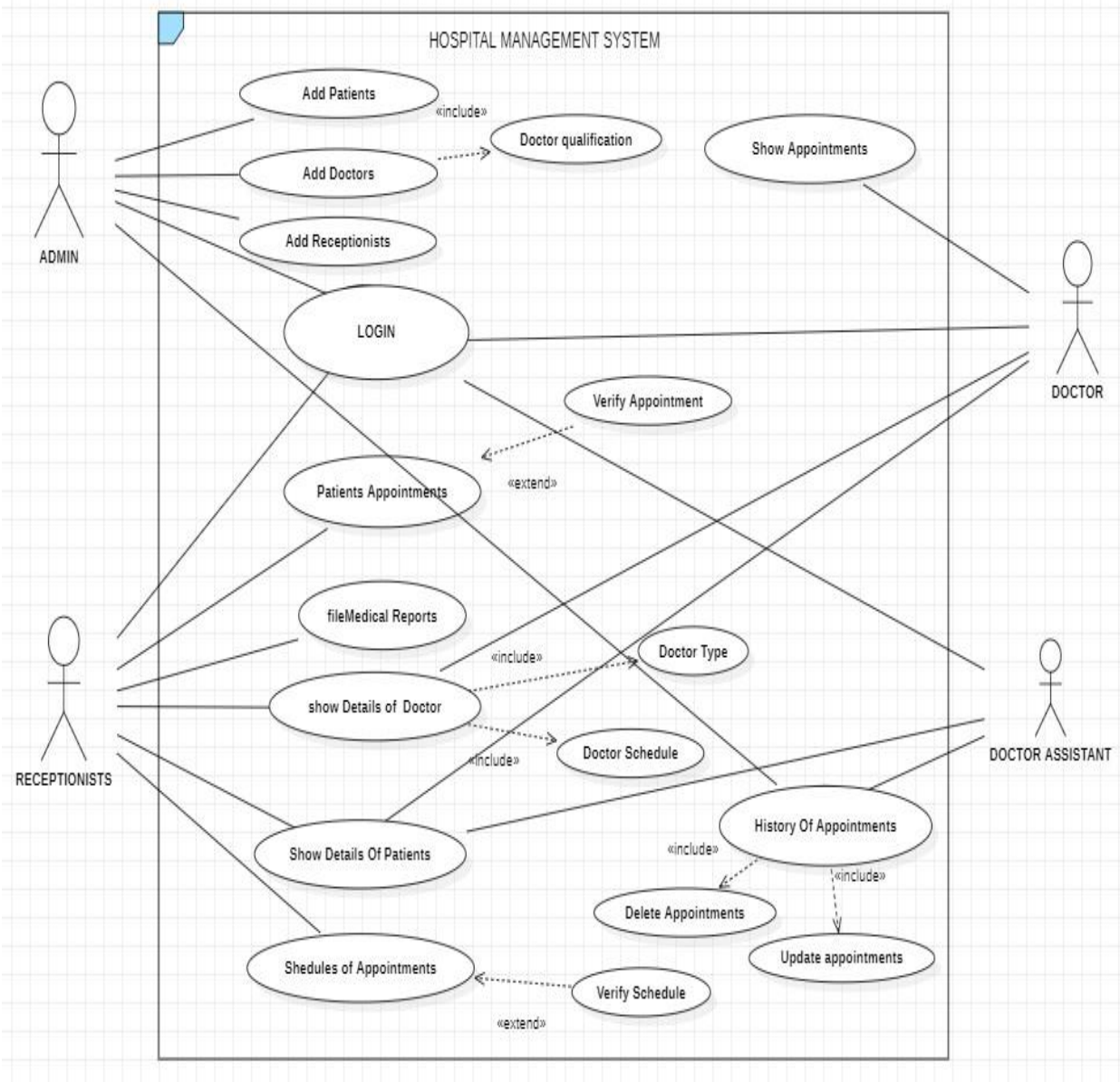
3.1.2 **Module 2 complete CRUD Make a Reservation Function**

- a) **Description:** This function allows the user to [make | drop | view | update] a reservation for a particular patient , doctor, receptions, patient appointments on a particular date . If the user does not already have a reservation, then a new reservation is created. If the user already has a previous reservation, a new reservation is added to the list of current reservations, and the passenger account balance gets updated.

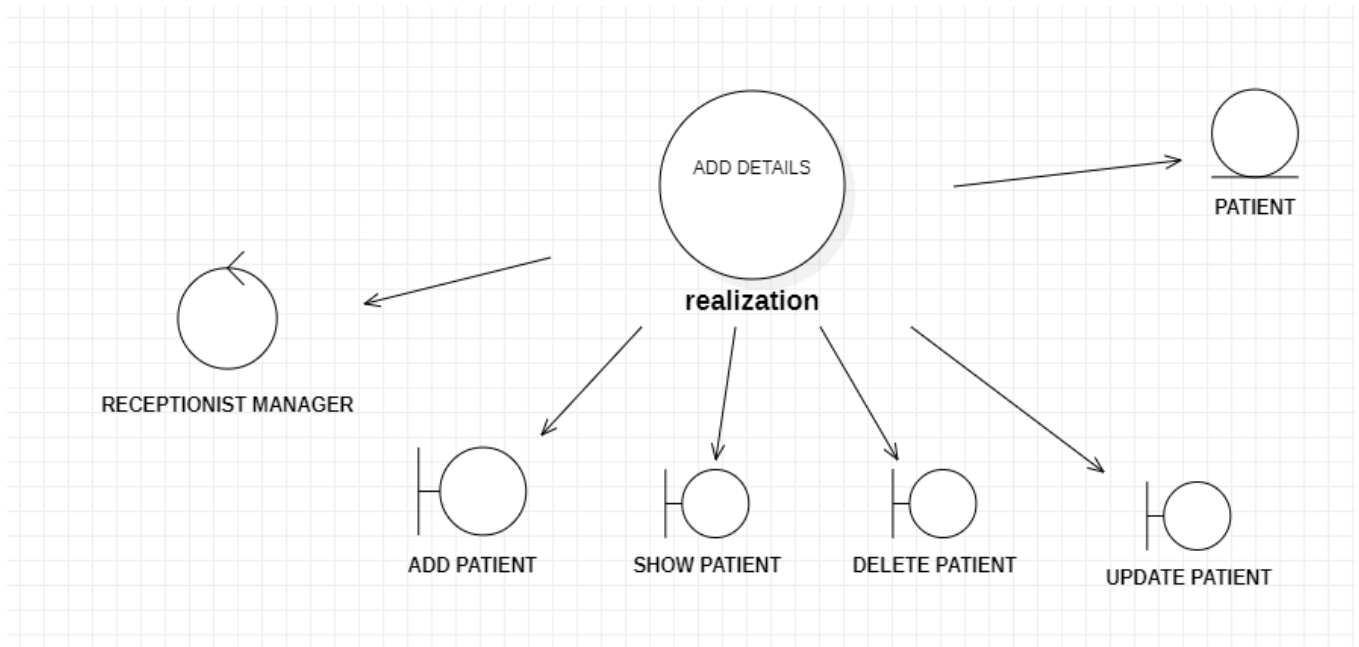
b) **Usage Scenario/ Use case Description/ Specification:**

Description	[make drop view update] a reservation to the user's account
Inputs	Doctor name, patient name, receptionist name
Source	<ol style="list-style-type: none"> 1. User inputs from city, to city, seat type, travel date, return date and time 2. Press Button ...
Alternate Case	
Outputs	Added Deleted Viewed Modified reservation
Destination	Computer screen Reservation database Passenger Account database
Precondition	Valid information; train route and tickets available; user does not have another reservation at the same time
Post Condition	Reservation added to passenger account
Side Effects	User's current reservations adjusted Balance due adjusted

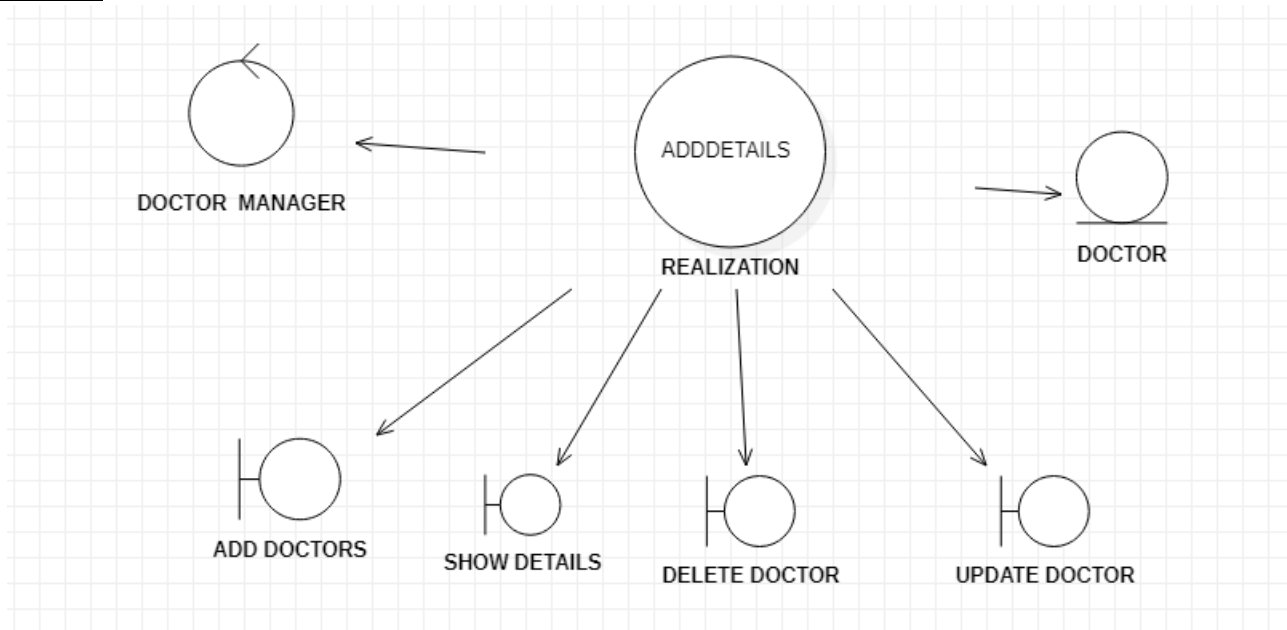
c) Use case Diagram:



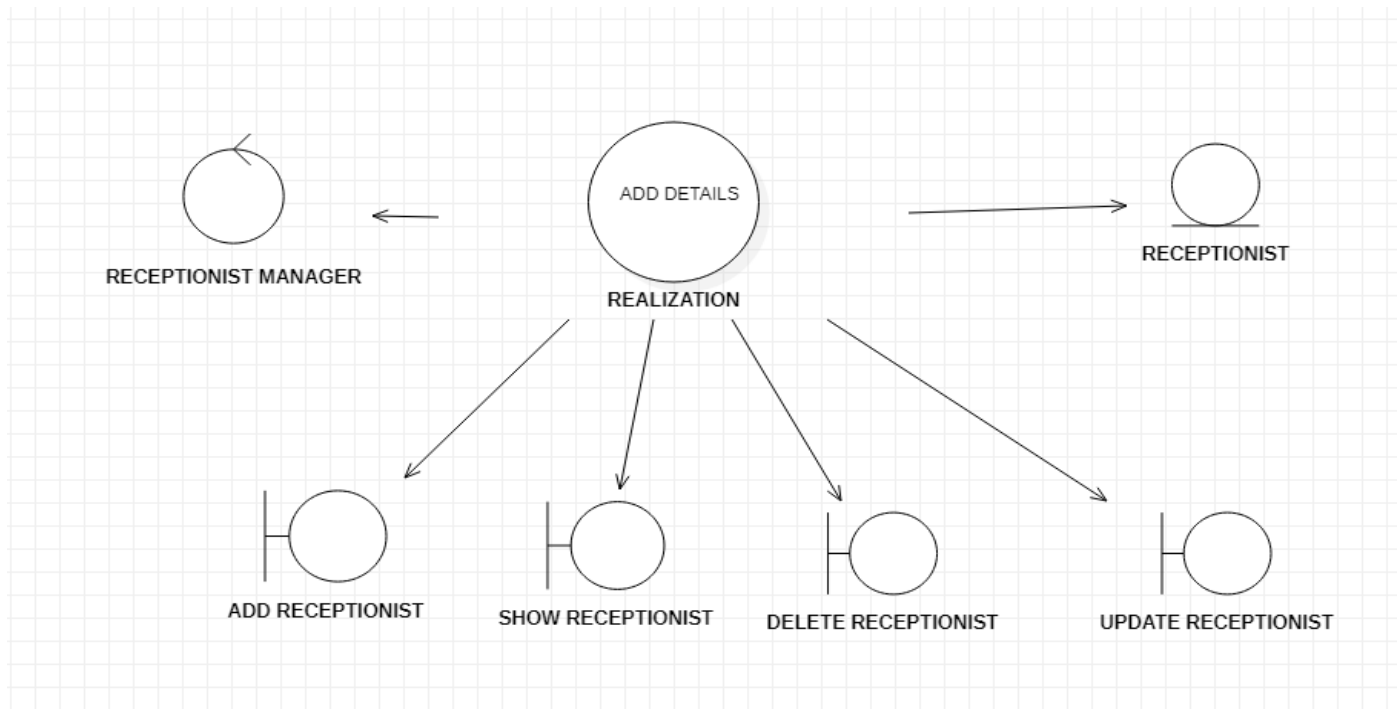
d) Use case Realization:



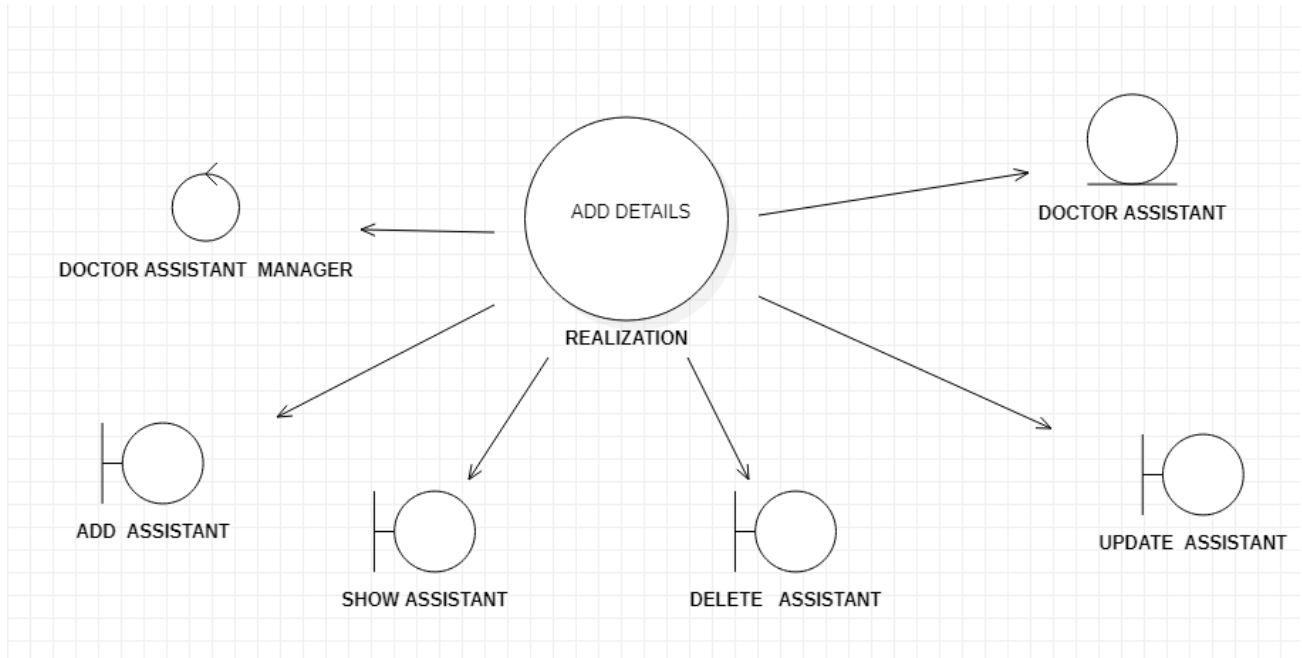
Doctor:



ADD RECEPTIONIST:

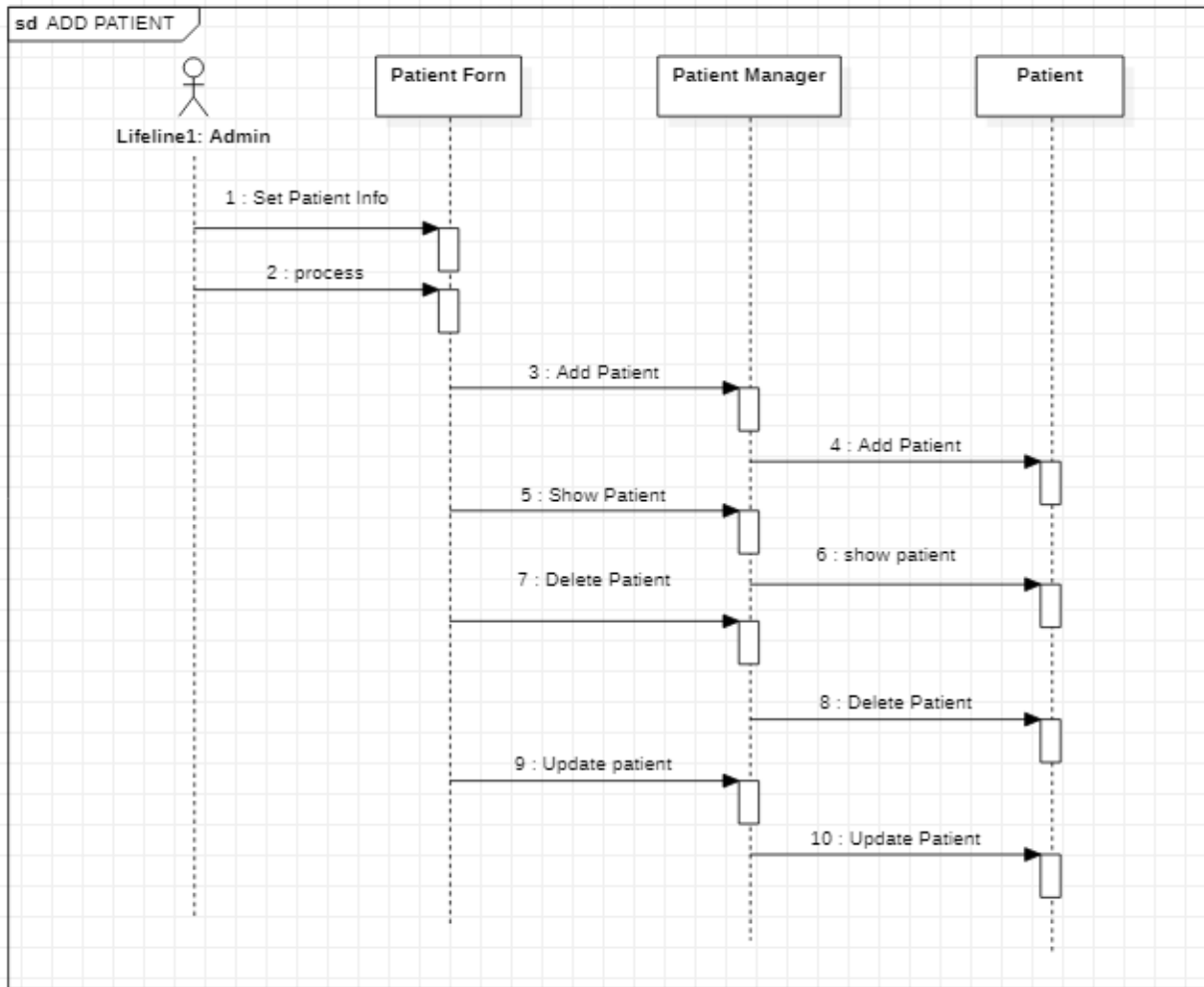


ADD DOCTOR ASSISTANT:

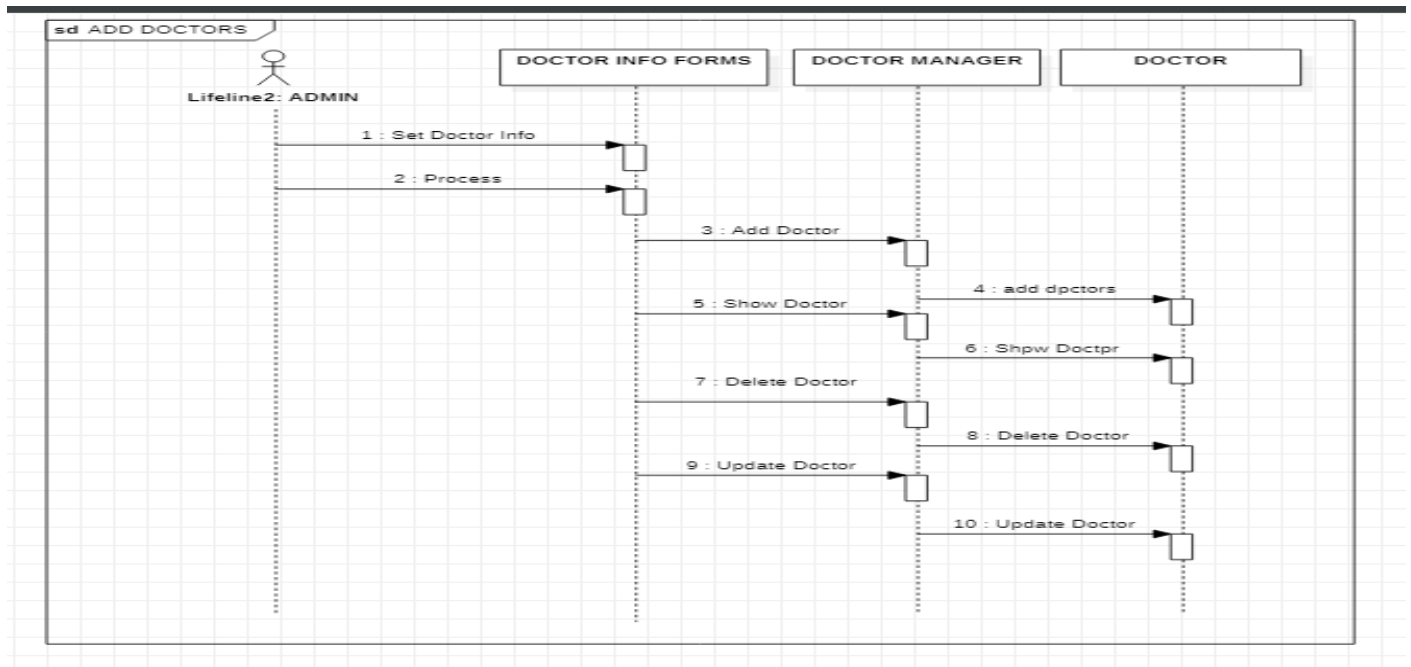


e) Flow of Event or Data Flow Diagram:

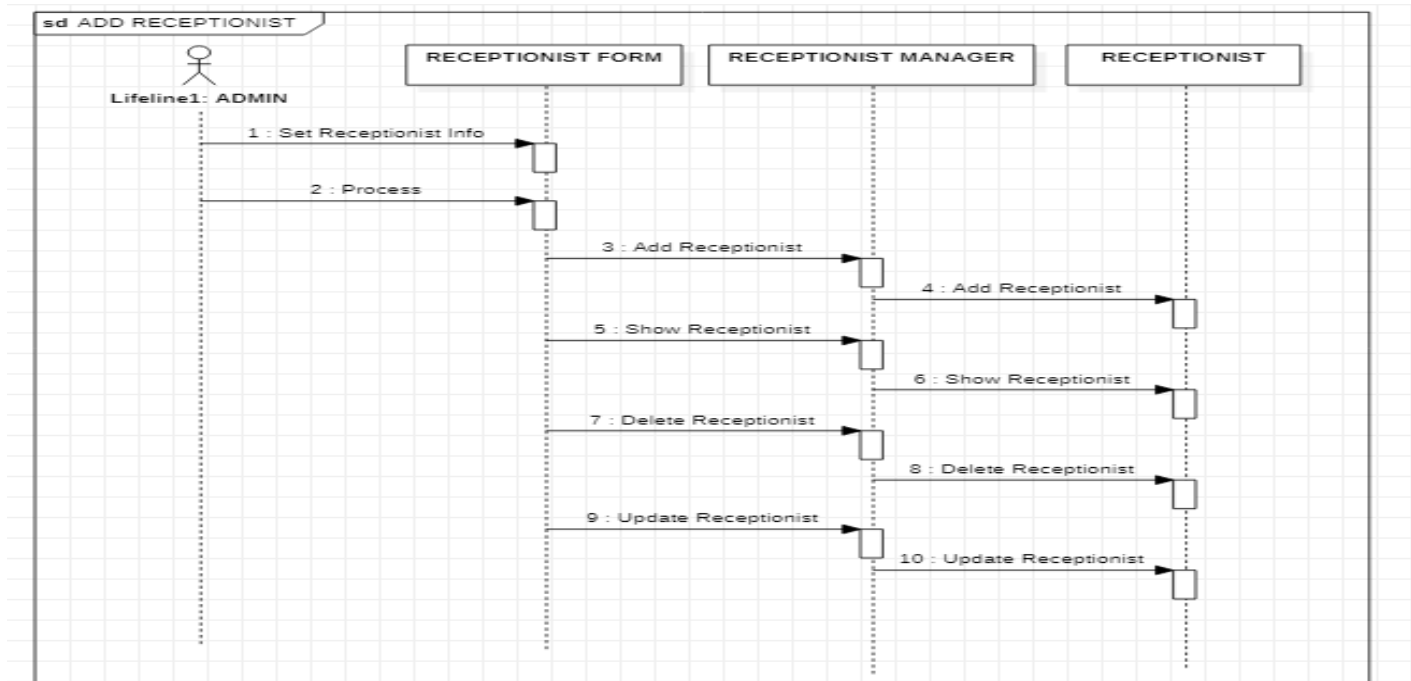
f) Sequence Diagram:

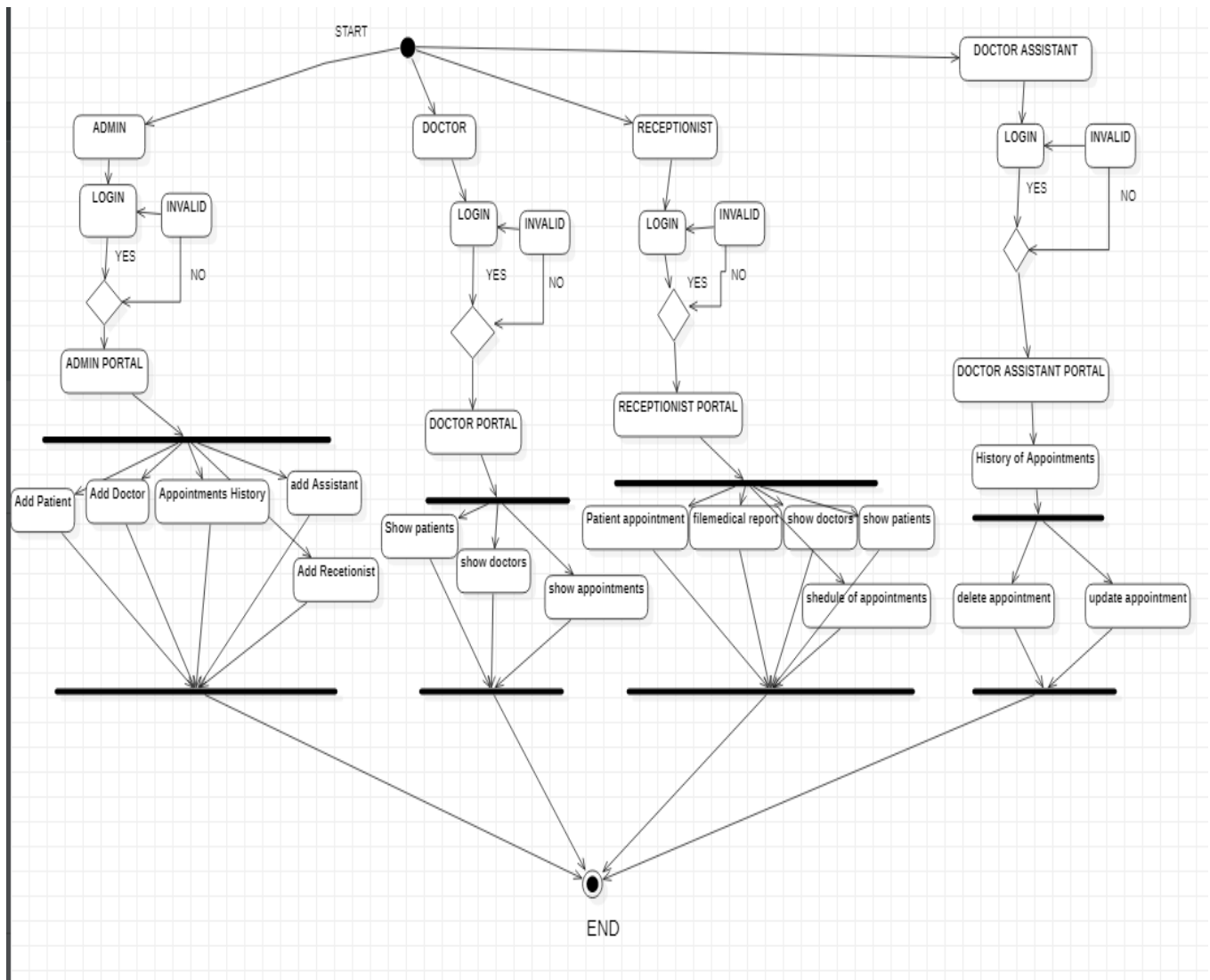


ADD DOCTOR:

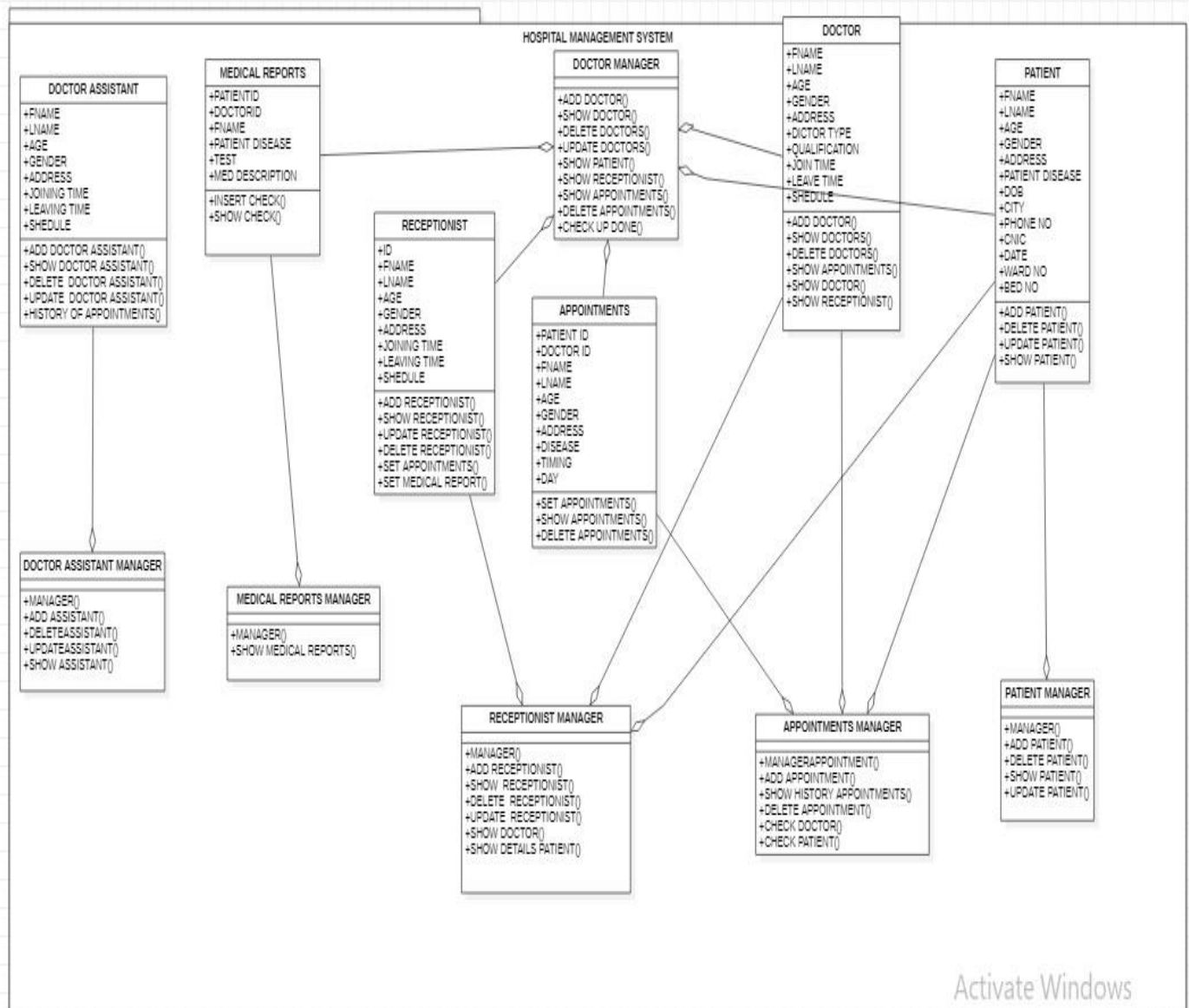


ADD RECEPTIONIST:





i) Class Diagram:



j) State Chart Diagram:

3.1.3 Module 3 complete CRUD Make a Reservation Function

3.1.3 Module 2 complete CRUD Make a Doctor Info

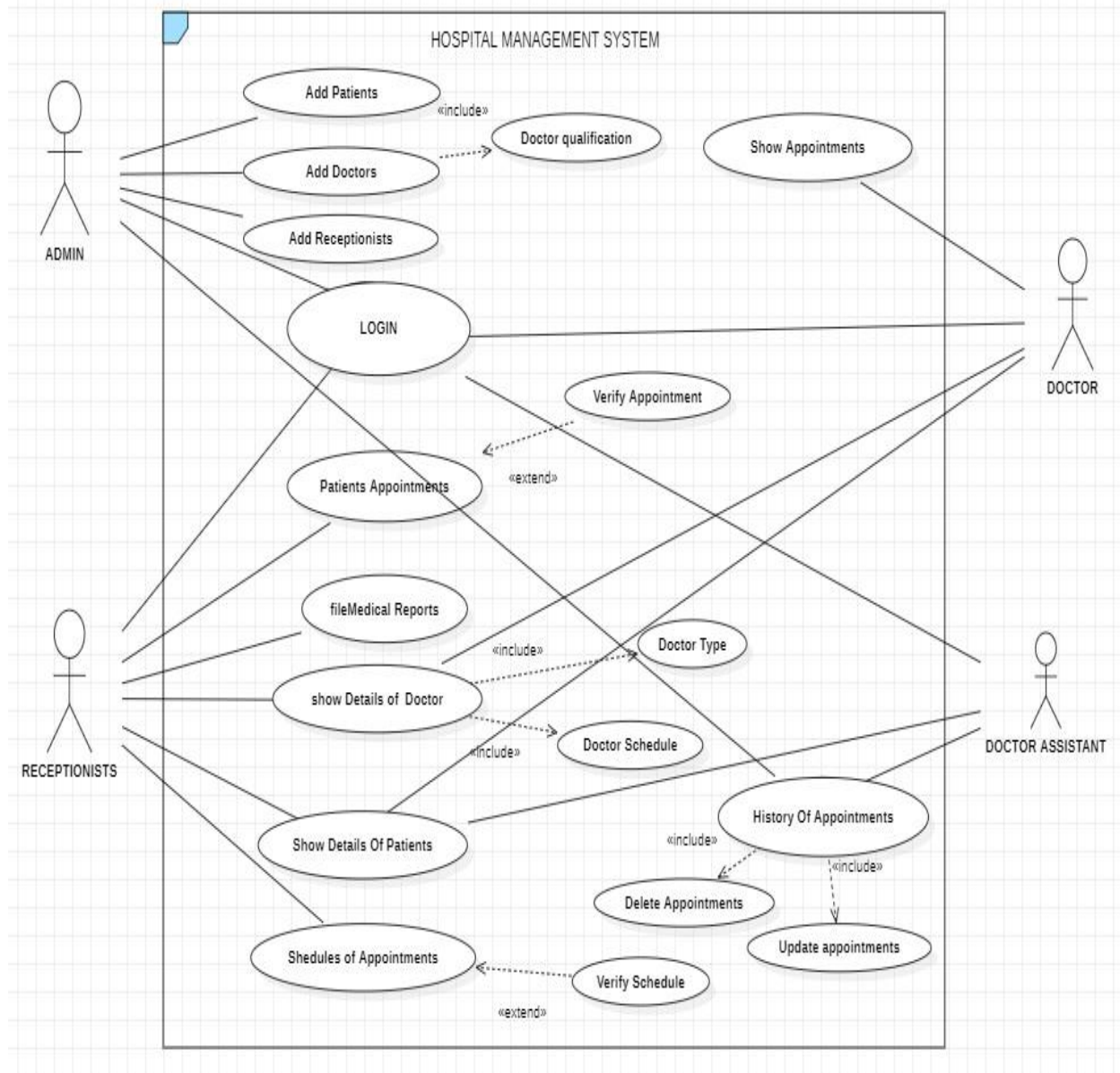
- k) **Description:** This function allows the Doctor to show the patient, Appointment, receptionist details and doctor treat them. If the patient does not already have an appointment, then a new appointment is created. If the patient appointment already has a previous reservation, a new

reservation is added to the list of current reservations. And last doctor give the tests and medicine after treatment

k) Usage Scenario/ Use case Description/ Specification:

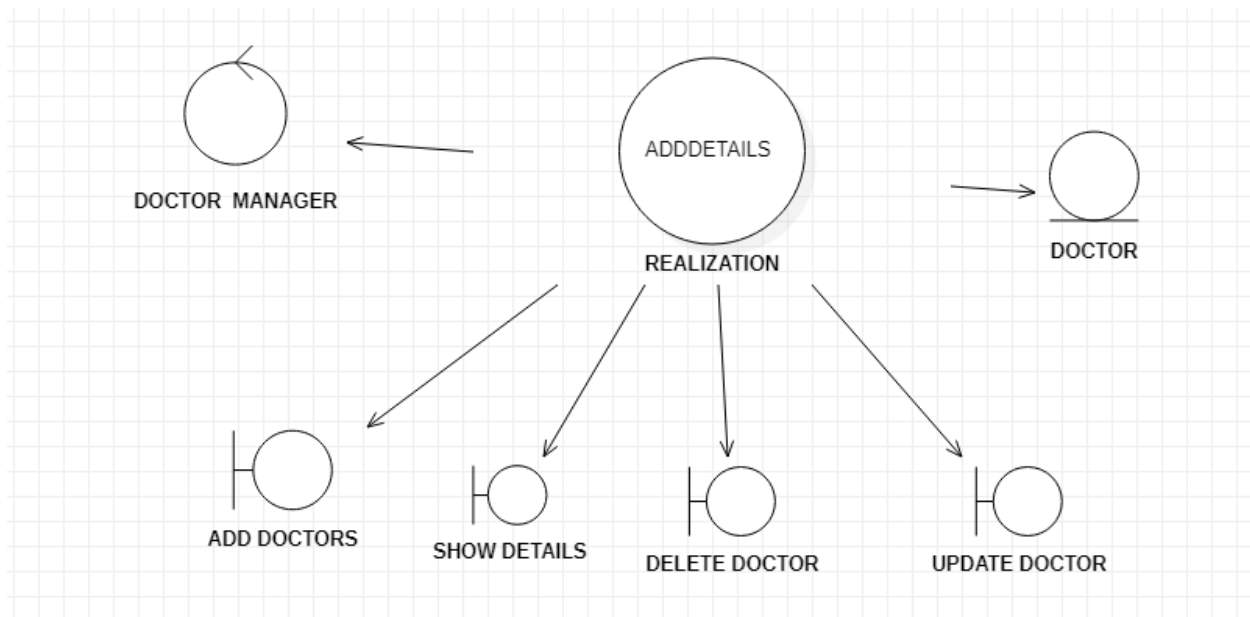
Description	Allows access to hospital management system
Inputs	Username, password
Source	3. User inputs username and password 4. Press Login Button
Alternate case	
Outputs	Successful login; unsuccessful login
Destination	None
Precondition	Authorized User, check appointment, patients
Post Condition	No change to hospital Database
Side Effects	Failures and successful logins are sent to hospital Database

l) Detailed Use case Diagram for Doctor: optional

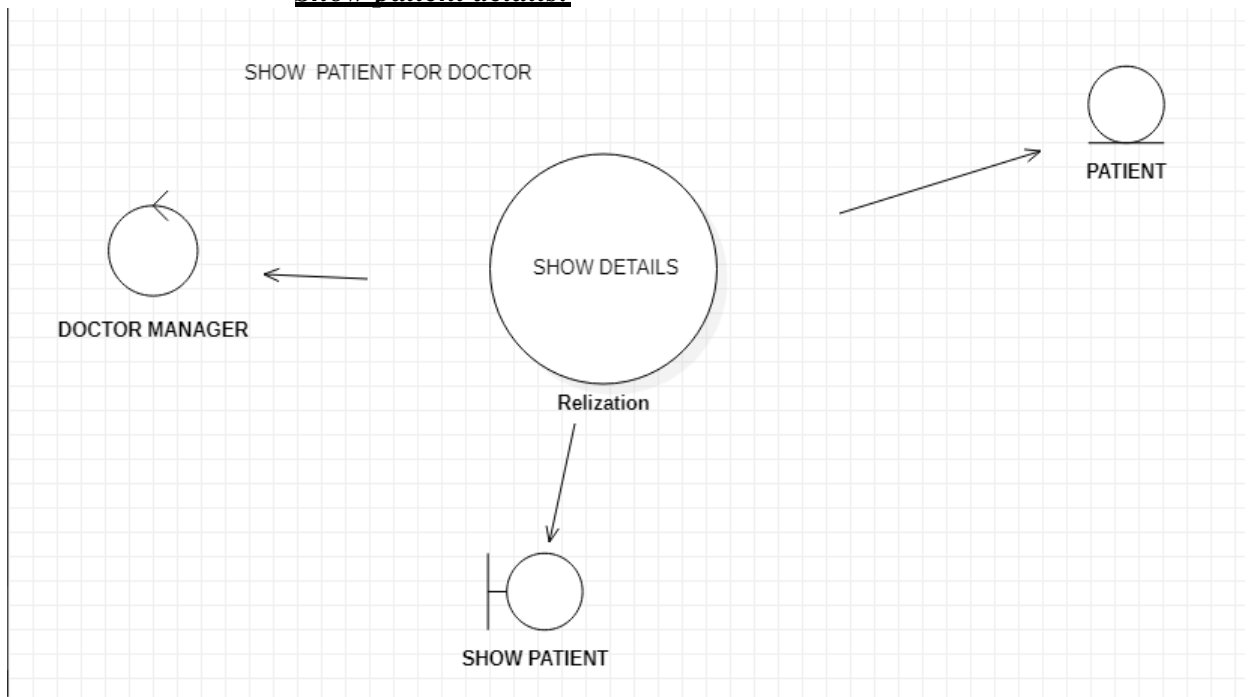


m) Use case Realization for Doctor: optional

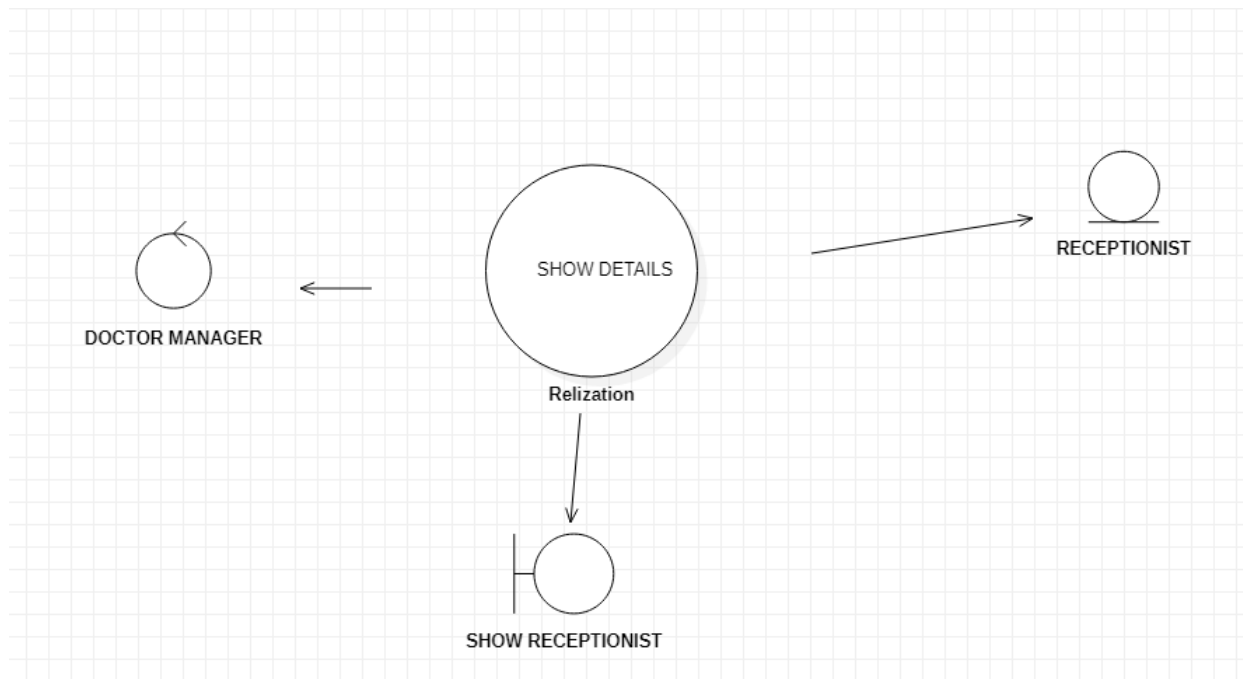
Admin add the doctor details:



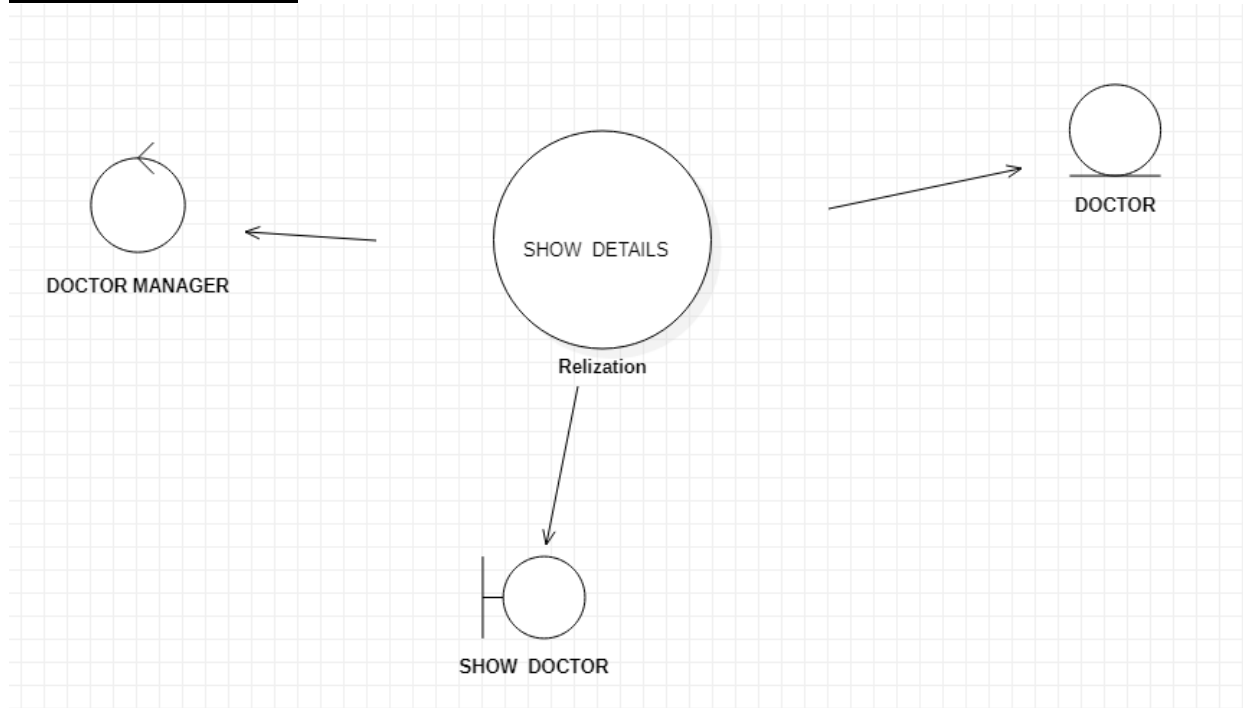
Show patient details:



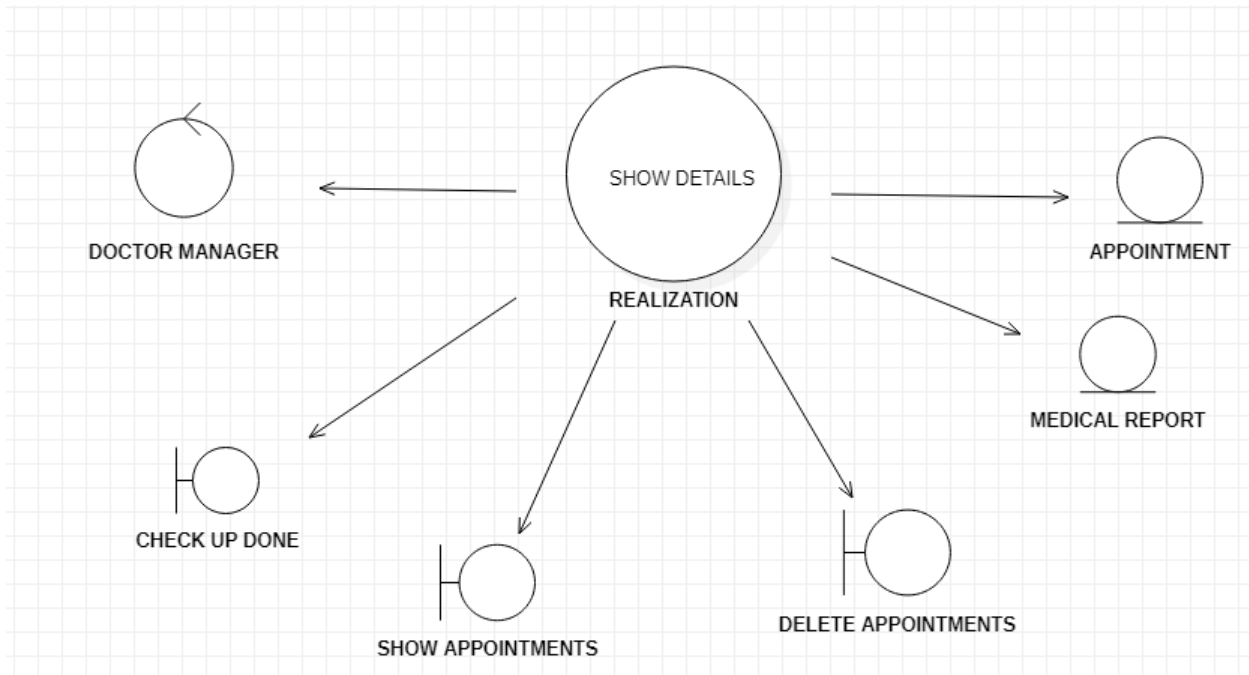
Show Receptionist Details:



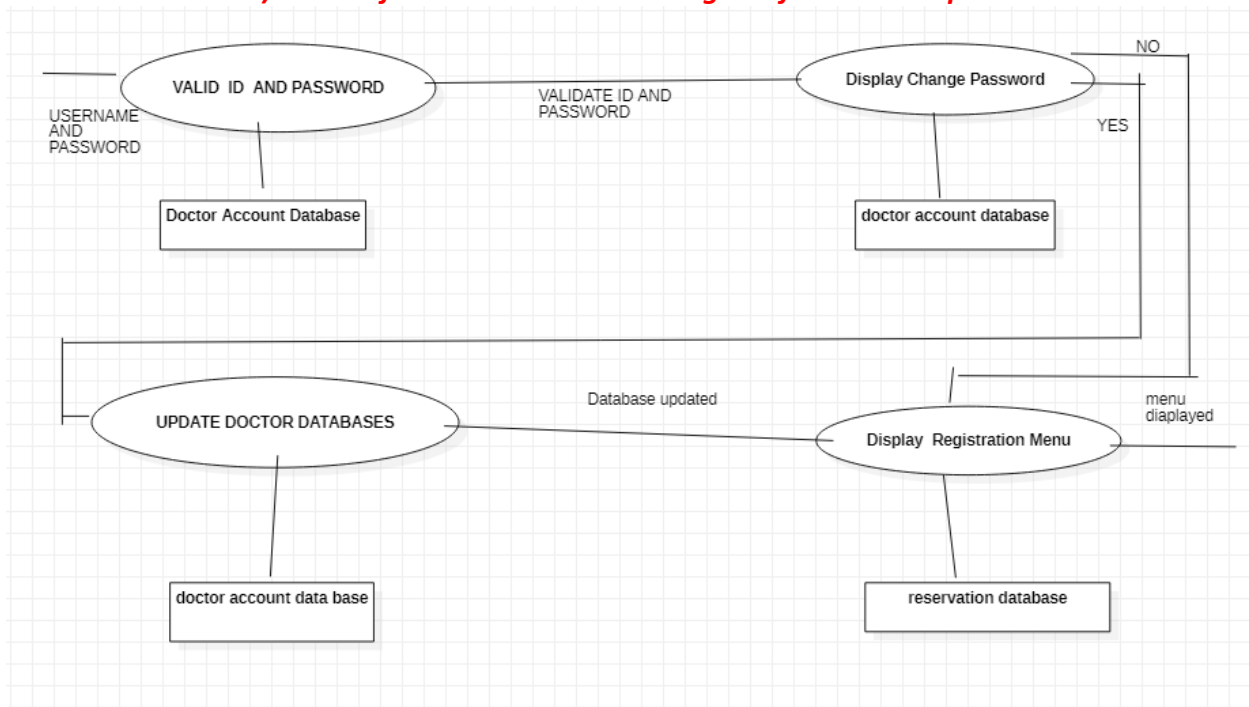
Show Doctor Details:



Show Appointments Details:



n) Flow of Event or Data Flow Diagram for Doctor: optional



Flow Of Events Of Doctor: Precondition:

The sub flows is to maintain the all records & information which is related to the hospital.

It can also maintain all appointments of patients .It must execute before this use case begins.
And the details of patient will also show to

Main flow:

This use case begins with the doctor login onto registration system and enter his/her password the system verifies that password is valid and prompts the doctor to see the patient and their appointments details .

Sub Flows:

i. Show details of patient

The doctor can see the patient data. Which Includes name, father name and treat them

ii. Appointments

The doctor can also check their appointments of patient and diagnose their diseases after knowing their past history. The schedule of doctors are diff with names, qualification, date of joining and leaving

iii. Alternative Flows:

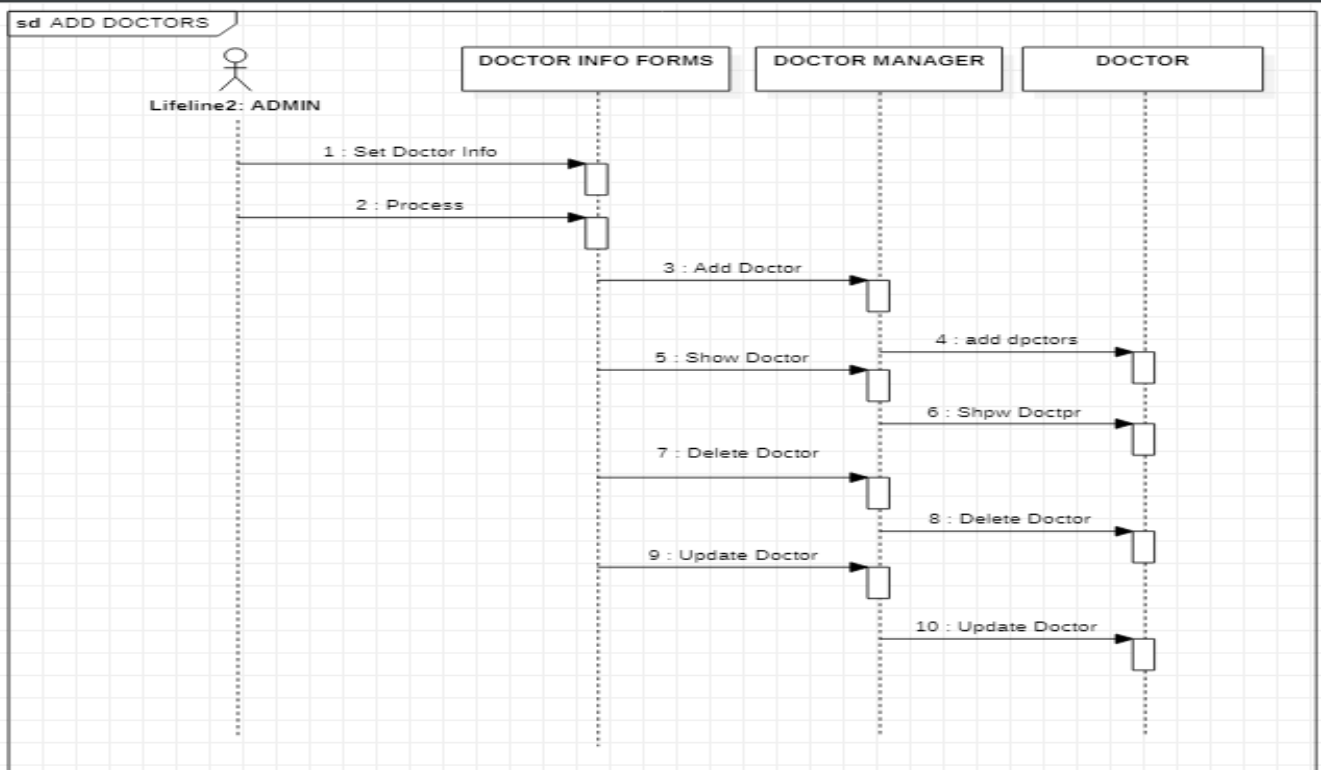
If the invalid doctor id is enter. The doctor can reenter the doctor id

If the invalid patient name is enter they can reenter the whole data again

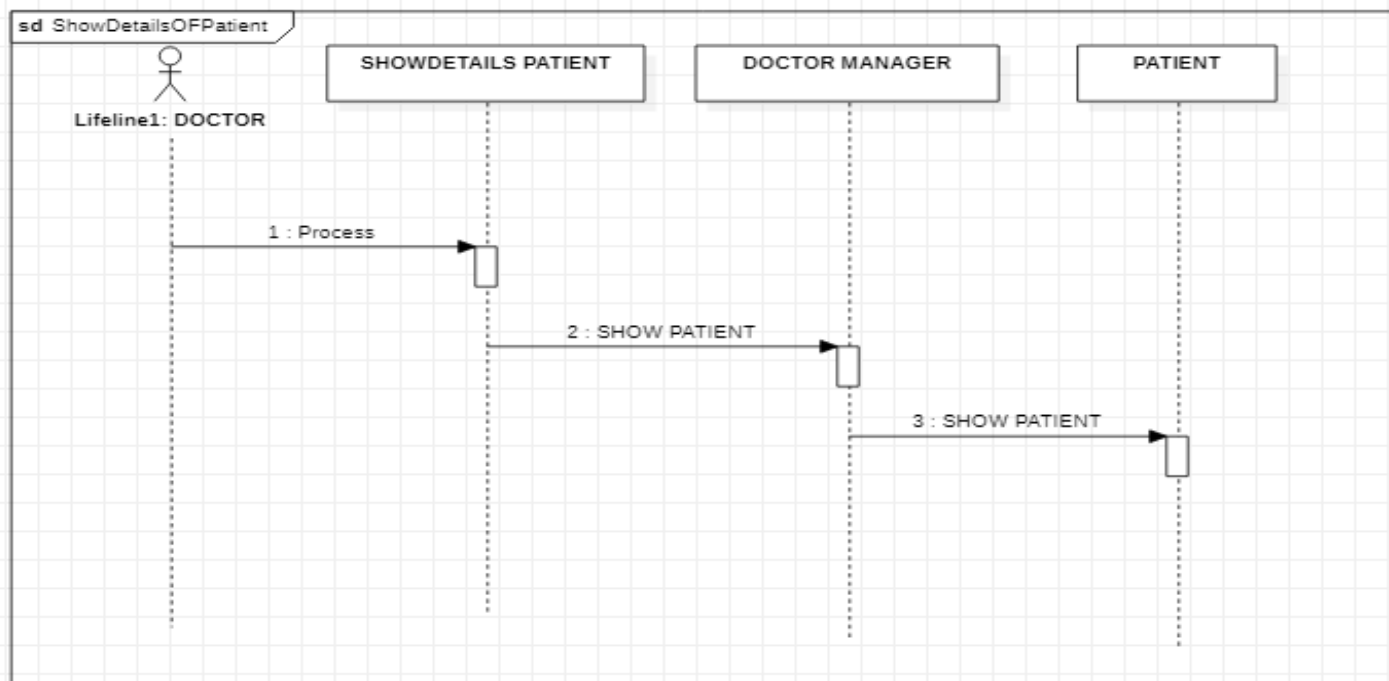
If the invalid appointments are given then reenter whole appointment again

o) Sequence Diagram for Login: optional

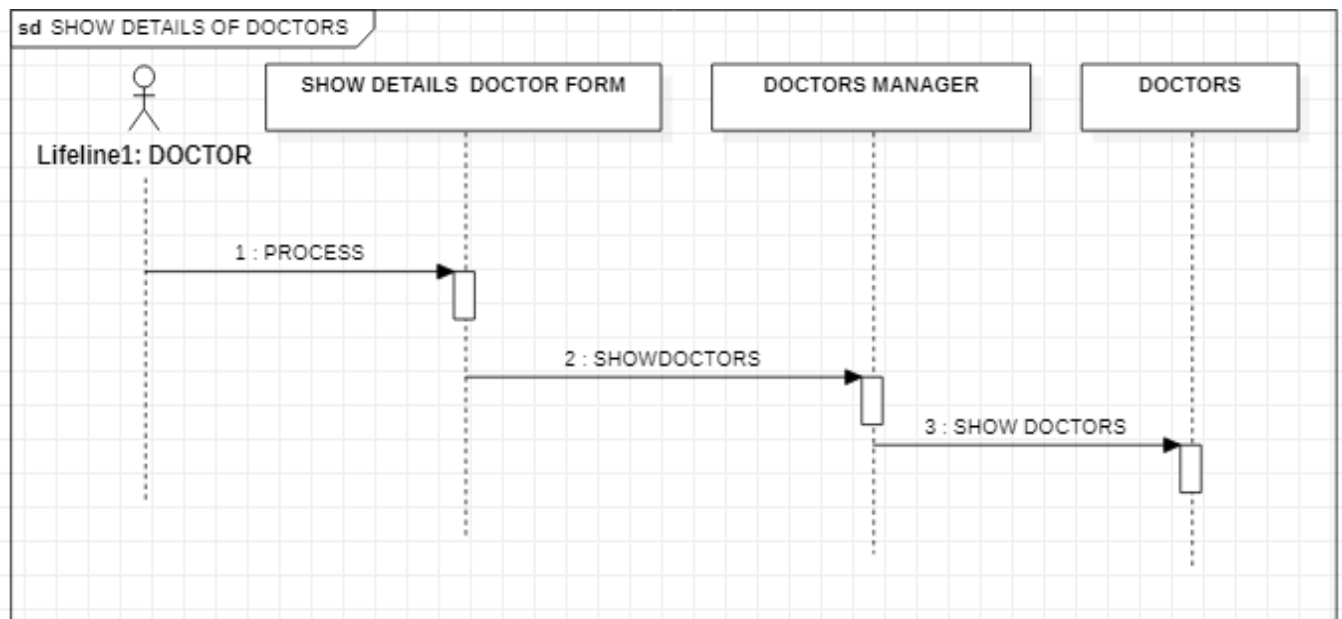
Add Dotor Details By Admin:



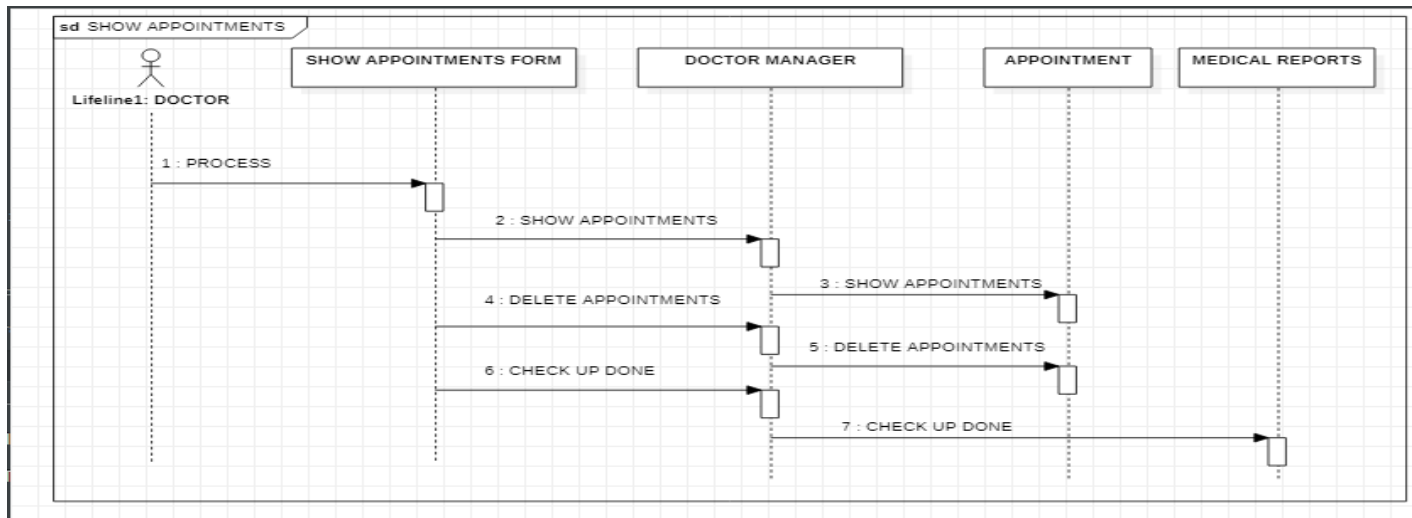
Show Details Of Patient:



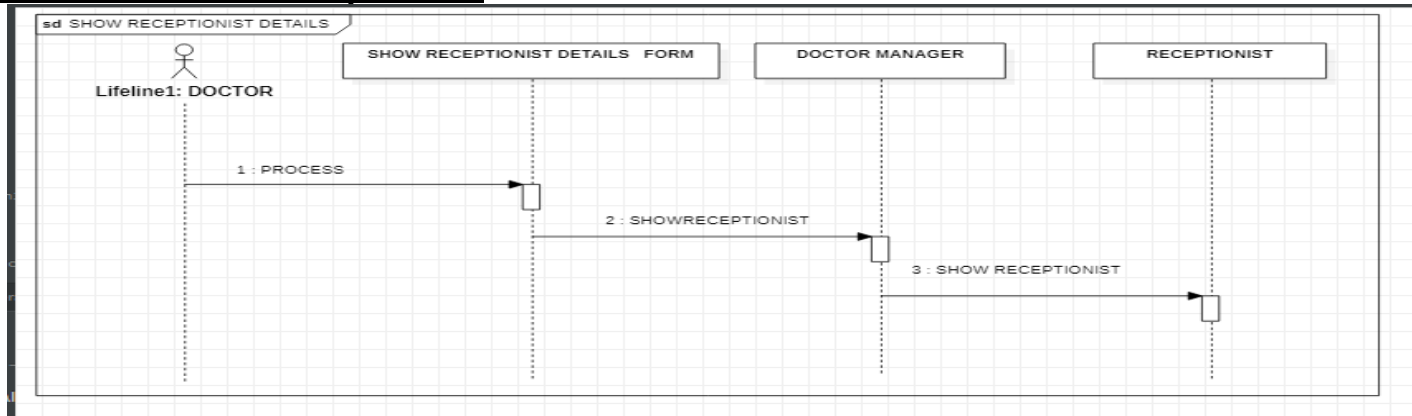
Show Doctors Details:



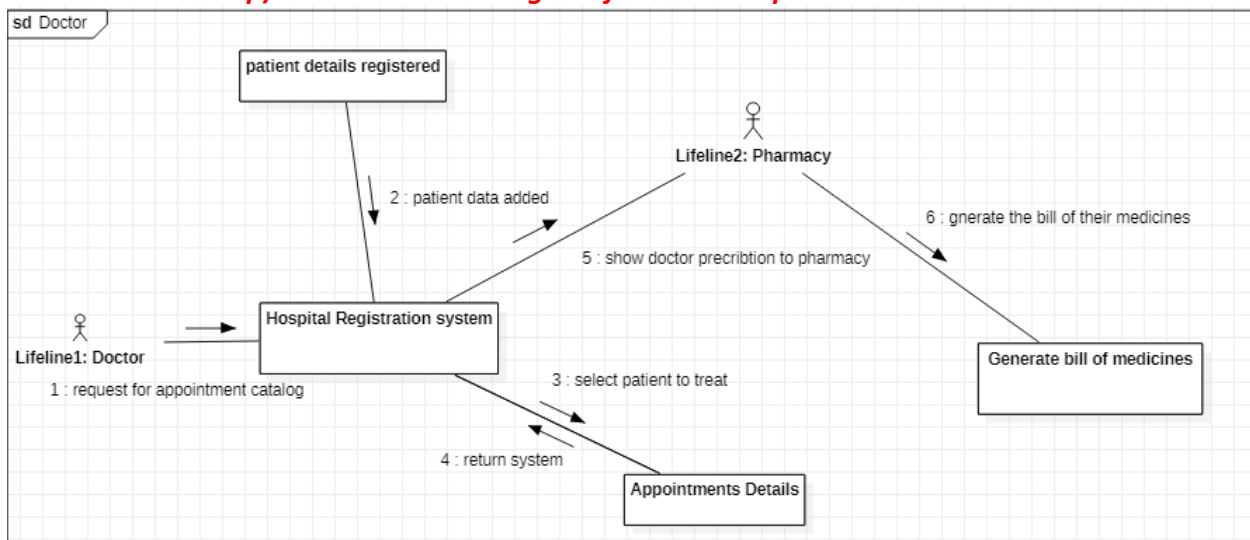
Show Appointments:



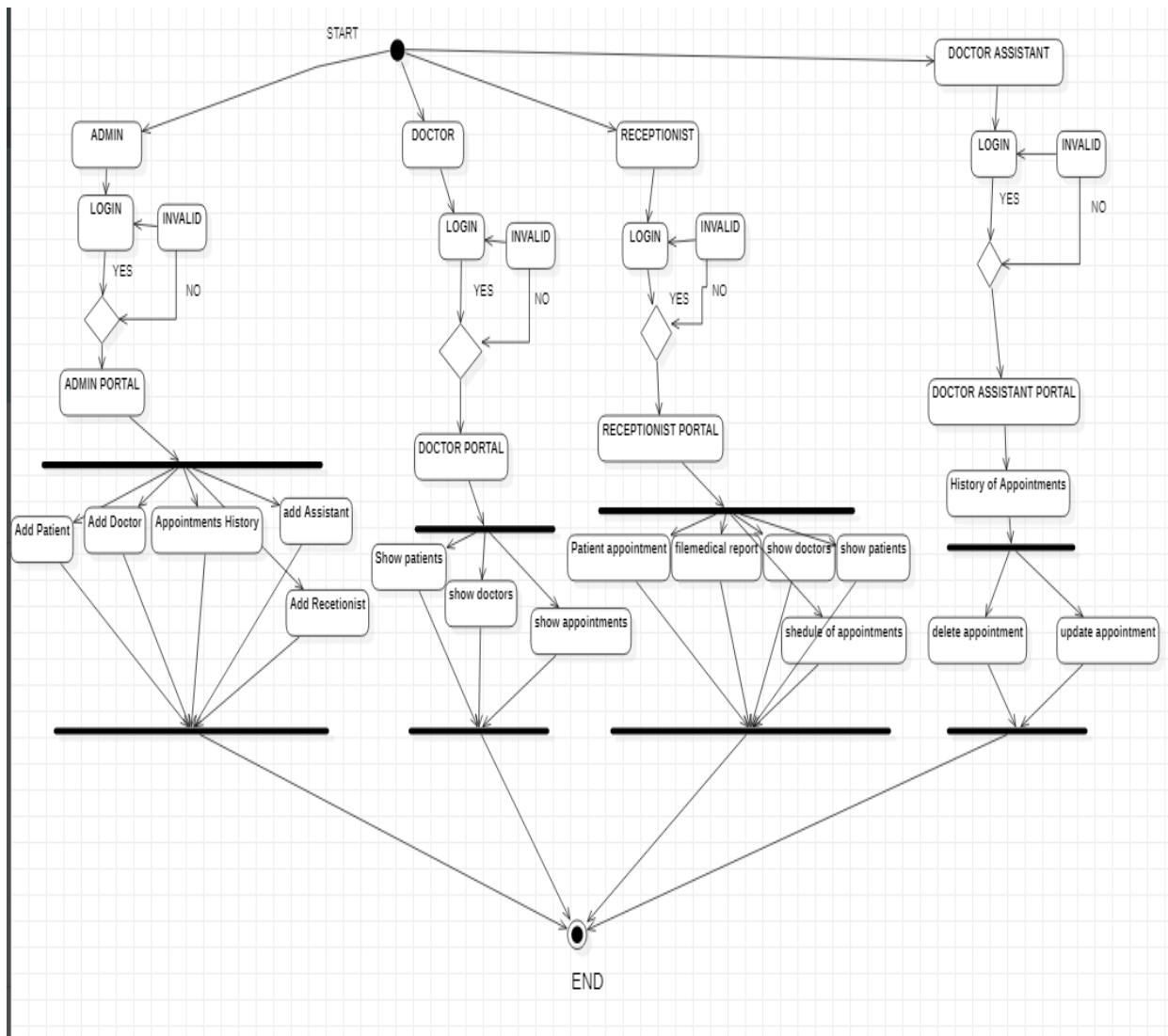
Show Details Of Receptionist:



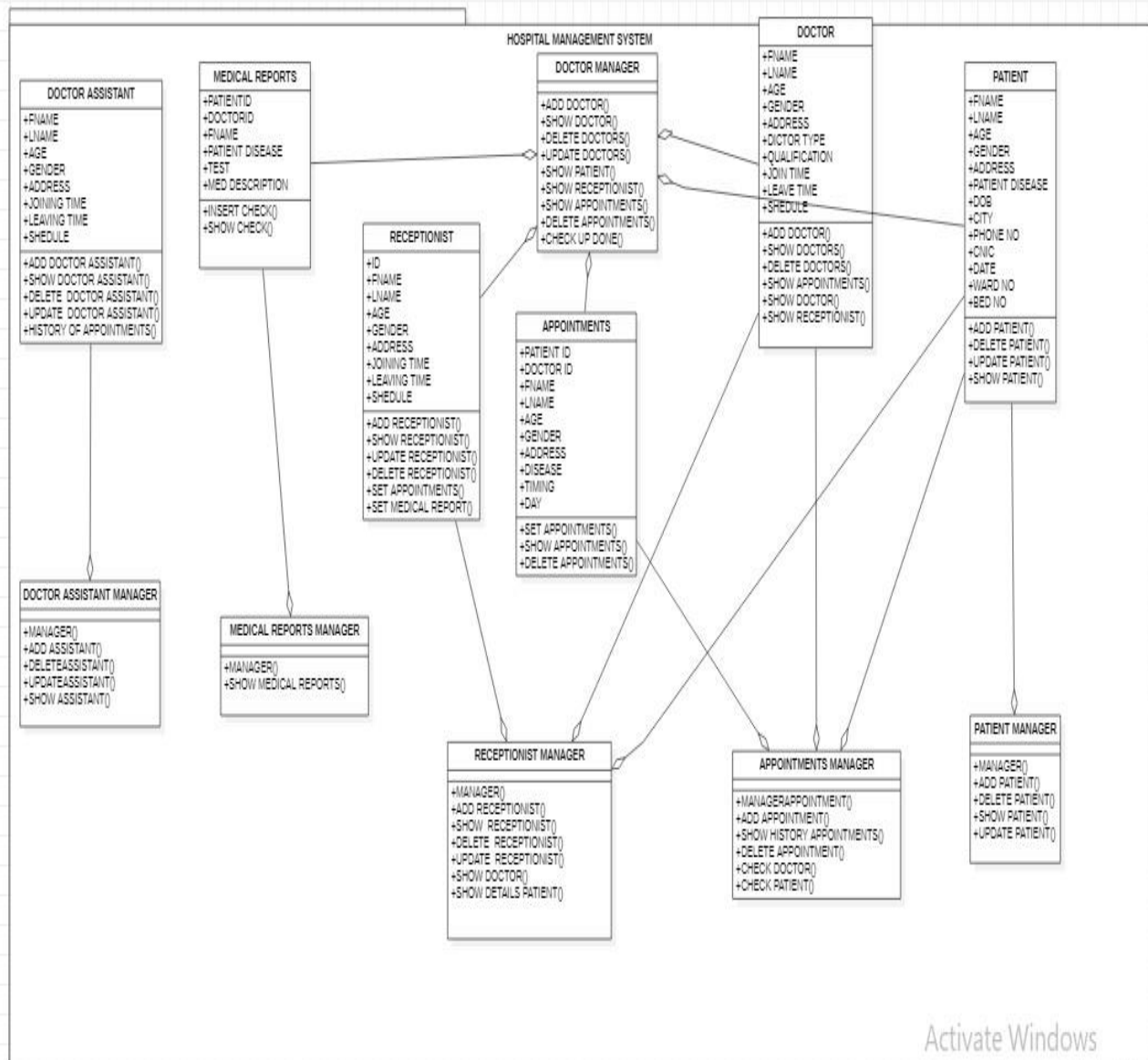
p) Collaboration Diagram for Doctor: optional



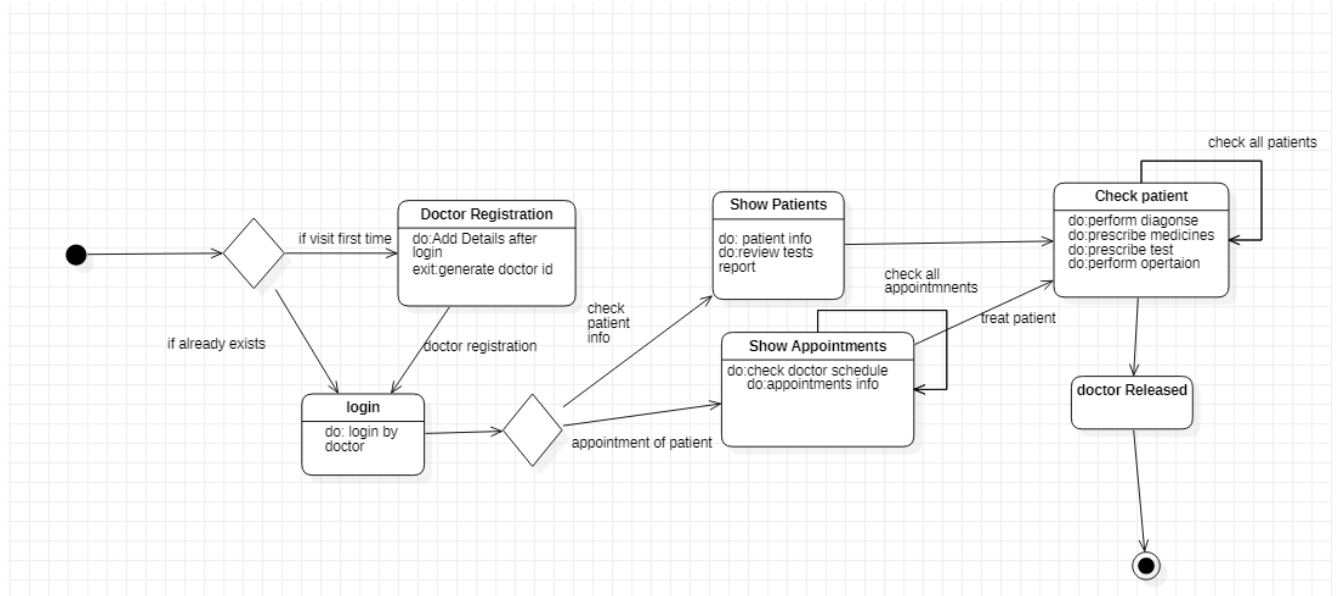
q) Activity Diagram for Doctor: optional



r) Class Diagram for Login: optional



s) **State Chart Diagram:**



3.1.4 Module 4 complete CRUD Appointment

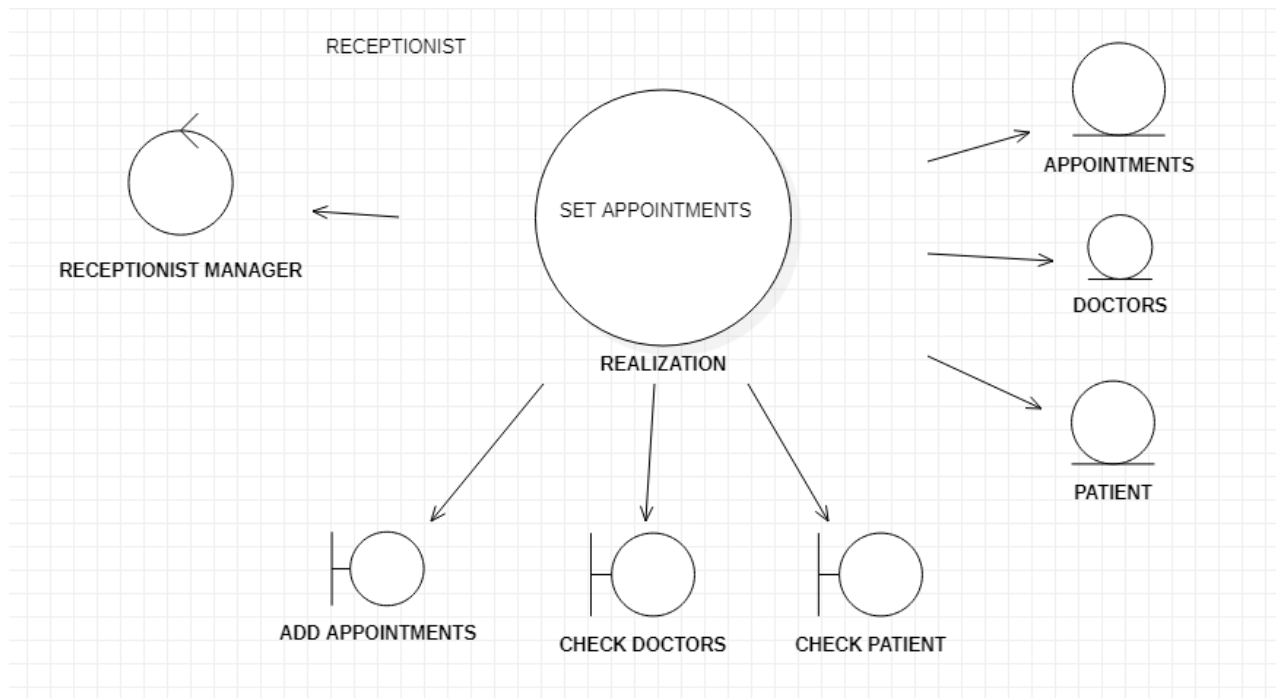
- 1) **Description:** Its is a receptionist in which we have method of add, delete, show, and update receptionist and all the date is store in SQL server database , receptionist also have duty to set the appointments by which doctor can treat the patient according to their given appointments list and also maintain the medical reports of each patient.

t) **Usage Scenario/ Use case Description/Specification:**

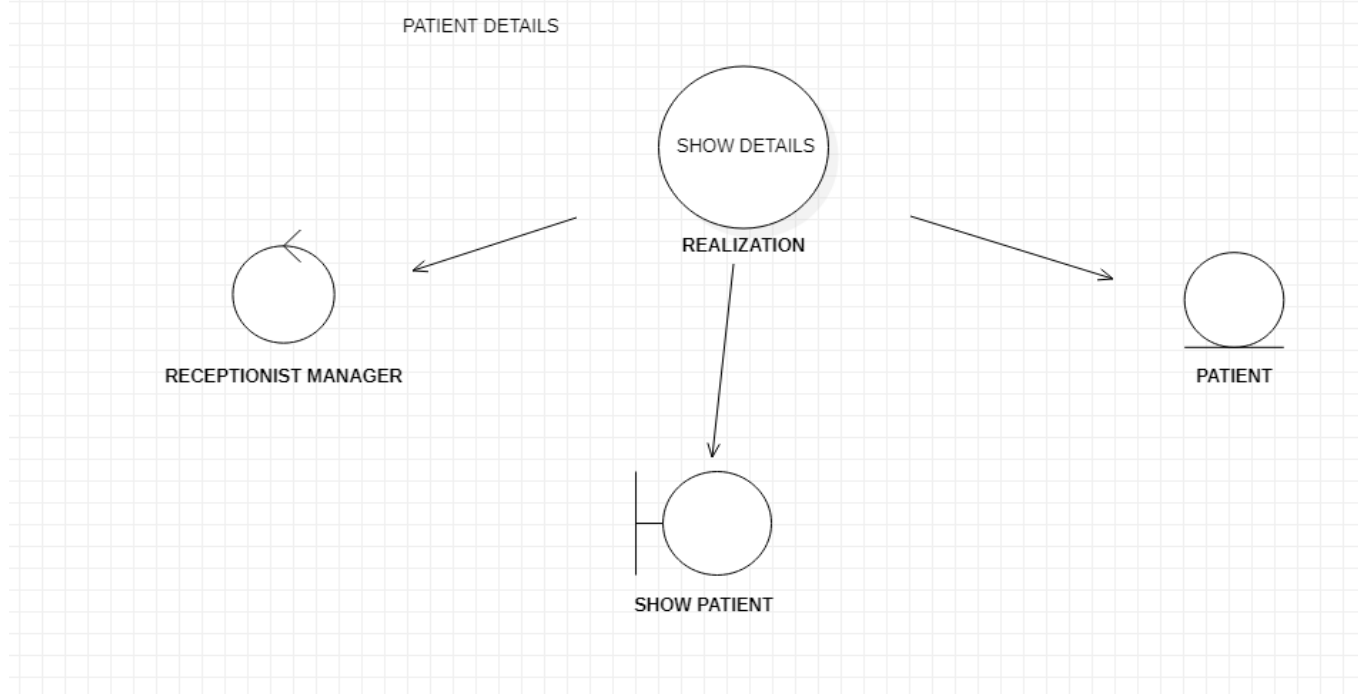
Description	Allows access to hospital management system
Inputs	Username, password
Source	5. User inputs username and password 6. Press Login Button
Alternate case	
Outputs	Successful login; unsuccessful login
Destination	None
Pré condition	Authorized User, check appointment, patients
Post Condition	No change to hospital Database
Side Effects	Failures and successful appointment are sent to hospital Database

u) **Use case Realization for receptionist: optional**

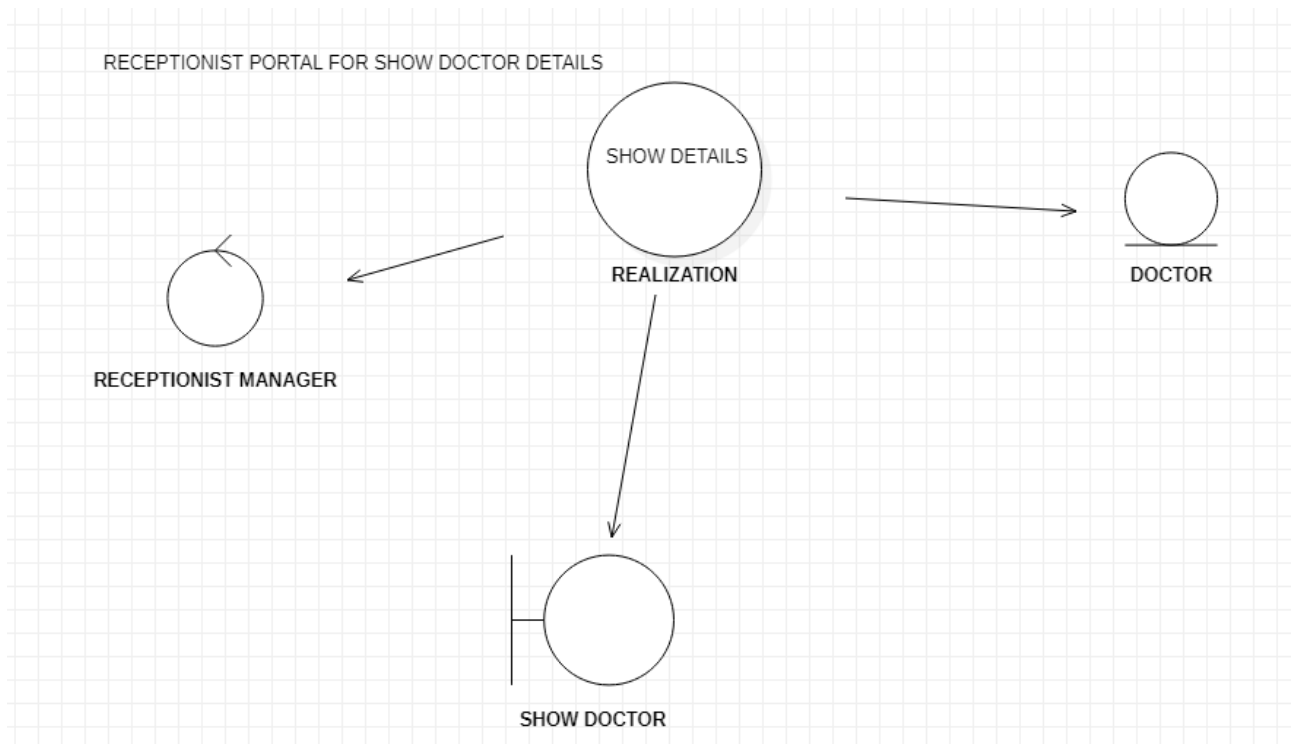
RECEPTIONIST:
SET APPOINTMENTS:



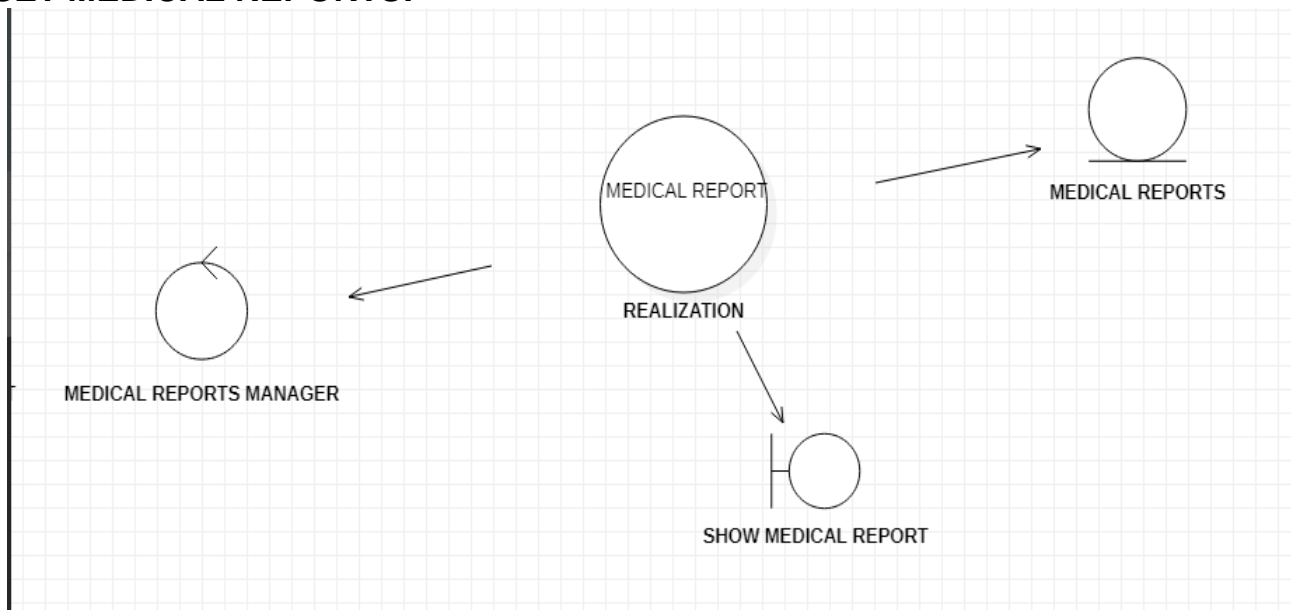
SHOW PATIENT DETAILS



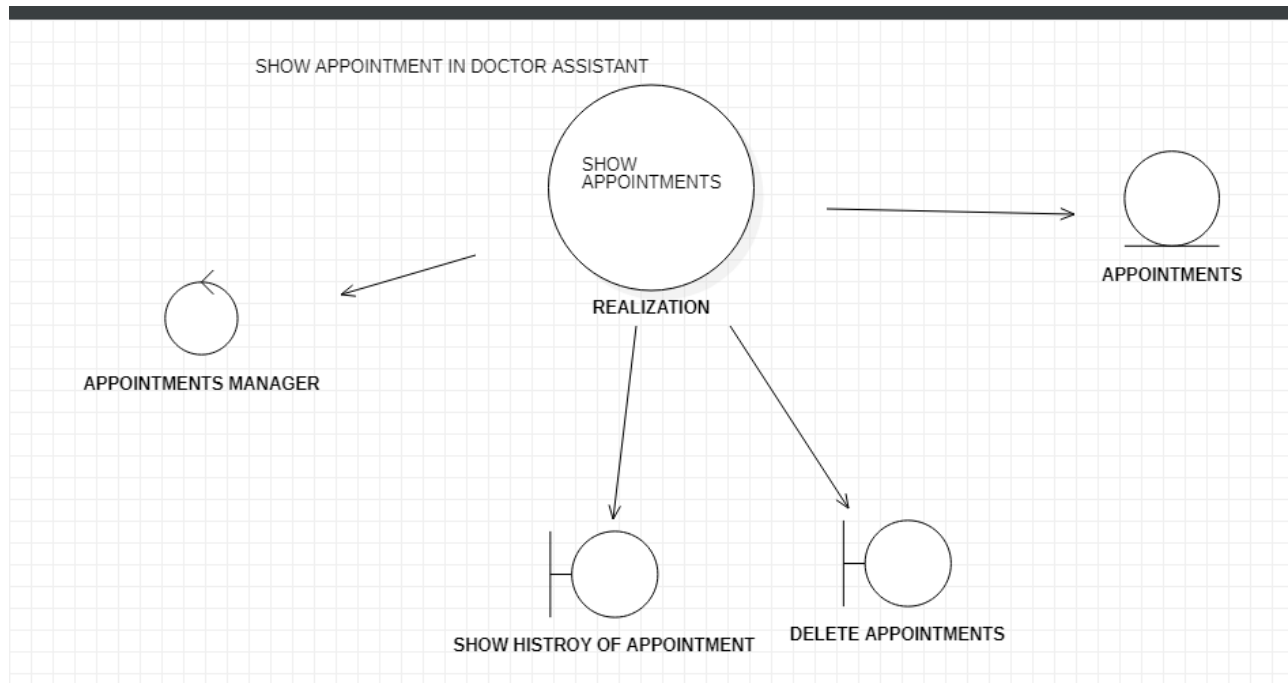
SHOW DOCTOR DETAILS:



SET MEDICAL REPORTS:



DOCTOR ASSISTANT:
HISTORY OF APPOINTMENTS:



v) *Flow of Event or Data Flow Diagram for appointment : optional*

➤ **Precondition:**

The sub flows is to maintain the all records & information which is related to the hospital.

It can also maintain all appointments and main file for each patient .It must execute before this use case begins.receptionist set all the patient appointment s and set medical reports of each

➤ **Main flow:**

This use case begins with the receptionist login onto registration system and enter his/her password the system verifies that password is valid and prompts the receptionist to add patient and giving appointments to each patient. Receptionist can also show the details of the patients

➤ **SUB FLOWS:**

Show details of patient

The receptionist can see the patient data. Which Includes name, father name, disease, word no, bed no and edit them (delete, update)

Appointments

The receptionist can also maintain and giving appointments to the patient after knowing doctors schedule. The schedule of doctors includes names, qualification, date of joining and leaving

ALTERNATIVE FLOWS:

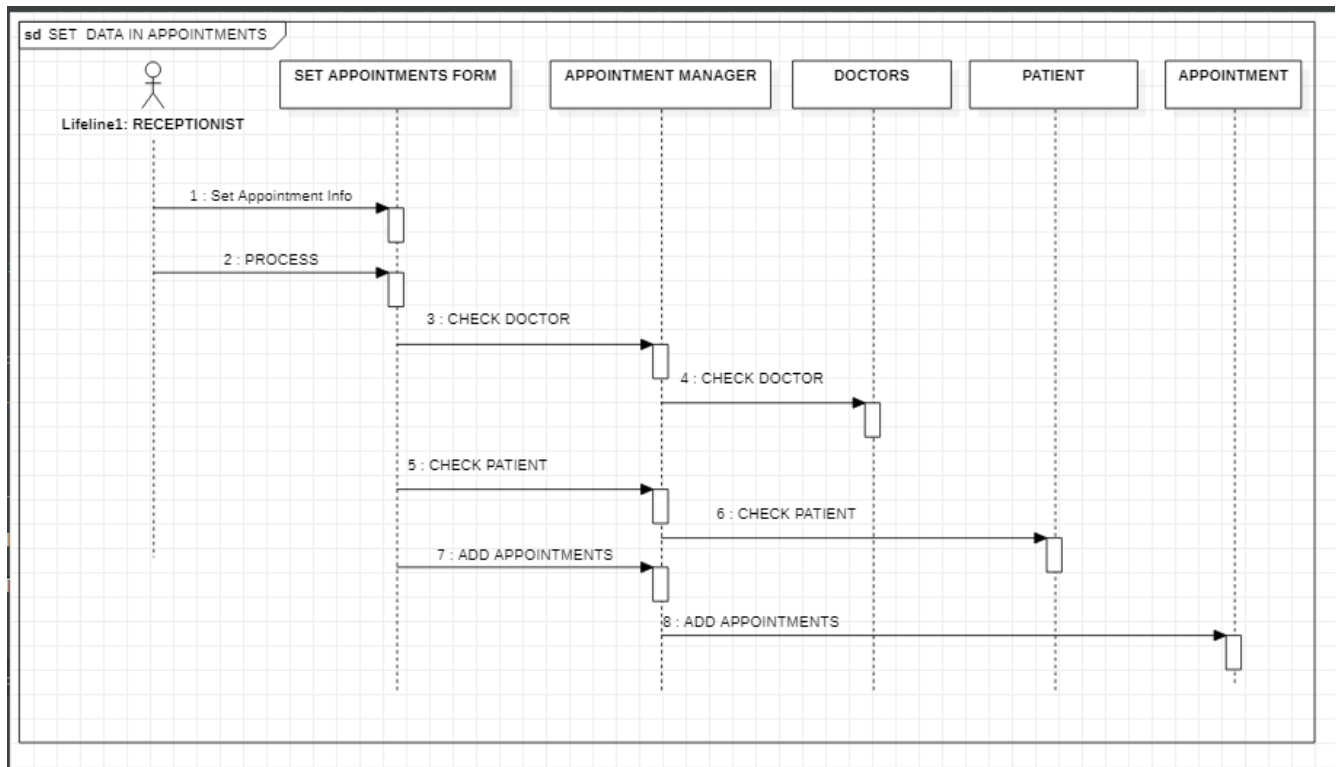
If the invalid receptionist id is enter. The admin can reenter the admin id

If the invalid patient name is enter they can reenter the whole data again. If the invalid appointments are given then reenter whole appointment again.

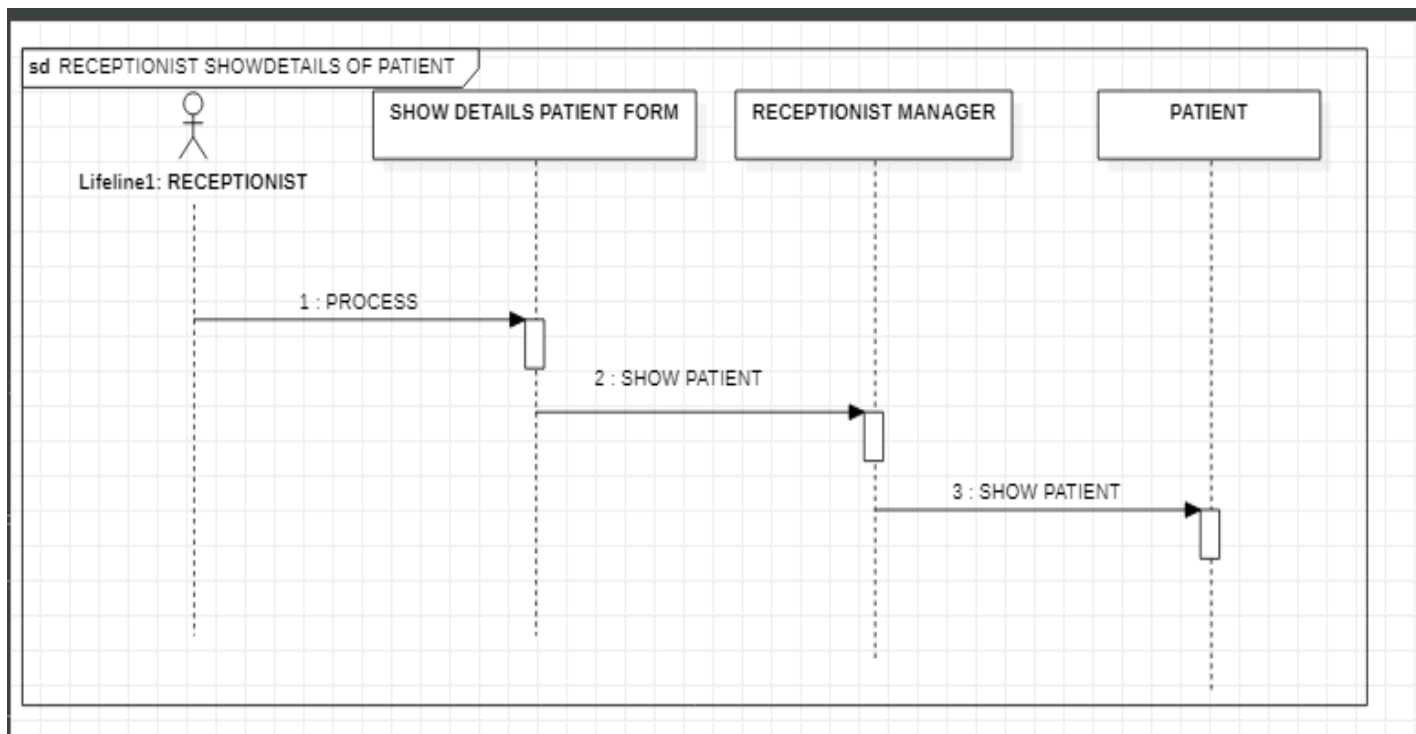
w) Sequence Diagram for receptionist: optional

RECEPTIONIST:

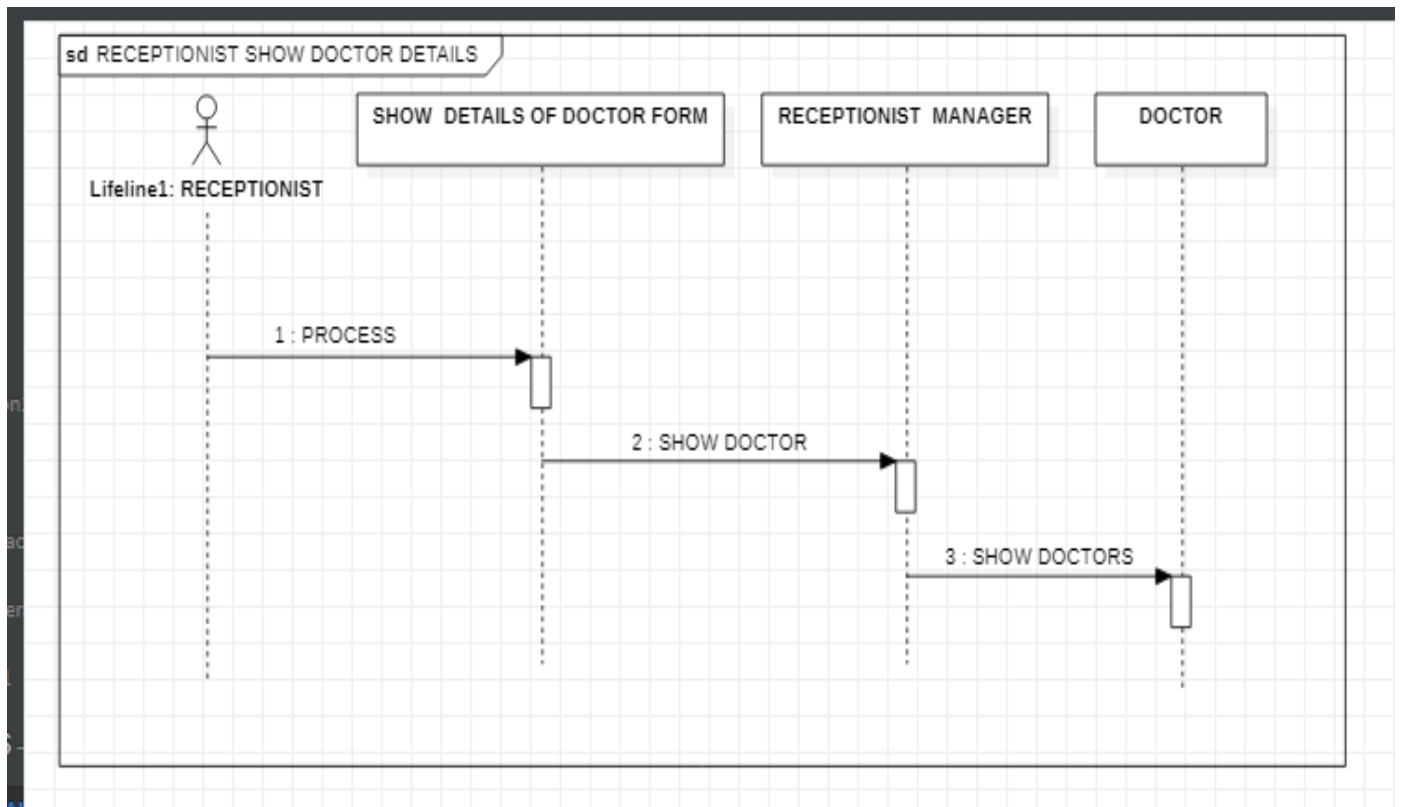
SET APPOINTMENTS:



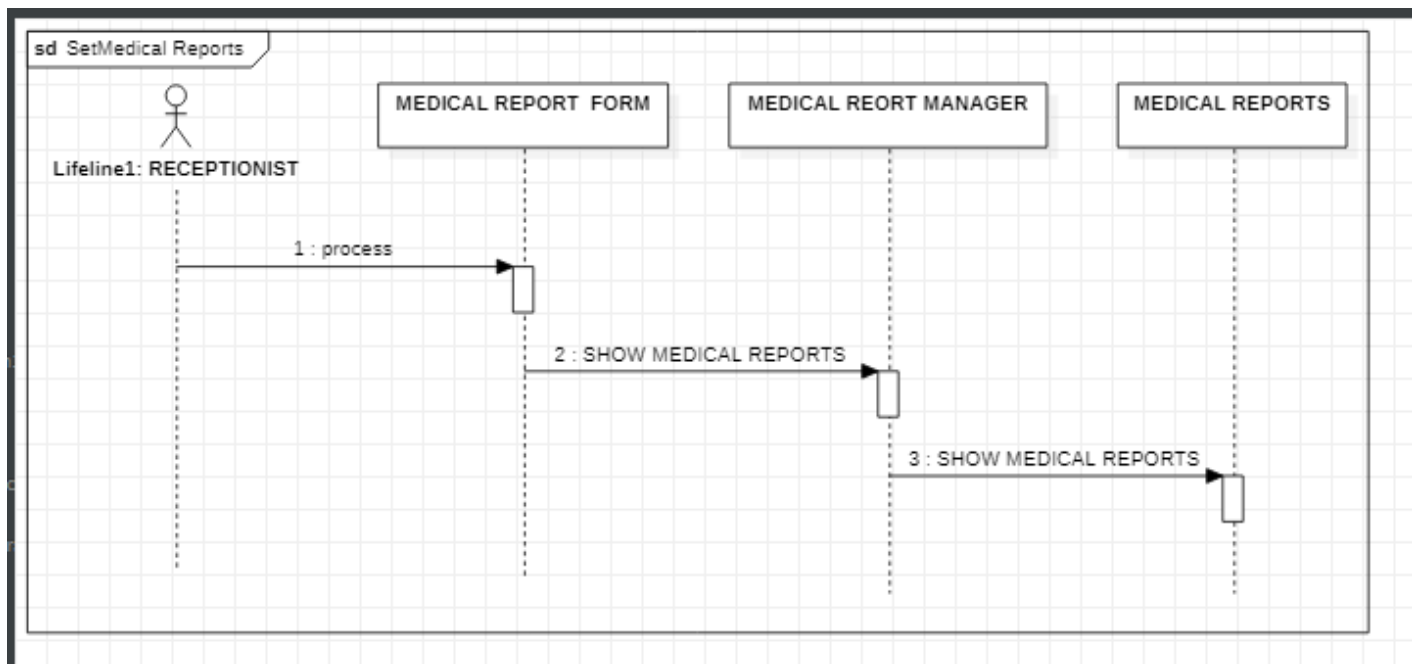
SHOW PATIENT DETAILS:



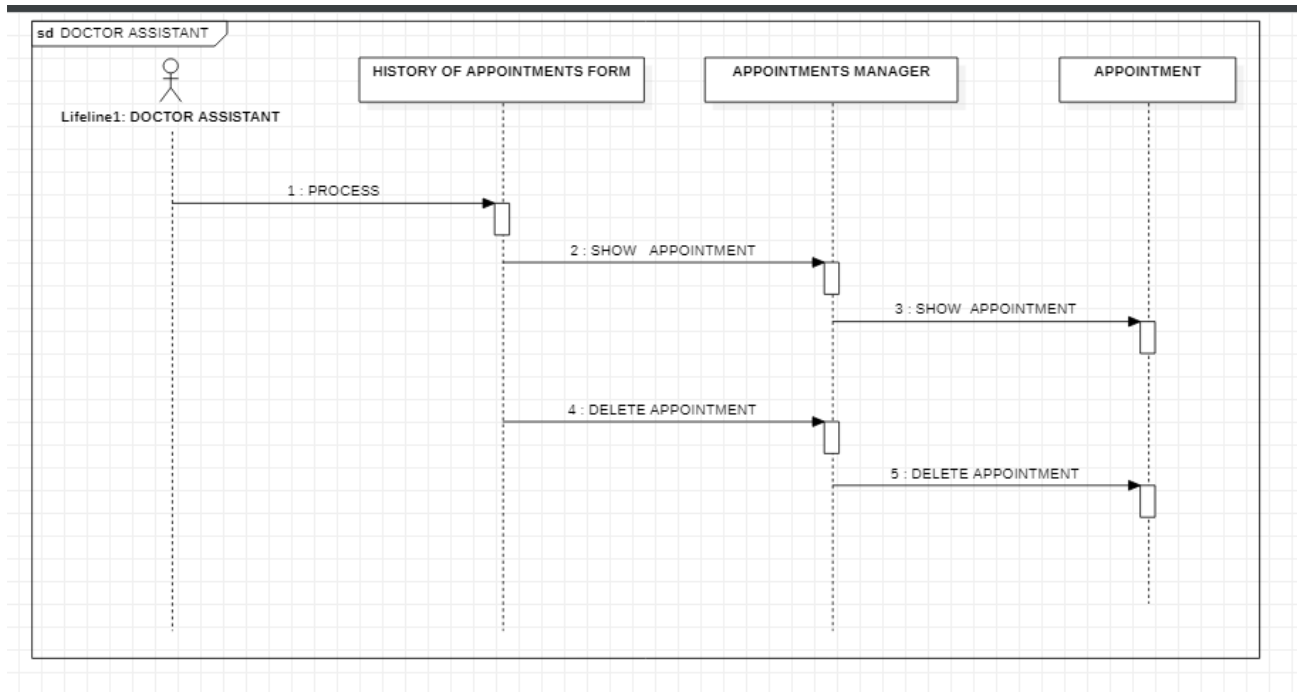
SHOW DETAILS OF DOCTORS:



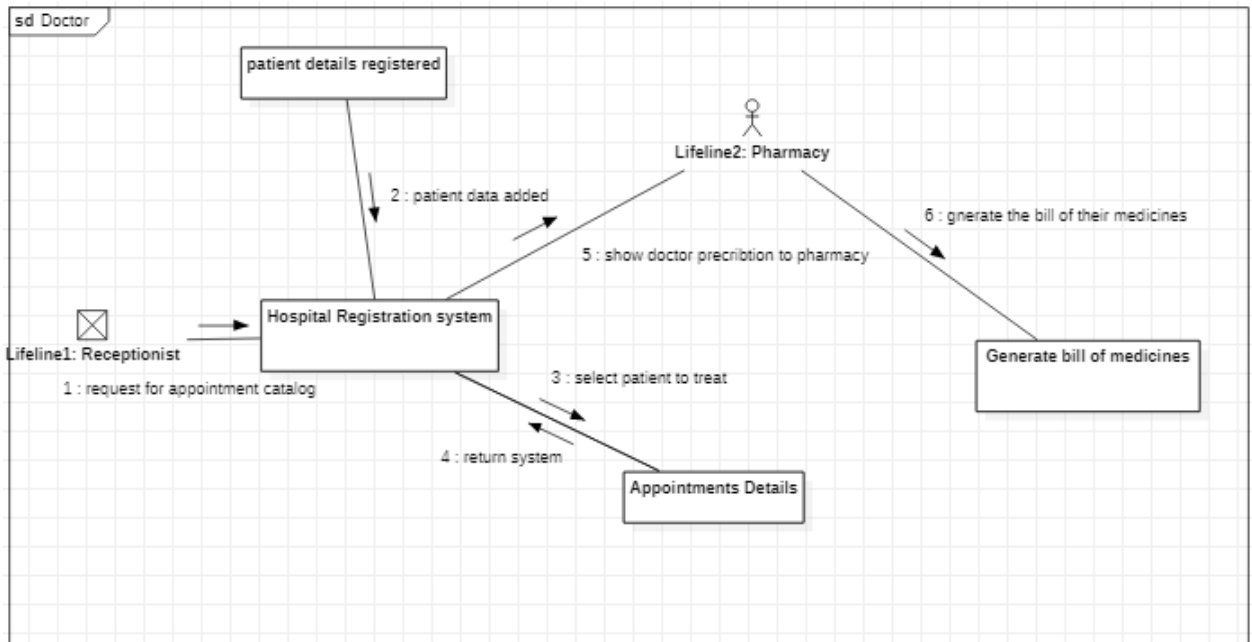
SET MEDICAL FILE:



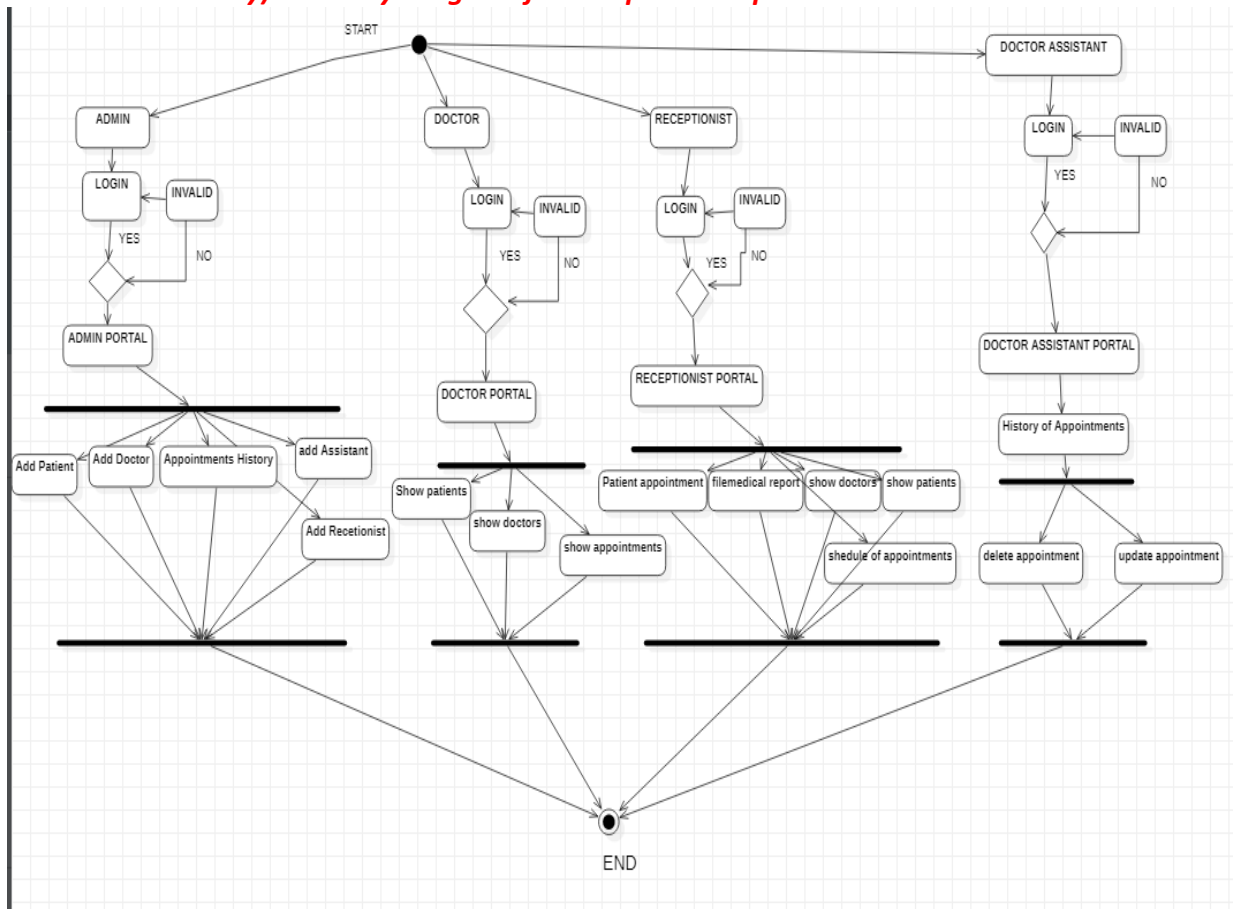
DOCTOR ASSISTANT:



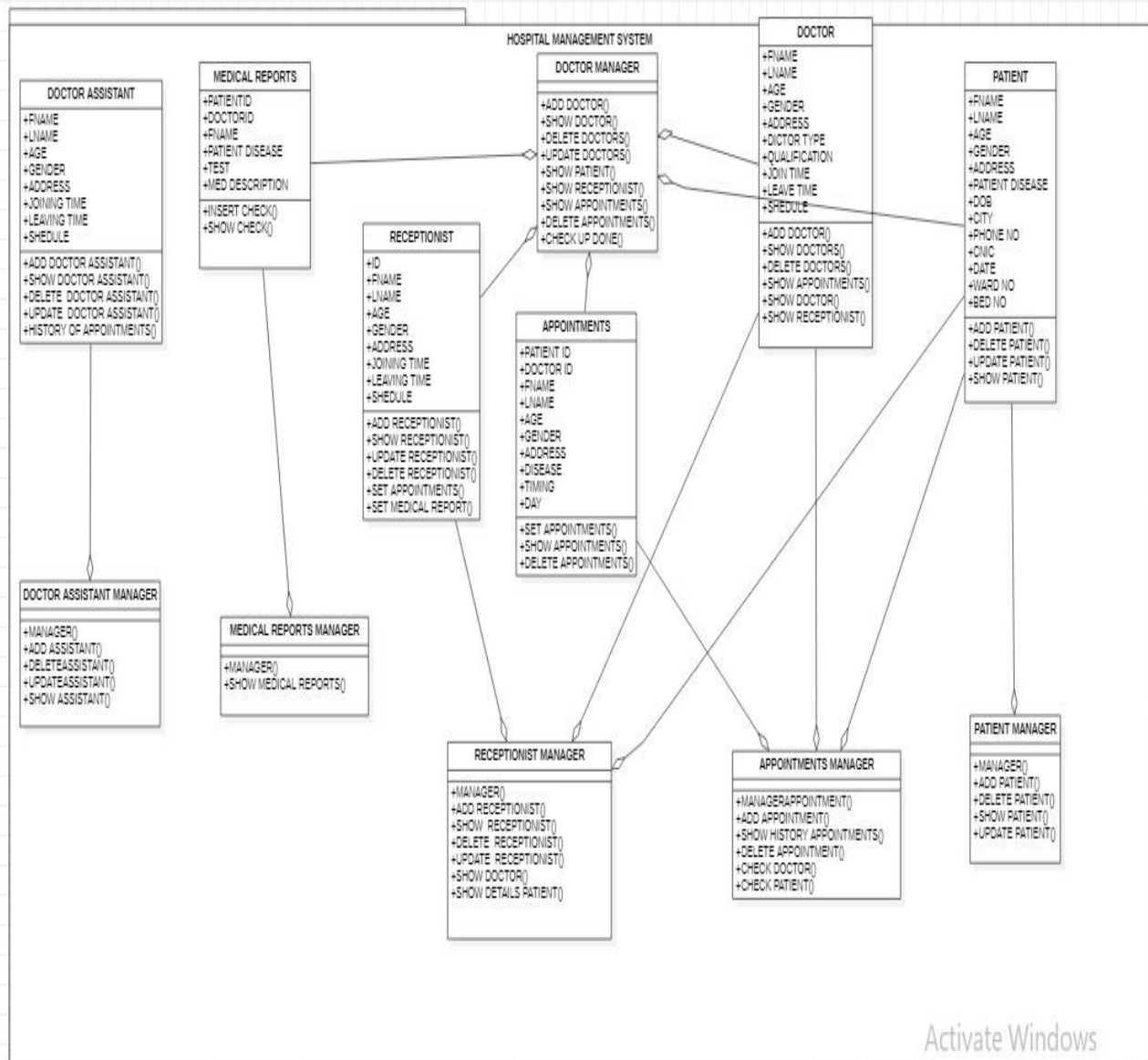
x) Collaboration Diagram for receptionist: optional



y) Activity Diagram for receptionist:optional



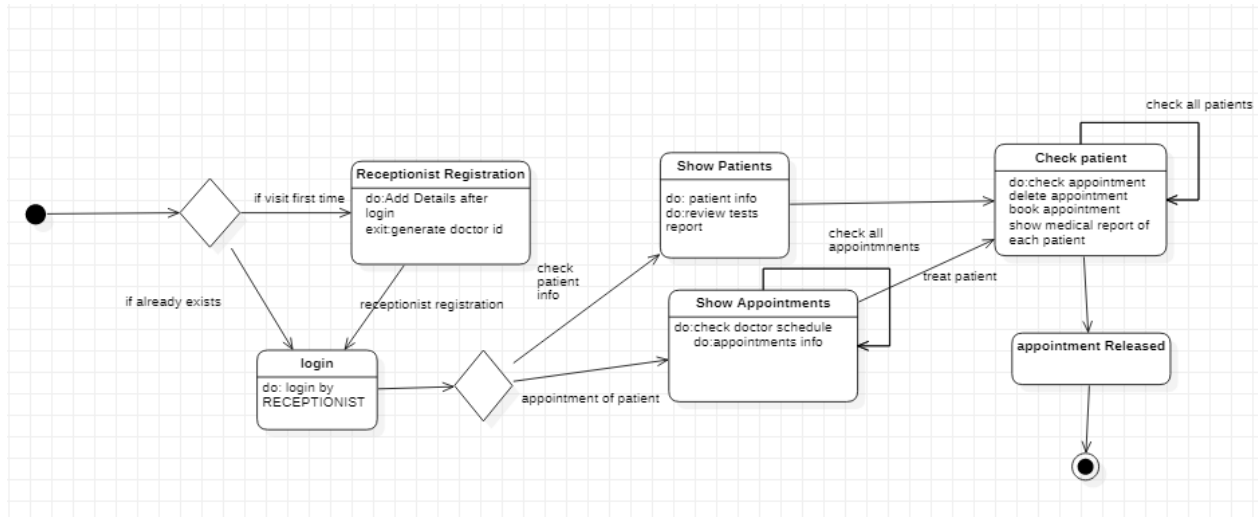
z) Class Diagram for receptionist: optional



Activate Windows

Go to Settings to activate Windows

aa) State Chart Diagram:



3.1.4 Module 5 complete CRUD Doctor Schedule

Description: This use case begins with the login onto registration system and enter his/her password the system verifies that password is valid and prompts the receptionist to delete patient appointments and maintain the history of appointments to each patient. doctor assistant can also check the details of the patients and take history of their disease and then he present the history of each patient to the doctor and after that doctor can treat the patients according to their diseases.

bb)

cc) **Usage Scenario/ Use case Description/ Specification:**

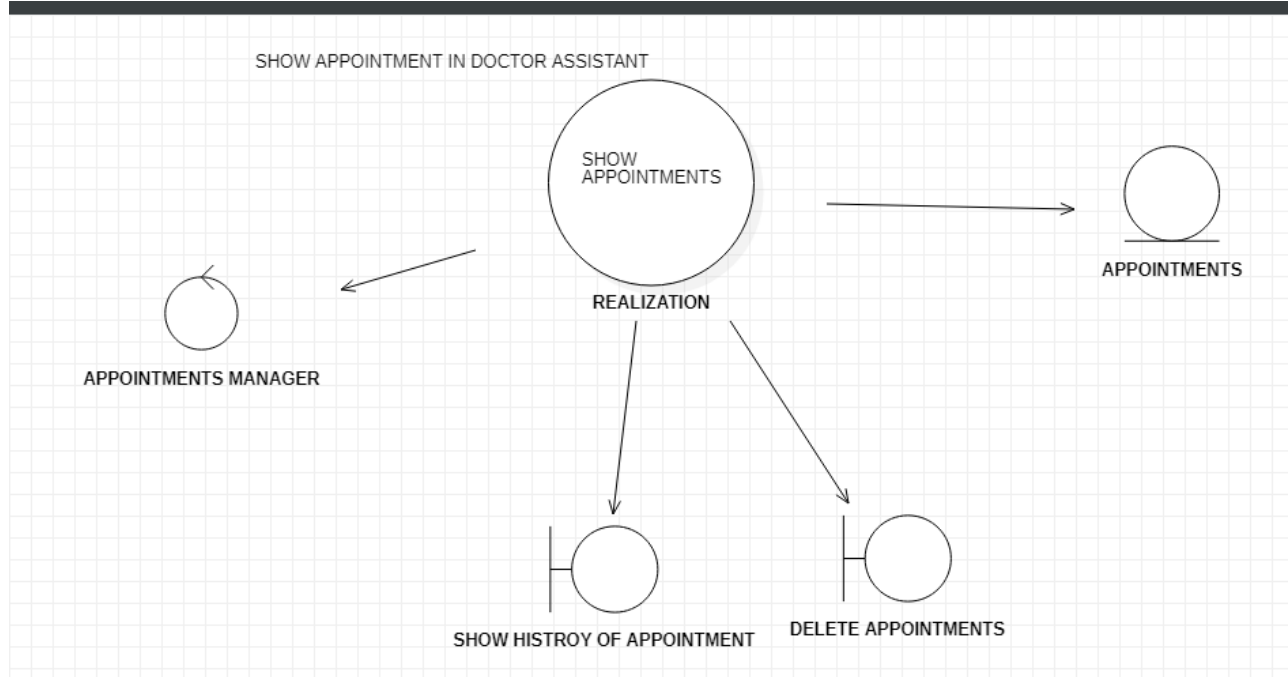
Description	Allows access to online HMS
Inputs	Username, password
Source	7. User inputs username and password 8. Press Login Button
Alternate case	
Outputs	Successful login; unsuccessful login
Destination	None
Precondition	Authorized User
Post Condition	No change to Passenger Accounts Database
Side Effects	Failures and successful logins are sent to Reservation Database

dd) Detailed Use case Diagram for Doctor Schedule: optional

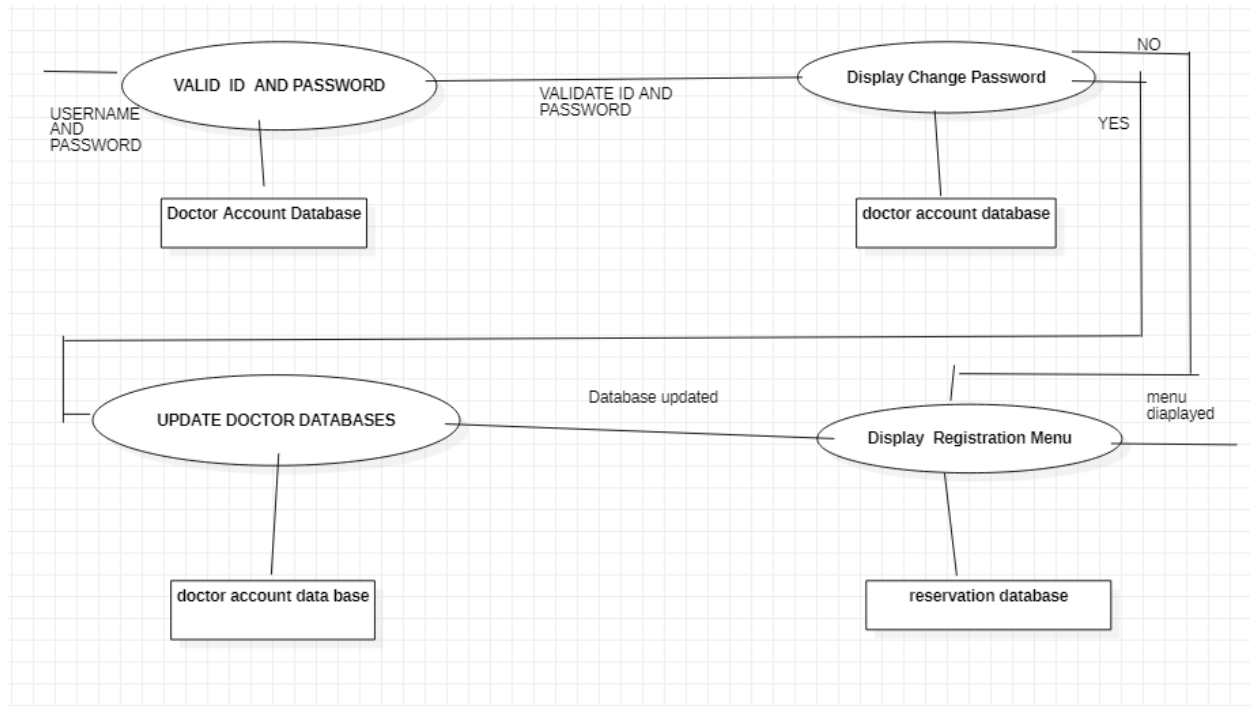
ee) Use case Realization for Doctor Schedule: optional

DOCTOR ASSISTANT:

HISTORY OF APPOINTMENTS:

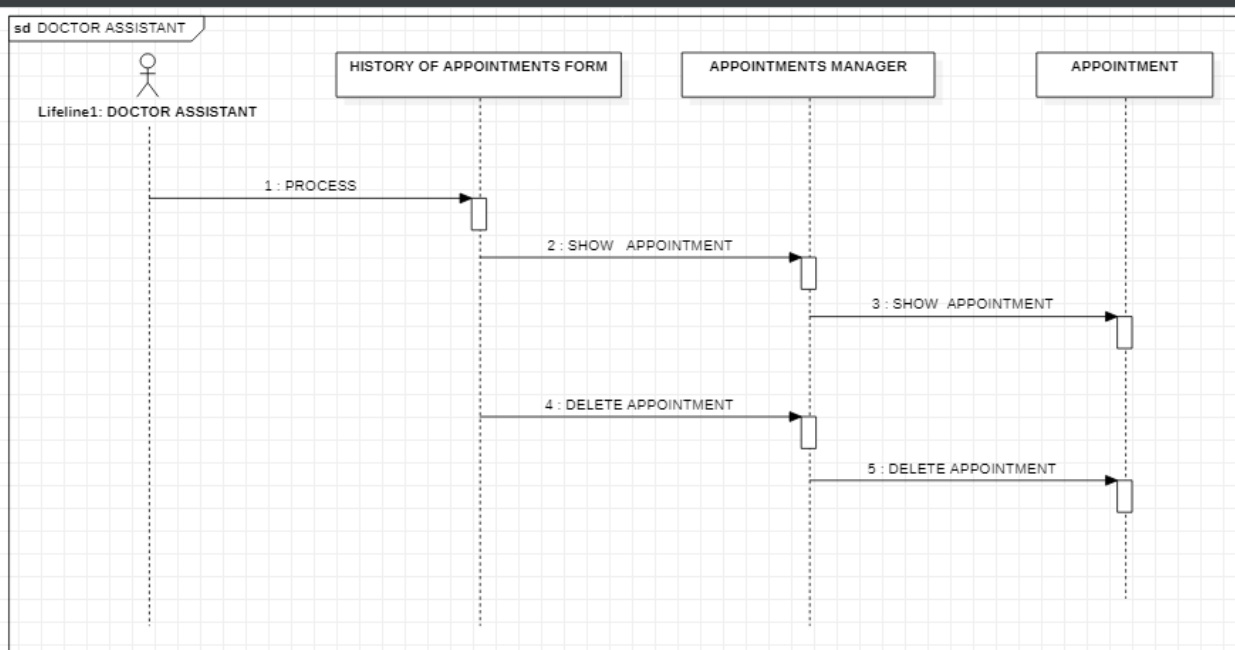


ff) Flow of Event or Data Flow Diagram for Doctor Schedule:



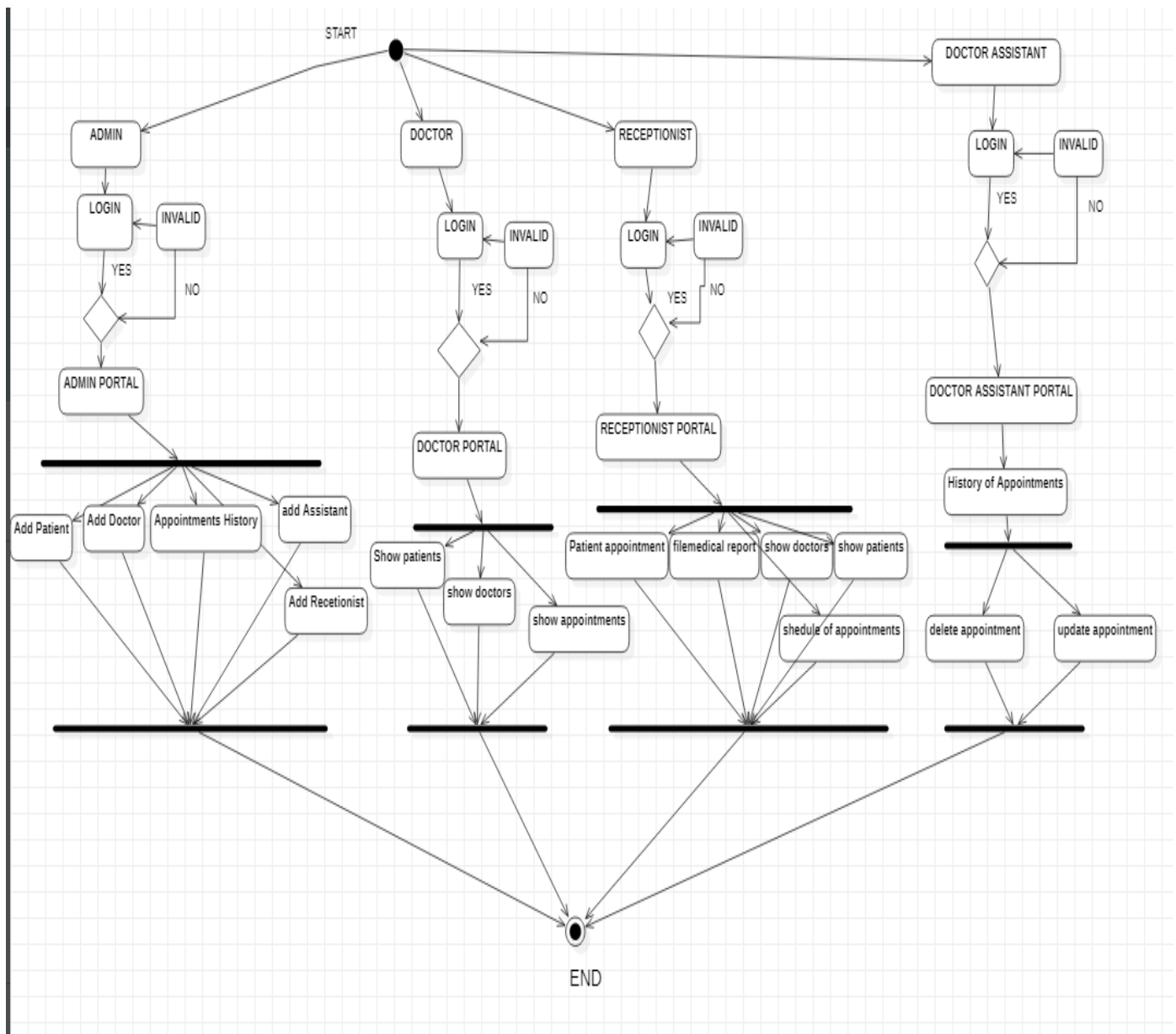
gg) Sequence Diagram for Doctor Schedule:

DOCTOR ASSISTANT:

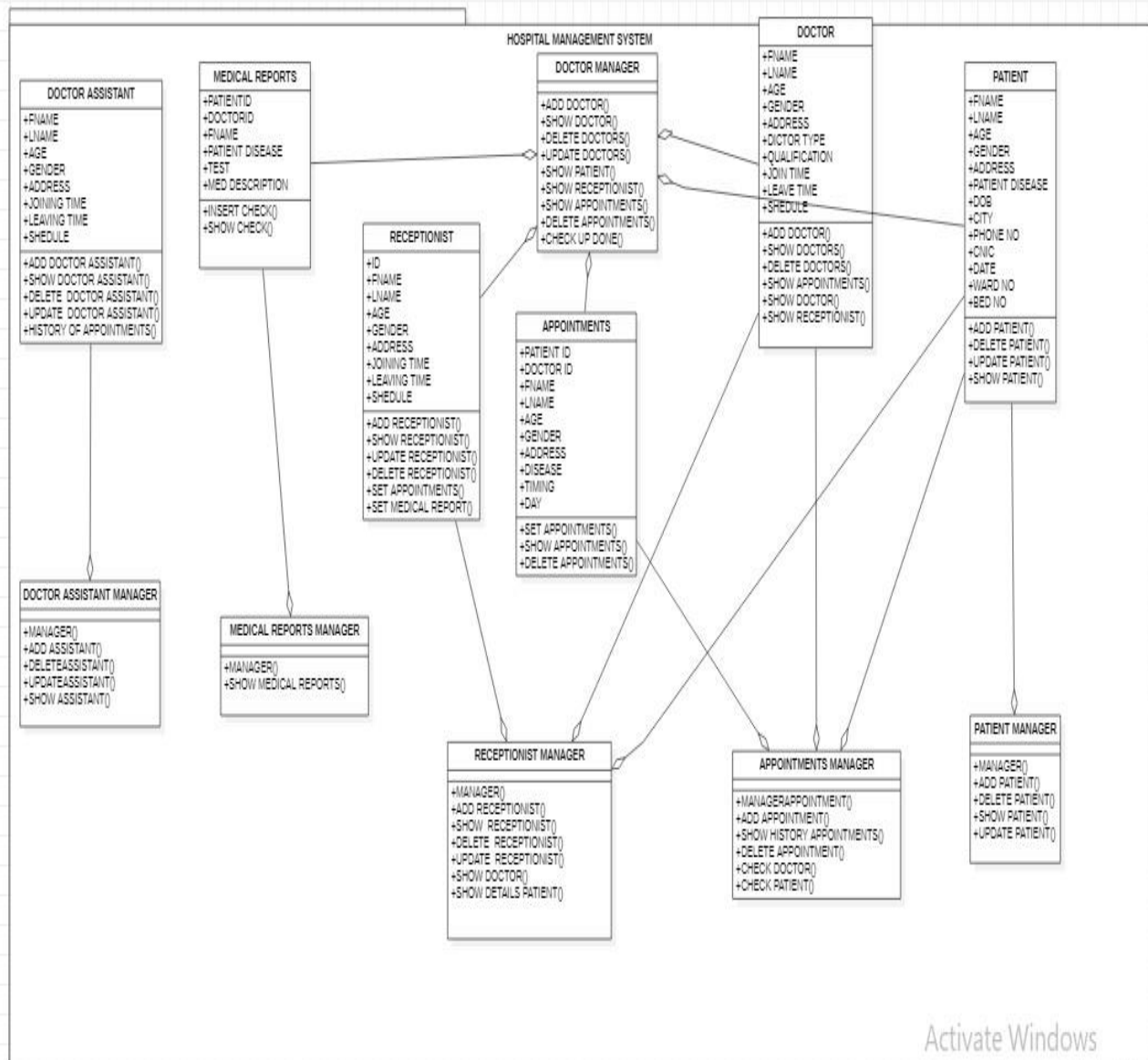


hh) Collaboration Diagram for Doctor Schedule: optional

ii) Activity Diagram for Doctor Schedule: optional



jj) Class Diagram for Doctor Schedule: optional



Activate Windows

Go to Settings to activate Windows

kk) State Chart Diagram for Doctor Schedule: optional

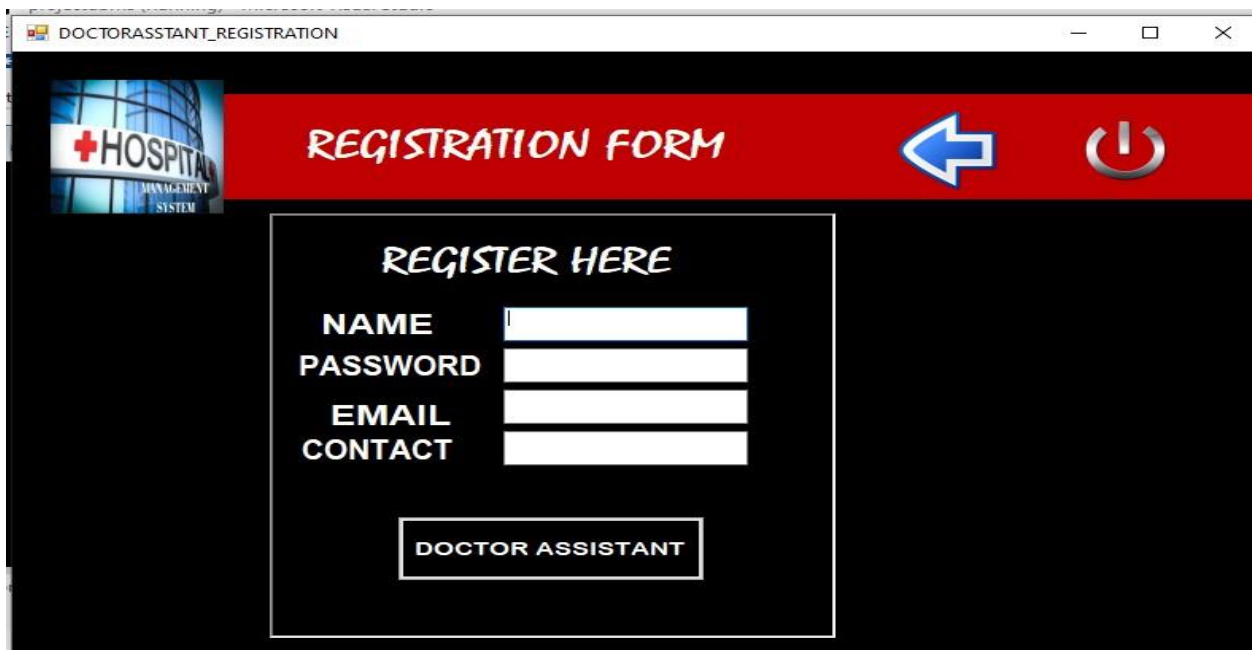
3.2. External Interface Requirements

3.2.1 User Interfaces


The user interfaces are divided into two major components. One part includes the user accessing the system using a cell phone. The other portion involves accessing the system through a remote site or at a particular location specifically designed to access the system. For instance, the clerks and the access the reservation system from the reservation office.

The diagrams and explanations below demonstrate the major transition from one user interface to another. This is a brief description. However, a more detailed demonstration is done in the prototype. The purpose of this interaction is to illustrate the overall view of the HMS.

The diagram below illustrates the four **major functionalities or modules** . These functionalities will be displayed depending on the user. For instance, the CRM will see all four functionalities while the normal user and the clerks will only see the appointment Reservation and the Passenger Account.



DOCTORASSTANT_REGISTRATION

 **REGISTRATION FORM**  

REGISTER HERE

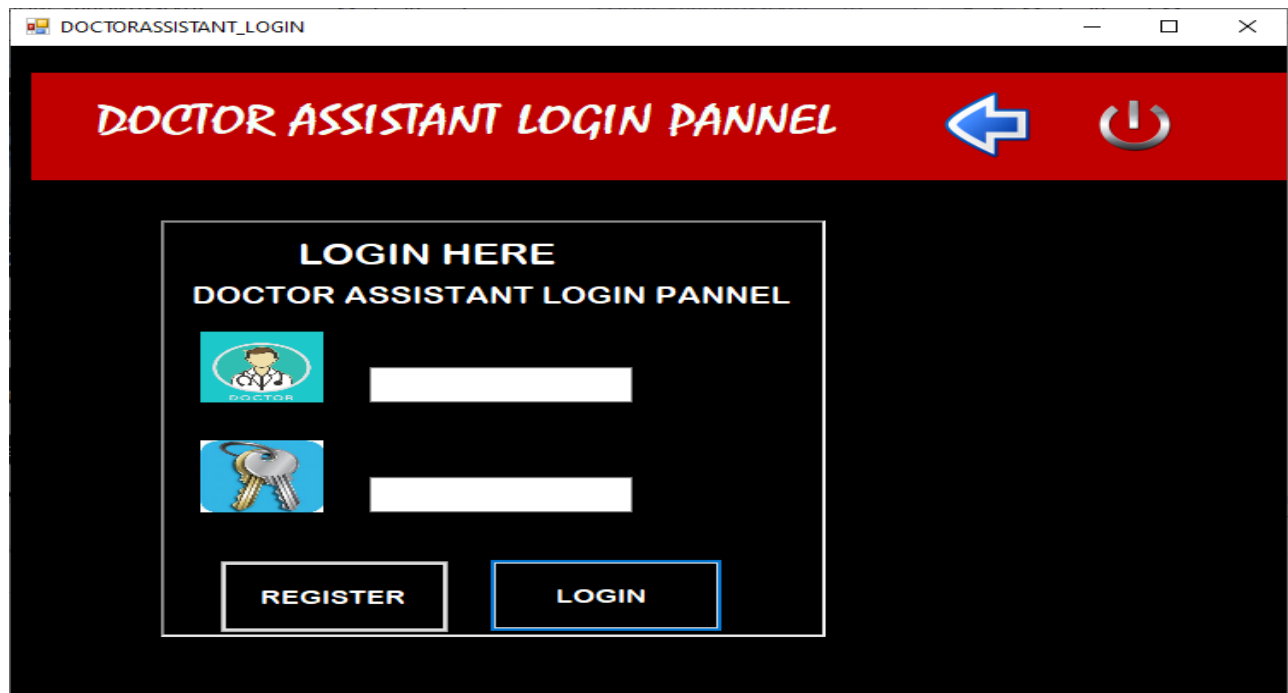
NAME

PASSWORD

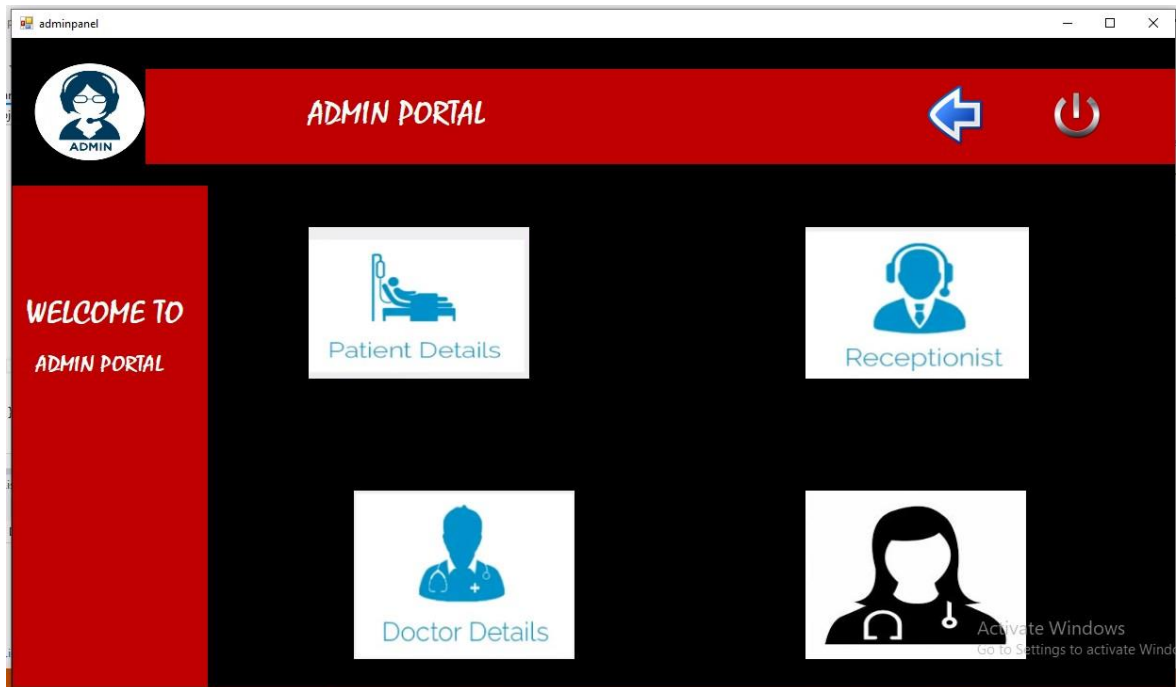
EMAIL

CONTACT

DOCTOR ASSISTANT




Selecting one of these functions will take the user to a different user interface. For instance, choosing appointment Reservation will display the following web page. The title of this page is consistent with the function selected, and since the appointment Reservation was selected, the title displays appointment Reservation. The purpose of this is to allow the user know what part of the system they are accessing. Furthermore, the user can select any of the four functions.





The user can select any of the four functionalities. For the sake of this demonstration, if the user clicks on the Make Reservation function the diagram below is displayed. Once again the title is the same as the main function and a subtitle indicates the second function selected. In addition, the person can fill up the following information and the date of travel or return if he/she wishes. The three buttons allow the user to navigate through the interfaces. For instance, the back button will take the user to the above page, and the clear button will clear the form of any selection he/she made before. The Display Available displays the available trains, seats and what city they want to travel to. However, before we get to the next page when clicking Display Available the picture below illustrates the Make Reservation function.

PATIENT FORM



PATIENTS INFORMATION



Patient ID :

SEARCH PATIENT

First Name :

Last Name

Age

Gender

Address

Patient disease

Date of Birth

City

Phone No

CNIC No

Date

Ward No

Bed No

ADD PATIENT

SHOW PATIENT

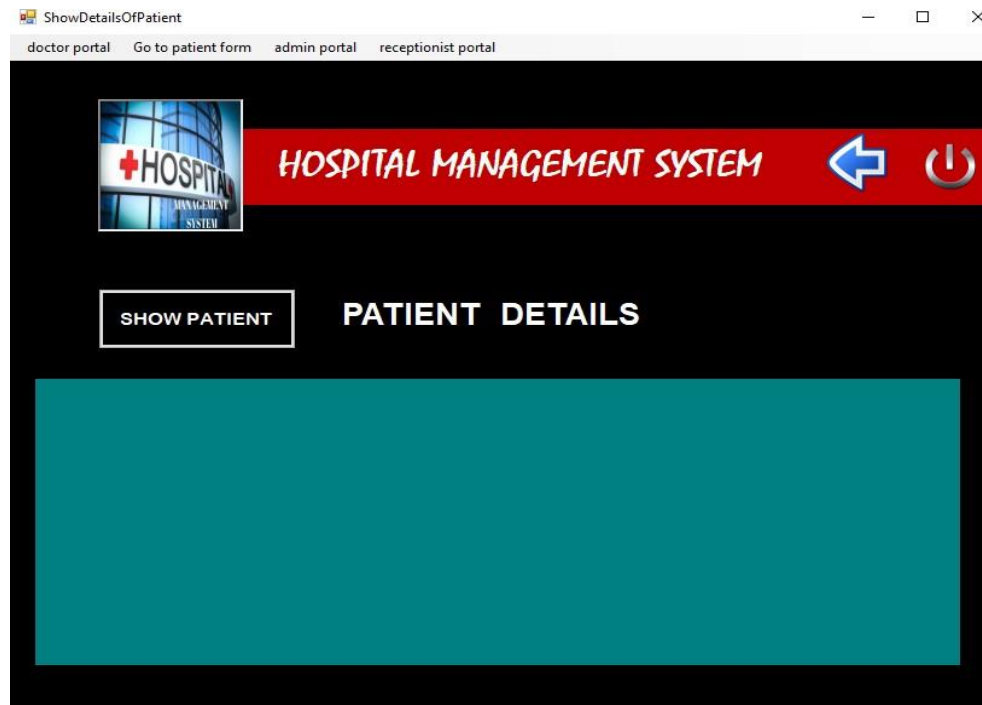
DELETE PATIENT

UPDATE PATIENT

HOSPITAL MANAGEMENT SYSTEM

Activate Windows
Go to Settings to activate Windows.

The Display Available function displays all the trains traveling from one city to another and the seats available on that train. Furthermore, the last list displays the number of tickets available for the particular train on the selected route. The back button will take the user to the above picture, and the confirm button takes the person to the payment page.



The following page allows the user to pay for the ticket as appropriate. Now, this page is part of the Passenger Account function, and it is used here to make payment for the ticket selected. This makes it easier for the user since they do not have to go back to the main menu and to access their account.

The screenshot shows a web application window titled "SHOW APPOINTMENTS FORM". At the top, there is a navigation bar with links: "doctor portal", "Go to patient form", "admin portal", and "receptionist portal". Below this is a header section with a logo on the left that says "HOSPITAL MANAGEMENT SYSTEM" and a red banner on the right that says "TREATMENT OF PATIENT" in white, stylized text. To the right of the banner are a blue back arrow and a power button icon. Below the header, there is a section titled "TREATMENT OF PATIENT" with two buttons: "SHOW APPOINTMENTS" and "DELETE APPOINTMENTS". To the left of these buttons is a form with the following fields: "Doctor ID", "Patient ID", "Patient Name", "Patient Disease", "Test" (with a dropdown arrow), and "Medicine Description". Below these fields is a "CHECK UPDONE" button. The main content area is a large teal rectangle, indicating that the appointment details are not yet loaded or are being masked.

3.2.2 Hardware Interfaces

The HMS includes two major hardware components: cellular phones and regular PC's. The cell phones require WAP (wireless application protocol) network protocol, which is already programmed in the latest phones.

The second component involves the regular PC's, which communicate with the server. The server then communicates with the database. The protocol involved between the PC's and the server is the HTTP protocol, which allows communication between the PC's and the Server. The remote PC's, such as someone accessing the HMS from home using the Internet, are able access the information through the CGI. The requests come in through the HTTP protocol, and using an ODBC the database results are returned and processed using Perl to give an HTML web page. The format of the output is displayed as web pages.

3.2.3 Software Interfaces

An Oracle DBMS will be used to manage the database and any changes made to it. Furthermore, the DBMS will make regular backups of the database and generate reports regularly so that they can be accessed by the CRM. The Apache server between the client and the database will handle all communication, and the server will run on a Linux operating system. Furthermore, the HTML pages must be implemented such that they can be displayed on two common browsers: Netscape and Internet Explorer.

Information about the products used for the HMS:

- (1) Name: Oracle
- (2) Mnemonic: Oracle
- (3) Version Number: ?
- (4) Source: Oracle

- (1) Name: Linux
- (2) Mnemonic: Linux
- (3) Version Number: 6.2
- (4) Source: Unix

- (1) Name: Internet Explorer
- (2) Mnemonic: IE
- (3) Version Number: 5.00
- (4) Source: Microsoft

- (1) Name: Apache

- (2) Mnemonic: Apache
- (3) Version Number: 1.3.14
- (4) Source: Apache Software Foundation

3.3 Performance Requirements

The following sections list the performance requirements for the system.

3.3.1 User Requirements

User Requirements	Description of Requirement For Design Environment
Location(s) and Number(s) of Users	Karachi, Pakistan
Expected Growth in Number of Users	
After 1 Year	50%
After 2 Years	TBD
After 3 Years	TBD
User Expectation	
Interactivity	User expect that it provides a very easy to use graphical user interface
Reliability	For some applications, reliability must be 100% during the application session
Adaptability	Network must adapt to user additions, deletions and changes
Security	Encryption software would be used for Credit Card transactions
Cost / Funding	Less than \$250K

3.3.2 Application Requirements

Since no specified service is indicated, then we have listed the applications as best – efforts. This may change as we learn more about the application.

The communication package is determined to be bursty in nature, with small data sizes and frequent transmissions. We can consider this application to be interactive-burst, while the database transaction-processing application is described by the CRM as transferring large amounts of data (initial estimates are 1 MB/transaction), we have listed this application as interactive-bulk.

Categorizing Applications	Best-Efforts	Application Locations
Communication	100 Kb/s	Guangzhou and Nanjing
Database Access	400 Kb/s	All Locations
Database Transaction processing	1.5 Mb/s	All Locations

3.3.3 Host Requirements

	Type of Host or Equipment	Numbers and Locations
Host A	PC	Guangzhou (10), Nanjing(7), Shanghai(10)
Host B	Database	Shanghai
	Server	
Host C	Application Server	Nanjing

3.4.1 Standards Compliance

There are no design constraints that can be imposed by other standards limitations.

3.4.2 Software Limitations

- ☐ must be able to run Internet Explorer or Netscape Communicator web browsers to access the system.
- ☐ must have cell-phone web based capability to access the system from a mobile phone.

3.4.3 Hardware Limitations

- ☐ Input/Output: One or two-button mouse, keyboard, cell-phone, or touch screen required.
- ☐ Network card required at thin-client terminals to make communication with server possible.

3.5 Quality Characteristics

There are a number of quality characteristics that apply to the HMS software system.

3.5.1 Portability

The HMS system will be developed using HTML and Java so that it can be accessed from any type of system using just a regular web browser. It will also be available to users that have web access on their cellular phones. The system will be tested on all types of hardware before being released to ensure that it is compliant with this requirement.

3.5.2Reliability

The system should be capable of processing a given number of reservations within a give time frame with no errors and the system should be available and operational all the time. During the development of the prototype for the 3 cities, the system will be tested in its actual environment to ensure that it can handle the load of reservations that occur during a regular workday.

3.5.3Usability

The HMS system will be developed so that it is an easy to use system that requires the least amount of user input possible. Every input will be validated. The user should only have general computer use knowledge. Error messages will be displayed if the user enters an invalid value or tries to access a function without the required permissions. An easy and well-structured user manual will be provided to the CRM and the system will include descriptive help for all operations allowed.

Correctness

The HMS system will be considered correct when the CRM approves the prototype presented and agrees that all the functions they require are implemented as stated in the Software Requirements Specification.

3.5.4Flexibility

The HMS system should be developed in such a way that it is easily customizable. If new functions are required by CRM, there will be little effort required to update the system to support new cities or new transactions.

3.5.5Security

The HMS system should not compromise the customer information at any time. The user information will never be sold to other parties and will be kept secure at all times. Users will be authenticated to ensure that no unauthorized users gain access to private information.

3.5.6Maintainability

The HMS source code will be kept well structure and documented so that it is easier to maintain and extend the system. All changes to the system shall be documented.

3.6 Other Requirements

Certain requirements may, due to the nature of the software, the user organization, etc., be placed in separate categories such as those below.

3.6.1 Data Base

The Automate Railway Reservation System will have two main databases. One is the Reservation Database, and another is the Passenger Account Database. These database will be created with Oracle8i (Client/Server) version 8.1.6.0.0 Release 2. The following are the requirements for these databases that are to be developed as part of the product. They include:

Reservation Database

Types of information	Schedule information for the trains, including date, time, departure city, destination city, ticket cost and ticket availability for a particular train
Frequency of use	Depends on the passenger demand, which may reach 25,000 per day during peak periods
Accessing capabilities	The database should allow access to at least 1,000 people at once; the users will have a
	general access to the information about the train schedule, and a secure access to the reports (available only to CRM officials) using a username and a password
Data element and file descriptions	To be determined
Relationship of data elements, records and files	To be determined
Static and dynamic organization	To be determined
Retention requirements for data	Train schedule information will be available as long as the train for a particular route is in use and at least one year after the train has been cancelled. The reports information will be available at least for 5 years

Passenger Account Database

Types of information	Passenger account information including their name, address, phone numbers, last reservations, balance owed, credit card number (if they paid by a credit card)
Frequency of use	Depends on the passenger demand, which may reach 25,000 per day during peak periods
Accessing capabilities	The database should allow access to at least 500 people at once; the users will have a secure access to the database using a username and a password
Data element and file descriptions	To be determined
Relationship of data elements, records and files	To be determined
Static and dynamic organization	To be determined
Retention requirements for data	Passenger account will be available for as long as a passenger is using the account, and at least for 6 month since the passenger logged on last time.

3.6.2Operations

The normal operations required by the user can be viewed as the following:

User-initiated Operations:

These operations include the login operation, which is initiated by the users. Also, the process of becoming a new user is in this category. Building, changing, and viewing itineraries, as well as paying for the itinerary are all initiated by the users. The user initiates the report generation activity, as well as changing train schedules.

Interactive Operations and Unattended Operations:

The users initiate all the operations mentioned above, and almost all of them are somehow interactive. Displaying the train schedule is non-interactive. The report display is a non-interactive operation, although selecting the desired reports will require user input.

Data Processing Support Functions:

The user account data is used to create new accounts, as well as to validate user id's during login functions. For building itineraries, user input, user account data, and train schedule data are used, and processed. User data along with final results of user interaction (whether the user purchased a trip, number of tickets bought, etc.) are collected, and used for report generation purposes. Administrative users' inputs are collected in order to modify and present schedules.

Backup and Recovery Operations:

Both databases used (passenger account database and reservations database) are production databases. The main operation used for the backup and recovery is Oracle's built-in cold backup, which is also known as the "archive mode".

Depending on the customer's needs and budget, additional redundancy can be added using systems like RAID_5 and tape backup.

3.6.3 Site Adaptation Requirements

There are no site adaptation requirements for this project.

4. Supporting Information.

There is no supporting information required for this project.

<Insert your checked github by individual Members here>

[Code](#) [Issues](#) [Pull requests](#) [Actions](#) [Projects](#) [Wiki](#) [Security](#) [Insights](#) [Settings](#)

main 1 branch 0 tags

Go to file Add file Code

Ezharkarim Add files via upload 4f7ce27 12 seconds ago 2 commits

Module 2 (Doctor) shahmir.zip	Add files via upload	12 seconds ago
Module 3 (Patient) Zain ullah.zip	Add files via upload	12 seconds ago
Module 4 Receptionist (Appointment...	Add files via upload	12 seconds ago
Module 5 (Doctor Schedule) Abdul ra...	Add files via upload	12 seconds ago
README.md	Initial commit	2 minutes ago

README.md

3. PROJECT MANAGEMENT AND RISK

MANAGEMENT

<Copy and Paste PMP document here, clearly mention individual member's names in bracket in front of each heading >

Project Management Plan/Charter

By: Syeda Umema Hani

TEMPLATE

PROJECT MANAGEMENT PLAN

Date: 4/December/ 2021

Release #: 1st

Project Manager: Syeda Umema Hani

Approvals:

Project Manager

State Organization Management

Department of Finance

User Management- HR

Other:

Project Management Plan:

Hospital Management System (HMS)

I. Project Summary

Information in the project summary areas was started during the project concept phase and should be included here.

Project Name:	<i>Hospital Management system</i>	Start Date:	<i>26/feb/2022</i>
State Organization::	<i>PAF Kiet Universiy</i>	Submitted by:	<i>Group Leader</i>
Prime Contractor:	<i>University</i>	Date Awarded:	<i>17/April/2022</i>
Current Stage of Project:	<i>Development Life Cycle – RAD</i>		

Project is On Schedule:

Yes: ☺ Yes No: ☹
Details: Yes Project is on schedule that shows all the tasks related to HMS includes Patient, doctors, doctors etc

Project is within Budget:

Yes: ☺ Yes No: ☹
Comments: Yes Project is within Budget. it has zero cost, which means it has no hardware once the libraries and tools are installed in the computer, it runs easily.

Project Management Plan:

Hospital Management System (HMS)

Project Summary - Continued

Points of Contact (Stake holder)

This should be the list of individuals that will be involved with the project during the execution phase.

Position	Name/Organization	Phone	E-mail
Project Manager	Dr. Umema Hani/ PAF KIET		Dr.umema@pafkiet.edu.pk
Sponsor	PAF KIET		
Customers:			
Other Stakeholders:	Zain Ullah	0348-3334064	Sharifzain11@gmail.com
	Ezhar Karim	0347- 5164198	Ezharkarim19@gmail.com
	Shahmeer Khan	0305-2109723	Shahmeer66khan@gmail.com
	Abdul Rauf	0346-8200033	Abdulr76@gmail.com

Project Management Plan:

Hospital Management System (HMS)

2. Project Charter

Business Problem.

All projects start with a business problem/issue to solve.

Conduction of business tasks manually, lack of efficiency, low performance time consuming activities.

Statement of Work (Goal).

The statement should be short and to the point. It should not contain language or terminology that might not be understood.

This product aims to replace the current manual system with the automated solution. The main system will comprise of **6 major sub-systems or Modules** the integration of theses sub-system will form the main system. All the sub-systems will be tightly integrated so as to give unanimity to user. The current client setup does not have any automation. Therefore, every department and the section will be developed from scratch as all departments are currently working manually. In this document we are covering “Hospital system” only.

1. **Module 1: Login**
2. **Module 2: Patient management**
3. **Module 3: Doctors**
4. **Module 4: Appointments**
5. **Module 5: Doctor’s Assistant**

Project Management Plan:

Hospital Management System (HMS)

2. Project Charter, continued

Project Objectives:

Provide a brief, concise list of what the project is to accomplish.

The software for General International is an ERP System, which enables automation of centralized system. This system will integrate all the departments of the company. The main divisions of the system are:

1. **Module 2: Patient (add, delete, search, update, show) with CRUDS**
2. **Module 3: Doctor (add, delete, search, update, show) with CRUDS**
3. **Module 4: Appointment (add, delete, search, update, show) with CRUDS**
4. **Module 5: Doctor schedule with CRUDS**
5. **Module**

Success Factors:

List factors that will be used to determine the success of the project.

1. Complete deployment of all 4 modules
2. Smooth integration between all systems
3. A Tested Product

Project Dependencies/Constraints:

1. Project completion is expected in less than 3.5 months duration
2. All requirements will be 100% available during requirement phase
3. Maximum team strength 4,
4. Average loading = 5,
5. E = 5

Project Management Plan:

Hospital Management System (HMS)

3. Project Tradeoff Matrix & Status Summary

Schedule/ Time	Scope/ Modules	Resources/Effort/People
CONSTR AINED	CONSTRAINE D / ACCEPTED	CONSTRAINED / Need to be IMPROVED (need reduction) / ACCEPTED (COCOMO Effort = 10 -15 not acceptable our constraint is max 5 members in 3.5 months)
		E = 5, S = 3.5, per month 2 persons, 3 months 5 persons = Est. 5 person

Identify variable to be CONSTRAINED, IMPROVED, ACCEPTED

Comments:

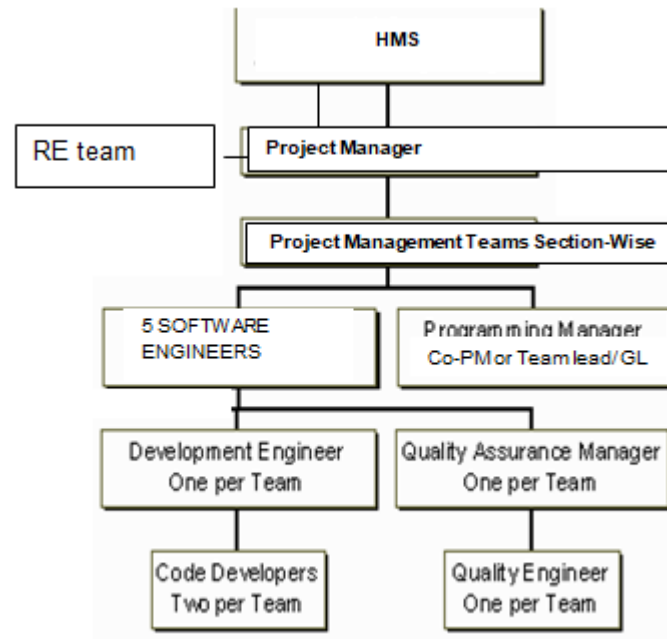
Accepted

Project Management Plan: Hospital Management System (HMS)

4.

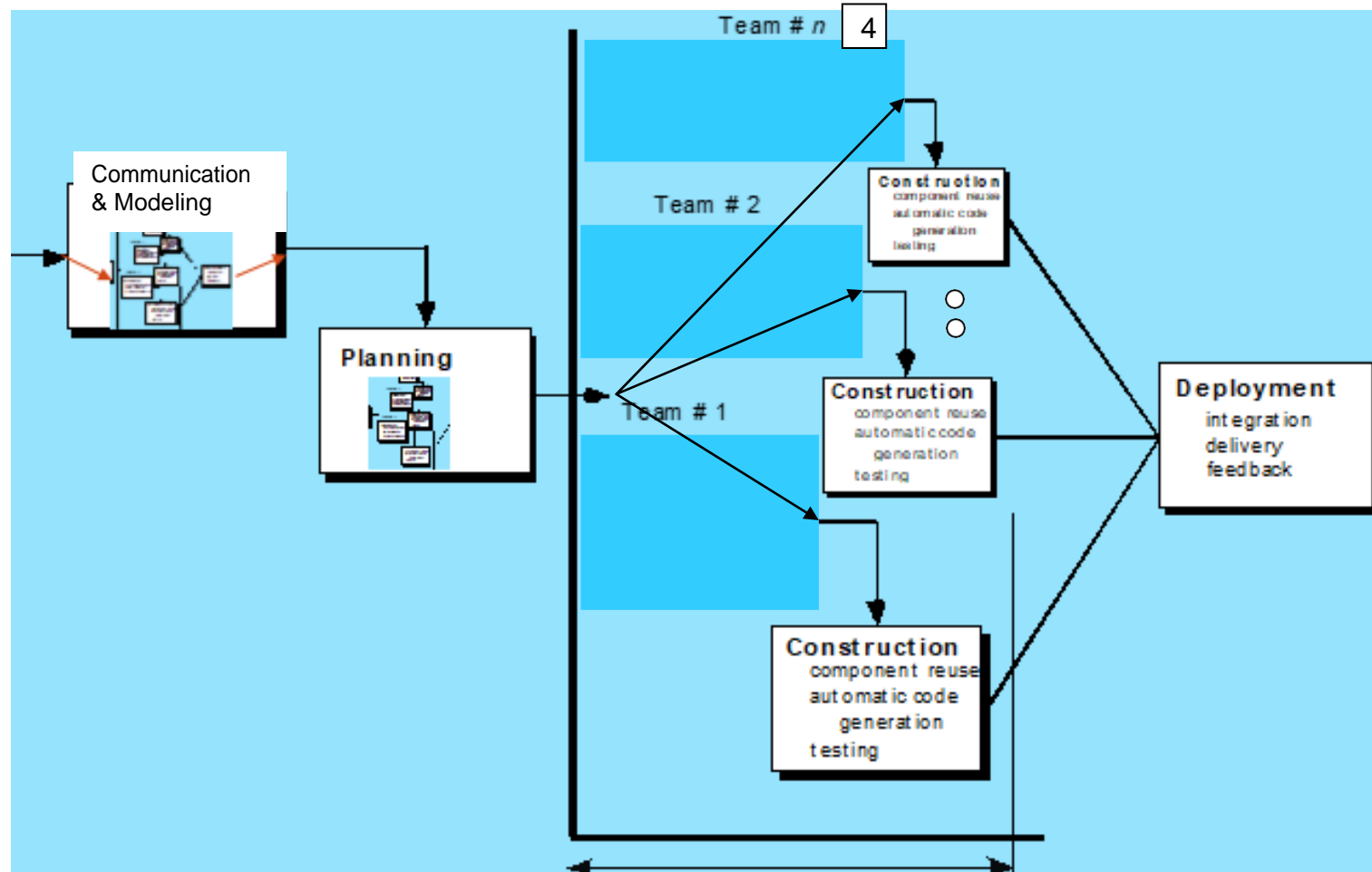
Project Organization

Provide an organization chart that defines the person responsible for at least the following functions: project manager, development manager, quality assurance, and configuration management.



SDLC Process Model:

Project Management Plan: *Hospital Management System (HMS)*



Project Management Plan: Hospital Management System (HMS)

5. Activity List (Work Breakdown Structure)

Provide an activity list (work breakdown structure) that describes each task required by the project, with a reference to the statement of work. For large projects, work packages might be included that describe in detail how specific tasks will be completed by specific project teams. These work packages describe required schedule, identify requirements to be completed and describe specific work to be performed

1. First Estimating FP then from it E and S. **<Correctly Re calculate for your Project>**

Software Size Estimation using Function Point Method										
A) Detail of 5 Transaction Types, at most 5 under each category										
	Write down exact Screen or Forms names, or Tables, or Reports name for each count value.									
EI	1. Admin	2. Add patient info	3. Doctor info	4. Appointments	5. Receptionist					
EO	1. Doctors	2. View patient	3. View appointments	4. View scheduled	5. Checkup					
EQ	1. Receptionist	2. Check doctor	3. Check doctor	4. Set Appointments	5. Update appointments					
ILF	1. Doctor Assist	2. View Patients	3. Doctor Prescription	4. Check Appointments	5. Check BP, etc..					
ELF	1. 8	2. 0	3. 0	4. 0	5. 0					
B) Unadjusted Function Point Value calculation										
Definition of Complexities: Your Transactions which are derived from only from 1 Table are to be categorized as Low and if they are derive from 2 tables they can be categorized in Mid-level complexity, and in case of >= 3 they will be placed under High level of complexity.										
	Count for screens of Low level complexity (C)	Multiplier Low level complexity (M)	V1 = C * M	Count for screens of Mid-level complexity (C)	Multiplier Mid-level complexity (M)	V2 = C * M	Count for screens of High-level complexity (C)	Multiplier High-level complexity (M)	V3 = C * M	Category wise sum V1+V2+V3
EI	3	3	9	1	4	4	1	6	0	13
EO	3	4	12	1	5	5	1	7	7	20
EQ	3	3	9	1	7	7	1	6	6	22
ILF	3	7	21	1	0	0	1	15	15	36
ELF	0	5	0	1	7	7	1	10	10	17

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Unadjusted Function Point Value =				108	
C) Value Adjustment Factor (VAF) calculation					
Note: Calculate Value Adjustment Factor, where any 5 "General System Characteristics (GSC) must have a value above 2. Also show respect Quality Characteristic mapping of these 5 factors.					
	Quality Characteristic	Weight (0-5)		Quality Characteristic	Weight (0-5)
1.		1	8.		2
2.		2	9.		3
3.		3	10.		4
4.		2	11.		1
5.		1	12.		3
6.		1	13.		2
7.		4	14.		1
Value Adjustment Factor (VAF) = 30					
D) Technology Complexity Factor calculation					
TCF = 0.65 + (VAF * 0.01) = 0.65 +(30*0.01) = 0.95					
E) Adjusted Function Point Value (AFPV) or Function Point Value (FP) Calculation					
AFPV = _ Unadjusted Function Point * TCF = 108 * 0.95 = 102.6					
F) Conversion of AFPV in to LOC Size metric					
the number of LOCs per FP for C# language 54 and check other languages from https://www.qsm.com/resources/function-point-languages-table , c# .net 54					
Project Size in LOC = AFPV * LOC/FP					
Project Size in LOC = 102.6* 54 = 5540.4 LOC.					
G) Software Size: 5540.4					
Software Size for COCOMO: 5.540 KLOC					
Software Type: Business/ Utility/Embedded					

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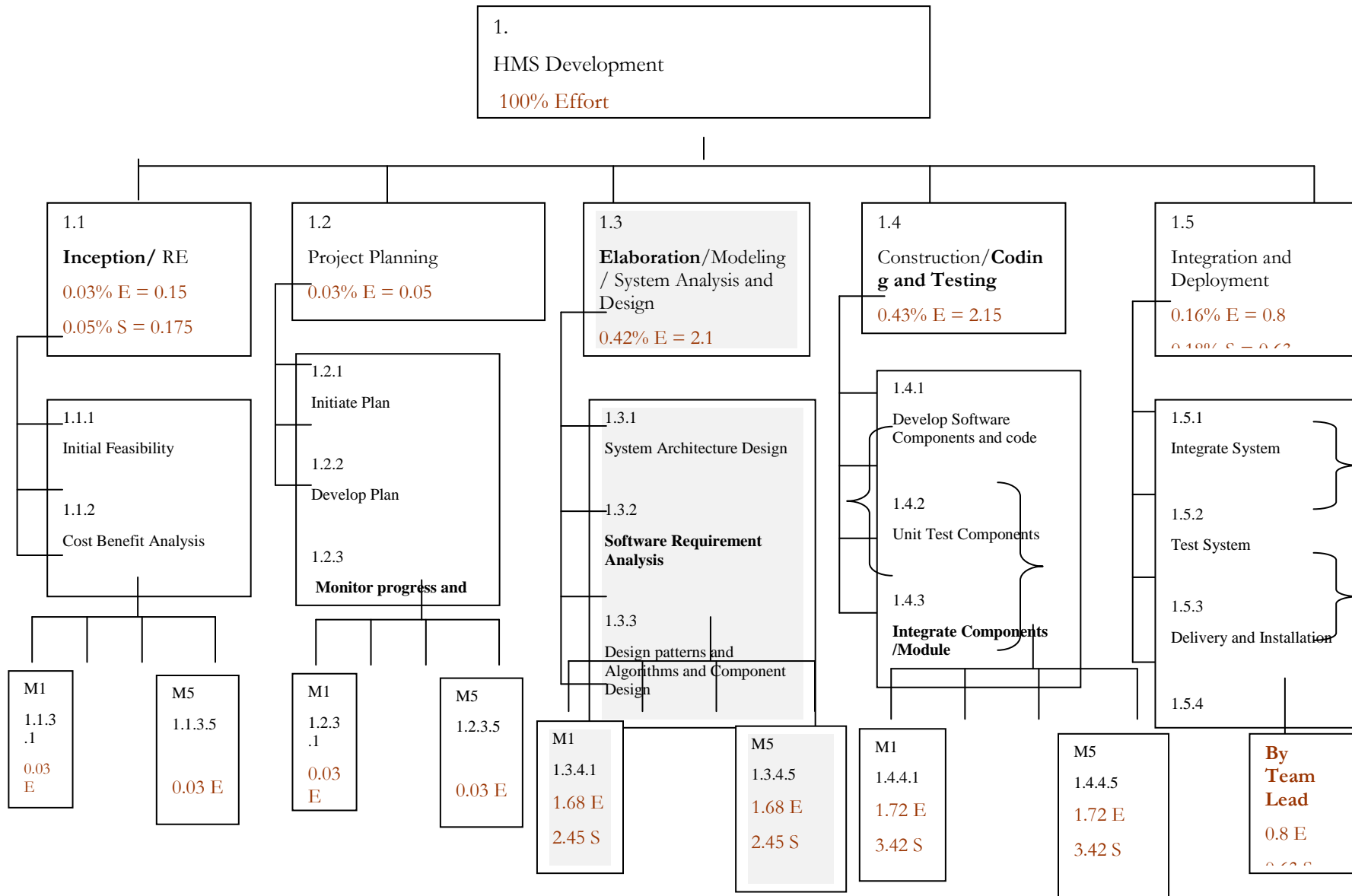
Model Mode: COCOMO I – Basic – ORGANIC (0 – 50 KLOC) / Semi-detached/ Embedded
a) Effort Estimation: Equation $2.4 * 5.540^{1.05} = E = 14 \text{ persons month}$
b) Schedule Estimation: Equation $2.5 * E^{0.38} \text{ months} = S = 7 \text{ months}$
c) Productivity Estimation: Equation $Loc/E = 5540.4/14=396$
d) Average Loading Estimation: Equation $E/S = 14/7=2$
e) Average Salary of Technical Staff (AS): Equation Assume = 50,000 RS
f) Cost for Salary (Cs): Equation $E * \text{Avg salary} = 700000$
g) Budgeted Cost of Project (Cb): Equation $Cs + Cs * X\% = 700000+(700000*10\%)=770000$

2. Calculate the phase-wise percentage distribution wise E and S values as given in detailed COCOMO detailed model.

H) Distribution of Effort and Schedule among Different phases of SDLC							
E = <u>5</u>							
S = <u>3.5</u>							
Plan and Requirement (E S)		Modeling / System Design & Detailed Design (E S)		Module Coding and Unit Testing (E S)		Integration & Deployment (E S)	
0.06 * 5 = 0.3	0.10 * 3.5 = 0.3	(0.16+0.26) * 5 = 2.1	(0.19+0.24) * 3.5 = 1.5	0.42 * 5 = 2.1	0.39 * 3.5 = 1.3	0.16 * 5 = 0.8	0.18 * 3.5 = 0.63

Project Management Plan: Hospital Management System (HMS)

2. Now adding percentage distribution as given in detailed COCOMO model in the WBS phase-wise. <Write exact E/S values after multiplying with distribution percentages>



Project Management Plan:

Hospital Management System (HMS)

Now convert above WBS contents in a Tabular format in order to make a GANTT CHART. <Complete>

22 days are taken from COCOMO detailed model's Schedule Distribution done in Class for Project Planning and Requirement Engineering Phase. Where 40% of 22 goes in RE and 60% in Planning.

Activity #	Activity Name	Activity Name Description	# of Days	Start Date	Dependency on previous tasks	Milestone
1.1	RE	Requirement Engineering	8-9	26/02/2022	none	05/03/2022
1.1.1	Initial Feasibility	Starting requirements	1	27/2/2022	none	01/3/2022
1.1.2	Cost Benefit Analysis	Determining the costs	1	01/3/2022	none	02/3/2022
1.1.3	System requirement Analysis SRS	Understanding the business and module	1	02/3/2022	none	03/3/2022
1.1.3.1	System requirement Analysis SRS for Module 1	Understanding the business and module 1	1	03/3/2022	none	04/3/2022
1.1.3.2	System requirement Analysis SRS for Module 2	Understanding the business and module 2	1	04/3/2022	none	05/03/2022
1.1.3.3	System requirement Analysis SRS for Module 3	Understanding the business and module 3	1	05/03/2022	none	05/03/2022
1.1.3.4	System requirement Analysis SRS for Module 4	Understanding the business and module 4	1	05/03/2022	none	05/03/2022
1.1.3.5	System requirement Analysis SRS for Module 5	Understanding the business and module 5	1	05/03/2022	none	05/03/2022
1.1.3.6	Merging of all parallel Modules 1,2,3,4,5	Combining all the modules	1	05/03/2022	none	05/03/2022

Project Management Plan:

HMS

1.1.4	Milestone (SRS) and Review meeting	Finalizing and meeting	0	05/03/2022	none	05/03/2022
1.2	Project Planning	Project Management Planning	14 Days	06/03/2022	1.1	20/03/2022
1.2.1	Planning for module 1	Planning the management for module 1	2	8/3/2022	1.1	10/3/2022
1.2.2	Planning for module 2	Planning the management for module 2	2	10/3/2022	1.1	12/3/2022
1.2.3	Planning for module 3	Planning the management for module 3	2	12/3/2022	1.1	14/3/2022
1.2.4	Planning for module 4	Planning the management for module 4	2	14/3/2022	1.1	16/3/2022
1.2.5	Planning for module 5	Planning the management for module 5	2	16/3/2022	1.1	20/3/2022
1.2.6	Merging the planning of all modules	Combining all the modules planning	4	20/3/2022	1.1	20/3/2022
1.3	Modeling	Done in SRS now ERD with Implementation	14 Days	06/03/2022	1.1	20/03/2022
1.3.1	Modeling and designing for module 1	Designing of GUI for module 1	2	8/3/2022	1.1	10/3/2022
1.3.2	Modeling and designing for module 2	Designing of GUI for module 2	2	10/3/2022	1.1	12/3/2022
1.3.3	Modeling and designing for module 3	Designing of GUI for module 3	2	12/3/2022	1.1	14/3/2022
1.3.4	Modeling and designing for module 4	Designing of GUI for module 4	2	14/3/2022	1.1	16/3/2022
1.3.5	Modeling and designing for module 5	Designing of GUI for module 5	2	16/3/2022	1.1	20/3/2022
1.3.6	Merging all the modeling of all the modules	Combining all the GUI in the software	4	20/3/2022	1.1	20/3/2022

Project Management Plan:

HMS

1.4	Implementation and Testing	Database and Code, Test Report	24 Days	21/03/2022	1.1	15/04/2022
1.4.1	Implementation for module 1	Coding for module 1	4	21/3/2022	1.1	25/3/2022
1.4.2	Implementation for module 2	Coding for module 2	4	25/3/2022	1.1	29/3/2022
1.4.3	Implementation for module 3	Coding for module 3	4	29/3/2022	1.1	03/4/2022
1.4.4	Implementation for module 4	Coding for module 4	4	03/4/2022	1.1	07/4/2022
1.4.5	Implementation for module 5	Coding for module 5	4	07/4/2022	1.1	11/4/2022
1.4.6	Testing, Finalizing and combining the implementation of all the modules	Combining all the code and files into one application	4	11/4/2022	1.1	15/4/2022
1.5	Deployment/Demo	Demo and Report	1 Day	30/4/2022	1.1	01/5/2022
1.5.1	Deployment of the project	Giving the final application to the customer	1	01/5/2022	1.1	01/5/2022

Project Management Plan:

Hospital Management System (HMS)

6. Work Product Identification

Provide a list of all deliverables required by the project, the date due and the person responsible for the deliverable. Pick Last activities from each phase they are deliverables. <Complete>

<i>Deliverable Name</i>	<i>Due Date</i>	<i>Date Delivered</i>	<i>Point of Contact</i>
SRS by Zain Ullah	03/3/2022	03/3/2022	63591
SRS by Ezhar Karim	04/3/2022	04/3/2022	63604
SRS by Shahmeer Khan	05/3/2022	05/3/2022	64160
SRS by Abdul Rauf	05/3/2022	05/3/2022	63159
SRS by Member 5			
PMP by Zain Ullah	08/3/2022	08/3/2022	63591
PMP by Ezhar Karim	10/3/2022	10/3/2022	63604
PMP by Shahmeer Khan	12/3/2022	12/3/2022	64160
PMP by Abdul Rauf	14/3/2022	14/3/2022	63159
PMP by Member 5			
Design (DB+GUI) by Zain Ullah	08/3/2022	08/3/2022	63591
Design (DB+GUI) by Ezhar Karim	10/3/2022	10/3/2022	63604
Design (DB+GUI) by Member 1			
Design (DB+GUI) by Member 1			
Design (DB+GUI) by Member 1			

Project Management Plan:

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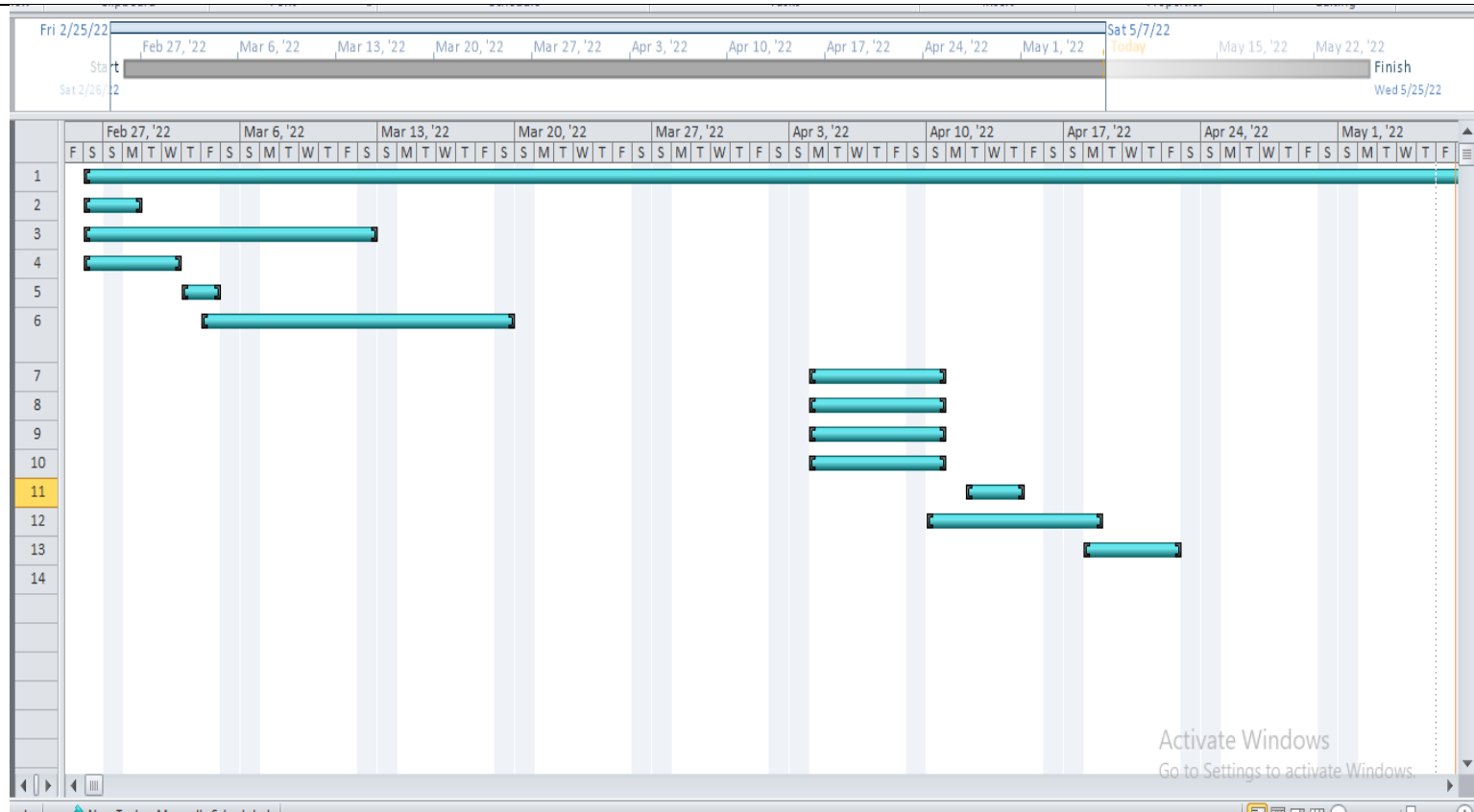
7. SCHEDULE

Provide the project schedule, using a **Gantt chart**. The schedule must include milestones, task dependencies (predecessors), task duration, **work product delivery** dates, quality milestones (reviews/**audits**/inspections), configuration management milestones, and action items (with deadlines and responsibilities). (in order to keep the project (T | C |S) in **CONTROL**).

<MUST IMPLEMENT GANTT CHART ON ANY SOFTWARE OR WEBAPPLICATION>

	ID	Task Mode	Task Name	Duration	Start	Finish	Predec
1	1		Project time	65 days	Sat 2/26/22	Wed 5/25/22	
2	2		Requirements and planning	2 days	Sat 2/26/22	Mon 2/28/22	
3	3		Designing	12 days	Sat 2/26/22	Sat 3/12/22	
4	4		database designing	4 days	Sat 2/26/22	Wed 3/2/22	
5	5		Gui Designing	2 days	Thu 3/3/22	Fri 3/4/22	
6	6		implementation and milestons	12 days	Fri 3/4/22	Sat 3/19/22	
7	7		module 1 (63591)	6 days	Mon 4/4/22	Sun 4/10/22	
8	8		module 2 (63604)	6 days	Mon 4/4/22	Sun 4/10/22	
9	9		module 3	6 days	Mon 4/4/22	Sun 4/10/22	
10	10		module 4	6 days	Mon 4/4/22	Sun 4/10/22	
11	11		milestone	3 days	Tue 4/12/22	Thu 4/14/22	
12	12		testing	7 days	Sun 4/10/22	Mon 4/18/22	
13	13		deployment	5 days	Mon 4/18/22	Fri 4/22/22	
14	14						

Project Management Plan: Hospital Management System (HMS)



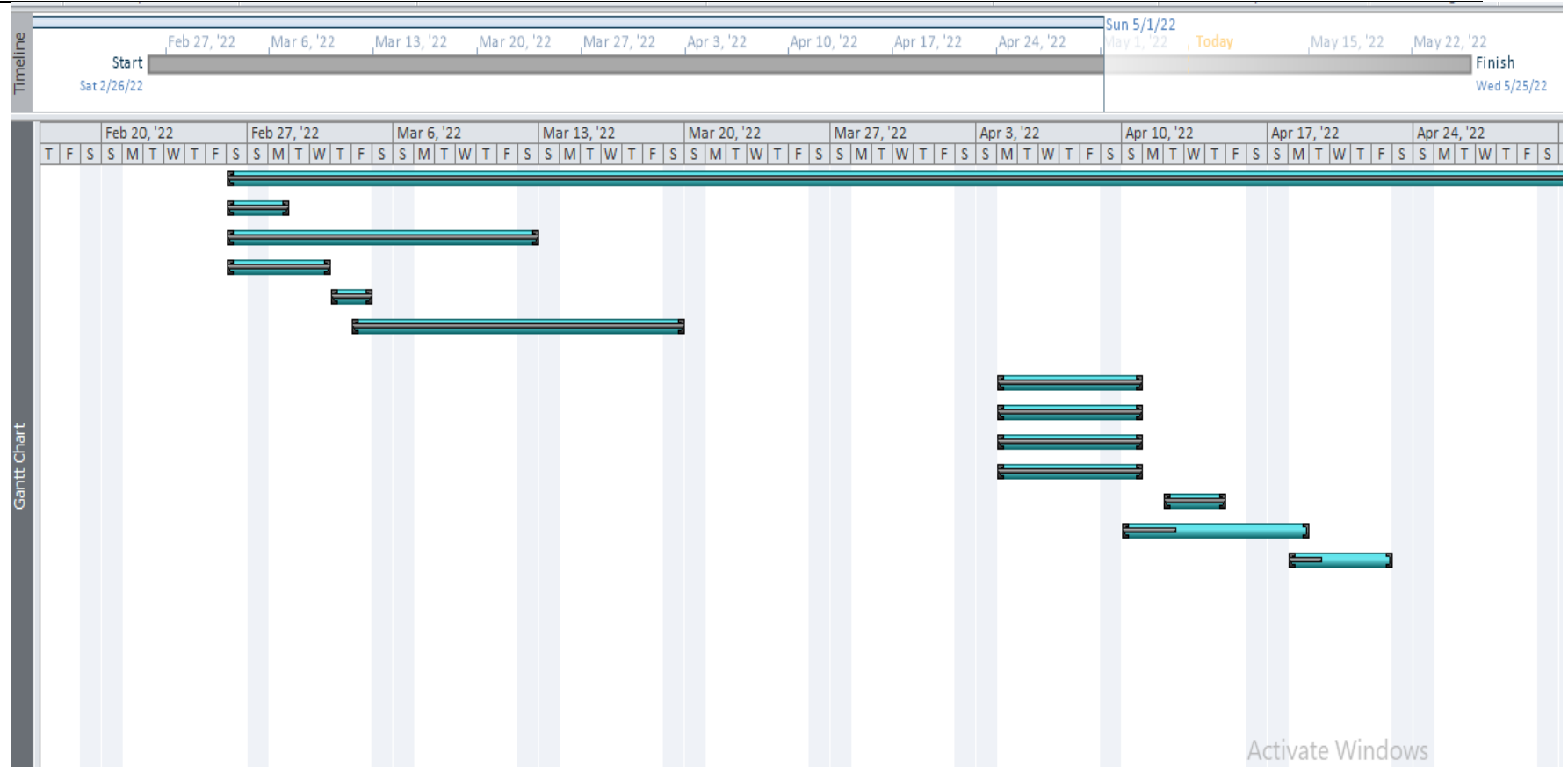
Project Management Plan:

Hospital Management System (HMS)

<Add % completion in it after submission of PMP expected on 18/12/2021, and also paste screen capture of Tracking Gantt Chart view>

	Task Mode	Task Name	Duration	Start	Finish	% Complete	Re
1		Project time	65 days	Sat 2/26/22	Wed 5/25/22	100%	
2		Requirements and planning	2 days	Sat 2/26/22	Mon 2/28/22	100%	
3		Designing	12 days	Sat 2/26/22	Sat 3/12/22	100%	
4		database designing	4 days	Sat 2/26/22	Wed 3/2/22	100%	
5		Gui Designing	2 days	Thu 3/3/22	Fri 3/4/22	100%	
6		implementation and milestons	12 days	Fri 3/4/22	Sat 3/19/22	100%	
7		module 1 (63591)	6 days	Mon 4/4/22	Sun 4/10/22	100%	
8		module 2 (63604)	6 days	Mon 4/4/22	Sun 4/10/22	100%	
9		module 3	6 days	Mon 4/4/22	Sun 4/10/22	100%	
10		module 4	6 days	Mon 4/4/22	Sun 4/10/22	100%	
11		milestone	3 days	Tue 4/12/22	Thu 4/14/22	100%	
12		testing	7 days	Sun 4/10/22	Mon 4/18/22	40%	
13		deployment	5 days	Mon 4/18/22	Fri 4/22/22	35%	
14						0%	

Project Management Plan: Hospital Management System (HMS)



Project Management Plan:

Hospital Management System (HMS)

8. **Estimated Cost at Completion**

Provide an estimated cost at completion, which is an assessment of the total effort at completion of the contract.

Analysis in Hours / Cost						
WBS No.	Activity Description	Budget Hours B	Actual Hours A	Est. to Complete the remaining work – milestone-wise ETC B - A EAC - A	Est. @ Completion EAC A + ETC	Variance (+ = More) V = (A-B/A)
1 st Milestone		8 Working days 60 Hours	40	60 - 40 = 20	40 + 20 = 60	(40 - 60)/ 40 = - 0.5 Under the budget 20V
2 nd Milestone		8 Working days 8 x 7.5 = 60 Hours	50	60 - 50 = 10	50 + 10 = 60	(50-60)/ 50 = -0.2 Under the budget 20V

Project Management Plan:

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3 rd Milestone		12 working days 12 x 7.5 = 90 hours	115	153 – 115 = 20	115 + 20 = 135	(115 – 135)/115 = -0.17 Under the budget 17V
4 th Milestone		20 workin g days 20 x 7.5 = 150 hours	140	150 – 140 = 10	140 + 10 = 150	(140 - 150)/140 = - 0.07 Under the budget 7V
5 th Milestone		16 workin g days 16 x 7.5 = 120 hours	100	120 – 100 = 20	100 + 20 = 120	(100 - 120)/100 = - 0.2 Under the budget 20V

Project Management Plan:

Hospital Management System (HMS)

9. Resource Loading Profiles - Staffing

Provide a staffing plan that shows the number of personnel, by type, that will be required on the project on a **monthly basis**.

Resource Loading Profiles							
E = 5 S = 3.5 Avg Loading = 2 person per month Since loading gives same value of effort for all months, therefore, we have used Detailed COCOMO's Effort distribution as already done in part 5.2							
Plan and Requirement		Modeling / System Design & Detailed Design		Module Coding and Unit Testing		Integration & Deployment	
$0.06 * E = 0.3$	$0.10 * S = 0.35$	$(0.16+0.26) * E = 2.1$ approx. 2	$(0.19+0.24) S = 1.5$	$0.42 * E = 2.1$ approx. 2	$0.39 * S = 1.365$	$0.16 * E = 0.8$	$0.18 * S = 0.63$
Designation: PM, BA, Domain Expert Expert = 0.3 person		BA, Analyst, Domain Expert=2		Coders and Testers 2		Senior Tester, TL 0.8	
Job Description: Assisting in building SPMP, SRS and prototype, as well as doing the necessary requirement and risk analysis for the project		Job Description: A Domain Expert is an expert in the domain of Spice management.		Job Description: They are involved in performing automated and manual tests to ensure the software created by developers is fit for purpose. Some of the duties include analysis of software, and systems, mitigate risk and prevent software issues.		Job Description: Senior Tester will be responsible for quality process in a project. Tasks will include test case design, test planning, testing of systems developed by the company, test automation and reporting of test results.	

Project Management Plan:

Hospital Management System (HMS)

Contact information: email:zainyashkun11@gmail.com mobile:03483334064			
Contact information: email:ezharkarim19@gmail.com mobile:			

11. Risk Identification

Provide a description of all risks identified for the project. A risk is anything that might detrimentally affect the successful completion of the project if left unaddressed. The contractual, management, and technical risks associated should be **identified** and **assessed** as to the **probability of the risk occurring**, the **cost to correct** if the risk occurs, the impact of the risk on the project, and the suggested mitigation activities and cost of mitigation.

Risk Worksheet

Risk Management Steps:

1	Identify the project's top10 risk items
2	Present a plan for resolving each risk item
3	Update list of top risk items, plan, and results monthly
4	Highlight risk-item status in monthly project reviews. Compare with previous month's ranking status
5	Initiate appropriate corrective actions

Top 10 Risk Items	
Risk Items	Risk Management Techniques

Project Management Plan:

Hospital Management System (HMS)

Personnel Shortfalls	Staffing with top talent, job matching; team building; morale building; cross training; pre-scheduling key people
Unrealistic schedules and budgets	Detailed, multi-source cost and schedule estimation; design to cost; incremental development; software reuse; requirement scrubbing
Developing the wrong software functions	Organizational analysis; mission analysis; ops-concept formulation; user surveys; prototyping; early users' manuals
Developing the wrong user interface	Task analysis; prototyping; scenarios; user characterization (functionality, style, workload)
Gold Plating	Requirement scrubbing; prototyping; cost-benefit analysis; design to cost
Continuing stream of requirement changes	High change threshold; information hiding; incremental development (defer changes to later increments)
Shortfalls in externally furnished components	Benchmarking; inspections; reference checking; compatibility analysis
Shortfalls in externally performed tasks	Reference checking; pre-award audits; award-fee contracts; competitive design or prototyping team building
Real-time performance shortfalls	Simulation; benchmarking; modeling; prototyping; instrumentation; tuning
Straining computer-science capabilities	Technical analysis; cost-benefit analysis; prototyping; reference checking

	Potential Risk	Risk Monitoring Preventive measures	Risk Management and mitigation	Risk Exposure = Probability of Risk Occurrence * Cost of Risk	Prioritize Till next Review
1.	Size of the software being very large and larger number of users than planned due to using eval SDLC and no confirmation	Reviewing constant feedbacks from the customers in project meetings	Being flexible in the software design to accommodate the necessary changes	Cost * Probability of Risk Occurrence = Salary for 2 programmers for 1 month * 0.8 = 100,000 * 0.8 0.4	

Project Management Plan:

Hospital Management System (HMS)

	of Requirements in RE phase. (Fp→Loc→Effort)			=48000 24000	
2.	The software not being accepted by the CRM	Response from the CRM , reviewed on every project meeting	Early and intensive interaction with the customer for the success of project.	Cost * Probability of Risk Occurrence = Salary for 1 project manager for 1 month * 0.3 = 60,000 * 0.3 = 18000	
3.	Cost factor involved in this project	Reviewing reports on expenditure and other cost related to the estimated cost in the SPMP	Have additional funding allocated for it in advance and using it in case of emergencies.	Cost * Probability of Risk Occurrence = Salary for financial officer for 1 month * 0.5 = 50,000 * 0.5 = 25,000	
4.	Customer requirements may change	CRM participation in design process and reviewing feedback information in group meetings	A new prototype will replace the previous one to accommodate the change	Cost * Probability of Risk Occurrence = Salary for Project manager for 1 month * 0.4 = 60,000 * 0.4 = 24,000	
5.	Technology will not meet expectation	Constantly reviewing project progress reports by Project Development Manager and software managers	Exploring alternatives for the outdated technologies	Cost * Probability of Risk Occurrence = Salary for technologist for 1 month * 0.7 = 50,000 * 0.7 = 35,000	
6.	Lack of training on tools and staff being inexperienced	Reviewing progress report by software managers to determine the status of the project	Providing adequate training that is necessary for the completion of the project	Cost * Probability of Risk Occurrence = Salary for job hirer for 1 month * 0.6 = 50,000 * 0.6 = 30,000	
7.	The prototype not being delivered on time	Constant reviews among team members to ensure	Setting deadline before the actual time for submission of	Cost * Probability of Risk Occurrence	

Project Management Plan:**30 April**

			continuous progress on the prototype	the project	= Salary for project manager for 1 month * 0.2 = 60,000 *0.2 =12,000	
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12. Configuration Management Plan

Provide a configuration management plan that defines the person responsible for project configuration management, the procedures that will be used, the planned configuration items, planned release dates for configuration items, and resources required to conduct CM.

CCB members: Ezhar Karim

Procedures: Resources: Quality Assurance Software

Configuration Items: Ensure that CM is implemented throughout the project's life cycle.

No	Item	Comments
1.	SRS	Updated According To The New Changed Requirements
2.	PMP	Made Changes In The PMP According To Additional Requirements
3.	Modeling	Made Changes In The PMP Due To The Change In Team
4.	Code Files	Configuration In The Code Files After New Requirements

Ensure that project has a repository for storing configuration items and associated CM records. Briefly describe.

<https://github.com/Ezharkarim/Project-of-Software-Engineering-.git>

13. Quality Plan

Provide a quality plan that defines the person responsible for project quality assurance, the procedures that will be used and resources required to conduct quality assurance.

QA Manager and Staff: Shahmeer, Abdul Rau & Ezhar

*Procedures: **Identification, control, audit, and status accounting** will be done.*

Resources: Quality Assurance Software

Planned Quality Event: Ensure that QA is implemented throughout the project's life cycle. Dates include QA audits and reviews, design walkthroughs and other project activities that QA staff will participate in.

No	Item	Comments
1.	SRS	Reviewed SRS For Quality Checking
2.	PMP	Reviewed PMP For Quality Checking
3.	PTR	Reviewed PTR After Testing of Project
4	Code Files	Reviewed Code Files After Construction of Project
	Project Release Document	Reviewed Project Release Document Before Deployment of Project

Ensure that project has a repository for storing configuration items and associated QA records.

Ensure that QA audits the baselines and CM activities on a regular basis.

4. MODELING (ANALYSIS & DESIGN)

- a. Architecture diagram (3 Tire) – Done in SRS
- b. Class Diagram/ERD – Done in SRS
- c. Final Interface design (Member module wise, covering all CRUDS)

5. TESTING

Write detailed manual “Test Cases” for your selected Modules, keep the Login Test case as it is. Also Execute above developed “Test cases” on your project code and Observe (Pass/fail) Status. Complete

<Test Report> by marking “Pass/Fail” status against each executed Test Case

Login Module 1 is a default module and common for all Members – it is completely done already. Attempt your individual modules					
Test Strategy: Unit and Debugging Testing Done					
Test Strategy: Integration Testing and Regression Testing					
Aspects to be covered: (System – Functional Testing, GUI, Performance, Security, Usability, Compatibility, Error Handling, Volume, Scalability, Installation, Maintenance, Reliability, Recovery)					
	TC1.1-1.5	Purpose: The user should be able to go to the Home page	Pre-requisite: S/w should be compatible with the Operating system. Login page should appear. User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	Test Case Id	Test Case Name Requirement Number File path	Steps/ Action	Expected Results	PASS-FAIL
1.	TC1.1	Checking User Interface requirements .	User views the page to check whether it includes UserId and Password textboxes with appropriate labels. Also expects that Submit and Cancel buttons are available with appropriate captions	Screen displays user interface requirements according to the user.	PASS
2.	TC1.2.	Textbox for UserId should: i) allow only alpha-numeric characters{a-z, A-Z} ii) not allow special characters like {'\$', '#', '!', '~', '*', ...} iii) not allow numeric characters like{0-9}	i) User types numbers into the textbox. ii) User types alphanumeric data in the textbox.	i) Error message is displayed for numeric data. ii) Text is accepted when user enters alpha-numeric data into the textbox.	FAIL

Project Management Plan:

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3.	TC31.3	Checking functionality of the Password textbox:	ia) User enters less than 6 characters in the password textbox. EBV: partition 0-5	i) System should not accept.	
		i) Textbox for Password should accept more than/minimum 7 characters and maximum 10 Characters	Ib) User more than 10 characters in the password textbox. EBV: partition 11-14	when user enters less than 7 or greater than 10 characters in the password textbox. Error message is displayed	
		ii) Data should be displayed in encrypted format.	ii) User enters more than 5 characters and less than 11 in the password textbox. EBV: partition 6-10	System accepts data when user enters more than 5 characters and up to 10 characters into the password textbox.	
			ii) User checks whether his data is displayed in the encrypted format.	System accepts data in the encrypted format else displays an error message.	
4.	TC1.4	Checking functionality of 'SUBMIT' button.	i) User checks whether 'SUBMIT' button is enabled or disabled.	i) System displays 'SUBMIT' button as enabled	
			ii) User clicks on the 'SUBMIT' button and expects to view the 'Home' page of the application.	ii) System is redirected to the 'Home' page of the application as soon as he clicks on the 'SUBMIT' button.	
5.	TC1.5	Checking functionality of 'CANCEL' button.	i) User checks whether 'CANCEL' button is enabled or disabled.	i) System displays 'CANCEL' button as enabled.	
			ii) User checks whether the textboxes for User ID and Password are reset to blank by clicking on the 'CANCEL' button.	ii) System clears the data available in the User ID and Password textbox when user clicks on the 'CANCEL' button.	
6.	TC1.6	Checking Decision functionality of Input boxes user ID and Password	Required list of variables and their values should be available For example: [User ID, Password] a. valid, valid; b. valid, invalid ; c. invalid, valid; d. invalid, invalid; e. empty, empty;		
Test Strategy: System – Functional Testing: GUI, Performance, Security, Usability, Compatibility, Error Handling, Volume, Scalability, Installation, Maintenance, Reliability, Recovery					
Test Strategy: User Acceptance Testing: Alpha					
Test Strategy: User Acceptance Testing: Beta					

TEST CASE BY MEMBER 1 FOR MODULE 2					
1	TC2	Purpose: The user should be able to perform MODULE 2 Function and go to the Home page	Pre-requisite: A successful Login. Login page should appear. User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	Test Case Id	Test Case Name Requirement Number File path	Steps/ Action	Expected Results	PASS-FAIL
1.	TC1.1.	Registration as doctor or receptionist and doctor assistant Doctor ,receptionist and doctor assistant registered themselves if they don't have account.	Required details: For Student or Teacher a. Username b. Password c. Email d. contact	If Information is valid and completed	PASS
				If Information is not valid or required	FAIL
Sr. No	Test Case Id	Test Case Name Requirement Number File path	Steps/ Action	Expected Results	PASS-FAIL
3.	TC1.1.	Patient management	a. add the patient details b. delete patient details c. update d. search	Check the data of patients	PASS

TEST CASE BY MEMBER 2 FOR MODULE 3

	TC3	Purpose: The user should be able to perform MODULE 2 Function and go to the Home page	Pre-requisite: A successful Login. Login page should appear. User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	Test Case Id	Test Case Name Requirement Number File path	Steps/Action	Expected Results	PASS-FAIL
		Doctors info	Required Authorized ID For doctors e. Login to their accounts f. Add doctor info g. Show doctor info and appointments h. Search doctor info	Check the doctordetails and get update to their appointments	pass

TEST CASE BY MEMBER 3 FOR MODULE 4

	TC2	Purpose: The user should be able to perform MODULE 2 Function and go to the Home page	Pre-requisite: A successful Login. Login page should appear. User Id and Password textboxes should be available with appropriate labels. Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	Test Case Id	Test Case Name Requirement Number File path	Steps/Action	Expected Results	PASS-FAIL

Project Management Plan:

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3.	TC3.1.	portal	Required Authorized ID For receptionist i. Login to their accounts j. Search patient k. See the patient info	Check patient info and set the appointment's after checking the doctor schedule	PASS
4.	TC3.2	appointments	a. See patients b. Check doctor schedule c. Set appointment s d. Delete appointments e. Update appointments	Check the whole patient and doctor schedule and set the appointments if the text boxes is not empty	PASS

TEST CASE BY MEMBER 4 FOR MODULE 5

	TC2	Purpose: The user should be able to perform MODULE 2 Function and go to the Home page	Pre-requisite: A successful Login. Login page should appear. User Id and Password textboxes should be available with appropriate labels.		
			Submit and Cancel buttons with appropriate captions should be available.		
Sr. No	Test Case Id	Test Case Name Requirement Number File path	Steps/Action	Expected Results	PASS-FAIL
5.	TC4.1.	Doctor schedule	a) Check doctor b) Set their schedule(including day, time)	If the doctor schedule is empty	fail
				When the doctor has proper schedule and timing	pass

CONCLUSION OF WHOLE PROJECT

This project (HMS) based on 5 modules which we mentioned above. This report covers major "Software Engineering" activities on selected Project. This project activity lasts for duration of 3.5 month time. This basic purpose of this project is used to customized or handle the school related activities in an effective manner. This project has modules which differ patient, doctors and management each other so in this way everyone has different tasks which they perform or see in a specific criteria.