Hospital Management System

Group Members:

- Sebastian Silva Benites
- Syed Ikramuddin
- Hardipsinh Matroja
- Mustafa Ali Taleb Al-Omari
- Louie Go
- Kamalkumar, Patel
- Neethu Dominic
- Belove Nareshkumar Patel

Part A: Requirements Analysis Document

Section 1: Problem Statement

1.1.a. Problem and Need

Dealing with hospitals and doctors is no easy task, getting a date for your appointment, forgetting when you made the appointment, receiving your prescription and forgetting where you put it. It may not seem so difficult but with the increasing speed of day-to-day life it gets more complicated every time. Also, the hospital may have some problems, confusing dates, not registering appointments or not delivering medicines in the appropriate date.

Therefore, we will make a software where patients, doctors and hospital staff will have their account where they can manage appointments and patient's history and prescription medicines. Patients can book appointments online whilst the doctor and hospital admins can see, manage or reschedule appointments. Patients can also consult the doctors using the video interface from anywhere. Moreover, patients can see prescriptions, doctor's advice and review their own medical history.

1.1.b. Capabilities and Benefits

(i) Capabilities

- Manage Doctors Appointments
- Display and Store Patient's History
- Display Doctors Available hours
- Display and Store Patients Prescriptions
- Manage Patient's personal information
- Online consultation through video call

(ii) Benefits

- Minimize time on looking up records for a certain patient
- Remove the paper-based system completely
- Create a more systematic and organized way of keeping and storing patient's records
- Create an easier way to make an appointment with a doctor.
- Patients will receive quicker way to check lab results

1.2. Stakeholders and their roles

- Admin: full access to the system.
- Staff: interacts with the customers and users of the application.
- Receptionist: check appointment information
- Doctors: Manage appointments and add data to patient's history
- Staff: Manage users
- Lab Technicians: Manage Lab Procedures appointments and send results
- Pharmacist: Gets prescriptions and manage the delivery of said prescription
- Patient: Uses the application to get appointments and review their medical history

1.3. Subsystems of the application

- Login and Registration Subsystem
- Consultation Subsystem
- Pharmacy Subsystem
- Lab Management Subsystem
- Administration Subsystem

1.4. Intended User of the SRS documentation

- Developers
- UX Designers
- Admin Management
- IT Management

Section 2: Context Flow Diagram
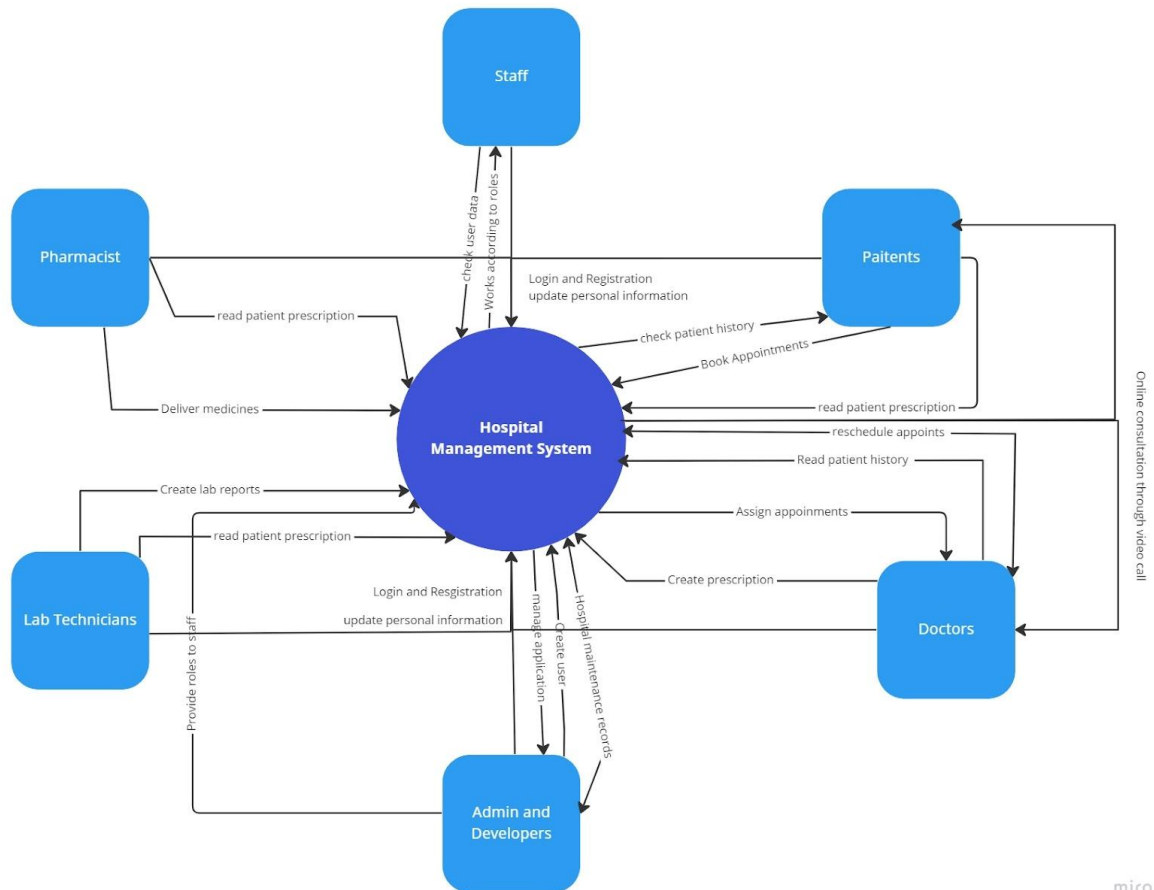
Section 3: Requirements

3.1. Login and Registration Subsystem

3.1.1. Goal Use Cases

#FR	Goal Use case	Role	Description
FR001	Login into Dashboard	All Roles	Login into the corresponding Dashboard
FR002	Change Password	All Roles	Allow all roles to change their current password
FR003	Register	Patient	Allow new patients to create their account
FR004	Create hospital user	IT Department, Admin	Allow the IT and Admin personnel to create new hospital users
FR005	Logout of account	All Roles	Allow the user to logout from the system

3.1.2. Use Case Diagram
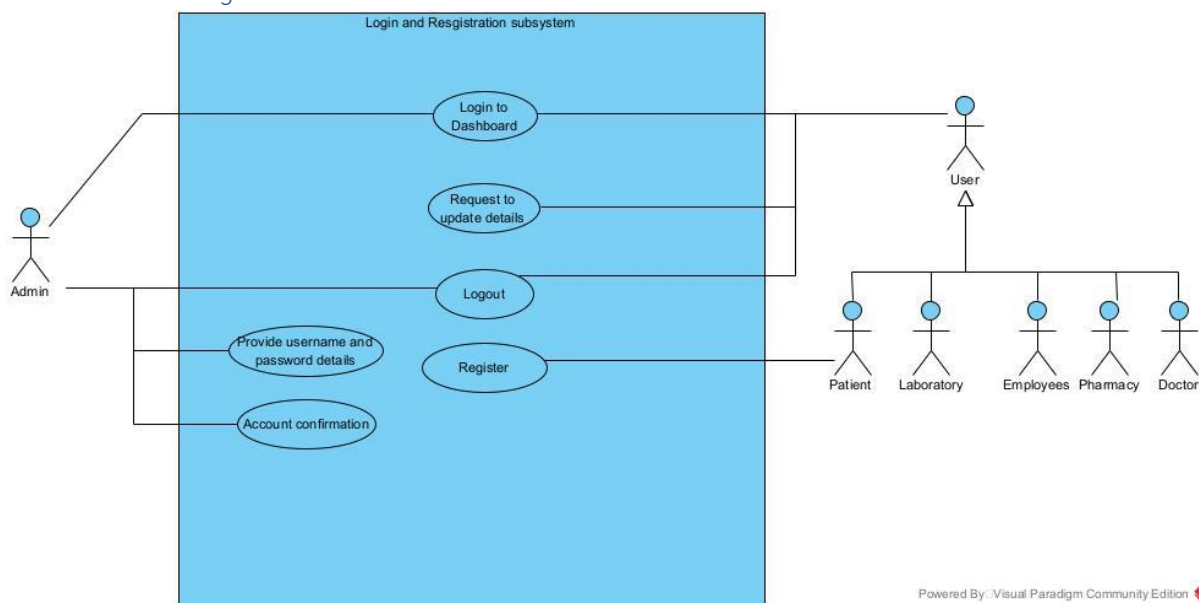
3.1.3. User Stories

US-001. AS a Patient, I WANT to be able to create an account by inserting my name, last name, email, phone number and a password SO THAT I can use this account to access the application.

Acceptance Criteria:

- When I click the register link, then the application will redirect me to the registration page.
- When I have inserted all the required fields and pressed the register button, then I will receive a confirmation email and be redirected to the login page.

US-002. AS a User, I WANT to access the application by inputting my email and my password, SO THAT I can access the application.

Acceptance Criteria:

- When I click the login link, the application will redirect me to the login page.
- When I enter the email and password and click the login button, then I will enter to my home page

US-003. AS a System Admin, I WANT to create employee's users, SO THAT this newly created users can interact with the application.

Acceptance Criteria:

- When I click on the add link, The application will redirect me to the add user's page.
- After I enter all the required details and click on add button, the application will give me a confirmation.

US-004. AS a User, I WANT to logout of my account, SO THAT I can maintain my privacy if I leave the computer.

Acceptance Criteria:

- When I click on the logout link, the application will ask for confirmation.
- When I enter the confirmation, then I will be redirected to the login page.

US-005. AS a User, I WANT to change the password of my account, SO THAT I can maintain my data secure.

Acceptance Criteria:

- When I click on the change password link, the application will ask me the current password and new password.
- When I enter the details and click on the change button, the application will give me a confirmation.

3.2. Consultation Subsystem

3.2.1. Goal Use Cases

#FR	Goal Use case	Role	Description
FR006	Check for Availability	Outpatient	Allow the user to search an available date for an appointment
FR007	Online Consultation	Outpatient, Doctor	Allow the patient to consult the doctor using an online video interface.
FR008	Confirm an Appointment	Doctor	Allow the user to confirm an appointment time and date.
FR009	Reschedule an Appointment	Outpatient, Doctor, Admin	Allow the user to change or suggest a time and date change.
FR010	Cancel Appointment	Outpatient, Doctor, Admin	Allow the user to cancel a scheduled appointment
FR011	Send Prescription	Doctor	Allow the user to add a prescription to a patient
FR012	Request Patient's History	Doctor, Outpatient, Inpatient	Allow the user to request a patient's history
FR013	Update Patient's prescription	Doctor	Allow the user to update patient prescription
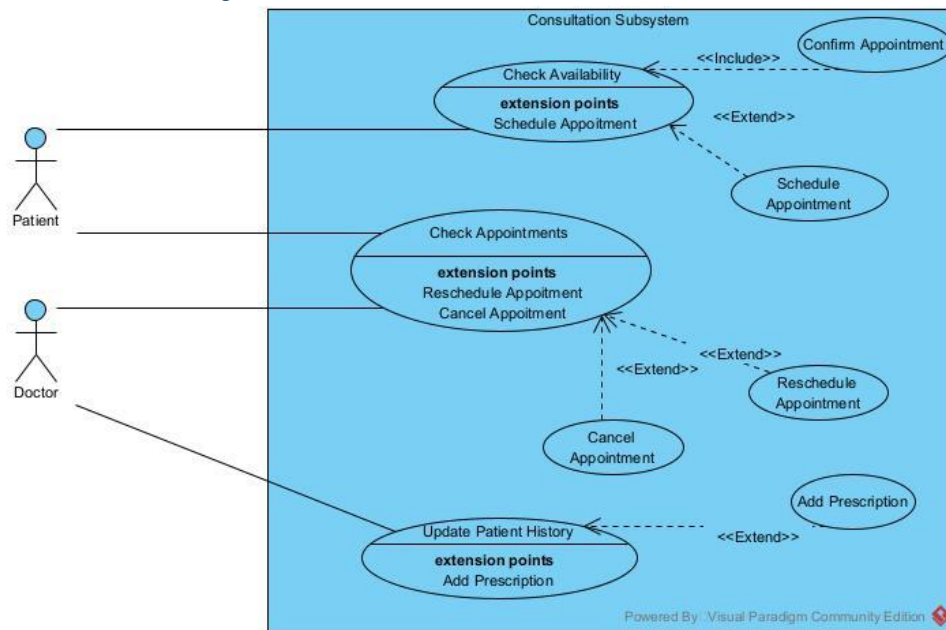
US-006. AS an Outpatient, I WANT to get a list of available physicians of a certain especially, SO THAT I can find a time and date that will suit me for an appointment.

Acceptance Criteria:

- When I enter to the consultation scheduling interface, I can select a specific speciality and a date, if both are correct the application will show me all the available doctors.
- When I entered a speciality and a date were there are not available doctors, the application will show me a prompt that tells me that there are no available doctors on that date.
- When I Select a doctor on the available doctors list, the application will show all the available hours of the doctor.
- When I select an available hour, the application will show a confirmation message, and if successful, it will do the reservation for the consultation.

US-007. AS an Outpatient, I WANT to request an appointment with a physician at a certain date and time, SO THAT I can get an appointment on that date.

Acceptance Criteria:

- When I click on the request link, the application will redirect me to that page.
- When I enter required details and click on the request button, the application will give a confirmation of request

US-008. AS a Doctor, I WANT to confirm an appointment, SO THAT the patient can be notified and come in the specified date and time.

Acceptance Criteria:

- When I click on the confirm button, the application will ask me for confirmation.
- When I click on the confirm button, the application will give me a confirmation

US-009. AS a doctor or an Outpatient, I WANT to request a reschedule of an existing appointment, SO THAT I can move an established appointment in case of an emergency.

Acceptance Criteria:

- When I click on the reschedule link, the application will show me the list of available appointments.
- When I select and confirm my option, the application will give me a confirmation.

US-010. AS a doctor or an Outpatient, I WANT to cancel an existing appointment, SO THAT date can be used by anyone else.

Acceptance Criteria:

- When I click on the cancel link, the application will ask for a confirmation.
- When I confirm it, the application will give me a confirmation.

US-011. AS a Doctor, I WANT to add a prescription to the history of the appointment, SO THAT the patient can use that prescription to get his or her medicines.

Acceptance Criteria:

- When I click on the add link, the application will redirect me to a page where I can add a prescription.
- When I add and click on the save button, the application will give me a confirmation.

US-012. AS a Doctor, I WANT to request a specific patient's history, SO THAT I can read and know what the patient has been taking, what other illnesses he or she has, or any other important information that may be present in the history.

Acceptance Criteria:

- When I Search for a patients name or Id, the basic information of the patient is displayed.
- When I click on the show patient history of a selected patient, it redirects me to a table display of said patient's history.

US-013. AS a Doctor, I WANT to add information to the patient's history, SO THAT anything prescribed or found in the appointment can be used or seen by other doctors and by the patient.

Acceptance Criteria:

- When I click on the add link, the application will redirect me to a page where I can add information.

- When I add and click on the save button, the application will give me a confirmation.

3.3. Pharmacy Subsystem

3.3.1. Goal Use Cases

#FR	Goal Use Case	Role	Description
FR014	Request Patient's prescription	Pharmacist, Patient	Allows the user to retrieve a specific patient's prescription
FR015	Verify Patient's Prescription	Pharmacist	Allow the user to verify the information of a prescription
FR016	Mark Prescription as Delivered	Pharmacist	Allow the user to add the approved check to a prescription
FR017	Schedule Prescription for Deliver	Patient	Allow the user to schedule a delivery date for his or her prescription
FR018	Track Prescription Delivery	Patient, Admin	Allow the user to get the status of a prescription delivery

3.3.2. Use Case Diagram
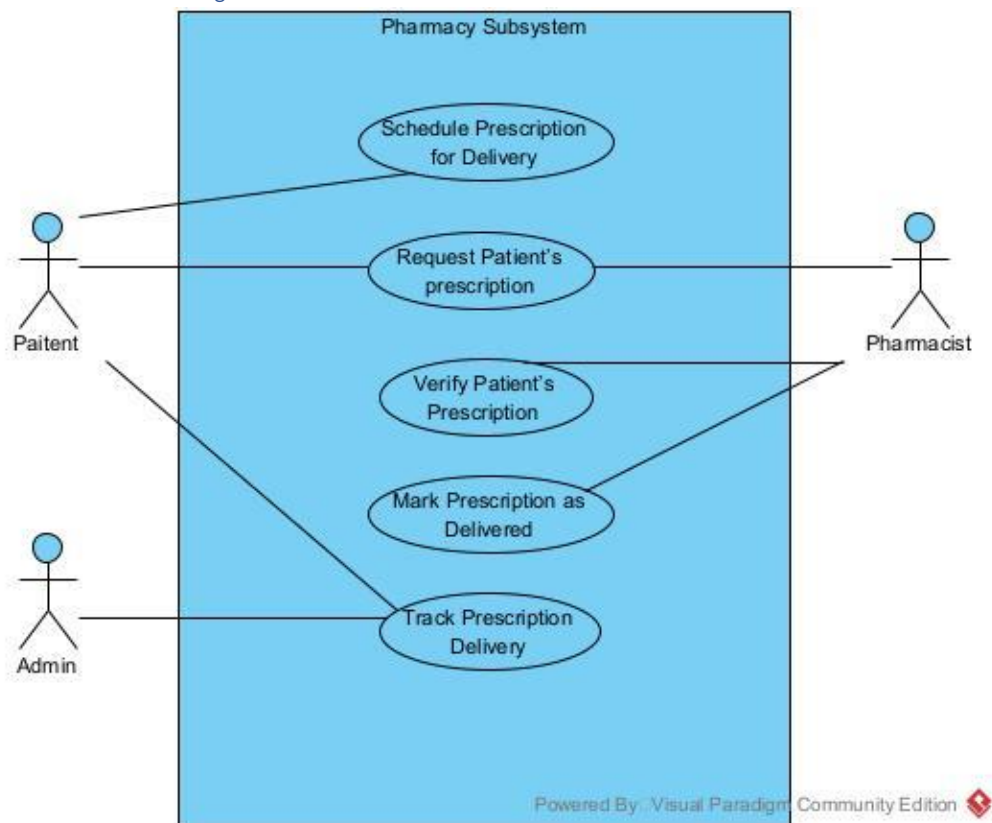
US-014. As a Pharmacist, I want to get a prescription from a patient that can easily get by the user and give them medicine accordingly.

Acceptance Criteria:

- When I click on a patient's application then it is attached to their application, and I can see prescription with that application.
- When I click the Done button, it will close the patient prescription and go into the history of the patient's application.

US-015. AS a Pharmacist, I WANT to verify the number, code, doctor or medicines that are in a prescription, SO THAT I can provide the correct medicines to the patient.

Acceptance Criteria:

- When I enter to the verification page, I can input the number code, doctor and medicines that are in the prescription, and the system will show me if it's all fine.

US-016. AS a Pharmacist, I WANT to change the status of a prescription to "delivered", SO THAT the given prescription can't be re-claimed.

Acceptance Criteria:

- When I enter the code of a prescription it shows me the verification page.
- When I click on the delivered button on the verification page, the state of that prescription is changed to delivered.

US-017. AS a Patient, I WANT to schedule my prescription for delivery, SO THAT I can receive my medicines on the scheduled date.

Acceptance Criteria:

- When I select a prescription that hasn't been delivered yet, a scheduling interface appears.
- When I select a day, a confirmation prompt will appear to confirm the delivery date.

US-018. AS a Patient or an Admin, I WANT to check the delivery status of a specific prescription, SO THAT I can know if the delivery is going to take place.

Acceptance Criteria:

- When I enter a prescription Id or select a prescription, I will be redirected to the prescription information page.
- When I am in a prescription information page, I can see the prescription status.

3.4. Lab Management Subsystem

3.4.1. Goal Use Cases

#FR	Goal Use Case	Role	Description
FR19	Upload or update reports	Lab Technician	Lab technician uploads or creates the created reports.

FR20	Management of laboratories	Lab Admin	Admin can manage Laboratory users and patient's lab data for future reference.
FR21	Check Reports	Patients, Doctor	Patients can request for the collection of reports, Also the Lab techniciancan upload the test reports or can make changes if required.
FR22	Collection of Sample and create reports	Lab Technician	Lab technicians can collect the sample from patients and can create reports to verify with the doctors.

3.4.2. Use Case Diagram
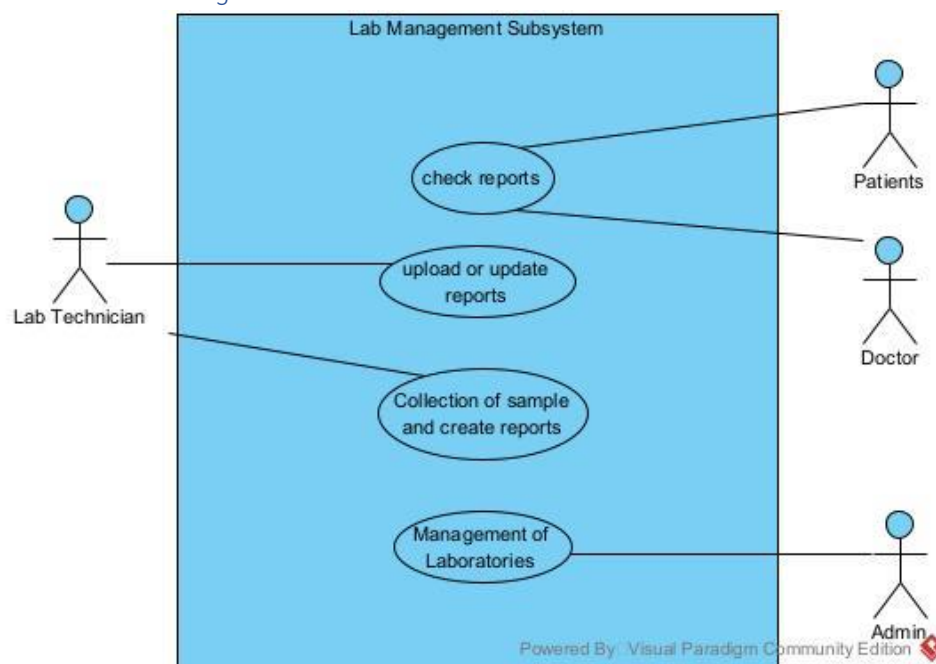
3.4.3. User Stories

US-019. As a lab technician, I can create a patient's report and upload it to and send it to the lab admin after the test is completed.

Acceptance Criteria:

- After the lab test is completed, I can upload it into the lab management system and send it to the lab admin.
- I can request for lab inventory to the lab admin by clicking the request button.

US-20. As a patient or Doctors, I WANT to get reports, SO THAT I can check the values of each test.

Acceptance Criteria:

- When in hub I select the check lab reports, and I will be redirected to a lab reports list page.
- When a doctor clicks on search lab result by patient, I can input the name, id or email of the user to search for a specific lab result of a patient.

US-21. As a lab technician I can create a patients report after a patient sample drop in, SO THAT the data for the lab test can be updated.

- When I click the edit button, I can add a report or data to a test resquest.

3.5. Administration Subsystem

3.5.1. Goal Use Cases

#FR	Goal Use Case	Role	Description
FR23	Hospital Maintenance Records	Admin	Admin has the records of hospital which can accessed on portal.
FR24	Manage Full Application Errors	Admin	Admin can manage and deal with errors that may occur.
FR25	Update user Data	Admin	Admin can update details of user.
FR26	Create Users	Admin	Create accounts for users like doctors, pharmacists, lab technicians, etc.
FR27	Approve Leaves	Admin	Admin can approve leaves using application.
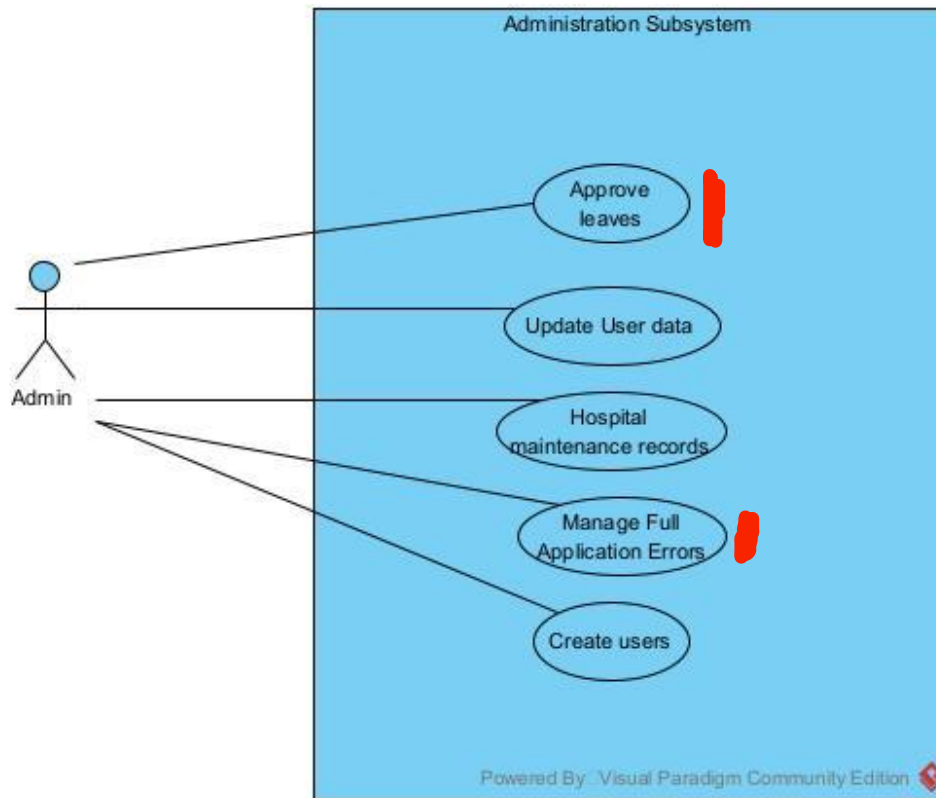
US-022. As Admin or Staff, I want to get the information of patients, doctors, or staff, so that I can verify them.

Acceptance Criteria:

- I can access the User search interface
- When I input a correct ID or username in the search bar, it will show me the corresponding user information page.
- When I input an incorrect ID or username, the interface will show me a message that says: "No valid user with that ID or username".

US-022. AS Admin or Staff, I want to be able to see all the application errors and mark them as solve, or pending, so that everyone can keep track of the errors to be resolved.

Acceptance Criteria:

- When I enter the errors tickets page, the interface will show me a table of un-marked errors.
- When I press the marked as pending error or the marked as solved, the application will change the status of that error.

US-023. AS Admin, I WANT to update user's details, SO THAT I can keep all the information up to date.

Acceptance Criteria:

- When I am in a valid user search information, and it is from a staff member, I can click the update button.
- When I click the update button, I will be redirected to an update information page.

US-024. AS Admin, I WANT to create new users, SO THAT we can have a valid user for a new staff member.

Acceptance Criteria:

- When I want to create a user, I select the create a new user button.
- When I am in the create user page, I can input the data of the specific user that has to be created.
- When I click in create, a prompt will appear telling me that the creation was a success, and I will be redirected to the home page.

US-025. AS Admin or staff, I WANT to approve leaves, SO THAT patients can leave when all the protocols are done.

Acceptance Criteria:

- When I search for a valid inpatient, I can click on the approve leave button and the state of the patient will change.

Section 4: UML Domain Class Diagram

4.1. Classes

- User
- Doctor
- Patient
- Admin
- Patient History
- Prescription
- Pharmacist
- Lab
- Lab Technician
- Lab Procedure
- Appointment

4.2. Domain Class Diagram
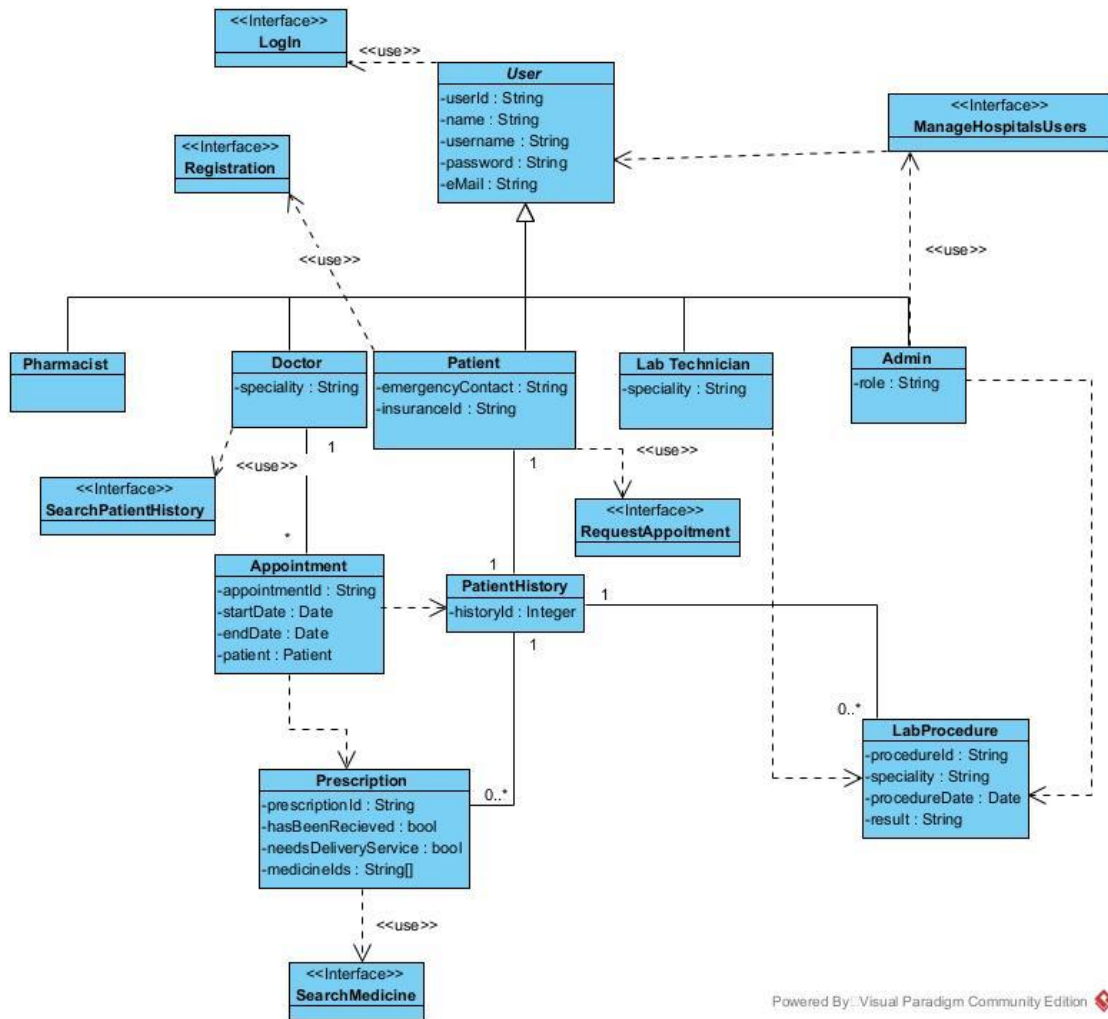
Section 5: Entity Relationship Diagram
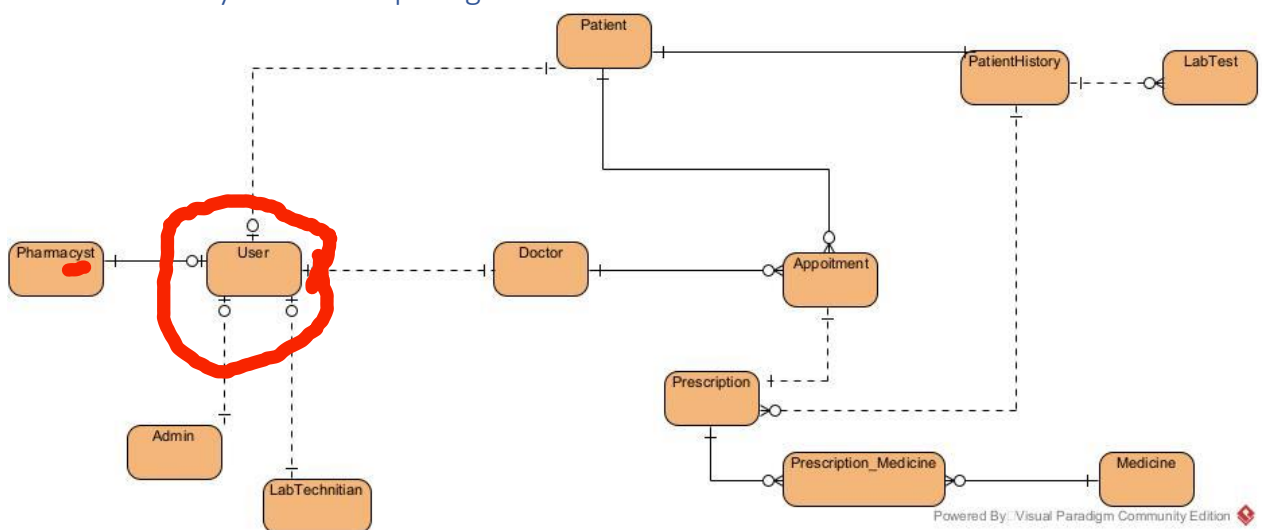
Section 6: System Sequence Diagrams

6.1 Login system sequence diagram
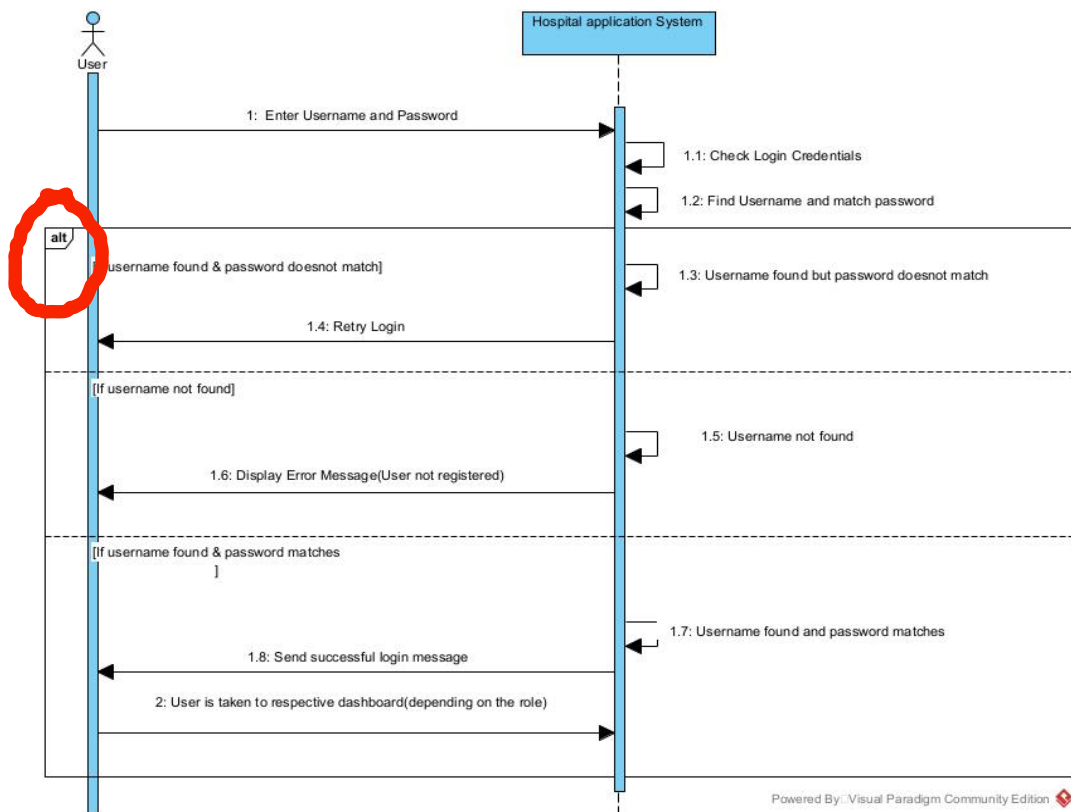
6.2 Reschedule an appointment system sequence diagram
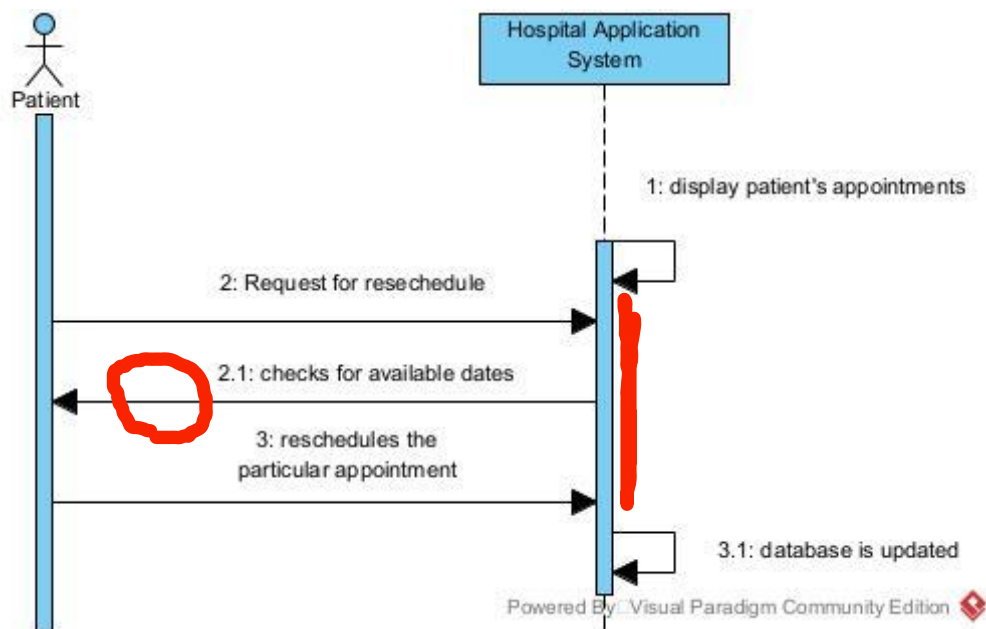
Section 7: State Diagrams

7.1. Consultation – Schedule an Appointment
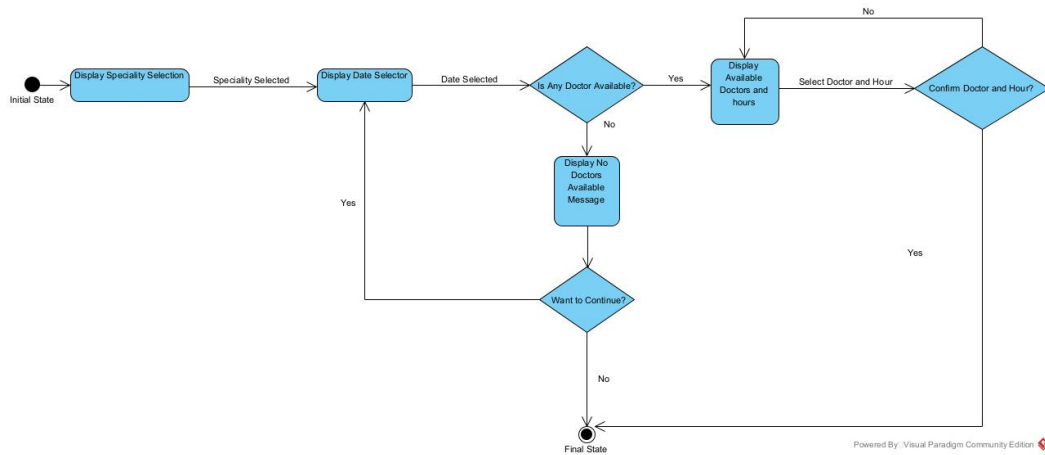
7.2. Registration

Why different colors/themes?
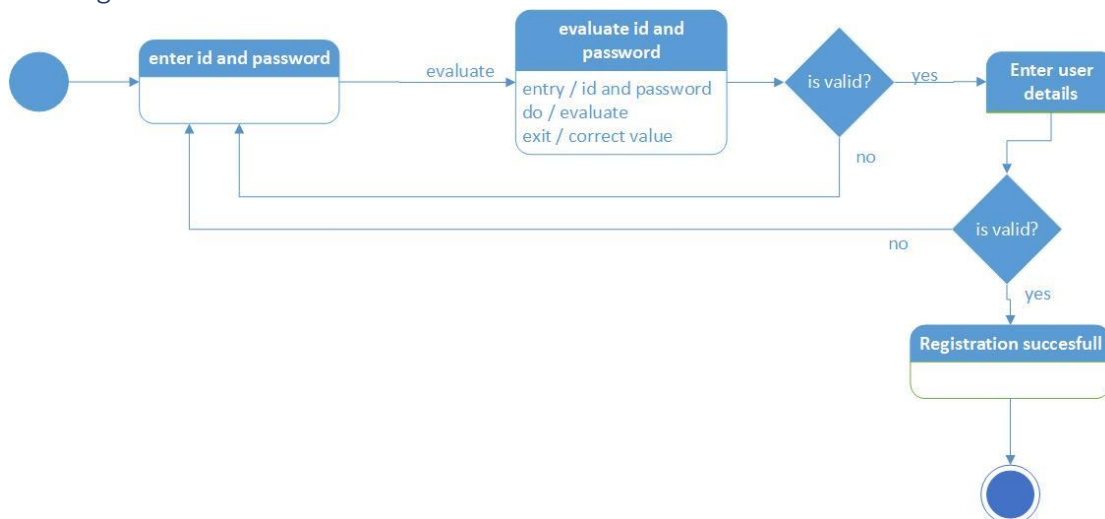
Section 8: Technologies

This system will be implemented as a Web Application, that in the long run will be converted to a desktop application using Electron or Tauri.

8.1. Client Side:

- Angular
- Typescript
- NodeJS

8.2. Business Logic

- Java
- Spring Boot

8.3. Data Side

- MySQL
- Redis

Section 9: Project Management – Gantt Diagram

Project Planification
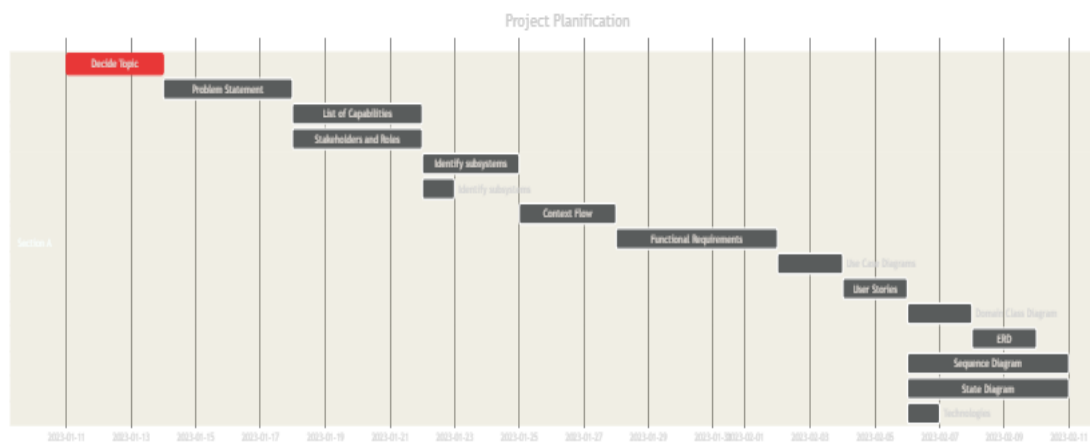
Part B: Software Design Architecture
Section 1: Requirements Edits to Part A

1.1 Corrections on Problem Statement (Section 1.1a)

- Corrected the grammatical mistakes in 1.1 a

1.2 Stakeholders and their roles (Section 1.2)

- Removed hospital management employees
- Removed IT management and receptionist
- Removed the types of patients ●●
- Made an order of the stakeholders

1.3 Use Case Diagram (Section 3.2.2)

- Patients can check the availability and confirm or schedule the appointment
- Doctors can check the appointment and cancel or reschedule it.
- Doctors can update the patient's history and add prescription.

1.4 Use Case Diagram (Section 3.3.2)

- Corrected the grammatical mistakes

1.5 Use Case Diagram (Section 3.5.2)

- Removed staff
- Removed management of staff data
- Corrected check user data to update user data

1.6 Domain Class Diagram (Section 4.2)

- has insurance removed from the patient

1.6 Domain ER Diagram (Section 5)

- Diagram has been redrawn.

1.7 Domain ER Diagram (Section 6.2)

- Removed the doctor
- Doctors reschedules has been removed

1.8 Project Management - Gantt Diagram (Section 9)

- Redrew the diagram without cuts

Section 2: Overview Model

2.1. Intended users of the SDD document

The purpose of the System Design Document (SDD) is to provide a complete description of the system design so that software developers can have a full understanding of what needs to be built. Therefore, the intended audience for this document is the developers and managers. They are responsible for the system development.

- Developers
- Managers
- UI/UX Designers
- Product Owner
- Scrum Master

2.2. Architectural Context diagram (ACD) versus Context Flow Diagram (CFD)

2.2.1Architectural Context Diagram (HOW Overview)
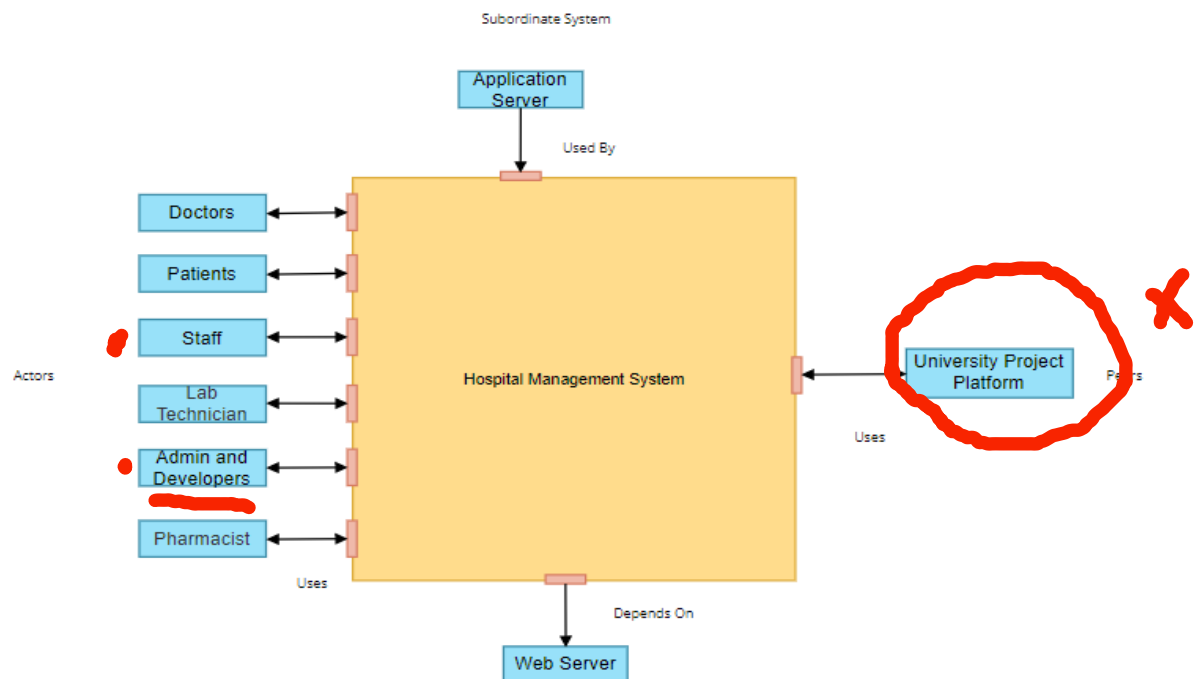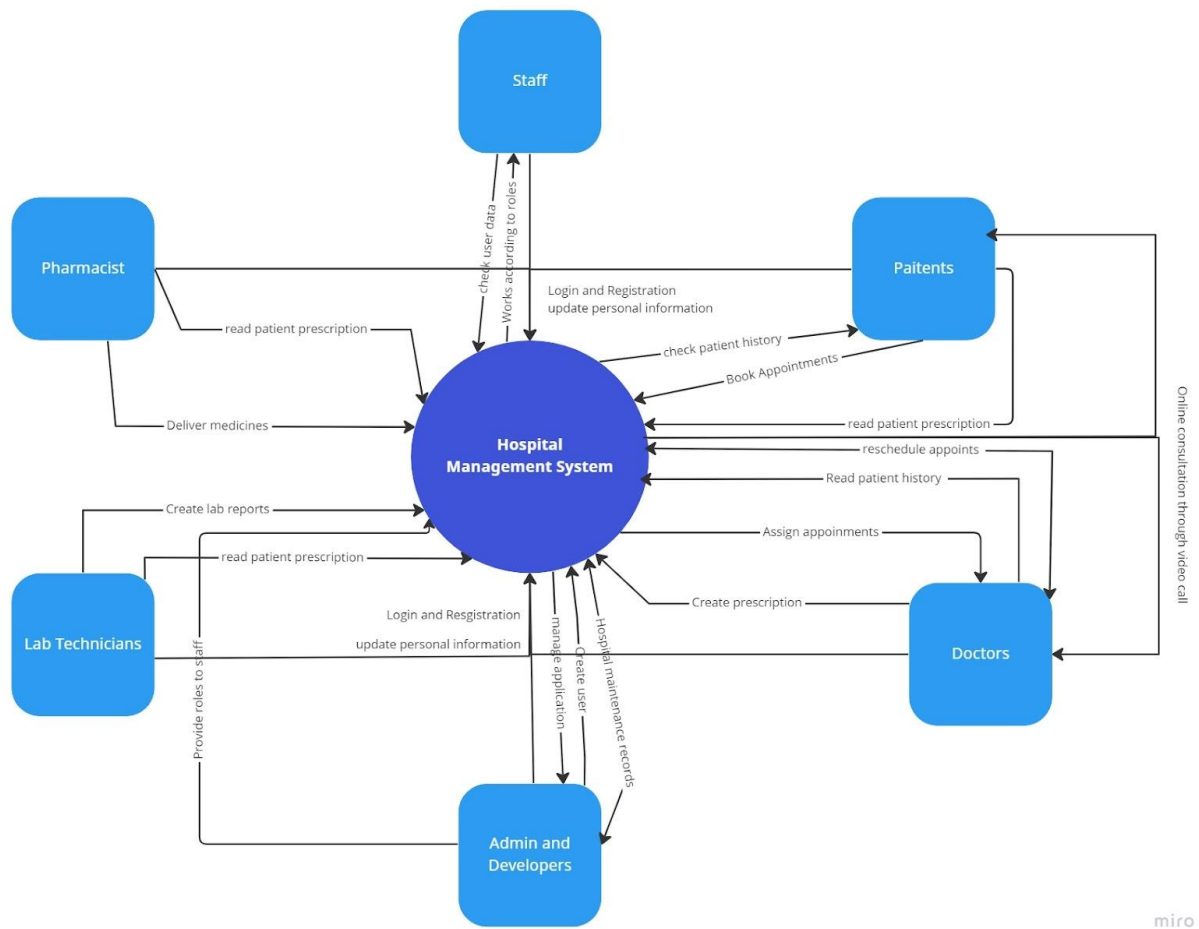
Section 3: Modularization

3.1. Partition the analysis model

3.1.1. Login and Registration Subsystem

- Login Interface
- Registration Interface
- User
- Pharmacist
- Doctor
- Patient
- Lab Technician
- Admin

<<Interface>>
LogIn

<<use>>

<<Interface>>
Registration

<<Interface>>
ManageHospitalsUsers

User
-userId : String
-name : String
-username : String
-password : String
-eMail : String

<<use>>

<<use>>

Pharmacist

Doctor
-speciality : String

Patient
-emergencyContact : String
-insuranceId : String

Lab Technician
-speciality : String

Admin
-role : String

1

1

<<use>>

<<Interface>>
SearchPatientHistory

<<use>>

<<Interface>>
RequestAppoitment

*

Appointment
-appointmentId : String
-startDate : Date
-endDate : Date
-patient : Patient

1

PatientHistory
-historyId : Integer

1

1

1

0..*

LabProcedure
-procedureId : String
-speciality : String
-procedureDate : Date
-result : String

Prescription
-prescriptionId : String
-hasBeenRecieved : bool
-needsDeliveryService : bool
-medicineIds : String[]

0..*

<<use>>

<<Interface>>
SearchMedicine

Powered By::Visual Paradigm Community Edition

3.1.2. Consultation Subsystem

- Patient
- Doctor
- Search Patient History Interface
- Appointment
- Patient History
- Request Appointment Interface
- Prescription
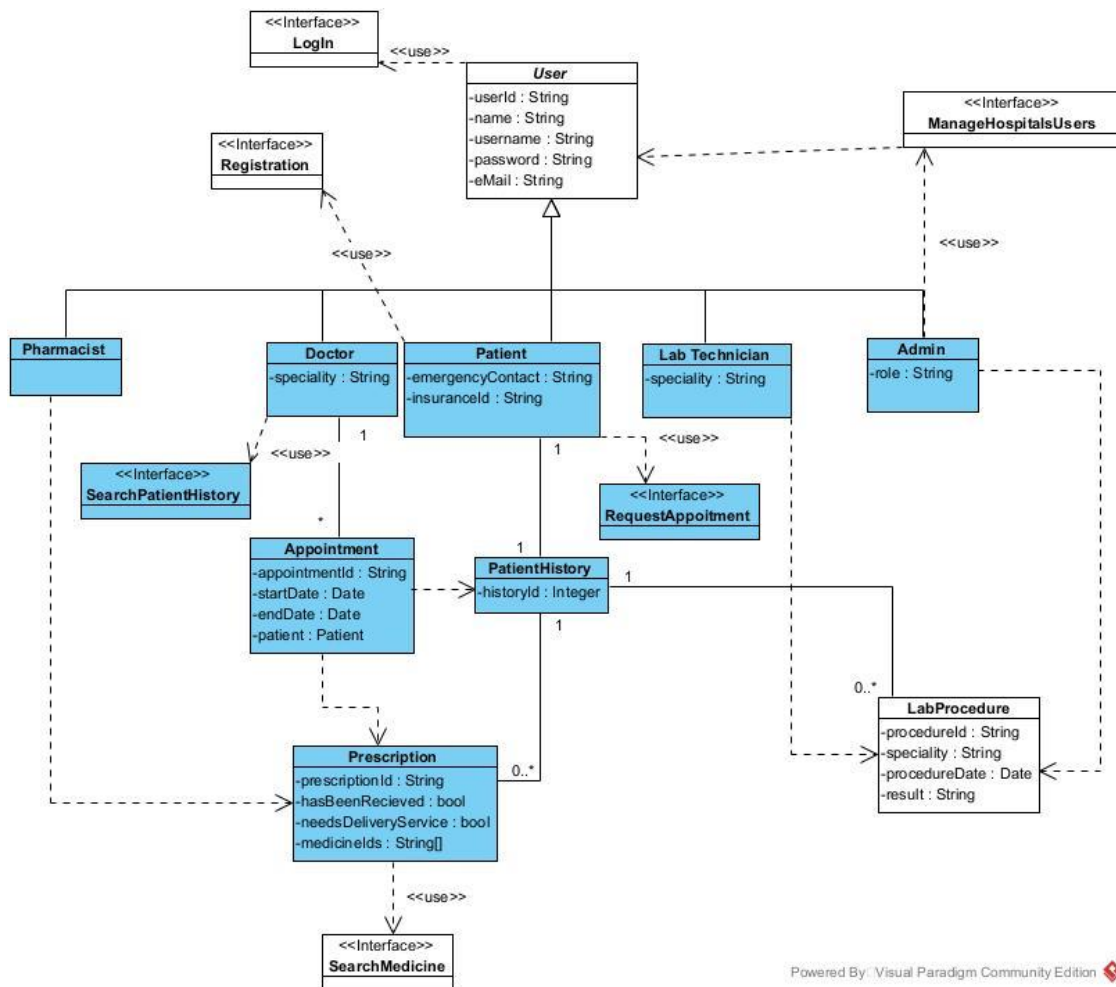
3.1.3. Pharmacy Subsystem
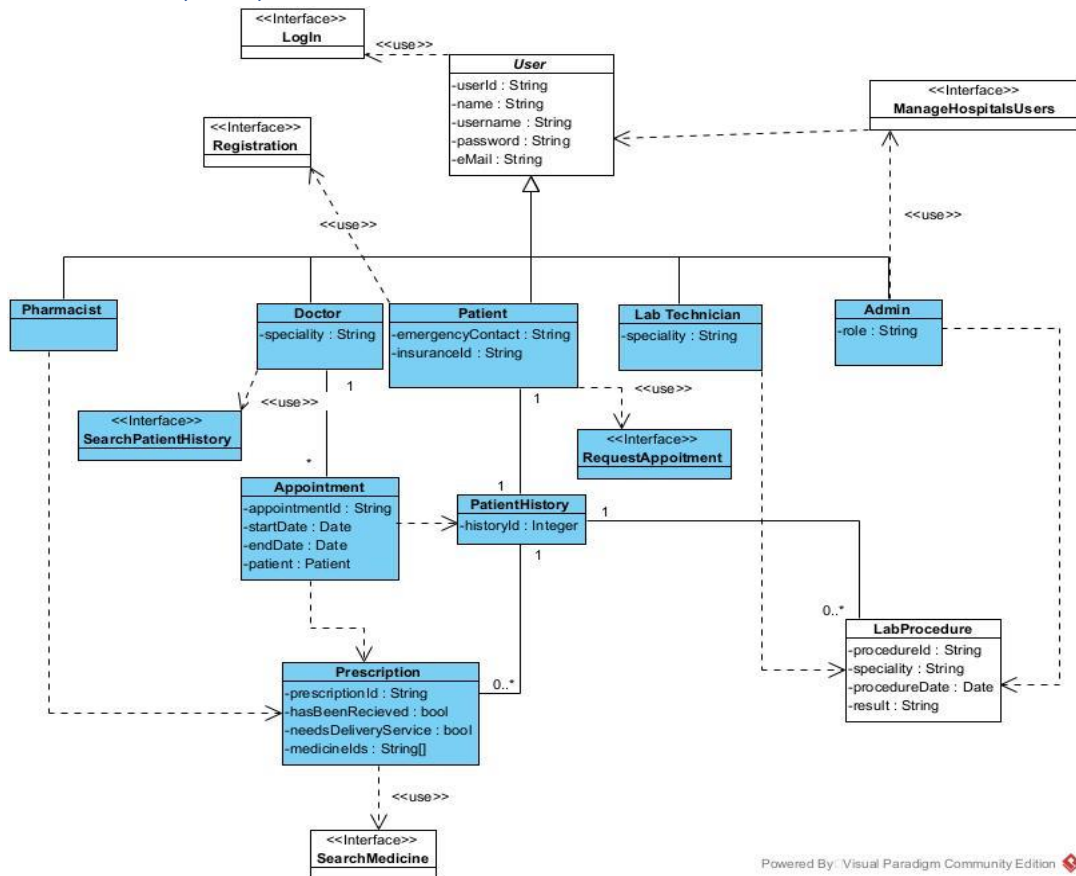
1.4. Lab Management Subsystem
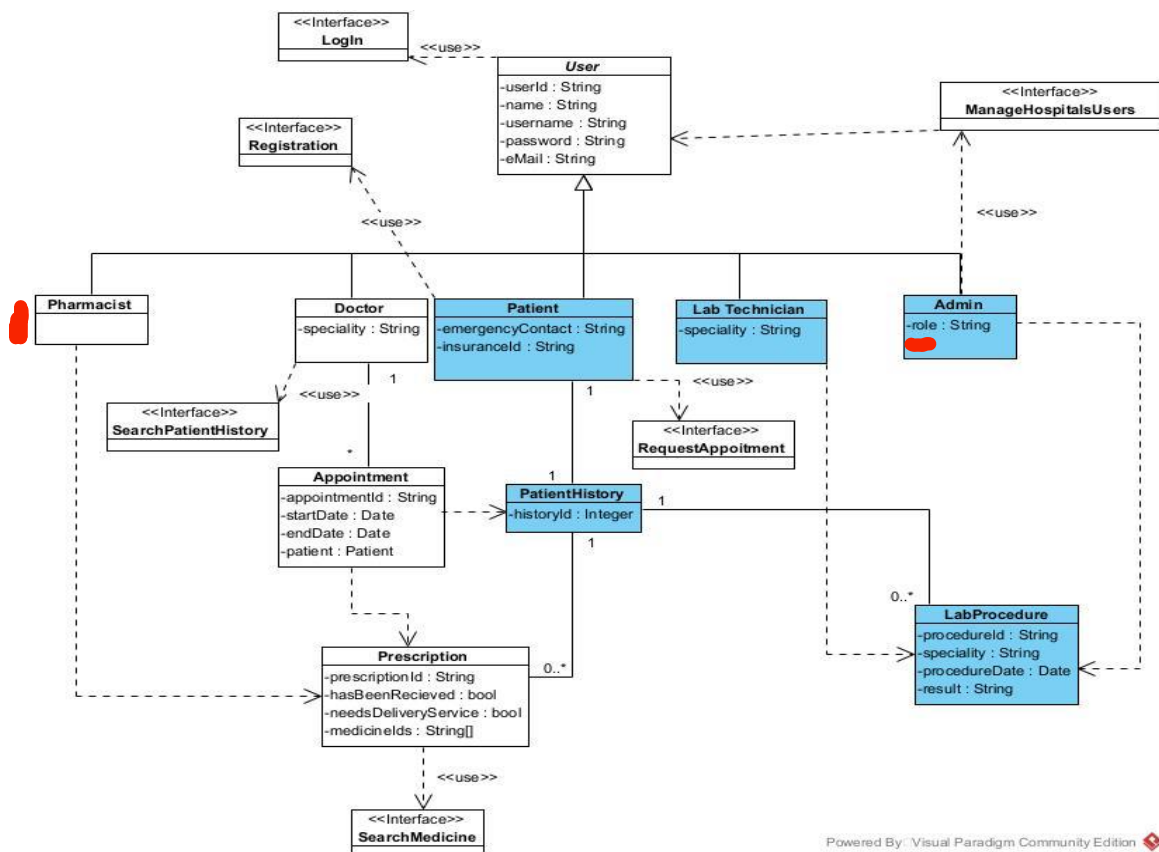
3.2 Class Responsibility Collaboration (CRC)

3.2.1 Login and Registration Subsystem

Login Interface

Super Classes:

Sub Classes: User

Description: Porvides login functionalities to the users

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Login into your account	
Logout of your account	
specify user role	
Change the Password	
Change the UserId	

Registration Interface

Super Classes:

Sub Classes: Patient

Description: Allows Registration functionality to patient class

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Fetch the UserDetails	
Confirm the Account	Admin
Change UserDetails	

User

Super Classes:

Sub Classes: Doctor, Patient, Admin, Lab Technician, Pharmacist

Description: identifies the user and provides user information to login

Attributes:

Name	Description
userId	User Identification for login
username	User name as details
password	password for login
email	email of user

Responsibilities:

Name	Collaborator
Get the Username	
Change the Username	
Fetch Email Address	
Change the Email	
Update the Details	

Admin

Super Classes: User

Sub Classes:

Description: creates Admin object and its functionalities

Attributes:

Name	Description
role	role of the administration

Responsibilities:

Name	Collaborator
Provide UserId And	User
Validate the User Details	User
Specify the RoleOfAdmin	

Doctor

Super Classes: User

Sub Classes:

Description: creates Doctor object and its functionalities

Attributes:

Name	Description
speciality	speciality of Doctor

Responsibilities:

Name	Collaborator

Patient

Super Classes: User

Sub Classes:

Description: creates Patient object and its functionalities

Attributes:

Name	Description
emergencyContact	contact of other person
insuranceId	insurance number

Responsibilities:

Name	Collaborator
Request for registration	Admin

Pharmacist

Super Classes: User

Sub Classes:

Description: creates Pharmacist object and its functionalities

Attributes:

Name	Description

Responsibilities:

Name	Collaborator

Lab Technician

Super Classes: User

Sub Classes:

Description: create Lab Technician object and its functionalities

Attributes:

Name	Description
speciality	the speciality of lab

Responsibilities:

Name	Collaborator

3.2.2 Consultation Subsystem

Doctor

Super Classes: User

Sub Classes:

Description: creates Doctor object and its functionalities

Attributes:

Name	Description
speciality	gives the speciality of Doctor

Responsibilities:

Name	Collaborator
Receive the AppointDetails	Appointment

PatientHistory

Super Classes:

Sub Classes:

Description: allows to interact with database to store and receive patient hisotry

Attributes:

Name	Description
historyId	gives the Id for patient history

Responsibilities:

Name	Collaborator
Add the Prescription	Doctor, Precription

RequestAppointment Interface

Super Classes:

Sub Classes: Appointment

Description: gives functionality to patient and doctor through appointment class

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Reschedule the Appointment	Doctor, Patient
Confirm the Appointment	Doctor
Schedule the Appointment	Patient
Cancel the Appointment	Patient, Doctor

Patient

Super Classes: User

Sub Classes:

Description: creates Patient object and its functionalities

Attributes:

Name	Description
emergencyContact	contact of other person
insuranceId	insurance number

Responsibilities:

Name	Collaborator
Get AppointmentDetails	Appointment
Get the Prescription	Patient

Appointment

Super Classes:

Sub Classes:

Description: creates appointment and its details

Attributes:

Name	Description
appointmentId	id of appointment
startDate	
endDate	
patient	

Responsibilities:

Name	Collaborator
Provide AppointmentDetails	Doctor, Patient
receive PatientHistory	PatientHistory
Get the PatientDetails	Patient

SearchPatientHistory Interface

Super Classes:

Sub Classes: Patient History, Doctor

Description: functionalities to doctor to access patient history

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Search for PatientHistory	Doctor
Update PatientHistory	Doctor
Create the PatientHistory	Doctor, Patient

Prescription

Super Classes:

Sub Classes:

Description: creates prescription according to appointment

Attributes:

Name	Description
prescriptionId	id of prescription
hasBeenReceived	boolean value if medicines are received or
needsDeliveryService	boolean value if needs delivery or not
medicineIds	collection of required medicines of Patient

Responsibilities:

Name	Collaborator
Specify the Appointment Details	Appointment

3.2.3 Pharmacy Subsystem

Pharmacist

Super Classes: User

Sub Classes:

Description: creates Pharmacist object and its functionalities

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Select Delivery Service	Prescription
Get the Patient Prescription	Patient
Get Medicine Ids	Prescription
Specify if delivered	Prescription
Verfiy the PatientPrescription	PatientHistory
Track the Deliver	

Patient

Super Classes: User

Sub Classes:

Description: creates Patient object and its functionalities

Attributes:

Name	Description
emergencyContact	contact of other person
insuranceId	insurance number

Responsibilities:

Name	Collaborator
Request for Delivery	Pharmcist
Provide the Prescription	PatientHistory
Request For Medicines	Pharmacist

PatientHistory

Super Classes:

Sub Classes:

Description: allows to interact with database to store and receive patient history

Attributes:

Name	Description
historyId	

Responsibilities:

Name	Collaborator
Get the PatientHistory	

SearchMedicine Interface

Super Classes:

Sub Classes:

Description: allows pharmacist to check inventory

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Search for Medicine	Pharmacist
Add the Medicine	Pharmacist
Remove the Medicine	Pharmacist
Update the Medicine	Pharmacist

Prescription

Super Classes:

Sub Classes:

Description: creates prescription according to appointment

Attributes:

Name	Description
prescriptionId	id of precription
hasBeenReceived	boolean value if medicines are received or
needsDeliveryService	boolean value if needs delivery or not
medicinesIds	collection of medicines

Responsibilities:

Name	Collaborator

3.2.4 Lab Management Subsystem

Patient

Super Classes: User

Sub Classes:

Description: creates Patient object and its functionalities

Attributes:

Name	Description
emergencyContact	contact of other person
insuranceId	insurance number

Responsibilities:

Name	Collaborator
Get the LabProcedure	PatientHistory

LabProcedure

Super Classes:

Sub Classes:

Description: creates a lab procedure object and its details which is later stored in patient history

Attributes:

Name	Description
procedureId	id of lab report
speciality	particular type of lab report
procedureDate	date of procedure produced
result	result of procedure

Responsibilities:

Name	Collaborator
Add the LabProcedure Details	

PatientHistory

Super Classes:

Sub Classes:

Description: allows to interact with database to store and receive patient history

Attributes:

Name	Description
patientHistory	

Responsibilities:

Name	Collaborator
Add the LabProcedure	Lab Procedure
Provide the LabProcedure Detials	Patient

Lab Technician

Super Classes: User

Sub Classes:

Description: creates Lab Technician object and its functionalities

Attributes:

Name	Description
speciality	the speciality of lab

Responsibilities:

Name	Collaborator
Create LabProcedure	LabProcedure
Update the LabProcedure	LabProcedure
Collect the Samples	
Update the Samples	
Upload the LabProcedure	

Admin

Super Classes: User

Sub Classes:

Description: creates Admin object and its functionalities

Attributes:

Name	Description

Responsibilities:

Name	Collaborator
Manage Lab Technicians	Lab Technicians
Manage PatientForLabEntry	Patients

3.3 Design Classes diagrams

3.3.1 Login and Registration Subsystem

<<Interface>> Login
+Login()
+Logout()
+GetUserRole()
+ChangePassword()
+ChangeUserId()

User
-userId: String
-name: String
-username: String
-password: String
-eMail: String

+GetUsername()
+SetUsername()
+GetEmail()
+SetEmail()
+UpdatesDetails()

<<Interface>> Registeration
+GetUserDetails()
+ConfirmAccount()
+SetUserDetails()

Pharmacist
-userId: String

Doctor
-userId: String
-speciality: String

Patient
-userId: String
-emeregencyContact: String
-insuranceId: String
+registerPatient()

Lab Technician
-userId: String
-speciality: String

Admin
-role: String
-userId: String
+provideUserIdAndPassword()
+ValidateUserDetails()
+setRikeIfAdmin()

3.3.2 Consultation Subsystem

Prescription
-prescriptionId: String
-hasBeenRecieved: bool
-needsDeliveryService: bool
-medicineIds: String[]
+setAppointmentDetails()

Appointment
-appointmentId: String
-startDate: Date
-endDate: Date
-paitent: String
+provideAppointmentDetails()
+receivePAtientHistory()
+getPatientHistory()

PaitentHistory
-historyId: Integer
+AddPrescription()

<<Interface>> searchPatientHistory
+searchPatientHistory()
+UpdatePatient History()
-setPatientHistory()

<<Interface>> requestAppointment
+RescheduleAppointment()
+ConfirmAppointment()
+ScheduleAppointment()
+CancelAppointment()

Patient
-userId: String
-emeregencyContact: String
-insuranceId: String
+GetAppointmentDetails()
+GetPrescription()

Doctor
-userId: String
-speciality: String
+receiveAppointDetails()

3.3.3 Pharmacy Subsystem

«Interface»
SearchMedicine

+CheckMedicine()
+AddMedicine()
+RemoveMedicine()
+UpdateMedicine()

Prescription

-prescriptionId: String
-hasBeenRecived: bool
-needsDeliveryService: bool
-medicineIds: String[]

PatientHistory

-historyId: Integer
+getPatientHistory()

Pharmacist

-userId: String

+setNeedsDeliveryService()
+getPatientPrescription()
+getMedicineIds()
+setHasBeenRecived()
+verifyPatientPrescription()
+trackDeliveryOfMedicines()

Patient

-userId: String
-emergencyContact: String
-insuranceId: String

+requestDelivery()
+providePAtientPrescription()
+requestForMedicines()

why different colors?

3.4.4 Lab Management Subsystem

LabProcedure

-procedureId: String
-speciality: String
-procedureDate: Date
-result: String

+addLabProcedureDetails()

PatientHistory

-historyId: Integer

+addLabProcedure()
+provideLabProcedureDetails()

Made with
Visual Paradigm
For non-commercial use

Patient

-userId: String
-emergencyContact: String
-insuranceId: String

+getLabProcedure()

Lab Technican

-userId: String
-speciality: String

+createLabProcedure()
+UpdateLabProcedure()
+CollectSamples()
+UpdateSampkes()
+uploadLabProcedure()

Admin

-role: String
-user: String

+manageLabUsers()
+managePAtientForLabEntry()

Section 4: Framework M(odel) V(iew) C(ontroller)

4.1 MVC pattern diagram to include

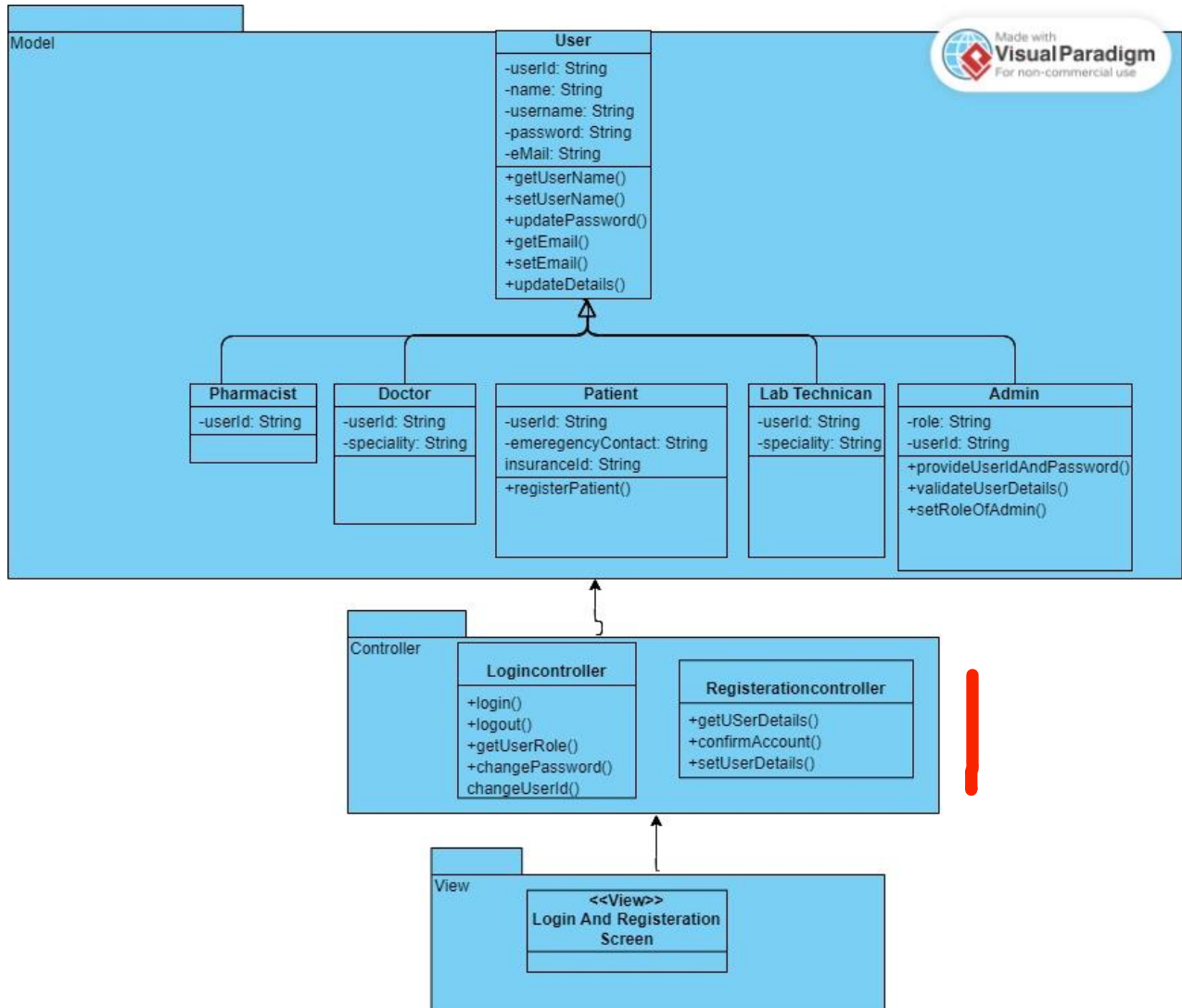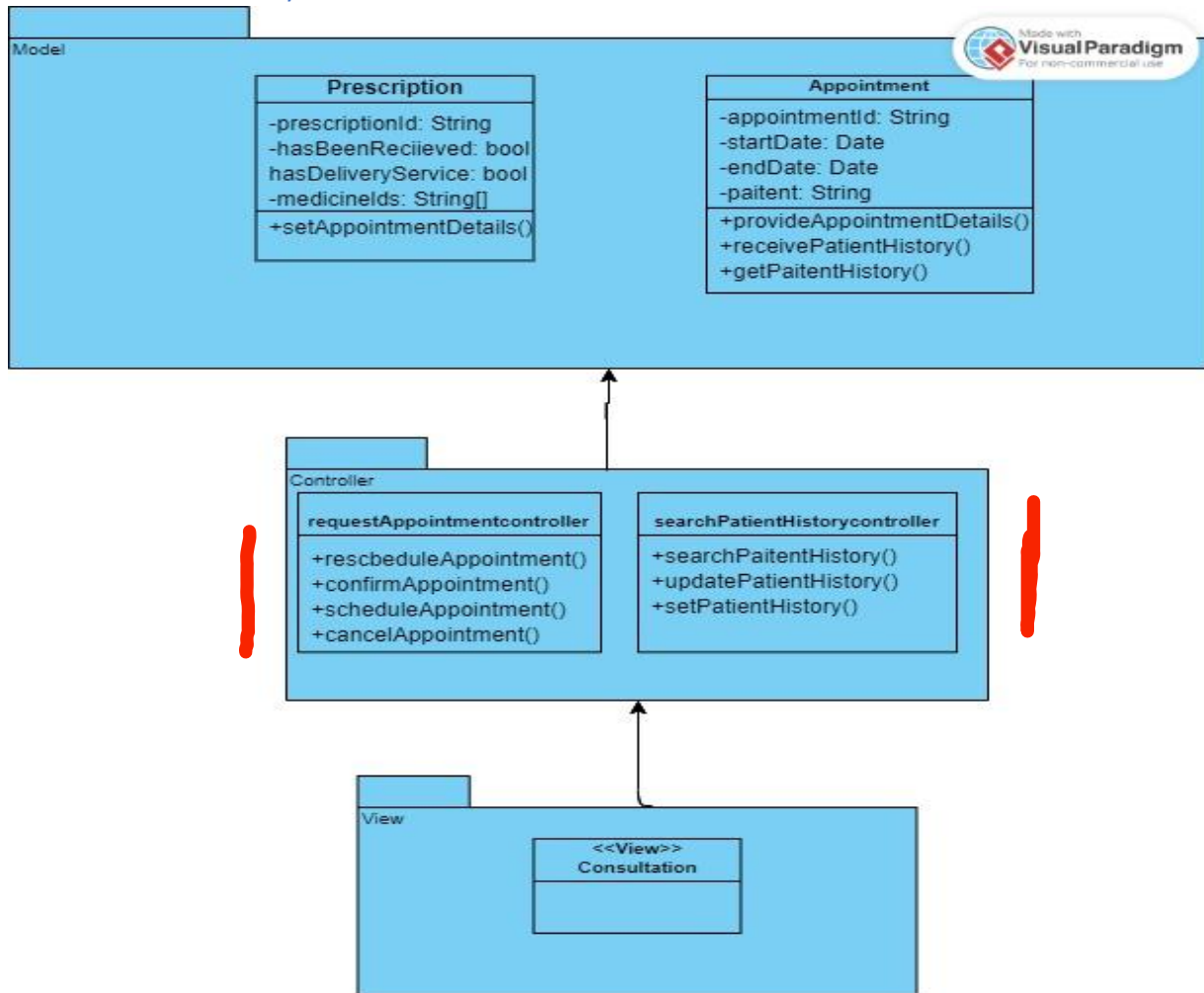### 4.1.1 Login and Registration Subsystem

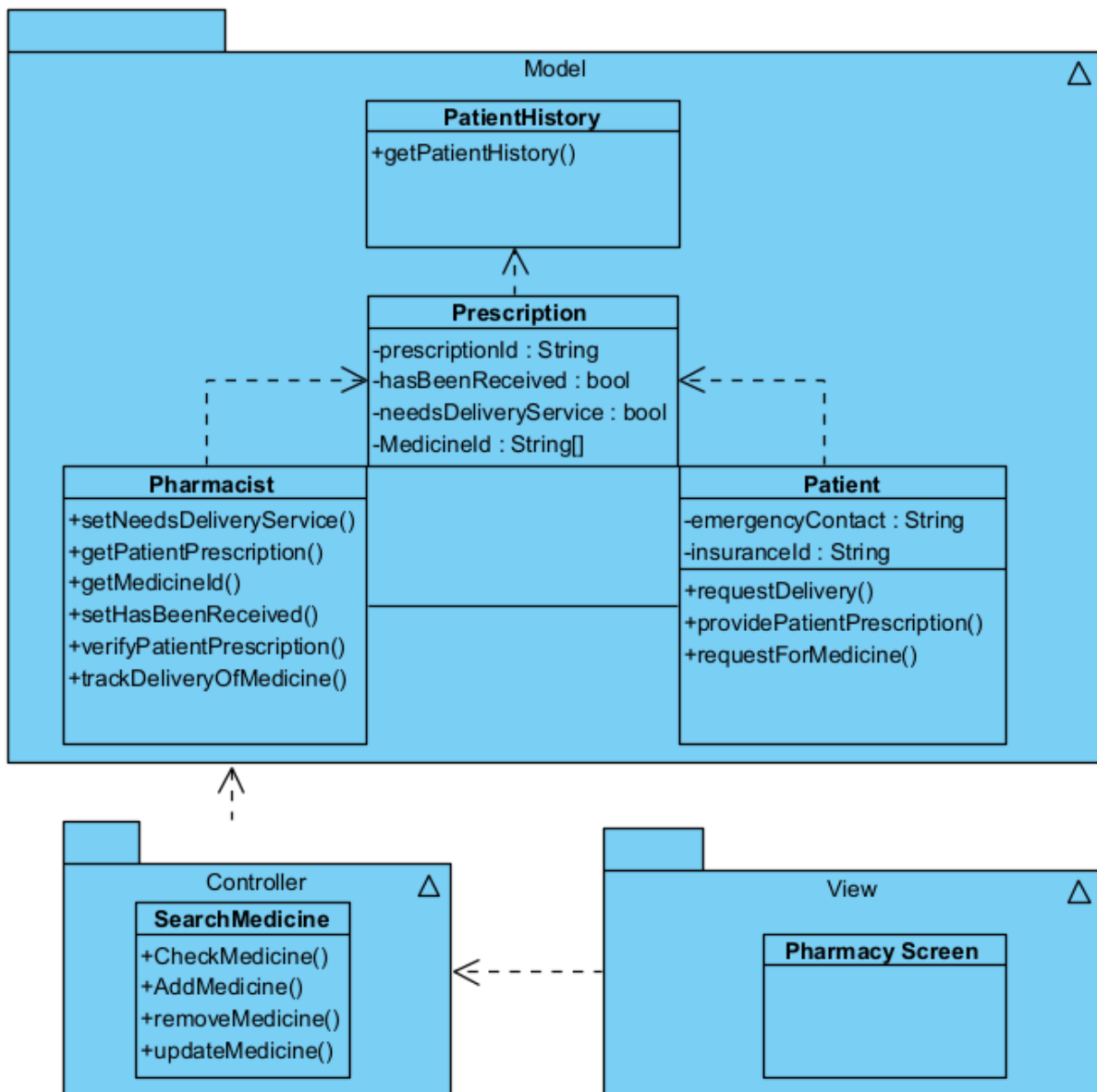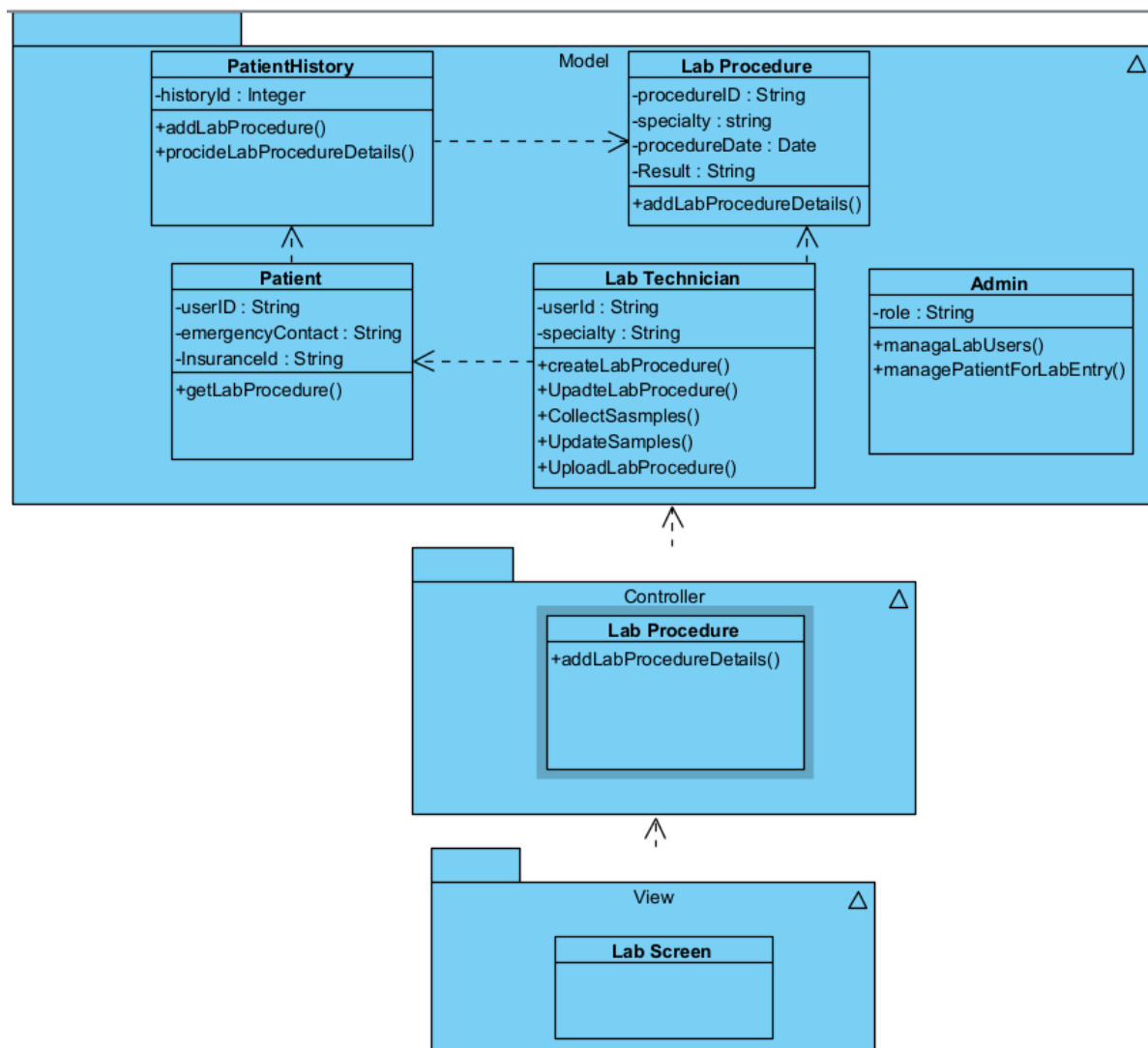## 4.1.2 Consultation Subsystem

Model

Prescription
-prescriptionId: String
-hasBeenReciieved: bool
hasDeliveryService: bool
-medicineIds: String[]
+setAppointmentDetails()

Appointment
-appointmentId: String
-startDate: Date
-endDate: Date
-paitent: String
+provideAppointmentDetails()
+receivePatientHistory()
+getPaitentHistory()

Controller

requestAppointmentcontroller
+rescbeduleAppointment()
+confirmAppointment()
+scheduleAppointment()
+cancelAppointment()

searchPatientHistorycontroller
+searchPaitentHistory()
+updatePatientHistory()
+setPatientHistory()

View

<<View>>
Consultation

4.1.3 Pharmacy Subsystem

Model

PatientHistory

+getPatientHistory()

Prescription

-prescriptionId : String
-hasBeenReceived : bool
-needsDeliveryService : bool
-MedicineId : String[]

Pharmacist

+setNeedsDeliveryService()
+getPatientPrescription()
+getMedicineId()
+setHasBeenReceived()
+verifyPatientPrescription()
+trackDeliveryOfMedicine()

Patient

-emergencyContact : String
-insuranceId : String

+requestDelivery()
+providePatientPrescription()
+requestForMedicine()

Controller

SearchMedicine

+CheckMedicine()
+AddMedicine()
+removeMedicine()
+updateMedicine()

View

Pharmacy Screen

4.1.4 Lab Management Subsystem

Model

PatientHistory

-historyId : Integer

+addLabProcedure()
+procideLabProcedureDetails()

Lab Procedure

-procedureID : String
-specialty : string
-procedureDate : Date
-Result : String

+addLabProcedureDetails()

Patient

-userID : String
-emergencyContact : String
-InsuranceId : String

+getLabProcedure()

Lab Technician

-userId : String
-specialty : String

+createLabProcedure()
+UpadteLabProcedure()
+CollectSasmples()
+UpdateSamples()
+UploadLabProcedure()

Admin

-role : String

+managaLabUsers()
+managePatientForLabEntry()

Controller

Lab Procedure

+addLabProcedureDetails()

View

Lab Screen

4.2 Full Sequence Diagrams

4.2.1 Use case: Request to update details (Login and Registration Subsystem)
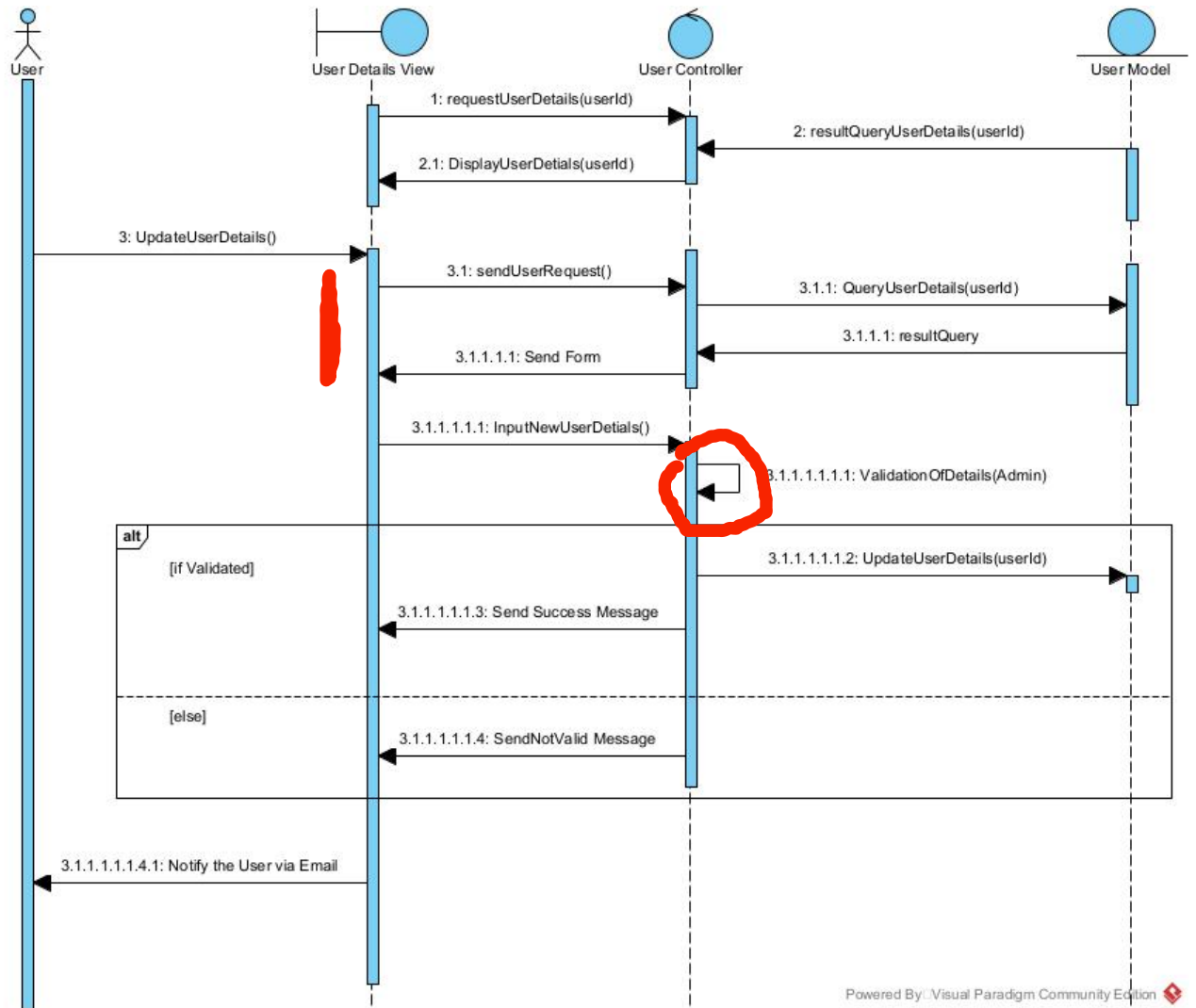
4.2.2 Use case: Request Patient's prescription (Pharmacy Subsystem)
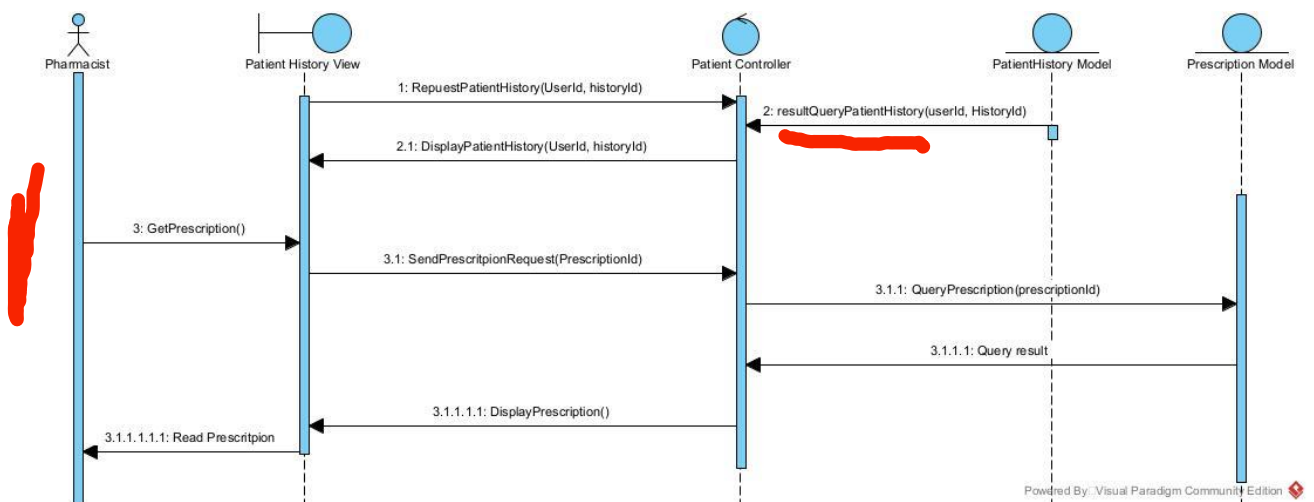
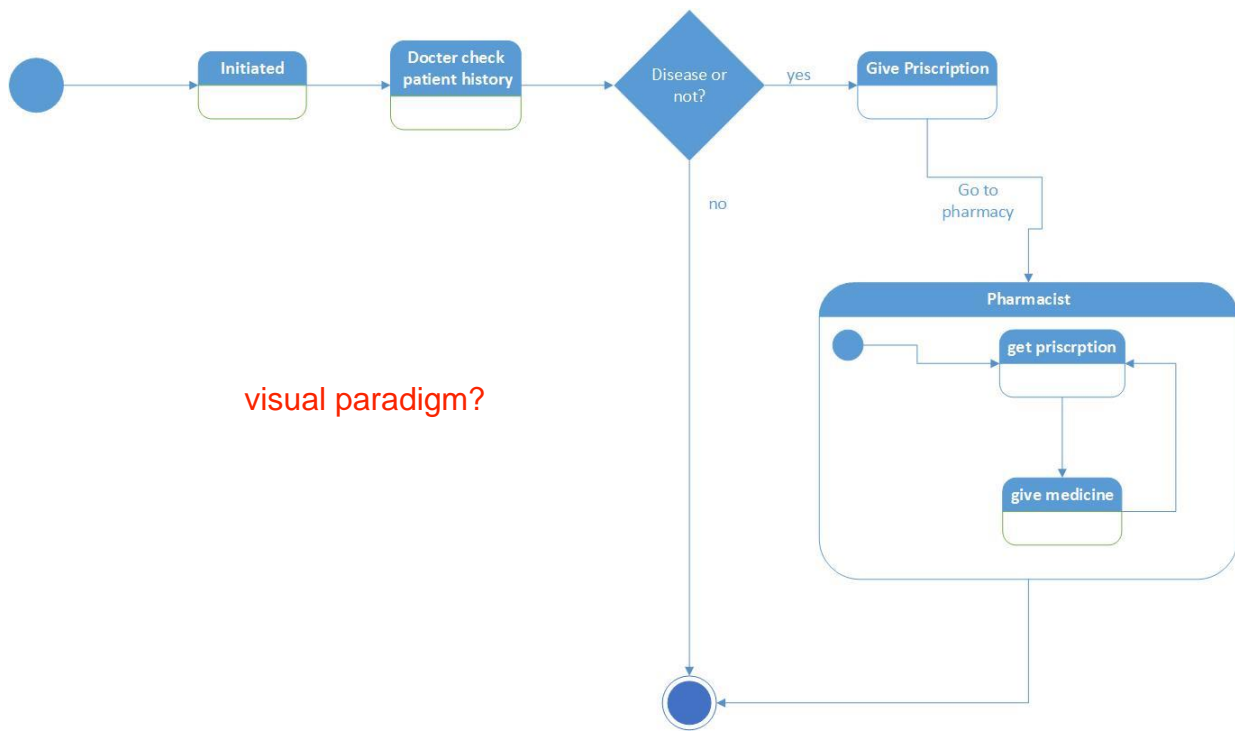## 4.2.3 Use Case: Logout (Login and Registration Subsystem)
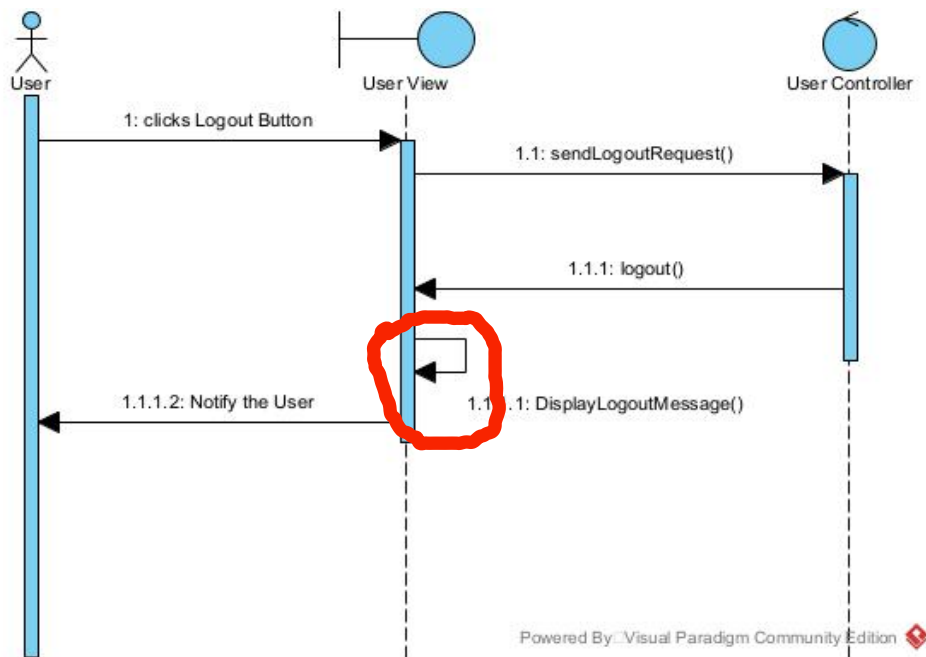
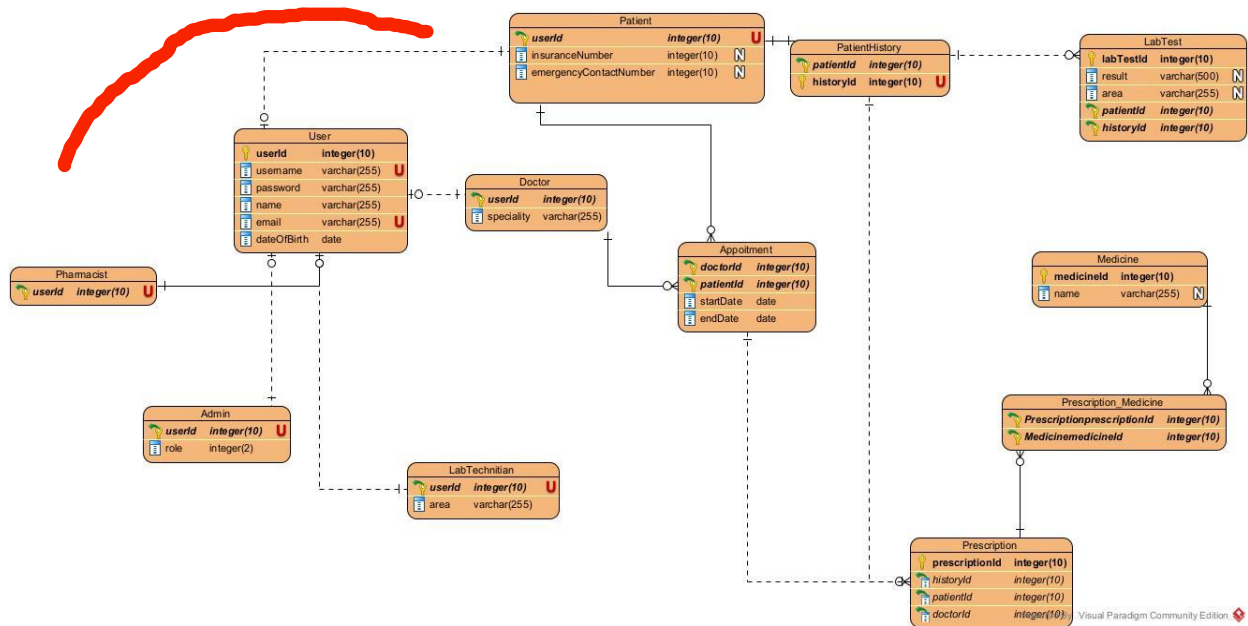## 4.3 State Machine Diagrams

4.3.1 Update patient detail
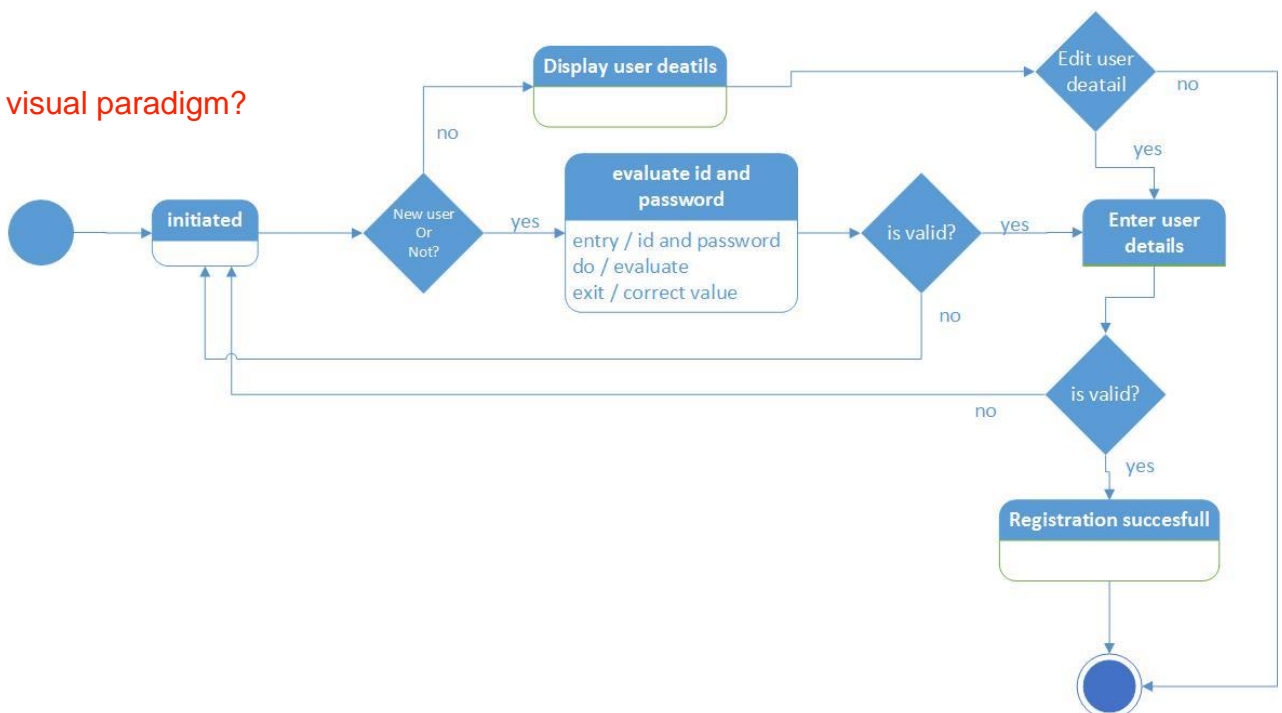
4.3.2 Update Prescription :
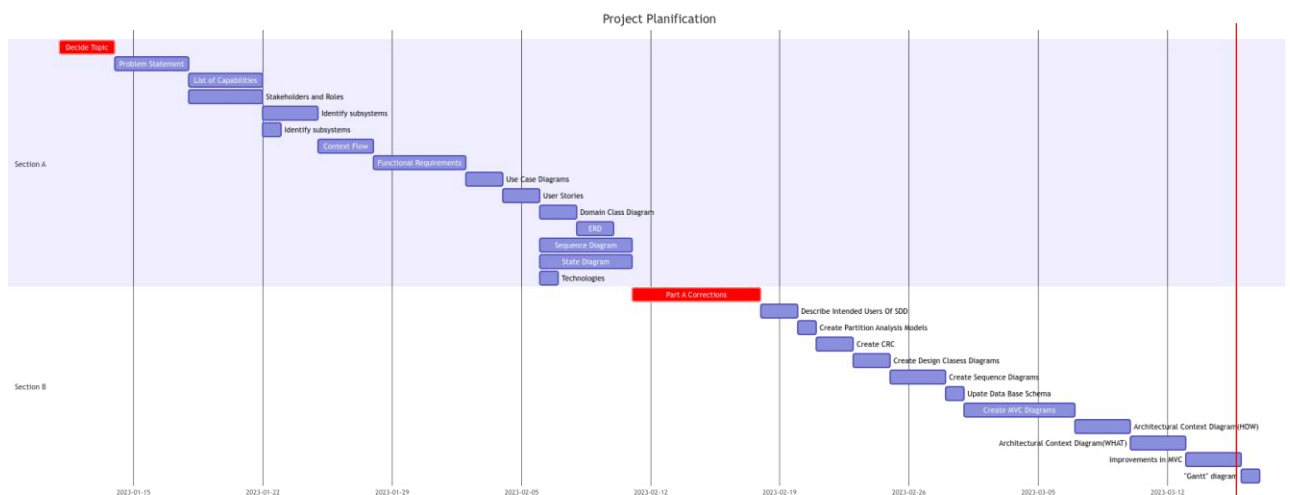

visual paradigm?

Section 5: Data Layer

5.1 Database Schema

5.2 Technology Update List

No updates required   why?

Section 6: Gantt Chart Update

A single bar for Part A should suffice