
Design Document

for

Health++

Version 1.2

Prepared by

Group: 5

Group Name: StarBugs

Name	Roll no.	E-Mail
Anuj	210166	anuj21@iitk.ac.in
Pulak Gautam	210791	pulakg21@iitk.ac.in
Dev Gupta	210318	devgupta21@iitk.ac.in
Abhimanyu Sethia	190023	sethia@iitk.ac.in
Deepanshu	210310	deepanshu21@iitk.ac.in
A. Atulya Sundaram	210001	aatulya21@iitk.ac.in
Kushagra Bhatnagar	210550	kushagrab21@iitk.ac.in
Pinkesh Mahawar	210719	pinkeshm21@iitk.ac.in
Pradeep Chahal	210733	pradeepc21@iitk.ac.in
Vaishnavi	211140	vaishnavi21@iitk.ac.in

Course: CS253

Mentor TA: Anuj Shrivastava (anujsh@cse.iitk.ac.in)

Date: 10 February 2023

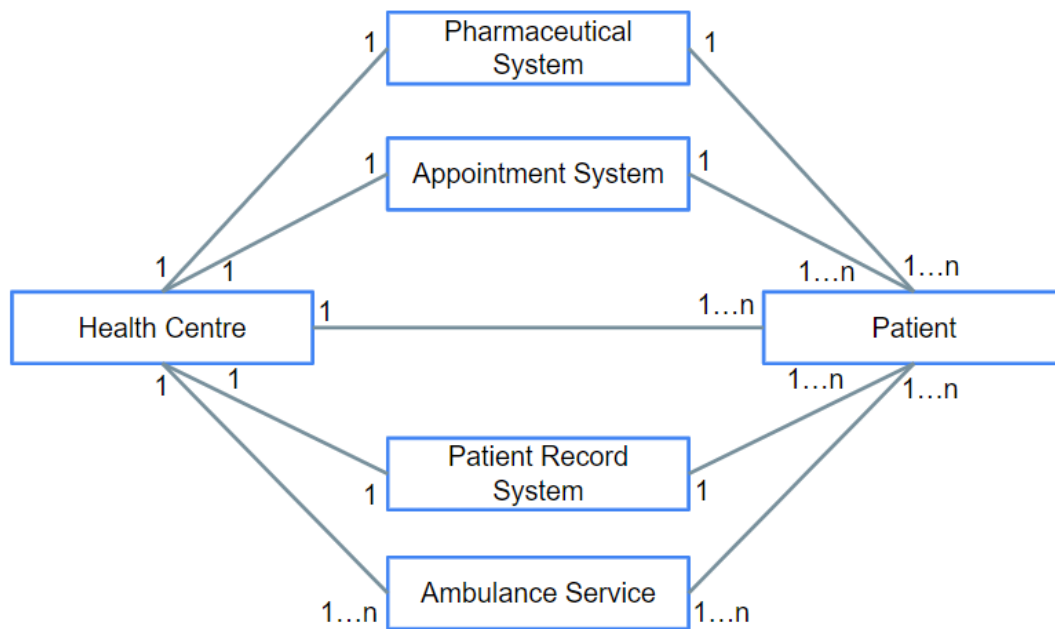
CONTENTS.....	II
REVISIONS.....	II
1 CONTEXT DESIGN.....	1
1.1 CONTEXT MODEL.....	1
1.2 HUMAN INTERFACE DESIGN.....	2
2 ARCHITECTURE DESIGN	7
3 OBJECT-ORIENTED DESIGN	8
3.1 USE CASE DIAGRAM.....	8
3.2 CLASS DIAGRAM.....	10
3.3 SEQUENCE DIAGRAM	13
3.4 STATE DIAGRAM	17
4 PROJECT PLAN	18
APPENDIX A - GROUP LOG	19

Revisions


Version	Primary Author(s)	Description of Version	Date Completed
1.0	Deepanshu, Vaishnavi, Pradeep Chahal, Pulak Gautam, Pinkesh Mahawar	Added content for context design and architecture design section 1,2 of the document which	07/02/23
1.1	A. Atulya Sundaram, Anuj, Abhimanyu Sethia, Kushagra Bhatnagar, Dev Gupta	Inserted the class, sequence and state diagrams which describes the object-oriented design of the system	08/02/23
1.2	All Team	Made the project plan and finalized the document after review by all the team members	09/02/23


1 Context Design

1.1 Context Model



1.2 Human Interface Design



 Login


Home

Ambulance

Leave Application

Request Blood

+ Appointment



Sign in to continue


Username


Password

Login

Create account

Forgot Password?



 Login

Home


Ambulance


Leave Application


Request Blood


+ Appointment


REGISTER AS


 Patient

 Doctor

 Ambulance

 Pharmacy

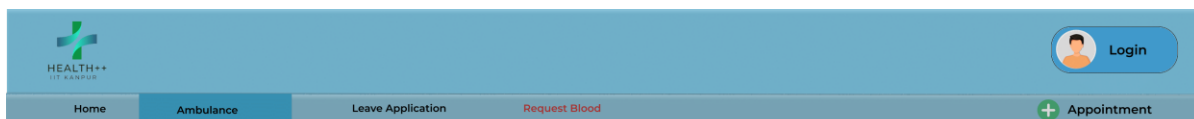
 DUGC Admin

 Receptionist



Register as Student/Faculty

<input type="text" value="First Name"/>	<input type="text" value="Last Name"/>	<input type="text" value="Gender"/>
<input type="text" value="Date of Birth"/>		
<input type="text" value="Username"/>		
<input type="text" value="Password"/>	<input type="text" value="Confirm"/>	<input type="text" value="CC Id"/>
<input type="text" value="Contact info"/>	<input type="text" value="Blood Group"/>	<input type="text" value="Email"/>
<input type="button" value="Create Account"/>		



Doctor Online Appointment Request

Which department would you like to get an appointment from?*

<input type="text" value="Please Select"/>	<input type="text" value="Doctor"/>
<input type="text" value="Appointment type*"/>	<input type="text" value="Please Select"/>
<input type="text" value="Preferred Appointment Date*"/>	<input type="text" value="Time Slot"/>
<input type="text" value="02/06/2023"/>	<input type="text" value="11:00 - 12:00"/>
	<input type="text" value="10:00 - 11:00"/>
	<input type="text" value="11:00 - 12:00"/>
	<input type="text" value="12:00 - 13:00"/>



Blood Donation Request Form

Requester

Volume required


Blood Group

[Submit Form](#)



Appointment List

 Awaiting visits
4

 Cancelled visits
2

 Ended visits
8

	Name ↕	Visit time ↕	Gender ↕	Age ↕	Condition ↕	
AB	Angelina Bishop	3:15pm	Female	21	Cold/Flu	View Details
JD	John Doe	3:15pm	Male	21	Acute Pain	View Details
AS	Angela Smith	3:15pm	Female	20	Asthma	View Details
AS	David Barker	3:15pm	Male	20	Arm Pain	View Details

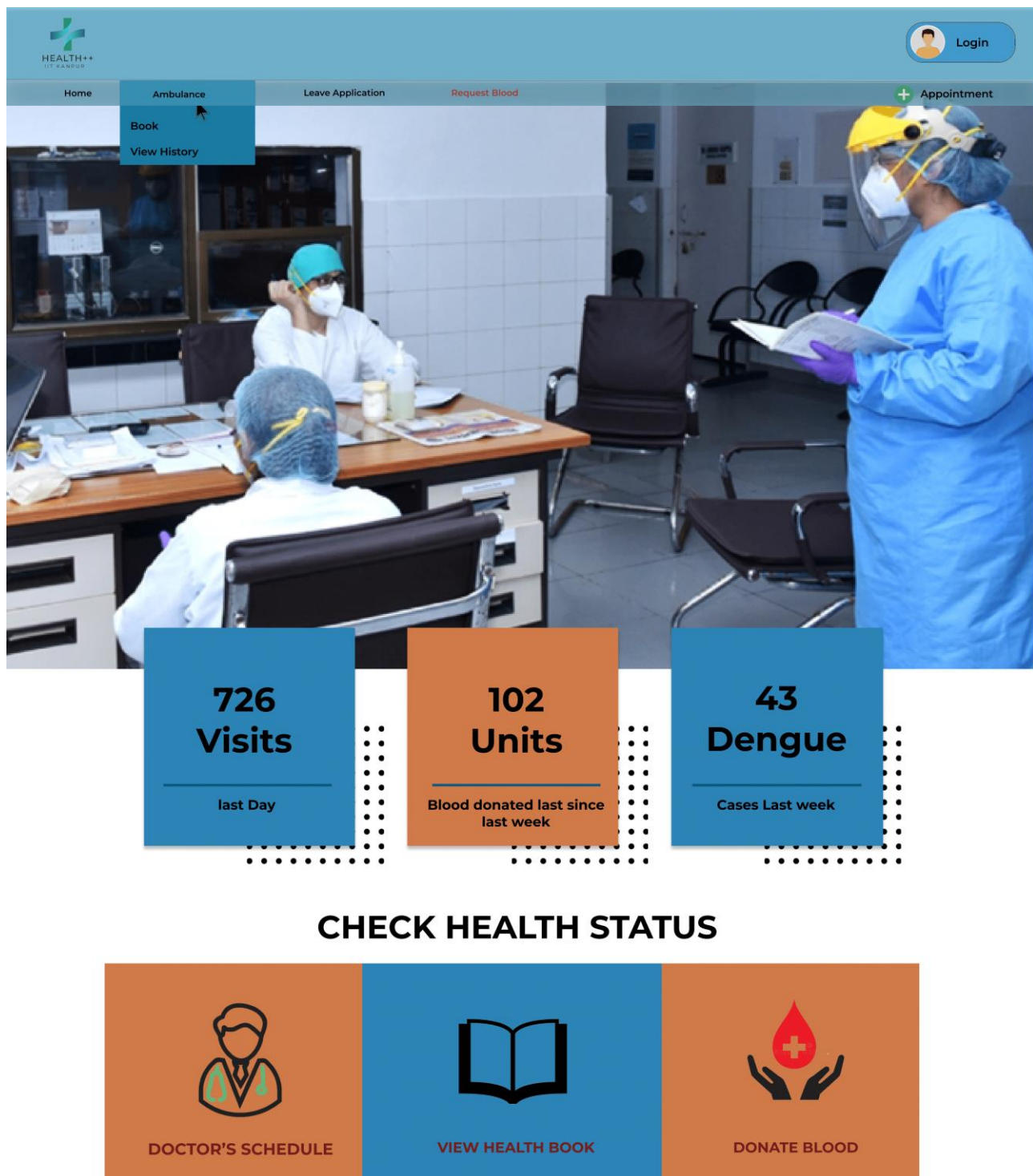


Pending : 6
Current ETA : 31 minutes

Ambulance Queue

History

Q	Name(Age) ↕	Book time ↕	Contact No. ↕	Pick Up ↕	To Drop ↕
1.	Divya sahu(19)	20:16	99132873XX	Hall 2, Gate 1,IITK	HC, Gate 2,IITK
Appointment ID: 7109293289 CC ID: 7109293289 Current Patient					
2	Pratham Sharma(21)	20:18	99132873XX	HC, Gate 2,IITK	Hall 2, Gate 1,IITK
3.	Pratham Sharma(21)	20:22	99132873XX	GH 2, IITK	Faculty Residence, IITK
4.	Vankatesh sai ha..(18)	20:25	99132873XX	Faculty Residence, IITK	GH 2, IITK
5.	Pratham Sharma(21)	20:25	99132873XX	HC gate no. 3	Narayana Hospital,Kanpur



2 Architecture Design

Health++ is a web-based application designed with the Model-View-Controller (MVC) architecture pattern. This pattern was chosen due to the need to view and interact with data in various ways, such as booking appointments, accessing medical records, viewing campus health statistics, and submitting medical leave requests. There is also the potential for incorporating additional features in the future.

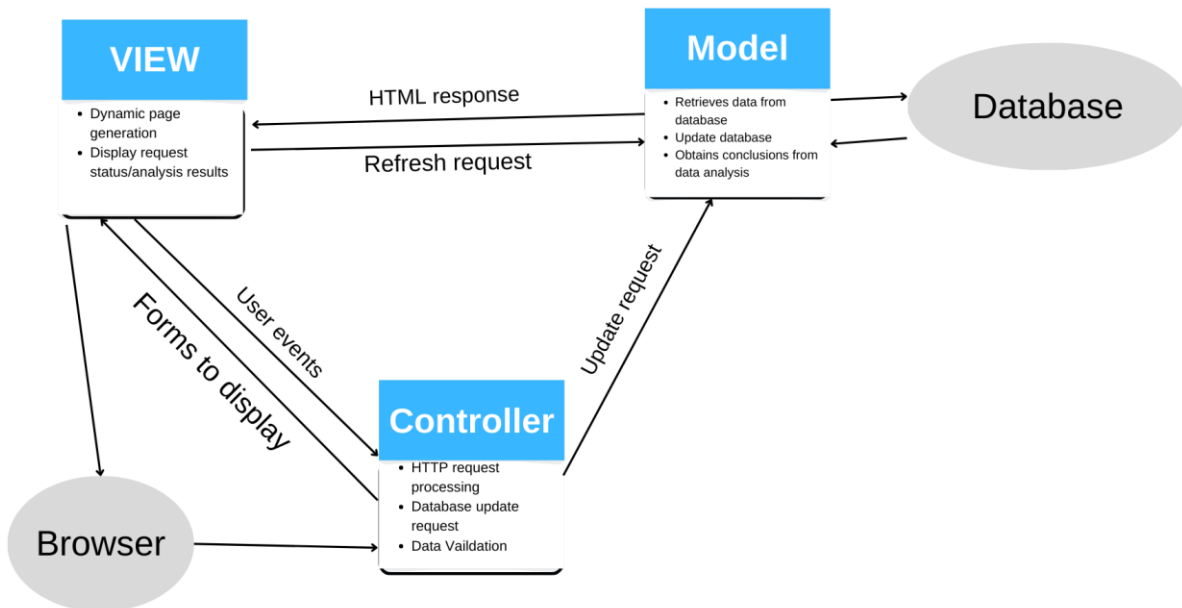
Advantages of MVC Architecture:

- Supports multiple presentations of the same data with updates reflected in all views. This allows for different formats of medical records and staff databases to be presented to different user types.
- Enables independent modification of data and its representation, and vice versa. This allows for continual updates to patients' medical records and campus statistics to be made independently.

Disadvantages:

- Increased Complexity: The use of MVC architecture can add additional complexity to the code, especially in large applications.
- Increased Development Time: Implementing MVC architecture can require additional development time, as compared to other architecture patterns.

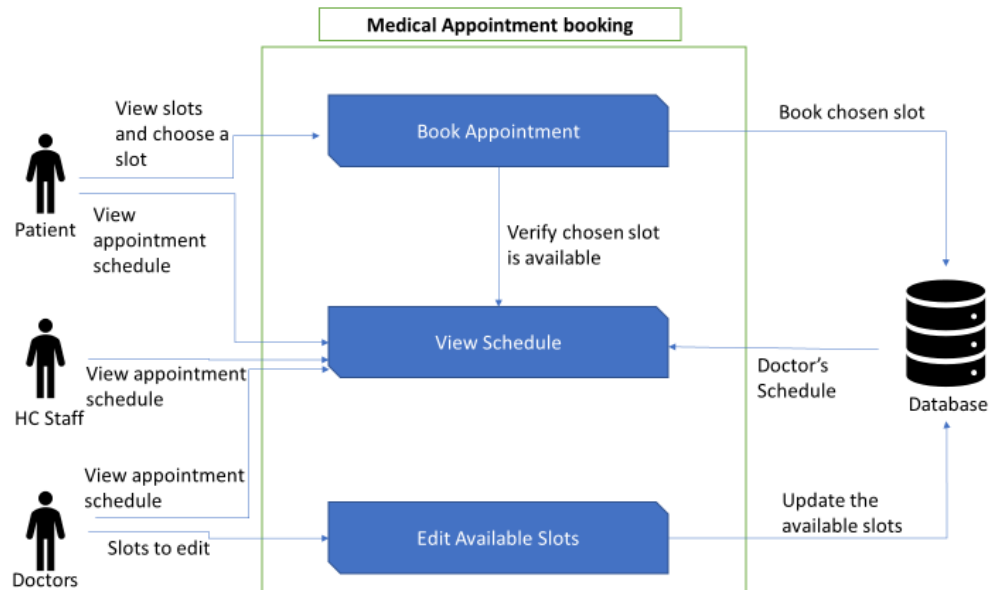
Following is a graphical representation of Model-View-Controller Architecture –



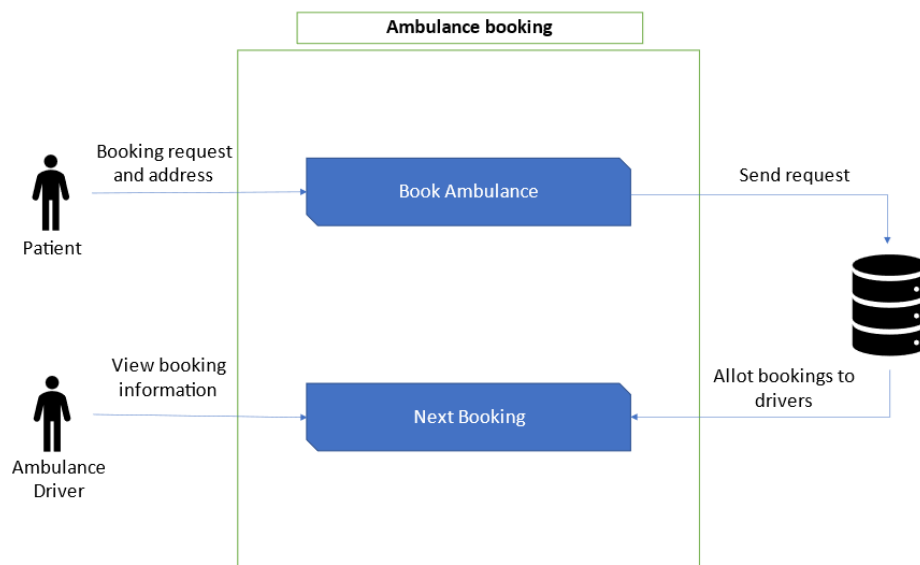
3 Object Oriented Design

3.1 Use Case Diagrams

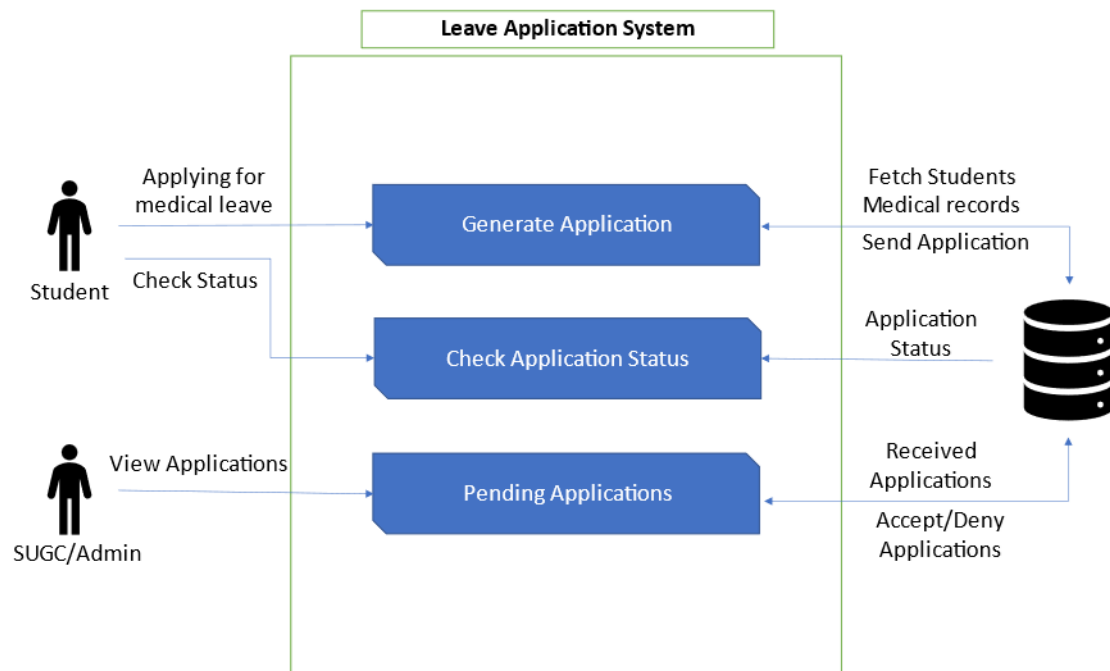
3.1.1 U#1: Appointment Booking



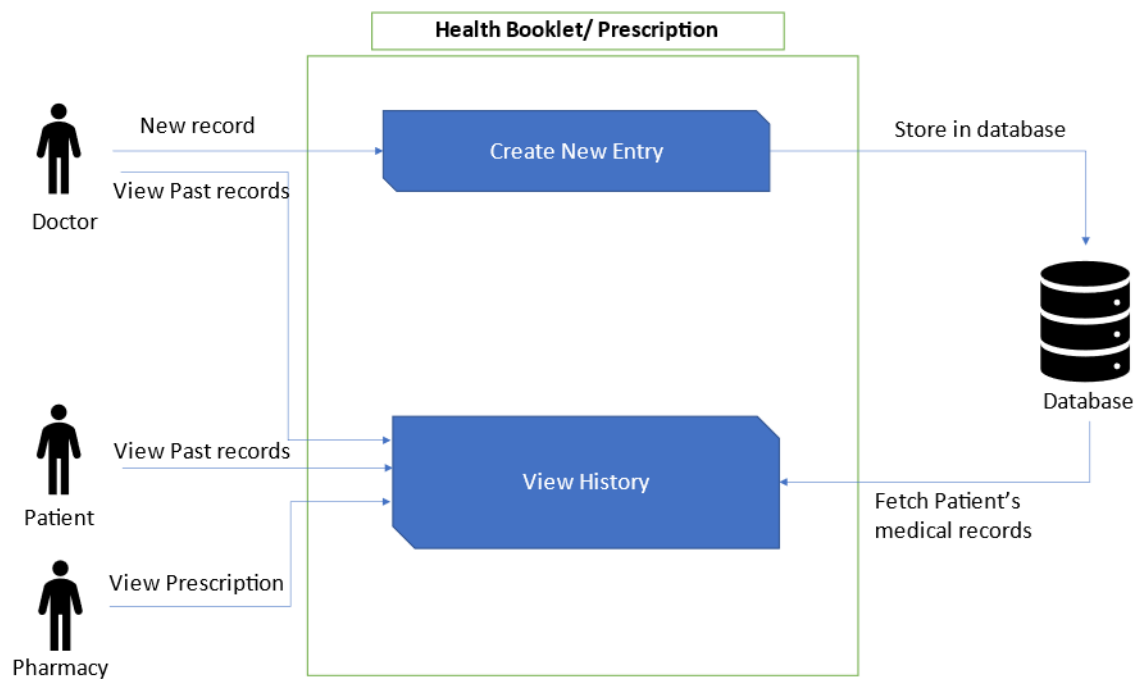
3.1.2 U#2: Ambulance Booking



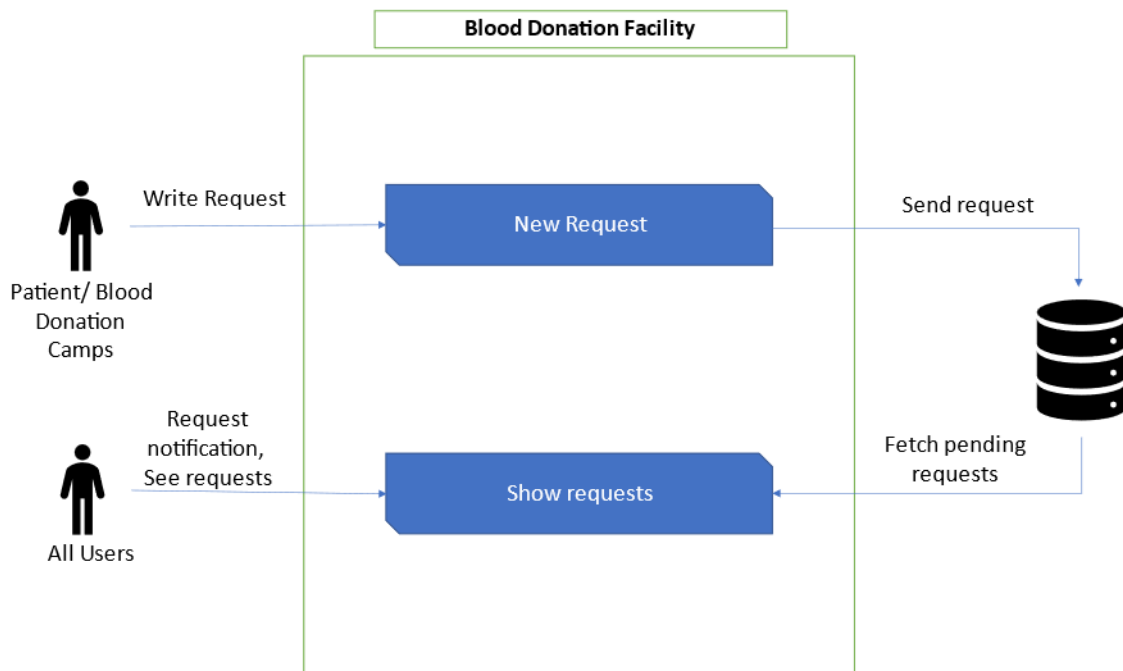
3.1.3 U#3: Leave Application System



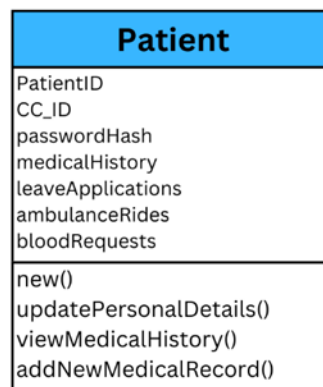
3.1.4 U#4: Medical Record/Prescription



3.1.5 U#5: Blood Donation Facility



3.2 Class Diagrams



Ambulance Driver
DriverID ContactNumber AmbulanceNumber RidesAssigned DriverStatus
new() assignRide() updateDriverStatus()

Doctor
doctorID fieldOfMedicine passwordHash availableSlots schedule
new() updateSlots() viewSchedule()

Leave Application
StudentRollNo. Doctor Remarks LeaveDates ApplicationStatus
new() AcceptLeave() RejectLeave()

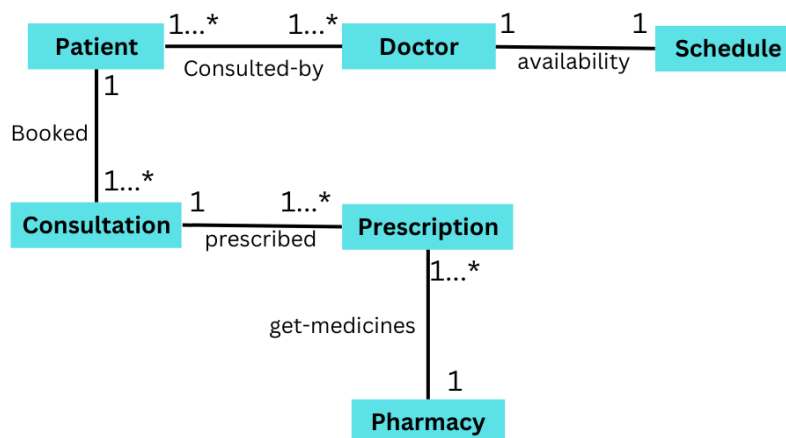
Medical Record
Patient Doctor PatientTemperature PatientBP PatientOxygen DateCreated Prescription Remarks
new() update() getPrescription()

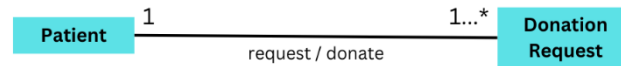
Blood Request
Requester BloodGroup Quantity Comments Status
new() publishRequest() updateStatus

Appointment
Doctor Patient Date Time
new() update()

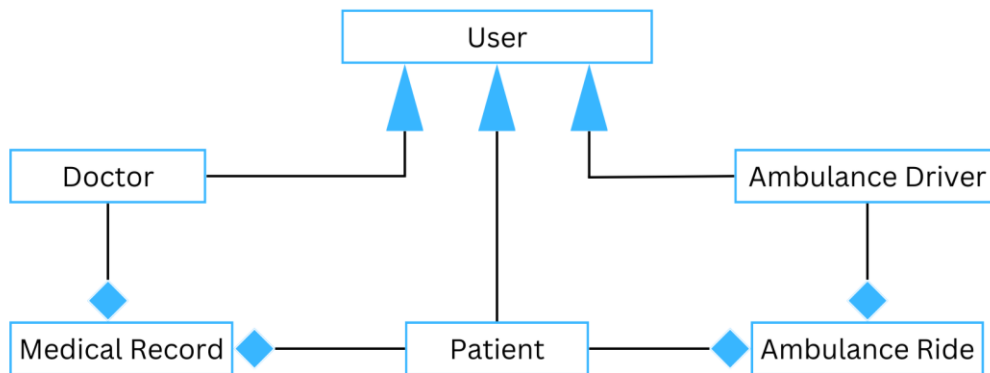
Ambulance Ride
PatientID DriverAssigned Location RideStatus
new() updateStatus()

3.2.1 Class Association Diagrams

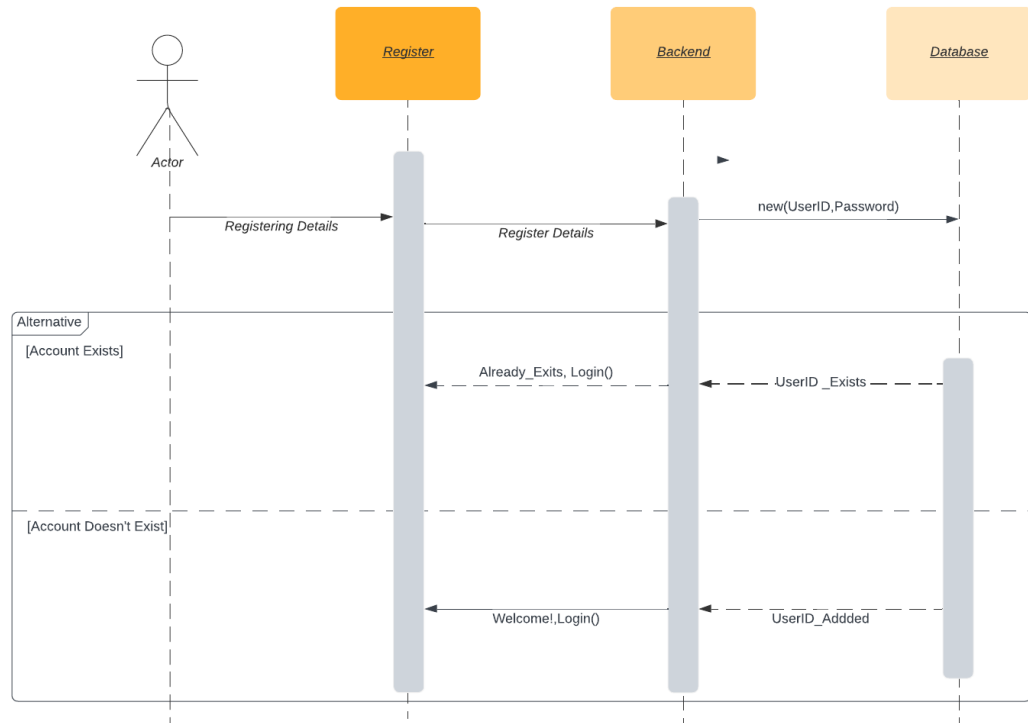
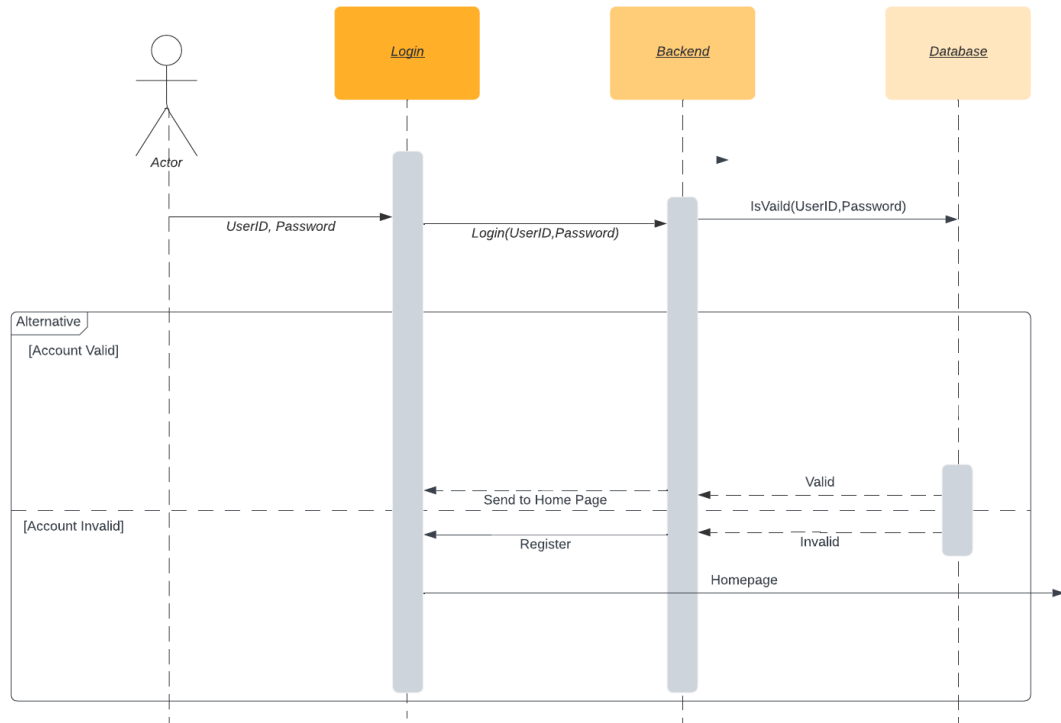


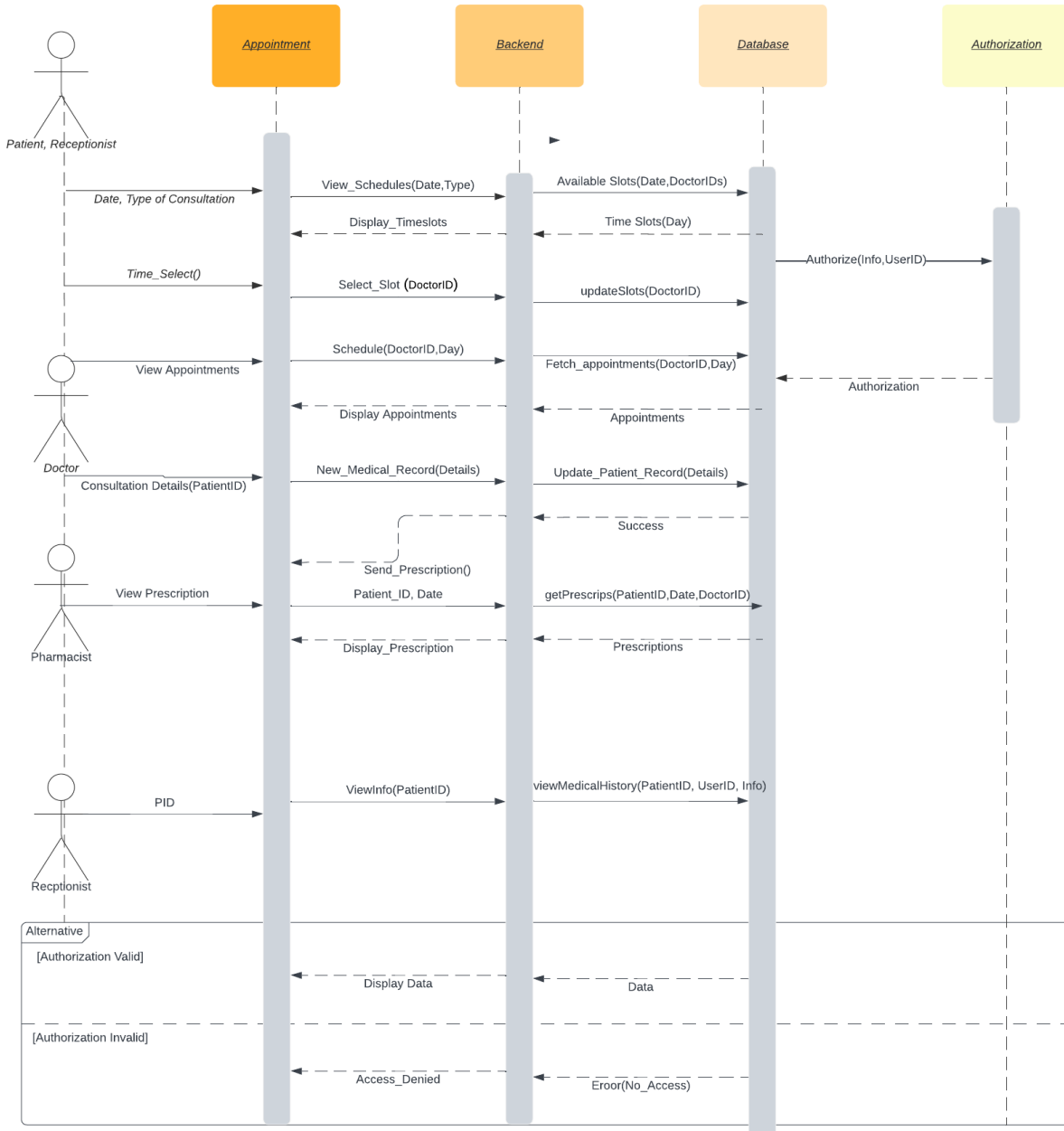


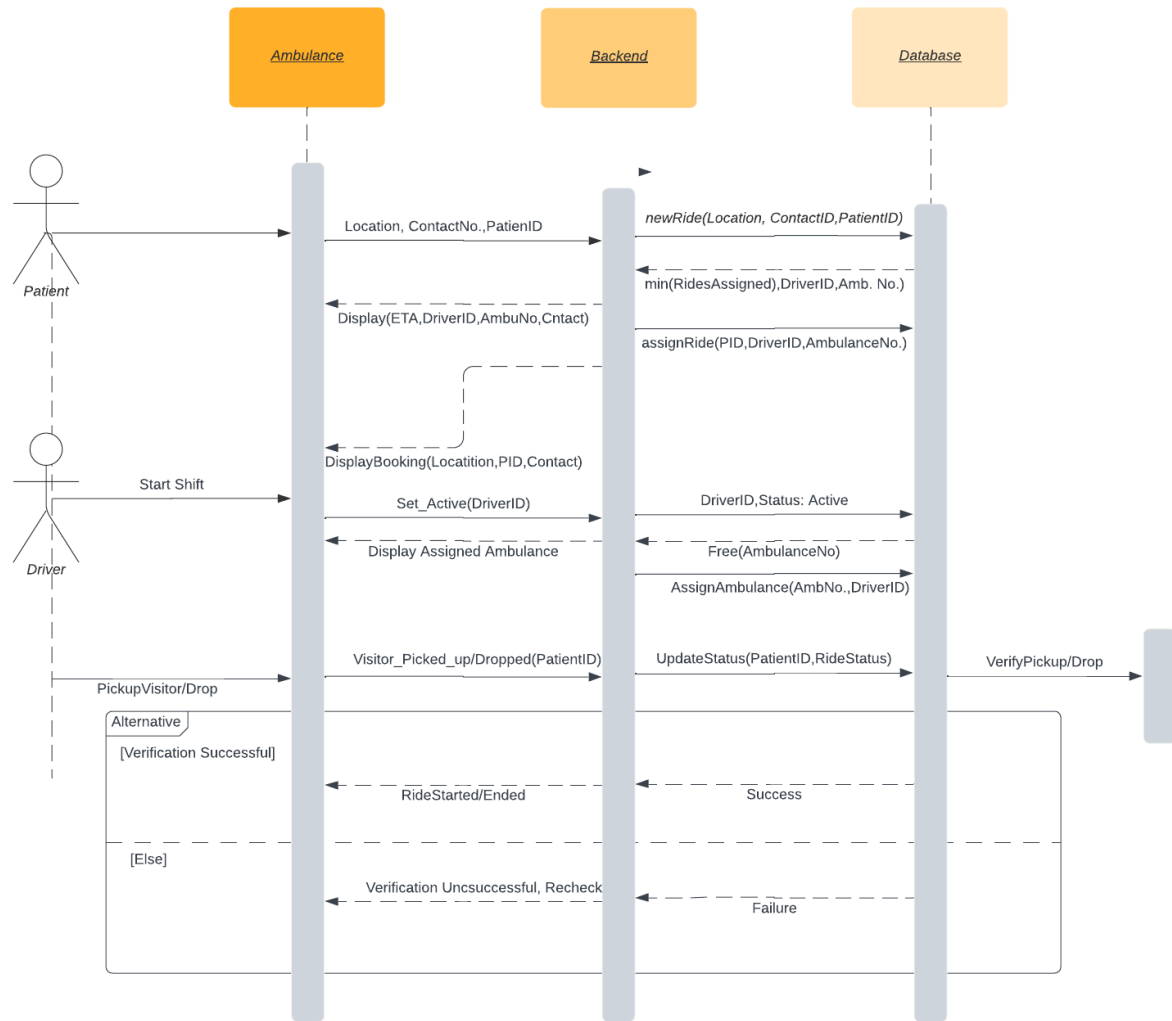
3.2.2 Class Generalization and Aggregation Diagram

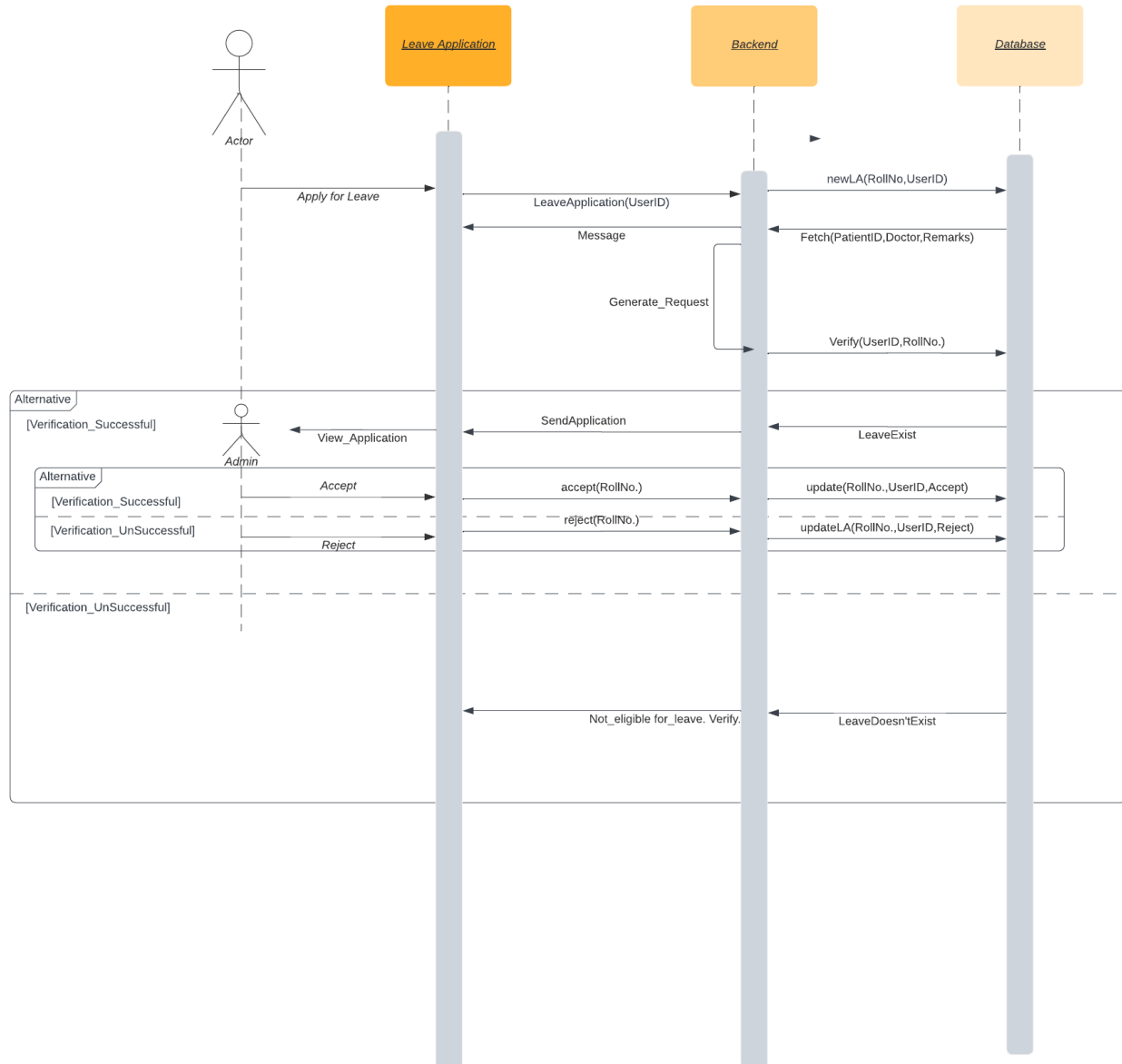


3.3 Sequence Diagrams

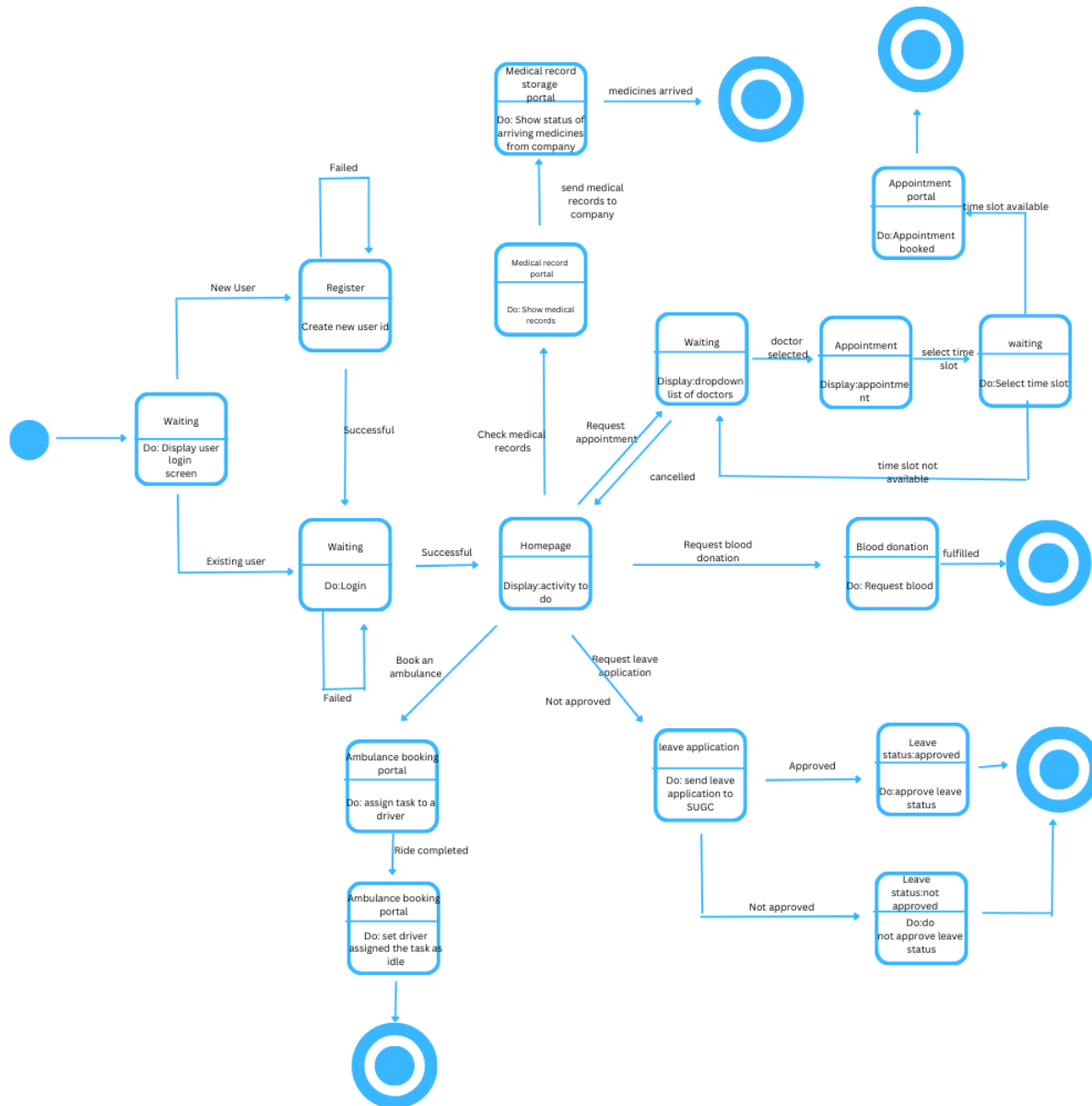








3.4 State Diagrams



4 Project Plan

The project plan is made considering all the deliverables scheduled during the semester. Following is a chart displaying the timeline for all the major tasks of the project and the team members assigned for the task.

Tasks		Feb-11	Feb-18	Feb-25	Mar-04	Mar-11	Mar-17	Mar-24	Mar-31
Frontend	User Login/Signup	Anuj, Vaishnavi							
	Appointments System	Anuj, Vaishnavi							
	Medical Records/Prescription System	Pinkesh, Pulak							
	Leave Application System	Pinkesh, Pulak							
	Blood Donation System	Vaishnavi, Pulak							
	Ambulance Booking System	Anuj, Pinkesh							
Backend	Making Classes & Functions	Abhimanyu, Atulya, Kushagra							
	Integrating with Database	Dev, Pradeep, Deepanshu							
	Integrating with Frontend			Everyone					
Integrating All Modules					Everyone				
Unit Testing				Everyone					
Integration Testing						Everyone			
System Testing							Abhimanyu, Anuj, Atulya, Dev, Pradeep		
User Manual Preparation							Deepanshu, Kushagra, Pulak, Pinkesh, Vaishnavi		

Appendix A - Group Log

Date of meeting	Duration of meeting	Agenda of meeting
3 rd February 2023	1hr 30 mins	Analyzed the various software models and listed the procedures needed to finish all the diagrams
4th February 2023	2hr	Work was distributed amongst the group members in order to complete the task.
7th February 2023	1hr 30mins	Work done by each of the group members was reviewed and suitable changes were suggested.
9 th February 2023	2hr	A second iteration was carried out in order to verify that all the models are logically coherent with each other and with the requirement document. Project plan was also discussed in the meet.