Software Engineering Project

Doctor Appointment System

Supervised by:

Dr.Amira Alshazly

Eng.Mayar Ayman

Made by/Clara Magdy Ghaly ID\20221424647 level\3

Table of Content

1.Introduction

"Doctor Appointment System". This is a system in where anyone can create an appointment to his/her required doctor. In this system the user also get a personal profile where he/she can easily access the required data. Doctors also get a personal profile to know about his/her patients and appointments. This system will make patients-doctors communication easy and it will help to build a good relationship between patients and doctors.

1.1Description

A Doctor Appointment System for a mobile Android application using SQLite as the database involves creating a system where patients can schedule appointments with doctors, view their appointments, and receive necessary information.

1.2 Purpose

the purpose of a doctor appointment system is to create a digital solution that improves the efficiency of appointment management, enhances the patient experience, and contributes to the overall effectiveness of healthcare delivery. It aims to leverage technology to address challenges in traditional appointment scheduling processes and promote better communication and collaboration between patients.

1.3 Problem Definition

the traditional methods of managing doctor appointments pose several challenges that impact both patients and Doctors.

Manual and Inefficient Appointment Scheduling: leads to inefficiencies, scheduling errors, and increased administrative overhead.

So the problem motivated me to build mobile app to remove these challenges by introducing a digital platform that enables efficient, user-friendly, and secure appointment scheduling. The system will enhance patient engagement, improve communication between patients and Doctors

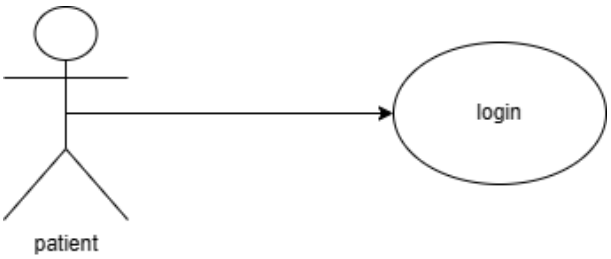
1.4 Overview

The subsequent sections of this document outline the actors, functions, activity diagrams, and dependencies required for the analysis and design of the Doctor Appointment System. The remaining content of the document provides a comprehensive description of the system and its corresponding requirements.

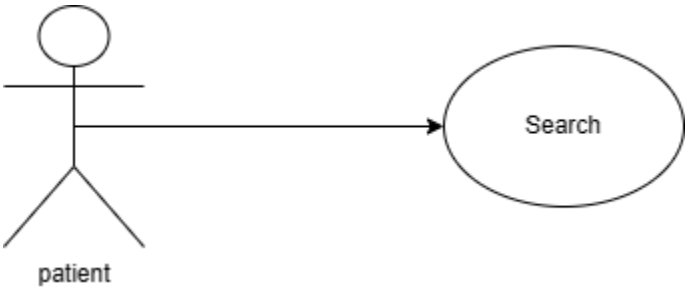
2.User Requirements:

Patient User:

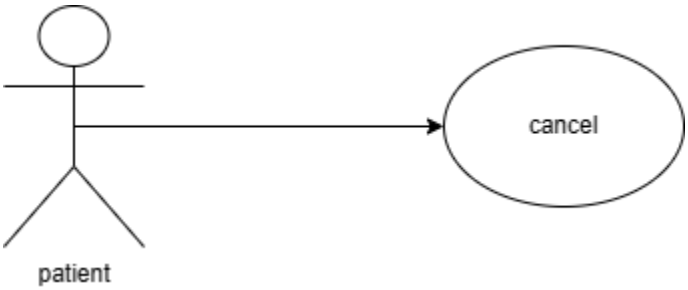
- The patient should be able to login.



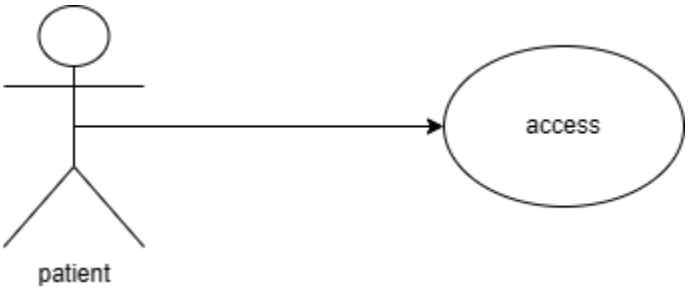
- The patient should be able to search about doctor's appointments.



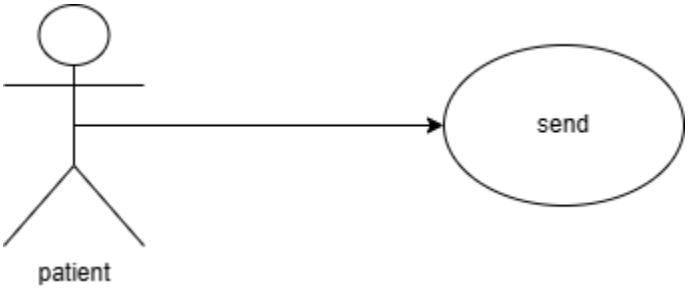
- The patient should be able to schedule and cancel an Appointment.



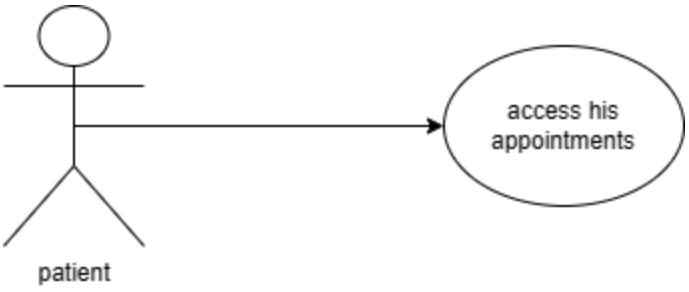
- The patient should be able to access his information.



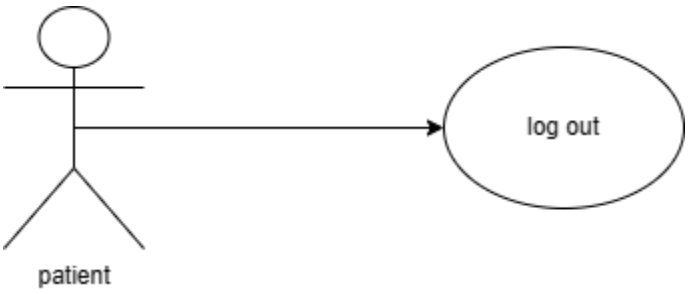
- The patient should be able to send message.



- The patient to access his appointments.

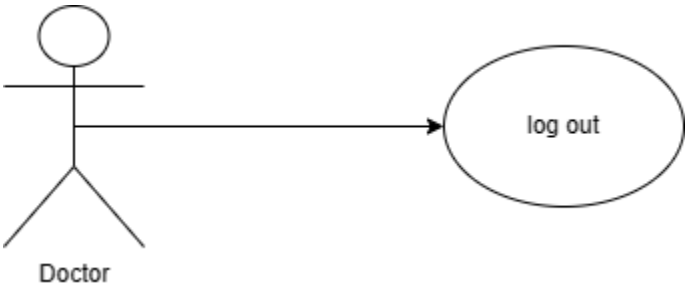


- The patient should be able to log out.

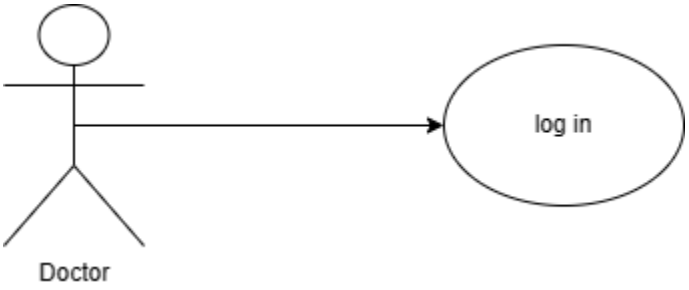


Doctor User:

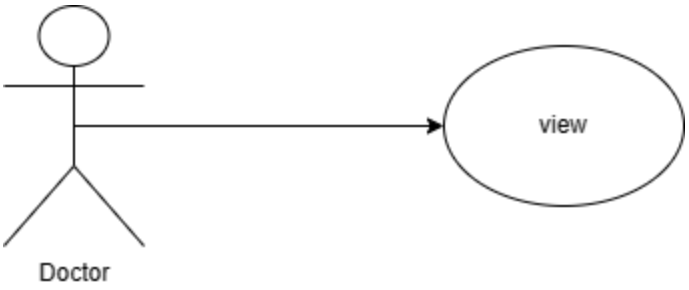
- The doctor should be able to login.



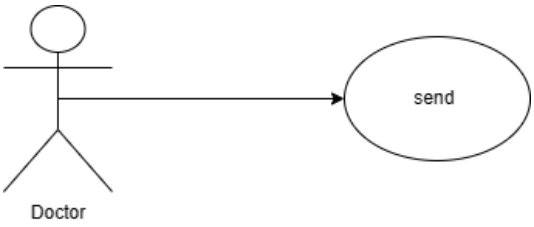
- Doctors should have the ability to view their appointment schedules.



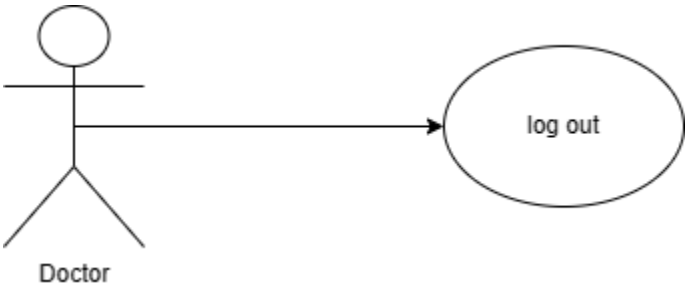
- The doctor should be able to Access to patient information and medical history during appointments.



- The Doctor should be able to send message.



- The Doctor should be able to log out.



3.System Requirements:

Functional Requirements:

1. Appointment Scheduling:

- Patients should be able to schedule, reschedule, or cancel appointments.
- Doctors should have tools for managing their appointment schedules, confirming appointments, and setting availability.

2.User Authentication and Authorization:

- Implement login mechanisms for patients, doctors.

3. Patient-Doctor Communication:

- Provide secure communication channels for patients and doctors to exchange messages and updates.

4. Patient Information Management:

- Enable doctors to access relevant patient medical history during appointments.
- Patient can add their medical history during make an appointment

Non-Functional Requirements:

1. Security:

- Encrypt sensitive data, including patient information and communication channels.
- Implement secure authentication mechanisms to prevent unauthorized access.

2. Performance:

- The system should handle a minimum of 100 concurrent users without degradation in performance.
- Response times for appointment scheduling actions should be within 2 seconds.

3. Scalability:

- Design the system to scale horizontally to accommodate potential growth in the number of users.
- Ensure that the system can handle an increase in appointment scheduling requests.

4. Usability:

- User interfaces should be intuitive and accessible, catering to users with varying levels of technical expertise.
- Implement responsive design to ensure usability across different devices.

5. Reliability:

- The system should have an uptime of at least 99.9%.
- Implement regular backup procedures to ensure data recovery in case of system failures.

7. Data Integrity:

- Implement mechanisms to ensure the integrity of patient data, preventing data corruption or loss.
- Regularly validate and verify the accuracy of stored information.

4.the chosen Model: waterfall

While the Waterfall model has its advantages and disadvantages, let's explore how it could be important for developing a Doctor Appointment System mobile app:

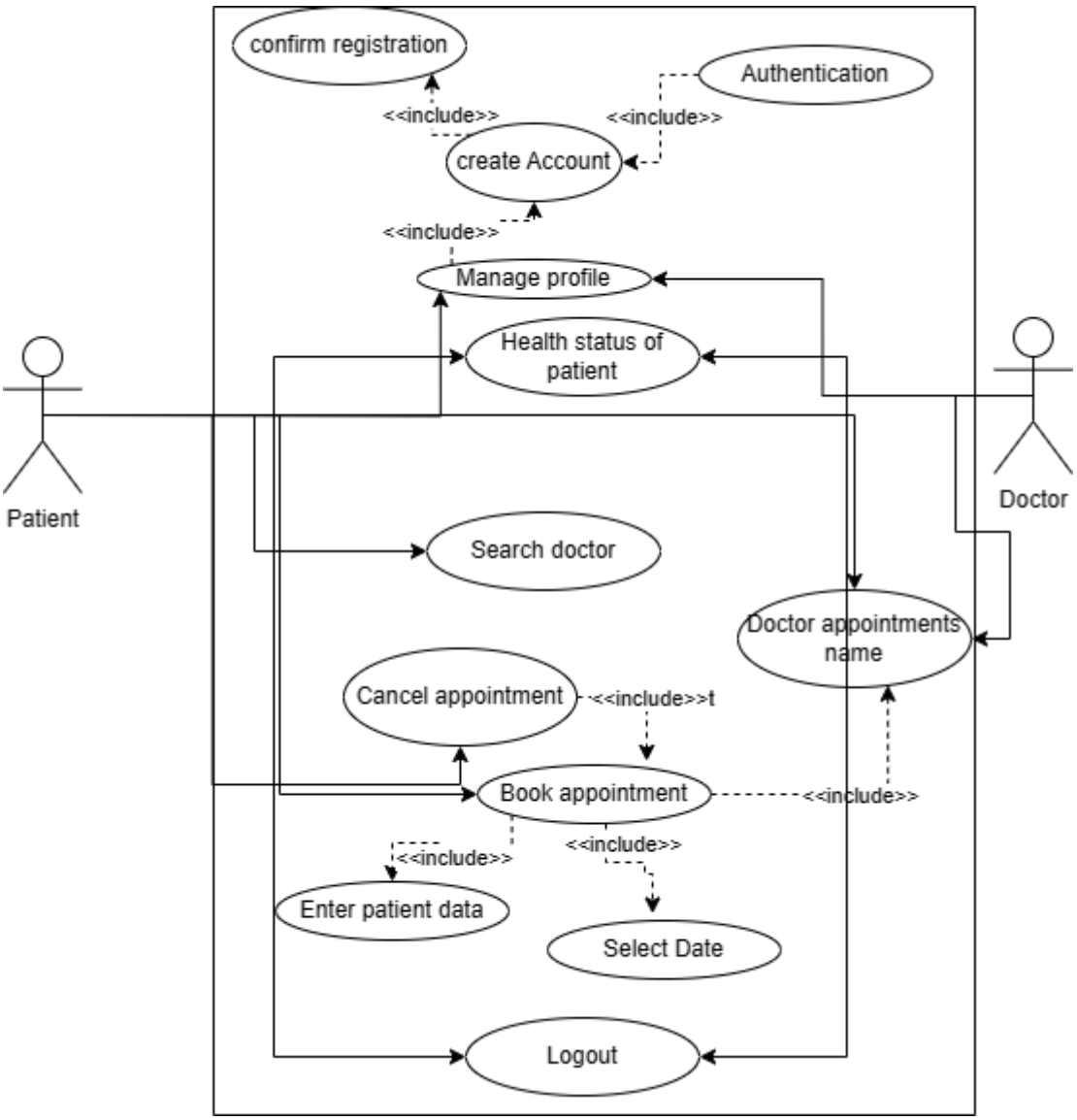
1. **Clear Requirements Definition:**
    - The Waterfall model emphasizes the importance of thorough requirements gathering and analysis in the initial stages. For a Doctor Appointment System mobile app, this ensures a comprehensive understanding of the functionalities required, such as patient login, appointment scheduling, messaging, and data security.
2. **Stability in Requirements:**
    - In a Doctor Appointment System, the core functionalities and requirements are often well-defined and stable. The Waterfall model suits projects with stable requirements because it proceeds through phases sequentially, making it less adaptable to changes. This can be an advantage when the key features of the mobile app are well-understood and unlikely to change significantly during development.
3. **Systematic Development Process:**
    - The Waterfall model offers a systematic and linear approach to development. Each phase has specific deliverables and milestones, making it easier to track progress. This structure can be beneficial for a Doctor Appointment System mobile app, ensuring that critical functionalities like appointment scheduling and user authentication are thoroughly implemented before moving to the next phase.
4. **Documented Process:**
    - The Waterfall model encourages comprehensive documentation at each stage. In the context of a Doctor Appointment System, this documentation can be valuable for regulatory compliance, quality assurance, and future maintenance. Clear documentation helps in understanding the system architecture, design decisions, and code implementation.
5. **Quality Assurance:**
    - Testing is a distinct phase in the Waterfall model, allowing thorough testing of the entire system after development. For a Doctor Appointment System, this ensures that features such as appointment creation, cancellation, and messaging are rigorously tested, contributing to the reliability and quality of the mobile app.
6. **Predictable Timeline:**
    - The Waterfall model often provides a predictable timeline for project completion, assuming that requirements are well-defined. This predictability can be important for a Doctor Appointment System

mobile app, especially if there are specific deadlines or regulatory compliance requirements.

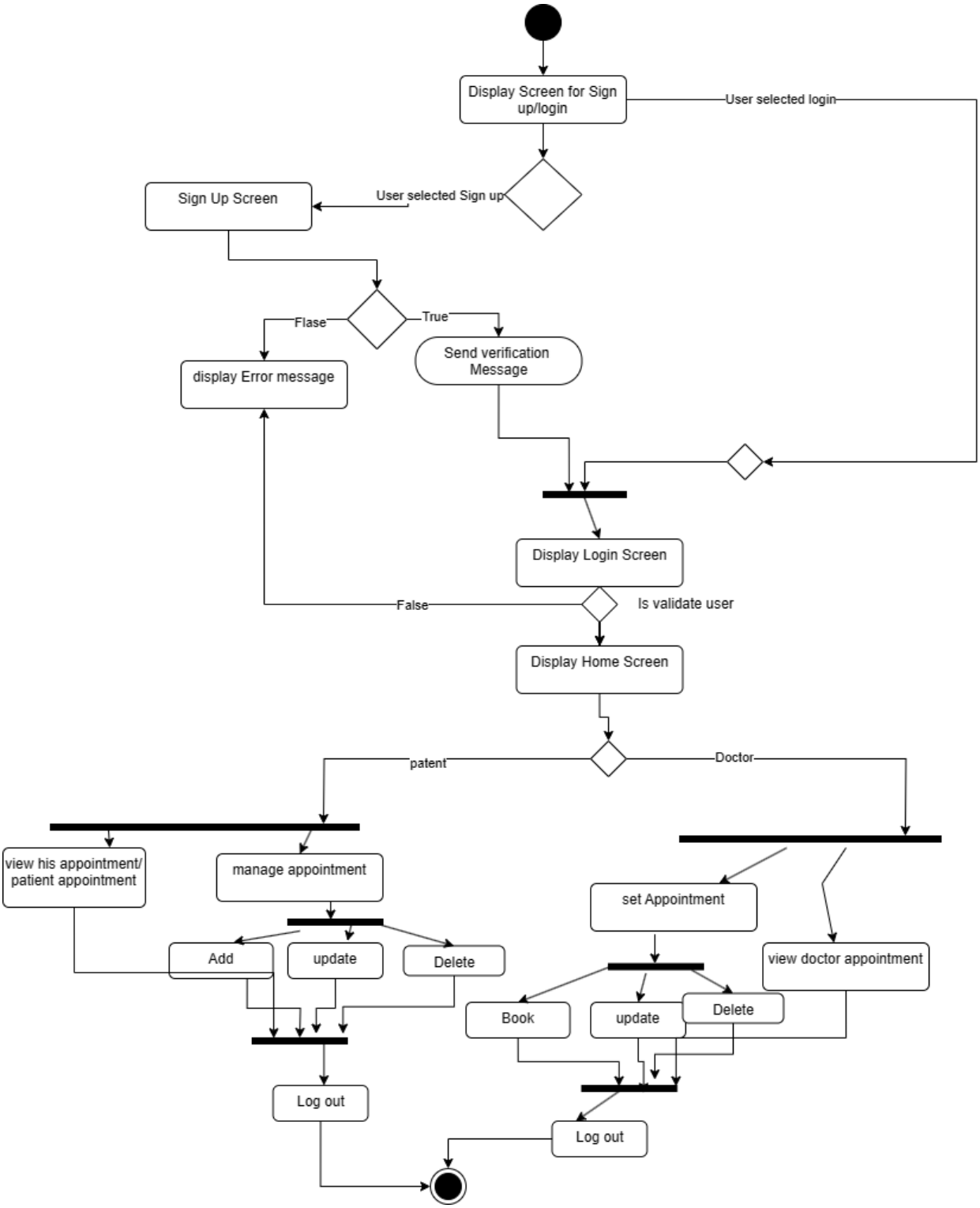
7. **Regulatory Compliance:**
    - Healthcare systems, including Doctor Appointment Systems, often need to comply with regulatory standards to ensure patient data security and privacy. The Waterfall model's emphasis on documentation and thorough testing can aid in meeting these compliance requirements

5.Diagrams

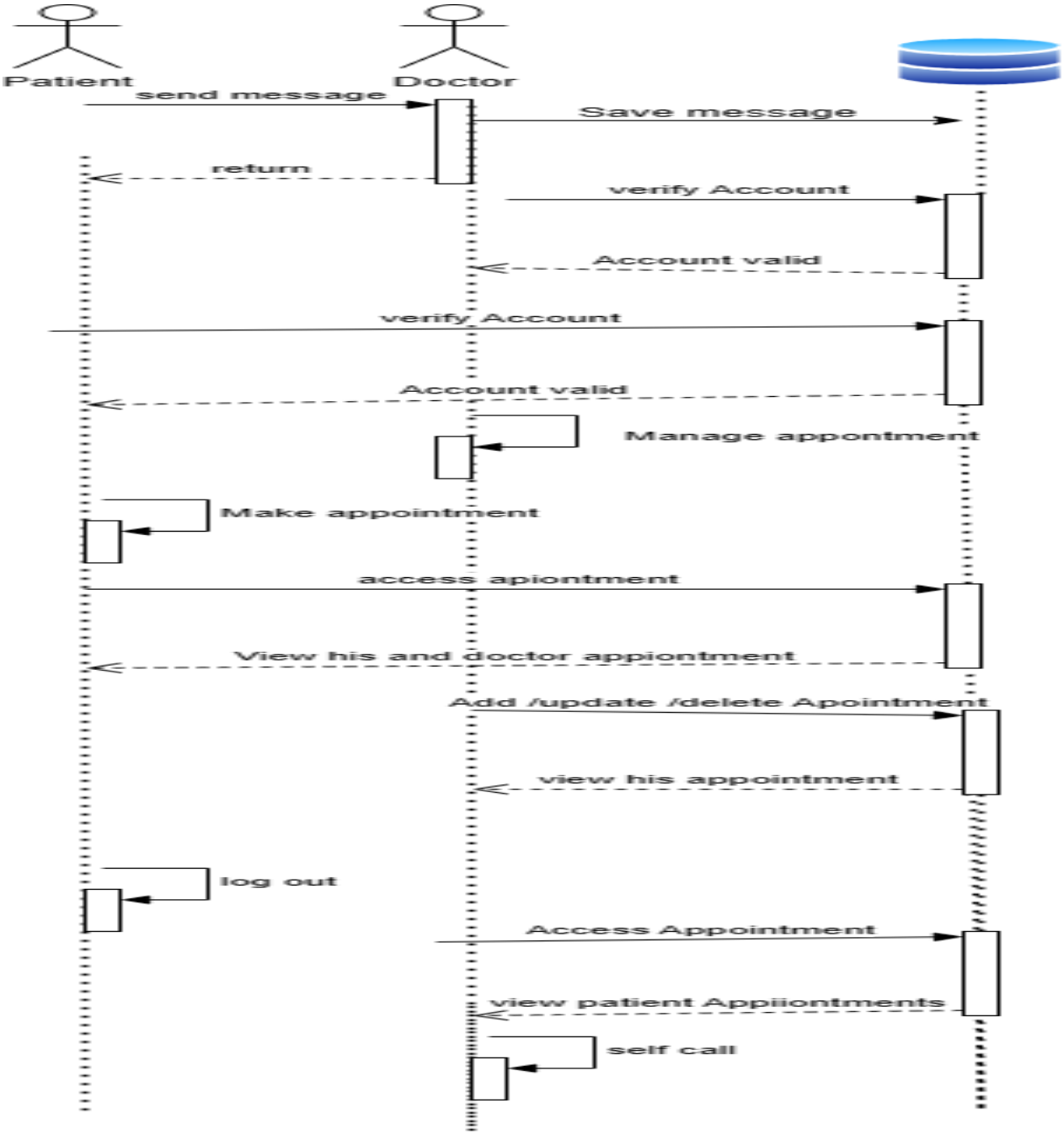
5.1Use Case diagram:



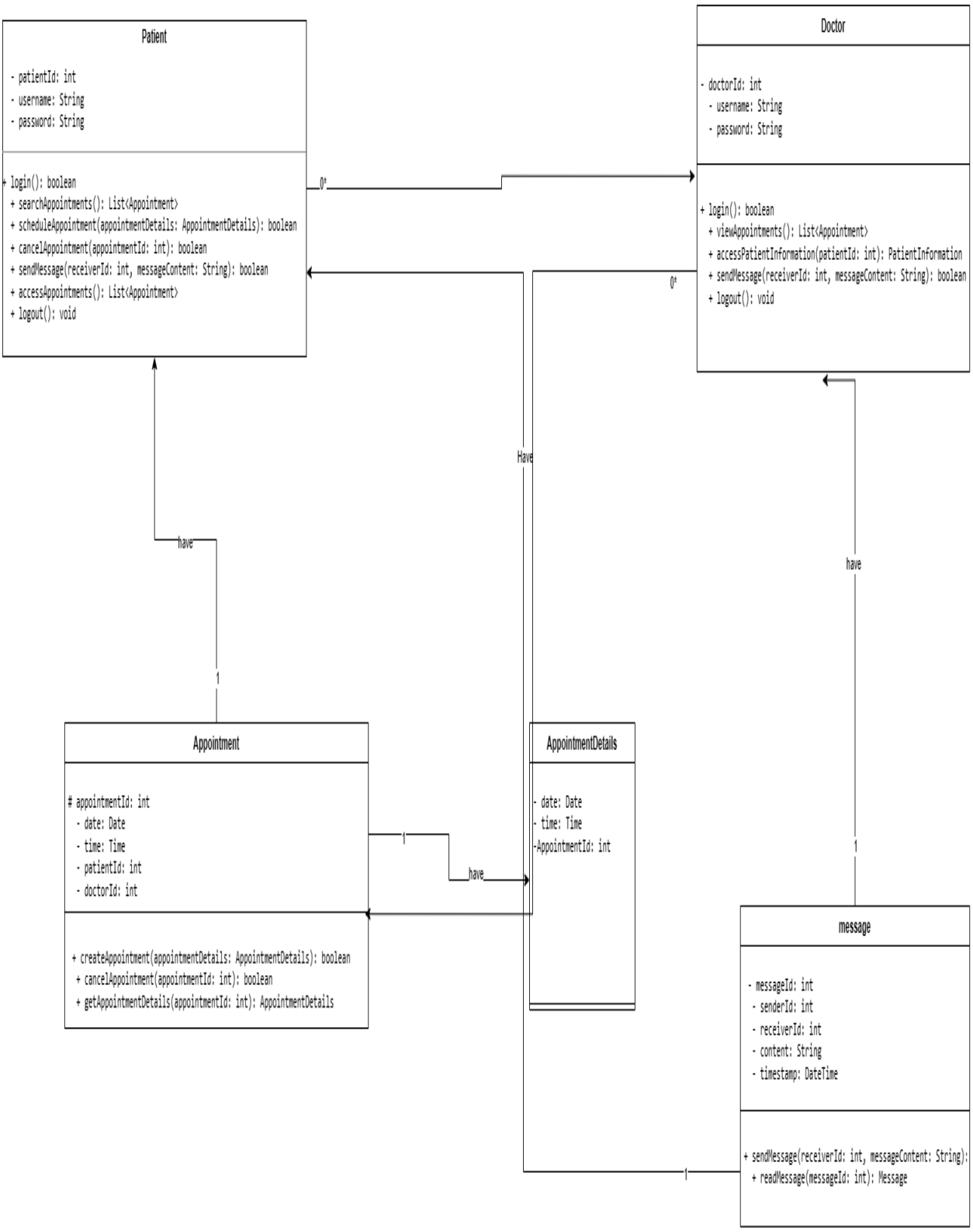
5.2Activity Diagram:


Display Screen for Sign up/login
User selected login
User selected Sign up
Sign Up Screen
Flase
True
display Error message
Send verification Message
Display Login Screen
False
Is validate user
Display Home Screen
patent
Doctor
view his appointment/ patient appointment
manage appointment
Add
update
Delete
set Appointment
view doctor appointment
Book
update
Delete
Log out
Log out

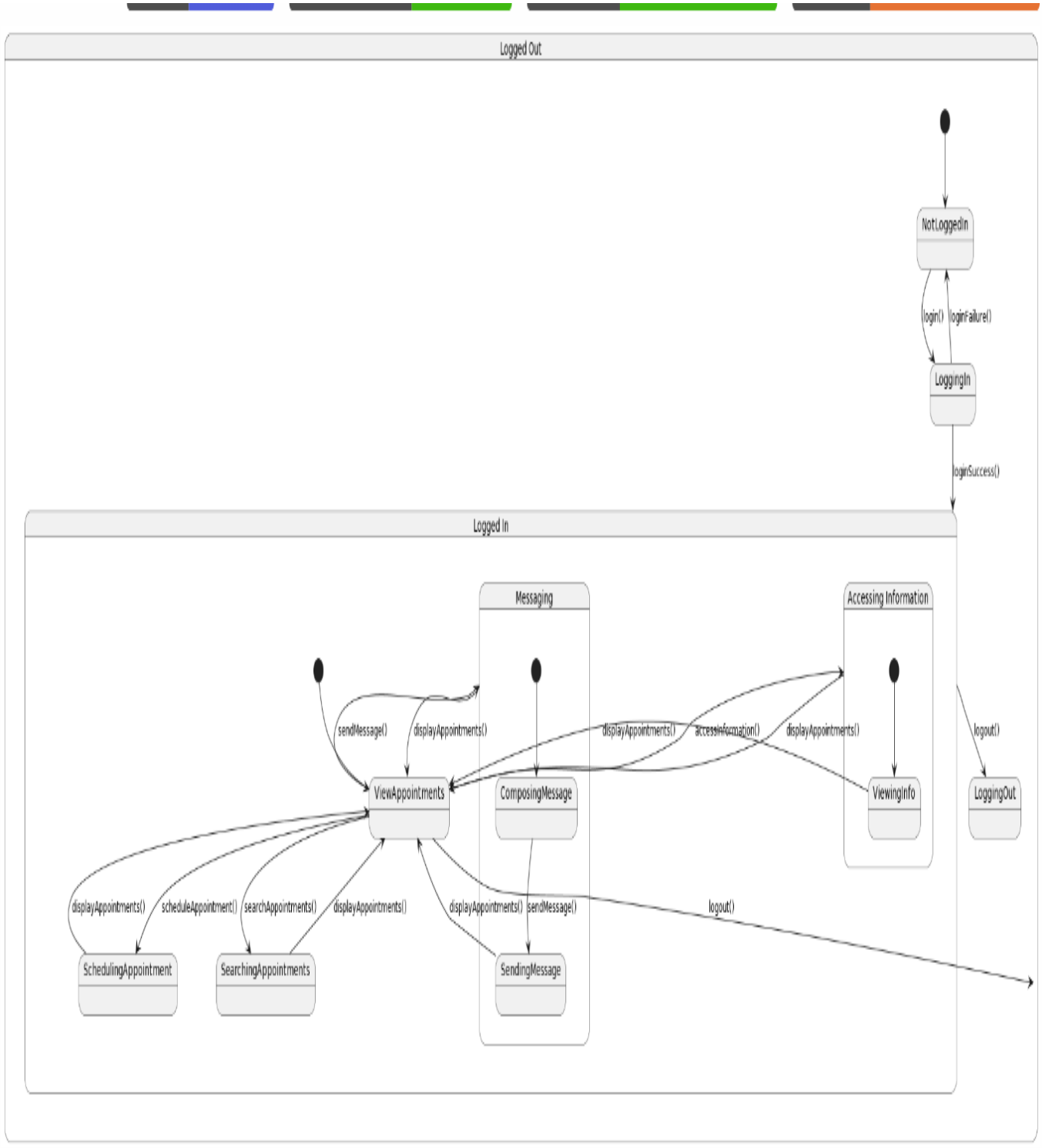
5.3 Sequence Diagram



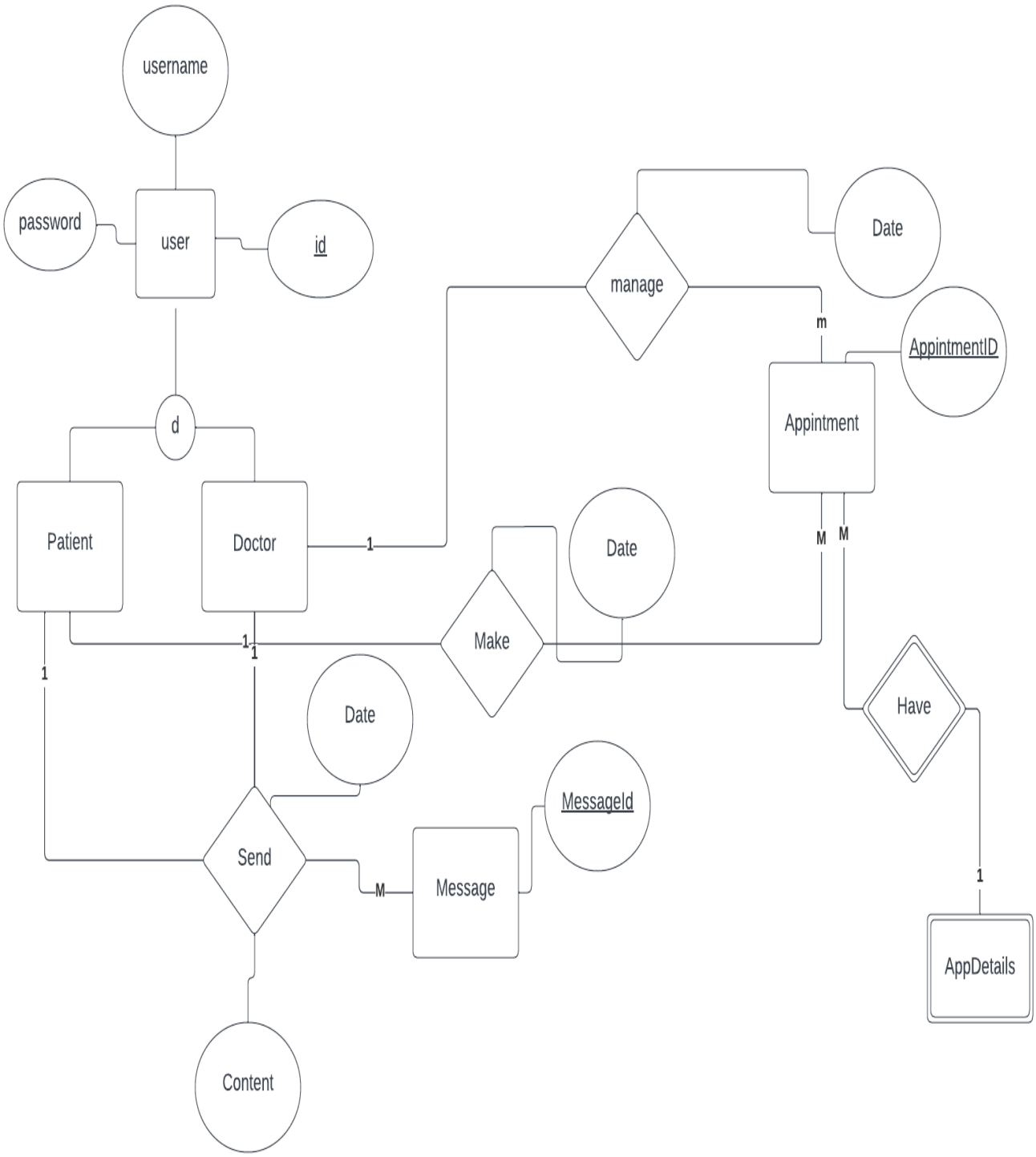
5.4UML Class Diagram


Patient
- patientId: int
- username: String
- password: String
+ login(): boolean
+ searchAppointments(): List<Appointment>
+ scheduleAppointment(appointmentDetails: AppointmentDetails): boolean
+ cancelAppointment(appointmentId: int): boolean
+ sendMessage(receiverId: int, messageContent: String): boolean
+ accessAppointments(): List<Appointment>
+ logout(): void
Doctor
- doctorId: int
- username: String
- password: String
+ login(): boolean
+ viewAppointments(): List<Appointment>
+ accessPatientInformation(patientId: int): PatientInformation
+ sendMessage(receiverId: int, messageContent: String): boolean
+ logout(): void
0*
0*
Have
have
1
have
Appointment
appointmentId: int
- date: Date
- time: Time
- patientId: int
- doctorId: int
+ createAppointment(appointmentDetails: AppointmentDetails): boolean
+ cancelAppointment(appointmentId: int): boolean
+ getAppointmentDetails(appointmentId: int): AppointmentDetails
1
have
AppointmentDetails
- date: Date
- time: Time
-AppointmentId: int
1
message
- messageId: int
- senderId: int
- receiverId: int
- content: String
- timestamp: DateTime
+ sendMessage(receiverId: int, messageContent: String):
+ readMessage(messageId: int): Message
1

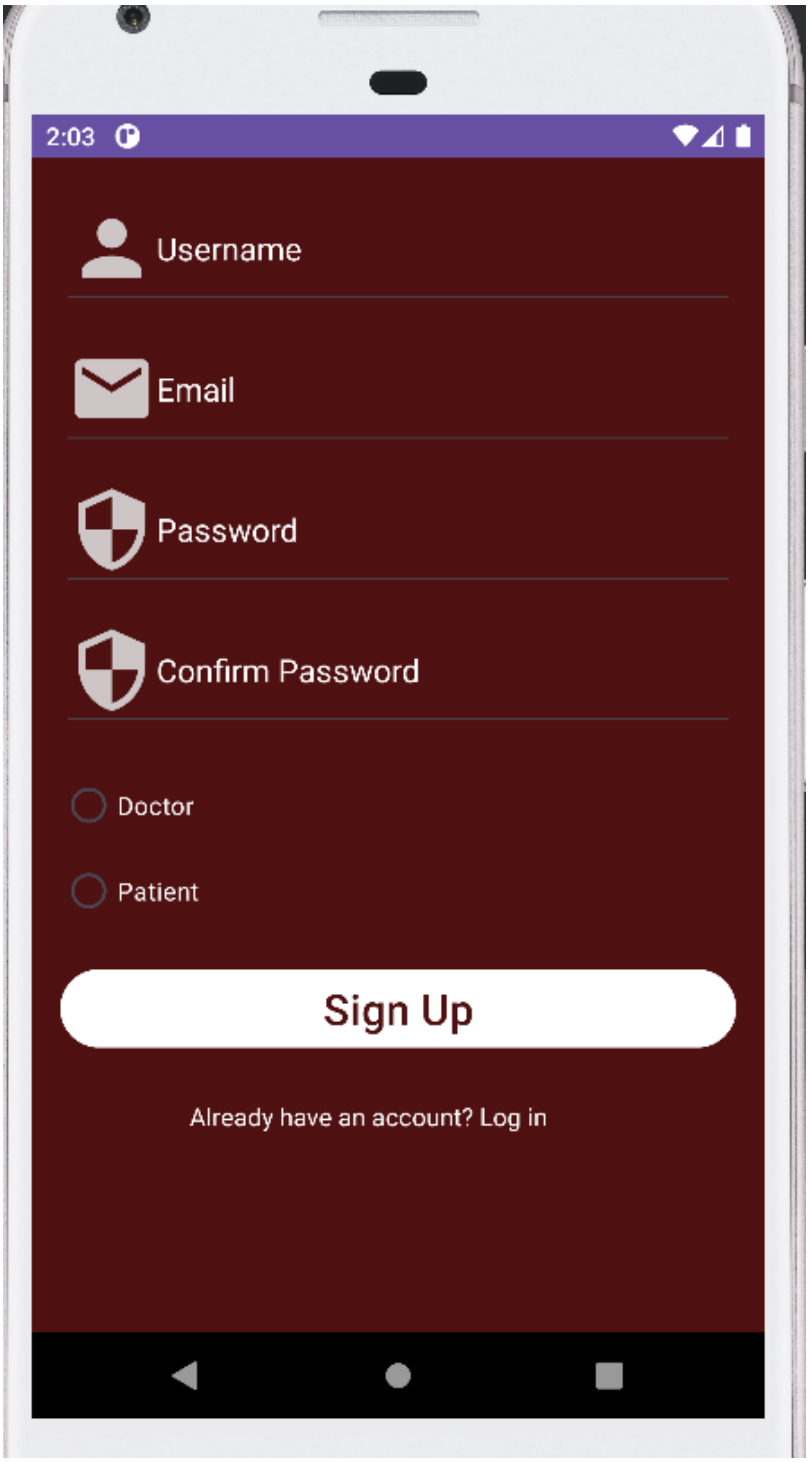
5.4 State Diagram

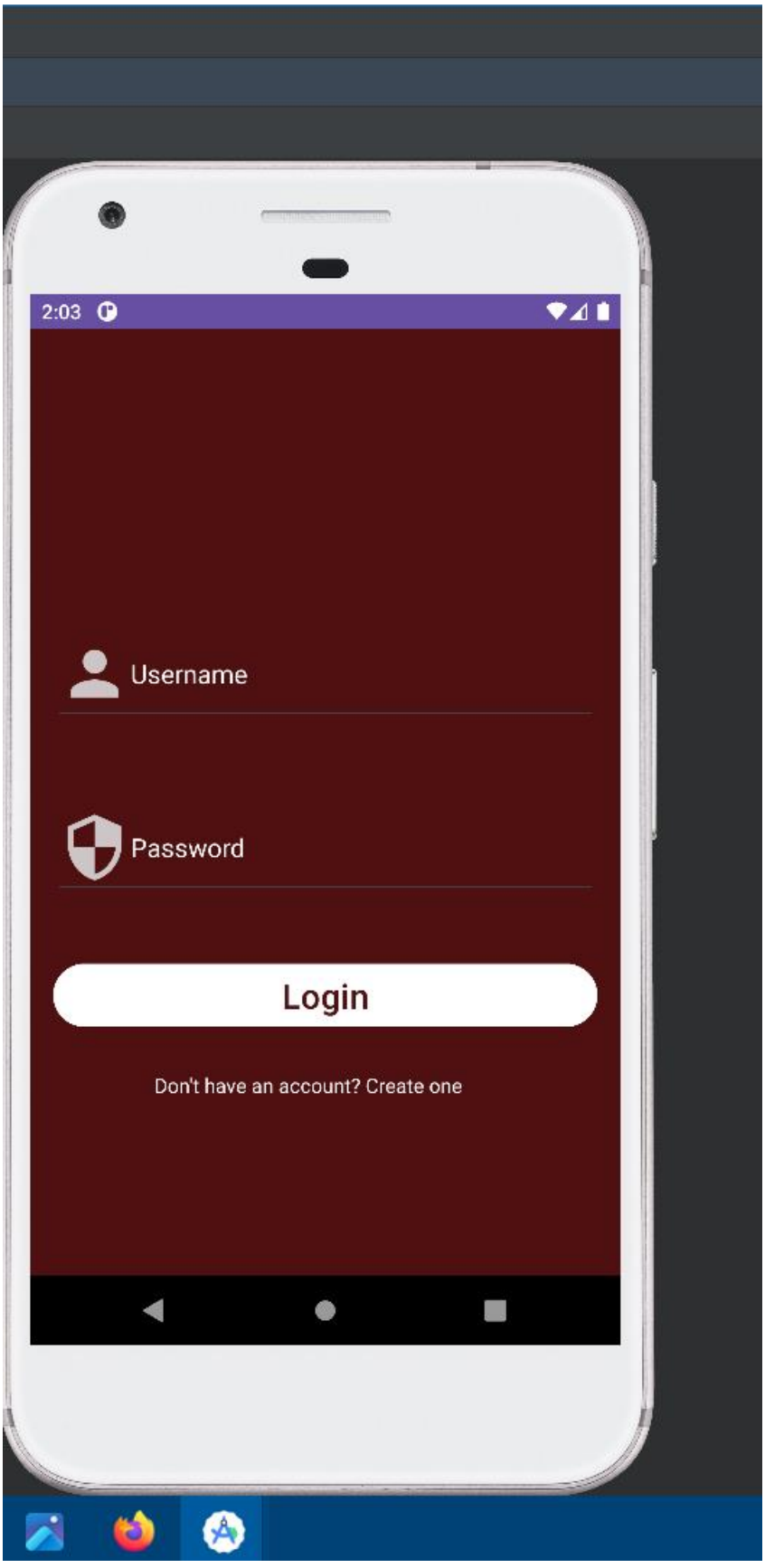


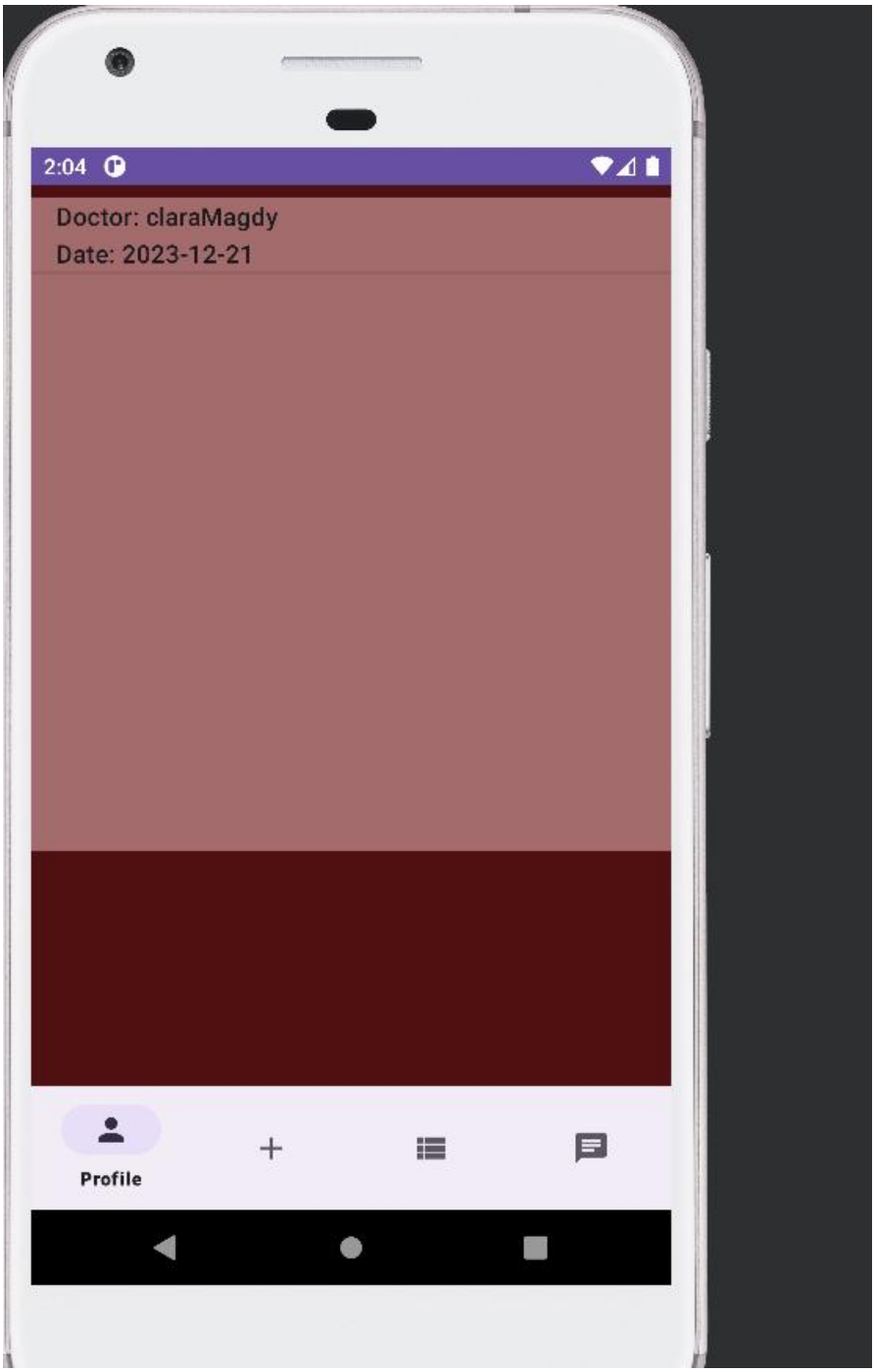
5.5 ERD Diagram

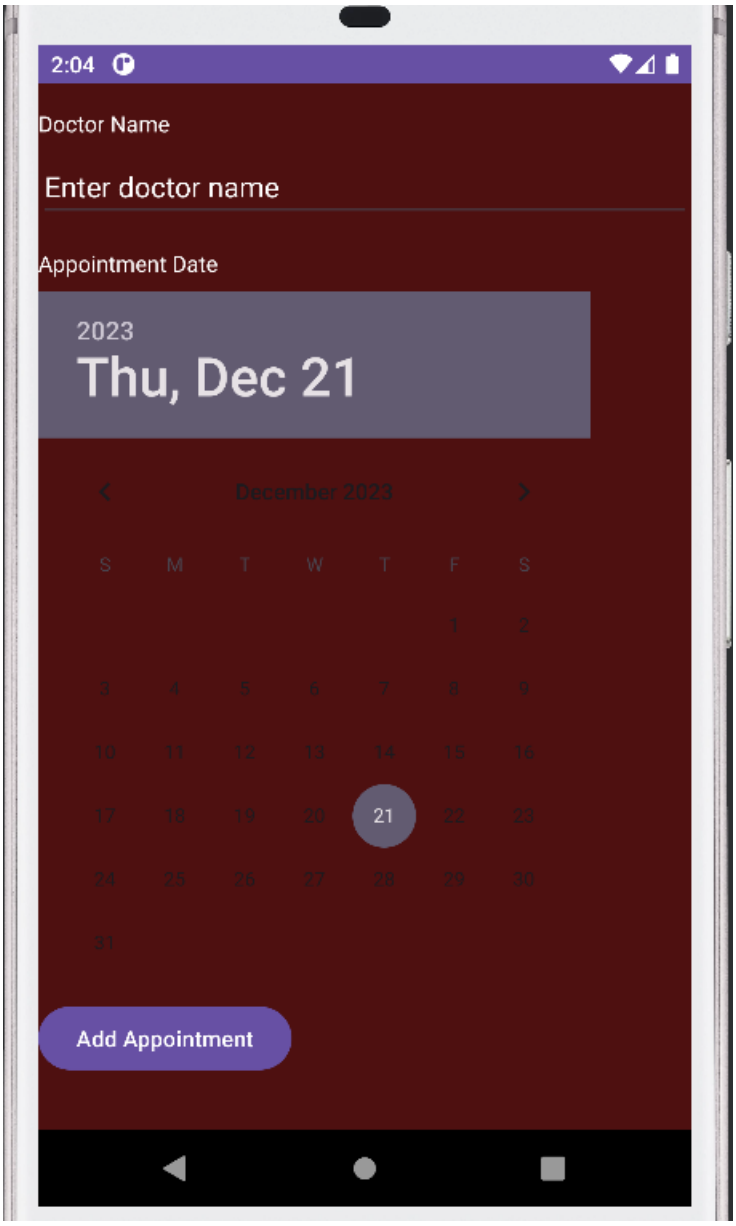

username
password
user
id
d
Patient
Doctor
manage
Date
m
AppintmentID
Appintment
1
M
M
Date
Make
1
1
1
Date
Have
MessageId
Send
M
Message
1
AppDetails
Content

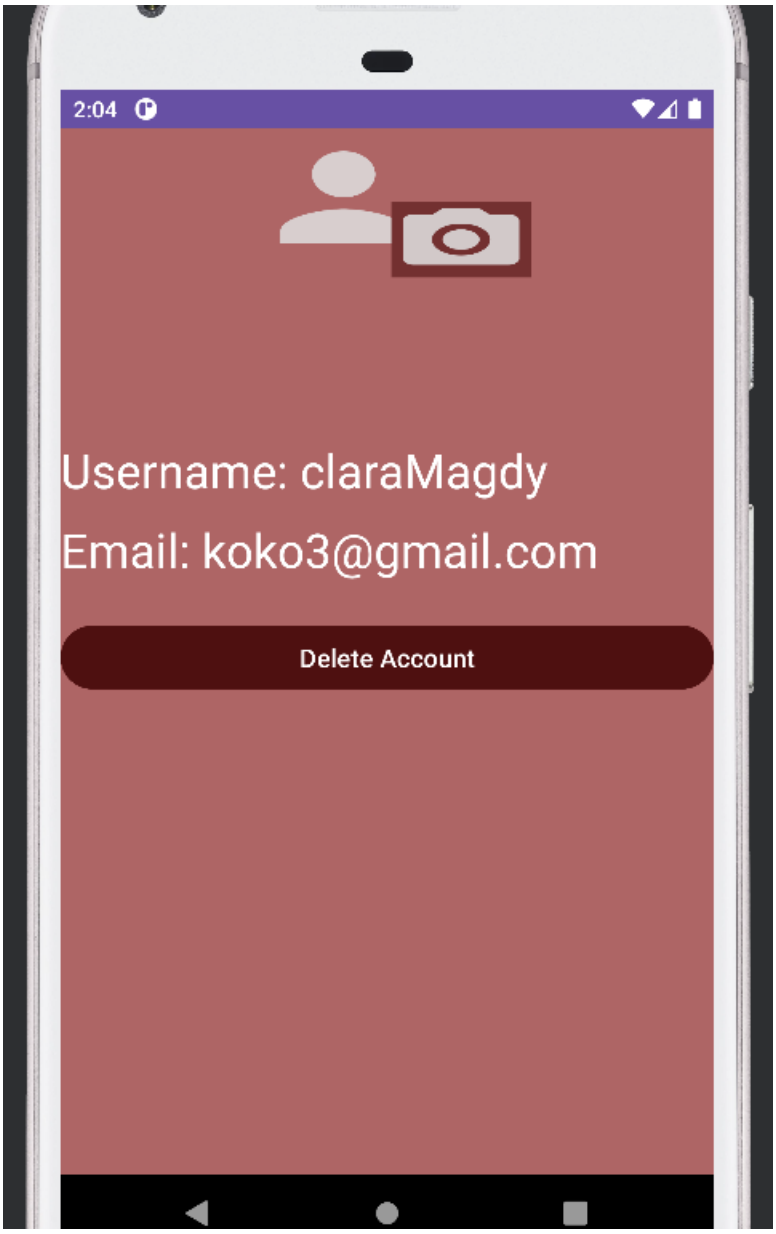
6.ScreenShots of code:

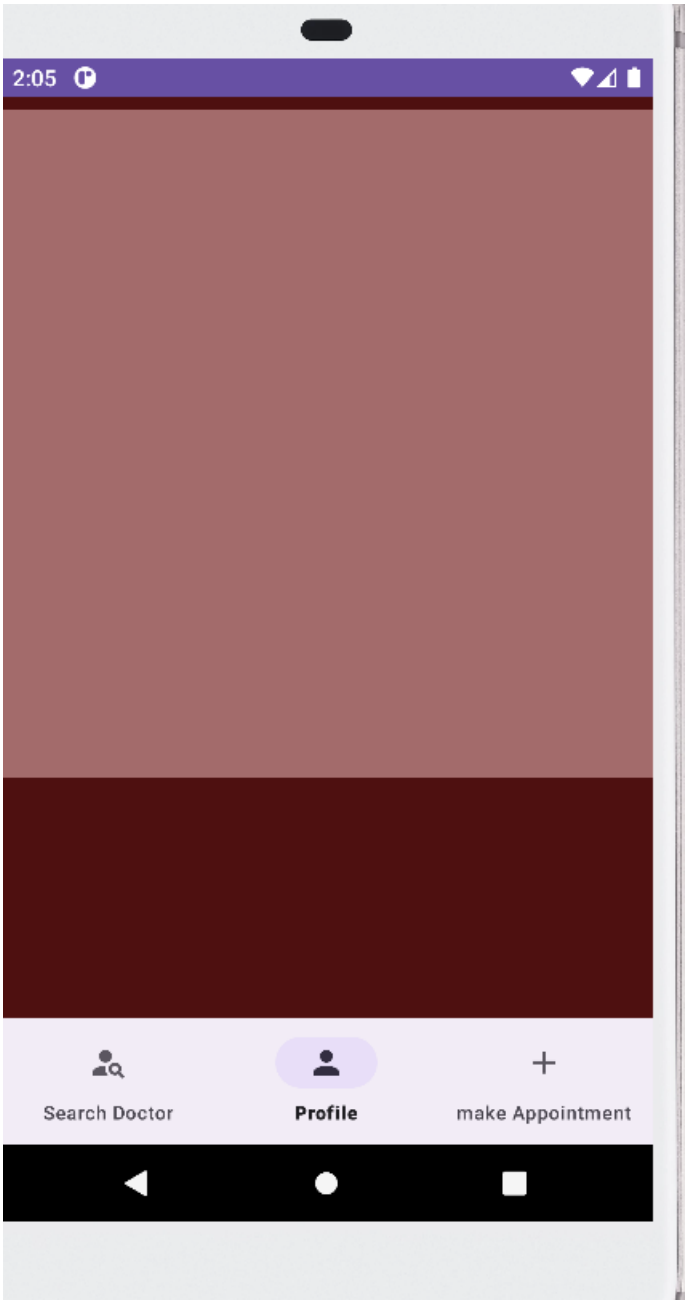

2:03
Username
Email
Password
Confirm Password
Doctor
Patient
Sign Up
Already have an account? Log in

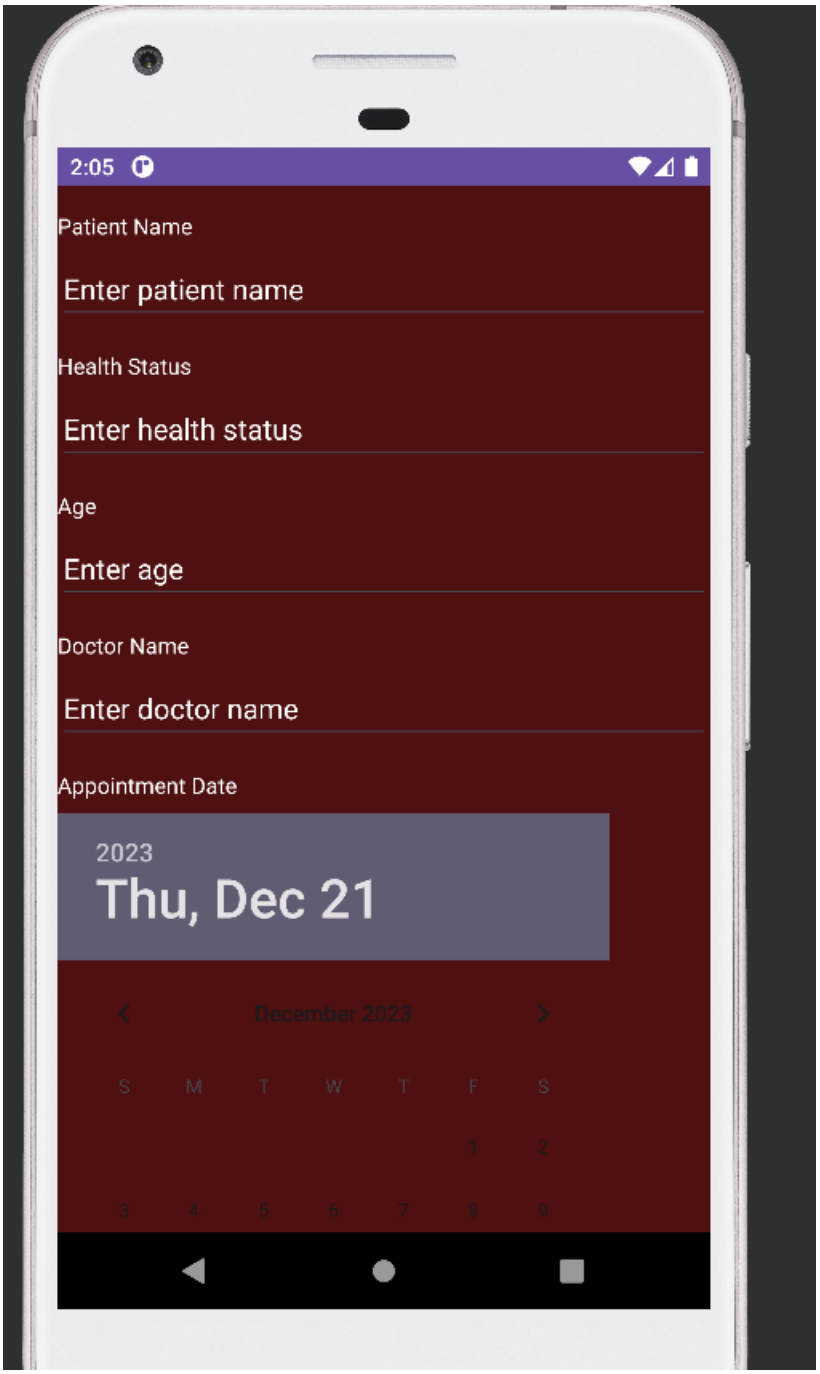

2:03
Username
Password
Login
Don't have an account? Create one


2:04
Doctor: claraMagdy
Date: 2023-12-21
Profile

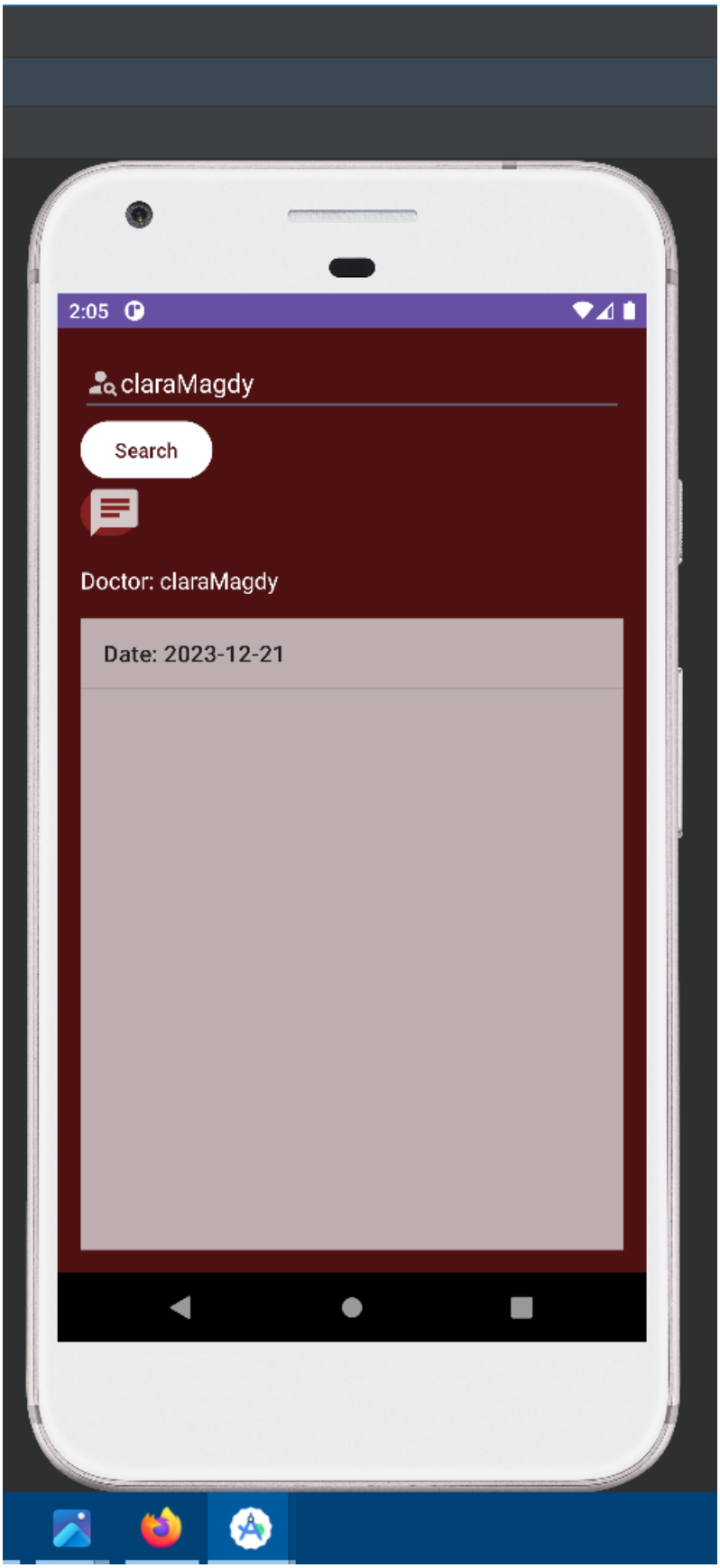

2:04
Doctor Name
Enter doctor name
Appointment Date
2023
Thu, Dec 21
December 2023
S M T W T F S
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
31
Add Appointment


2:04
Username: claraMagdy
Email: koko3@gmail.com
Delete Account


2:05
Search Doctor
Profile
make Appointment


2:05
Patient Name
Enter patient name
Health Status
Enter health status
Age
Enter age
Doctor Name
Enter doctor name
Appointment Date
2023
Thu, Dec 21
December 2023
S M T W T F S
1 2
3 4 5 6 7 8 9


2:05
claraMagdy
Search
Doctor: claraMagdy
Date: 2023-12-21
Clara a get
claraMagdy
Clara matey
?123


2:05
claraMagdy
Search
Doctor: claraMagdy
Date: 2023-12-21