

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

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Software Graduation Project



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Dedication

Dedication to our loving parents, family, friends and for everyone who believed and loved us.

Acknowledgment

First, we would like to **thank our supervisor Dr. Ashraf Armoush** a lot for his helpful, kind, patience and taking care of us, and for making everything simple. He was always inspiring and encouraging us to move.

We would also like to **thank all the teachers and teacher's assistant in the Department of Computer Engineering**, and we feel proud to be students in it, as this helps us to improve our educational level as well as improve our skills.

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Disclaimer

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Abstract

Good health system links the patient and the doctors in an effective manner so that it is a continuous follow-up of the patient's health status, and aims to facilitate communication between the doctor and the patient. The system facilitates accessing patients' information and records, which contain all information about their health statuses. These records contain all the diseases they suffer from, the medicines they took, documentation of all the health ailments they have gone through.

Chapter 1: Introduction



▪ **Statement of the problem**

Doctors usually do not remember or know all health data about patients like their diseases or medicines they took. Patients' data is stored in different forms like papers, X-Ray pictures and different types of files. It's hard to collect all this data in a paper and to access it easily, and it's hard for patient to save the health profile and describe it to another doctor. Additionally, patient usually spends so many hours to book an appointment and wait it, and this is considered as a time consuming.

▪ **Objective**

Provide a system to profile health information for patients, appointments, medicine taken and diet. The system should facilitate the communication between doctors and patients, avoid wasting time waiting during hospital visits, avoid crowding, to save patients' efforts, and to facilitate doctors' access to patient information and hospital can manage all this data and save it.

▪ **Scope of the work**

This application provides a personal account for both the doctor and the patient and admins. This application provides the patient with many services:

- Reserving and coordinating appointments with the doctor.
- A complete medical record containing all diseases, medications and examinations
- Providing nutritional diet suggestions.
- Entering daily readings for patients with chronic diseases, and following them up with the doctor.

- **Importance of the work**

Good Health contributes to the development of the health system which is one of the human development goals. Each patient will have a health profile which contain all data about his diseases. On the other hand, it organizes appointments for doctors and patients and avoids wasting time waiting during hospital visits.

- **Organization of the report**

The report is organized as follows; In chapter 2, Constraints, Standards/ Codes and Earlier course work are discussed in details. In chapter 3, the Literature Review is covered. In chapter 4, Methodology we will explain materials and methods that we have used through this project. In chapter 5, Results and Analysis we will cover the results that we got. In chapter 6, Discussion we will discuss the results and point out the features and limitations of the work.

Chapter 2: Constraints, Standards and earlier course work



- **Constraints**

We faced some obstacles during the project, like learning programming libraries and technologies from scratch which include Flutter, Node.js and MongoDB. We faced a problem in organizing the time to work together on the project during the semester.

- **Standards**

We have implemented our project according to Software Engineering principles.

- **Earlier course work**

We used what we learned in the Web Programming course to develop our mobile application and the server services. We also benefited from the Database course in designing the database. Additionally, we used the principles we studied in the Software Engineering course in the development of the project.

Chapter 3: Literature Review



Our system may not be new to the rest of the world. There are applications similar to our application in medical institutions, but these applications are usually limited to booking appointments, for example, or applications that contain a healthy diet information. However, in our application, there is the complete health profile for the patient, as well as the features of booking appointments.

Chapter 4: Methodology



In this chapter, we provide a whole description about the mobile and admin applications and their functionality in order to give a complete picture about the project and how it works.

▪ Software needs

- Database : We used MongoDB to store the data of patients, doctors, medicines, and appointment's.
- Programming languages :
 - 1- Mobile application: We used Flutter and JavaScript to build the mobile screens and communicate with the server.
 - 2- Website application:
 - a- Server side: We used Node.js to implement APIs that will handle the logic and process requests from the mobile application and admin website.
 - b- Client side: We used Flutter and JavaScript to build the admin screens and communicate with the server.

▪ Tools and services

- 1- Android Studio
- 2- Visual Studio Code
- 3- MongoDB
- 4- GitHub
- 5- Postman



▪ UML diagram

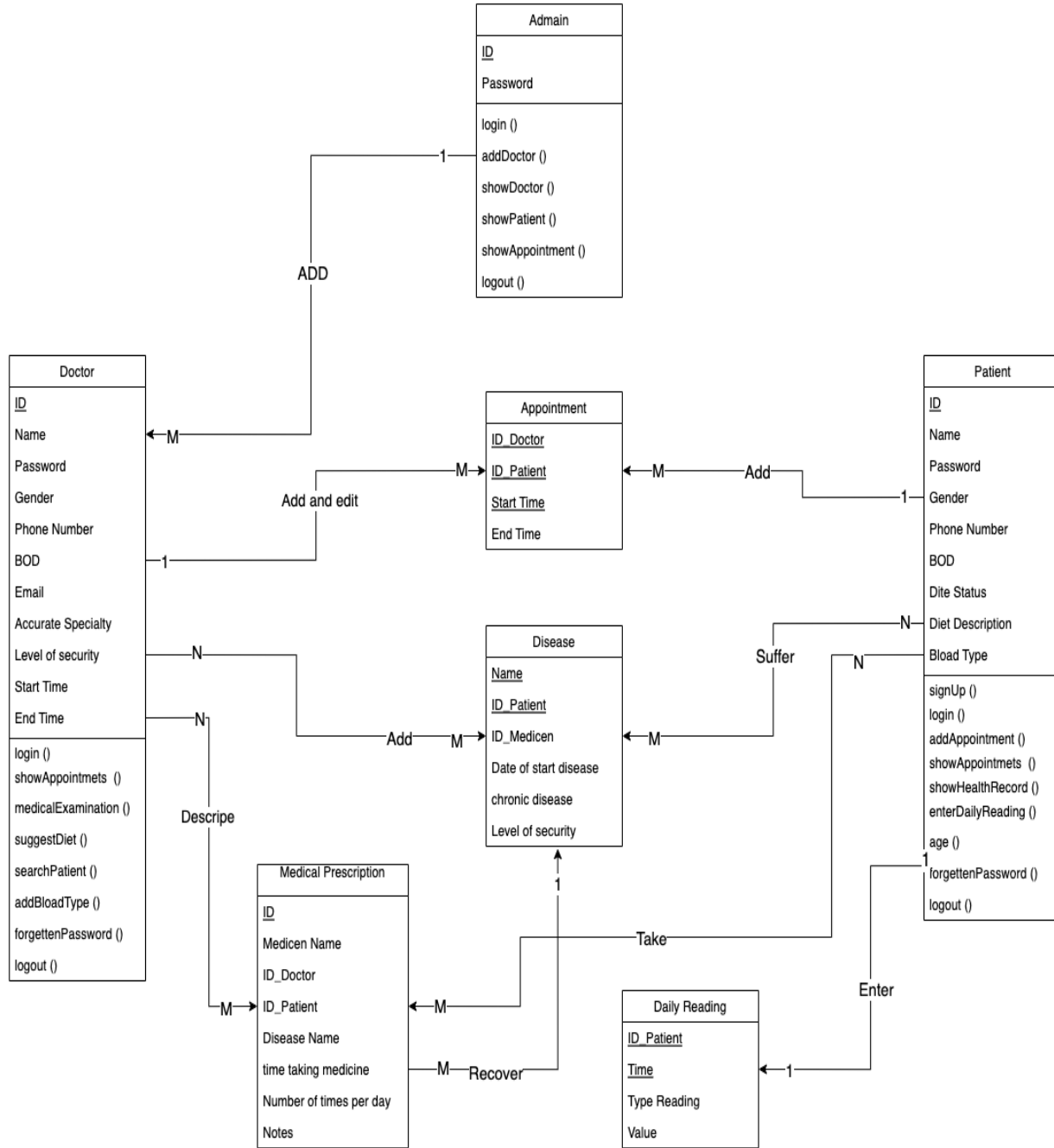


Figure 1:UML Diagram

- **Mobile application**

The mobile application has 2 types of users : doctor and patient. The mobile application has the following screens :

- **Login screen**

When the user opens the mobile application, the user can see login page as shown in Figure 2. The user can either login by ID Number and password or create a new account.



Figure 2:Login Screen

▪ Registration screen

The registration screen allows the customer to enter the needed information and create a new account as shown in Figure 3.

6:07

إنشاء حساب →

اسم المستخدم

البريد الإلكتروني

رقم الهوية

تاريخ الميلاد

كلمة السر

الهاتف

حدد الجنس:

أنثى ذكر

تسجيل

Figure 3:Registration Screen

- **Forgot password screen**

On this screen, the user enters his email and ID to change the password as shown in Figure 4

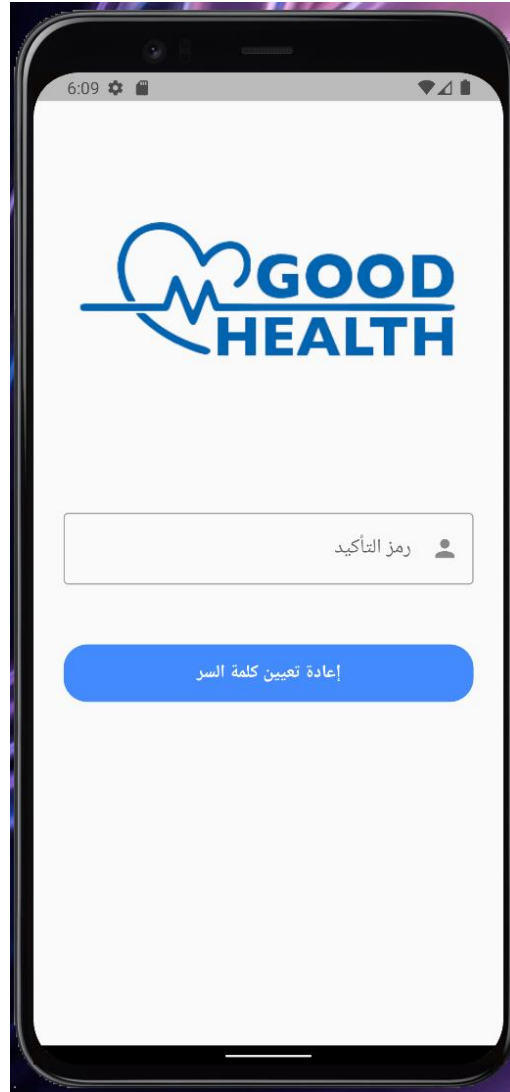


Figure 4: forgot password screen

- **Verification code screen**

On this screen, the user enters the verification code that he received via e-mail, as shown in Figure 5

Figure 5 Forgot password screen



▪ Confirm email

On this screen, the verification code that received via e-mail, where code is 6-digit random number , as shown in Figure 6

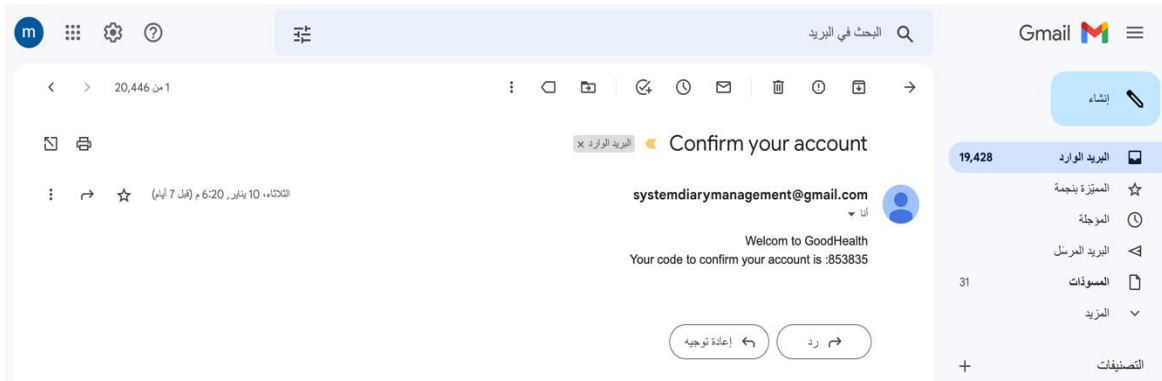


Figure 6:email

- **Change password screen**

On this screen, the user enters a new password, as shown in Figure 7



Figure 7: change password screen

▪ Patient main screen

When patient log into the application, the main screen will be displayed as shown in Figure 8. This screen allows the patient to navigate to other screens which are:

- The Health Profile screen.
- Book a new Appointment screen.
- Booked appointments screen.
- 4. Suggestions about Diet screen.
- Chronic Diseases Daily Readings screen.
- 6. Medical Consultations screen.

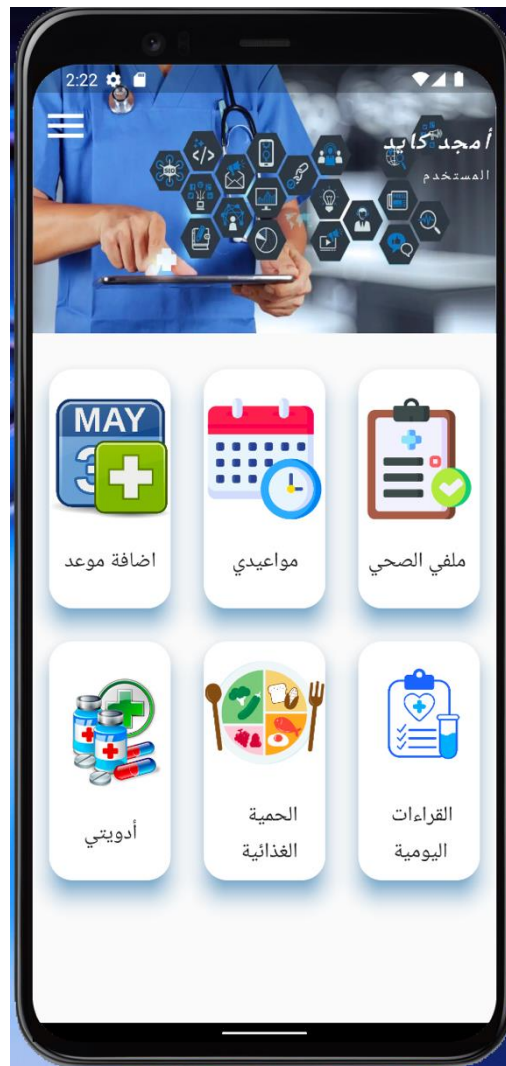


Figure 8: Main Account

- **The Health Profile Screen**

The screen, as shown in Figure 9, allows the patient to see all the diseases he had, all previous sick visits, all the medical examinations, and all the medications took in the past.



Figure 9:Health Profile Screen

▪ Sick Visit Details Screen

On this screen, as shown in Figure 10 patient can see the details of the sick visit. The screen displays the visit date, the disease, the medication, the times of the medication, the type and degree of the disease.

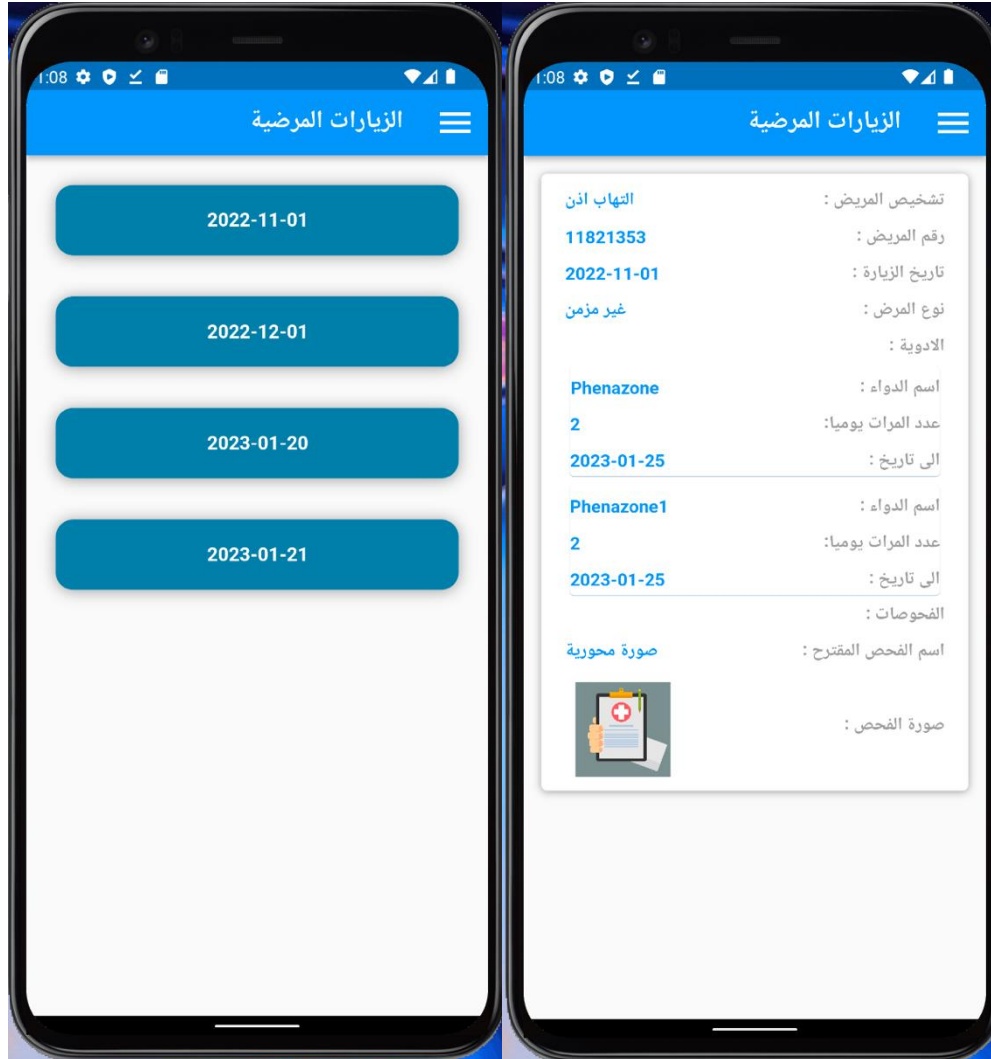


Figure 10: Sick visit Screen

- **Diseases Screen**

On this screen, patient can see two categories of diseases: chronic and non-chronic diseases. Figure 11 displays the diseases' categories.



Figure 11:Diseases Screen

- **Chronic Diseases Screen**

On this screen, the names of chronic diseases and the date in which they were diagnosed appear as shown in Figure 12.

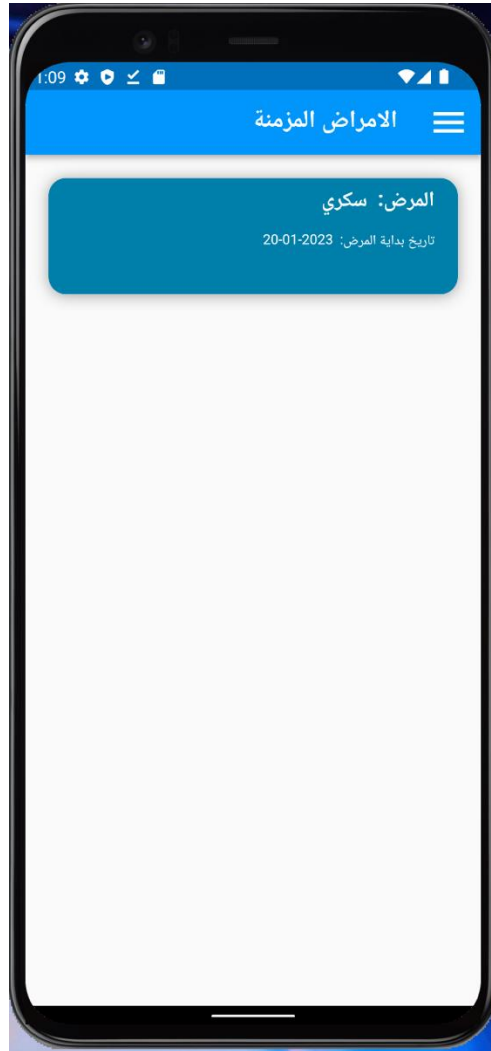


Figure 12:Chronic Diseases Screen

- **Non-Chronic Diseases Screen**

On this screen, the names of non-chronic diseases and the date in which they were diagnosed appear as shown in Figure 13.

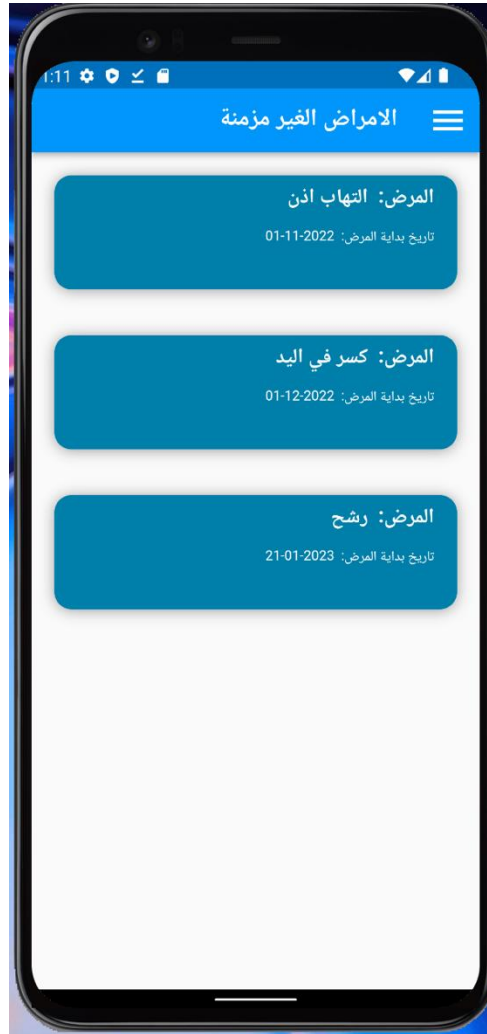


Figure 13:Non-Chronic Diseases

- **Medications screen**

On this screen, patient can see two categories of medications : permanent and non-permanent . Figure 14 displays the medications' categories.

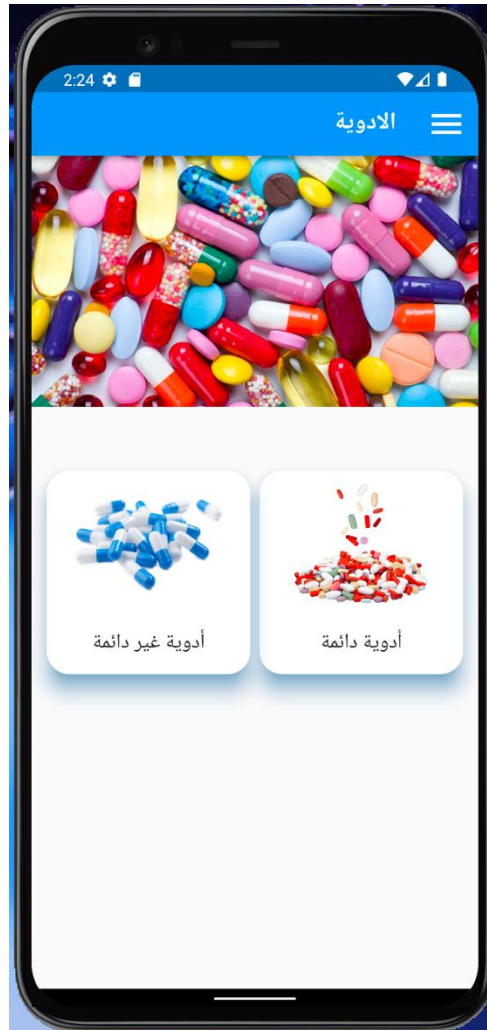


Figure 14:medications screen

- **permanent medications**

On this screen, the names of permanent medication and the time it was taken appear as shown in Figure 15.

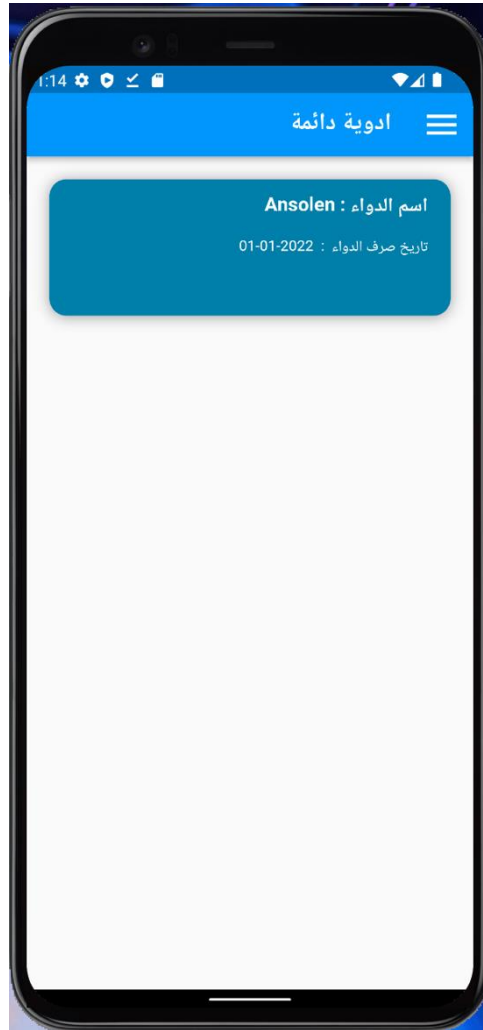


Figure 15:permanent medications

- **Non-permanent medications**

On this screen, the names of non-permanent medication and the time it was taken appear as shown in Figure 16.

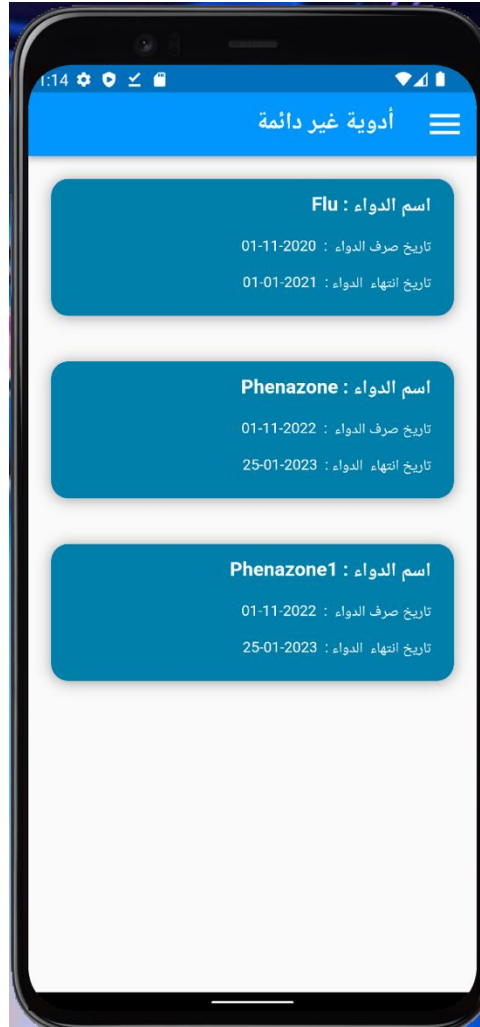


Figure 16:Non-permanent medications

- **medical examinations**

On this screen, the results of all medical examinations appear as shown in Figure 17

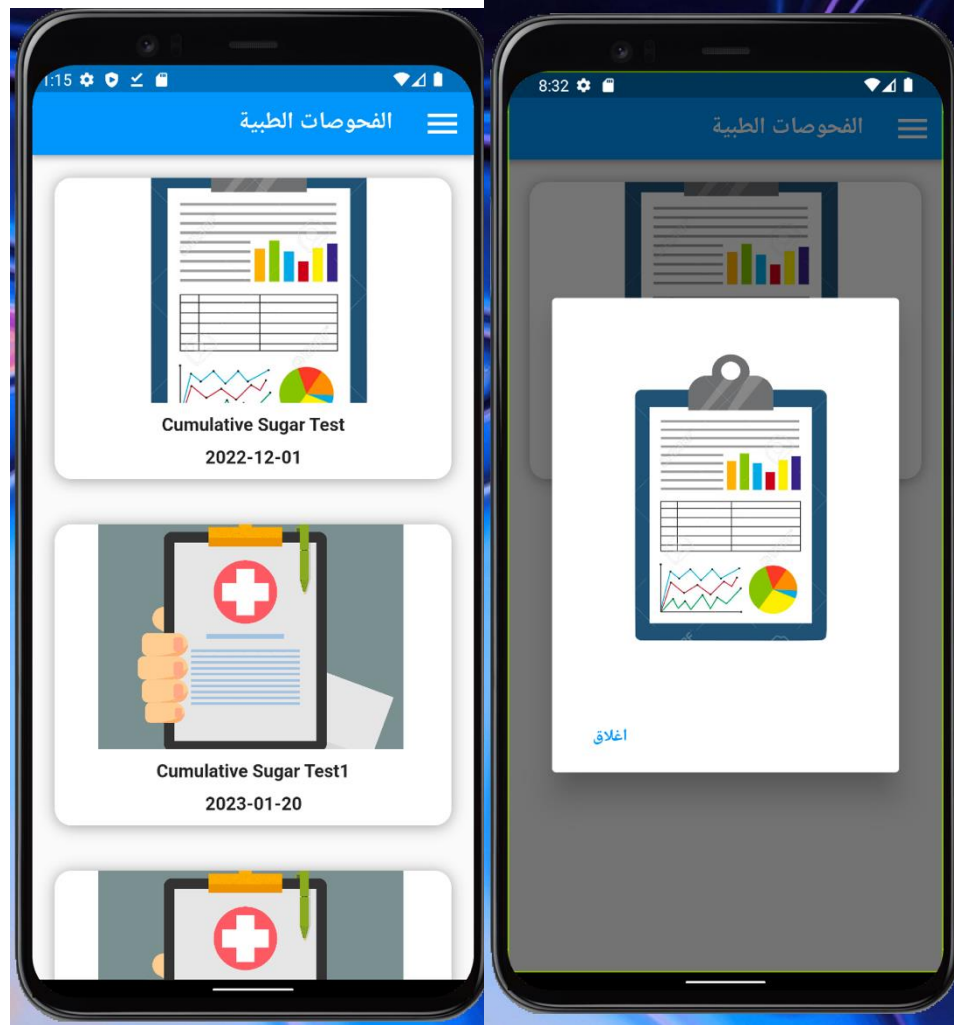


Figure 17:medical examinations

- **add an appointment screen**

This screen is to add an appointment, as all types of clinics appear

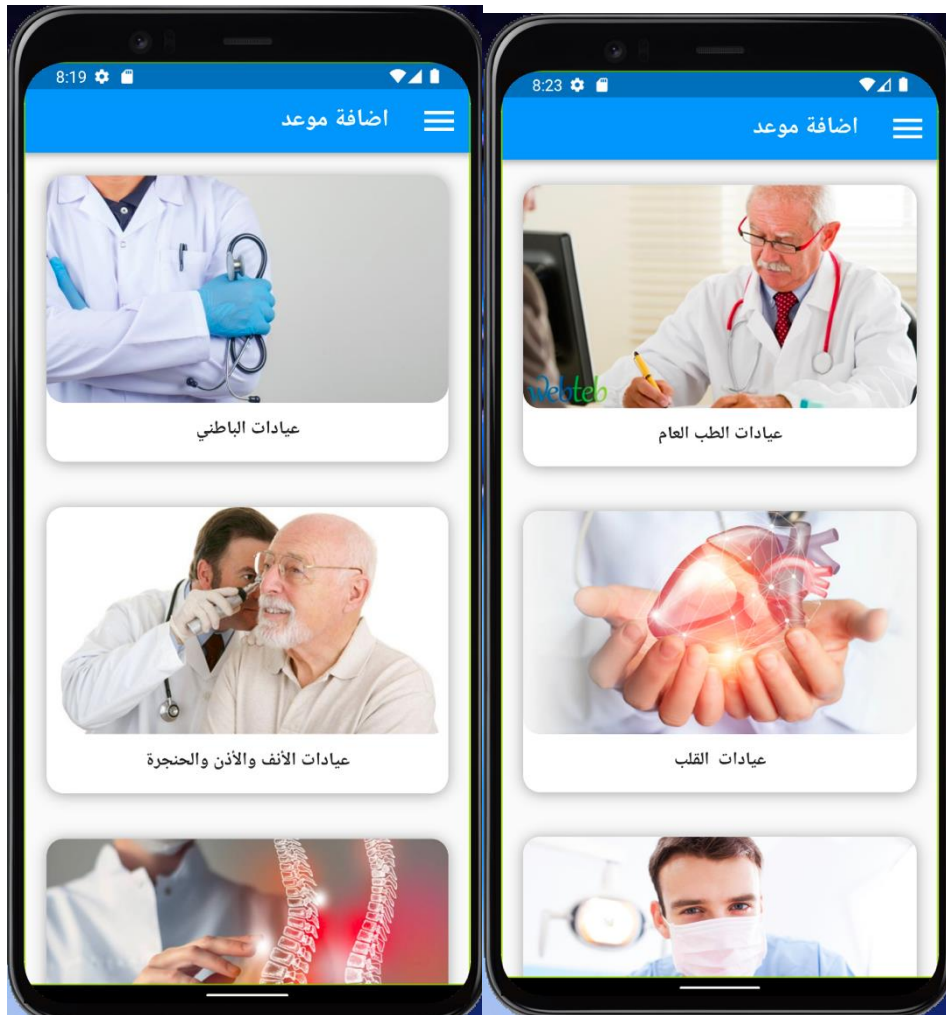


Figure 18: add an appointment screen

On this screen, the available appointments appear, as it is not possible for more than one patient to book at the same time

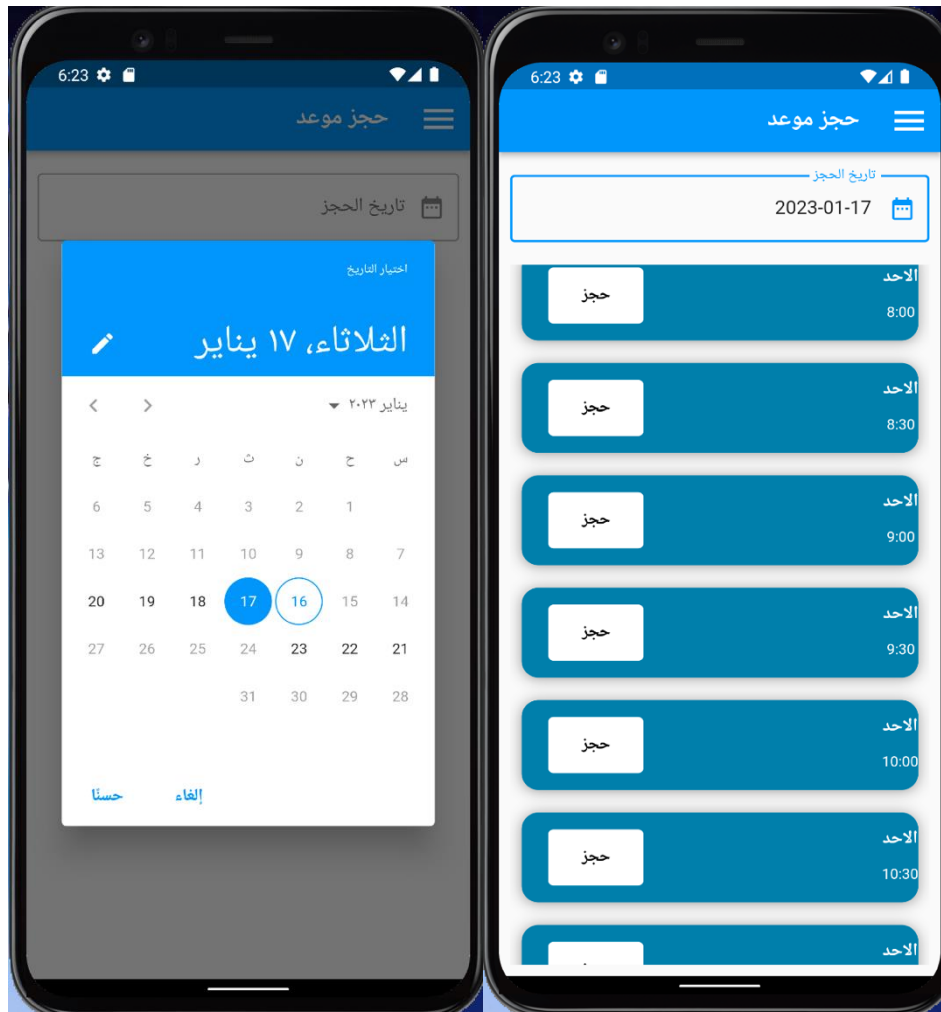


Figure 19: add an appointment screen

- **Appointments screen**

On this screen, the appointments that have been booked appear, as they are deleted after the appointment



Figure 20:my appointment screen

- **daily readings**

Here the patient can add his daily readings for chronic diseases such as diabetes and pressure



Figure 21:daily reading

- **Diet screen**

Here, different types of diet appear according to the disease that the patient suffers from



Figure 22: Diet screen

doctor application

When doctor login he will see the page that contain the functionality that the doctor can make it and they are :

1. Adding a new medical condition
2. Searching for patients and their health files
3. Viewing reservations



Figure 23: main screen

- Adding a new medical condition

The screenshot shows a mobile application interface for adding a new medical condition. The title bar at the top is blue and contains the text 'إضافة حالة مرضية' (Add Medical Condition) and a hamburger menu icon. The main content area is white and contains the following elements:

- A text input field labeled '* رقم المريض' (Patient ID).
- A text input field labeled '* تشخيص المرض' (Diagnosis) with a sub-label 'اسم المرض' (Disease Name).
- A radio button group for 'نوع المرض:' (Disease Type) with options 'مزمّن' (Chronic) selected and 'غير مزمّن' (Acute).
- A dropdown menu for 'درجة خصوصية المرض' (Degree of Privacy) with the value '1' and a downward arrow.
- Two blue buttons: '+ إضافة دواء' (Add Medicine) and '+ إضافة فحص' (Add Test).
- A large blue button at the bottom labeled 'إضافة' (Add).

Figure 24 : Adding a new medical condition

- Add medicine and medical examinations

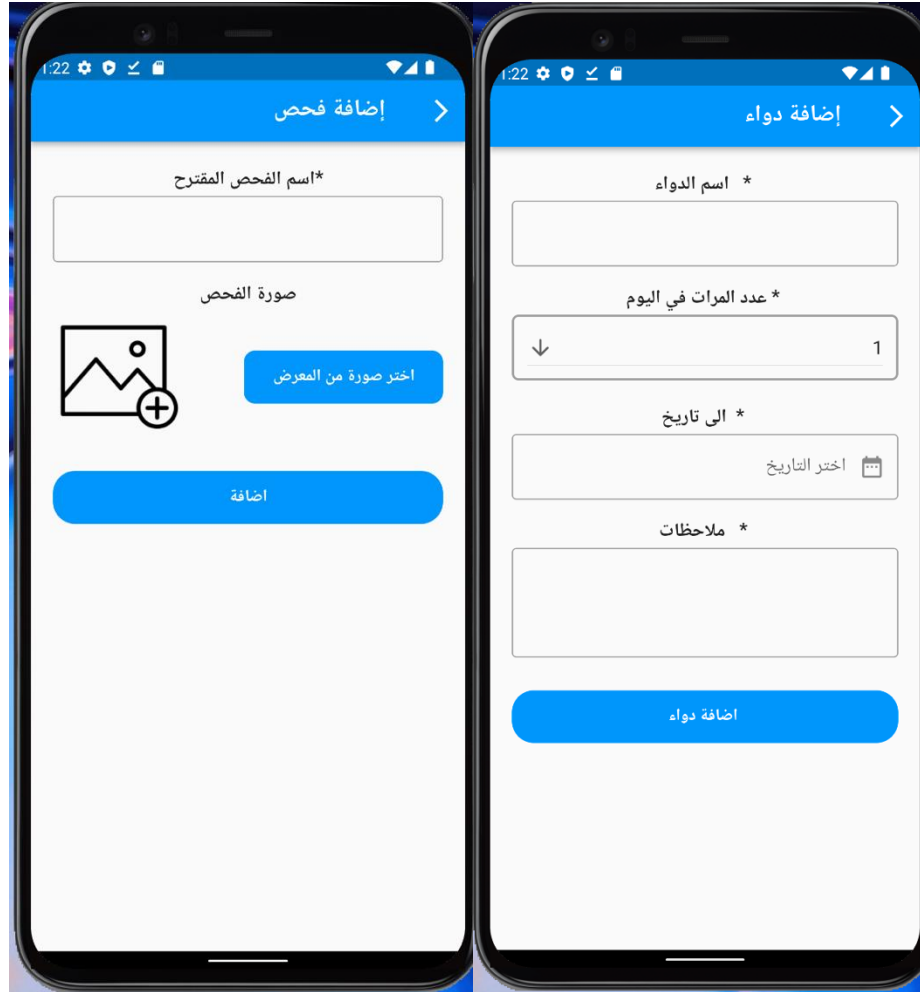


Figure 25 : Add medicine and medical examinations

- **Doctor appointments**



Figure 26 : Doctor appointments

- patients records

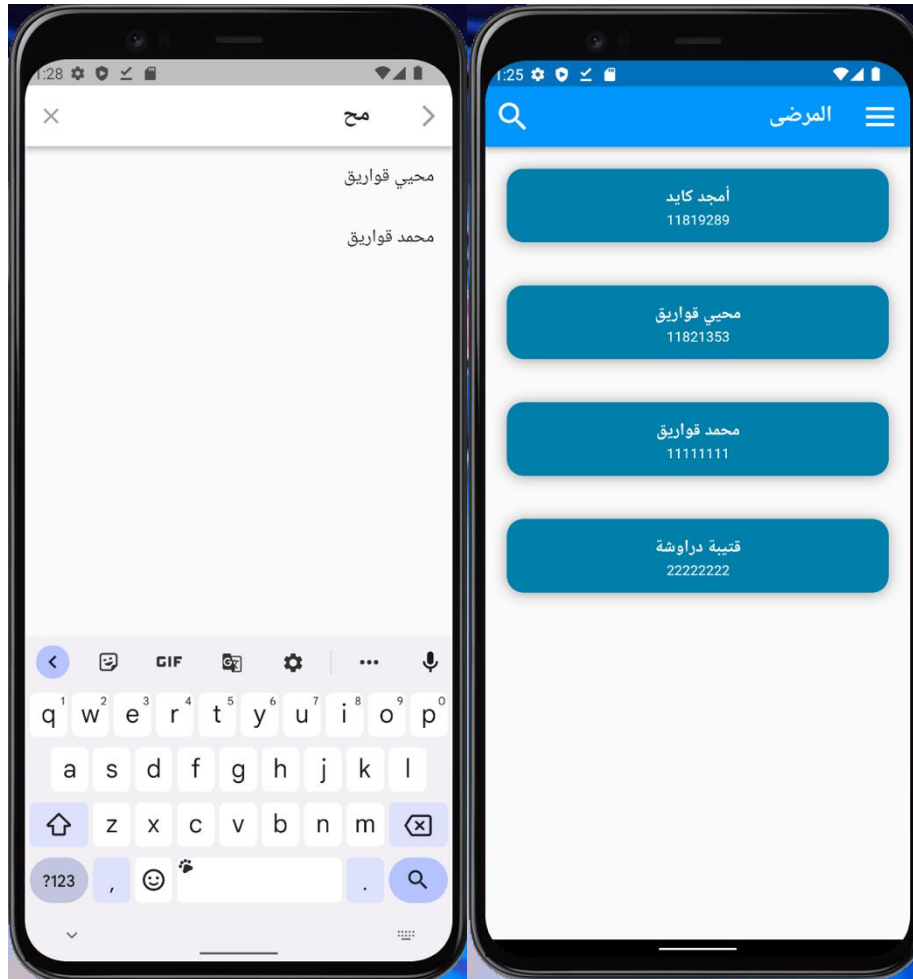


Figure 27 : patients record

▪ Doctors and patients nav bar menu

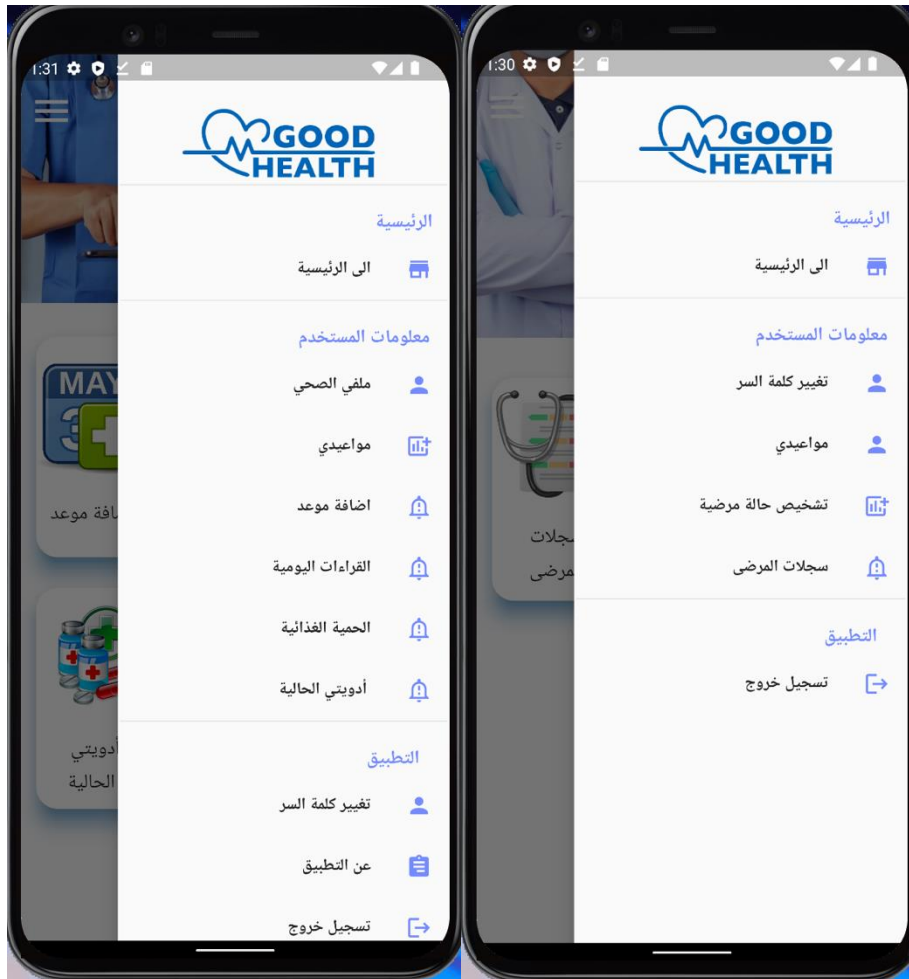


Figure 28 : Doctors and patients nav bar menu

▪ **Admin application**

Admin through the website can do the following functionalities :

1. View the information of all doctors
2. Add a new doctor's information
3. Edit the doctor's information
4. Delete a doctor
5. View the information of all patients
6. Add a new patient's information
7. Edit the patient's information
8. Delete a patient
9. See all details of booked appointments

- **View the information of all doctors**

Good Health Admins Doctors Patients Appointments

Doctors

[Add a new doctor](#)

doctor ID	doctor name	email	Edit	Delete
2222	رشا سالم	moheedeab16@gmail.com	Edit	Delete
1111	مؤمن عودا	moheedeab16@gmail.com	Edit	Delete
4444	عبد رامي	moheedeab16@gmail.com	Edit	Delete
5555	رنا منجي	moheedeab16@gmail.com	Edit	Delete
6666	محمد حلتوا	moheedeab16@gmail.com	Edit	Delete
7777	عبيدة احمد	moheedeab16@gmail.com	Edit	Delete
8888	ناصر ميسر	moheedeab16@gmail.com	Edit	Delete
9999	مهيوب درارشة	moheedeab16@gmail.com	Edit	Delete
1211	علاء ناصر	moheedeab16@gmail.com	Edit	Delete
7877	روى عبد الله	moheedeab16@gmail.com	Edit	Delete
1010	احمد عيسى	moheedeab16@gmail.com	Edit	Delete
1011	احمد الخلف	moheedeab116@gmail.com	Edit	Delete
8888	رامي تيسير	moheedeab1126@gmail.com	Edit	Delete
1221	احمد عبد الكريم	moheedeab26@gmail.com	Edit	Delete
2122	احمد تيسير	moheedeab116@gmail.com	Edit	Delete
3131	عبد الرحيم ناصر	moheedeab116@gmail.com	Edit	Delete
8000	سليم ناصر	moheedeab816@gmail.com	Edit	Delete
8001	رهد محمد	moheedeab826@gmail.com	Edit	Delete
7001	مؤيد عبدالله	moheedeab106@gmail.com	Edit	Delete
7011	دالا ناصر	moheedeab106@gmail.com	Edit	Delete

Activate Windows
Go to Settings to activate Windows.

Figure 29 : View the information of all doctors

- **Add a new doctor's information**

Good Health Admins Doctors Patients Appointments

Add a new Doctor

[Back to all doctors](#)

Doctor ID
doctor_id

department
department

Name
Name

Email
email

Password
password

Gender
gender

phone Number
phoneNumber

BOD
BOD

accurate Specialty
accurateSpecialty

level Of Security
levelOfSecurity

Activate Windows
Go to Settings to activate Windows.

Figure 30 : Add a new doctor's information

▪ Edit the doctor's information

Good Health Admins Doctors Patients Appointments

Edit A Doctor

[Back to all doctors](#)

Doctor ID
2222

department
2

Name
رشا سالم

Email
moheedeab16@gmail.com

Password
.....

Gender
female*

phone Number
059996756

BOD
5-5-1978

accurate Speciality
المصافي اطفال و زنان و حنجرة

levle Of Security
2

Activate Windows
Go to Settings to activate Windows.

Figure 31 : Edit the doctor's information

- **View the information of all patients**

The screenshot shows a web application interface for managing patients. At the top, there is a dark navigation bar with the following menu items: Good Health, Admins, Doctors, Patients, and Appointments. Below the navigation bar, the page title is "Patints". There is a blue button labeled "Add a new patient". Below the button is a table with three columns: "patient name", "Edit", and "Delete". The table contains four rows of patient information:

patient name	Edit	Delete
أحمد كافي	Edit	Delete
محمّد الفاروق	Edit	Delete
محمد الفاروق	Edit	Delete
فاطمة الزاوية	Edit	Delete

At the bottom of the page, there is a copyright notice: © Good Health.

Figure 32 : View the information of all patients

▪ Add a new patient's information

The screenshot displays a web application interface for adding a new patient. At the top, a dark navigation bar contains the following menu items: Good Health, Admins, Doctors, Patients, and Appointments. Below the navigation bar, the page title is "Add a new Patient". A blue button labeled "Back to all patients" is positioned above the form fields. The form consists of several input fields, each with a label and a placeholder text:

- Patient ID**: Input field with placeholder "patient_id".
- Name**: Input field with placeholder "Name".
- Email**: Input field with placeholder "email".
- Password**: Input field with placeholder "password".
- Gender**: Input field with placeholder "gender".
- phone Number**: Input field with placeholder "phoneNumber".
- BOD**: Input field with placeholder "BOD".

At the bottom of the form is a "Submit" button. The footer of the page includes the copyright notice "© Good Health" and a Windows watermark that reads "Activate Windows Go to Settings to activate Windows."

Figure 33 :Add a new patient's information

- **Edit the patient's information**

Good Health Admins Doctors Patients Appointments

Edit A Patient

[Back to all patients](#)

Patient ID
11819289

Name
امجد کایہ

Email
amjadkayed68@gmail.com

Password
.....

Gender
male

phone Number
0598

BOD
2000-05-12

© Good Health

Figure 34 : Edit the patient's information

- **See all details of booked appointments**

Doctor ID	Patient ID	Date	Time
1211	11821353	2023-01-26	8:30
1221	11821353	2023-01-24	8:15

© Good Health

Figure 35 :See all details of booked appointments

Chapter 5: Discussion



Good Health system helps doctors from suffering with manual reports, and provide medical reports whenever and wherever the doctor need them, in addition to easy search for patient's reports. Allow doctors to spend less time thinking about managing their clinics and appointments.

In addition, it aims to help doctors write their patient's reports and see their medical history.

For patients we make the act of booking appointments easier and fast with less time spent in the clinic.

We also provided advantages for the patient to examine chronic diseases if he is in danger or in a healthy condition.

Finally, we succeeded in building the project in a perfect way without problems related to work or performance or security, and develop our ability of self-learning

Chapter 6: Conclusions and Recommendation



We learned a lot skills in this project, we learned new programing skills ,we learned the programming of mobile that we expected to be difficult because we did not deal with it before, also we learned how to work as a team and be complementary to each other .

References

- <https://docs.flutter.dev/>
- <https://nodejs.org/>
- Udmy courses
- stackoverflow