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إهداء Dedication

الى الذي اسمه أسند اسمي إلى الشجاع المقاوم الطيب الذي شق لي درب الحياة الشائك بعرق جبينه وجهوده اهدي إلى شخصك الذي وقفت كلماتي أمامه عاجزة نجاحي وتخرجي .

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الدكتور وسام الخطيب

الدكتور فادي ابراهيم

المهندس شادي بليدي

المهندسة ثراء أصلان

Abstract

The importance of the research lies in finding a computerized system that helps provide health services efficiently instead of the traditional manual systems used by some hospitals, which do not keep pace with the era of the development of information and communication technology in developing performance and achieving the goals of the institution in serving patients.

The health information system is by definition a group of computer systems, which are used to provide medical information for patients and auditors in particular, and for the hospital in general, thanks to a set of functions that enable investors to enter information, maintain and review it, and issue statistics and reports that help in making medical, therapeutic and administrative decisions.

We noticed the work of the traditional paper medical records system and learned that there are many operations that they have to perform manually, as it takes a lot of time and causes many errors.

As a result of this sometimes a lot of problems occur and they face many conflicts with patients.

To solve the above-mentioned problem, continue to keep patient records, avoid errors, help doctors make the decision to treat a patient, recommend certain tests, or reach an accurate diagnosis of his condition, and other things, we present this proposal for a medical information management system.

By using this site, we can keep all of our medical information and avoid medical errors.

الملخص

تكمن أهمية البحث في إيجاد نظام محوسب يساعد في تقديم الخدمات الصحية بشكل كفاء بدلا من الأنظمة التقليدية اليدوية التي تستخدمها بعض المستشفيات والتي لا تواكب عصر تطور تقانة المعلومات والاتصالات في تطوير الأداء وتحقيق أهداف المؤسسة في خدمة المرضى .

نظام المعلومات الصحي هو مجموعة من الأنظمة الحاسوبية، التي تستخدم لتوفير المعلومات الطبية الخاصة بالمرضى والمراجعين بشكل خاص، وبالمشفى بوجه عام، بفضل مجموعة من الوظائف تمكّن المستثمرين من إدخال المعلومات وصيانتها واستعراضها، وإصدار إحصاءات وتقارير تساعد على اتخاذ القرارات الطبية العلاجية والإدارية .

لاحظنا عمل نظام السجلات الطبية الورقية التقليدية و علمنا أن هناك العديد من العمليات التي يتعين عليهم القيام بها يدويا فهي تستغرق الكثير من الوقت وتتسبب العديد من الأخطاء .

نتيجة لهذا في بعض الأحيان تحدث الكثير من المشاكل وكانوا يواجهون العديد من النزاعات مع المرضى .

لحل المشكلة المذكورة أعلاه ومواصلة الاحتفاظ بسجلات المرضى وتجنب الأخطاء ومساعدة الأطباء على إتخاذ القرار الخاص بعلاج مريض أو التوصية بإجراء فحوص معينة أو التوصل إلى تشخيص دقيق لحالته وأشياء أخرى نقدم هذا الإقتراح الخاص بنظام إدارة المعلومات الطبية . باستخدام هذا الموقع يمكننا الاحتفاظ بكافة معلوماتنا الطبية وتقادي حصول الأخطاء الطبية.

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List of abbreviations- لائحة الاختصارات

المختصر	الشرح
Tele-consultati :	Telemedicine consultation service.
Télé-surveillance:	medical observation at a certain distance
Télé- urgence:	is the medical response within the emergency regulation.
MDR	Medical Records Department

Chapter One

**Introduction and Definition of
the Project**

Chapter One- Introduction and Definition of the Project

1 Introduction and Definition of the Project

1.1 Bringing The Problem:[1]

The world is witnessing a great development in information and communication technology, and informatics has become an integral part of our daily lives, and programming in all fields has taken a wide echo, and the issue of health has received great attention in the field of scientific research, and the need to use new technologies in the management of medical information has arisen, as health facilities deal with a large amount of information related to medical information, which includes doctors and patients, knowing that the use of papers leads to a decrease in effectiveness. and create a shortage of data and information

1.2 Project Concept :

The goal of the project is to ensure access to important medical information for patients at the exact time and place needed to make medical decisions. It also focuses on medical data management for research and education and also contributes significantly to cost reduction in the medical business as it has a way to reduce medical errors that cost.

1.3 Aim of the Project: [3]

The project aims to help the doctor manage issues related to patient information by displaying it on one page and the possibility of adding a new preview. The project also enables us to deal with the patient by displaying his health record on one page. Through a paperless system that enhances the process of data extraction smoothly to make the health data of each patient easily available away from paper data, so that obtaining patient data in a smooth way and knowing his medical history and treatment methods obtained

The site includes complete hospital requirements and an integrated system for managing patient records and reducing the burden on doctors in preserving and storing health information and managing patients' appointments.

every service available to the patient is met by a service provided by the doctor

The patient has a long register for fill in personal and medical information, and the doctor also has a clinic information , and so on

The patient requests a general or private consultation, fills it, and sets an appointment, and in particular, he chooses a specific doctor

The doctor visits the consultations and can see the medical and personal records and the consultation, and he can add a clinical examination and messages and change the status of the consultation, either he ends it with a note or ends it with the addition of medication

And the patient can pay electronically and see a record of his temperature and heartbeat and see posts

The doctor can add posts and book an appointment for people who are connected, not through the website, which means that in order to stop the patient, he can book an appointment.

1.4 Documentation Description:

This document provides a detailed overview of the stages of project completion, as well as: studying the project, defining the objectives of the project and the method of its development. The project was studied theoretically and then tried to project it onto the practical side of the project ..

1.4.1 Project Study:

Define the objectives of the project and the way to develop it

1.4.2 Theoretical study of the project:

The project was studied in theory and then tried to project it onto the practical side of the project.

1.5 Analytical and Design Study of the Project:

Include a detailed description of project components and how these components are analyzed, designed, investigated, and tested

1.6 Conclusion and Recommendations :

This chapter presents the lessons learned from the project and the development team's suggestions for modification and development.

Chapter Two

Project topic and reference study

2 Chapter two - Project topic and reference study

2.1 Introduction:

Introduction: In this chapter, we will study the topic of the project and the reference study for this health project

2.2 the basic Concepts:

E-health is a concept that refers to the health sector's exploitation of communication and information technology within the digital world with many applications.

One of its most prominent applications is the unified electronic medical record service, which contains medical information and data for each patient, and allows the transfer of this information electronically and in real time through data networks between different medical facilities. The concept also includes the dissemination and exchange of medical information between field specialists, the conduct of surgeries and telehealth, and this is what we call telemedicine or telemedicine, as well as radiological and digital imaging techniques. This is for purposes that may be clinical, administrative, or even educational if it comes to spreading health awareness.

can be defined as the use of information and communication technology for health.

Digital health includes e-health, m-health, and telemedicine, in the widespread use of information and communication technologies in all aspects of health care, including diagnosis, treatment, prevention, and disease management¹²

These websites help provide accurate and useful health information to individuals, and also help improve the quality of health care, facilitate communication between patients and doctors, and make it easier for patients to book their appointments with doctors, and make it easier for patients to buy medicines through various applications.

2.2.1 Unified electronic medical file

There will be a unified electronic medical file for every citizen and resident, so that the patient's medical record is linked, and any medical entity can take a copy of the medical file to follow up on the patient's record and the treatments provided in other medical entities.

2.2.2 Electronic medicine

Electronic medicine, or what is known as telemedicine, is a form of medical practice that relies on the use of advanced communication technologies to exchange health information and provide health care, regardless of time, geographical, or even cultural and social barriers. In terms of transmission, telemedicine is divided into two types: Simultaneous transmission: Where the communication and interaction takes place in real time between the doctor on the one hand and his patient on the other.

Asynchronous transmission: where the patient transmits, delivers, or provides medical material by video, computer, or other means and receives or obtains a response from the physician at a later time.

2.3 Reference study:

The electronic record is a paperless system that promotes smooth data extraction so that each patient's health data is readily available to healthcare providers away from paper data that contains handwritten notes. The goal is to obtain patient data in a smooth manner and know their medical history and treatment methods obtained.

This type of application helps in communicating with health care providers simply and more flexibly accessing patient records, allowing them to provide safe and accurate care with full access to the patient's file and thus receive high-quality care, which he will notice through rapid communication and coordination between him and the health care team regarding his health condition and treatment .

But some confuse the electronic medical record system with the electronic health record system. The electronic medical record is an electronic system that saves all personal and medical information related to the patient, including his medical and medical history, laboratory tests and reports, radiology results and reports, and drug prescriptions..[3] The medical record is a tool for planning, implementing and following up the medical care program of the doctor and the medical team. The importance of the medical record lies in education, training and research, as medical records are an important source of information and documented data, and they include medical facts of great benefit.

2.3.1 Legal protection:

The documented and complete medical record protects the hospital and the doctor from any complaint that may be filed without justification or argument, and thus protects the patient from any failure or negligence in the care provided to him.

2.3.2 medical record in planning:

and administrative control, as medical records are the main source of reports and statistics submitted to the hospital management, which show the volume and type of medical services provided to patients.

2.3.3 communication and coordination:

medical record provides a means of communication and coordination between the doctor supervising the patient's treatment and the rest of the medical team members.

2.3.4 calendar and medical review:

The medical record is the official document approved by the hospital when reviewing all medical, [2]nursing and technical procedures and services provided to the patient to ensure their suitability in terms of quality and quantity.

2.3.5 The role of the medical record in accrediting the hospital:

accreditation or what is called accreditation, which is the recognition by a specialized body that the hospital has met all the conditions, standards, specifications and requirements set by the medical body emanating from it.

2.4 Importance of Services:

1. Facilitate quality care: Allowing the medical care provider to understand the patient's condition and the foundations of current investigations or treatments also provide an effective way to communicate with other members of the medical team .
2. Fulfillment of legal and ethical obligations: medical regulatory authority (college), hospital and legislative requirements for clear and legible records .
3. Serve as evidence for documentation: If the doctor's care provided later is questioned, events will appear as they took place. Medical consultations in special cases.

4. The emergence of an uncommon or rare disease such as Ebola. Conflicting opinions and ideas about a particular disease. Diseases with experimental treatment.
5. E-medicine has innumerable benefits, the most important of which are the following:
 6. Multiple callouts may further improve health care.
 7. Reducing the costs of transporting the patient to remote specialized places.
 8. Communication between the patient and the doctor to provide the greatest comfort to the patient Reducing the patient's hassles of traveling to large cities and moving to long distances, which is detrimental to his health.
 9. The possibility of developing health care principles faster, thus enhancing medical cooperation and sharing information and specialized expertise. Among the most prominent services provided by telemedicine:
 - Tele-consultati: Telemedicine consultation service.
 - Télé-surveillance: medical observation at a certain distance.
 - Télé- urgence: is the medical response within the emergency regulation

2.5 proposed system:

2.5.1 The context diagram of the project:

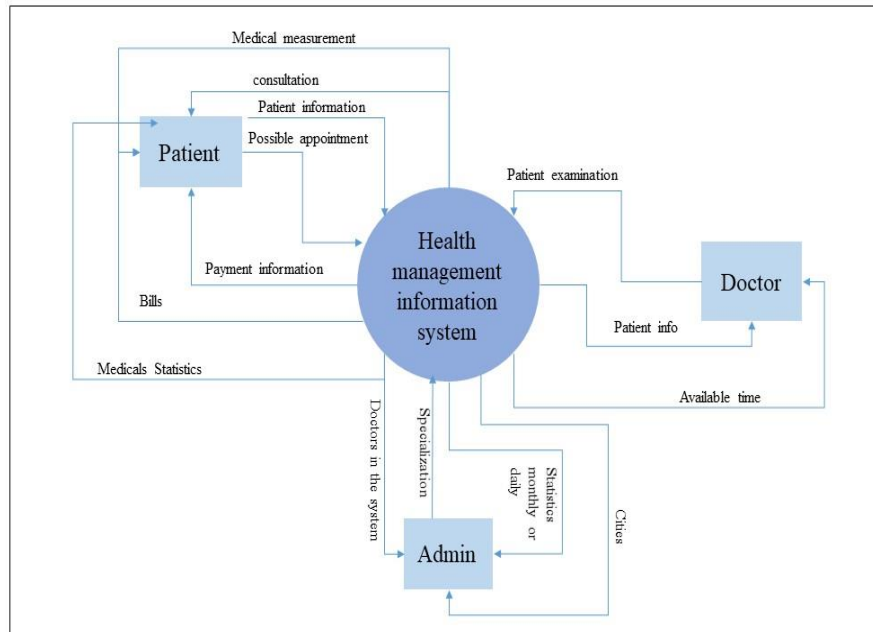


Figure 1: contex diagram

2.5.1.1.1 The most important parts of the system:

The system contains three main sections, from which the borders of the system branch out

2.5.1.2 patient:

1. Each patient record contains the patient's private and public consultations
2. Each private consultation contains the patient's appointments in the doctor's private clinic, clinical examination, medications, and notes related to the disease, in addition to statistics related to the patient's vital measurements, with the possibility of conversation between him and his private doctors.
3. Each general consultation contains a form to fill out the patient's condition and send it to the doctors of the same specialty and city so that he can perform a general consultation via the Internet. Advice and the seriousness of his condition are provided to him by doctors, or he is referred to a private consultation.
4. It has a calendar to display all of its expiring and expiring appointments

5. And see health publications by the doctors of the site and its medical biometrics

2.5.1.3 Doctors:

1. One of the most important requirements of the doctor in our site is the management of private and public examinations
2. Through approval of general examinations, advice was provided to patients and the possibility of transferring them to patients who could communicate with him through conversations or patients through the clinic.
3. In addition to special examinations that take place through appointments and automation of patient information in his private record, keeping it and easy reference to it
4. The doctor can see all his appointments in a calendar
5. And publish posts that can be seen by patients, and you can benefit from the posts if the doctor wants to publish information he wants to know from all his patients

2.5.2 Admin:

1. The system admin is like a site manager or hospital manager through which the admin can manage patient and doctor records and add cities to the site and new departments for doctors to manage the site if he is specialized in a specific hospital
2. One of the most important jobs of the admin who cares about the site is to approve the entry of doctors to the site
3. This means that one of the characteristics of the admin is to grant access to doctors or ban them from the site if they violate the general policies of the site and the security policy.
4. In addition to displaying medical statistics on the site, it provides charts and statistics to know all the jobs that take place on the site and what diseases are prevalent during a certain period of time. These statistics have benefits on a large level.

2.5.3 Similar Application :

2.5.3.1 *Sehhaty App :*

Provides health services to individuals in the Kingdom of Saudi Arabia My health application aims to enable users to access health information and medical electronic services provided by various health institutions in the Kingdom, such as updates of vital signs, tracking prescribed medications, retrieving and sharing sick leaves, promoting a healthy lifestyle, and integrating Track your steps with Apple HealthKit and other services related to individual and family health and health awareness.

The (My Health) application serves all individuals, citizens and residents in the Kingdom, along with their dependents, including children, the elderly, or people with special needs. The application is also available in both Arabic and English.












2.5.3.2 *Tataman App :*

It is one of the applications of the Ministry of Health, and it is designed to provide protection and health care for citizens and residents referred to home isolation or quarantine; To maintain their .safety and promote recovery procedures

2.5.3.3 *Mawid:*

It aims to enable the patient and the recipient of the service to book their appointments in the primary health care centers in coordination with the Appointment Department, as the request for booking an appointment and amending or canceling it in any hospital is referred to the patient.

2.5.4 Comparison of Similar Applications

Comparability in	Medical Information system	Sehhaty App	Tataman App	Mawid
Ease of use				
Availability				
Attractive Interface				
Expensive				
Dashboard				
Arabic				

2.6 Conclusion:

In this chapter, we presented the theoretical study of the site in terms of basic concepts, reference study, and the most important services provided by the health system, and the process of automating patient records on the general level and on the personal level of our site, with a presentation of a general outline of the project that explains the basic inputs and outputs on the site and the limits of the system with an explanation of each section in proposed system

Chapter Three

Analytical and Design Study

Chapter Three- Analytical and Design Study

3 Analytical and Design Study

3.1 Introduction:

The feasibility study of the project is one of the most important main steps for studying the software project. Therefore, in this chapter first, we will study the feasibility, and we will present the project plans and the main techniques that were used in the requirements collection process, in addition to the design models, the unit testing list, the project requirements tracking matrix, in addition to the study of the system architecture.

3.2 Feasibility study

3.2.1 Project idea :

Establishing a paperless electronic health system that enhances the smooth data extraction process so that the health data of each patient becomes easily available to health care providers, away from paper data that contains handwritten notes.

Disadvantages of the paper system
Wastage and corruption of data over the years
Data discrepancies occur.
Obtaining data is difficult and time consuming
Difficulty in retrieving documents and their information
Low business efficiency

Determine the needs provided by the project:

Needs
Electronic health records contain far fewer errors than paper records, according to experts
It makes it easier for clinicians to monitor patients and keep track of ongoing care, whether supervised by them or by the patient's other physicians

When a patient is under the care of multiple doctors, keeping track of their history, including allergies, blood type, current medications, past procedures, and other relevant information, can be problematic when relying on paper maps.

Clinical practitioners can quickly transfer patient data to other departments or providers, with fewer errors leading to better management of outcomes.

Significantly improve communication between physicians, allowing each party full access to a patient's medical history rather than a quick glance at the current visit. This access enables a more in-depth assessment and enables clinicians to reach an accurate diagnosis more quickly.

3.2.2 Define project organization and management :

The project is managed by the supervising manager of the system, and both the patient and the doctor deal within the framework of the system to meet the needs and services provided by this system

3.2.3 Conclusion :

The system is so easy to use that you do not need actual trainers to practice the services on it

We didn't need to buy hardware

The system is useful as an electronic health system that saves time, effort, and large financial costs, although there are some costs, but savings in the long run

3.3 Gantt chart

3.3.1 section One

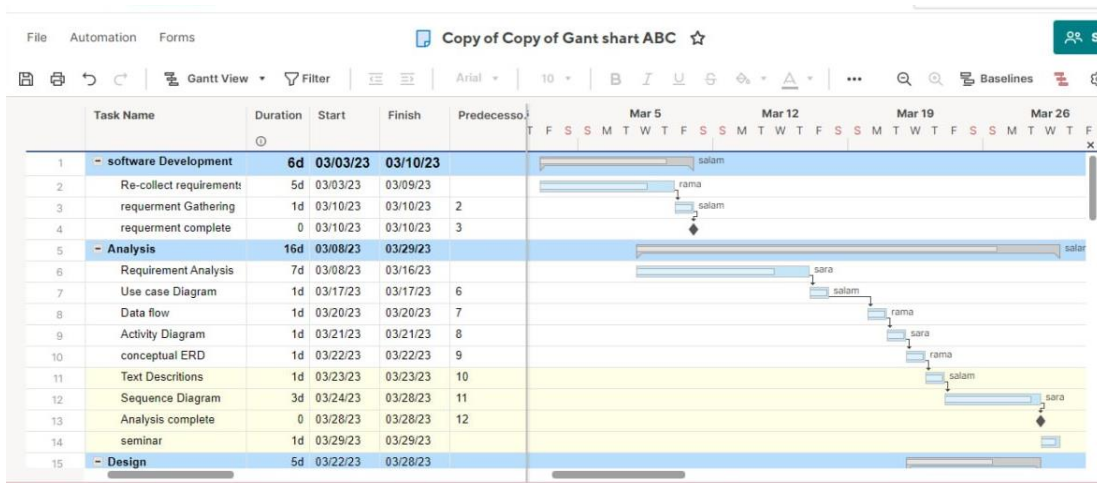


Figure 2:gantt chart

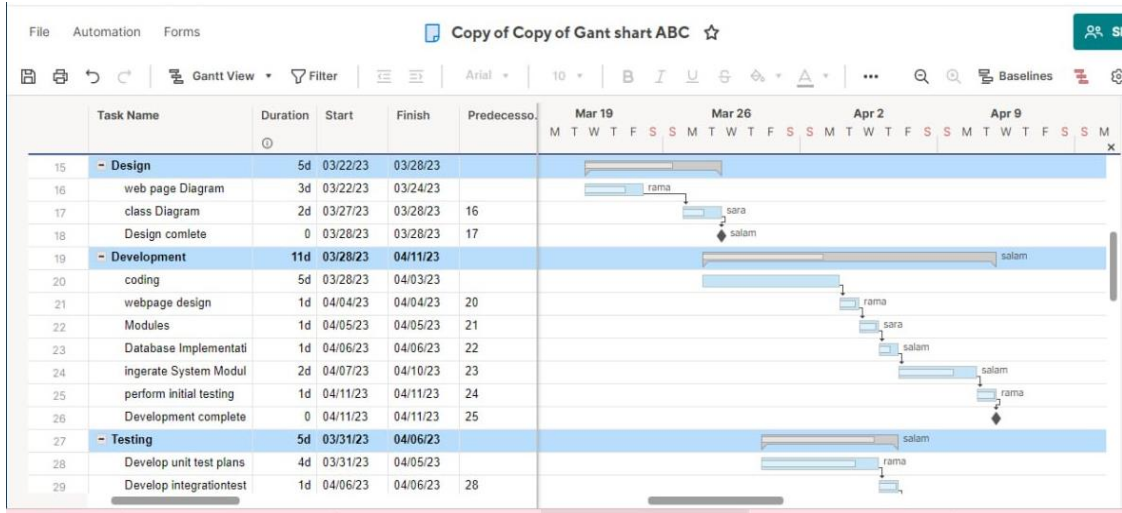


Figure 3: Gantt chart

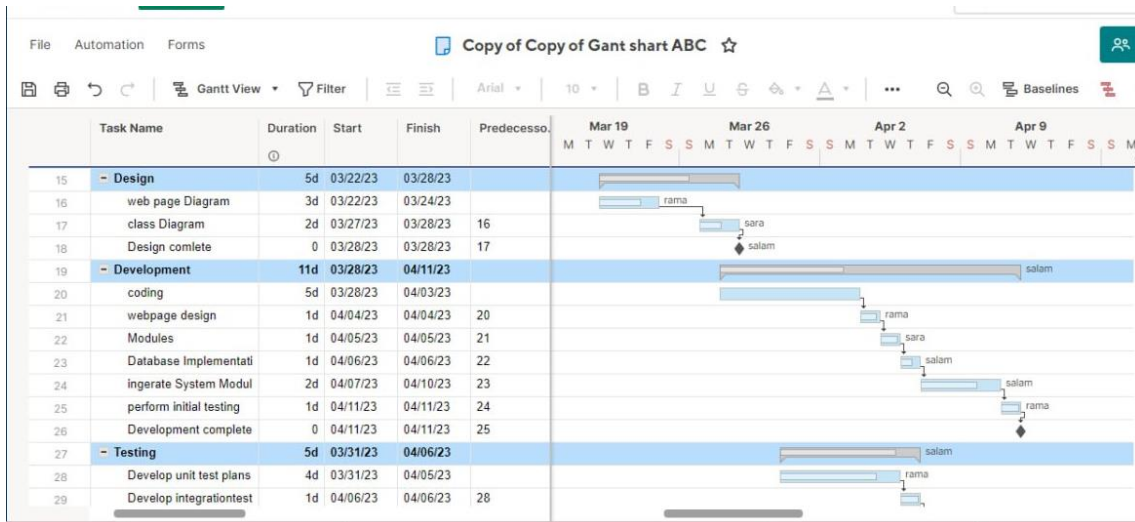


Figure 4: Gantt chart

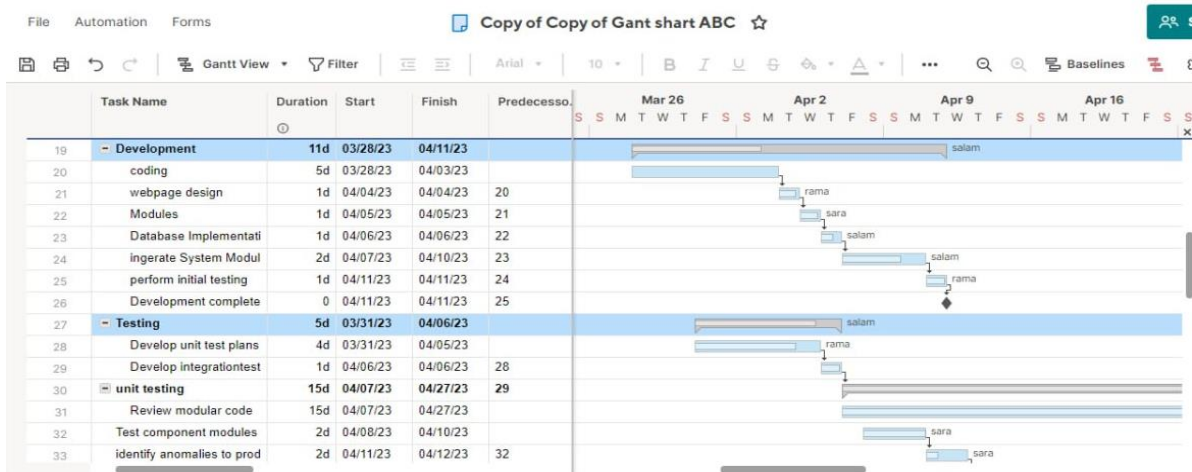


Figure 5 Gantt chart

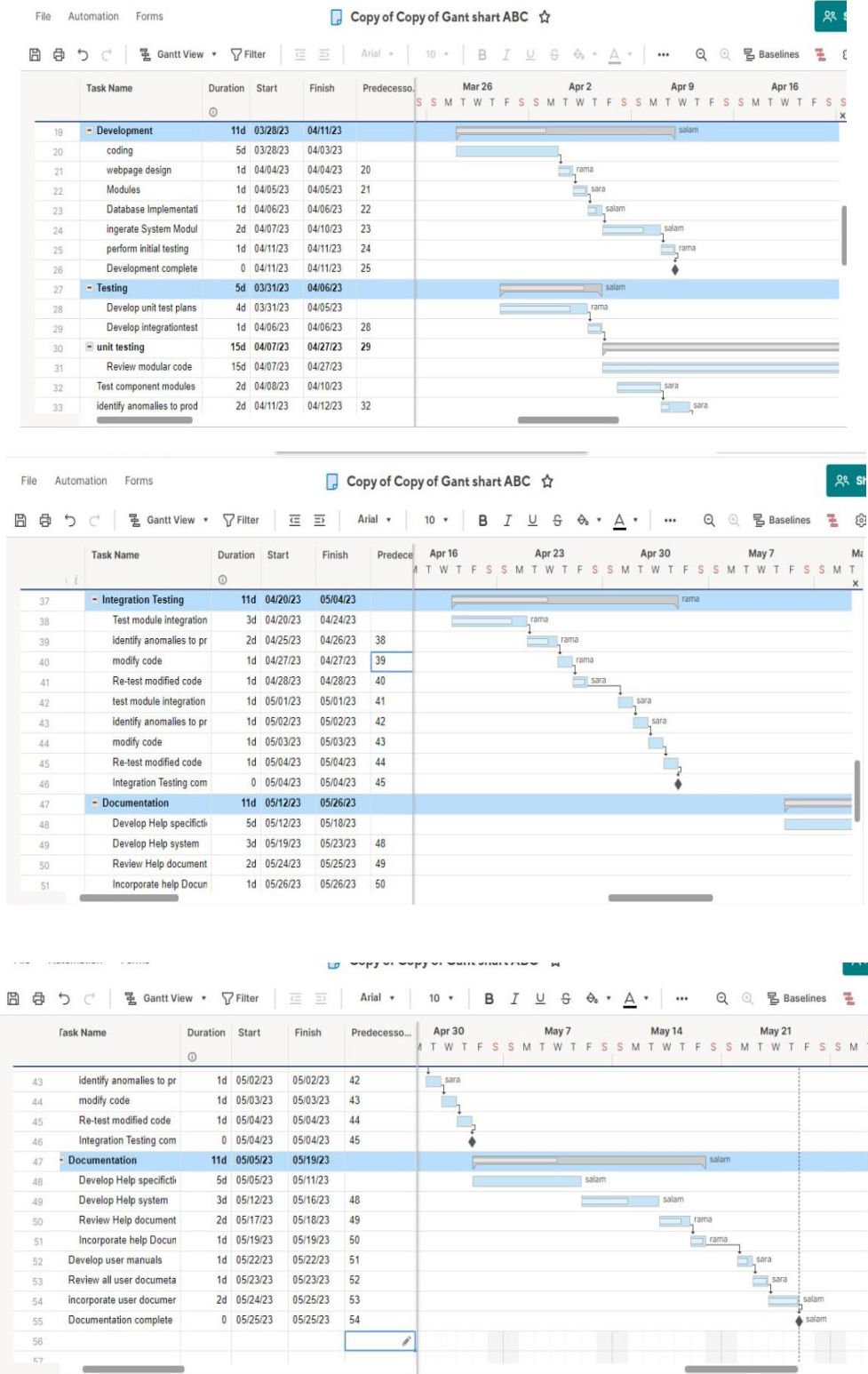


Figure 6: Gantt chart

3.4 Requirements Document :

This chapter presents all aspects of the project in a practical way, as it will detail the functional and non-functional requirements of the project, the mechanism for achieving them and their use cases, then testing their validity and achieving the desired goals.

Given the analysis stage, and the basis of the project development stages, any error in this stage leads to an error in all the following stages and can lead to the failure of the entire project, or at least the failure of one of the projects.

In this project, information was collected in order to conduct an analytical study of the system in order to obtain documented and correct information, which leads to the success of the project

3.4.1 Documentation and Auxiliary Reports:

Some references on the Internet were relied upon, in addition to benefiting from some previous reports and projects, as their importance was to give a broader and more comprehensive perception of the idea, while giving perceptions of the non-functional services that the system should provide.

3.4.2 Project Requirements:

3.4.2.1 Functional Requirements:

Functional Requirements of the patient:

1. Log-in
2. Add personal Record
3. Add Medical Record
4. Public consultation
5. Private consultation
6. print consultation
7. Waiting consultation
8. Under processing consultation
9. Finish consultation
10. Show personal Record
11. Show Medical Record
12. Show consultation
13. Clinical examination
14. Appointment
15. Calendar
16. View Medicals status
17. View medical post
18. Search doctors
19. view Clinical examination
20. view Note
21. view Medications

22. Contact Messaging
23. notifications
24. payment
25. log-out

Functional Requirements of the Doctor:

1. log-in
2. public consultations
3. Private consultation
4. View Medical record
5. View personal record
6. Appointment management
7. Consulting management
8. Show Consulting
9. Waiting consultation
10. Under processing consultation
11. Finish consultation
12. Add Clinical examination
13. Add Note
14. Add Medications
15. Contact Messaging
16. Consultation list
17. Print consultation
18. Calendar
19. New post
20. Search
21. Notifications
22. Payment status
23. Log-out

Functional Requirements of the Admin:

1. Log-in
2. Number of patient register
3. Number of doctor register ,
4. Number of consultation
5. Number of city
6. Monthly consultation type chart
7. Consultation status monthly chart
8. Most 3 specializations consultation monthly chart
9. Most 3 specializations consultation daily chart
10. Add city
11. View and print cities
12. Add specialization name
13. View and print specialized
14. View doctors
15. Account management

16. Active doctors
17. Blocks doctors
18. Search from doctors
19. Search from cities
20. Search from specialized
21. Print schedules
22. Log-out

3.4.2.2 Non-Functional Requirements:

3.4.2.2.1 Availability :

System managers wishing to access the system can use it anywhere .

3.4.2.2.2 Performance :

1. Good performance is one of the main pillars of any successful work in the digital environment..
2. Ensure the web application are user-friendly and run smoothly.
3. This application works in the same way regardless of operating system environments.
4. The time taken for import file and display multimedia should be minimal
5. (Ex : No more than 60 second)

3.4.2.2.3 Reliability :

- 1.1 Application of the authority system so that the system ensures that no user enters data or pages without its validity .
- 1.2 The system provides confirmation of entry and exit from the system .
- 1.3 The system preserves the data of system manage Ex :Preserve the privacy of the system participants through a private password

3.4.2.2.4 Usability :

Interfaces between the system and the system manager are user-friendly,

clear and easy helping the user to handle the system well) Easy to use by users in

general by 80%)

3.4.3 Collect-Requirement :

In order to collect the requirements, we sought the help of Hisham Sinan Medical Hospital, located in

Barnieh Street, after taking a letter signed by the Dean of the University, Dr. Muhaib Al-Naqri. A meeting was held with the person in charge of the hospital administration about how to store their patients' records

It turns out that this is done on paper, due to the current circumstances that Syria is going through .The

patient's file was taken by us and supervised by Dr. Akram Milad Masouh, this file will be worked on to transform it into an effective health system .This a little picture of patient file :

New
Medical
Center



المركز
الطبي
الحديث

عمليات عامة

اسم المريض

رقم الإضبارة:
رمز القبول:
اسم منظم الإضبارة:
توقيعه:

رقم الغرفة

تحسس دوائي أو غذائي

الطبيب المشرف

تاريخ التخرج / /
ساعة التخرج

تاريخ الدخول / /
ساعة الدخول

هذه الإضبارة ومرفقاتها ملك للمشفى ولايحق لأحد الإطلاع عليها أو الاحتفاظ بها أو بصورة عنها

تم قبض سلفة بمبلغ ل. من فقط

بموجب إيصال رقم

التوقيع

حالة الدخول: إسعاف حادث رقم ضبط الشرطة

الدرجة: نوع الوجبات: مع سافل بدون مرافق

حالة الطرود: شفاء تحسن سوء وفاة أخرى

ملاحظات الطبيب المشرف: الاسم والتوقيع

المحافظة الشخصية: اسم صاحب المحافظة: درجة قرابته للمريض

رقم المحافظة: الخانة / مكان وتاريخ المتح

المعلومات الشخصية للمريض: الاسم: الأب: الأم: الجنسية

مكان وتاريخ الولادة: عازب متزوج عدد الأولاد:

عنوان الإقامة: الهاتف: العنوان: الهاتف: اسم وعنوان المستشفى: هاتف المستشفى:

تصريح موافقة على إجراء معالجة جراحية وغير جراحية

أنا المرفوع أدناه المريض بن أصرح اني أطلمت على الحالة المرضية والمعالجة الواجبة والجراحة اللازمة ، ولذا البت موافقتي على ذلك بما يقتضيه من التخدير وأقوص الأطباء والجراح والتخدير بأجراء مثل ما هو متيسر أو ضرورياً حسب تشخيصي وكل واحد منهم أثناء عمله وحسب ما يظهر أثناء الجراحة والتخدير دون تحفظ وأني ملتزم بتسديد ككل ما سوف يحدده الأطباء وإدارة المشفى من انخاب وقيم وأجور وأن التزم بتسديد نفقات المريض ككل ٤٨ ساعة. الاسم والتوقيع

هل لدى المريض

<input type="checkbox"/> نعم	<input type="checkbox"/> لا	ألم صدري	<input type="checkbox"/> نعم	<input type="checkbox"/> لا	أسنان متحركة أو جسر فكي
<input type="checkbox"/> نعم	<input type="checkbox"/> لا	ضربات قلب غير منتظمة	<input type="checkbox"/> نعم	<input type="checkbox"/> لا	سعال
<input type="checkbox"/> نعم	<input type="checkbox"/> لا	قصور تنفس	<input type="checkbox"/> نعم	<input type="checkbox"/> لا	صعوبة تبول
<input type="checkbox"/> نعم	<input type="checkbox"/> لا	التهاب طرق تنفسية علوية حديثاً	<input type="checkbox"/> نعم	<input type="checkbox"/> لا	سوابق نوب صرعية
<input type="checkbox"/> نعم	<input type="checkbox"/> لا	دورة طمثية غير منتظمة	<input type="checkbox"/> نعم	<input type="checkbox"/> لا	حمل حالي

ملاحظات الطبيب

3.5 SRS Document:

A document used to describe the software requirements for a specific project. The document aims to document and define the functional and non-functional requirements for the system to be developed.

An SRS document usually contains the following components:

3.5.1 Introduction:

The platform ensure access to important medical information for patients at the exact time and place needed to make medical decisions. It also focuses on medical data management for research and education and also contributes significantly to cost reduction in the medical business as it has a way to reduce medical errors that cost.

3.5.2 System description:

1. The system is available to everyone, anytime and anywhere.
2. The patient can register on the website for the first time online without the need to visit the hospital.
3. patient can pay online.
4. The system includes managing users and doctors

3.6 Analysis chart of project:

3.6.1 Use-Case Diagram :

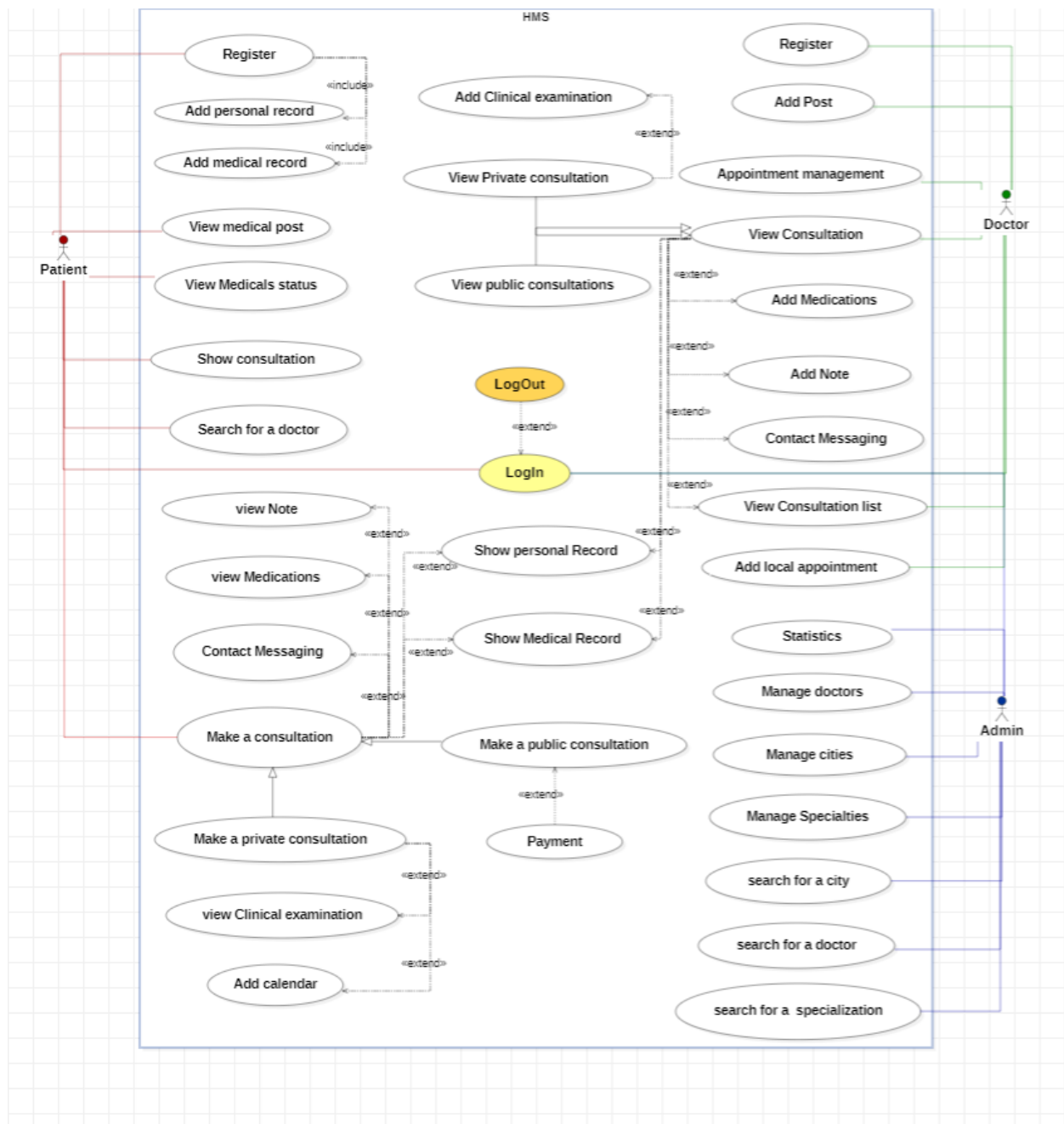


Figure 7 :Use-Case Diagram

3.6.2 Activity Diagram:

3.6.2.1 Activity Diagram for admin :

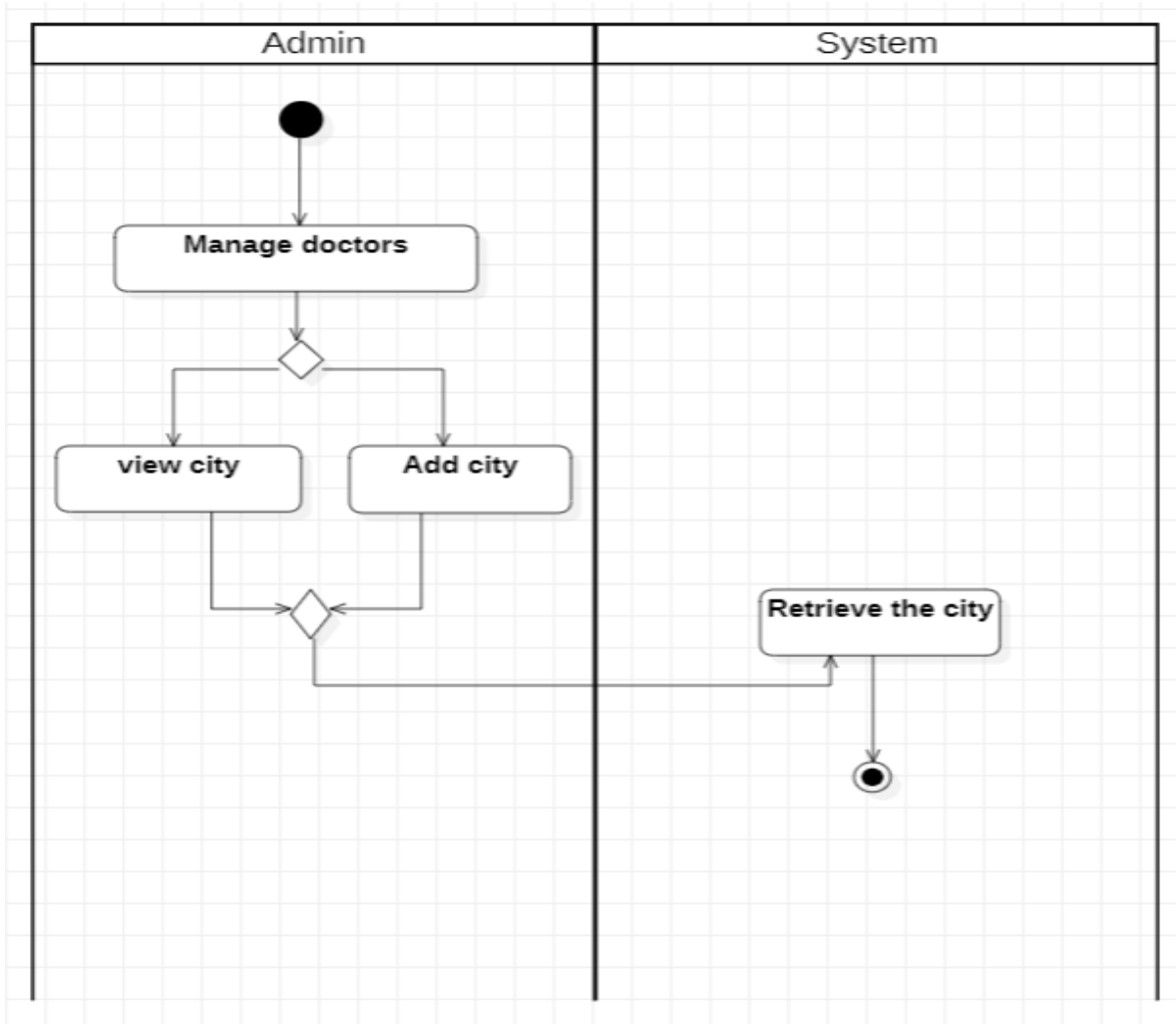


Figure 8: Activity-Diagram for admin

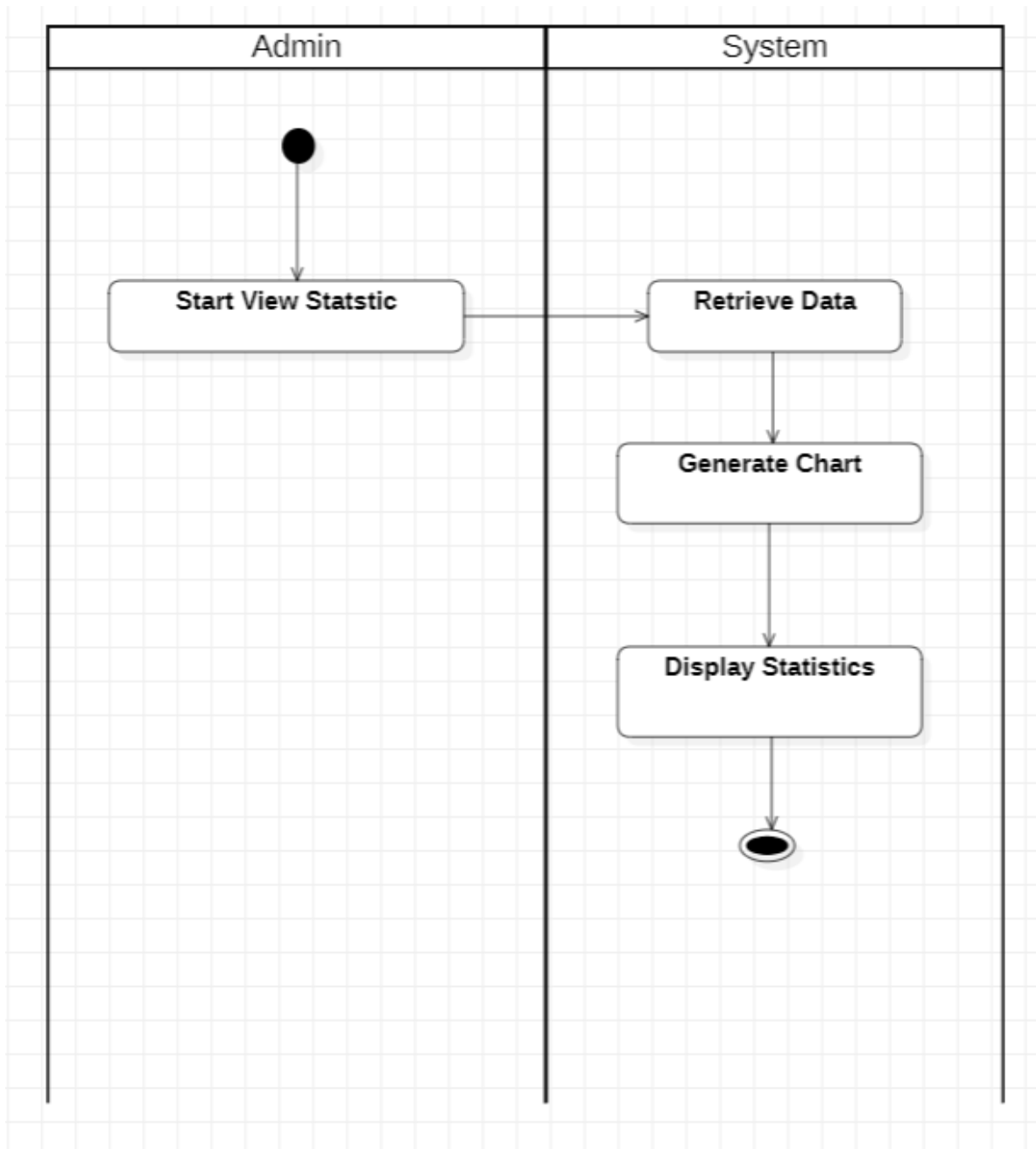


Figure 9: Activity-Diagram for admin

3.6.2.2 Activity Diagram for Patient :

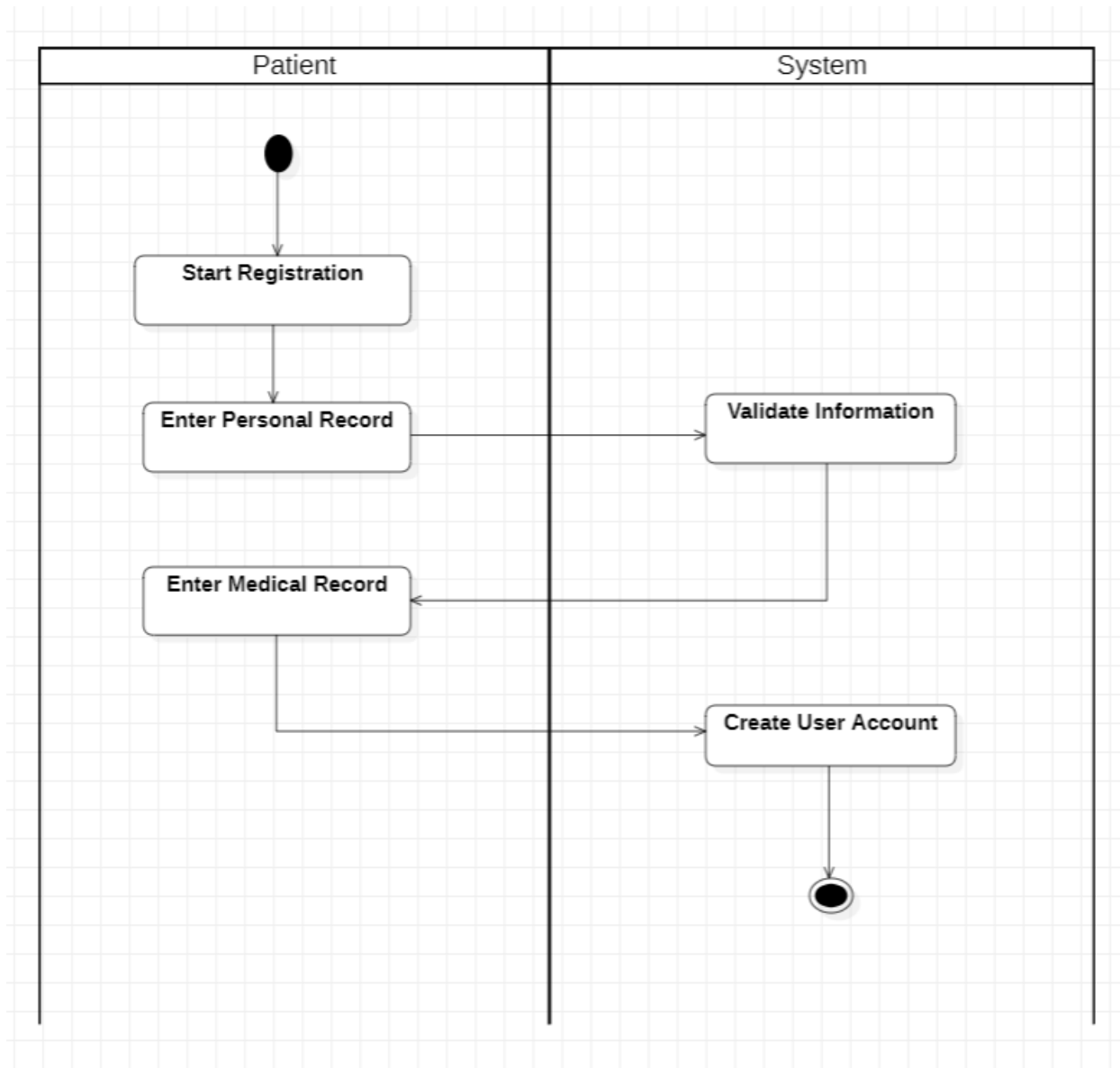


Figure 10: Activity-Diagram for Patient

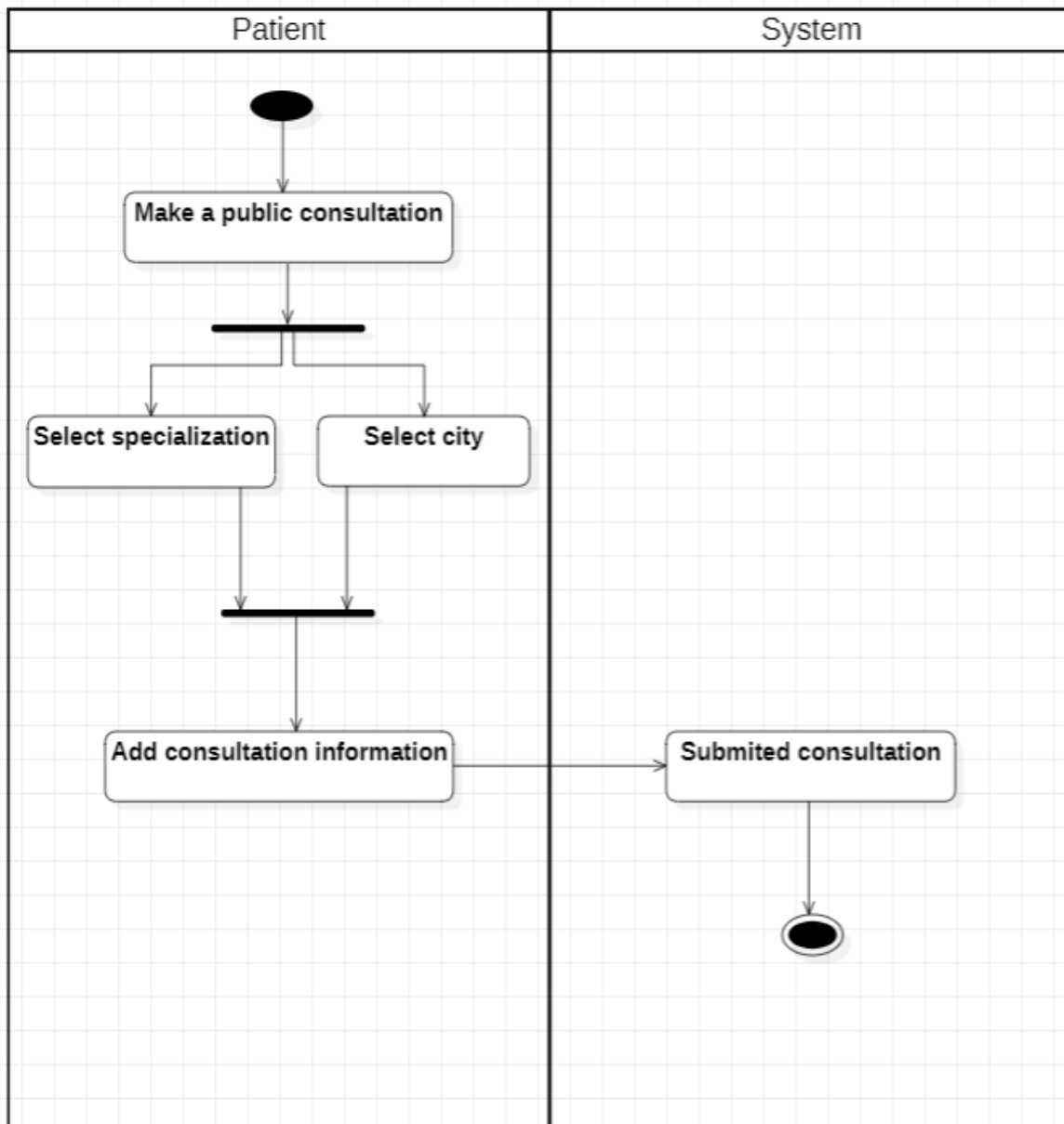


Figure 11: Activity-Diagram for Patient

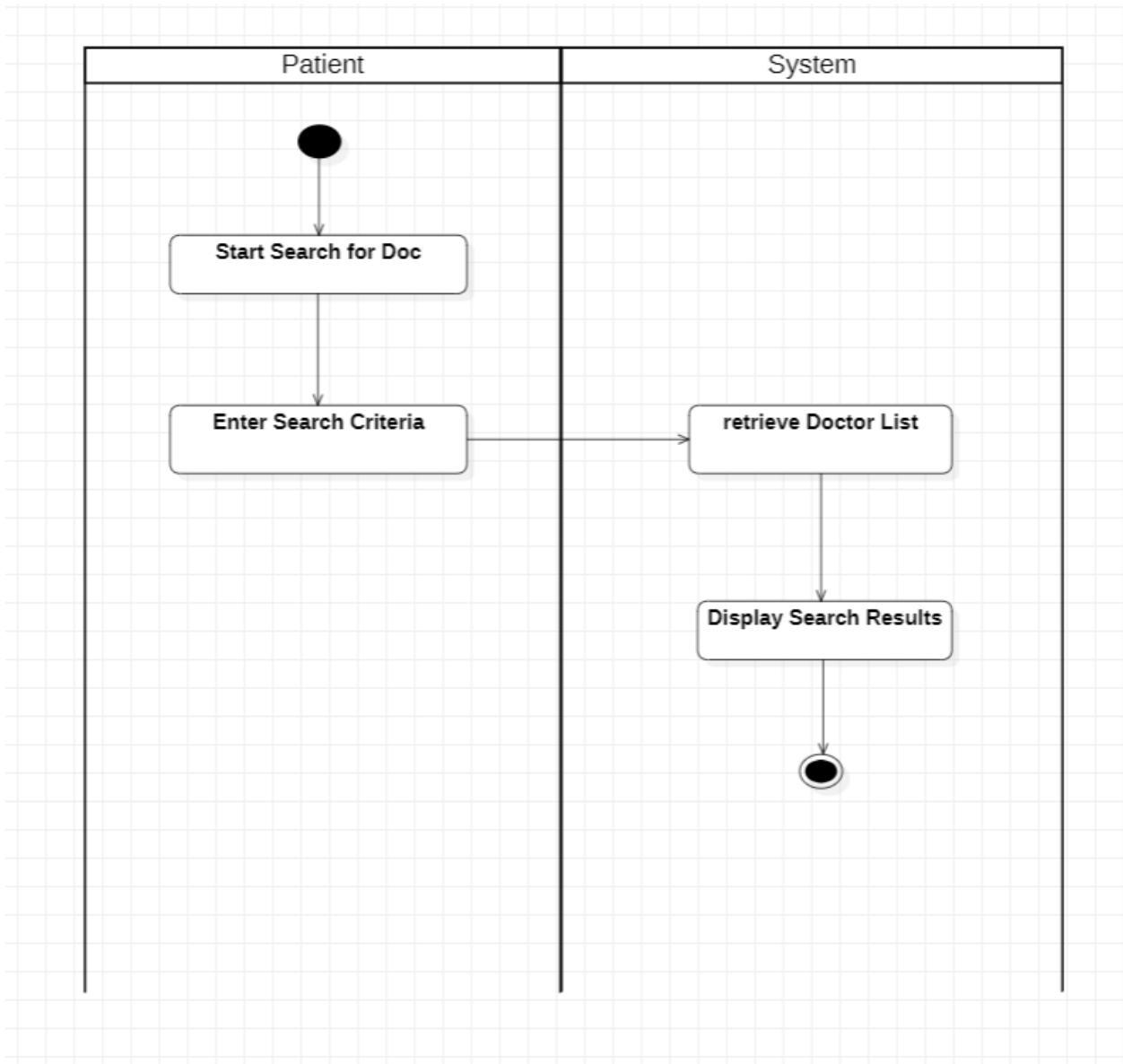


Figure 12: Activity-Diagram for Patient

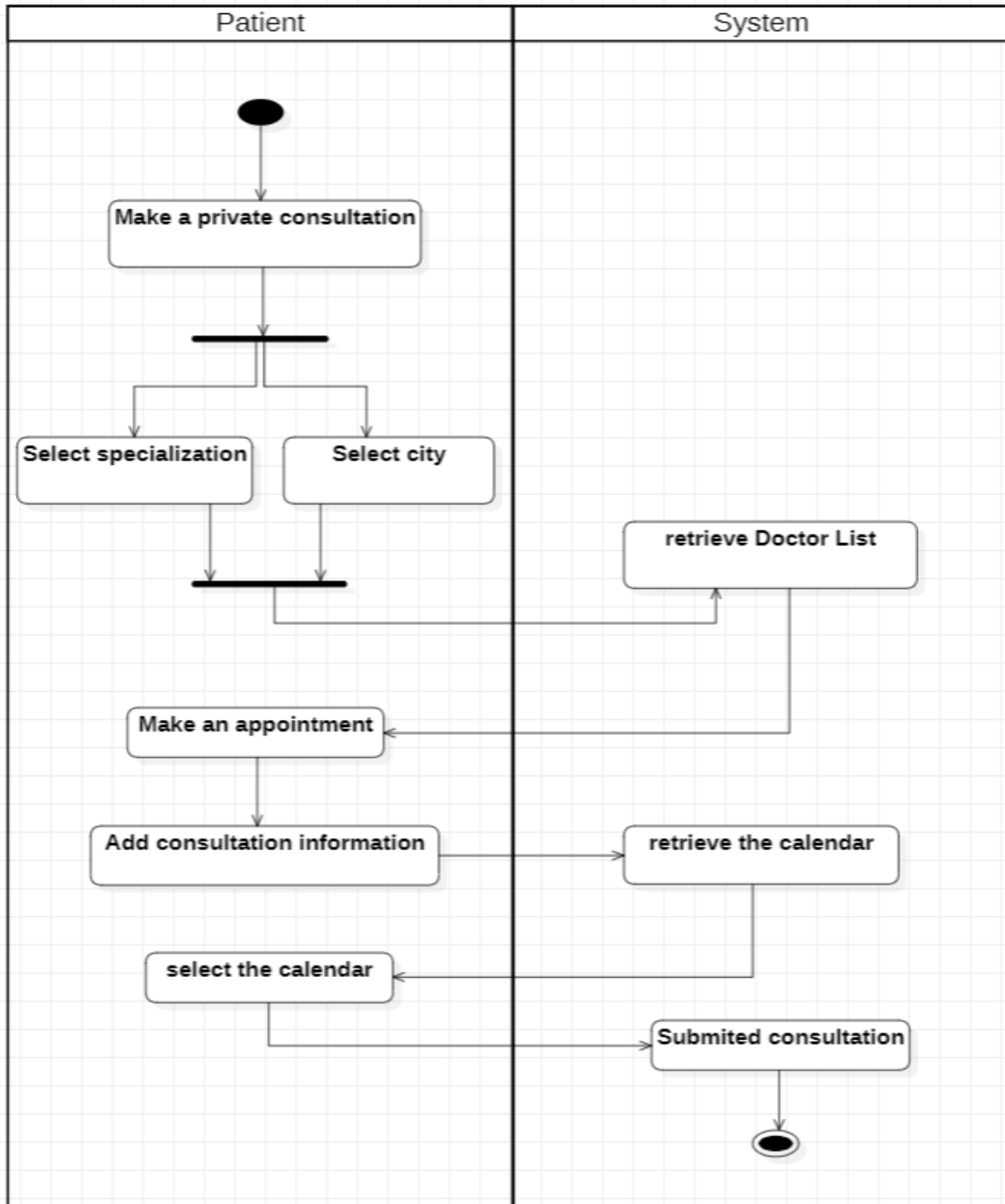


Figure 9: Activity-Diagram for Patient

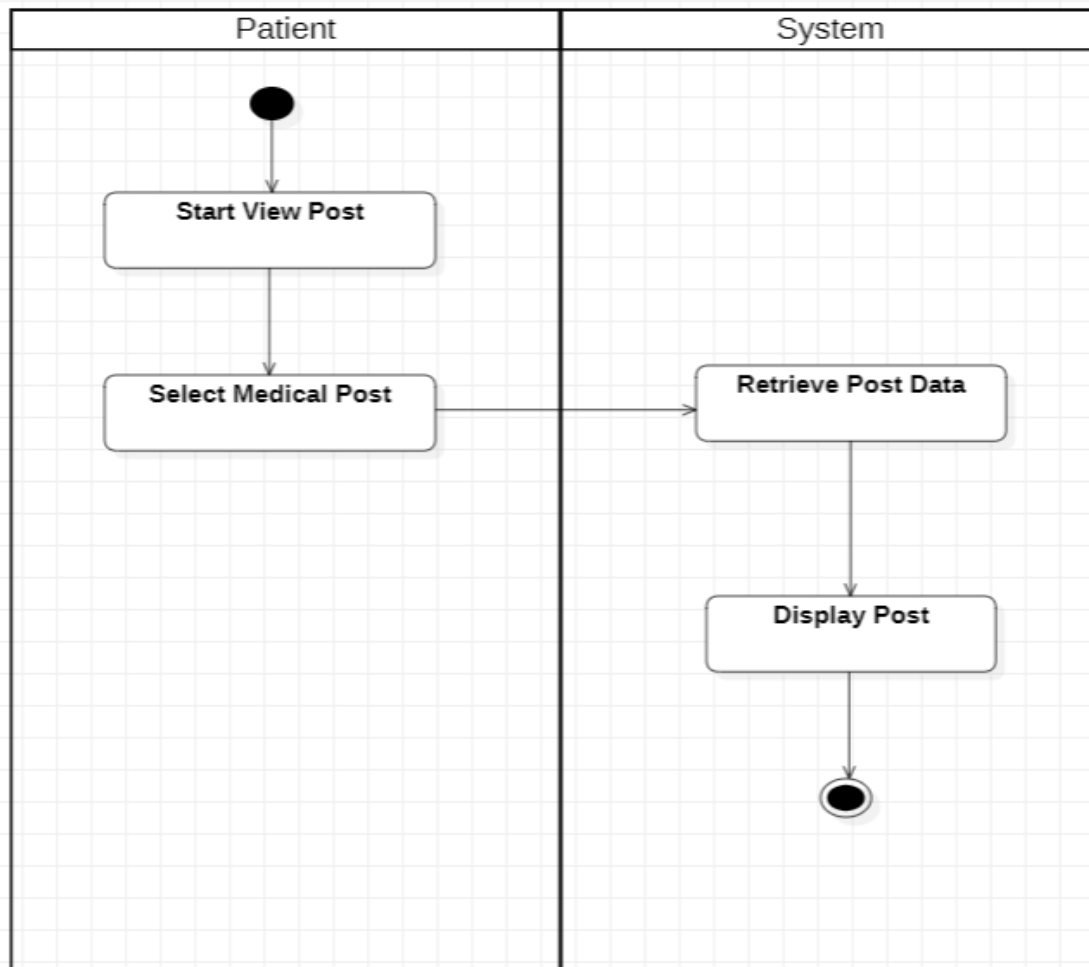


Figure 10: Activity-Diagram for Patient

3.6.2.3 Activity Diagram for Doctor :

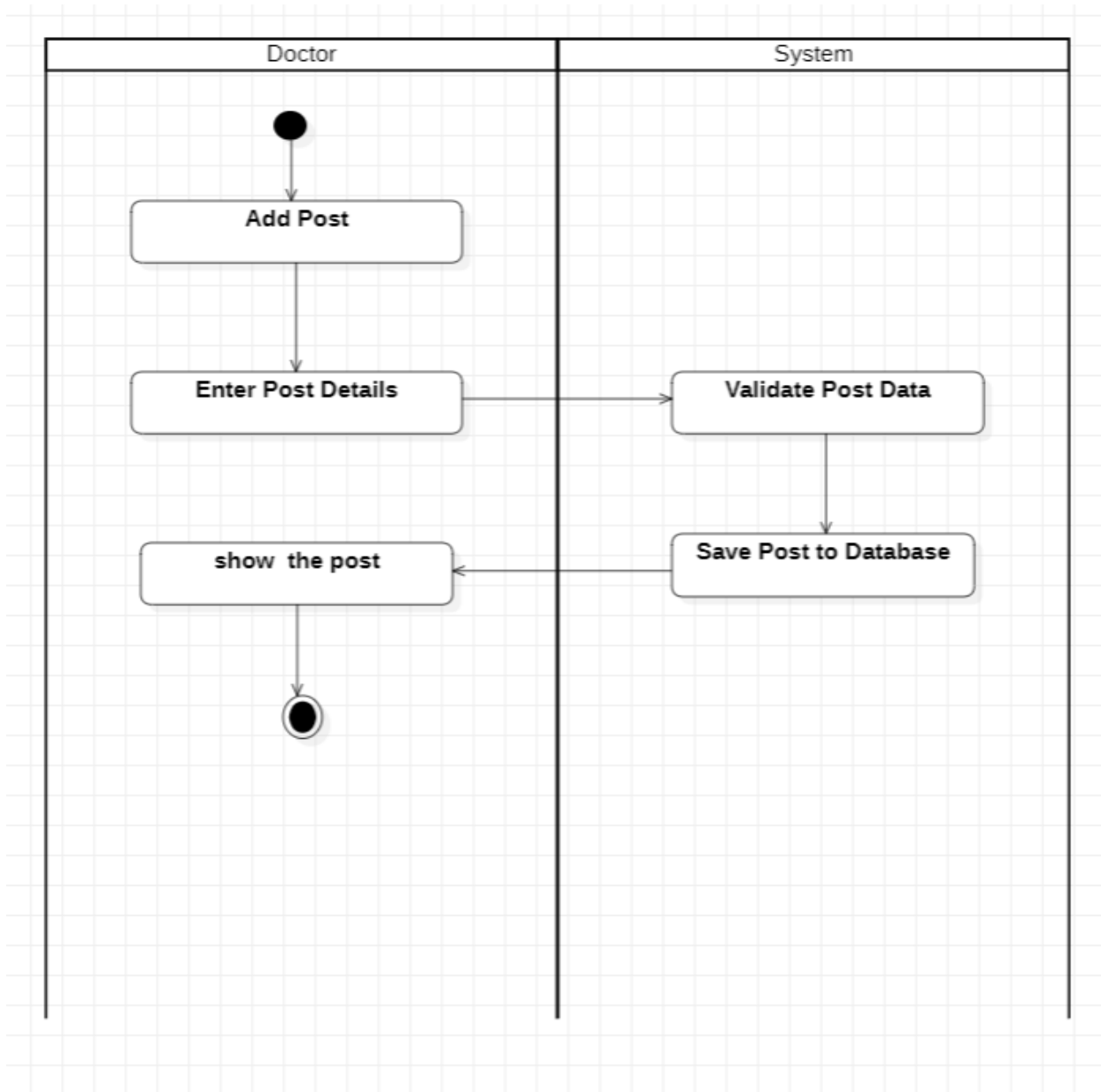


Figure 11: Activity-Diagram for Doctor

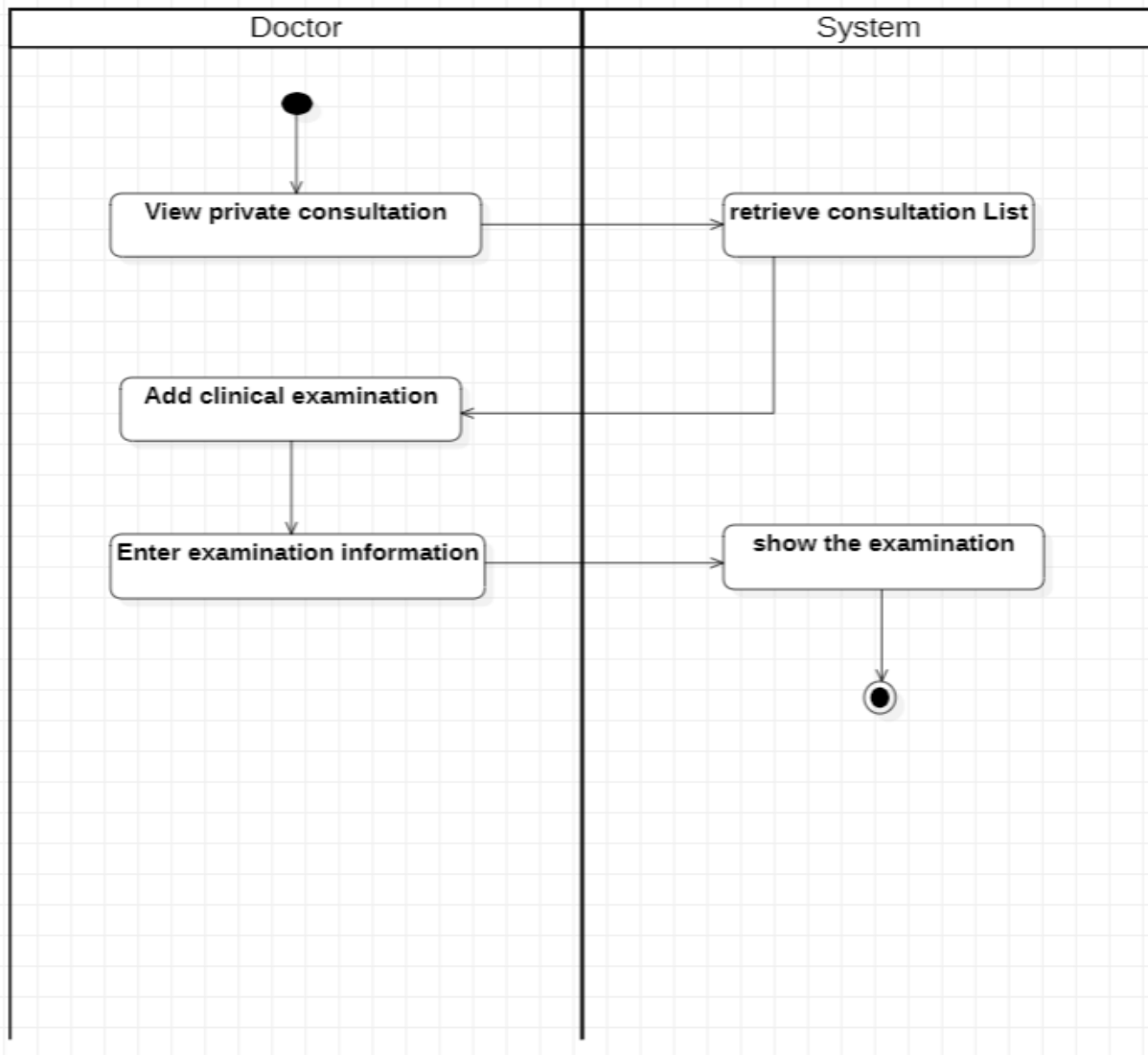


Figure 12: Activity-Diagram for Doctor

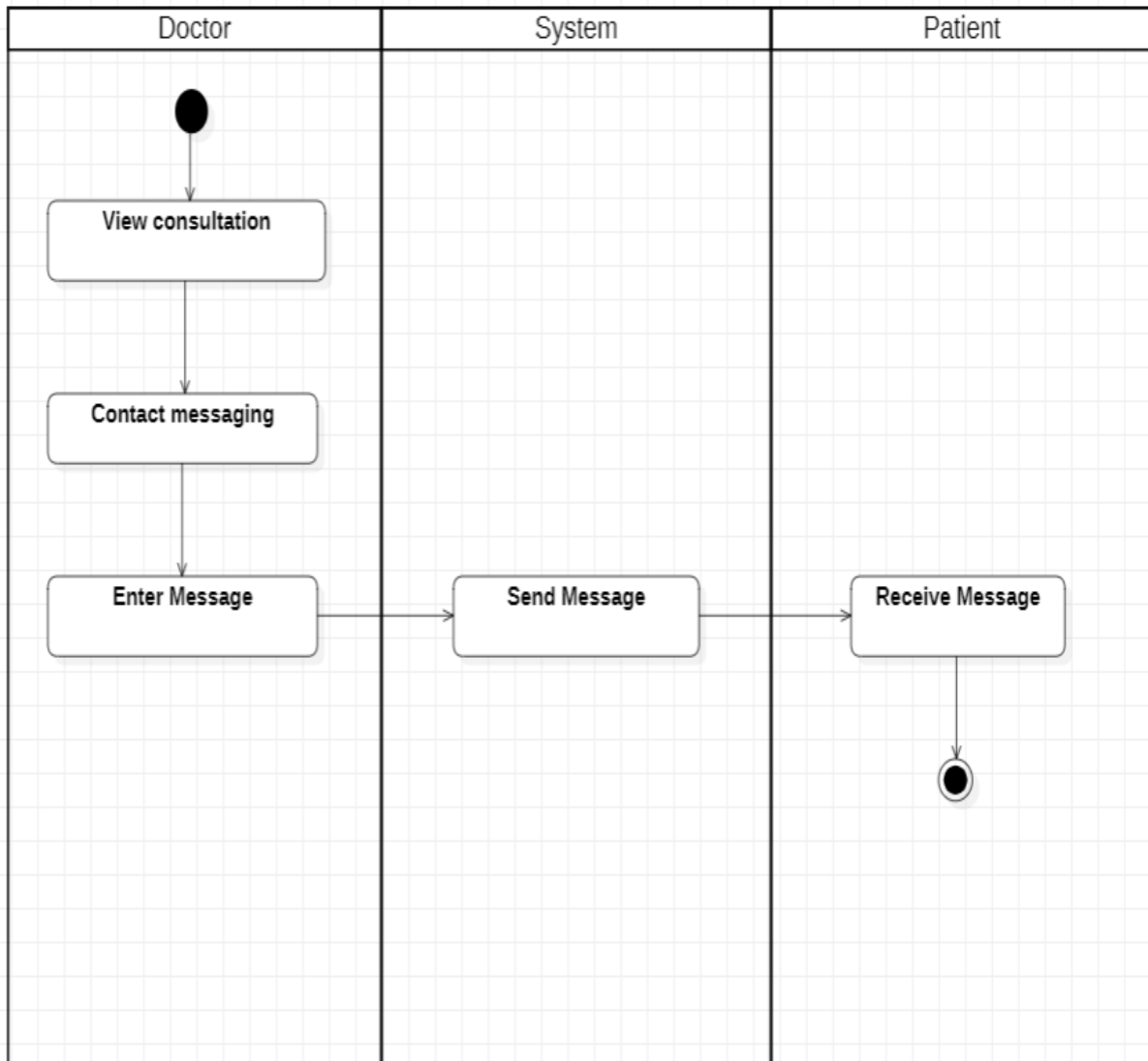


Figure 13: Activity-Diagram for Doctor

3.6.3 Use-Case Narrative :

Table 1: Use-Case Narrative log-In

Health Management System	
Use Case Name:	Log-In
Actor :	Patient
Description :	Patient can log in through username and password display a message if he could log in or not.
Precondition :	He need to be in site.
Typical course of event :	<ol style="list-style-type: none"> 1. Open System 2. The System will view home page 3. Patient click login 4. The system will display login page 5. Patient enter info 6. The System will validate
Alternative Courses:	Alt step 5: If the entered data is wrong then we will to step 3.
Exception :	The use case concludes when the Patient retrieve the message from the system.

Table 2 Use-Case Narrative register patient

Health Management System	
Use Case Name:	Register
Actor :	Patient
Description :	The Patient register to our system
Precondition :	-----
Typical course of event :	<ol style="list-style-type: none"> 1. Open the system 2. the patient enter their information 3. validate their information
Alternative Courses:	-----
Exception :	-----

Table 3: Use-Case Narrative view medical post

Health Management System	
Use Case Name:	View medical post
Actor :	Patient
Description :	The patient can view medical post
Precondition :	The patient must have an account.
Typical course of event :	<ol style="list-style-type: none"> 1. Open the system 2. The system displays options 3. The patient select medical post and see the posts.
Alternative Courses:	-----
Exception :	-----

Table 4: Use-Case Narrative view medical status

Health Management System	
Use Case Name:	View medical status
Actor :	Patient
Description :	The Patient can view medical status
Precondition :	The patient must have an account.
Typical course of event :	<ol style="list-style-type: none"> 1. The Patient open System 2. The system displays options 3. The patient select medical status and see his medical status
Alternative Courses:	-----
Exception :	-----

Table 4: Use-Case Narrative show consultation

Health Management System	
Use Case Name:	Show consultation
Actor :	Patient
Description :	The patient view his consultation
Precondition :	The patient must have an account and a consultation
Typical course of event :	<ol style="list-style-type: none"> 1. The Patient open System 2. The system displays the patient's profile 3. The patient select consultation and display a list of consultation
Alternative Courses:	-----
Exception :	-----

Table 6: Use-Case Narrative search for a doctor

Health Management System	
Use Case Name:	Search for a doctor
Actor :	Patient / Admin
Description :	Search for a doctor in the system
Precondition :	Must have an account .
Typical course of event:	<ol style="list-style-type: none"> 1. The user open the system 2. The user open the search form 3. The user enter the name of the doctor 4. The system display the doctor
Alternative Courses:	-----
Exception :	The doctor is not in the system

Table 7: Use-Case Narrative view note

Health Management System	
Use Case Name:	View note
Actor :	Patient
Description :	View the note that the doctor write it in the consultation
Precondition :	Must have an account and a consultation
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the consultation 3. The patient select a consultation and view their notes
Alternative Courses:	-----
Exception :	-----

Table 8: Use-Case Narrative view note

Health Management System	
Use Case Name:	View medication
Actor :	Patient
Description :	View the medication that the doctor write it in the consultation
Precondition :	Must have an account and a consultation
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the consultation 3. The patient select a consultation and view their medication
Alternative Courses:	-----
Exception :	-----

Table 9: Use-Case Narrative contact messaging

Health Management System	
Use Case Name:	Contact messaging
Actor :	Patient / Doctor
Description :	Contact messaging between the patient and the doctor
Precondition :	Must have an account and a consultation
Typical course of event:	<ol style="list-style-type: none"> 1. The patient or the doctor open the system 2. The patient or the doctor open the consultation 3. The patient or the doctor select a consultation and contact messaging 4. The message will sent .
Alternative Courses:	-----
Exception :	-----

Table 10: Use-Case Narrative make a private consultation

Health Management System	
Use Case Name:	Make a private consultation
Actor :	Patient
Description :	Make an appointment with the doctor on his clinic
Precondition :	The patient must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the private consultation 3. The patient enter the consultation information with the city and the spatialization and choose the doctor with this info 4. The patient select the appropriate calendar and submit.
Alternative Courses:	-----
Exception :	-----

Table 11: Use-Case Narrative view clinical examination

Health Management System	
Use Case Name:	View clinical examination
Actor :	Patient
Description :	View the examination that the doctor write it after the private consultation
Precondition :	The patient must have an account and a private consultation
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the private consultation 3. The patient select the consultation and view the examination
Alternative Courses:	-----
Exception :	-----

Table 12: Use-Case Narrative add calendar

Health Management System	
Use Case Name:	Add calendar
Actor :	Patient
Description :	Add calendar for the private consultation
Precondition :	The patient must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the private consultation 3. The patient enter the information after that enter the calendar
Alternative Courses:	-----
Exception :	-----

Table 13: Use-Case Narrative make a public consultation

Health Management System	
Use Case Name:	Make a public consultation
Actor :	Patient
Description :	Add public consultation online
Precondition :	The patient must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the public consultation 3. The patient enter the information and the city and the specialization 4. The consultation send to all doctors with this details 5. One of the doctors accept the consultation
Alternative Courses:	-----
Exception :	-----

Table 14: Use-Case Narrative payment

Health Management System	
Use Case Name:	payment
Actor :	Patient
Description :	Payment for a public consultation
Precondition :	The patient must have an account and a public consultation
Typical course of event:	<ol style="list-style-type: none"> 1. The patient open the system 2. The patient open the public consultation 3. Select the consultation and payment 4. Select the payment getaway
Alternative Courses:	-----
Exception :	-----

Table 15: Use-Case Narrative add post

Health Management System	
Use Case Name:	Add post
Actor :	Doctor
Description :	Add medical post
Precondition :	The doctor must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The doctor open the system 2. Select add post 3. Enter the post information and submit
Alternative Courses:	-----
Exception :	-----

Table 16 Use-Case Narrative add clinical examination

Health Management System	
Use Case Name:	Add clinical examination
Actor :	Doctor
Description :	Add examination to private consultation
Precondition :	The doctor must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The doctor open the system 2. The doctor open the private consultation 3. The doctor add the examination
Alternative Courses:	-----
Exception :	-----

Table 13: Use-Case Narrative add note

Health Management System	
Use Case Name:	Add note
Actor :	Doctor
Description :	Add note to the consultation
Precondition :	The doctor must have an account

Typical course of event:	<ol style="list-style-type: none"> 1. The doctor open the system 2. The doctor open the consultation 3. The doctor add the note
Alternative Courses:	-----
Exception :	-----

Table 13: Use-Case Narrative add medication

Health Management System	
Use Case Name:	Add medication
Actor :	Doctor
Description :	Add medication
Precondition :	The doctor must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The doctor open the system 2. The doctor open the consultation 3. The doctor add the medication
Alternative Courses:	-----
Exception :	-----

Table 13: Use-Case Narrative manage doctors

Health Management System	
Use Case Name:	Manage doctors
Actor :	Admin
Description :	The admin can active doctors or block them
Precondition :	The admin must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The admin open the system 2. The admin open the doctors page 3. The admin active or block the doctors
Alternative Courses:	-----
Exception :	-----

Table 13: Use-Case Narrative manage cities

Health Management System	
Use Case Name:	Manage cities
Actor :	Admin
Description :	The admin can add city or search for it
Precondition :	The admin must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The admin open the system 2. The admin open the cities page 3. The admin add or search for a city
Alternative Courses:	-----
Exception :	-----

Table 13: Use-Case Narrative manage specialization

Health Management System	
Use Case Name:	Manage specialization
Actor :	Admin
Description :	The admin can add or search for it
Precondition :	The admin must have an account
Typical course of event:	<ol style="list-style-type: none"> 1. The admin open the system 2. The admin open the specialization page 3. The admin add or search for it
Alternative Courses:	-----
Exception :	-----

3.6.4 Sequence-Diagram :

3.6.4.1 Sequence-Diagram contact messaging :

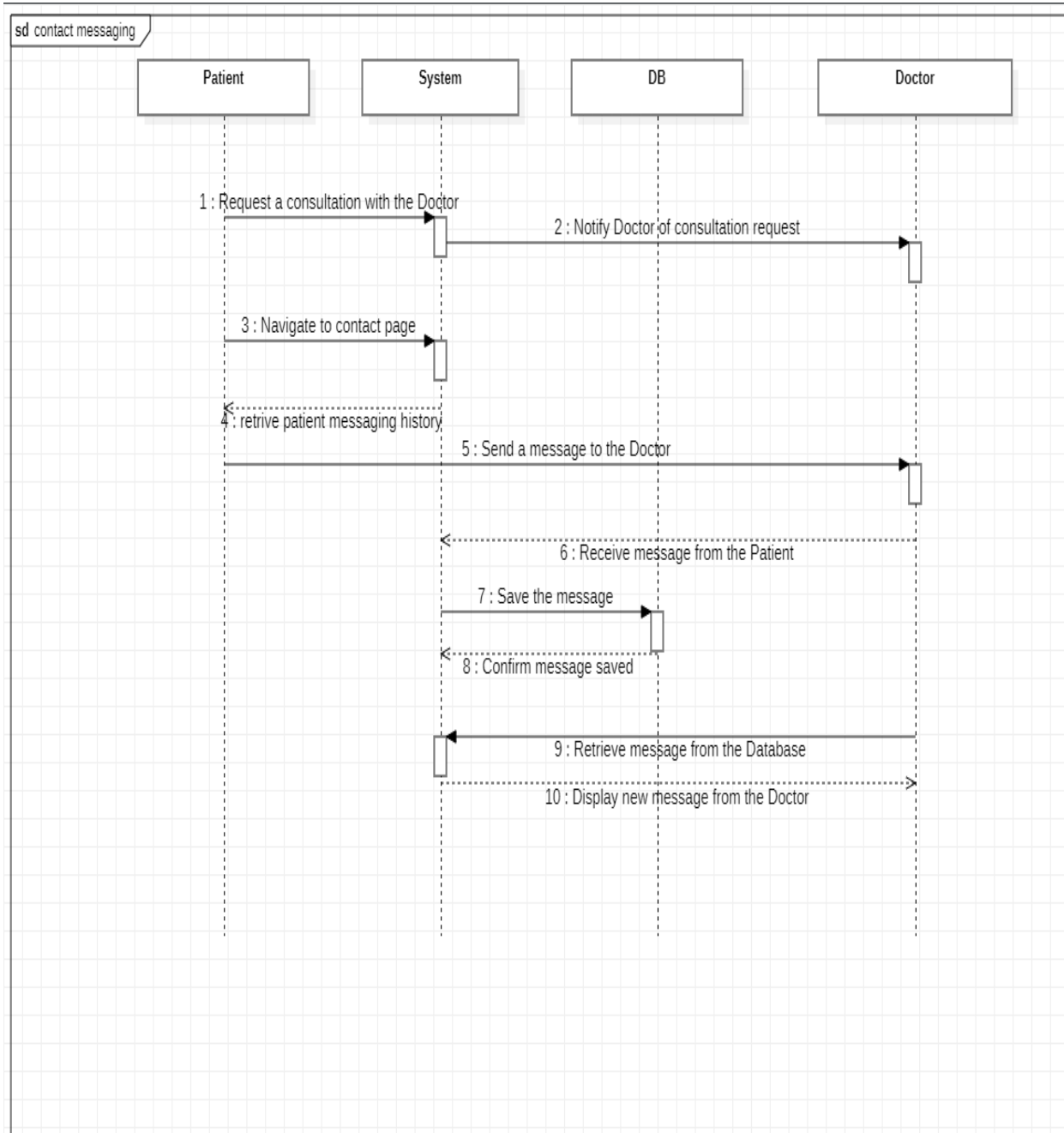


Figure 15 :Sequence-Diagram contact messaging :

3.6.4.2 Sequence-Diagram Add local consultation :

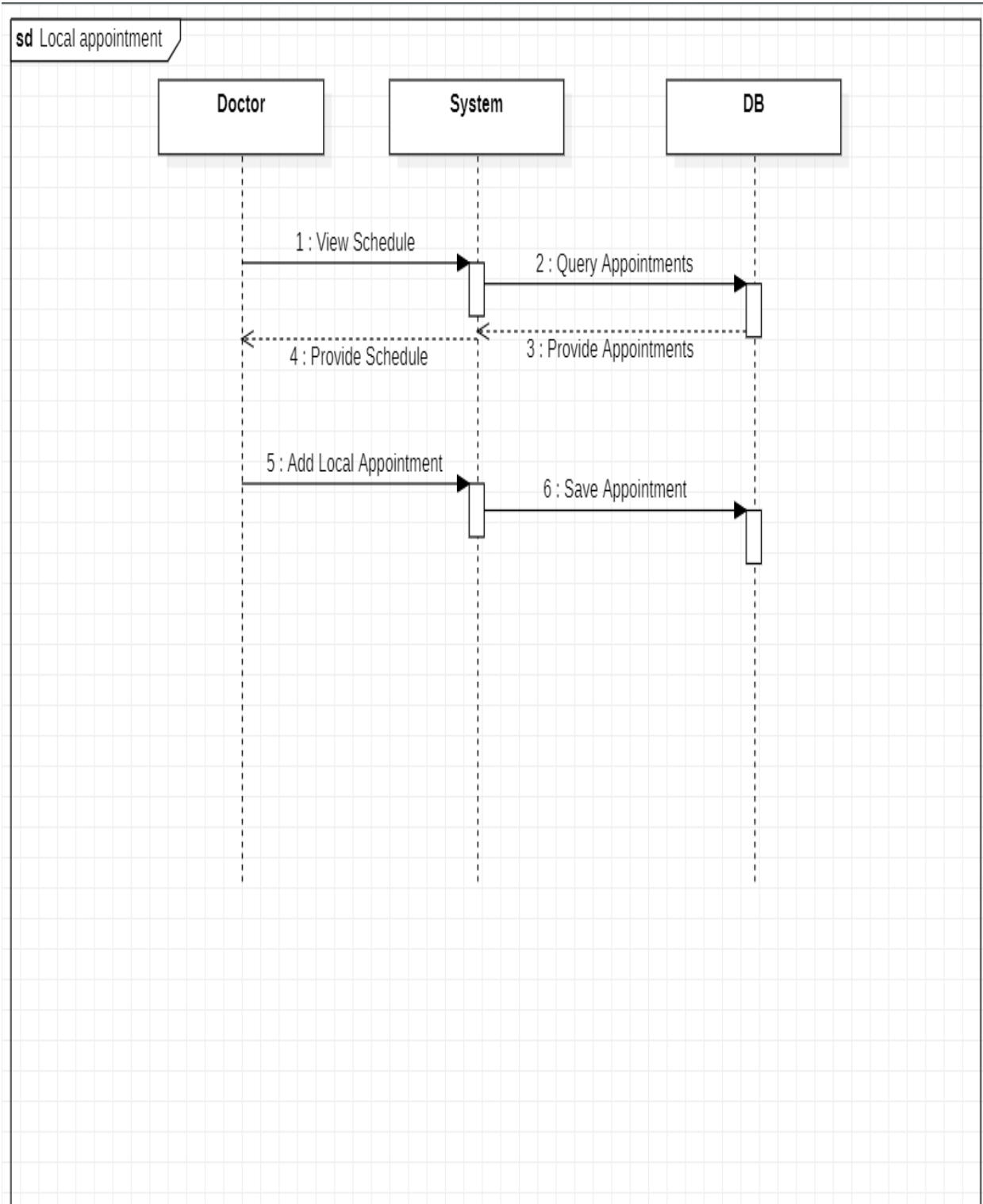


Figure 16: Sequence-Diagram Add local consultation

3.6.4.3 Sequence-Diagram login :

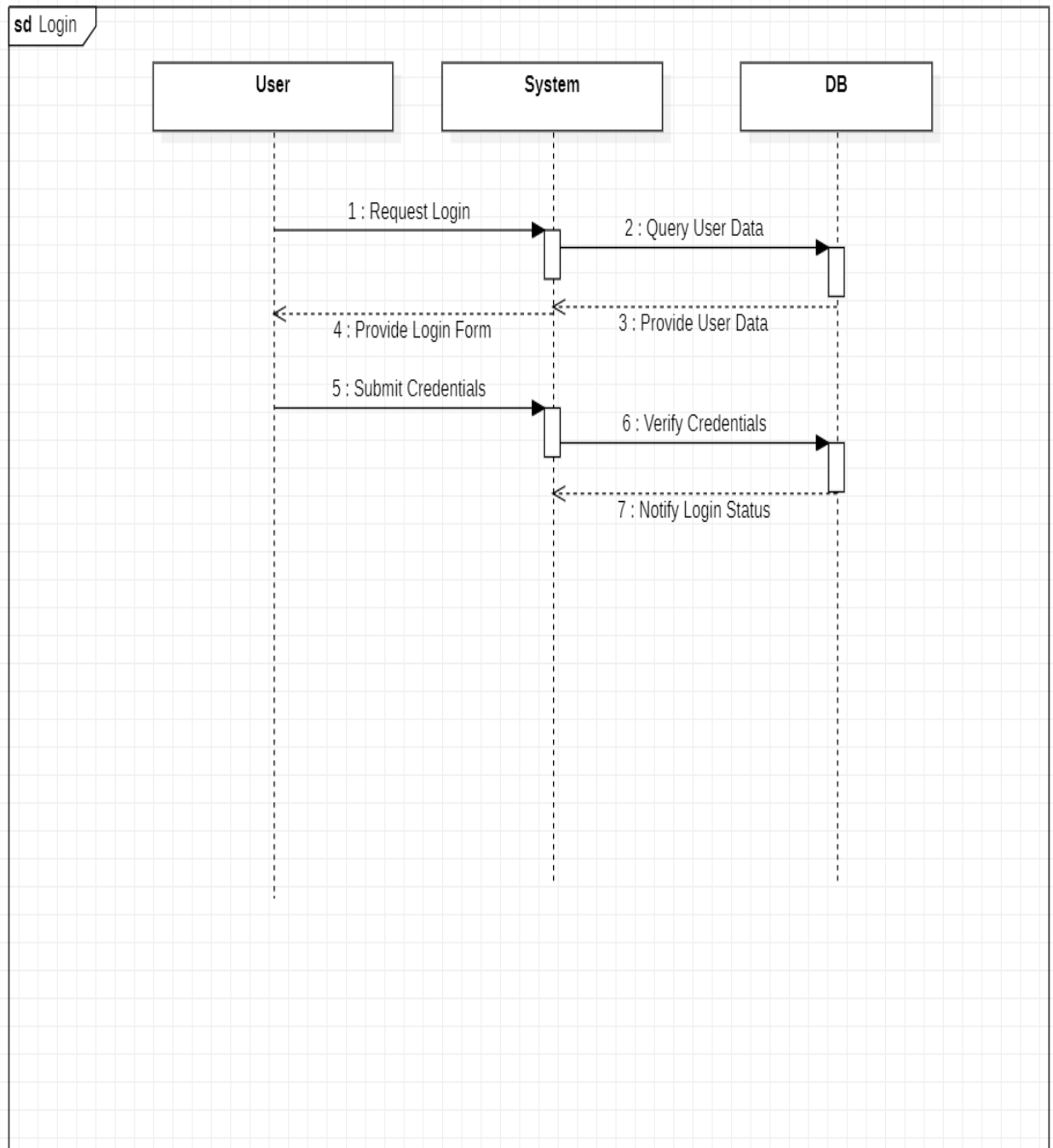


Figure 17: sequence diagram log-in

3.6.4.4 Sequence-Diagram payment :

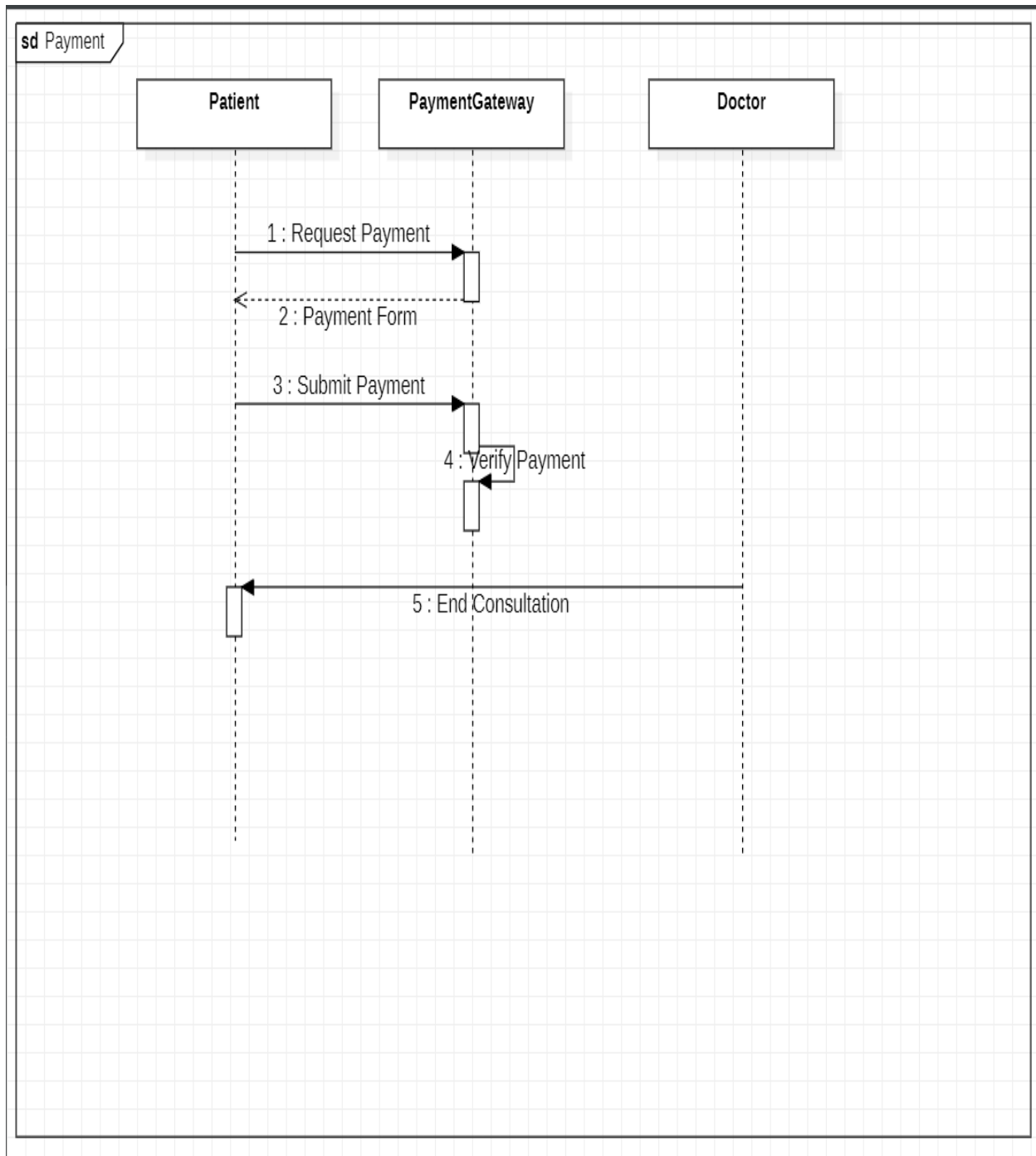


Figure 18: Sequence-Diagram payment

3.6.4.5 Sequence-Diagram manage doctors:

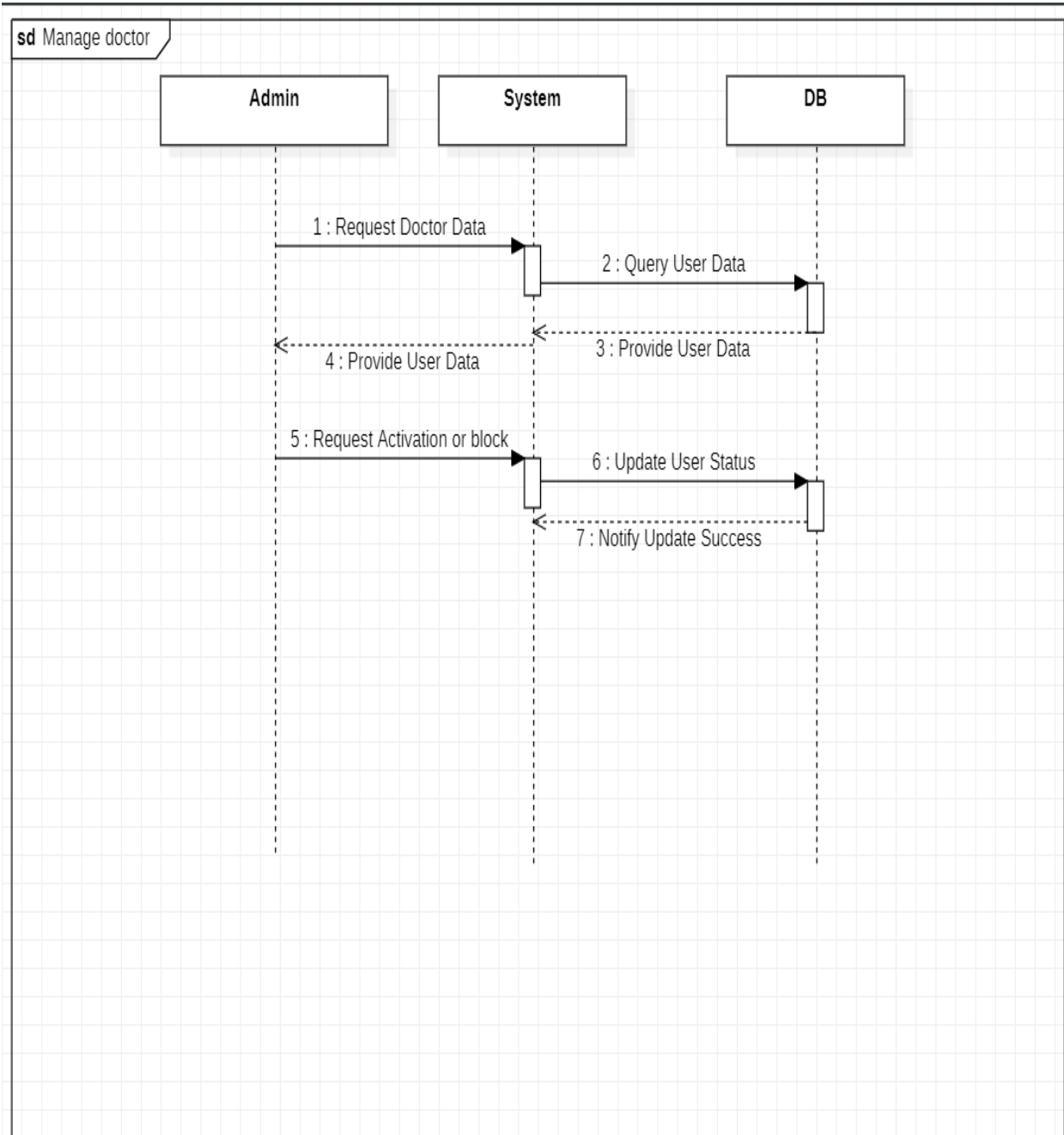


Figure 19: Sequence-Diagram manage doctors:

3.6.4.6 Sequence-Diagram private consultation:

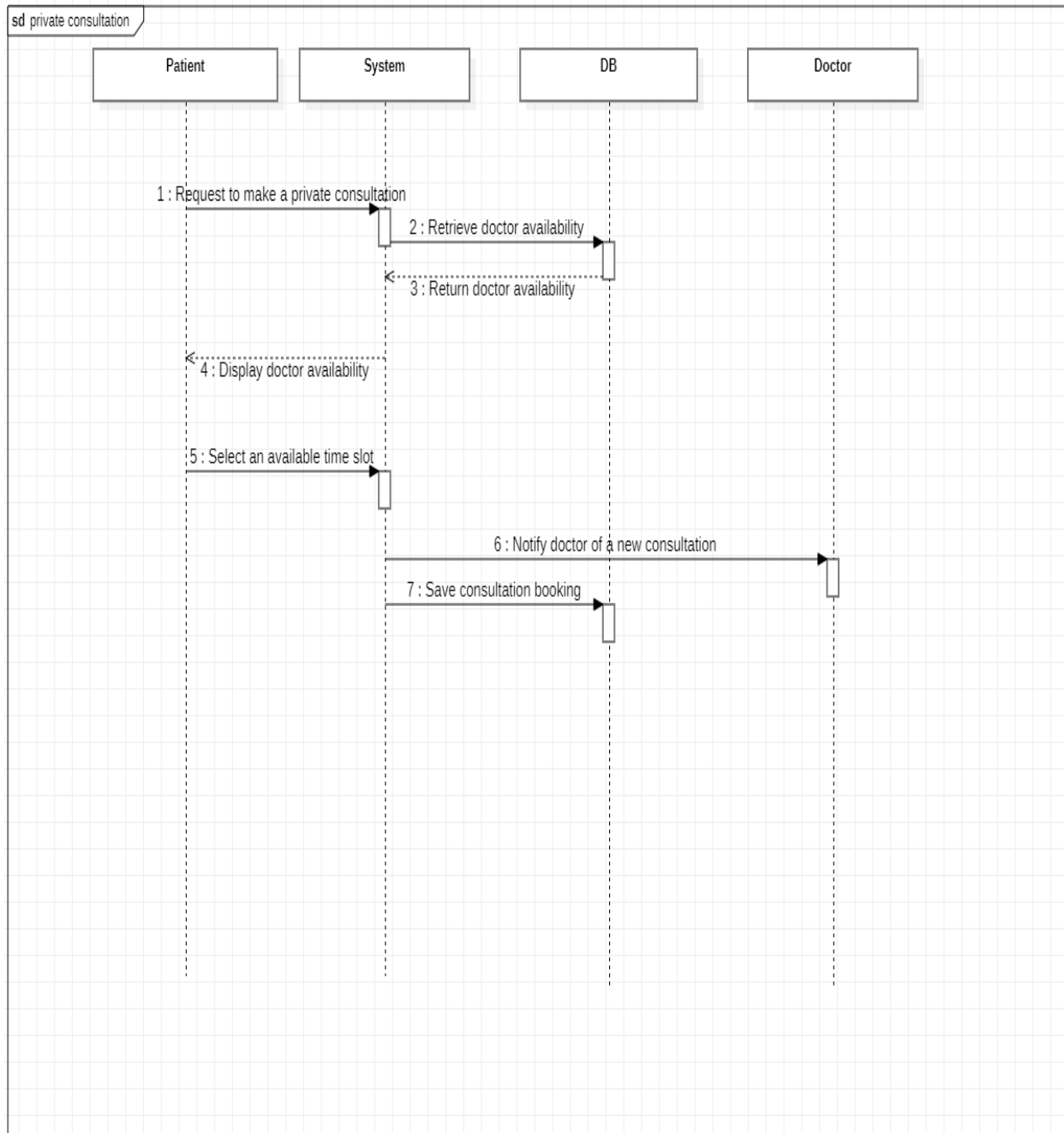


Figure 20: Sequence-Diagram private consultation:

3.6.4.7 Sequence-Diagram view medical post:

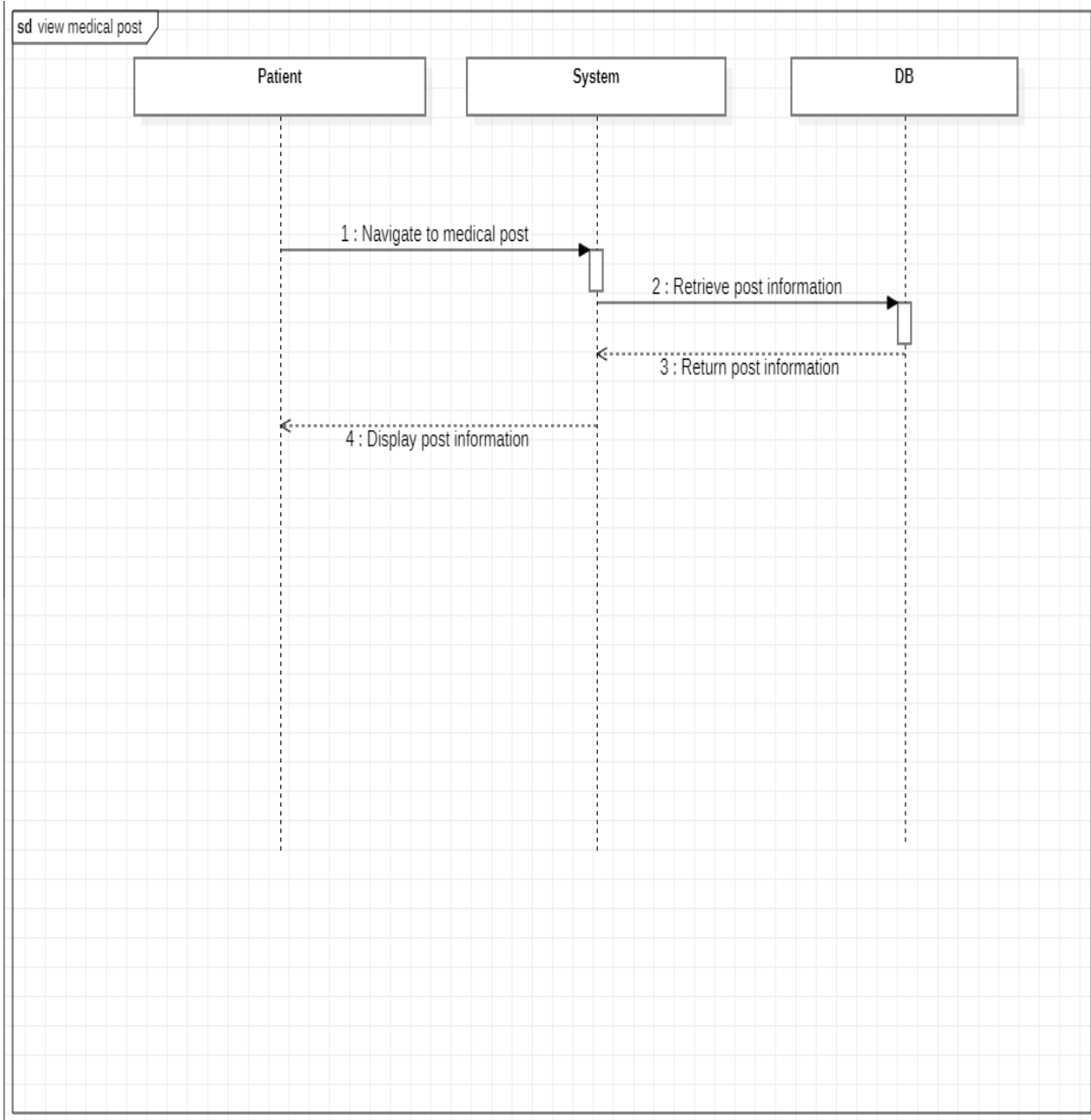


Figure 21: Sequence-Diagram view medical post:

3.6.4.8 Sequence-Diagram manage doctors:

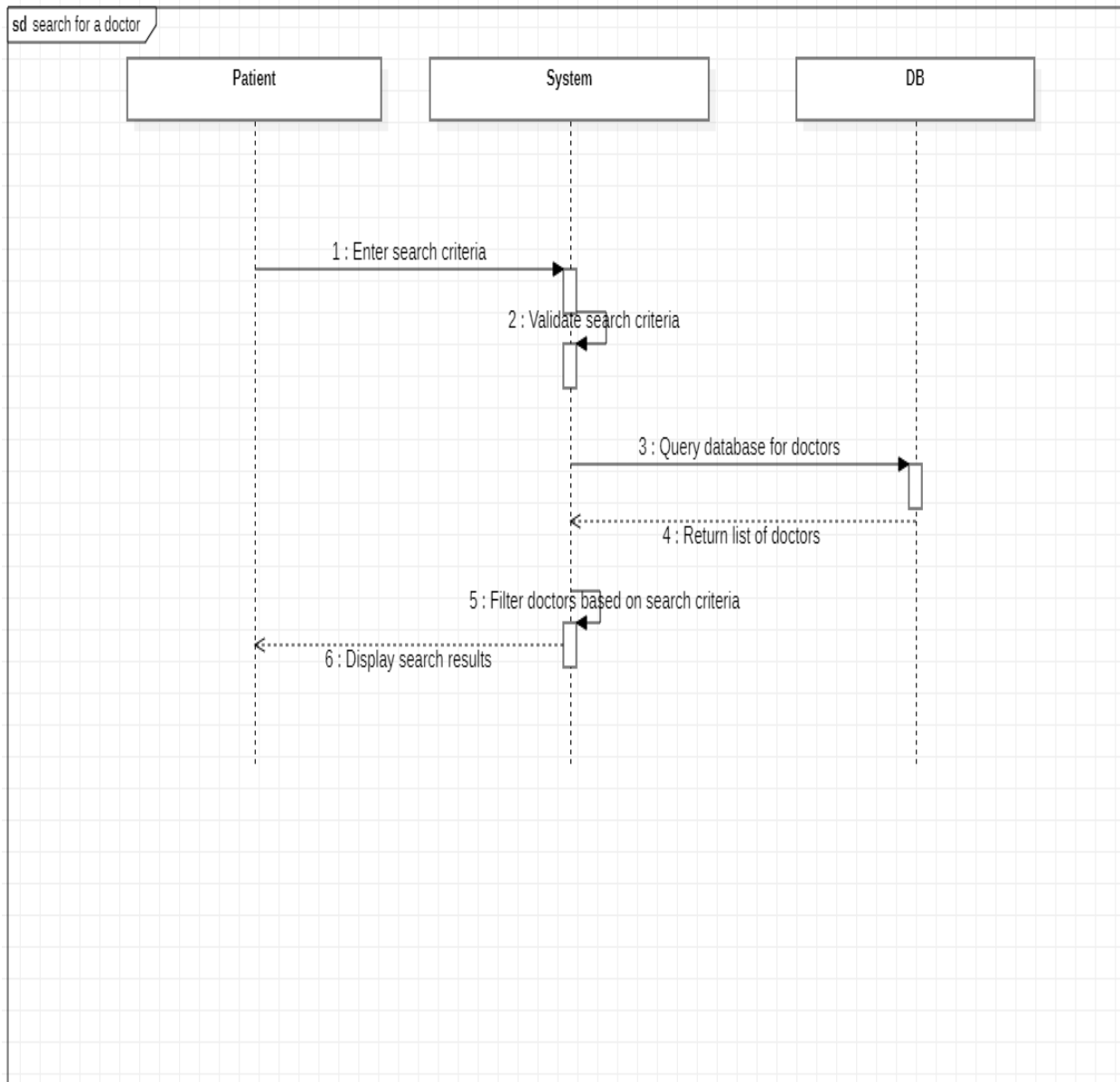


Figure 22: Sequence-Diagram manage doctor

3.6.5 Entity Relationship Diagram (ERD) :

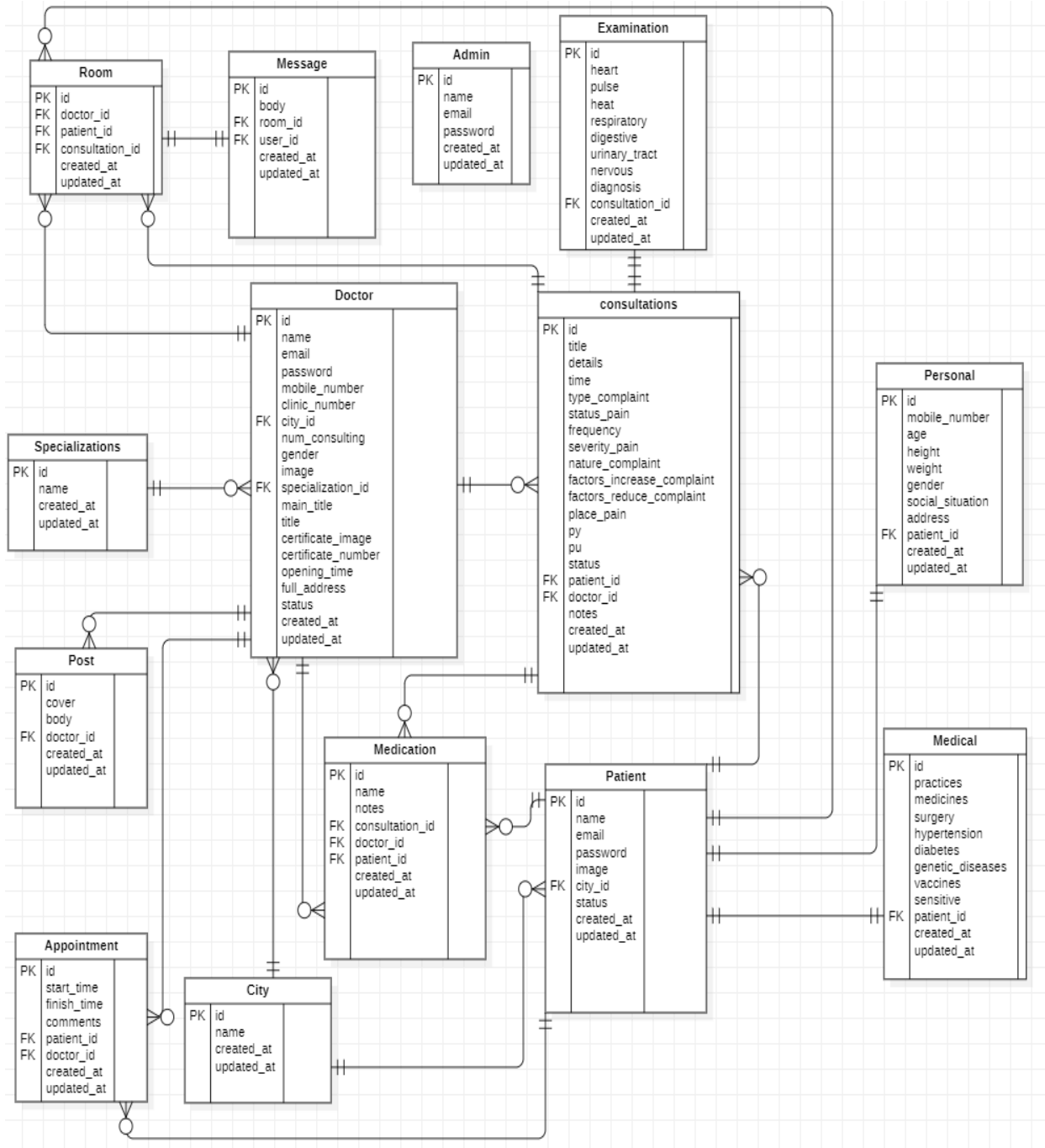


Figure 23: Entity Relationship Diagram

3.7 Design models

3.7.1 Component diagram:

3.7.1.1 Component diagram search for a doctor:

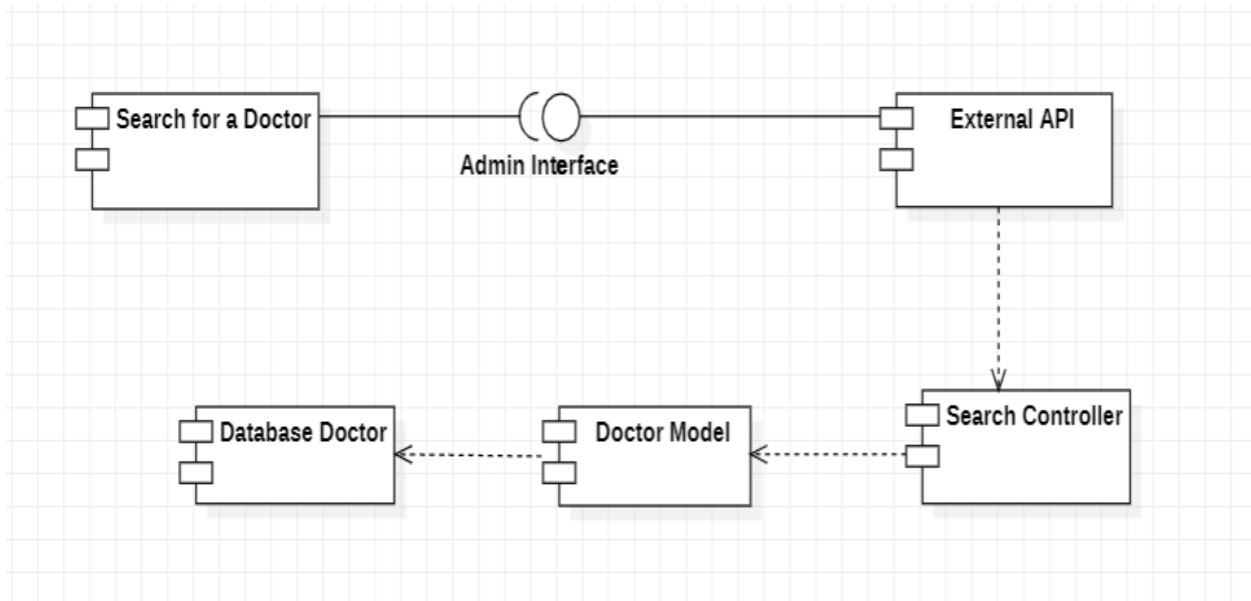


Figure 24: component search doctor

3.7.1.2 Component diagram add post:

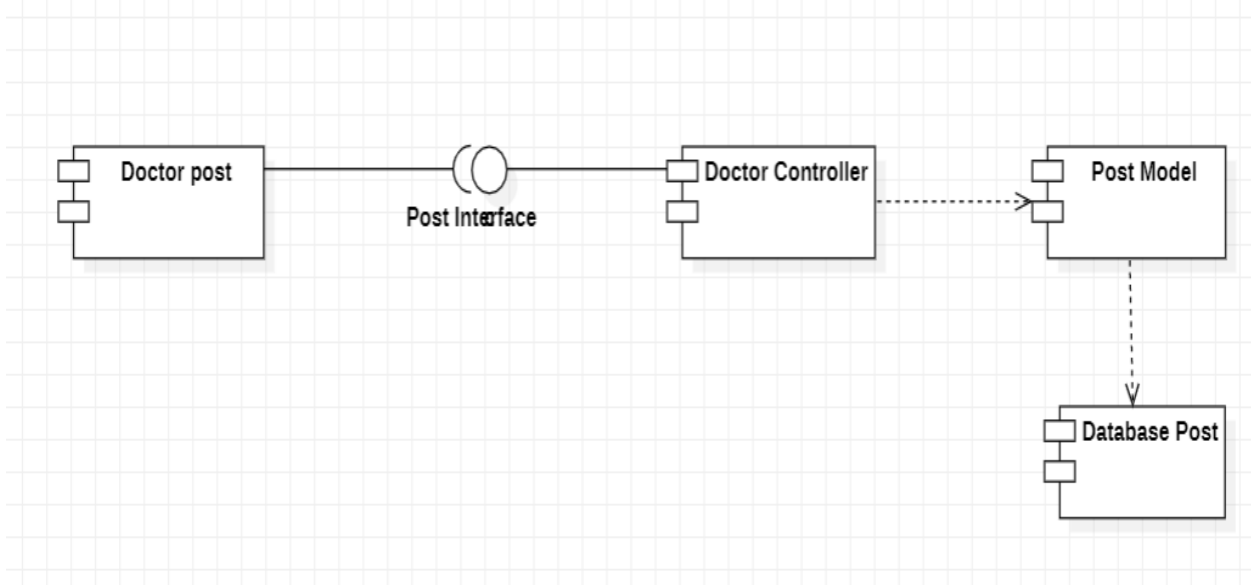


Figure 25 component add patient

3.7.1.3 Component diagram register:

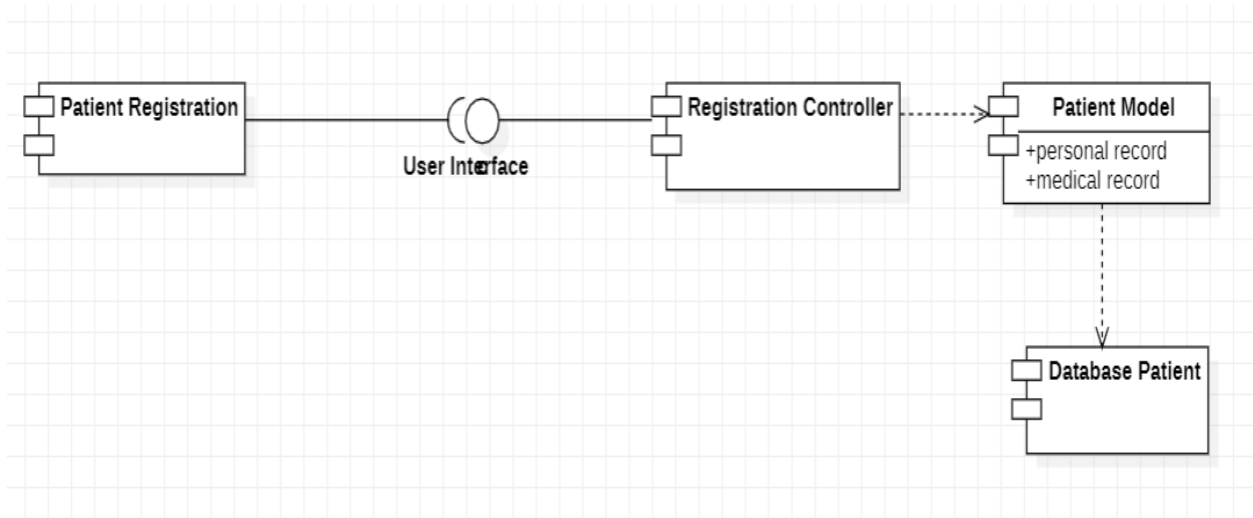


Figure 26: component register

3.7.2 Class-Diagram

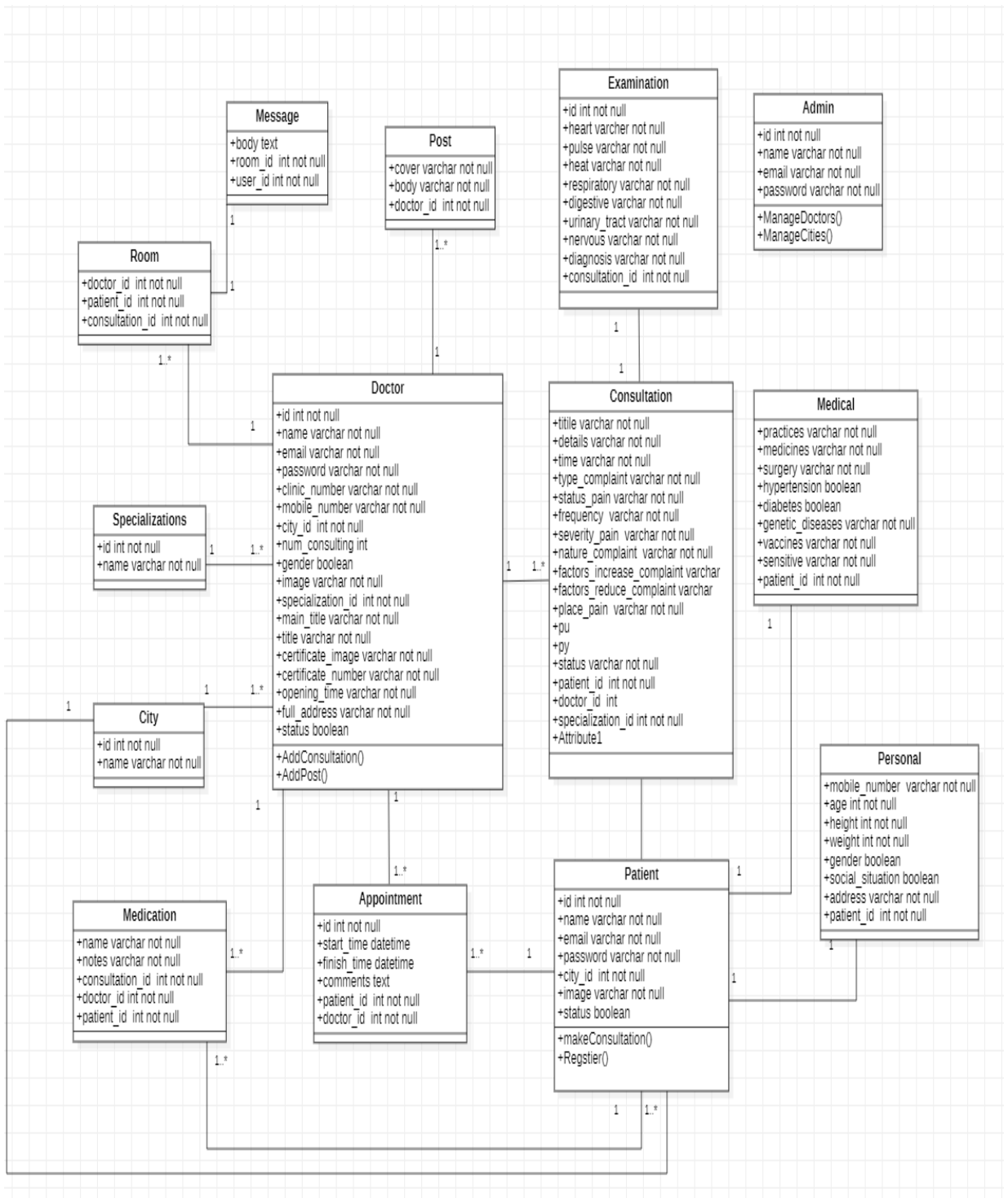


Figure 27: Class-Diagram

3.7.3 Data Base Table :

3.7.3.1 Table Structure for admin :

Table 5: Database Table (Admin Table)

Column	Data type	Description
ID	bigInt(20)	Admin ID
Name	Varchar(255)	Admin name
Email	Varchar(255)	Admin email
password	Varchar(255)	Admin password

3.7.3.2 Table Structure for appointment :

Table 6: Database Table (appointment Table)

Column	Data type	Description
Id	bigInt(20)	Appointment id
Start-time	datetime	Started appointment
Finish-time	datetime	Time finished
comment	longtext	Add notes
Patient-id	Bigint(20)	Patient-id
Doctor-id	Bigint(20)	Doctor-id

3.7.3.3 Table Structure for cities :

Table 7: Database Table (Cities Table)

Column	Data type	Description
Id	Bigint(20)	Cities id
name	Varchar(255)	Name city

3.7.3.4 Table Structure for consultation :

Table 8: Database Table (consultation table)

Column	Data type	Description
Id	bigInt(20)	Appointment id
Title	Varchar(255)	Title of cons
Details	Varchar(255)	Details of cons
Time	Varchar(255)	Time of cons
Type-complaint	Varchar(255)	Type of pain
Status-pain	Varchar(255)	Status of pain
Frequency	Varchar(255)	If pain frequency?
Severity-pain	Varchar(255)	Pain degree
Nature-complaint	Varchar(255)	Patient degree
Factor-increase-complaint	Varchar(255)	Patient degree
Factor-reduce-complaint	Varchar(255)	Patient degree
Place-pain	Varchar(255)	Place pain
Py	Tinyint(1)	Py
Pu	Tinyint(1)	Pu
Status	Varchar(255)	Status patient
Notes	Text	If patient have any note
Specialization-id	Bigint(20)	Specialization id
Patient-id	Bigint(20)	Patient-id
Doctor-id	Bigint(20)	Doctor-id

3.7.3.5 *Table Structure for Doctors:***Table 9: Database Table (doctors table)**

Column	Data type	Description
Id	bigInt(20)	Doctor id
Name	Varchar(255)	Doctor name
Email	Varchar(255)	Doctor email
Password	Varchar(255)	Password account
Mobile-number	Varchar(255)	Mobile phone
Clinical-number	Varchar(255)	Clinic number
City-id	Bigint(20)	City id
Num-consulting	Int(11)	Num-consulting
Image	Varchar(255)	Doctor image
Gender	Tinyint(1)	Male/female
Main-title	Varchar(255)	Specialization main title
Title	Varchar(255)	Specialization title
Certificate-image	Tinyint(1)	Certificate image
Certificate-number	Tinyint(1)	Certificate number
Opening-time	Varchar(255)	Clinical open time
Full-address	Text	Clinical full address
Specialization-id	Bigint(20)	Specialization id
Status	Tinyint(1)	Doctor status

3.7.3.6 *Table Structure for Table examination :***Table 10: Database Table (examination Table)**

Column	Data type	Description
id	bigInt(20)	Id examination
Heart	Varchar(255)	Heart status
Pulse	Varchar(255)	Pulse degree
Heat	Varchar(255)	Heat degree
Respiratory	Varchar(255)	Respiratory status
Digestive	Varchar(255)	Digestive status
Urinary-tract	Varchar(255)	Urinary status

Nervous	Varchar(255)	Nervous status
Diagnosis	Varchar(255)	Diagnosis status
Consultation-id	Bigint(20)	Cons-id

3.7.3.7 Table Structure for Table medicals :

Table 11: Database Table (medicals Table)

Column	Data type	Description
Id	bigInt(20)	Medical id
Practices	Varchar(200)	Patient practice
Medicines	Varchar(200)	Drugs
Surgery	Varchar(200)	If patient do surgery
Hypertension	Tinyint(1)	If patient have hypertension
Diabetes	Tinyint(1)	If patient have diabetes
Genetic-disease	Varchar(200)	If patient have genetic disease
Vaccines	Varchar(255)	Vaccine
Sensitive	Varchar(200)	Any sensitive
Patient-id	Bigint(20)	Patient id

3.7.3.8 Table Structure for Table medication :

Table 12: Database Table (medication Table)

Column	Data type	Description
Id	bigInt(20)	ID medication
Name	Varchar(255)	Medication name
Notes	Varchar(255)	Notes and advices
Consultation-id	bigInt(20)	Cons id
Doctor-id	bigInt(20)	Dr id
Patient-id	bigInt(20)	Patient id

3.7.3.9 Table Structure for Table messages:

Table 13: Database Table (messages Table)

Column	Data type	Description
---------------	------------------	--------------------

Id	Bigint(1)	Id
Body	Varchar(255)	Longtext
Room-id	Bigint(1)	Room id
User-id	Tinyint(1)	User id

3.7.3.10 Table Structure for Table migration :

Table 14: Database Table (migration Table)

Column	Data type	Description
Id	bigInt(20)	Id migration
Migration	Varchar(255)	Migration
Batch	Int(11)	Batch

3.7.3.11 Table Structure for Table patient :

Table 15: Database Table (patient Table)

Column	Data type	Description
Id	Bigint(20)	Patient id
Name	Varchar(255)	Patient name
Email	Varchar(255)	Patient email
Password	Varchar(255)	Patient password
Image	Varchar(255)	Patient image
City-id	bigint(11)	City id
Status	Tinyint(1)	Married / unmarreid

3.7.3.12 Table Structure for Table personals:

Table 16: Database Table (personals Table)

Column	Data type	Description
Id	Bigint(20)	Id
Mobile-number	Varchar(255)	Patient mobile number
age	Int(11)	Patient age
Height	Int(11)	Patient height
Weight	Int(11)	The patient weight

gender	Tinyint(1)	Female/male
Social-situation	Tinyint(1)	The patient status
Address	Varchar(255)	The patient address
Patient-id	Bigint(20)	The patient id

3.7.3.13 Table Structure for Table posts :

Table 17: Database Table (posts Table)

Column	Data type	Description
Id	Bigint(20)	Id posts
Cover	Varchar(255)	Images posts
Body	Longtext	Text
Doctor-id	Bigint(20)	Doctor-id

3.7.3.14 Table Structure for Table rooms :

Table 18: Database Table (rooms table)

Column	Data type	Description
Id	Bigint(20)	Id room
Doctor-id	Bigint(20)	Doctor id
Patient-id	Bigint(20)	Patient id
Consultation-id	Bigint(20)	Cons id

3.7.3.15 Table Structure for Table specialization :

Table 19: Database Table (specialization table)

Column	Data type	Description
id	Int(11)	specialization id
Name	Varchar(255)	Specialization name

3.8 preliminary exams:

3.8.1 Introduction:

The biggest challenge lies in verifying the correct functioning of the system and performing the required functions correctly, and this requires a sufficient amount of tests, and of course, the correct way to test any system must be carried out according to a correct methodology and successive stages to ensure the correctness of the workflow, and therefore a set of tests has been implemented During the development stages of the system, and when performing the test, it is ensured that there are no errors within the software because some of these errors remain latent until the system is running, which leads to the failure of the system to perform its functions. The errors detected vary in their degree of seriousness, because the error resulting from the software investigation stage is considered one of the easy mistakes, while the error resulting from the lack of a correct understanding of the problem, which appears clearly in the analysis stage, which leads to errors in all subsequent stages, and the same is true for the design, the error in this stage It may be due to the designer's inexperience or not understanding the analysis properly.

3.8.2 Tests During Development:

3.8.2.1 *Software Unit Testing:*

It is the test that each member of the project has done on the software unit that he has developed, and thus each individual is responsible for doing this type of test.

3.8.2.2 *Integration Test :*

It is the test through which the compatibility of the software interfaces with each other and their ability to work with each other is verified. This test is done when the software modules are grouped together to perform a function of the system.

3.8.2.3 *Quality Tests:*

They are the tests for the domain in which the system was developed.

3.8.3 Tests After Development:

3.8.3.1 *Google Lighthouse:*

A new tool by Google is to test and give you the recommendation to improve performance, SEO, security, best practices, and accessibility. There are more than 75 metrics it tests and gives you

overall scoring. You might be interested in some of the following popular ones as a site owner, SEO analyst, and webmaster.

1. Performance – time to interactive, latency, speed index, resources optimization, TTFB, asset delivery, scripts execution time, DOM size, etc.
2. SEO – Mobile friendly, meta, crawling, canonical, structure, etc.
3. Best Practices – Image optimization, JS libraries, browser error logging, accessible over HTTPS, known JS vulnerabilities, etc.
4. Accessibility – Page elements, language, ARIA attributes, etc.
5. PWA (Progressive Web Application) – redirect HTTP to HTTPS, response code ok, fast loading on 3G, splash screen, viewport, etc.

3.8.4 List of preliminary exams:

Table 20: List of preliminary exams

<u>Tests</u>	<u>Status</u>
Software Unit Testing:	In progress
Integration Tests :	In progress
Quality Tests:	In progress
Google Lighthouse:	In progress

3.9 Requirements tracking matrix:

Table 21: Requirements tracking matrix

REQUIREMENTS TRACEABILITY MATRIX							
Project Name:	Health management information system						
National Center:	damascuse						
Project Manager:	sarahamami , salamdahouk , ramaarafah						
Project Description:	Establishing a paperless electronic health system that enhances the smooth data extraction process so that the health data of each patient becomes easily available to health care provider						
ID	Assoc ID	Use case	Requirement description	system component	Status	Test Case Number	Tested In
001	1.1.1	Register /login	register/login of the web application should be enabled	logic component	In Progress	T-01	In Progress
002	2.2.2	add post	doctor can add medical post to the system	add post component	In Progress	T-02	In Progress
003	3.3.3	appointment management	doctors can manage his appointment	appointment component	In Progress	T-03	In Progress
004	4.4.4	view consultation	doctors can show a patient consultation	view consultation component	In Progress	T-04	In Progress
005	5.5.5	add medication	The doctor can write the appropriate medicine for the patient	add medication component	In Progress	T-05	In Progress
006	6.6.6	add note	doctor can write the addition note about consultation	add note component	In Progress	T-06	In Progress
007	7.7.7	contact messaging	if doctor want any additin information about patient doctor can send message to him/her	contact message component	In Progress	T-07	In Progress
008	8.8.8	view consultation list	doctor can show a patient consultation	view consultation list component	In Progress	T-08	In Progress
009	9.9.9	add local appointment	doctor can reserved an appointment	add local appointment component	In Progress	T-09	In Progress
010	10.10.10	add clinical examination	Doctor writing for clinical examination of symptoms and complications	add clinical component	In Progress	T-10	In Progress
011	11.11.11	view private consultation	The doctor can see the private consultation of his patients	view private consultation component	In Progress	T-11	In Progress
012	12.12.12	add personal record	patient can add his personal information	add personal record component	In Progress	T-12	In Progress
013	13.13.13	add medical record	patient can add his medical information	view medical post component	In Progress	T-13	In Progress
014	14.14.14	view medical post	patient can see medical posts that doctor post them	view medical post component	In Progress	T-14	In Progress
015	15.15.15	show consultation	patient can see his consultations	show consultation component	In Progress	T-15	In Progress
016	16.16.16	search fo a doctor	patient can search foe a doctor	search fo a doctor component	In Progress	T-16	In Progress
017	17.17.17	view note	patient can view notes that doctor written	view note component	In Progress	T-17	In Progress
018	18.18.18	view medications	patient can view medicationss that doctor written	view medications component	In Progress	T-18	In Progress
019	19.19.19	make a consultation(private , public)	patient can make a consultation(private , public)	make a consultation(private , public) component	In Progress	T-19	In Progress
020	10.20.10	view clinical examination	patient can view clinical examinations	view clinical examination component	In Progress	T-20	In Progress
021	11.21.11	add calenda	patient can add calendas	add calenda component	In Progress	T-21	In Progress
022	12.22.12	show personal record	patient can show personal records	show personal record component	In Progress	T-22	In Progress
023	13.23.13	payment	patient can pay mony for publis cons	payment component	In Progress	T-23	In Progress
024	14.24.14	statistics	admin can see statistics about the system	statistics component	In Progress	T-24	In Progress
025	15.25.15	manages doctor	admin can manage doctor	manages doctor component	In Progress	T-25	In Progress
026	16.26.16	manage specialization	admin can manage doctor specialization	manage specialization component	In Progress	T-26	In Progress
027	17.27.17	search for a city	admin can search for a city	search for a city component	In Progress	T-27	In Progress
028	18.28.18	search for a doctor	admin can search for a doctor	search for a doctor component	In Progress	T-28	In Progress
029	19.29.19	search for a specialization	admin can seach foe a doctor specialization	search for a specialization component	In Progress	T-29	In Progress

3.10 system architecture:

3.10.1 mvc architecture:

MVC is an acronym for 'Model View Controller'. It represents architecture developers adopt when building applications. With the MVC architecture, we look at the application structure with regards to how the data flow of our application works

MVC is a software architecture, that separates domain/application/business...logic from the rest of the user interface. It does this by separating the application into three parts: the model, the view, and the controller.

3.10.1.1 Model:

deals with the data that the user deals with and enters it into the database or extracts certain data from it. If its role is limited to dealing with databases.

3.10.1.2 View:

It is the interface that the user deals with in the application, such as lists, search fields, slides, and others.

3.10.1.3 Controller:

It is the mediator between the view and the controller, as it handles logical operations and incoming requests (requests), as well as dealing with data coming from databases to output it to the view in an appropriate manner.

3.10.2 We will list down some of the key advantages of MVC:

Splitting roles in your project are easier:

When the MVC architecture is adopted, you have the advantage of splitting roles in the project Structurally:

MVC can force you to split your files into logical directories which makes it easier to find files when working on large projects and Strategy.

3.10.2.1 Ease of development:

Thanks to this separation of the components of the project, it is easy to develop one of these main parts without prejudice to the other parts.

3.10.2.2 Ease of understanding

the code: thanks to the spread of this pattern in design, the code written in it is understandable to all developers who know this pattern, and thus others can complete your work and facilitate the work of teams in major projects.

3.10.2.3 Ease of error detection:

Thanks to abstraction, it is easy to detect errors in the code in the least time.

3.10.3 Security:

3.10.3.1 Authentication:

Laravel includes built-in authentication and session services which are typically accessed via the Auth and Session facades. These features provide cookie-based authentication for requests that are initiated from web browsers. They provide methods that allow you to verify

a user's credentials and authenticate the user. In addition, these services will automatically store the proper authentication data in the user's session and issue the user's session cookie.

3.10.3.2 authentication

In addition to providing built-in authentication services, Laravel also provides a simple way to authorize user actions against a given resource. For example, even though a user is authenticated, they may not be authorized to update or delete certain Eloquent models or database records managed by your application. Laravel's authorization features provide an easy, organized way of managing these types of authorization checks

3.10.3.3 verify their email addresses:

Many web applications require users to verify their email addresses before using the application. Rather than forcing you to re-implement this feature by hand for each application you create, Laravel provides convenient built-in services for sending and verifying email verification requests.

3.10.3.4 Configuration:

You may encrypt a value using the encrypt String method provided by the Crypt facade. All encrypted values are encrypted using OpenSSL and the AES-256-CBC cipher. Furthermore, all encrypted values are signed with a message authentication code (MAC). The integrated message authentication code will prevent the decryption of any values that have been tampered with by malicious users

3.10.4 testing:

3.10.4.1 Http:

Laravel provides a very fluent API for making HTTP requests to your application and examining the responses.

3.10.5 System architecture diagram:

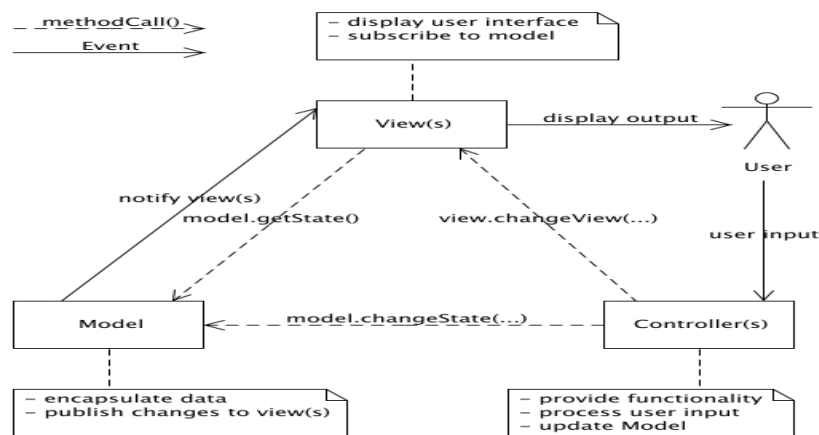


Figure 28: architecture diagram:

3.1 in conclusion:

We built the application with the best software standards to achieve quality specifications

Chapter Four

Design study of the proposed system

4 chapter four - Design study of the proposed system

4.1 introduction:

In this chapter we will study on-site design models and study system diagram .

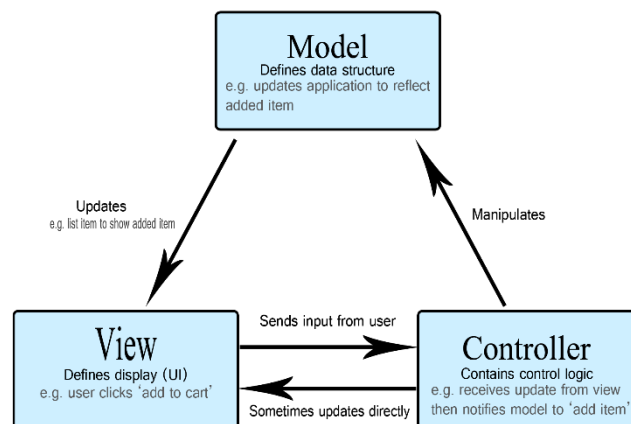
4.2 Design models:

4.2.1 physical level:

The MVC (Model-View-Controller) pattern can be thought of as an architecture and a design model at the physical level. MVC is used to divide an application into three main components: Model, View, and Controller. These components are used to achieve separation of concerns and improve maintainability and reusability.

Although MVC is considered an architecture, it is also used as a design model at the physical level, where the pattern is implemented at the code level and the actual design of the application. Thus, MVC helps improve design quality, code management, reuse, and maintenance.

At the physical level, Laravel's design model is based on the Model-View-Controller (MVC) architecture pattern. The Model represents the data and business logic of the application. It is responsible for managing data storage, retrieval, and validation. The View is responsible for rendering the user interface. It acts as an intermediary between the Model and View¹ ,They allow you to perform common database operations such as inserting, updating, and deleting records¹



4.3 Design diagrams:

4.3.1 Web page diagram:

4.3.1.1 System interface tree:

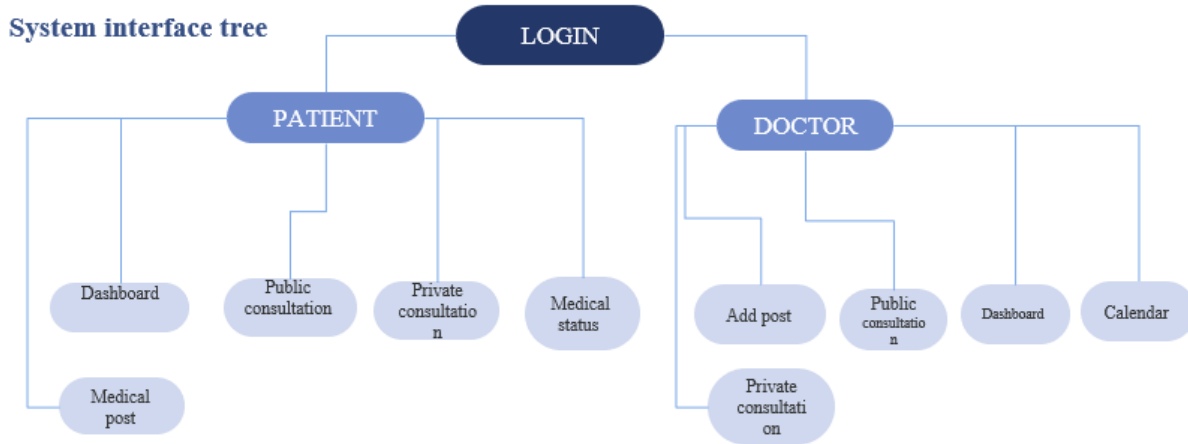


Figure 28: System interface tree2

4.3.1.2 Patient page diagram:

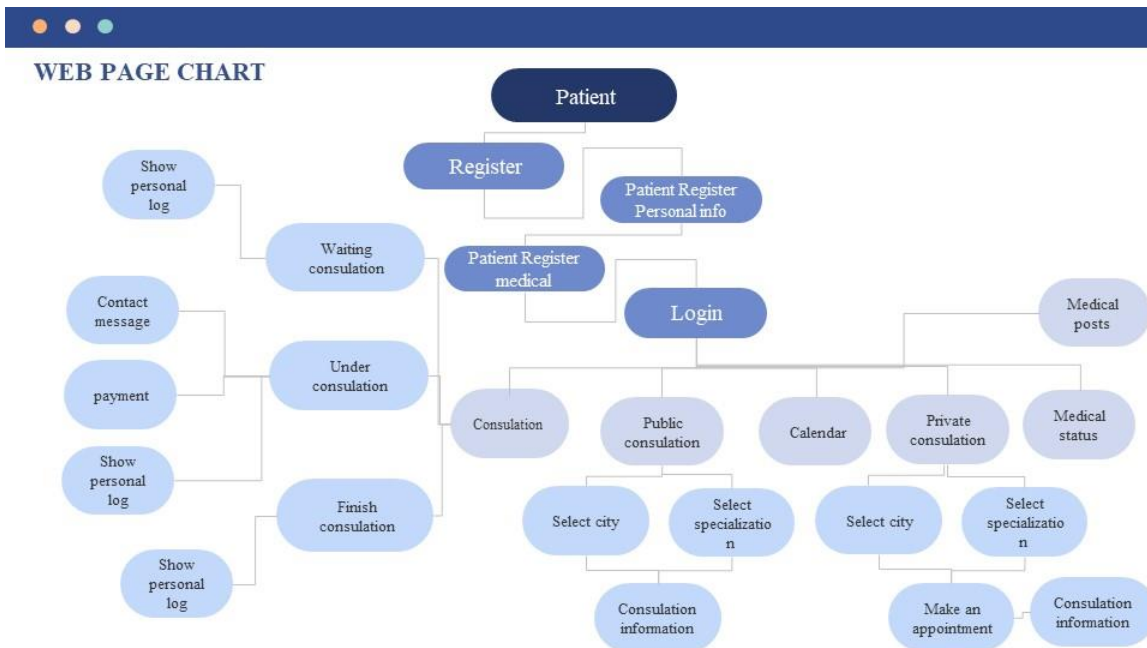


Figure 29; Patient page diagram

4.3.1.3 Doctor page diagram:

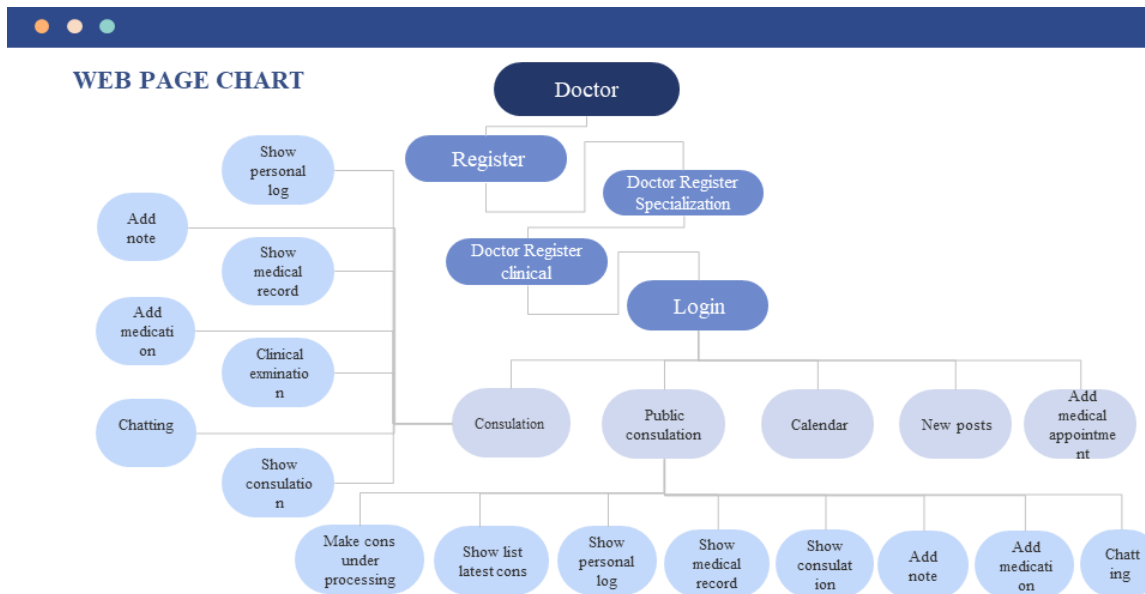


Figure 30: Doctor page diagram:

4.3.1.4 Admin page diagram:

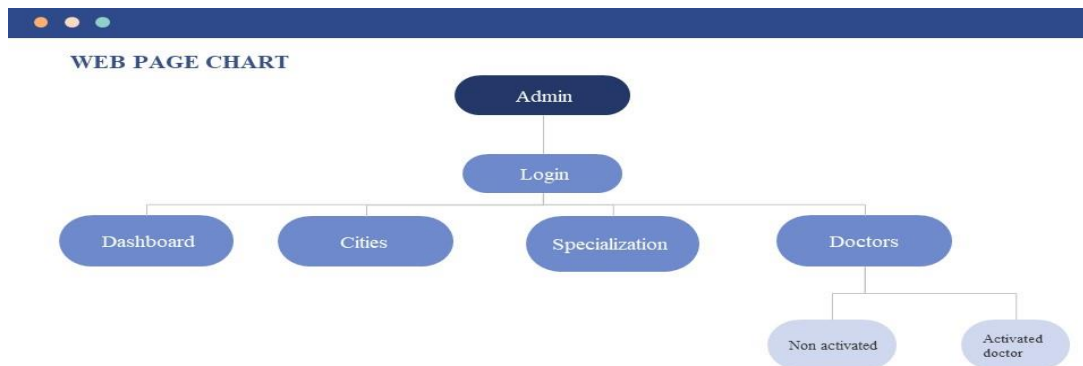


Figure 31: Admin page diagram

4.4 Algorithms used:

4.4.1 Indexes:

MySQL uses indexes to find rows with specific column values quickly. Without an index, MySQL must begin with the first row and then read through the entire table to find the relevant rows. The larger the table, the more this costs

4.4.2 Hash:

Laravel uses several algorithms for different purposes. For example, Laravel’s Hash class provides a simple way to generate and compare hashes for passwords and other sensitive data. The Hash class uses the Bcrypt and Argon2 algorithms. Bcrypt is a widely-used and highly secure hashing algorithm

4.5 Update test list :

Table 22: Update test list

Tests	Status
Software Unit Testing:	Test
Integration Tests :	Test
Quality Tests:	Test
Google Lighthouse:	Test

4.6 Update Requirements tracking matrix:

Table 23: Update Requirements tracking matrix:

REQUIREMENTS TRACEABILITY MATRIX							
Project Name:	Health management information system						
National Center:	damascuse						
Project Manager:	sarahamami , salamdahouk , ramaarafeh						
Project Description:	Establishing a paperless electronic health system that enhances the smooth data extraction process so that the health data of each patient becomes easily available to health care provide						
ID	Assoc ID	Use case	Requirement description	system component	Status	Test Case Number	Tested In
001	1.1.1	Register/login	register/login of the web application should be enabled	logic component	Testing	T-01	Testing
002	2.2.2	add post	doctor can add medical post to the system	add post component	Testing	T-02	Testing
003	3.3.3	appointment management	doctors can manage his appointment	appointment component	Testing	T-03	Testing
004	4.4.4	view consultation	doctors can show a patient consultation	view consultation component	Testing	T-04	Testing
005	5.5.5	add medication	The doctor can write the appropriate medicine for the patient	add medication component	Testing	T-05	Testing
006	6.6.6	add note	doctor can write the addition note about consultation	add note component	Testing	T-06	Testing
007	7.7.7	contact messaging	if doctor want any additin information about patient doctor can send message to him/her	contact message component	Testing	T-07	Testing
008	8.8.8	view consultation list	doctor can show a patient consultation	view consultation list component	Testing	T-08	Testing
009	9.9.9	add local appointment	doctor can reserved an appointment	add local appointment component	Testing	T-09	Testing
010	10.10.10	add clinical examination	Doctor writing for clinical examination of symptoms and complications	add clinical component	Testing	T-10	Testing
011	11.11.11	view private consultation	The doctor can see the private consultation of his patients	view private consultation component	Testing	T-11	Testing
012	12.12.12	add personal record	patient can add his personal information	add personal record component	Testing	T-12	Testing
013	13.13.13	add medical record	patient can add his medical information	view medical post component	Testing	T-13	Testing
014	14.14.14	view medical post	patient can see medical posts that doctor post them	view medical post component	Testing	T-14	Testing
015	15.15.15	show consultation	patient can see his consultations	show consultation component	Testing	T-15	Testing
016	16.16.16	search fo a doctor	patient can search foe a doctor	search fo a doctor component	Testing	T-16	Testing
017	17.17.17	view note	patient can view notes that doctor written	view note component	Testing	T-17	Testing
018	18.18.18	view medications	patient can view medications that doctor written	view medications component	Testing	T-18	Testing
019	19.19.19	make a consultation(private , public)	patient can make a consultation(private , public)	make a consultation(private , public) component	Testing	T-19	Testing
020	10.20.10	view clinical examination	patient can view clinical examinations	view clinical examination component	Testing	T-20	Testing
021	11.21.11	add calenda	patient can add calendass	add calenda component	Testing	T-21	Testing
022	12.22.12	show personal record	patient can show personal records	show personal record component	Testing	T-22	Testing
023	13.23.13	payment	patient can pay money for publis cons	payment component	Testing	T-23	Testing
024	14.24.14	statistics	admin can see statistics about the system	statistics component	Testing	T-24	Testing
025	15.25.15	manages doctor	admin can manage doctor	manages doctor component	Testing	T-25	Testing
026	16.26.16	manage specialization	admin can manage doctor specialization	manage specialization component	Testing	T-26	Testing
027	17.27.17	search for a city	admin can search for a city	search for a city component	Testing	T-27	Testing
028	18.28.18	search for a doctor	admin can search for a doctor	search for a doctor component	Testing	T-28	Testing
029	19.29.19	search for a specialization	admin can search foe a doctor specialization	search for a specialization component	Testing	T-29	Testing

4.7 Inconsolation:

We have studied all the diagrams and the design study for this project in this chapter.

Chapter Five- Implementation of the Project

5 Chapter Five- Implementation of the Project

5.1 Introduction:

In this chapter, we will explain the tools used in our project and frameworks, and present samples of the site

5.2 Programming Resource:

5.2.1 Bootstrap (Front-End-Framework)

Bootstrap, being the most popular one, holds the first position in our list for best CSS frameworks 2020. Among web developers, it has emerged as the leading Front-end framework. Of course, that's the main reason behind the recent rise in the popularity of the framework. To enable web developers in building different user interface components, Bootstrap is a blend of CSS, JavaScript, and HTML code. We have relied on this platform in our project because:

1. Bootstrap is very easy and quite simple to use for designing and development. Being a new framework there is a lot to learn from it. It can be used with CSS, LESS or SaaS etc.
2. Bootstrap is a framework which is easily integrated with bulk frameworks uninterrupted with existing sites or the new one.
3. Bootstrap is an agile framework which is quite faster than other frameworks. It saves time due to its standard ready-made coding blocks, responsiveness, and cross-browser capabilities.
4. Bootstrap is a framework which holds base styling HTML elements like, tables, typography, buttons, forms, images, lists, and icons etc.
5. Bootstrap supports JavaScript Components so one doesn't require knowledge of scripting. It comprises JavaScript components like, tooltips, modal windows, alerts etc. to add functionalities easily.
6. Bootstrap is well-known for its big support community and agile response or online solution for the problems or queries. It also offers a great documentation along with examples and demo. It provides solutions to freshers and veterans alike.
7. It is developer friendly and can be customized as per the project requirements. Common CSS, utilities, JavaScript Components, and components can compose the appearance to create ease for developers.
8. Websites or mobile applications made with bootstrap technology can make you feel the awesome pairing of developers and designers ensuring consistency.

It provides regular updates and makes the whole eco-system hefty and robust according to the time.

5.2.2 Programming Tools:

5.2.2.1 Sublime Text:

Sublime Text is a shareware cross-platform source code editor. It natively supports many programming languages and markup languages. Users can expand its functionality with plugins, typically community-built and maintained under free software licenses. To facilitate plugins, Sublime Text features a Python API. Features: The following is a list of features of Sublime Text:

1. "Goto Anything," quick navigation to files, symbols, or lines.
2. "Command palette" uses adaptive matching for quick keyboard invocation of arbitrary commands.
3. Simultaneous editing: simultaneously make the same interactive changes to multiple selected areas
4. Python-based plugin API.
5. Project-specific preferences.
6. Extensive customizability via JSON settings files, including project-specific and platform-specific settings.
7. Cross-platform (Windows, macOS, and Linux) and Supportive Plugins for cross-platform.
8. Compatible with many language grammars from TextMate.

5.2.2.2 XAMPP Local Host:

The Project was implemented using the local server (Apache Web Server) and has the following features:

1. Ease of installation, which provides an easy way to handle Apache services.
2. Providing tools equipped to meet user needs with simple processes, The most important of which are: PhpMyAdmin: It's a tool for building database through interfaces and easily handling information, it is characterized as:
 1. A Php-written software tool aimed at handling MySQL management over the web.
 2. Support a wide range of operations on MySQL and Maria DB.
 3. Frequently used processes (DataBase Management, Tables, Columns, Index's, Users, Permissions, Etc.) can be implemented through the user interface, while we still have the ability to execute any SQL Phrase directly.

4. PhpMyAdmin is translated into more than one language that supports all LTR, RTL languages.
5. The System make the most of it, so that the process requested by the receiver is completed quickly, and the incidence of errors failures in the system is low, and the site needs to be functional on all web browsers.

5.2.3 Technologies used :

5.2.3.1 HTML:

HTML, or HyperText Markup Language, allows web users to create and structure sections, paragraphs, and links using elements, tags, and attributes. However, it's worth noting that HTML is not considered a programming language as it can't create dynamic functionality.

5.2.3.2 CSS:

Cascading Style Sheets, fondly referred to as CSS, is a simple design language intended to simplify the process of making web pages presentable. CSS handles the look and feel part of a web page. Using CSS, you can control the color of the text, the style of fonts, the spacing between paragraphs, how columns are sized and laid out, what background images or colors are used, layout designs, variations in display for different devices and screen sizes as well as a variety of other effects. CSS is easy to learn and understand but it provides powerful control over the presentation of an HTML document. Most commonly, CSS is combined with the markup languages HTML or XHTML.

5.2.3.3 JavaScript:

JavaScript is a text-based programming language used both on the client-side and server-side that allows you to make web pages interactive. Where HTML and CSS are languages that give structure and style to web pages, JavaScript gives web pages interactive elements that engage a user. Common examples of JavaScript that you might use every day include the search box on Amazon, a news recap video embedded on The New York Times, or refreshing your Twitter feed. Incorporating JavaScript improves the user experience of the web page by converting it from a static page into an interactive one. To recap, JavaScript adds behavior to web pages.

5.2.3.4 PHP:

PHP(short for Hypertext PreProcessor) is the most widely used open source and general-purpose server-side scripting language used mainly in web development to create dynamic websites and applications. It was developed in 1994 by Rasmus Lerdorf. A survey by W3Tech shows that almost 79% of the websites in their data are developed using PHP. It is not only used to build the web apps of many tech giants like Facebook but is also used to build many CMS (Content Management

System) like WordPress, Drupal, Shopify, WooCommerce etc. PHP can actually do anything related to server-side scripting or more popularly known as the backend of a website. For example, PHP can receive data from forms, generate dynamic page content, can work with databases, create sessions, send and receive cookies, send emails etc. There are also many hash functions available in PHP to encrypt user's data that makes PHP secure and reliable to be used as a server-side scripting language. So, these are some of the abilities of PHP that makes it suitable to be used as server-side scripting language. You will get to know more of these abilities in further tutorials

5.2.3.5 LARAVEL:

Laravel is a free and open-source PHP web framework,^[31] created by Taylor Otwell and intended for the development of web applications following the model-view-controller (MVC) architectural pattern and based on Symfony. Some of the features of Laravel are a modular packaging system with a dedicated dependency manager, different ways for accessing relational databases, utilities that aid in application deployment and maintenance, and its orientation toward syntactic sugar.^{[4][5]:2,5-9[6][7]}

The source code of Laravel is hosted on GitHub and licensed under the terms of MIT License.^[8]

Laravel 10 continues the improvements made in Laravel 9 by introducing argument and return types to all application skeleton methods, as well as all stub files used to generate classes throughout the framework. In addition, a new, developer-friendly abstraction layer has been introduced for starting and interacting with external processes. Further, Laravel Pennant has been introduced to provide a wonderful approach to managing your application's "feature flags".

5.2.4 Major Task:

The project was done on The Waterfall Model and include the next phases and tasks:

1. The Theoretical and reference phase of the study, involves: The Theoretical study of the project subject, the study of previous project in the same field, identifying their weaknesses, studying the possibility of developing them, and setting the general framework for the project services that we will accomplish.
2. Planning Phase of the Project: It is the process of setting the necessary project schedule, identifying those interested in the project, conducting the necessary study to collect requirements, document them, and document their priorities and identify the services they need.

3. Analytical Study Phase: It includes analysis of requirements to understand them accurately and study of Use-Case Diagrams, Characterization of system, Analysis of Use-Cases, Class Diagrams, Activity Diagrams, Context Diagram, Event-Diagrams and Sequence Diagrams.

4. System Design Phase: It includes Design of the system schemes, linkages and build an appropriate Database for the system.

5. Testing Phase: It includes tests of the system services, the validity of their work, the quality of the system performance and the treatment of expected exceptions.

5.3 interfaces Pages:

5.3.1 Welcome page:

On this page, patients and doctors can access the login page or create their own account on the site.

5.3.2 Login page:

On this page, Actors can access to the system

5.3.3 Doctors Home page:

On this page, there is consultations, public consultations, calendar, and new post.

5.3.4 Consultations page:

On this page, the doctor can see waiting consultations, under-process consultation, and finish consultations.

5.3.5 Consultations list page:

On this page, the doctor sees all the important consultation addresses, pharmaceutical and notes written by the doctors for the patient

5.3.6 Show personal record page

On this page, the doctor sees all the patient's personal information.

5.3.7 Show medical record page:

On this page, the doctor sees the patient's private medical record

5.3.8 Consultations info page:

On this page, the doctor sees the advice given by the disease

5.3.9 Add examination Info page:

The patient adds his/her own patient's clinical examination through a heart examination,

plus examination, heat examination, respiratory examination, digestive examination, urinary examination, nervous examination, diagnosis examination

5.3.10 Contact messaging:

On this page, the doctor can communicate with his patient through a chat on the site.

5.3.11 Add medications:

On this page, the doctor can prescribe a medicine for the patient and add a note to the medicine, and he can also add a general note that all doctors can see in case there is an important note

5.3.12 Note and finish page:

On this page, the doctor can add a note and end the consultation if the matter does not require adding a medication or adding a clinical examination

5.3.13 Public consultations:

On this page, the doctor sees all the expected general consultations and under the treatment that were sent to him because he is from the same city and required specialty

5.3.14 Calendar page:

On this page the doctor sees all of his booked appointments.

5.3.15 New post page:

On this page, the doctor can write posts on his page, and patients can view them.

5.3.16 Patient register information:

Register the patient's personal information

5.3.17 Patient register medical:

Register the patient's medical information

5.3.18 Patient dashboard page:

On this page, there is public consultation, private consultation, consultation, calendar, medicals status, medical posts

5.3.19 public consultation page:

On this page, the patient selects a city and selects the department that he wants the consultant doctor to belong to

5.3.20 patient dashboard – consultations information page:

On this page the patient enters the consultation information

5.3.21 private consultation page :

On this page, the patient specifies the city, department, and doctor who wants to book an appointment and provide a consultation

5.3.22 patient dashboard – consultations information page:

On this page the patient enters the private consultation information In order to book an appointment to visit the patient

5.3.23 appointment-info page:

On this page, the patient sees the available times to book an appointment with the required doctor

5.3.24 consultations page:

On this page, there is waiting consultation under process consultation finish consultation, and search for an examination or a doctor who visited him through his name, his personal number, or the address of the consultation

5.3.25 consultations page:

On this page, there is waiting consultation under process consultation finish consultation, and search for an examination or a doctor who visited him through his name, his personal number, or the address of the consultation but, in Arabic.

5.3.26 Show personal record page

On this page, the patient sees his personal record.

5.3.27 Show medical record page:

On this page, the patient sees his medical record.

5.3.28 Show consultation info page:

On this page, the patient sees the advice given to the doctor

5.3.29 Show clinical examination page:

On this Page, the patient sees the clinical examination that the doctor performed for him

5.3.30 Payment page:

On this page, the patient pays the general consultation to the doctor through Syrian Payments

5.3.31 Calendar page:

The patient sees all of his appointments

5.3.32 Medical status page:

On this page, the system displays to the patient a heart rate chart and a temperature chart for ease of knowing the values and discovering if there is any health problem for the patient.

5.3.33 Medical post:

On this page, the patient is shown posts by the doctors on the site if they have a vacation during working hours or an announcement about which their patients should be informed

5.3.34 Admin-dashboard page:

On this page, the admin displays the number of system users in relation to the number of patients and the number of doctors on the site, in addition to the number of cities registered in the system and the number of appointments.

5.3.35 Enter city name page:

On this page, the admin can add a new city to the system to be joined by doctors and patients

5.3.36 All cities page:

On this page, the administrator displays all the cities on the site, and he can search for a specific city

5.3.37 Doctors page:

On this page, the admin shows the active and inactivated doctors

5.3.38 Non activated Doctors page:

On this page, the admin is presented with a list of the names of the doctors who submitted a request to join the site to be accepted into the system after verifying the credibility of the certificate and the doctor's information to add him to the system.

5.3.39 Active Doctors page:

On this page, the admin displays a list of doctors who are active in the system, and with the possibility of blocking the doctor if there is a problem or the matter requires that

5.3.40 Specialization name page:

On this page, there is Enter Specialization name page and All Specialization page

5.3.41 Enter Specialization name page:

On this page, the admin can add a medical specialty to the site

5.3.42 All Specialization page:

On this page, the admin can view all the medical specialties on the site and search for a specific specialty.

5.4 Interface screen :

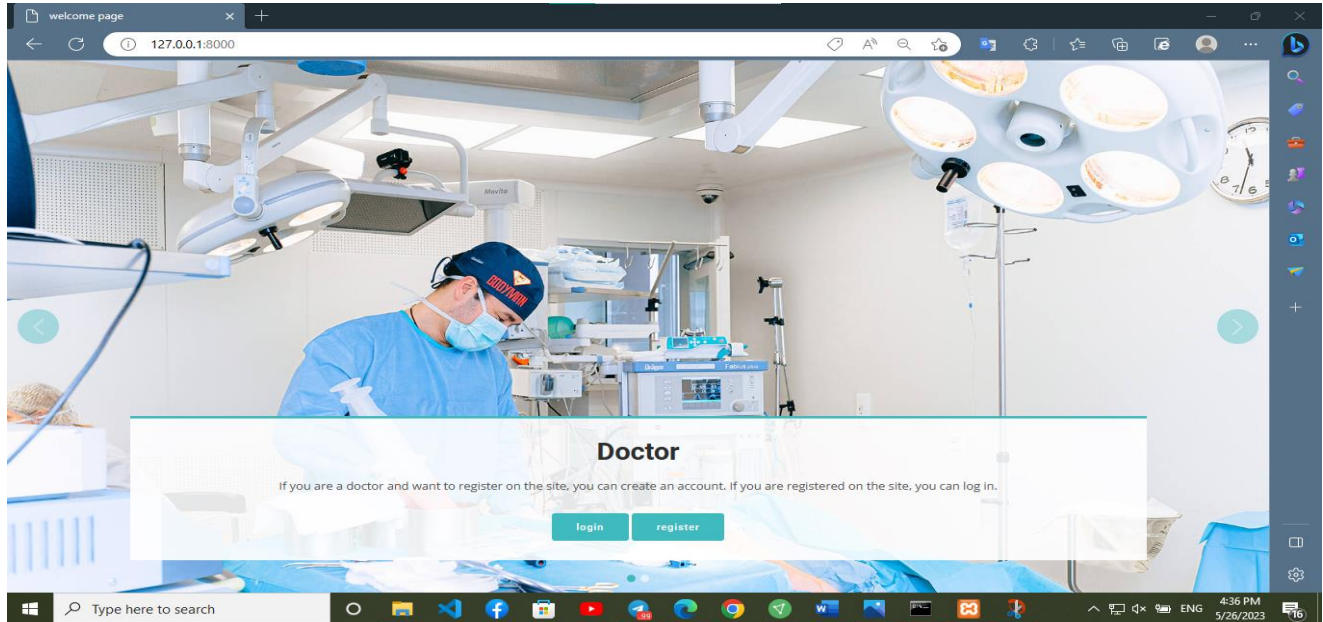


Figure 13 :welcome page

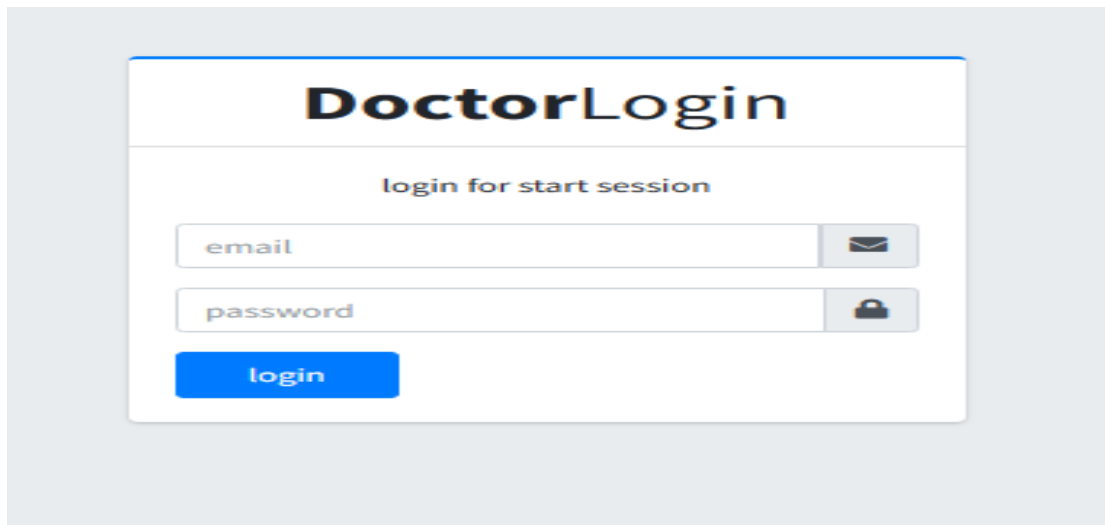


Figure 14:log-in

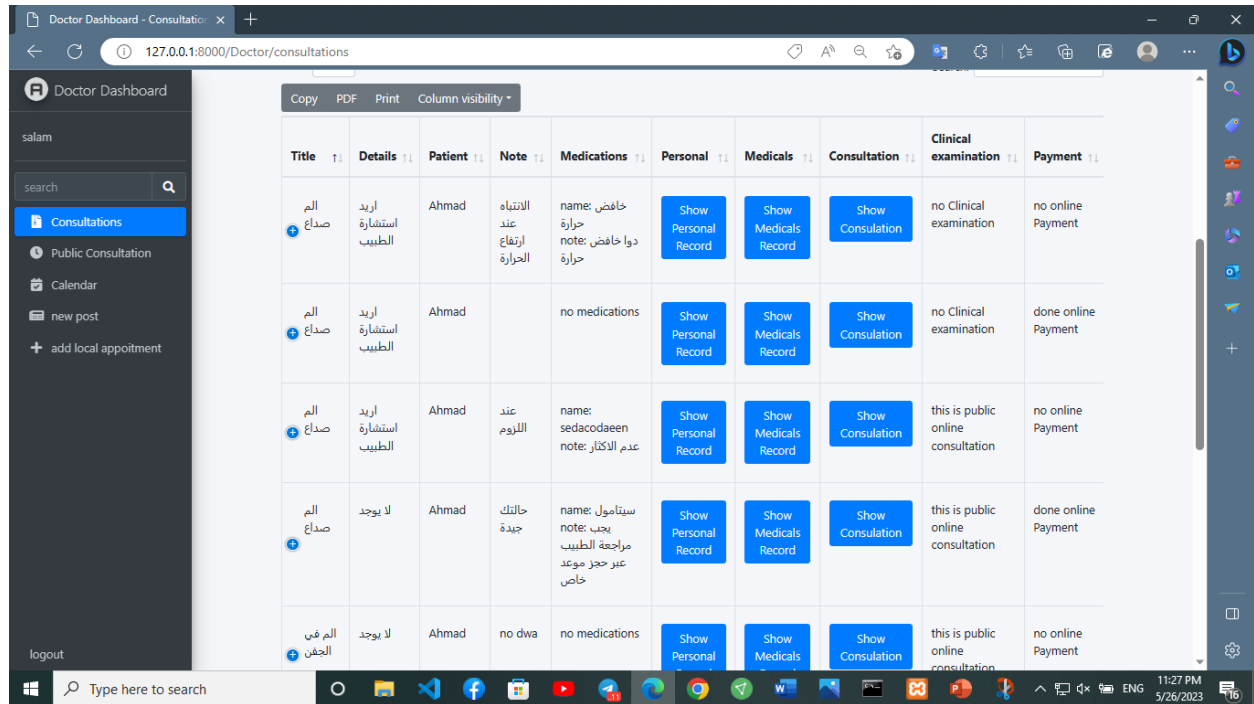


Figure 16:consultation

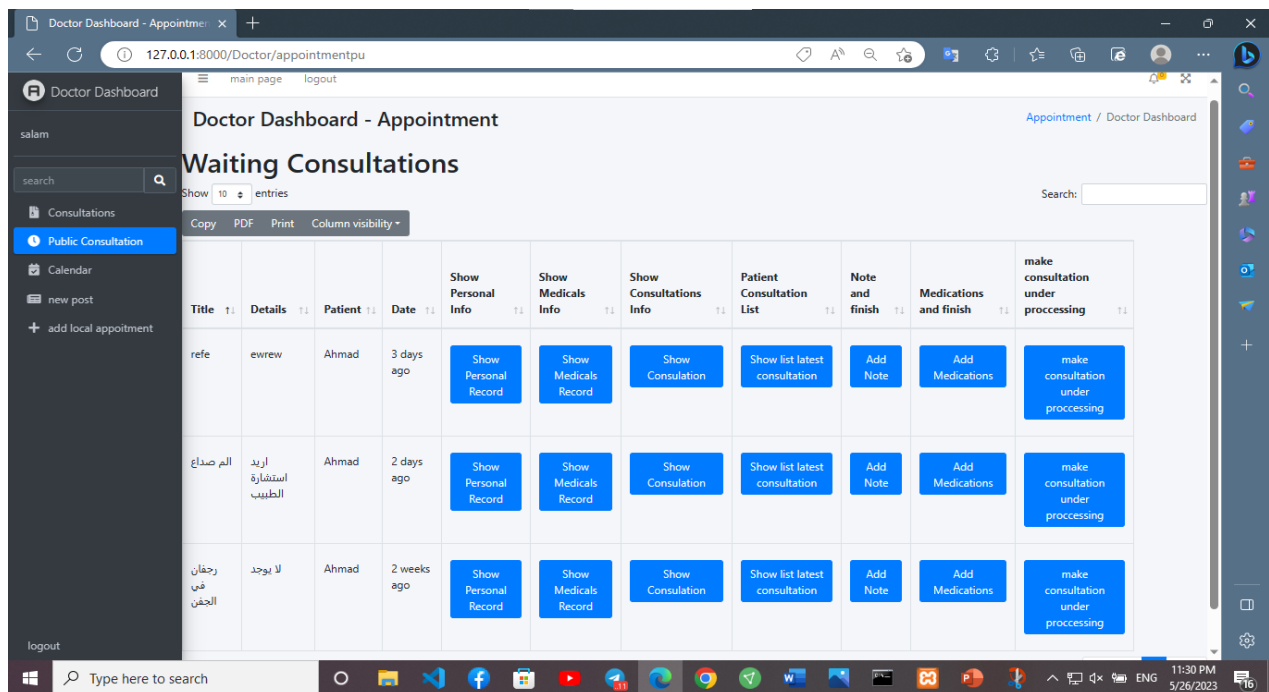


Figure 15:public consultation

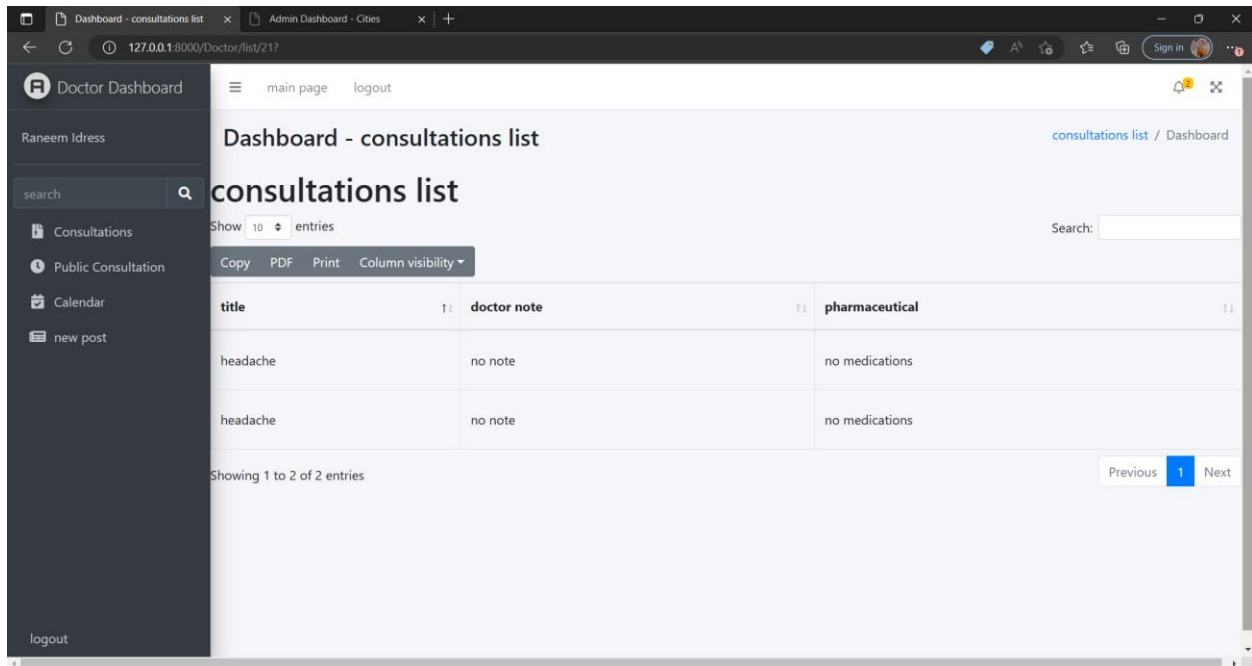


Figure 17:consultation list

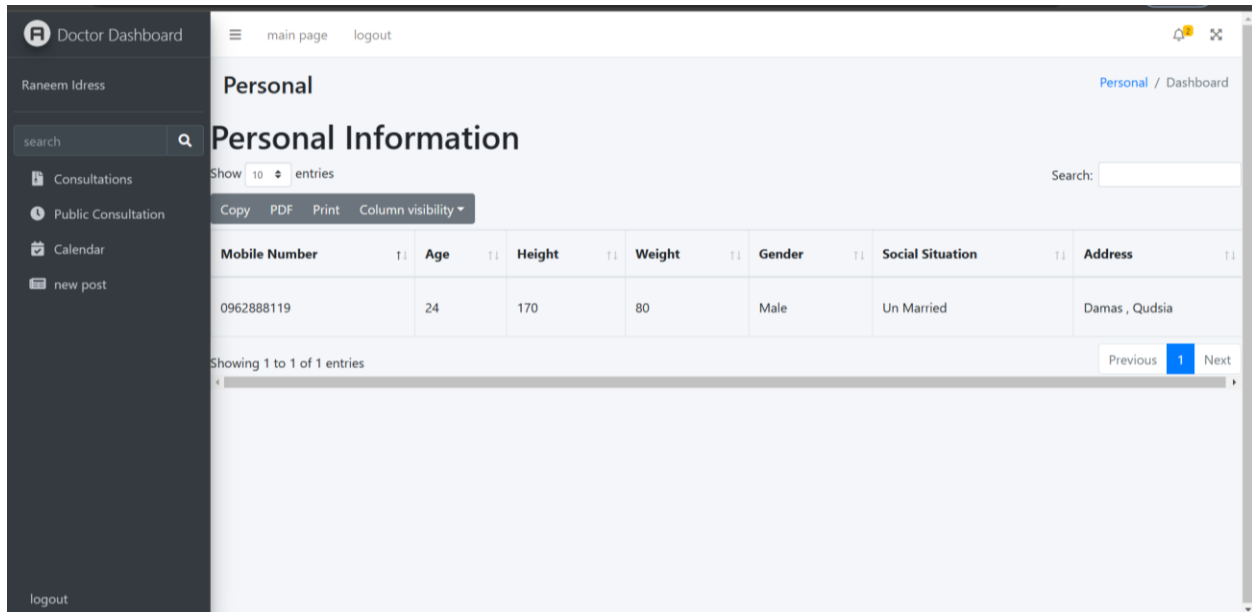


Figure 18:personal record

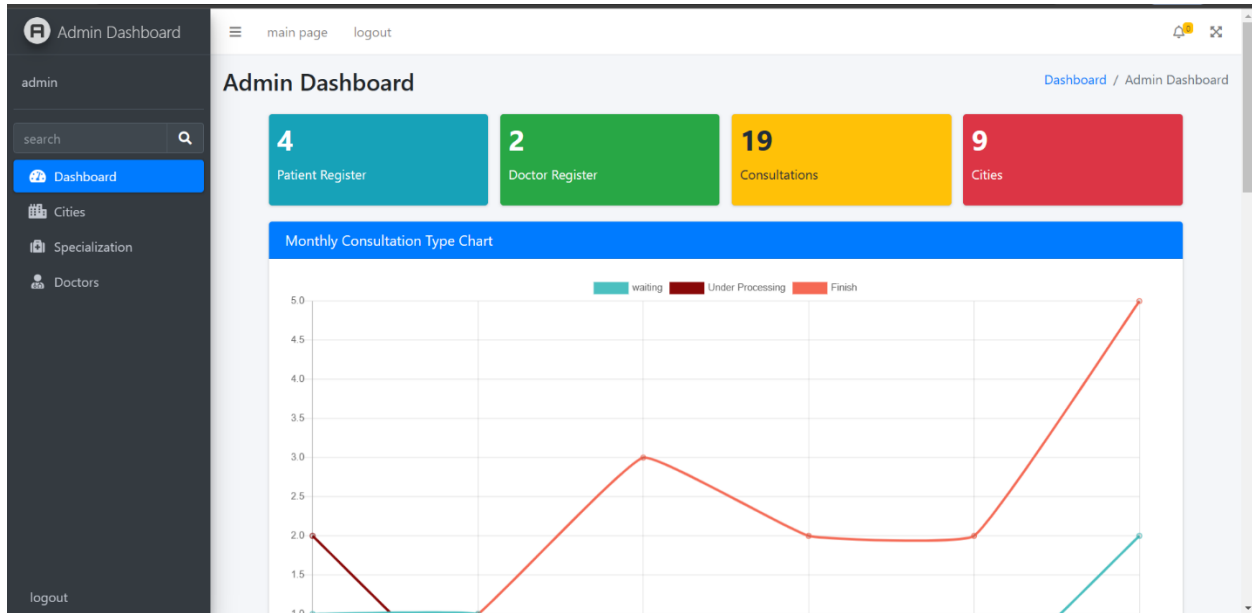


Figure : admin-dashboard

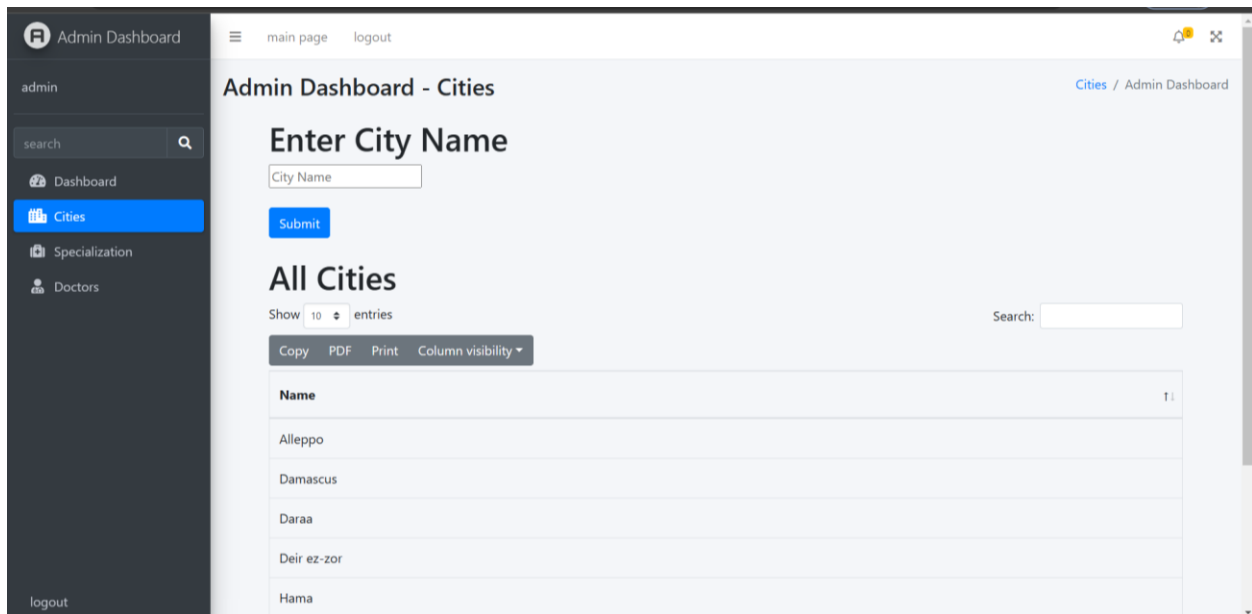


Figure : admin-cities

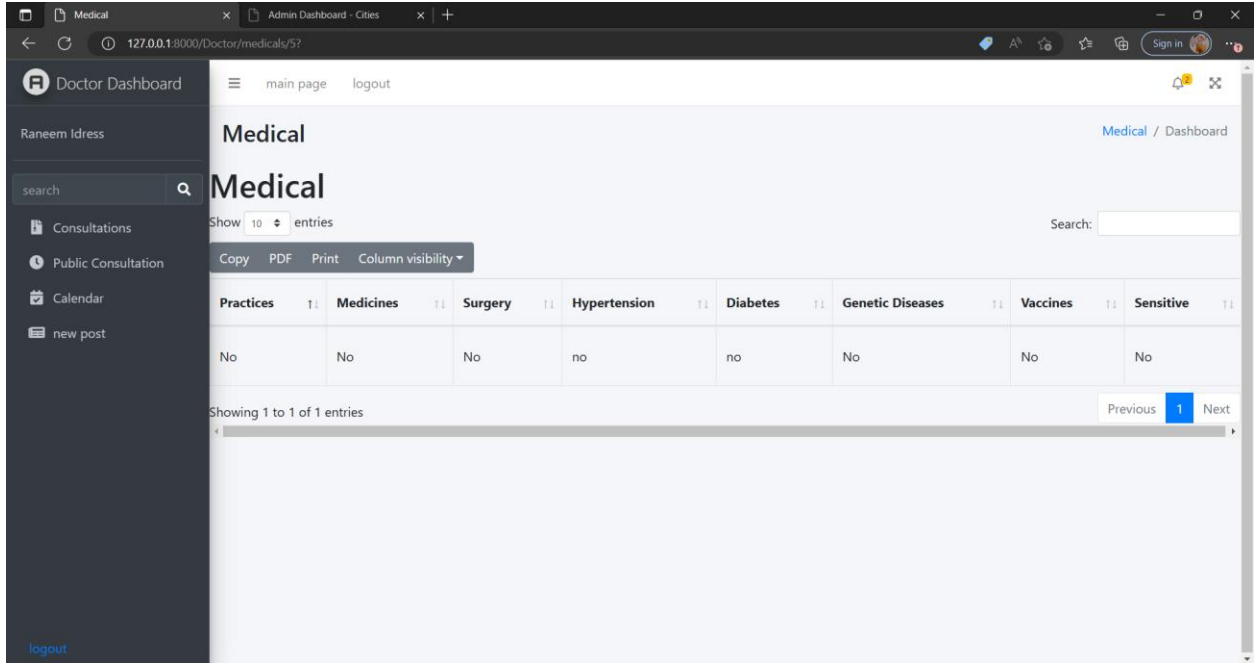


Figure 19:medical information

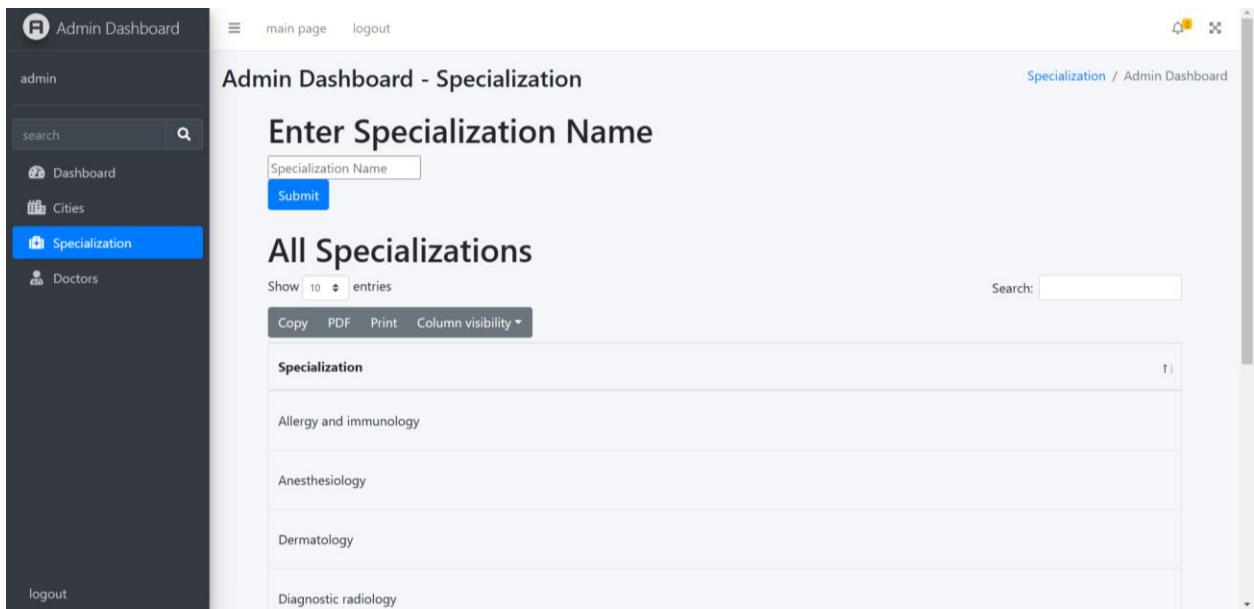


Figure 20: admin-specialization

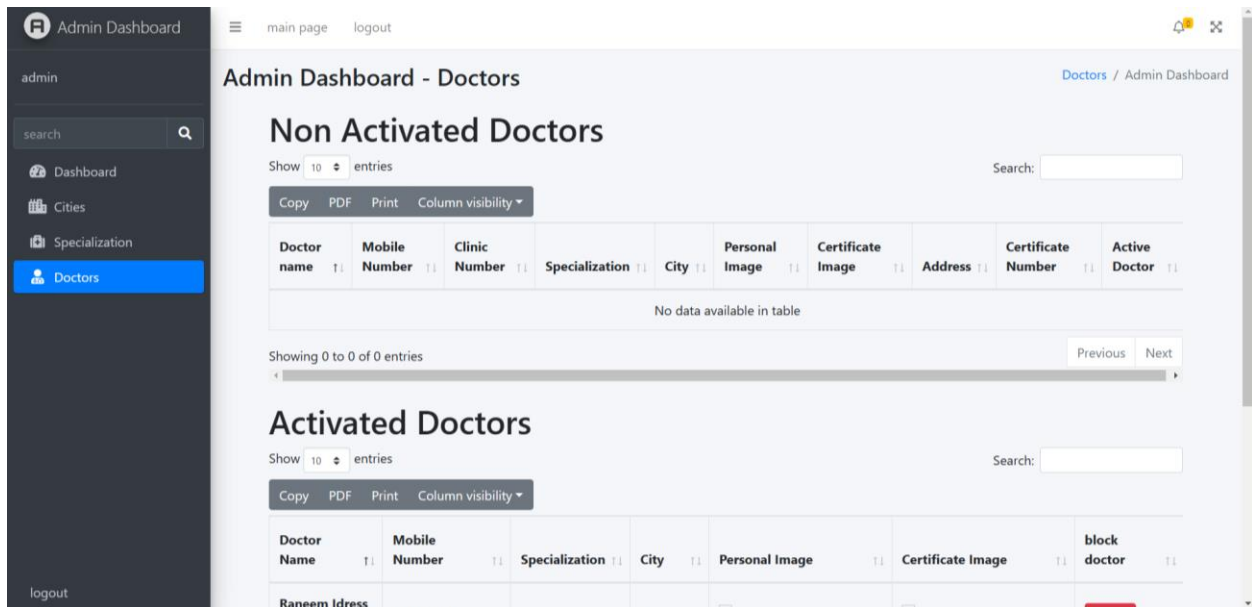


Figure 22: admin-doctors

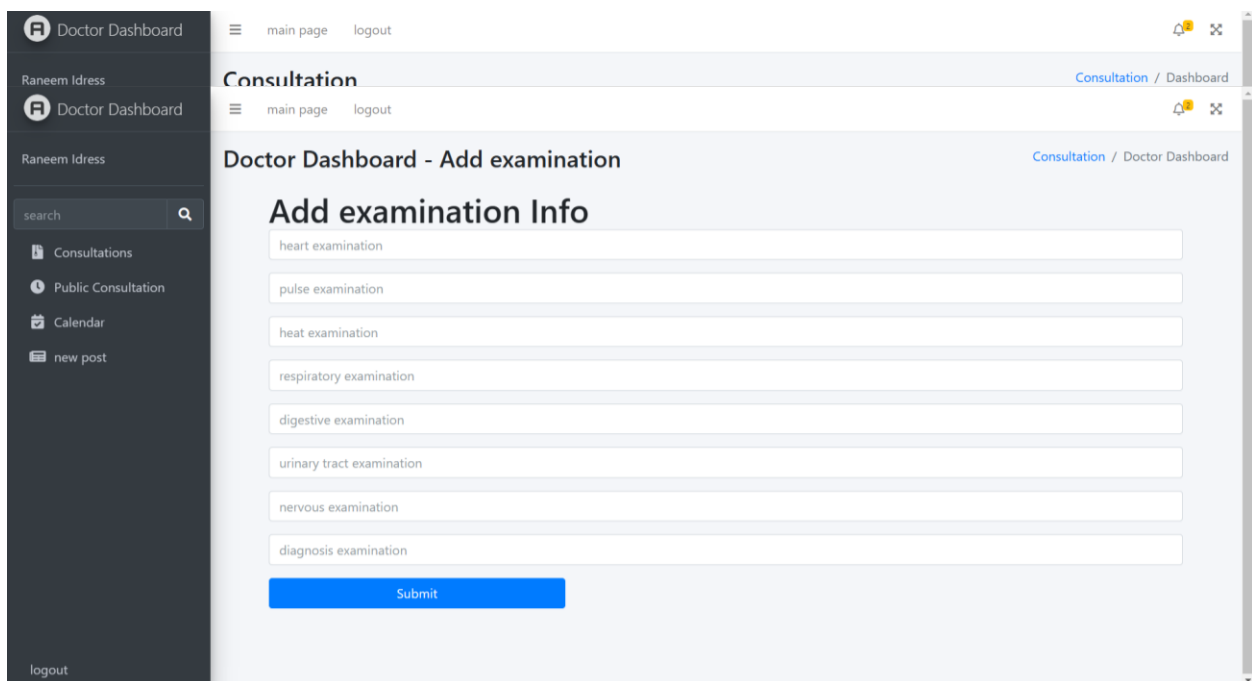


Figure 21: : consultation-information

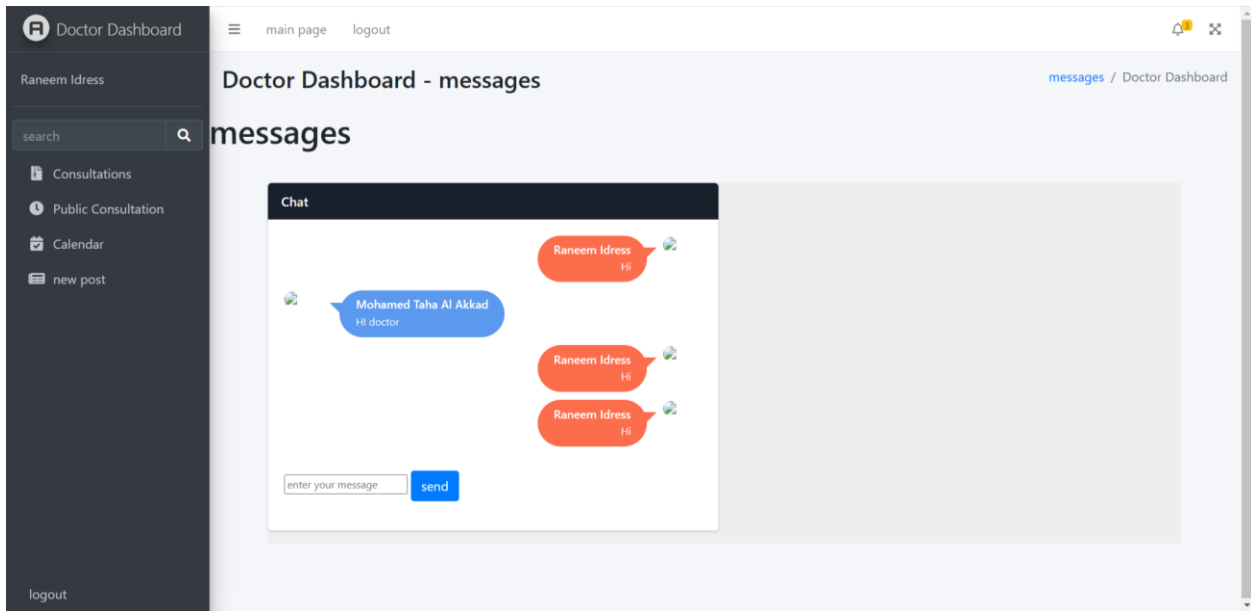


Figure 23: messages-doctor

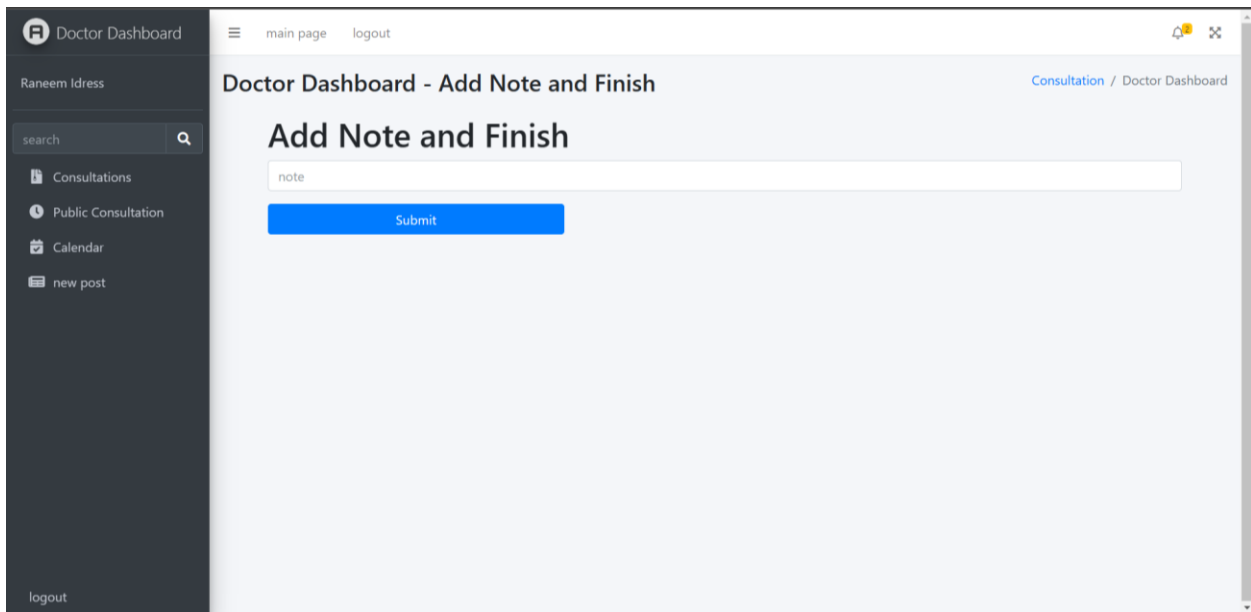


Figure 24: Add-notes

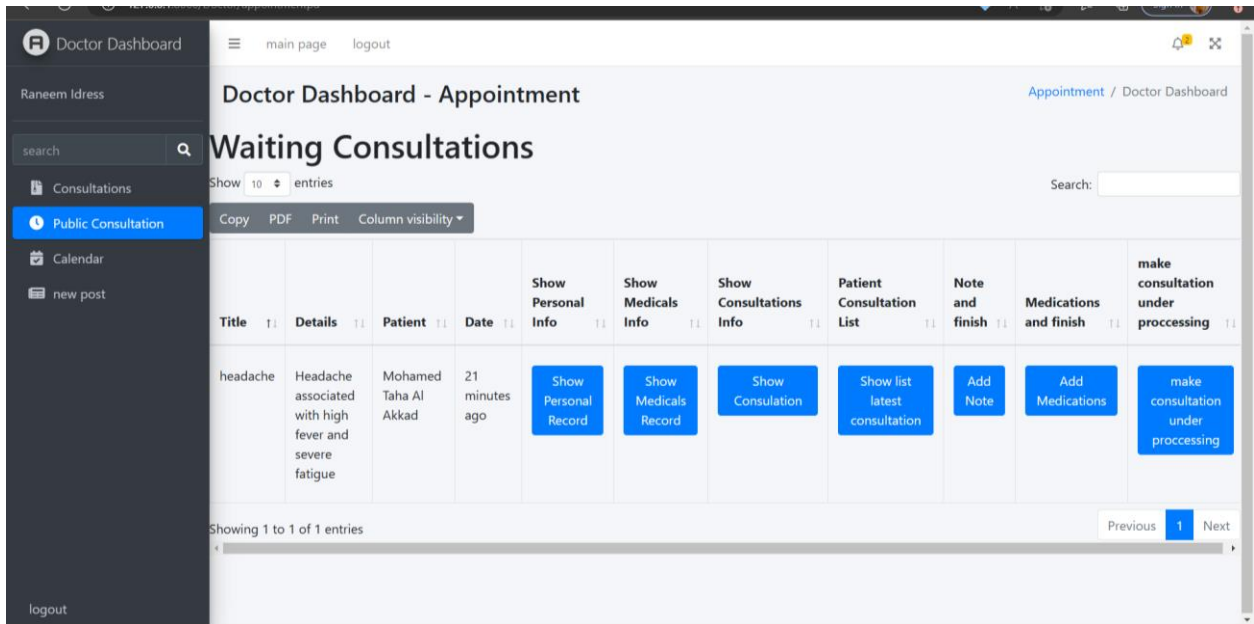


Figure 25: public-consultation

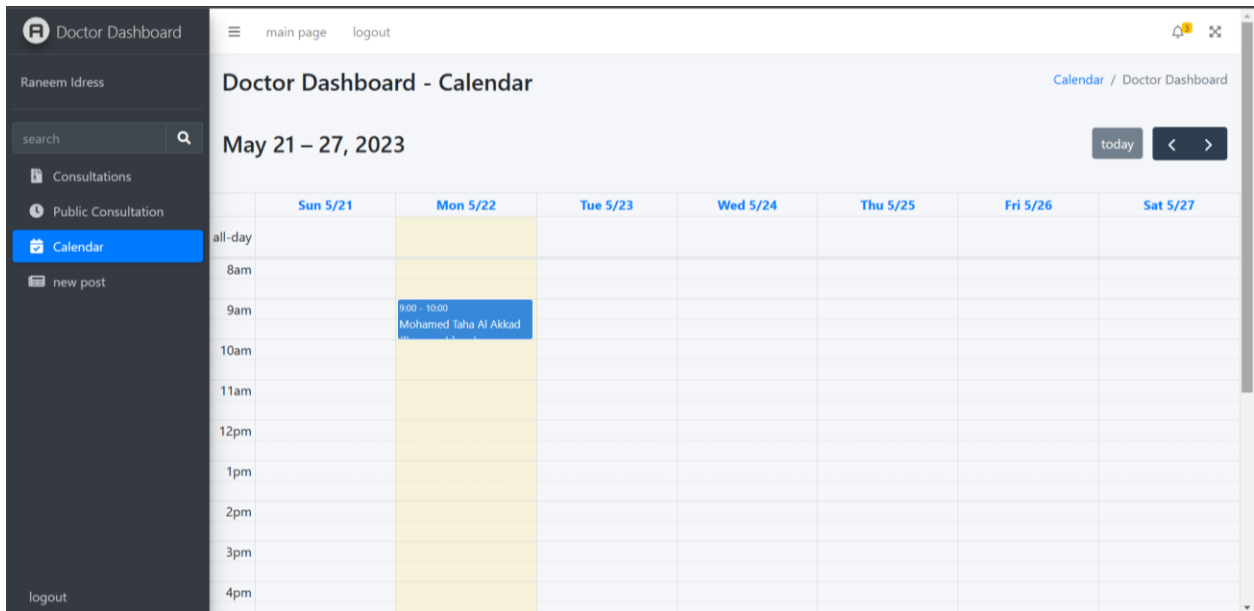


Figure 26: doctor-calander

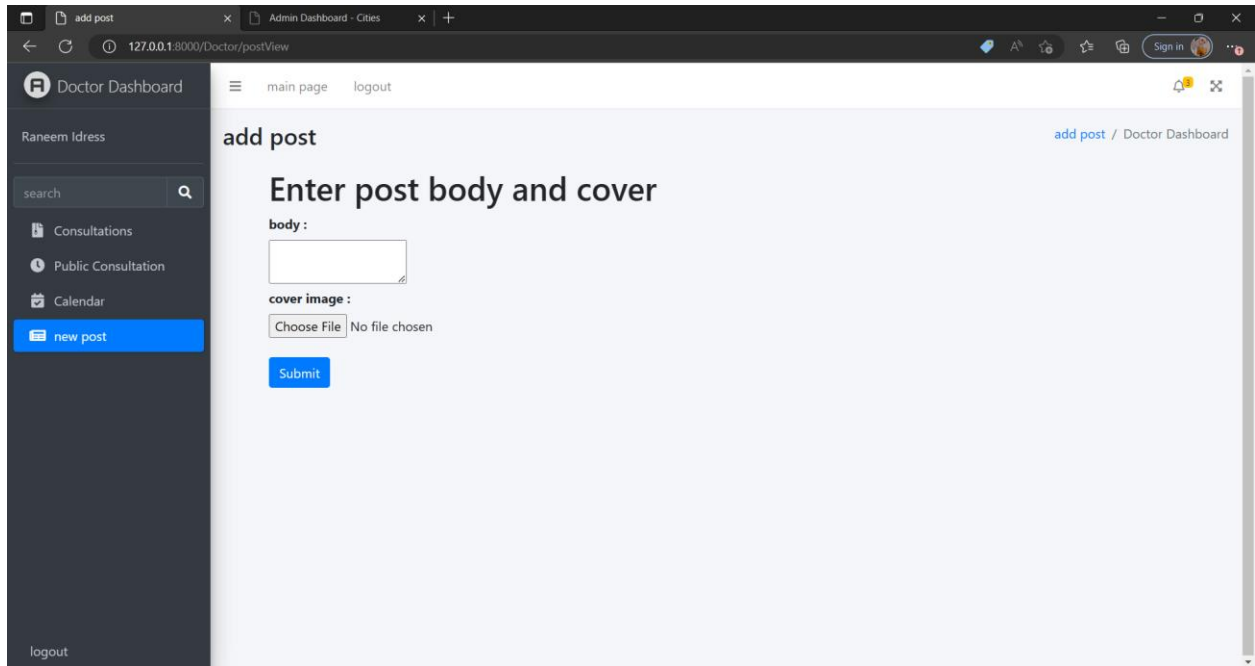


Figure 27: doctor-posts

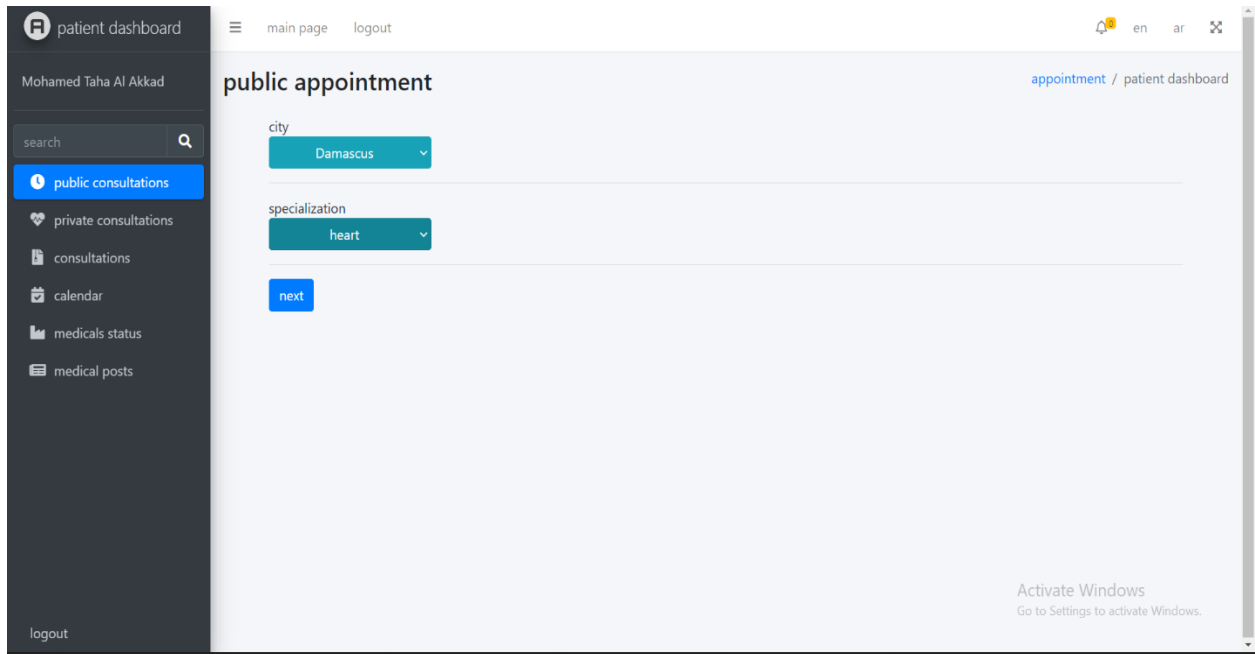


Figure 28: public-consultation

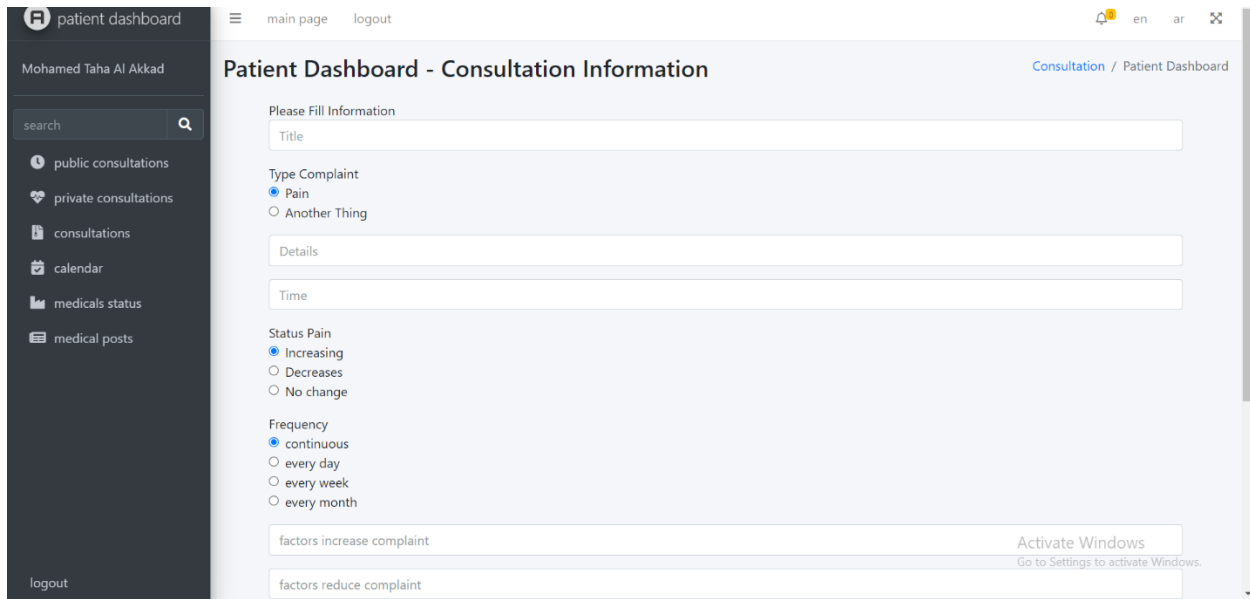


Figure 29: consultation-information

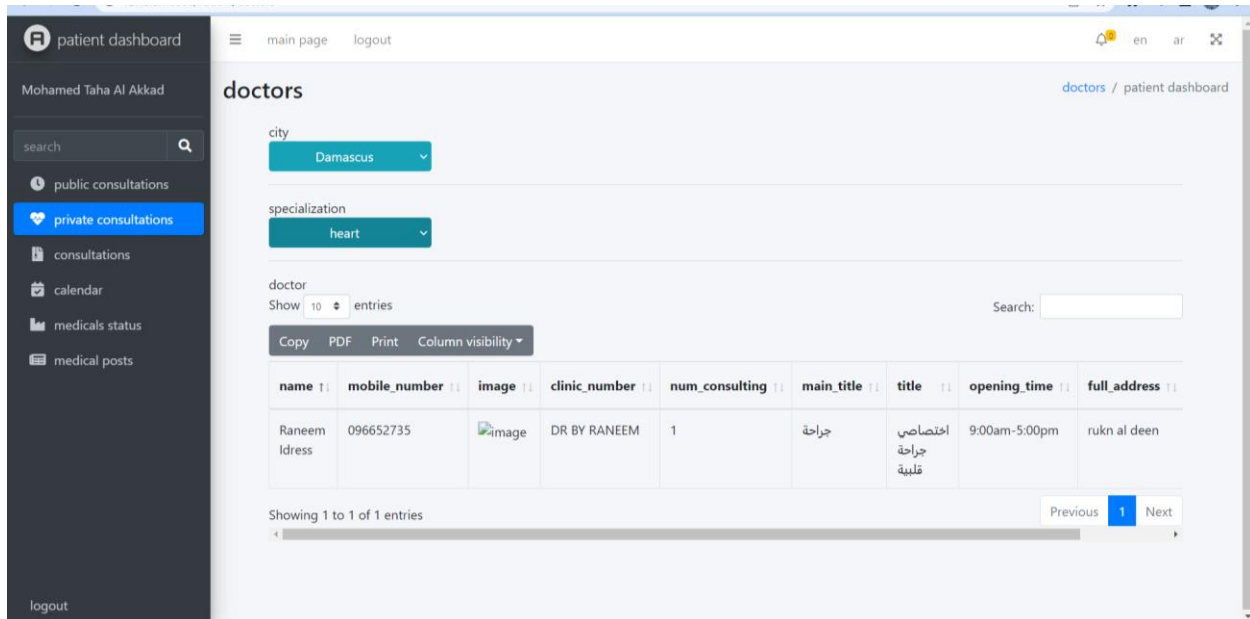


Figure 30: private-consultation

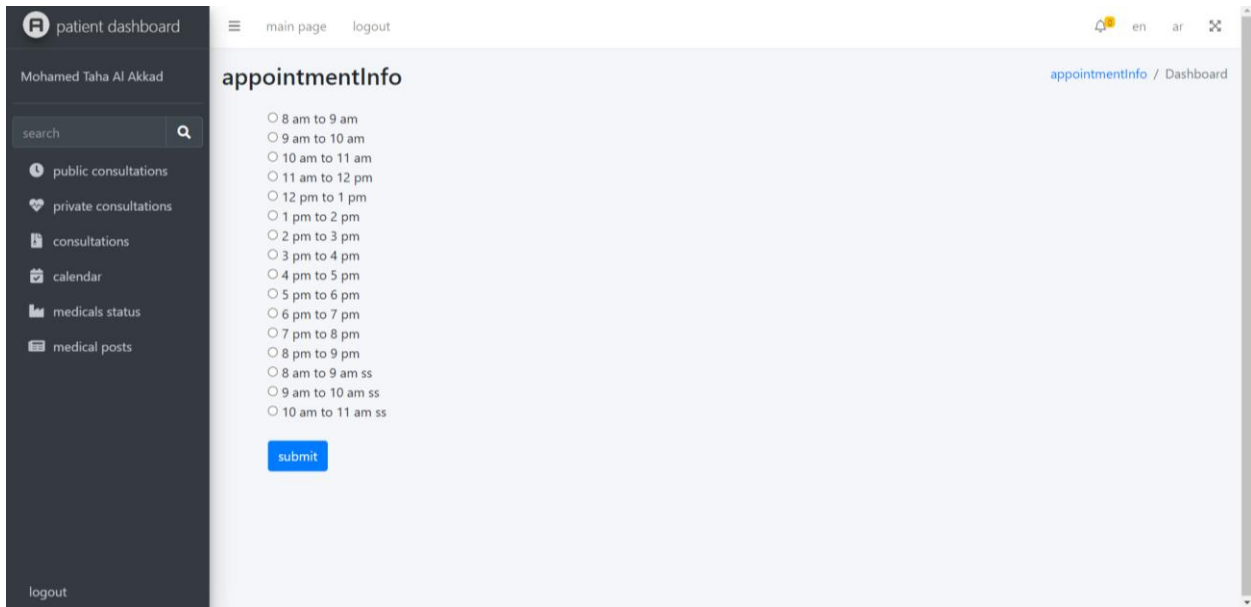


Figure 31: reserved-appointment

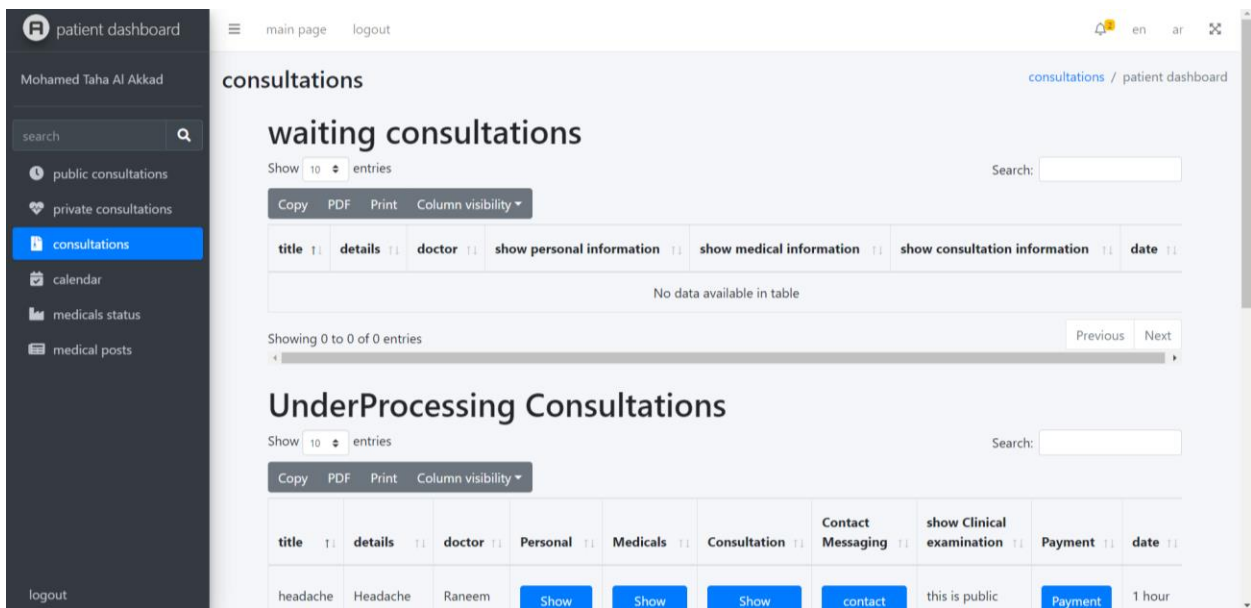


Figure 32: patient-consultation

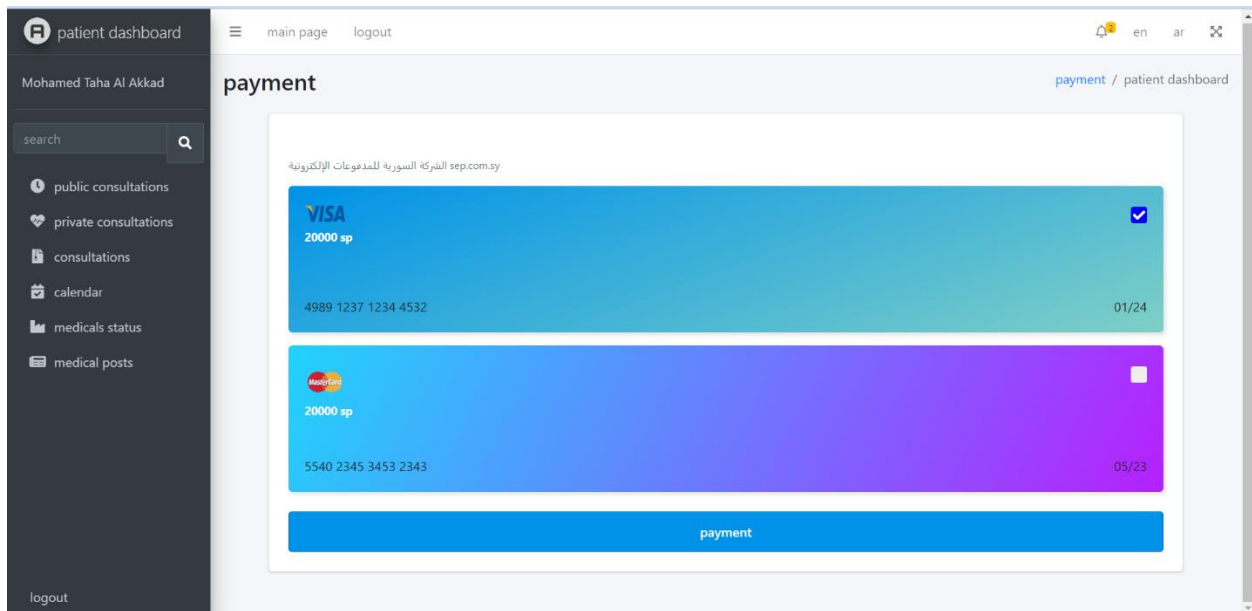


Figure 33: payment

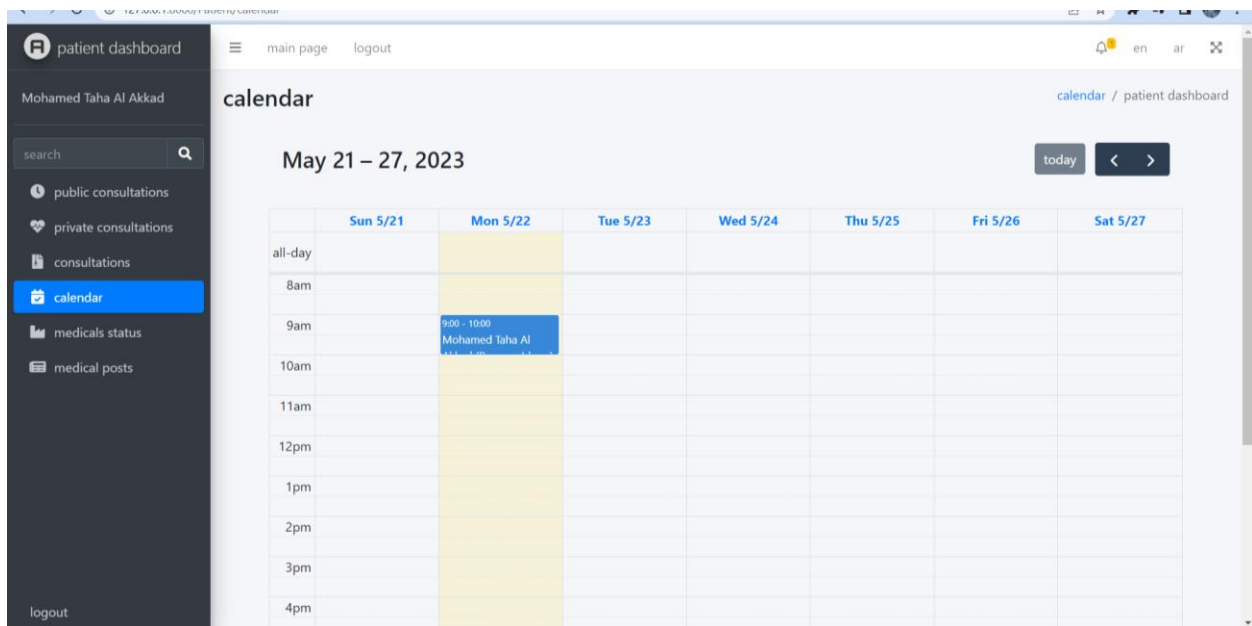


Figure 34: patient-calendar

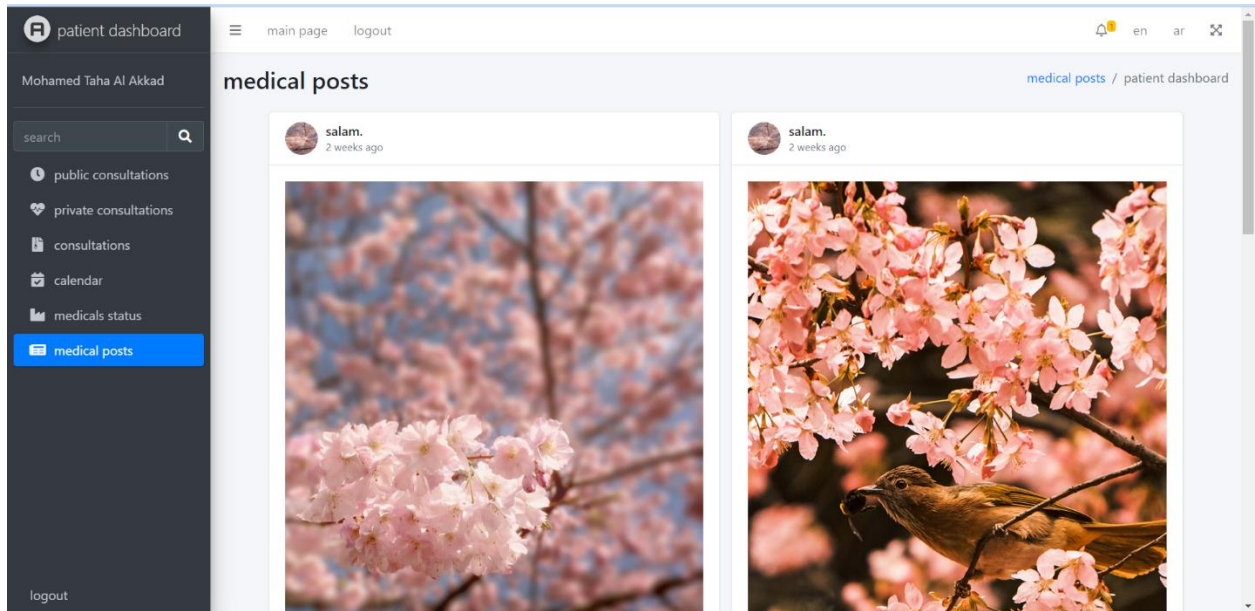


Figure 35: patient-posts

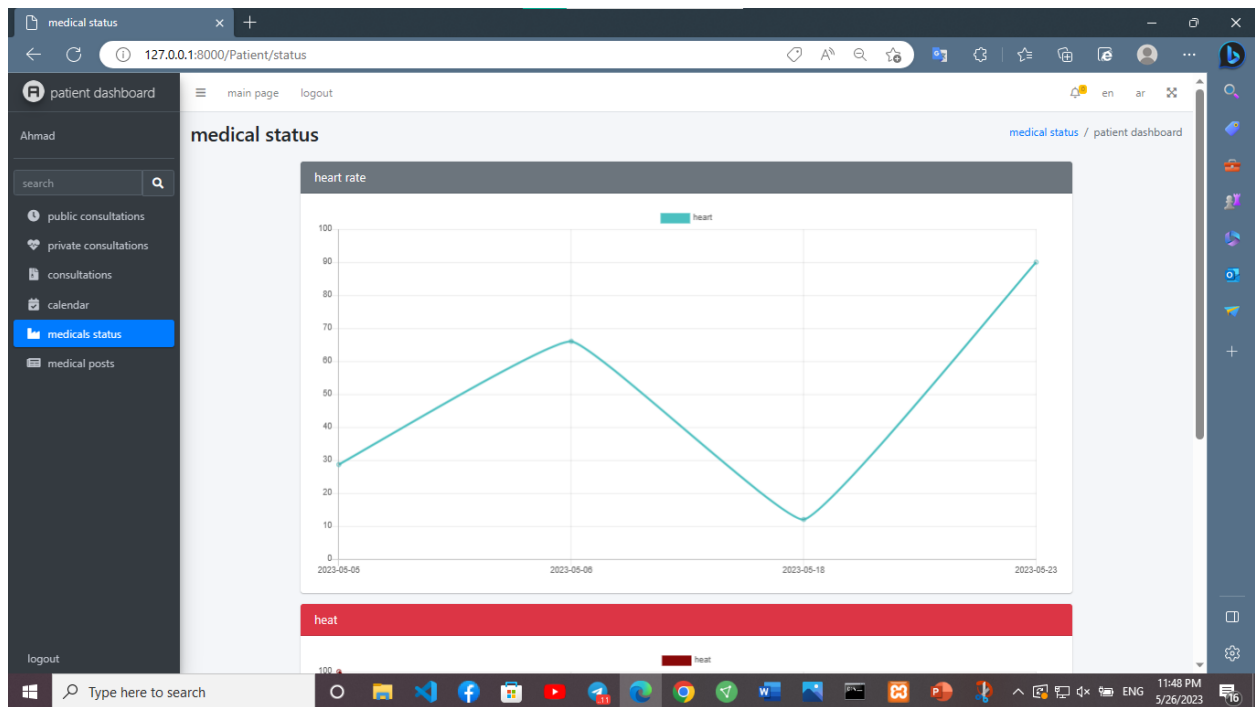


Figure 36: medical status

Chapter six

Testing and result

6 Chapter five-Testing and result

6.1 Introduction:

The biggest challenge lies in verifying the correct functioning of the system and performing the required functions correctly, and this requires a sufficient amount of tests, and of course, the correct way to test any system must be carried out according to a correct methodology and successive stages to ensure the correctness of the workflow, and therefore a set of tests has been implemented During the development stages of the system, and when performing the test, it is ensured that there are no errors within the software because some of these errors remain latent until the system is running, which leads to the failure of the system to perform its functions. The errors detected vary in their degree of seriousness, because the error resulting from the software investigation stage is considered one of the easy mistakes, while the error resulting from the lack of a correct understanding of the problem, which appears clearly in the analysis stage, which leads to errors in all subsequent stages, and the same is true for the design, the error in this stage It may be due to the designer's inexperience or not understanding the analysis properly.

6.1.1 Tests During Development:

6.1.1.1 *Software Unit Testing:*

It is the test that each member of the project has done on the software unit that he has developed, and thus each individual is responsible for doing this type of test.

6.1.1.2 *Integration Test :*

It is the test through which the compatibility of the software interfaces with each other and their ability to work with each other is verified. This test is done when the software modules are grouped together to perform a function of the system.

6.1.1.3 *Quality Tests:*

They are the tests for the domain in which the system was developed.

6.1.2 Tests After Development:

6.1.2.1 *Google Lighthouse:*

A new tool by Google is to test and give you the recommendation to improve performance, SEO, security, best practices, and accessibility. There are more than 75 metrics it tests and

gives you overall scoring. You might be interested in some of the following popular ones as a site owner, SEO analyst, and webmaster.

6. Performance – time to interactive, latency, speed index, resources optimization, TTFB, asset delivery, scripts execution time, DOM size, etc.
7. SEO – Mobile friendly, meta, crawling, canonical, structure, etc.
8. Best Practices – Image optimization, JS libraries, browser error logging, accessible over HTTPS, known JS vulnerabilities, etc.
9. Accessibility – Page elements, language, ARIA attributes, etc.
10. PWA (Progressive Web Application) – redirect HTTP to HTTPS, response code ok, fast loading on 3G, splash screen, viewport, etc.

6.1.3 Testing Result In Performance (unit and integration):

Table 24:log-in test

Log-in					
#	TS1				
Title	Verify “Log-in” functionality				
Description	Test different scenarios that might happen if user can Log-in				
#	Summery	Pre-condition	Post-condition	Execution Steps	Expected Output
TC 1	Verify that user Successfully log-in	Open Log in page	Successful Log-in	<ul style="list-style-type: none"> - Select log-in - Add valid login information - Click ok 	Open dash bord
TC 2	Verify user enable successfully password		Get error response	<ul style="list-style-type: none"> - Select log-in - Add password invalid (**) - Click ok 	Get error that gradational invalid
TC 3	Verify user enable Verify user enable successfully password email	Open Log in page	Get error response	<ul style="list-style-type: none"> - Select log-in - Add password valid - Add email invalid or already exists - Click ok 	Get error that gradational invalid Or The email already exist

TC 4	Verify that user add empty form	Open Log in page	Get error response	<ul style="list-style-type: none"> - Select log-in - Click ok 	Get error pleas enter Your information
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Table 25:clinical examination test

Clinical examination					
#	TS2				
Title	Verify “ Clinical examination ” functionality				
Description	Test different scenarios that might happen if user Clinical examination				
#	Summery	Pre-condition	Post-condition	Execution Steps	Expected Output
TC 1	Verify that doctor Successfully Clinical examination	Open Menu	Successful clinical examination	<ul style="list-style-type: none"> - Select clinical - Add valid information - Click ok 	Add clinical examination to data
TC 2	Verify doctor enable successfully measurement		Get error response	<ul style="list-style-type: none"> - Select clinical - Add measurement invalid (AaB) - Click ok 	Get error that gradational invalid
TC 3	Verify doctor enable Verify successfully Fill in the required fields	Open menu	Get error response	<ul style="list-style-type: none"> - Select clinical - Add password valid - Don't fill all required field - Click ok 	Get error that gradational invalid Or The required field fill
TC 4	Verify that user add empty form	Open menu	Get error response	<ul style="list-style-type: none"> - Select clinical examination - Click ok 	Get error pleas enter Your information

Table 26: Consultation form

Consultation form					
#	TS3				
Title	Verify “ Consultation ” functionality				
Description	Test different scenarios that might happen if user Clinical examination				
#	Summery	Pre-condition	Post-condition	Execution Steps	Expected Output
TC 1	Verify the patient Successfully Consultation	Open Menu	Successful Consultation	<ul style="list-style-type: none"> - Select Consultation - Add valid information form - Click ok 	Add Consultation form on to data
TC 2	Verify the patient Enable Successfully information field		Get error response	<ul style="list-style-type: none"> - Select Consultation - Add invalid information field - Click ok 	Get error that gradational invalid
TC 3	Verify patient enable Verify successfully Fill in the required fields	Open menu	Get error response	<ul style="list-style-type: none"> - Select clinical - Add information valid - Don't fill all required field - Click ok 	Get error that gradational invalid Or The required field fill
TC 4	Verify that user add empty form	Open menu	Get error response	<ul style="list-style-type: none"> - Select clinical examination - Click ok 	Get error pleas enter Your information

6.1.4 Testing Result (after implementation):

6.1.4.1 Google Lighthouse:

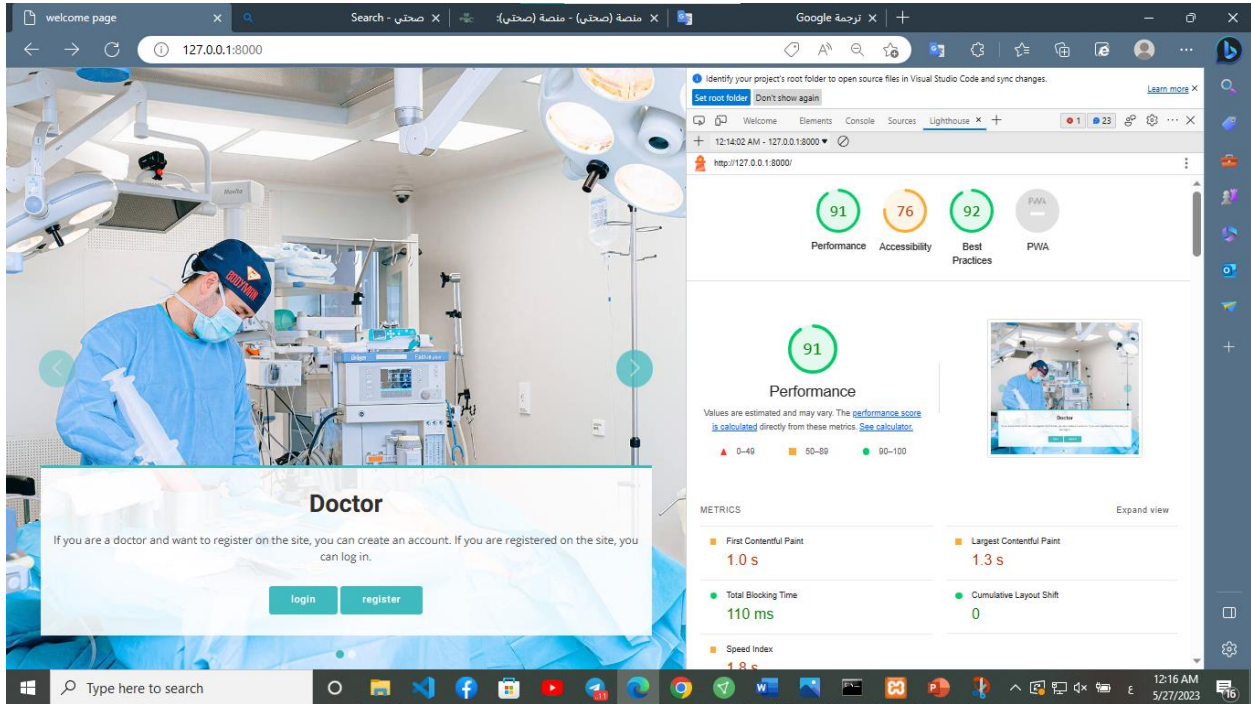


Figure 37: Testing result hms

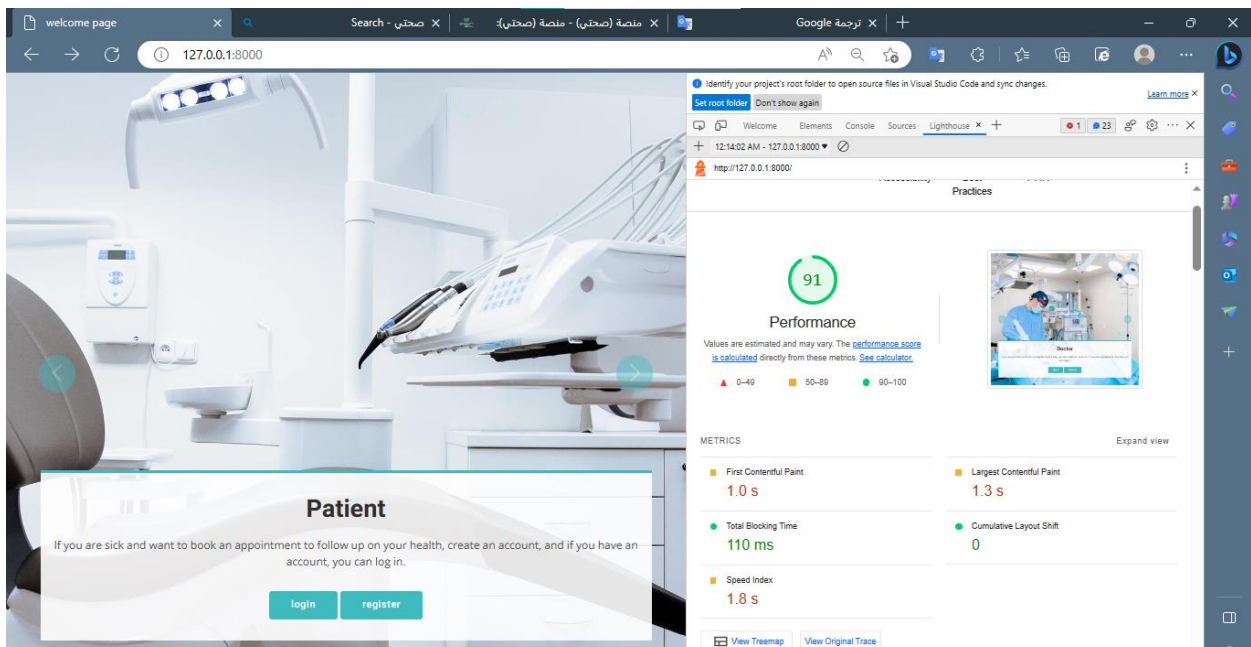


Figure 38:testing result hmd

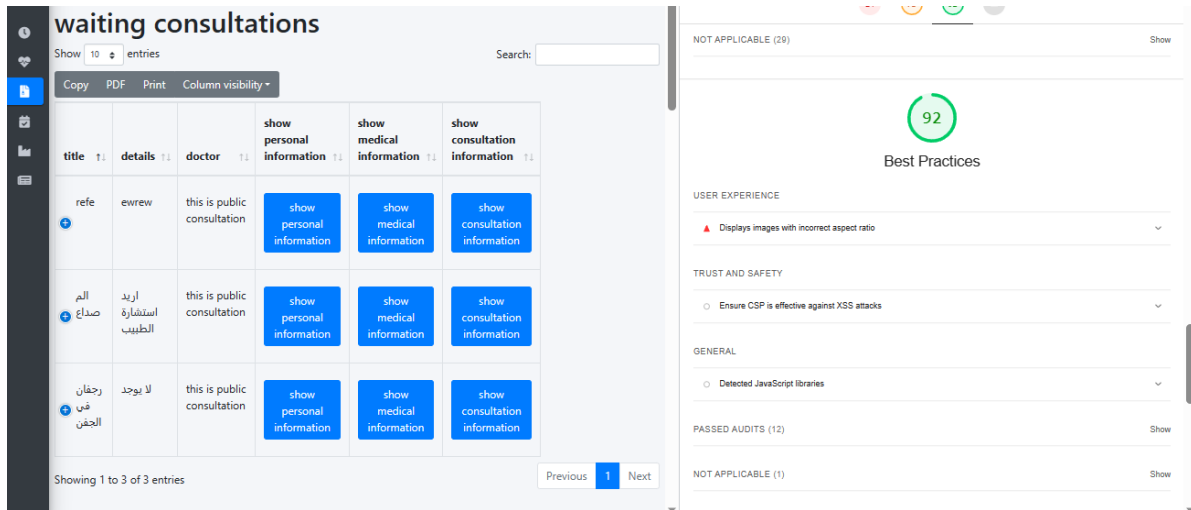


Figure 39:testing result hms

6.1 Update Requirements tracking matrix:

Table39: Update Requirements tracking matrix:

REQUIREMENTS TRACEABILITY MATRIX							
Project Name:	Health management information system						
National Center:	damascuse						
Project Manager:	sarahamami , salamdahouk , ramaarafeh						
Project Description:	Establishing a paperless electronic health system that enhances the smooth data extraction process so that the health data of each patient becomes easily available to health care provide						
ID	ASSOC ID	Use case	Requirement description	system component	Status	Test Case Number	Tested In
001	1.1.1	Register /login	register/login of the web application should be enabled	logic component	Completed	T-01	Completed
002	2.2.2	add post	doctor can add medical post to the system	add post component	Completed	T-02	Completed
003	3.3.3	appointment management	doctors can manage his appointment	appointment component	Completed	T-03	Completed
004	4.4.4	view consultation	doctors can show a patient consultation	view consultation component	Completed	T-04	Completed
005	5.5.5	add medication	The doctor can write the appropriate medicine for the patient	add medication component	Completed	T-05	Completed
006	6.6.6	add note	doctor can write the addition note about consultation	add note component	Completed	T-06	Completed
007	7.7.7	contact messaging	if doctor want any additin information about patient doctor can send message to him/her	contact message component	Completed	T-07	Completed
008	8.8.8	view consultation list	doctor can show a patient consultation	view consultation list component	Completed	T-08	Completed
009	9.9.9	add local appointment	doctor can reserved an appointment	add local appointment component	Completed	T-09	Completed
010	10.10.10	add clinical examination	Doctor writing for clinical examination of symptoms and complications	add clinical component	Completed	T-10	Completed
011	11.11.11	view private consultation	The doctor can see the private consultation of his patients	view private consultation component	Completed	T-11	Completed
012	12.12.12	add personal record	patient can add his personal infomation	add personal record component	Completed	T-12	Completed
013	13.13.13	add medical record	patient can add his medical information	view medical post component	Completed	T-13	Completed
014	14.14.14	view medical post	patient can see medical posts that doctor post them	view medical post component	Completed	T-14	Completed
015	15.15.15	show consultation	patient can see his consultations	show consultation component	Completed	T-15	Completed
016	16.16.16	search fo a doctor	patient can search foe a doctor	search fo a doctor component	Completed	T-16	Completed
017	17.17.17	view note	patient can view notes that doctor written	view note component	Completed	T-17	Completed
018	18.18.18	view medications	patient can view medicationsss that doctor written	view medications component	Completed	T-18	Completed
019	19.19.19	make a consultation(private , public)	patient can make a consultation(private , public)	make a consultation(private , public) component	Completed	T-19	Completed
020	20.20.20	view clinical examination	patient can view clinical examinations	view clinical examination component	Completed	T-20	Completed
021	21.21.21	add calenda	patient can add calendass	add calenda component	Completed	T-21	Completed
022	22.22.22	show personal record	patient can show personal records	show personal record component	Completed	T-22	Completed
023	23.23.23	payment	patient can pay money for publis coms	payment component	Completed	T-23	Completed
024	24.24.24	statistics	admin can see statistics about the system	statistics component	Completed	T-24	Completed
025	25.25.25	manages doctor	admin can manage doctor	manages doctor component	Completed	T-25	Completed
026	26.26.26	manage specialization	admin can manage doctor specialization	manage specialization component	Completed	T-26	Completed
027	27.27.27	search for a city	admin can search for a city	search for a city component	Completed	T-27	Completed
028	28.28.28	search for a doctor	admin can search for a doctor	search for a doctor component	Completed	T-28	Completed
029	29.29.29	search for a specialization	admin can search foe a doctor specialization	search for a specialization component	Completed	T-29	Completed

Chapter seven

Conclusion and Future

Prospects

7 Chapter seven – Conclusion

7.1 Conclusion :

Nowadays, the era of paper records is dying, technology dominates human life with technological software and devices

People prefer an easy, fast and safe way for every part of their life This project is designed to meet the management of an electronic health system In our project, we can search for a doctor within the system and book an appointment for a patient and at the same time add a patient and a doctor to the system, modify their data by the system admin, and view the list of medicines within the system, the health center, hospital or doctor. Through this text, we hope to reduce wasting time and save Data easily and reliably to satisfy system users and work less difficult

We believe we have achieved our goals

Chapter eight

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