



TRƯỜNG ĐẠI HỌC FPT

STRY OF EDUCATION AND TRAINING

# FPT UNIVERSITY

## Capstone Project Document

### EasyDoctor - An e-health platform that connects patients and doctors

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## Definition and Acronyms

Acronym	Definition
BA	Business Analysis
BR	Business Rule
ERD	Entity Relationship Diagram
GUI	Graphical User Interface
PM	Project Manager
SDD	Software Design Description
SPMP	Software Project Management Plan
SRS	Software Requirement Specification
UAT	User Acceptance Test
UC	Use Case

## I. Project Introduction

### 1. Overview

Project name: **EasyDoctor - An e-health platform that connects patients and doctors**

Project code: EasyDoctor

Group name: IS1401\_40

Software type: Website

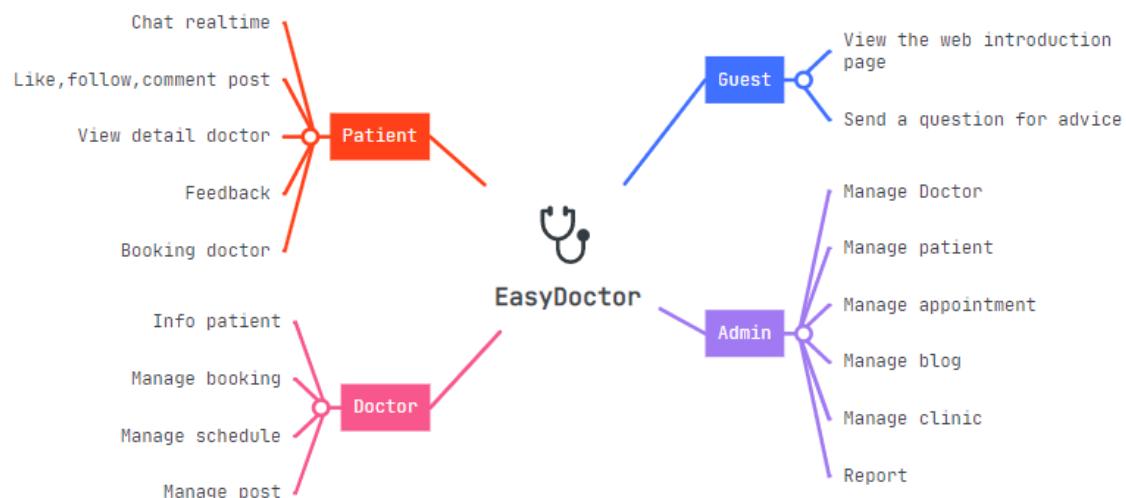
#### 1.1 Project Information

With the desire to bring value to society, help patients save time in the booking appointment with doctors at clinics, and increase satisfaction during medical examination, in this project, our goal is creating a medical platform that connects patients and doctors.

**EasyDoctor** focuses on providing functions to patients to book appointments with doctors that they want or doctors around their residence by the website system. In addition, with our system patients send ratings and feedback about doctors, and read health information from an official document that is provided to doctors.

Besides that, we also tried to create a simple interface that focuses on the main tasks so that people without technology knowledge can use it easily.

Below are major features of EasyDoctor system:



**Figure 1: Major Feature**

There are 4 main roles in this system: guest, patient, doctor, admin. Guests can view the web introduction page and send a question to the admin. Patients can view detailed information about the doctor, book, cancel, and reject an appointment. Besides that, they can comment, follow, like posts on the blog. On the doctor's end, they may manage their appointments and schedule their examinations, and can post articles on the blog. Admin can manage doctors, patients, manage appointments, view reports about the system.

#### 1.2 Project Team

Full Name	Role	Email	Mobile
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## 2. Product Background

The Covid epidemic has broken out in the world since 2019 and until now has not stopped. According to the Ministry of Health, as of August 2022, Vietnam has [11,364,355 cases, with 43,097 deaths](#). It makes society and the economy affected by the pandemic. Control activities that have taken place include restrictions on freedom of movement.

This makes visiting hospitals and clinics difficult, time-consuming, and potentially infectious. Patients have to spend time waiting for medical orders with many complicated medical examination procedures, which increases the cost of medical examinations.

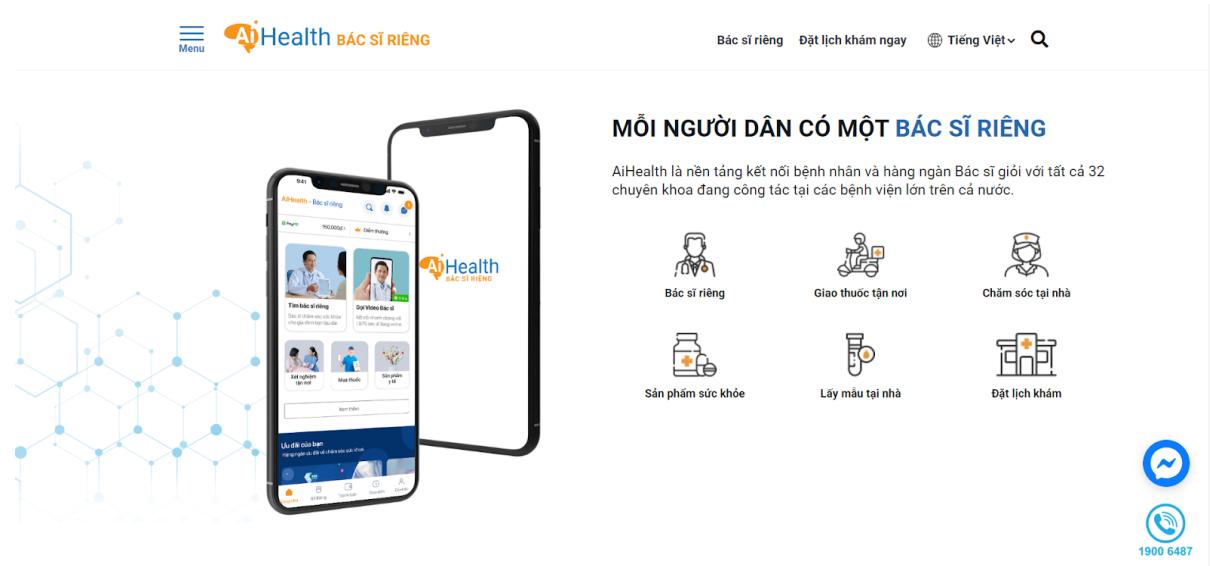
Understanding this problem, in this project, we propose a platform that connects doctors with patients. This makes it easy for anyone to book a quick appointment with a doctor and increases patient satisfaction, saves time and increases the selection of quality doctors. Healthcare providers are willing to pay for quality systems that can help manage their doctor appointments and other activities more efficiently.

Unlike current manual booking processes, patients using our appointment booking system will not have to go to the clinic to get their order number, as long as a computer is connected to the Internet, the patient can access it easily. In addition, patients can also choose a doctor according to their wishes, and send feedback, read health information from an official document source.

## 3. Existing Systems

According to our study, there are two notable apps in this application domain: AI Health and eDoctor.

### 3.1 AI Health



**Figure 2: AI Health**

AiHealth - Family doctor platform is used to integrate personal health management records to serve primary health care for people and for every home.

AiHealth is an online technology platform that provides users with one-touch healthcare services. Some outstanding features of that application are as below:

- Electronic health records
- Personal doctor
- Book an appointment
- Delivery of drugs to the place
- Care at home

According to our assessment, AiHealth has certain advantages and disadvantages.

#### **Advantages:**

- Quickly connect to a highly qualified doctor
- Easily detect basic diseases, usually through external manifestations
- Certified by Vietnam's Ministry of Health
- Large network of many doctors and many hospitals

#### **Disadvantages:**

- The consulting package is quite high when it comes to 450,000 VND per month, while now there are free consulting websites available.
- The popularity of the application is not widely available to everyone. Not covered in many provinces, when looking for a doctor, only in Ho Chi Minh.

### 3.2 eDoctor



**Figure 3: eDoctor**

eDoctor is a mobile application for health care and monitoring for all subjects. eDoctor supports users to book appointments at some clinics, request medical examinations and tests at home. This application is also programmed quite well when allowing users to create online medical records to track the progress of medical examination and treatment, medical history of themselves and their families.

- This app includes some salient features shown as below:
- Health management
- Counselling for health promotion and disease prevention: counselling on nutrition, physical activity, risk factors affecting health, vaccination and prevention of non-communicable diseases.
- Screening, early detection of diseases
- Chat with doctors 24/24
- Electronic health records
- Personal doctor
- Book an appointment
- Delivery of drugs to the place

It has some advantages and disadvantages in our opinion:

#### **Advantages :**

- Quickly connect with a highly qualified doctor

- Easily detect underlying diseases, often through outward manifestations
- Quick lookup of health information
- Many useful health news
- Certified by Vietnam's Ministry of Health
- Store records online and absolutely PRIVACY personal information

### **Disadvantages :**

- Only get 1 free time, the rest have to buy for 30,000 VND for a consultation.

## **4. Business Opportunity**

As our surveys have shown in part 2, the appointment booking applications have appeared a lot in the Vietnamese market, but most of these applications integrate too many functions and costs for the application usage is high compared to the general income level of people in Vietnam. In addition, many patients want to book an appointment online with simple and easy-to-use operations that even the elderly can use. Our system is focused on solving the problem of appointment booking. With our system, patients will not have to wait long for each medical examination, saving travel costs and time. Patients can easily contact doctors. Doctors can view patient medical records, adjust schedules, and manage appointments.

With the above market potential and demand, the system can collect money from doctors who pay a part of their revenue as a commission for each appointment booked through the app. Paying doctors will appear at the top of the list, which will increase the number of patient appointments. Patients can pay through the platform during each clinic visit.

Our system focuses on solving the problem of booking an appointment in Da Nang, then expands the coverage nationwide and adds many other features.

## **5. Software Product Vision**

For patients, who need to make an appointment with doctors at clinics. EasyDoctor is a medical platform that connects patients and doctors. This system aims to bring the best patient experience to help solve health problems, save time, choose their top doctor, simplify the doctor search process, optimise the booking process, and advance the medical knowledge delivered by our top doctors. Unlike the current manual processing booking, our product focuses on solving the problem of appointment booking to ensure that the appointment goes smoothly, the patient can cancel the appointment if needed, and the doctor can also manage the appointment. Initially, we only focused on the Da Nang market, later we will apply and develop it for the whole of Vietnam so that everyone can access it more easily.

## **6. Project Scope & Limitations**

### **6.1 Major Features**

#### **6.1.1 Role guest**

FE-01: Guests can view the web introduction page.

FE-02: Send a question for advice.

#### **6.1.2 Role patient**

FE-01: Patients can book, cancel, reject an appointment.

FE-02: Comment, follow, like, share on the blog.

FE-03: View detailed information about the doctor.

#### **6.1.3 Role doctor**

FE-01: The doctor can manage the appointment.

FE-02: The doctor can change the schedule information, examination package.

FE-03: Doctors can easily post articles on the blog.

FE-04: View the patient's medical history.

#### **6.1.4 Role admin**

FE-01: Admin can manage doctors.

FE-02: Admin can manage patients.

FE-03: Admin can manage appointments.

FE-04: Admin can view reports about the system.

### **6.2 Limitations & Exclusions**

LI-1: The system is only limited to the management of patients and doctors in the clinic.

LI-2: System writes log each time user action updates or inserts.

LI-3: The system has a limited number of doctors in the Da Nang area.

LI-4: Haven't built a mobile app for patients yet.

LI-5: The system has not yet integrated online payment.

## **II. Project Management Plan**

### **1. Overview**

The project is divided into 7 phases of project initiation, project planning, product design, product implementation, monitoring and control, testing and project closing. Each phase in software development requires a different effort. We focus on analysis and development of key functions such as scheduling, patient management, and doctors.

#### **1.1 Scope & Estimation**

#	WBS Item	Complexity	Est. Effort
---	----------	------------	-------------

			(man-days)
<b>1</b>	<b><i>Initial Project</i></b>		<b>5</b>
1.1	Team Meeting	Simple	1
1.2	Register for a topic	Simple	1
1.3	Email and schedule Mentor for a meeting	Simple	1
1.4	Create Project Introduction	Medium	2
<b>2</b>	<b><i>Planning Project</i></b>		<b>10</b>
2.1	Define scope	Medium	2
2.2	Plan Cost Management	Medium	2
2.3	Plan Risk Management	Medium	2
2.4	Deliver Project Management Plan	Medium	2
2.5	Create Software Requirements	Medium	2
<b>3</b>	<b><i>Design</i></b>		<b>15</b>
3.1	Create use-case Diagram	Complex	3
3.2	Design Prototype UX/UI	Complex	3
3.3	Design ERD of database	Medium	3
3.5	Setup environment and version control	Medium	3
<b>4</b>	<b><i>Executing Project</i></b>		<b>55</b>
	Coding front-end about authenticate	Simple	1
	Coding back-end about authenticate	Medium	4
	Coding front-end about appointment for patient	Complex	2
	Coding back-end about appointment for patient	Complex	8
	Coding front-end about appointment for doctor	Complex	2
	Coding back-end about appointment for doctor	Complex	8
	Coding front-end about Blog	Medium	5
	Coding back-end about Blog	Complex	10
	Coding front-end about admin	Medium	5
	Coding back-end about admin	Medium	15
<b>5</b>	<b><i>Monitor and Controlling</i></b>		<b>20</b>

	Control source Code	Medium	8
	Test and fix bug	Complex	8
	Track all process	Medium	4
<b>6</b>	<b>Testing</b>		<b>10</b>
	Perform Unit Test	Medium	5
	Fix bugs	Complex	5
<b>7</b>	<b>Closing</b>		<b>10</b>
7.1	Create user guideline	Medium	3
	Create Final Project Report	Medium	3
	Perform for presentation	Medium	4

**Total Estimated Effort (man-days)**      **125**

## 1.2 Project Objectives

### 1.2.1 Project Objectives

Similar to what was described in section 1.1, our objective in this project is to build a web-based medical platform that links patients and doctors. Our system focuses on offering a solution so that patients may schedule appointments with the doctors they prefer or who are close to where they live. Additionally, patients may rate and comment on doctors using our system, as well as read official health information that is supplied to doctors.

It is designed to solve the medical examination problem of digital transformation in healthcare and deliver an easy and good quality user experience.

### 1.2.2 Team objectives

- Team finishes project before 2022/08/15.
- Team members improve skill in working in groups.
- Each member improves both technical skills and soft skills.
- All business requirements are covered.
- Team applies successfully applied a software development process.
- Allocated Effort (man-days): 125 man-days

## 1.3 Project Risks

#	Risk Description	Impact	Possibility	Response Plans
1	Hard to understand	High	High	Research on patient visits. Research on the process of managing doctors in the clinic.

	business processes			Research on basic medical knowledge, bills, prescriptions, ...
2	Missing person	Medium	Medium	Maybe the members have unexpected work, so please withdraw from the project and some other reasons.
3	Conflict among team members	Medium	Medium	Everyone has their own thoughts. All members should discuss to conflict resolution.
4	Lack of skills	High	Medium	Training members before starting the project
5	Requirement changes	Medium	Medium	All members should discuss carefully at the beginning of each iteration to define scope and requirements.

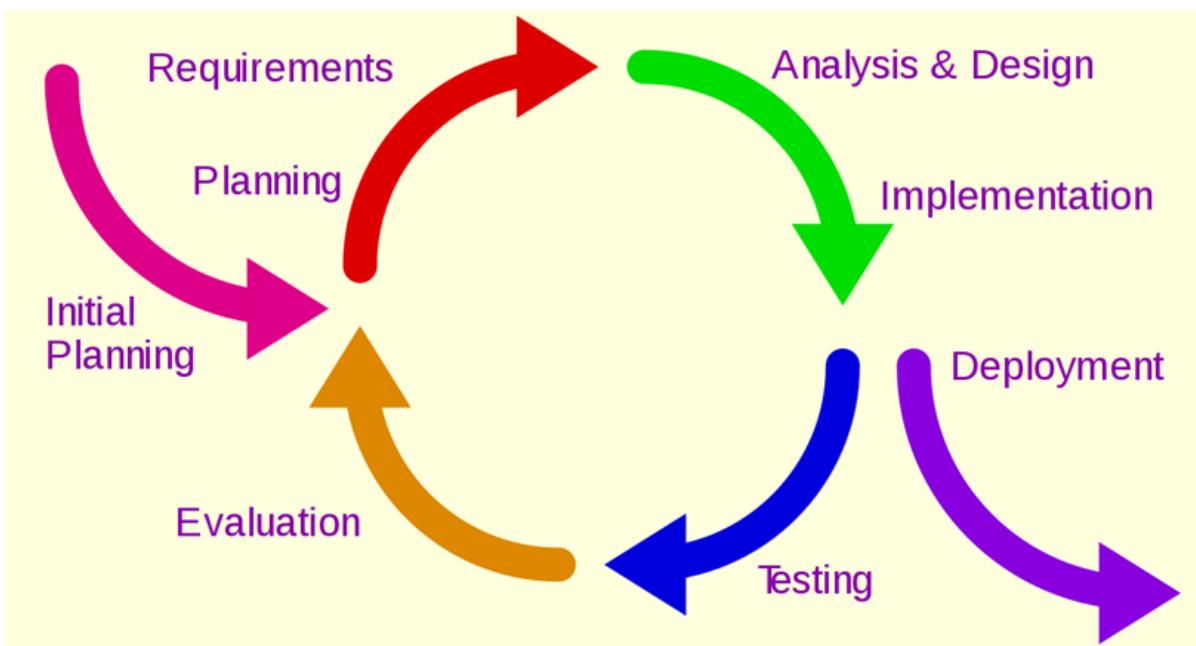


Figure 4: EasyDoctor development life cycle

## 2. Management Approach

### 2.1 Project Process

We use the iterative model to develop this product. The iterative model is a particular implementation of a software development life cycle (SDLC) that focuses on an initial, simplified implementation, which then progressively gains more complexity and a broader feature set until the final system is complete. Each cycle (iteration) ends with a usable system. This model includes several phases as shown below:

- ❖ Planning & Requirements: the first step is to go through an initial planning stage to map out the specification documents.

- ❖ Analysis & Design: the second step is performed to nail down the appropriate business logic, database models. The design stage also occurs here, establishing any technical requirements to meet the needs of the analysis and design stage.
- ❖ Implementation: the actual implementation and coding process can now begin. All planning, specification, and design docs up to this point are coded and implemented into this initial iteration of the project.
- ❖ Verification and testing: the next step is to go through a series of testing procedures to identify and locate any potential bugs or issues that have cropped up.
- ❖ Evaluation: the last step is evaluating the development up to this stage. This allows the entire team to examine where the project is at, where it needs to be, what should change.

## 2.2 Quality Management

We adhere to the following quality assurance rules:

- ❖ Coding conventions: easy maintenance, debugging, members can understand other people's code, consistent code among team members. Follow Java Coding Convention at:
   
<https://www.oracle.com/technetwork/java/codeconventions-150003.pdf>
- ❖ Review: apply to review at different levels: self-review: member reviews his source code by himself, peer review: each member reviews other member's source code, final review: leader review source code of his/her team and merge if there are no problems.
- ❖ Analysis of requirements documents and execution of quality control.
- ❖ Using test management software (unit test, system test, user test).
- ❖ Every weekend, review, rewrite, and memorise (team meeting).
- ❖ Automation (CI/CD, github workflow, etc.) should be used to test early and frequently. CodeQL is a source code analysis platform used by security researchers to automatically analyse bugs.

## 2.3 Training Plan

Training Area	Participants	When, Duration	Waiver Criteria
Java Spring Boot	HuyTPG, SonCT, LongLQ	23/04/2022 7 days	Mandatory
Figma	HuyTV, ThangPHC	25/04/2022 7 days	Mandatory
Draw.io	HuyTV, ThangPHC	25/04/2022 7 days	Mandatory
Git, Github	SonCT, LongLQ	30/05/2022 3 days	Mandatory

Ajax	HuyTPG, LongLQ	05/07/2022 7 days	Mandatory
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### 3. Project Deliverables

Please move to Report2\_EasyDoctor Project Schedule file for details. We presented detailed project deliverables in this file.

### 4. Responsibility Assignments

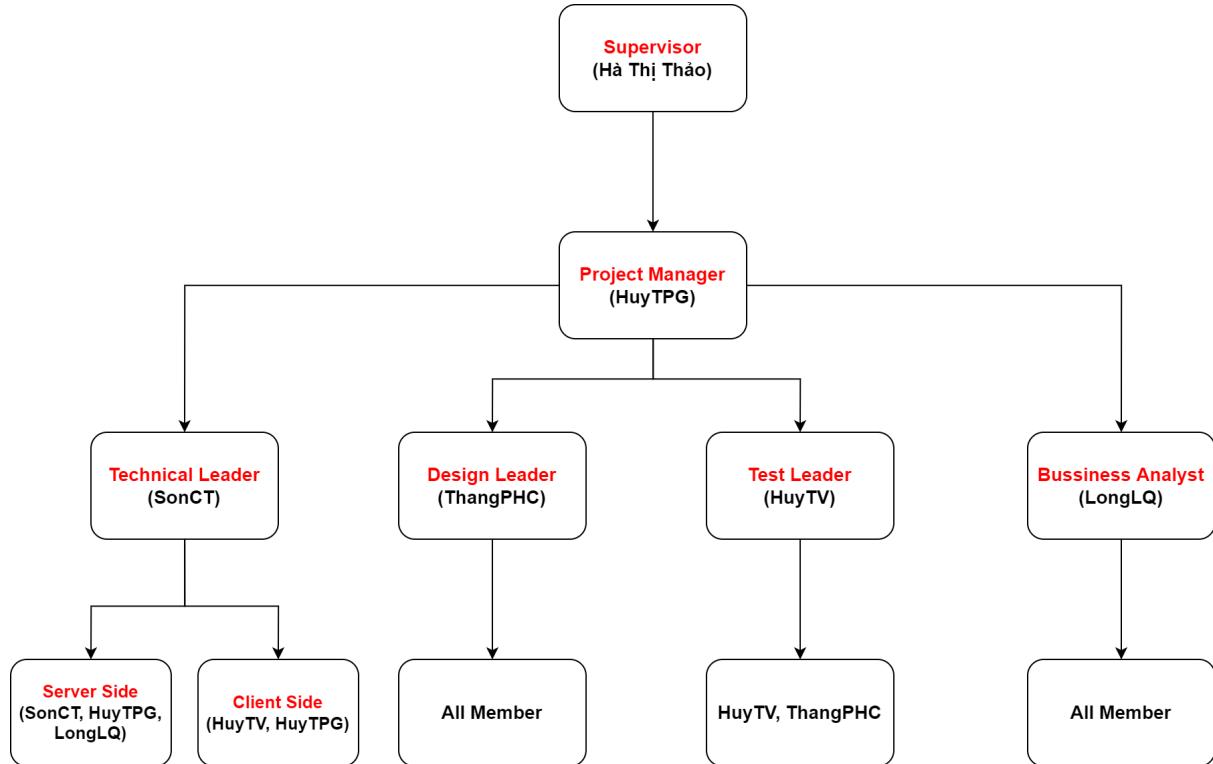


Figure 5: Responsibility Assignments

Role	Member	Responsibility
Project Manager	HuyTPG	Planning schedules, tracking process of project Communication with team members and supervisors Take responsibility with all requirement and schedule of school Keep project in direct goals
Analysis Leader	LongLQ	Analyse project requirements Define project scope, generate SRS documentation Evaluate SRS generated by analyst members Research. Learn about hospital appointment scheduling Find ideas to apply to projects.

Analysis Member	HuyTPG, SonCT, ThangPHC	Define requirements: functional and non-functional requirements Track and contribute to SRS documentation Define detailed flow of features Rate other members and comment Find ideas from other systems to apply
Designer	ThangPHC, HuyTV	Define screens, flow between screens Design UI, UX for application
Backend Developer	HuyTPG, SonCT, LongLQ	Design database Study technical requirement to apply into project Initial and develop backend server Review code for each other Fix bugs Deploy code to server Optimising the business flow of roles
Frontend Developer	ThangPHC, HuyTV	Initial and develop frontend Study technical requirement to apply into project Review code for each other Fix bugs
Test Leader	ThangPHC	Define test plan Assign tasks for other member Study and research testing tools Create test template Take responsibility about coverage of test
Test Member	LongLQ, HuyTV	Create test cases Implement test follow test plan Create test report and inform to development teams about bugs

Responsibility	HuyTPG	ThangPHC	SonCT	LongLQ	HuyTV
Project Planning & Tracking	D	R	D	R	I
Prepare Project Introduction Document	D	I	R	I	D
Prepare SRS Document (Overview Part)	R	D	I	R	D
Prepare SRS Document (User Requirements)	I	D	R	D	D
Find idea flow patient	D	R	R	D	I
Find idea flow doctor	D	I	D	R	R
Find idea social network	R	D	D	I	I
Find idea payment	I	D	R	D	R
Review knowledge spring boot CRUD	R	I	D	D	I
Review knowledge testing	I	D	R	D	D
Review knowledge SRS	D	D	D	D	D
Make Basic Design	I	D	I	R	D
Draw use-case diagrams	I	I	R	D	D
Sketch, Wireframe UI/UX	R	D	I	I	D
Design database by ERD	D	R	D	D	I
Create schema database	D	R	D	R	I
Mockup, Prototype UX/UI	R	D	I	I	R
Code and review code	D	R	D	D	R
Merge code	R	R	D	D	I
Unit Test	D	R	I	D	D

**Figure 6: Responsibility Member**

Please move to Report2\_EasyDoctor Project Schedule file for details. We presented detailed responsibility members in this file.

[Report2\\_EasyDoctor Project Schedule.xlsx](#)

## 5. Project Communications

Communication Item	Who/ Target	Purpose	When, Frequency	Type, Tool, Method(s)
Supervisor communication	Supervisor, members	Report project status, Q &A	Every weekday	Slack, google meet,offline
Daily meeting	Members	Discussing about project, sharing files, sharing source code	Everyday	Message, google meet
Team weekly offline meeting	Members	Training, discuss	2 times a week	Face to face, coffee

## 6. Configuration Management

### 6.1 Document Management

All documents about reports, Q&A, references will be stored on google drive. So all team members can access, view and edit documents online on google sheet, google docs. Will log the time, update description of changes. All reports will be forwarded to the supervisor on the Slack team. (if there is an edit comment from the supervisor, it will automatically notify the message via Slack).

On google drive, our folder is [here](#).

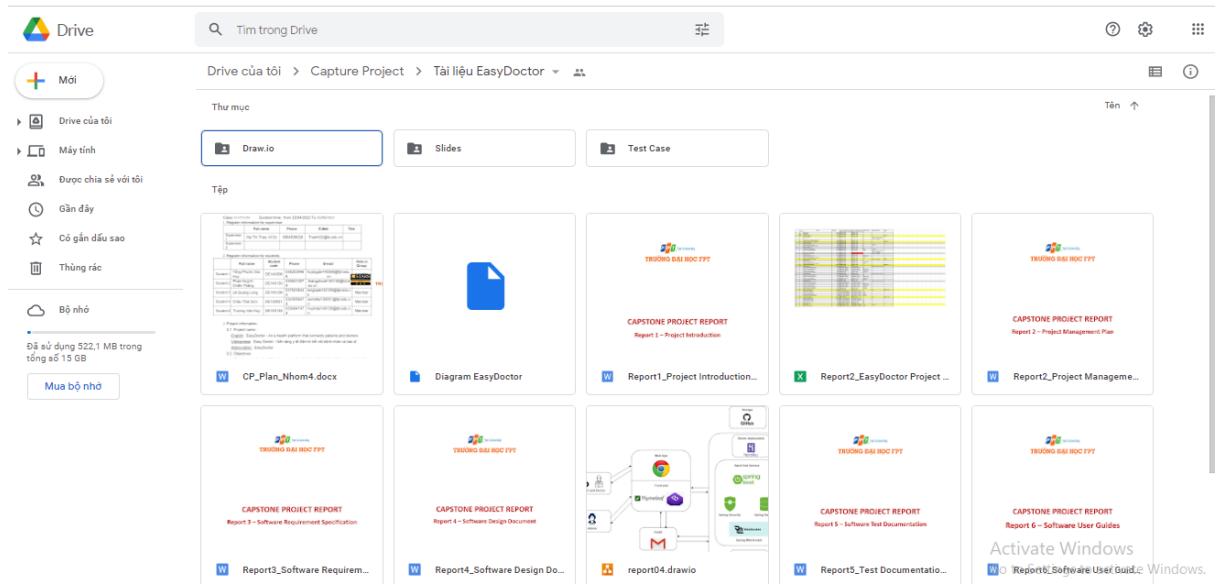
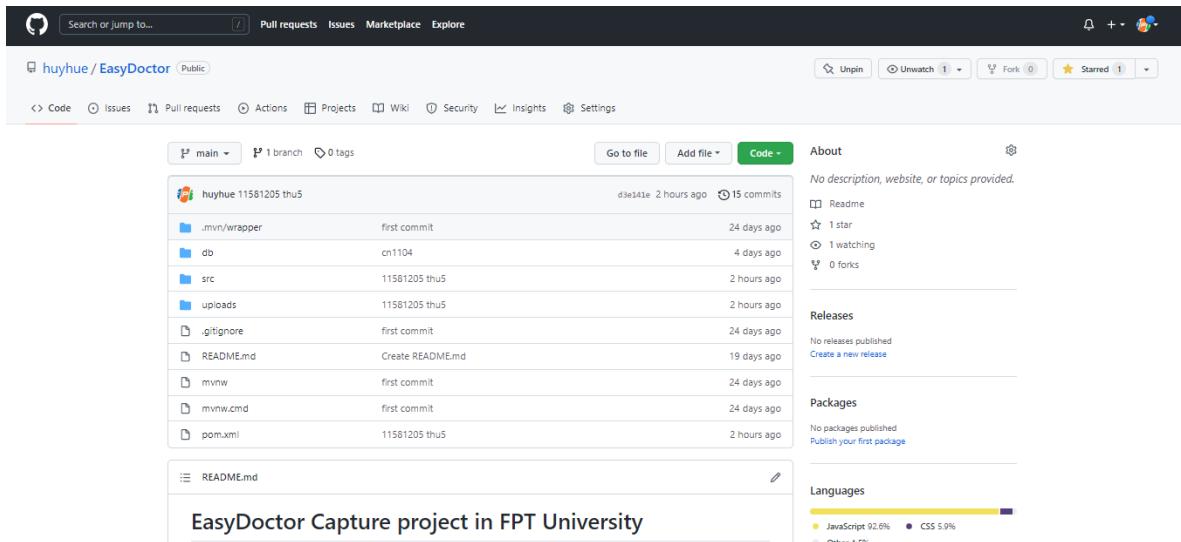


Figure 7: Document Management

### 6.2 Source Code Management

The source code will be hosted on Github. Only team members can access the repository on Github for project safety. All coding branches must be reviewed by at least one developer before merging into the default branch. Developers must do unit testing and code review before creating a merge request.

On GitHub, our project is [here](#).



**Figure 8: Source Code Management**

### 6.3 Tools & Infrastructures

Category	Tools / Infrastructure
Technology	HTML/CSS/Javascript Bootstrap (FrontEnd), Java/SpringBoot (BackEnd)
Database	MySQL
IDEs/Editors	Visual Studio Code, Spring Tools 4 for Eclipse
Diagramming	StarUML, DrawIO
Documentation	Google Drive, Google Docs/Sheets/Slides
Version Control	GitHub (Source Codes), Google Drive (Documents)
Deployment server	Heroku Web Service
Project management	Google Sheet (Schedule), ClickUp(Tasks, Defects)

## III. Software Requirement Specification

### 1. Product Overview

**EasyDoctor System** is an online appointment booking system on the website. It replaces the traditional way of making an appointment of having to go to the clinic to get an order number. The system makes it possible for patients to book an appointment with the desired doctor, and it also helps patients connect and chat with a doctor online. With our system, patients just take a few simple steps and without having to move to the clinic, patients can still book an appointment through the website. Patients can be consulted by doctors about diseases, and treatments,... Patients can also know more information about diseases, and health information through the blog page.

The system is expected to grow through multiple releases, taking all customer feedback into account, and always improving to the most complete version that is easiest to use for everyone.

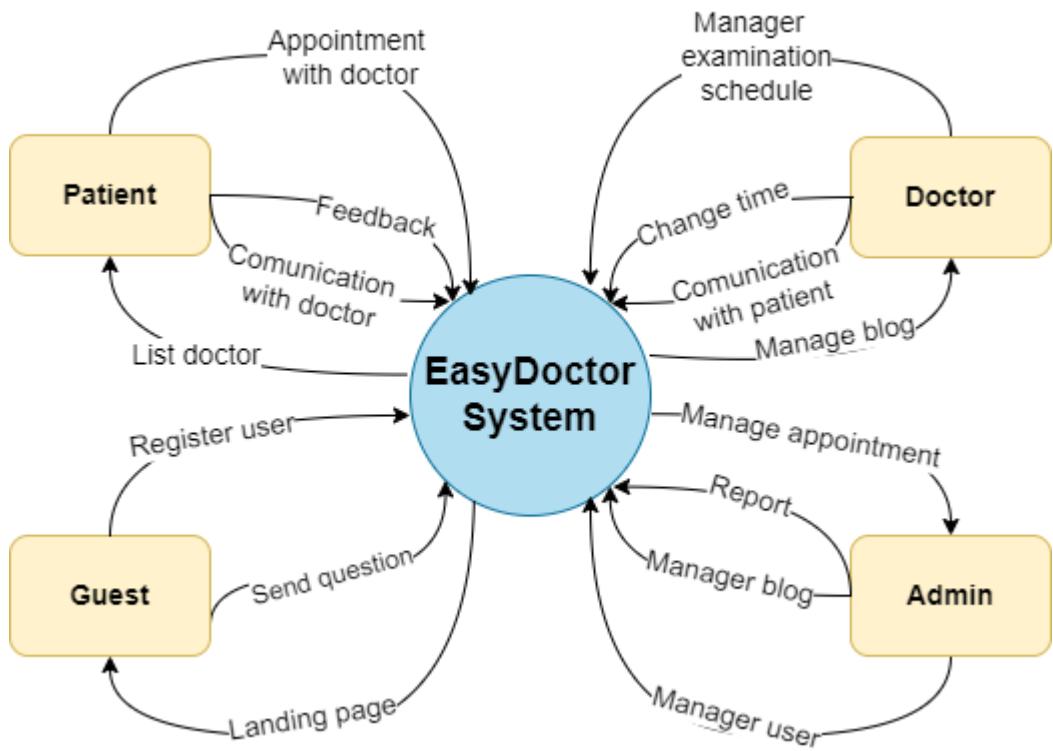


Figure 9: EasyDoctor Context Diagram

## 2. User Requirements

### 2.1 Actors

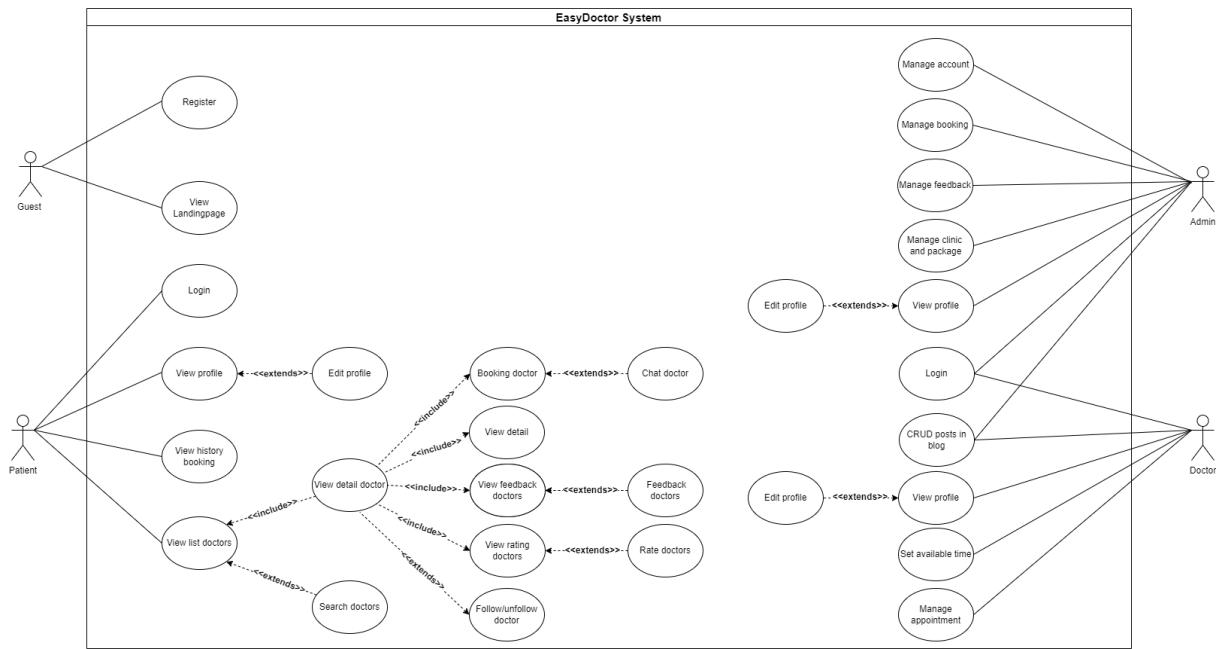
#	Actor	Description
1	Guest	The person has the right to view information about the web advertisement page and ask and answer questions for the admin.
2	Admin	The person who has the right to manage components in the system such as clinic management, examination packages, patients, doctors, appointments, invoices, Blogs, create reports.
3	Doctor	As the person responsible for managing the medical examination schedule, monitoring patients, having the right to cancel appointments, and creating posts on the Blog.
4	Patient	As a person, you can book an appointment with a doctor, view post information, doctor information, manage personal information, and rate doctors.

### 2.2 Use Cases

#### 2.2.1 Diagram(s)

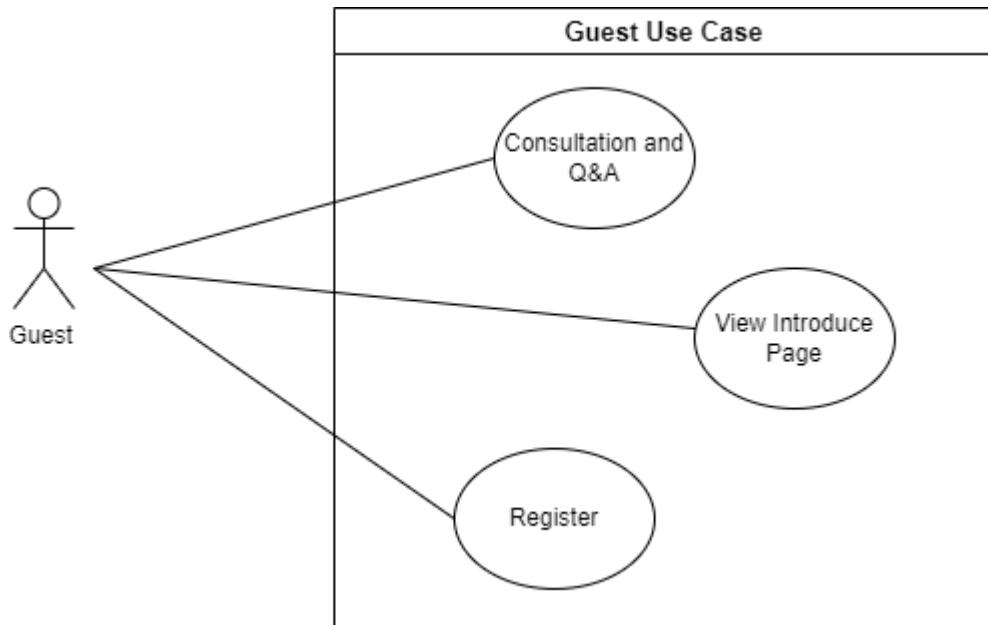
##### 2.1.1.1. Overview Use Case

The system has 4 actors, including Guest, User, Doctor, and Admin.



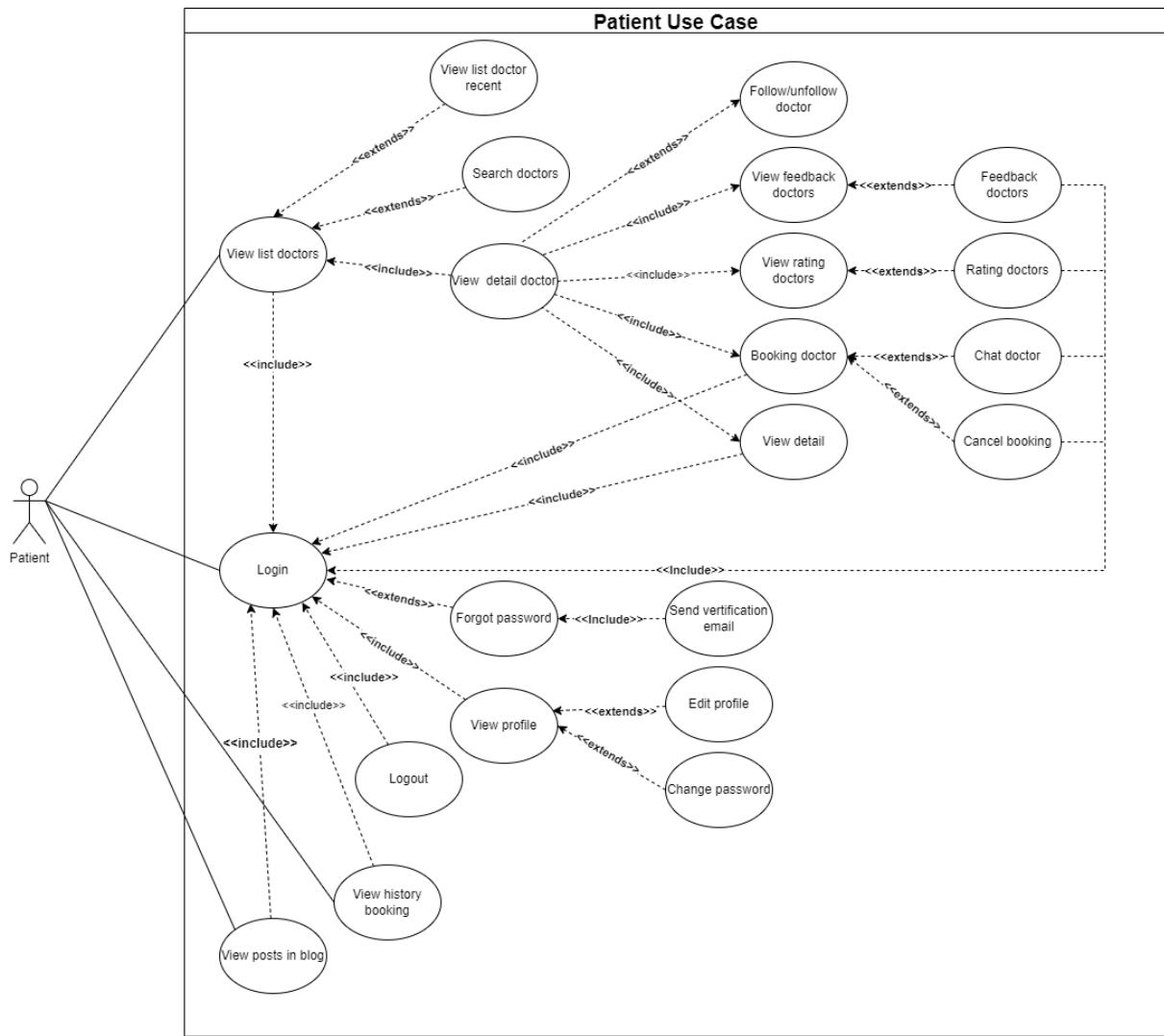
**Figure 10: Overview Use Case Diagram**

### 2.1.1.2. Guest Use Case



**Figure 11 Guest Use Case**

### 2.1.1.3. Patient Use Case



**Figure 12: Patient Use Case**

#### 2.1.1.4. Admin Use Case

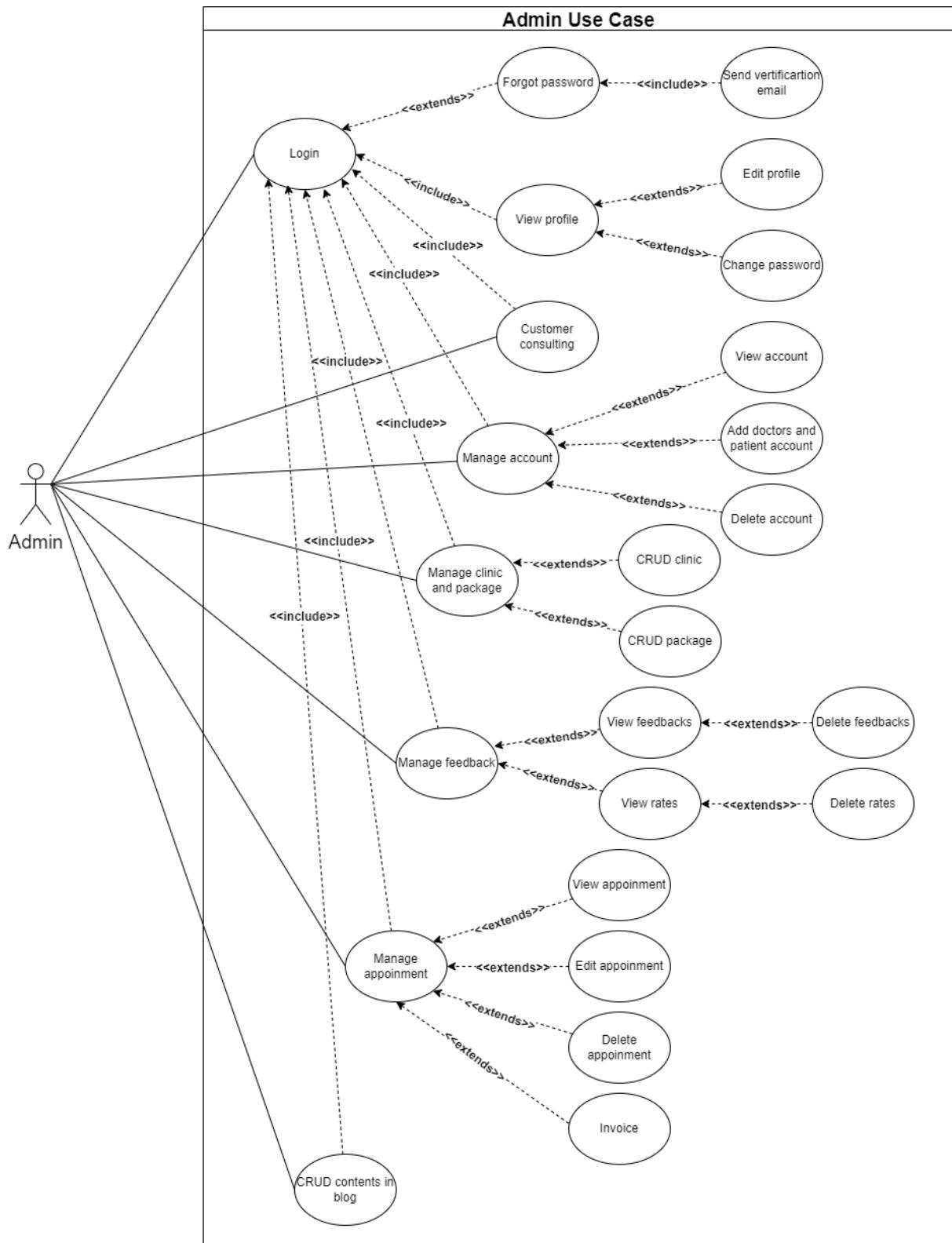


Figure 13: Admin Use Case

### 2.1.1.5. Doctor Use Case

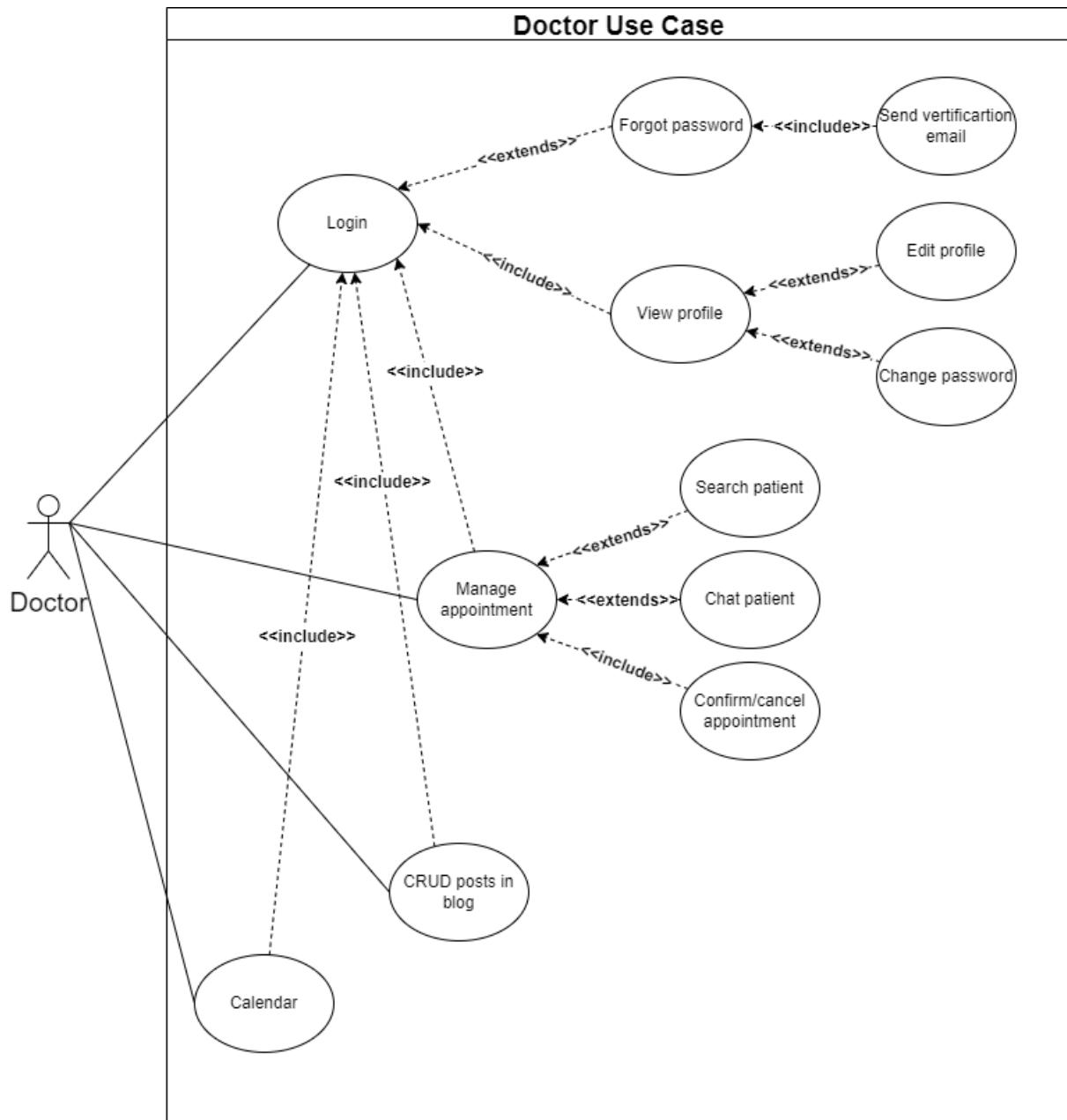


Figure 14: Doctor Use Case

### 2.2.2 Descriptions

ID	Use Case	Actors	Use Case Description
UC-01	Login	Admin, Doctor, Patient	Login in different roles
UC-02	Register	Patient	Register patient account and email
UC-03	Change password	Admin, Doctor, Patient	After logging in, doctors and patients can go to the information modification section to change the password
UC-04	Forgot password	Admin, Doctor, Patient	Forgot password must confirm with registered email when creating account

UC-05	Edit profile	Admin, Doctor, Patient	After logging in, the roles Admin, Doctor, Patient can change information about username, full name, email, gender, mobile age address
UC-06	Logout	Admin, Doctor, Patient	Sign out of your account
UC-07	Search doctor	Patient	Patients can search for doctors by specialty and name.
UC-08	View all doctors	Patient	See the list of doctors, currently active on the website
UC-09	Make an appointment doctor	Patient	Patients can schedule an appointment with the doctor they want through a specific time.
UC-10	Manage Appointment	Doctor, Admin	Doctor role: can provide free time during the week so that patients can book appointments with doctors. The doctor will be notified of the appointments that have been booked.
UC-11	Manage doctor	Admin	Add, edit, and delete doctor information on the system.
UC-12	Manage patient	Doctor, Admin	admin role: can delete patient accounts, and view patient information. Doctor role: view patient information, view patient's medical record.
UC-13	Manage clinic	Admin	Admin can create, view, or edit clinics on the system
UC-14	Manage invoice	Admin	Admin is the one who can bill the patient and confirm whether the patient has paid the bill or not
UC-15	Manage Blog	Doctor, Admin	Here doctors can post articles for patients to read and discuss.
UC-16	Review of doctor	Admin	View patient feedback for doctors, can delete inappropriate reviews
UC-17	Upload image profile	Patient, Doctor	Users can add and change their profile picture
UC-18	View declaration information	Patient	Patients can review the information reported when the patient makes an appointment
UC-19	Read notification	Patient, Doctor	Users can view and read notifications when the appointment ends, or is cancelled, ...
UC-20	Filter notification	Patient, Doctor	Users can filter notifications by states like unread, read or all notifications
UC-21	Upload certification	Doctor	Doctors can upload their certificates so that patients can trust them

UC-22	View list post Blog	Patient, Doctor	Patients and doctors can see doctor's posts on the Blog
UC-23	Add post Blog	Doctor	Doctors can post articles on the Blog
UC-24	Edit post Blog	Doctor	Doctors can edit articles on the Blog
UC-25	Delete post Blog	Doctor	Doctors can delete articles on the Blog
UC-26	Like post	Patient, Doctor	Patients can like doctor's posts and doctors can also like their own posts
UC-27	Comment post	Patient, Doctor	Patients can comment doctor's posts and doctors can also comment their own posts
UC-28	Delete comment	Patient, Doctor	Patients can delete comment doctor's posts and doctors can also delete comment their own posts
UC-29	Add medical examination package	Doctor	The doctor can add a new examination package so that the patient can choose the appropriate package
UC-30	Appointment statistics	Doctor	The doctor can statistics the status of the appointments
UC-31	Follow doctor	Patient	Patients can follow doctors so they can get notifications when they post
UC-32	Unfollow doctor	Patient	Patients can unfollow that doctor if they don't want to be notified of that doctor's posts
UC-33	View feedback of doctor	Patient	Patients can view feedback of doctors

## 2.3 Feature Common

### 2.3.1 Login

ID and Name:	UC01- Login		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	All User	Secondary Actors:	
Trigger:	User click button “Đăng nhập” on Landing Page		
Description:	Everyone who wants to access the system needs to log in with a registered account		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User must enter the username and password of the registered account</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- User successfully logged in and gained access to Homepage</li> </ul>		

Normal Flow:	<ol style="list-style-type: none"> <li>1. User click button “Đăng nhập” on Homepage</li> <li>2. The user enters the correct username and password of the registered account in the fields</li> <li>3. Then the user clicks on the "Đăng nhập" button.</li> <li>4. The system will redirect to the system page</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. Wrong username or password System will display message “Tên đăng nhập hoặc mật khẩu không đúng”</li> <li>2. If the user enters a password of less than 6 characters System will display message “Mật khẩu phải chứa ít nhất 6 ký tự”</li> <li>3. If the user does not enter a username or password System will display message “Không được để trống”</li> </ol>
Priority:	High
Frequency of Use:	High
Business Rules:	BR-17, BR-01
Other Information:	N/A
Assumptions:	N/A

### 2.3.2 Register

ID and Name:	UC02- Register		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	User click “Tạo mới” on login screen		
Description:	All user who wants to use this website need to register for an account		
Preconditions:	<ul style="list-style-type: none"> <li>- Username is created must not existed in system</li> <li>- User must enter all information in the fields</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- New user is added to the system</li> <li>- Login page screen will be displayed</li> </ul>		

Normal Flow:	<ol style="list-style-type: none"> <li>1. User click “Tạo mới” on login screen.</li> <li>2. Users enter necessary information such as Username, Email, Password, Confirm Password on the screen.</li> <li>3. After clicking the “Đăng ký” button to register for an account.</li> <li>4. The system redirects guests to the login page</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. Username is created must not existed in system System will display message “Oops! Đã có người dùng đăng ký”</li> <li>2. User entered incorrect format of email System will display message “Email phải đúng định dạng: abc@gmail.com”</li> <li>3. Password less than 6 characters System will display message “Mật khẩu phải chứa ít nhất 6 ký tự”</li> <li>4. Confirm password is not the same with Password System will display message “Mật khẩu không trùng khớp”</li> <li>5. Username less than 6 characters System will display message “Tên đăng nhập phải chứa ít nhất 6 ký tự”</li> <li>6. One or more fields are empty System will display message “Không được để trống”</li> </ol>
Priority:	High
Frequency of Use:	High
Business Rules:	BR-03
Other Information:	N/A
Assumptions:	N/A

### 2.3.3 Change Password

ID and Name:	UC03- Change Password		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	All User	Secondary Actors:	
Trigger:	User click “Mật khẩu” on “Tài khoản của tôi” screen		

Description:	User want to change password in system
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>
Post-conditions	User's password is changed
Normal Flow:	<ol style="list-style-type: none"> <li>1. User click “Tài khoản của tôi” on header</li> <li>2. After user click “Mật khẩu” on “Tài khoản của tôi” screen</li> <li>3. Users are required to enter the fields Current Password, New Password, Repeat Password if they want to change a new password</li> <li>4. After pressing the “Lưu” to save.</li> <li>5. System change password and notices user</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. Current password is not corrected in system System will display message “Mật khẩu cũ không đúng!!”</li> <li>2. New password not enough 6 characters System will display message “Mật khẩu phải có ít nhất 6 ký tự”</li> <li>3. The new password is the same as the old password System will display message “Mật khẩu mới không được giống với mật khẩu cũ”</li> <li>4. Repeat Password does not match New Password System will display message “Mật khẩu không trùng khớp”</li> </ol>
Priority:	Low
Frequency of Use:	Low
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

#### 2.3.4 Forgot Password

ID and Name:	UC04- Forgot Password		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	All User	Secondary Actors:	

Trigger:	User clicks “Quên mật khẩu?” on login page
Description:	User forgot password and want to reset password in system
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>
Post-conditions	User's password is changed and sent to user's email
Normal Flow:	<ol style="list-style-type: none"> <li>1. User clicks “Quên mật khẩu?” on login page</li> <li>2. System redirects to forgot password screen.</li> <li>3. User input email used to register to the system in the fields.</li> <li>4. After user click button “Xác nhận”</li> <li>5. The system will send to the user's email a link to the password change page</li> <li>6. User enters Password and Confirm Password fields</li> <li>7. After pressing the “Lưu” to save.</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. Email user inputed is not existed in system System will display message “Email xác nhận không tồn tại”</li> <li>2. Once the user has entered the email and clicked the "Reset" button System will display message “Email xác nhận đã được gửi đến email của bạn”</li> </ol>
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.5 Edit profile

ID and Name:	UC05- Edit Profile		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	

Trigger:	User click “Tài khoản của tôi” on header
Description:	Users want to update their personal information for accuracy
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>
Post-conditions	The user's personal information is changed
Normal Flow:	<ol style="list-style-type: none"> <li>1. After successfully logging in, the user clicks on "Tài khoản của tôi" on header</li> <li>2. Users enter information in the fields they want to change</li> <li>3. After user pressing the “Lưu thay đổi” to save</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. User cannot change Username and Email</li> </ol>
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.6 Logout

ID and Name:	UC06- Logout		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	All User	Secondary Actors:	
Trigger:	User click button “Đăng xuất” on Homepage		
Description:	User wants to log out when finished using		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- User's account is logged out of the system</li> <li>- Login page screen will be displayed</li> </ul>		

Normal Flow:	<ol style="list-style-type: none"> <li>1. User click button “Đăng xuất” on Homepage screen</li> <li>2. The system will log out the account from the system and go to the login page and display the message "Đăng xuất thành công"</li> </ol>
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	High
Frequency of Use:	High
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.7 Search doctor

ID and Name:	UC07- Search doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	Enter the patient's name or select the specialty that the patient wants to search in the search field		
Description:	Patient wants to find a famous doctor or a doctor known before		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Patients will find a doctor they want to schedule an appointment		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Enter the patient's name or select the specialty that the patient wants to search in the search field</li> <li>2. The system will output the doctor the patient searched for (if any).</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	<ol style="list-style-type: none"> <li>1. The doctor's name the patient searched for is not in the list System will display message “Không có bác sĩ nào được tìm</li> </ol>		

	thầy”
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.8 View doctor

#### 2.3.8.1 View all doctor

ID and Name:	UC08-01 - View all doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	After the patient logs in, a list of all doctors will appear		
Description:	Patient wants to see a list of all doctors so that he can choose the right one to schedule an appointment		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Patients can see a list of all doctors in the system to choose the right doctor to schedule an appointment		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Patient logs into the system</li> <li>2. The system will automatically display a list of all doctors in the system so that the patient can view and choose</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		

Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.8.2 View doctor detail

ID and Name:	UC08-02 - View doctor detail		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	Patient clicks on the name of the doctor that the patient wants to see details about that doctor		
Description:	View detailed information about the doctor that the patient is interested in. You can view the specialty, which hospital you are working at, the information of the staff...		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The doctor's detailed information screen appears and the patient can see all that information		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Patient logs into the system</li> <li>2. The system will automatically display a list of all doctors in the system so that the patient can view and choose</li> <li>3. Patient clicks on the name of the doctor that the patient wants to see details about that doctor</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	N/A		
Other Information:	N/A		

Assumptions:	N/A
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### 2.3.9 Make appointment doctor

ID and Name:	UC09- Make appointment doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	User clicks the "Đặt ngay" button at the doctors that the user wants to make an appointment with.		
Description:	User wants to book an appointment with the doctor that the patient wants		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- Scheduled appointment with the doctor selected by the patient</li> <li>- The system will display the details of the appointment and chat with the doctor on the screen</li> </ul>		
Normal Flow:	<ol style="list-style-type: none"> <li>1. User clicks the "Đặt ngay" button at the doctors that the user wants to make an appointment with.</li> <li>2. The patient declares his background disease information, blood type,... on the declaration page. Then click "Lưu thay đổi" button.</li> <li>3. Then the user clicks the "Chọn" button at the desired medical examination package</li> <li>4. The system will display the available hours of the doctor and then the user will click on the time they want to see</li> <li>5. The appointment details screen appears and if the user wants to book an appointment, user enter OTP then click the "Xác nhận đặt" button.</li> <li>6. Then the system will list out the list of appointments that you have booked</li> <li>7. If the user wants to review the appointment details and chat with the doctor, click the "Chi tiết" button at the appointment you want to view.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		

Frequency of Use:	High
Business Rules:	BR-13
Other Information:	N/A
Assumptions:	N/A

### 2.3.10 Manage appointment

#### 2.3.10.1 Cancel appointment of Patient

ID and Name:	UC10-01- Cancel appointment of Patient		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	User click “Cuộc hẹn” in header		
Description:	Users are allowed to cancel an appointment if they want, provided that they can only cancel 1 appointment in a month and not less than 24 hours before the appointment start date.		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- Cancelled appointment with doctor</li> <li>- The appointment will be displayed as Canceled status</li> </ul>		
Normal Flow:	<ol style="list-style-type: none"> <li>1. User click “Cuộc hẹn” on header</li> <li>2. The system will display all the appointments that the user has booked and then the user will click the "Chi tiết" button on the appointment that the user wants to cancel.</li> <li>3. Then the system displays the detailed screen and chats with the doctor. If the user wants to cancel, click the "Hủy cuộc hẹn" button.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	<ol style="list-style-type: none"> <li>1. User cancelled appointment more than 1 time per month The system will display "Bạn không thể hủy cuộc hẹn này vì bạn đã vượt quá số lần hủy tối đa trong tháng này" in the "cancellation" section of the appointment details screen</li> <li>2. When the user cancels the appointment in the case where only</li> </ol>		

	<p>the doctor has the right to cancel the appointment, the patient cannot cancel the appointment.</p> <p>The system will display "Loại cuộc hẹn này chỉ có thể được hủy bỏ bởi bác sĩ" in the "cancellation" section of the appointment details screen</p> <p>3. When a user schedules an appointment, it will take place within 24 hours from the time of booking</p> <p>The system will display "Bạn không thể hủy cuộc hẹn này vì cuộc hẹn này sẽ xảy ra trong vòng 24h" section of the appointment details screen</p>
Priority:	High
Frequency of Use:	High
Business Rules:	BR-04, BR-06, BR-07
Other Information:	N/A
Assumptions:	N/A

### 2.3.10.2 Cancel appointment of Doctor

ID and Name:	UC10-02- Cancel appointment of Doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Doctor click "Cuộc hẹn" on header		
Description:	The doctor can cancel any appointment if there is an unexpected job that cannot see the patient		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- Cancelled appointment with patient</li> <li>- The appointment will be displayed as Canceled status</li> </ul>		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Doctor clicks "Cuộc hẹn" on the title</li> <li>2. The system will display all the appointments that the user has booked and then the doctor clicks the "Chi tiết" button on the appointment that the doctor wants to cancel.</li> <li>3. The system will then display the appointment details screen. If the doctor wants to cancel, click the "Hủy cuộc hẹn" button.</li> </ol>		

Alternative Flows:	N/A
Exceptions:	N/A
Priority:	High
Frequency of Use:	High
Business Rules:	BR-05, BR-07
Other Information:	N/A
Assumptions:	N/A

### 2.3.10.3 Reject appointment

ID and Name:	UC10-03- Reject appointment		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	The patient clicks the "Tù chối" button on the appointment information page in the Finished state		
Description:	When a patient has already booked an appointment, but cannot come, after the 24 hour period ends, they have the right to refuse the appointment so as not to be charged.		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	When a patient has already booked an appointment, but cannot come, after the 24 hour period ends, they have the right to refuse the appointment so as not to be charged.		
Normal Flow:	<ol style="list-style-type: none"> <li>1. The patient clicks the "Tù chối" button on the appointment information page in the Finished state</li> <li>2. The patient clicks "click ở đây" on the website's notification email sent to the patient</li> </ol>		
Alternative Flows:	N/A		

Exceptions:	N/A
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	BR-09
Other Information:	N/A
Assumptions:	N/A

#### 2.3.10.4 Accept reject appointment

ID and Name:	UC10-04- Accept reject appointment		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	The patient clicks the "Chấp nhận" button on the appointment information page in the Finished state		
Description:	The doctor is the one who accepts the request to refuse the appointment when the patient does not show up		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The doctor is the one who accepts the request to refuse the appointment when the patient does not show up		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Doctor clicks "Cuộc hẹn" on the title</li> <li>2. The system will display all the appointments that the user has booked and then the doctor clicks the "Chi tiết" button on the appointment finished state that the doctor wants to accept and reject the appointment.</li> <li>3. The system will then display the appointment details screen. If the doctor wants to cancel, click the "Chấp nhận" button.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		

Frequency of Use:	Medium
Business Rules:	BR-18
Other Information:	N/A
Assumptions:	N/A

### 2.3.10.5 Download QR

ID and Name:	UC10-05- Download QR		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	Doctor click "Cuộc hẹn" on header then click the "Chi tiết" button at the appointment you want to download the QR		
Description:	Patients can download the QR code so they can scan the appointment information		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The patient can download the QR code to the device and view the details of the appointment by scanning the QR code		
Normal Flow:	<ol style="list-style-type: none"> <li>1. User click "Cuộc hẹn" in header</li> <li>2. The system will display all the appointments that the user has booked and then the user will click the "Chi tiết" button on the appointment that the user wants to download QR.</li> <li>3. Then the system displays the detailed screen and chats with the doctor. If the user wants to download QR, click the "Download" button.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	N/A		

Other Information:	N/A
Assumptions:	N/A

### 2.3.10.6 Chat realtime

ID and Name:	UC10-06- Chat realtime		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	
Trigger:	Select the appointment details of the doctor you want to chat with		
Description:	Doctor and patient can chat online with each other after successful appointment		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Doctor and patient can chat with each other at any time		
Normal Flow:	<ol style="list-style-type: none"> <li>1. User login in system</li> <li>2. The clicks "Cuộc hẹn" in header</li> <li>3. Clicks the "Details" button on the appointment you want to see the details of that appointment</li> <li>4. Then the screen showing the details of the appointment and chat real time appears</li> <li>5. After typed a message into the chat and then pressed the "Gửi" button</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	BR-19		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.11 Manage doctor

#### 2.3.11.1 Create doctor

<b>ID and Name:</b>	UC11-01- Create doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Bác sĩ” on sidebar after choose “Thêm bác sĩ”		
Description:	Admin is the one who can add new doctors to the system		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Admin has added a new doctor to the system so that the patient can book an appointment with that doctor		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Bác sĩ” on sidebar after choose “Thêm bác sĩ”</li> <li>3. The Create doctor screen will appear</li> <li>4. Enter complete and correct information in all fields</li> <li>5. After click button “Lưu”</li> <li>6. New doctor will be added to the list of system doctors</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	<ol style="list-style-type: none"> <li>1. If you do not enter information in one of those fields, you press the "Lưu" button. System will display message “Đây là phần bắt buộc, hãy nhập thông tin đầy đủ vào!”</li> </ol>		
Priority:	High		
Frequency of Use:	High		
Business Rules:	BR-10		
Other Information:	N/A		
Assumptions:	N/A		

### **2.3.11.2 Update doctor**

<b>ID and Name:</b>	<b>UC11-03- Update doctor</b>		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Bác sĩ” on sidebar after choose “Thêm bác sĩ”		
Description:	Admin is the one who can update doctors to the system		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The doctor's information is edited and updated into the system		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Bác sĩ” on sidebar after choose “Thêm bác sĩ”</li> <li>3. A list of doctors will appear</li> <li>4. Click the update button at the doctor you want to update</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	<ol style="list-style-type: none"> <li>1. Admin cannot change Email and Username The system will not allow admin to touch the Email and Username fields</li> </ol>		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	BR-10		
Other Information:	N/A		
Assumptions:	N/A		

### **2.3.12 Manage patient**

#### **2.3.12.1 Create patient**

<b>ID and Name:</b>	<b>UC12-01- Create patient</b>		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	

Trigger:	User click “Bệnh nhân” on sidebar after choose “Xem bệnh nhân”
Description:	Admin is the person who can add new patients to the system
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>
Post-conditions	Newly added patient information to the system's patient list
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Bệnh nhân” on sidebar after choose “Xem bệnh nhân”</li> <li>3. A list of patients will appear</li> <li>4. Click the edit button at the patient you want to update</li> <li>5. Enter complete and accurate information in the fields</li> <li>6. After pressing the “Lưu” to save.</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. Username exists in the system The system will display "Username already exists!"</li> </ol>
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.12.2 Update patient

ID and Name:	UC12-02- Update patient		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Bệnh nhân” on sidebar after choose “Xem bệnh nhân”		
Description:	Admin is the one who can update patient on the system		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		

Post-conditions	The patient's information is edited and updated into the system
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Bệnh nhân” on sidebar after choose “Xem bệnh nhân”</li> <li>3. A list of patients will appear</li> <li>4. Enter complete and accurate information in the fields</li> <li>5. After pressing the “Lưu” to save.</li> </ol>
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.13 Manage clinic

#### 2.3.13.1 Create clinic

ID and Name:	UC13-01- Create clinic		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Phòng khám” on sidebar after choose “Thêm phòng khám”		
Description:	Admin is the one who can create clinic on the system		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Clinics are added to the system when that clinic wants to cooperate with the website		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Phòng khám” on sidebar after choose “Thêm phòng</li> </ol>		

	<p>khám”</p> <ol style="list-style-type: none"> <li>3. The Create clinic screen will appear</li> <li>4. Enter complete and correct information in all fields</li> <li>5. After pressing the “Lưu” to save.</li> </ol>
Alternative Flows:	N/A
Exceptions:	<ol style="list-style-type: none"> <li>1. If you do not enter information in one of those fields, you press the "Lưu" button. System will display message "Đây là phần bắt buộc, hãy nhập thông tin đầy đủ vào!"</li> </ol>
Priority:	Low
Frequency of Use:	Low
Business Rules:	BR-20
Other Information:	N/A
Assumptions:	N/A

### 2.3.13.2 Delete clinic

ID and Name:	UC13-02- Delete clinic		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Phòng khám” on sidebar after choose “Thêm phòng khám”		
Description:	Admin is the one who can Delete clinic on the system		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The clinic will be deleted from the system by admin if that clinic don't want to cooperate with the website anymore		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Phòng khám” on sidebar after choose “Thêm phòng khám”</li> <li>3. A list of clinic will appear</li> </ol>		

	4. Click the delete button at the clinic you want to delete
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	Low
Frequency of Use:	Low
Business Rules:	BR-20
Other Information:	N/A
Assumptions:	N/A

### 2.3.14 Manage invoice

#### 2.3.14.1 Invoice appointment

ID and Name:	UC14-01- Invoice appointment		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Đặt lịch khám” on sidebar after choose “Xem lịch khám”		
Description:	Admin is the one who can bill the patient		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The system will send an email containing the invoice PDF file to the patient with the billing status paid or unpaid.		
Normal Flow:	<ol style="list-style-type: none"> <li>1. After login to the account, admin select the "Xem lịch khám" item of the navigation bar on the left.</li> <li>2. Click the "Xuất hóa đơn" button in the "Hành động" section to invoice an appointment.</li> <li>3. It will display an alert with 2 options "PAID" and "ISSUED". Select 1 to confirm invoice printing.</li> </ol>		

Alternative Flows:	N/A
Exceptions:	N/A
Priority:	Low
Frequency of Use:	Low
Business Rules:	BR-16
Other Information:	N/A
Assumptions:	N/A

### 2.3.14.2 Pay invoice

ID and Name:	UC14-02- Pay invoice		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Đặt lịch khám” on sidebar after choose “Hóa đơn”		
Description:	Admin is the one to confirm whether the patient has paid the bill or not		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The system will send an email containing the invoice PDF file to the patient with the billing status paid.		
Normal Flow:	<ol style="list-style-type: none"> <li>1. After login to the account, admin select the "Hóa đơn" item of the navigation bar on the left.</li> <li>2. Click the "Thanh toán" button to confirm bill payment.</li> <li>3. Display an alert to confirm bill payment. Click "OK" to confirm payment.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		

Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.15 Manage Blog

#### 2.3.15.1 Create post

ID and Name:	UC15-01- Create post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Blog tư vấn” on sidebar after choose “Thêm bài”		
Description:	Admin is the one who can create article on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Posts are newly added and displayed on the blog		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Blog tư vấn” on sidebar after choose “Thêm bài”</li> <li>3. The create article screen will appear</li> <li>4. Enter the post you want to post on the Blog</li> <li>5. After pressing the “Lưu” to save.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		

Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.15.2 Delete post

ID and Name:	UC15-02- Delete post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Blog tư vấn” on sidebar after choose “Thêm bài”		
Description:	Admin is the one who can delete article on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The post has been successfully deleted and no longer appears on the Blog		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Blog tư vấn” on sidebar after choose “Thêm bài”</li> <li>3. The create article screen will appear</li> <li>4. Click the delete button in the post you want to delete</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	N/A		
Other Information:	N/A		

Assumptions:	N/A
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### 2.3.15.3 Update post

ID and Name:	UC15-03 Update post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Blog tư vấn” on sidebar after choose “Thêm bài”		
Description:	Admin is the one who can update article on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The post has been edited successfully and a new post appears on the Blog		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Blog tư vấn” on sidebar after choose “Thêm bài”</li> <li>3. The create article screen will appear</li> <li>4. Click the edit button in the post you want to update</li> <li>5. Enter the post you want to edit then pressing the "Lưu" to save</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.16 Review of doctor

ID and Name:	UC16- Review of doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022

Primary Actor:	Admin	Secondary Actors:	
Trigger:	User click “Đánh giá” on side bar after choose “Xem đánh giá”		
Description:	Admin is the one who can see patient reviews for doctor		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	<ul style="list-style-type: none"> <li>- A list of reviews by doctors appears on the screen</li> <li>- Admin view the reviews of the doctors on the system to be able to manage the doctor's quality</li> </ul>		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Log in to the system with an admin account</li> <li>2. User click “Đánh giá” on side bar after choose “Xem đánh giá”</li> <li>3. A list of review for doctor will appear</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.17 Upload image profile

ID and Name:	UC17- Upload image profile		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	
Trigger:	User click “Tài khoản của tôi” on header		
Description:	Users can add and change their profile picture		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		

Post-conditions	Newly added profile picture to your account page
Normal Flow:	<ol style="list-style-type: none"> <li>After login to the account, users go to the "Tài khoản của tôi" page.</li> <li>Click on the image on the left side of the screen.</li> <li>It will display the images in your computer. Click to select the appropriate image to post on the system.</li> </ol>
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.18 View declaration information

ID and Name:	UC18- View declaration information		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	User click "Tài khoản của tôi" on header		
Description:	Patients can review the information reported when the patient makes an appointment		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The declaration information will appear on the screen		
Normal Flow:	<ol style="list-style-type: none"> <li>After login to the account, users go to the "Tài khoản của tôi" page.</li> <li>Then the patient clicks on "Thông tin khai báo"</li> </ol>		

	3. The information that the patient has declared when making an appointment will be displayed on the screen
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	BR-15
Other Information:	N/A
Assumptions:	N/A

### 2.3.19 Read notification

ID and Name:	UC19- Read notification		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	
Trigger:	Users click on the bell icon to the left of their name		
Description:	Users can view and read notifications when the appointment ends, or is cancelled, ...		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	All notifications will appear on the screen		
Normal Flow:	<ol style="list-style-type: none"> <li>1. After login to the account, user clicks on the bell icon to the right of the navigation bar</li> <li>2. The user clicks on the message view icon on each message on the board.</li> <li>3. It will navigate to that notification's appointment details page.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		

Priority:	High
Frequency of Use:	High
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.20 Filter notification

ID and Name:	UC20- Filter notification		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	
Trigger:	Users click on the bell icon to the left of their name		
Description:	Users can filter notifications by states like unread, read or all notifications		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The screen will display the correct status messages that you have selected to filter		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user clicks on the bell icon to the right of the navigation bar</li> <li>2. The user selects the notification status in the combo box.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	N/A		
Other Information:	N/A		

Assumptions:	N/A
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### 2.3.21 Upload certification

ID and Name:	UC21- Upload certification		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Users click “Tài khoản của tôi” on header after click “Thông tin cá nhân”		
Description:	Doctors can upload their certificates so that patients can trust them		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Certificates and degrees are saved by the system		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, users go to the "Tài khoản" page.</li> <li>2. Select tab "Thông tin cá nhân". Select the certificate item to upload the certificate file in PDF format.</li> <li>3. Reload this page to review the certificate online.</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.22 View list post Blog

ID and Name:	UC22- View list post Blog		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary	

		Actors:	
Trigger:	Users click "Blog tư vấn" on header		
Description:	Patients and doctors can see doctor's posts on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Posts that doctors have posted will appear on the Blog screen		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.23 Add post

ID and Name:	UC23- Add post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Users click "Blog tư vấn" in header		
Description:	Doctors can post articles on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Doctor's posts are posted on the Blog for patients to see		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> </ol>		

	<p>3. After doctor click button “Bác sĩ ơi đăng bài nào!”</p> <p>4. Enter the article you want to post in the box. Add attachments if needed.</p> <p>5. Then the doctor clicks the "Đăng bài" button to post the article on the Blog or clicks the "Đóng" button to close the tab.</p>
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	High
Frequency of Use:	High
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.24 Edit post

ID and Name:	UC24- Edit post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Users click “Blog tư vấn” in header		
Description:	Doctors can edit articles on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The post has been edited and posted on the Blog		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> <li>3. The doctor then clicks the edit button in the article that he wants to edit</li> <li>4. Enter the post you want to edit in the box then press the "Đăng bài" button to edit or the "Đóng" button to close the tab</li> </ol>		
Alternative Flows:	N/A		

Exceptions:	N/A
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.25 Delete post

ID and Name:	UC25- Delete post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Users click "Blog tư vấn" in header		
Description:	Doctors can delete articles on the Blog		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The post will be removed from the system and the patient will no longer be able to view it		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> <li>3. The doctor then clicks the delete button in the article that he wants to delete</li> <li>4. The post will be removed from the system and the patient will no longer be able to view it</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	Medium		
Frequency of Use:	Medium		

Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.26 Like post

ID and Name:	UC26- Like post		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	
Trigger:	Users click "Blog tư vấn" on header		
Description:	Patients can like doctor's posts and doctors can also like their own posts		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The post is liked and the number of likes will increase in the post		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> <li>3. Then click the like button on the post you want to like</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.27 Comment post

<b>ID and Name:</b>	<b>UC27- Comment post</b>		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	
Trigger:	Users click "Blog tư vấn" on header		
Description:	Patients can comment doctor's posts and doctors can also comment their own posts		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Comment posted on that post		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> <li>3. Enter a comment in the box then pressing the "Bình luận" to comment</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.28 Delete comment

<b>ID and Name:</b>	<b>UC28- Delete comment</b>		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient, Doctor	Secondary Actors:	

Trigger:	Users click "Blog tư vấn" in header
Description:	Patients can delete comment doctor's posts and doctors can also delete comment their own posts
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>
Post-conditions	Comment has been removed from the post
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Blog tư vấn"</li> <li>2. Posts that doctors have posted will appear on the Blog screen</li> <li>3. Click the "Xóa" button in the comment you want to delete</li> </ol>
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	High
Frequency of Use:	High
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.29 Add medical examination package

ID and Name:	UC29- Add medical examination package		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Users click "Tài khoản của tôi" on header		
Description:	The doctor can add a new examination package so that the patient can choose the appropriate package		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The medical examination package has been added so that the patient can choose the appropriate package		

Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Tài khoản của tôi"</li> <li>2. The personal information screen will appear</li> <li>3. Select the package that the doctor wants to add</li> <li>4. After pressing the "Lưu thay đổi" to save</li> </ol>
Alternative Flows:	N/A
Exceptions:	N/A
Priority:	Medium
Frequency of Use:	Medium
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.30 Appointment statistics

ID and Name:	UC30- Appointment statistics		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Doctor	Secondary Actors:	
Trigger:	Users click "Cuộc hẹn" on header		
Description:	The doctor can statistics the status of the appointments		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The status of the appointment is listed in the form of a pie chart		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Login to the account, user click "Cuộc hẹn"</li> <li>2. List appointment screen will appear</li> <li>3. The doctor selects the date you want to make statistics and then clicks the "Thống kê" button</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		

Priority:	Low
Frequency of Use:	Low
Business Rules:	N/A
Other Information:	N/A
Assumptions:	N/A

### 2.3.31 Follow doctor

ID and Name:	UC31 - Follow doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	Patient clicks on the name of the doctor that the patient wants to follow that doctor		
Description:	Patients can follow doctors so they can get notifications when they post		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Follow the doctor successfully and when the doctor posts, the patient will receive a notification		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Patient logs into the system</li> <li>2. The system will automatically display a list of all doctors in the system so that the patient can view and choose</li> <li>3. Patient clicks on the name of the doctor that the patient wants to follow</li> <li>4. Then click the "Theo dõi" button on the doctor's details page</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	N/A		

Other Information:	N/A
Assumptions:	N/A

### 2.3.32 Unfollow doctor

ID and Name:	UC31 - Unfollow doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	Patient clicks on the name of the doctor that the patient wants to unfollow that doctor		
Description:	Patients can unfollow that doctor if they don't want to be notified of that doctor's posts		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	Unfollow the doctor successfully and don't get notifications from that doctor's posts anymore		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Patient logs into the system</li> <li>2. The system will automatically display a list of all doctors in the system so that the patient can view and choose</li> <li>3. Patient clicks on the name of the doctor that the patient wants to unfollow</li> <li>4. Then pressing the "BỎ theo dõi" button on the doctor's details page</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	BR-08		
Other Information:	N/A		
Assumptions:	N/A		

### 2.3.32 View feedback of doctor

ID and Name:	UC32 - View feedback of doctor		
Created By:	Trương Văn Huy	Date Created:	11/5/2022
Primary Actor:	Patient	Secondary Actors:	
Trigger:	Patient clicks on the name of the doctor that the patient wants to see feedback about that doctor		
Description:	Patients can view feedback of doctors		
Preconditions:	<ul style="list-style-type: none"> <li>- User has account in system</li> <li>- User has logged in system</li> </ul>		
Post-conditions	The doctor's rating will appear on the doctor's details page		
Normal Flow:	<ol style="list-style-type: none"> <li>1. Patient logs into the system</li> <li>2. The system will automatically display a list of all doctors in the system so that the patient can view and choose</li> <li>3. Patient clicks on the name of the doctor that the patient wants to see feedback</li> <li>4. The doctor's rating will appear on the doctor's details page</li> </ol>		
Alternative Flows:	N/A		
Exceptions:	N/A		
Priority:	High		
Frequency of Use:	High		
Business Rules:	N/A		
Other Information:	N/A		
Assumptions:	N/A		

### 3. Functional Requirements

#### 3.1 System Functional Overview

##### 3.1.1 Screens Flow

###### - Patient screen flow

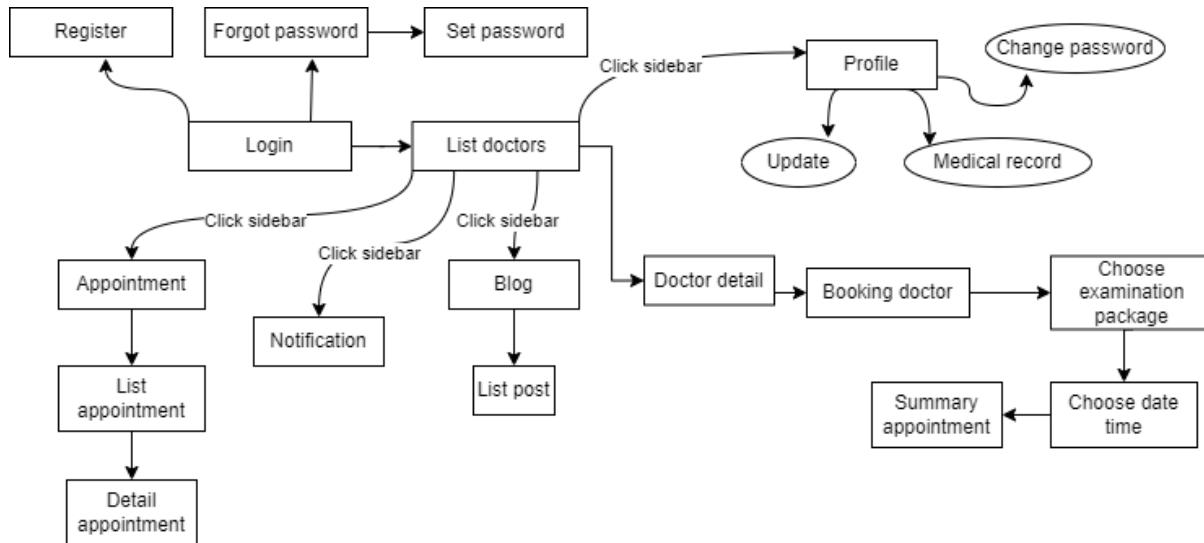


Figure 15: Patient Screen Flow

###### - Doctor screen flow

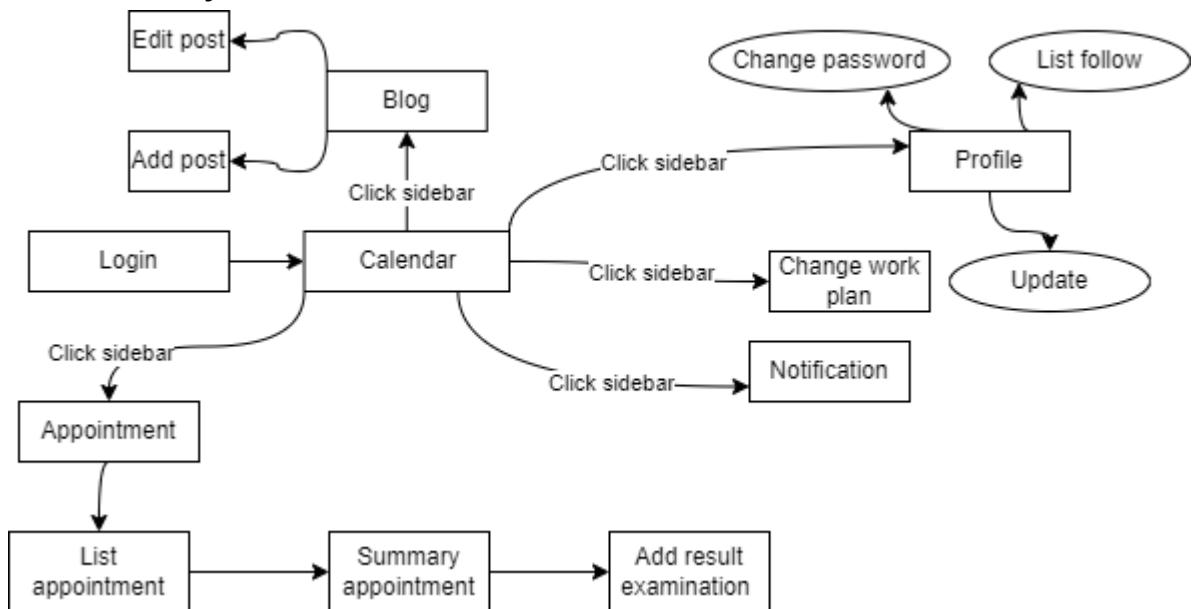


Figure 16: Doctor Screen Flow

- Admin screen flow

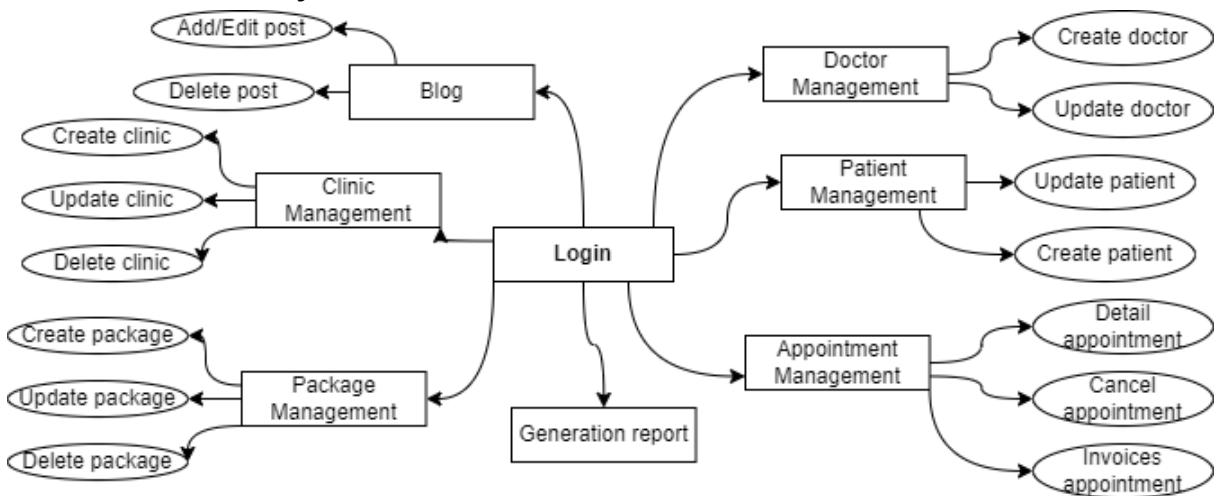


Figure 17: Admin Screen Flow

### 3.1.2 Screen Descriptions

#### 3.1.2.1 Screen description of Patient

#	Feature	Screen	Description
1	Login	Login	Use this screen when the user wants to log into the system.
2	Register	Register	Use this screen when the user wants to sign up to the system.
3	Reset password	Forgot password	Use this screen when the user wants to reset password.
4	View profile	Profile	Use this screen when the user wants to see a profile.
5	Edit profile	Profile	Use this screen when the user wants to edit a profile.
6	Change password	Change password	Use this screen when the user wants to change password.
7	List doctor	List doctor	Use this screen when the user wants to view list doctors
8	Update declaration	List doctor	Use this screen when the user wants to update declaration
9	Search name, location and specials	List doctor	Use this screen when the user wants to search doctor
10	Detail doctor	Detail doctor	Use this screen when the user wants to view detail doctor
11	List review	Detail doctor	Use this screen when the user wants to view reviews of doctor
12	Follow/Unfollow doctor	Detail doctor	Use this screen when the user wants to follow/unfollow of doctor
13	Post of detail	Detail doctor	Use this screen when the user wants to view posts of doctor

1 4	Choose doctor	List doctor	Use this screen when the user wants to booking doctor
1 5	Choose packages	Choose packages	Use this screen when the user wants to choose packages of doctor
1 6	Choose time	Choose time	Use this screen when the user wants to choose time of doctor
1 7	List appointment	List appointment	Use this screen when the user wants to list appointment
1 8	Detail appointment	Detail appointment	Use this screen when the user wants to see detail appointment
1 9	Cancel appointment	Detail appointment	Use this screen when the user wants to cancel appointment
2 0	Reject appointment	Detail appointment	Use this screen when the user wants to reject appointment because not come to the appointment
2 1	Review doctor	Detail appointment	Use this screen when the user wants to review doctor after successful appointment
2 2	Chat realtime	Detail appointment	Use this screen when the user wants to chat real time with doctor in appointment
2 3	Download QR	Detail appointment	Use this screen when the user wants to download QR contain information of appointment
2 4	Download invoice	Detail appointment	Use this screen when the user wants to download invoice in appointment
2 5	View medical record	Medical record	Use this screen when the user wants to view medical record
2 6	List post	Blog	Use this screen when the user wants to view list post
2 7	Add/edit post	Blog	Use this screen when the user wants to add post
2 8	Comment post	Blog	Use this screen when the user wants to comment post
2 9	Like post	Blog	Use this screen when the user wants to like post
3 0	Follow doctor	Detail doctor	Use this screen when the user wants to follow posts of doctor
3 1	List notification	List notification	Use this screen when the user wants to see list notification
3 2	Read notification	List notification	Use this screen when the user wants to read notification

### 3.1.2.1 Screen description of Doctor

#	Feature	Screen	Description
1	Login	Login	Use this screen when the user wants to log into the system.
2	Reset password	Forgot password	Use this screen when the user wants to reset password.

3	View profile	Profile	Use this screen when the user wants to see a profile.
4	Edit profile	Profile	Use this screen when the user wants to edit a profile.
5	Change password	Change password	Use this screen when the user wants to change password.
6	Check the calendar	Calendar	Use this screen when the user wants to see a calendar
7	List appointment	List appointment	Use this screen when the user wants to list appointment
8	View statistics	View statistics	Use this screen when the user wants to see statistics about appointment
9	Detail appointment	Detail appointment	Use this screen when the user wants to see detail appointment
10	Add result	Detail appointment	Use this screen when the user wants to add examination results of appointment
11	Cancel appointment	Detail appointment	Use this screen when the user wants to cancel appointment
12	Accept reject appointment	Detail appointment	Use this screen when the user wants to reject appointment because not come to the appointment
13	Chat realtime	Detail appointment	Use this screen when the user wants to chat real time with patient in appointment
14	Edit scheme	Change scheme	Use this screen when the user wants to change scheme
15	View medical record	Medical record	Use this screen when the user wants to view medical record
16	List post	Blog	Use this screen when the user wants to view list post
17	Add/edit post	Blog	Use this screen when the user wants to add post
18	Comment post	Blog	Use this screen when the user wants to comment post
19	Like post	Blog	Use this screen when the user wants to like post
20	List notification	List notification	Use this screen when the user wants to see list notification
21	Read notification	List notification	Use this screen when the user wants to read notification

### 3.1.2.1 Screen description of Admin

#	Feature	Screen	Description
1	Login	Login	Use this screen when the user wants to log into the system.
2	View profile	Profile	Use this screen when the user wants to see a profile.
3	Dashboard	Dashboard	Use this screen when the user wants to view info about the system .

4	List Clinic	Manage Clinic	Use this screen when the admin wants to see the clinic in the system.
6	CRUD Clinic	Manage Clinic	Use this screen when the admin wants to CRUD a clinic
7	List Package	Manage Package	Use this screen when the admin wants to see the package in the system.
8	CRUD Package	Manage Package	Use this screen when the admin wants to CRUD a package
9	List Doctor	Manage doctor	Use this screen when the admin wants to list a doctor
10	Create, Update Doctor	Manage doctor	Use this screen when the admin wants to Create, Update a doctor
11	View Patient	Manage patient	Use this screen when the admin wants to see list the patient in the system.
12	Add/Edit Patient	Manage patient	Use this screen when the admin wants to add/edit the patient in the system.
13	List appointment	List appointment	Use this screen when the user wants to list appointment
14	Cancel appointment	List appointment	Use this screen when the user wants to cancel appointment
15	Invoice appointment	List appointment	Use this screen when the user wants to invoice appointment
16	All Invoice appointment	List appointment	Use this screen when the user wants to invoice all appointment
17	Pay invoice	Invoice appointment	Use this screen when the user wants to invoice appointment
18	List post	Manage post	Use this screen when the admin wants to see list the post in the system.
19	CRUD post	Manage post	Use this screen when the admin wants to CRUD a post
20	List review	List review	Use this screen when the user wants to list review
21	Delete review	Delete review	Use this screen when the user wants to delete review
22	Report doctor	Generator report	Use this screen when the admin wants to report doctor in the system.
23	Report patient	Generator report	Use this screen when the admin wants to report patient in the system.
24	Report appointment	Generator report	Use this screen when the admin wants to report appointment in the system.

### 3.1.3 Screen Authorization

Screen	Guest	Patient	Doctor	Admin
Landing page		X	X	X

Login	X	X	X	X
Register	X			
Forgot password		X	X	X
Profile		X	X	X
Change password		X	X	X
List doctors		X		X
Detail doctor		X		X
Review & Evaluate		X		X
Choose packages		X		
Choose time		X		
Summary appointment		X		
List appointment		X	X	X
Change scheme			X	
Manage calendar			X	
Blog		X	X	X
Statistic system				X
CRUD doctor				X
CRUD patient				X
List all appointment				X
CRUD post		X	X	X
CRUD clinic				X
Generator report				X

### 3.1.4 Non-Screen Functions

#	Feature	System Function	Description
1	Logout	Logout	Logout the current user session in the system

### 3.1.5 Entity Relationship Diagram

Below is an entity-relationship diagram, we focus on showing entities and the relationship between entities as well as the nature of the relationship. Specific parts of an attribute include attributes which we specify in the database design in report 4.

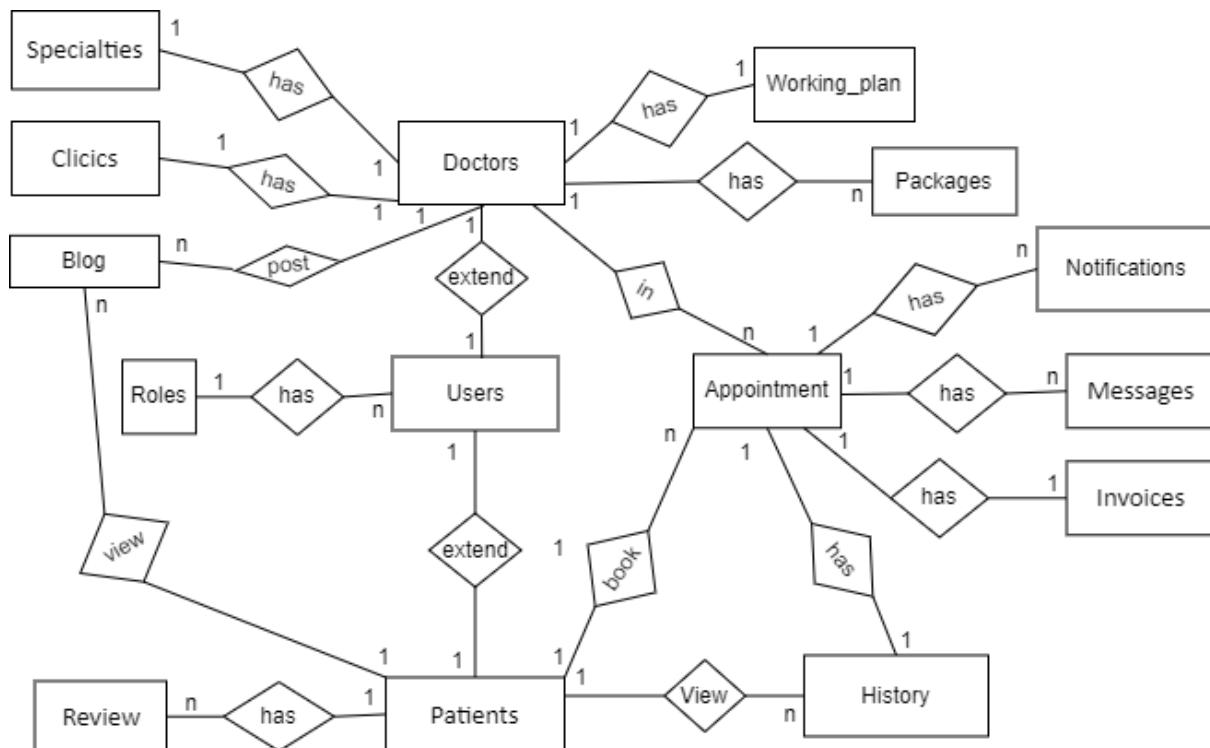


Figure 18: Entity Relationship Diagram

### Entities Description

#	Entity	Description
1	Users	<p>Attribute:</p> <ul style="list-style-type: none"> <li>• id</li> <li>• age</li> <li>• confirmation_token</li> <li>• email</li> <li>• enabled</li> <li>• fullname</li> <li>• gender</li> <li>• mobile</li> <li>• password</li> <li>• profile_img</li> <li>• username</li> </ul>
2	Roles	<p>Attribute:</p> <ul style="list-style-type: none"> <li>• id</li> <li>• name</li> </ul>
3	Users_roles	<p>Attribute:</p> <ul style="list-style-type: none"> <li>• user_id</li> <li>• role_id</li> </ul>
4	Patients	<p>Attribute:</p> <ul style="list-style-type: none"> <li>• address</li> <li>• id_patient</li> <li>• id_pathological</li> </ul>
5	Doctors	Attribute:

		<ul style="list-style-type: none"> <li>● certification</li> <li>● description</li> <li>● start_practice_date</li> <li>● id_doctor</li> <li>● id_clinic</li> <li>● id_specialty</li> </ul>
6	Specialties	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● description</li> <li>● name</li> </ul>
7	Packages	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● description</li> <li>● duration</li> <li>● editable</li> <li>● name</li> <li>● price</li> <li>● target</li> </ul>
8	Packages_doctorsff	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id_packages</li> <li>● id_user</li> </ul>
9	Clicics	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● address</li> <li>● description</li> <li>● name</li> <li>● telephone</li> <li>● website</li> </ul>
10	Working_plan	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id_doctor</li> <li>● friday</li> <li>● monday</li> <li>● saturday</li> <li>● sunday</li> <li>● thursday</li> <li>● tuesday</li> <li>● wednesday</li> </ul>
11	Post	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● userid</li> <li>● specialId</li> <li>● message</li> <li>● img</li> <li>● like</li> <li>● totalLike</li> </ul>
12	Invoices	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> </ul>

		<ul style="list-style-type: none"> <li>● issued</li> <li>● number</li> <li>● status</li> <li>● total_amount</li> </ul>
13	Appointment	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● canceled_at</li> <li>● end</li> <li>● start</li> <li>● status</li> <li>● id_canceler</li> <li>● id_doctor</li> <li>● id_invoice</li> <li>● id_packages</li> <li>● id_patient</li> </ul>
14	Messages	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● created_at</li> <li>● message</li> <li>● id_appointment</li> <li>● id_author</li> </ul>
15	Notifications	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● created_at</li> <li>● is_read</li> <li>● message</li> <li>● title</li> <li>● url</li> <li>● id_user</li> </ul>
16	Reviews	<p>Attribute:</p> <ul style="list-style-type: none"> <li>● id</li> <li>● rating</li> <li>● review</li> <li>● id_doctor</li> <li>● id_patient</li> <li>● feedback</li> </ul>
17	Comment	<p>Attribute</p> <ul style="list-style-type: none"> <li>● id</li> <li>● postId</li> <li>● message</li> <li>● createdAt</li> <li>● updatedAt</li> <li>● parentId</li> <li>● userId</li> </ul>

### 3.1.6 Booking appointment state diagram

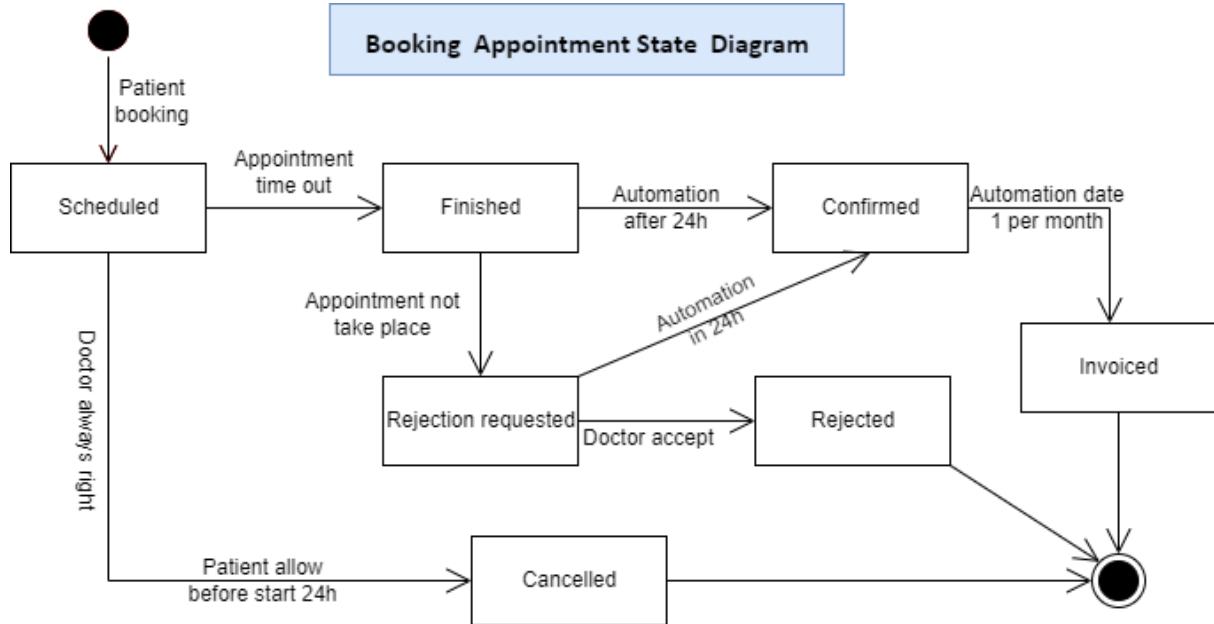


Figure 19: Booking Appointment State Diagram

## 3.2 Wireframe

### 3.2.1 Sign in

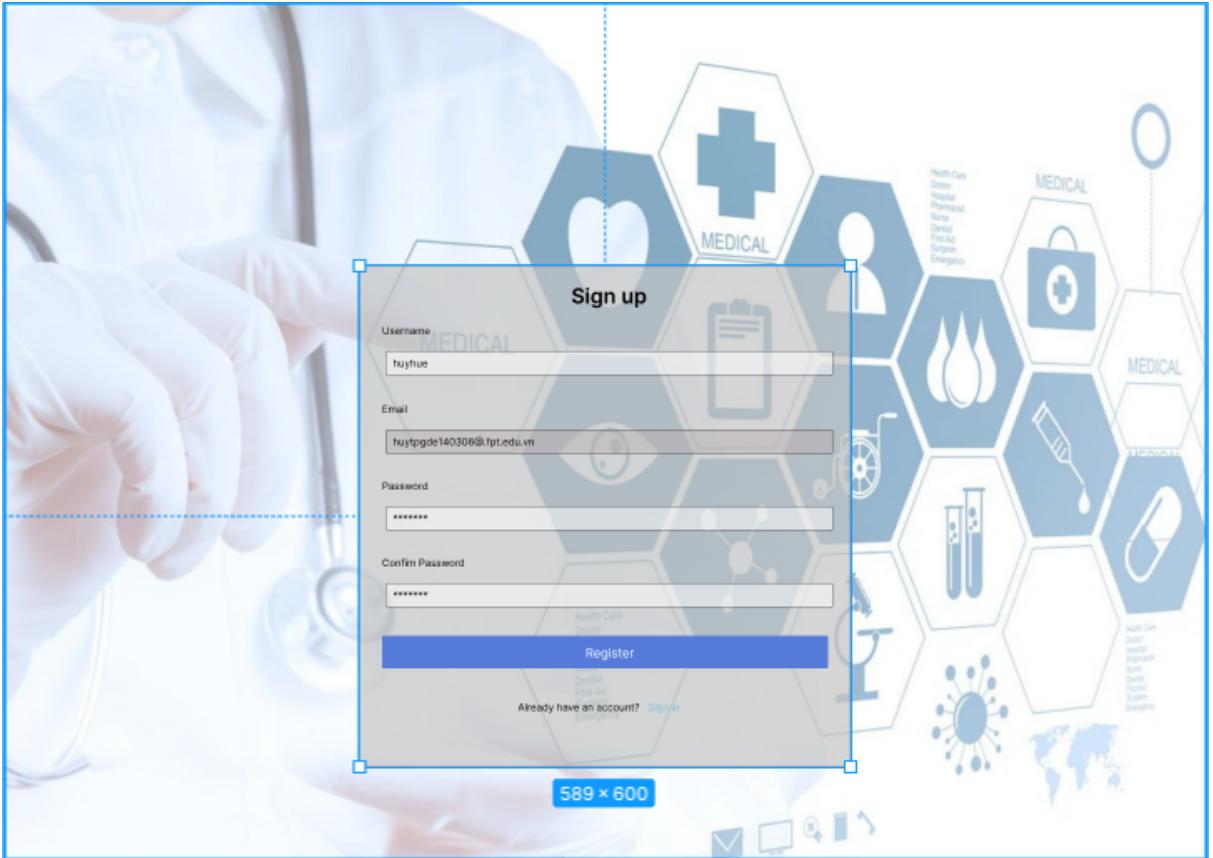


Figure 20: Login Screen

- Function Details:

- Validation: User must fill all field to sign in the system
- Functionality: Sign in the system

### 3.2.2 Sign up



**Figure 21: Sign up screen**

- Function Details:
  - Validation: User must fill all field to sign up the system
  - Functionality: Sign up the system and confirm email code validation.

### 3.2.3 Forgot password

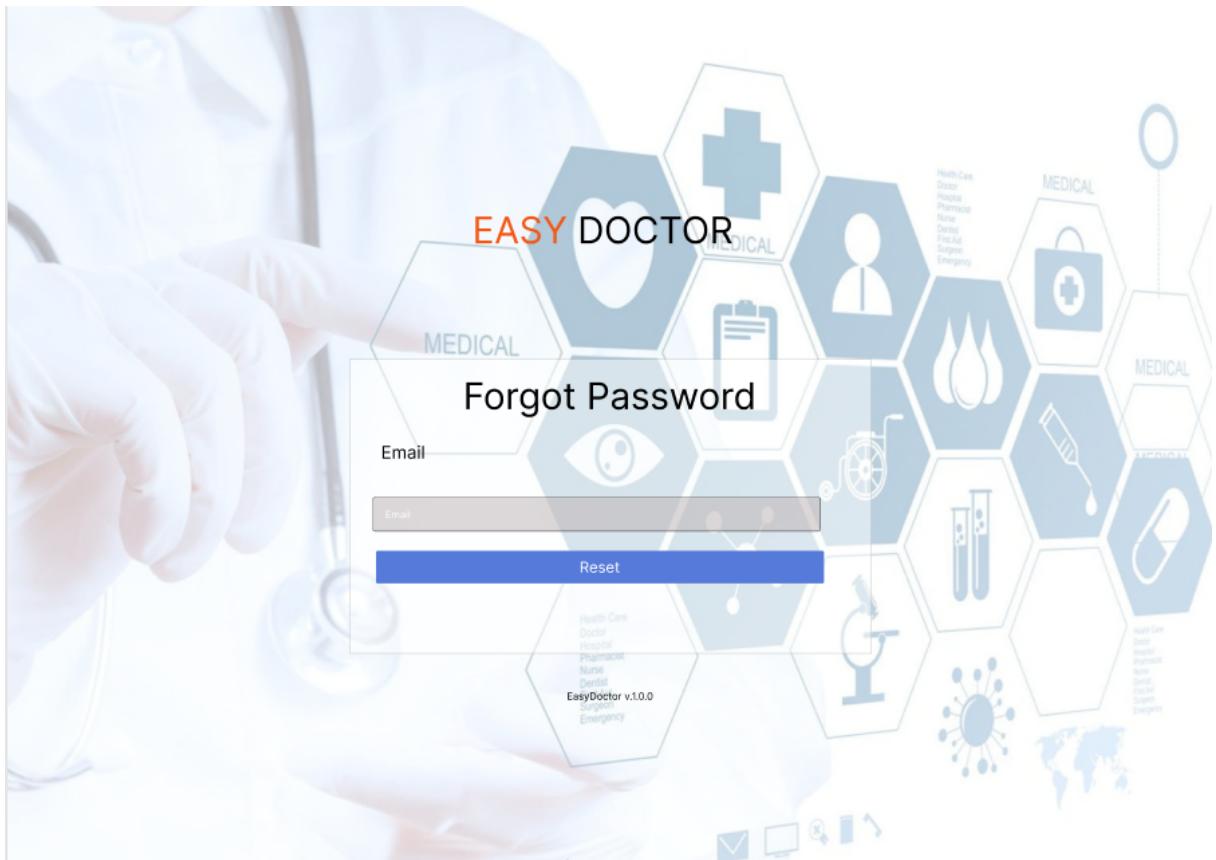


Figure 22: Reset password screen

- Function Details:
  - Validation: User must fill email's field to get code for reset the password
  - Functionality: Send reset password link to user's email

### 3.2.4 New password

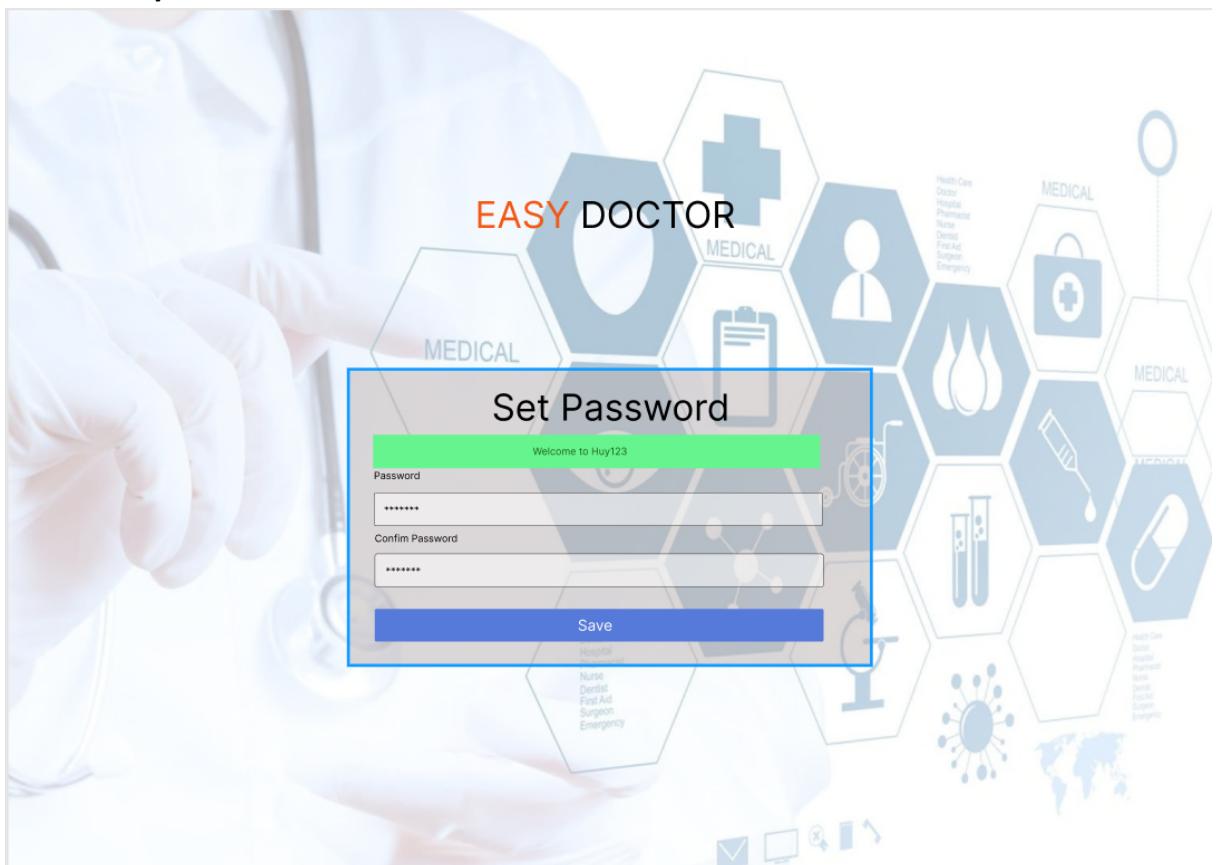


Figure 23: Set new password screen

- Function Details:
  - Functionality: reset the password

### 3.3 User

#### 3.3.1 User info

The screenshot shows a user profile page. At the top, there's a navigation bar with links for Home, Appointments, Forum, and My account. On the right, it says "Logged as: huy123 | Log out". Below the navigation, there's a circular profile picture of a person standing outside a building. To the right of the picture are four buttons: Profile (selected), Password, Pathological, and Inbox. A "BASIC INFO" section follows, containing fields for First Name, Last Name, Mobile, Age, Email, and Address, each with an associated input field. At the bottom left is a sidebar titled "Appointments" with two items: "Scheduled" (with a red notification dot "1") and "Cancel this month" (with a red notification dot "2"). At the very bottom center, it says "EasyDoctor v1.0.0".

Figure 24: User Information Screen

- Function Details:

- Validation: Users must fill all required fields to save user information.
- Functionality: Create, update user information.

### 3.3.2 Change password

The screenshot shows the 'Change Password' screen of the EasyDoctor v10.0 application. At the top, there is a navigation bar with links for 'Home', 'Appointments', 'Forum', and 'My account'. On the right side of the navigation bar, it says 'Logged as: huy123 | Log out'. Below the navigation bar, there is a circular profile picture of a person standing outside. To the right of the profile picture, there are three tabs: 'Profile' (selected), 'Password' (highlighted in blue), and 'Pathological'. Under the 'Profile' tab, there is a button labeled 'Upload new avatar'. On the left side of the screen, there is a sidebar titled 'Appointments' with two items: 'Scheduled' (with a red notification badge '1') and 'Cancel this moth' (with a red notification badge '2'). In the center of the screen, there are three input fields: 'Current Password' (empty), 'Password' (containing '\*\*\*\*\*'), and 'Repeat New Password' (containing '\*\*\*\*\*'). Below these fields is a blue 'Save' button. At the bottom of the screen, it says 'EasyDoctor v10.0'.

**Figure 25: Change Password Screen**

- **Function Details:**

- Validation: User must fill in all required fields to change user password.
- Functionality: change user password.

### 3.4 List doctors

The screenshot shows a user interface for a medical application. At the top, there is a navigation bar with links for 'Doctor', 'Appointments', 'Forum', and 'My account'. On the right side of the top bar, it says 'Logged as: huyhue | Log out'. Below the navigation bar, the title 'Recent Doctors' is displayed in blue, followed by the subtitle 'view a list of recently examined doctors'. The main content area contains three doctor profiles, each enclosed in a white box with a circular profile picture and a red 'Book Online' button at the bottom.

Doctor Profile	Information
	<b>PGS.TS. Phan Huynh Chiến Thắng</b> Phòng khám Tâm Đức Khoa Tâm Lý Trị Liệu Hỗ Trợ Nhiệt tình <a href="#">Book Online</a>
	<b>PGS. Lê Quang Long</b> Phòng khám Tâm Đức Khoa Chấn thương Chính Hình Hỗ Trợ Nhiệt tình <a href="#">Book Online</a>
	<b>PGS. Tống Phước Gia Huy</b> Phòng khám Tâm Đức Khoa Chấn thương Chính Hình Hỗ Trợ Nhiệt tình <a href="#">Book Online</a>

At the bottom center of the screen, the text 'EasyDoctor v1.0.0' is visible. The background features abstract, colorful circular patterns.

Figure 26: List Doctor Screen

- Function Details:
  - Functionality: View the list of doctors.

### 3.5 Detail doctor

The screenshot shows the 'Detail Doctor' screen. At the top, there is a navigation bar with links for 'Doctor', 'Appointments', 'Forum', and 'My account'. On the right side of the navigation bar, it says 'Logged as: huyhue | Log out'. Below the navigation bar, the title 'PGS.TS.Phan Huỳnh Chiến Thắng' is displayed in green. To the left of the title is a small thumbnail image of a person standing outside a building. To the right of the title are two columns of text: 'Phòng khám' (Consulting room) and 'Phòng khám Tâm Đức'; 'Chuyên khoa' (Specialty) and 'Khoa Tâm Lý Trị Liệu' (Psychological Therapy Department); 'Kinh nghiệm' (Experience); 'Chứng chỉ' (Qualifications); 'Mô tả' (Description) and 'Tận tình giúp đỡ bệnh nhân' (Patient care); and 'Rating' followed by a five-star rating icon.

Review of doctor

Tổng Phước Gia Huy

★★★★★

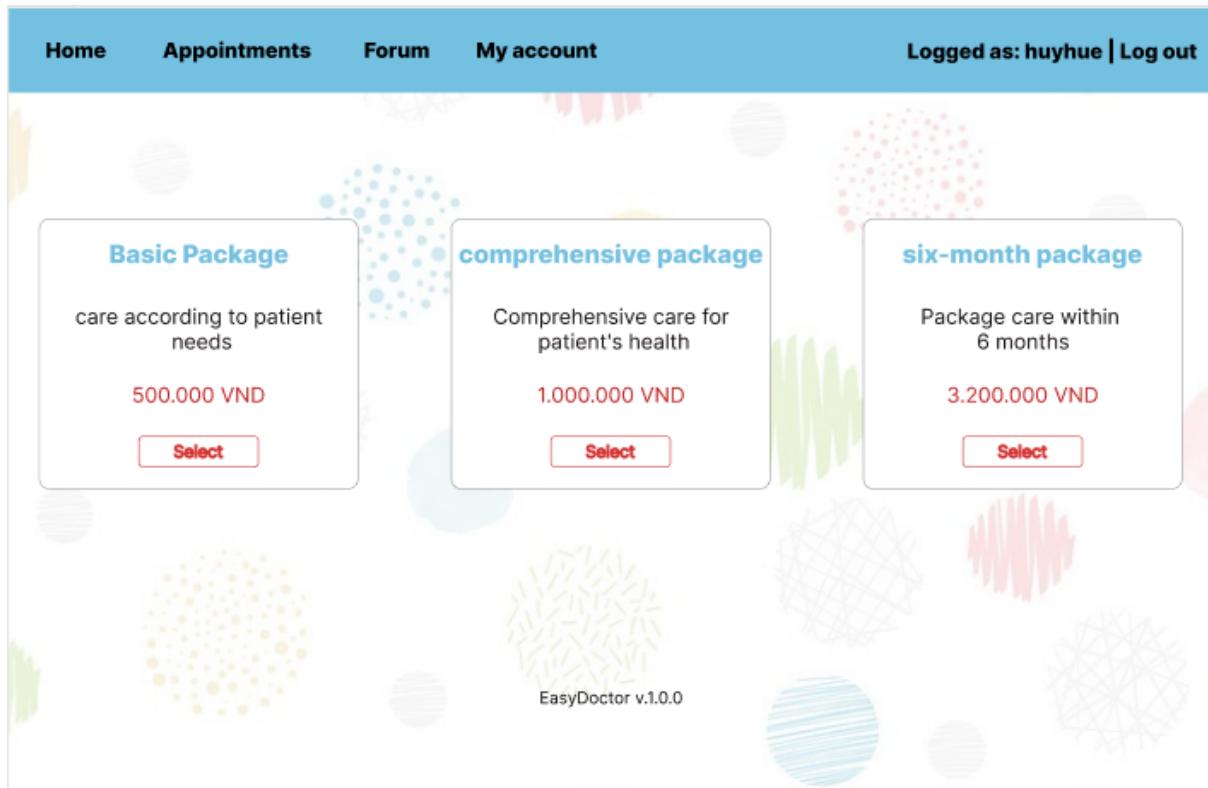
EasyDoctor v1.0.0

**Figure 27: Detail Doctor Screen**

- Function Details:
  - Functionality: View information and reviews about doctors.

## 3.6 Booking doctor

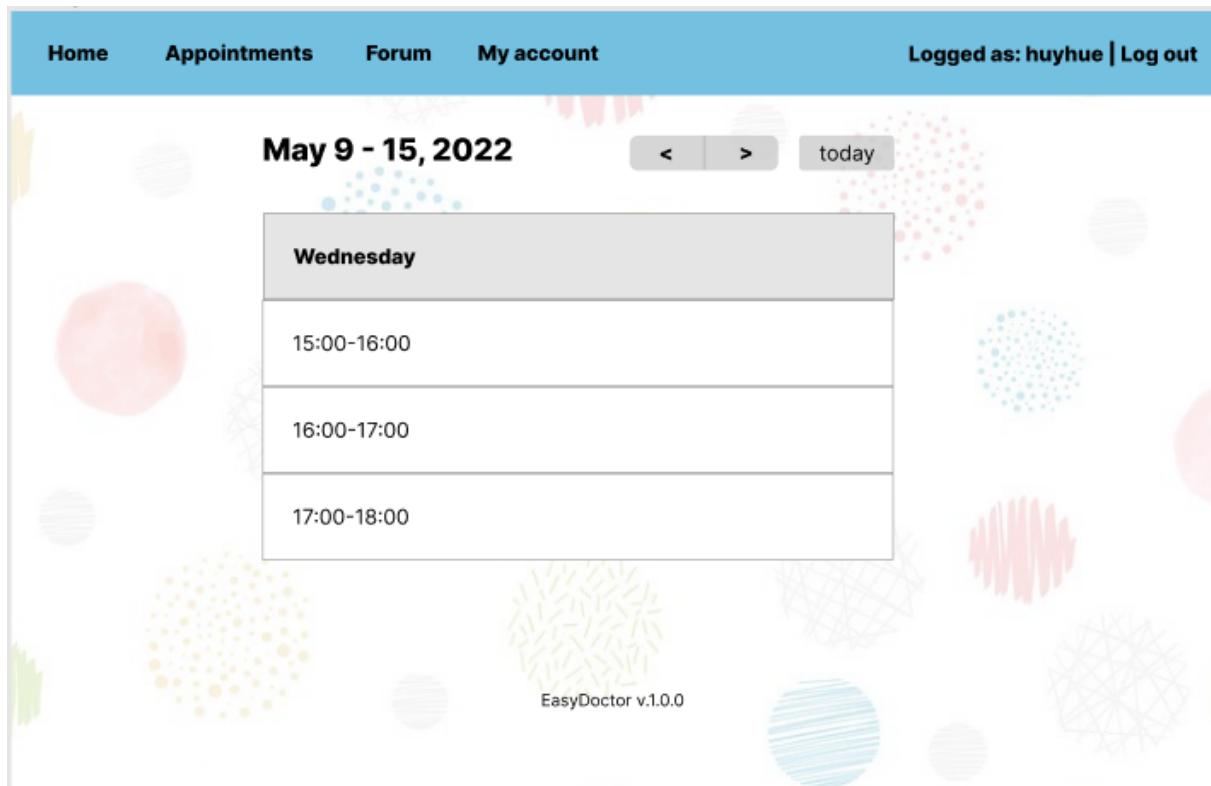
### 3.6.1 Choose packages



**Figure 28: Booking Doctor Screen**

- Function Details:
  - Validation: Users must select medical examination packages.
  - Functionality: Select medical examination package.

### 3.6.2 Choose time



**Figure 29: Choose time Screen**

- Function Details:
  - Validation: The user must choose the time to visit the doctor.
  - Functionality: Choose the time of medical examination.

### 3.6.3 Summary appointment:

Your new appointments summary

<b>Date</b>	14-5-2022
<b>Time</b>	16:00-17:00
<b>Doctor</b>	BS CKII Ha Ngoc Hung
<b>Packages</b>	comprehensive package
<b>Description</b>	Comprehensive care for patient's health
<b>Price</b>	1.000.000 VND
<b>Cancellable by patient?</b>	yes

**Book now →**

Figure 30: Summary Appointment Screen

- Function Details:
  - Functionality: View appointment summary.

### 3.7 List appointment

work	Status	Start	Doctor	Duration	Action
Basic Package	Schedule	25-1-2022 12:00	BS Ha Ngoc Hung	60 min	<button>Details</button>
comprehensive package	Schedule	25-1-2022 15:00	BS Ha Ngoc Hung	60 min	<button>Details</button>
six-month package	Schedule	25-1-2022 16:00	BS Ha Ngoc Hung	60 min	<button>Details</button>
comprehensive package	Schedule	25-1-2022 17:00	BS Ha Ngoc Hung	60 min	<button>Details</button>

Showing 1 to 1 of 1 entries(filtered from 14 total entries)

EasyDoctor v1.0.0

Previous 1 Next

**Figure 31: List Appointment Screen**

- Function Details:
  - Validation: Users must book to see the list of appointments.
  - Functionality: View the list of appointments.

### 3.8 Detail appointment:

The screenshot displays the 'Detail appointment' screen of the EasyDoctor application. At the top, there is a navigation bar with links for 'Home', 'Appointments', 'Forum', and 'My account'. On the right side of the bar, it shows the user is 'Logged as: huy123' with a 'Log out' option. The main content area is divided into two sections: a left panel showing appointment details and a right panel for messaging.

**Appointment Details:**

- status**: SCHEDULED
- date**: 14-5-2022
- time**: 12:00-14:00
- Patient**: Tong Phuoc Gia Huy
- Doctor**: BS CKII Ha Ngoc Hung
- Packages**: comprehensive package
- description**: Comprehensive care for patient's health
- price**: 1.00.000 vnd
- exchange**: Done

**Appointment Chat:**

Appointment chat with BS CKII Ha Ngoc Hung

Writer your message here

EasyDoctor v.1.0.0

Figure 32: Detail Appointment Screen

- Function Details:
  - Functionality: View appointment details.

### 3.9 Manage calendar

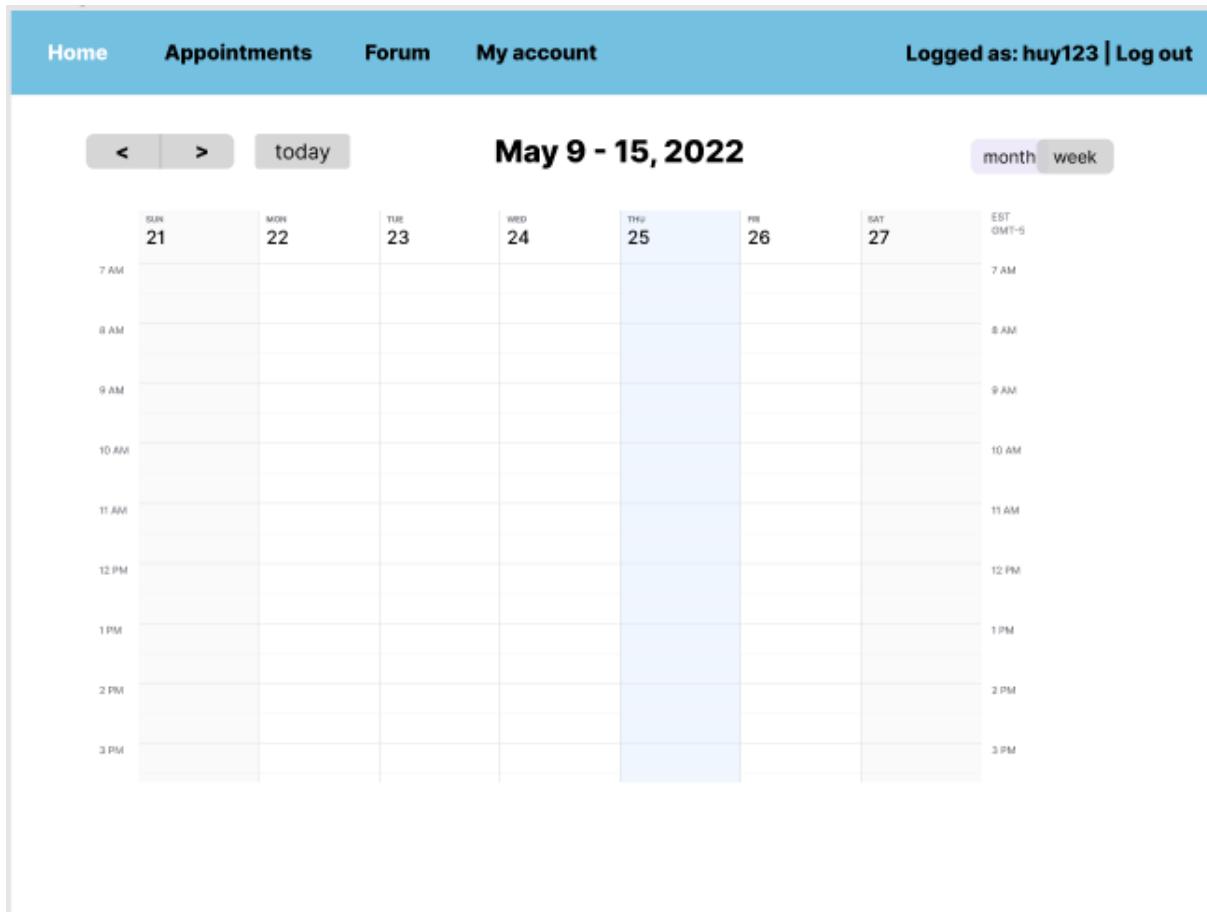


Figure 33: Manager Calendar Screen

- Function Details:
  - Functionality: The doctor views the scheduled appointment.

### 3.10 Change schedule

The screenshot shows a web-based application titled "Change working plan". At the top, there is a navigation bar with links for "Home", "Appointments", "Change working plan", "Forum", and "My account". To the right of the navigation bar, it says "Logged as: huy123 | Log out". Below the navigation bar is a decorative header featuring various colored dots and shapes.

The main content area is titled "Change woking plan". It contains a table with four columns: "work", "Start", "End", and "Break". The rows represent days of the week, each with a different background color. The "Break" column shows the number of breaks for each day. A green "Save" button is located at the bottom center of the table.

work	Start	End	Break
Monday	12:00 SA ⏱	06:00 CH ⏱	1
Tuesday	10:03 SA ⏱	06:00 CH ⏱	1
Wednesday	03:03 CH ⏱	06:00 CH ⏱	0
Wednesday	06:00 SA ⏱	06:00 CH ⏱	0
Friday	10:03 SA ⏱	06:00 CH ⏱	0
Saturday	02:00 SA ⏱	06:00 CH ⏱	0
Sunday	10:03 SA ⏱	06:00 CH ⏱	0

**Save**

**Figure 34: Change Schedule Screen**

- Function Details:
  - Functionality: The doctor changes the appointment schedule.

### 3.11 Landing page

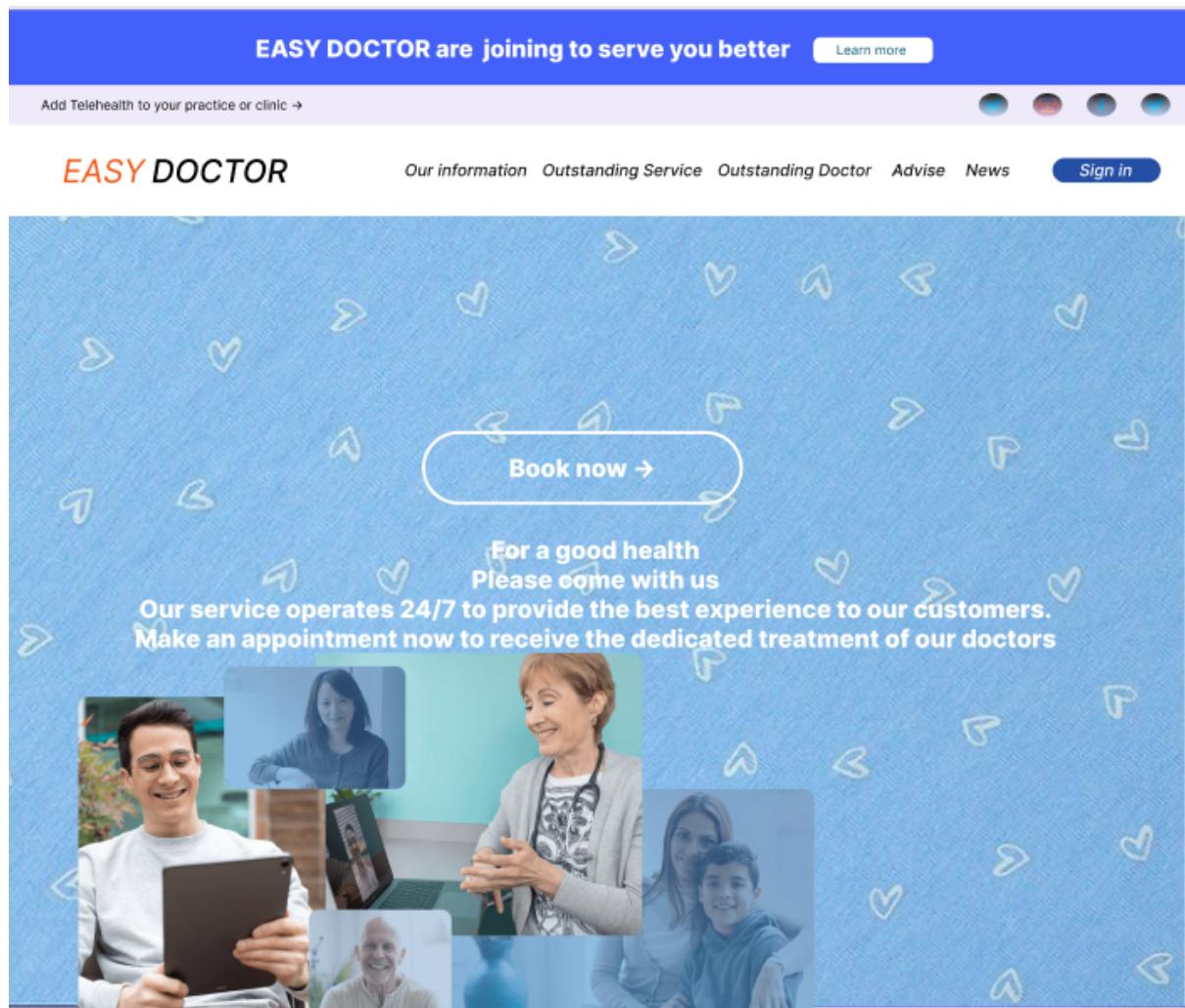
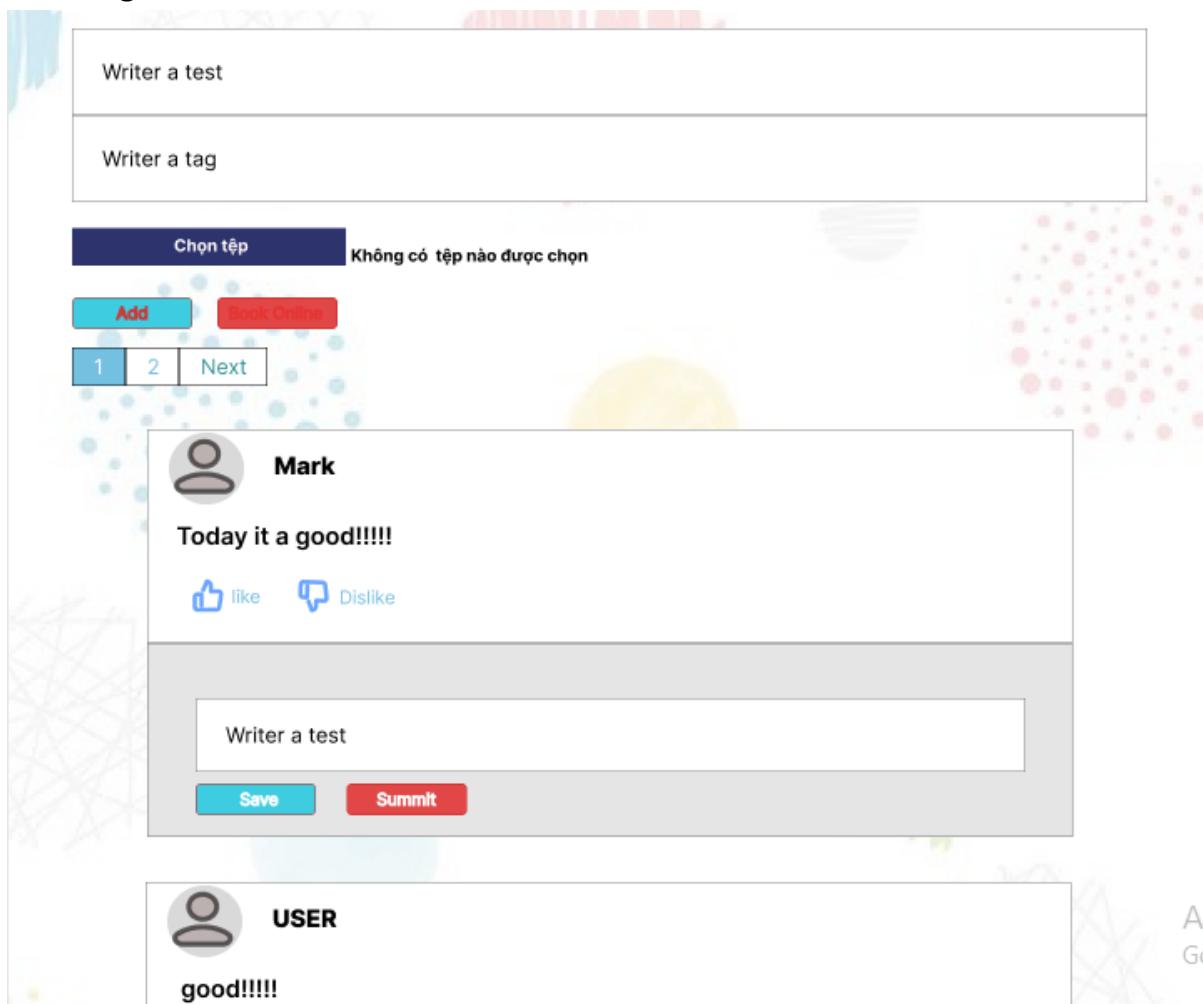


Figure 35: Landing Page

- Function Details:

- Functionality: Patients view information about the site and can ask questions.

### 3.12 Blog



**Figure 36: Blog**

- Function Details:
  - Functionality: Patients view doctor's posts.

### 3.13 List notification

The screenshot shows a web application interface for 'THÔNG BÁO EASYDOCTOR'. At the top, there is a navigation bar with links for 'Home', 'Appointments', 'Forum', and 'My account'. On the right side of the top bar, it says 'Logged as: huyhue | Log out'. Below the navigation bar, the title 'THÔNG BÁO EASYDOCTOR' is displayed in large blue letters. Underneath the title, there are several controls: 'Show 1 entries', a dropdown menu set to 'All', a 'Read all' button, and a search bar labeled 'Search:'. A decorative background with abstract shapes in yellow, blue, and red is visible behind the main content area.

Time	Title	Content	View
25-1-2022	Lịch khám đã kết thúc	Lịch khám đã kết thúc, bạn có thể từ chối cuộc hẹn nếu nó không diễn ra cho đến khi 25-1-2022 12:00	
25-1-2022	Xuất hóa đơn	Xuất hóa đơn đã gửi đến bạn	
25-1-2022	lịch khám đã bị hủy	Bác sĩ BS CKII Hà Ngọc Hùng đã hủy lịch khám vào lúc 25-1-2022 12:00	

Showing 1 to 1 of 1 entries(filtered from 14 total entries)

AppointmentScheduler v1.0.1

Figure 37: List Notification Screen

- Function Details:
  - Functionality: Patients view the notices of the website.

### 3.14 Dashboard admin

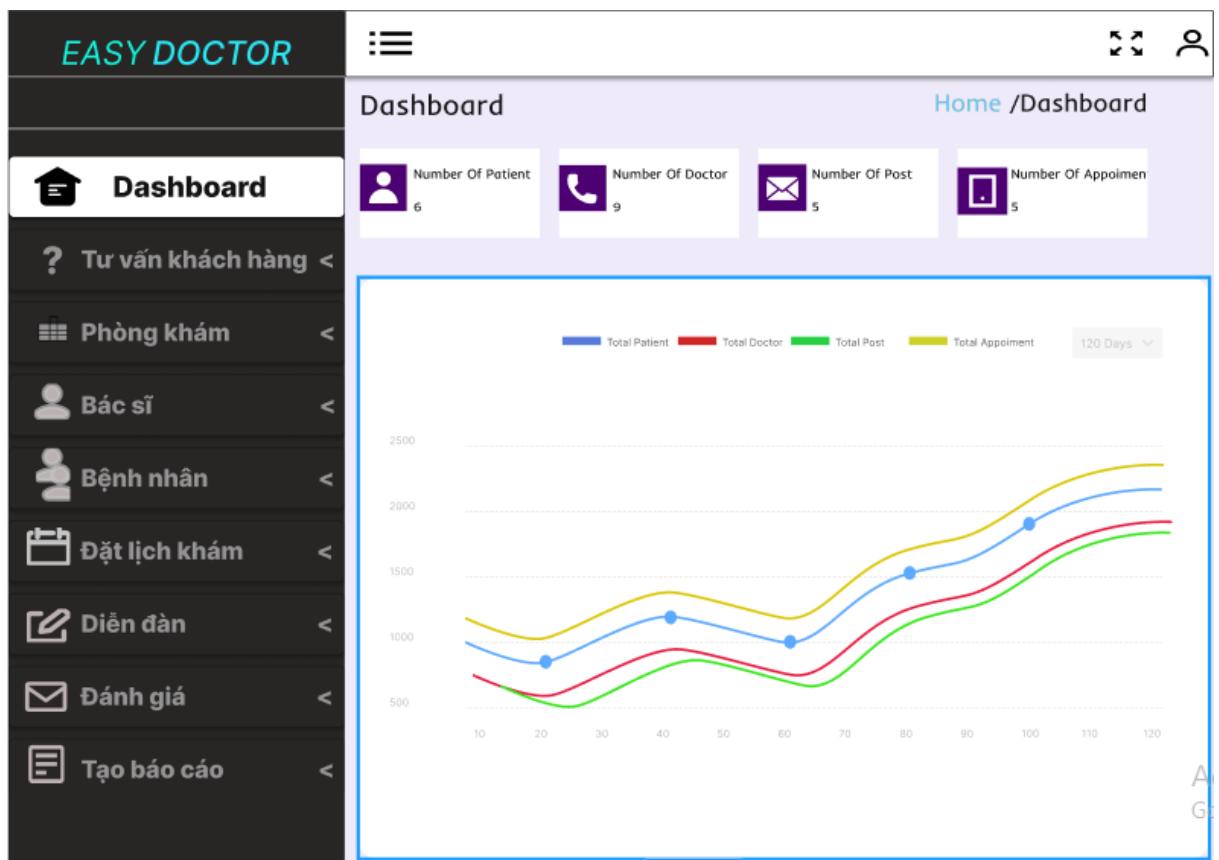


Figure 38: Dashboard Admin Screen

- Function Details:

- Functionality: Admin views the website's medical examination information chart.

### 3.15 CRUD admin

The screenshot shows the 'EASY DOCTOR' application interface. On the left is a dark sidebar with icons and labels for Dashboard, Clinic (selected), Doctor, Patient, Appointment, Forum, Review, and Generate report. The main area has a title 'Packages infomation' and a breadcrumb 'Home / Packages'. It contains two forms: one for adding a new package with fields for Name, Description, Price, Duration, and Cancelable (Yes/No), and another for viewing a list of packages with columns for #, Name, Price, Duration, Cancelable, Description, and Action (edit and delete).

#	Name	Price	Duration	Cancelable	Description	Action
1	Gói cơ bản	500	60	true	Chăm sóc tùy nhu cầu bệnh nhân	
2	Gói toàn diện	1000	60	true	Chăm sóc toàn diện sức khỏe bệnh nhân	

Figure 39: CRUD Admin Screen

- Function Details:

- Functionality: Admin adds, edits, deletes medical examination packages.

## 4. Non-Functional Requirements

### 4.1 External Interfaces

- User interface: GUI should be simple, clear and have recognizable elements.
- Software interface: The system can run smoothly on Chrome, Microsoft Edge, Cốc Cốc, Firefox.
- Availability: The system shall be at least 99 percent available on weekdays.

### 4.2.1 Usability

- An untrained user shall be able to submit a request for an appointment in an average of three minutes, and in a maximum of five minutes.
- The user interface is eye-catching, clear and especially easy to use for all ages.

### 4.2.2 Reliability

- The mean time between failures of the system shall be at least 180 days.
- The application should be used whenever the internet is on.

#### **4.2.3 Performance**

- All appointment requests are responded to in no more than 3 seconds.

#### **4.2.4 Security**

- The system shall lock a user's account after four consecutive unsuccessful login attempts within a period of five minutes.
- A user shall have to change the temporary password assigned by the security officer to a previously unused password immediately following the first successful logon with the temporary password.
- Only Admin have the right to provide and manage accounts of doctors.

### **5. Requirement Appendix**

#### **5.1 Business Rules**

ID	Rule Definition
BR-01	Guests are only allowed to enter the Blog page and landing page.
BR-02	The patient is only allowed to review the booked doctor after the appointment is complete.
BR-03	Patient must use a valid email to register new account
BR-04	Patients cannot cancel an appointment when it is due in less than 24 hours.
BR-05	The doctor always has the right to cancel the appointment when in state "SCHEDULED"
BR-06	Patients are only allowed to cancel 1 appointment per month
BR-07	Admin is not allowed to cancel the appointment
BR-08	The patient can only unfollow with doctor once the patient has followed that doctor
BR-09	The patient has the right to refuse an appointment if it does not occur within 24 hours of its closing.
BR-10	Only admins can create and update doctors.
BR-11	When the patient booked the appointment in the INVOICED state, the doctor was reviewed.
BR-12	An appointment can only review the doctor once
BR-13	Patients must update their declaration before making an appointment
BR-14	The doctor is only allowed to comment on the examination results when the appointment is not more than 24 hours from the end.
BR-15	Guests are not allowed to view the patient's medical records.
BR-16	On the first day of each month, the system will automatically issue the invoice of the appointment in the confirmed state.

BR-17	Patients must log in to their account if they want to schedule an appointment with a doctor
BR-18	A doctor can accept a patient's request to decline when that patient submits a request to decline an appointment
BR-19	Patients can only chat real-time with a doctor once an appointment has been made with that doctor
BR-20	Only admins can add and delete clinics

## 5.2 Application Messages List

#	Message code	Message Type	Context	Content
1	MSG01	In line	There is not any search result	<i>Không tìm thấy kết quả</i>
2	MSG02	In red, under the text box	Input-required fields are empty	<i>Không được để trống</i>
3	MSG03	Toast message	Updating asset(s) information successfully	<i>Thay đổi thành công</i>
4	MSG04	Toast message	Adding new asset successfully	<i>Thêm thành công</i>
5	MSG05	In line	Confirming email of asset hand-over is sent successfully	<i>Xác nhận được gửi tới {email_address} thành công.</i>
6	MSG06	Toast message	Confirm a request with a business action.	<i>Bạn có chắc chắn muốn {yêu cầu} không</i>
7	MSG07	Toast message	Deleting asset information successfully	<i>Xóa thành công</i>
8	MSG08	In red, under the text box	Input value length > max length	<i>Không vượt quá {max_length}.</i>
9	MSG09	In line	Username or password is not correct when clicking sign-in	<i>Tài khoản và mật khẩu không đúng</i>
10	MSG10	In line	This field already exists in the system, so it cannot be added, updated.	<i>{field} đã tồn tại</i>
11	MSG011	In line	The re-entered password does not match the new password.	<i>Mật khẩu không trùng khớp</i>

## IV. Software Design Description

### 1. System Design

#### 1.1 Overall Description

We build the EasyDoctor platform using some technologies such as SpringBoot, Thymeleaf, WebSocket and MySQL database.

On the client side, we use SpringBoot framework which provides short page load time and fast scraping of data retrieved from users. Users can find Doctor information, disease, medical knowledge quickly and with less performance risk. In addition, Bootstrap and Thymeleaf used to build the front-end.

As for the server side, the EasyDoctor system has been developed based on the Java web framework Spring Boot, the database management system MySQL is a database management system that allows you to manage relational databases. They are popularly used due to its outstanding high-performance features.

#### 1.2 System Architecture

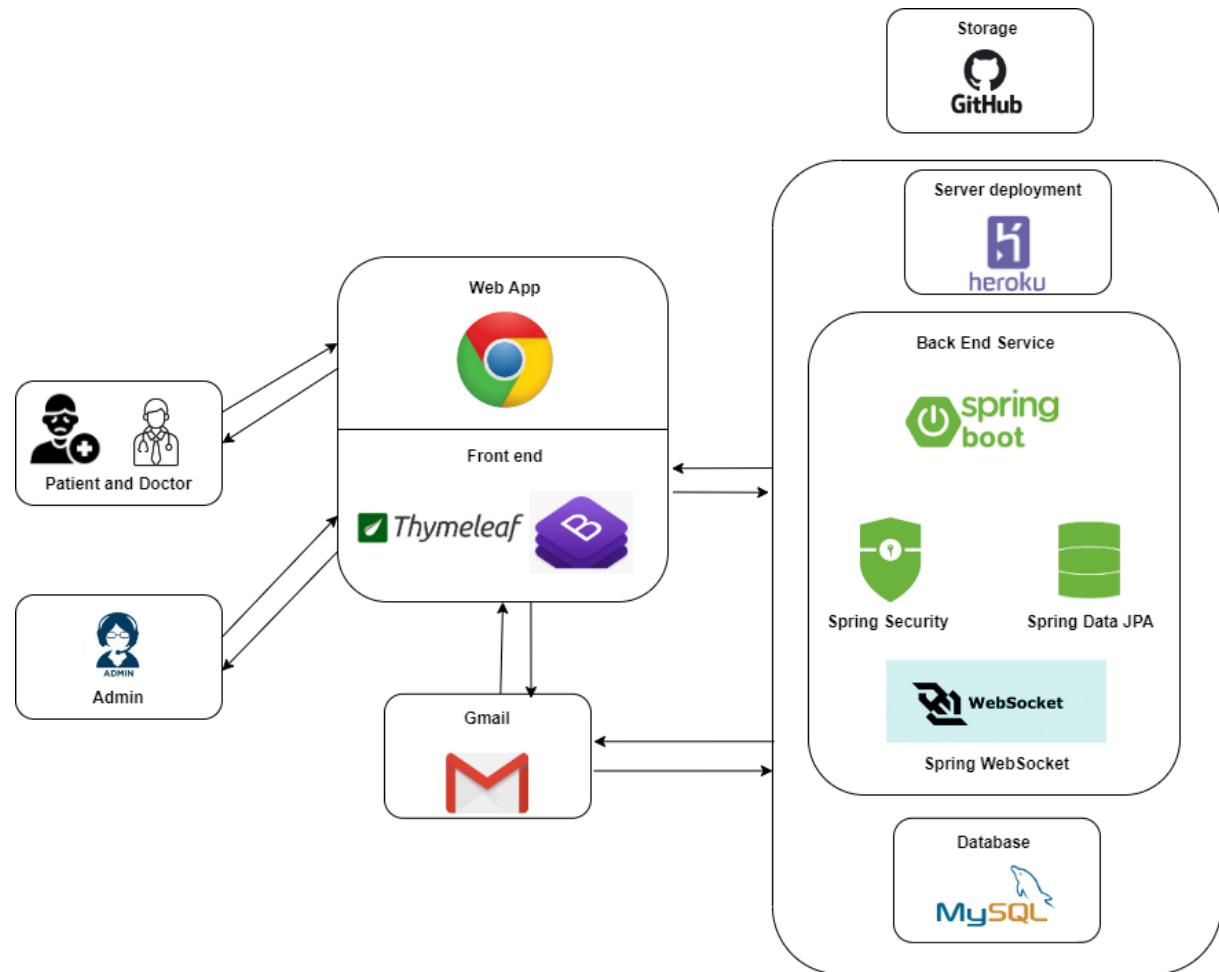


Figure 40: System Architecture

#### 1.2.1 Back-end

EasyDoctor system back-end is built with Spring Boot version 2.4.4 with some advantages as below

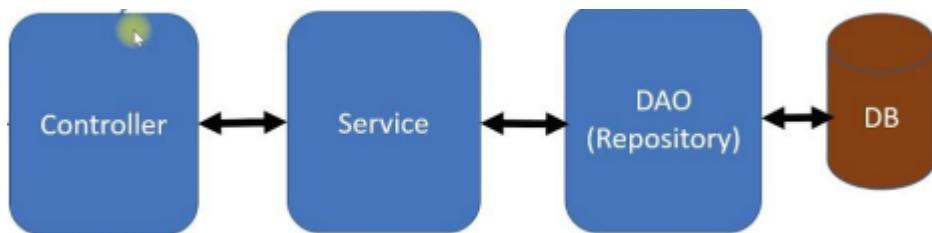
- Fast and easy development of Spring-based applications.
- No need for the deployment of war files.
- The ability to create standalone applications.
- Helping to directly embed Tomcat into an application.
- Reduced amounts of source code.

#### **1.2.1.1 Spring Boot Application Architecture**

Spring Boot Application Architecture is an open-source, microservice-based Java web framework. The Spring Boot framework creates a fully production-ready environment that is completely configurable using its prebuilt code within its codebase.

We are going to use a three-layer or three-tier architecture to develop our spring boot application. We have a controller layer, service layer, and DAO or repository layer

- Controller layer is used to develop arrest APIs and we can call the controller layer an API layer because we basically create a spring MVC controller and we keep all the rest APIs in the controller class.
- In the service layer, we keep all our business logic.
- In the DAO layer, we keep our database-related logic or persistence logic, and the DAO layer is responsible for communicating with the database.



**Figure 41: Spring Boot App**

#### **1.2.1.2 System Architecture Explanation**

##### **1.2.1.2.1 Spring Boot**

Spring Boot is an open source, microservice-based Java web framework. The Spring Boot framework creates a fully production-ready environment that is completely configurable using its prebuilt code within its codebase. Spring Boot makes developing web applications and microservices with Spring Framework faster and easier through three core capabilities:

- Autoconfiguration: this means that applications are initialised with pre-set dependencies that you don't have to configure manually.
- An opinionated approach to the configuration: it uses an opinionated approach to adding and configuring starter dependencies, based on the needs of your project.
- The ability to create standalone applications: you can launch your application on any platform. It lets you create standalone applications that run on their own, without

relying on an external web server, by embedding a web server such as Tomcat into your app during the initialization process

#### **1.2.1.2.2 Spring JPA**

Spring Boot JPA is a Java specification for managing relational data in Java applications. It allows us to access and persist data between Java objects/classes and the relational database. JPA follows Object-Relational Mapping. It is a set of interfaces. It also provides a runtime EntityManager API for processing queries and transactions on the objects against the database. It uses a platform-independent object-oriented query language JPQL (Java Persistence Query Language).

JPA is widely used in because:

- It is simpler, cleaner, and less labour-intensive than JDBC, SQL, and hand-written mapping.
- It allows mapping in XML or using Java annotations.
- When we need to perform queries using JPQL, it allows us to express the queries in terms of Java entities rather than the (native) SQL table and columns

#### **1.2.1.2.3 Spring Security**

Spring Security is a framework that provides authentication, authorization, and protection against common attacks. With first-class support for securing both imperative and reactive applications, it is the de-facto standard for securing Spring-based applications.

The benefits of Spring Security are not limited to helping us with Authentication and Authorization. It can also help us to apply best practices in saving users, and building a sign-up feature.

#### **1.2.1.2.4 MySQL**

In our project, we use the MySQL database. MySQL is a database management system that allows you to manage relational databases. It is open-source software backed by Oracle. A is popularly used for its outstanding features:

- High Performance: MySQL can meet the performance of a high-volume website that services a billion queries a day.
- Web and Data Warehouse Strengths: MySQL is the de-facto standard for high-traffic websites because of its high-performance query engine, tremendously fast data insert capability, and strong support for specialised web functions like fast full-text searches.
- Strong Data Protection: MySQL offers exceptional security features that ensure absolute data protection.
- Comprehensive Application Development: MySQL provides comprehensive support for every application development need.
- Management Ease: MySQL offers the exceptional quick-start capability and a complete suite of graphical management and migration tools

## **1.2.2 Client**

### **1.2.2.1. Web Application Architecture**

#### **1.2.3 Front End**

In our product, Web Application is designed by Thymeleaf. Below are its advantages:

- Provides an elegant and well-formed way of creating templates.
- High integration with Spring Framework.
- Bring elegant natural templates to development workflow — HTML that can be correctly displayed in browsers and also work as static prototypes.

#### **1.2.3.1 HTML and CSS**

HTML, HyperText Markup Language, provides content structure and meaning by defining it, for example, a title, paragraph, or image.

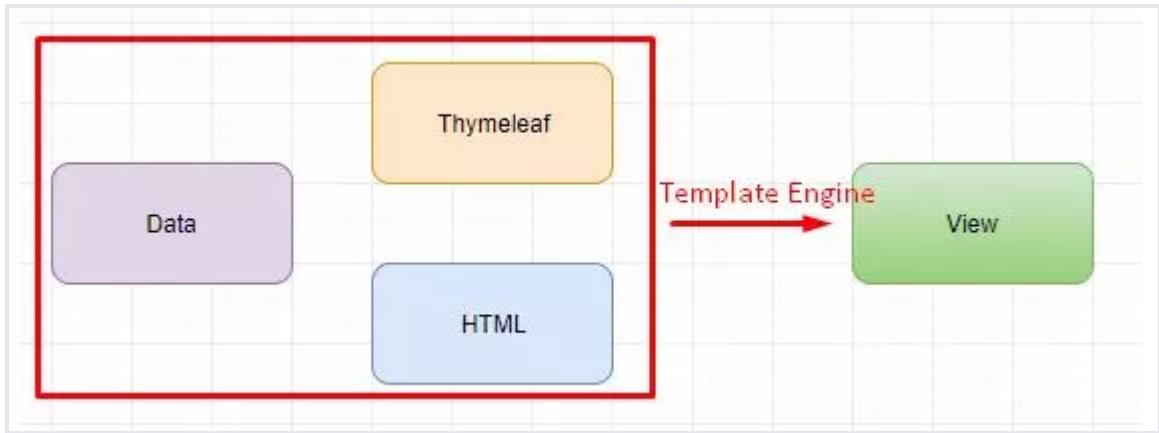
CSS, or Cascading Style Sheets, is a presentation language used to style the appearance of content using, for example, fonts or colours.

#### **1.2.3.2 Bootstrap**

Bootstrap allows the website design process to be faster and easier based on the basic elements available such as typography, forms, buttons, tables, grids, navigation, image carousels...

Bootstrap is a free collection of open source tools and tools for creating a complete website template. With predefined interface properties such as size, colour, height, and width..., designers can create many new products but still save time when working with this framework in the process of web interface design.

#### **1.2.3.3 Thymeleaf**



**Figure 42: Thymeleaf**

Thymeleaf is a Java template engine used to process and generate HTML, XML, Javascript, CSS, and text. The main goal of thyme leaf is to bring natural, uniform, and simple templates to development work.

**Benefits of Thymeleaf** With thyme leaf, we can display everything just by using HTML files (no need for JSP...). Thymeleaf will participate in rendering HTML files as attributes in HTML

tags --> so we don't need to add any non-HTML tags. Since it is HTML, we can view files without starting the server. Thymeleaf supports a caching mechanism, so you can cache data or custom to display the view when there is a change without restarting the server.

### 1.3 Package Diagram

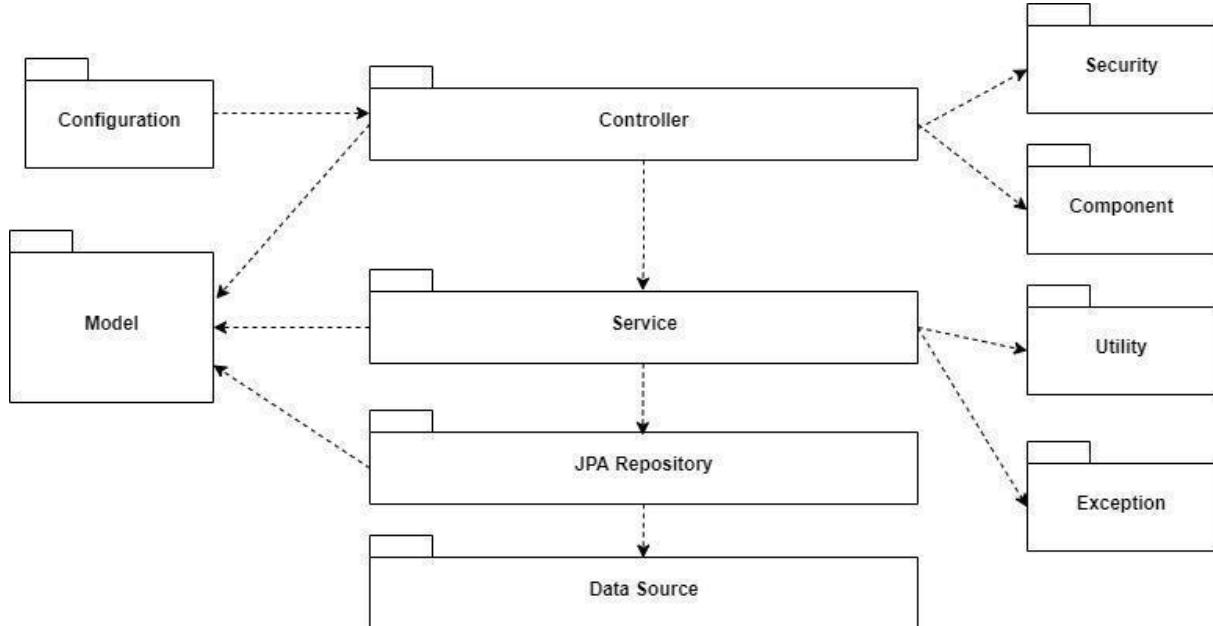


Figure 43: Package diagram

Details of each package are described in the table below:

No	Package	Description	Consist
1	Model	Contains entity classes which are the persistence objects stored as a record in the database	Appointment, AppointmentStatus, BaseEntity, Clinic, Comment, Declaration, Doctor, FileModel, Gender, History, Invoice, Message, Notification, Packages, Post, Patient, Review, Role, Speciality, User, WorkingPlan
2	Controller	Contains controller classes which are responsible for processing incoming REST API requests,	AdminController, AjaxController, AppointmentController,

		preparing a model, and returning the view to be rendered as a response.	ChatController, DoctorController, HomeController, InvoiceController, NotificationController, PatientController, BlogController
3	Service	Contains services classes that are used to write business logic in a different layer, separated from controller	AppointmentService, ClinicService, DotorService, EmailService, InvoiceService, JwTokenService, NotificationService, OTP Service, PostService, PackagesService, ScheduleTasksService, User Service, WorkingPlanService
4	JPA Repository	Contains JPA repository interface that encapsulates the logic required to access data sources	AppointmentRespository, CommonUserRespositor y, DoctorRespository, ClinicRespository, FileModelRespository, HistoryRespository, InvoiceRepository, MessageRespository, NotificationRespository, PackagesRespository, PatientRespository, PostRespository, ReviewRespository,

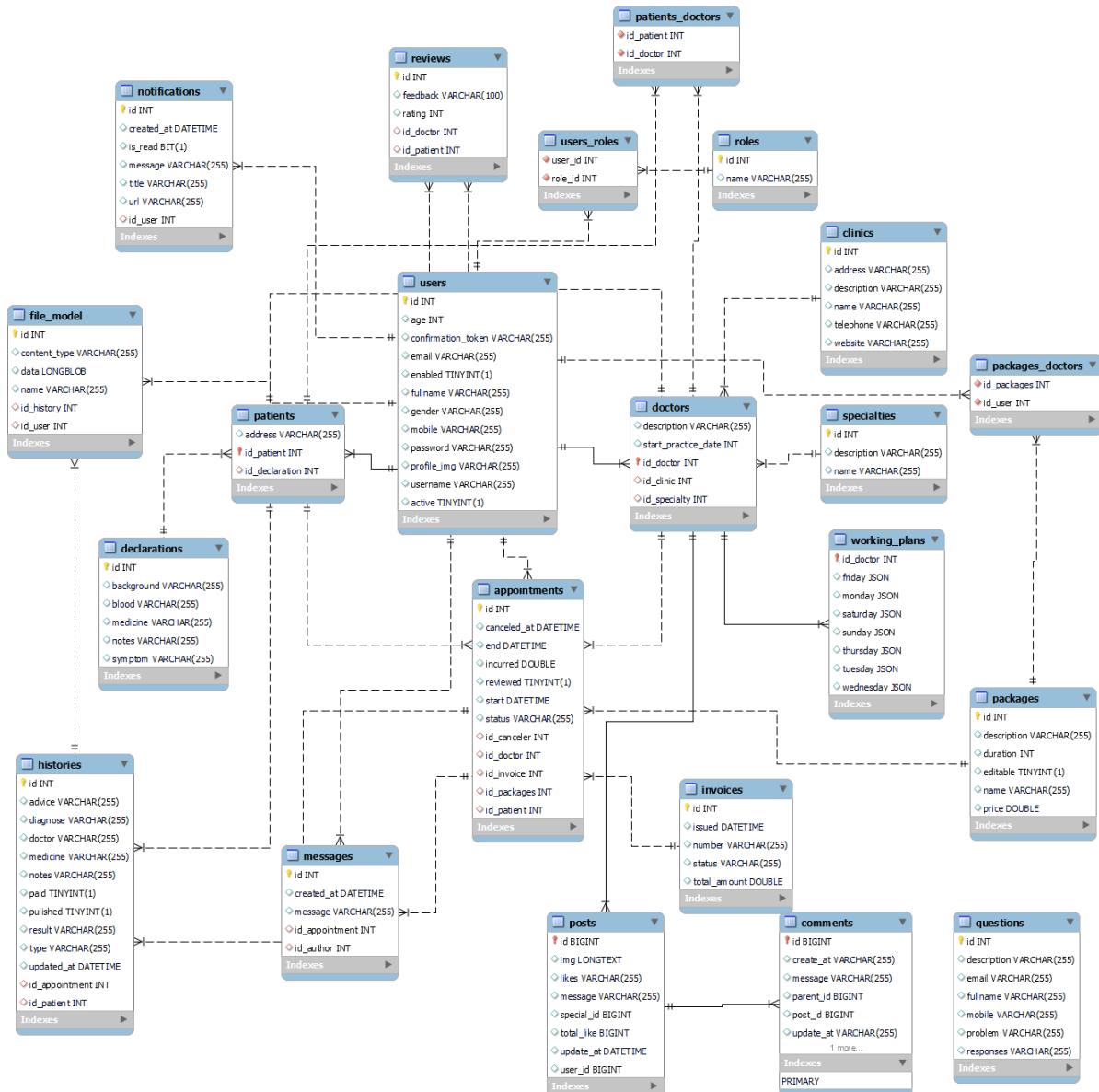
			RoleRepository, SpecialtyRepository, UserRepository, WorkingPlanRepository
5	Data Source	A factory for connections to the MySql database	
6	Utility	Contains utility classes which perform common, often reused functions	PdfGeneratorUtil, Utils
7	Security	Implements authentication, authorization, and protection against common attacks	CustomAuthenticationSuccessHandler, CustomUserDetails, CustomUserDetailsService, PasswordEncoderConfig, WebSecurityConfig
8	Exception	Provides a mechanism to treat exceptions that are thrown during execution of handlers	AppointmentNotFoundException, PackagesNotFoundException
9	Configuration	Contains configuration classes which consist principally of @Bean - annotated methods that define instantiation, configuration, and initialization logic for objects that are managed by the Spring IoC container	VersionInterceptor WebMvcConfig WebSocketConfig WebSocketEventListener
10	Component	It is responsible for getting the necessary fields from the model to display on the screens.	AppointmentDto, AppointmentRegisterForm, AppointmentSerializer, ChangePasswordField, ChatMessage, CommentDTO,

			CommonMsg, DayPlan, DoctorDto, PatientDtio, PostDTO, ReviewDto, ReviewForm, TimePeriod, UserForm
--	--	--	--

**Table 1: Details of each package**

## 2. Database Design

Below is Easy Doctor system database design:



**Figure 44: Database Design**

The following is a detailed description of each table in the diagram:

No	Table	Description
----	-------	-------------

01	appointments	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> <ul style="list-style-type: none"> <li>+) id_canceled INT</li> <li>+) id_doctor INT</li> <li>+) id_invoice INT</li> <li>+) id_packages INT</li> <li>+) id_patient INT</li> <li>+) id_review INT</li> </ul> </li> <li>- <b>Field name:</b> <ul style="list-style-type: none"> <li>+) canceled_at DATETIME</li> <li>+) end DATETIME</li> <li>+) start DATETIME</li> <li>+) status VARCHAR(255)</li> <li>+) reviewed TINYINT(1)</li> <li>+) incurred DOUBLE</li> </ul> </li> </ul>
02	users	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> None</li> <li>- <b>Field name:</b> <ul style="list-style-type: none"> <li>+) age INT</li> <li>+) confirmation_token VARCHAR(255)</li> <li>+) email VARCHAR(255)</li> <li>+) enabled TINYINT(1)</li> <li>+) full name VARCHAR(255)</li> <li>+) gender VARCHAR(255)</li> <li>+) mobile VARCHAR(255)</li> <li>+) password VARCHAR(255)</li> <li>+) profile_img VARCHAR(255)</li> <li>+) username VARCHAR(255)</li> </ul> </li> </ul>
03	reviews	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> <ul style="list-style-type: none"> <li>+) id_doctor INT</li> <li>+) id_patient INT</li> </ul> </li> <li>- <b>Field name:</b> <ul style="list-style-type: none"> <li>+) rating INT</li> <li>+) review VARCHAR(255)</li> <li>+) feedback VARCHAR(100)</li> </ul> </li> </ul>
04	packages_doctors	<ul style="list-style-type: none"> <li>- <b>Foreign keys:</b> <ul style="list-style-type: none"> <li>+) id_packages INT</li> <li>+) id_user INT</li> </ul> </li> </ul>
05	exchanges	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> <ul style="list-style-type: none"> <li>+) id_appointment_requested INT</li> <li>+) id_appointment_requestor INT</li> </ul> </li> <li>- <b>Field name:</b> <ul style="list-style-type: none"> <li>+) exchange_status VARCHAR(255)</li> </ul> </li> </ul>
06	messages	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> <ul style="list-style-type: none"> <li>+) id_appointment INT</li> <li>+) id_author INT</li> </ul> </li> </ul>

		<ul style="list-style-type: none"> <li>- <b>Field name:</b></li> <li>+ created_at DATETIME</li> <li>+ message VARCHAR(255)</li> </ul>
07	specialties	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> None</li> <li>- <b>Field name:</b></li> <li>+ description VARCHAR(255)</li> <li>+ name VARCHAR(255)</li> </ul>
08	packages	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> None</li> <li>- <b>Field name:</b></li> <li>+ description VARCHAR(255)</li> <li>+ duration INT</li> <li>+ editable TINYINT(1)</li> <li>+ name VARCHAR(255)</li> <li>+ price DOUBLE</li> <li>+ target VARCHAR(255)</li> </ul>
09	patients	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id_patient INT</li> <li>- <b>Foreign keys:</b></li> <li>+ id_pathological INT</li> <li>+ id_declaration INT</li> <li>+ id_patient INT</li> <li>- <b>Field name:</b> address VARCHAR(255)</li> </ul>
10	roles	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> None</li> <li>- <b>Field name:</b> name VARCHAR(255)</li> </ul>
11	users_roles	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> None</li> <li>- <b>Foreign keys:</b></li> <li>+ user_id INT</li> <li>+ role_id INT</li> </ul>
12	notifications	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> id_user INT</li> <li>- <b>Field name:</b></li> <li>+ created_at DATETIME</li> <li>+ is_real BIT(1)</li> <li>+ message VARCHAR(255)</li> <li>+ title VARCHAR(255)</li> <li>+ url VARCHAR(255)</li> </ul>
13	doctor	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id_doctor INT</li> <li>- <b>Foreign keys:</b></li> <li>+ id_clinic BIGINT</li> <li>+ id_specialty INT</li> <li>+ id_doctor INT</li> <li>- <b>Field name:</b></li> <li>+ certification VARCHAR(255)</li> <li>+ description VARCHAR(255)</li> <li>+ start_practice_date DATETIME</li> </ul>
14	histories	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b></li> <li>+ id_patient INT</li> </ul>

		<ul style="list-style-type: none"> <li>+ ) id_appointment INT</li> <li>- <b>Field name:</b></li> <li>+ ) doctor VARCHAR(255)</li> <li>+ ) result VARCHAR(255)</li> <li>+ ) start DATETIME</li> <li>+ ) type VARCHAR(255)</li> <li>+ ) advice VARCHAR(255)</li> <li>+ ) notes VARCHAR(255)</li> <li>+ ) diagnose VARCHAR(255)</li> <li>+ ) medicine VARCHAR(255)</li> <li>+ ) paid TINYINT(1)</li> <li>+ ) published TINYINT(1)</li> <li>+ ) updated_at DATETIME</li> </ul>
15	invoices	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> None</li> <li>- <b>Field name:</b></li> <li>+ ) number VARCHAR(255)</li> <li>+ ) status VARCHAR(255)</li> <li>+ ) issued DATETIME</li> <li>+ ) total_amount DOUBLE</li> </ul>
16	working_plans	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id_doctor INT</li> <li>- <b>Foreign keys:</b> id_doctor INT</li> <li>- <b>Field name:</b></li> <li>+ ) monday JSON</li> <li>+ ) tuesday JSON</li> <li>+ ) wednesday JSON</li> <li>+ ) thursday JSON</li> <li>+ ) friday JSON</li> <li>+ ) saturday JSON</li> <li>+ ) sunday JSON</li> </ul>
17	pathologicals	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b> None</li> </ul>
18	file_model	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id INT</li> <li>- <b>Foreign keys:</b></li> <li>+ ) id_history INT</li> <li>+ ) id_user INT</li> <li>- <b>Field name:</b></li> <li>+ ) content_type VARCHAR(255)</li> <li>+ ) data LONGBLOB</li> <li>+ ) name VARCHAR(255)</li> </ul>
19	patients_doctors	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> None</li> <li>- <b>Foreign keys:</b></li> <li>+ ) id_patient INT</li> <li>+ ) id_doctor INT</li> </ul>
20	clinics	<ul style="list-style-type: none"> <li>- <b>Primary keys:</b> id BIGINT</li> <li>- <b>Foreign keys:</b> None</li> <li>- <b>Field name:</b></li> <li>+ ) address VARCHAR(255)</li> <li>+ ) description VARCHAR(255)</li> <li>+ ) name VARCHAR(255)</li> </ul>

		+ ) telephone VARCHAR(255) + ) website VARCHAR(255)
21	<b>comments</b>	- <b>Primary keys:</b> id BIGINT - <b>Foreign keys:</b> None - <b>Field name:</b> + ) create_at VARCHAR(255) + ) message VARCHAR(255) + ) parent_id BIGINT + ) post_id BIGINT + ) update_at VARCHAR(255) + ) user_id BIGINT
22	<b>declarations</b>	- <b>Primary keys:</b> id INT - <b>Foreign keys:</b> None - <b>Field name:</b> + ) background VARCHAR(255) + ) blood VARCHAR(255) + ) medicine VARCHAR(255) + ) notes VARCHAR(255) + ) symptom VARCHAR(255)
23	<b>posts</b>	- <b>Primary keys:</b> id BIGINT - <b>Foreign keys:</b> None - <b>Field name:</b> + ) create_at VARCHAR(255) + ) img VARCHAR(255) + ) likes VARCHAR(255) + ) message VARCHAR(255) + ) special_id BIGINT + ) total_like BIGINT + ) update_at VARCHAR(255) + ) user_id BIGINT
24	<b>questions</b>	- <b>Primary keys:</b> id INT - <b>Foreign keys:</b> None - <b>Field name:</b> + ) description VARCHAR(255) + ) email VARCHAR(255) + ) full_name VARCHAR(255) + ) mobile VARCHAR(255)

### 3. Detailed Design

#### 3.1 Class Diagram

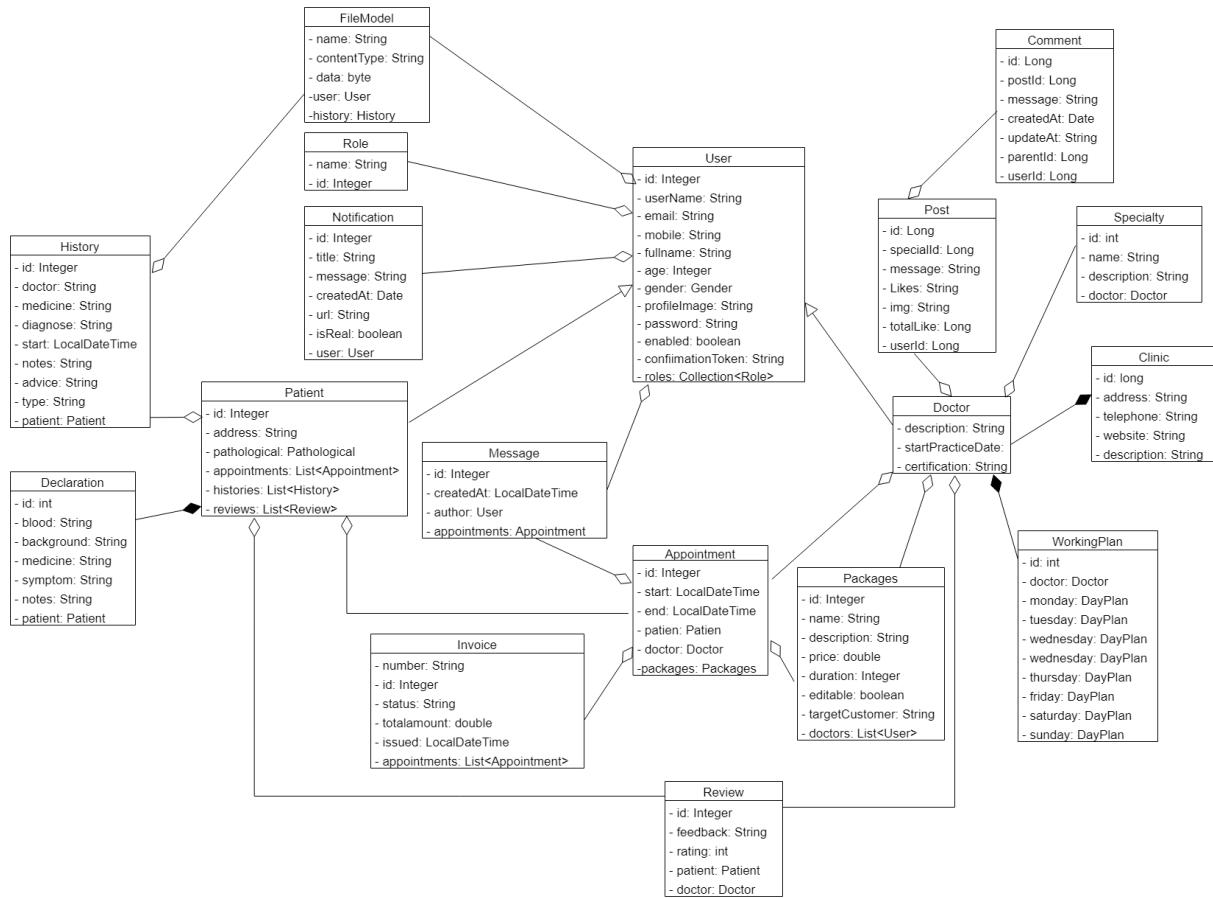


Figure 45: Class Diagram

#### 3.2 Class Specifications

Detailed specifications for each class are shown below:

##### 3.2.1. User Class

No	Attributes	Type	Description
1	userName	String	Username of the patient, admin, or doctor, using for login
2	id	int	Unique identifier, auto-increment
3	password	String	Password of the patient, admin, or doctor, using for login
4	email	String	Email of the patient, admin, or doctor, using for login and forgot password
5	mobile	String	Phone number of the patient, doctor
6	full name	String	The first and the last name of the patient, admin, or doctor

7	age	Integer	Age of the patient, doctor
8	profile image	String	The patient, doctor avatar
9	gender	Gender	Gender of the patient, doctor
10	enabled	boolean	Online, the offline status of user
11	confirmation token	String	Token of the patient, admin, or doctor when the password is forgotten

### 3.2.2. Role Class

No	Attributes	Type	Description
1	id	Integer	Unique identifier, auto-increment
2	name	String	Name of role

### 3.2.3. Appointment Class

No	Attributes	Type	Description
1	start	LocalDateTime	Time to start medical examination
2	end	LocalDateTime	End time of medical examination
3	canceledAt	LocalDateTime	Time when the patient, admin, or doctor cancels appointment
4	status	Object	Status of appointment
5	patient	Patient	Patient book an appointment
6	doctor	Doctor	Doctor receives appointment
7	canceler	Patient, admin, or doctor	Cancel appointment
8	packages	Packages	Examination package is booked
9	chatMessages	List<Message>	Patient chat with doctors
10	reviewed	boolean	Doctor reviews
11	invoice	Invoice	Bill payment to patient

### 3.2.3. Clinic Class

No	Attributes	Type	Description

1	id	Long	Unique identifier, auto-increment
2	name	String	Name of clinic
3	address	String	Address of clinic
4	telephone	String	Telephone of clinic
5	website	String	Website of clinic
6	description	String	Description about clinic

#### **3.2.4. Declaration**

No	Attributes	Type	Description
1	id	int	Unique identifier, auto-increment
2	blood	String	Blood of patient
3	background	String	Patient's underlying disease
4	medicine	String	Medicine of patient
5	symptom	String	Symptom of patient
6	notes	String	Note of patient
7	patient	Patient	Patient who creates declaration

#### **3.2.5. Doctor Class**

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	Specialty	Specialty	Specialty of doctor
3	clinic	Clinic	Address of clinic
4	appointments	List<Appointment>	Appointment of patient and doctor
5	reviews	List<Review>	Review of Doctor
6	packages	List<Packages>	Packages given by the doctor
7	workingPlan	working plan	Doctor creates examination time

### **3.2.6. FileModel Class**

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	name	String	Name of file
3	contentType	String	ContentType of file
4	data	byte	Data of file
5	user	User	User create file
6	history	HISTORY	Patient's previous medical history

### **3.2.7. History Class**

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	doctor	String	Doctor information
3	medicine	String	Medicine of doctor for patient
4	diagnose	String	Diagnose of doctor
5	notes	String	Note of doctor for patient
6	advice	String	advice of doctor
7	start	LocalDateTime	time to start medical examination
8	type	String	type of examination
9	patient	Patient	examiner information

### **3.2.8. Invoice class**

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	number	String	Number of invoice
3	status	String	Status of invoice
4	total amount	double	Total amount of invoice
5	issued	LocalDateTime	Issue date of invoice

6	appointments	List<Appointment >	Appointment of patient and doctor
---	--------------	-----------------------	-----------------------------------

### 3.2.9. Message class

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	createdAt	LocalDateTime	Create message
3	author	User	Patient book an appointment
4	appointments	Appointment	Appointment of patient and doctor

### 3.2.10. Notification Class

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	title	String	Title of notifications
3	message	String	Message notifications
4	createAt	double	Create At notifications
5	url	LocalDateTime	URL of notifications
6	isRead	List<Appointment >	Did you read the notifications?
7	user	User	User of notifications

### 3.2.11. Packages Class

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	name	String	Name of packages
3	description	String	Description of packages
4	price	double	Price of packages
5	duration	Integer	Duration of packages
6	editable	boolean	Edit packages

7	targetCustomer	String	Patients who tend to use medical examination packages
8	doctor	List<User>	Creator of medical packages

### **3.2.12. Patient Class**

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	address	String	Address of patient
3	declaration	Declaration	Declaration of patient
4	appointment	List<Appointment>	Appointment of patient and doctor
5	Histories	list<History>	History of patient
6	review	List<Review>	Review of the patient about doctor

### **3.2.13 Review Class**

No	Attributes	Type	Description
1	id	integer	Unique identifier, auto-increment
2	feedback	String	Comment of the patient about doctor
3	rating	int	Vote of the patient about doctor
4	patient	Patient	Who has been examined by a doctor
5	doctor	doctor	The person being evaluated

### **3.2.14. Specialty Class**

No	Attributes	Type	Description
1	id	int	Unique identifier, auto increment
2	name	String	Name of specialty
3	description	int	Description about specialty
4	doctor	Doctor	The person examining that department

### **3.2.15. WorkingPlan Class**

No	Attributes	Type	Description
1	id	int	Unique identifier, auto-increment
2	doctor	Doctor	Doctor creates examination time
3	monday	DayPlan	Day of the week
4	tuesday	DayPlan	Day of the week
5	wednesday	DayPlan	Day of the week
6	thursday	DayPlan	Day of the week
7	friday	DayPlan	Day of the week
8	saturday	DayPlan	Day of the week
9	sunday	DayPlan	Day of the week

### **3.2.16. Post Class**

No	Attributes	Type	Description
1	id	Long	Unique identifier, auto-increment
2	userId	Long	Unique identifier, auto-increment
3	specialId	Long	Unique identifier special, auto-increment
4	message	String	Message post
5	img	String	Img of patient
6	likes	String	Like of user
7	totalLike	Long	Total likes of the post

### **3.2.17. Comment Class**

No	Attributes	Type	Description
1	id	Long	Unique identifier, auto-increment
2	postId	Long	Unique identifier post, auto-increment
3	createAt	String	Create comment
4	message	String	Message comment
5	updateAt	String	Update comment

6	parentId	Long	Unique identifier parent, auto increment
7	userId	Long	Unique identifier, auto increment

### 3.3 Sequence Diagrams

For each function we build the sequence diagram as below:

#### 3.3.1. General Patient and Doctor

##### 1. Login

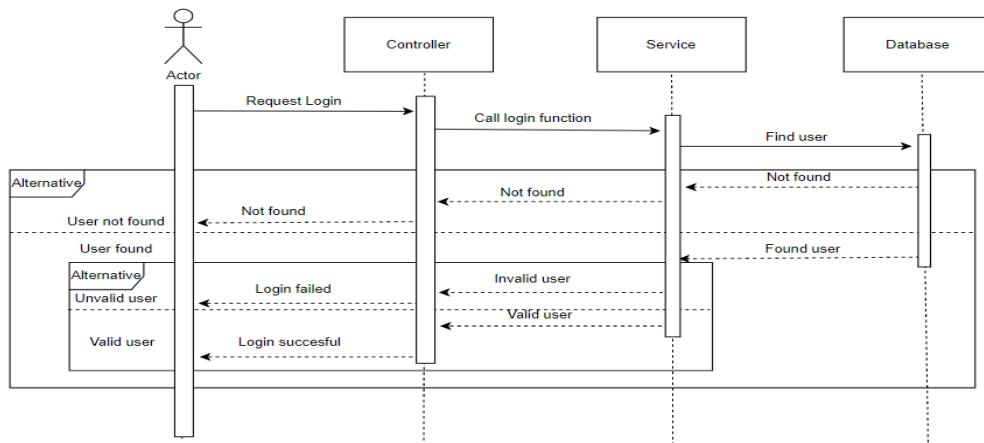


Figure 46: Login Sequence Diagram

## 2. Reset password

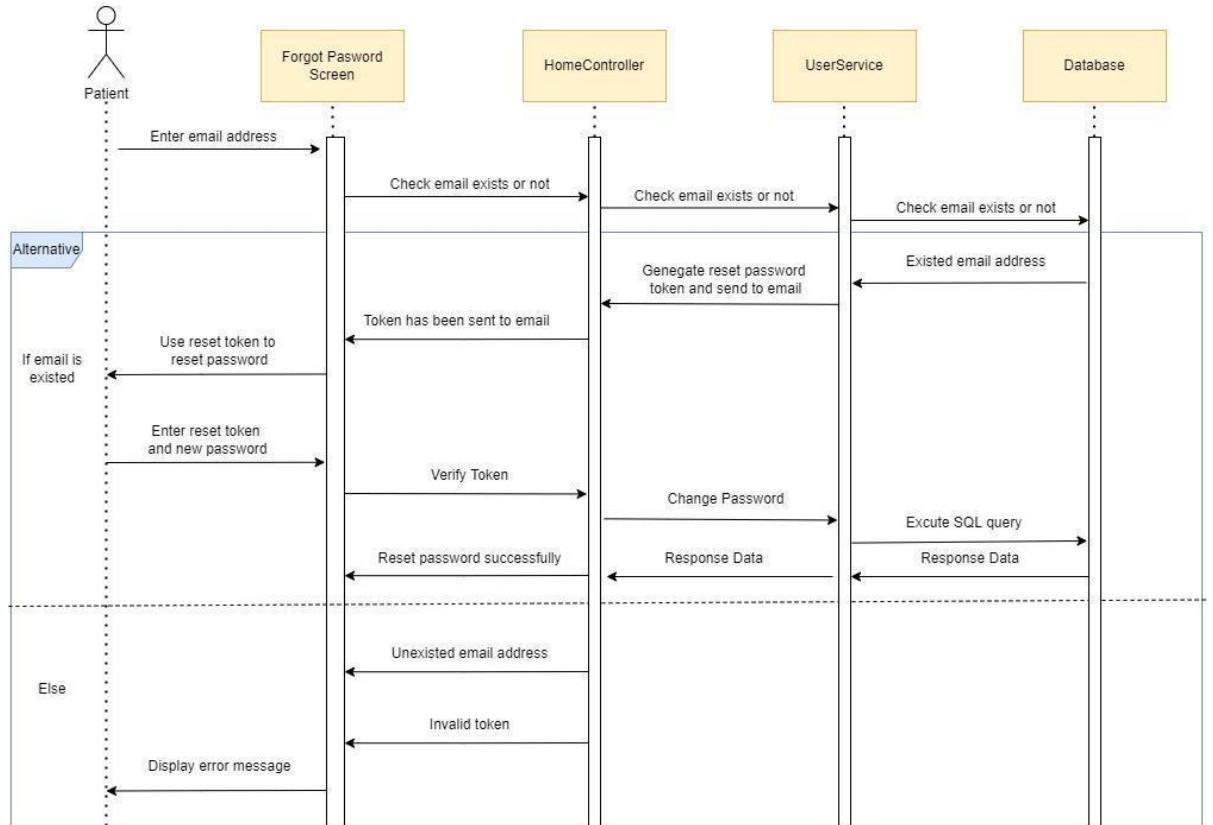


Figure 47: Reset Password Diagram

## 3. Edit profile

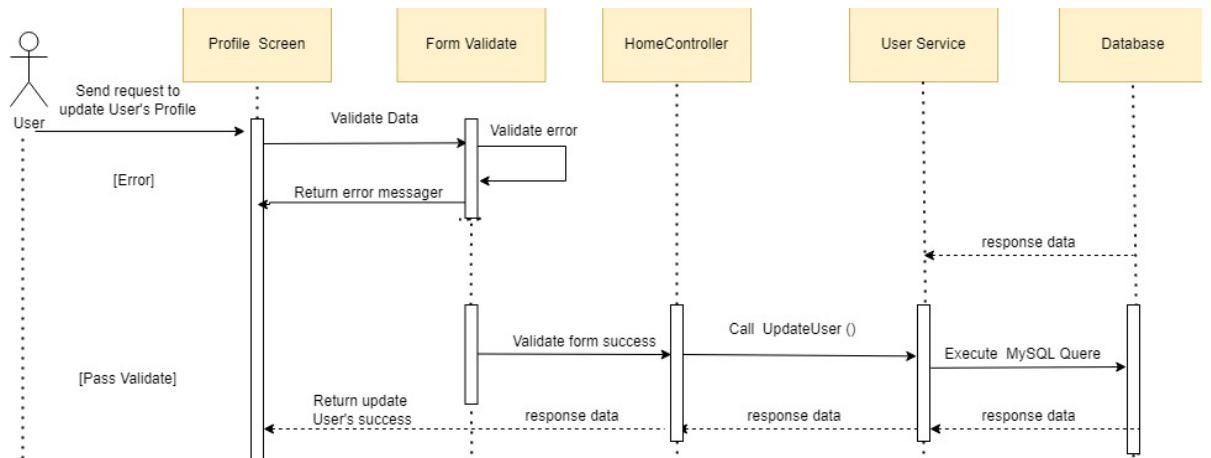


Figure 48: Edit Profile Diagram

#### 4. Change password

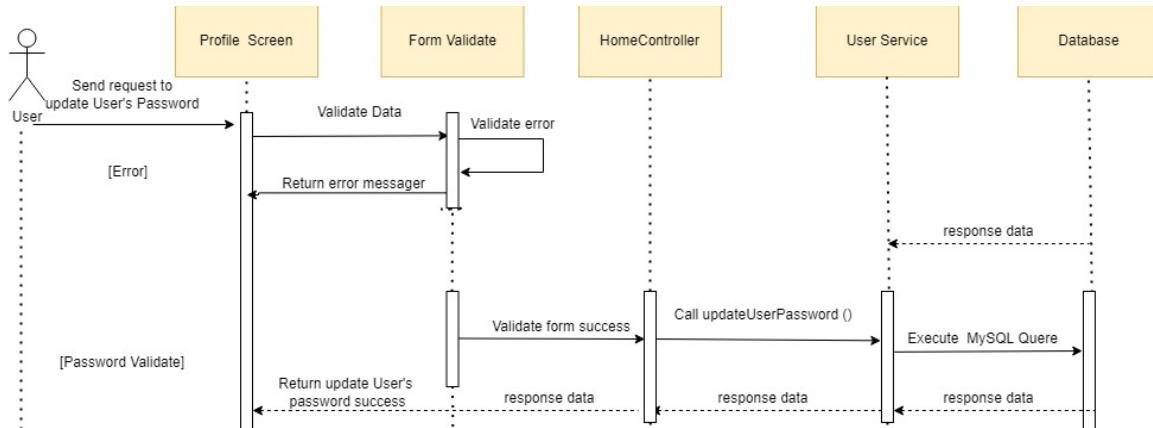


Figure 49: Change Password Diagram

#### 5. Detail appointment

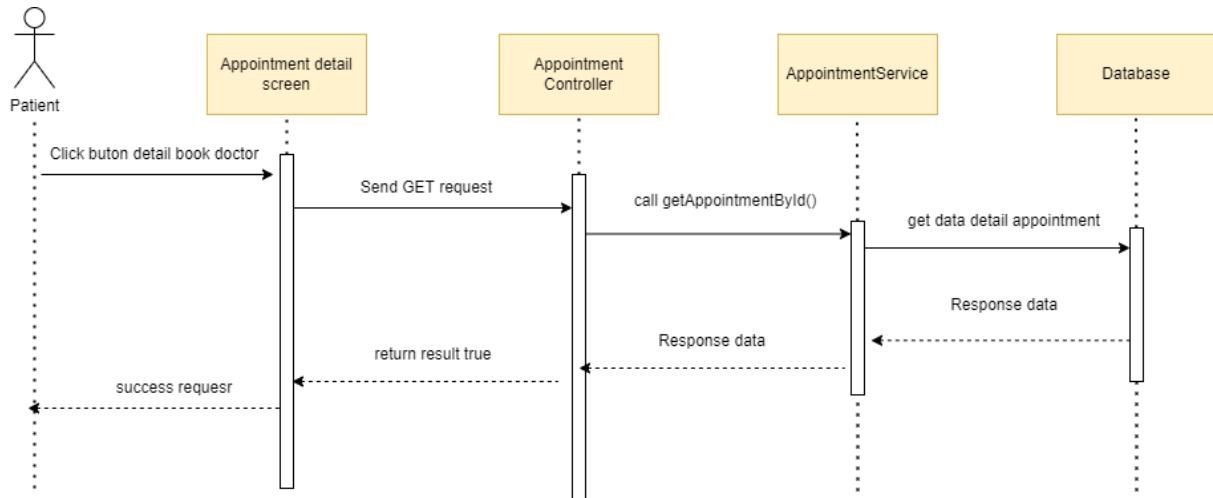


Figure 50: Detail Appointment Diagram

## 6. Cancel appointment

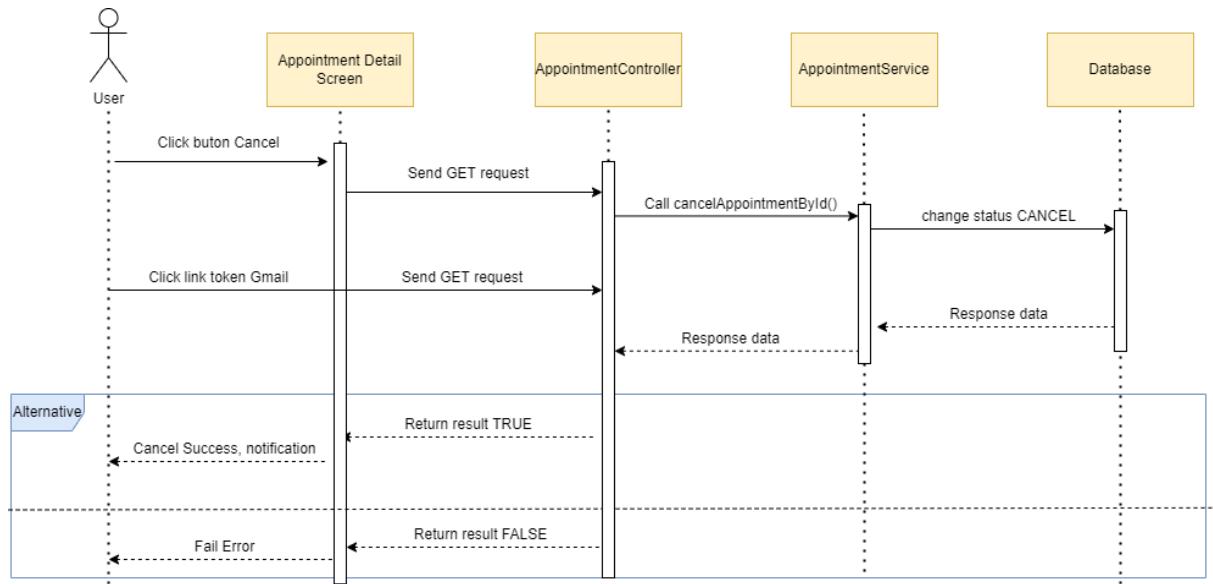


Figure 51: Cancel Appointment Diagram

## 7. Reject appointment

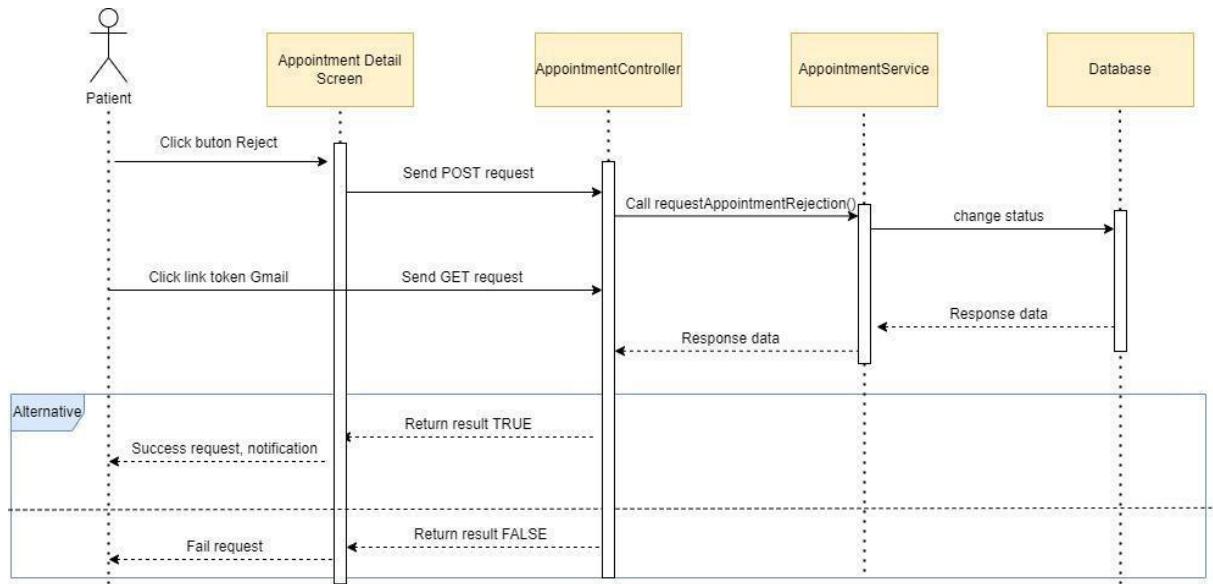
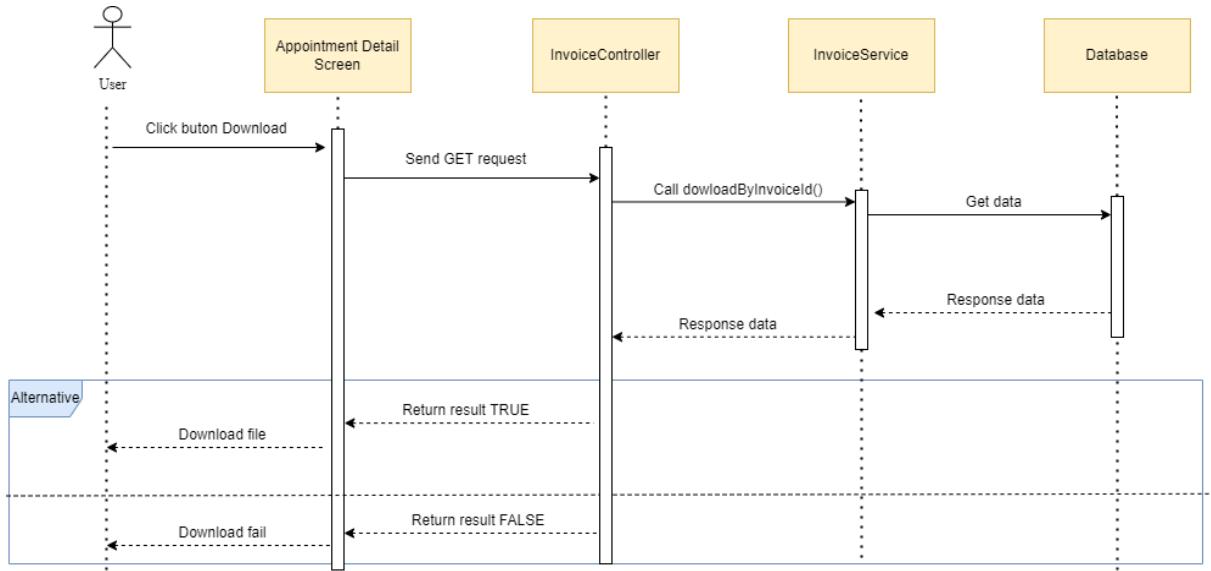


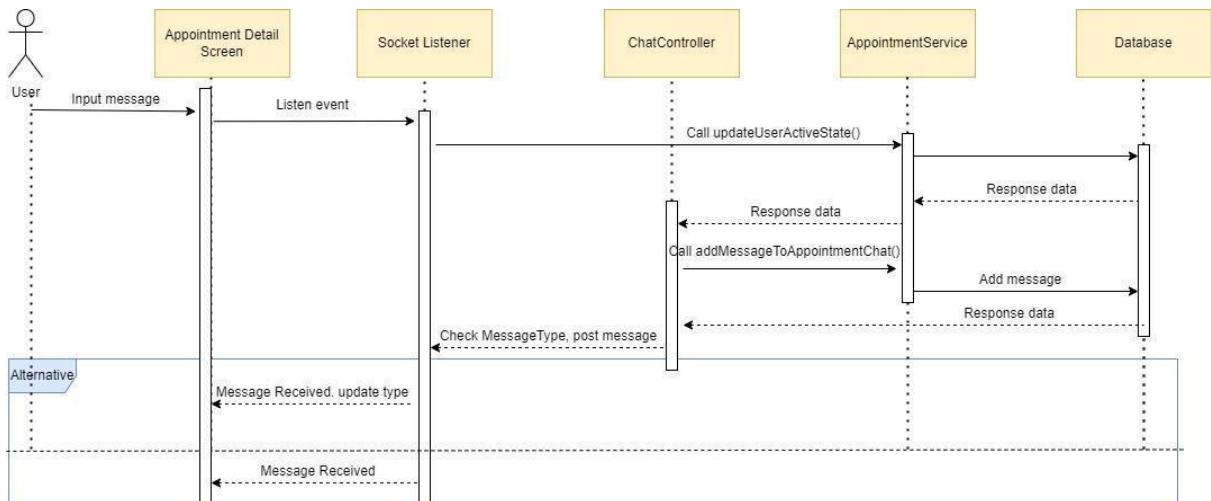
Figure 52: Reject Appointment Diagram

## 8. Download invoice



**Figure 53: Download Invoice Diagram**

## 9. Send message real-time



**Figure 54: Send Message Real Time Diagram**

## 10. List notification

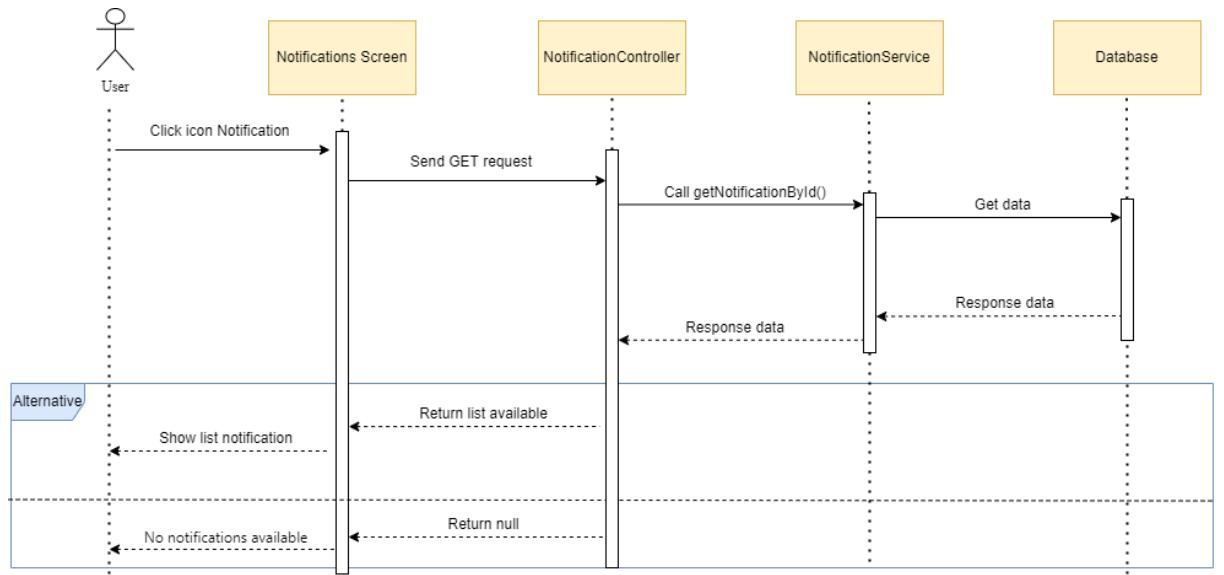


Figure 55: List Notification Diagram

### 3.3.2. Patient

#### 1. Register

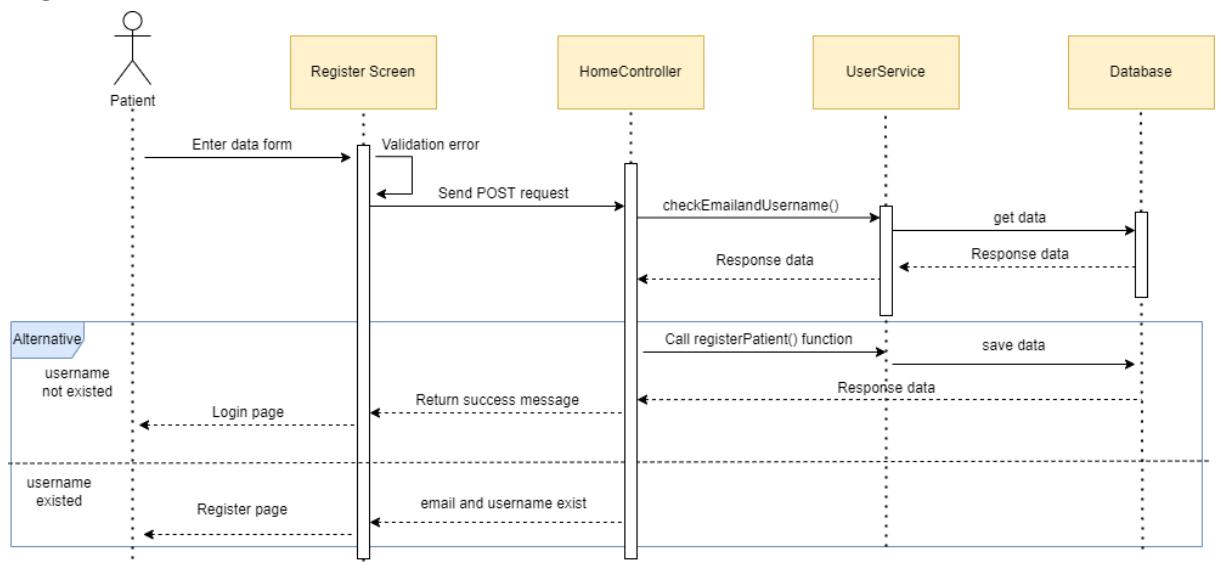


Figure 56: Register Patient Diagram

## 2. Detail doctor

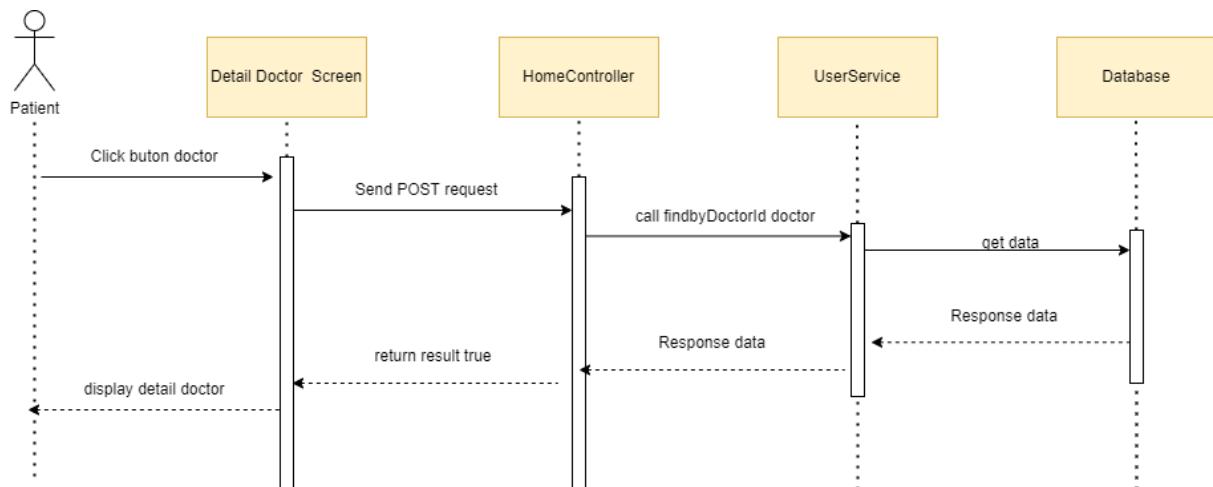


Figure 57: Detail Doctor Diagram

## 3. Choose available time

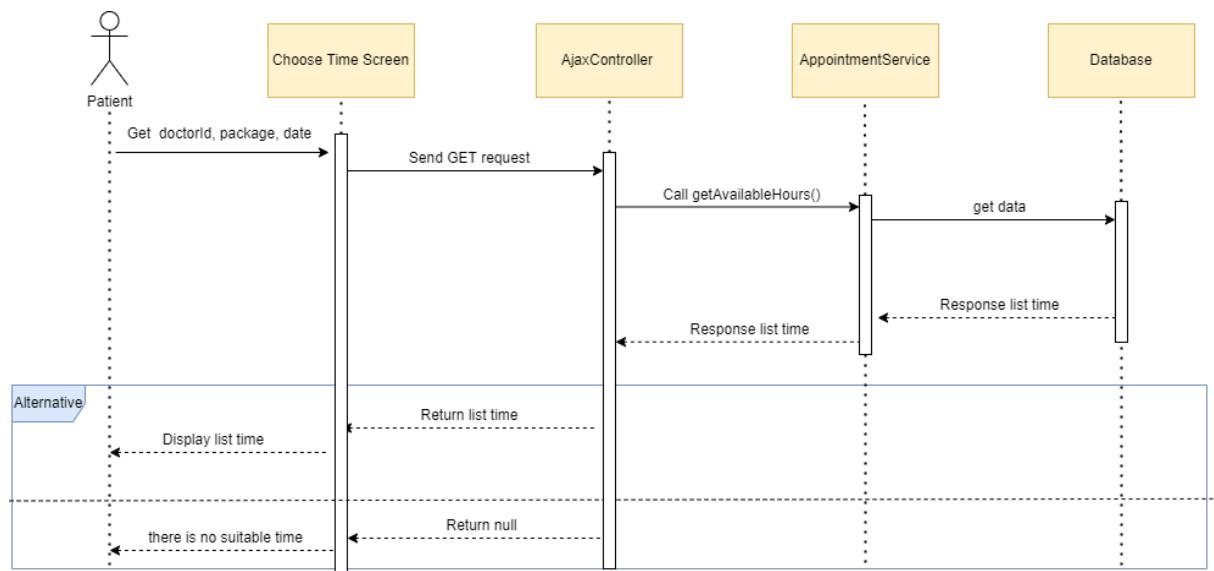


Figure 58: Choose Available Time Diagram

#### 4. Enter OTP

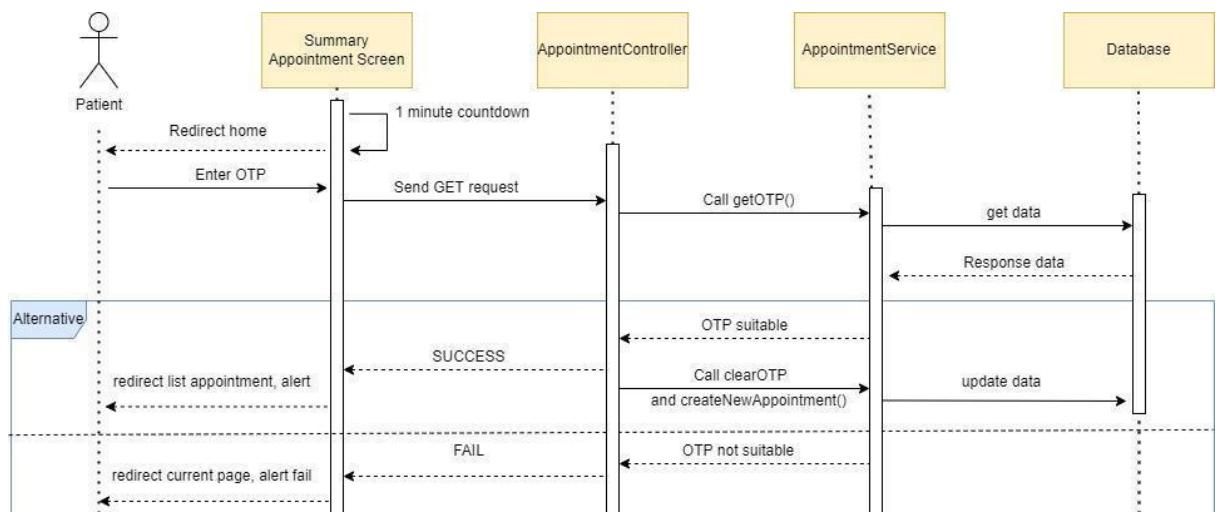


Figure 59: Enter OTP Diagram

#### 5. Review doctor

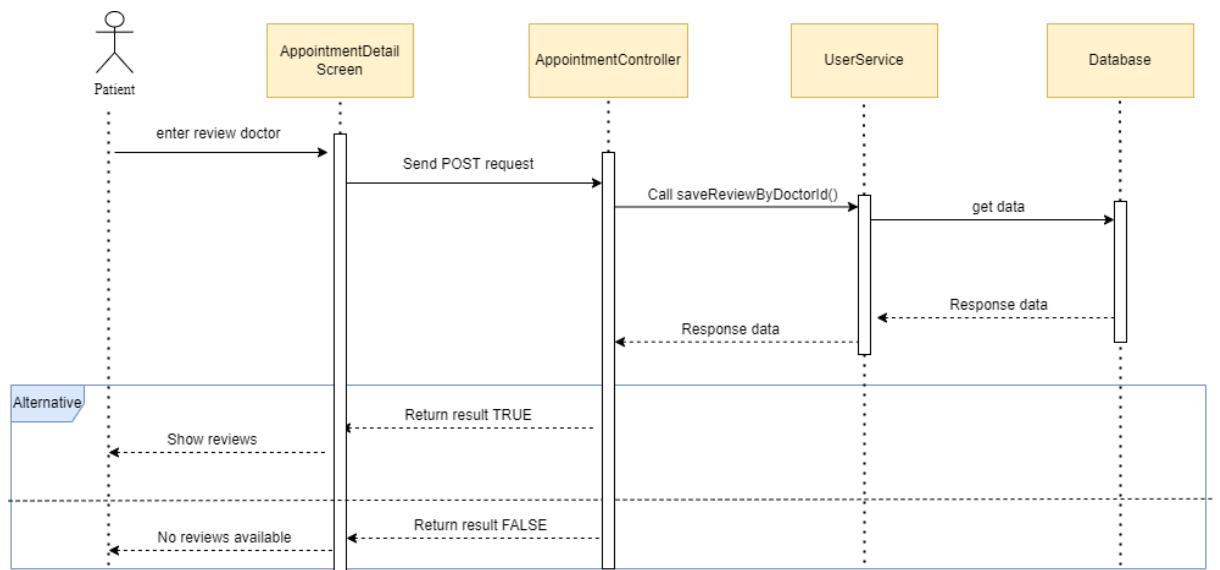


Figure 60: Review Doctor Diagram

## 6. Follow Doctor

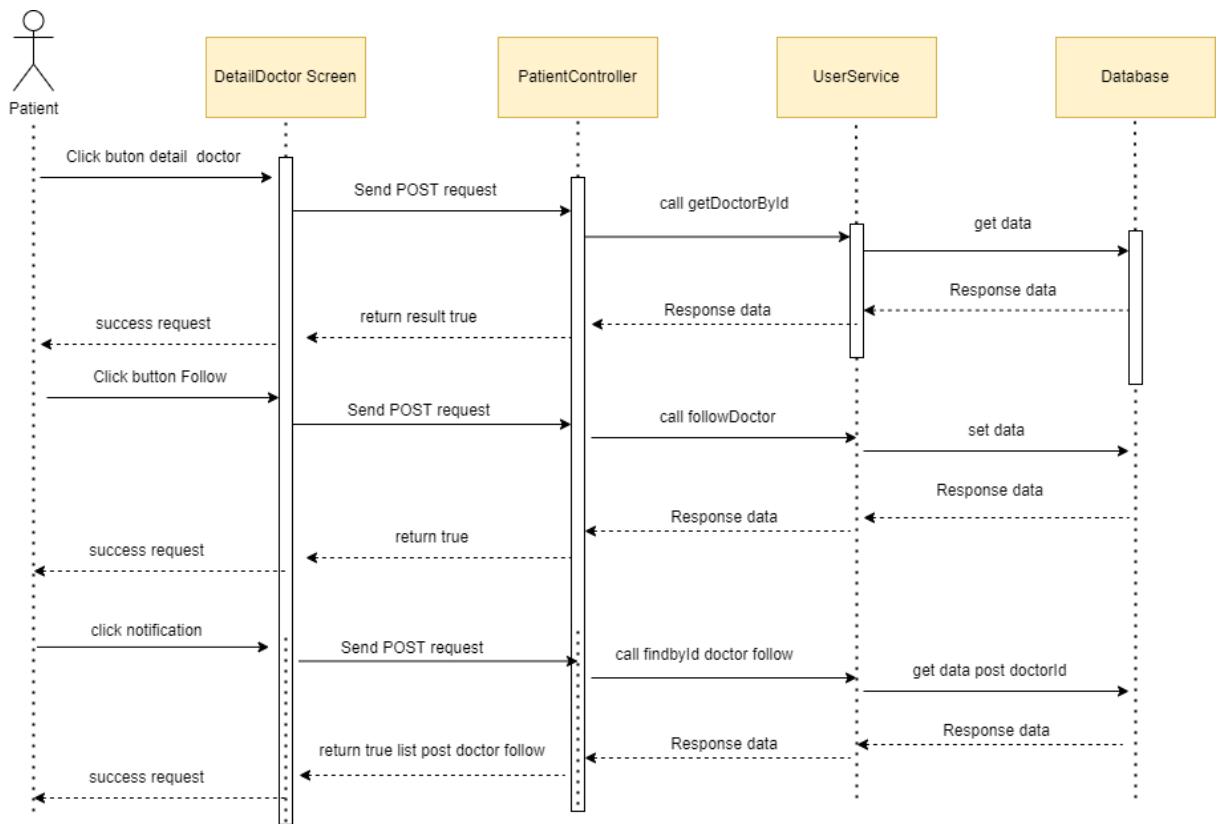


Figure 61: Follow Doctor Diagram

## 7. Unfollow Doctor

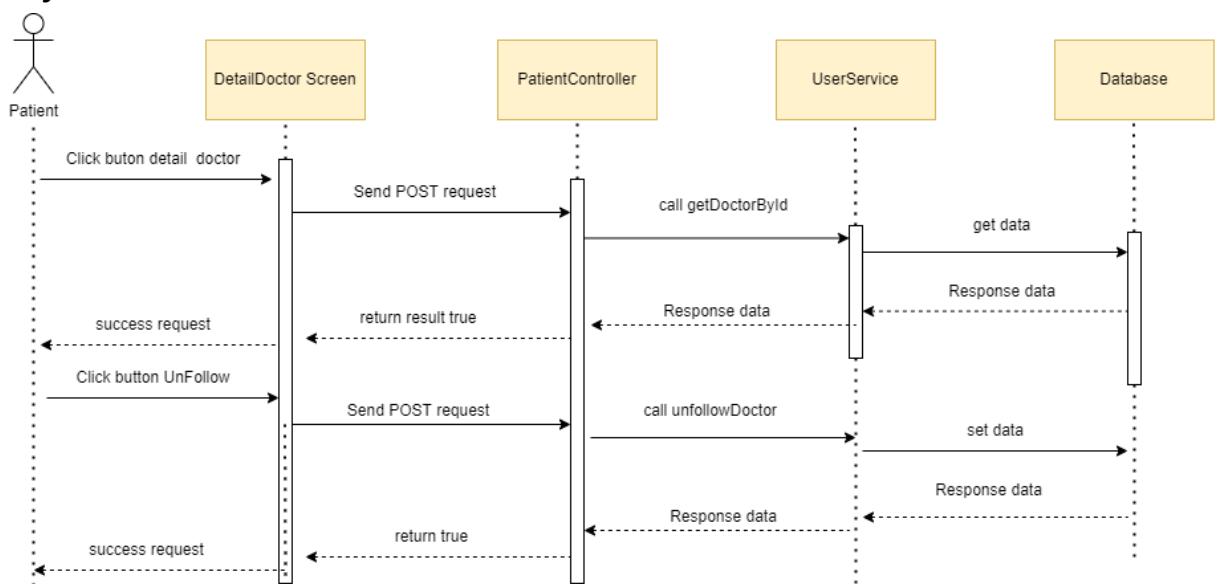


Figure 62: Unfollow Doctor Diagram

### 3.3.3. Doctor

#### 1. Accepted reject appointment

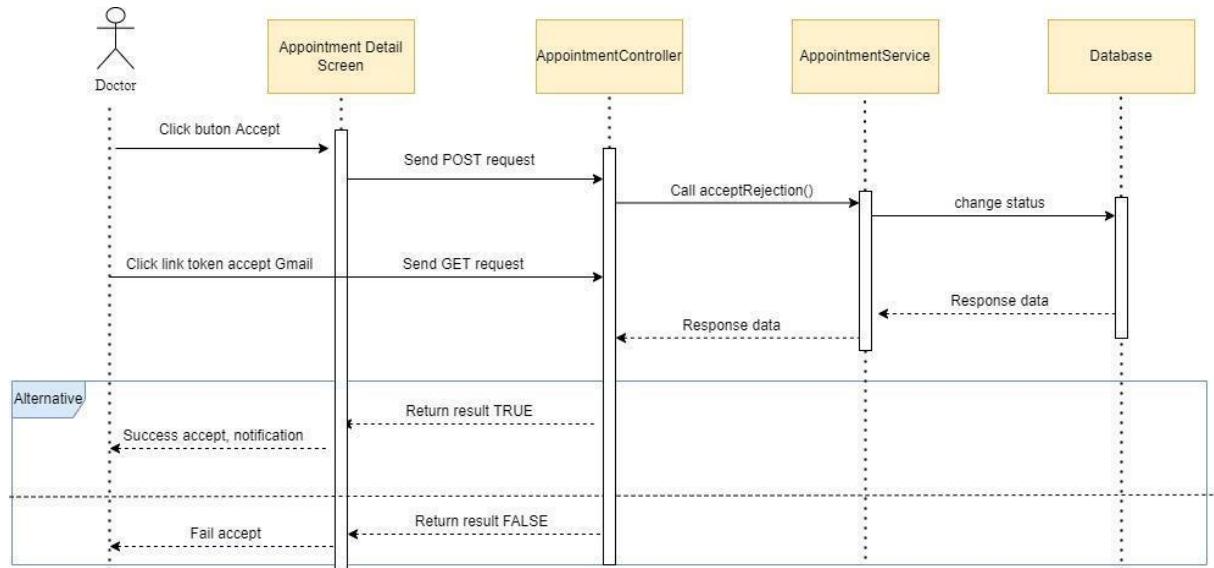


Figure 63: Accepted Reject Appointment Diagram

#### 2. Change schedule

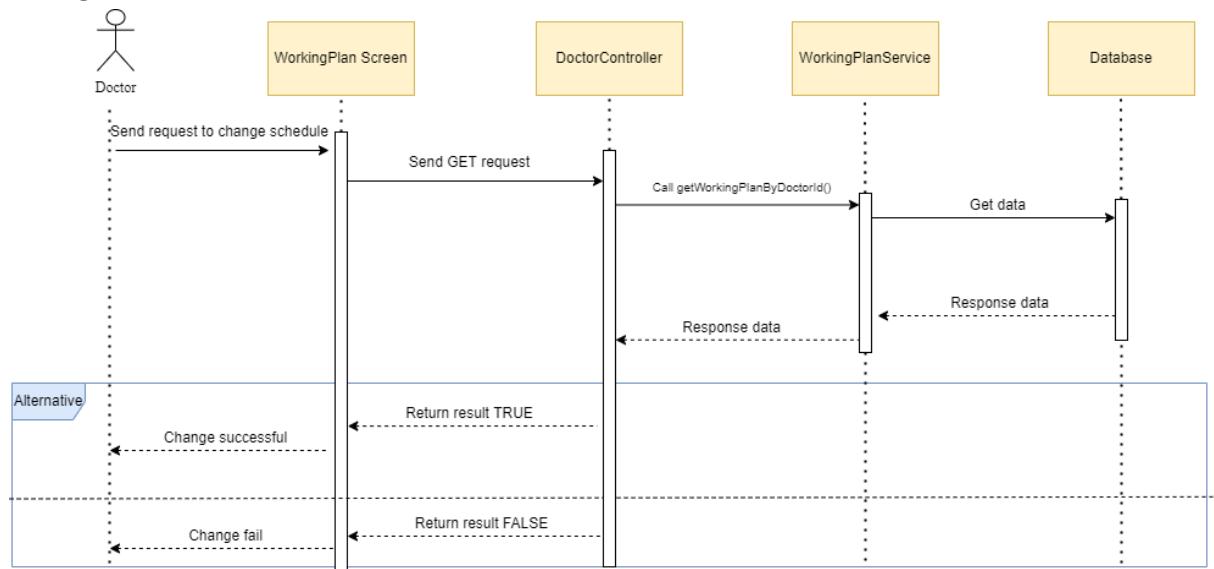


Figure 64: Change Schedule Diagram

### 3. Add result for patient

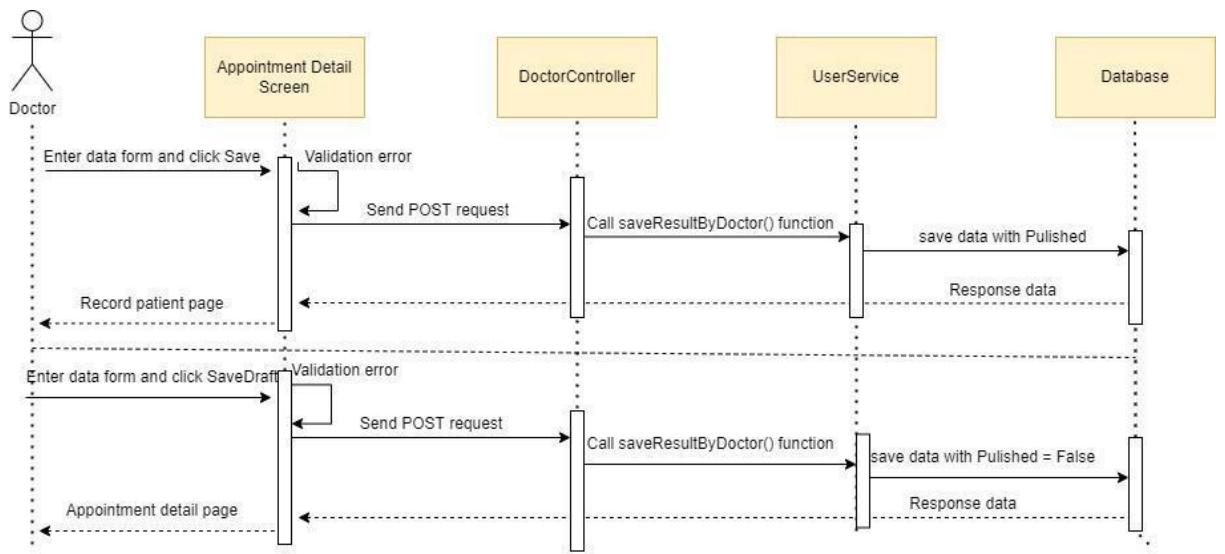


Figure 65: Add Result for Patient Diagram

### 4. Add post

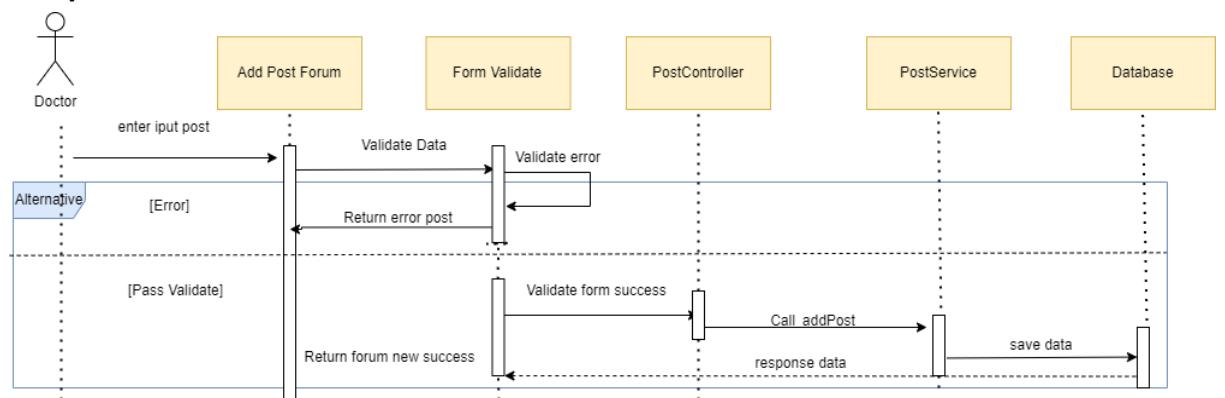


Figure 66: Add Post Diagram

### 3.3.4. Admin

#### 1. Add Doctor

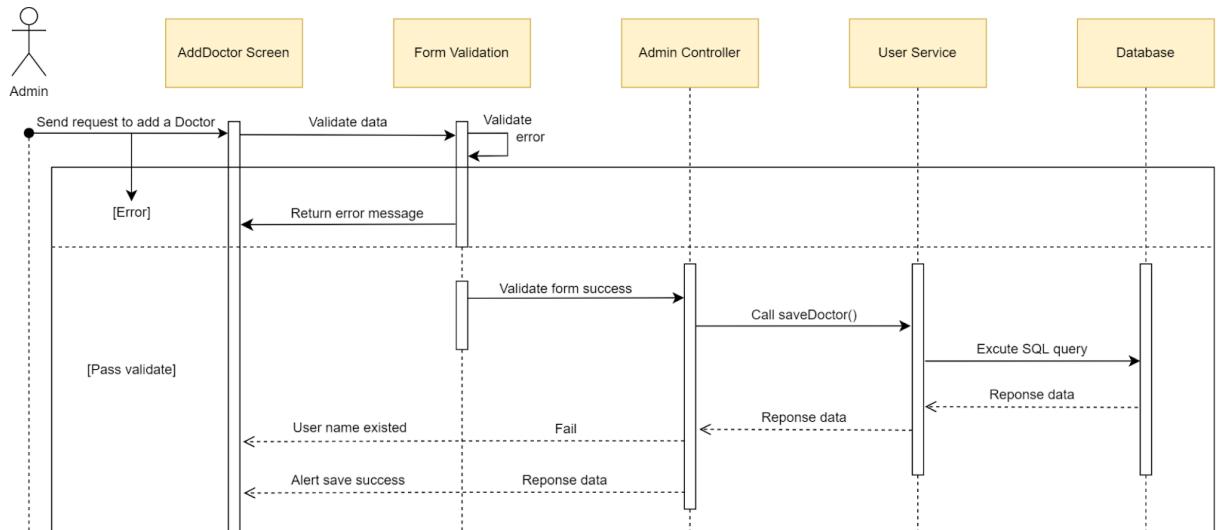


Figure 67: Add Doctor Diagram

#### 2. Update Doctor

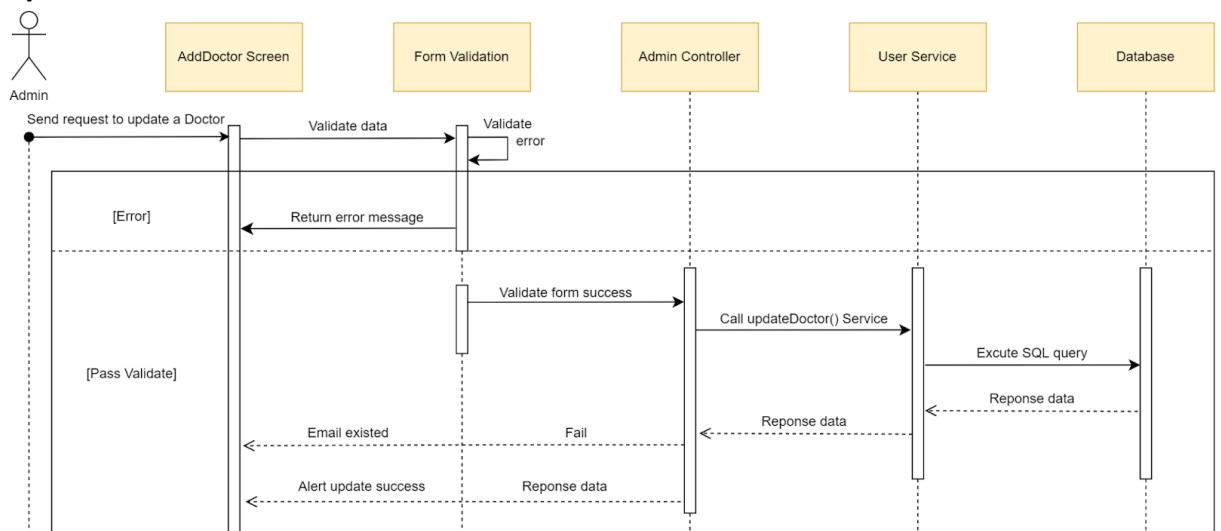


Figure 68: Update Doctor Diagram

### 3. Create Clinic

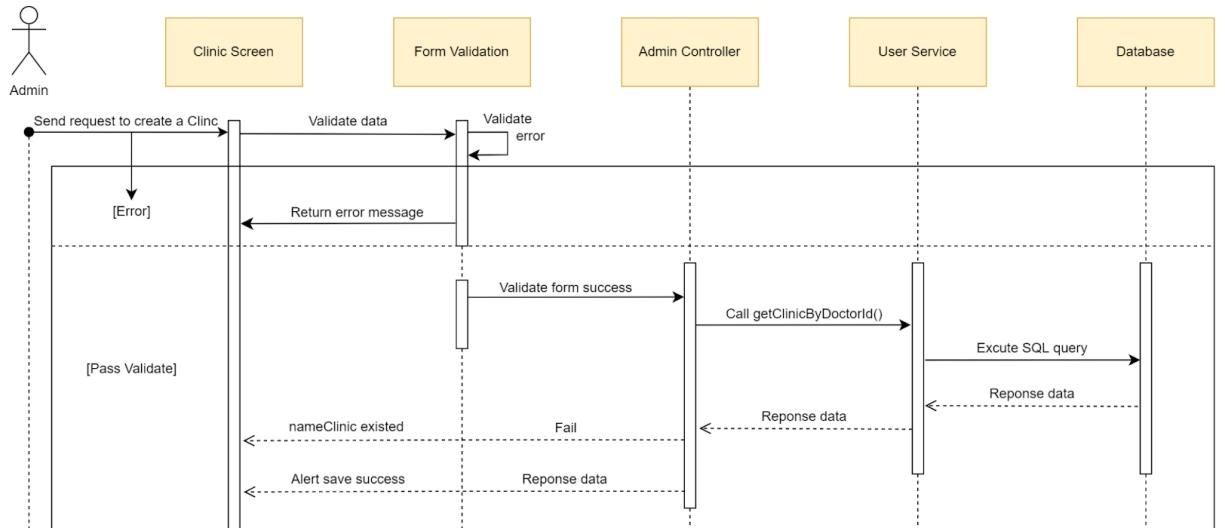


Figure 69: Create Clinic Diagram

### 4. Update Clinic

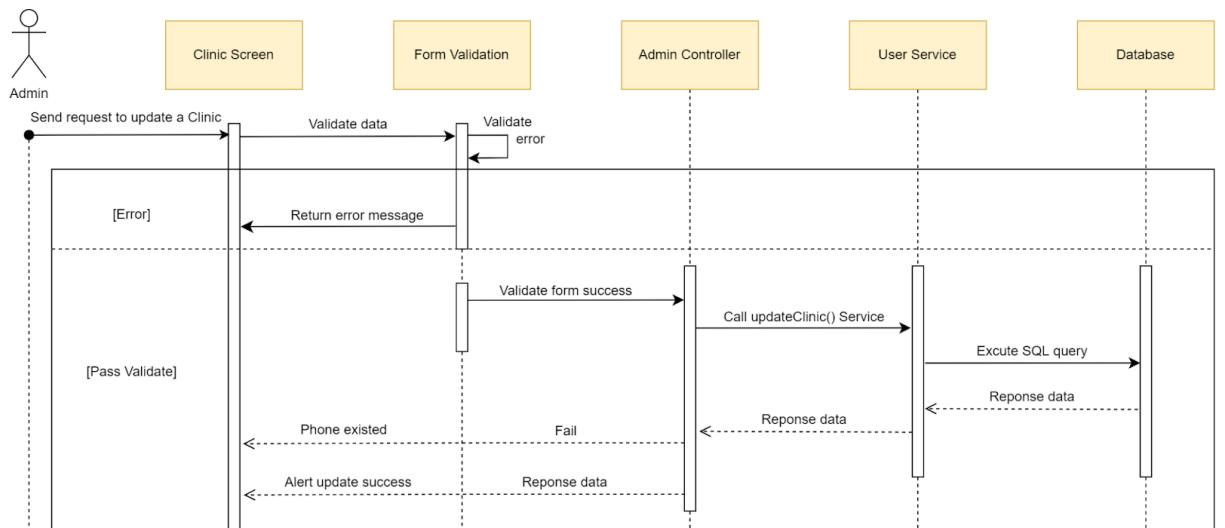
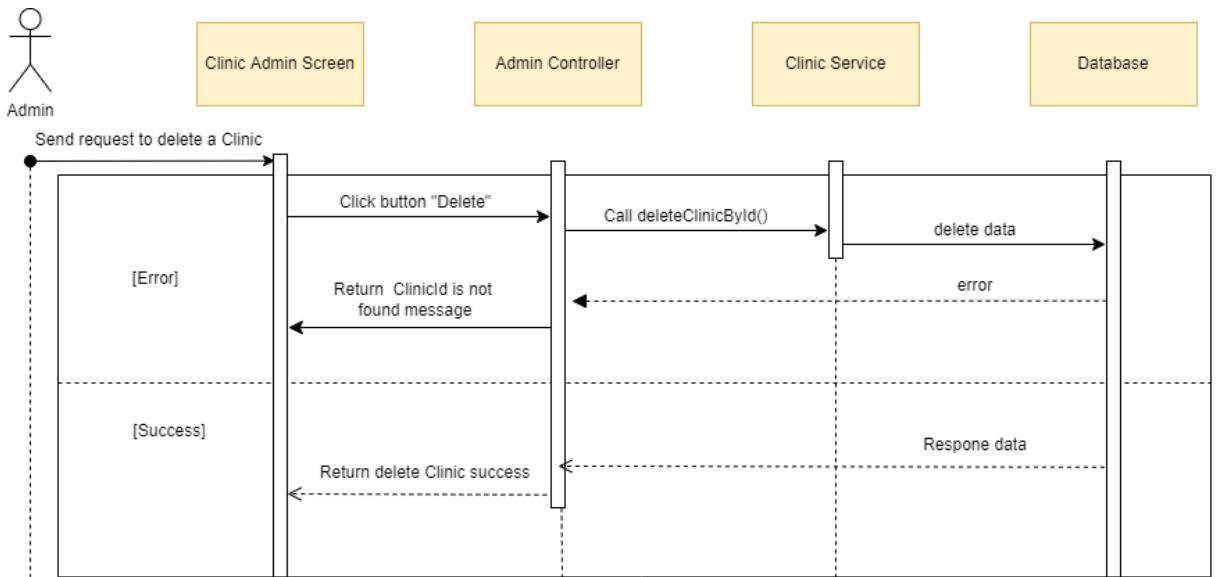


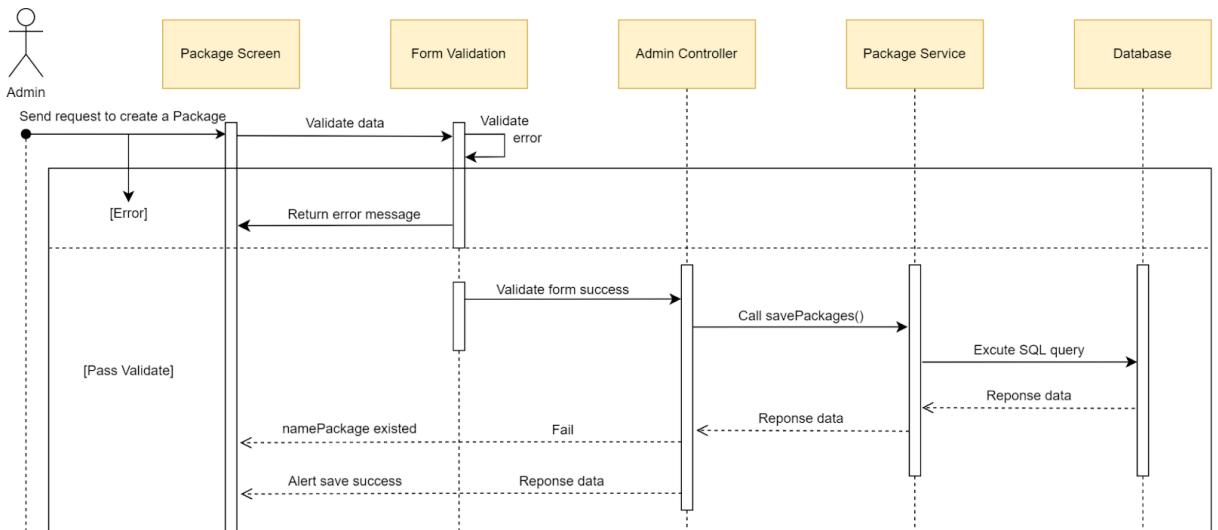
Figure 70: Update Clinic Diagram

## 5. Delete Clinic



**Figure 71: Delete Clinic Diagram**

## 6. Create Package



**Figure 72: Create Package Diagram**

## 7. Update Package

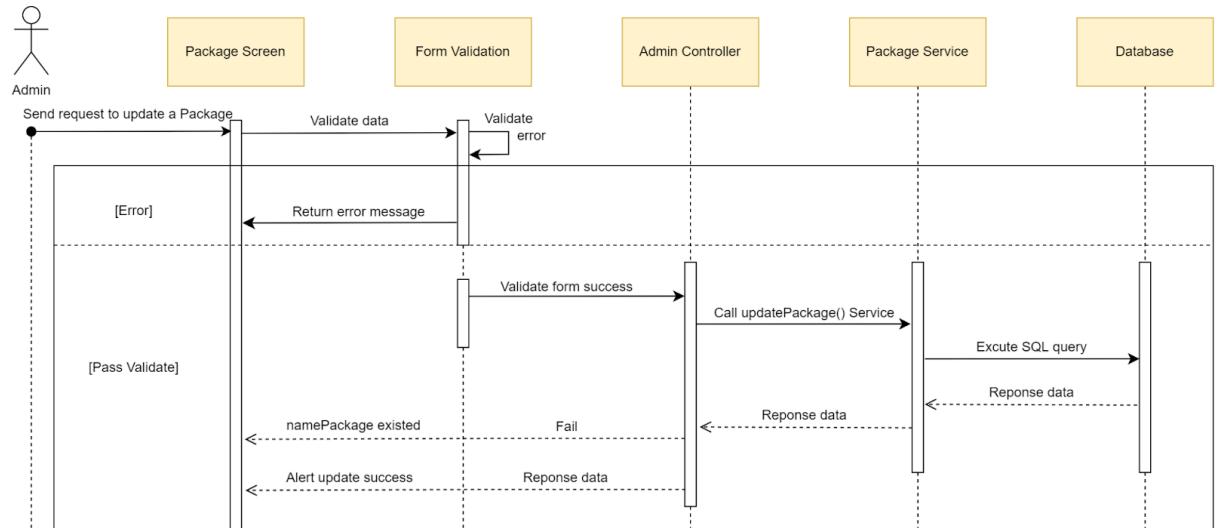


Figure 73: Update Package Diagram

## 8. Delete Package

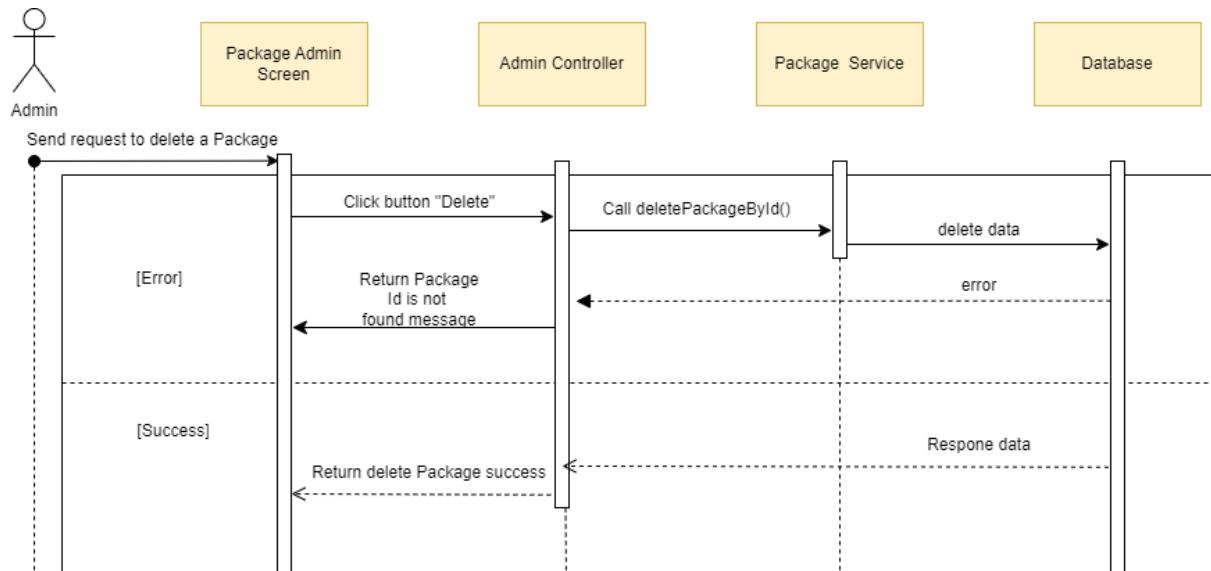


Figure 74: Delete Package Diagram

## 9. Update Patient

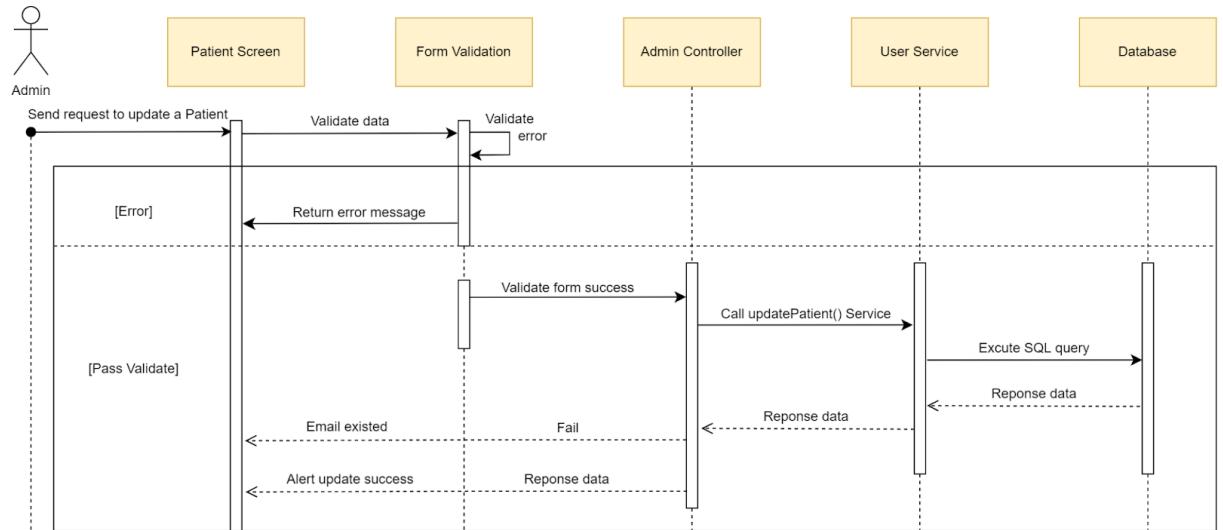


Figure 75: Update Patient Diagram

## 10. Pay Invoice

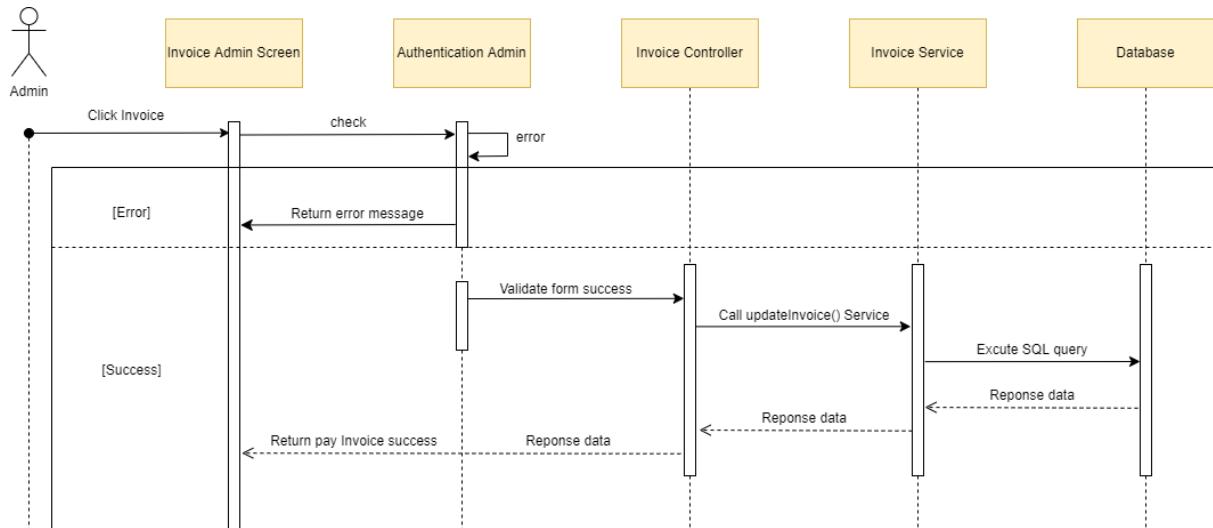


Figure 76: Pay Invoice Diagram

## 11. Invoice appointment

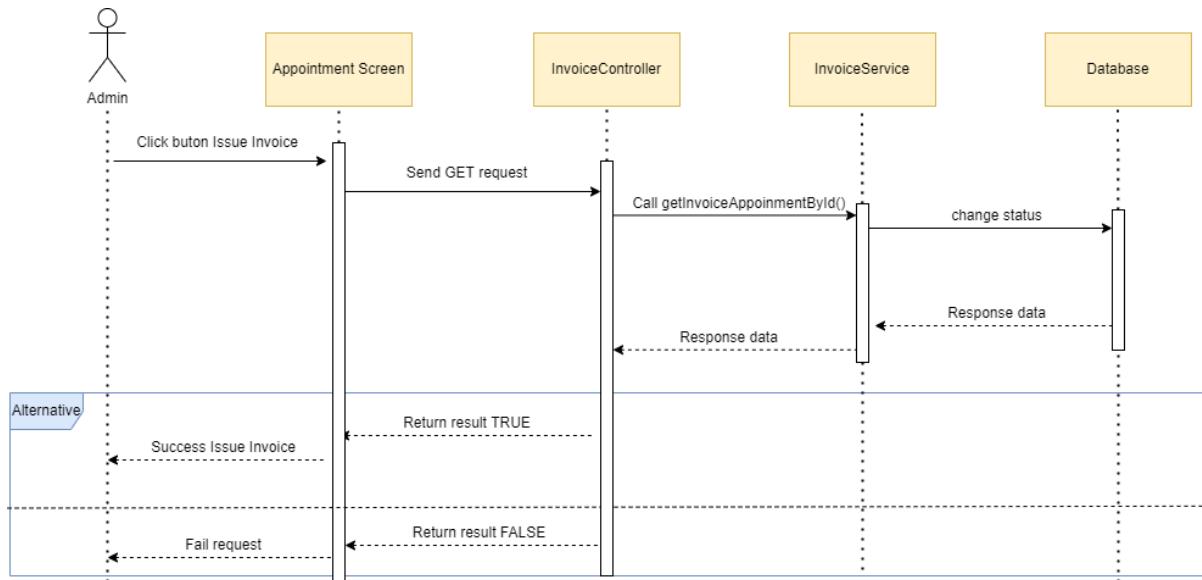


Figure 77: Invoice Appointment Diagram

## 12. Automatically issue invoices

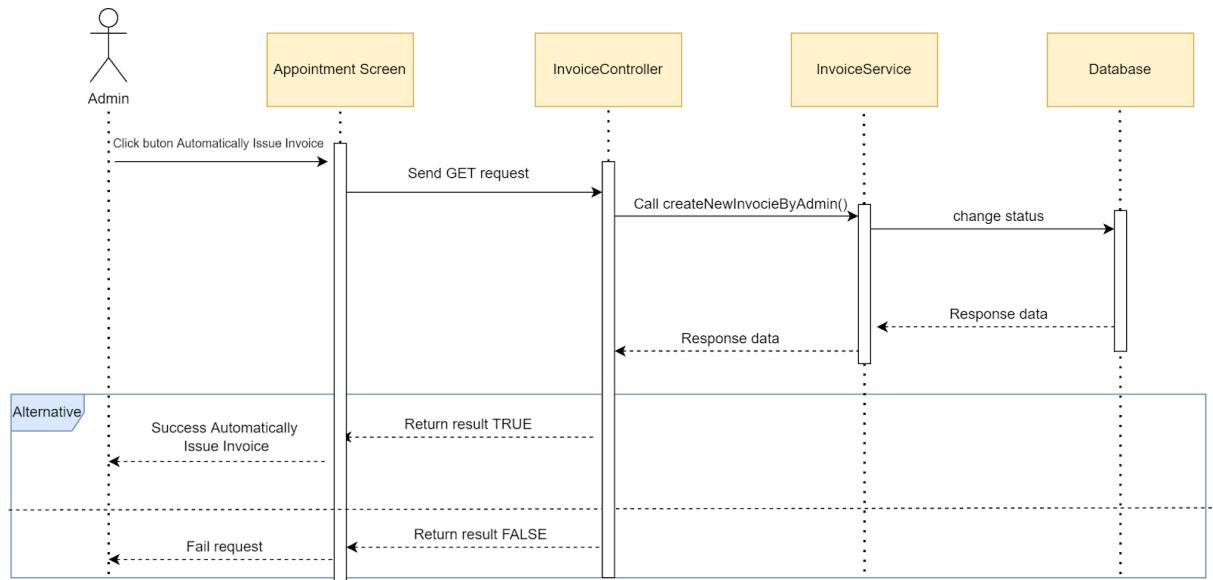
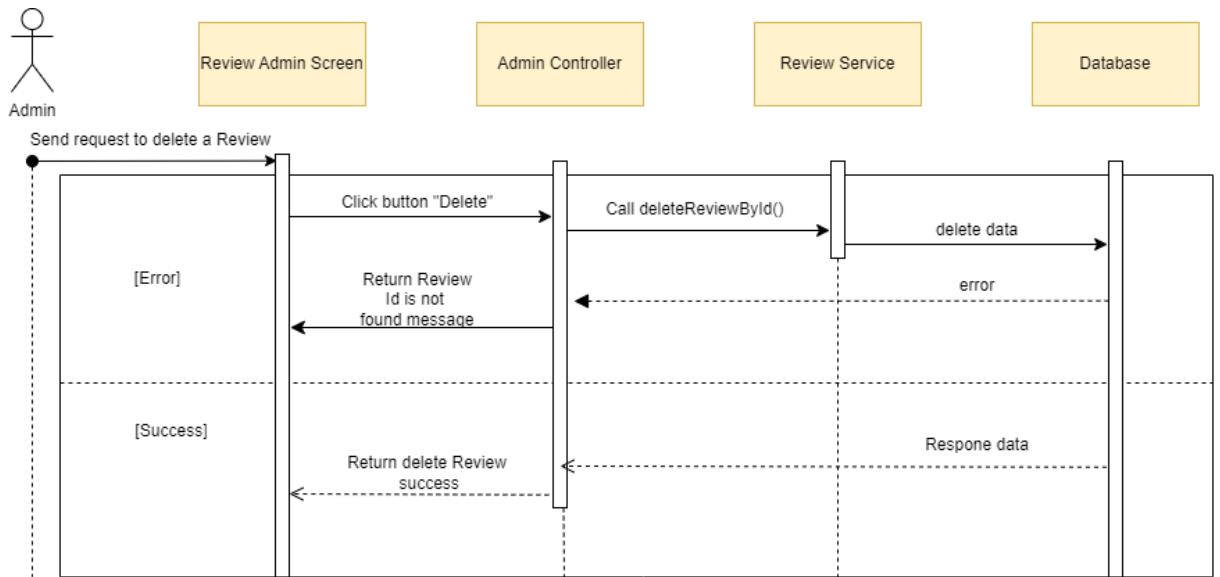


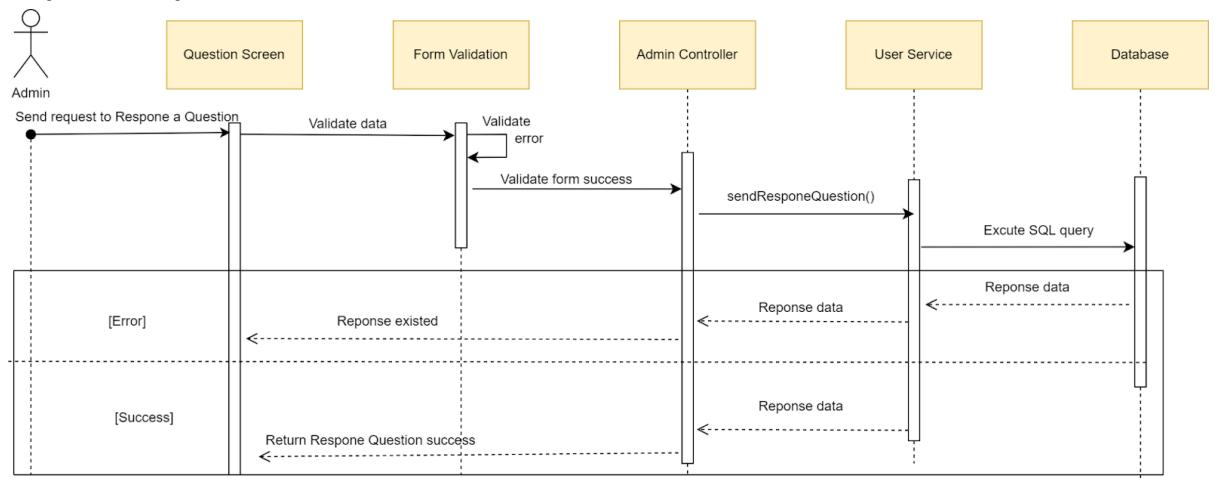
Figure 78: Automatically Issue Invoices Diagram

### 13. Delete review



**Figure 79: Delete Review Diagram**

### 14. Respond to questions

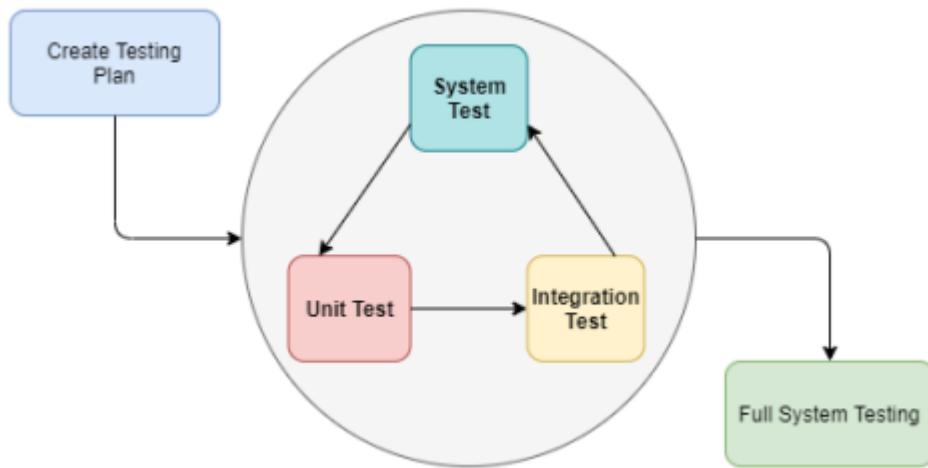


**Figure 80: Respond To Questions Diagram**

## V. Software Testing Documentation

### 1. Scope of Testing

The test model we implemented in this project is the Iterative model. We focus on testing all functions in the system and the user interface of the website. In addition, we also test non-functional as well as test the security and performance of the system



**Figure 81: EasyDoctor Test Model**

## 2. Test Strategy

### 2.1 Testing Types

Below are the test types we implemented in the project:

LEVELS	PURPOSE
Functional Testing	Test cases are created to test for bugs and quality of input and examine the output without considering internal program structure.
Non-Functional Testing	Test for performance, usability, and reliability.
User Interface Testing	Test for bugs and quality of user experience with developed UI systems.
Security Testing	Check all roles and permission of user when using this system
Performance Testing	Testing the latency of the system with a specific amount of user access

### 2.2 Test Levels

Below are the test levels we performed in the project:

ID	Test level	Description
1	Unit testing	Unit testing is a level of software testing where individual units or components of a software are tested. The main purpose of this testing phase is to confirm whether the application functions are coded correctly or not.

2	Integration Testing	Integration testing is a level of software testing where individual units are combined and tested as a group. The purpose of this level of testing is to expose faults in the interaction between integrated units.
2	System testing	System testing is a level of software testing where a complete and integrated software is tested. The purpose of this test is to evaluate the system's compliance with the specified requirements.

Type of Tests	Test Level		
	Unit	Integration	System
Functional Testing	X	X	X
Non-Functional Testing			X
User Interface Testing		X	X
Security Testing	X	X	X

### 3. Test Plan

#### 3.1 Human Resources

Worker/Doer	Role	Specific Responsibilities/Comments
HuyTV	Tester	Create test plan Create Unit Test Cases Execute Unit Test Fix bug
Thang	Tester	Create Integration Test Cases and reports Execute Integration Test Execute System Test Log test report
HuyTPG	Developer	Create Integration Test Cases and reports Execute Unit Test Execute Integration Test Execute System Test
SonCT	Developer	Execute Unit Test Fix bug
LongNQ	Developer	Execute Unit Test Execute Integration Test Fix bug

### 3.2 Test Environment

Purpose	Tool	Provider	Version
Define, writing test cases documents	Excel	Microsoft	1.0
Test case coverage documents	Excel	Microsoft	1.0
Test report documents	Excel	Microsoft	1.0
Non-Functional Testing Tools	Yellow Lab Tools	Open source	
Create test scenario	Selenium IDE	Open source	3.17.2
Reviewing code	Github	Open source	

### 3.3 Test Milestones

Milestone Task	Start Date	End Date
Unit Test	27/06/2022	10/7/2022
Integration Test	15/7/2022	29/7/2022
System Test	31/7/2022	10/8/2022

## 4. Test Cases

We've broken down the test cases in the reports as shown below, please navigate to each report for additional information.

### Unit Test Case:

- Report5\_Unit Test\_User.xls
- Report5\_Unit Test\_Appointment.xls
- Report5\_Unit Test\_Email.xls
- Report5\_Unit Test\_Invoice.xls
- Report5\_Unit Test\_Notification.xls
- Report5\_Unit Test\_Packages.xls
- Report5\_Unit-Test\_Post.xls

### Integration Test Case:

- Report5\_Test-Report\_Patient.xls
- Report5\_Test-Report\_Doctor.xls
- Report5\_Test-Report\_Admin.xls

## 5. Test Reports

### 1. Result of unit test

#### 1.1. Appointment

[Report5\\_Unit Test\\_Appointment.xlsx](#)

## UNIT TEST REPORT

<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctors</i>	<b>Creator</b>	HuyTV					
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, LongNQ					
<b>Document Code</b>	<i>EasyDoctor_Test_Report_vx.x</i>	<b>Issue Date</b>	18/7/2022					
<b>Notes</b>								

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">getAvailableHours</a>	10	0	0	2	3	5	10
2	<a href="#">getAppointmentsByDoctorAtDay</a>	7	0	0	1	6	0	7
3	<a href="#">getAppointmentsByPatientAtDay</a>	7	0	0	1	6	0	7
4	<a href="#">createNewAppointment</a>	2	0	0	1	1	0	2
5	<a href="#">cancelUserAppointmentById</a>	4	0	0	1	3	0	4
6	<a href="#">updateAppointment</a>	3	0	0	1	2	0	3
7	<a href="#">getNumberScheduledAppointmentByUserId</a>	4	0	0	1	3	0	4
8	<a href="#">getNumberCanceledAppointmentByUserId</a>	4	0	0	1	3	0	4
9	<a href="#">isAvailable</a>	10	0	0	2	3	5	10
10	<a href="#">getAllAppointments</a>	3	0	0	1	1	1	3
11	<a href="#">getAppointmentByPatientId</a>	4	0	0	1	3	0	4
12	<a href="#">getAppointmentByDoctorId</a>	4	0	0	1	3	0	4
13	<a href="#">getAppointmentByIdWithAuthorization</a>	4	0	0	1	3	0	4
14	<a href="#">getAppointmentById</a>	4	0	0	1	3	0	4
15	<a href="#">cancelAppointmentByChangeWorkingPlan</a>	3	0	0	0	3	0	3
16	<a href="#">getCancelNotAllowedReason</a>	10	0	0	2	4	3	10
17	<a href="#">getCanceledAppointmentsByPatientIdForCurrentMonth</a>	4	0	0	1	3	0	4
18	<a href="#">isPatientAllowedToRejectAppointment</a>	10	0	0	2	4	3	10
19	<a href="#">isDoctorAllowedToAcceptRejection</a>	10	0	0	2	4	3	10

23	<a href="#">addMessageToAppointmentChat</a>	6	0	0	1	1	4	6
24	<a href="#">getMessagesByAppointmentId</a>	4	0	0	1	3	0	4
25	<a href="#">getActiveUserByAppointment</a>	10	0	0	2	4	3	10
26	<a href="#">updateUserAppointmentsStatuses</a>	7	0	0	2	1	4	7
27	<a href="#">updateAllAppointmentsStatuses</a>	4	0	0	2	1	1	4
28	<a href="#">getConfirmedAppointmentsByPatientId</a>	4	0	0	2	2	0	4
29	<a href="#">isPatientAllowedToReview</a>	10	0	0	2	4	3	10
30	<a href="#">saveReviewByAppointment</a>	6	0	0	1	4	1	6
31	<a href="#">getCountAppointmentByStatus</a>	4	0	0	2	1	1	4

<b>Sub total</b>	<b>185</b>	<b>0</b>	<b>0</b>	<b>43</b>	<b>92</b>	<b>43</b>	<b>185</b>
Test coverage <b>100.00 %</b> Test successful coverage <b>100.00 %</b> Normal case <b>23.24 %</b> Abnormal case <b>49.73 %</b> Boundary case <b>23.24 %</b>							



**Figure 82: Unit Test Appointment**

### 1.2. User

[Report5\\_Unit Test\\_User.xlsx](#)

## UNIT TEST REPORT

<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctors.</i>	<b>Creator</b>	Son
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, LongNQ
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>	18/7/2022
<b>Notes</b>			

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">getAllPatients</a>	4	0	0	2	2	0	4
2	<a href="#">findByEmail</a>	3	0	0	2	1	0	3
3	<a href="#">updatePatient</a>	15	0	0	10	5	0	15
4	<a href="#">updateDoctor</a>	15	0	0	10	5	0	15
5	<a href="#">findByName</a>	3	0	0	1	2	0	3
6	<a href="#">getAllDoctors</a>	3	0	0	1	2	0	3
7	<a href="#">getAllDoctorsBySpecialty</a>	3	0	0	1	2	0	3
8	<a href="#">getUserById</a>	3	0	0	1	2	0	3
9	<a href="#">updateUserPassword</a>	6	0	0	3	3	0	6
10	<a href="#">getAllReviewByDoctorId</a>	3	0	0	1	2	0	3
11	<a href="#">getHistoryByPatientId</a>	3	0	0	1	2	0	3
12	<a href="#">saveCertificationByDoctor</a>	4	0	0	2	2	0	4
13	<a href="#">getFileByField</a>	3	0	0	1	2	0	3
14	<a href="#">getHistoryByAppointmentId</a>	3	0	0	1	2	0	3

<b>Sub total</b>	58	0	0	32	26	0	58
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**Test coverage** 100.00 %  
**Test successful coverage** 100.00 %  
**Normal case** 55.17 %  
**Abnormal case** 44.83 %  
**Boundary case** 0.00 %



+ Guideline ▾ 1 Cover ▾ Functions ▾ Statistics ▾ 1 Function 1 ▾ getAllPatients ▾ findByEmail

**Figure 83: Unit Test User**

### 1.3. Email

[Report5\\_Unit Test\\_Email.xlsx](#)

## UNIT TEST REPORT

Project Name	EasyDoctor An e-health platform that connects patient	Creator	HuyTV
Project Code	EasyDoctor	Reviewer/Approver	HuyTP, LongNQ
Document Code	EasyDoctor_Test Report_vx.x	Issue Date	18/7/2022
Notes			

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">sendEmail</a>	5	0	0	1	3	1	5
2	<a href="#">sendConfirmForgotPassword</a>	4	0	0	2	1	1	4
3	<a href="#">sendRegisterSuccess</a>	4	0	0	1	2	1	4
4	<a href="#">sendNewAppointment</a>	4	0	0	2	1	1	4
5	<a href="#">sendAppointmentCanceledByPatient</a>	4	0	0	0	3	1	4
6	<a href="#">sendAppointmentCanceledByDoctor</a>	4	0	0	2	1	1	4
7	<a href="#">sendAppointmentRejectionRequested</a>	4	0	0	2	1	1	4
8	<a href="#">sendAppointmentRejectionAccepted</a>	4	0	0	1	1	2	4
9	<a href="#">sendAppointmentFinished</a>	4	0	0	2	1	1	4
10	<a href="#">sendInvoice</a>	4	0	0	1	1	2	4
11	<a href="#">sendAppointmentOTPCConfirm</a>	4	0	0	2	1	1	4
<b>Sub total</b>		<b>45</b>	<b>0</b>	<b>0</b>	<b>16</b>	<b>16</b>	<b>13</b>	<b>45</b>

Test coverage 100.00 %

Test successful coverage 100.00 %

Normal case 35.56 %

Abnormal case 35.56 %

Boundary case 28.89 %

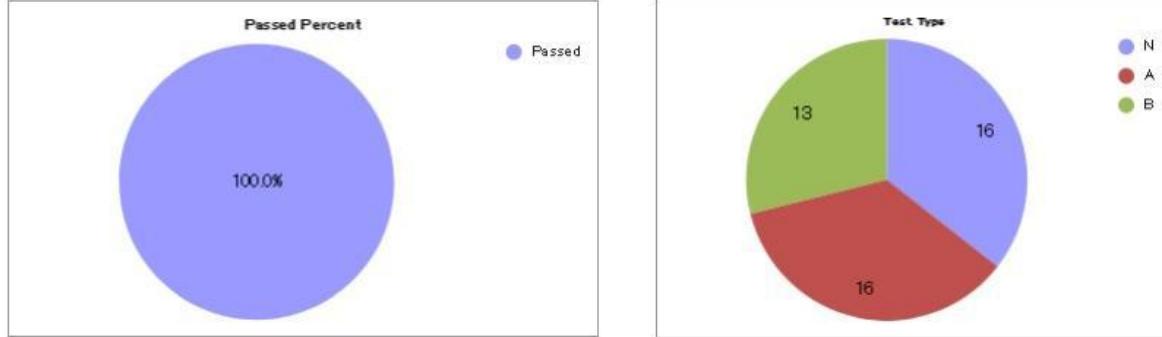


Figure 84: Unit Test Email

### 1.4. Invoice

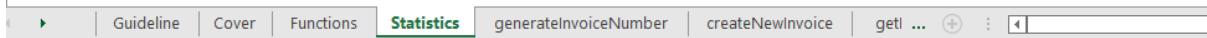
[Report5\\_Unit Test\\_Invoice.xlsx](#)

## UNIT TEST REPORT

<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctors</i>	<b>Creator</b>	HuyTV
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, LongNQ
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>	18/7/2022
<b>Notes</b>			

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">generateInvoiceNumber</a>	4	0	0	1	2	1	4
2	<a href="#">createNewInvoice</a>	4	0	0	2	1	1	4
3	<a href="#">getInvoiceByAppointmentId</a>	4	0	0	2	1	1	4
4	<a href="#">getInvoiceById</a>	4	0	0	0	1	3	4
5	<a href="#">getAllInvoices</a>	4	0	0	1	2	1	4
6	<a href="#">generatePdfForInvoice</a>	4	0	0	1	2	1	4
7	<a href="#">isUserAllowedToDeleteInvoice</a>	4	0	0	1	1	2	4
8	<a href="#">changeInvoiceStatusToPaid</a>	4	0	0	0	2	2	4
9	<a href="#">issueInvoicesForConfirmedAppointments</a>	4	0	0	2	1	1	4
<b>Sub total</b>		<b>36</b>	<b>0</b>	<b>0</b>	<b>10</b>	<b>13</b>	<b>13</b>	<b>36</b>

**Test coverage** 100.00 %  
**Test successful coverage** 100.00 %  
**Normal case** 27.78 %  
**Abnormal case** 36.11 %  
**Boundary case** 36.11 %



**Figure 85: Unit Test Invoice**

### 1.5. Notification

[Report5\\_Unit Test\\_Notation.xlsx](#)

## UNIT TEST REPORT

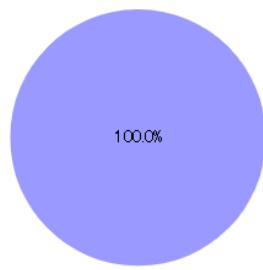
<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctor</i>	<b>Creator</b>	Thang
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, LongNQ
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>	18/7/2022
<b>Notes</b>			

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">newNotification</a>	10	0	0	2	3	5	10
2	<a href="#">markAsRead</a>	10	0	0	2	5	3	10
3	<a href="#">markAllAsRead</a>	4	0	0	1	1	2	4
4	<a href="#">getNotificationById</a>	4	0	0	1	1	2	4
5	<a href="#">getAll</a>	4	0	0	1	1	2	4
6	<a href="#">getUnreadNotifications</a>	4	0	0	1	1	2	4
7	<a href="#">newAppointmentNotification</a>	7	0	0	1	6	0	7
8	<a href="#">appointmentCanceledByPatient</a>	7	0	0	1	6	0	7
9	<a href="#">appointmentCanceledByDoctor</a>	7	0	0	1	6	0	7
10	<a href="#">newAppointmentRejectionRequestedNotification</a>	7	0	0	1	6	0	7
11	<a href="#">newAppointmentRejectionAcceptedNotification</a>	7	0	0	1	6	0	7
12	<a href="#">newAppointmentFinishedNotification</a>	7	0	0	1	6	0	7
13	<a href="#">newInvoice</a>	2	0	0	1	6	0	7
<b>Sub total</b>		<b>85</b>	<b>0</b>	<b>0</b>	<b>15</b>	<b>54</b>	<b>16</b>	<b>85</b>

<b>Sub total</b>	85	0	0	15	54	16	85
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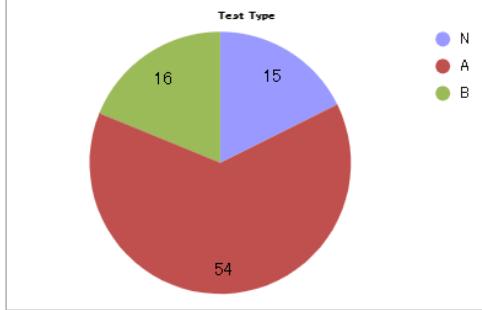
Test coverage  
 Test successful coverage  
 Normal case  
 Abnormal case  
 Boundary case

Passed Percent



Passed

Test Type



● N  
 ● A  
 ● B

+   Guideline   Functions   Cover   Statistics   newNotification   markAsRead   markAllAsRead   markAllAsRead

**Figure 86: Unit Test Notification**

### 1.6. Packages

[Report5\\_Unit Test\\_Packages.xlsx](#)

## UNIT TEST REPORT

<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctors.</i>	<b>Creator</b>	LongNQ
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, Son
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>	18/7/2022
<b>Notes</b>			

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">getPackagesByDoctorId</a>	4	0	0	2	0	4	4
2	<a href="#">getAllPackages</a>	3	0	0	1	1	1	3
3	<a href="#">getPackagesById</a>	4	0	0	1	3	0	4
4	<a href="#">savePackages</a>	6	0	0	1	4	1	6
5	<a href="#">deletePackages</a>	4	0	0	1	3	0	4
<b>Sub total</b>		<b>21</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>11</b>	<b>6</b>	<b>21</b>

Test coverage **100.00 %**  
 Test successful coverage **100.00 %**  
 Test successful coverage **28.57 %**  
 Abnormal case **52.38 %**  
 Boundary case **28.57 %**



**Figure 87: Unit Test Package**

### 1.7. Post

[Report5\\_Unit Test\\_Post.xlsx](#)

# UNIT TEST REPORT

<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctors.</i>	<b>Creator</b>	HuyTV
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, LongNQ
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>	18/7/2022
<b>Notes</b>			

No	Function code	Passed	Failed	Untested	N	A	B	Total Test Cases
1	<a href="#">getListPost</a>	5	0	0	4	1	0	5
2	<a href="#">deletePost</a>	4	0	0	1	2	1	4
3	<a href="#">updatePost</a>	5	0	0	1	2	2	5
4	<a href="#">addPost</a>	7	0	0	1	4	2	7
5	<a href="#">getComment</a>	3	0	0	1	1	1	3
6	<a href="#">handleLike</a>	4	0	0	2	2	0	4
7	<a href="#">isLike</a>	7	0	0	1	4	2	7
<b>Sub total</b>		<b>35</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>10</b>	<b>6</b>	<b>35</b>

Test coverage **100.00 %**  
 Test successful coverage **100.00 %**  
 Normal case **22.86 %**  
 Abnormal case **28.57 %**  
 Boundary case **17.14 %**



**Figure 88: Unit Test Post**

## 2. Result of integration test

### 2.1. Patient

[Report5\\_Test Report\\_Patient.xlsx](#)

## TEST STATISTICS

<b>Project Name</b>	<i>EasyDoctor An e-health platform that connects patients and doctors.</i>	<b>Creator</b>	ThangPHC
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>	HuyTP, SonCT
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>	10/7/2022
<b>Notes</b>			

No	Module code	Passed	Failed	Pending	N/A	Number of test cases
1	<a href="#">Login</a>	5	0	0	0	5
2	<a href="#">Register</a>	3	0	0	0	3
3	<a href="#">Reset password</a>	5	0	0	0	5
4	<a href="#">View profile</a>	1	0	0	0	1
5	<a href="#">Edit profile</a>	3	0	0	0	3
6	<a href="#">Change password</a>	3	0	0	0	3
7	<a href="#">List doctor</a>	1	0	0	0	1
8	<a href="#">Update declaration</a>	1	0	0	0	1
9	<a href="#">Search name and</a>	2	0	0	0	2
10	<a href="#">Detail doctor</a>	1	0	0	0	1
11	<a href="#">List review</a>	1	0	0	0	1
12	<a href="#">Choose doctor</a>	1	0	0	0	1
13	<a href="#">Choose packages</a>	1	0	0	0	1
14	<a href="#">Choose time</a>	1	0	0	0	1
15	<a href="#">List appointment</a>	2	0	0	0	2
16	<a href="#">Detail appointment</a>	1	0	0	0	1

18	Reject appointment	1	0	0	0	1
19	Review doctor	1	0	0	0	1
20	Chat realtime	2	0	0	0	2
21	Download QR	1	0	0	0	1
22	Download invoice(note)					
23	View medical record	1	0	0	0	1
24	List post	1	0	0	0	1
25	Add/edit post	2	0	0	0	2
26	Comment post	1	0	0	0	1
27	Like post	2	0	0	0	2
28	Follow doctor	1	0	0	0	1
29	List notification	2	0	0	0	2
30	Read notification	2	0	0	0	2
<b>Sub total</b>		<b>50</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>50</b>

Test coverage **100.00 %**  
 Test successful coverage **100.00 %**

**Figure 89: Integration Test Patient**

## 2.2. Doctor

[Report5\\_Test Report\\_Docor.xlsx](#)

TEST STATISTICS						
No	Module code	Passed	Failed	Pending	N/A	Number of test cases
1	Login	5	0	0	0	5
2	Forgot password	3	0	0	0	3
3	Logout	1	0	0	0	1
4	Edit profile	3	0	0	0	3
5	Change password	5	0	0	0	5
6	Change of work schedule	1	0	0	0	1
7	List appointment	2	0	0	0	2
8	View statistics	1	0	0	0	1
9	View detail appointment	1	0	0	0	1
10	Add medical examination results	2	0	0	0	2
11	Cancel appointment	1	0	0	0	1
12	Reject appointment	1	0	0	0	1
13	Chat realtime	2	0	0	0	2
14	View calendar	1	0	0	0	1
15	View medical record	1	0	0	0	1
16	List post	2	0	0	0	2
17	Add/edit post	2	0	0	0	2
18	Comment post	1	0	0	0	1
19	Like post	1	0	0	0	1
20	List notification	2	0	0	0	2
21	Read notification	1	0	0	0	1
<b>Sub total</b>		<b>39</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>39</b>

Test coverage	<b>100.00 %</b>
Test successful coverage	<b>100.00 %</b>

**Figure 90: Integration Test Doctor**

## 2.3. Admin

[Report5\\_Test Report\\_Admin.xlsx](#)

## TEST STATISTICS

<b>Project Name</b>	<i>EasyDoctor An e-health platform that can</i>	<b>Creator</b>		<b>LongLQ</b>
<b>Project Code</b>	<i>EasyDoctor</i>	<b>Reviewer/Approver</b>		<b>LongLQ, HuyTPG</b>
<b>Document Code</b>	<i>EasyDoctor_Test Report_vx.x</i>	<b>Issue Date</b>		<i>10/7/2022</i>
<b>Notes</b>				

No	Module code	Passed	Failed	Pending	N/A	Number of test cases
1	Login	5	0	0	0	5
2	Logout	1	0	0	0	1
3	View profile	1	0	0	0	1
4	View packages	1	0	0	0	1
5	Add packages	3	0	0	0	3
6	Edit packages	3	0	0	0	3
7	Delete packages	1	0	0	0	1
8	View Clinic	1	0	0	0	1
9	Add Clinic	3	0	0	0	3
10	Edit Clinic	3	0	0	0	3
11	Delete Clinic	1	0	0	0	1
12	View Doctor	1	0	0	0	1
13	Add Doctor	3	0	0	0	3
14	Edit Doctor	3	0	0	0	3
15	Delete Doctor	1	0	0	0	1
16	View Patient	1	0	0	0	1
17	Edit Patient	3	0	0	0	3

18	Delete Patient	1	0	0	0	1
19	View Appointment	1	0	0	0	1
20	Delete Appointment	1	0	0	0	1
21	View Question	1	0	0	0	1
22	Delete Question	1	0	0	0	1
23	View Invoice	1	0	0	0	1
24	Delete Invoice	1	0	0	0	1
25	View Review	1	0	0	0	1
26	Delete review	1	0	0	0	1
27	Report patient					
28	Report clinic					
<b>Sub total</b>		<b>44</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>44</b>

Test coverage **100.00 %**  
 Test successful coverage **100.00 %**

**Figure 91: Integration Test Admin**

### 3. Result of system test

#### 3.1. Framework and software:

(Google Chrome, Selenium IDE)

Selenium IDE (Integrated Development Environment) is primarily a record/run tool that a test case developer uses to develop Selenium Test cases. Selenium IDE is an easy-to-use tool from the Selenium Test Suite and can even be used by someone new to developing automated test cases for their web applications.

<https://drive.google.com/drive/folders/190mQLteRrzMOPaTihhmZgZ0-bhpD222N>

Selenium IDE - EasyDoctor\_Testing\_GiaHuy

Project: EasyDoctor\_Testing\_GiaHuy

Tests + ⌂ Run current test Ctrl+R jointments/10

Command	Target	Value
✓ open	http://localhost:8080/appointments/10	
✓ set window size	1382x744	
✓ click	id=message	
✓ type	id=message	chat tại đây
✓ send keys	id=message	\$(KEY_ENTER)
✓ type	id=message	nhập thêm tại đây
✓ send keys	id=message	\$(KEY_ENTER)

✓ Chat appointment

Download QR  
Download invoice  
Request reject-01  
Review doctor-01  
Review doctor-02

Log Reference

4. type on id=message with value chat tại đây OK  
5. sendKeys on id=message with value \$(KEY\_ENTER) OK  
6. type on id=message with value nhập thêm tại đây OK  
7. sendKeys on id=message with value \$(KEY\_ENTER) OK  
'Chat appointment' completed successfully

16:02:24  
16:02:25  
16:02:27  
Go to Settings to activate Windows 16:02:28  
16:02:30

**Figure 92: Selenium IDE of Gia Huy**

Selenium IDE - TruongVanHuy\_Testing

Project: TruongVanHuy\_Testing

Tests + ⌂ Run current test Ctrl+R https://easydoctors.herokuapp.com/doctors/2?currentVersion=1.0.0

Command	Target	Value
1 open	https://easydoctors.herokuapp.com/doctors/all	
2 set window size	933x889	
3 click	xpath=/button[@type='button'][2]	
4 click	id=blood	
5 select	id=blood	label=A
6 click	id=background	
7 select	id=background	label=Huyết áp
8 click	id=medicine	
9 type	id=medicine	có
10 click	id=symptom	

Command open  
Target https://easydoctors.herokuapp.com/doctors/all  
Value  
Description

Log Reference



**Figure 92: Selenium IDE of Vẳn Huy**

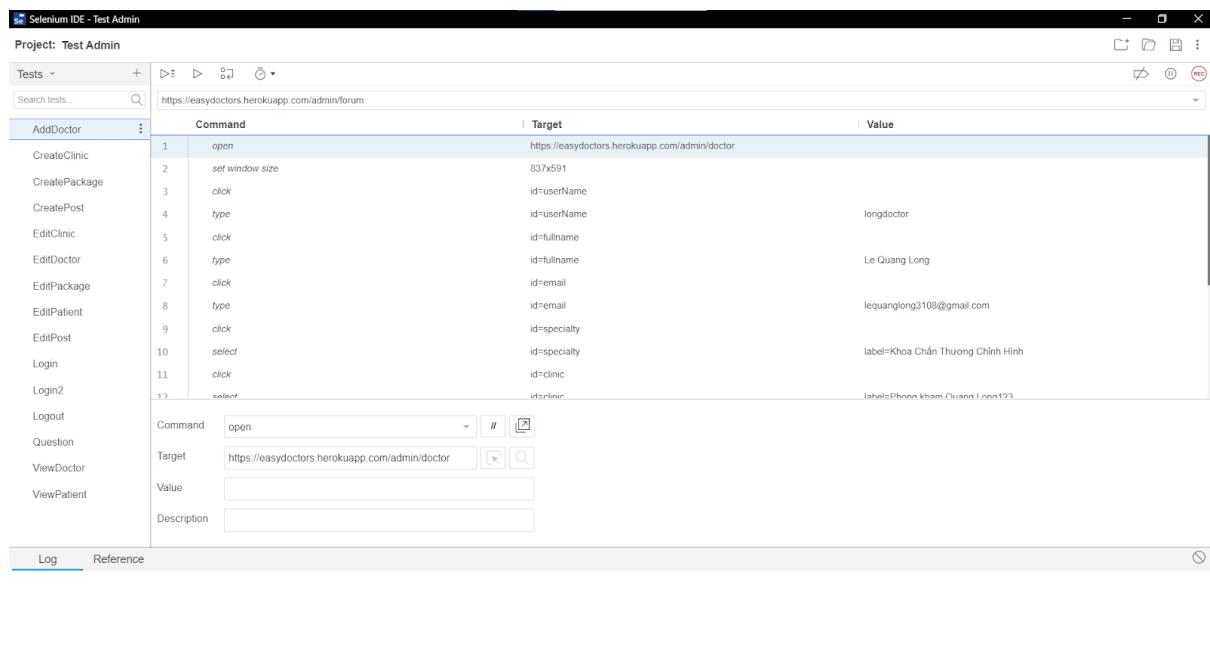


Figure 93: Selenium IDE of Quang Long

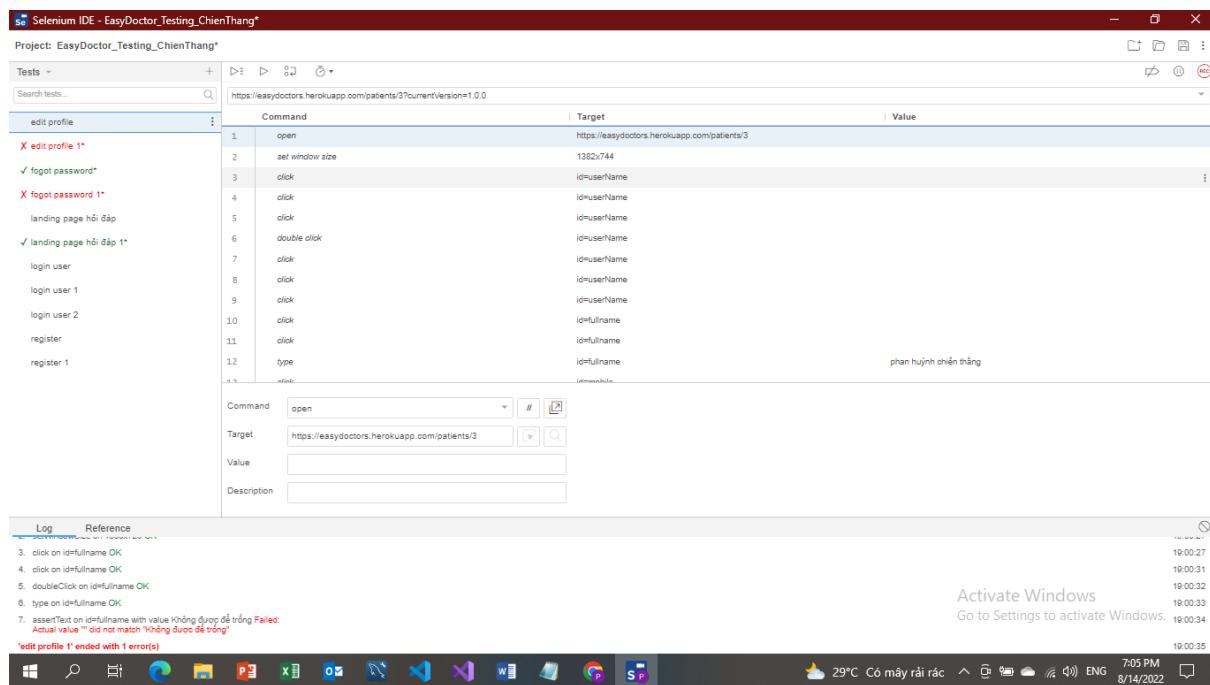


Figure 94: Selenium IDE of Chiến Thắng

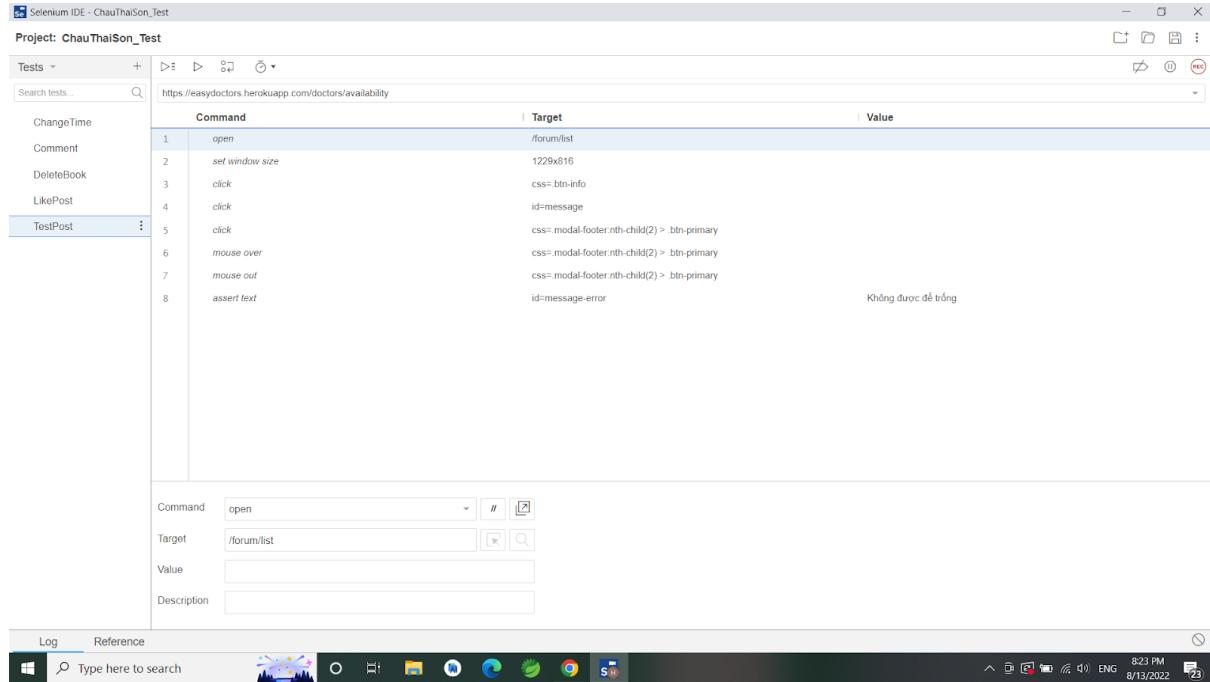


Figure 95: Selenium IDE of Thái Sơn

### 3.2. Tester

This is the excel file that our team has done to find the error is recorded [here](#).

D21	A	B	C	D	E	F	G	H	I
STT	Feature	Error (Bug)	Fix bug	Who	Time	PIC	Status		
1	QR	chỗ cái QR code này thêm chủ thích vào nhé	đã thêm vào	HuyTPG	2022-07-30	ThaoHT	COMPLETE		
2		Lỗi ngôn từ	<a href="#">Lỗi ngôn từ</a>	HuyTV	2022-08-01	HuyTPG	COMPLETE		
3		Lỗi fe	<a href="#">Lỗi fe</a>	ThangPHC	2022-08-01	All	COMPLETE		
4	Quên mật khẩu	token xác nhận bị null	đo quen insert token khi test	ThangPHC	2022-08-01	ThaoHT	COMPLETE		
5	Quên mật khẩu	vẫn còn tiếng anh	ok đã đổi sang tiếng việt	LongLQ	2022-08-02	ThaoHT	COMPLETE		
6	CHI TIẾT CUỘC HỘ	<a href="#">patient null</a>	đo chưa cập nhật lúc mới đăng ký	HuyTPG	2022-08-02	ThaoHT	COMPLETE		
7	dắt doctor	ko có time	lỗi khi tạo mới bác sĩ	HuyTPG	2022-08-03	ThangPHC	COMPLETE		
8		<a href="#">phải cập nhật địa chỉ clinic lúc mới chèn</a>	ok để minh thêm và	LongLQ	2022-08-04	HuyTV	COMPLETE		
9	thay đổi lịch	<a href="#">sao lỗi vầy</a>	chắc do thiết dự liệu bị null á	LongLQ	2022-08-04	SonCT	COMPLETE		
10	forum	<a href="#">lỗi hình ảnh</a>	đo để folder ở trong project	HuyTPG	2022-08-05	SonCT	COMPLETE		
11		cuộc hẹn		LongLQ	2022-08-05	LongLQ	COMPLETE		
12	Forum	Click vào tên bác sĩ ở forum bị đăng xuất ra trang login	OK Biết lỗi rồi	HuyTV	2022-08-06	ThangPHC	COMPLETE		
13	Forum	Ảnh bìa đăng ở forum chưa load lên được, load lần 2 mới được		HuyTV	2022-08-06	LongLQ	COMPLETE		
14	Notification	Thông báo xuất hóa đơn chưa xem được	<a href="#">xuất hóa đơn</a>	HuyTV	2022-08-06	LongLQ	COMPLETE		
15	Forum	Tổng số like hiển thị số âm	<a href="#">like âm</a>	HuyTV	2022-08-06	LongLQ	COMPLETE		
16	Forum	Click vào tên bác sĩ ở phần comment bài viết chưa dẫn đến được trang tok hiểu để minh fix lại		HuyTV	2022-08-06	LongLQ	COMPLETE		
17	Admin	duration validation ở admin bị sai	okfix nhé	SonCT	2022-08-07	LongLQ	COMPLETE		
18		nút xem chi tiết bác sĩ bị logout ra ở admin doctor	OK FIX RỒI NHÉ	ThangPHC	2022-08-07	HuyTPG	COMPLETE		
19	Forum	Nhấn like nhưng không thấy thay đổi số lượng like	anh son nhận task nhé	ThangPHC	2022-08-08	ThangPHC	COMPLETE		
20	Đặt bác sĩ	Lỗi mã QR	<a href="#">S</a>	ThangPHC	2022-08-09	ThangPHC	COMPLETE		
21	Forum	Không load ảnh	aanh on fix sang ổ D nhé	SonCT	2022-08-10	SonCT	COMPLETE		
22		Comment không được	Đã fix	ThangPHC	2022-08-10	ThangPHC	COMPLETE		
23	Forum								

Figure 96: List test of tester

### 3.3. Tool testing front end : Yellow Lab Tools

[Yellow Lab Tools - Công cụ kiểm thử phi chức năng](#)

Yellow Lab Tools is an open source project by Gaël Métais. It allows you to test a webpage (via an URL) and detects performance and front-end code quality issues. It is based on Phantomjs, a tool that instruments Chrome Headless to collect dozens of metrics. These metrics are then categorised and

transformed into scores. It also provides in-depth details so that developers can fix the detected issues.

<https://yellowlab.tools/>



Figure 97: Yellow Lab Tools

Score details			
<b>F</b>	Page weight	Total weight	17.7 MB ▲▲▲
		Image optimization	614 KB ▲▲
		Oversized images	14 ▲
		Gzip/Brotli compression	391 KB
		File minification	5.2 KB
<b>B</b>	Requests	Requests number	59
		Different domains	6
		404 not found	1 ▲
		Identical content	0
		Empty requests	0
		Below the fold images	13
		Hidden images	14
<b>A</b>	DOM complexity	DOM elements count	528
		DOM max depth	14
		Number of iframes	0
		IDs duplicated	1
<b>A</b>	JS complexity	Total JS execution time	89 ms
		DOM access	64
		Scroll events bound	1
<b>A</b>	Bad JS	JavaScript errors	1
		document.write calls	0
		Synchronous Ajax requests	0
		Global variables	34

C	jQuery	<table border="1"> <tr><td>●</td><td>jQuery version</td><td>1.9.1</td></tr> <tr><td>●</td><td>Several jQuery loaded</td><td>1</td></tr> </table>	●	jQuery version	1.9.1	●	Several jQuery loaded	1																								
●	jQuery version	1.9.1																														
●	Several jQuery loaded	1																														
B	CSS complexity	<table border="1"> <tr><td>●</td><td>Rules count</td><td>4342</td></tr> <tr><td>●</td><td>Complex selectors</td><td>68</td></tr> <tr><td>●</td><td>Colors count</td><td>236</td></tr> <tr><td>●</td><td>Similar colors</td><td>13</td></tr> <tr><td>●</td><td>Breakpoints count</td><td>10</td></tr> <tr><td>●</td><td>Not mobile-first media queries</td><td>30</td></tr> </table>	●	Rules count	4342	●	Complex selectors	68	●	Colors count	236	●	Similar colors	13	●	Breakpoints count	10	●	Not mobile-first media queries	30												
●	Rules count	4342																														
●	Complex selectors	68																														
●	Colors count	236																														
●	Similar colors	13																														
●	Breakpoints count	10																														
●	Not mobile-first media queries	30																														
E	Bad CSS	<table border="1"> <tr><td>●</td><td>CSS syntax error</td><td>0</td></tr> <tr><td>●</td><td>Uses of @import</td><td>0</td></tr> <tr><td>●</td><td>Duplicated selectors</td><td>21</td></tr> <tr><td>●</td><td>Duplicated properties</td><td>31</td></tr> <tr><td>●</td><td>Empty rules</td><td>0</td></tr> <tr><td>●</td><td>Uses of !important</td><td>3892 ▲▲</td></tr> <tr><td>●</td><td>Old IE fixes</td><td>0</td></tr> <tr><td>●</td><td>Old prefixes</td><td>534 ▲</td></tr> <tr><td>●</td><td>Redundant body selectors</td><td>0</td></tr> <tr><td>●</td><td>Redundant tags selectors</td><td>0</td></tr> </table>	●	CSS syntax error	0	●	Uses of @import	0	●	Duplicated selectors	21	●	Duplicated properties	31	●	Empty rules	0	●	Uses of !important	3892 ▲▲	●	Old IE fixes	0	●	Old prefixes	534 ▲	●	Redundant body selectors	0	●	Redundant tags selectors	0
●	CSS syntax error	0																														
●	Uses of @import	0																														
●	Duplicated selectors	21																														
●	Duplicated properties	31																														
●	Empty rules	0																														
●	Uses of !important	3892 ▲▲																														
●	Old IE fixes	0																														
●	Old prefixes	534 ▲																														
●	Redundant body selectors	0																														
●	Redundant tags selectors	0																														
F	Web fonts	<table border="1"> <tr><td>●</td><td>Webfonts number</td><td>15 ▲▲</td></tr> <tr><td>●</td><td>Overweighted webfonts</td><td>0 bytes</td></tr> <tr><td>●</td><td>Unused Unicode ranges</td><td>14 ▲</td></tr> <tr><td>●</td><td>WOFF 2</td><td>0 bytes</td></tr> </table>	●	Webfonts number	15 ▲▲	●	Overweighted webfonts	0 bytes	●	Unused Unicode ranges	14 ▲	●	WOFF 2	0 bytes																		
●	Webfonts number	15 ▲▲																														
●	Overweighted webfonts	0 bytes																														
●	Unused Unicode ranges	14 ▲																														
●	WOFF 2	0 bytes																														
C	Server config	<table border="1"> <tr><td>●</td><td>HTTP protocols</td><td>35</td></tr> <tr><td>●</td><td>TLS protocols</td><td>1</td></tr> <tr><td>●</td><td>Connections closed</td><td>0</td></tr> <tr><td>●</td><td>Caching not specified</td><td>0</td></tr> <tr><td>●</td><td>Caching disabled</td><td>37 ▲</td></tr> </table>	●	HTTP protocols	35	●	TLS protocols	1	●	Connections closed	0	●	Caching not specified	0	●	Caching disabled	37 ▲															
●	HTTP protocols	35																														
●	TLS protocols	1																														
●	Connections closed	0																														
●	Caching not specified	0																														
●	Caching disabled	37 ▲																														

Ac  
Go

## VI. Release Package & User Guides

### 1. Deliverable Package

No.	Deliverable Item	Description
1	Project Schedule	
2	Source Codes	<a href="#">EasyDoctor</a>
3	<a href="#">Documents</a>	
3.1	Introduction	Report1_Project Introduction.docx
3.2	Management plan	Report2_Project Management Plan.docx
3.3	Requirement	Report3_Software Requirement Specification.docx
3.4	Software design	Report4_Software Design Document.docx
3.5	Testing document	Report5_Test Documentation.docx
3.6	User Guides	Report6_Software User Guides.docx
3.7	Final Project Document	Report7_Final Project Report.docx

### 2. Installation Guides

#### 2.1 System Requirements

##### 2.1.1. Hardware requirement

Name	Name/ Version	Description

Internet Connection	Wifi	Wifi and Cable (20 Mbps or more)
Operating System	Window 10	Operating system and platform for development/production
Computer Processor	Intel® CoreTM i5 Processors	
Computer Memory	>= 4GB	Minimum memory to store
Storage space	>= 128 GB SSD	Storage to run application

### ***2.1.2. Software requirement***

Name	Name/ Version	Description
Operating System	Window 10	Operating system and platform for development/production
Modelling Tool	<a href="https://draw.io/">https://draw.io/</a>	Used to design diagrams
IDE	Visual Studio Code 2019, Eclipse 2019	Code editor tools
Web Browser	Google Chrome	Running and testing browser

## **2.2 Installation Instruction**

No installation required. Just go online on a browser to use the system with the following address:

<https://easydoctors.herokuapp.com/>

## **3. User Manual**

### **3.1 Overview**

This user guide is divided into 3 different user roles. Each role has a section that explains how to use it and the steps for each feature of the respective account's role. The website has a referral page that displays referral information to the user when they first enter the page.



Figure 98: Landing Page

### 3.2 User manual guide for Patient

#### 3.2.1. Login

This feature is used to login into the system with a patient role.

You must register an account before doing these steps.

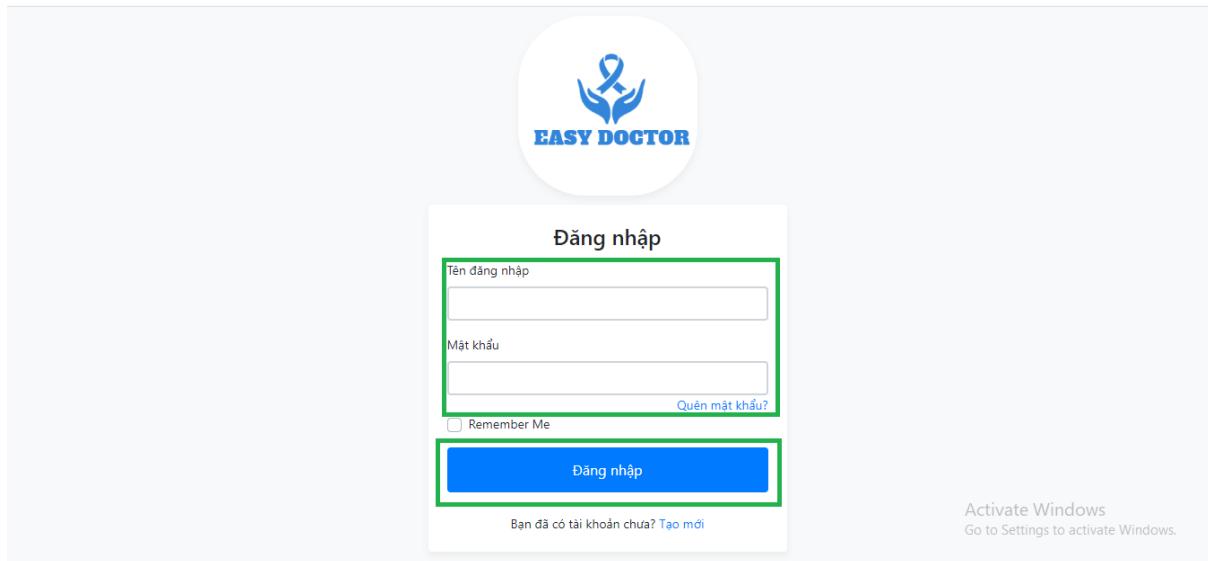


Figure 99: Login Screen Guide

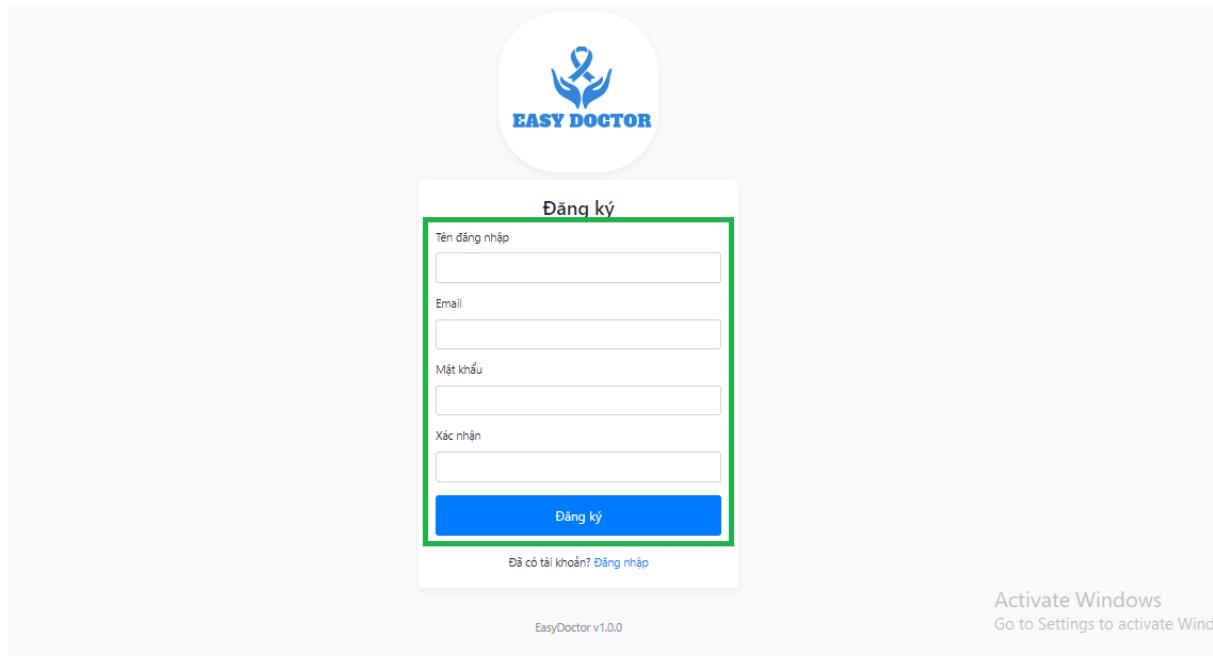
#### Use the following steps:

- Step 1: User enters the link: <https://easydoctors.herokuapp.com/login>
- Step 2: Fill in the information of the account: Email or Username and Password.
- Step 3: Click the "Đăng Nhập" button on this page.

If the Username/ Email and Password you entered are correct, the user has logged in successfully.

### **3.2.2. Register**

This feature is used to register an account to enter the system as a patient.



**Figure 100: Register Screen Guide**

Use the following steps:

Step 1: User enters the link: <https://easydoctors.herokuapp.com/register> or “Tạo tài khoản mới” in Login

Step 2: Fill in the information of the account: Username, Email, Password and Confirm Password

Step 3: Click the "Register" button on this page.

*Registered email must be correct and unused, and password and Confirm Password must be the same*

### **3.2.3. Forgot password**

This feature is used to reset the password.



## Đăng nhập

Tên đăng nhập

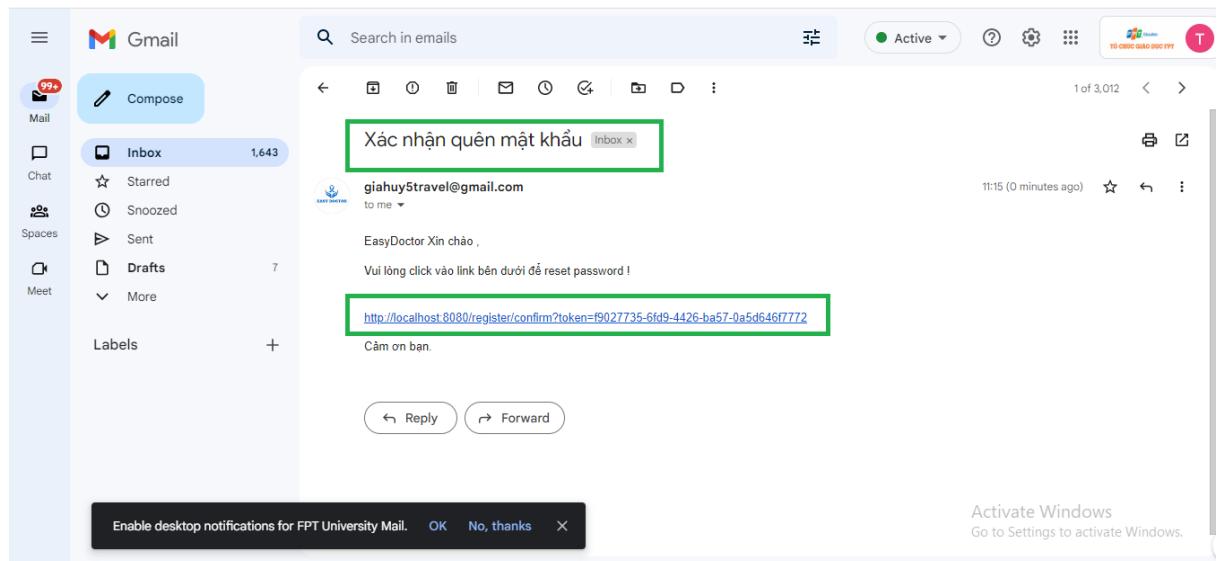
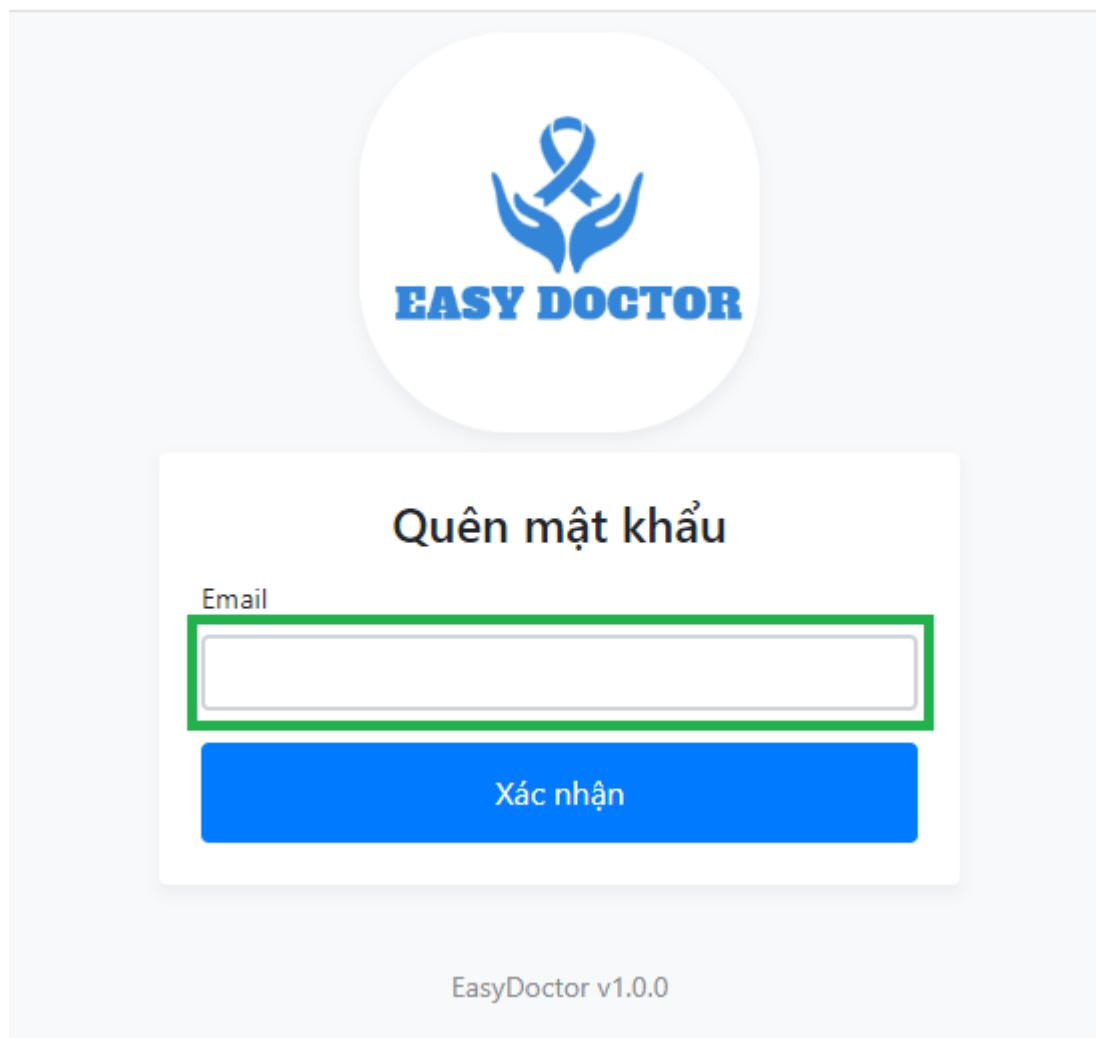
Mật khẩu

[Quên mật khẩu?](#)

Remember Me

[Đăng nhập](#)

Bạn đã có tài khoản chưa? [Tạo mới](#)



**Figure 101: Forgot Password Screen Guide**

**Use the following steps:**

- Step 1: Click the button “Forgot Password”

- Step 2: Enter your account Email
- Step 3: Click the button “Reset” and the system will send an email confirming that forgot password
- Step 4: Click the forgot password email link, to be able to create a new password

### 3.2.4. Edit profile

This feature is used to change the personal information of patient

**Figure 102: Edit Profile Screen Guide**

#### Use the following steps:

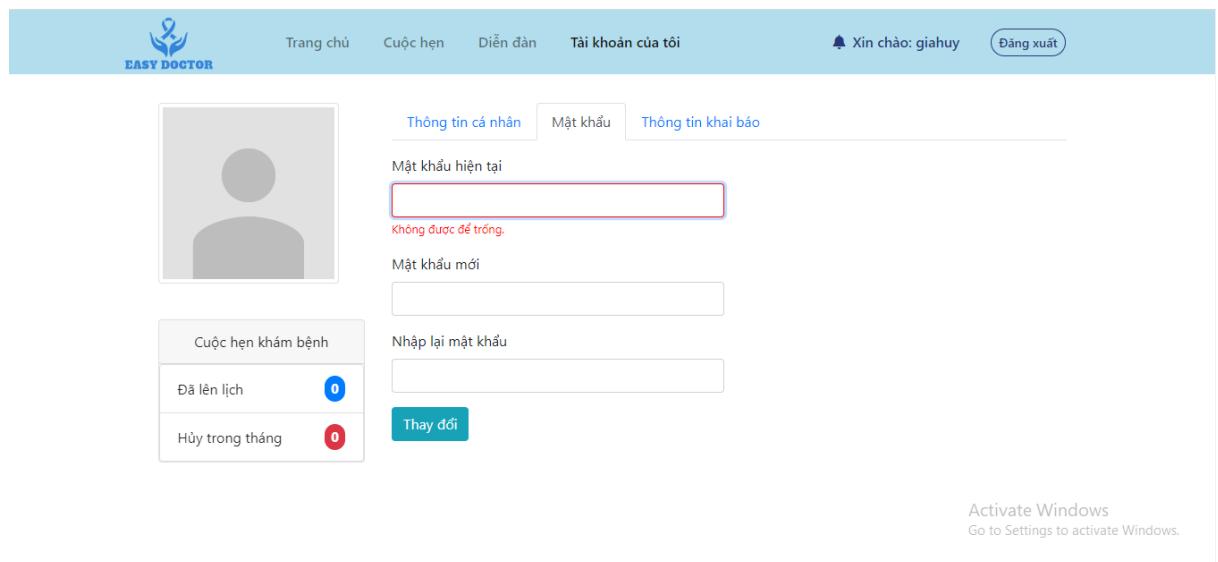
Step 1: After login to the account, users go to the "Tài khoản của tôi" page. Click "Thông tin cá nhân"

Step 2: Enter the personal information that needs to be changed in the correct format.

Step 3: Click the "Lưu thay đổi" button

### 3.2.5. Change password

This feature is used to change password



**Figure 103: Change Password Screen Guide**

**Use the following steps:**

Step 1: After login to the account, click on "Tài khoản của tôi" select tab "Mật khẩu"

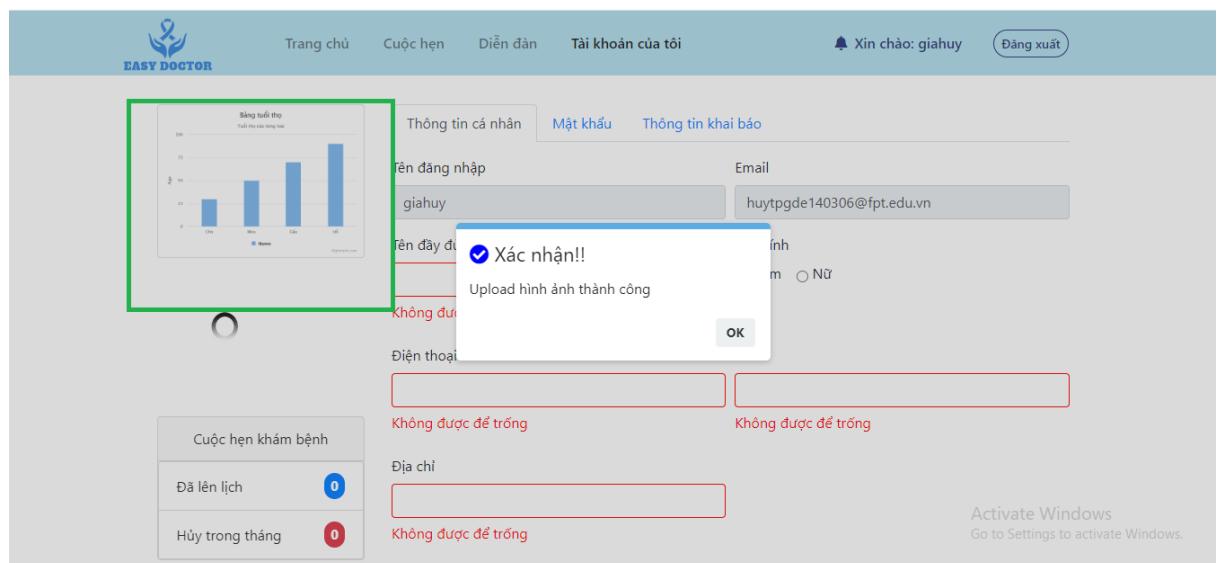
Step 2: Enter info to change password

Step 3: Click the "Thay đổi" button

*The user needs to enter the correct current password and the new password must match the re-entered password.*

### 3.2.6. Upload image profile

This feature is used to upload patient images.



**Figure 104: Upload Image Profile Screen Guide**

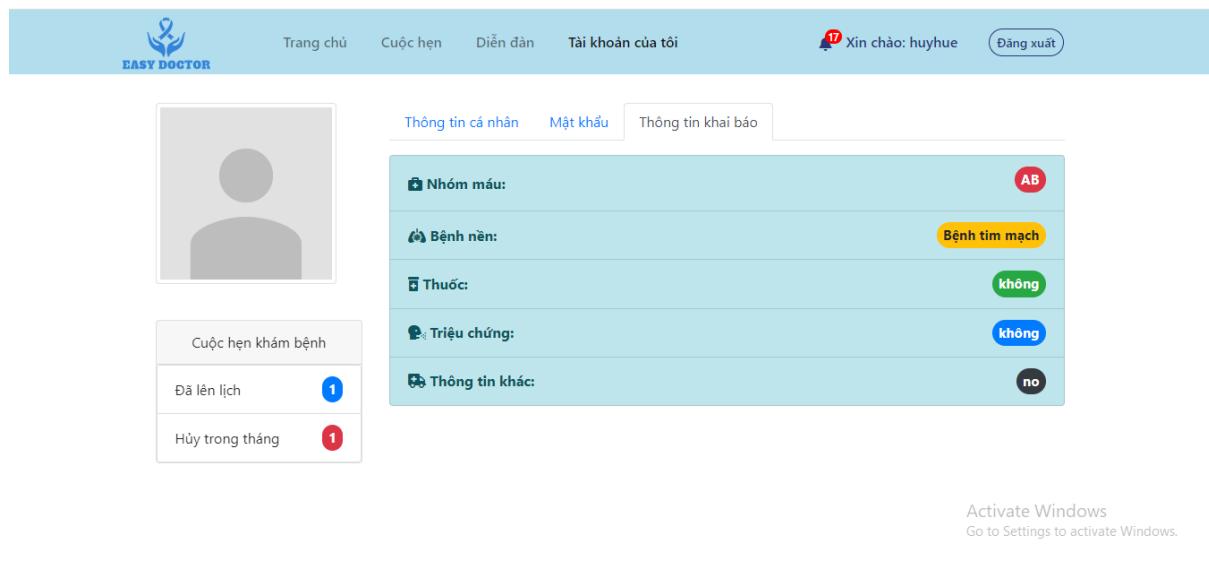
### **Use the following steps:**

- Step 1: After login to the account, users go to the "Tài khoản của tôi" page.
- Step 2: Click on the image on the left side of the screen.
- Step 3: It will display the images on your computer. Click to select the appropriate image to post on the system.

*If the uploaded image file is too large or there is an error during the upload process, an error message will be displayed.*

### **3.2.7. View declaration information**

This feature is used to view the declaration information of patients.



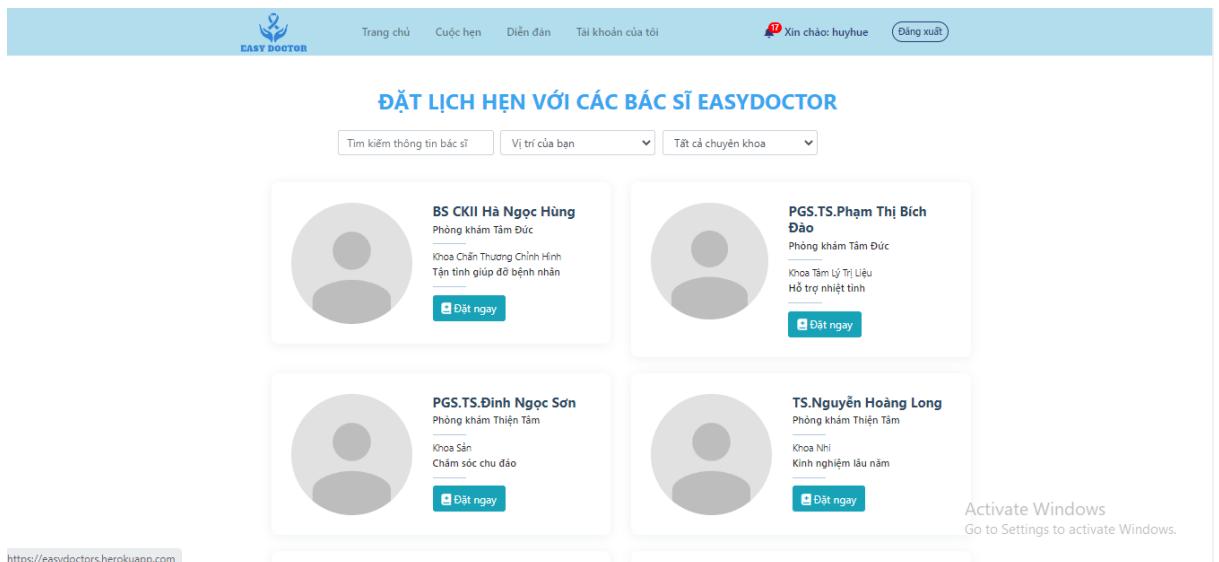
**Figure 105: View Declaration Information Screen Guide**

### **Use the following steps:**

- Step 1: After login to the account, users go to the "Tài khoản của tôi" page.
- Step 2: Then the patient clicks on "Thông tin khai báo"
- Step 3: The information that the patient has declared when making an appointment will be displayed on screen

### **3.2.8. See list doctors**

This feature is used to list doctors of patients.



**Figure 106: See List Doctor Screen Guide**

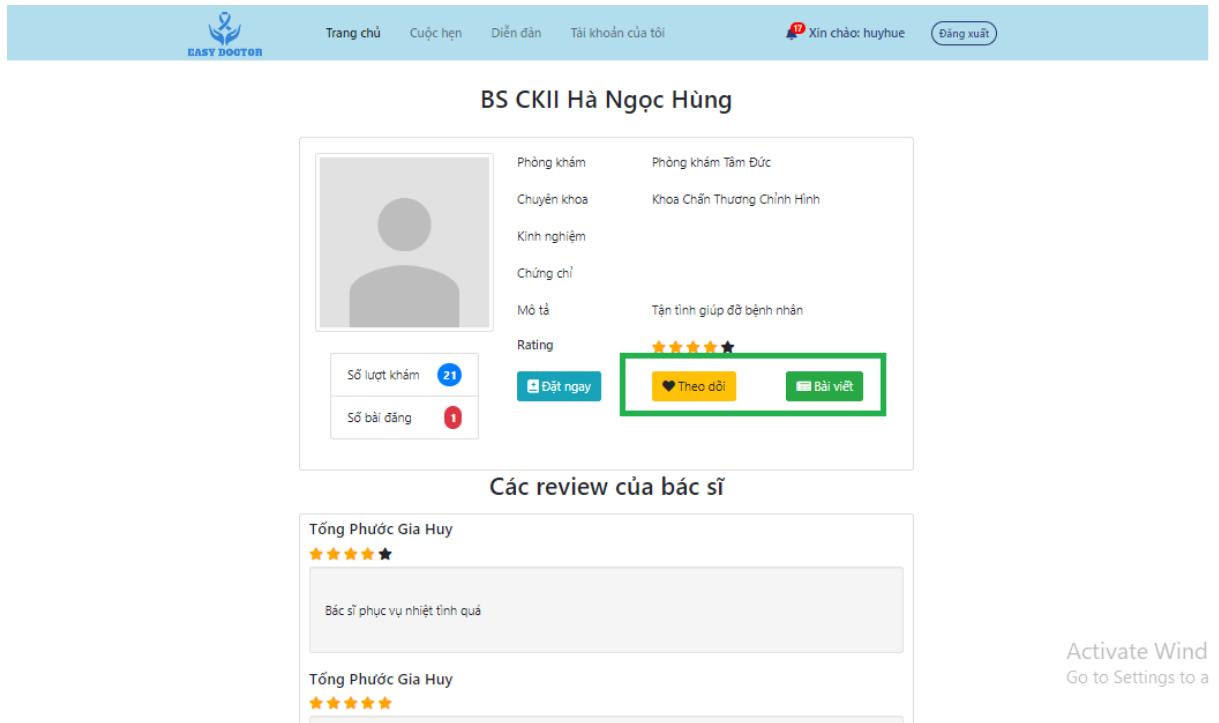
#### **Use the following steps:**

Step 1: After login to the account, the patient goes to the "Trang chủ" page.

Step 2: Search for the doctor you want to find through doctor information, and specialty address.

#### **3.2.9. View detail doctor**

This feature is used to detail doctors of patients.



**Figure 107: View Detail Doctor Screen Guide**

#### **Use the following steps:**

Step 1: After login to the account, the patient goes to the "Trang chủ" page.

Step 2: The patient selects a doctor from the list of doctors.

*Here, the patient can book an appointment with that doctor, view the doctor's posts on the Blog, follow the doctor to see the posts, and view the doctor's reviews.*

### 3.2.10. Process doctor appointment

This feature is to book an appointment with a doctor for a patient. The appointment booking process goes through 6 steps: select doctor, update medical declaration, select examination package, select examination time, appointment summary, and confirmation.

#### Use the following steps:

- Step 1: Select doctor

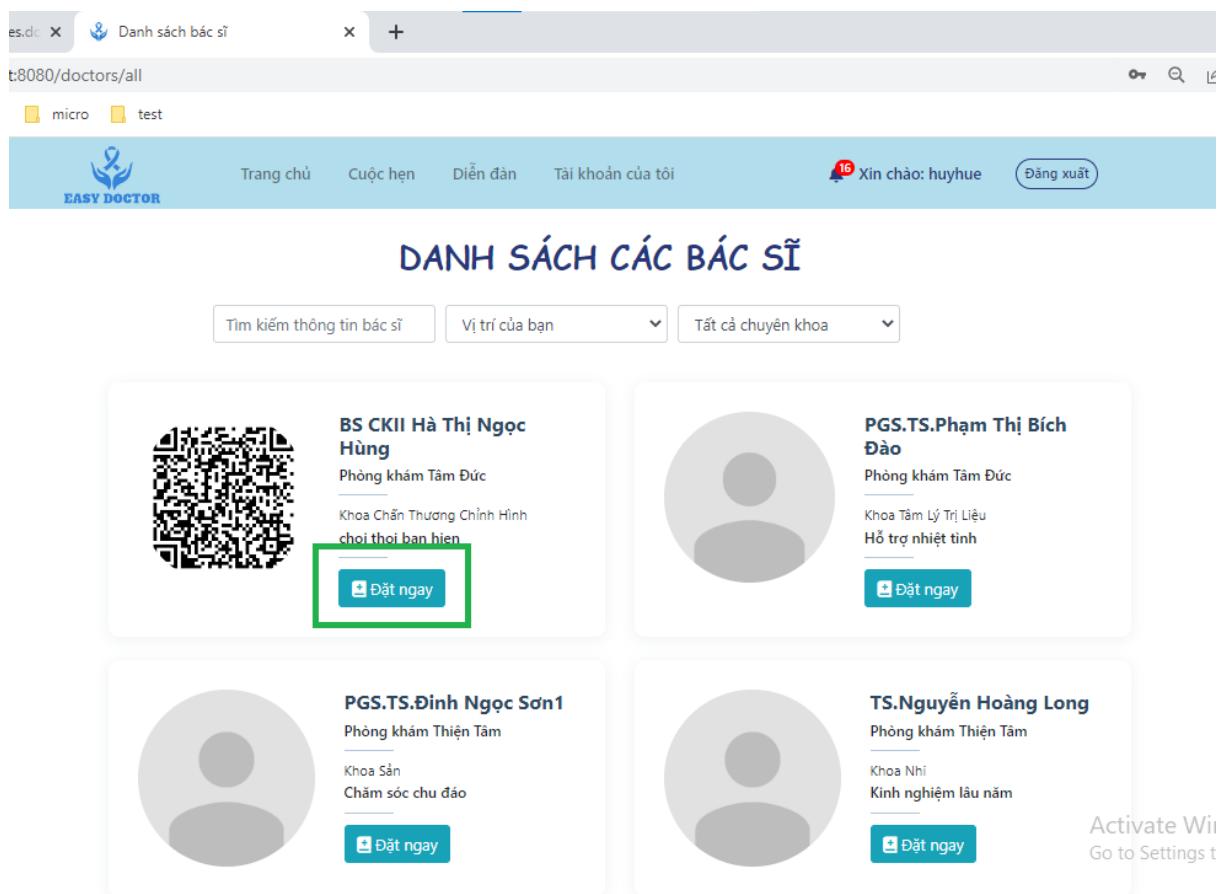
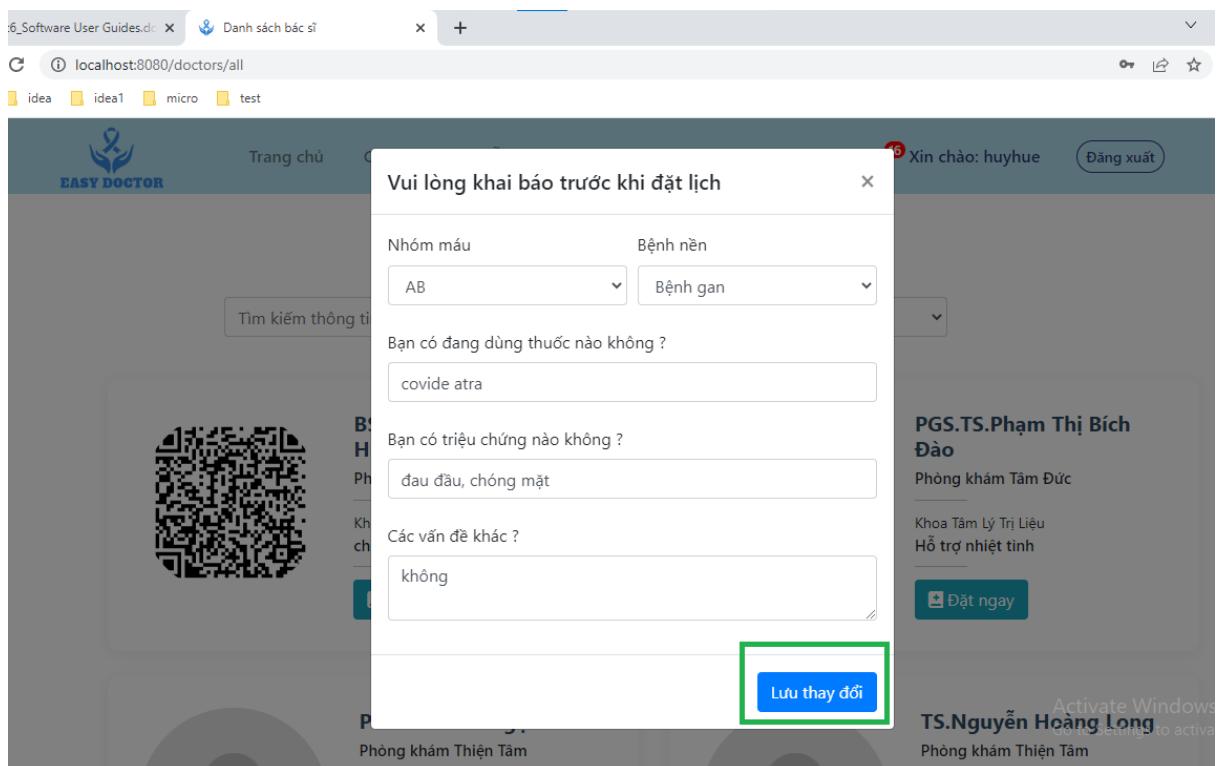


Figure 108: Select Doctor Screen Guide

- Step 2: Update medical declaration



**Figure 109: Update Medical Declaration Screen Guide**

- **Step 3: Select examination package**

Screenshot of the 'Chọn gói khám' (Select examination package) screen.

### 1. CHỌN GÓI KHÁM BỆNH

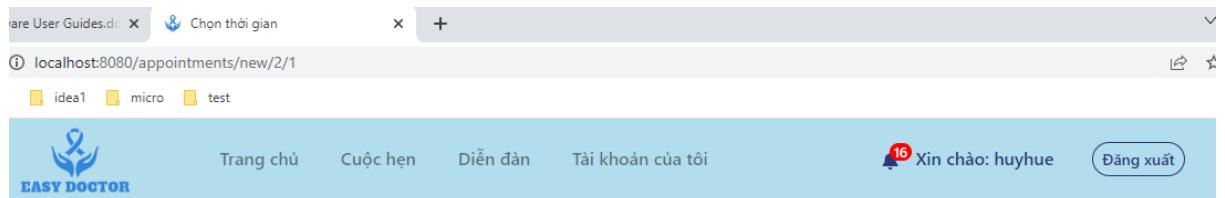
The screen shows two examination packages:

- Gói cơ bản**: Chăm sóc tùy nhu cầu bệnh nhân. Price: 500.0 VND. A green box highlights the 'Chọn' (Select) button.
- Gói toàn diện edit**: Chăm sóc toàn diện sức khỏe bệnh nhân. Price: 1000.0 VND. A green box highlights the 'Chọn' (Select) button.

At the bottom right, there is a message: 'Activate Windo Go to Settings to act'.

**Figure 110: Select Examination Package Screen Guide**

- **Step 4: Select examination date time**



**Figure 111: Select Examination Date Time Screen Guide**

- **Step 5: Appointment summary**

### 3. TÓM TẮT ĐẶT LỊCH KHÁM BỆNH



<b>Ngày</b>	24-07-2022
<b>Thời gian</b>	12:00 - 13:00
<b>Bác sĩ</b>	BS CKII Hà Thị Ngọc Hùng
<b>Gói khám</b>	Gói cơ bản
<b>Mô tả</b>	Chăm sóc tùy nhu cầu bệnh nhân
<b>Giá</b>	500.0 VND
<b>Có thể hủy bởi bệnh nhân?</b>	Yes

Kiểm tra mail để nhận OTP xác nhận:

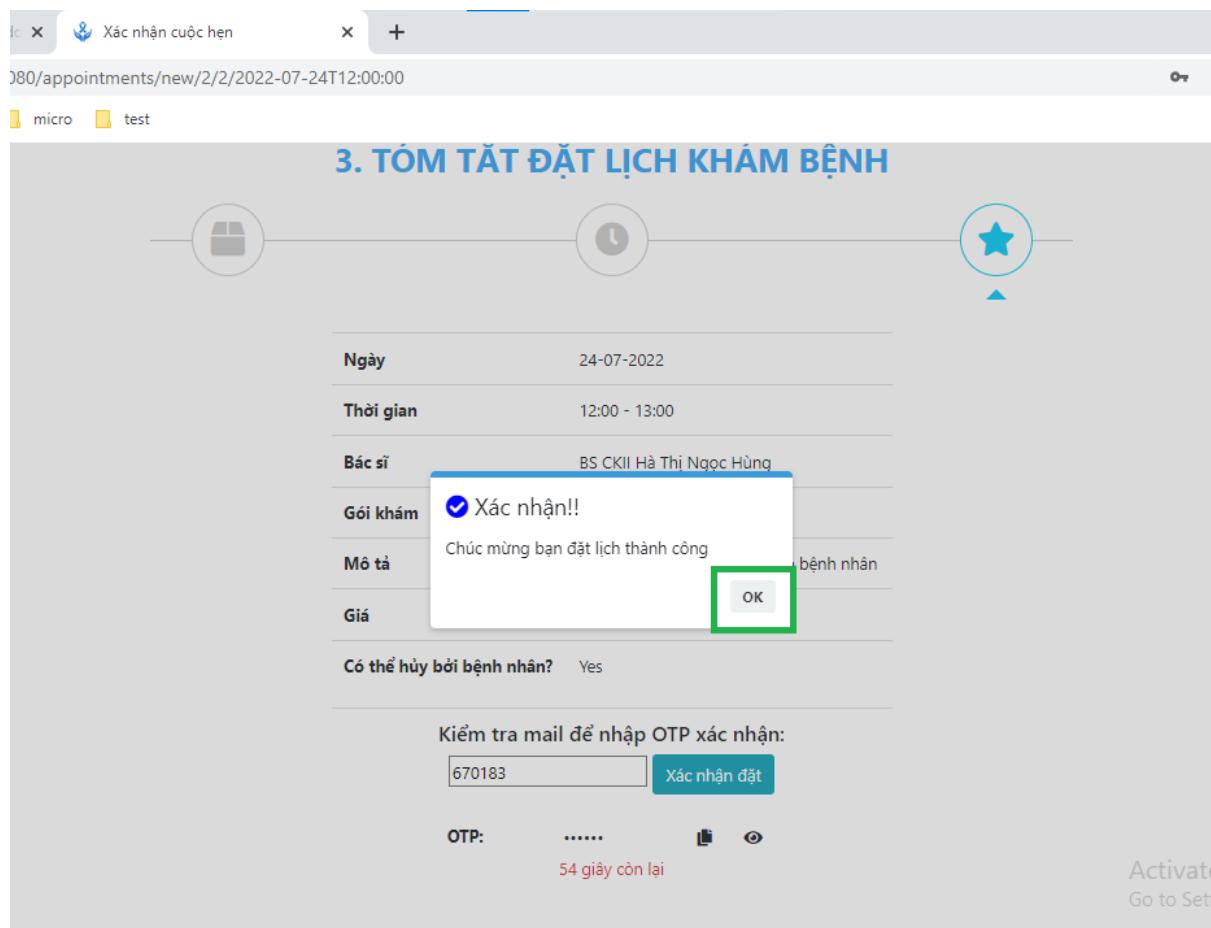
Xác nhận đặt

OTP: ..... Xem Ẩn

44 giây còn lại

Figure 112: Appointment Summary Screen Guide

- **Step 6: Appointment confirmation** (You must enter the OTP code sent via email or on the screen to confirm the appointment (OTP code is valid for 60 seconds))



**Figure 113: Appointment Confirmation Screen**

### 3.2.11. See list appointments

This feature is used to see the list of appointments of patients.

The screenshot shows a list of patient appointments on a web-based platform. The top navigation bar includes the 'EASY DOCTOR' logo, user information ('Xin chào: huyhue'), and a 'Đăng xuất' (Logout) button. The main title is 'DANH SÁCH CUỘC HẸN KHÁM BỆNH' (List of Patient Appointments). Below the title is a horizontal menu bar with buttons: 'TẤT CẢ (16)', 'ĐÃ LÊN LỊCH (1)', 'ĐÃ KẾT THÚC (0)', 'ĐÃ XÁC NHẬN (1)', 'ĐÃ HỦY (3)', 'IN HÓA ĐƠN (10)', 'YÊU CẦU TỪ CHỐI (0)', and 'ĐÃ TỰ CHỐI (0)'. The main content area displays a table of appointment details:

Gói khám	Trạng thái	Bắt đầu	Bác sĩ	Thời lượng	Xem
Gói cơ bản	<b>ĐÃ LÊN LỊCH</b>	2022-08-03 08:06	BS CKII Hà Ngọc Hùng	60 phút	<b>Chi tiết</b>
Gói cơ bản	<b>ĐÃ XÁC NHẬN</b>	2022-07-26 14:00	BS CKII Hà Ngọc Hùng	60 phút	<b>Chi tiết</b>
Gói cơ bản	<b>IN HÓA ĐƠN</b>	2022-07-23 10:00	BS CKII Hà Ngọc Hùng	60 phút	<b>Chi tiết</b>
Gói cơ bản	<b>IN HÓA ĐƠN</b>	2022-07-21 11:00	BS CKII Hà Ngọc Hùng	60 phút	<b>Chi tiết</b>
Gói cơ bản	<b>YÊU CẦU TỪ CHỐI</b>	2022-07-19 12:00	BS CKII Hà Ngọc Hùng	60 phút	<b>Chi tiết</b>

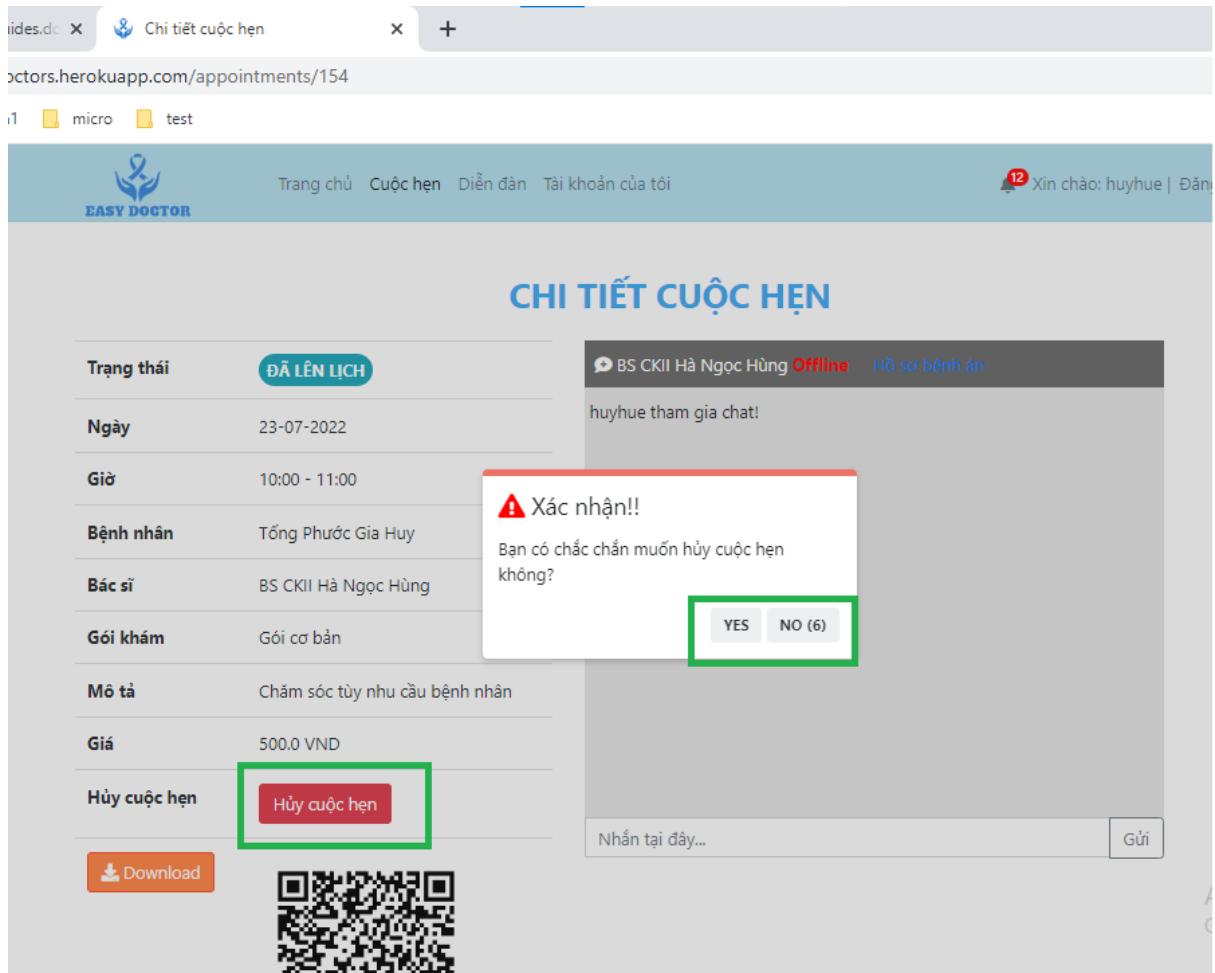
**Figure 114: See List Appointment Screen Guide**

### **Use the following steps:**

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: The user will see a list of his appointments and their status. Click "Chi tiết" to view the details of each appointment.

#### **3.2.12. Cancel appointment**

This feature is used to cancel an appointment of a patient.



**Figure 115: Cancel Appointment Screen Guide**

### **Use the following steps:**

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: Click on the details of the appointment booked with the doctor.
- Step 3: Click the "Hủy cuộc hẹn" button to cancel the appointment. And yes will display an alert to confirm the cancellation.

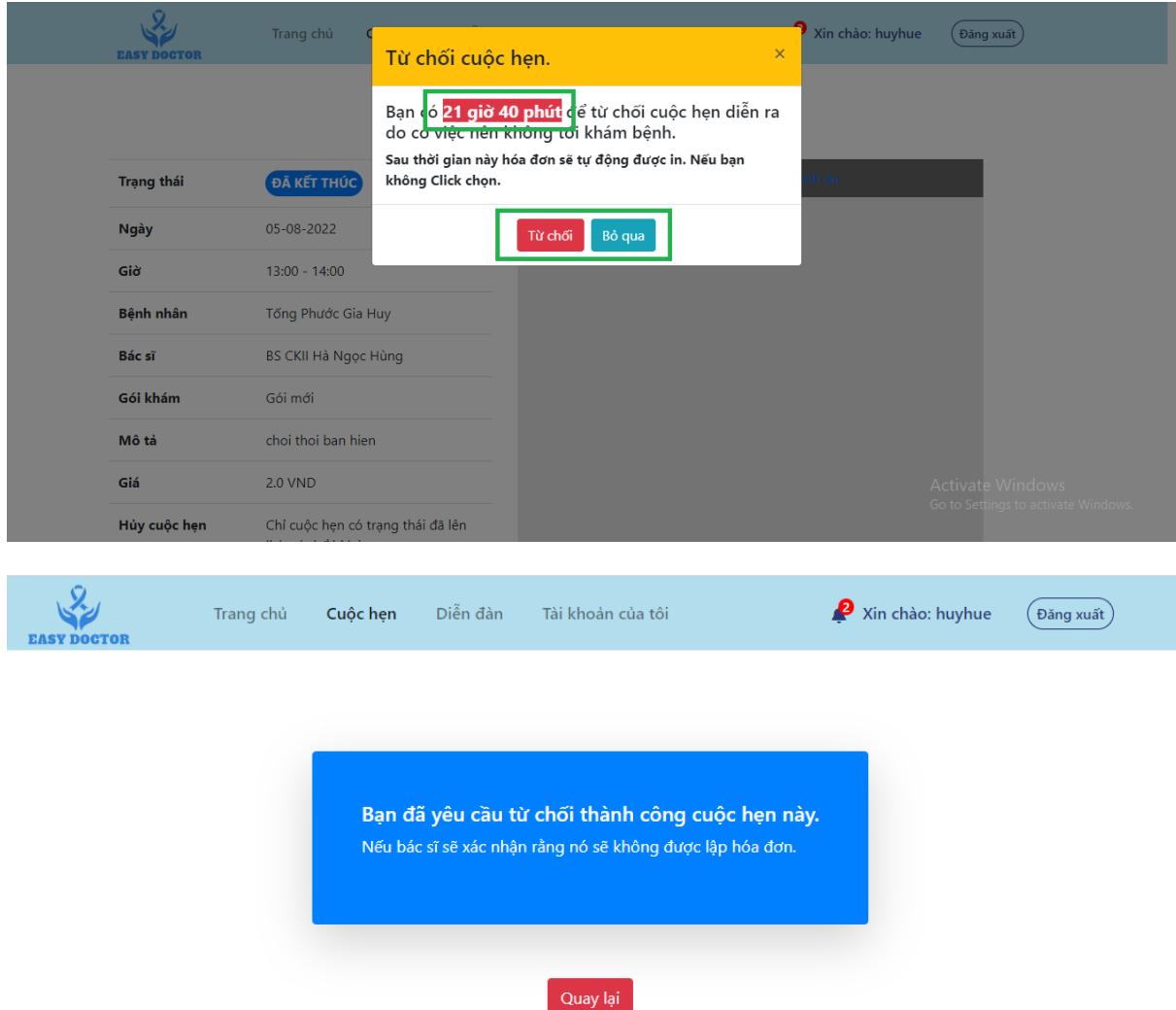
*There will be conditions that you cannot cancel the appointment such as being in the scheduled state, the number of cancellations is not allowed to exceed the specified times in 1 month, before 24 hours from the start of the appointment.*

*After successful cancellation, the system will send a cancellation notice to the other party to notify and change the status.*

### 3.2.13. Reject appointment

This feature is used to decline an appointment when the appointment did not go as scheduled with the patient role. This feature has 2 ways to decline an appointment.

**Method 1:** Reject by clicking refuse on the system.

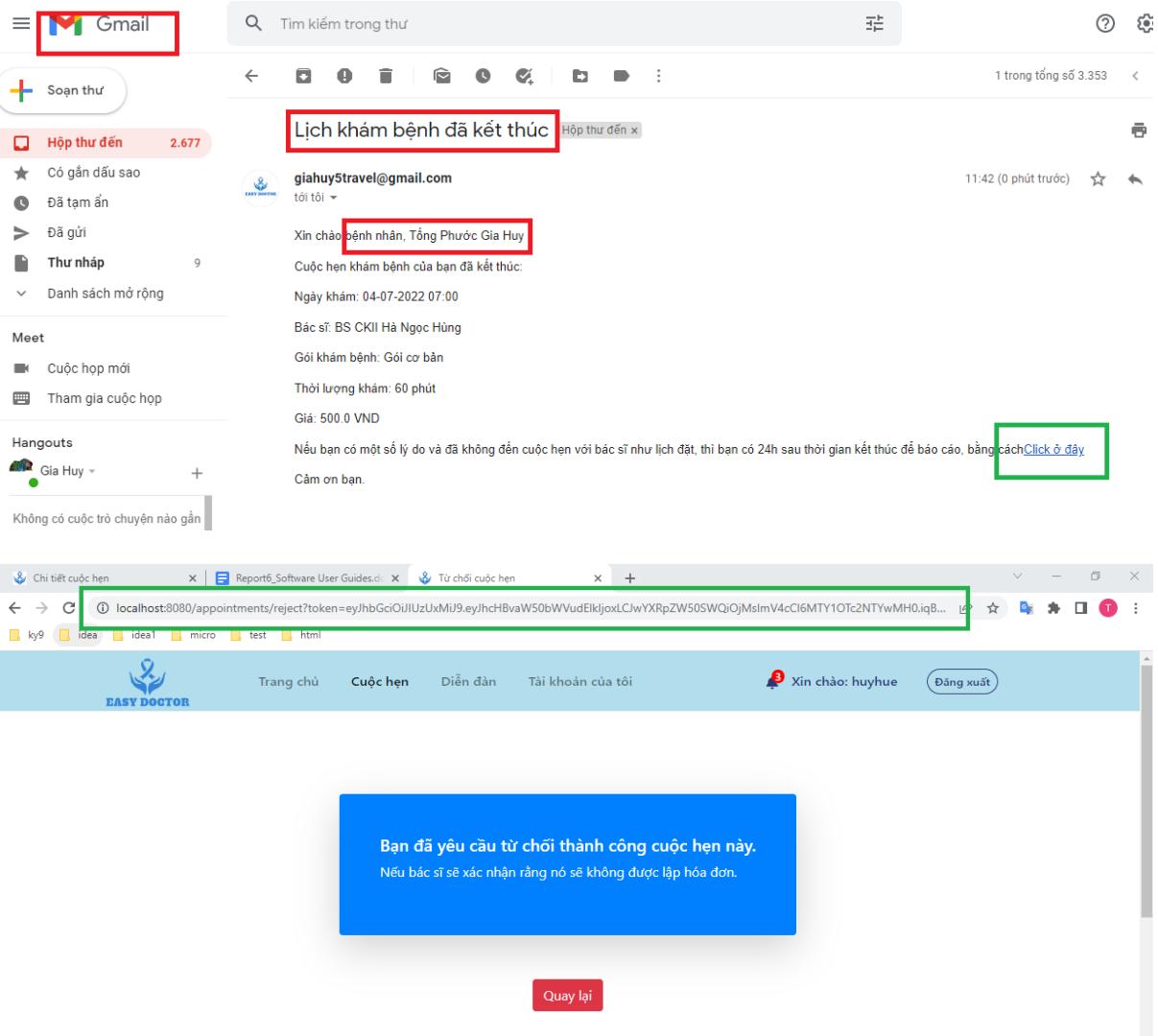


**Figure 116: Reject Appointment Screen Guide**

**Use the following steps:**

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: Click on the details of the appointment booked with the doctor.
- Step 3: It will show an appointment rejection popup. Click "Từ chối" if it happens. Otherwise, click "BỎ QUA".
- Step 4: Switch to the success confirmation screen.
- *The system will automatically count down the time allowed to refuse an appointment after 24 hours after the end of the appointment.*

**Method 2:** Reject by clicking the token link on Gmail sent to the patient.



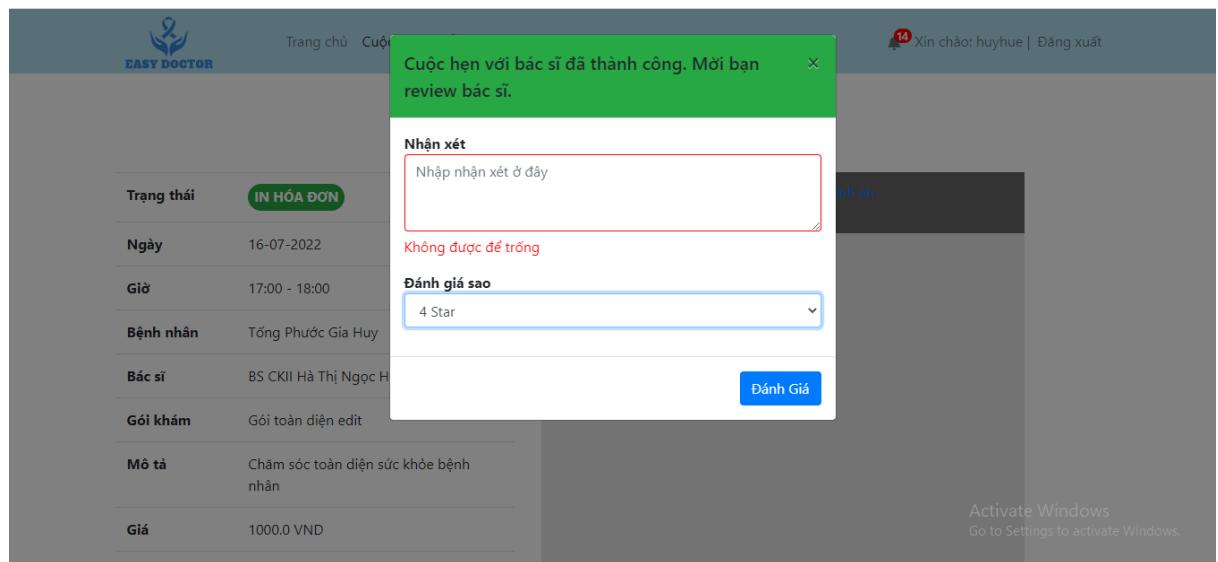
**Figure 117: Reject Appointment Screen Guide**

#### Use the following steps:

- Step 1: After logging in to your Gmail account, the user checks the mail.
- Step 2: The system will send a rejection email to the patient.
- Step 3: Patient Click the link token sent by email to decline the appointment.
- Step 4: Switch to the success confirmation screen.
- *The token link will be valid for 24 hours from the time of sending the email.*

#### **3.2.14. Review doctor**

This feature is used to reviewing doctors of patients. After each successful appointment with a doctor when in an invoiced appointment status, the patient has the right to review that doctor.



**Figure 118: Review Doctor Screen Guide**

**Use the following steps:**

Step 1: After login to the account, users go to the "Cuộc hẹn" page.

Step 2: Click on the details of the appointment booked with the doctor.

Step 3: It will show a review popup. Enter the information to review the doctor.

Step 4: Click "Đánh giá" to review a doctor, after it will go to that doctor's detail page and your review will show up below that doctor.

### **3.2.15. Chat real-time**

This feature is used for real-time chat about appointments between patients and doctors.

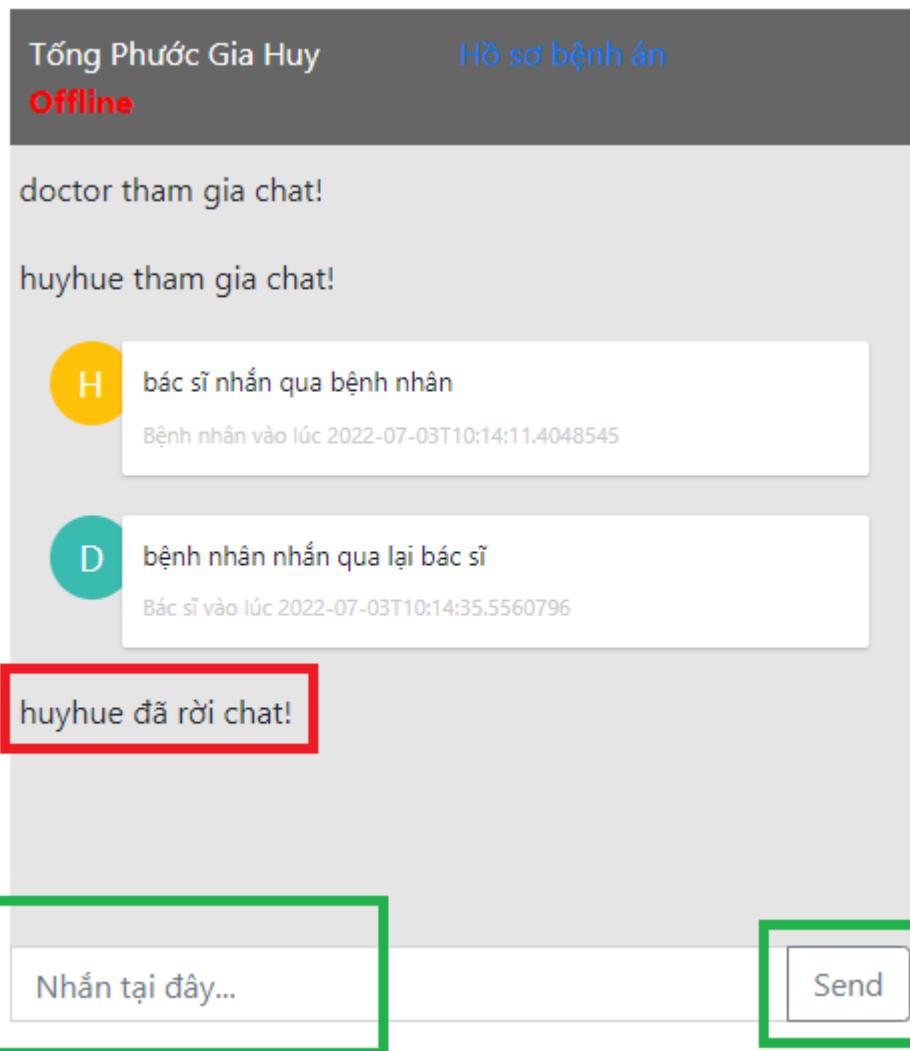


Figure 119: Chat Real Time Screen Guide

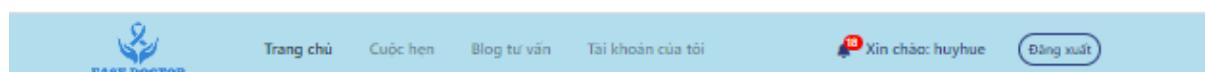
**Use the following steps:**

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: Click on the details of the appointment booked with the doctor.
- Step 3: Enter the text of the message and click send to chat about the appointment.

*In this function, users can chat online in real-time and can see the chat status of the opposite party.*

### 3.2.16. View medical record

This feature is used to view the patient's medical record with patient information, disease declaration, and patient appointment history.



## LỊCH SỬ KHÁM BỆNH

12-07-2022	19-07-2022
<p>qu</p> <p>quqw</p> <p>Thuốc: uquqw</p> <p>Bác sĩ: BS CKII Hà Ngọc Hùng</p> <p>quqwa</p> <p>Toa thuốc:</p> <p></p> <p>15-07-2022</p>	<p>Thuốc:</p> <p>Bác sĩ: BS CKII Hà Ngọc Hùng</p> <p>Toa thuốc:</p> <p>17-07-2022</p>

Quay lại

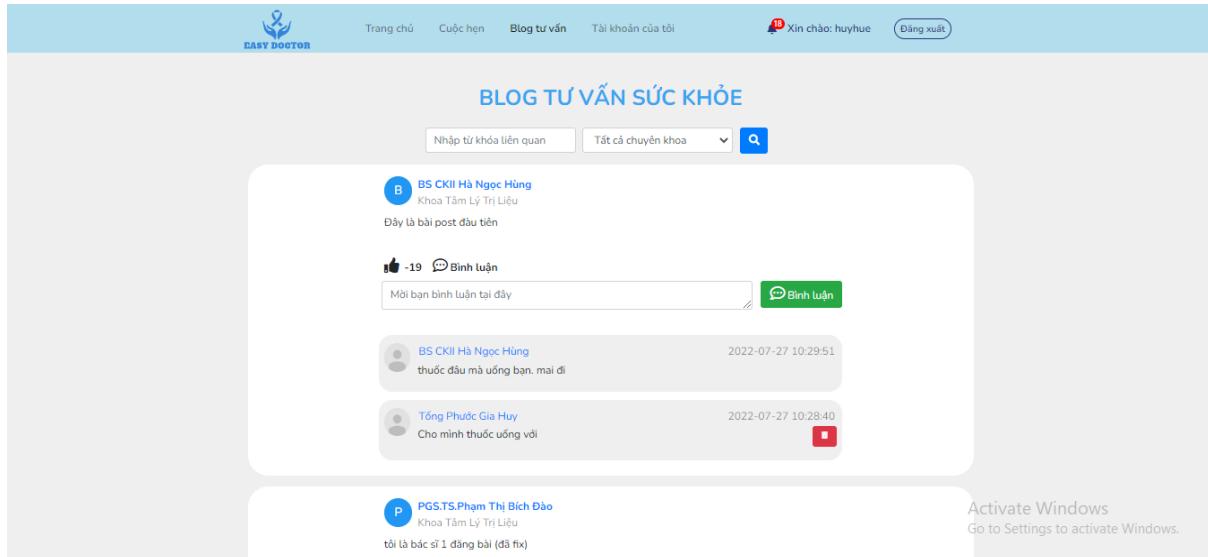
Figure 120: View Medical Record Screen Guide

Use the following steps:

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: Click on the details of the appointment booked with the doctor.
- Step 3: Click on the "Hồ sơ bệnh án" link in the chat section. It will display a new tab of that patient's medical record.

### 3.2.17. See list posts

This feature is used to list posts in Blogs for patients.



**Figure 121: See List Post Screen Guide**

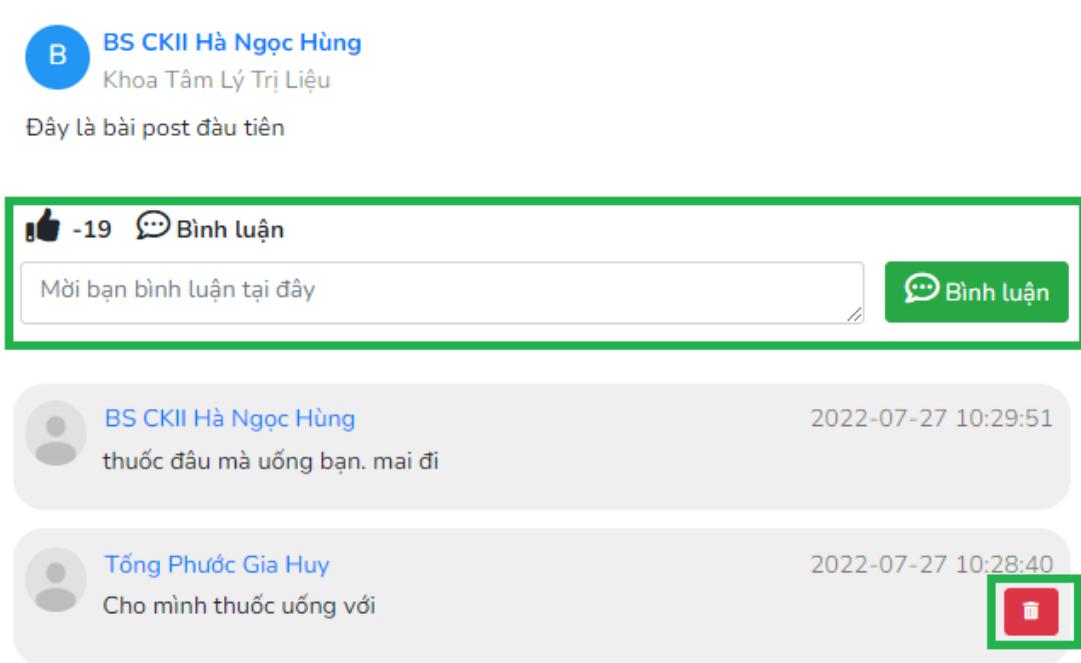
#### Use the following steps:

Step 1: After login to the account, the user clicks "Diễn đàn".

Step 2: Type in the input or specialty combo to search for related posts.

### 3.2.18. Comment/Like post

This feature is used to comment/like posts in Blogs for patients and doctors.



**Figure 122: Comment/Like Post Screen Guide**

**Use the following steps:**

Step 1: After login to the account, the user clicks "Diễn đàn".

Step 2: Users can like and add and delete comments on Blog posts.

### 3.2.19. Read notification

This feature is used to read notifications from the doctor.

Thời gian	Tiêu đề	Nội dung
19-07-2022	Lịch khám đã kết thúc	Lịch khám đã kết thúc, bạn có thể từ chối cuộc hẹn nếu nó không diễn ra cho đến khi 2022-07-20T13:00
17-07-2022	Xuất hóa đơn	Xuất hóa đơn đã được gửi tới bạn
13-07-2022	Lịch khám đã kết thúc	Lịch khám đã kết thúc, bạn có thể từ chối cuộc hẹn nếu nó không diễn ra cho đến khi 2022-07-13T16:00
03-07-2022	Xuất hóa đơn	Xuất hóa đơn đã được gửi tới bạn
01-07-2022	Lịch khám đã bị hủy	Bác sĩ BS CKII Hà Ngọc Hùng đã hủy lịch khám vào lúc 2022-07-03T06:00
01-07-2022	Lịch khám đã kết thúc	Lịch khám đã kết thúc, bạn có thể từ chối cuộc hẹn nếu nó không diễn ra cho đến khi 2022-07-02T08:00
28-06-2022	Lịch khám đã bị hủy	Bác sĩ BS CKII Hà Ngọc Hùng đã hủy lịch khám vào lúc 2022-06-30T14:00

**Figure 123: Read Notification Screen Guide**

### **Use the following steps:**

Step 1: After login to the account, the user clicks on the bell icon to the right of the navigation bar

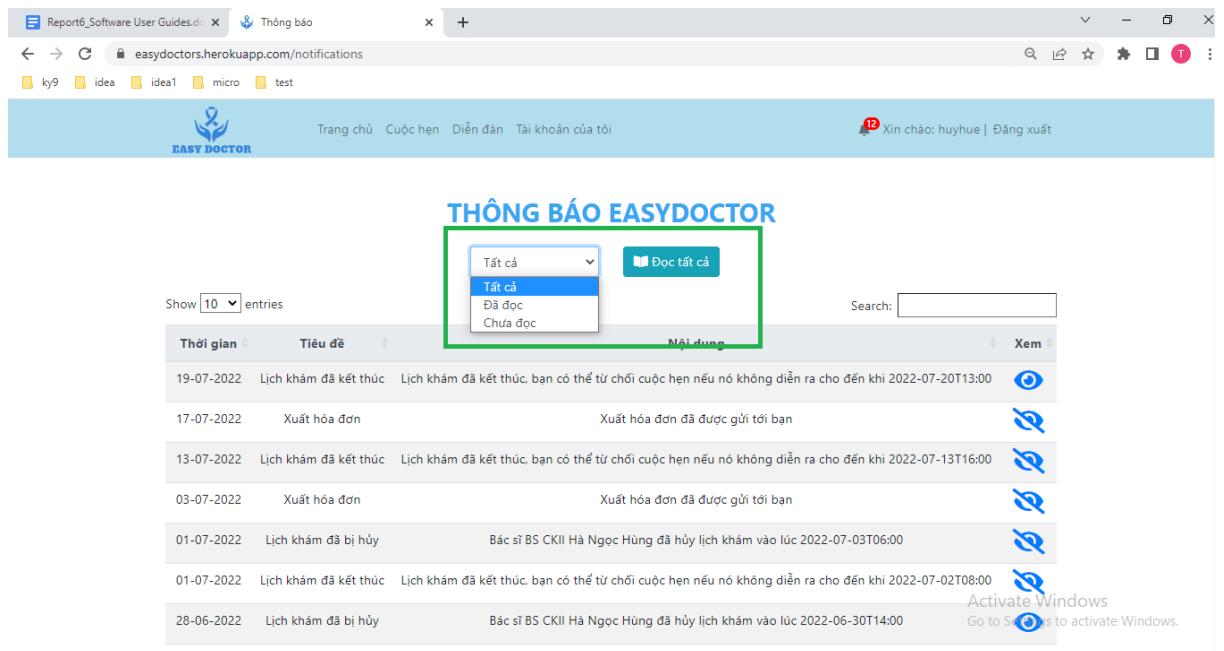
Step 2: The user clicks on the message view icon on each message on the board.

Step 3: It will navigate to that notification's appointment details page.

*In this function, when the user clicks on each notification, it will change the status of that notification.*

#### **3.2.1. Filter notification**

This feature is used to filter notifications of patients. The user wants to see read or unread notifications.



**Figure 124: Filter Notification Screen Guide**

### **Use the following steps:**

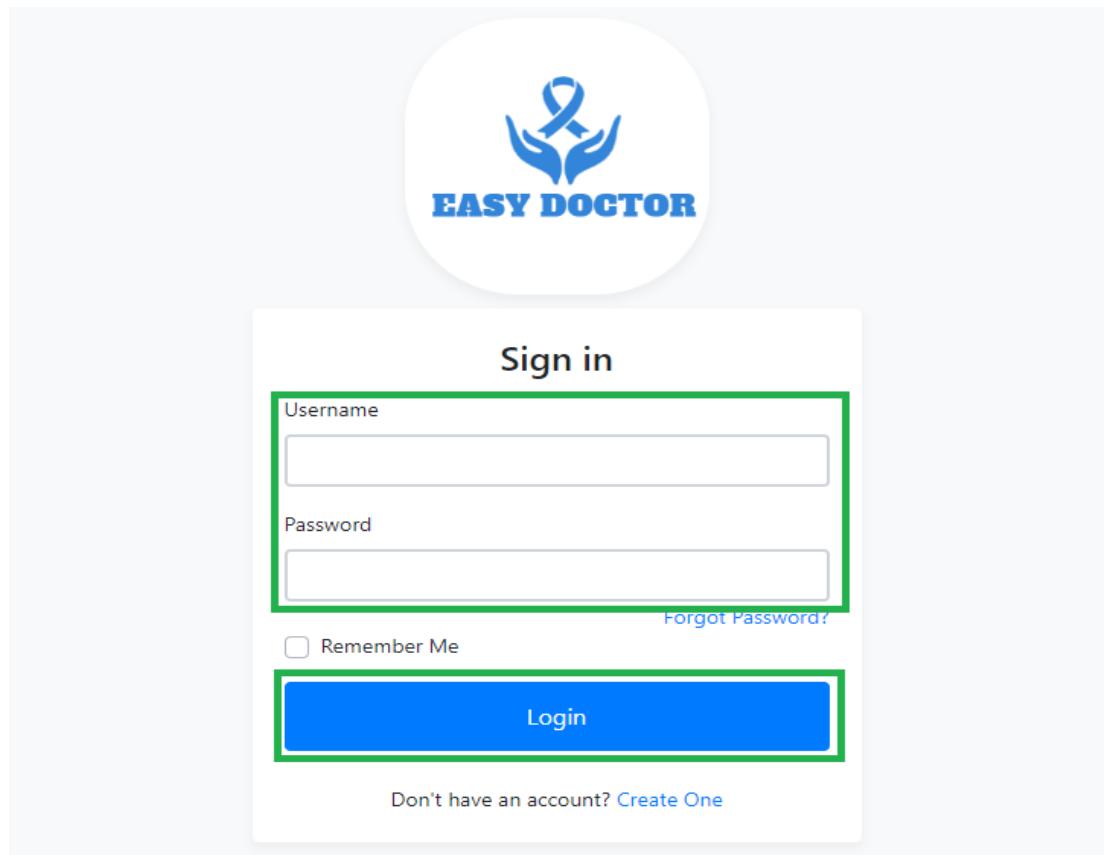
Step 1: After login to the account, the user clicks on the bell icon to the right of the navigation bar

Step 2: The user selects the notification status in the combo box.

*In case the user wants to change all notifications to read. Then choose "Đọc tất cả"*

### 3.3 User manual guide for Doctor

#### 3.3.1. Login



**Figure 125: Login Screen Guide**

**Use the following steps:**

Step 1: User enter the link : <https://easydoctors.herokuapp.com/login>

Step 2: Fill in the information of the account: Email or Username and Password.

Step 3: Click the "Đăng Nhập" button on this page.

#### 3.3.2. Forgot password

This feature is used to reset the password.



## Đăng nhập

Tên đăng nhập

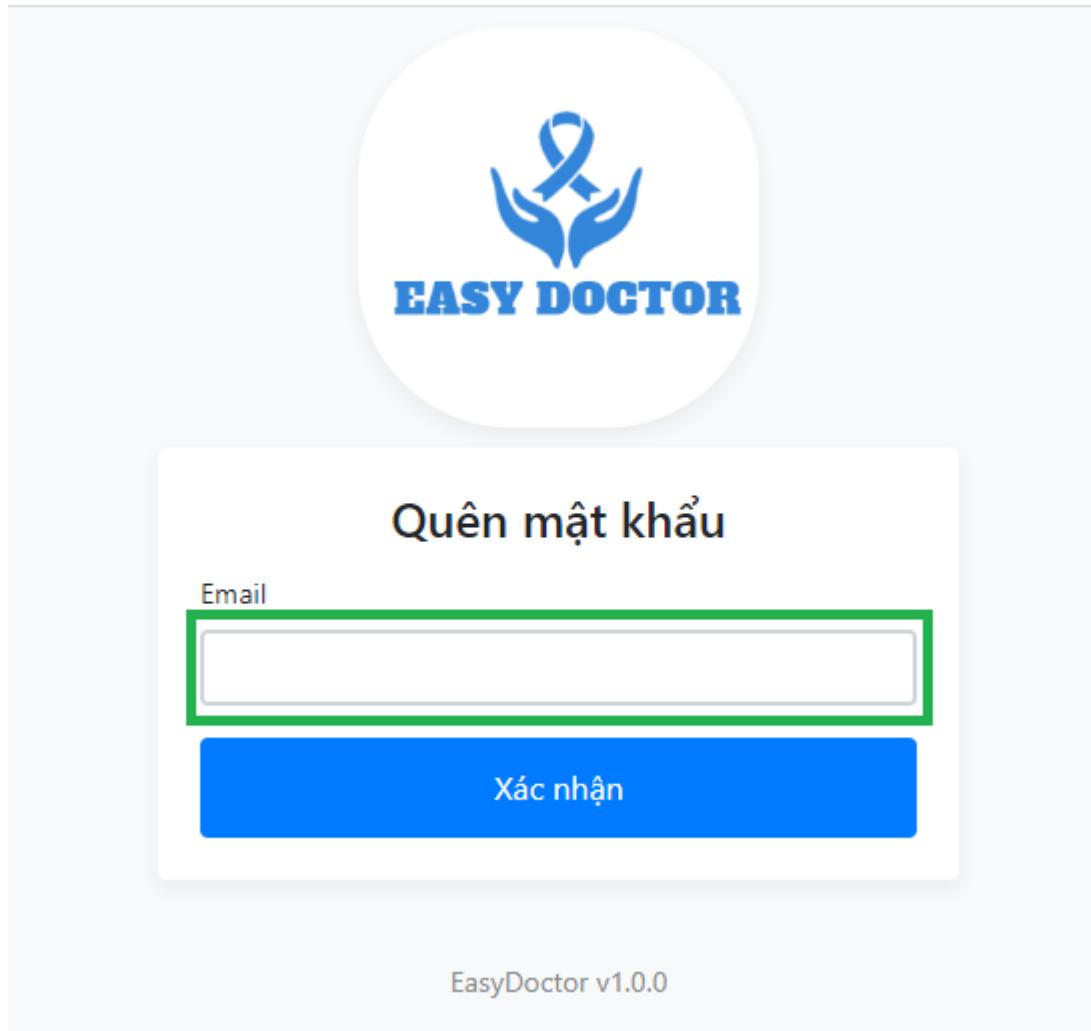
Mật khẩu

[Quên mật khẩu?](#)

Remember Me

**Đăng nhập**

Bạn đã có tài khoản chưa? [Tạo mới](#)



**Figure 126: Forgot Password Screen Guide**

**Use the following steps:**

- Step 1: Click the button “Forgot Password”
- Step 2: Enter your account Email
- Step 3: Click the button “Reset” and the system will send an email confirming forgot password
- Step 4: Click the forgot password email link, to be able to create a new password

**3.3.3. Edit profile**

This feature is used to change the personal information of a doctor

Thông tin cá nhân

Mật khẩu

Danh sách theo dõi bác sĩ

Tên đăng nhập: doctor

Email: tpgiahuy5@gmail.com

Tên đầy đủ: BS CKII Hà Ngọc Hùng

Giới tính: ♂ Nam ♂ Nữ

Điện thoại: 0968686797

Tuổi: 45

Chuyên khoa: Khoa Chấn Thương Chỉnh Hình

Năm kinh nghiệm:

Phòng khám: Phòng Khám Tâm Đức

Mô tả: Tận tình giúp đỡ bệnh nhân

Chứng chỉ: Chọn tệp

Gói khám:

- Gói cơ bản
- Gói toàn diện
- Gói 6 tháng
- gói 1nay bat tan
- admin qu

Lưu thay đổi

Act

**Figure 127: Edit profile Screen Guide**

**Use the following steps:**

Step 1: After login to the account, users go to the "Tài khoản của tôi" page. Click choose "Thông tin cá nhân"

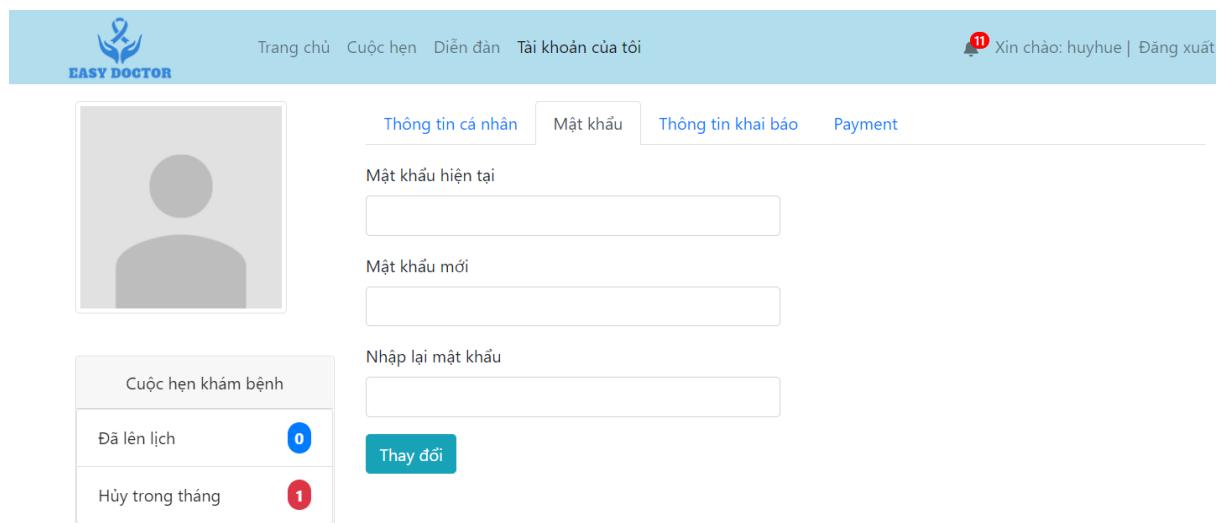
Step 2: Enter the personal information that needs to be changed in the correct format.

Step 3: Click the "Lưu thay đổi" button

*Here doctors can choose packages for patients to book appointments.*

### 3.3.4. Change password

This feature is used to change password



**Figure 128: Change Password Screen Guide**

**Use the following steps:**

Step 1: After login to the account, click on "Tài khoản của tôi" select tab "Mật khẩu"

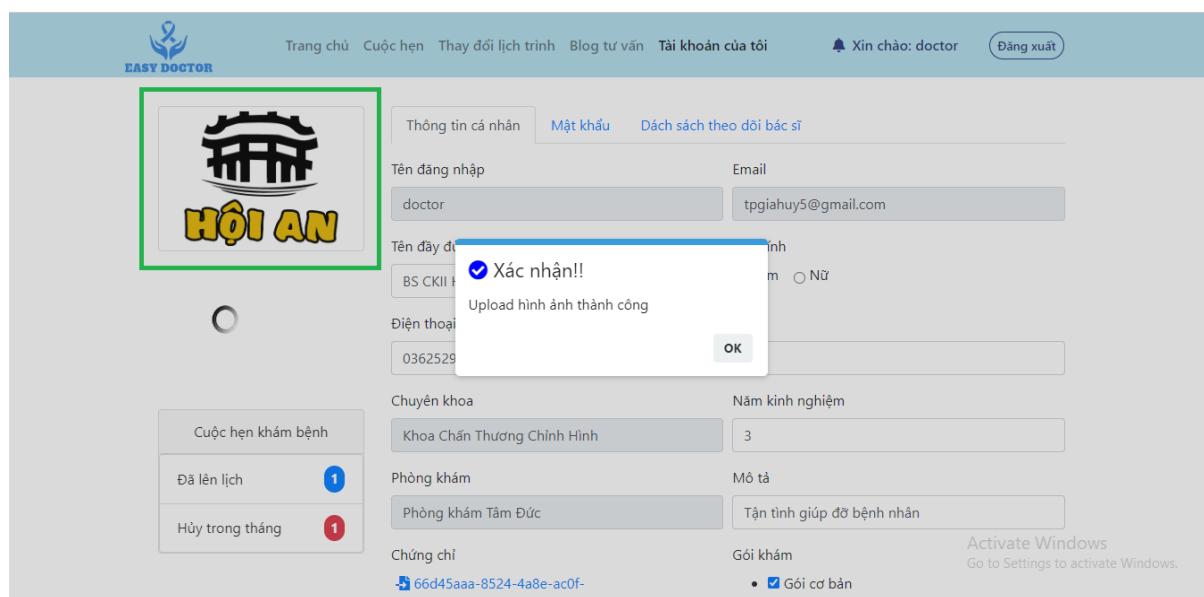
Step 2: Enter info to change password

Step 3: Click the "Thay đổi" button

*The user needs to enter the correct current password and the new password must match the re-entered password.*

### 3.3.5. Upload image profile

This feature is used to upload doctor images.



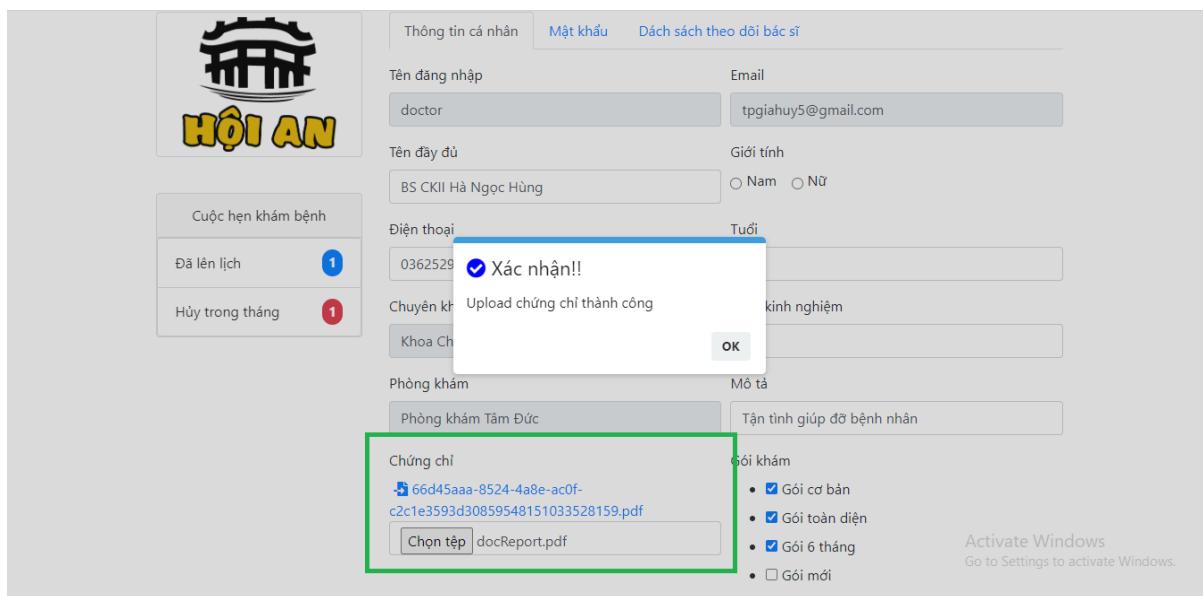
**Figure 129: Upload Image Profile Screen Guide**

**Use the following steps:**

- Step 1: After login to the account, users go to the "Tài khoản của tôi" page.
- Step 2: Click on the image on the left side of the screen.
- Step 3: It will display the images on your computer. Click to select the appropriate image to post on the system.
- *If the uploaded image file is too large or there is an error during the upload process, an error message will be displayed.*

### **3.3.6. Upload certification**

This feature is used to upload the doctor's certificate so that the patient can view the certificate on the doctor's details.



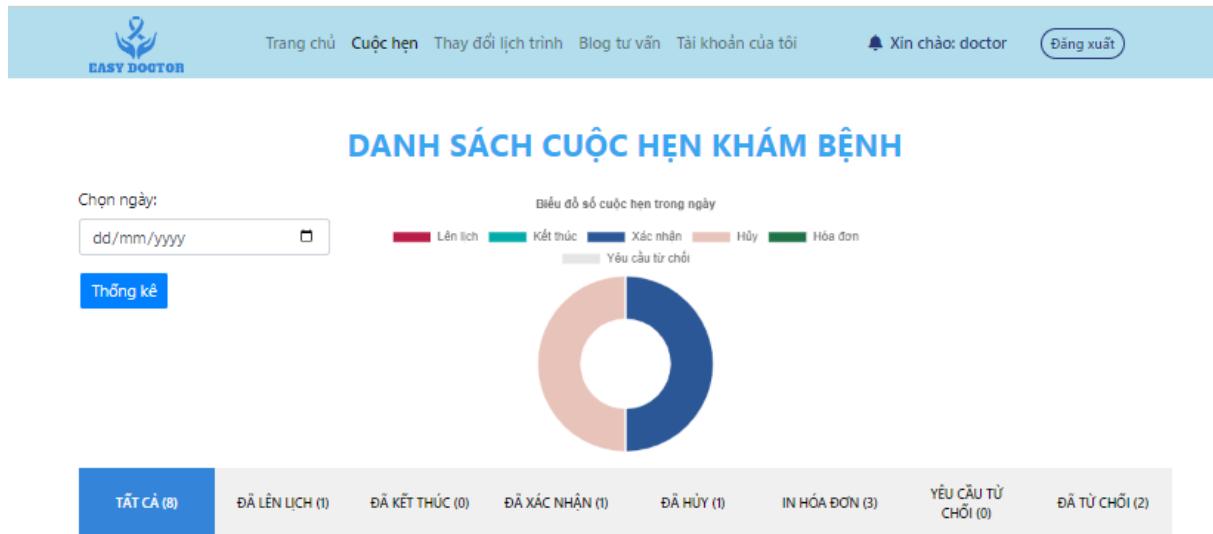
**Figure 130: Upload Certification Screen Guide**

**Use the following steps:**

- Step 1: After login to the account, users go to the "Tài khoản" page.
- Step 2: Select tab "Thông tin cá nhân". Select the certificate item to upload the certificate file in PDF format.
- Step 3: Reload this page to review the certificate online.

### **3.3.7. See list appointment**

This feature is used to see the list of appointments of doctors.

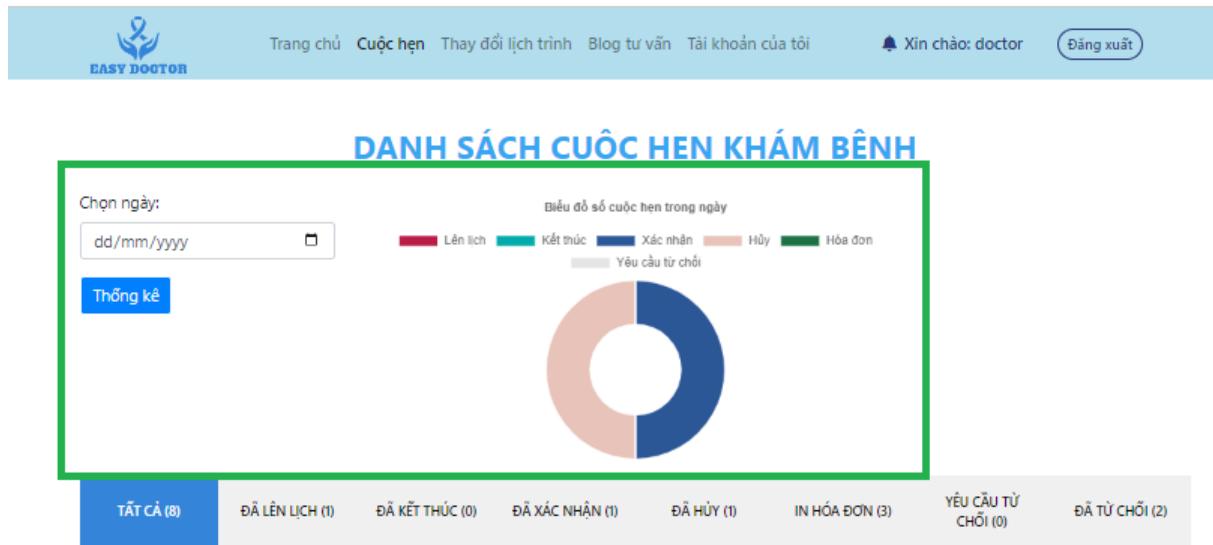


**Figure 131: See List Appointment Screen**

#### Use the following steps:

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: The user will see a list of his appointments and their status. Click "Chi tiết" to view the details of each appointment.

#### **3.3.8. Appointment statistics**



**Figure 132: Appointment Statistics Screen**

**Use the following steps:**

Step 1: After login to the account, users go to the "Cuộc hẹn" page.

Step 2: Select the date. Then click "Thống kê" to see the statistics of the day's appointments, and how many appointments are in different statuses.

### 3.3.9. Cancel appointment

This feature is used to cancel an appointment with a doctor

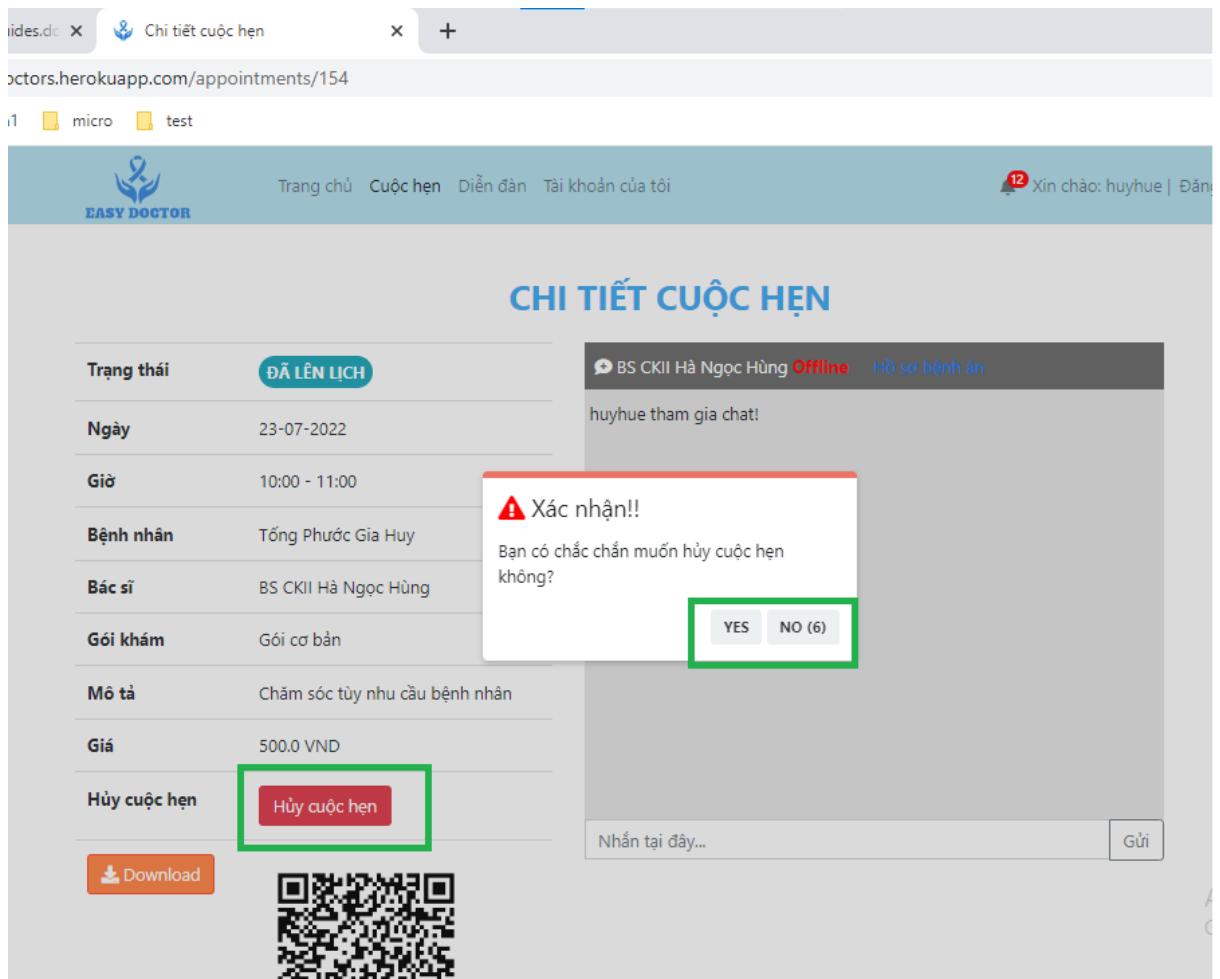


Figure 133: Cancel Appointment Screen Guide

**Use the following steps:**

Step 1: After login to the account, users go to the "Cuộc hẹn" page.

Step 2: Click on the details of the appointment booked with the patient.

Step 3: User clicks on "Hủy cuộc hẹn" to cancel.

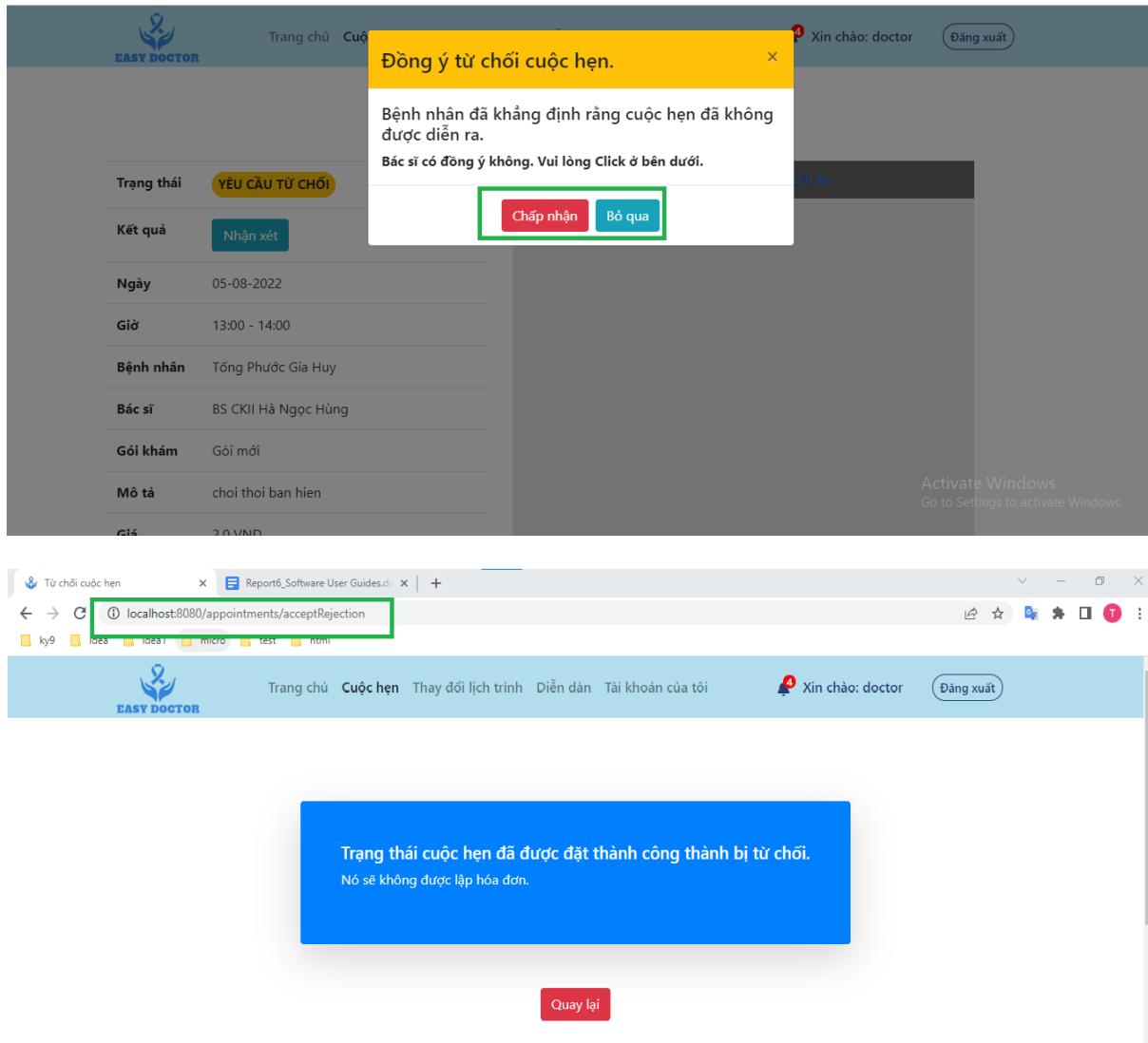
Step 4: It will display a confirmation alert. Click OK to confirm cancellation.

*It will send an email to the opponent to notify and change the cancel status. The doctor always has the right to cancel an appointment while in the scheduled state.*

### 3.3.10. Accept reject appointment

This feature is used to accept appointment declines when the appointment does not go as scheduled with the doctor role. This feature has 2 ways to accept appointment declines.

**Method 1:** Accept the rejection by clicking “Chấp nhận” on the system.

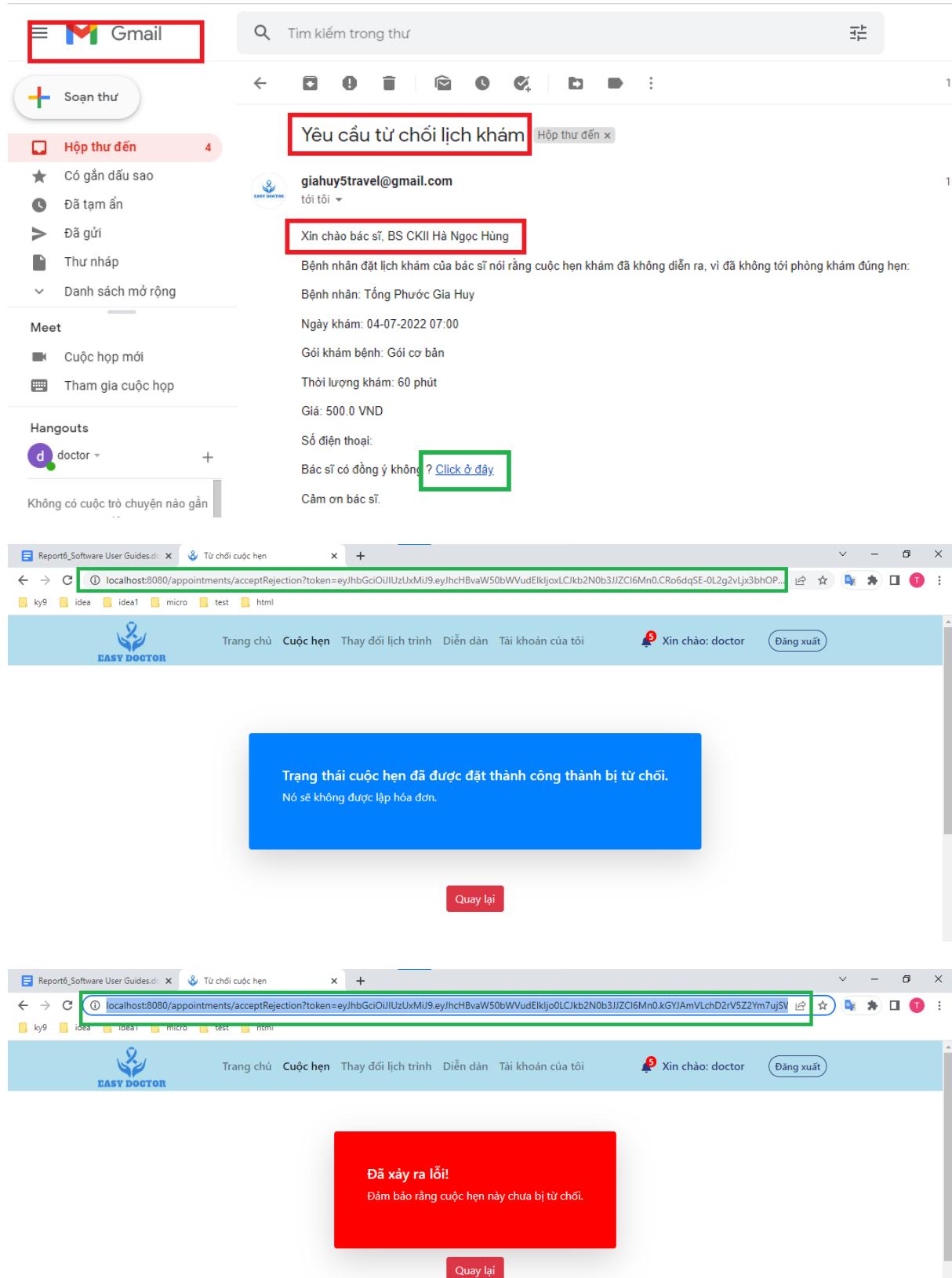


**Figure 134: Accept Reject Appointment Screen Guide**

**Use the following steps:**

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: Click on the details of the appointment booked with the patient.
- Step 3: It will show an appointment accepting the rejection popup. Click "Chấp nhận" if the doctor agrees it is true. Otherwise, click "BỎ qua".
- Step 4: Switch to the success confirmation screen.
- *The doctor has 24 hours to accept the denial from the patient. Otherwise, the system will automatically send the invoice.*

**Method 2:** Accept rejection by clicking the token link on Gmail sent to the doctor.



**Figure 135: Accept Reject Appointment Screen Guide**

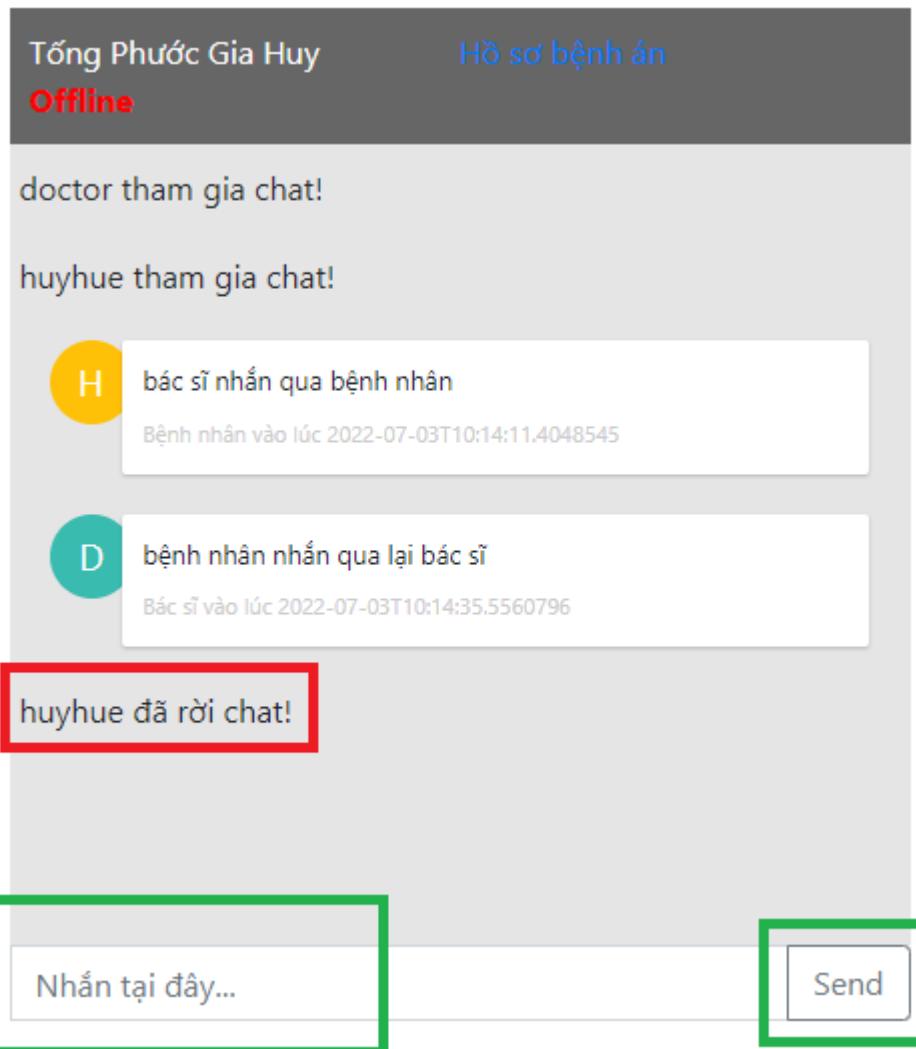
#### Use the following steps:

- Step 1: After logging in to your Gmail account, the doctor checks the mail.

- Step 2: The system will send an accepted rejection email to the doctor.
- Step 3: Doctor Click the link token sent by email to accept the rejection of the appointment.
- Step 4: Switch to the success confirmation screen.
- *The token link will be valid for 24 hours from the time of sending the email.*

### **3.3.11. Chat real-time**

This feature is used for real-time chat about appointments between patients and doctors.



**Figure 136: Chat Realtime Screen Guide**

#### **Use the following steps:**

- Step 1: After login to the account, users go to the "Cuộc hẹn" page.
- Step 2: Click on the details of the appointment booked with the patient.
- Step 3: Enter the text of the message and click send to chat about the appointment.
- *In this function, users can chat online in real time and can see the chat status of the opposite party.*

### 3.3.12. Edit scheme

This feature is used to change the doctor's schedule. This schedule will be changed to accommodate the patient.

Thứ	Thời gian bắt đầu	Thời gian kết thúc	Set mặc định
Thứ Hai	06:00 SA	06:00 CH	
Thứ Ba	12:00 CH	06:00 CH	
Thứ Tư	06:06 SA	06:00 CH	
Thứ Năm	09:00 SA	01:00 CH	
Thứ Sáu	06:00 SA	06:00 CH	
Thứ Bảy	06:00 SA	06:00 CH	
Chủ Nhật	11:00 SA	06:00 CH	

Lưu thay đổi

Activate Windows  
Go to Settings to activate

**Figure 137: Edit Scheme Screen**

#### Use the following steps:

Step 1: After login to the account, the user clicks "Thay đổi lịch trình".

Step 2: The doctor chooses the time of each day to change

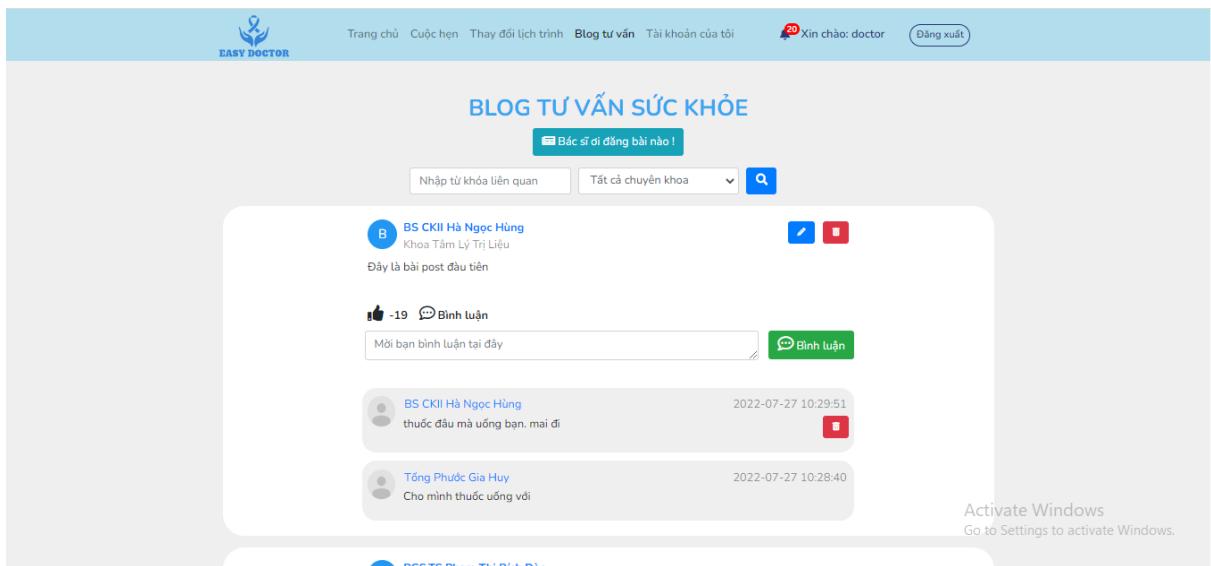
Step 3: Click "Lưu thay đổi"

Step 4: Will display a confirmation alert. The doctor selects OK to confirm.

*Appointments booked by the patient with this doctor that are not on the doctor's schedule will be cancelled and notified to the patient.*

### 3.3.13. List-post

This feature is used to list posts in Blogs for doctors.



**Figure 138: List Post Screen Guide**

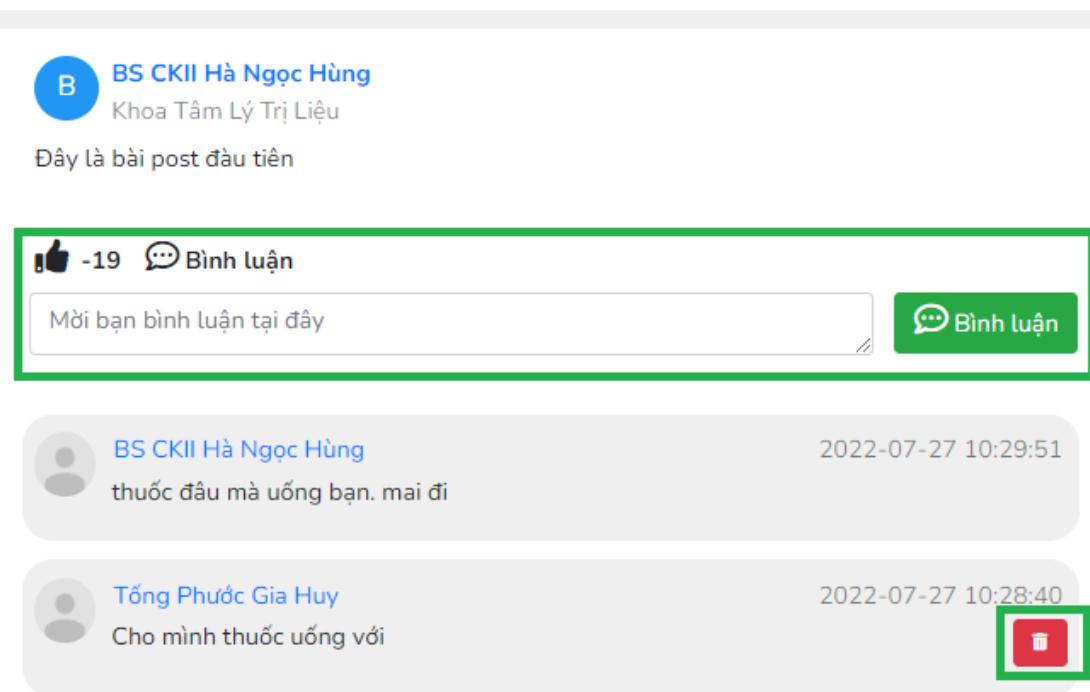
**Use the following steps:**

Step 1: After login to the account, the user clicks "Diễn đàn".

Step 2: Type in the input or specialty combo to search for related posts.

### 3.3.14. Comment/Like post

This feature is used to comment/like posts in Blogs for patients and doctors.



**Figure 139: Comment/Like Post Screen Guide**

**Use the following steps:**

Step 1: After login to the account, the user clicks "Diễn đàn".

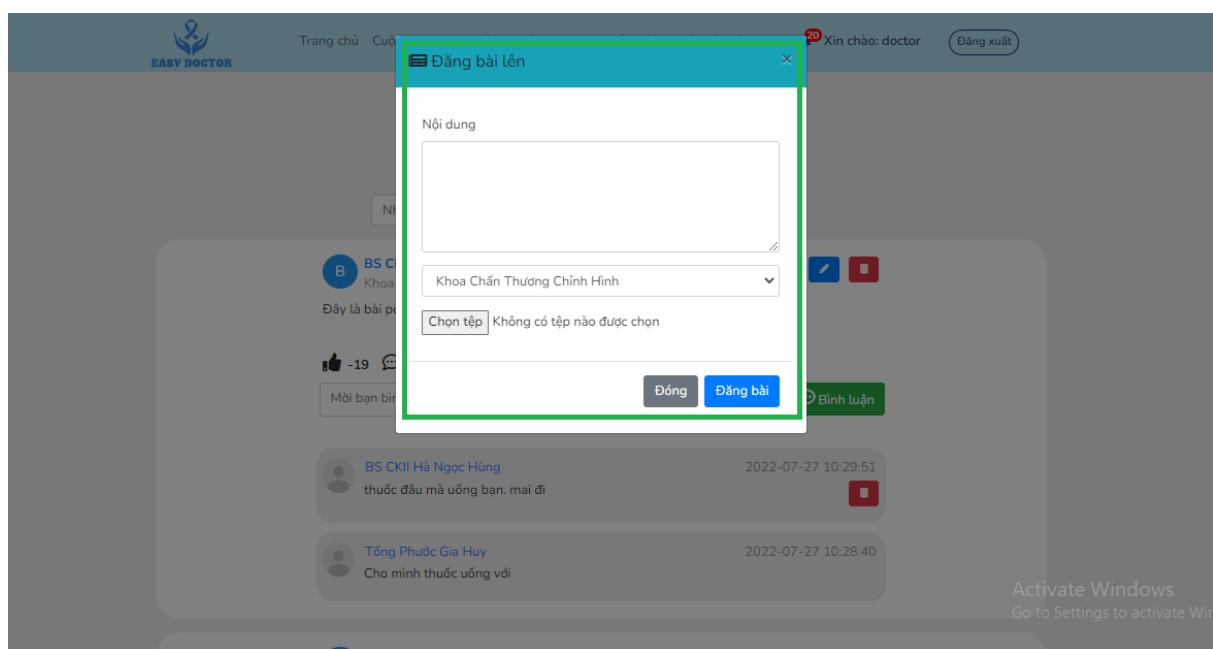
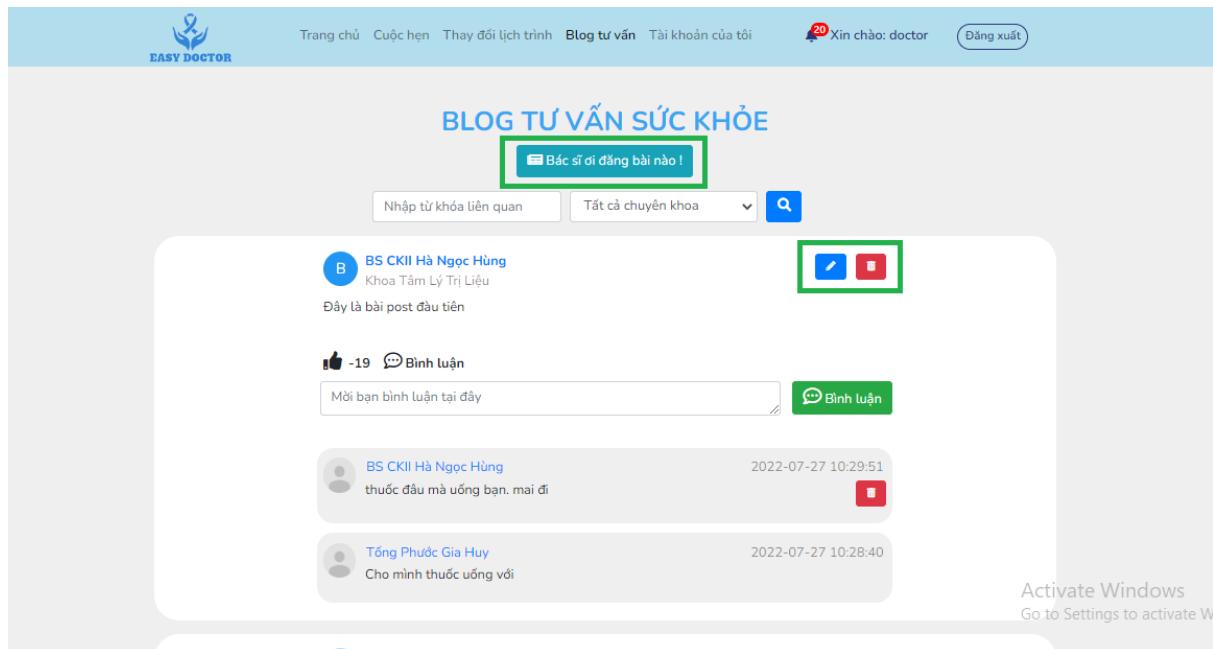
Step 2: Users can like and add and delete comments on Blog posts.

### 3.3.15. Manage post

This feature is used to manage posts in Blogs for doctors.

#### Use the following steps:

Step 1: After login to the account, the user clicks "Diễn đàn".



**Figure 140: Manage Post Screen Guide**

#### ❖ Create post

Step 2: Choose the button "Bác sĩ ơi đăng bài nào".

Step 3: Enter the correct format of fields in the form. Click "Đăng bài" to save the post.

### ❖ Update post

Step 2: Click on the edit icon in every post. Show popup to update post

Step 3: Enter the correct format of fields in the form. Click "Đăng bài" to update the post.

### ❖ Delete post

Step 2: Click the delete icon in every post

Step 3: Display alert to confirm the deletion, Click "OK" to confirm delete post.

#### 3.3.16. Read notification

This feature is used to read notifications from the doctor.

The screenshot shows a web browser window for 'easydoctors.herokuapp.com/notifications'. The title bar says 'Report6\_Software User Guides.dox' and 'Thông báo'. The address bar shows the URL. Below the address bar, there are several small yellow icons labeled 'ky9', 'idea', 'idea1', 'micro', and 'test'. The main content area has a blue header with the 'EASY DOCTOR' logo. Below the header, there are navigation links: 'Trang chủ', 'Cuộc hẹn', 'Diễn đàn', and 'Tài khoản của tôi'. On the right side of the header, it says 'Xin chào: huyhue | Đăng xuất'. The main content is titled 'THÔNG BÁO EASYDOCTOR'. It features a table with columns: 'Thời gian', 'Tiêu đề', and 'Nội dung'. The table contains eight rows of data. To the right of the table is a vertical sidebar with a green border. At the top of the sidebar is a dropdown menu with options: 'Tất cả', 'Đã đọc', and 'Chưa đọc'. Below the dropdown is a button labeled 'Đọc tất cả'. Further down the sidebar are several blue circular icons with white symbols, likely for message or notification actions. At the bottom of the sidebar, it says 'Activate Windows' and 'Go to Setup to activate Windows.'

Figure 141: Read Notification Screen Guide

#### Use the following steps:

Step 1: After login to the account, the user clicks on the bell icon to the right of the navigation bar

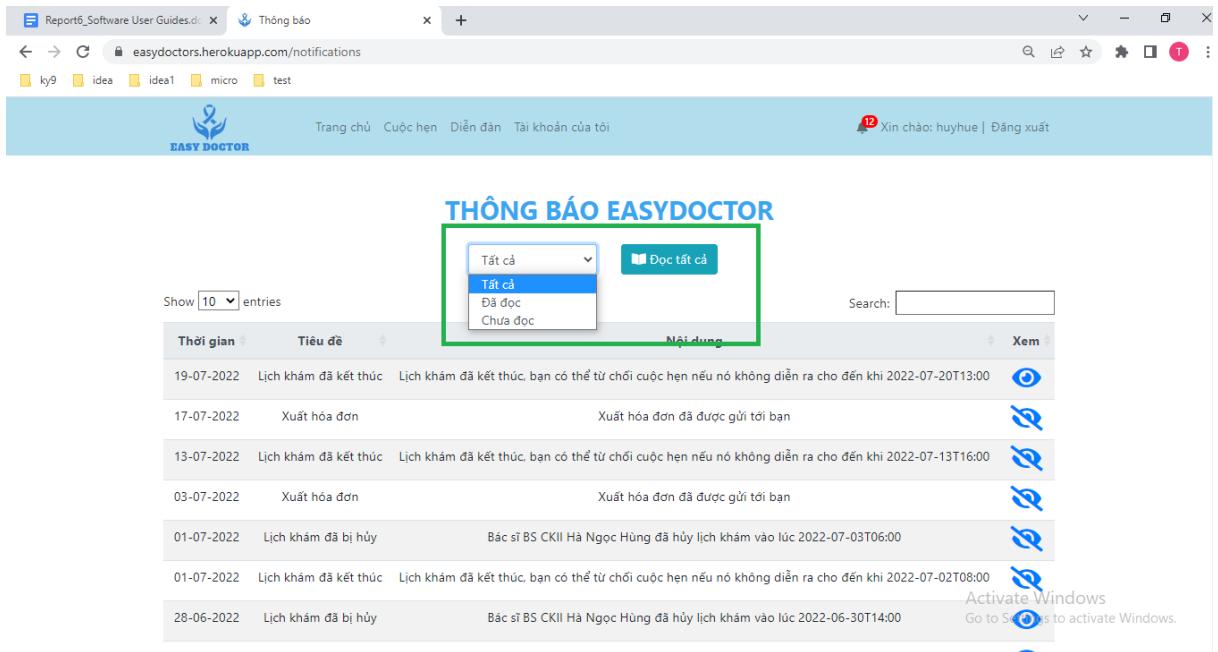
Step 2: The user clicks on the message view icon on each message on the board.

Step 3: It will navigate to that notification's appointment details page.

*In this function, when the user clicks on each notification, it will change the status of that notification.*

#### 3.3.17. Filter notification

This feature is used to filter notifications of patients. The user wants to see read or unread notifications.



**Figure 142: Filter Notification Screen Guide**

**Use the following steps:**

Step 1: After login to the account, the user clicks on the bell icon to the right of the navigation bar.

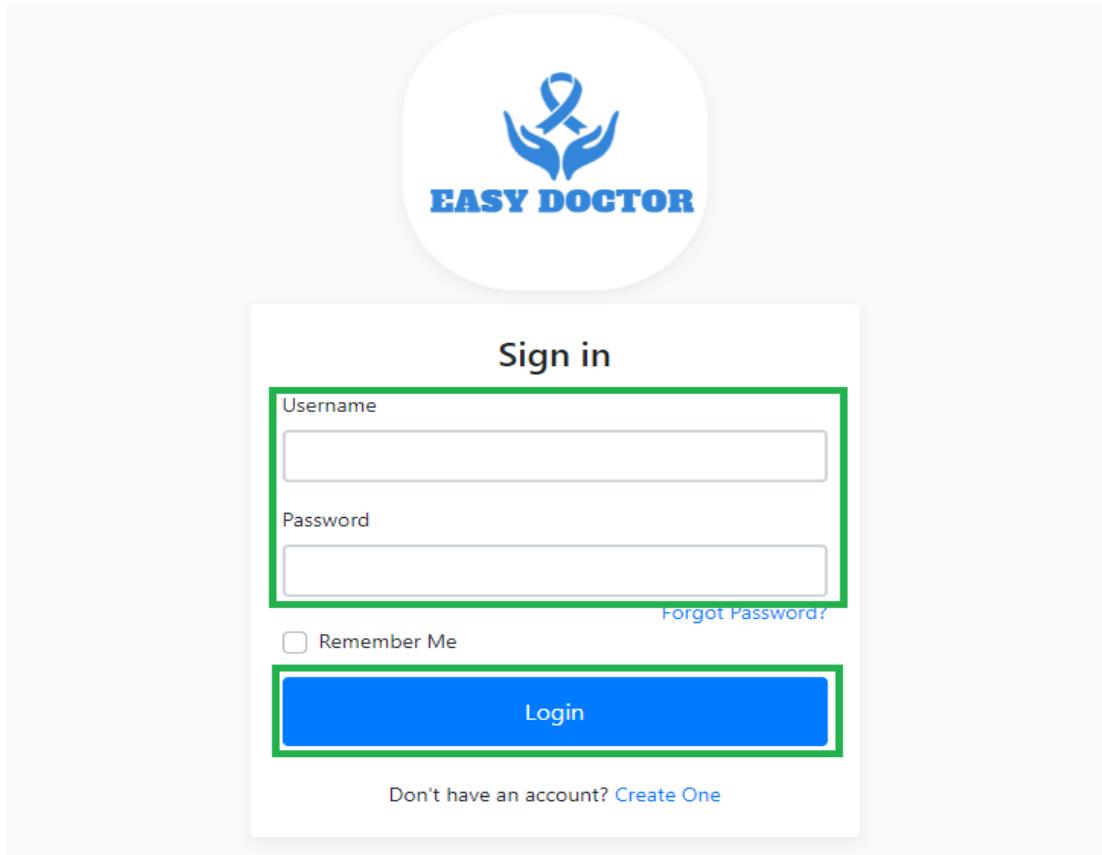
Step 2: The user selects the notification status in the combo box.

*In case the user wants to change all notifications to read. Then choose "Đọc tất cả".*

### **3.4 User manual guide for Admin**

#### **3.4.1. Login**

This feature is used to login into the system with an admin role.



**Figure 143: Login Screen Guide**

**Use the following steps:**

Step 1: User enter the link : <https://easydoctors.herokuapp.com/login>

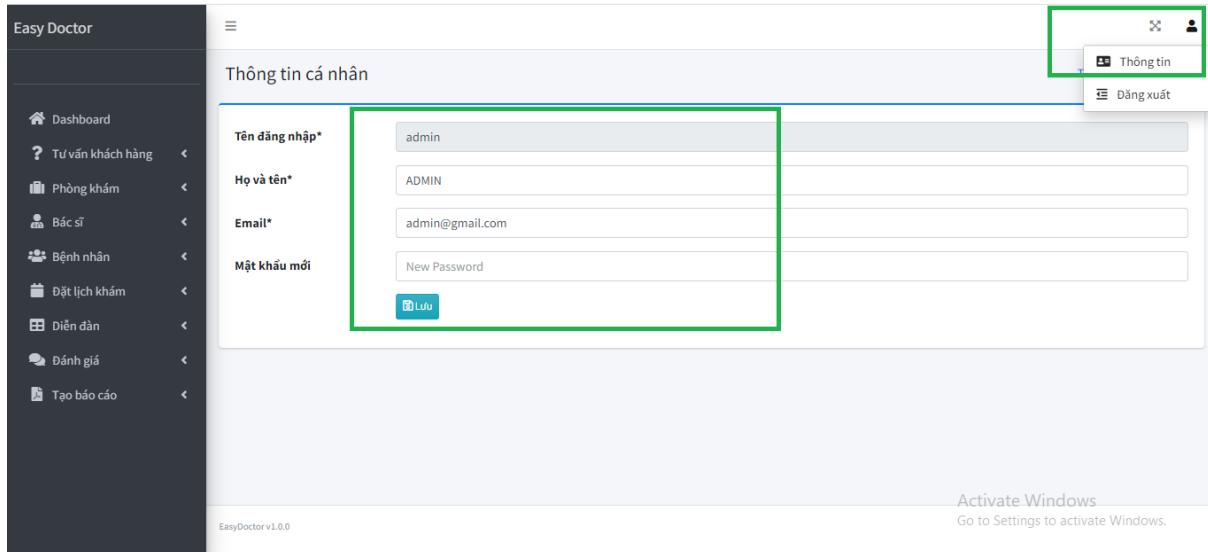
Step 2: Fill in the information of the account: Email or Username and Password.  
(admin/ 123456)

Step 3: Click the "Đăng Nhập" button on this page.

*If the Username/ Email and Password you entered are correct, the user has logged in successfully.*

#### **3.4.2. View profile**

This feature is used to view the profile of an admin.



**Figure 144: View Profile Screen Guide**

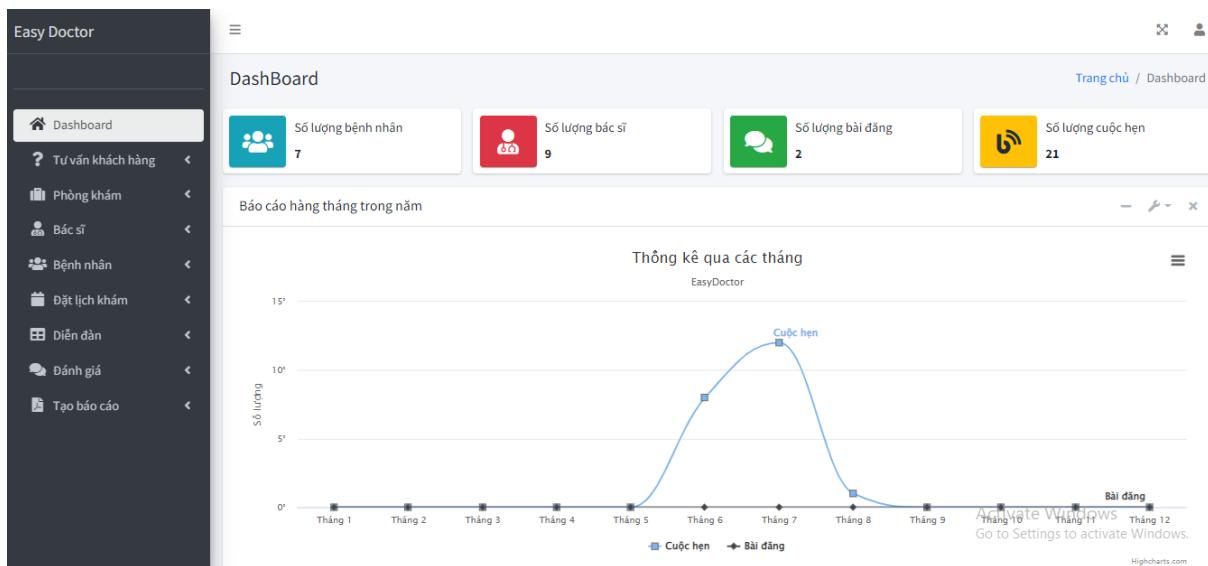
#### Use the following steps:

Step 1: After login to the account, the admin click on the user icon on the right side of the screen, select "Thông tin".

Step 2: Enter in the form the information you want to change to the correct format. Click "" to change the information.

#### **3.4.3. Dashboard**

After successfully logging into the admin account. It will display statistical information according to figures and illustrative charts.



**Figure 145: Dashboard Screen**

#### **3.4.4. Customer consulting**

This feature is used for customer consulting of an admin.

**Figure 146: Customer Consulting Screen Guide**

#### Use the following steps:

- Step 1: After login to the account, the admin selects the "Hỏi đáp" item of the navigation bar on the left.
- Step 2: Select the response icon in the list, it will push the information down the form for the admin to reply.
- Step 3: Enter the right message and press "Phản hồi" to send an email to the customer.

#### **3.4.5. Manage Clinic**

This feature is used to manage the clinic of an admin.

#### Use the following steps:

- Step 1: After login to the account, the admin selects the "Thêm phòng khám" item of the navigation bar on the left.

**Figure 147: Manage Clinic Screen Guide**

❖ **Create Clinic**

Step 2: Enter the correct format of fields in the form. Click "Lưu" to save the clinic.  
*The clinic name must be different from the one on the list.*

❖ **Update Clinic**

Step 2: Click on the edit icon in the "Hành động" to get the data on the form.  
 Step 3: Enter the correct format of fields in the form. Click "Lưu" to update the clinic.  
*The clinic name must be different from the one on the list.*

❖ **Delete Clinic**

Step 2: Click the delete icon in the "Hành động" to confirm the deletion.  
 Step 3: Display alert to confirm the deletion, Click "OK" to confirm.

### 3.4.6. Manage Package

This feature is used to manage the package of an admin.

**Use the following steps:**

Step 1: After login to the account, the admin selects the "Thêm gói khám" item of the navigation bar on the left.

#	Name	Price	Duration	Cancelable	Description	Action
1	Gói cơ bản	500	60	true	Chăm sóc túy nhu cầu bệnh nhân	
2	Gói toàn diện	1000	60	true	Chăm sóc toàn diện sức khỏe bệnh nhân	
3	Gói 6 tháng	3200	60	true	Chăm sóc trọn gói trong vòng 6 tháng	
4	gói 1nay bat tan	100	1	false	choi thoi ban hiem	
5	admin qu	120	60	true	sadasdsda	

**Figure 148: Manage Package Screen Guide**

❖ **Create Package**

Step 2: Enter the correct format of fields in the form. Click "Lưu" to save the package.  
*The package name must be different from the one on the list.*

❖ **Update Package**

Step 2: Click on the edit icon in the "Hành động" to get the data on the form.  
 Step 3: Enter the correct format of fields in the form. Click "Lưu" to update the package.  
*The package name must be different from the one on the list.*

#### ❖ Delete Package

Step 2: Click the delete icon in the "Hành động" to confirm the deletion.

Step 3: Display alert to confirm the deletion, Click "OK" to confirm.

### 3.4.7. Manage Doctor

This feature is used to manage the doctor of an admin.

#### Use the following steps:

Step 1: After login to the account, the admin selects the "Thêm bác sĩ" item of the navigation bar on the left.

The screenshot shows the 'Easy Doctor' application interface. On the left, a sidebar menu lists various features: Thống kê chung, Tư vấn khách hàng, Phòng khám, **Bác sĩ** (which is highlighted with a green box), Bệnh nhân, Đặt lịch khám, Blog tư vấn, Đánh giá, and Tạo báo cáo. The main content area has a title 'Danh sách bác sĩ'. It contains a form for adding a new doctor with fields for Tên đăng nhập, Họ và tên, Email, Chuyên khoa, Phòng khám, and Hành động (with radio buttons for Có and Không). Below the form is a table listing six existing doctors, each with a green-bordered 'Edit' icon in the 'Hành động' column. The table columns are: #, Tên đăng nhập, Email, Họ và tên, Chuyên khoa, Phòng khám, Hành động, and Hành động (containing the edit icons).

#	Tên đăng nhập	Email	Họ và tên	Chuyên khoa	Phòng khám	Hành động	Hành động
1	doctor	tppgiahuy5@gmail.com	BS CKII Hà Ngọc Hùng	Khoa Chấn Thương Chỉnh Hình	Phòng khám Tâm Đức	true	
2	doctor1	doctor1@gmail.com	PGS.TS.Phạm Thị Bích Đào	Khoa Tâm Lý Trí Liệu	Phòng khám Tâm Đức	true	
3	doctor2	doctor2@gmail.com	PGS.TS.Đinh Ngọc Sơn	Khoa Răng Hàm Mặt	Phòng khám Thiện Tâm	false	
4	doctor3	doctor3@gmail.com	TS.Nguyễn Hoàng Long	Khoa Tâm Lý Trí Liệu	Phòng khám Thiện Tâm	false	
5	doctor4	doctor4@gmail.com	Ths.BS.Trần Đức Đại	Khoa Tâm Lý Trí Liệu	Phòng khám Tâm Đức	false	
6	doctor5	doctor5@gmail.com	BS.Nguyễn Thị Ngọc Lan	Khoa Sản	Phòng khám Đa Khoa	false	

Figure 149: Manage Doctor Screen Guide

#### ❖ Create Doctor

Step 2: Enter the correct format of fields in the form. Click "Lưu" to save the doctor.

*The username and email must be different from the name in the list. The system will send login information to the newly added email.*

#### ❖ Update Doctor

Step 2: Click on the edit icon in the "Hành động" to get the data on the form.

Step 3: Enter the correct format of fields in the form. Click "Lưu" to update the doctor.

#### ❖ View detail Doctor

Step 2: Click on the see icon in the "Hành động" to view the doctor.

### 3.4.8. Manage Patient

This feature is used to manage the patient of an admin.

#### Use the following steps:

Step 1: After login to the account, the admin selects the "Xem bệnh nhân" item of the navigation bar on the left.

The screenshot shows the 'Thêm bệnh nhân' (Add Patient) screen in the Easy Doctor application. The left sidebar navigation bar has 'Bệnh nhân' selected. The main form contains fields for 'Tên đăng nhập', 'Mật khẩu', 'Email', 'Địa chỉ', and 'Hoạt động'. Below the form is a table listing four existing patients with columns for ID, Username, Email, Name, Phone, Address, and Status. The 'Hành động' column for each patient contains four icons: a pencil, a person, a delete, and a refresh. A green box highlights the 'Lưu' (Save) button at the bottom of the form.

#	Tên đăng nhập	Email	Họ và tên	Số di động	Địa chỉ	Hoạt động	Hành động
1	huyhue	tphgjahu5@gmail.com	Tống Phước Gia Huy	01662529468	61 Lê Minh, Huế	true	
2	giahuy	huytpgde140306@fpt.edu.vn	gia huy	01362529468	can tho	false	
3	thaoht	thaoht32@fpt.edu.vn	cô thảo	01662529468	da nang	true	
4	lelong	longlqde140106@fpt.edu.vn				true	

**Figure 150: Manage Patient Screen Guide**

### ❖ Create Patient

Step 2: Enter the correct format of fields in the form. Click "Lưu" to save the patient. *Username and email must be different from the name in the list. The system will send login information to the newly added email.*

### ❖ Update Patient

Step 2: Click on the edit icon in the "Hành động" to get the data on the form.  
Step 3: Enter the correct format of fields in the form. Click "Lưu" to update the patient.

### ❖ View detail Patient

Step 2: Click on the see icon in the "Hành động" to view the patient.

### 3.4.9. Manage appointment

This feature is used to manage the appointment of an admin.

#### Use the following steps:

Step 1: After login to the account, the admin selects the "Xem lịch khám" item of the navigation bar on the left.

#	Bác sĩ	Bệnh nhân	Thời gian bắt đầu	Thời gian kết thúc	Gói khám bệnh	Trạng thái	Hành động
1	BS CKII Hà Ngọc Hùng	Tổng Phuộc Gia Huy	2022-08-03T08:06	2022-08-03T09:06	Gói cơ bản	SCHEDULED	<span>Hủy</span>
2	BS CKII Hà Ngọc Hùng	Tổng Phuộc Gia Huy	2022-07-26T14:00	2022-07-26T15:00	Gói cơ bản	CONFIRMED	
3	BS CKII Hà Ngọc Hùng		2022-07-24T14:00	2022-07-24T15:00	Gói cơ bản	INVOICED	
4	BS CKII Hà Ngọc Hùng		2022-07-24T10:00	2022-07-24T11:00	Gói cơ bản	INVOICED	
5	BS CKII Hà Ngọc Hùng	Tổng Phuộc Gia Huy	2022-07-23T10:00	2022-07-23T11:00	Gói cơ bản	INVOICED	
6	BS CKII Hà Ngọc Hùng		2022-07-22T06:00	2022-07-22T07:00	Gói cơ bản	INVOICED	
7	BS CKII Hà Ngọc Hùng	Tổng Phuộc Gia Huy	2022-07-21T11:00	2022-07-21T12:00	Gói cơ bản	INVOICED	
8	BS CKII Hà Ngọc Hùng	Tổng Phuộc Gia Huy	2022-07-19T12:00	2022-07-19T13:00	Gói cơ bản	REJECTION_REQUESTED	
9	BS CKII Hà Ngọc Hùng	Hà Thị Thảo	2022-07-18T17:00	2022-07-18T18:00	Gói cơ bản	INVOICED	
10	BS CKII Hà Ngọc Hùng		2022-07-15T06:00	2022-07-15T07:00	Gói cơ bản	CANCELED	

Figure 151: Manage Appointment Screen Guide

#### ❖ Cancel appointment

Step 2: Click the "Hủy" button in the "Hành động" section to cancel the appointment.  
Step 3: Display an alert to confirm the cancellation of the appointment. Click "OK" to confirm successful cancellation.

#### ❖ View detailed appointment

Step 2: Click on the see icon in the "Hành động" to view the appointment.

#### ❖ Invoice appointment

Step 2: Click the "Xuất hóa đơn" button in the "Hành động" section to invoice an appointment.

Step 3: It will display an alert with 2 options "PAID" and "ISSUED". Select 1 to confirm invoice printing.

*The system will send an email containing the invoice PDF file to the patient with the billing status paid or unpaid.*

#### ❖ Automatically issue invoices

*(if the admin wants to issue all the appointments that are in the confirmed state, otherwise the system will automatically issue the invoice on the first day of every month).*

Step 2: Click the "Tự động phát hành hóa đơn" button.

Step 3: It will display a confirmation alert. Click "OK" to agree to confirm.

*The system will change all the appointments in the confirmed status to print invoices and email the invoice PDF files to those patients with the unpaid billing status.*

### 3.4.10. Manage invoices

This feature is used to manage the invoice of an admin.

#### Use the following steps:

Step 1: After login to the account, the admin selects the "Hóa đơn" item of the navigation bar on the left.

#	Số	Ngày xuất hóa đơn	Trạng thái	Tổng cộng	Tải về	Thanh toán
114	HD: 2022/7-ID: 7	2022-07-25T16:30:40	issued	1000.0		
104	HD: 2022/7-ID: 6	2022-07-24T16:34:50	issued	500.0		
94	HD: 2022/7-ID: 5	2022-07-23T07:40:40	issued	500.0		
84	HD: 2022/7-ID: 4	2022-07-22T12:12:31	issued	500.0		
74	HD: 2022/7-ID: 3	2022-07-20T03:10:21	issued	500.0		
64	HD: 2022/7-ID: 2	2022-07-17T07:36	issued	500.0		
54	HD2022/7/1	2022-07-03T02:59:50	issued	500.0		
44	HD2022/6/5	2022-06-26T18:49	issued	500.0		
34	HD2022/6/4	2022-06-26T10:34	issued	1000.0		

Figure 152: Manage Invoice Screen Guide

#### ❖ Download Invoice

Step 2: Click on the download icon in the "Tải về" to download the appointment. The system will download the invoice PDF file to the computer.

#### ❖ Pay Invoice

Step 2: Click the "Thanh toán" button to confirm bill payment.

Step 3: Display an alert to confirm bill payment. Click "OK" to confirm payment.

*The system will send an email containing the invoice PDF file to the patient with the billing status paid.*

### 3.4.11. Manage post

This feature is used to manage the post of an admin.

#### Use the following steps:

Step 1: After login to the account, the admin selects the "Thêm bài" item of the navigation bar on the left.

#	Người đăng	Nội dung	Chuyên khoa	Ảnh	Thời gian	Lượt thích	Số bình luận	Hành động
1	BS CKII Hà Ngọc Hùng	Đây là bài post đầu tiên	Khoa Tâm Lý Trí Liệu			-21	-21	
2	PGS.TS Phạm Thị Bích Đào	tôi là bác sĩ 1 đăng bài (đã fix)	Khoa Tâm Lý Trí Liệu			1	1	

**Figure 153: Manage Post Screen Guide**

❖ **Create post**

Step 2: Enter the correct format of fields in the form. Click "Lưu" to save the post.

❖ **Update post**

Step 2: Click on the edit icon in the "Hành động" to get the data on the form.

Step 3: Enter the correct format of fields in the form. Click "Lưu" to update the post.

❖ **Delete post**

Step 2: Click the delete icon in the "Hành động" to confirm the deletion.

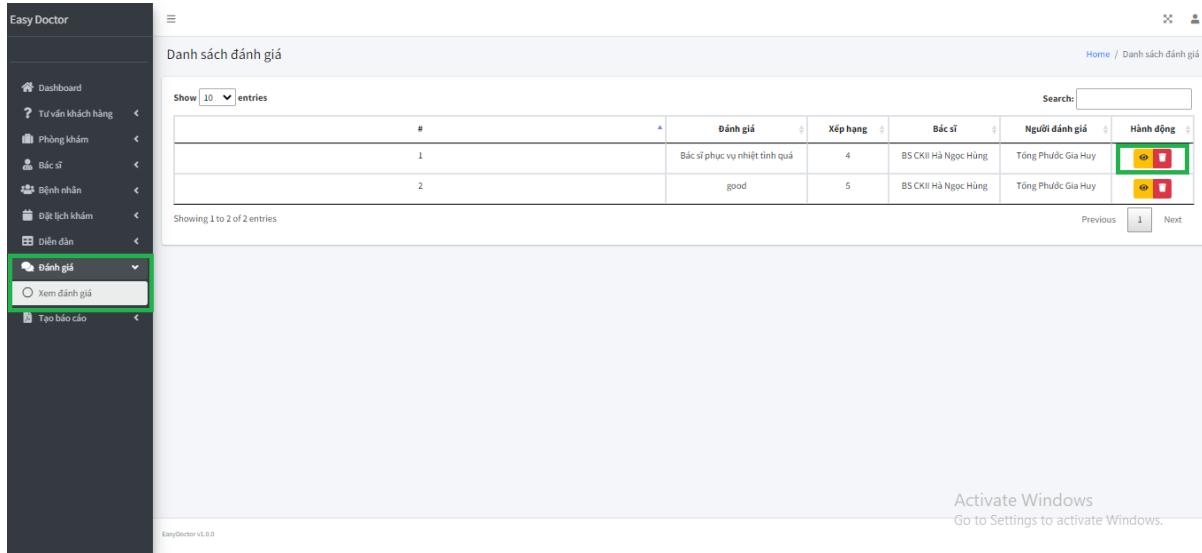
Step 3: Display alert to confirm the deletion, Click "OK" to confirm.

### 3.4.12. Manage review

This feature is used to manage the review of an admin.

**Use the following steps:**

Step 1: After login to the account, the admin selects the "Xem đánh giá" item of the navigation bar on the left.



**Figure 154: Manage Review Screen Guide**

❖ **View detailed review**

Step 2: Click the see icon in the "Hành động" to see a list of reviews of reviewed doctors.

❖ **Delete review**

Step 2: Click the delete icon in the "Hành động" to confirm the deletion.

Step 3: Display alert to confirm the deletion, Click "OK" to confirm.

## VII. Conclusion

Our team has built a web application to book appointments for patients who have a need for doctors, and we are restricting the data coverage to Da Nang city only. We have a client-side consisting of doctors, and patients, this system supports patients booking appointments smoothly and easily. In addition, patients can learn more medical knowledge

through the doctor's blog and can easily search for recently booked doctors or around their location. Besides, they can chat directly with doctors to get a better understanding of the patient's medical condition.

Our system helps patients book an appointment quickly, many examination packages can be easily chosen for the patient.

However, for now, our team has not developed an application for mobile apps and, since this is a new project, there may be some features that are not really optimised.

In the future, we will further improve the appointment booking function. We will continue to develop more functions such as:

- Locate the user's location, to be able to accurately recommend the clinics around that location.
- Learn more about business requirements in the medical domain to develop EasyDoctor.
- Build more features that can be provided directly at home service for patients.
- Integrate EasyDoctor with other services such as medical cards, insurance, online payment.
- We aim to develop a recommendation system to recommend the right doctor for the patient's condition.

Finally, since we want to build a project for the community, the EasyDoctor app is completely free for users.

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