



FPT UNIVERSITY

GROUP ASSIGNMENT

Class: SE1711
Lecture: Nguyễn Mạnh Hùng
Subject: SWD392
Group: 2
Member: Nguyễn Hồng Đăng - HE161726
Đào Thế Anh - HE161741
Nguyễn Tuấn Dũng - HE161793
Đặng Việt Hưng - HE163878
Đỗ Thế Tùng - HE161150

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1. Prepare functional requirements (BRS-URS) SRS

a.Business Requirements (BR):

- Ensure compliance with privacy and data protection regulations for processing sensitive medical information.
- Restrict access to patient records and scheduling functions based on user roles.
- Appointment scheduling functionality.

- Cancellation of appointments should follow specified rules, with the possibility of requiring advance notice to avoid unnecessary cancellation fees.
- Physicians must check and update patient records upon initial contact or follow-up appointments.
- Clear documentation of test results and proposed treatments in patient records.
- New patients need to provide initial record information during the registration process.
- Patient records must be created and updated whenever there are changes to health status or personal information.
- Patients are responsible for providing accurate and continuous updates about themselves.
- Physicians and staff should have access to patient records only within the scope of their duties, adhering to healthcare security rules.

b. User Requirements (UR):

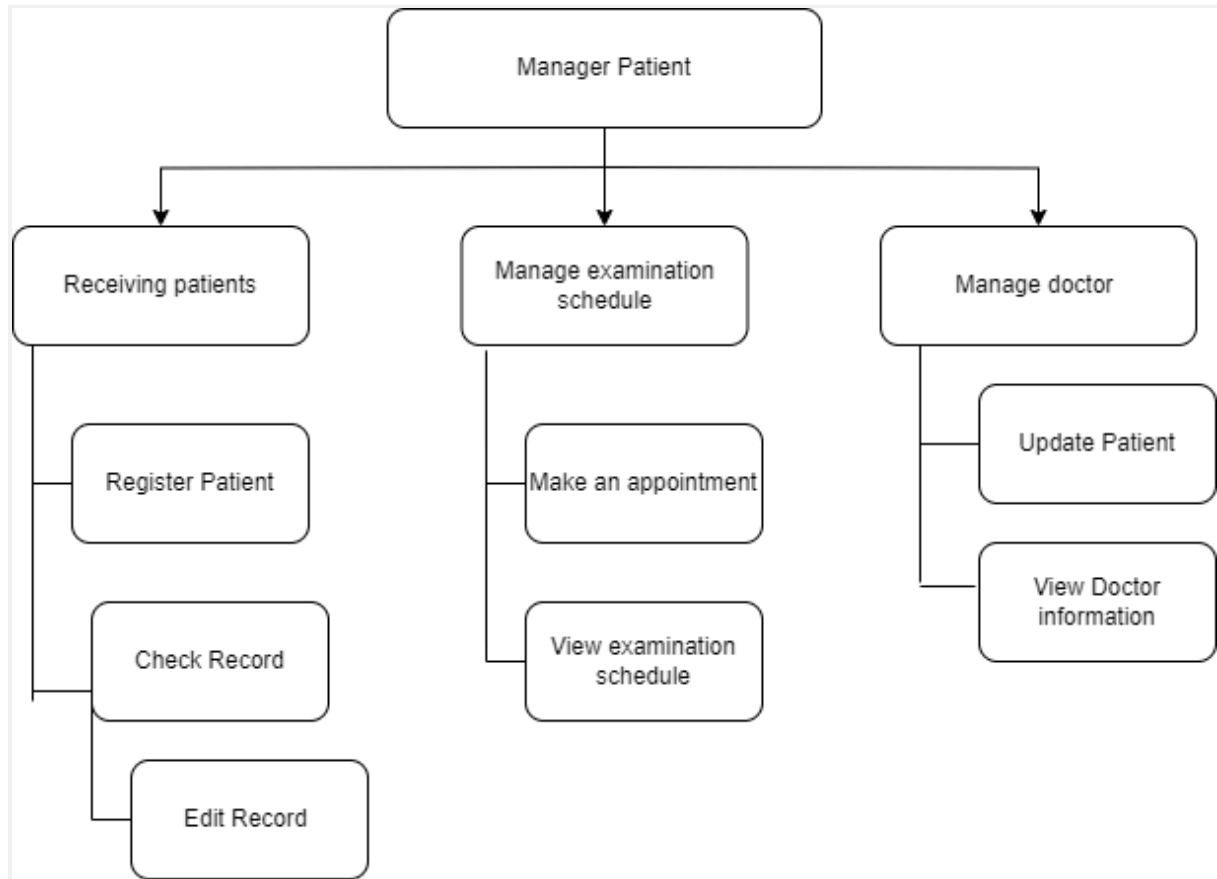
- Registration and patient information management:
 - New patients must provide initial record information during their first visit.
 - Current patients update records during follow-up visits.
 - Patient records include personal information, medical history, and contact details.
- Appointment scheduling:
 - Clinic staff can schedule appointments for patients with available physicians.
 - Patients can request, confirm, or reject appointments.
 - Confirmation and reminder notifications for scheduled appointments.
- Health examination requests:
 - Staff can receive and process health examination requests.
 - Assign physicians based on availability and expertise.

c. Software Requirement Specification (SRS):

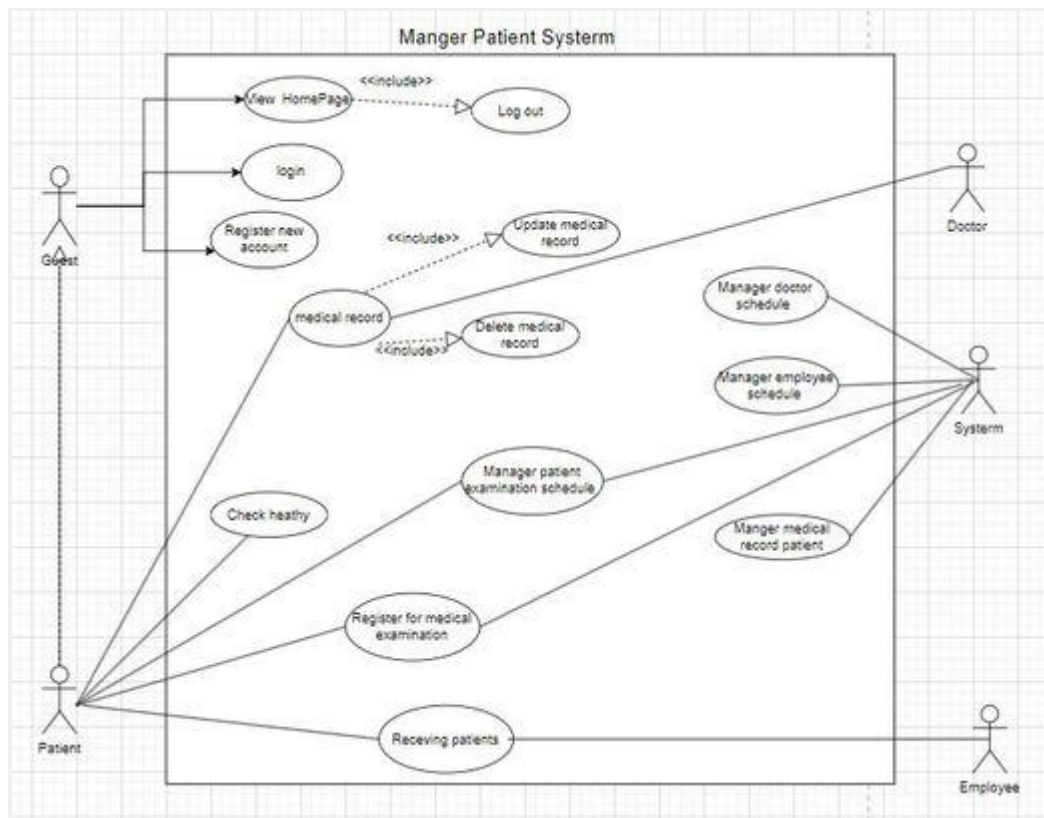
- User authentication:
 - Secure login for clinic staff and administrators.
- Patient management:
 - CRUD operations for patient records.
 - Search and retrieval of patient records.
- Appointment management:
 - View schedules for available positions.
 - Process appointment requests.
 - Notifications for staff and patients.
- Medical examinations:
 - Record and track health examination requests.
 - Assign physicians based on expertise and availability.
- Reporting:
 - Generate reports on patient statistics, appointment history, and physician workload.

2.Create functional diagrams through use case diagrams and use case descriptions

a.Functional diagram:



b. Use case diagram:



2.1 Employee

2.1.1 View list of all Employee

Use Case ID	UC - 06	Use Case Name	View list of all Employee
Created By	Anhdt	Created Date	18/03/2024
Primary Actor	Admin	Secondary Actor	N/A
Description	The "View list of all Employee" function allows admins to view the list of existing doctors in the hospital management system.		
Pre-conditions	The administrator successfully logged into the system		
Post-conditions	<ul style="list-style-type: none"> The list of Employees is displayed 		

	<ul style="list-style-type: none"> Detailed information for each Employee
Normal Flow	<ul style="list-style-type: none"> Access the management interface: Admin logs in to the doctor management system with his username and password. Select the "Employee Management" function Display list of doctors: The system displays a list of all Employee currently in the system
Alternative Flow	N/A
Exceptions	<ul style="list-style-type: none"> There are no doctors in the list: the message "Employee list is empty" appears. Database connection error Data display error
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.1.2 Add Employee

Use Case ID	UC - 07	Use Case Name	Add Employee
Created By	Anhdt	Created Date	18/03/2024
Primary Actor	Admin	Secondary Actor	N/A
Description	The "Add Employee" function allows the admin to add a new Employee to the hospital management system., patient information, and information related to their personal accounts.		
Pre-conditions	The administrator successfully logged into the system Make sure the Employee information is valid with the database		
Post-conditions	<ul style="list-style-type: none"> Show the message "Successfully Update Employee to the system" Newly added physician information must be included in the list 		
Normal Flow	<ul style="list-style-type: none"> Access the management interface: Admin logs in to the Employee management system with his username and password. Select the "Add Employee" function Enter new Employee information: Admin fills in the necessary information fields for the new Employee Confirm information: After entering all information, the admin confirms the new Employee information and continues. 		

	<ul style="list-style-type: none"> • Save information: The system checks the entered information and saves new Employee information into the database. • Display success message • Information displayed in the Employee list: The newly added Employee will appear in the list of Employee on the system's Employee management interface.
Alternative Flow	N/A
Exceptions	<ul style="list-style-type: none"> • Employee information is not valid compared to the database • The message shows that the information needs to be re-validated
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.1.3 Update Employee

Use Case ID	UC - 08	Use Case Name	Update Employees
Created By	Anhdt	Created Date	18/03/2024
Primary Actor	Admin	Secondary Actor	N/A
Description	The "Update Employee " function allows the admin to update Employee to the hospital management system.		
Pre-conditions	The administrator successfully logged into the system Make sure the Employee information is valid with the database		
Post-conditions	<ul style="list-style-type: none"> • The message "Updating Employee into the system successfully" is displayed. • Updated Employee information must be included in the list 		
Normal Flow	<ul style="list-style-type: none"> • Access the management interface: Admin logs in to the doctor management system with his username and password. • Select the "Employee Management" function • Select the function "Update Employee" • Enter Employee information that needs to be updated: Admin fills in the necessary information fields for the Employee • Confirm information: After entering all information, the administrator confirms the Employee information that needs to be updated and continues. 		

	<ul style="list-style-type: none"> • Save information: The system checks the entered information and saves that Employee information into the database. • Display success message • Information displayed in the Employee list: That Employee will appear in the list of Employee on the system's Employee management interface.
Alternative Flow	N/A
Exceptions	<ul style="list-style-type: none"> • Employee information is not valid compared to the database • The message shows that the information needs to be re-validated
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.1.4 Delete Employee

Use Case ID	UC - 09	Use Case Name	Delete Employee
Created By	Anhdt	Created Date	18/03/2024
Primary Actor	Admin	Secondary Actor	N/A
Description	The "Delete Employee" function allows the admin to Delete Employee to the hospital management system.		
Pre-conditions	The administrator successfully logged into the system The Employee must be on the list		
Post-conditions	<ul style="list-style-type: none"> • The message "Delete Employee into the system successfully" is displayed. • The Employee no longer appears on the list 		
Normal Flow	<ul style="list-style-type: none"> • Access the management interface: Admin logs in to the Employee management system with his username and password. • Select the "Employee Management" function • Select the function "Delete Employee" • Confirm deletion • Confirm and complete the process: After confirming the deletion, the system deletes the Employee from the database and displays a message confirming that the Employee has been successfully deleted. 		
Alternative Flow	N/A		
Exceptions	<ul style="list-style-type: none"> • Employee don't exist • Database connection error 		

	<ul style="list-style-type: none"> Employee are being linked to other data Unknown system error
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.1.5 View list of all medical appointments

Use Case ID	UC - 10	Use Case Name	View list of all medical appointments
Created By	Anhdt	Created Date	18/03/2024
Primary Actor	Admin	Secondary Actor	N/A
Description	The "View list of all medical appointments" function allows admins to view the list of existing medical appointments in the hospital management system.		
Pre-conditions	The administrator successfully logged into the system		
Post-conditions	<ul style="list-style-type: none"> The list of medical appointments is displayed Detailed information for each medical appointments 		
Normal Flow	<ul style="list-style-type: none"> Access the management interface: Admin logs in to the doctor management system with his username and password. Select the "medical appointments Management" function Display list of medical appointments: The system displays a list of all doctors currently in the system 		
Alternative Flow	N/A		
Exceptions	<ul style="list-style-type: none"> There are no medical medical appointments on the list: the message "medical appointments list is empty" appears. Database connection error Data display error 		
Priority	High		
Frequency of Use	Medium		
Business Rules	N/A		
Other Information	N/A		
Assumptions	N/A		

2.2 Doctor

2.2.1 View profile patient

Use Case ID	UC - 12	Use Case Name	View profile patient
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Doctor	Secondary Actor	N/A
Description	see detailed patient information		
Pre-conditions	Doctors must log in to the system		
Post-conditions	<ul style="list-style-type: none">• The doctor clicks on the patient list• When the doctor clicks on each patient, detailed information of each selected patient will be displayed		
Normal Flow	<ul style="list-style-type: none">• Doctor enters the patient code or searches by name, date of birth, phone number.• The system displays a list of suitable patients• The doctor selects the patient he wants to see details.• The system displays detailed patient information, including:<ul style="list-style-type: none">• Personal information: full name, date of birth, gender, address, phone number,...• Displays medical examination and treatment history• Doctors can view details of each item in the medical history.		
Alternative Flow	N/A		
Exceptions	N/A		
Priority	High		
Frequency of Use	Medium		
Business Rules	N/A		
Other Information	N/A		
Assumptions	N/A		

2.2.2 See medical schedule

Use Case ID	UC - 13	Use Case Name	See medical schedule
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Doctor	Secondary Actor	N/A
Description	See your doctor's medical schedule		
Pre-conditions	Doctors must log in to the system		

Post-conditions	<ul style="list-style-type: none"> If the doctor clicks on the examination schedule, it will display the doctor's examination schedule today and can also view past examination schedules
Normal Flow	<ul style="list-style-type: none"> The system displays the doctor's examination schedule for a certain period of time (for example, 1 week, 1 month). The examination schedule displays information: Examination date and time, Patient name, Examination department, Clinic. Doctors can filter examination schedules by: Time period, Department of examination. Examination status (examined, not examined, canceled). Doctors can view detailed information about a specific examination.
Alternative Flow	N/A
Exceptions	N/A
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.2.3 Confirm examination schedule

Use Case ID	UC - 14	Use Case Name	Confirm examination schedule
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Doctor	Secondary Actor	N/A
Description	The doctor accepts or cancels the medical examination request		
Pre-conditions	Doctors must log in to the system		
Post-conditions	<ul style="list-style-type: none"> Doctors can view their confirmed examination schedules clearly and up to date. The doctor knows about new examination schedules that need to be confirmed 		
Normal Flow	<ul style="list-style-type: none"> The system sends a notification to the doctor about the newly booked examination schedule. The notification includes information: Patient name, Department of examination, Date and time of examination. 		

	<ul style="list-style-type: none"> • Doctors access the examination schedule management system. • See list of examination schedules awaiting confirmation. • Select the examination and perform confirmation. • The doctor can choose to "Confirm" or "Decline" the appointment. • Reasons for refusal (if any) should be clearly stated. • The system sends a notification to confirm or deny the examination schedule to the patient.
Alternative Flow	N/A
Exceptions	N/A
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.3 Patient

2.3.1 Request a medical appointment

Use Case ID	UC - 15	Use Case Name	Request a medical appointment
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Patient	Secondary Actor	N/A
Description	This function allows patients to request an appointment with a doctor at the clinic. Patients can make new appointments or edit existing appointment information.		
Pre-conditions	The patient must log in to the system.		
Post-conditions	<ul style="list-style-type: none"> • Patients receive appointment confirmation and can arrive at the clinic at their scheduled time. 		
Normal Flow	<ul style="list-style-type: none"> • Patient logs into the system. • Patients access the "Request Appointment" function. • Patient fills in personal information. • The patient submits a request for an appointment. 		
Alternative Flow	N/A		
Exceptions	N/A		
Priority	High		

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

2.3.2 Update medical records

Use Case ID	UC - 16	Use Case Name	Update medical records
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Patient	Secondary Actor	N/A
Description	This function allows patients to update their medical record information after each visit.		
Pre-conditions	Patients must log in to the system or access their personal interface.		
Post-conditions	<ul style="list-style-type: none"> Medical record information is successfully updated and stored in the system. 		
Normal Flow	<ul style="list-style-type: none"> Patients log in to the system or access their personal interface Patients review current medical record information to ensure that all information is correct and up to date. The patient selects the "Update information" function on the interface. Patients enter new information or modify existing information, including symptoms, test results, and information about previous medical appointments. Patients store new or updated information into the system by selecting the "Save" function on the interface. 		
Alternative Flow	N/A		
Exceptions	N/A		
Priority	High		
Frequency of Use	Medium		
Business Rules	N/A		
Other Information	N/A		
Assumptions	N/A		

2.3.3 Provide medical records

Use Case ID	UC - 17	Use Case Name	Provide medical records
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Patient	Secondary Actor	N/A

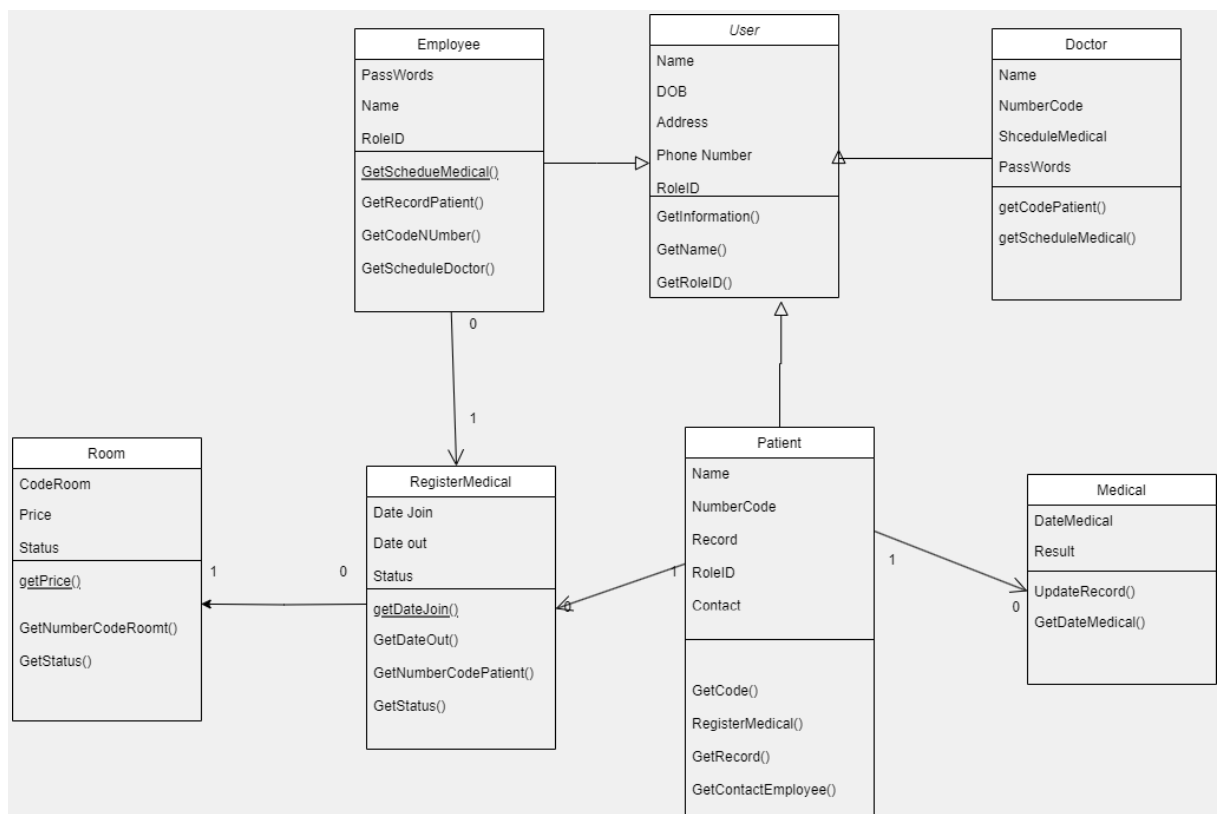
Description	This function allows new patients to provide initial medical information and create a patient record in the system.
Pre-conditions	New patients must access the system
Post-conditions	The new patient's medical record is successfully created and stored in the system.
Normal Flow	<ul style="list-style-type: none"> • New patients access the clinic's application. • New patients select the "Register" or "Create Account" option on the interface. • Patients fill out a registration form with basic personal information such as name, date of birth, address, and contact information. • After registration, new patients are asked to provide initial medical information. • Patients fill out fields such as medical history, underlying medical conditions, medications taken, allergies, and any other important medical information.
Alternative Flow	N/A
Exceptions	N/A
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

2.3.4 View Medical Examination Schedule

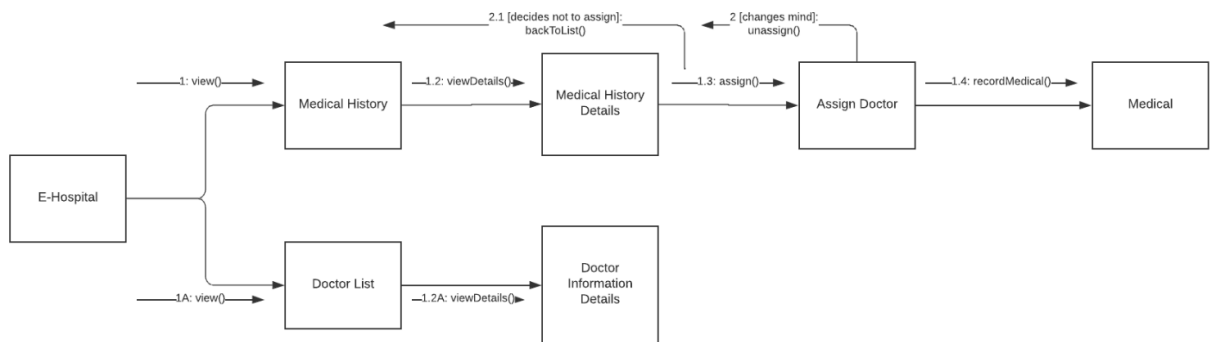
Use Case ID	UC - 18	Use Case Name	View Medical Examination Schedule
Created By	Anhdt	Created Date	15/03/2024
Primary Actor	Patient	Secondary Actor	Doctor
Description	This function allows patients to view the schedule of medical appointments that have been arranged for them.		
Pre-conditions	The patient must log in to the system		
Post-conditions	Patients can view their medical schedule and prepare for medical appointments.		
Normal Flow	<ul style="list-style-type: none"> • Patients log in to the system to access the personal interface on the clinic's application. • The patient selects the "View schedule" option on the interface • The system displays the patient's medical appointment schedule. 		

	<ul style="list-style-type: none"> This schedule includes appointments scheduled by date, time and doctor or clinic details.
Alternative Flow	N/A
Exceptions	N/A
Priority	High
Frequency of Use	Medium
Business Rules	N/A
Other Information	N/A
Assumptions	N/A

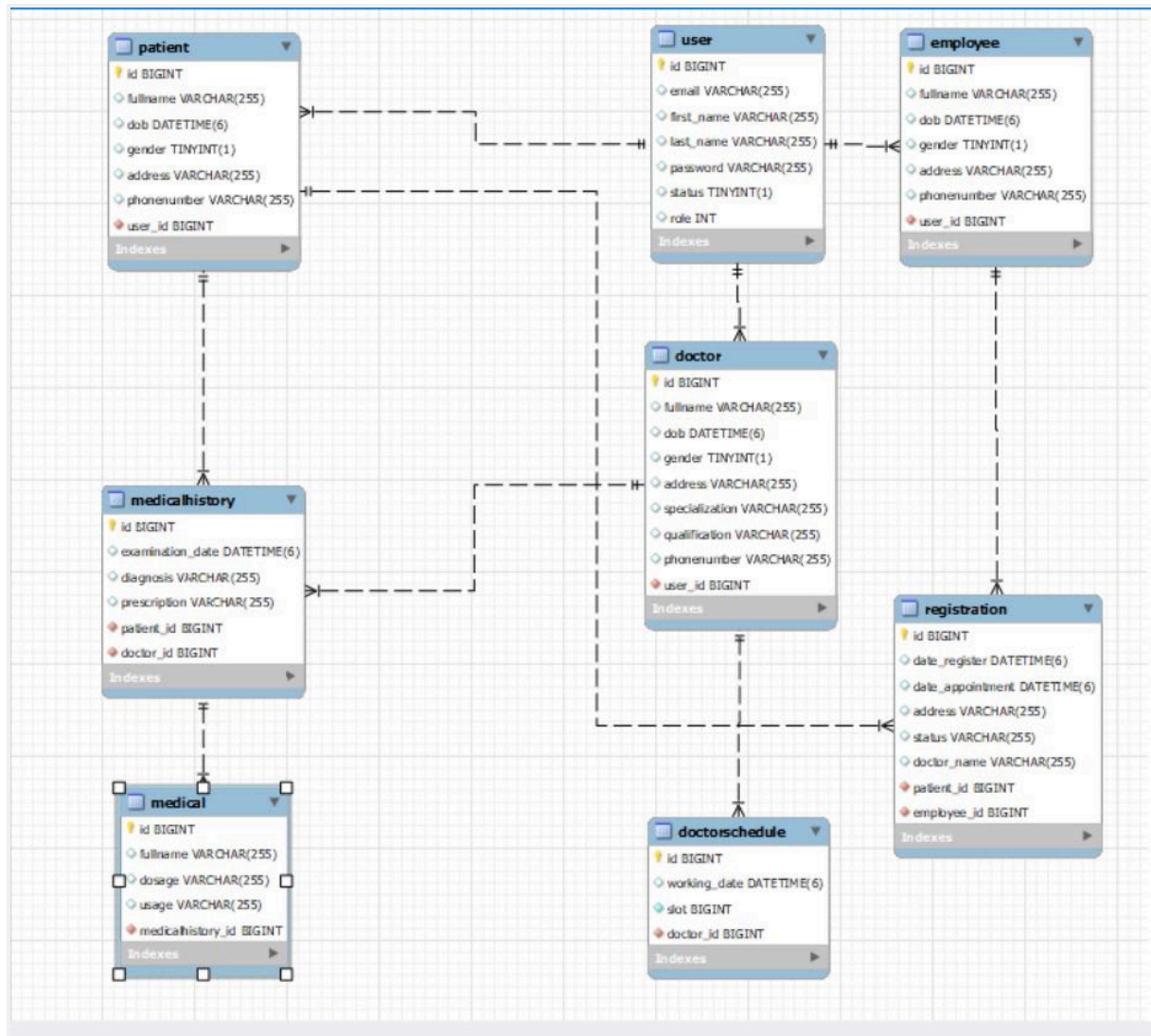
3. Create a class diagram - class diagram at the level of analysis, classifying stereotypes.



4.Communication diagram.



5.Entity diagram.



6.Interface design (including basic interface objects for operations).

a.Login

Welcome to
E-Hospital

Account Information invalid, try again

Email address

Password

☒ Remember me [Forgot password?](#)

SIGN IN


OR

Don't have an account?

REGISTER AS A ▾

b.Doctor Register

CREATE AN ACCOUNT

First Name	Last Name
<input type="text"/>	<input type="text"/>
Email	Full Name
<input type="text" value="hung.mvptq@gmail.com"/>	<input type="text"/>
Password	Date Of Birth
<input type="password" value="....."/>	<input type="text" value="mm/dd/yyyy"/> 
Address	Phone number
<input type="text"/>	<input type="text"/>
Specialization	Qualification
<input type="text"/>	<input type="text"/>
Your gender is	
<input type="text" value="Male"/> ▾	

SUBMIT

Have already an account? [Login here](#)

c.Employee Register - Patient Register

CREATE AN ACCOUNT

First Name

Last Name

Email

hung.mvptq@gmail.com

Full Name

Password

.....

Date Of Birth

mm/dd/yyyy

Address

Phone number

Your gender is

Male

SUBMIT

Have already an account? [Login here](#)

d.Employee List

E-Hospital

Patient

Doctor

Employee

Registration

Add Employee

Profile

Login

Logout

500

Patient

500

Doctor

500

Employee

500

Registrati

Full name	Gender	Dob	Address	Phone number	Email		
Paradon		1/1/2000	số 15, phường Mai Động, Hoàng Mai	012345678			

e.Doctor List

E-Hospital

Patient

Doctor

Employee

Registration

500
Patient

500
Doctor

500
Employee

500
Registration

Full name	Dob	Address	Phone number	Email	Specialization	Qualification	Working Date	Slot		
Paradon	1/1//2000		012345678		abc	abc	14/3/2024	2		

f.Patient List

E-Hospital

Patient

Doctor

Employee

Registration

500
Patient

500
Doctor

500
Employee

500
Registration

Full name	Dob	Address	Phone number	Email	Examination Date	Diagnosis	Prescription	Assigned Doctor		
Paradon	1/1//2000		012345678	012345678	abc	abc	14/3/2024	Nguyễn Văn A		

- Screen of employee list includes:

+Patient Information: Each patient listed on the screen will typically have basic information displayed such as their full name, date of birth, gender, and possibly a unique identifier like a medical record number or ID.

+Contact Details: Contact information such as phone numbers, email addresses, and possibly home addresses may be included to facilitate communication and follow-up.

+Medical History Summary: A summarized version of the patient's medical history might be displayed, including any significant diagnoses, ongoing conditions, surgeries, or allergies. This gives healthcare providers a quick overview of the patient's health status.

g.Requirement List

