Medical Information System

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Medical Information System Use Case Diagram and Descriptions (Group 3)

Use Case Diagram:

Use Case Descriptions:

Edit Medical History:

Summary: User edits medical history
Actors: User registered on the Medical Information System, Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- The user has medical data registered with the Medical Information System

- User is logged into their account on the Medical Information System

Post-conditions:
- The medical data has been changed according to the user's specifications.

Scenario:

Step:	Step Description:
1	System displays list of options for user to select
2	User selects option to view medical history
3	System retrieves medical history data from Medical Information System database
4	User changes specified medical information and saves changes to database

Special Requirements for Medical Information System:
- Display medical history based on criteria to limit excess information displayed
- Allow changes to certain data based on permissions of user
- Confirm changes before finalizing in database

Request Appointment Case:

Summary: User requests an appointment
Actors: User registered on the Medical Information System, Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- The user has medical data registered with the Medical Information System
- User is logged into their account on the Medical Information System

Post-conditions:
- An appointment is present in the database for the corresponding user

Scenario:

Step:	Step Description:
1	System displays list of options for user to select
2	User selects option to schedule an appointment
3	System retrieves available dates/times for appointments
4	User selects an appointment time and appointment database is updated

Special Requirements for Medical Information System:
- Available appointments must be updated immediately and kept consistent so as to not overbook appointments.

User creates lab work data:

Summary: User creates labwork data from any labs conducted on patients
Actors: User registered on the Medical Information System
Pre-conditions:
- There is an active network connection from the lab technician's laptop to the medical information system.
- The user can upload the lab data to the medical information system
- User is logged into the Medical Information System

Post-conditions:
- The user is able to upload lab results to the medical information system

Scenario:

Step:	Step Description:
1	System display option to create new lab for a patient
2	user selects to create new lab data
3	user inputs information of the lab data
4	user uploads lab to the information system database

Special Requirements for Medical Information System:
- User knows the date, practitioner, patient and the results of the lab

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User edits lab work data:

Summary: User edits current labwork data from any medical information system database
Actors: User registered on the Medical Information System
Pre-conditions:
- There is an active network connection from the lab technician's laptop to the medical information system.
- The user can view current labs and edit them
- User is logged into the Medical Information System

Post-conditions:
- The user is able to edit current lab

Scenario:

Step:	Step Description:
1	System display option to edit current lab
2	user selects to edit lab
3	user inputs information to the lab
4	user uploads updated lab to the information system database

Special Requirements for Medical Information System:
- User knows the date the lab was done, practitioner and patient

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User can view lab work requests:

Summary: User checks their lab work results
Actors: User registered on the Medical Information System, Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- The user has medical data registered with the Medical Information System
- User is logged into their account on the Medical Information System

Post-conditions:
- The user knows the results from any lab work they did

Scenario:

Step:	Step Description:
1	System displays results from lab
2	User selects option to view their lab
3	System retrieves the results from the lab
4	System displays information about the lab

Special Requirements for Medical Information System:
- Date, reason, and name of practitioner for each doctor's lab work request stored in the Medical Information System database.

User Edits A Patient's Prescription:

Summary: Health Services Provider (HSP) Staff edits a prescription for a patient in the database.

Actors: User registered as Health Services Provider (HSP) Staff on Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- User is logged into their account on the Medical Information System
- The patient has existing prescription(s) within the Medical Information database.
- User has correct privileges to view and edit current prescriptions.

Post-conditions:
- The user is able to edit other existing prescriptions within the database.

Scenario:

Step:	Step Description:
1	System displays list of options for user to select
2	User selects option to view a patients info
3	System retrieves prescription information from Medical Information System database
4	System displays prescription information to the user
5	User edits prescription to correct prescription
6	New prescription saves to Medical Information System

Special Requirements for Medical Information System:

- Medical Information Database will need to be able to pull up certain patient info by a specific id. (ex. First and Last name or social security number)

User Generates Healthcare Statistical Report:

Summary: Health Services Provider (HSP) Staff can view statistical report based on variable(s).

Actors: User registered as Health Services Provider (HSP) Staff on Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- User is logged into their account on the Medical Information System

- Medical Information database has existing data to pull report(s) from.

Post-conditions:
- The user is able to generate more reports based on other variables.

Scenario:

Step:	Step Description:
1	System displays list of options for user to select
2	User selects option to create a report
3	System retrieves information from Medical Information System database
4	System displays information in the form of a report

Special Requirements for Medical Information System:

- Medical Information Database will need to be able to pull up all data for the specific variable.

User Edits Patient Information:

Summary: The healthcare service providers edits the information regarding a patient.

Actors: Healthcare service providers, Medical Information System.

Pre-Condition:
- The Medical Information System is online
- The software has a secure connection to the Medical Information System
- The patient must exist.

Post-Conditions:
- The user must be a medical service provider
- The user must have clearance to access and edit the patient information

Scenario:

Steps	Step Description
1	System asks for patient name.
2	The user inputs the patient name.
3	The system fetches and displays patient information
4	The user edits desired information
5	The user commits changes
6	The system saves changes and exits

Special Requirements:
- The user cannot change static information such as Social Security Number, Date of Birth, etc.

User Requests Lab Work:

Summary: The healthcare service providers views the lab work that has been submitted by the lab staff.

Actors: Healthcare service providers, Medical Information System.

Pre-Condition:
- The Medical Information System is online
- The software has a secure connection to the Medical Information System
- There is at least one Lab Work in the database.

Post-Conditions:
- The user must be a medical service provider.
- The user must have clearance to view the requested lab work.

Scenario:

Steps	Step Description
1	System Displays Menu and possible actions
2	The user navigates to request lab work
3	The system asks the user for information on which lab work to retrieve

4	User types information and submits request
5	User Views desired Lab Work
6	User Navigates away from lab work page
7	System Displays Menu and possible actions.

Special Requirements:
- The system will update the logs regarding the request.

User views lab records:

Summary: User can edits symptoms or health conditions
Actors: Patient and Health Services Provider (HSP) staff

Pre-conditions:
- User is logged into the Medical information System
- Both actors can see patient symptoms on the system
- There should be symptoms listed

Post-conditions:
- The user is able to edit patient symptoms or health condition.

- Patient should be able to edit only his/her symptoms.

Scenario:

Step:	Step Description:
1	System displays user login.
2	user can go to my symptoms and health conditions after login
3	System displays option "edit & save symptoms/health conditions"
4	User selects the option, edits and saves the information
5	Systems displays return to the main menu and logout option
6	user have an option to log out/ return to the edit

Special Requirements for Patient & Medical Information System:
- NA

User creates new patient information entry:

Summary: User creates a patient information entry in medical information system database
Actors: Health Services Provider (HSP) staff

Pre-conditions:
- There is an active network connection from Health Services Provider (HSP) staff's laptop to the medical information system.
- User can view the patient request
- User knows patients information
- User is logged into the Medical Information System

Post-conditions:
- The user is able to create a new patient information entry

Scenario:

Step:	Step Description:
1	System displays user login
2	System displays option to create a new patient information entry
3	user selects the option and insert patient information
4	System displays options to save the patient information
5	User saves the information
6	System displays the main menu

Special Requirements for Medical Information System:
- User should make sure patient that information is correct

User views lab records:

Summary: User views labwork data from any labs conducted on patients
Actors: Health Services Provider (HSP) staff

Pre-conditions:
- There is an active network connection from the lab technician's laptop to the medical information system.
- The user can view patient's lab data from medical information system
- User is logged into the Medical Information System

Post-conditions:
- The user is able to view lab record from medical information system

Scenario:

Step:	Step Description:
1	System displays option to chose different patients' lab data.
2	user selects to view patient's lab data
3	System displays option to get back to last page or logout
4	user selects to get back to the last page(goto step1) or logout

Special Requirements for Medical Information System:
- User knows the date, practitioner, patient and the results of the lab

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User creates a prescription for a patient:

Summary: User creates a prescription for a patient in medical information system database
Actors: Health Services Provider (HSP) staff

Pre-conditions:
- There is an active network connection from Health Services Provider (HSP) staff's laptop to the medical information system.
- The user can view current labs and edit them
- User is logged into the Medical Information System

Post-conditions:
- The user is able to edit current lab

Scenario:

Step:	Step Description:
1	System displays option to create a new prescription for a patient

2	user selects to type prescription for a patient
3	System displays options to submit the prescription for a patient
4	user submit the prescription to the information system database

Special Requirements for Medical Information System:
- User knows the patient's information

View prescription information:

Summary: User views prescription information.
Actors: User registered on the Medical Information System, Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- The user has medical data registered with the Medical Information System
- User is logged into their account on the Medical Information System

Post-conditions:
- The user (patient) learns about the medication for his/her symptoms. The user can use this prescription to buy medicines or avail any treatment if it is suggested by the doctor.

Scenario:

Step:	Step Description:
1	System displays list of options for user to select.
2	User selects the option to view their prescription.
3	System retrieves patient's latest prescription from the Medical Information System database.
4	System displays the prescription to the user

Special Requirements for Medical Information System:
- Provision for the doctors to record the prescription in the Medical Information System database.

Check Doctor Visit History:

Summary: User checks their doctor visit history

Actors: User registered on the Medical Information System, Medical Information System

Pre-conditions:
- There is an active network connection from the user's device to the Medical Information System
- The user has medical data registered with the Medical Information System
- User is logged into their account on the Medical Information System
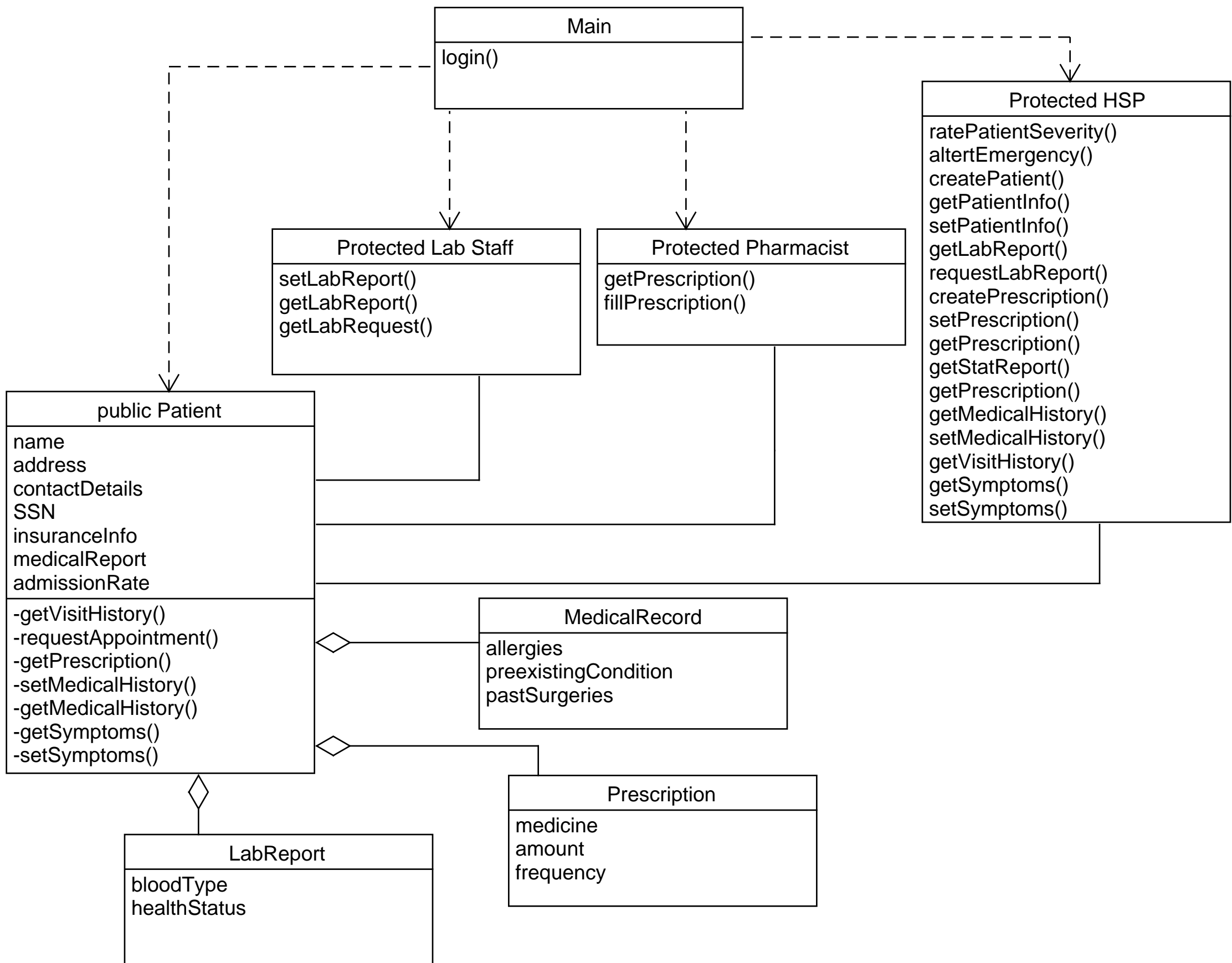
Post-conditions:
- The user knows the date, practitioner, and reason for their previous doctor visits.

Scenario:

Step:	Step Description:
1	System displays list of options for user to select
2	User selects option to view their doctor visit history
3	System retrieves previous doctor visit information from Medical Information System database
4	System displays information about previous doctor visits to the user

Special Requirements for Medical Information System:
- Date, reason, and name of practitioner for each doctor's visit is stored in the Medical Information System database.

Main
login()

Protected HSP
ratePatientSeverity()
altertEmergency()
createPatient()
getPatientInfo()
setPatientInfo()
getLabReport()
requestLabReport()
createPrescription()
setPrescription()
getPrescription()
getStatReport()
getPrescription()
getMedicalHistory()
setMedicalHistory()
getVisitHistory()
getSymptoms()
setSymptoms()

Protected Lab Staff
setLabReport()
getLabReport()
getLabRequest()

Protected Pharmacist
getPrescription()
fillPrescription()

public Patient
name
address
contactDetails
SSN
insuranceInfo
medicalReport
admissionRate
-getVisitHistory()
-requestAppointment()
-getPrescription()
-setMedicalHistory()
-getMedicalHistory()
-getSymptoms()
-setSymptoms()

MedicalRecord
allergies
preexistingCondition
pastSurgeries

Prescription
medicine
amount
frequency

LabReport
bloodType
healthStatus

Class Descriptions (Group 3)

Main class:

A simple login portal to redirect the user to one of the other 4 classes.

Patient class:

This public class will be accessible by HSP, pharmacist, and lab staff classes. Here is stored the bulk of the information. Included are all patient details, such as name, address, medical conditions, medical history, prescriptions, etc.

There is a **has-a** relationship with MedicalRecord. Inside of medical record are stored: preexisting conditions, allergies, and pastSurgeries. The purpose here is to hold additional information about the patient, while not actually being a part of the patient class.

There is a **has-a** relationship with prescription as well. This will be editable by HSP and viewable by Pharmacists.

There is a **has-a** relationship with labReport. This will be editable by LabStaff, and viewable by HSP.

Lab Staff class:

This class will not be accessible by any other classes. It will be **protected.** However, members of this class will be able to act upon the patient class (and no others). The purpose of this class is to retrieve a lab request from the patient details, and to create and modify a labReport (later viewable by the HSP).

Pharmacist class:

This simple (private) class will not be accessible by any others. The purpose of this class is to get patient descriptions (set by HSP), and then **fill** the prescription.

HSP class:

This private class contains the bulk of the functions. This is the doctor class, and so he/she will be able to view and edit **all** patient information. This includes personal information, medical history, prescriptions, etc. Additionally, this class will write out prescriptions which will be sent to the pharmacists class to fill out. HSP class can request lab reports to be sent to the LabStaff class, and then can read (but not edit) the results.