



# CMS Requirements Specifications

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CEN 302-Software Engineering  
Department of Computer Engineering  
Faculty of Architecture and Engineering  
Epoka University

Ardit Gega  
Gerald Jovani  
Keti Hysi  
Pironada Nako  
Xhensila Lakti

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Executive Summary	

## ***1.1 Project Overview***

Technology nowadays is developing really fast and it is being implemented in almost all the areas of our lives. One of the main fields that is trying to incorporate technology, is the health field. For each patient is needed to store its personal information. When analyzed this detailed handwritten information it is a very difficult and slow to process.

Our project is a Web application for Clinic Management System. Its main functionalities include: request appointments online and keeping medical records for each patient in a digital form instead of on paper, which is the nowadays examination form, especially in our country.

The implementation of the idea will work closely with clinics by having access at their databases for patients they forward to us. Patients will require an appointments and the doctor will accept or decline based on his agenda.

Each doctor will have his/her own account where he/she can add patients, leave appointments (this is done by polyclinic's doctors), cancel them, write prescriptions, check the medical records of a patient and alter them if needed.

Also, in our system we will keep track of each doctor's timetable. Besides doctors, receptionists will have their profile, in order to manage the patients and doctors profiles.

Receptionists will inform patients and doctors for any change in the schedule for example.

The project is intended for private clinics.

## ***1.2 Purpose and Scope of this Specification***

The purpose of our project is to facilitate the way clinics work in our country. Patients will not have to save their examination documents year by year but they will have their personal information stored in their own online profile.

Also our management system aims to reduce the time of waiting by leaving an appointment online for each patient.

The patient will also be able to go to the pharmacy and get the medicines without a hand receipe.

In scope:

- Modifying the appointment reservations.
- Modifying the way patients' records are kept.

Out of scope:

- Modifying the administrative procedures of the clinic.

# **2. Product/Service Description**

## ***2.1 Product Context***

Our software is related with an ordinary clinic and a group of pharmacies that will be available for the patients of that clinic. It will be an independent system that will be available to 4 levels of users:

Patient, Doctor, Receptionist and Pharmacist. These 4 levels will be directly connected to each other.

## ***2.2 User Characteristics***

There are 4 types of users that will interact within our systems:

1. Patient

- Can log in his account
- Can read its personal data
- Can contact his doctor
- Can contact the receptionist
- Can check for the nearest pharmacy and the medicines that each of them offers
- Can look at all his/her visits and check ups
- Can log out

2. Doctor

- Can log in his account
- Can read its CV
- Can contact patients
- Can contact receptionist
- Can fill the form of examinations
- Can log out his account

3. Receptionist

- Can log in his account
- Can add new patient
- Can delete an existing patient
- Can contact with patient
- Can contact with doctor
- Can change personal data of patient
- Can add new doctor
- Can delete an existing doctor
- Can log out of his/her account

4. Pharmacy

- Can log in its account
- Can update their medicinal list
- Can log out

### ***2.3 Assumptions***

It is assumed that most part of the actions taken are legally allowed.

It is assumed that information added about doctors and users is already verified.

It is assumed that the profile of the receptionist is already created by an administrator.

It is assumed that when writing the examination form of the patient the only person responsible for that is the doctor.

## 2.4 Constraints

Our project is constrained only by the Internet connection since we have decided for it to be a Web Application.

The Internet is needed for the connection with the database and also for the Map.

## 2.5 Dependencies

Our system is independent.

This means there is no dependency between the users in our Web application.

# 3. Requirements

## 3.1 Functional Requirements

The requirement numbering has a scheme –FR\_##(FR for Functional Requirement).

The following table is a format for requirements.

Req#	Requirement	Comments	Priority	Date	SME Reviewed/Approved
FR_01	The software should have different views and different functionalities for different user logins.	Patient, Doctor, Clinic and Pharmacist should be different.	Doctor		
FR_02	A reCaptcha should be used to detect abusive traffic on our web application without any user friction.	To verify that a user is not a robot, he should fill the reCaptcha.	Valid User		
FR_03	Every user should have different usernames, passwords and valid passwords as well.	This can be achieved by hashing passwords before saving them in a database.	Password		
FR_04	The user can have the chance to edit personal information.	This can be done by updating credentials in database.	Update		

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FR _05	The receptionist manages the doctors'/patients' profile.	The receptionst is responsible for Create,Read,Update and Write functionalities .	Database Interaction		
FR _06	The receptionist should be able to have a list of all the patients.	All patients should be listed.	Information		
FR _07	The software should be able to generate an XML file which will contain all the records for a specific patient.	The records of a patient are written on a medical cartel.	Patient records ,XML file		
FR _08	The receptionist checks which patient belongs to which doctor.Doctor checks which pharmacist is connected with him.	The doctor has the permission to create a medical visit record and make it visible for its patient as well.	Visit record		
FR _09	A patient can not edit its medical records .	The profile of a patient is on a read view.	Patient's profile		
FR _10	Each user can look the general webpage and information of the clinic.	General information is accessible from all users.	Users		
FR _11	A patient belongs to only one doctor ,he is not able to choose another doctor.	A patient has only to do with his doctor.	Doctor-Patient		
FR _12	The doctor can see all the records of a current patient .	He may need to analyze his previous examinations.	Medical cartel visible to doctor		
FR _13	The doctor can see the records of each client.	If the system is not working he may be able to edit the medical visit later.			
FR _14	The receptionist can set the timetable for doctor and patient.				

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FR _15	Admin has restricted access to all patients' medical records.	Admin has no right to have sensitive information about any of the patients.			
FR _16	All the patients' data that are added by the doctor or the receptionist have to obey the validation rules determined by the system itself.	Every attribute that is inserted into the database must strictly stick to the rules previously set.			
FR _17	When doctors are logged in, they can search only their patients.	Ethical reasons because of the confidentiality of the information for all other patients that this doctor has no relation to.			
FR _18	Pharmacy when is logged in, can search only for doctors.	Pharmacy has no right to search for patients or other staff of the clinic.	Pharmacy, Doctor		
FR _19	Pharmacy should have a list of medicines that is available for patients.	Only the pharmacy has access on this list.	Pharmacy		
FR _20	Pharmacy should mark the served receipts as checked.	After giving the prescription's medications to the patient, the pharmacy should mark the prescription as checked.	Pharmacy		



## 3.2 Non-Functional requirements

### 3.2.1 User Interface Requirements

The user interface should be grouped in 5 main interfaces .

- Log In interface
  1. Enter your Username in the field labeled 'User'.
  2. Enter your Password in the field labeled 'Password'.
  3. If you want to change your password, you should click inside the radio button located below these fields.
  4. Click the Submit Button or the reCaptcha to protect the user.

The diagram illustrates the Log In interface. It features a blue header bar with the text "Name of the clinic". Below this, there are two input fields: "Username:" and "Password:". Under the password field, there is a radio button. At the bottom of the form, there are two buttons: "Submit" and "reCaptcha", and a link labeled "Change password?".

If your password has expired you will not be able to continue. The Change Password page appears automatically and you are given the opportunity to enter a new password. The message below appears on the Change Password page when your password has expired:

Steps to Change your password:

1. Enter your current Password in the field labeled 'Old Password'.
2. Enter your New Password in the field labeled 'New Password'.
3. Re-enter Your New Password in the field labeled 'Repeat New Password'.
4. If the 'Username' field appears, be sure to enter your mainframe user id. The 'Username' field will appear if you have selected to change your password, but will not appear if you are changing an expired password.
5. Click the Submit Button.

The diagram illustrates the Change Password interface. It features a blue background. At the top, there is a white input field labeled "Username". Below this, there are three input fields: "Old Password", "New Password", and "Repeat new password". At the bottom of the form, there is a white button labeled "Submit".

- **Patient's interface**

1. The header bar containing CMS logo,"Patient <Name><Surname> and a Menu Icon ☰,which when pressed shows all available menus.
2. The menu Icon showing all the menus the user can access after logging in as a patient: Profile,Records,Contact Doctor ,Log Out.
3. The "**Profile**"Menu will allow the user to see all his personal information saved in database.
4. The "**Records**"Menu will show to the user medical visits and medical cartel created by the doctor.
5. The "**Contact Doctor**"Menu will all allow the user to chat with the doctor.
6. The "**Log Out**"will return the user to home page.

- **Doctor Interface**

1. The header bar containing CMS logo,"Doctor<Name> <Surname>" and a Menu Icon ☰,which when pressed shows all available menus.
2. The Menu Icon showing all the menus the user can access after logging in as a doctor: Profile,Examinations, Doctor's List,Add a Doctor,Search a Doctor,Log Out,Agenda.
3. The "**Profile**"Menu will allow the user to see all his personal information saved in database.
4. The "**Contact Doctor**"Menu will all allow the user to chat with the doctor.
5. The "Examinations "Menu will show a list of the examinations of the current patient.This will be in a tabular form and when the examination is over the doctor presses the button'End of Examination'.The doctor can edit the patient information.
6. The"**Patient's List**"Menu where the clinic could see a full list of the patients with their medical visit.
7. The "**Add a Patient**"Menu allows the clinic to create a new user ,type patient.
8. The "**Search a Patient**"allows the clinic to search for a specific patient.
9. The "**Log Out**"will return the user to home page.
10. The"**Agenda**"will contain the calendar of a doctor.

- **Clinic Interface**

1. The header bar containing CMS logo,"Clinic<Name> and a Menu Icon ☰,which when pressed shows all available menus.
2. The Menu Icon showing all the menus the user can access after logging in as a doctor: Profile,Doctor's List,Add a Doctor,Search a Doctor,Create a Visit,Log Out.
3. The "**Profile**"Menu will allow the user to see all his personal information saved in database.
4. The"**Doctor's List**"Menu where the clinic could see a full list of the doctors with their CV included.
5. The "**Add a Doctor**"Menu allows the clinic to create a new user ,type Doctor.
6. The "**Search a Doctor**"allows the clinic to search for a specific doctor.
7. The "**Create a Visit**"Menu will see the doctor's agenda and will reserve an appointment.

8. The “**Log Out**”will return the user to home page.

- **Pharmacist Interface**

1. The header bar containing CMS logo,”Clinic<Name> and a Menu Icon ☰,which when pressed shows all available menus.
2. The Menu Icon showing all the menus the user can access after logging in as a doctor: Profile,The Drug Recipe,Log Out.
3. The “**Profile**”Menu will allow the user to see all his personal information saved in database.
4. The “**Drug Recipe**”Menu will allow the pharmacist to see the recipe of the current patient uploaded by the doctor.
5. The “**Log Out**”will return the user to home page.

### ***3.2.2 Usability***

#### Learnability

- Doctors and Clinic should be able to know how to use all the functions the software offers .
- Patients will have it easy to use because it resembles other web applications (log in),which is known world wide how to be used.

#### Efficiency

- Each operation will be executed in a real time.

#### Memorability

- The system is intuitive hence, it is not a problem if you ‘vaguely remember’ how to use it.
- If the user returns the application after some time. He able to understand on that page where he left or he may start again.

#### Errors

- How many errors user can face and how easily the server gets recover that errors that also impact on the users to the application.

#### Satisfaction

- How much user satisfied with using our application.

### ***3.2.3 Performance***

#### ***3.2.3.1 Capacity***

A straightforward count of the number of requests from doctor, patient and the clinic at the same time ,that the application can process within a defined time interval. How quickly the system acknowledges a request as opposed to processing it. A database that is sufficiently robust to handle the application. Typically, a good application’s database requires hardware three to four times more powerful than the application server hardware. It is good practice to use a separate machine for your database server.

#### ***3.2.3.2 Availability***

The application will be available 24 hours per day ,every day.

The drug recipes should be available on the system when the patient is at pharmacy.

The medical visits should be visible at the time when the patient reserves an appointment to the doctor .

### **3.2.3.3 Latency**

No latency.

## ***3.2.4 Manageability/Maintainability***

### ***3.2.4.1 Monitoring***

The system will be secured and reliable.

All the users can access the system 24/7, by monitoring the login form interactions for availability and performance. The system will have it easier to detect the problem .

### ***3.2.4.2 Maintenance***

The database will be build using PhpMyAdmin and the server to execute it is APACHE.

If any problem occurs, the system should use a backup data in order not to allow any information to be lost .This is done by logs and text files .

### ***3.2.4.3 Operations***

- The application will be available to the user 24/7.
- The busiest time frames are 7 AM to 9 AM and from 6 PM to 8 PM, even though these time frames may change according to different days.
- The information entered to the system shall be accessed only by the people who are previously registered to the system.
- Create, Read, Update and Delete users.
- Create, Read, Update and Delete examinations .
- Create periodic reports.
- Create drug recipe.
- Create medical visit.
- Update agenda.

## ***3.2.6 Security***

### ***3.2.6.1 Protection***

To protect the system from malicious or accidental access, modification, disclosure ,destruction, or misuse we will take the following precautions.

- Encrypt the most sensitive information such as passwords using hashing method to protect privacy .
- We will keep tract of the activity of each user, such that in case of error the user will be held responsible .
- The clinic is responsible for the personal data authenticity of the doctor he/she enters, hence the system is not responsible.
- The system will validate passwords, and each data for special characters and other specific conditions before inserting in the database.
- Each patient will see only the information related to him/her ..
- Each doctor will only see the data of every patient.

### ***3.2.6.2 Authorization and Authentication factors:***

- The Authorization and Authentication factors .
- The user authentication will be using username password and reCaptcha.
- Authorization will be based on the user type Each user will access only their information

- Using sessions for the currently logged user
- Using Cookies.

### 3.2.8 Standards Compliance

This project aims, after an overview of the health care system and welfare Albanian to examine, based on the current organizational structure of the same, what can be the possible improvements could be implemented in this area of fundamental importance to the national health department such as medical records being on paper and people waiting in long lines, we came up with the idea of creating a Web-based Application to digitalize the way the public hospitals in our country work.

Our project will be based on these main points:

- Leaving appointments online
- Keeping medical records of each patient in digital form
- Showing medical personel timetables
- Agenda of each Doctor
- Drug Recipe

### 3.2.9 Portability

- The system will be web-based, it will operate the same regardless of the operating system.
- The system will be programmed by using HTML, JavaScript, CSS, Bootstrap and PHP.

## 4. User Scenarios/Use Cases

### 4.1 User Scenarios (General)

Use Case Nr.	User Story Name	Description
1	Receptionist logs in	Using ID and password to access the system, receptionist logs in.
2	Views Doctors, Patients, and Pharmacist.	Can view doctors agenda and profile ,patients profile and pharmacies profile as well.
3	Edits each type of user.	Receptionist can edit and update personal information about doctors, patients and pharmacies.

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4	Removes/Deletes each type of user	Receptionist can remove each type of user from the system/database.
5	Adds new user	Receptionist is the only user that can add a new user (doctor, patient).
6	Sets the agenda	Receptionist is the only user that sets the agenda for doctors.
7	Searches doctors, nurses and receptionists	Receptionist can search by ID, name, surname each doctor or patient and by ID or name the Pharmacy.
8	Receptionist imports/exports Data	Receptionist imports or exports data from clinic's database.
9	Receptionist signs out.	Receptionist signs out from the system
10	Specialist doctor signs in	Specialist doctor provides username and password and signs in.
11	Specialist doctor finishes appointment	Specialist doctor fills a form on how the visit went and this is added to the patient's medical records.

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12	Specialist doctor checks patient records	Specialist doctor sees all the patients records including all his visits, analysis, prescriptions etc.
13	Specialist doctor checks patient progress	Specialist doctor sees all the patients' progress since he was hospitalized based on what the receptionist has written
14	Specialist doctor searches for a patient	Specialist doctor searches by ID, name or surname a patient
15	Specialist doctor edits his own profile.	Specialist doctor edits his basic information on his profile page
16	Specialist doctor signs out	Specialist doctor signs out of the system

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17	Patients logs in.	Patient provides username and password and signs in.
18	Patient contacts doctor	Patient can contact the doctor by chatting .
19	Patient can edit his profile.	Patient can change his information.
20	Patient can change his password.	Patient can edit the password to the system/database.
21	Patient can see his records .	Patient has the access to see all his medical records .



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22	Patient logs out .	Patient signs out of the system .
23	Pharmacy logs in .	Pharmacy logs in to the system .
24	Pharmacy can manage its profile.	Pharmacy can change name,surname and password of its pharmacist .
25	Pharmacy can add new user.	Pharmacy can add new Pharmacist.
26	Pharmacy can delete a user.	Pharmacy can delete a Pharmacist.

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27	Pharmacy can communicate with the doctor.	Pharmacy communicates with the doctor via email.
28	Pharmacy can see the patient's drug recipe.	Patients views the drug recipe ,which is sent by the doctor .
29	Pharmacy logs out.	Pharmacy logs out of the system.

### 4.2 User Scenarios (Detailed)

#### Scenario 1 → Receptionist signs in

- Receptionist enters username
- Receptionist enters password
- If username and password match, user is signed in
- Else user must re-enter them

#### Scenario 2 → Receptionist signs out

- Provided the receptionist is signed in
- Receptionist is signed out of the system

#### Scenario 3 → Receptionist changes password

- User enter new password
- User retypes new password

#### Scenario 4 → Receptionist edits and views profile

- Receptionist can view his/her profile
- Receptionist can edit, change and update his/her profile

**Scenario 5 → Receptionist views/edits/deletes Doctors, Patients**

- Provided that the user (Doctor, Patient) is signed in
- Views information about the profile of each patient and doctor
- Views information about the patient's medical record

**Scenario 6 → Receptionist adds new user (Doctor, Patient)**

- Admin enters data in the form: ID , Name ,Surname.
- If data is entered accordingly and correctly then the user is created in the system and added to the database as well
- Else data must be re-entered once again from the beginning

**Scenario 7 → Receptionist sets the agenda**

- Receptionist chooses the user to set his/her agenda
- Receptionist selects the shift for all the days of that week
- Receptionist selects the day for the duty call of that specific user

**Scenario 8 → Receptionist views monthly reports**

- Receptionist can view the auto-generated reports for the number of hospitalizations, appointments and emergency cases of specific wards for that month
- Receptionist can also download the medical records of each patient as PDF file

**Scenario 9 → Receptionist searches Doctors, Patients**

- Receptionist can search for users by ID, name, surname
- Information related to that ID, name, surname, or ward is shown, provided that the entered word exists anywhere in the database except for the patient's data

**Scenario 10 → Specialist doctor finishes appointment**

- User has appointment with patient
- User finishes appointment
- User fills the form with the information on how the appointment went
- User saves appointment notes, which are added to patient records

**Scenario 11 → Specialist doctor cancels appointment**

- User cancels appointment
- Doctor chats with the patient he organized the appointment and cancels it.

**Scenario 12 → Specialist doctor checks patient records**

- User opens patient records received from Clinic database

- User reads patient records

**Scenario 13 → Specialist doctor searches for a patient**

- User writes ID, name, surname of patient that he is searching for in the search input field
- User is shown a list of all entries that contain his search keyword

**Scenario 14→Patient contacts Doctor.**

- Patient creates a chat account and communicates with the doctor for each problem he/she has.
- Patient can delete the message he maybe has sent accidentally.
- Patient can record his voice ,if he has no time to write .
- Patient can sent photos to the doctor .

**Scenario 15 →Patient can have access of his medical records**

- Patient can see his medical progress.
- Patient can change his doctor ,so the other doctor can see his new patient progress and he knows what diagnosis should define to him .

**Scenario 16 → Patient can edit his information**

- Patient can change his/her username .
- Patient can change his/her surname if he/she has been married and has changed surname.
- Patient can change the password .

**Scenario 17.1 →Pharmacy can enter new user.**

- Pharmacy can enter the information of a new employed Pharmacist into the database.
- If data is entered accordingly and correctly then the user is created in the system and added to the database as well
- Else data must be re-entered once again from the beginning

**Scenario 17.2 →Pharmacy can delete a user.**

- Pharmacist can delete a pharmacist from the database.
- Pharmacist informs the receptionist via email when a pharmacist has been removed from the system .

**Scenario 17.3 → Pharmacy can access each pharmacists profile .**

**Scenario 18→ Pharmacy communicates with the Doctor**

- Pharmacy can receive emails from Doctor ,where the content is the patient's drug recipe .
- All the pharmacists that are employed to the Pharmacy have the same email .
- Pharmacy checks for the drugs that are written in recipe and inform the doctor if any of them is missing.
- If a drug is not found in pharmacy than the doctor can make the patient to wait, until all the medicines are ready(medicines should be ready within a day) .

## 4.3 Use Cases

### Use Case 1

<b>Name</b>	<b>Sign In</b>
<b>Summary</b>	User enters the system by providing genuine credentials
<b>Actor</b>	Receptionist, Doctor, Pharmacy, Patient
<b>Description</b>	User provides username and password
<b>Precondition</b>	User must have an existing account
<b>Alternatives</b>	The same user can sign in only once at a time
<b>Post condition</b>	User enters the system

### Use Case 2

<b>Name</b>	<b>View Staff</b>
<b>Summary</b>	Receptionist views Doctors, Patients, Pharmacies
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist can view each doctor and patient
<b>Precondition</b>	Receptionist is signed in
<b>Alternatives</b>	
<b>Post condition</b>	Staff information is displayed

### Use Case 3

<b>Name</b>	<b>Edit users</b>
<b>Summary</b>	Receptionist
<b>Actor</b>	Receptionist edits each type of user
<b>Description</b>	Receptionist edits and changes profile information of the users and if data is entered according to validation rules then changes are saved
<b>Precondition</b>	Receptionist is signed in
<b>Alternatives</b>	
<b>Post condition</b>	Changes that have been made are updated in the database

### Use Case 4

<b>Name</b>	<b>Delete users</b>
<b>Summary</b>	Receptionist deletes each type of user
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist clicks on “Delete” button located beside each type of user and after that is asked whether being sure about the deletion of that user; when clicking “Yes” that user is deleted from the database, else user isn’t removed
<b>Precondition</b>	Receptionist is signed in and that specific user exists
<b>Alternatives</b>	
<b>Post condition</b>	Deleted user doesn’t exist anymore

## Use Case 5

<b>Name</b>	<b>Add new user</b>
<b>Summary</b>	Receptionist adds new user
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist after clicking on “Add new user” button selects a type of user and accordingly fills in the form of that specific user. If data is entered correctly then when “Add” button is clicked the user is created in the system and added to the database as well
<b>Precondition</b>	Receptionist is signed in and that user doesn’t exist
<b>Alternatives</b>	No two users with the same username and ID should exist
<b>Post condition</b>	New user is created

## Use Case 6

<b>Name</b>	<b>Set the timetable</b>
<b>Summary</b>	Receptionist sets the timetable
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist selects a user: if doctor assigns a shift number for each day of the week, if patient changes idea
<b>Precondition</b>	Receptionist is signed in
<b>Alternatives</b>	
<b>Post condition</b>	The timetable is set

## Use Case 7

<b>Name</b>	<b>Search Staff</b>
<b>Summary</b>	Receptionist searches Doctors, Patients and Pharmacies
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist enters username/name /surname/ward at the search field. When clicking on “Search” button information related to that ID, username,name, surname, or ward is shown, provided that the entered word exists anywhere in the database except for the patient’s data
<b>Precondition</b>	Receptionist is signed in
<b>Alternatives</b>	
<b>Post condition</b>	Information on the searched term/words is displayed

### Use Case 8

<b>Name</b>	<b>Import/Export data</b>
<b>Summary</b>	Receptionist imports/exports data
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist imports or exports data from clinic's database
<b>Precondition</b>	Receptionist is logged in and is allowed to access the database
<b>Alternatives</b>	
<b>Post condition</b>	Data is always archived on database.

### Use Case 9

<b>Name</b>	<b>Sign Out</b>
<b>Summary</b>	Receptionist can log out of his profile
<b>Actor</b>	Receptionist
<b>Description</b>	Clicks log out button
<b>Precondition</b>	Receptionist must have an existing account
<b>Alternatives</b>	Can sign out anytime
<b>Post condition</b>	Goes to main login page after logging out

### Use Case 10

<b>Name</b>	<b>Finish appointment</b>
<b>Summary</b>	Doctor must keep record of finished appointment
<b>Actor</b>	Doctor
<b>Description</b>	Doctor fills a form with information on how the visit went
<b>Precondition</b>	An appointment must be made
<b>Alternatives</b>	
<b>Post condition</b>	Appointment information must be added to previous patient records

### Use Case 11

<b>Name</b>	<b>Cancel appointment</b>
<b>Summary</b>	Doctor can cancel appointment
<b>Actor</b>	Doctor
<b>Description</b>	Doctor selects the user and cancels appointment
<b>Precondition</b>	An appointment must have been made before
<b>Alternatives</b>	
<b>Post condition</b>	

## Use Case 12

<b>Name</b>	<b>Check patient record</b>
<b>Summary</b>	Doctor can look at patient records
<b>Actor</b>	Doctor
<b>Description</b>	Doctor can see all the patients records including all his visits, analysis, prescriptions etc.
<b>Precondition</b>	Patient must have records saved in the database
<b>Alternatives</b>	Doctor must have access to the patient's records, patient must be under the care of this doctor
<b>Post condition</b>	

## Use Case 13

<b>Name</b>	<b>Check patient progress</b>
<b>Summary</b>	Doctor can look at the progress of a patient
<b>Actor</b>	Doctor
<b>Description</b>	Doctor can see all the patients' progress since he had his first examination based on what the receptionist has written on his profile.
<b>Precondition</b>	
<b>Alternatives</b>	Doctor must have access to the patient's records, patient must be under the care of this doctor
<b>Post condition</b>	

## Use Case 14

<b>Name</b>	<b>Search patient</b>
<b>Summary</b>	Doctor searched for the data of a patient
<b>Actor</b>	Doctor
<b>Description</b>	Doctor can search for a patient only through his ID,username, name and surname
<b>Precondition</b>	Patient must be part of our system
<b>Alternatives</b>	Patient must be in the care of this doctor in order to appear in the search results
<b>Post condition</b>	The searched patient is shown if exists

## Use Case 15

<b>Name</b>	<b>Edit own profile</b>
<b>Summary</b>	Doctor can edit his own profile
<b>Actor</b>	Specialist Doctor
<b>Description</b>	Doctor has the power to make changes to his profile information and also change password
<b>Precondition</b>	Doctor must have an account and profile in our system



## CMS Documentation

<b>Alternatives</b>	The receptionist changes user profile
<b>Post condition</b>	Profile is changed

### Use Case 16

<b>Name</b>	<b>Sign Out</b>
<b>Summary</b>	Doctor can log out of his profile
<b>Actor</b>	Doctor
<b>Description</b>	Clicks log out button
<b>Precondition</b>	Doctor must have an existing account
<b>Alternatives</b>	Can sign out anytime
<b>Post condition</b>	Goes to main login page after logging out

### Use Case 17

<b>Name</b>	<b>Contact doctor</b>
<b>Summary</b>	Doctor can log out of his profile
<b>Actor</b>	Patient,Doctor
<b>Description</b>	Patient can contact doctor by chat provided by our system.
<b>Precondition</b>	Patient must be in the care of that doctor
<b>Alternatives</b>	
<b>Post condition</b>	Each one receives message on time

### Use Case 18

<b>Name</b>	<b>Patient signs in</b>
<b>Summary</b>	Patient can sign in his profile
<b>Actor</b>	Patient
<b>Description</b>	Patient can sign in his profile by providing his personal username and password
<b>Precondition</b>	Must have an existing profile and username+password
<b>Alternatives</b>	
<b>Post condition</b>	Check his profile

### Use Case 19

<b>Name</b>	<b>Patient edits his profile</b>
<b>Summary</b>	Patient can make changes on his profile
<b>Actor</b>	Patient
<b>Description</b>	Patient can sign in his profile and make changes on his personal information
<b>Precondition</b>	Must have an existing profile and be allowed by the system to make changes
<b>Alternatives</b>	
<b>Post condition</b>	

Use Case 20

<b>Name</b>	<b>Patient has access of his medical records</b>
<b>Summary</b>	Patient can see his medical records
<b>Actor</b>	Patient
<b>Description</b>	Patient can sign in his profile and see all the medical records and progress
<b>Precondition</b>	Must have an existing profile
<b>Alternatives</b>	
<b>Post condition</b>	

Use Case 21

<b>Name</b>	<b>Pharmacy enters new user</b>
<b>Summary</b>	Pharmacy can enter a new employee
<b>Actor</b>	Pharmacy
<b>Description</b>	Pharmacy can add a new user as a new employee
<b>Precondition</b>	Data must be entered correctly
<b>Alternatives</b>	
<b>Post condition</b>	New profile is created

Use Case 22

<b>Name</b>	<b>Pharmacy deletes a user</b>
<b>Summary</b>	Pharmacy can delete a user
<b>Actor</b>	Pharmacy
<b>Description</b>	Pharmacy can delete the profile of a user if a worker leaves the work position
<b>Precondition</b>	Profile must exist first
<b>Alternatives</b>	
<b>Post condition</b>	Data is deleted even from database

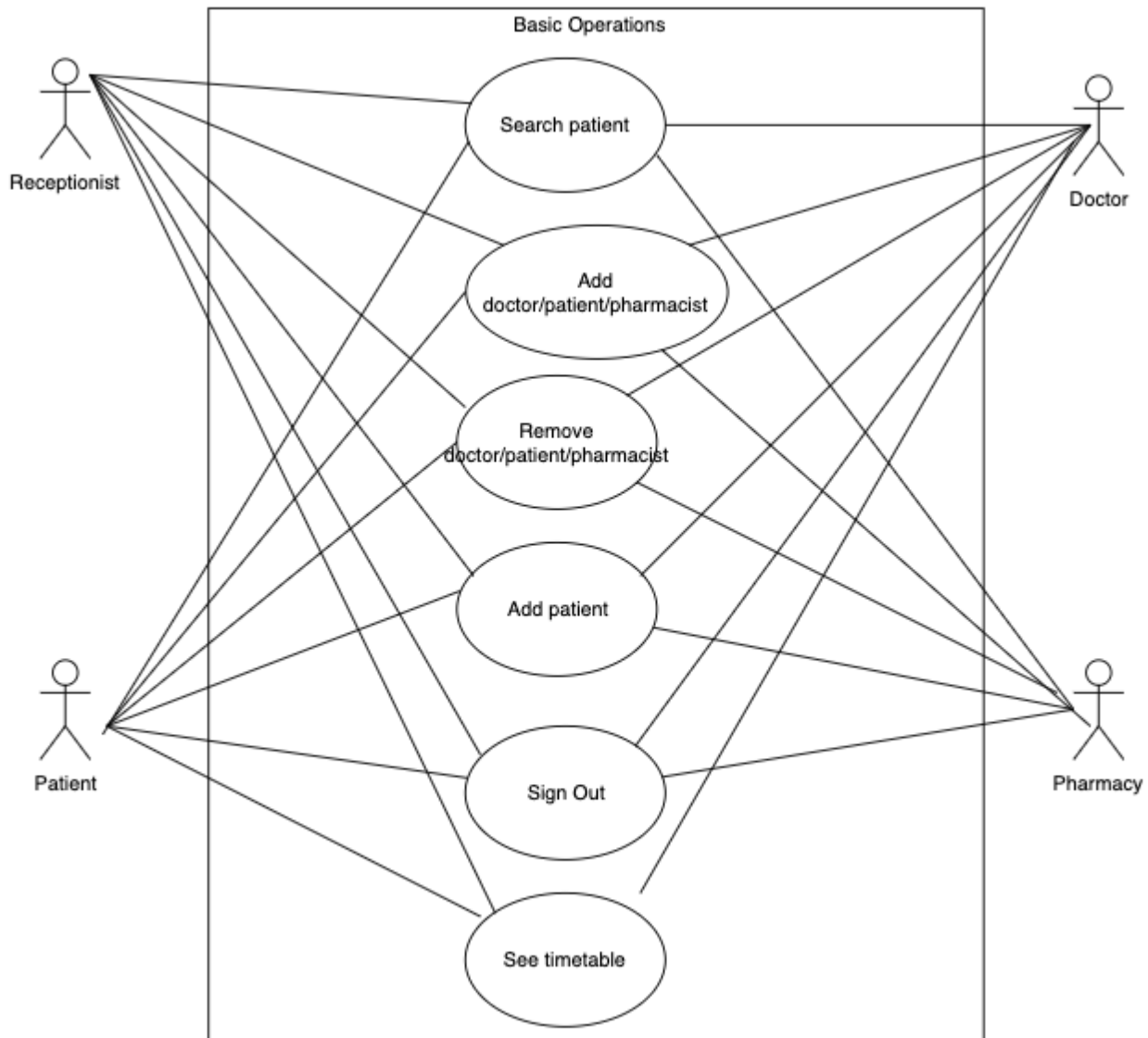
Use Case 23

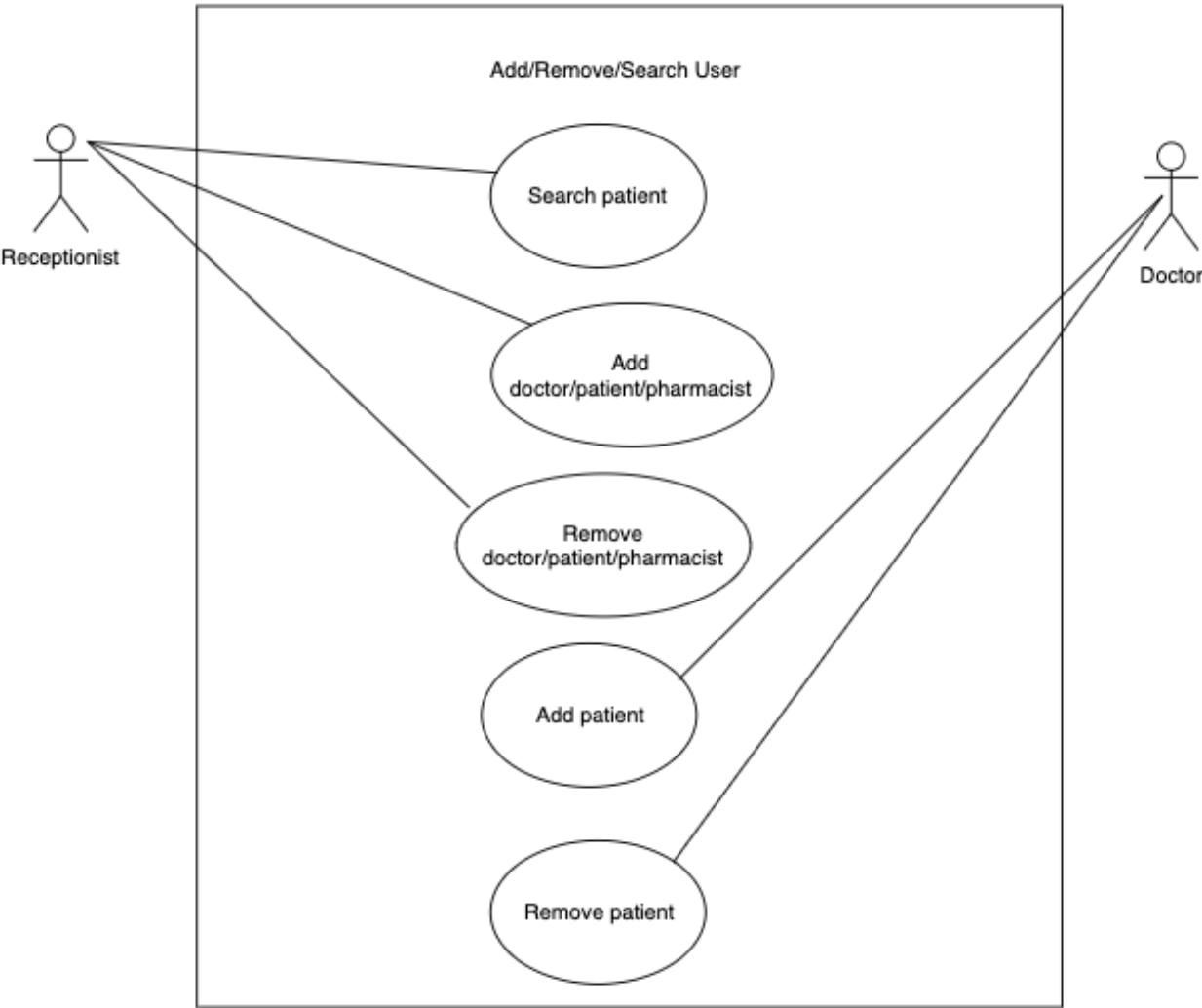
<b>Name</b>	<b>Pharmacy communicates with the doctor</b>
<b>Summary</b>	Pharmacy communicates with doctor via email
<b>Actor</b>	Pharmacy, Doctor
<b>Description</b>	Pharmacy can send to and receive email from doctors
<b>Precondition</b>	Both profiles must exist
<b>Alternatives</b>	
<b>Post condition</b>	

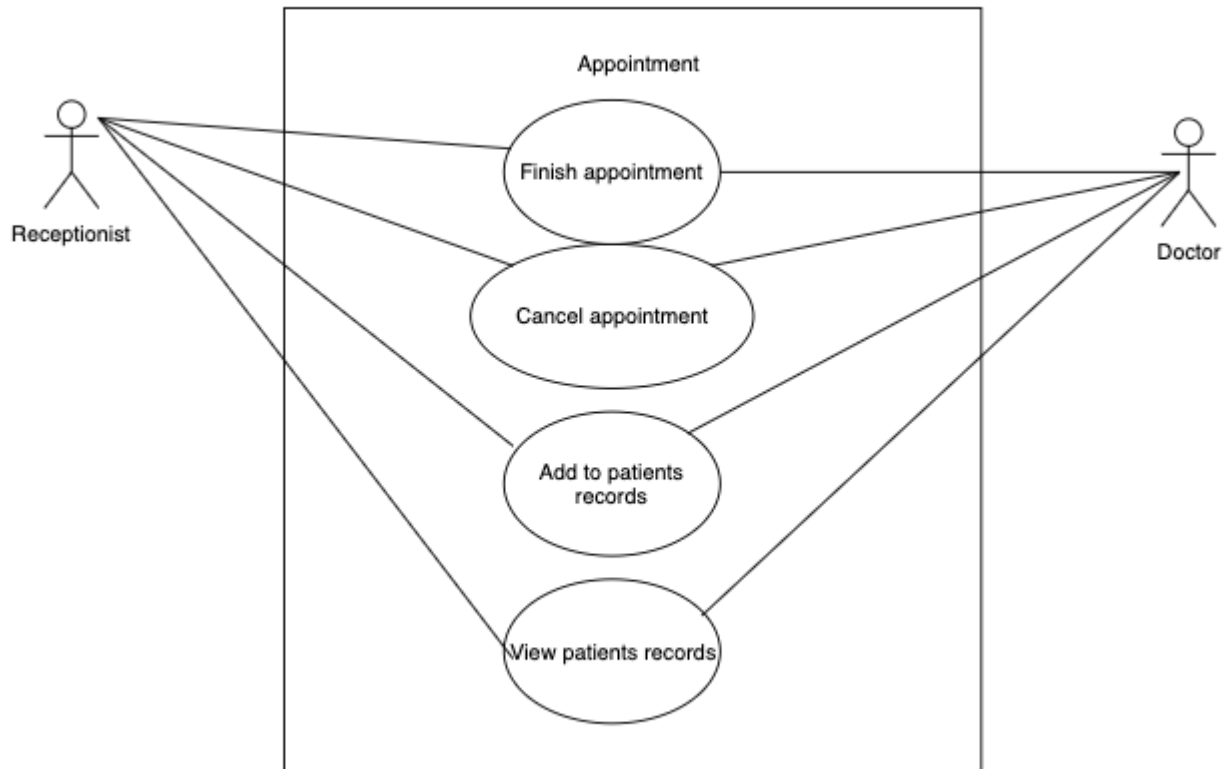
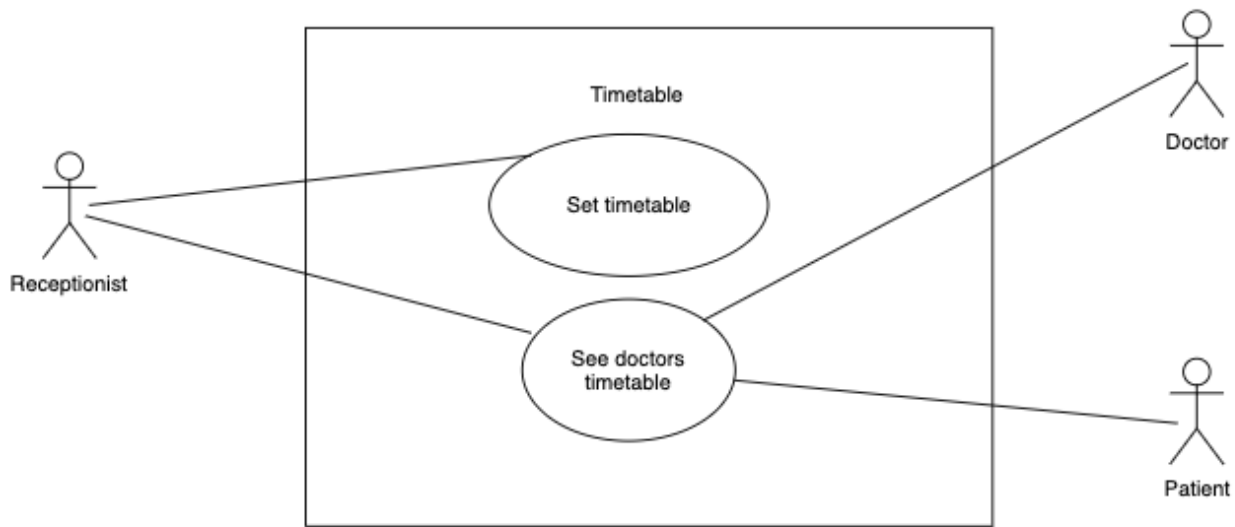
Use Case 24

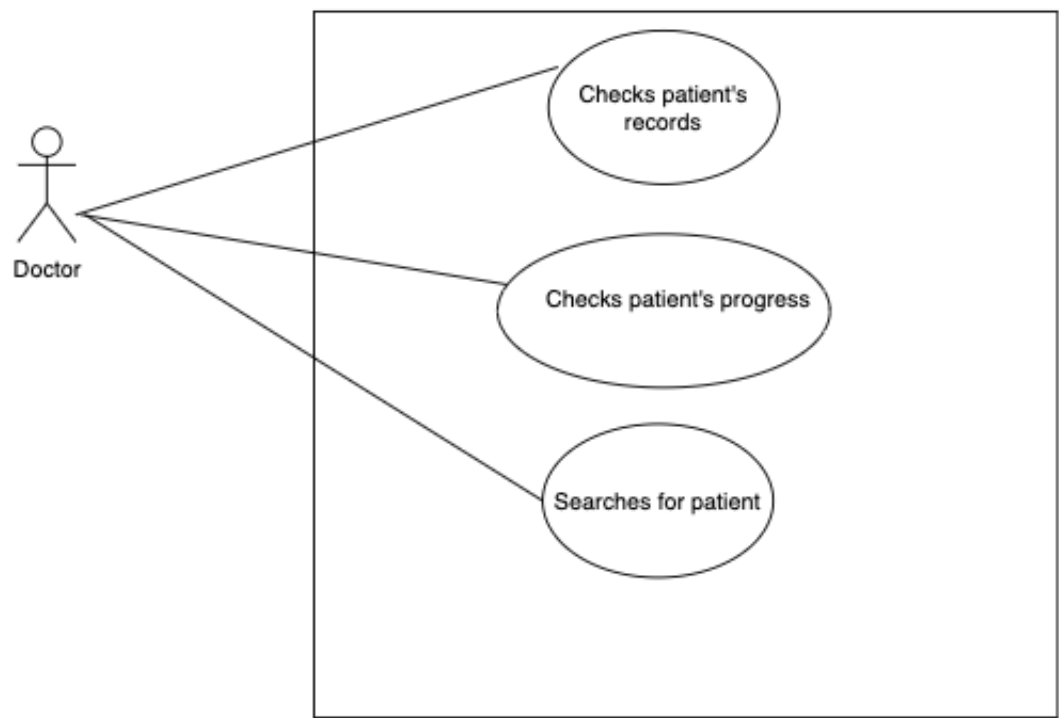
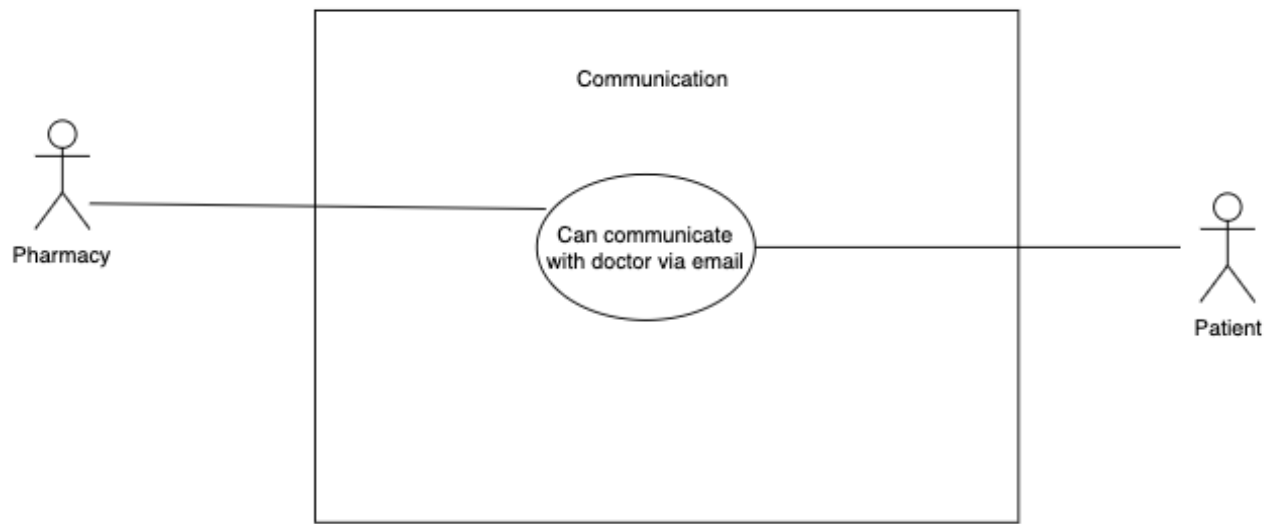
<b>Name</b>	<b>Receptionist generates report(daily/monthly)</b>
<b>Summary</b>	Receptionist generates a report as asked from doctors or managers
<b>Actor</b>	Receptionist
<b>Description</b>	Receptionist is asked to generate reports.
<b>Precondition</b>	
<b>Alternatives</b>	
<b>Post condition</b>	

#### 4.4 User Case Diagram



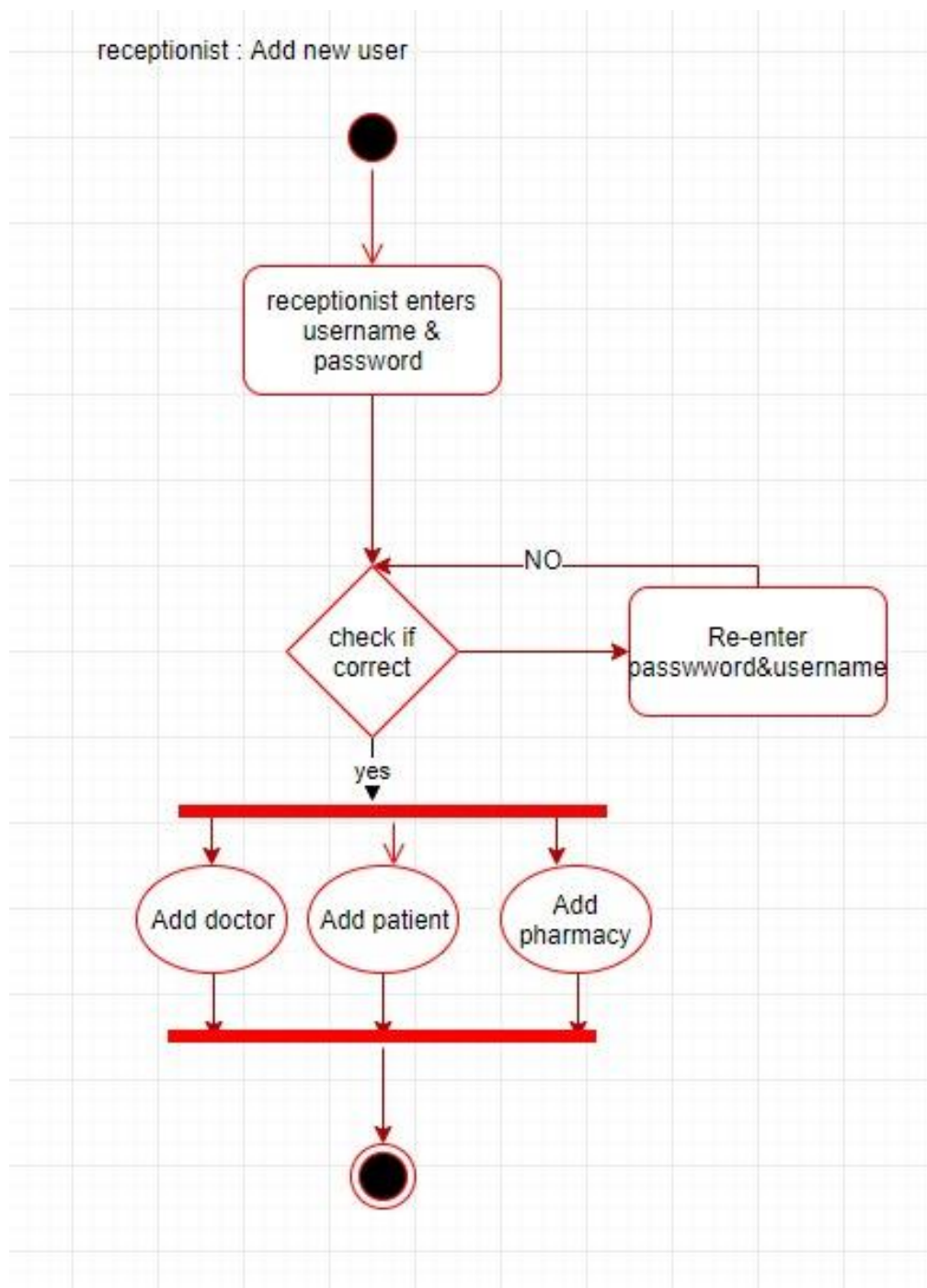




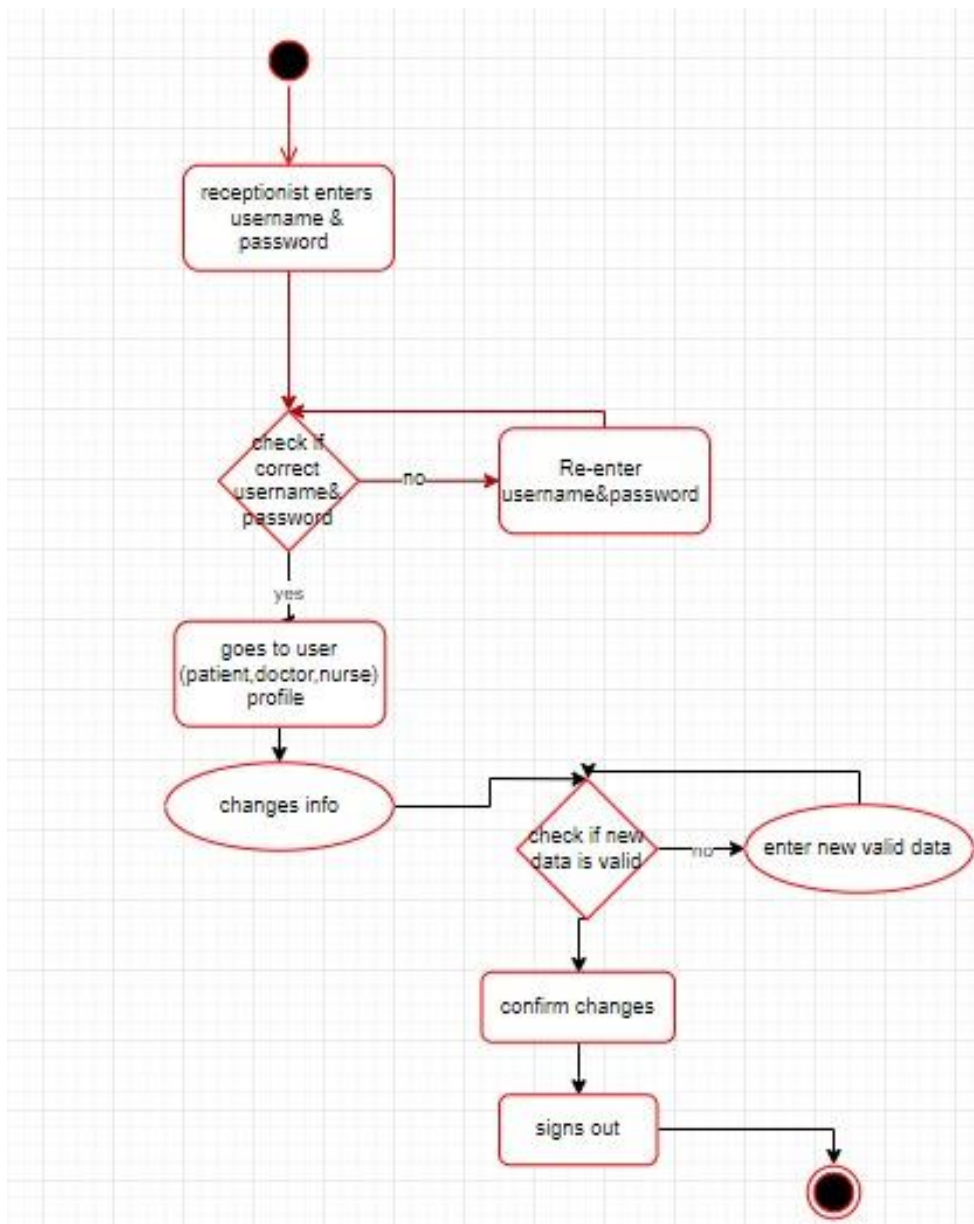


## 4.5 Activity Diagrams

### Receptionist: Adds new user

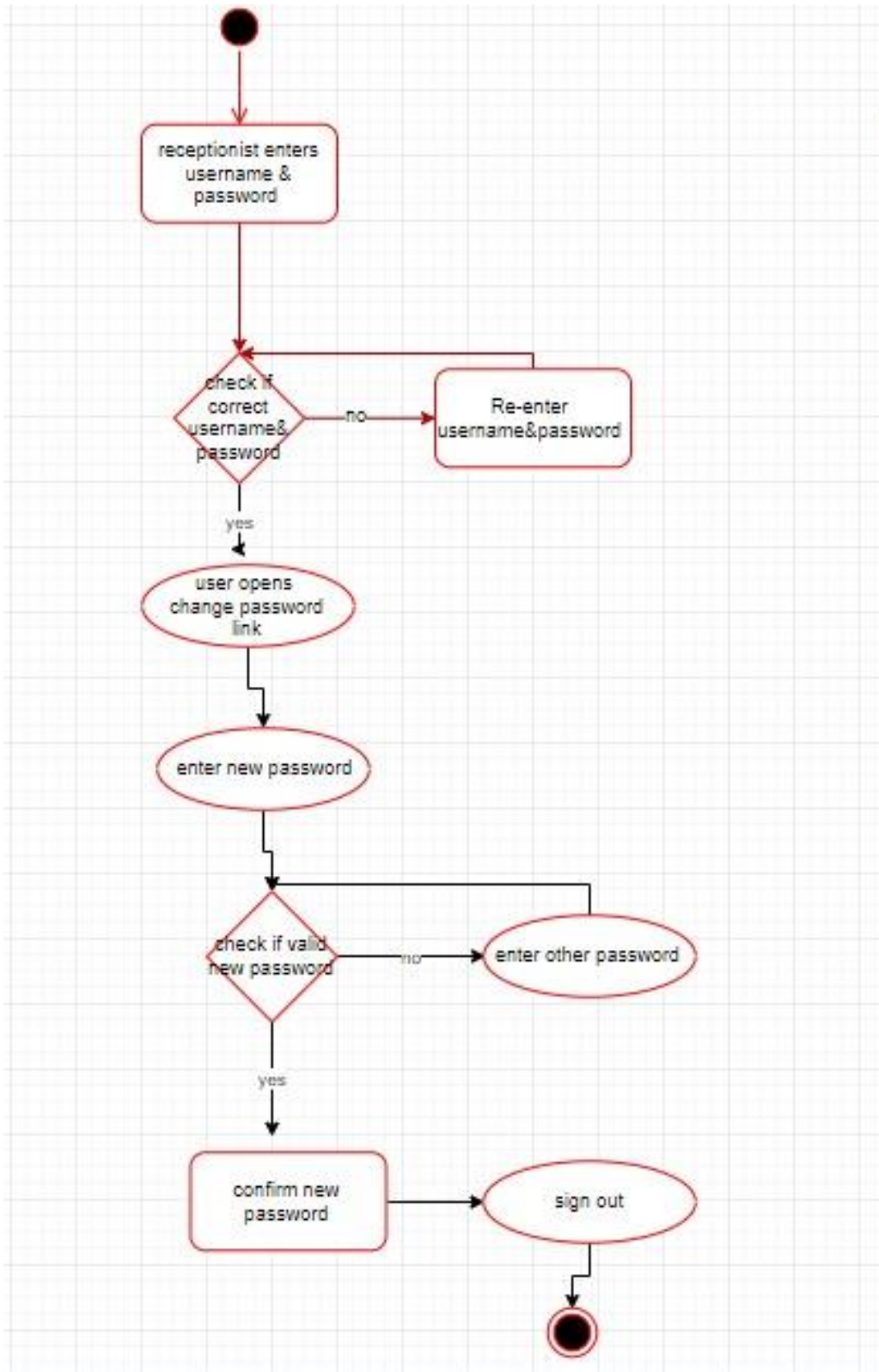


## Edit user profile

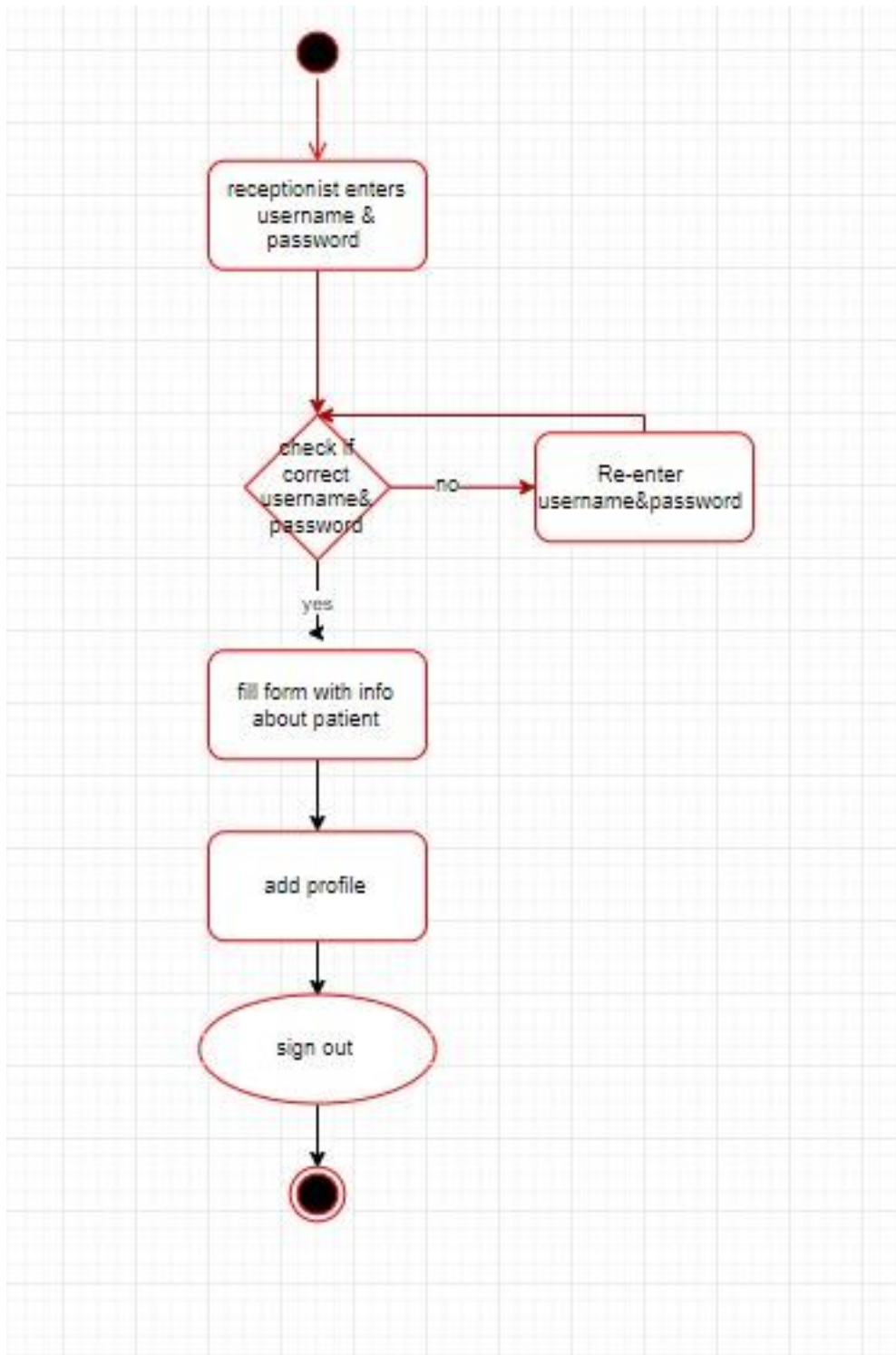




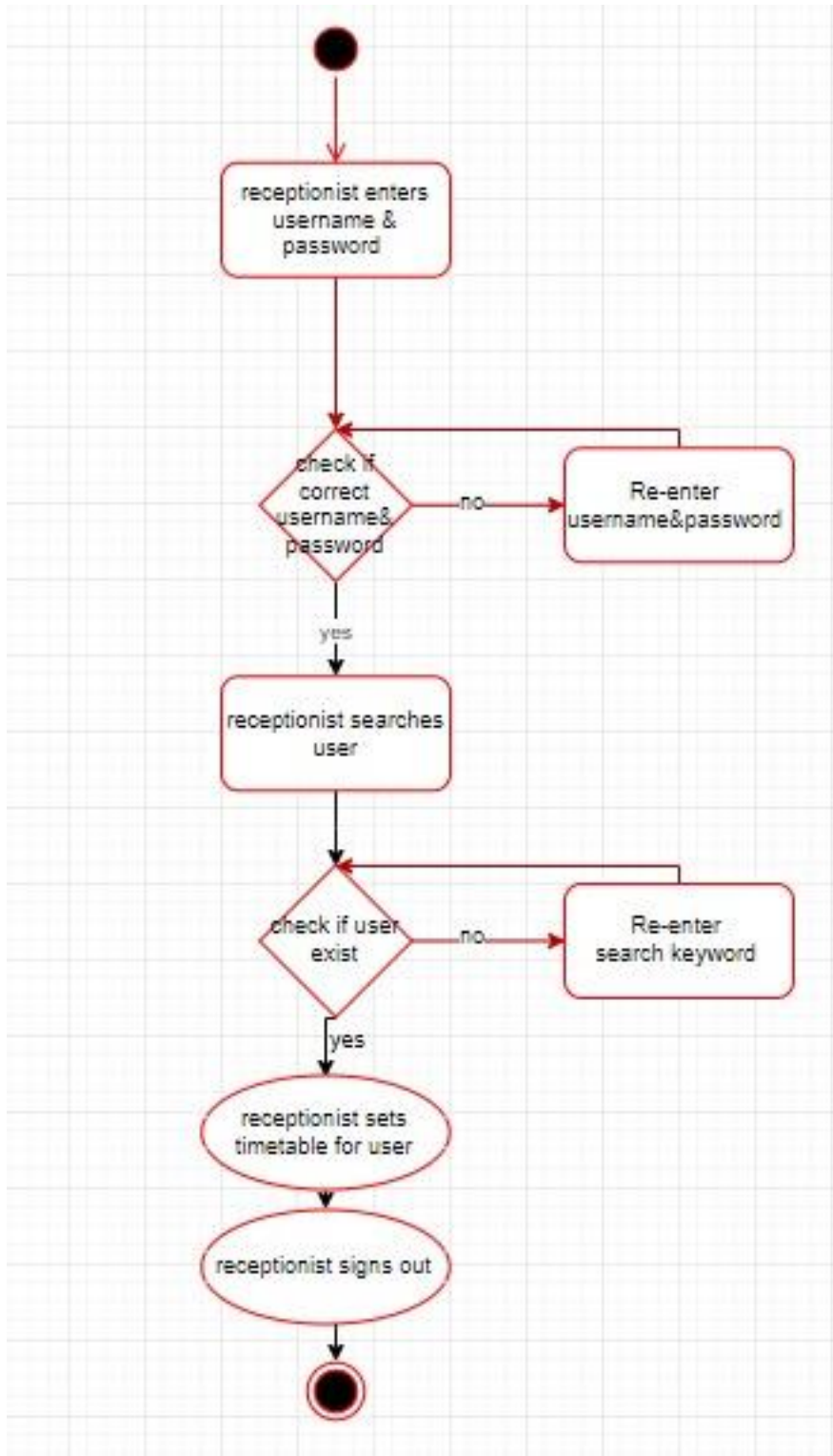
## Change password



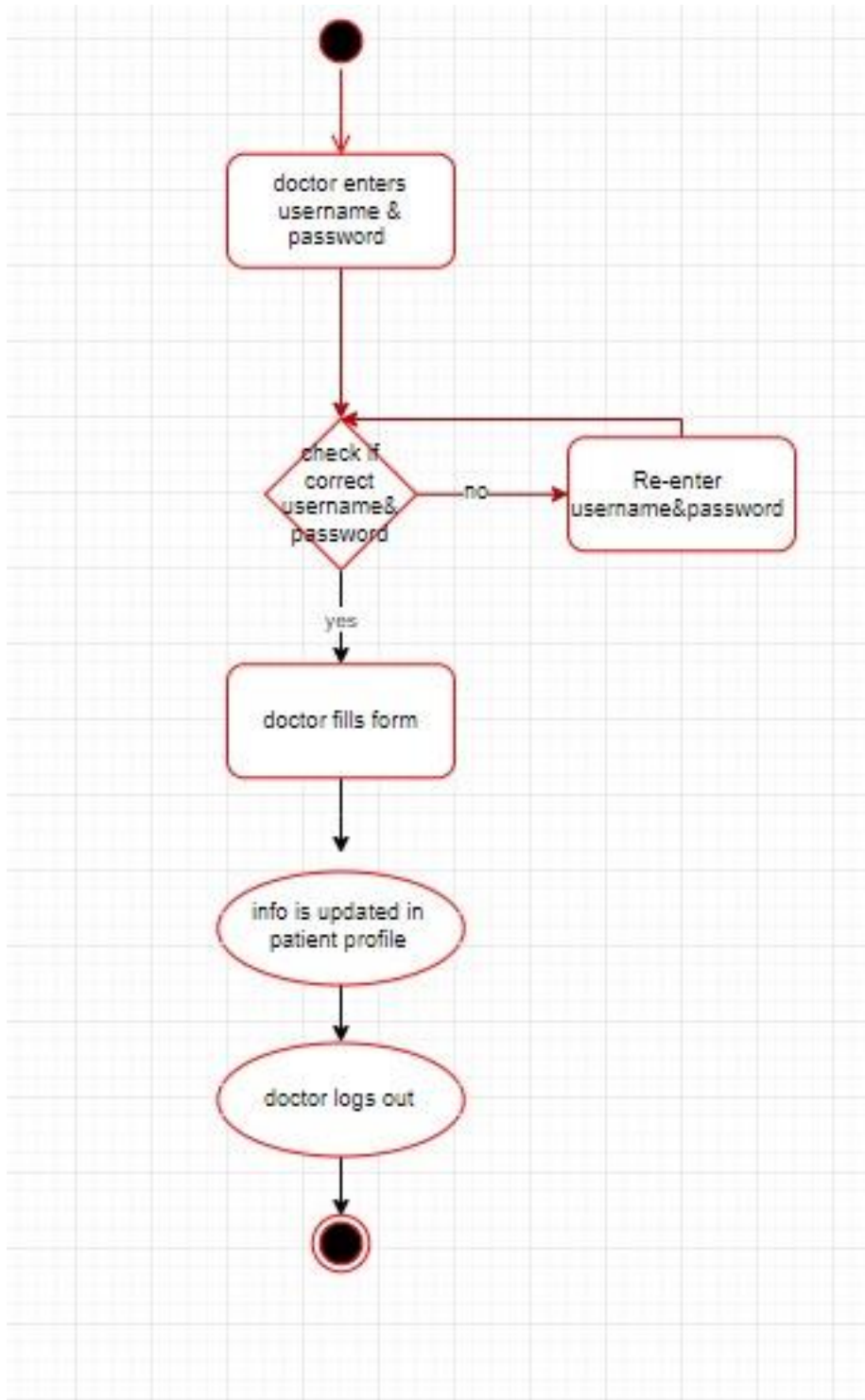
**Register patient(by receptionist)**



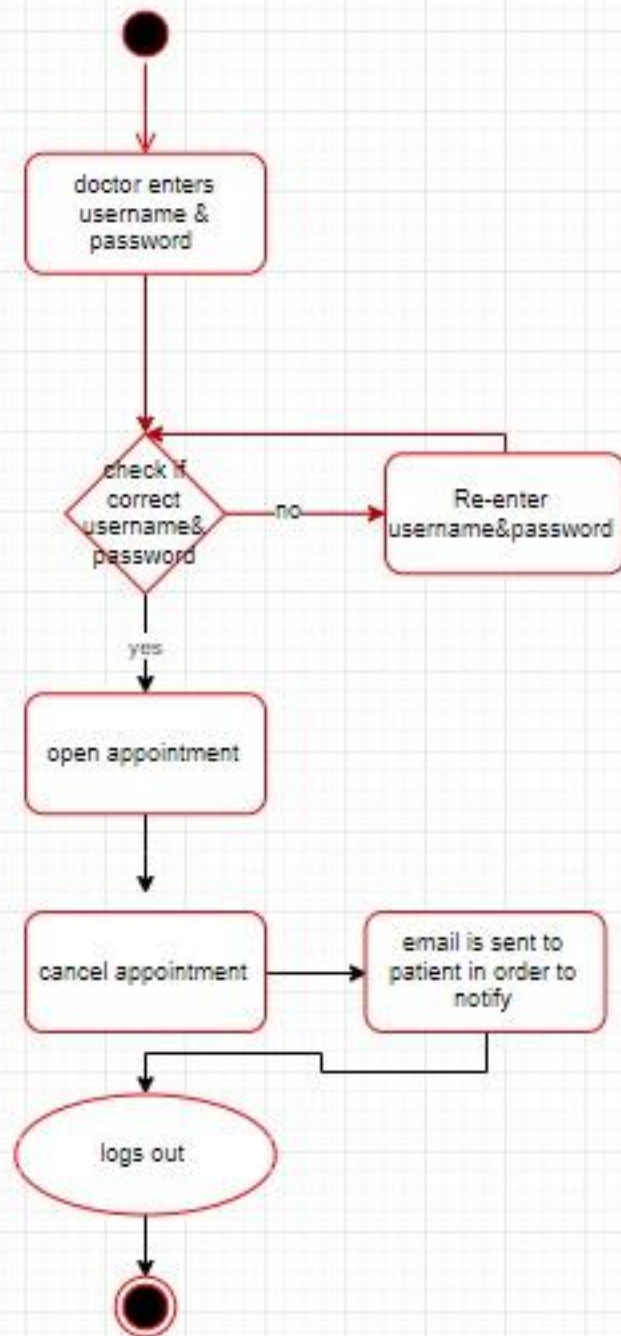
CMS Documentation  
**Set Timetable**



**Finish appointment**

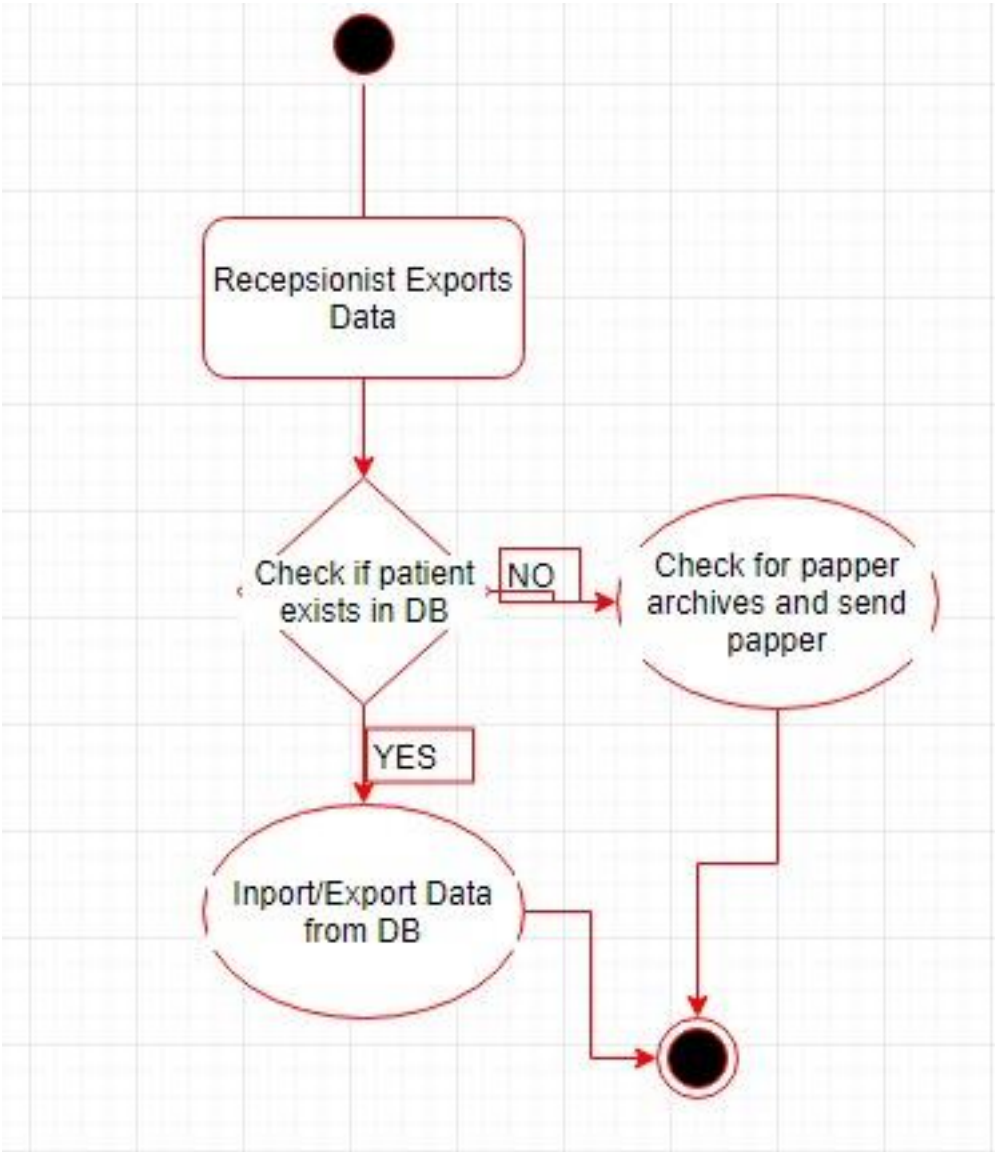


CMS Documentation  
Cancel appointment



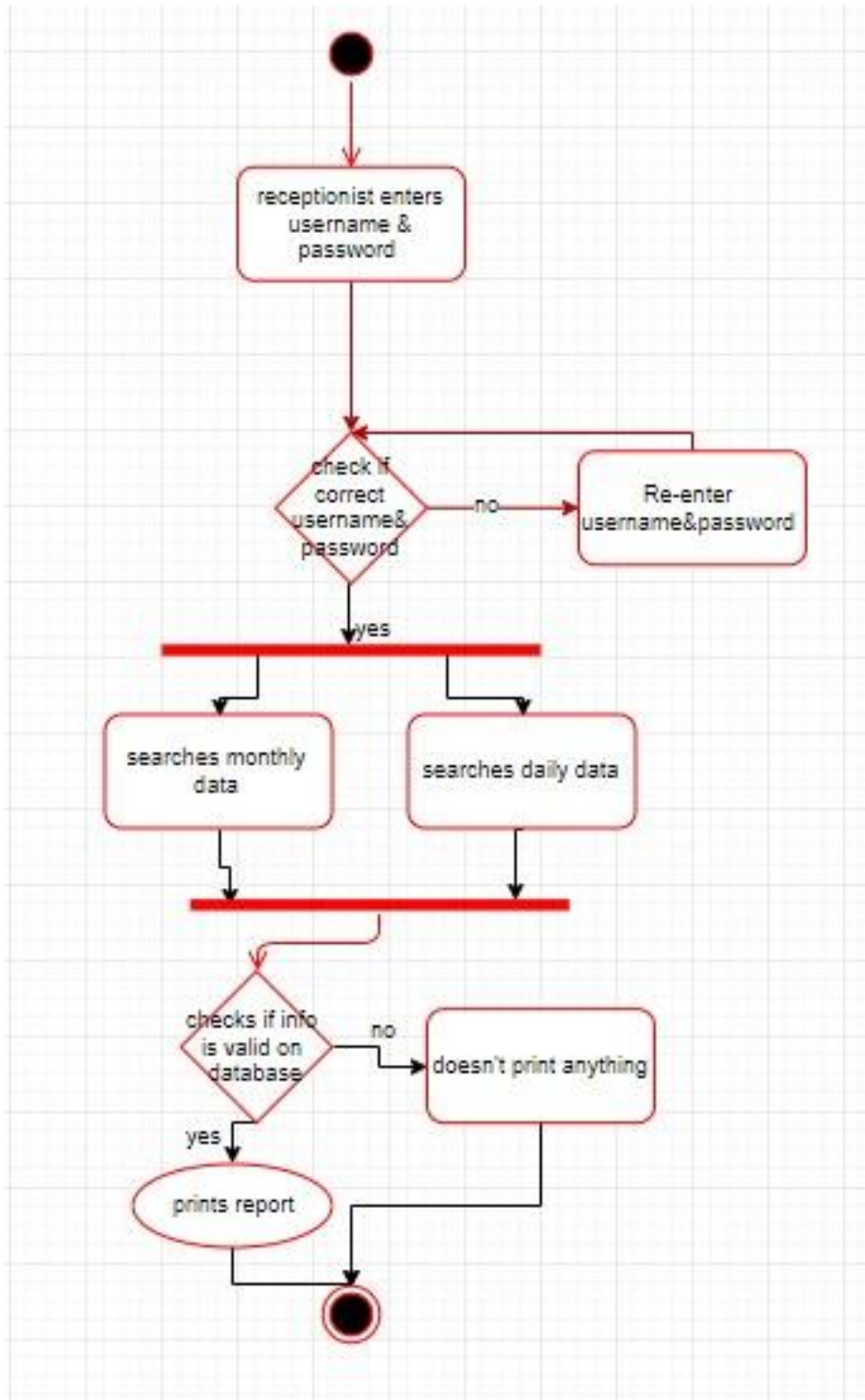
CMS Documentation

**Import/Export data**

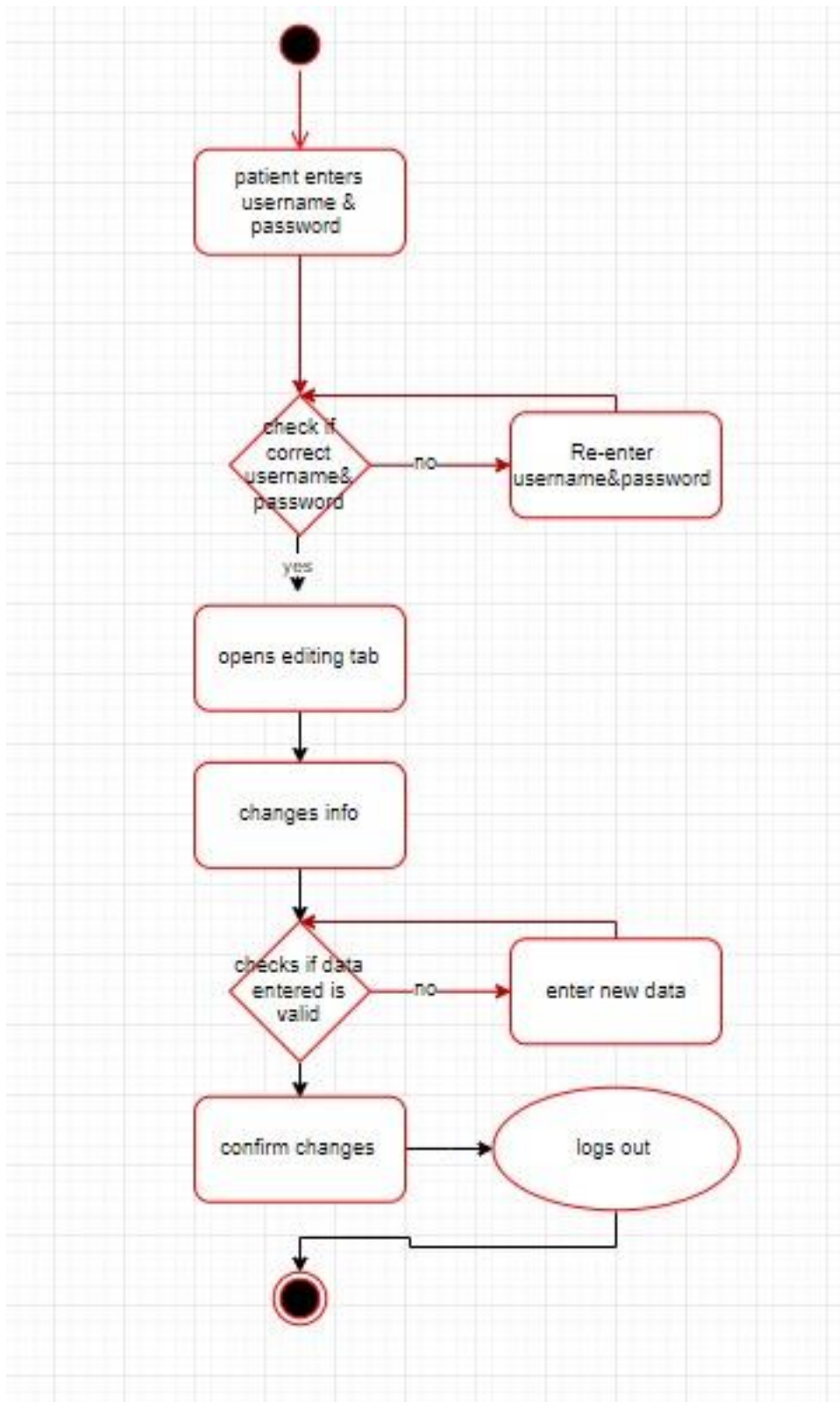




CMS Documentation  
**Generate report**

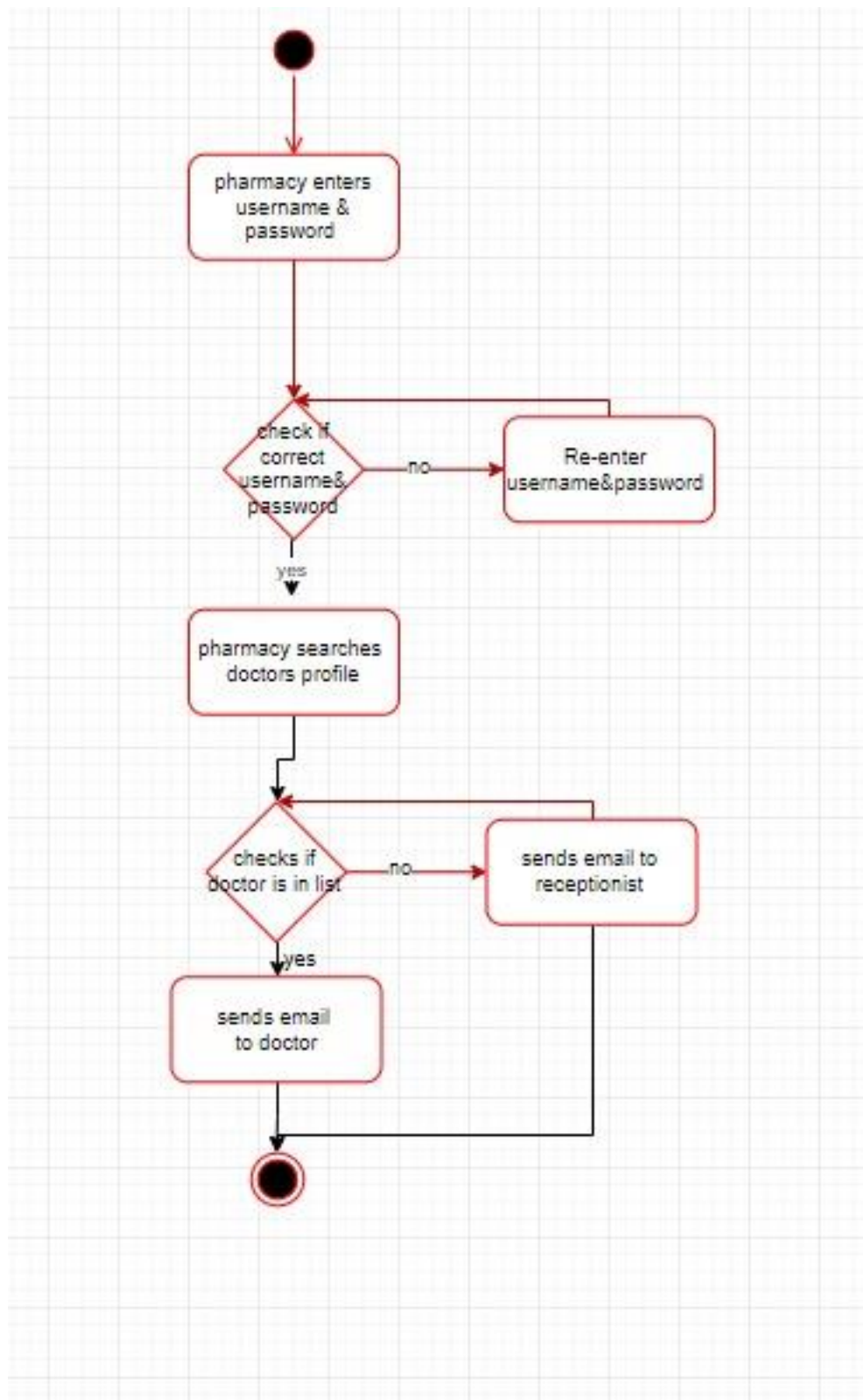


CMS Documentation  
Patient edits its own profile

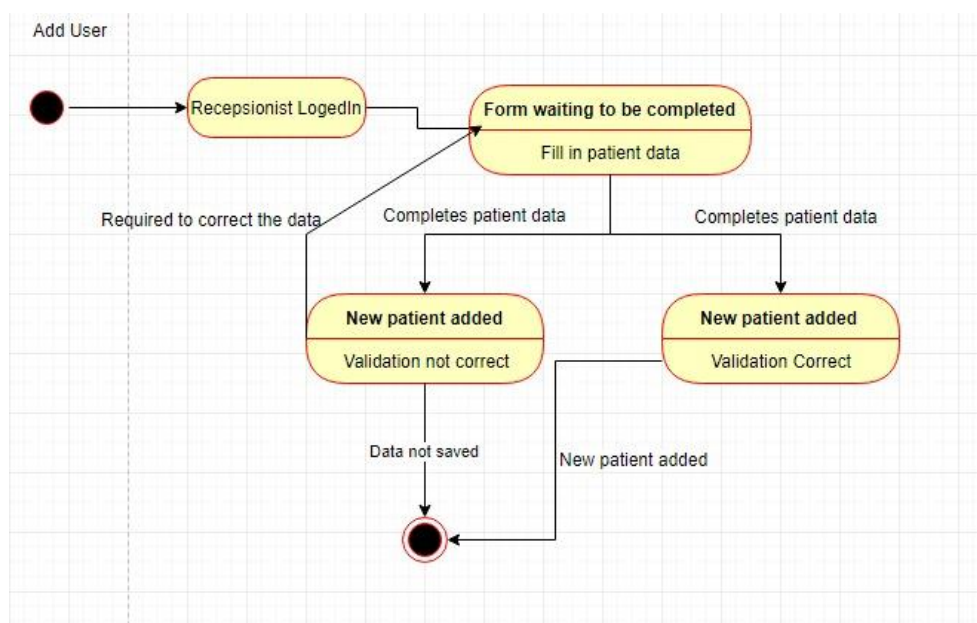
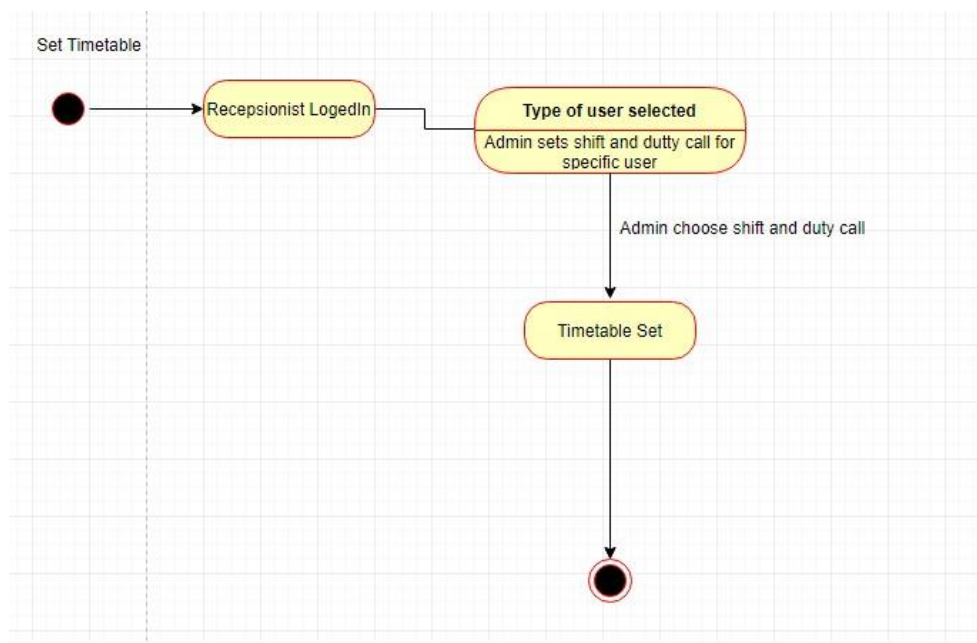


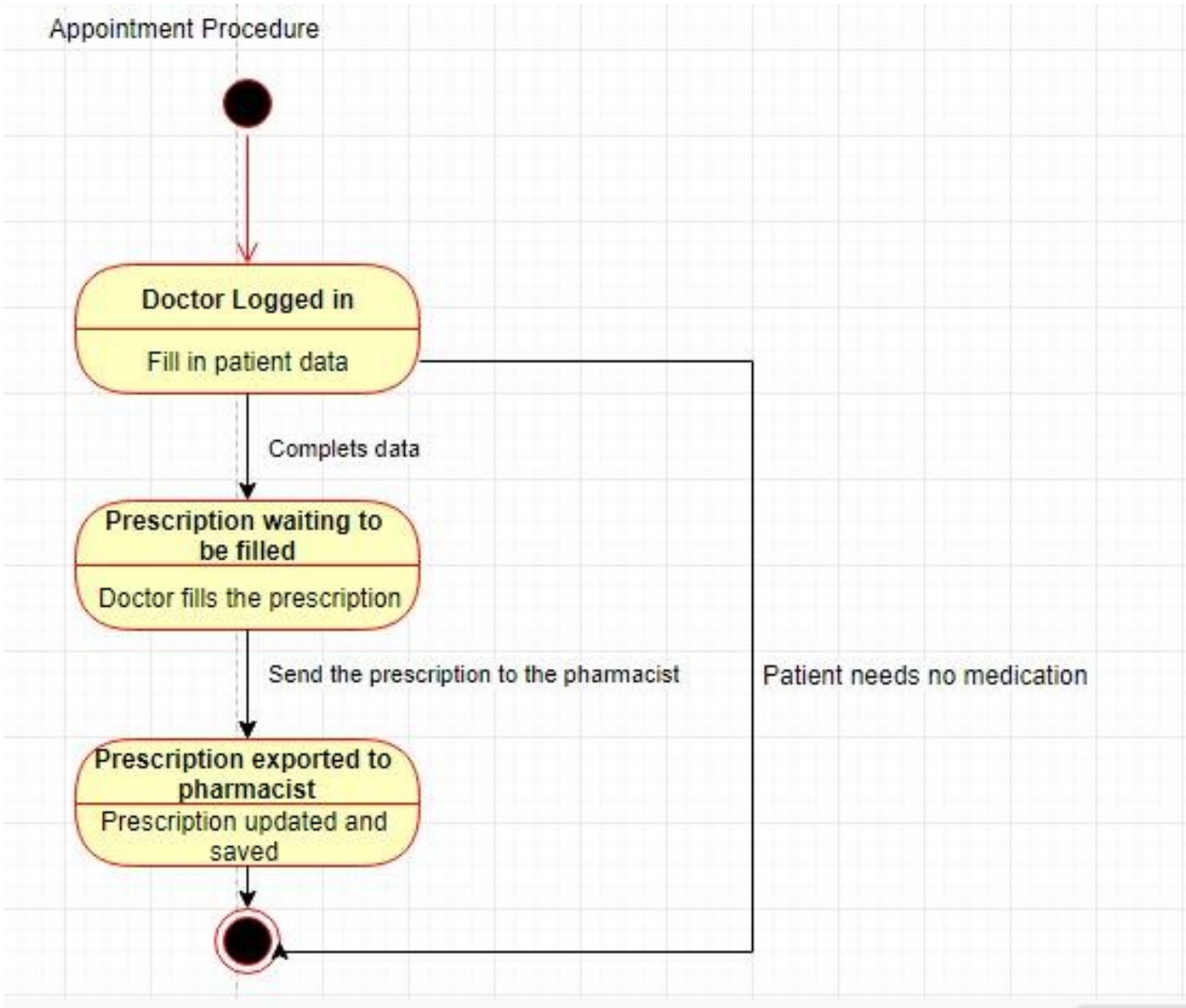


CMS Documentation  
Pharmacist contacts with doctor

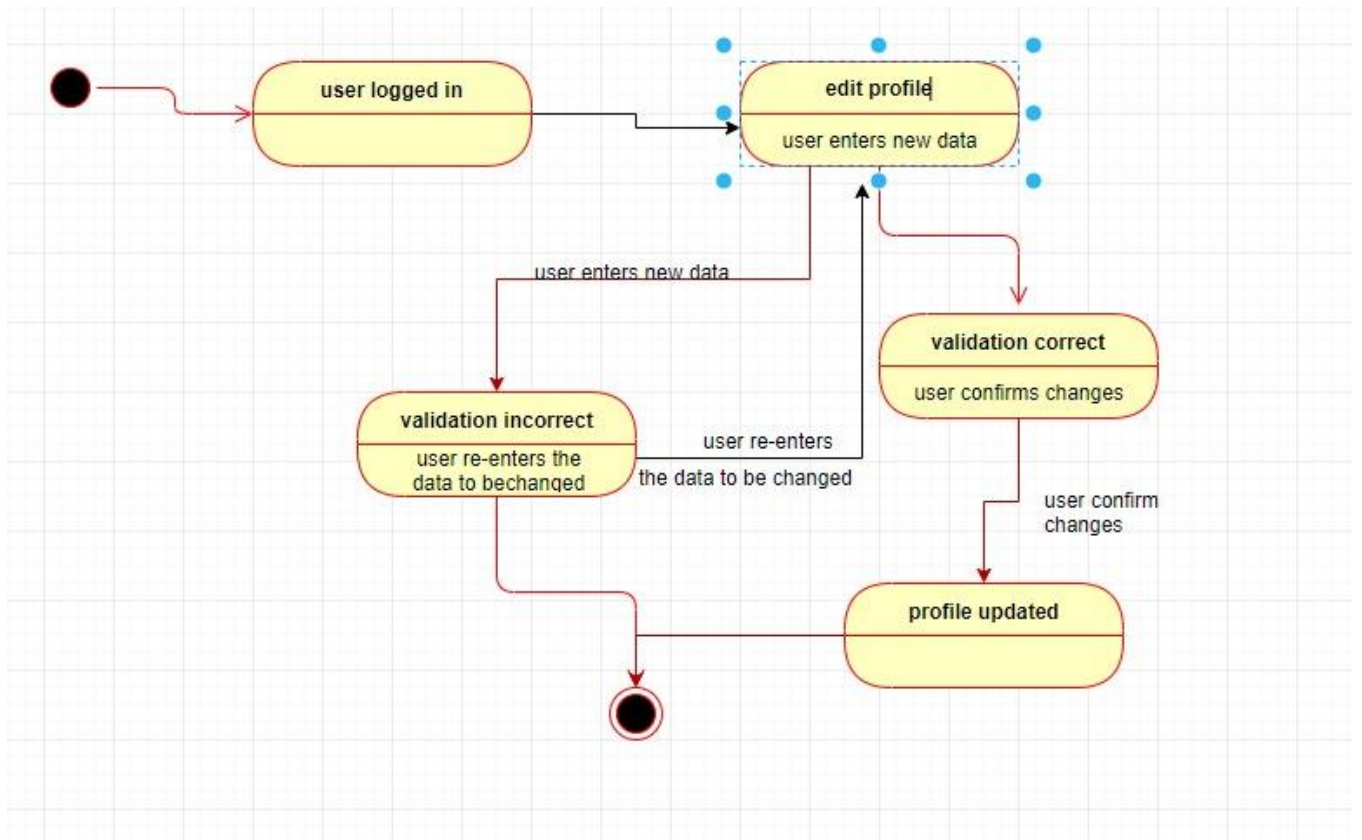
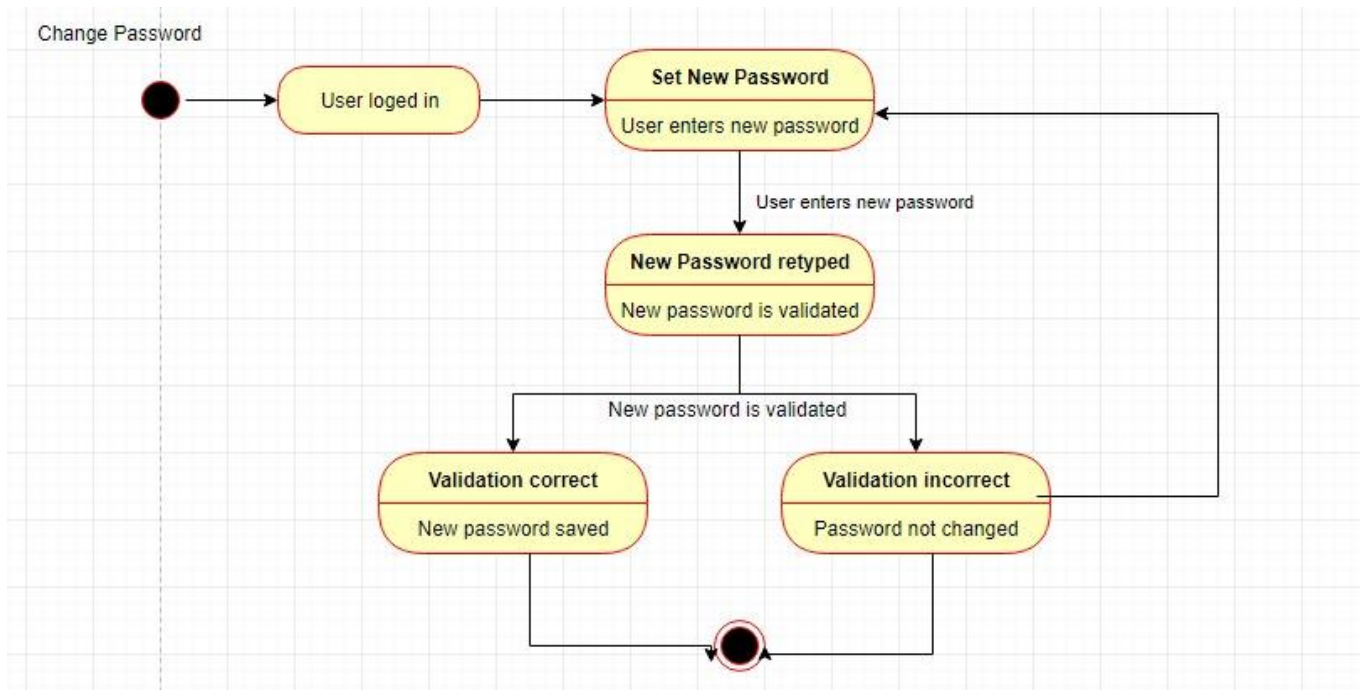


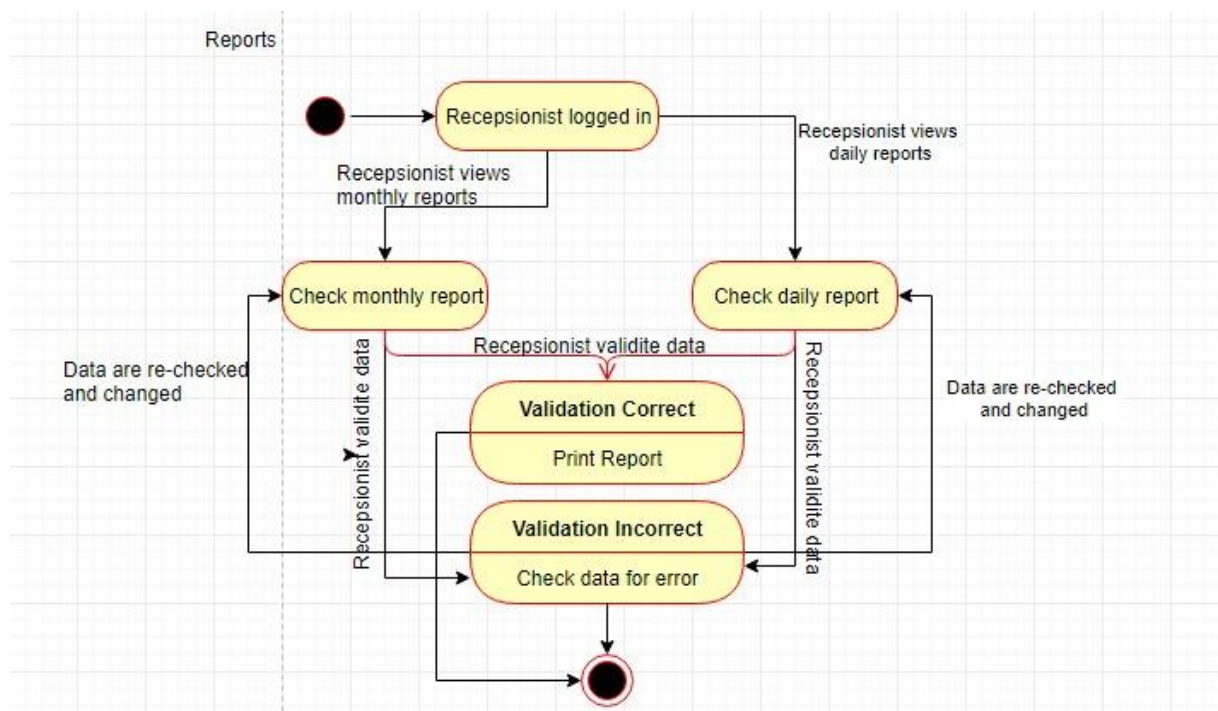
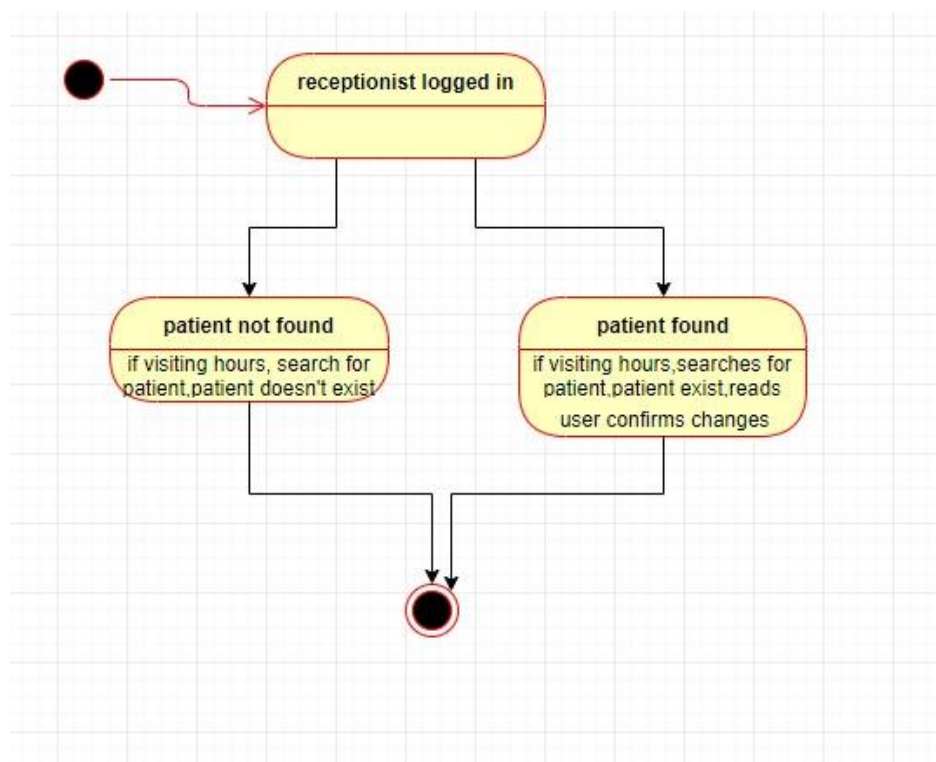
## 4.6 State Diagrams





## CMS Documentation

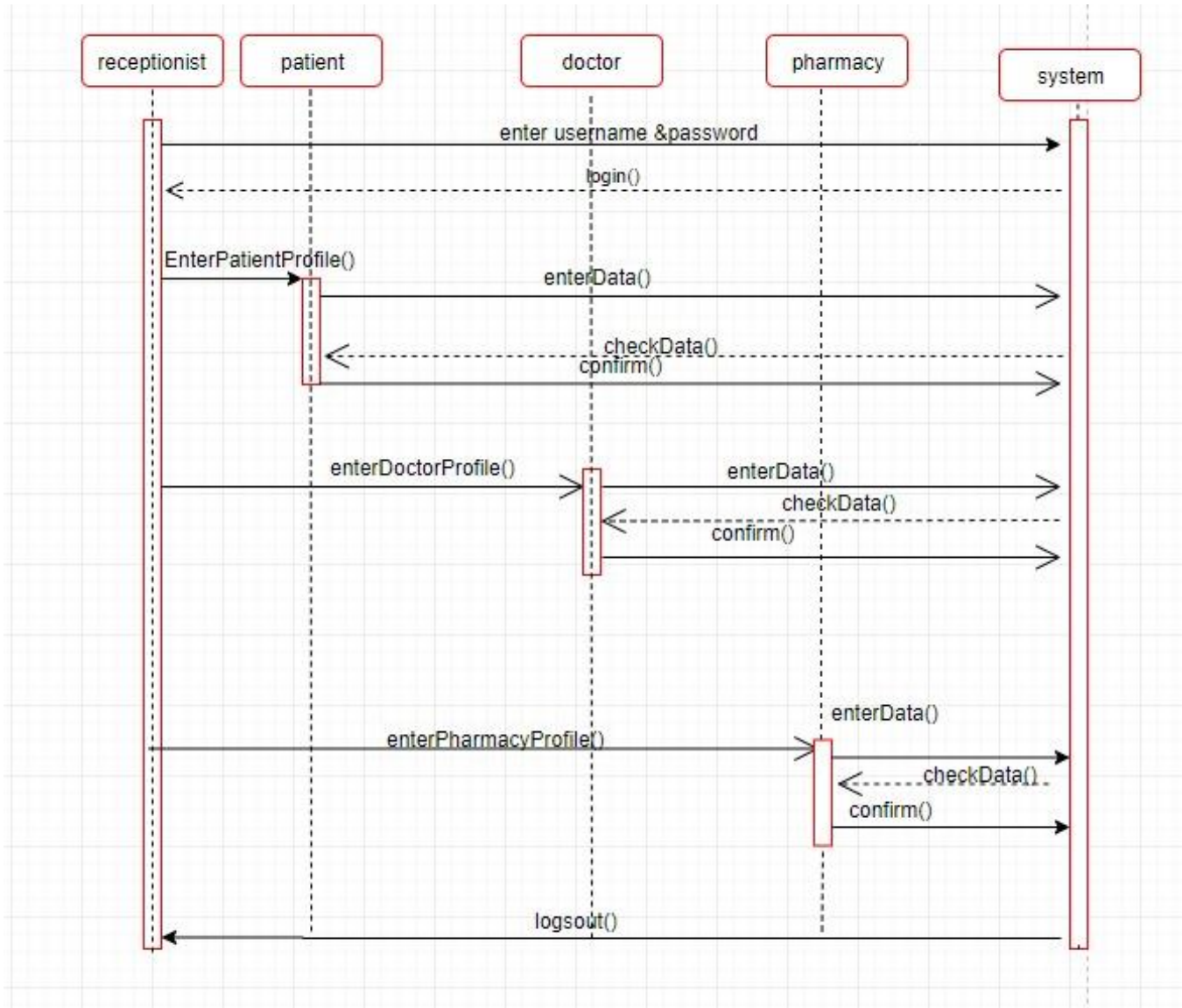






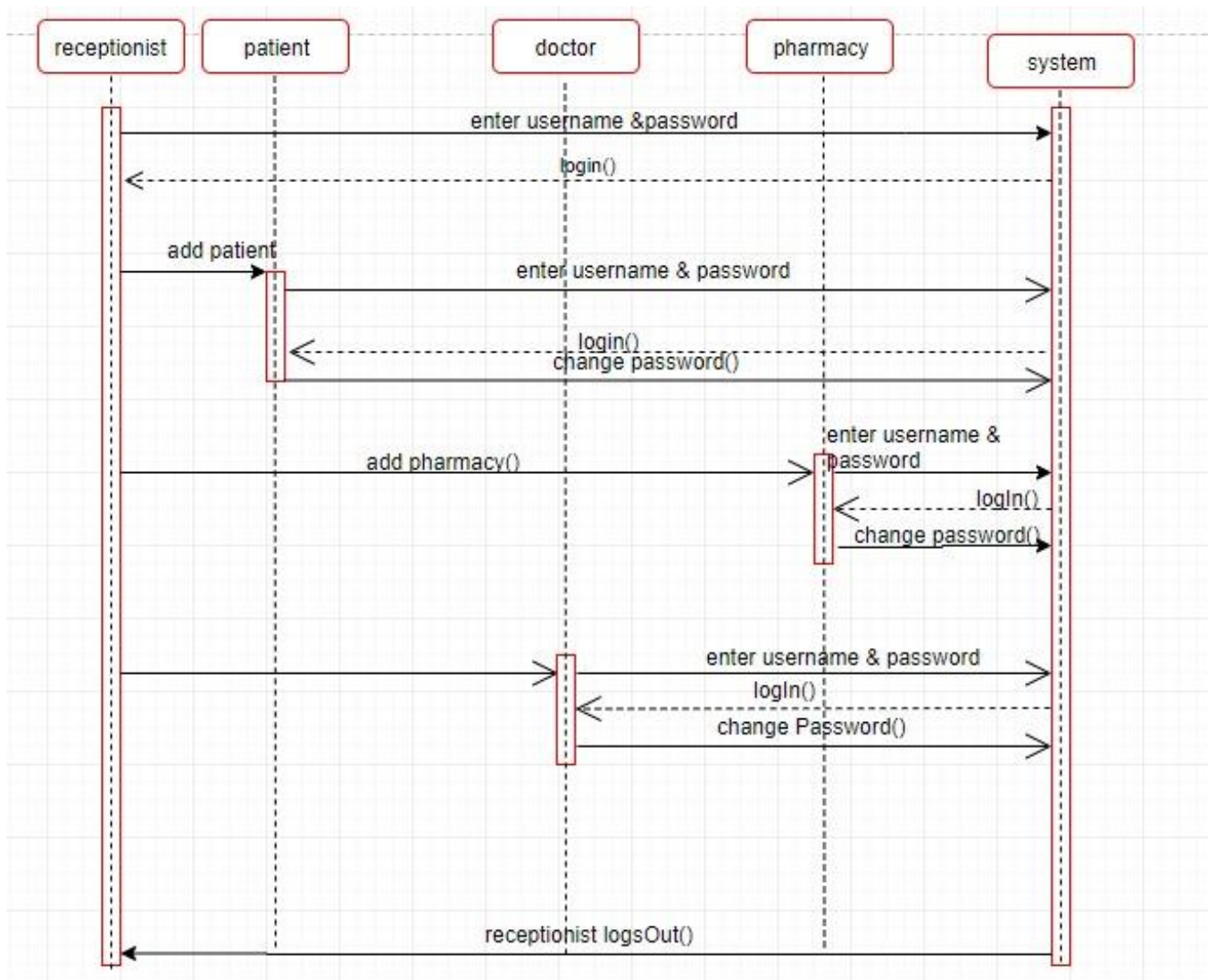
## 4.7 Sequence Diagrams

### Edit Users Profile(By receptionist)

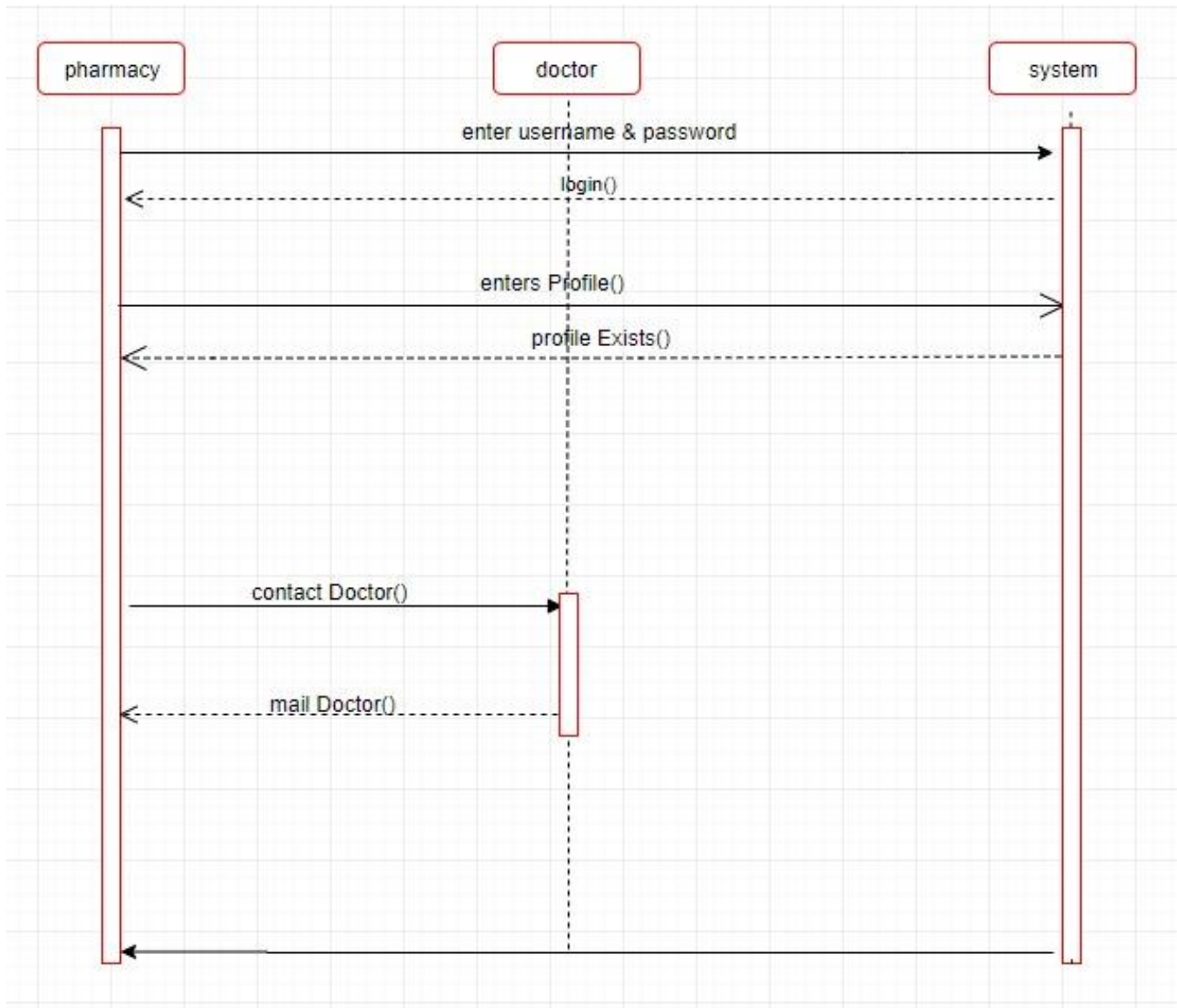


## CMS Documentation

### Add new user



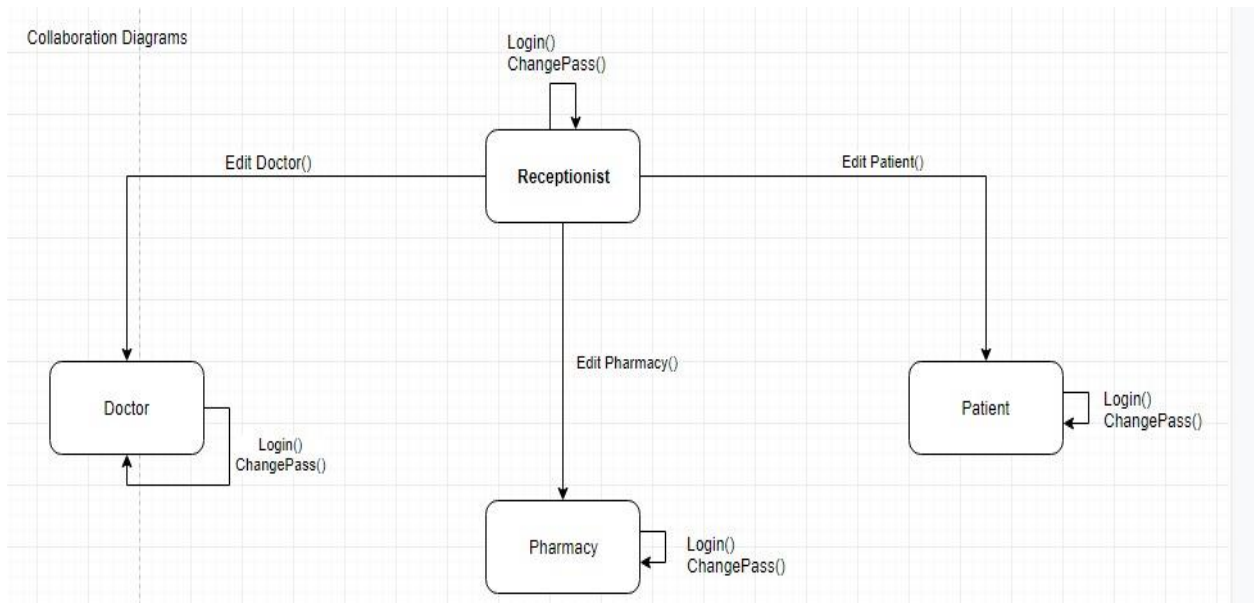
**Pharmacy communicates with doctor**



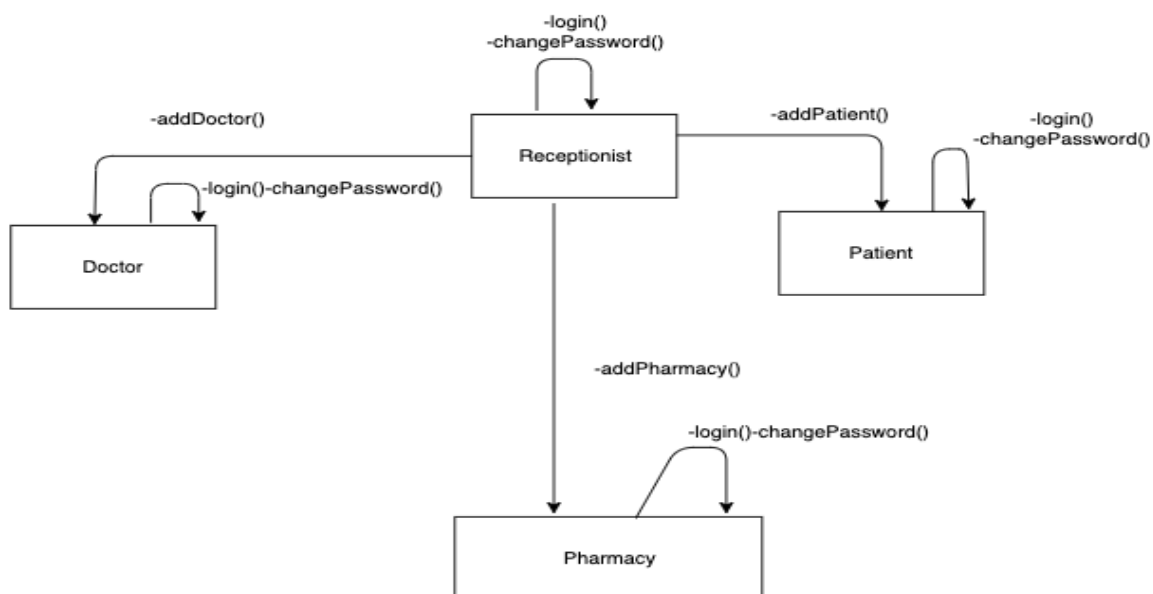


## 4.8 Collaboration Diagrams

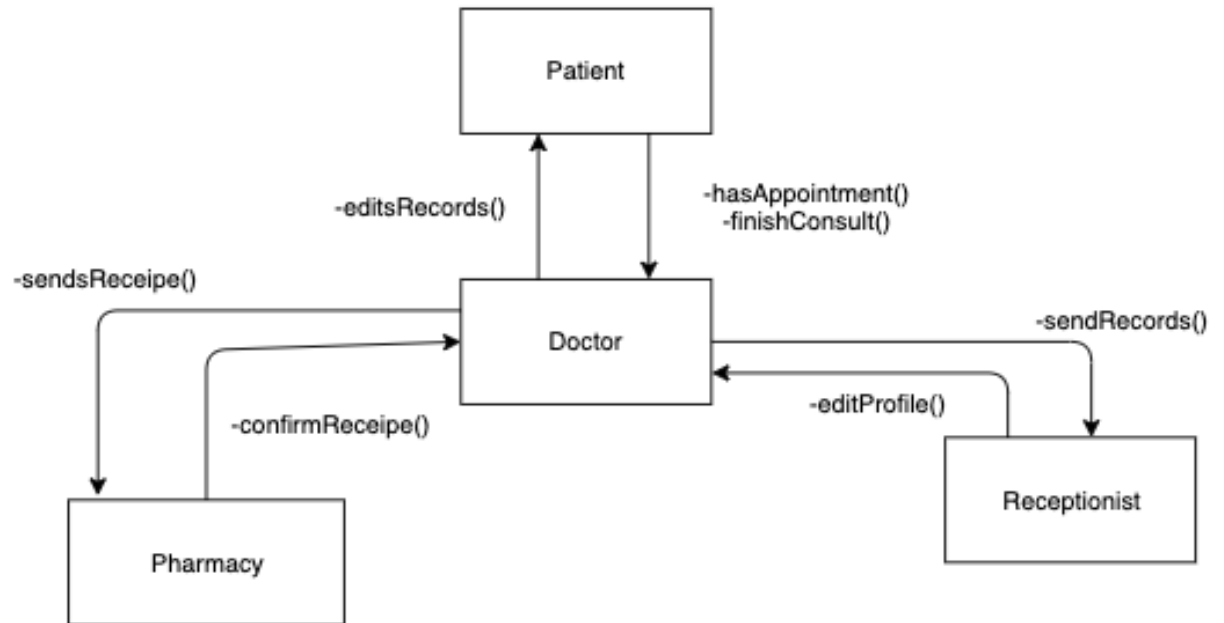
## Edit user profile



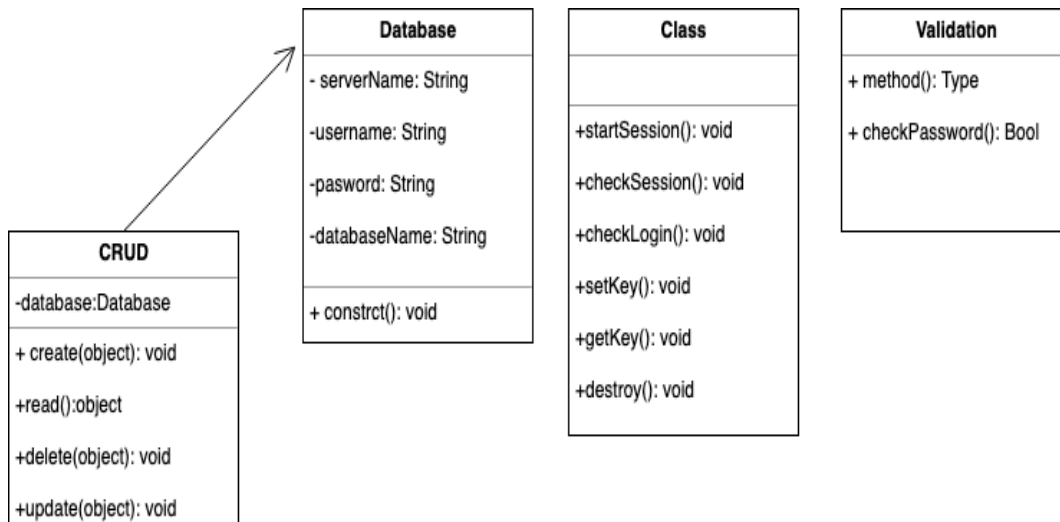
## Add new user

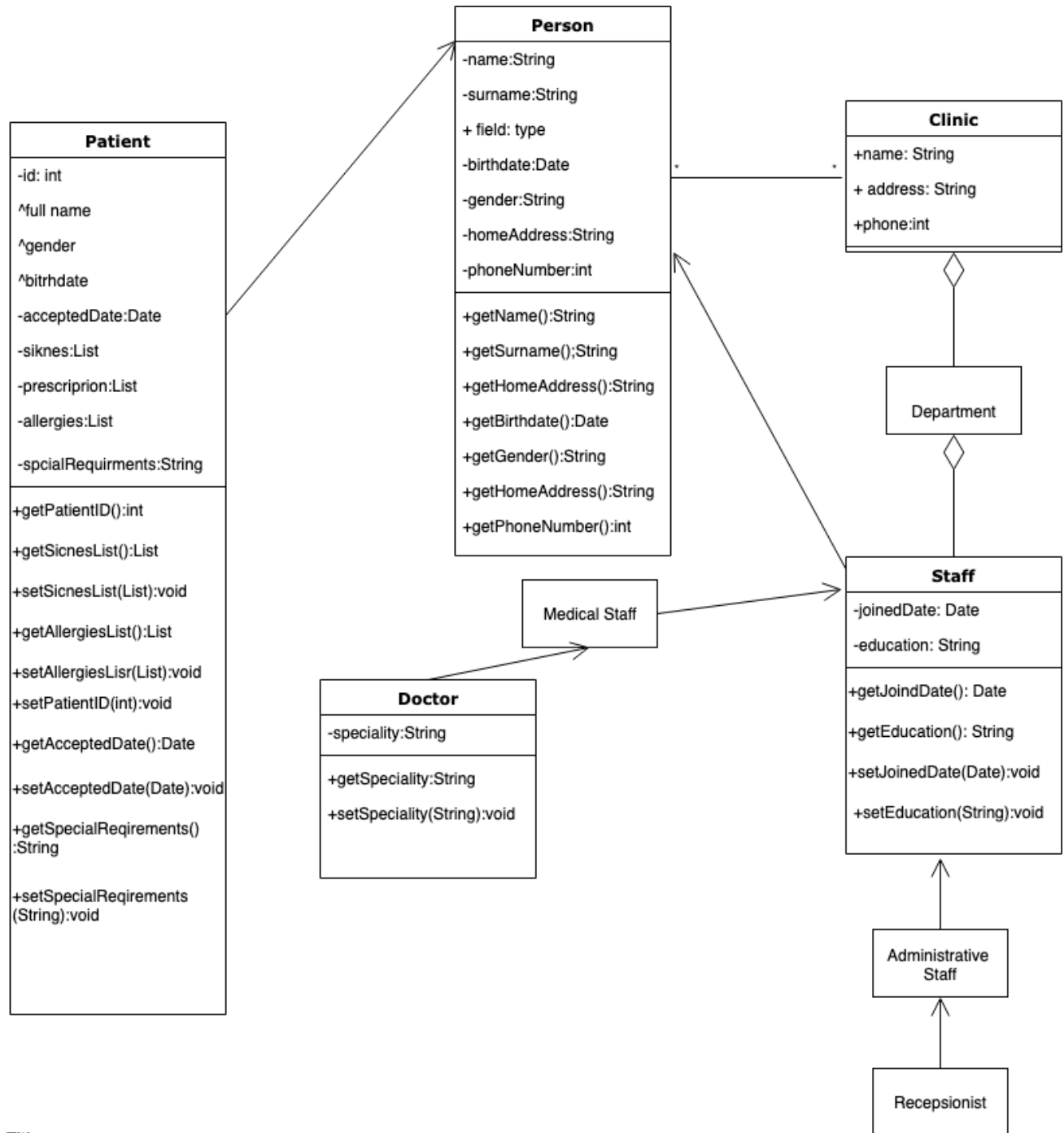


## Appointment



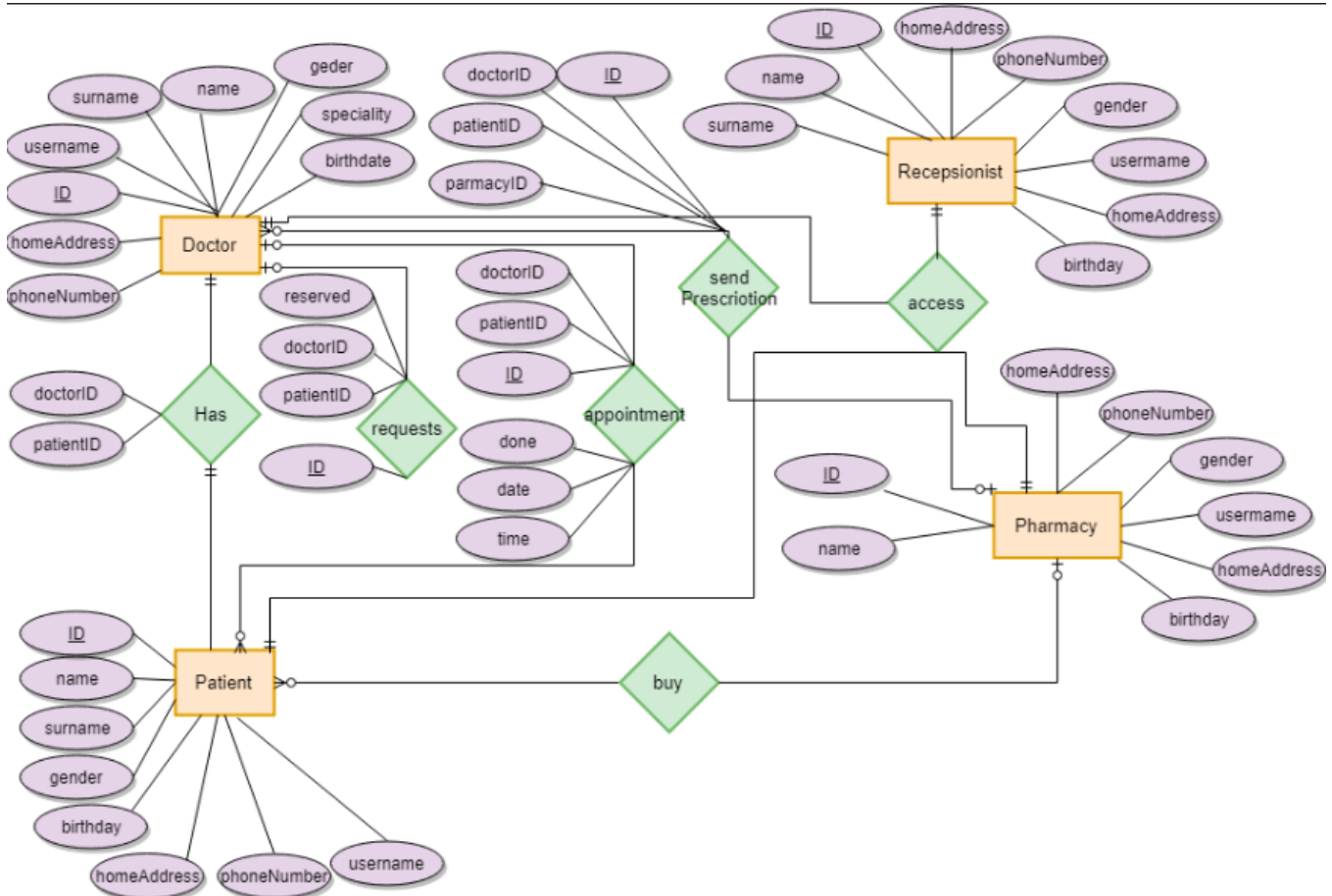
## 4.9 Class Diagrams





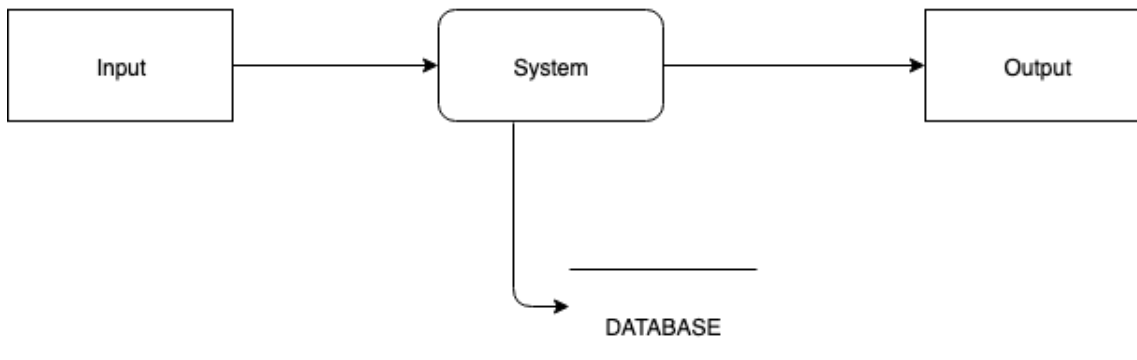
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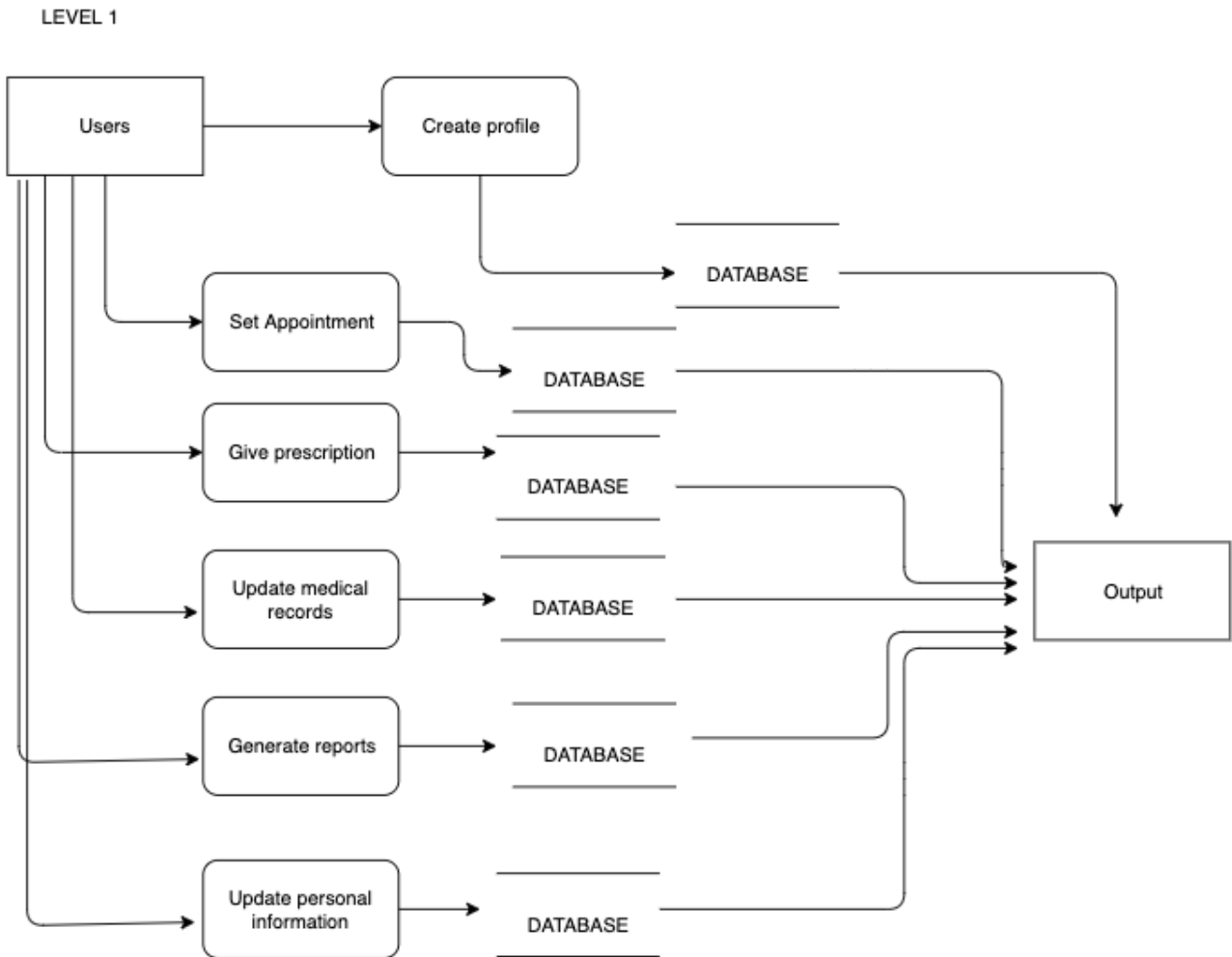
## 4.10 ERD



## 4.11 DATA FLOW DIAGRAMS – DFD

LEVEL 0






## APPENDIX

## Sketches

Login

Username


Password

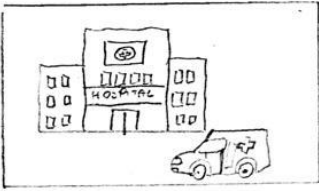


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
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Stafi Mjekësor
Pacienti
Shërbime




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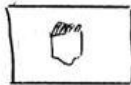
## Stafji Mjekësor



Dr. ....



Dr. ...



Dr. ....



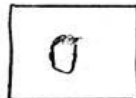
Dr. ...



Dr. ....



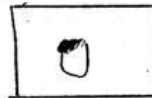
Dr. ...



Dr. ...



Dr. ...



Dr. ...



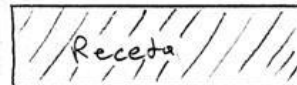
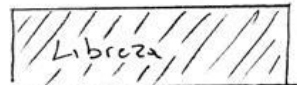
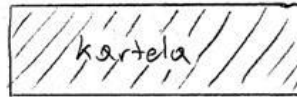
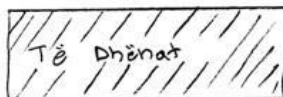
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## Pacienti / Të dhënat

Emër: ..... Mbiemër: .....  
 Moshë: .....  
 Adresë: .....  
 Kontakti: .....  
 kontakt emergjencë: .....  
 Pasaport ID: .....  
 Gjak: .....  
 Username: ..... Password: .....  
 Status: .....

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15	16	17	18	19	20	21	
22	23	24	25	26	27	28	
29	30	31					

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Rezervoni

1	Dr	X
2	Dr	Y
3	Dr	A
4	Dr	D
5	Dr	H
6	Dr	L
7	Dr	ZH

→

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02:00 AM	12:00 AM	11:00 PM
03:00 AM	01:00 PM	00:00
04:00 AM	02:00 PM	
05:00 AM	03:00 PM	
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08:00 AM	06:00 PM	
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	09:00 PM	

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Pacienti / Kartela

Kartela Personale Nr. ....

Ambulanca:  
Mjeku Familjes

Rekordim nga: ....  
.....  
Gr. i gjatësi: ....  
Rh. Faktor: .....

Data e hapjes së kartelës:  
kodi i pacientit:  
Nr. i vizitimit:  
Grupi i inkuadruar:  
Nr. dok. identifikim:

Emri: ... Adresa: ... Mbiemri: ...  
Data lindje: ... Muesi: ... Vendi: ... Nr. tel: ...  
Adresa: ...  
Profesioni: ... Detyra: ...  
Vendbanimi: ...

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Stafi Mjekësor / Dr. X



Emri: ... Mbiemri: ... Nr. tel: ...  
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Arsimi: ...  
Jehu: ...  
.....  
.....  
% Vdekjes: .....