

# ***Hospital Management System Requirements Specification***

**Version 4.0**

**June 16, 2022**

***Team members:***

*Eloi Sherifi*

*Gerhard Allamani*

*Alexia Bega*

*Christia Lico*

*Tedi Pellumbi*

*Ergys Kojtari*

## Table of Contents

### 1. EXECUTIVE SUMMARY

- 1.1 Project Overview
- 1.2 Purpose and Scope of this Specification

### 2. PRODUCT/SERVICE DESCRIPTION

- 2.1 Product Context
- 2.2 User Characteristics
- 2.3 Assumptions
- 2.4 Constraints
- 2.5 Dependencies

### 3. REQUIREMENTS

- 3.1 Functional Requirements
- 3.2 Non-Functional Requirements
  - 3.2.1 Product Requirements
    - 3.2.1.1 User Interface Requirements
    - 3.2.1.2 Usability
    - 3.2.1.3 Efficiency
      - 3.2.1.3.1 Performance Requirements
      - 3.2.1.3.2 Space Requirements
    - 3.2.1.4 Dependability
    - 3.2.1.5 Security
  - 3.2.2 Organizational Requirements
    - 3.2.2.1 Environmental Requirements
    - 3.2.2.2 Operational Requirements
    - 3.2.2.3 Development Requirements
  - 3.2.3 External Requirements
    - 3.2.3.1 Regulatory Requirements
    - 3.2.3.2 Ethical Requirements
    - 3.2.3.3 Legislative Requirements
      - 3.2.3.3.1 Accounting Requirements
      - 3.2.3.3.2 Security Requirements
- 3.3 Domain Requirements

### 4. SOFTWARE DESIGN

- 4.1 User scenarios
- 4.2 Use case Diagram
- 4.3 Use cases Tables
- 4.4 Activity Diagrams
- 4.5 State Diagrams
- 4.6 Sequence Diagrams
- 4.7 Swimlane Diagrams
- 4.8 Collaboration Diagrams
- 4.9 Object Diagram
- 4.10 Class Diagram
- 4.11 ERD and ES
- 4.12 Component Diagram
- 4.13 DFD
- 4.14 Deployment Diagram

### 5. APPENDIX

- 5.1 Sketches
- 5.2 Prototype
- 5.3 Finished webapp

# 1. Executive Summary

## 1.1 Project Overview

This is a Project for the Software Engineering course at Epoka University, created by a group of 6 students of CEN. The project is a web site/application designed to help Hospitals, here in Albania, manage their operation in a more effective and convenient way.

## 1.2 Purpose and Scope of this Specification

The Main objective of the Web application is to allow Hospitals here in Albania a system to interact better and more conveniently with patients as well as having an easier time managing different aspects of running an effective Hospital. One of the main aspects of this solution is a way for patients to have an easier time looking for doctors and booking and appointment with specialists in regards to their needs. As for the hospital side, it will be a website that will allow an easier time to the hospital staff to manage their interaction with patients as well as the documentation needed for them (i.e. "Libreza shendetesore", analysis results, x-rays, MRI, ect).

### In scope:

- This project is responsible for creating a platform where patients can contact and book appointments, as well as being able to see which doctors are available in the Hospital at which times.
- On the Hospital side, the web application will be able to create appointments for the Doctors. Will be able to archive and manage the necessary documents to run the hospital.
- There will be web security for the website, as well as 2FA for the login giving the log in process an extra layer of security.
- Maintenance of the web service will be provided by us.
- A mobile app will be developed to offer the booking services more easily.

### Out of scope:

- The Web Application (and hence our service) will not be responsible for any monetary transaction between the Hospital and its patients.
- Changes will be made to accommodate for legislative requirements and changes along the way.

# 2. Product/Service Description

A website that serves at the same time the possible/current patients of the hospital, as well as the hospital staff/management to manage their appointments, their schedule as well as their documents.

## 2.1 Product Context

For now a good way to demonstrate the context of our project would be the diagrams made available on the projects repository on GitHub :

<https://github.com/EloiSherifi/SoftwareEngineeringProject/tree/main/Diagrams>

## 2.2 User Characteristics

User :

- Register
- Log-in
- Request appointment
- View own profile
- View available Doctors
- Use filters to better find the appropriate Doctor
- Delete their own profile
- Review their booked times
- Look up when a certain doctor is free.
- Look at their appointment history
- Look and print their X-Rays/MRI/Receipts

Doctor/Medical staff:

- Log-in
- Check his assigned patients / his history of patients
- Check their timetable
- Check their requested appointments and accept/deny them
- Upload Receipts into their patients profile
- Look at medical documents and the medical history of their patients

Non-medical staff:

- Log-in
- Look at their schedule
- In the case of Reception, request an appointment for an in-place patient.
- Fill up necessary documents for their respective work

Admin:

- Log-in
- Create/Delete/Change internal accounts (Medical and non-medical users)
- Archiving former staff members account and their respective documents

Guest:

- View the front page
- Look up the Frequently asked questions page (health library)
- Get the Hospital Contacts.

### **2.3 Assumptions**

Our assumptions are that the staff members will adapt the use of this software and integrate it into their daily work. It's assumed that the technical background of the users of this software is of a degree that renders the use of the website intuitive. It's assumed that the scheduled appointments will be respected and the doctors as well as the patients will be on time.

### **2.4 Constraints**

- Deadline : End of course/semester (spring semester of 2022)
- Technologies used : HTML, CSS, JavaScript, Bootstrap, PHP, MySql.
- The timetable will be updated by the internal staff of the Hospital and will be respected.

### **2.5 Dependencies**

- This product will require daily/weekly maintenance by the system admin in order to add/remove staff members
- The timetable for the staff (working hours) needs to be updated with eventual changes that may happen during the working shifts.
- Regular updates of available staff will also be required to maintain functionality for the patients.

## **3. Requirements**

### **3.1 Functional Requirements**

Req#	Requirement	Priority	Date Rvwd	SME Reviewed / Approved
FR#01	The website should have an appointment booking system where users make requests and staff accept or deny them.	1	20/04/2022	
FR#02	The website should offer a way for doctors as well as patients to upload relevant medical files (in .pdf format) that are obtained from 3rd party sources.	1	20/04/2022	
FR#03	The website should offer to everyone a view of the available doctors in the hospital with their specific qualifications.	3	20/04/2022	
FR#04	The website should provide users who have selected a specific doctor out of the staff list with their timetable, showing their available time to take appointments.	1	20/04/2022	
FR#05	The website should allow doctors to give patients drug receipts and the patients should be able to view these receipts.	2	20/04/2022	
FR#06	The website should offer patient users to view their appointment history as well as their former receipts	2	20/04/2022	
FR#07	The website should be able to send to patients their specific documentation via email (as well as having it available in their profile page)	4	20/04/2022	
FR#08	The website should have a system for the receptionist(non-medical staff member) and the pathologist (family doctor) to arrange meetings between patients and other doctors.	1	20/04/2022	

### **3.2 Non-Functional Requirements**

#### **3.2.1 Product Requirements**

##### **3.2.1.1 User Interface Requirements**

UI requirements :

- Legible fonts which will help users with visual impairments to still be easily readable as well as keeping a professional look for the website.
- The different aspects of the webpage will be flexible to be able to have the best user experience at different screen sizes (like desktop, smaller laptops, resized windows as well as mobile devices).
- The navigation bar will be present in every page of the website and have tabs specific to different users.
- The login/signup form will be as a sidebar opened on the side of the web page without loading in a new page.

User specific UI:

- Patients:
  - They will have a different taskbar offering the view of their profile (where they will find their documents as well as the ability to add and remove documents they have uploaded).
  - “Doctors” where they will be taken to the doctor’s list page where they can view and select the doctor they need.
  - “Appointments” where the patients will be able to check their booked appointments as well as a history of their past appointments.

## **Hospital Management System Requirements Specification**

- “History” where the patients will have a view of their receipts.
- A profile icon which will, when clicked, take the user to their profile where they will have the option to change their email and their password.
- Doctors:
  - Their navigation bar will have “Appointments”, “Schedule”, “Patients” and “Profile”.
  - “Appointments” will contain the timetable of the doctor’s appointments as well as the ability to see new requests that can then be accepted or denied.
  - “Schedule” will contain the working schedule of the Doctor for this week and for the upcoming weeks.
  - “Patients” will contain a history of patients that have taken appointments before with the doctor as well as the ability to view their profile as well as inserting documents/receipts.
  - “Profile”, just like with the patient’s profile, doctors will be able to change their email and password.
- Staff:
  - They will have different navigation bar with respect to their position.
  - Receptionist will have a “create appointment request” tab to create an appointment for a patient that has shown up to the reception desk.
  - “View Doctors” tab to view the available doctors at this hour (doctors that are currently working this shift) to better aid the patients seeking help at the reception desk.
  - “Schedule” to, just like the doctors, view their shift for the current week and the upcoming weeks.
- Administrator :
  - Will have a more simplistic toolbar which will allow him to access the database and add/remove doctors from said database
  - “create new user” will take the admin into a page where he can create a new user himself and then send the username and password to the corresponding staff member
  - “view database” will allow the admin to observe the database as well as the possibility to filter through it.
  - “remove acc” will allow the admin to remove or block certain accounts from further activity in the website.
  - “create timetable” will contain the page that allows the admin to fill out the working schedule of the hospital.

### **3.2.1.2 Usability**

The product should be intuitive, easy to learn and even easier to use. The focus should be to make it more accessible to older non-technically-savvy doctors and staff members. Small floating pop-ups will show up with explanations the first time a certain functionality is used that day. Obviously users can see and decide if they want to turn off this feature.

When a user is about to change sensitive information on their account, or is about to do some sensitive work, like requesting an appointment or accepting/declining an appointment in the case of the doctors then a message that asks for reconfirmation from the user will pop-up to inform them of the sensitive operation they are about to partake in.

### **3.2.1.3 Efficiency**

#### **3.2.1.3.1 Performance Requirements**

- Latency from the server should be minimal, around 0.1s or less, provided the user has a stable internet connection.
- In order of capacity the server should be able to handle around 1000 users using it simultaneously
- The average traffic would be around 50-100 users per hour.

#### **3.2.1.3.2 Space Requirements**

Considering that on average each user will have 2 documents in pdf format saved in their user document folder. Also, the hospital documents and archives every appointment, visit, receipt and otherwise interaction between doctor and patient. While PDFs will not be that “heavy”, MRI and X-ray scans will have formats that are larger and offer a better visibility to the medical professionals. From research about this specific topic, for a

## **Hospital Management System Requirements Specification**

relatively small Albanian hospital a 10Tb dataserver should be considered. A cloud based solution might be considered in the future to better accommodate the size and speed requirements of the system.

### **3.2.1.4 Dependability**

#### **Availability**

- The service and any associated server will be running non-stop since the hospitals work 24/7.
- There should be minimal to no tolerance of downtime, although in cases of maintenance 30 minutes to 1 hour a week should be considered if necessary.
- There will be no geographical lock for the website since it can be used by patients that are residing elsewhere in order to retrieve any medical file they have, or even book an appointment in advance for when they will return.

#### **Reliability**

The system should be reliable and running the entire day every day. Any maintenance work will be held during the late night hours since the workload of the hospital will be smaller during that period of time, causing less inconvenience and having less data that would be later inserted into the system.

#### **Monitoring**

A small IT team should be at the ready in order to fix any issues with the service. Logs will be kept in accordance with the legislative laws of the country hosting the hospital. System resources of the server must be kept in check with CPU and RAM usage preferably under 90%. The dataserver should also, always be kept under 90% of its capacity. Should the need arise, new storage units should be installed.

#### **Maintenance**

As stated before, maintenance should be held around once per week regularly, with emergency maintenance when needed. The regular maintenance will be held during the late hours of night where the traffic to the web application will be at the lowest since less people will come to the hospital.

#### **Integrity**

To keep the integrity of the data of clients a log will be maintained, containing every change made as well as old files, this to keep track of any change in the system as well as discouraging fraudulent activities from the hospital staff. Using HTTPS and TLS will help secure the exchange of data from server to client and vice versa.

### **3.2.1.5 Security**

- Encryption: Passwords will be saved in the database in hashed form, using the hashing function in PHP to ensure that even the server administrator won't have access to the plaintext password.
- Activity logging, historical data sets: Logs are crucial and mandatory for the hospital and they will be saved securely in the archive section of the dataserver.
- SQL injections and Cross-Site Scripting: With the help from the PDO library we can secure SQL statements from SQL injections, while using htmlentities() we can secure the user input and protect the site from Cross-Side attacks.
- HTTPS: All channels of communication between our product and its users will be done with the use of HTTPS and TLS for data encryption and safety.

### **3.2.2 Organizational Requirements**

Requirements which are a consequence of organizational policies and procedures e.g. process standards used, implementation requirements, etc

### **3.2.2.1 Environmental Requirements**

This web application will be accessible from any device that can connect to the internet be it PC/laptop/MAC or mobile devices as well as consoles, provided they have an internet connection. Unless the server is under maintenance it will be accessible at any location at any time. While using the application for mobile devices, provided that the user is still logged in and has permitted the application of notification privileges, it will alert the user of upcoming scheduled appointments.

### **3.2.2.2 Operational Requirements**

This product is a web application which will provide a management facilitator for hospitals as well as an easy interface for patients to the hospital. Hospital's staff will benefit from the scheduling capabilities and documentation management of the product, making their jobs easier, thus dedicating more time to their patients. While for the patients, this product will provide a reliable and easy way to contact the hospital as well as view important and doctor curated articles and first response aid. The doctors will have a history of each patient's previous medication taken (in the form of receipts) thus giving him a clearer idea which possible new medication will be the best, with the least possible side effects.

### **3.2.2.3 Development Requirements**

The technologies that we are going to use are :

- HTML,CSS, JavaScript and Bootstrap for the Front-End
- MySQL will be the chosen SQL language for the database
- PHP will be the language used for the Back-End

### **3.2.3 External Requirements**

#### **3.2.3.1 Regulatory Requirements**

Being a management system for a public hospital, the web service will be sure to follow the privacy of data laws of the country. No information will be shared with third parties unless specified by law which data can be transferred to other parties.

#### **3.2.3.2 Ethical Requirements**

A certain degree of data must be shared from the users to the system in order for the web application to function properly.

Patients should agree to share their personal information about:

- Full name
- Email address
- Medical history (in our country in the form of "libreza shendetesore") obtained from other hospitals (this way it can be added to our logs as well).
- Results of analysis taken from third parties

This information can be accessed by admins and Doctors that have or have had an appointment with the patient.

Doctors and staff should agree to share their personal information about:

- Full name
- Email address
- Qualifications (i.e. diplomas and certifications as well as a license to practice medicine)

#### **3.2.3.3 Legislative Requirements**

## ***Hospital Management System Requirements Specification***

As stated above, the service will be provided to hospitals in Albania. This means that the software will have to comply not only with general Albanian laws pertaining to web applications but more importantly will comply with laws, regulations and standards imposed on hospitals and medical service providers in Albania. Most importantly, our data management policy will ensure that the data stored in our servers will be managed consistently and according to the set of standards and guidelines required by hospitals.

As the laws are ever changing so will our data protection and management policies be.

### **3.2.3.3.1 Accounting Requirements**

As the Hospital is public, accounting will not be held on the system. For any sort of required payment it will be done en-place if needed.

### **3.2.3.3.2 Security Requirements**

Security of data will be of utmost importance since we are dealing with sensitive medical data for our patients. An appropriate security level will be reached via encryption. Other methods will be used to also provide SQL injection protection as well as Cross-Site Scripting, while also HTTPS and TLS will be used to safely move data.

## ***3.3 Domain Requirements***

The domain requirements for our product will be considering the framework for scheduling as well as doctor-patient communication system. The prime objective of the system is to help the patients have an easier remote access to medical help and aid the hospital staff with managing the operation of the hospital.

## 4. Software Design

### 4.1 Use Scenarios

- **Patient scenarios**

1- Scenario title : **Patient sign-in :**

- The user opens the website and is greeted by the main page.
- Clicking the user profile icon, a side bar pops up offering the login form.
- At the bottom of the sidebar there is a link to “sign in”.
- Clicking the link redirects the user to the registration page where they are required to fill in the form with their information (name, surname, gender, date of birth, address, phone number, email address, password)

2- Scenario title :**Patient log-in:**

- The user opens the website and is greeted by the main page.
- Clicking the user profile icon a side bar pops up offering the login form
- The user is prompted to enter his credentials, email and password.
- The login is successful and now the icon is inhabited by the users photo (if this is inserted by the user or admin)

3- Scenario title : **Patient changes profile data/password:**

- Once logged in the user goes to his profile
- From the profile page the user can edit his data
- By clicking edit on his password they will be required to reenter the old password and from there enter the new password.
- A message will appear to show if the operation was successful or not.

4- Scenario title: **Patient forgets password:**

- The user opens the website and is greeted by the main page.
- Clicking the user profile icon a side bar pops up offering the login form
- The user is prompted to enter his credentials, email and password.
- The login fails since the credentials were incorrect.
- An error message invites the user to try again with a different password or to check the username. A “Reset password” link is offered below the login section.
- Once clicked the user is redirected to the “Reset password” page where he is prompted to enter his email address to receive the new temporary password.
- The system sends an email automatically to the user with a randomly generated temporary password.
- The user then grabs this password and logs into his account, this time being redirected to the “change password” page where they are prompted to insert a new password.

5- Scenario title : **Patient View doctors list:**

- The user enters the homepage and clicks on the navigation bar “View doctors”
- Clicking the link, the user is redirected to the doctors list page. The doctors are listed alphabetically by their specialization, if more than one doctor is available for a specific specialization they are ordered alphabetically.
- The user can click on the doctor they need to request an appointment to. When clicking on the doctor’s name they are taken to the doctor’s timetable.

## **Hospital Management System Requirements Specification**

### **6- Scenario title : Patient books appointment:**

- a. The patient has selected the doctor and sees the doctor's specific timetable.
- b. On the timetable there are certain periods that are open (free).
- c. Clicking on an open period in the timetable takes the patient to appointment creation
- d. The patient then confirms the request for an appointment

### **7- Scenario title : Patient cancels the appointment or the request for appointment:**

- a. The user enters the homepage and clicks on the profile icon. On the drop down menu the patient clicks "view profile" thus being redirected to the profile page.
- b. On the profile page there is a section called appointments where the user can view their pending or approved appointments as well as their past ones.
- c. By clicking on the desired appointment they are redirected to the appointment page
- d. On the appointment page the patient has the option to cancel the appointment
- e. A message pops up to reconfirm this decision prompting the patient to press confirm once more.

### **8- Scenario title : Patient/guest visitor views Frequently Asked Questions/Contact us :**

- a. User opens the homepage and clicks on the "FAQ/Contact us" part of the navigation bar.
- b. The user is redirected to the faq page where different categories of questions are presented.
- c. From here the user can select the "category" of questions and that category will be expanded and offer the available, pre-answered questions.

### **9- Scenario title : Check appointment history:**

- a. While on the profile page the user can click on the appointment tab.
- b. On this new page they have been redirected to, they can view the list of appointments they have had with dates as well as details for the doctor who accepted and conducted the appointment.

- **Doctor (medical staff) scenarios**

### **1- Scenario title : Staff log-in :**

- a. The doctor member opens the website and is greeted by the main page.
- b. Clicking the user profile icon a side bar pops up offering the login form
- c. The user is prompted to enter his credentials, email and password.
- d. The login is successful and now the icon is inhabited by the user's photo (uploaded by the admin)

### **2- Scenario title: Doctor forgets password:**

- a. The user opens the website and is greeted by the main page.  
Clicking the user profile icon a side bar pops up offering the login form
- b. The user is prompted to enter his credentials, email and password.  
The login fails since the credentials were incorrect.
- c. An error message invites the user to try again with a different password or to check the username. A "Reset password" link is offered below the login section.
- d. Once clicked the user is redirected to the "Reset password" page where he is prompted to enter his email address to receive the new temporary password.
- e. The system sends an email automatically to the user with a randomly generated temporary password.
- f. The user then grabs this password and logs into his account, this time being redirected to the "change password" page where they are prompted to insert a new password.

**2- Scenario title : Check schedule :**

- a. The staff member already logged in, opens the homepage and then proceeds to click on the "schedule" tab in the navigation bar.
- b. After being redirected to the schedule page, the doctor can view his scheduled shifts for this week as well as the upcoming weeks.
- c. At the top of the page, a link for the appointments timetable can be clicked.

**3- Scenario title : View appointments :**

- a. The doctor is redirected to the appointments page after clicking on the appropriate tab on their navigation bar or on the link from the schedule page.
- b. They are presented with the same timetable that is visible to all other users but now the information isn't hidden.
- c. On the timetable they can view their booked appointments as well as the new requested appointments.

**4- Scenario Title: Booking/registering an appointment :**

- a. By clicking on the "Book appointment" on the navigation bar or the timetable page, the user can choose an empty time period in their timetable to fill in their new appointment.
- b. On the create appointment menu the doctor is presented with a search bar to search for the patient in the system to add for the appointment.
- c. If a patient isn't in the system and the doctor is their first contact with the hospital, they can create a profile for the patient via the link "create patient profile" in the create appointment page.
- d. After the patient is selected the doctor can confirm the creation of the appointment and it will appear as an already accepted appointment.

**5- Scenario title : Create patient profile :**

- a. Once on the "create patient profile" page, the medical staff member can enter the required information, without entering a password. The password will be sent to the patient via email at the address specified during profile creation.
- b. Having fulfilled the profile registration form, the staff member can confirm and create the patient's profile.
- c. The staff member is redirected to their previous page after finishing this step.

**6- Scenario Title : View/Search patients:**

- a. By clicking on the search bar the Doctor is redirected to the search page.
- b. From there the doctor can enter a string and search for matching patient(users) names.
- c. Once the query results are displayed the doctors can select a patient profile and enter the profile page of that patient.
- d. On the profile page of that patient the Doctors can edit some information on that patient as well as uploading medical records for that patient.

**7- Scenario Title : Upload receipt to patient profile:**

- a. While logged and in the appointment page the Doctor can access the patient's profile.
- b. Once in the patient's profile, the Doctor can upload into the patient's medical documents a receipt.

**8- Scenario Title : Accept/Decline request:**

- a. While on the timetable screen the Doctor can view the appointment requests
- b. From clicking on a request they are presented with the appointment details.
- c. Here they can choose whether to accept the request or decline it

- **Staff scenarios**

1- Scenario title : **Staff log-in :**

- a. The staff member opens the website and is greeted by the main page.
- b. Clicking the user profile icon a side bar pops up offering the login form
- c. The user is prompted to enter his credentials, email and password.
- d. The login is successful and now the icon is inhabited by the user's photo (uploaded by the admin).

2- Scenario title: **Staff forgets password:**

- a. The user opens the website and is greeted by the main page.  
Clicking the user profile icon a side bar pops up offering the login form
- b. The user is prompted to enter his credentials, email and password.  
The login fails since the credentials were incorrect.
- c. An error message invites the user to try again with a different password or to check the username. A "Reset password" link is offered below the login section.
- d. Once clicked the user is redirected to the "Reset password" page where he is prompted to enter his email address to receive the new temporary password.
- e. The system sends an email automatically to the user with a randomly generated temporary password.
- f. The user then grabs this password and logs into his account, this time being redirected to the "change password" page where they are prompted to insert a new password.

3- Scenario title : **Staff changes profile data/password:**

- a. Once logged in the user goes to his profile
- b. From the profile page the user can edit his data
- c. By clicking edit on his password they will be required to reenter the old password and from there enter the new password.
- d. A message will appear to show if the operation was successful or not.

4- Scenario title : **Book appointment for patient :**

- a. On the doctor list the staff member can click on the doctor they wish to create an appointment for
- a. The user can choose an empty time period in the timetable to fill in their new appointment.
- b. On the create appointment menu the staff member is presented with a search bar to search for the patient in the system to add for the appointment.
- c. If a patient isn't in the system and the personnel is their first contact with the hospital, they can create a profile for the patient via the link "create patient profile" in the create appointment page.
- d. After the patient is selected the user can confirm the creation of the appointment and it will appear as an already accepted appointment.

5- Scenario title : **Check schedule :**

- a. The staff member already logged in, opens the homepage and then proceeds to click on the "schedule" tab in the navigation bar.
- b. After being redirected to the schedule page, the user can view their scheduled shifts for this week as well as the upcoming weeks.
- c. At the top of the page, a link for the appointments timetable can be clicked.

**6- Scenario title : Check user log:**

- a. Once on their dashboard (profile page) the user can click on "check user log"
- b. From there the staff member is redirected to a page where they can see the user activity (login and logouts) on the service.

**7- Scenario title : Manage patient/doctor :**

- a. The Staff member can search on the search bar and find a person of interest, a doctor or a patient.
- b. Clicking on them allows the staff member to open the profile of the person they searched and found on the system
- c. From there the Staff member can change aspects and data on the profiles of doctors or patients.

**8- Scenario title : Create patient profile :**

- a. Once on the "create patient profile" page, the staff member can enter the required information, without entering a password. The password will be sent to the patient via email at the address specified during profile creation.
- b. Having fulfilled the profile registration form, the staff member can confirm and create the patient's profile.
- c. The staff member is redirected to their previous page after finishing this step.

● **Admin Scenarios**

**1- Scenario title : Admin log-in:**

- a. The admin opens the website and is greeted by the main page.
- b. Clicking the Admin login icon they are redirected to a page offering the login form
- c. The admin is prompted to enter their credentials, email and password.
- d. The login is successful, if not they are redirected to the login form again.

**2- Scenario title : Admin change password:**

- a. On the dashboard (user profile page) the admin clicks on change password.
- b. They are taken on the change password page where they are required to enter the current password they have as well as the new desired password.
- c. After checking that the password is compatible with the format that it should be the login credentials are updated on the database (in hashed form for the password).

**3- Scenario title : Create patient/doctor/staff profile:**

- a. On their dashboard the admin can click on the specific type of profile they want to create (patient/doctor/staff).
- b. Once they click the desired profile typology they are presented with a list of the specific type of profile.
- c. By clicking on the add button they are redirected to the registration form of that specific profile they want to create.

**4- Scenario title : View patient/doctor/staff profile:**

- a. On the sidebar the admin clicks on view/manage patients/doctors/staff.
- b. They are redirected to a page showing the list of patients/doctors/staff.
- c. By clicking on the view icon on the right side of each patient they can view the specific patient profile.
- d. On top of the list there is a search bar where the admin can search for a specific patient via name or phone number.

### Hospital Management System Requirements Specification

- e. Next to each profile there's an edit button which when pressed allows the admin to change credentials on the profile.

#### 5- Scenario title : **Check user log:**

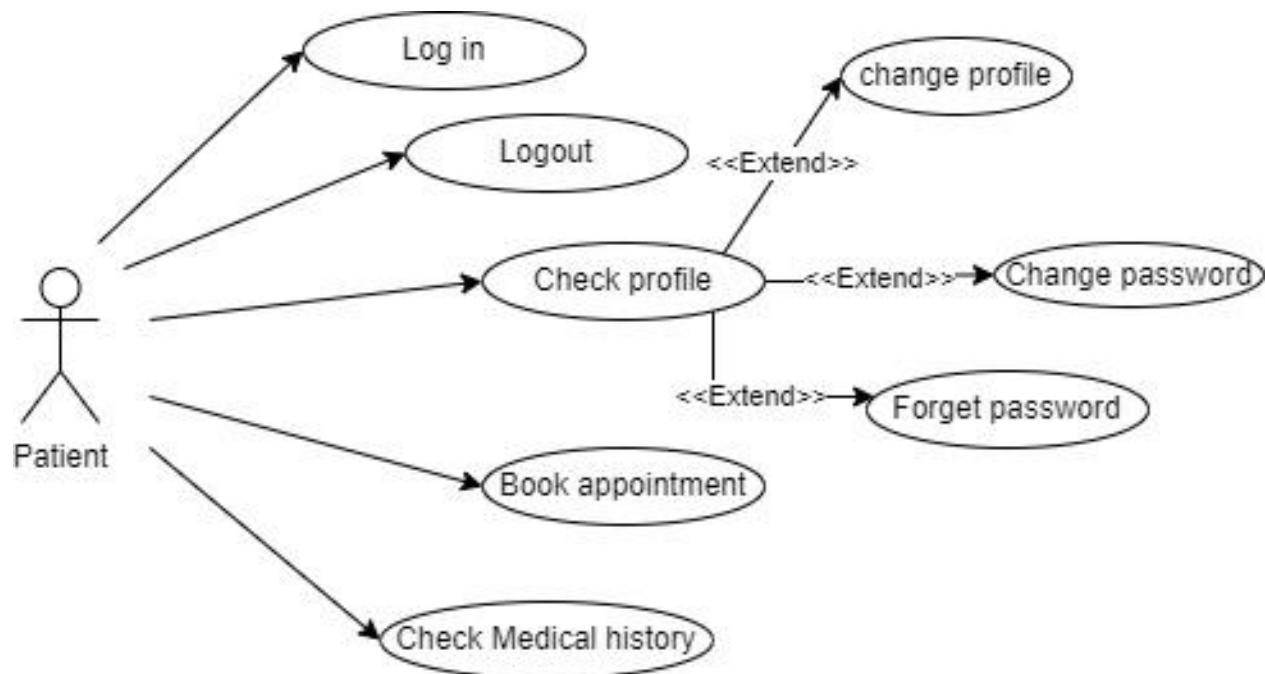
- a. Once on their dashboard (profile page) the admin can click on "check user log"
- b. From there the admin is redirected to a page where they can see the user activity (login and logouts) on the service by patients and doctors alike.

#### 6- Scenario title : **View appointment:**

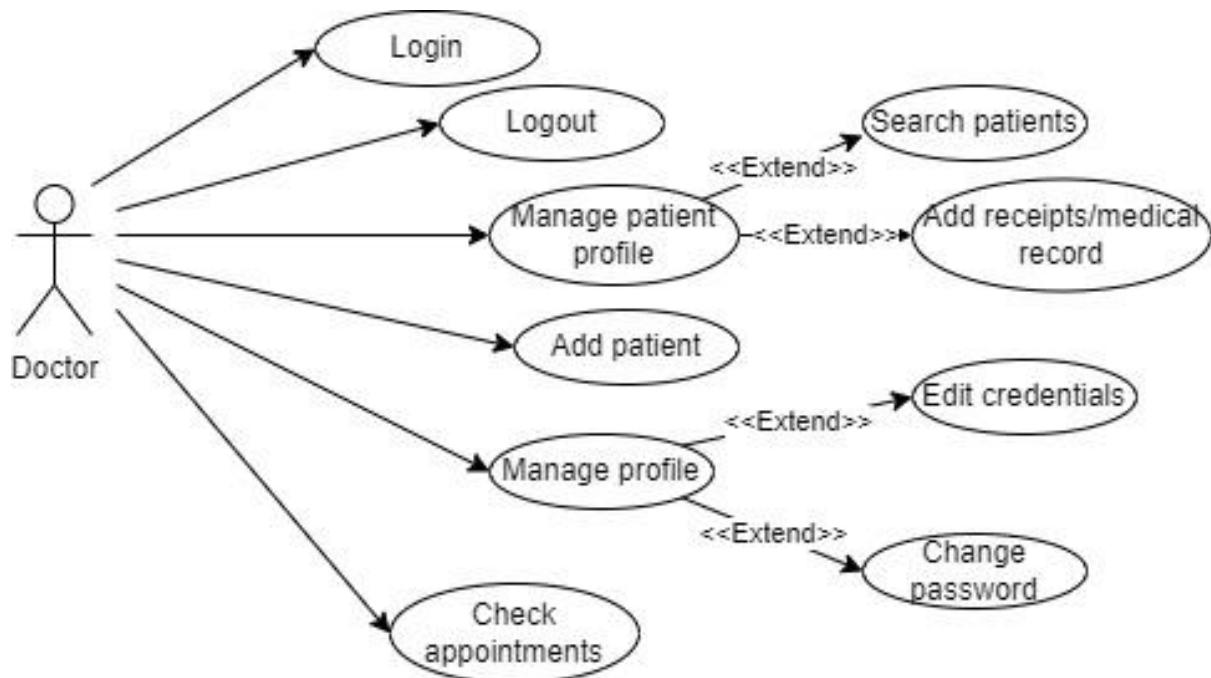
- a. On the dashboard the admin can click on view appointments.
- b. They are then redirected to a list of appointments.
- c. By clicking on the view icon on the side the admin can view the details of the selected appointment.

## 4.2 Use Case Diagrams

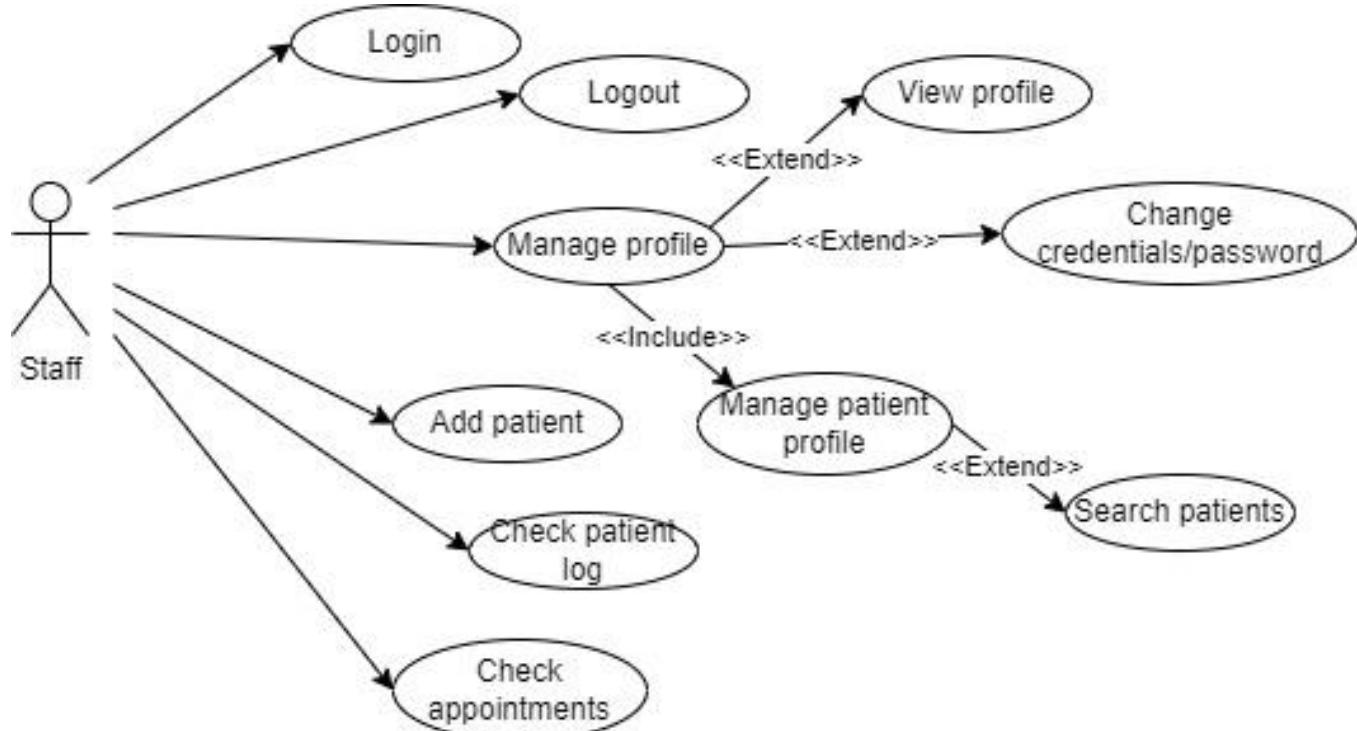
### - Patient use case



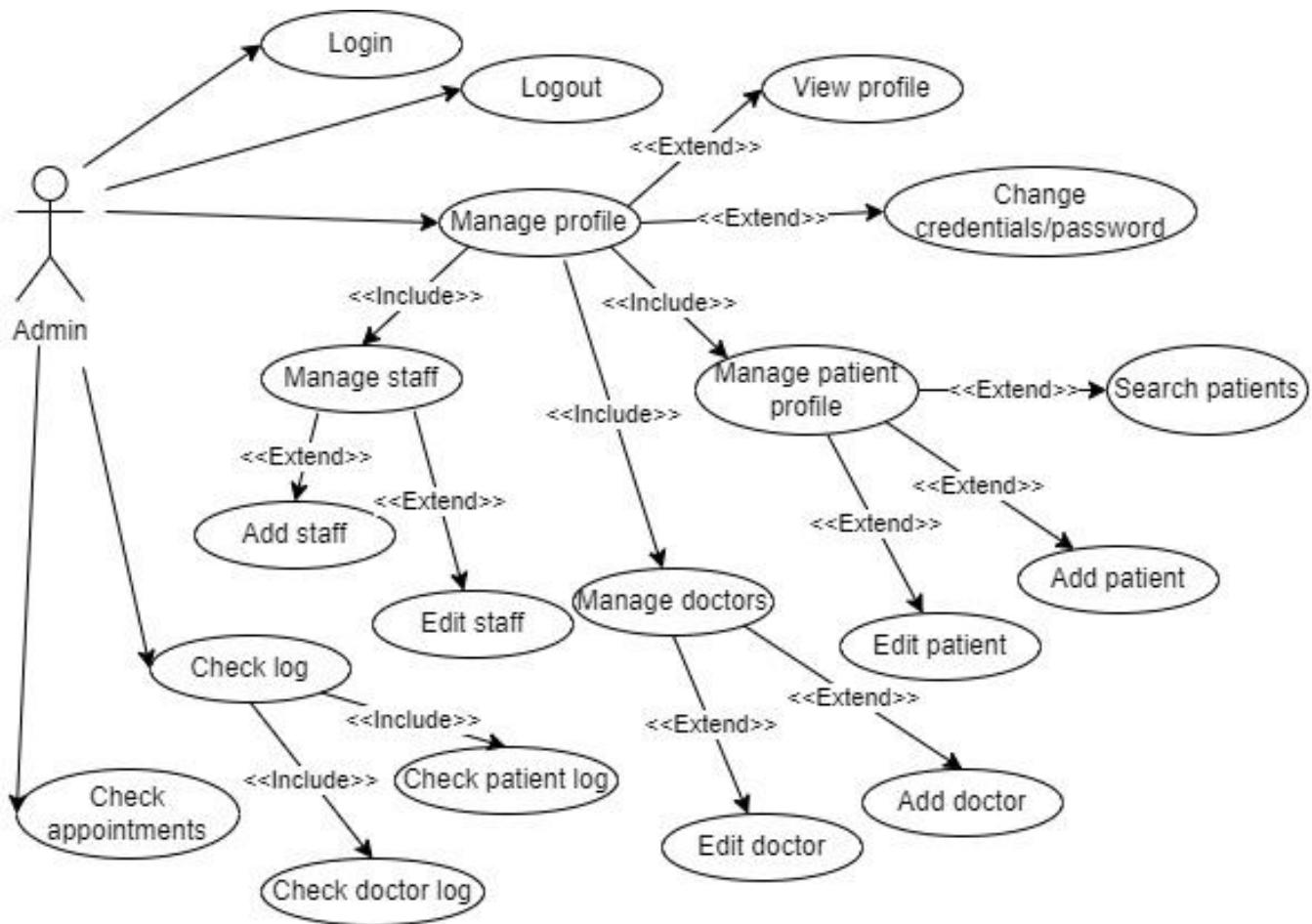
- Doctor use case



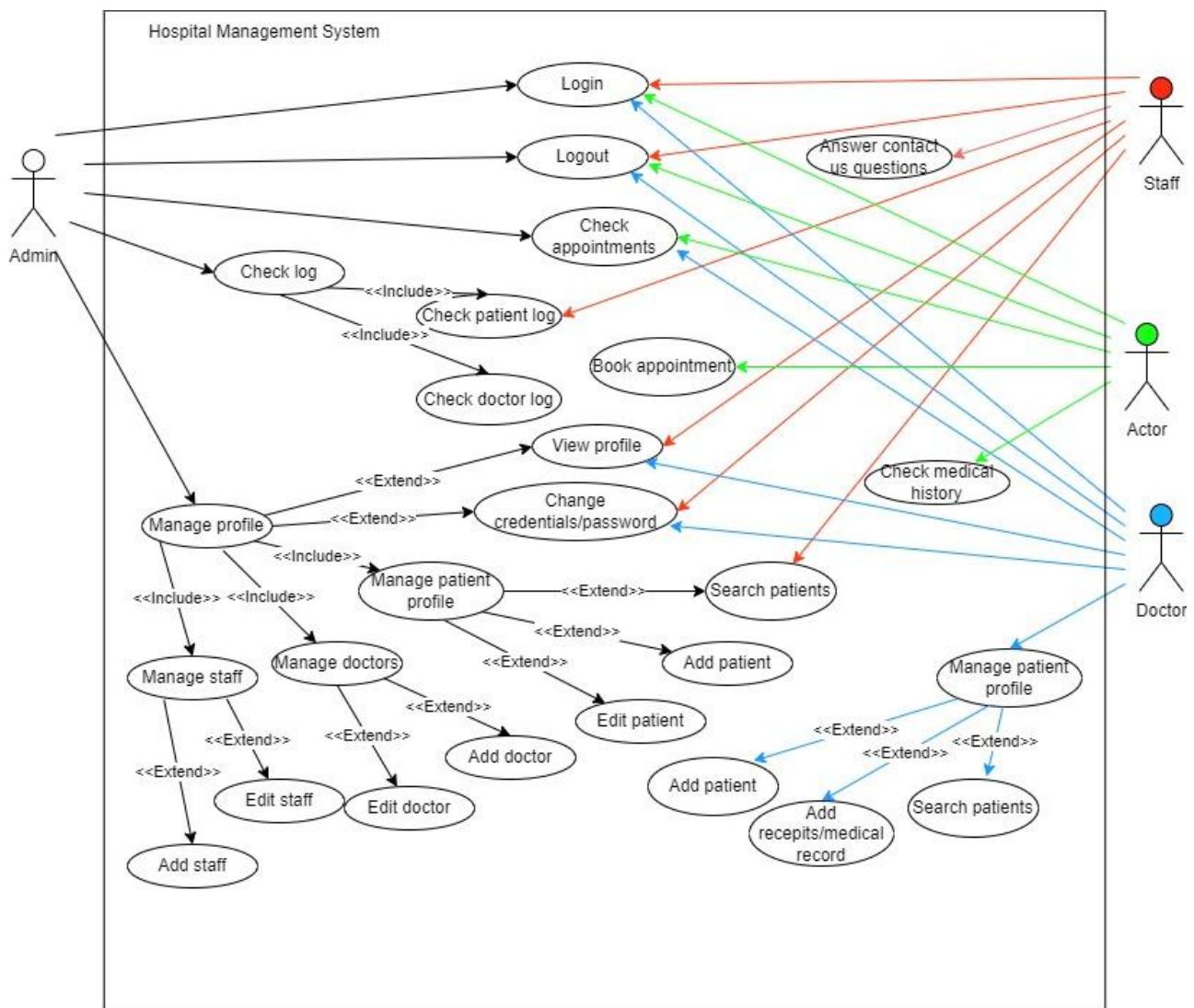
- Staff use case



- Admin use case



- General use case



#### **4.3 Use Case Tables (extended)**

<b>UC_1.0</b>	<b>Patient sign up</b>
<b>Summary</b>	-Patients (or any general public individual) will be able to sign up as a patient on the web application.
<b>Dependency</b>	-
<b>Actors</b>	-Patients/guests
<b>Preconditions</b>	-The user's email must not be linked to another existing account on the database
<b>Description of the Main Sequence</b>	-New patient fills the required data on the sing in form
<b>Description of the Alternate Sequence</b>	-Entered data doesn't meet format requirements -Entered email is already in use. -Rentered password doesn't match the first entered password.
<b>Non-functional requirements</b>	-The sign in is a focus point of the website since this is the usual target of unwanted actions (such as attacks by hackers). SQL injection countermeasures will be taken as well as the passwords will be hashed so no one will have access to the plain text password.
<b>Postconditions</b>	-User is directed to their profile page (dashboard).

<b>UC_1.1</b>	<b>Login</b>
<b>Summary</b>	-Every user will be able to log into the system by entering their credentials
<b>Dependency</b>	
<b>Actors</b>	-Patients, Staff, Doctors, Admin
<b>Preconditions</b>	-The user must have an account that has been registered before. Patients can sign up by creating an account or having it created by a staff member, while doctors and staff members accounts will be created by the administrator.
<b>Description of the Main Sequence</b>	-if a valid account already exists, the user will be entered to log into the system by entering their valid credentials
<b>Description of the Alternate Sequence</b>	-The Admin account will be a default set of credentials that can later be changed -Doctors and staff member accounts will be created beforehand by the administrator. -Users without a valid account will go through the process of signing up by entering the required data.
<b>Non-functional requirements</b>	-SQL injection countermeasures will be taken as well as the passwords will be hashed so no one will have access to the plain text password.
<b>Postconditions</b>	-User is directed to their profile page (dashboard).

<b>UC_1.2</b>	<b>Logout</b>
<b>Summary</b>	-Every user will be able to logout from the system.
<b>Dependency</b>	-
<b>Actors</b>	-Patients, Staff, Doctors, Admin
<b>Preconditions</b>	-The user must have an account that has been registered before. The user must have entered the necessary credentials to log in into the system.
<b>Description of the Main Sequence</b>	-if the user is logged in, by going to the dashboard they will have the option to logout. By pressing the button their session as a logged in user will end.
<b>Description of the Alternate Sequence</b>	-When credentials have been changed the user will be automatically logged out and be asked to re enter their credentials.
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-User is directed to the main landing page of the website.

<b>UC_1.3</b>	<b>Edit credentials</b>
<b>Summary</b>	-Every user will be able to edit their own credentials, like changing different data of the account such as phone number, email ect.
<b>Dependency</b>	-
<b>Actors</b>	-Patients, Staff, Doctors, Admin
<b>Preconditions</b>	-The user must be logged in.
<b>Description of the Main Sequence</b>	-By going to the dashboard they will have the option to change their credentials. -They will be taken to a form with the current data. -From there, they can opt to change pieces of data that they can change.
<b>Description of the Alternate Sequence</b>	-Entered credentials don't match the required form (for example a number or email in an unknown format) -Required data set left empty.
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-User is directed to their dashboard after the changes have been completed successfully.

## **Hospital Management System Requirements Specification**

<b>UC_1.3.1</b>	<b>Change password</b>
<b>Summary</b>	-Every user will be able to issue a password change from their profile
<b>Dependency</b>	-Edit credentials
<b>Actors</b>	-Patients, Staff, Doctors, Admin
<b>Preconditions</b>	-User must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-By going to the dashboard they will have the option to change password</li> <li>-They will be taken to a form that requires the former password to be entered.</li> <li>-Once the former password is entered the new password must be entered twice, following the format indications.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-Entered credentials don't match the required form</li> <li>-Old password doesn't match the account.</li> </ul>
<b>Non-functional requirements</b>	-Old password is required to be entered to confirm that the one issuing the change of password is the correct user.
<b>Postconditions</b>	-User is directed to their dashboard after the changes have been completed successfully.

<b>UC_1.3.2</b>	<b>Forgot password</b>
<b>Summary</b>	-Every user will be able to recover their password if they have forgotten it.
<b>Dependency</b>	-Edit credentials
<b>Actors</b>	-Patients, Staff, Doctors, Admin
<b>Preconditions</b>	-The user must be logged out.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the login form the user presses the “forgot password” button.</li> <li>-A new form pops up requiring an email to be entered for recovery.</li> <li>-from the email they will be offered a link to a page that will modify their current password associated on the account with the entered email.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-Entered email doesn't match any existing account.</li> <li>-Newly entered password doesn't follow the password rules.</li> </ul>
<b>Non-functional requirements</b>	-Email is sent to ensure only the user can change their password
<b>Postconditions</b>	-User is directed to their dashboard after the changes have been completed successfully.

## ***Hospital Management System Requirements Specification***

<b>UC_1.4</b>	<b>Patient books appointment</b>
<b>Summary</b>	-Patient books an appointment with a selected doctor.
<b>Dependency</b>	-
<b>Actors</b>	-Patient, Doctor
<b>Preconditions</b>	-The user must have a registered patient profile and should be logged in.
<b>Description of the Main Sequence</b>	-On the dashboard the patient clicks on “book appointment” -In the page the patient selects the available doctor to request an appointment for
<b>Description of the Alternate Sequence</b>	-The patient doesn't find the required doctor. -The time period chosen isn't available
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-Patient is redirected to their dashboard -An appointment request is sent to the doctor, which can be accepted by the doctor or staff member/admin

<b>UC_1.5</b>	<b>Patient views medical record</b>
<b>Summary</b>	-Patient views their medical record
<b>Dependency</b>	-
<b>Actors</b>	-Patient
<b>Preconditions</b>	-The user must have a registered patient profile and should be logged in.
<b>Description of the Main Sequence</b>	-On the dashboard the patient clicks on “medical record” -In the page the patient is presented with a list of test results as well as receipts for each interaction that he has had with a doctor, that requires a receipt or a medical test.
<b>Description of the Alternate Sequence</b>	-The patient doesn't have any medical record
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-Patient can return to their dashboard.

## ***Hospital Management System Requirements Specification***

<b>UC_2.0</b>	<b>Edit patient credentials</b>
<b>Summary</b>	-Non patient users being able to edit data about the patient.
<b>Dependency</b>	-Edit credentials
<b>Actors</b>	-Staff, Doctors, Admin
<b>Preconditions</b>	-The user must have a staff, admin or doctor profile.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-If the user is logged in, by going to the dashboard they will have the option to view the patients list.</li> <li>-Next to the patient there is an edit button that will take the user to the edit form for the selected patient.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-The admin presses the back button to turn back to the patients list.</li> <li>-</li> </ul>
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-User is directed to their dashboard.

<b>UC_2.1</b>	<b>Check appointments</b>
<b>Summary</b>	-Doctor checks their appointments.
<b>Dependency</b>	-
<b>Actors</b>	-Doctor
<b>Preconditions</b>	-The user must have a doctor profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard the doctor clicks on “check appointments”</li> <li>-They are presented with a list of their appointments</li> </ul>
<b>Description of the Alternate Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-Doctor is redirected to their dashboard.

## ***Hospital Management System Requirements Specification***

<b>UC_2.1.1</b>	<b>Accept/Reject appointments</b>
<b>Summary</b>	-Doctor checks their requested appointments and decides to accept or reject the request.
<b>Dependency</b>	-Check appointments
<b>Actors</b>	-Doctor
<b>Preconditions</b>	-The user must have a doctor profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard the doctor clicks on “check appointments”</li> <li>-They are presented with a list of their appointments</li> <li>-From there they can accept new appointment requests.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>- The doctor decides to reject an appointment request.</li> </ul>
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	<ul style="list-style-type: none"> <li>-Appointment is accepted/rejected.</li> <li>-Doctor is redirected to their dashboard.</li> </ul>

<b>UC_2.2</b>	<b>Manage patient</b>
<b>Summary</b>	-Hospital members (staff, doctor, admin) can view and perform different actions on a patient profile
<b>Dependency</b>	-
<b>Actors</b>	-Admin, staff, doctor
<b>Preconditions</b>	-The user must have a non-patient profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard's sidebar, the personnel selects manage patients.</li> <li>-They are redirected to the patient list</li> <li>-On top of the list there's a search bar that can be used to search patients via name or phone number</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-Personnel clicks on the edit button on the side of a patient to edit their profile data</li> </ul>
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-

<b>UC_2.2.1</b>	<b>Add patient</b>
<b>Summary</b>	-Hospital members (staff, doctor, admin) can create a patient profile
<b>Dependency</b>	-Manage patient
<b>Actors</b>	-Admin, staff, doctor
<b>Preconditions</b>	-The user must have a non-patient profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard's sidebar, the personnel selects manage patients.</li> <li>-They are redirected to the patient list</li> <li>-On the page there is a button that permits the creation of a new patient account.</li> <li>-Once clicked the non-patient user is redirected to the patient profile registration form.</li> <li>-Filling the form with valid data creates a new patient profile.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-Personnel clicks on the edit button on the side of a patient to edit their profile data.</li> <li>-The view icon is instead pressed to just list the data of the account.</li> <li>-Filled data doesn't match the required format.</li> <li>-Entered password doesn't fulfill the requirements.</li> <li>-Data on password field doesn't match the data entered on the repeat password field.</li> </ul>
<b>Non-functional requirements</b>	<ul style="list-style-type: none"> <li>-Passwords will be hashed so no one can view them in plain text form.</li> <li>-Patients will be prompted to change their password inserted by a hospital employee.</li> </ul>
<b>Postconditions</b>	-A new patient account is created.

<b>UC_2.2.2</b>	<b>Write receipts</b>
<b>Summary</b>	-Doctors can create a new medical record for a patient
<b>Dependency</b>	-Manage patient
<b>Actors</b>	-Doctor
<b>Preconditions</b>	<ul style="list-style-type: none"> <li>-The user must have a Doctor profile</li> <li>-Has selected a patient from the patient list..</li> </ul>
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the patient profile they can select "add medical record" ..</li> <li>-A window will appear offering the doctor to create a new medical record for the patient.</li> <li>-The doctor must fill some of the empty fields in the medical record.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-Entered data on the medical record isn't formatted correctly.</li> <li>-No data is inserted on the medical record.</li> </ul>
<b>Non-functional requirements</b>	-.
<b>Postconditions</b>	-A new patient's medical record is registered into the system.

## ***Hospital Management System Requirements Specification***

<b>UC_3.0</b>	<b>Check total appointments</b>
<b>Summary</b>	-Staff and admin users can view all of the appointments made in the hospital.
<b>Dependency</b>	-
<b>Actors</b>	-Admin, staff
<b>Preconditions</b>	-The user must have an admin or staff profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard's sidebar, the personnel selects view all appointments..</li> <li>-They are redirected to the appointment list of every doctor</li> <li>-On the side of each appointment there is a view button</li> <li>-Once clicked, the admin/staff member is presented with a more detailed view of the appointment..</li> </ul>
<b>Description of the Alternate Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The users can turn back to their dashboard.

<b>UC_3.1</b>	<b>Check patient log</b>
<b>Summary</b>	-Staff and admin users can view all of the patient log of logins and logouts in the system
<b>Dependency</b>	-
<b>Actors</b>	-Admin, staff
<b>Preconditions</b>	-The user must have an admin or staff profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard's sidebar, the personnel selects check patient log.</li> <li>-They are redirected to a patient activity log</li> </ul>
<b>Description of the Alternate Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The users can turn back to their dashboard.

## ***Hospital Management System Requirements Specification***

<b>UC_3.2</b>	<b>Answer Contact us questions</b>
<b>Summary</b>	-Staff users can answer Contact us questions,
<b>Dependency</b>	-
<b>Actors</b>	-Staff
<b>Preconditions</b>	-The user must have a staff profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-On the dashboard's sidebar, the staff member can select "Answer Contact us questions".</li> <li>-They are redirected to a list of unanswered Contact us questions.</li> <li>-By clicking on a question the staff members can answer the question on the appropriate field.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>- No unanswered question is on the list</li> </ul>
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-Responses to the interested parties are sent..

<b>UC_4.0</b>	<b>Edit staff credentials</b>
<b>Summary</b>	-Admin edits the credentials of staff users.
<b>Dependency</b>	-Edit credentials
<b>Actors</b>	-Admin
<b>Preconditions</b>	-The user must have an admin profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-If the admin is logged in, by going to the dashboard they will have the option to view the staff list.</li> <li>-Next to the doctor there is an edit button that will take the user to the edit form for the selected patient.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-The admin clicks on the view staff profile thus being redirected to the staff member's profile page (not the editing page)</li> <li>-The admin decides to go back to their dashboard.</li> </ul>
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-Admin is redirected to their dashboard.

## ***Hospital Management System Requirements Specification***

<b>UC_4.1</b>	<b>Add staff member</b>
<b>Summary</b>	-Admin adds staff member profiles.
<b>Dependency</b>	-Edit credentials
<b>Actors</b>	-Admin
<b>Preconditions</b>	-The user must have an admin profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-If the admin is logged in, by going to the dashboard they will have the option to view the staff list.</li> <li>-Near the top of the list there will be a create new staff profile</li> <li>-Once clicked, the admin is redirected to the staff registration form.</li> <li>-There the admin can fill the fields with the details of the new staff member.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-The entered data isn't of the correct format.</li> <li>-The entered password isn't the same as the one on the re-enter password field.</li> </ul>
<b>Non-functional requirements</b>	-Passwords, as stated before, will be hashed in order to not allow anyone from having access to plain text passwords.
<b>Postconditions</b>	-Admin added a new staff member to the system.

<b>UC_4.1</b>	<b>Add doctors</b>
<b>Summary</b>	-Admin adds doctor profiles.
<b>Dependency</b>	-Edit credentials
<b>Actors</b>	-Admin
<b>Preconditions</b>	-The user must have an admin profile and must be logged in.
<b>Description of the Main Sequence</b>	<ul style="list-style-type: none"> <li>-By going to the dashboard, the admin will have the option to view the doctor list.</li> <li>-Near the top of the list there will be a create new doctor profile</li> <li>-Once clicked, the admin is redirected to the doctor registration form.</li> <li>-There the admin can fill the fields with the details of the new staff member.</li> </ul>
<b>Description of the Alternate Sequence</b>	<ul style="list-style-type: none"> <li>-The entered data isn't of the correct format.</li> <li>-The entered password isn't the same as the one on the re-enter password field.</li> </ul>
<b>Non-functional requirements</b>	-Passwords, as stated before, will be hashed in order to not allow anyone from having access to plain text passwords.
<b>Postconditions</b>	-Admin added a new doctor to the system

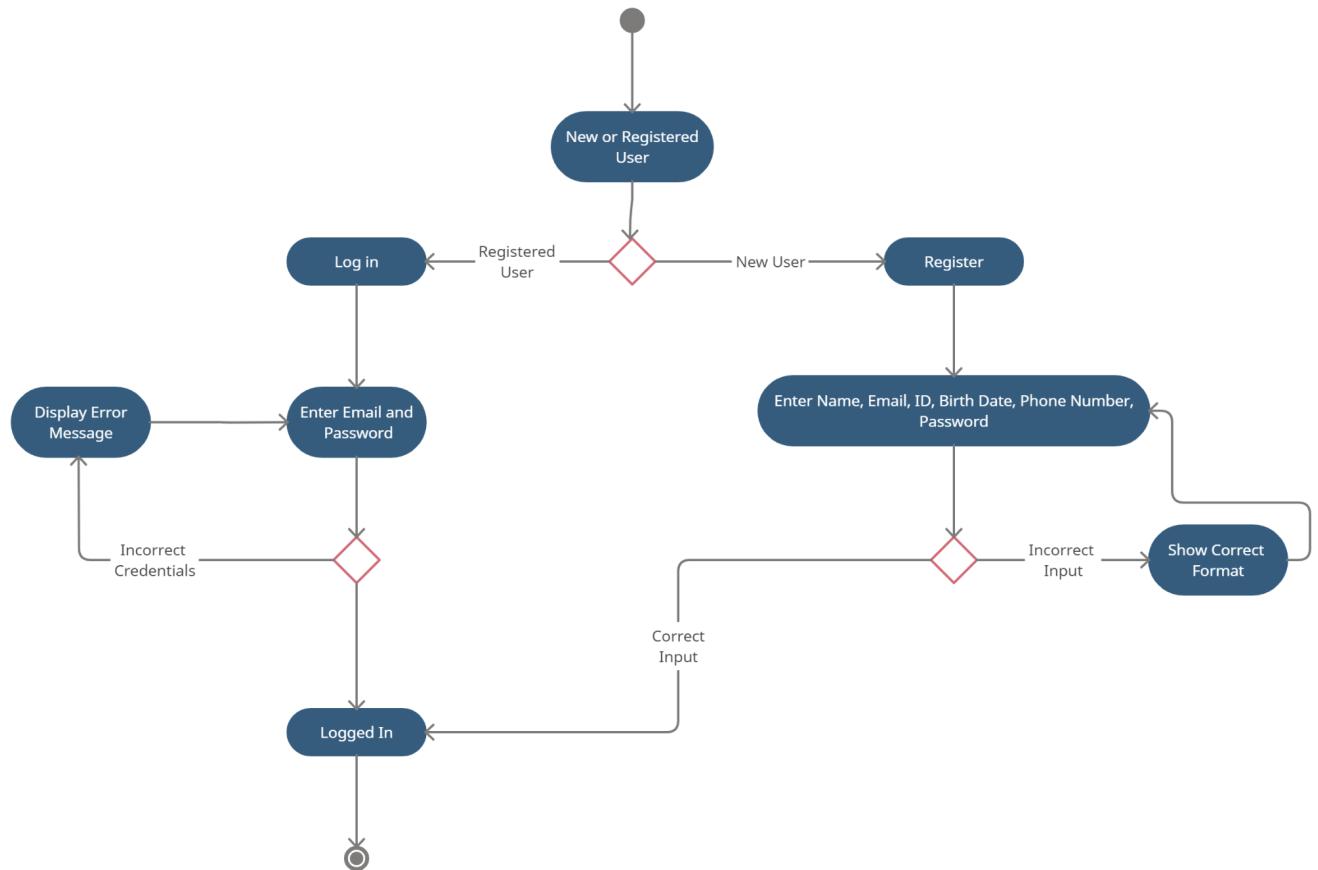
### ***Hospital Management System Requirements Specification***

<b>UC_3.1</b>	<b>Check doctor log</b>
<b>Summary</b>	-Admin users can view all of the doctor log of logins and logouts in the system
<b>Dependency</b>	-
<b>Actors</b>	-Admin
<b>Preconditions</b>	-The user must have an admin profile and must be logged in.
<b>Description of the Main Sequence</b>	-On the dashboard's sidebar, the personnel selects check doctor log. -They are redirected to a doctors' activity log
<b>Description of the Alternate Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The users can turn back to their dashboard.

<b>UC_3.1</b>	<b>Check staff log</b>
<b>Summary</b>	-Admin users can view all of the staff log of logins and logouts in the system
<b>Dependency</b>	-
<b>Actors</b>	-Admin
<b>Preconditions</b>	-The user must have an admin profile and must be logged in.
<b>Description of the Main Sequence</b>	-On the dashboard's sidebar, the personnel selects check staff log. -They are redirected to a patient activity log
<b>Description of the Alternate Sequence</b>	-
<b>Non-functional requirements</b>	-
<b>Postconditions</b>	-The users can turn back to their dashboard.

#### 4.4 Activity Diagrams

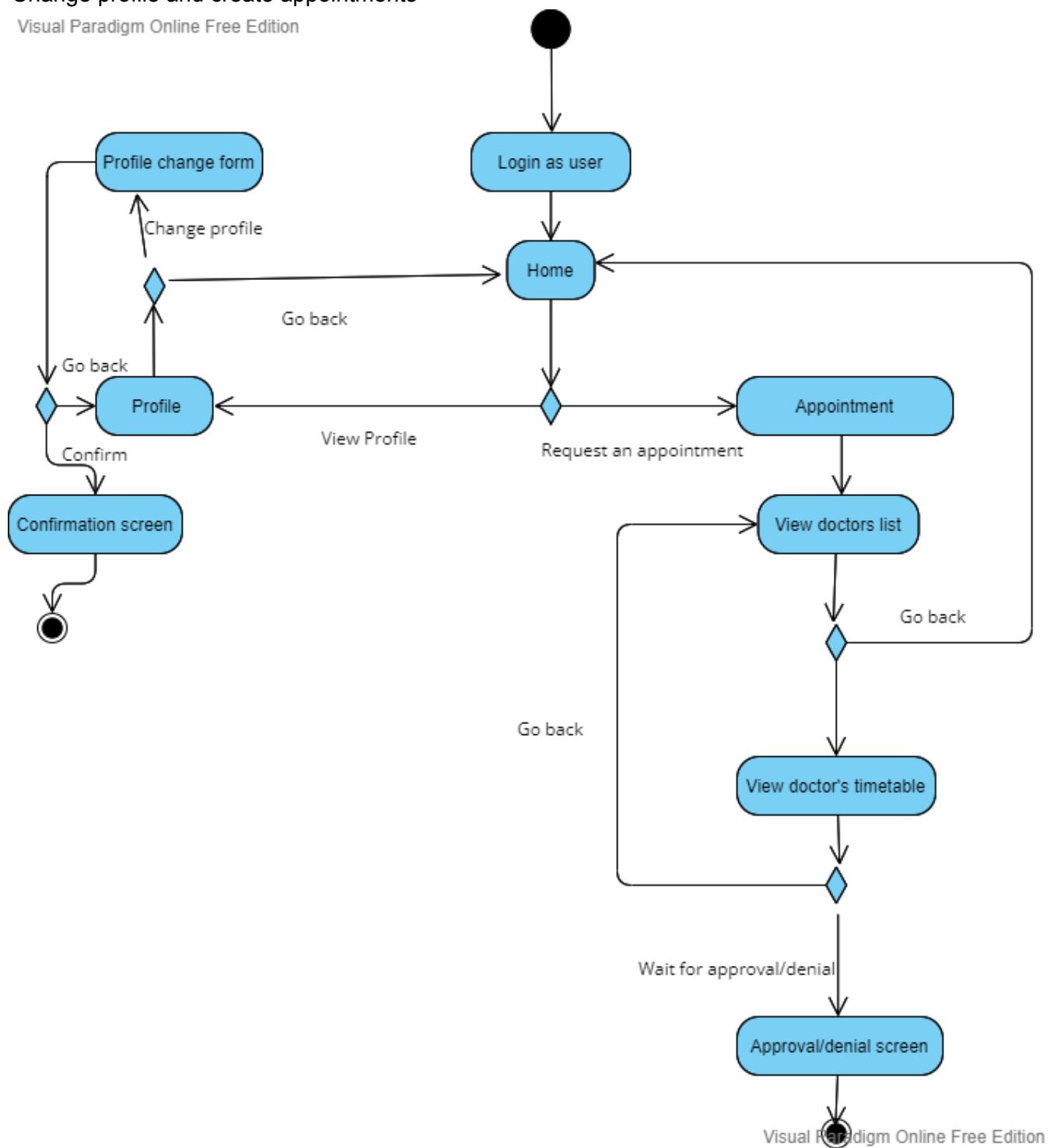
-Login



## Hospital Management System Requirements Specification

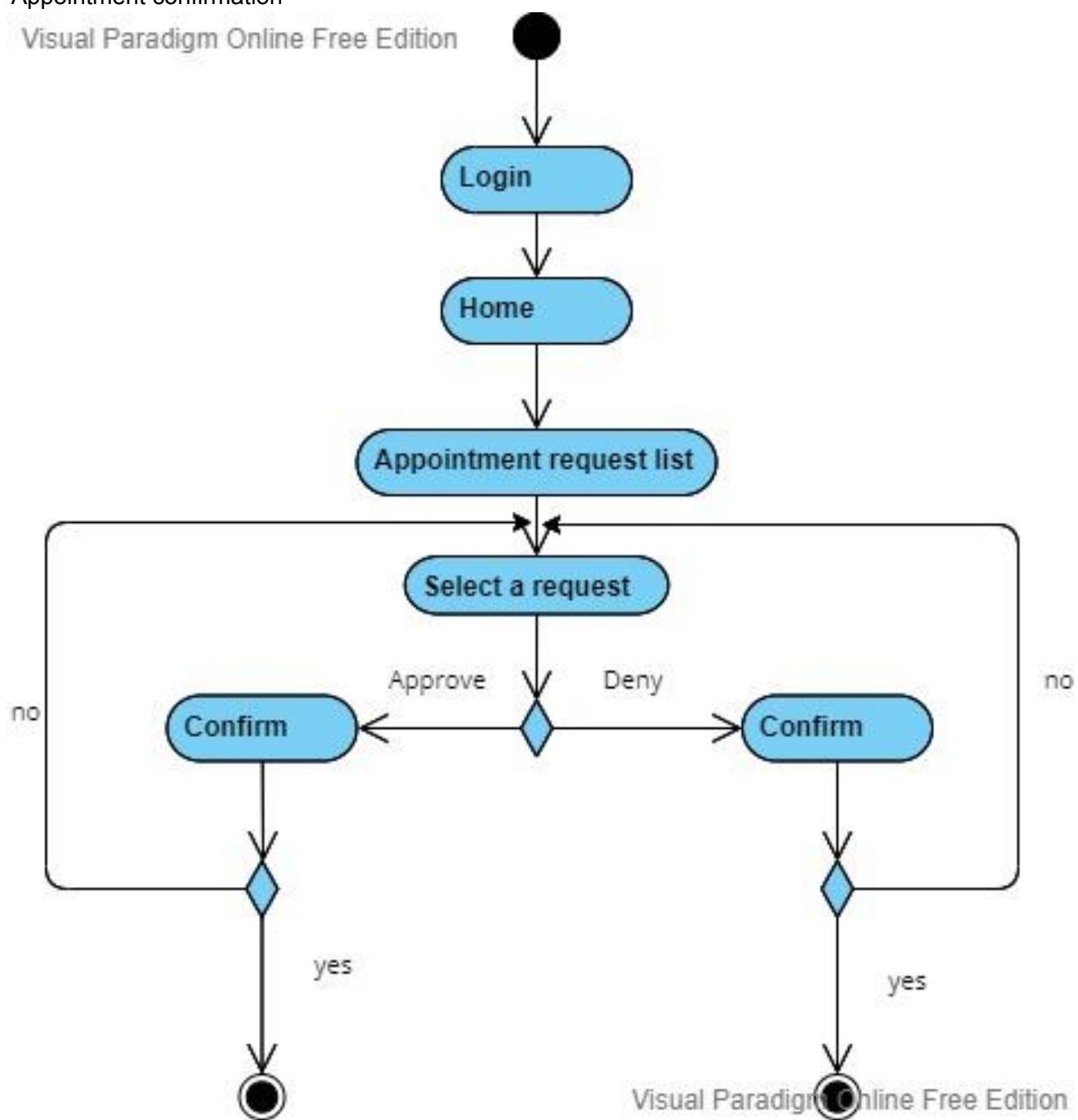
-Change profile and create appointments

Visual Paradigm Online Free Edition



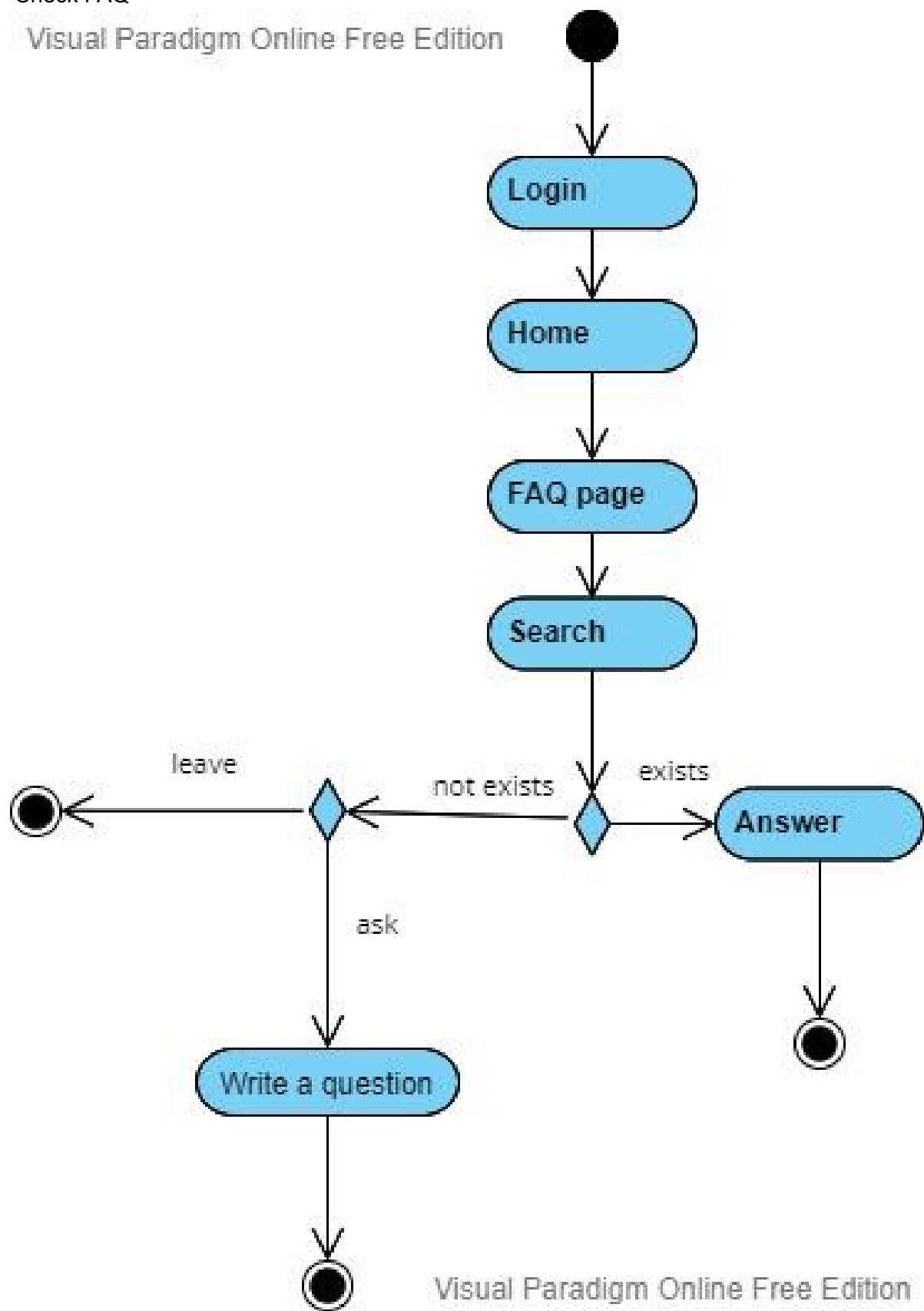
-Appointment confirmation

Visual Paradigm Online Free Edition



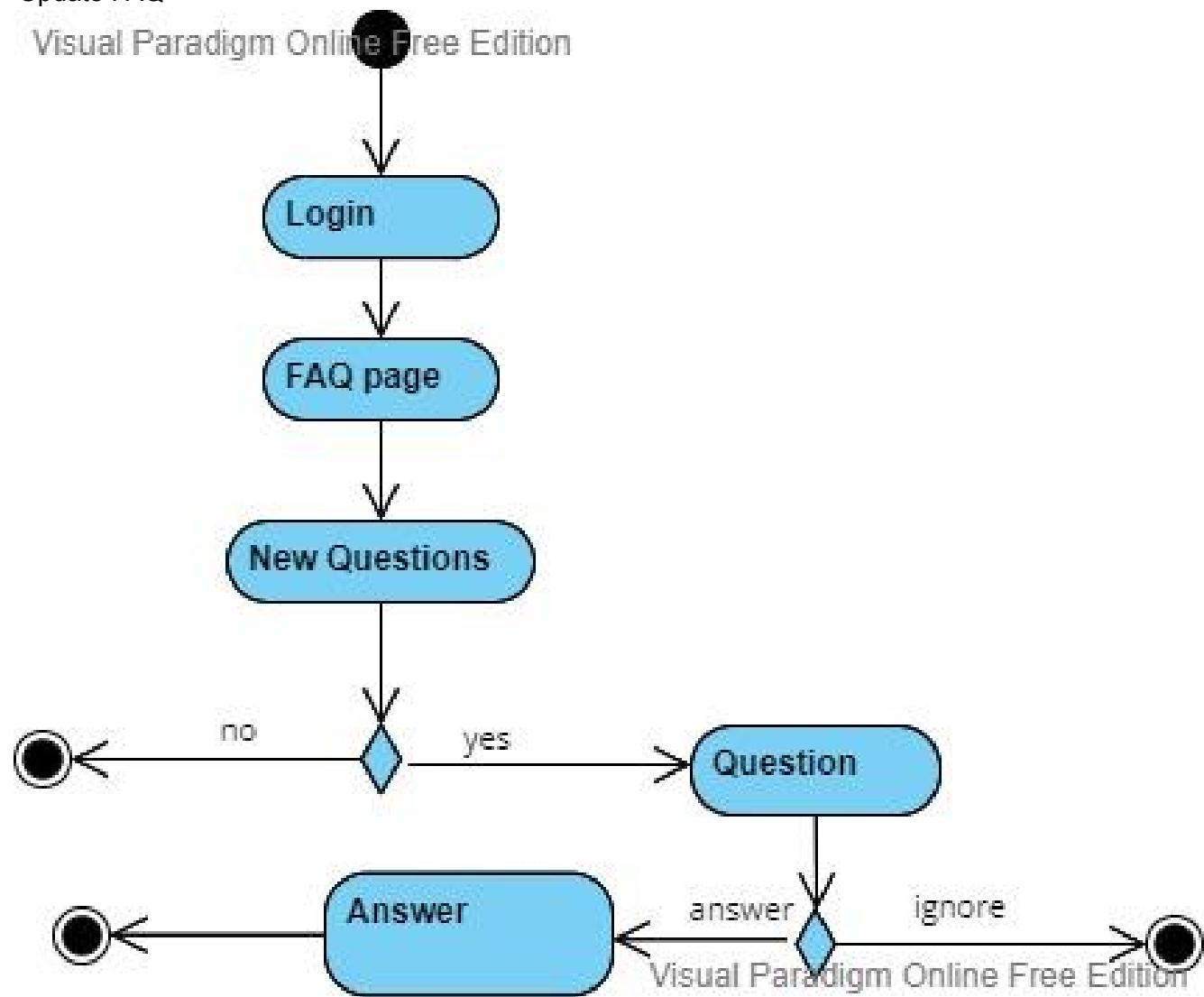
-Check FAQ

Visual Paradigm Online Free Edition



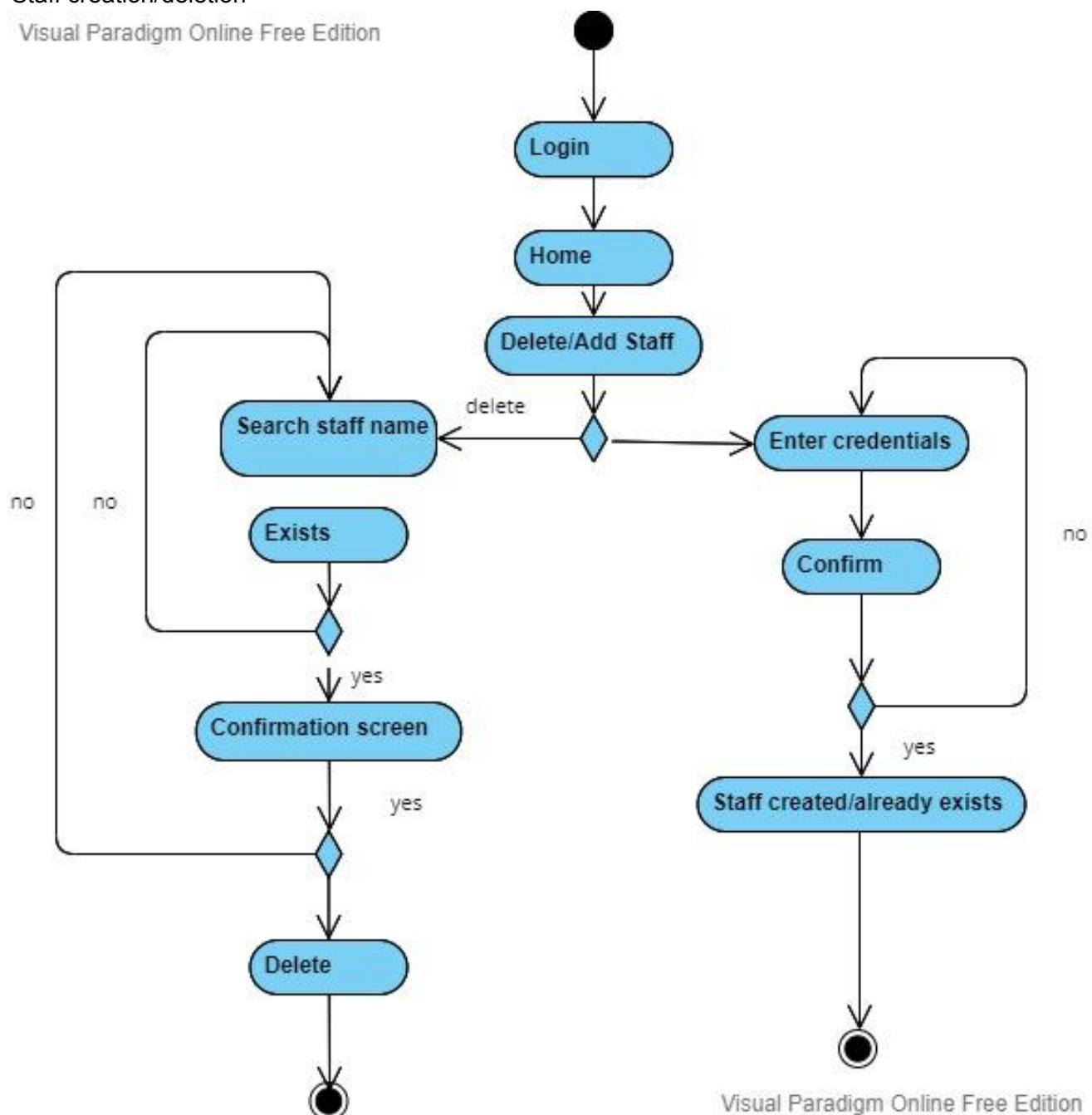
Visual Paradigm Online Free Edition

-Update FAQ



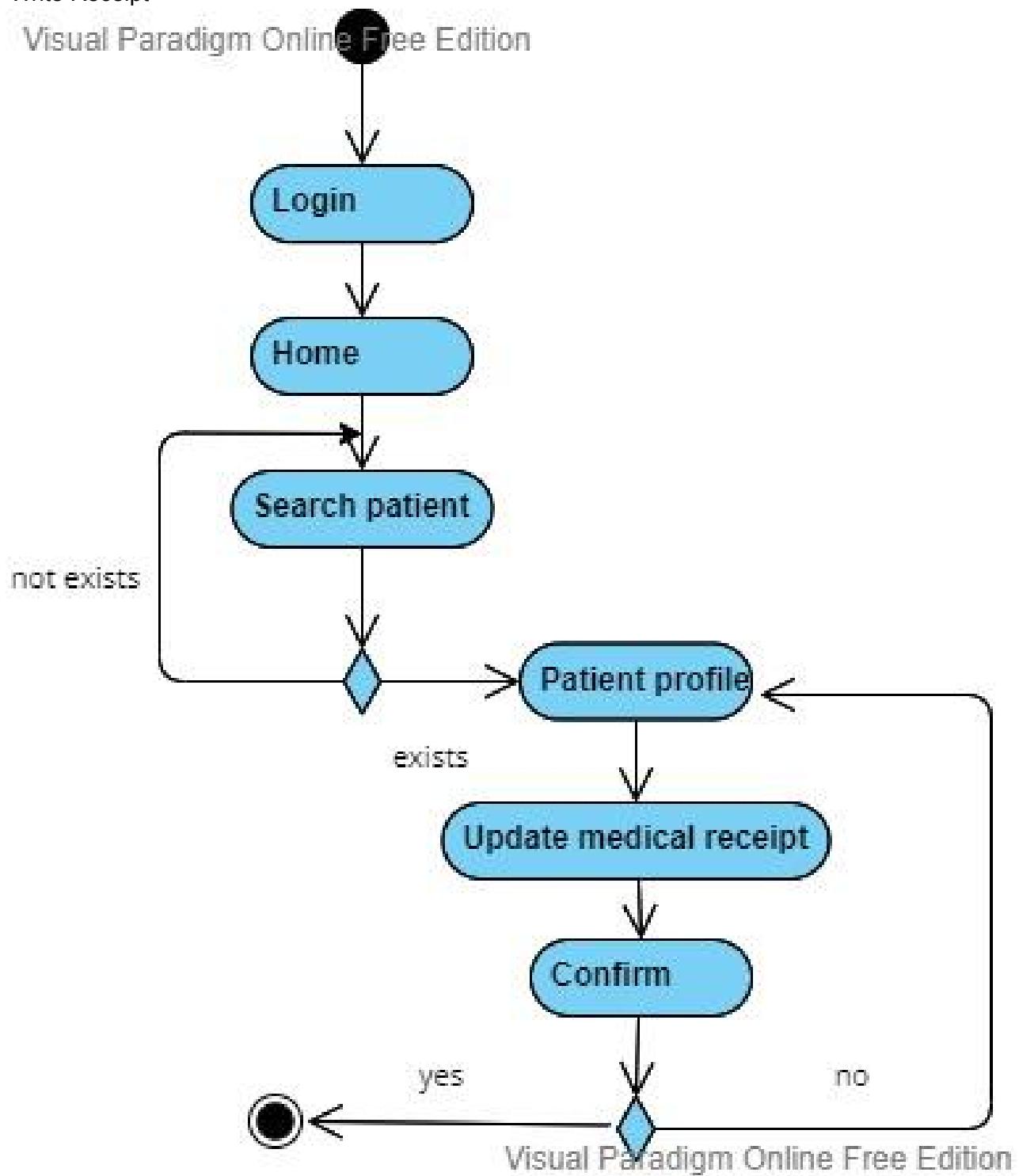
-Staff creation/deletion

Visual Paradigm Online Free Edition



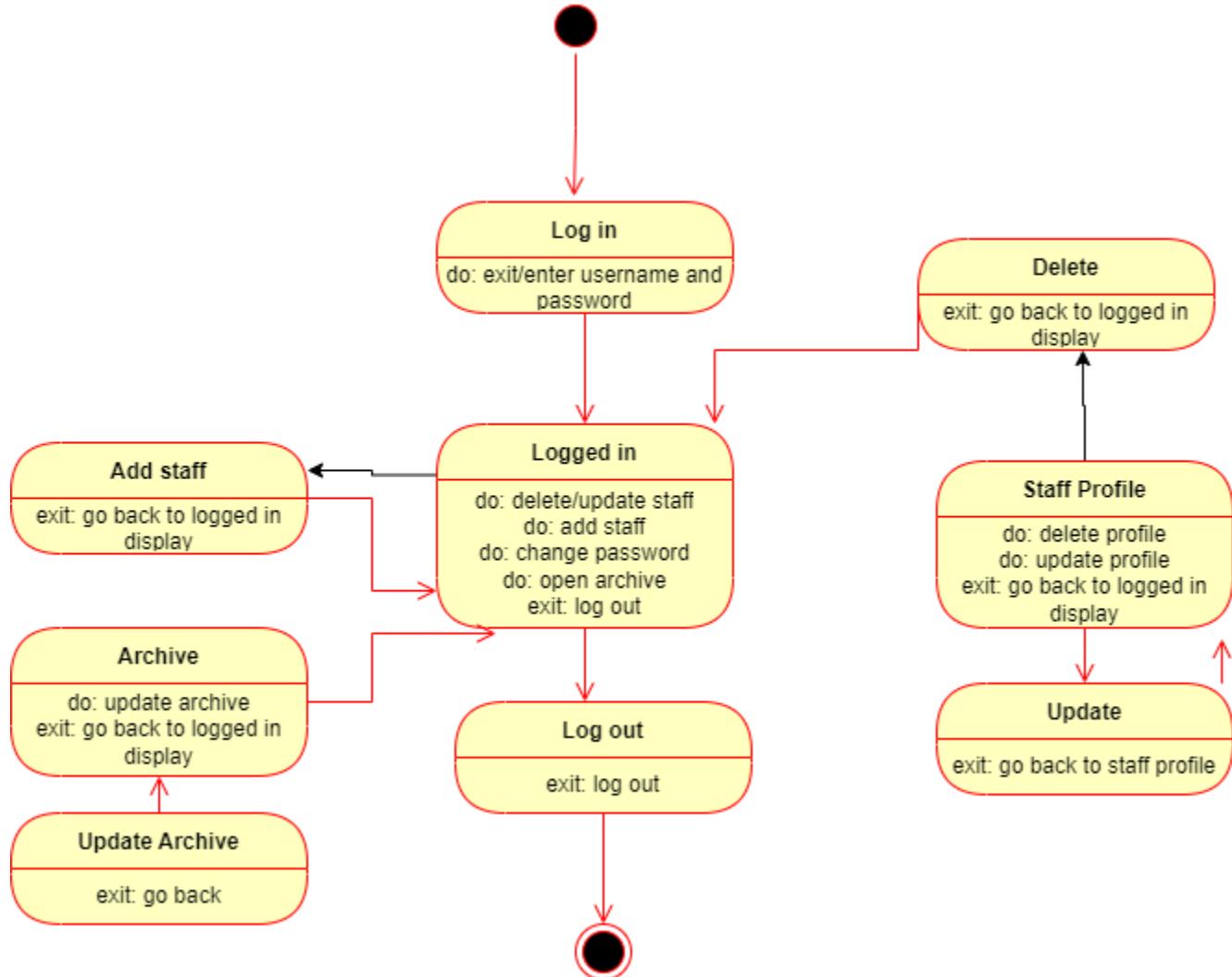
Visual Paradigm Online Free Edition

-Write Receipt



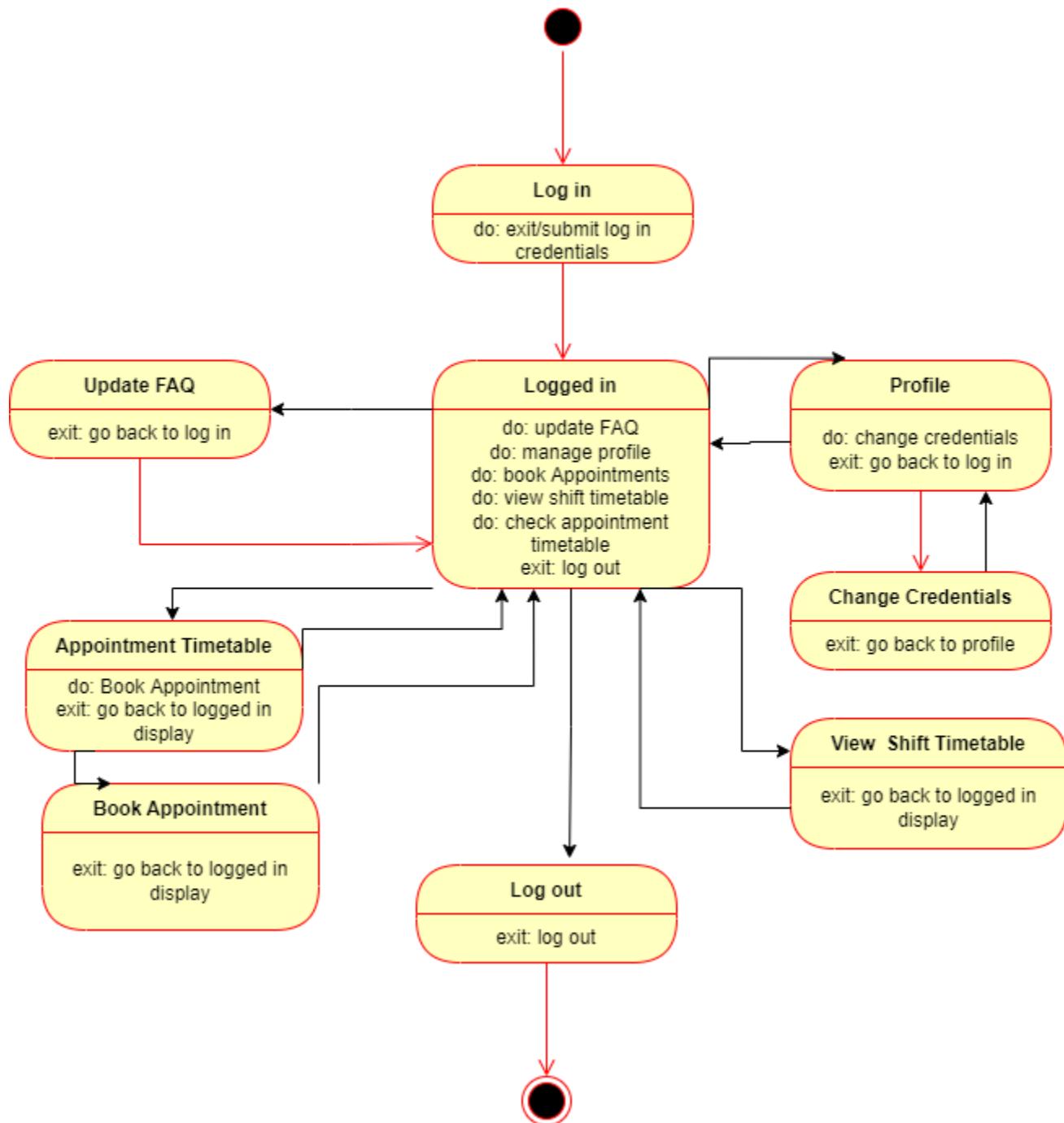
#### 4.5 State Diagrams

- Admin



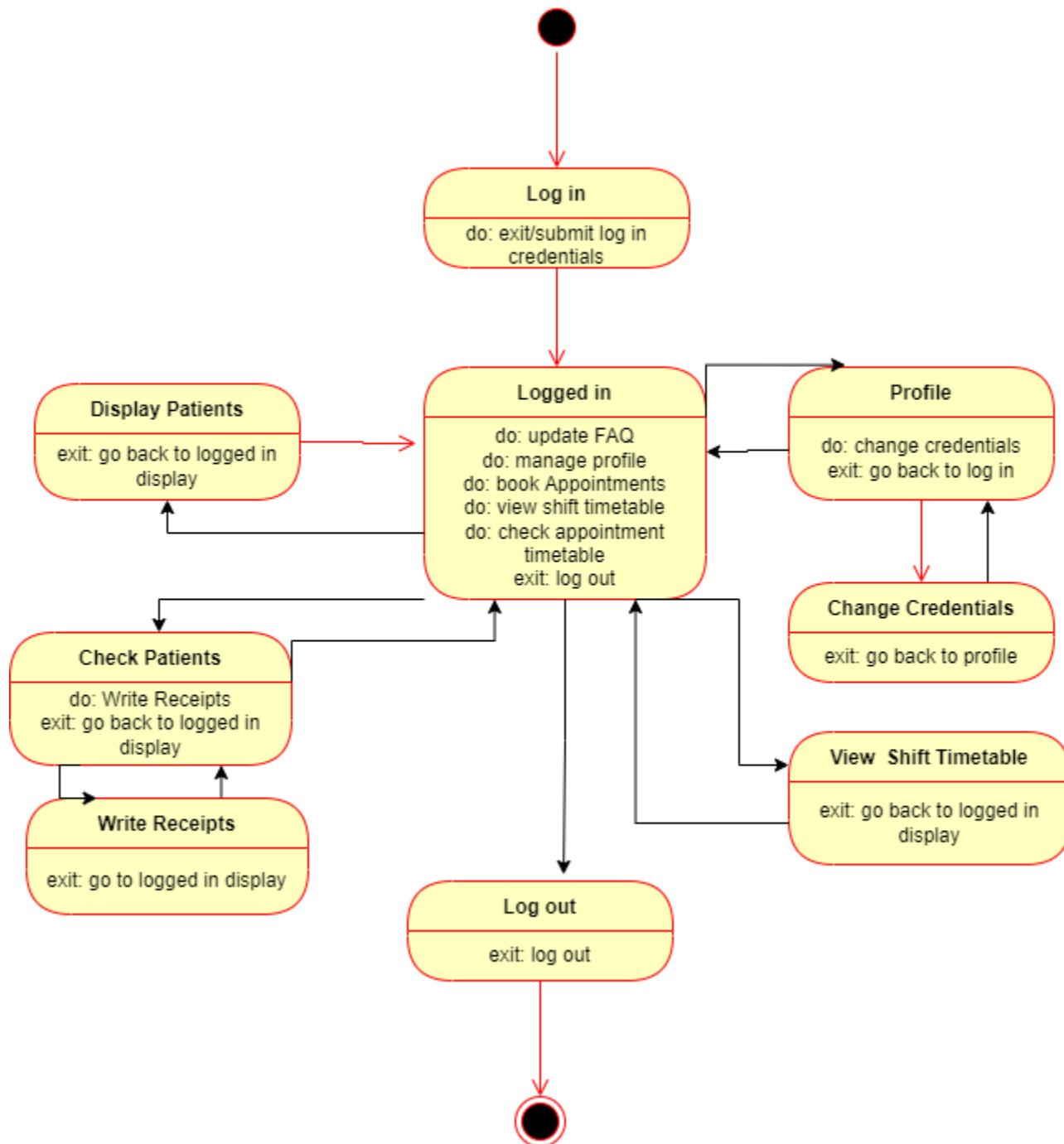
## Hospital Management System Requirements Specification

### - Staff



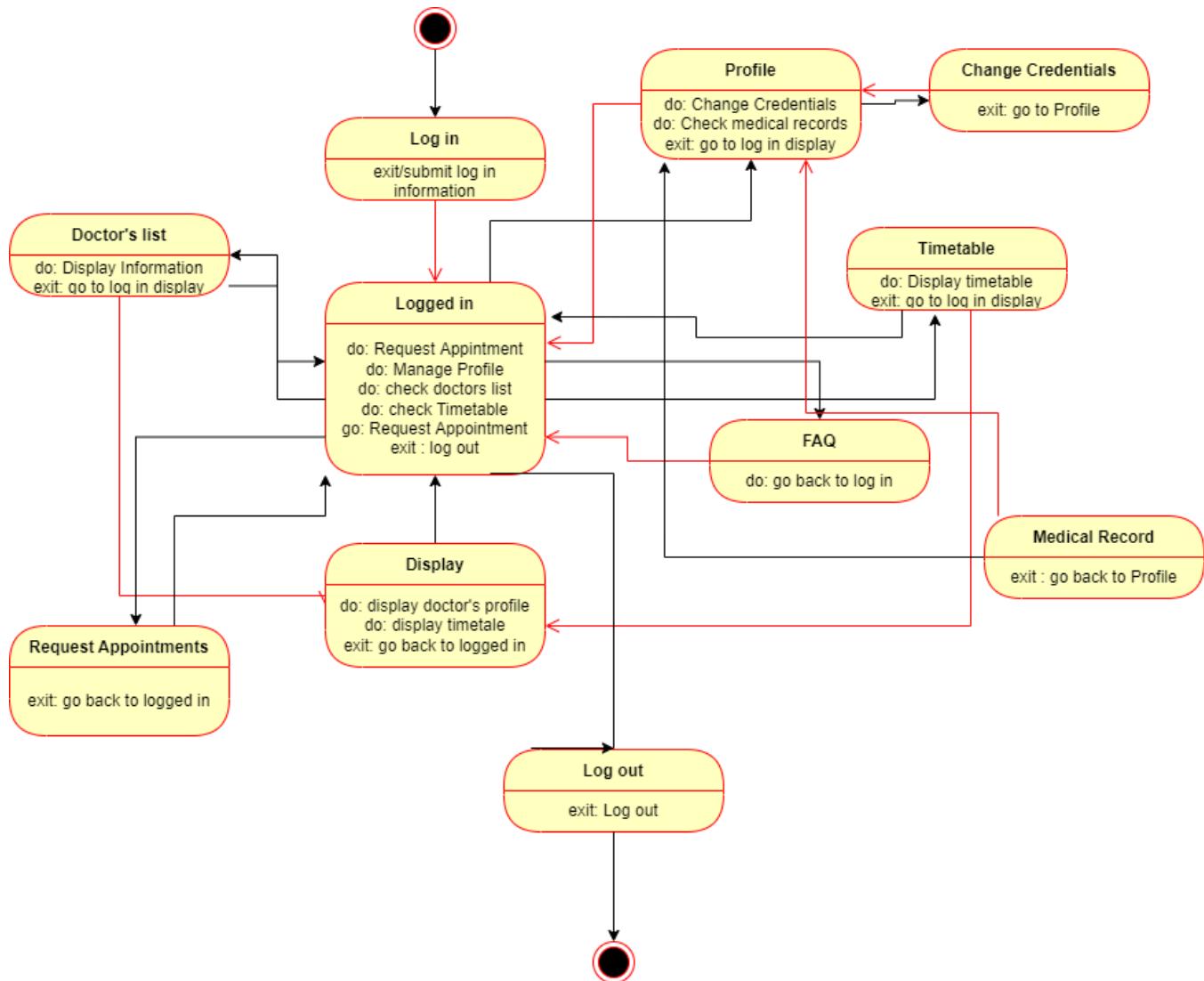
## Hospital Management System Requirements Specification

- Doctor



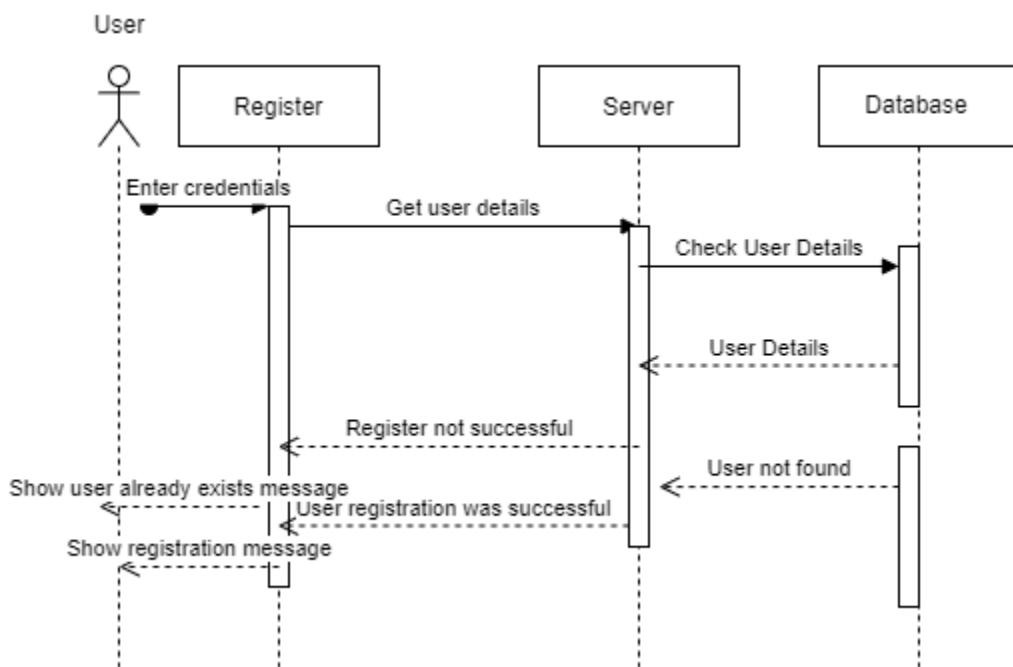
## Hospital Management System Requirements Specification

### - Patient

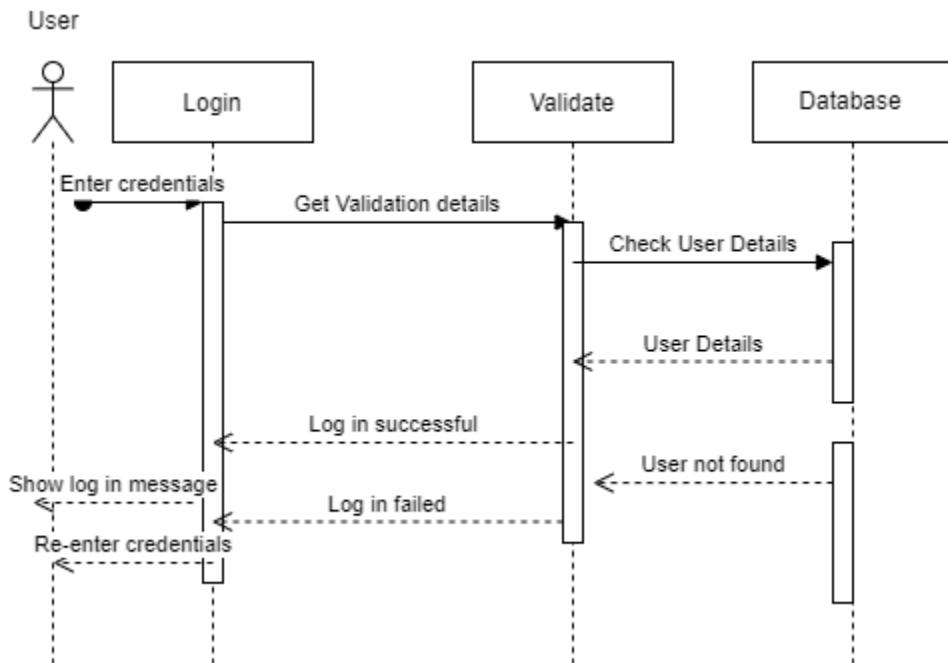


## 4.6 Sequence Diagrams

- Register

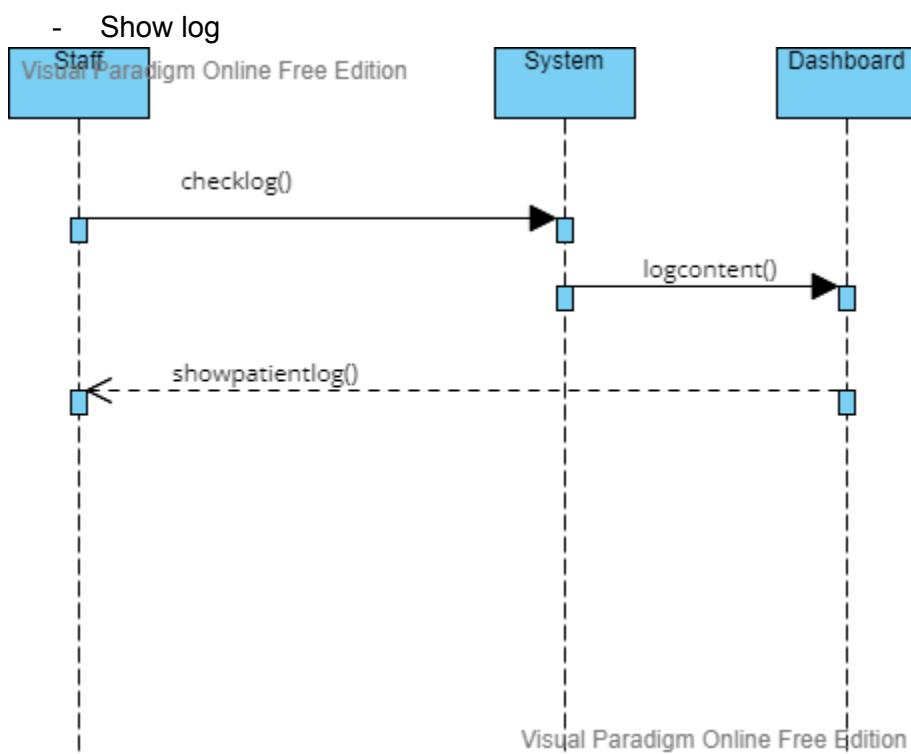
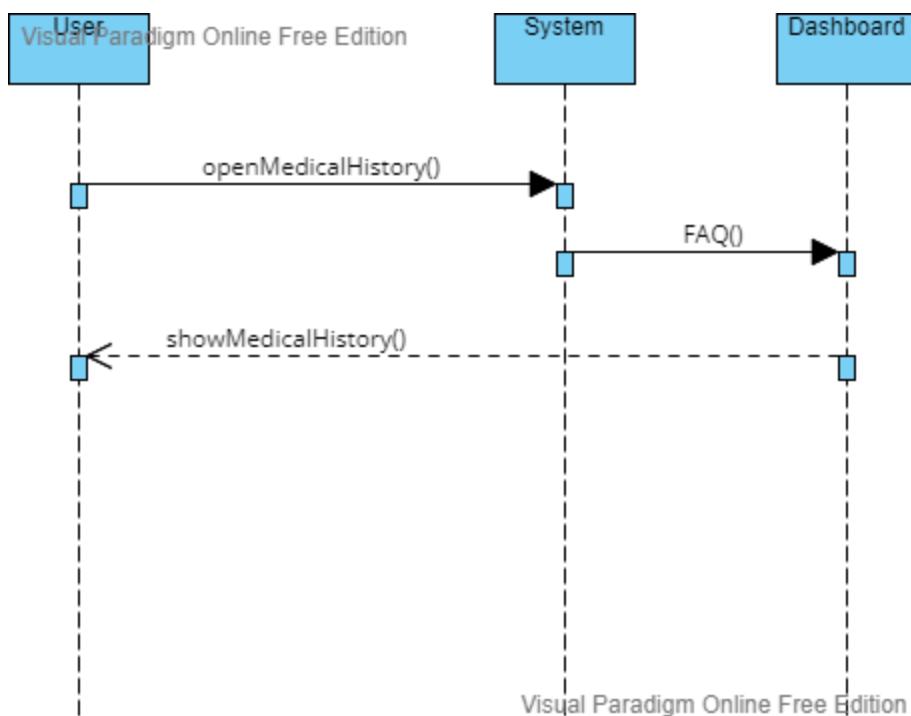


- Login



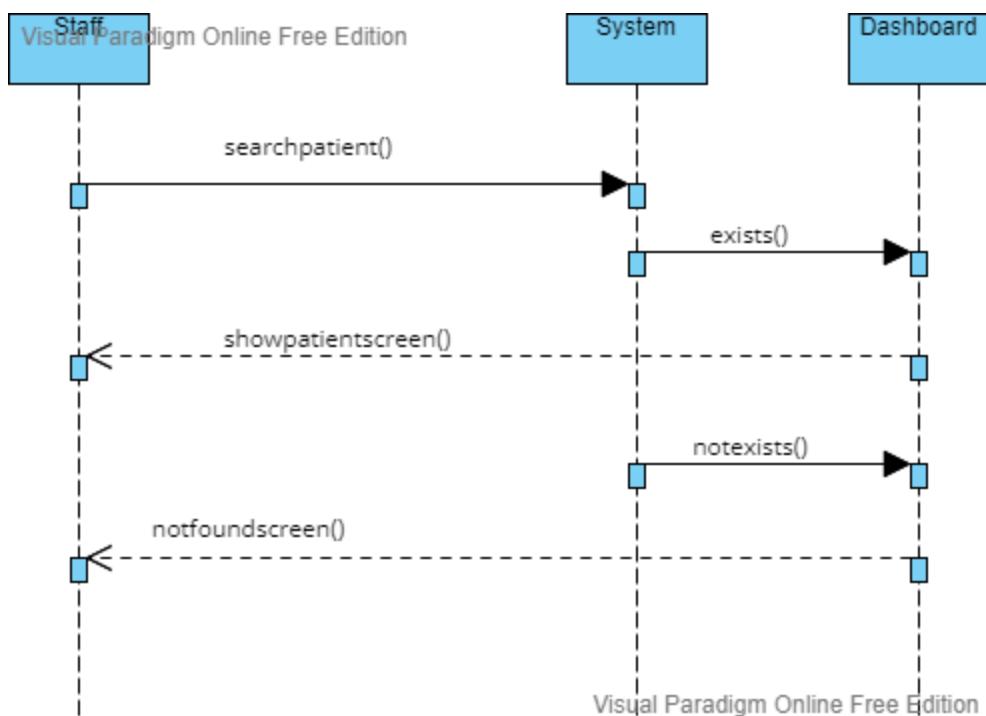
- Show medical history

## Hospital Management System Requirements Specification

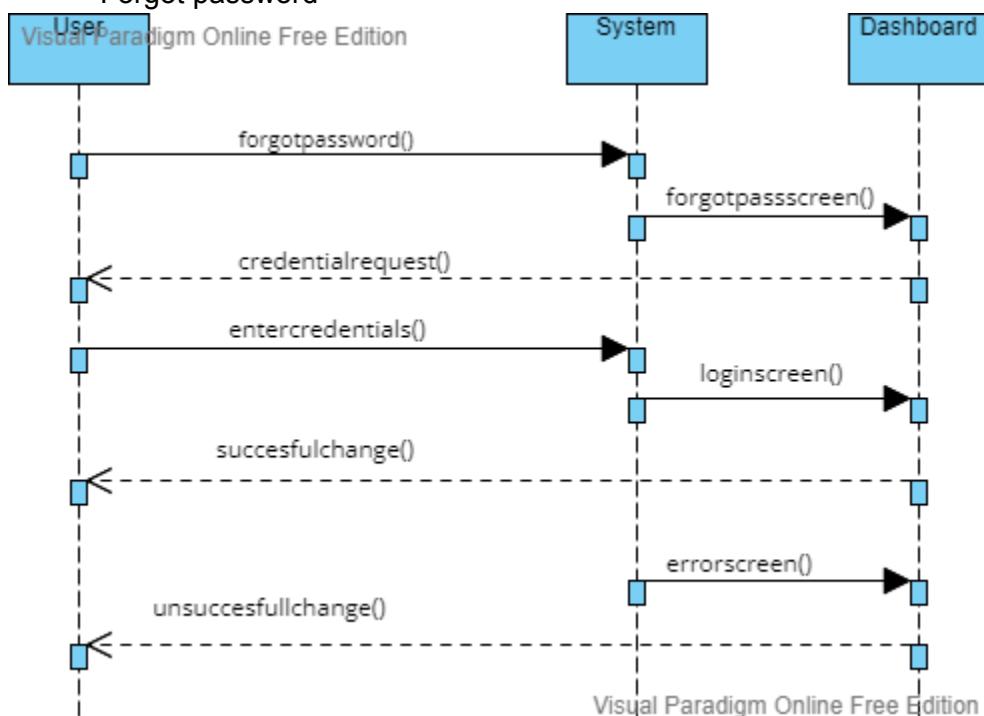


- Search Patient

## Hospital Management System Requirements Specification

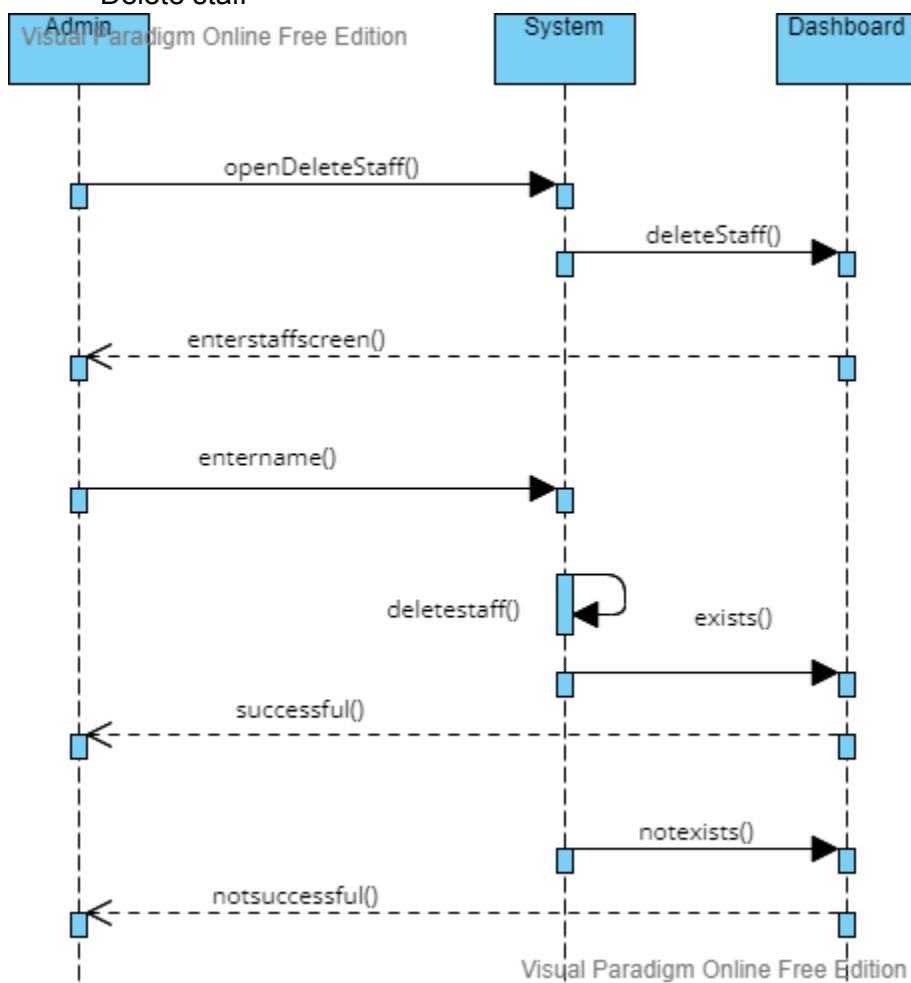


### - Forgot password

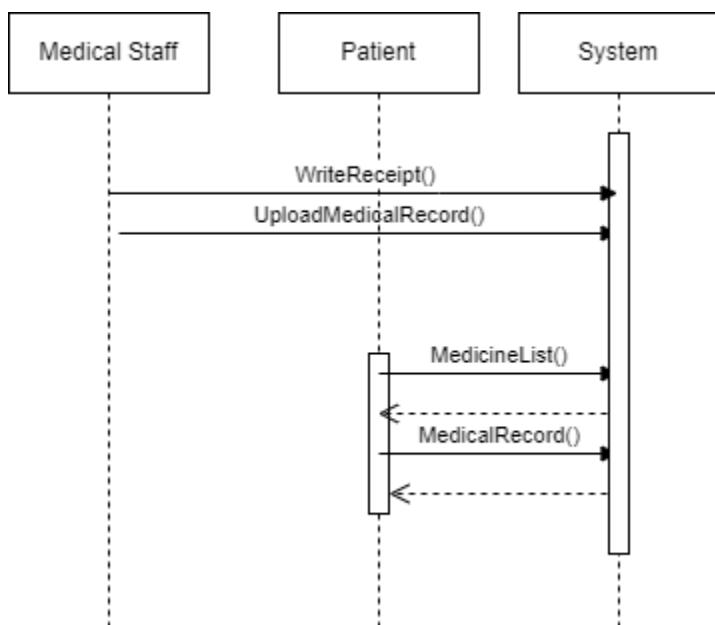


## Hospital Management System Requirements Specification

### - Delete staff

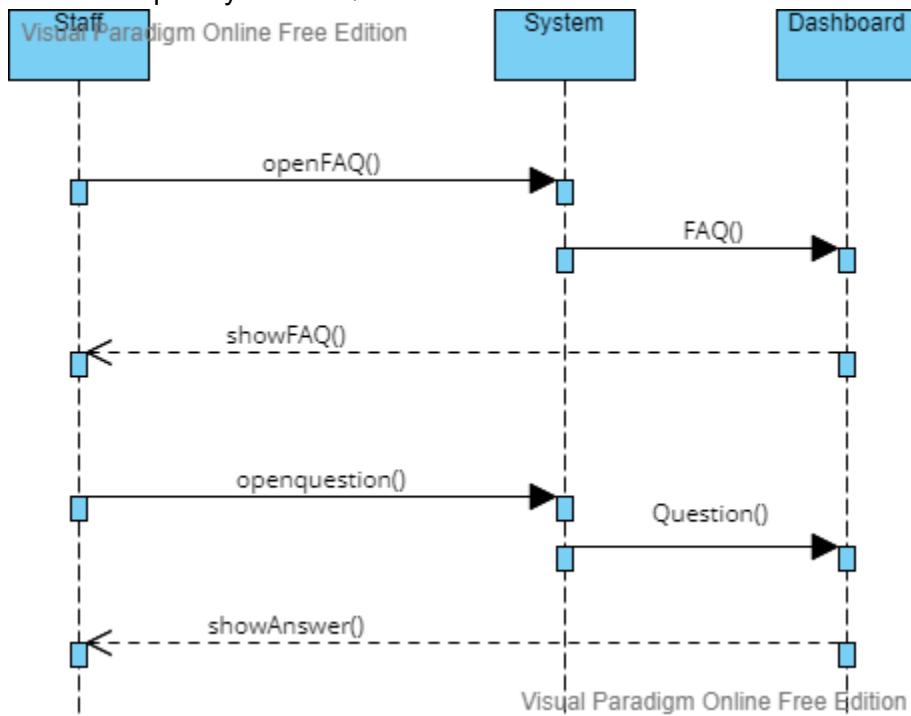


### - Write Receipt

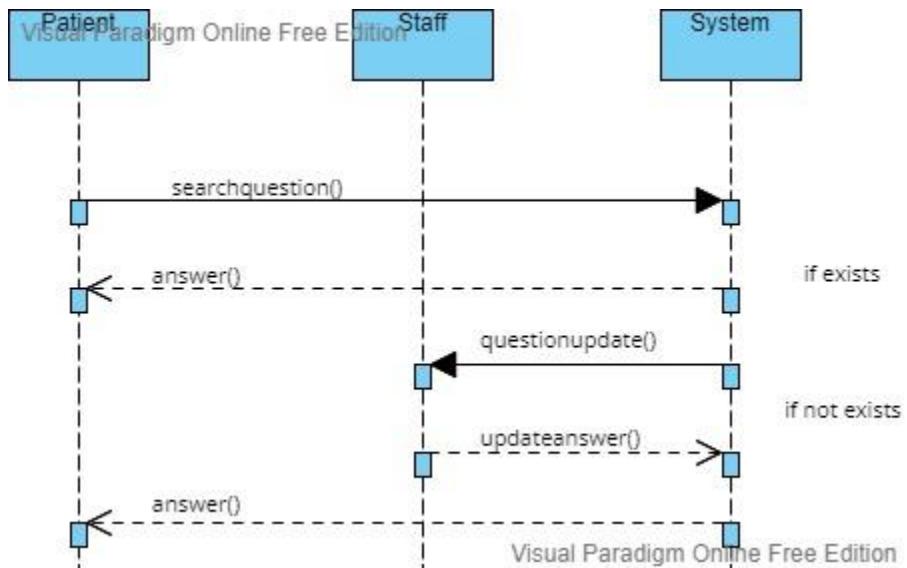


## Hospital Management System Requirements Specification

### - Frequently Asked Questions

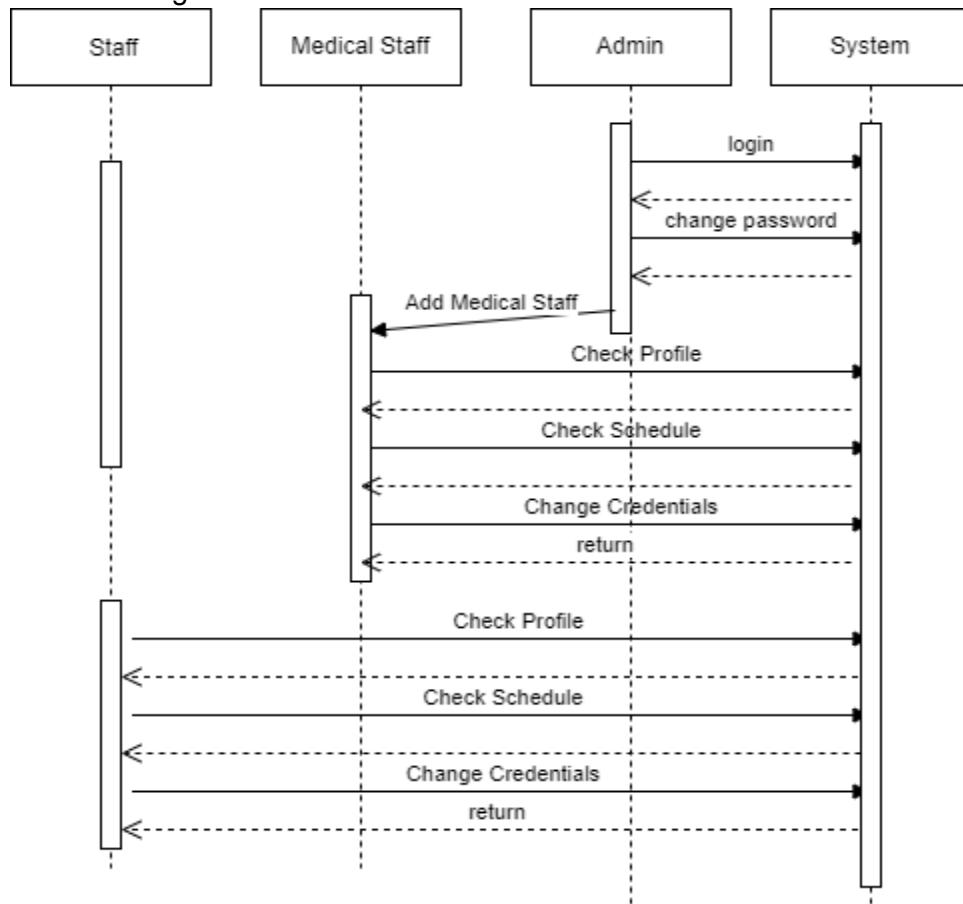


### - Contact Us

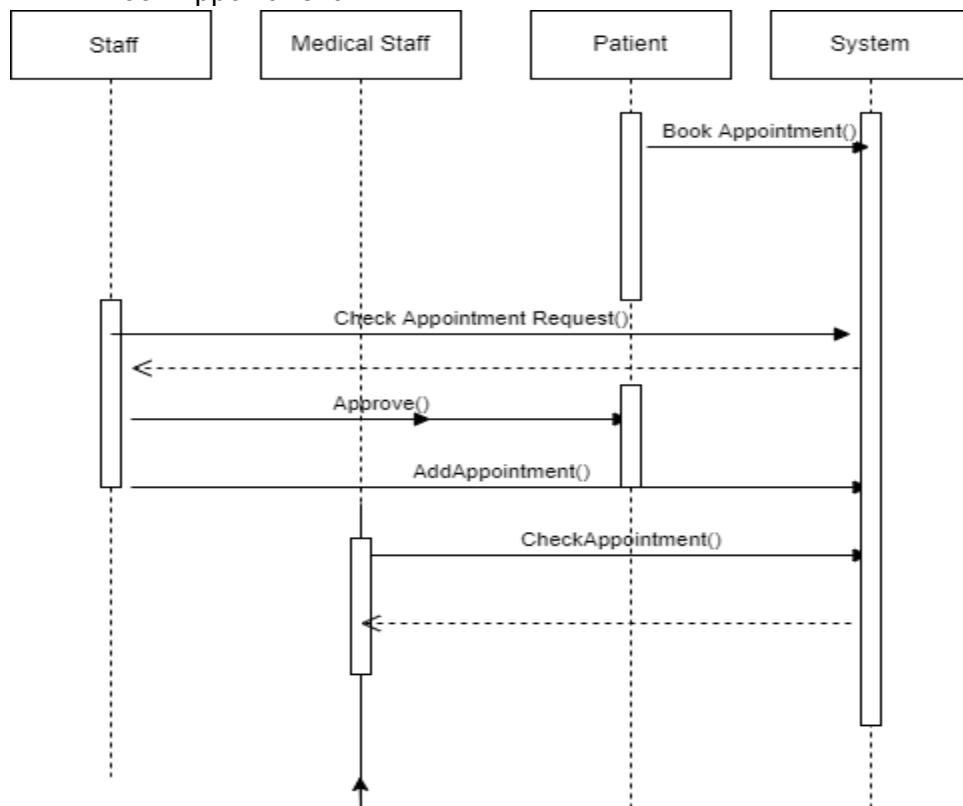


## Hospital Management System Requirements Specification

### - Change Credentials

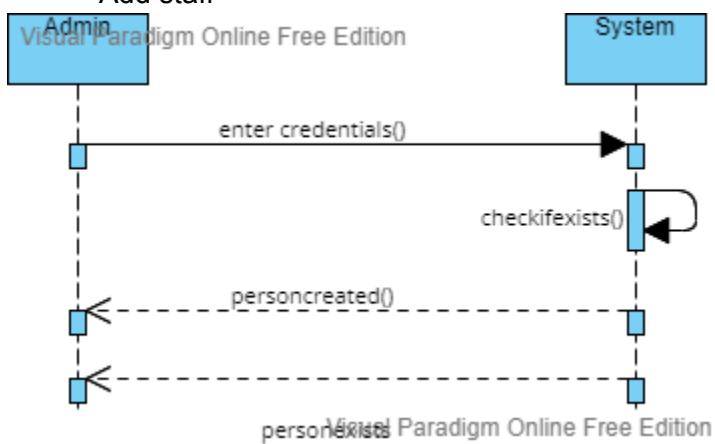


### - Book Appointment



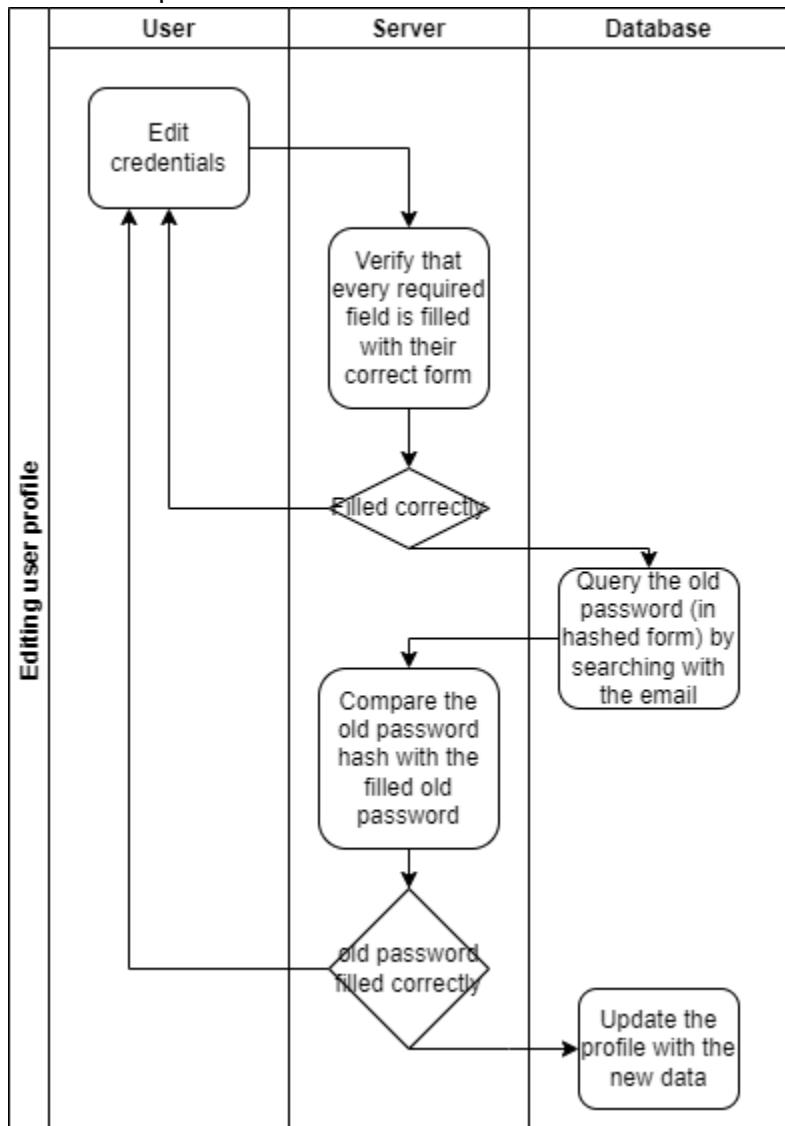
## Hospital Management System Requirements Specification

- Add staff



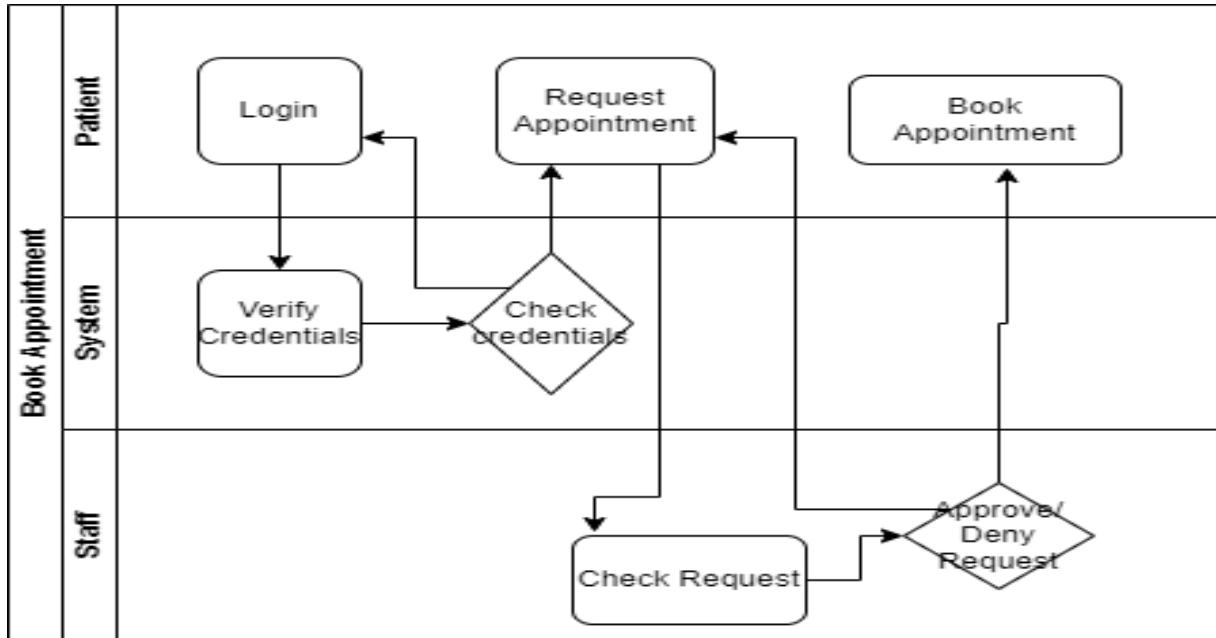
## 4.7 Swimlane Diagrams

- Edit profile

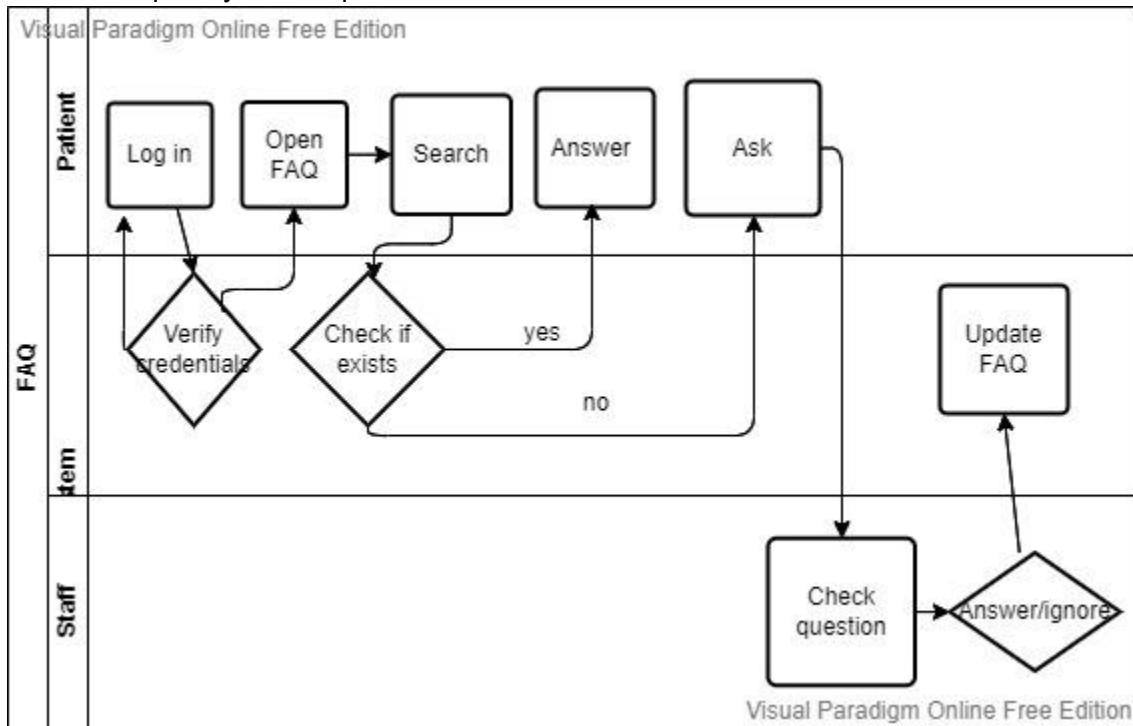


## Hospital Management System Requirements Specification

### - Book Appointment

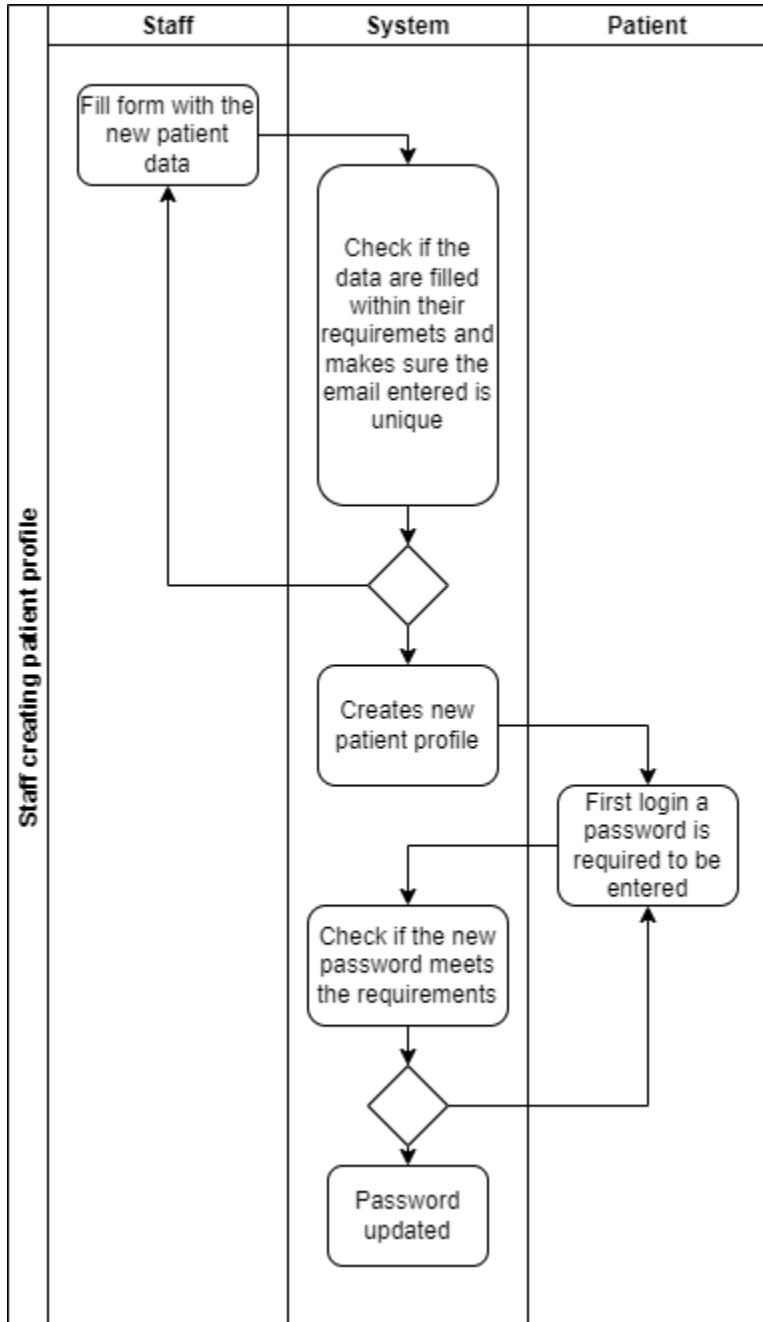


### - Frequently asked questions



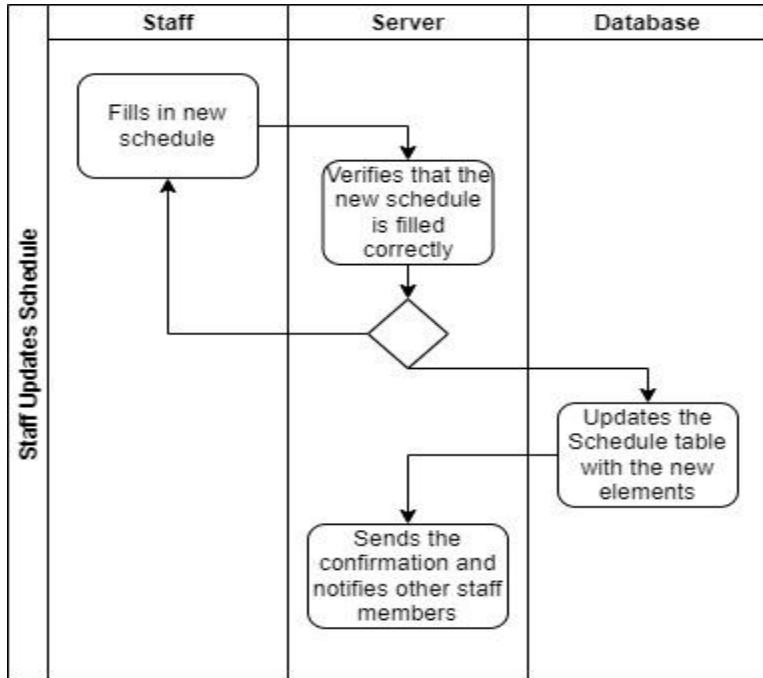
## Hospital Management System Requirements Specification

- Staff creates patient profile

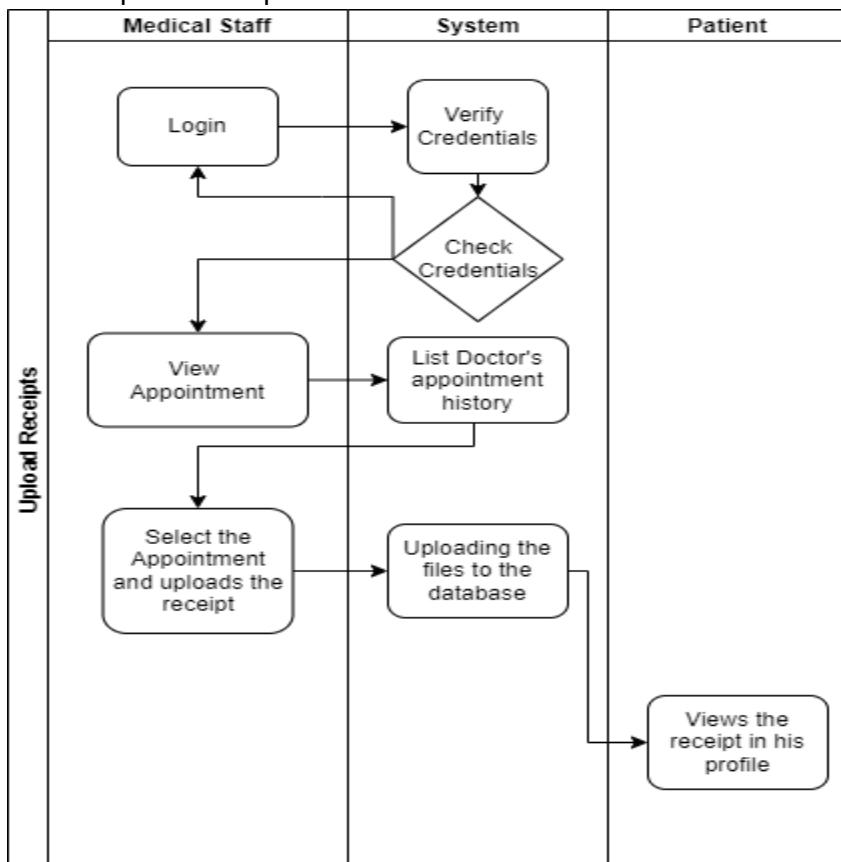


## Hospital Management System Requirements Specification

- Update schedule

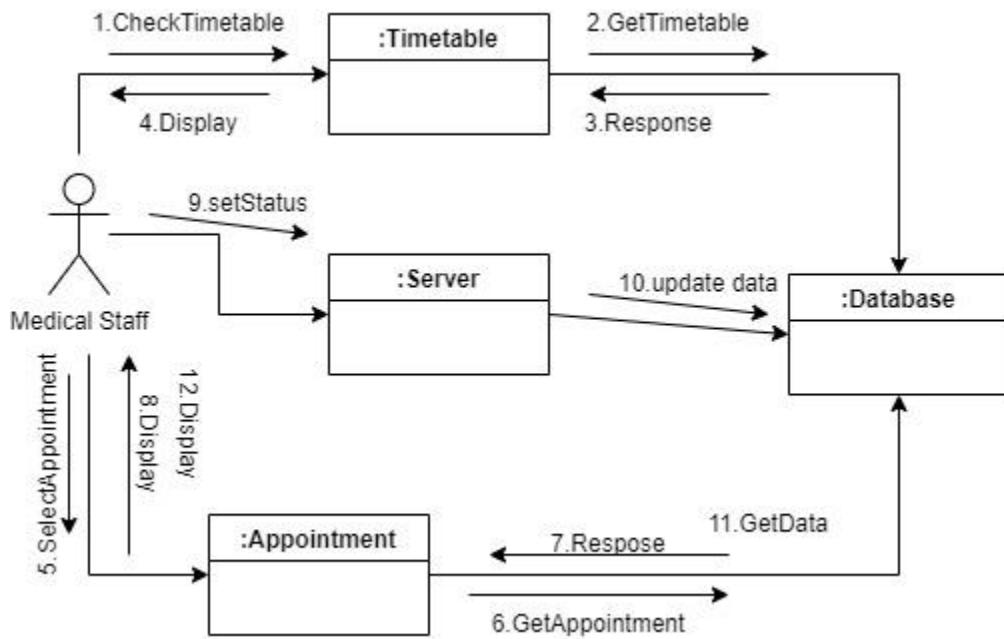


- Upload receipts

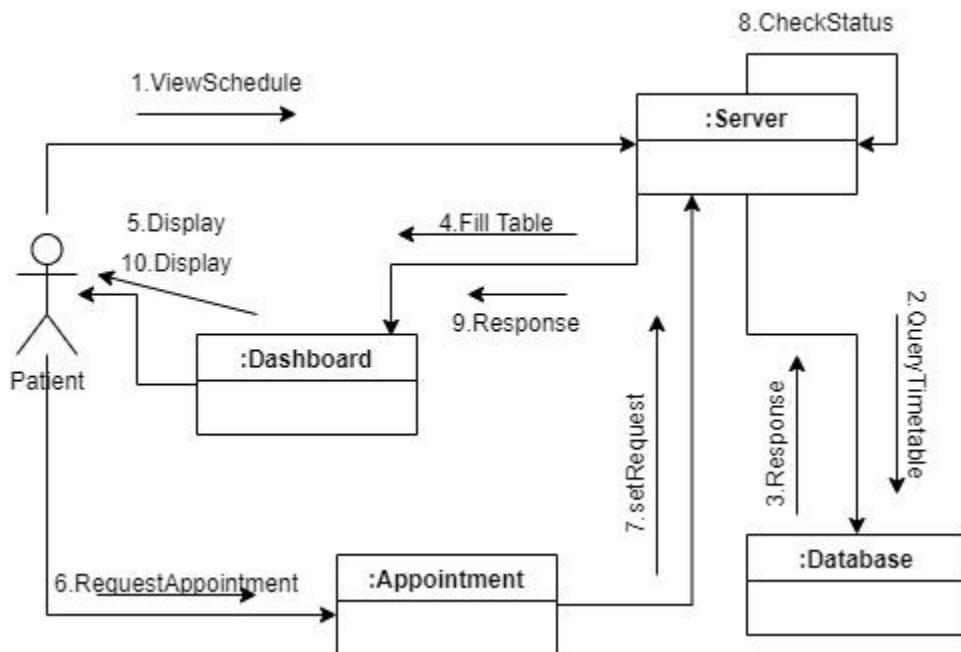


## 4.8 Collaboration Diagrams

- Accept/Cancel appointments

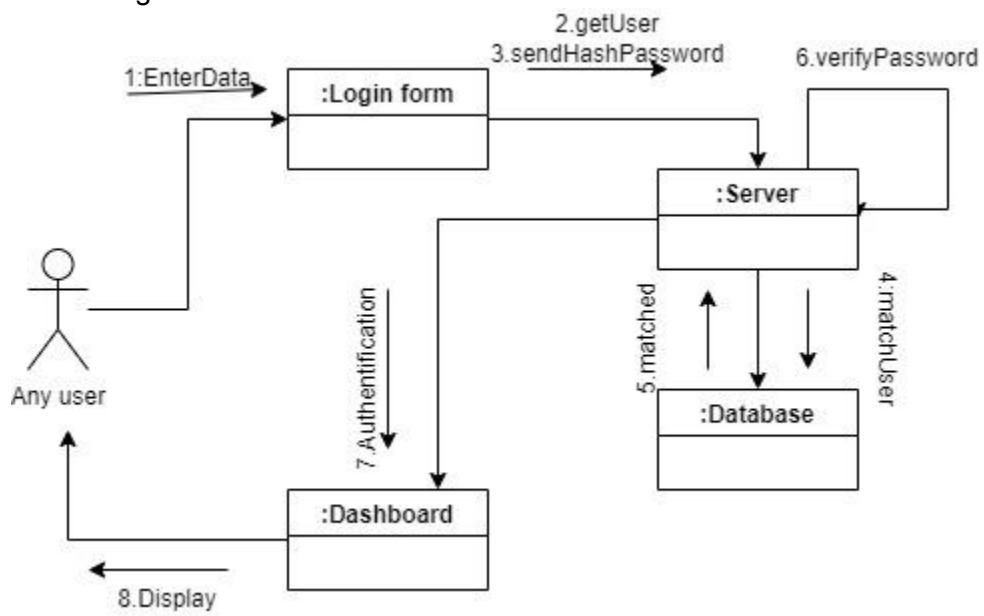


- Appointment

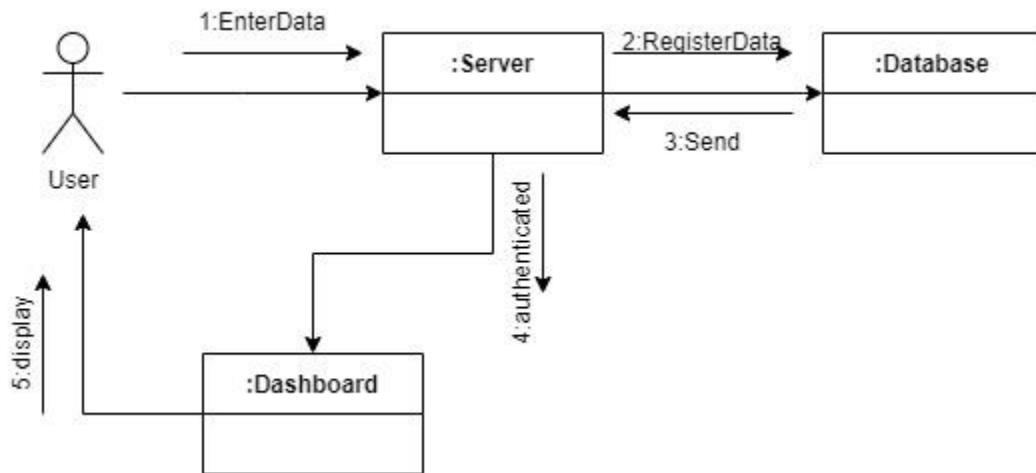


## Hospital Management System Requirements Specification

- Log in

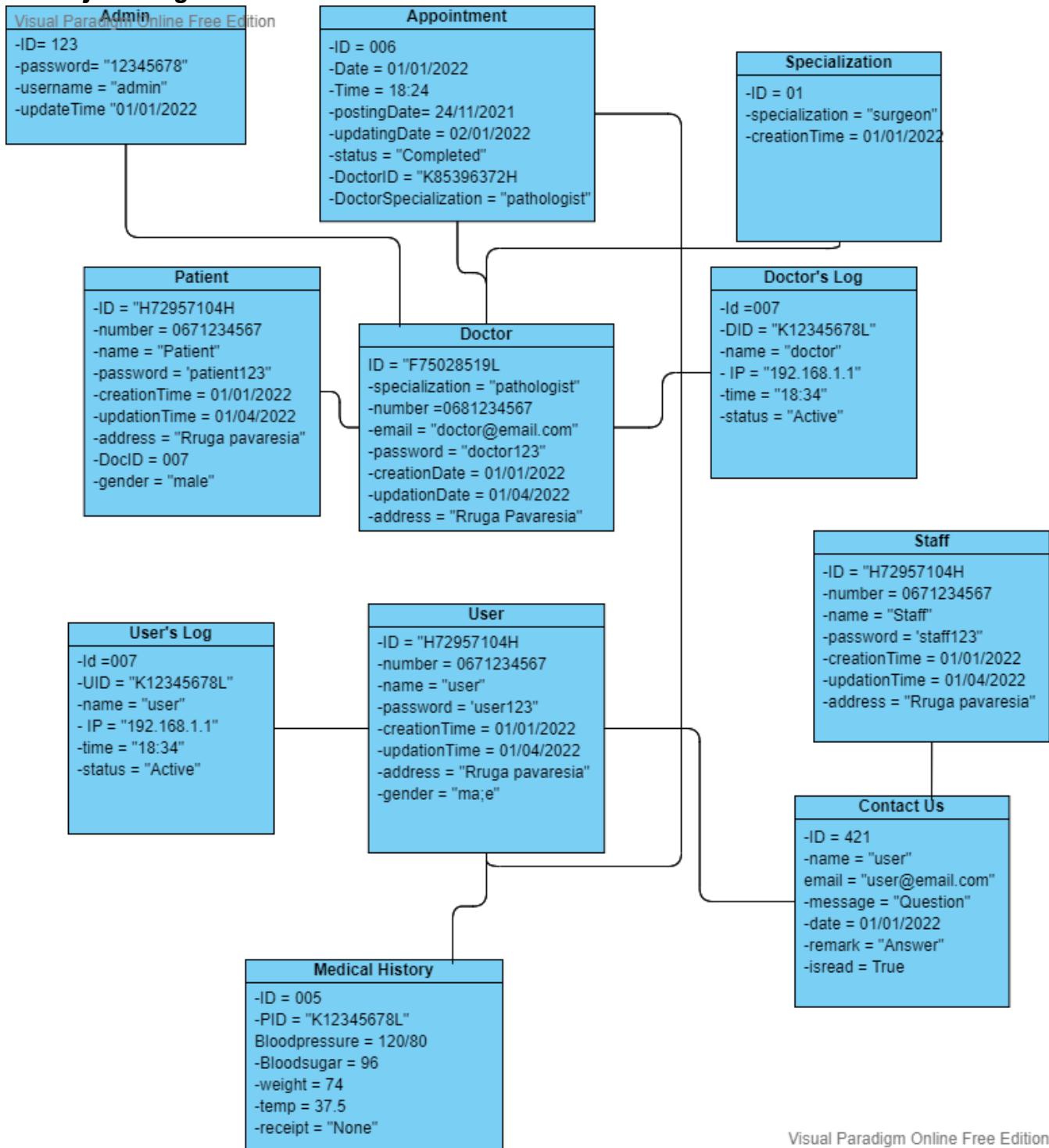


- Register



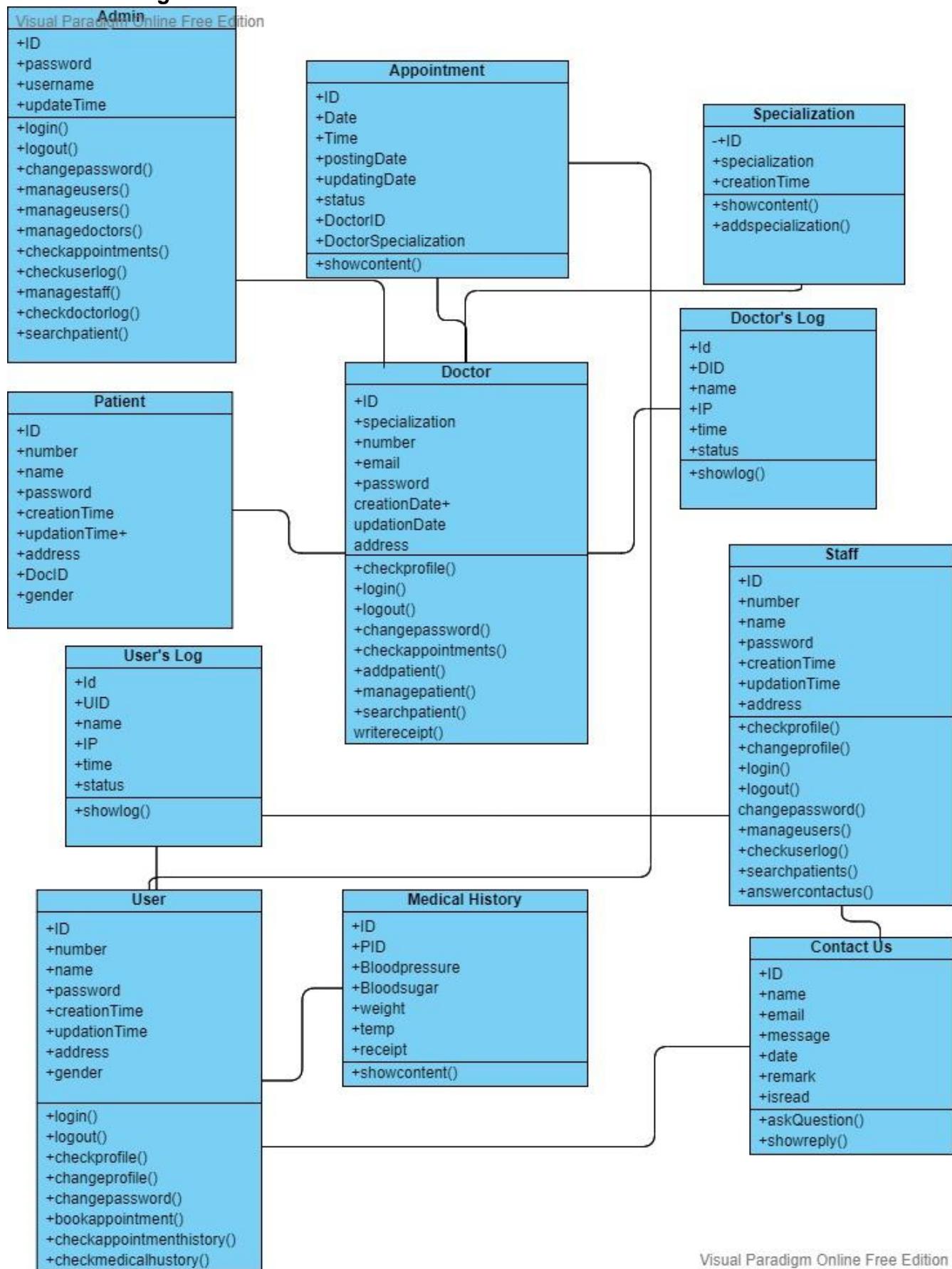
## Hospital Management System Requirements Specification

### 4.9 Object Diagram



## Hospital Management System Requirements Specification

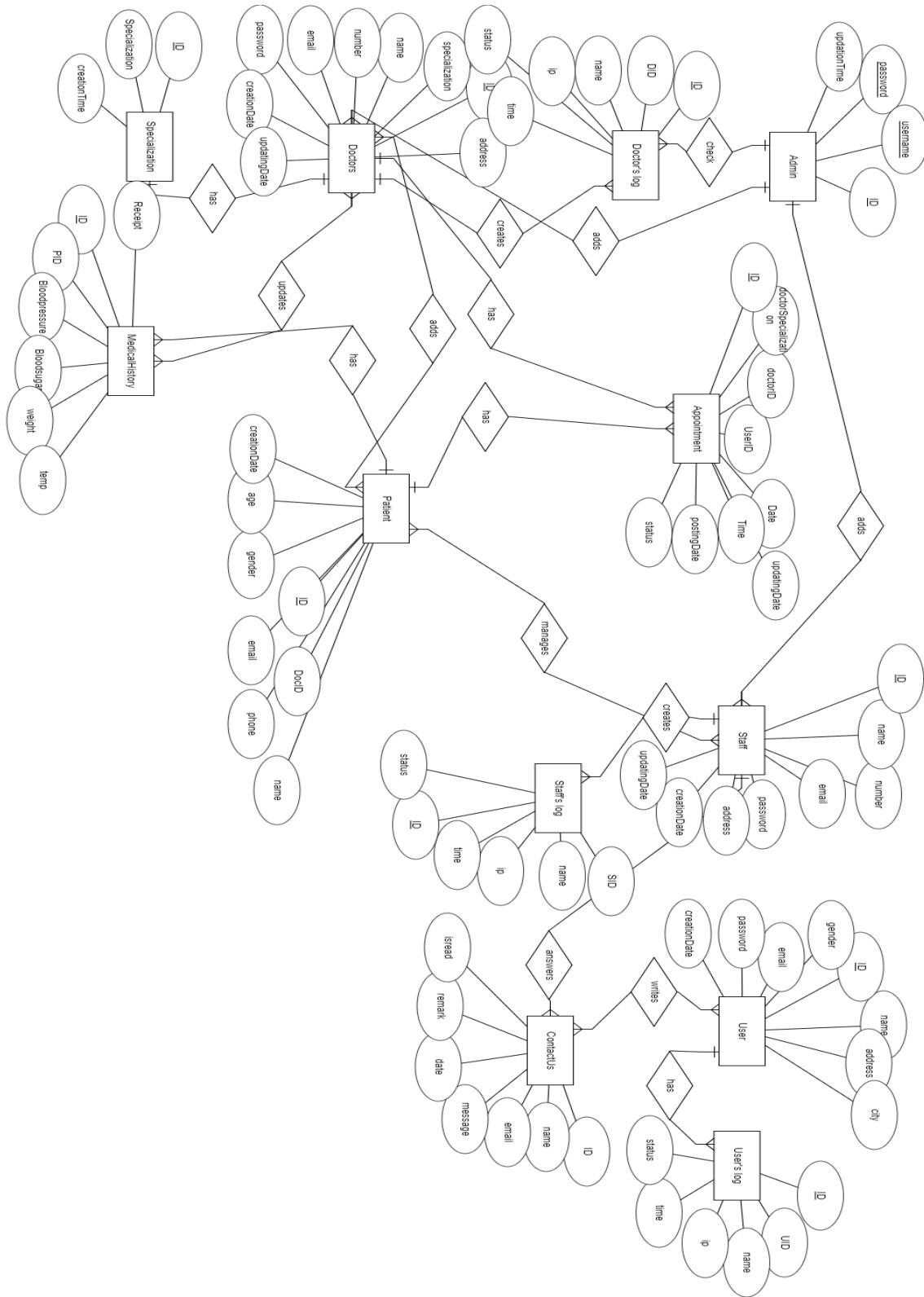
### 4.10 Class Diagram



**Hospital Management System Requirements Specification**

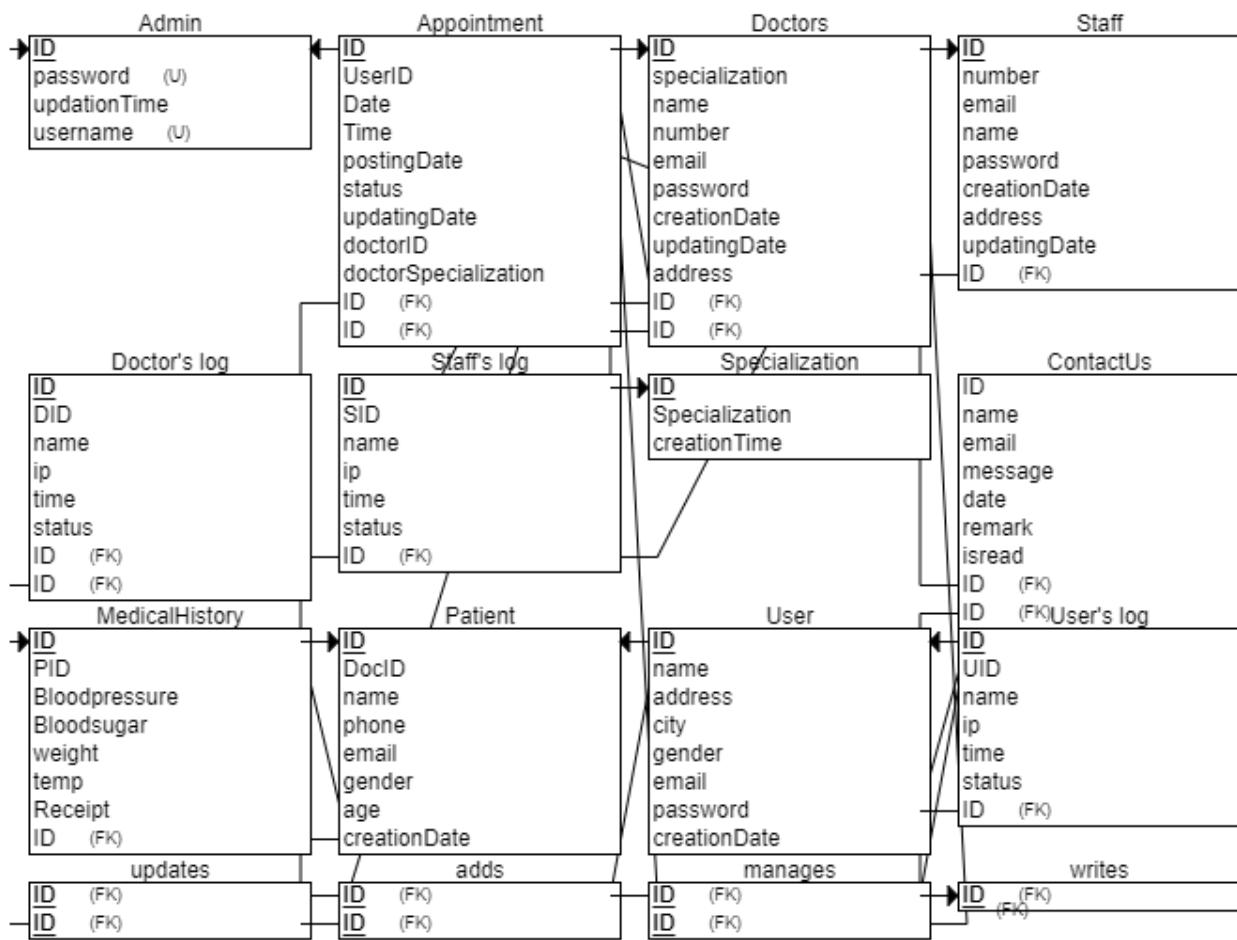
## 4.11 ERD and RS

- ERD

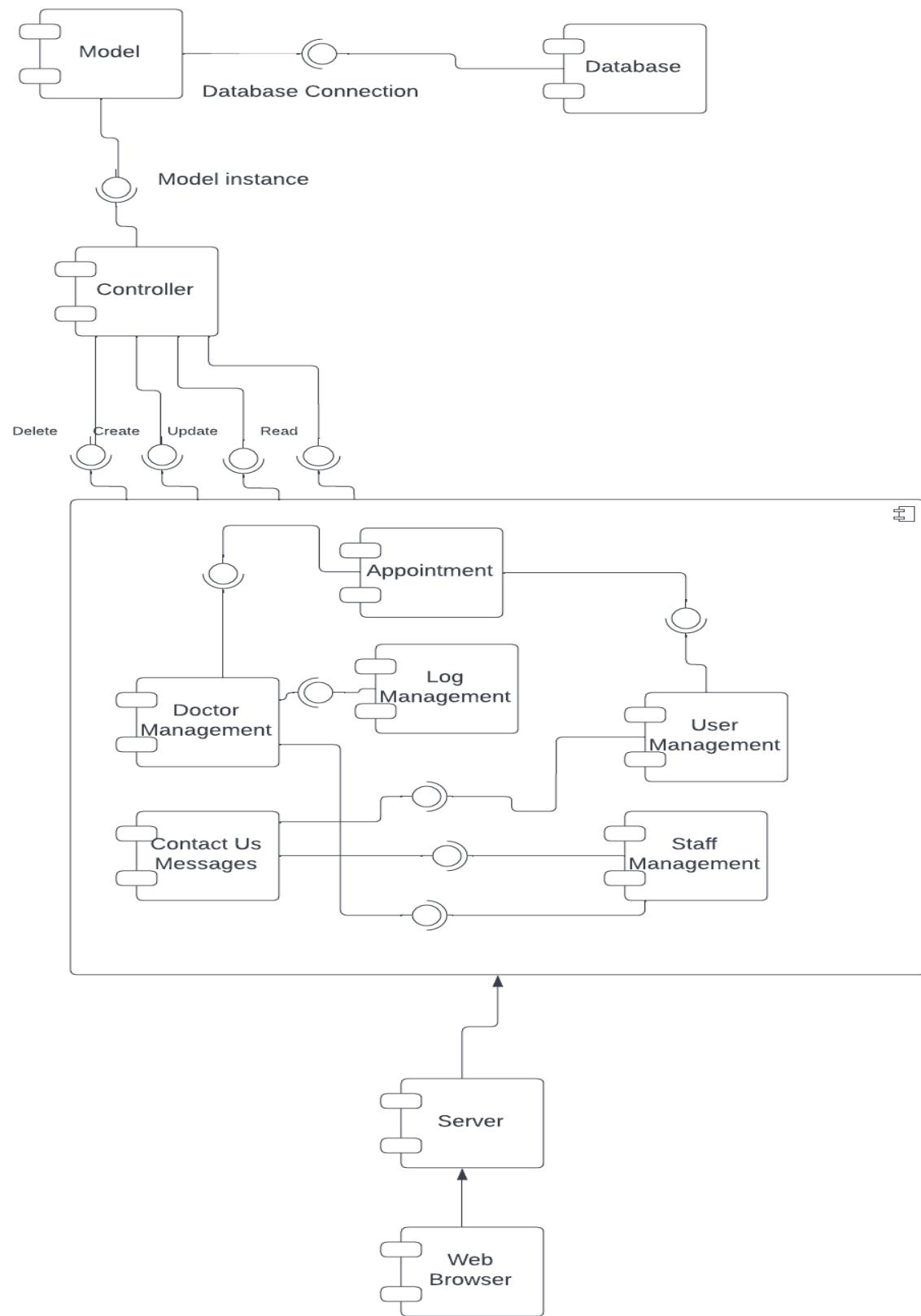


# **Hospital Management System Requirements Specification**

- RS



#### 4.12 Component Diagram

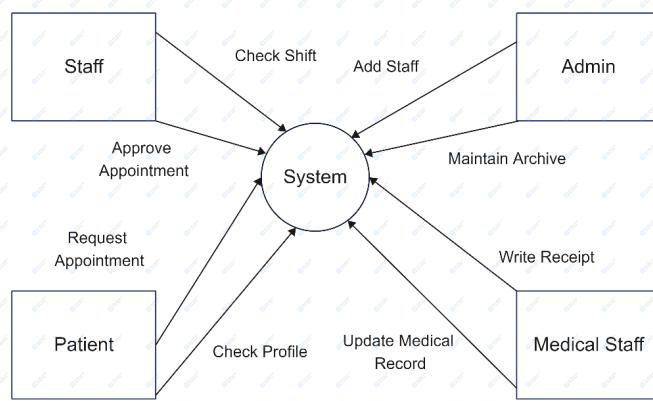


## Hospital Management System Requirements Specification

### 4.13 DFD

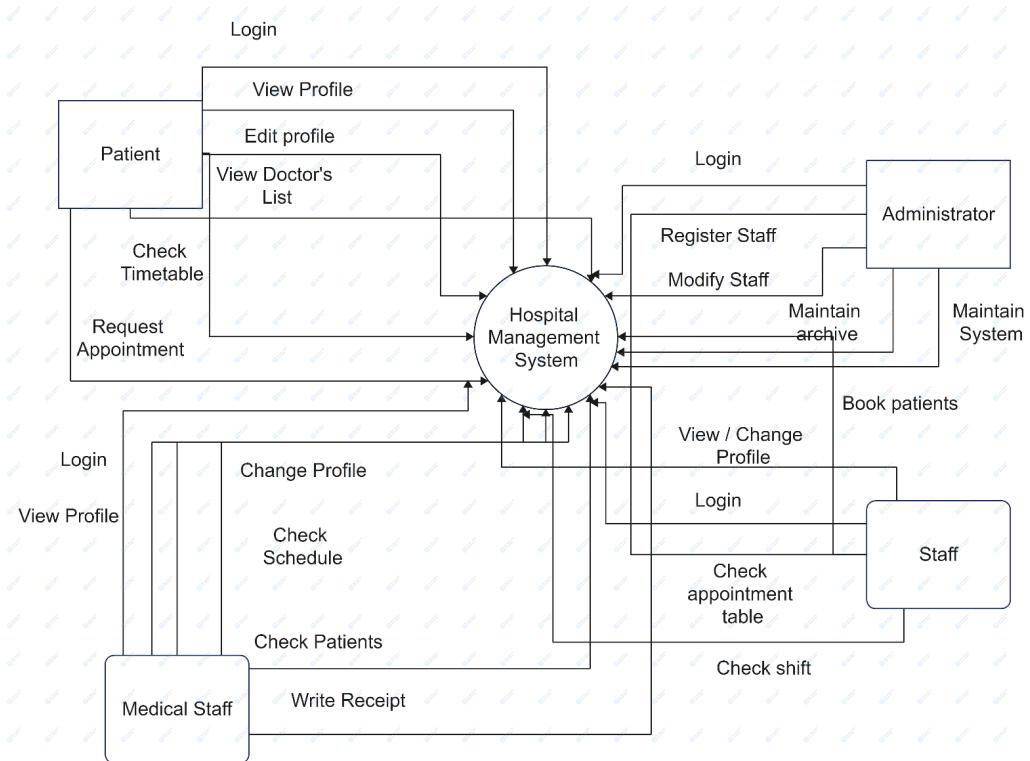
- Level 0

Trial Version  Wondershare EdrawMax



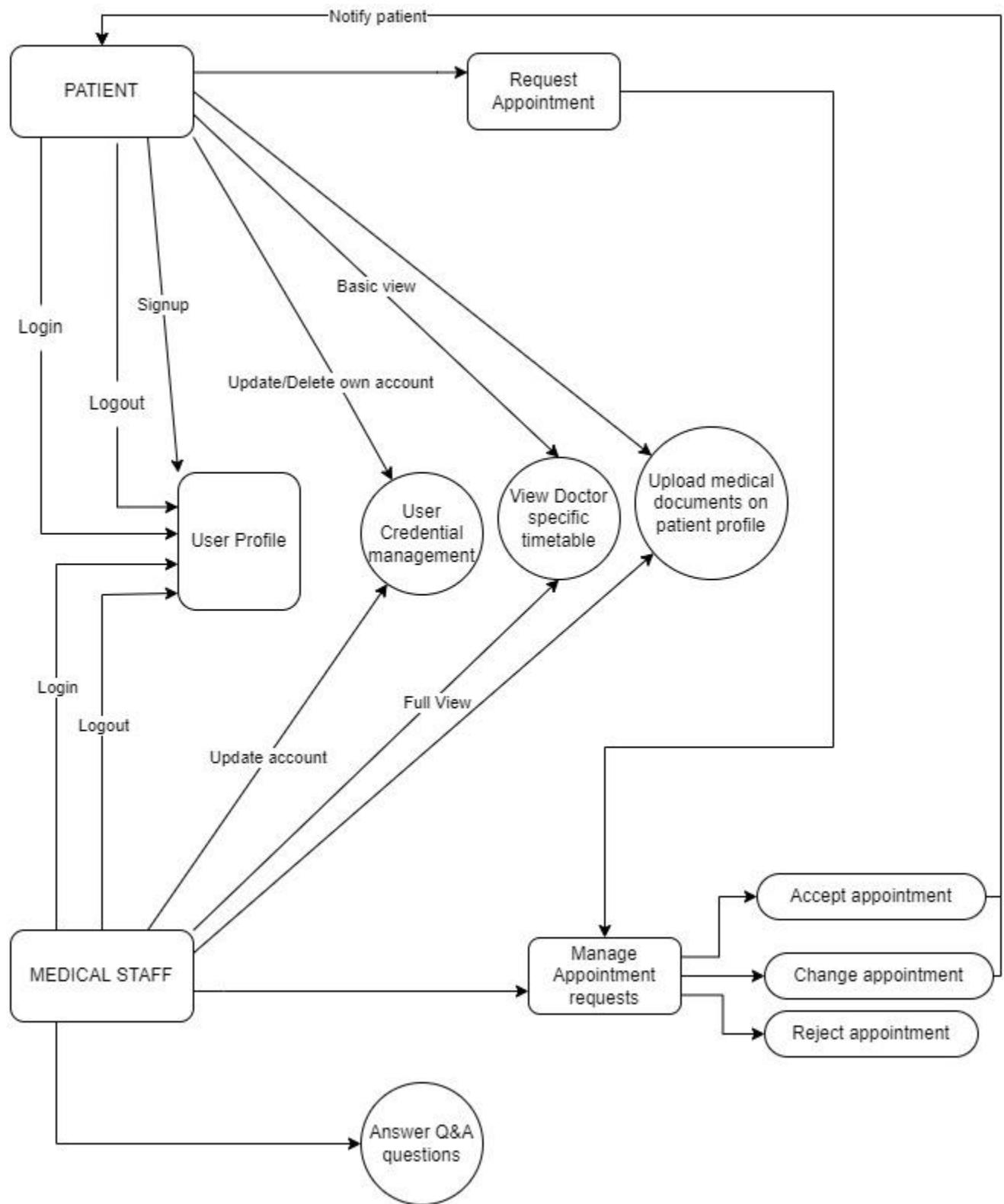
- Level 1

Trial Version  Wondershare EdrawMax



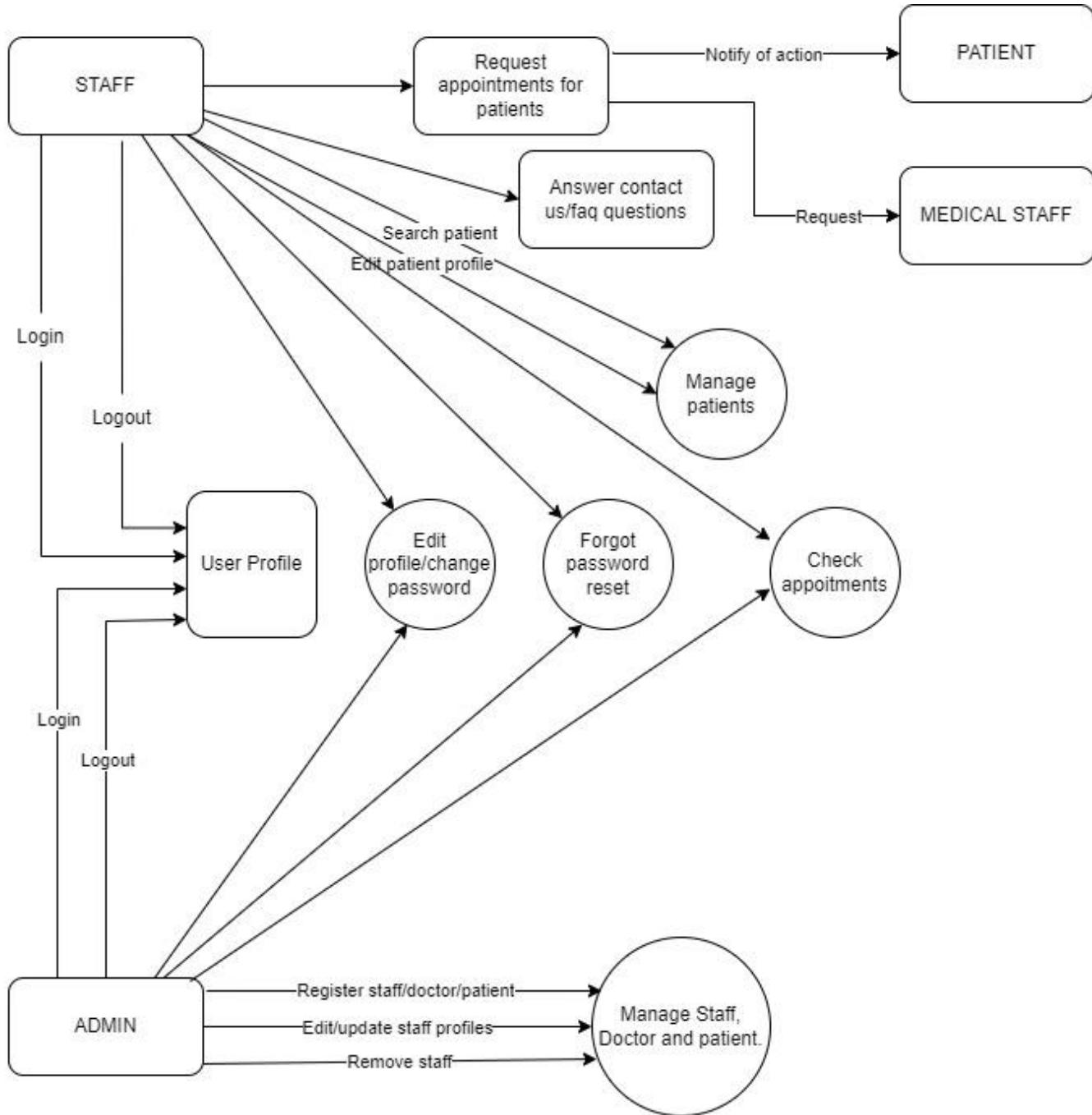
## Hospital Management System Requirements Specification

### - Level 2 - Patient/Doctor

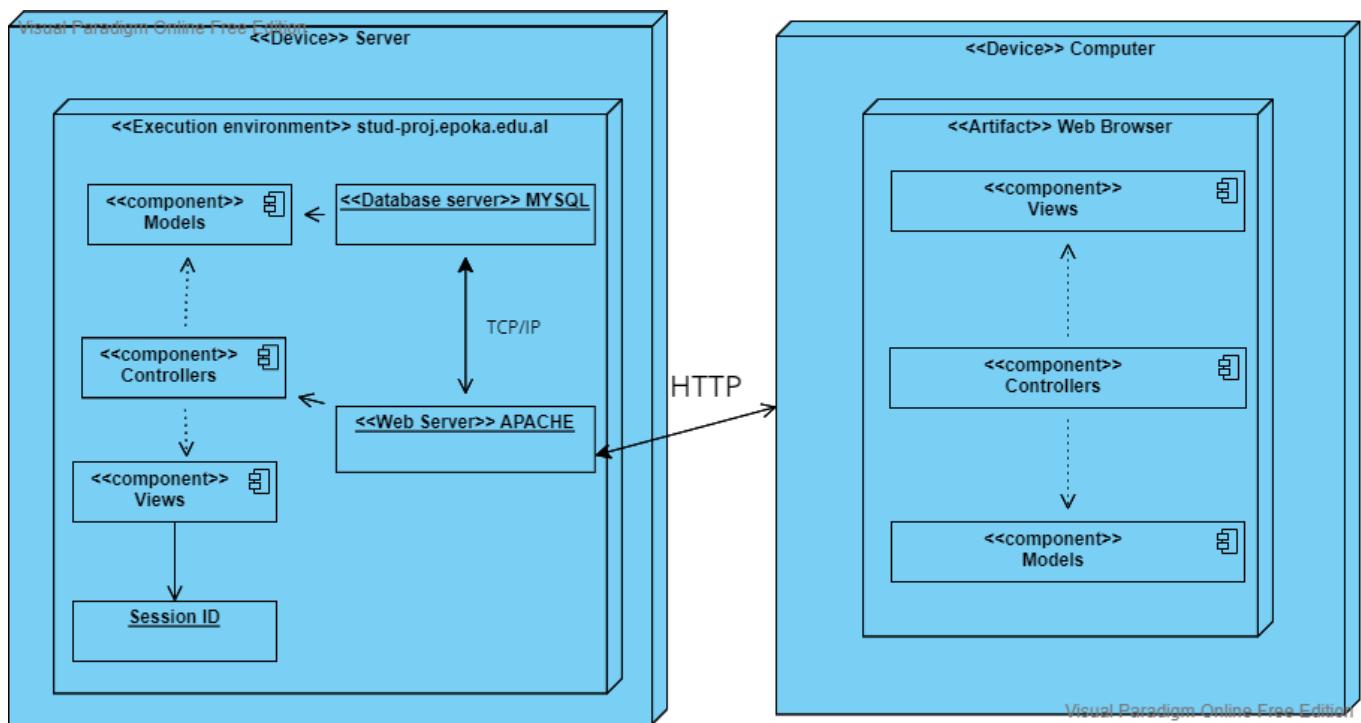


# **Hospital Management System Requirements Specification**

## - Level 2 - Staff/Admin



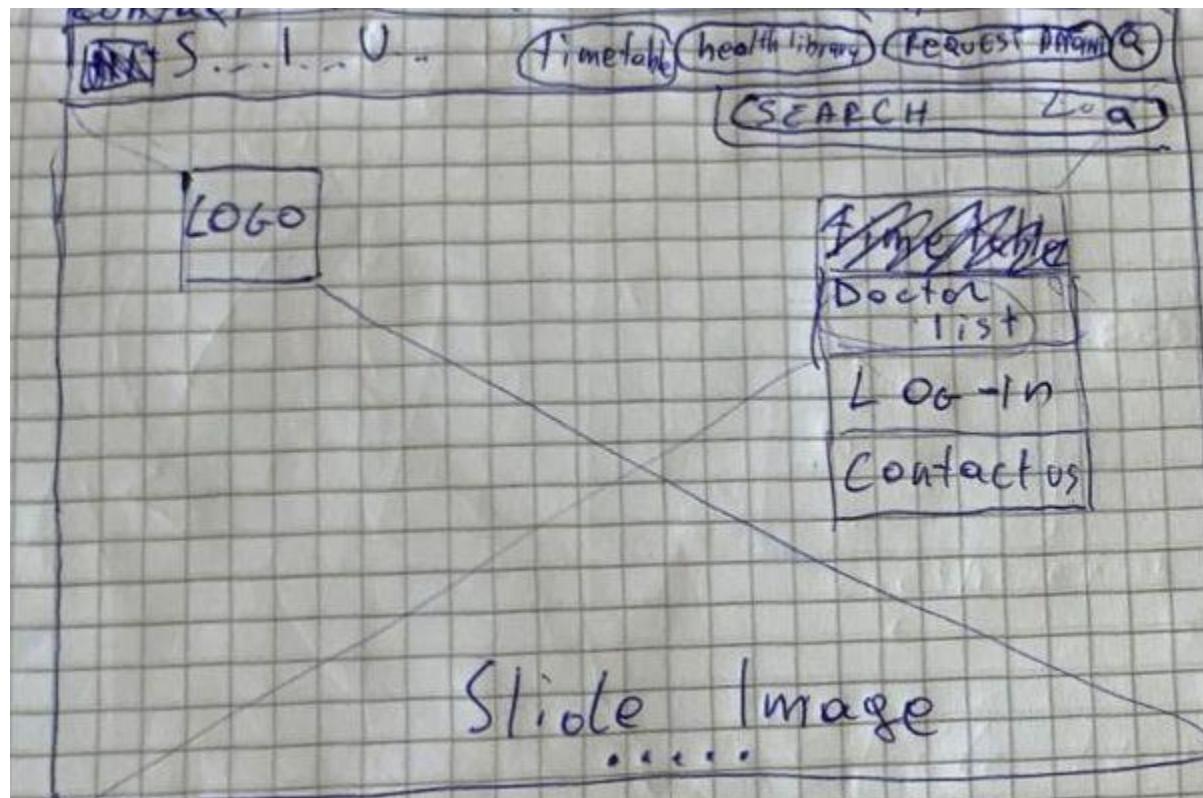
#### 4.14 Deployment Diagram



## 5. Appendix

### 5.1 Sketches

- front page



- Login/register

LOG IN.

SAME FRONT PAGE

REGISTER FORM

SAME HEADER

LOGIN

E-mail / phone numb  
PASS  
~~REMEMBER~~  
**LOGIN**

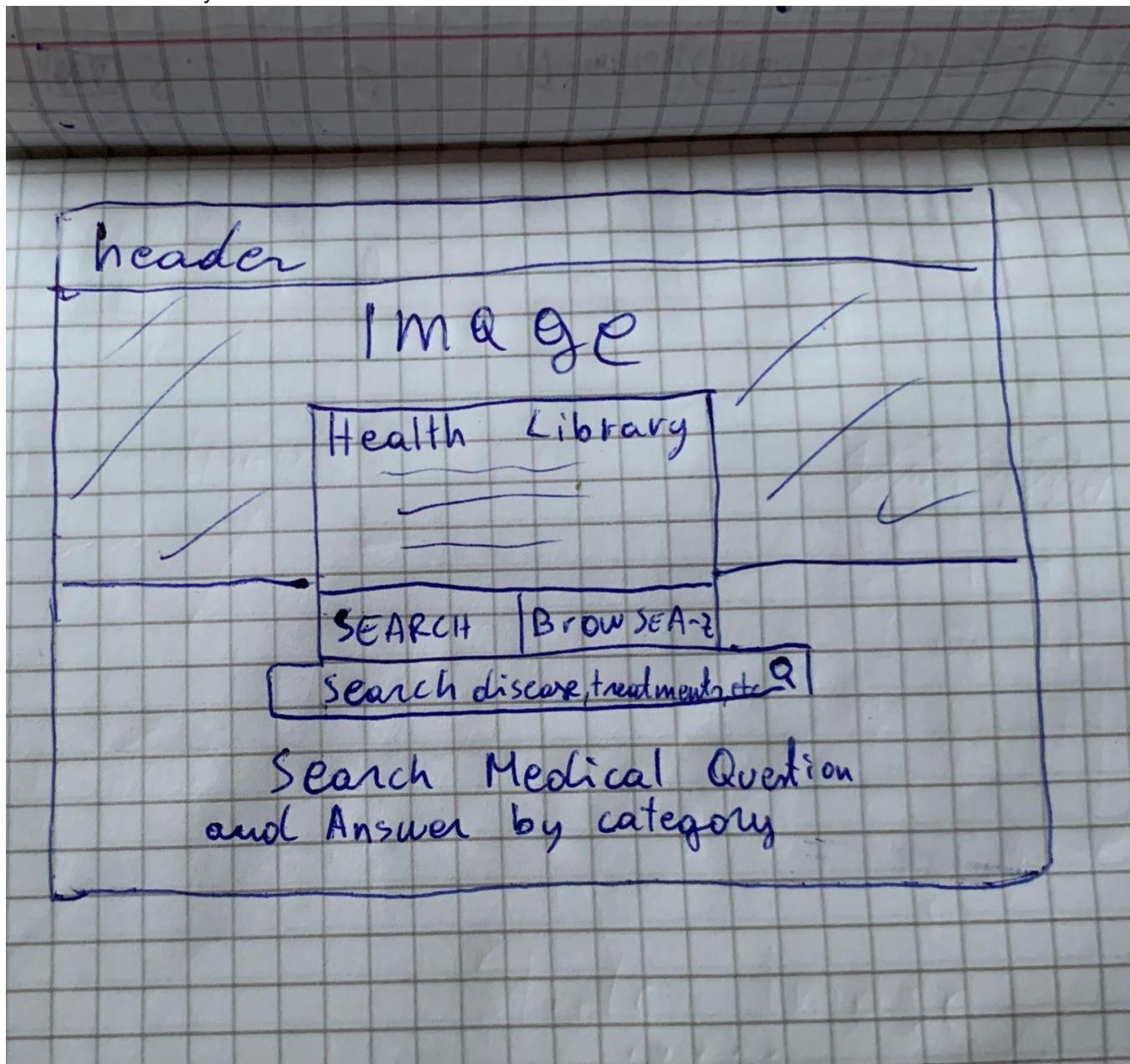
Forgot pass  
~~REGISTER~~

SIGN UP

Name  
Surname  
GENDER ▼  
Birthday ▼  
Email ~~RE~~  
Phone nr  
PASSWORD  
REENTER PASS

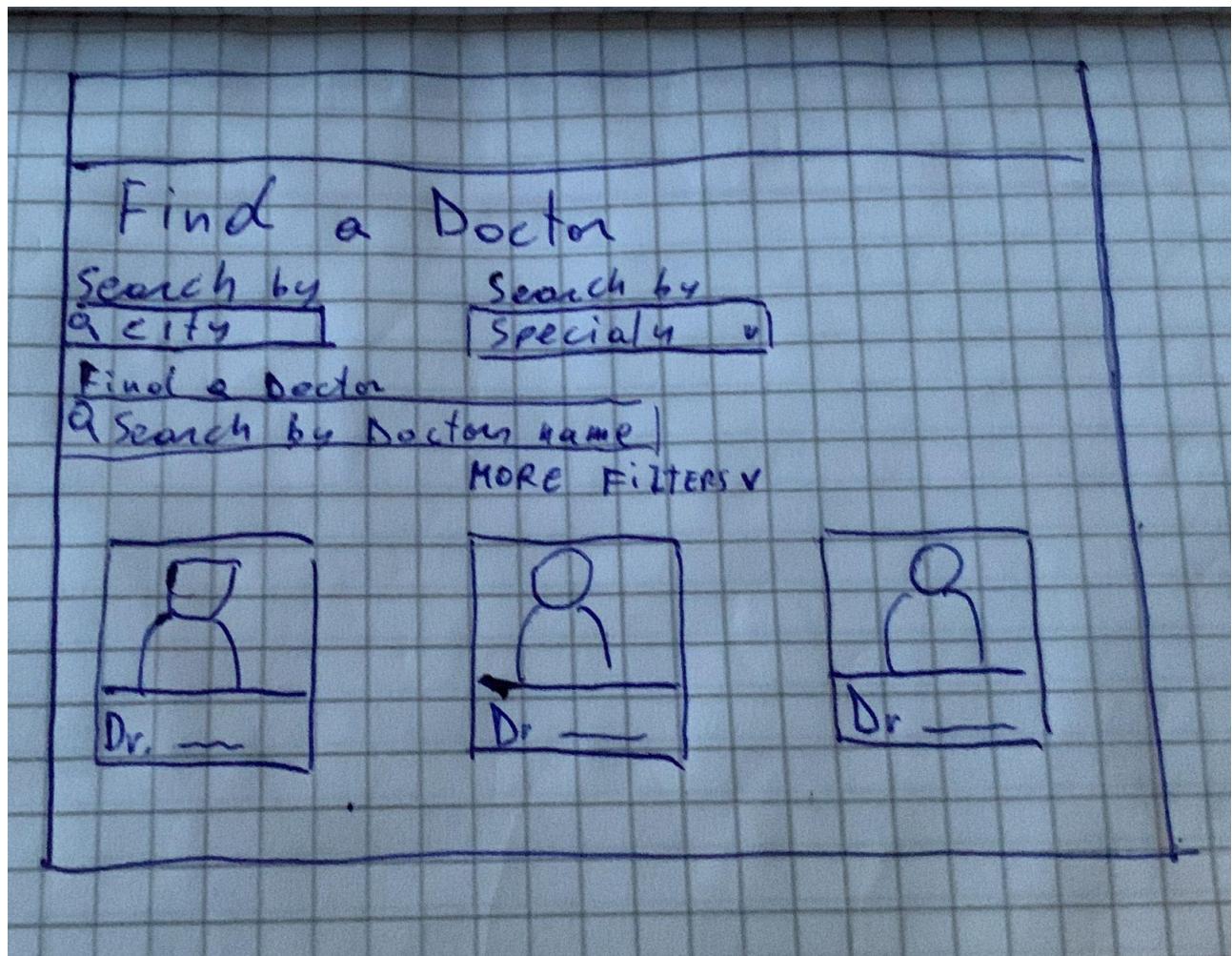
## Hospital Management System Requirements Specification

- Health library/ medical record



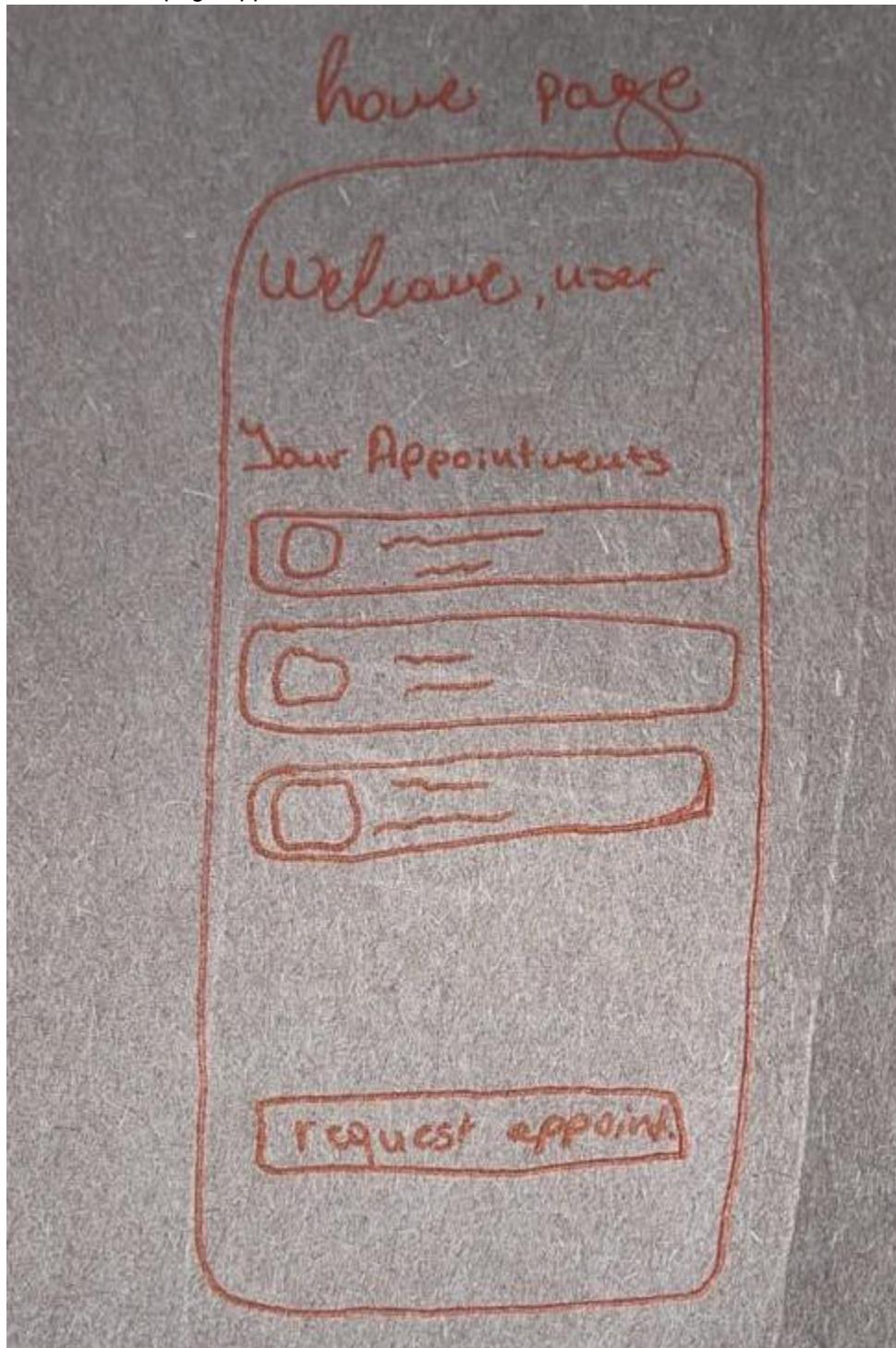
## Hospital Management System Requirements Specification

- Search doctor



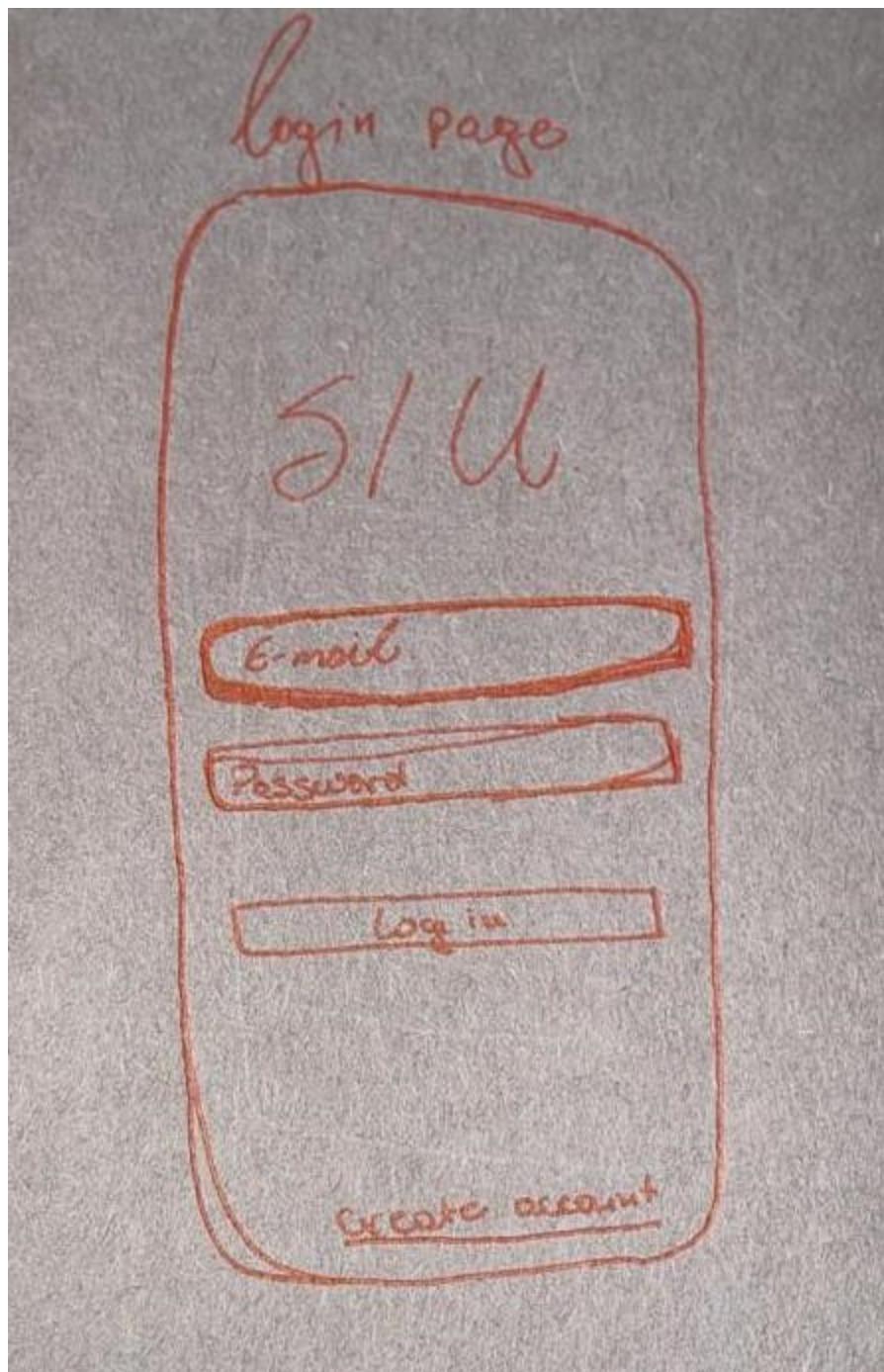
## Hospital Management System Requirements Specification

- Home page app



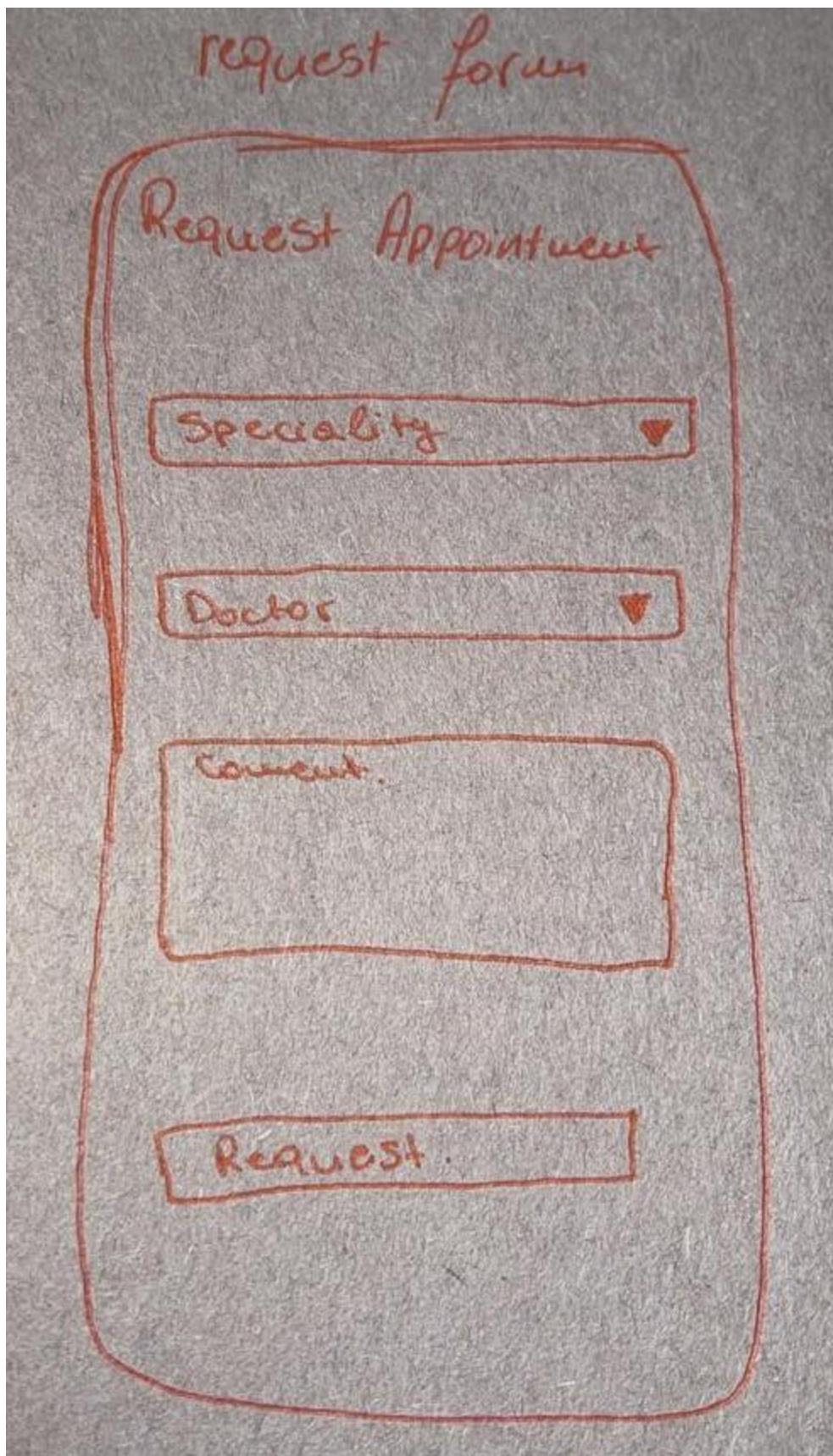
## **Hospital Management System Requirements Specification**

- login page app



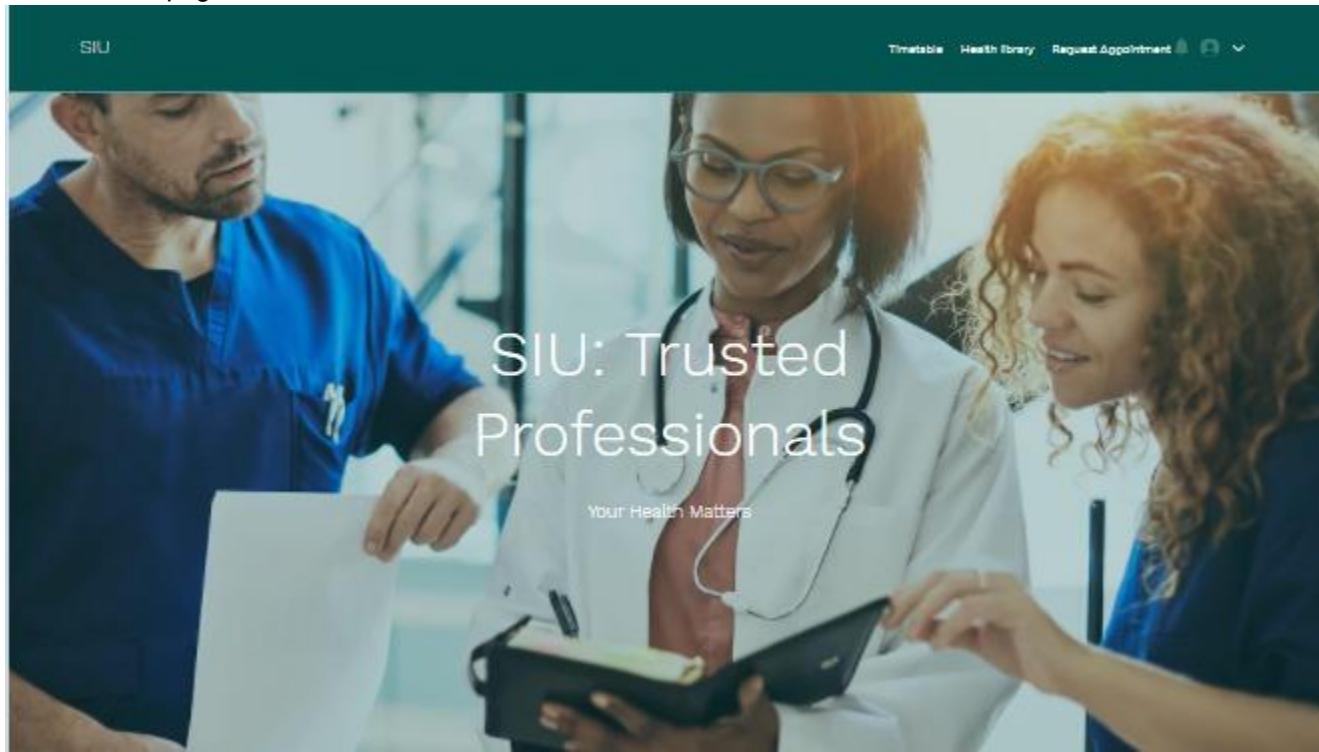
## ***Hospital Management System Requirements Specification***

- Appointment request form app



## **5.2 Prototype**

- Front page



## Hospital Management System Requirements Specification

- Health library /medical record /FAQ

The screenshot shows a web-based hospital management system. At the top, there's a dark green header bar with the letters "SIU" on the left and navigation links like "Timetable", "Health Library", "Request Appointment", "FAQ", and a user icon on the right. Below the header is a large, blurry photograph of a medical professional in a white coat and stethoscope interacting with a young child. Overlaid on the photo is the word "Health Library". In the center of the page, there are three white rectangular boxes containing questions. From left to right: "Do you offer emergency care services?", "What kinds of insurance do you accept?", and "How do I pay my bill?". Each question has a corresponding text area below it where an answer can be entered.

SIU

Timetable Health Library Request Appointment FAQ

Health Library

Search Browse

Do you offer emergency care services?

Enter your answer here. Be thoughtful, write clearly and concisely, and consider adding written as well as visual examples. Go over what you've written to make sure that if it was the first time you were visiting this site, you'd understand your answer.

What kinds of insurance do you accept?

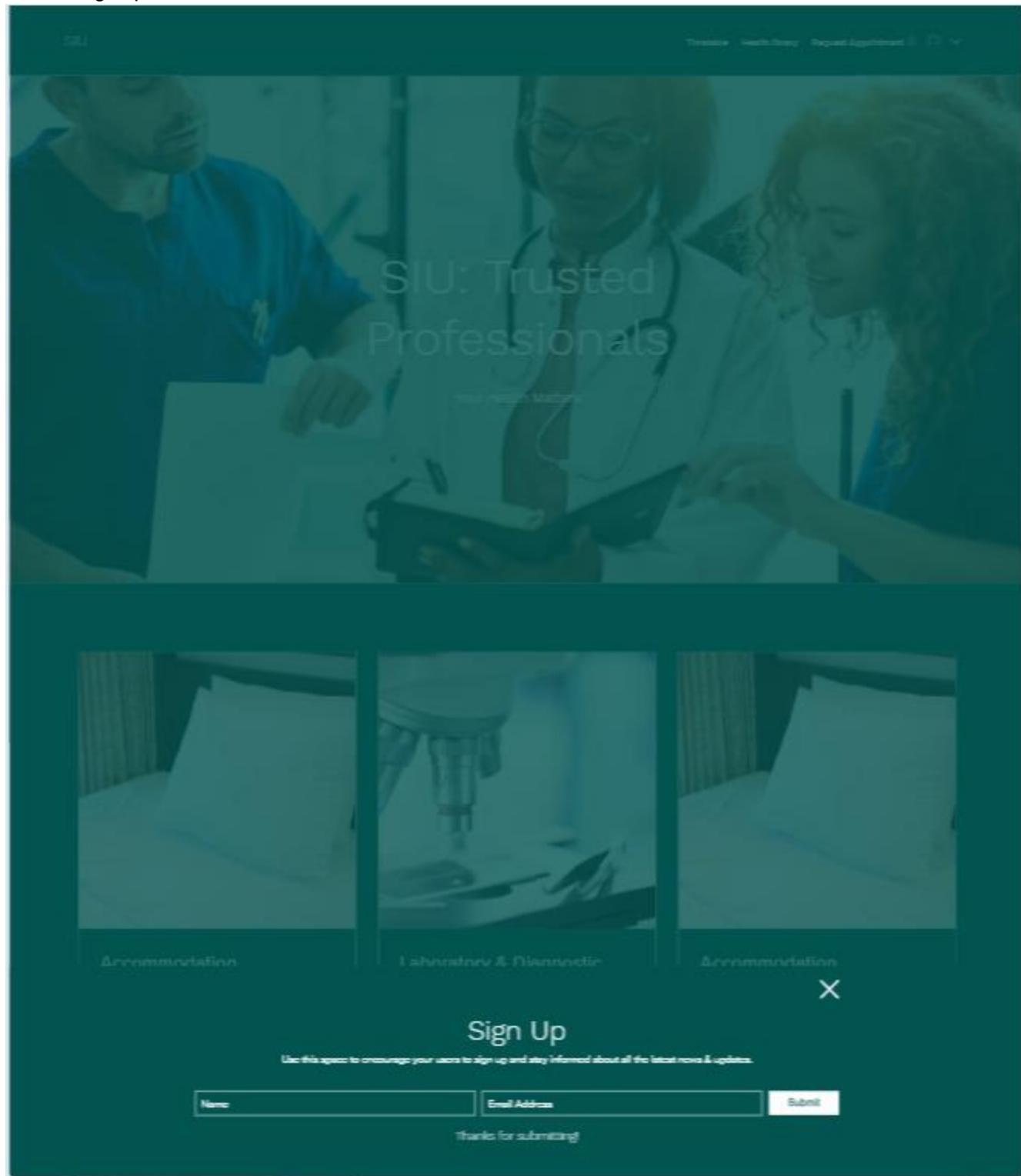
Enter your answer here. Be thoughtful, write clearly and concisely, and consider adding written as well as visual examples. Go over what you've written to make sure that if it was the first time you were visiting this site, you'd understand your answer.

How do I pay my bill?

Enter your answer here. Be thoughtful, write clearly and concisely, and consider adding written as well as visual examples. Go over what you've written to make sure that if it was the first time you were visiting this site, you'd understand your answer.

## Hospital Management System Requirements Specification

- Sign up



The image shows a screenshot of a web application for a Hospital Management System. At the top, there is a navigation bar with links for "Dashboard", "Health History", "Request Appointment", and "Logout". Below the navigation bar is a large banner featuring three healthcare professionals (two men and one woman) in a clinical setting. The banner has a semi-transparent overlay with the text "SIU: Trusted Professionals" and "Your Health Matters". Below the banner is a grid of three smaller images: "Accommodation", "Treatment & Diagnosis", and another "Accommodation". A "Sign Up" button is prominently displayed at the bottom, with a tooltip message: "Use this space to encourage your users to sign up and stay informed about all the latest news & updates." There are input fields for "Name" and "Email Address", and a "Submit" button. A success message "Thanks for submitting!" is visible below the form.

SIU

Dashboard Health History Request Appointment Logout

SIU: Trusted Professionals

Your Health Matters

Accommodation Treatment & Diagnosis Accommodation

Sign Up

Use this space to encourage your users to sign up and stay informed about all the latest news & updates.

Name Email Address Submit

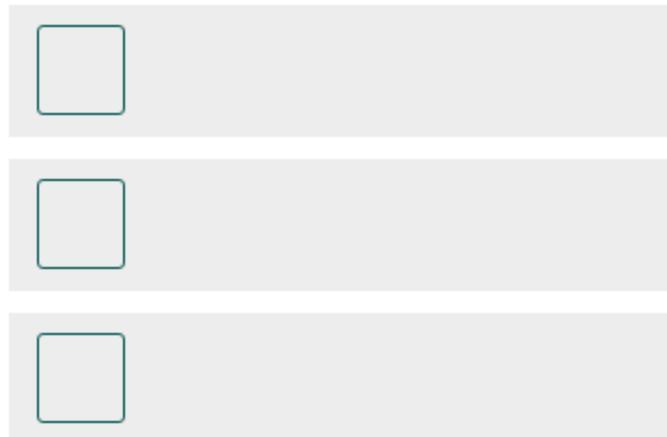
Thanks for submitting!

- landing page app

01:30     

# Welcome, User

## Your Appointments



**Request appointment**



- Login app

SJU

E-Mail

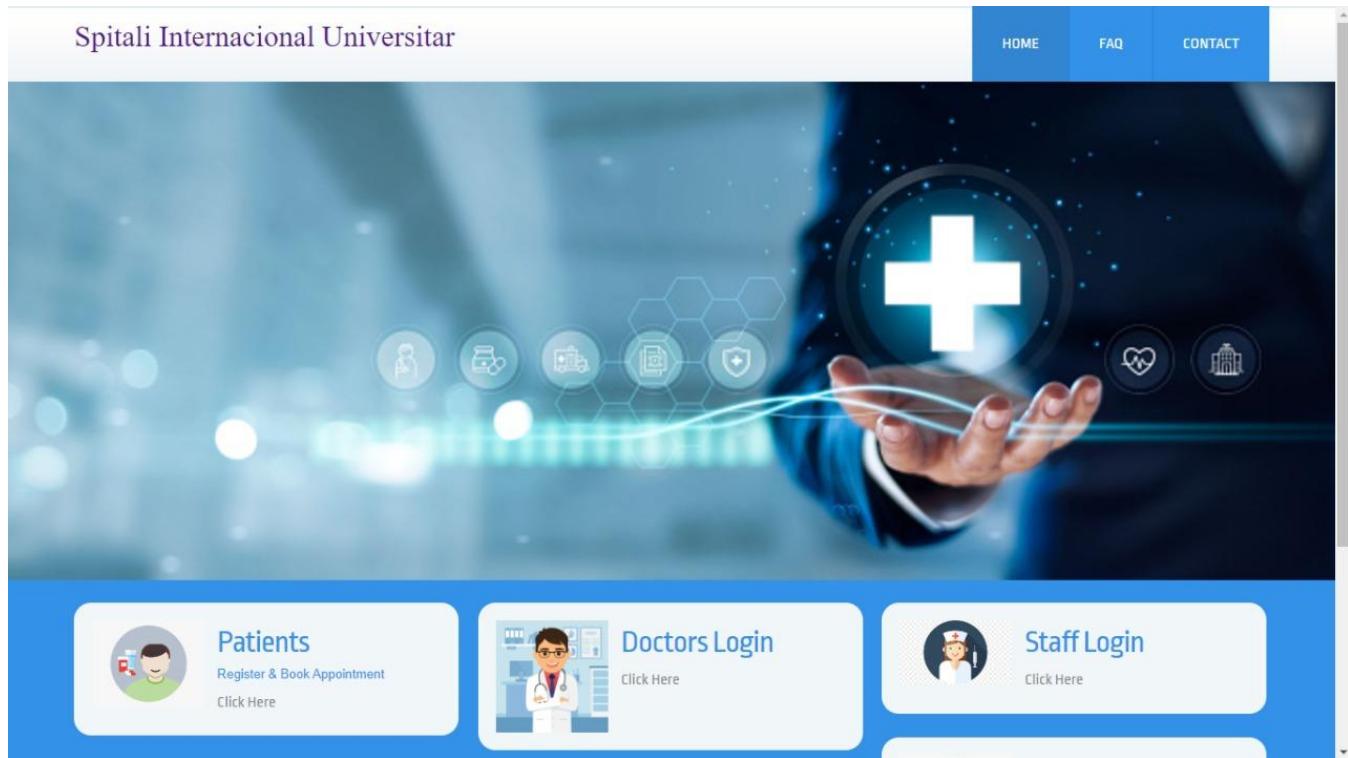
Password

Log-in

Create an account

### **5.3 Finished Webapp**

- Landing page



- Frequently asked questions

#### Frequently Asked Questions

This screenshot displays a frequently asked questions (FAQ) section. It consists of a list of questions, each preceded by a plus sign (+) which likely expands the question when clicked. The questions are:

- What are the covid symptoms?
- Will I be allowed to have visitors during my treatment?
- What information do I need to bring with me to the Hospital?
- Where can I donate blood?
- What happens if I am admitted?
- When will I receive my pain medication?
- Will my family be allowed to bring me food?
- What are the procedures involved in my discharge?

## Hospital Management System Requirements Specification

### - Contact us

The screenshot shows the 'Contact Us' page of the hospital management system. At the top, there is a header with the text 'Spitali International Universitar'. To the right of the header are two blue buttons labeled 'HOME' and 'FAQ'. Below the header, on the left, is a section titled 'Hospital Address:' containing the following details:  
Autostrada Tirane-Rinas,  
km. 12, 1000  
Albania  
Phone: 04 223 2086  
Email: [info@siu.com](mailto:info@siu.com)

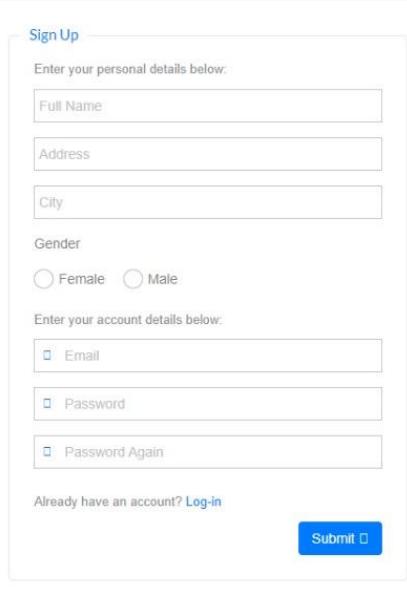
The main form area is titled 'Contact Us' and contains four input fields: 'NAME', 'E-MAIL', 'MOBILE.NO', and 'Description'. Below these fields is a blue 'SUBMIT' button.

### - Patient login

The screenshot shows the 'SIU | Patient Login' page. The title 'SIU | Patient Login' is at the top. Below it is a form titled 'Sign in to your account' with the instruction 'Please enter your name and password to log in.' It contains two input fields: 'Username' and 'Password', each preceded by a checkbox. Below the password field is a link 'Forgot Password?'. At the bottom of the form is a blue 'Login' button. At the very bottom, there is a note 'Don't have an account yet? [Create an account](#)'.

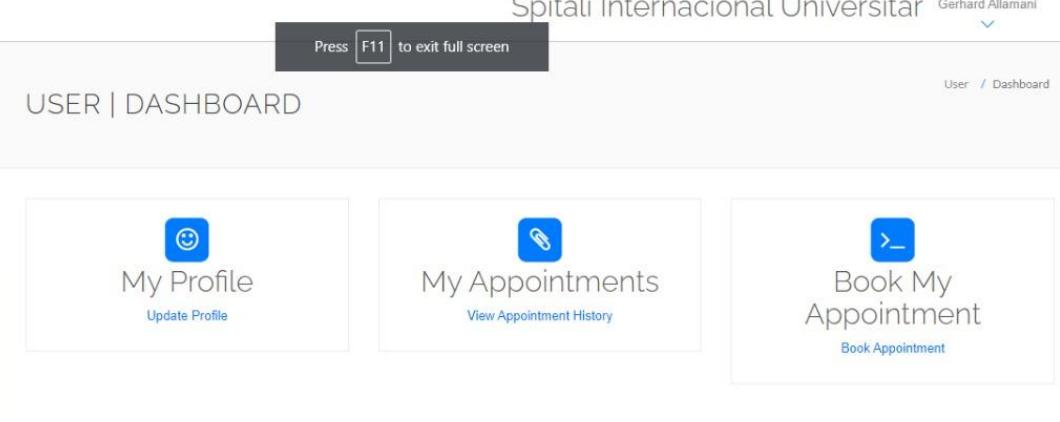
## Hospital Management System Requirements Specification

### - Patient registration



The screenshot shows the 'SIU | Patient Registration' form. At the top, there's a 'Sign Up' button. Below it, instructions say 'Enter your personal details below:' followed by three input fields for 'Full Name', 'Address', and 'City'. Under 'Gender', there are two radio buttons: 'Female' and 'Male'. Below that, instructions say 'Enter your account details below:' followed by three input fields for 'Email', 'Password', and 'Password Again'. At the bottom left is a link 'Already have an account? Log-in' and a blue 'Submit' button.

### - User Dashboard



The screenshot shows the 'USER | DASHBOARD' page. At the top, there's a navigation bar with 'SIU' on the left, a menu icon in the center, and 'Spitali Internaciona Universitar Gerhard Allamani' on the right. A tooltip says 'Press F11 to exit full screen'. On the right, there are links for 'User / Dashboard'. On the left, a sidebar titled 'MAIN NAVIGATION' lists 'Dashboard', 'Book Appointment', 'Appointment History', and 'Medical History'. The main content area is titled 'USER | DASHBOARD' and contains three cards: 'My Profile' (with a smiley face icon), 'My Appointments' (with a clipboard icon), and 'Book My Appointment' (with a right-pointing arrow icon). Each card has a corresponding blue link below it: 'Update Profile', 'View Appointment History', and 'Book Appointment' respectively.

## Hospital Management System Requirements Specification

### - Edit profile

The screenshot shows the 'Edit Profile' page for Gerhard Allamani. The main navigation bar at the top includes 'SIU' and 'Spitali Internaciona Universitar'. The user's name 'Gerhard Allamani' is displayed with a dropdown arrow. The left sidebar has a 'MAIN NAVIGATION' section with links: Dashboard, Book Appointment, Appointment History, and Medical History. The main content area is titled 'Edit Profile' and shows 'Gerhard Allamani's Profile' with a registration date of 'Profile Reg. Date: 2022-06-15 20:30:34'. It contains fields for User Name (Gerhard Allamani), Address (Durres), City (Durres), Gender (male), and User Email (gallamani19@epoka.edu.al). A blue 'Update' button is at the bottom.

### - Change password

The screenshot shows the 'USER | CHANGE PASSWORD' page. The main navigation bar at the top includes 'SIU' and 'Spitali Internaciona Universitar'. The user's name 'Gerhard Allamani' is displayed with a dropdown arrow. The left sidebar has a 'MAIN NAVIGATION' section with links: Dashboard, Book Appointment, Appointment History, and Medical History. The main content area is titled 'USER | CHANGE PASSWORD' and shows a 'Change Password' form. It includes fields for Current Password (placeholder: Enter Current Password), New Password, and Confirm Password. A blue 'Submit' button is at the bottom. In the top right corner, there is a link 'User / Change Password'.

## Hospital Management System Requirements Specification

### - Doctor dashboard

The screenshot shows the 'DOCTOR | DASHBOARD' page. At the top right, it displays 'Spitali Internaciona Universitar Anisa Sinani Beqo'. On the far right, there's a dropdown menu showing 'User / Dashboard'. The main content area features two cards: 'My Profile' with a blue smiley face icon and 'Update Profile' link, and 'My Appointments' with a blue edit/pencil icon and 'View Appointment History' link.

### - Doctor edit profile

The screenshot shows the 'DOCTOR | EDIT DOCTOR DETAILS' page. At the top right, it displays 'Spitali Internaciona Universitar Anisa Sinani Beqo' and 'Doctor / Edit Doctor Details'. The main content area is titled 'Edit Doctor' and shows 'Anisa Sinani Beqo's Profile'. It includes fields for 'Profile Reg. Date: 2022-06-07 09:43:35' and 'Profile Last Updation Date: 0000-00-00 00:00:00'. Below this, there are several input fields: 'Doctor Specialization' (Gastroenterologist), 'Doctor Name' (Anisa Sinani Beqo), 'Doctor Clinic Address' (Durres), 'Doctor Contact no' (683925733), and 'Doctor Email' (abeqo@hms.com).

## Hospital Management System Requirements Specification

- Manage patients

The screenshot shows the 'DOCTOR | MANAGE PATIENTS' section. On the left is a sidebar with 'MAIN NAVIGATION' containing 'Dashboard', 'Appointment History', 'Patients', and 'Search'. The main area has a header 'Spitali Internaciona Universitar Anisa Sinani Beqo'. Below the header is a sub-header 'Doctor / Manage Patients'. The central part is titled 'Manage Patients' and displays a table with one row:

#	Patient Name	Patient Contact Number	Patient Gender	Creation Date	Updation Date	Action
1.	Gerhard Allamani	671234567	male	2022-06-15 20:41:53		<input checked="" type="checkbox"/>

- View patient

The screenshot shows the 'DOCTOR | MANAGE PATIENTS' section. The sidebar and header are identical to the previous screenshot. The main area has a sub-header 'Doctor / Manage Patients'. Below it, there are two sections: 'Patient Details' and 'Medical History'.

**Patient Details**

Patient Name	Gerhard Allamani	Patient Email	gallamani19@epoka.edu.al
Patient Mobile Number	671234567	Patient Address	Durres
Patient Gender	male	Patient Age	21
Patient Medical History(if any)	None	Patient Reg Date	2022-06-15 20:41:53

**Medical History**

#	Blood Pressure	Weight	Blood Sugar	Body Temperature	Medical Prescription	Visit Date

[Add Medical History](#)

## Hospital Management System Requirements Specification

- Add medical history/receipt

The screenshot shows the Spitali International Universitar application. On the left, there is a sidebar with a main navigation menu containing 'Dashboard', 'Appointment History', 'Patients', and 'Search'. The main content area has a header 'Spitali International Universitar' and a sub-header 'Anisa Sinani Beqo'. A modal window titled 'Add Medical History' is open. It contains fields for 'Blood Pressure', 'Blood Sugar', 'Weight', and 'Body Temperature', each with a corresponding input field. Below these fields is a section labeled 'Patient Name' with a dropdown menu showing 'gallamani19@epoka.edu.al'. Further down, there is a 'Prescription' section with a text area and a 'Medical Prescription' button. At the bottom right of the modal are 'Close' and 'Submit' buttons. In the background, there is a table with columns 'Medical Prescription' and 'Visit Date', showing a single row with the values 'gallamani19@epoka.edu.al' and '2022-06-15 20:41:53'.

- Book appointment

The screenshot shows the Spitali International Universitar application. On the left, there is a sidebar with a main navigation menu containing 'Dashboard', 'Book Appointment', 'Appointment History', and 'Medical History'. The main content area has a header 'Spitali International Universitar' and a sub-header 'Gerhard Allamani'. A modal window titled 'USER | BOOK APPOINTMENT' is open. It contains a 'Book Appointment' section with fields for 'Doctor Specialization' (set to 'Dermatologist'), 'Doctors' (set to 'Edlira Gramozzi'), 'Date' (set to '2022-06-23'), and 'Time' (set to '8:45 PM'). Below these fields is a 'Submit' button. In the background, there is a table with columns 'Medical Prescription' and 'Visit Date', showing a single row with the values 'gallamani19@epoka.edu.al' and '2022-06-15 20:41:53'.

## Hospital Management System Requirements Specification

### - Appointment history

The screenshot shows the SIU (Spitali Internaciona Universitar) interface. The top navigation bar includes the logo 'SIU' and the name 'Spitali Internaciona Universitar' along with a dropdown for 'Gerhard Allamani'. The main menu on the left is titled 'MAIN NAVIGATION' and lists 'Dashboard', 'Book Appointment', 'Appointment History', and 'Medical History'. The current page, 'USER | APPOINTMENT HISTORY', is displayed under the 'User / Appointment History' section. A table lists one appointment entry:

#	Doctor Name	Specialization	Consultancy Fee	Appointment Date / Time	Appointment Creation Date	Current Status	Action
1.	Armand Tare	Hematologist		2022-06-23 / 8:45 PM	2022-06-15 20:44:28	Active	<a href="#">Cancel</a>

### - Patient medical history

The screenshot shows the SIU (Spitali Internaciona Universitar) interface. The top navigation bar includes the logo 'SIU' and the name 'Spitali Internaciona Universitar' along with a dropdown for 'Gerhard Allamani'. The main menu on the left is titled 'MAIN NAVIGATION' and lists 'Dashboard', 'Book Appointment', 'Appointment History', and 'Medical History'. The current page, 'USERS | MEDICAL HISTORY', is displayed under the 'Users / View Medical History' section. A table lists one medical history entry:

#	Patient Name	Patient Contact Number	Patient Gender	Creation Date	Updation Date	Action
1.	Gerhard Allamani	671234567	male	2022-06-15 20:41:53		<a href="#">Edit</a>

## Hospital Management System Requirements Specification

### -Admin Dashboard

The screenshot shows the Admin Dashboard of the Hospital Management System. On the left is a vertical main navigation menu with options: Dashboard, Doctors, Staff, Users, Patients, Appointment History, Doctor Session Logs, User Session Logs, and Patient Search. The dashboard itself has a header "Spitali Internaciona Universitar Admin / Dashboard". Below the header are four cards: "Manage Users" (Total Users: 4), "Manage Doctors" (Total Doctors: 9), "Manage Patients" (Total Patients: 6), and "Appointments" (Total Appointments: 4).

### - Search Doctor

The screenshot shows the "Doctor Specialization" search page. The main navigation menu on the left includes Doctors under the "Doctors" category. The search interface has a search bar labeled "Enter Doctor Specialization" and a "Submit" button. Below the search interface is a table titled "Manage Doctor Specialization" with columns: #, Specialization, Creation Date, Updation Date, and Action. The table lists 9 entries:

#	Specialization	Creation Date	Updation Date	Action
1.	Gynecologist/Obstetrician	2022-06-10 20:37:47	0000-00-00 00:00:00	
2.	Gastroenterologist	2022-06-10 20:37:47	0000-00-00 00:00:00	
3.	Dermatologist	2022-06-10 20:37:47	0000-00-00 00:00:00	
4.	Pathologist	2022-06-10 20:37:47	0000-00-00 00:00:00	
5.	Hematologist	2022-06-10 20:37:47	0000-00-00 00:00:00	
6.	Dentist	2022-06-10 20:37:47	0000-00-00 00:00:00	
7.	Ear-Nose-Throat (Ent) Specialist	2022-06-10 20:37:47	0000-00-00 00:00:00	
8.	Neurologist	2022-06-10 20:37:47	0000-00-00 00:00:00	
9.	Dermatologist	2022-06-10 20:37:47	2019-11-10 19:36:50	

## Hospital Management System Requirements Specification

- Admin add doctor

The screenshot shows the 'Add Doctor' form. The main navigation bar on the left includes 'Dashboard', 'Doctors', 'Staff', 'Users', 'Patients', 'Appointment History', 'Doctor Session Logs', 'User Session Logs', and 'Patient Search'. The top right corner shows the user 'Admin' and the clinic name 'Spitali International Universitar'. The form itself has fields for 'Doctor Specialization' (with placeholder 'Select Specialization'), 'Doctor Name' (placeholder 'Enter Doctor Name'), 'Doctor Clinic Address' (placeholder 'Enter Doctor Clinic Address'), 'Doctor Contact no' (placeholder 'Enter Doctor Contact no'), 'Doctor Email' (placeholder 'Enter Doctor Email id'), 'Password' (placeholder 'New Password'), and 'Confirm Password' (placeholder 'Confirm Password'). A 'Submit' button is at the bottom.

- Admin manage doctors

The screenshot shows the 'ADMIN | MANAGE DOCTORS' page. The main navigation bar on the left is identical to the previous screenshot. The top right corner shows 'Admin / Manage Doctors'. The page title is 'ADMIN | MANAGE DOCTORS'. Below it is a table titled 'Manage Doctors' with the following data:

#	Specialization	Doctor Name	Creation Date	Action
1.	Endocrinologist	Frederik Llamaj	2022-06-07 08:25:37	
2.	Pathologist	Sonida Como	2022-06-07 08:51:51	
3.	Gastroenterologist	Anisa Sinani Beqo	2022-06-07 09:43:35	
4.	Pathologist	Sinan Pasha	2022-06-07 09:45:09	
5.	Pathologist	Vilma Mano	2022-06-07 09:47:07	
6.	Hematologist	Armand Tare	2022-06-07 09:52:50	
7.	Cardiologist	Kristaq Prifti	2022-06-07 10:08:58	
8.	Neurologist	Albert Mamaj	2022-06-07 19:57:43	
9.	Dermatologist	Edlira Gramozi	2022-06-10 20:37:47	

## Hospital Management System Requirements Specification

### - View patients

Spitali Internaciona Universitar Admin

ADMIN | VIEW PATIENTS

View Patients

#	Patient Name	Patient Contact Number	Patient Gender	Creation Date	Updation Date	Action
1.	Armando Ristani	672093368	Male	2022-06-07 23:38:06		
2.	Dritan Idrizi	696814278	Male	2022-06-07 12:40:13		
3.	Aleksia Bega	699322912	Female	2022-06-07 12:49:41		
4.	Ioanna Rapo	693891320	Female	2022-06-07 16:33:54		
5.	Asllan Rusi	699322934	Male	2019-11-10 19:49:24		
6.	Gerhard Allamani	671234567	male	2022-06-15 20:41:53		

### - Admin doctor session logs

Spitali Internaciona Universitar Admin

ADMIN | DOCTOR SESSION LOGS

Admin / Doctor Session Logs

#	User id	Username	User IP	Login time	Logout Time	Status
1.	3	abeqo@hms.com	::1	2022-06-15 20:36:41		Success
2.	3	abeqo@hms.com	::1	2022-06-15 20:38:34	15-06-2022 08:42:38 PM	Success
3.	3	abeqo@hms.com	::1	2022-06-15 20:44:59	15-06-2022 08:45:08 PM	Success
4.	3	abeqo@hms.com	::1	2022-06-15 20:51:10		Success
5.		fhoxha@hms.com	::1	2022-06-15 20:55:53		Failed
6.	3	abeqo@hms.com	::1	2022-06-15 20:55:59	16-06-2022 12:27:22 AM	Success

## Hospital Management System Requirements Specification

- Admin user logs

The screenshot shows the 'ADMIN | USER SESSION LOGS' page. At the top right, it says 'Spitali International Universitar Admin'. Below that is a breadcrumb navigation 'Admin / User Session Logs'. The main content area has a table with columns: #, User id, Username, User IP, Login time, Logout Time, and Status. There are 6 rows of data, all showing the same user ID (8) and IP (::1), with different login and logout times and a status of 'Success'.

#	User id	Username	User IP	Login time	Logout Time	Status
1.	8	gallamani19@epoka.edu.al	::1	2022-06-15 20:30:42	16-06-2022 12:05:18 AM	Success
2.	8	gallamani19@epoka.edu.al	::1	2022-06-15 20:35:26		Success
3.	8	gallamani19@epoka.edu.al	::1	2022-06-15 20:35:57	16-06-2022 12:06:33 AM	Success
4.	8	gallamani19@epoka.edu.al	::1	2022-06-15 20:37:16		Success
5.	8	gallamani19@epoka.edu.al	::1	2022-06-15 20:38:16	16-06-2022 12:08:26 AM	Success
6.	8	gallamani19@epoka.edu.al	::1	2022-06-15 20:42:47	16-06-2022 12:14:47 AM	Success

- Staff dashboard

The screenshot shows the 'STAFF | DASHBOARD' page. At the top right, it says 'Spitali International Universitar Fredi Hoxha'. Below that is a breadcrumb navigation 'Staff / Dashboard'. The main content area features four cards: 'Manage Users' (Total Users: 4), 'Appointments' (Total Appointments: 4), 'New Messages' (Total New Queries: 1), and 'Manage Patients' (Total Patients: 6).

## Hospital Management System Requirements Specification

- Staff manage unread queries

The screenshot shows the SIU (Spitali International Universitar) staff interface. The top navigation bar includes the logo 'SIU', the name 'Spitali International Universitar', and a user profile 'Fredi Hoxha'. The main content area is titled 'STAFF | MANAGE UNREAD QUERIES'. On the left, there is a 'MAIN NAVIGATION' sidebar with links: Dashboard, Users, Patients, Appointment History, User Session Logs, Contact us, and Patient Search. The main content area displays a table titled 'Manage Unread Queries' with one row:

#	Name	Email	Contact No.	Message	Action
1.	Besfort Molla	bmolla@gmail.com	687362829	Sample	

- Queries detail

The screenshot shows the SIU (Spitali International Universitar) staff interface. The top navigation bar includes the logo 'SIU', the name 'Spitali International Universitar', and a user profile 'Fredi Hoxha'. The main content area is titled 'STAFF | QUERY DETAILS'. On the left, there is a 'MAIN NAVIGATION' sidebar with links: Dashboard, Users, Patients, Appointment History, User Session Logs, Contact us, and Patient Search. The main content area displays a table titled 'Manage Query Details' with several fields:

Full Name	Aleksia Bega
Email Id	abega@gmail.com
Conatact Numner	699322912
Message	This is sample text for the test.
Staff Remark	Test Admin Remark
Last Updatation Date	2022-06-07 14:55:23