



Course Name : System Analysis And Design

Course Code : CSE471

Title of the Project: Mental Health Solution & Peaceful Mind

Group No. : 02

Group Members :

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Introduction :

As it is committed to bringing change, it keeps collaborating with researchers, practitioners, policy experts, legal advisers and others to make healthcare more accessible and inexpensive. Our mental health solution will aim to strengthen Bangladesh's whole healthcare ecosystem through guidance, education, research, and service. Both rural and urban areas of this nation will receive services from it and it will also work to educate people about the value of mental health. Our system is committed to promoting mental health awareness, eliminating social stigmas and ensuring that mental health services are accessible via digital platforms whenever and wherever needed. It also believes that mental health services should be socially integrated and should take a gender-inclusive approach. It thrives on working to change lives and heal many broken hearts and community leaders to provide the best comprehensive healthcare. In order to deliver the greatest all-encompassing healthcare, it continues to work in partnership with researchers, clinicians, policy experts, legal counsel, and other community leaders.

To raise awareness, our mental health system posts four to five instructive videos about physical and mental health each week on its Facebook page and YouTube channel. In order to provide top-notch service in every sector, it also collaborates with a large number of excellent but underappreciated doctors. It has been successful in promoting those under-the-radar yet highly qualified doctors by developing doctor profiles.

Motivation

Our society will become one in which mental health is accorded equal weight to physical health and mental disorders are fought with appropriate care and courage thanks to the hard and ongoing efforts of our mental healthcare system. Additionally, it aspires to provide local and international health care services. Its objective is to be conveniently reachable by everyone who requires medical assistance, whether it be mental or physical. Additionally, it genuinely wishes to promote mental health awareness, treat mental illnesses and end them. Our mental health system aspires to be the top national healthcare provider, offering superior all-inclusive medical care in 64 districts of Bangladesh. We will endeavour to eliminate superstitions and stigmas associated with mental disease from society and inspire individuals to battle mental disorders with compassion, bravery, and knowledge backed by scientific research. In the upcoming years, it aspires to be the peoples' top option for physical health services as well.

Project Scenario :

The web-based platform will mostly be used by patients, doctors, students, researchers etc who are willing to take advantage of this mental health system. Consequently, patients are the principal actors, while the doctors are secondary actors.

In this system, our programs focus merely on capturing information about health status and activities are linked directly to the activities of the client but it can offer bidirectional communication and health care providers can influence mental health behaviour changes and monitor mental disorder self-management in a context-sensitive way. Real time this system can make it possible to collect and

analyse such context-specific information to help individuals directly, without a time lag. Moreover, the administrator will have the access to handle all these things in the system.

❖ **Project Sponsor:**

- Ehsanul Islam, CEO, Sheba Pharmaceutecules & Researches LTD.
- Prof. Dr. Ibrahim Khaleq, Psychiatrist & Mental Health Specialist, Mental Hospital Pabna.
- Mohammad Shifatur Rahman, Researcher of Psychology, Dhaka University.

❖ **Business Need :**

This platform will offer affordable, on-demand, high-quality mental health care to help people feel better faster. Ensuring best clinical outcomes is at the heart of this platform's mission. Moreover, the care experts follow the latest and best science and evidence-based guidelines to make sure this platform is giving the best care possible on the patient's journey to wellness.

❖ **Business Requirements:**

- There will be mainly four types of users in the system : Patient, Doctor, Admin and Researcher.
- This Mental health and psychological support platform will showcase their field of services that will open to the public.
- Moreover, anyone can login/register in a chatbot and can communicate with the old patient, doctors as anonymous. From that they can get the proper information which they are looking for here.

- On the other hand, they can overview and read some articles regarding mental health from which they may get the solutions.
- Patients can take psychological therapy from radio podcasts.
- Doctors can register/login in this platform and they can be able to take appointments.
- Admin/register team can control the overall thing of the whole platform.
- Researchers can view this platform and by checking this they can get the idea regarding mental health issues from this platform.

❖ **Business Value:**

Conservative estimates of intangible value:

- This system will help people to maintain a good mental health and peaceful life where people get solutions to any type of psychological issues.
- This system also builds good communication between doctor, new patient , recovered patient and volunteer(like expert, new doctor, student of psychology and others) using chatbot.
- Patients can take appointments with doctors online or offline. For every appointment, a particular percentage will be deducted from the visiting amount and added to the system fund.
- People can read and write verified articles and share patients' real life mental situations and solutions.
- Expert psychiatrist can organise podcasts about patient mental health and overview from people about different issues.
- Researchers can get information of different types of psychological patient info from the survey and students can research about mental health and psychology from different perspectives.

Conservative estimates of tangible value :

- This platform will cut down the cost approximately 20% from the patient's appointment as the doctors get the chance to provide their service easily/remotely.
- Approximately 200000 taka can be generated from showing online advertisements and online podcasts.
- Patients can access the free article and podcasts from this platform. But there will be so many premium articles, podcasts and solutions which are helpful to earn a larger amount for the system.
- This platform will cut 30% approximately from the donations which they get from different organisations, companies and use them for the maintenance and future development of this platform.

❖ **Special Issues or Constraints:**

- People who do not have any idea about psychology can hamper the real activities of the system by giving wrong information or bad reviews. Admins will have to keep a close eye on this kind of disruptions to take immediate action by blocking them.
- Only verified and reputed articles and podcasts will be published for the people. Experts must verify those things from time to time. Otherwise weak and uninformative posts will disrupt the reputation of the system.
- Those who are not experts in technology will not get the benefit from this platform.

- As it is basically online based media, excessive use of this can also be the cause of physical disorders (like Digital eye strain, Psychological issues, headache, Musculoskeletal issues etc).

❖ Requirement Analysis

Functional Requirements:

1. Patient Account Management :

1.1. The system has a registration option where the patient can login by using their personal details and address. For registration, the patient must have used a valid email address.

1.2. Patients can change their password any time. But every time an otp verification code is sent to their email for the security purpose.

1.3. After the registration, patients can login to their dashboard by using their email address and password.

1.4. The system also has a password recovery system. There also exists an authentication system for the recovery option.

1.5. Patients Password must have a number, digit and special characters. Password length must have at least 8 characters. (ex. : name@2020, #robi789)

1.6. Patients can check the available doctors list of the nearest hospital and also be able to make an appointment.

1.7. The system has a chatbot option where the patients can communicate with others. They can get the fastest solution by the general people using this bot.

1.8. The system has an automated question answering option. By answering the question people can find a better understanding about their mental health.

1.9. Patients can give doctor feedback after the consultation and they also can book appointments by watching doctor reviews.

1.10. Patients can see online articles and online podcasts.

1.11. Email subscribers will get auto notification of their next appointment and after publishing new articles and podcasts.

1.12. Patients can pay money by our third party Bkash, Rocket, Nagad, Upay in online payment gateway.

1.4. The users can login to multiple devices at a time.

1.5. Users also can log out from all other devices at a time.

2. Doctors Account Management :

2.1. There will be a registration option where the doctors can be registered by the admin only.

2.2. The system has a different login option for the doctors where doctors can login by using their registered email and password.

2.3. There will be an option where doctors can give appointments to the patients.

2.4. The system has an online checkup option where doctors can watch the appointment and do check-up via zoom or google-meet link.

2.5. Doctors can give solutions to the patients by chatbot of the system if patients have any query and there will be a separate option for personal messaging.

2.6. There will be an option where doctors can give urgent checkup to the emergency patients without appointment.

2.7. As soon as the consultation is complete, the doctor will provide the online prescription for the patient to download instantly or later.

2.8. Doctors can get their consultation history and previous prescription digitally just in a few taps.

3. Authority Management :

3.1. The system has a different login option for the admin and authority.

3.2. Authorities can only register new doctors and fix their consultation hours and set the payment amount for every consultancy.

3.3. Authorities can delete and block any doctor or patient account for any circumstances.

3.4. Any article or podcasts must require the approval of the management team. Management team can decline publication of any new article or podcasts.

3.5. Authority can see all the patients and doctors data and their personal information.

3.6. Authorities can update any patients or doctors personal data and email any offer or new update by one email.

4. Researcher and Students Account :

4.1. Researchers can search for patients' psychological conditions and average ratio.

4.2. The system will give the flowchart of different types of patients mental health conditions.

4.3. Researchers can analyse human mental health by reading various journals and doctor portals from the system.

4.4. Researchers and students have the opportunity to communicate with patients(anonymous mood) to realise their present mental condition and how they overcome their past situations.

Non - Functional Requirements:

1. Operational :

1.1. Our application can run on every platform. Different designs are developed for desktop websites, mobile applications and iOS devices.

1.2. The system will have a user friendly interface where the users can take psychological support easily.

1.3. For the user's location, the system will use GPS or IP address .

2. Performance :

2.1. The system should not take more than 3 seconds to load the doctor list where the available doctors can be found.

2.2. The system will have a limit of 10000 simultaneous users so that no users are needed to wait for service at a time.

2.3. Efficient database management system will be used here to record all types of information within the app.

2.4. Our system has a weight control option where users can control the image resolution as they access data at low run time for better

performance.

3. Security :

3.1. Any users who make use of the system need to hold a valid email address.

3.2. Users, doctors and authority details are saved in different servers so that one can not access other's details.

3.3. Browsers will ask for a password every time with a new device while login to the website and must verify the two factor authentication.

3.4. Will ask for an inscription to avoid bots to login.

3.5. Our system has a password encryption system for all the users so that no one can get the user password.

4.Maintainability :

4.1. The system offers efficiency for data backup.

4.2. This system will track every mistake as well as keep a log of it.

4.3. After releasing a new version, automation propagates it to users.

5. Cultural and Political :

5.1. The system supports two languages : Bengali and English.

5.2. The system will not publish anything that contains any conflict and violence.

5.3. Advertisements that hurt any political or religious sentiments are not promoted.

5.4. System owner will not bear the responsibility regarding the treatment issues of any doctor.

6. Usability :

6.1. In our system the font size is much more efficient to read and flexible to

6.2. The theme of the system is very user friendly for users.

6.3. Our system is designed with simple architecture and proper clarity.

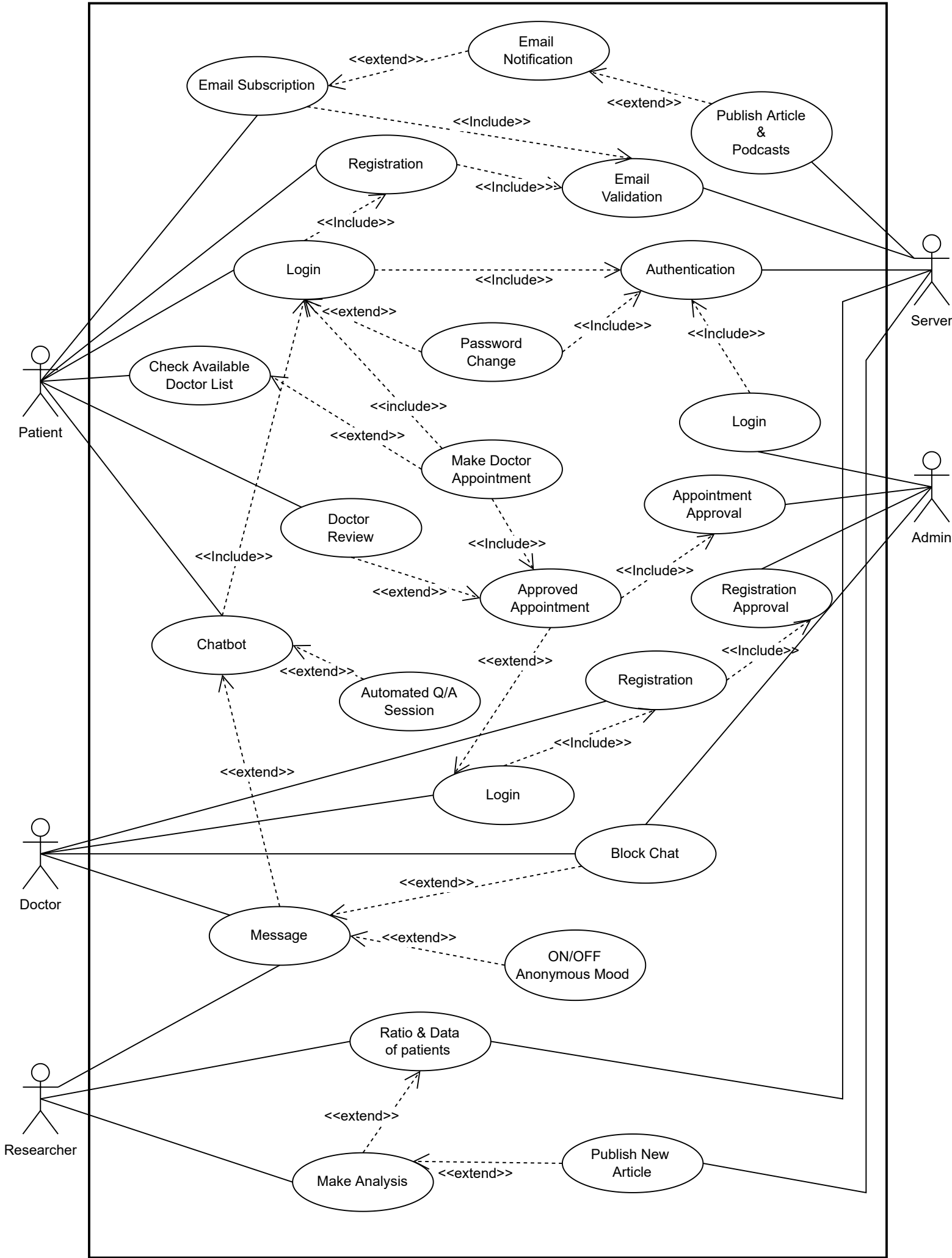
6.4. Information and content of our system is very sequential and easy to find faster.

6.5. Our system has an effective navigation system which works best and appears consistent on all browsers and platforms.

6.6. Patients can change their password any time. But every time an otp verification code is sent to their email for the security purpose.

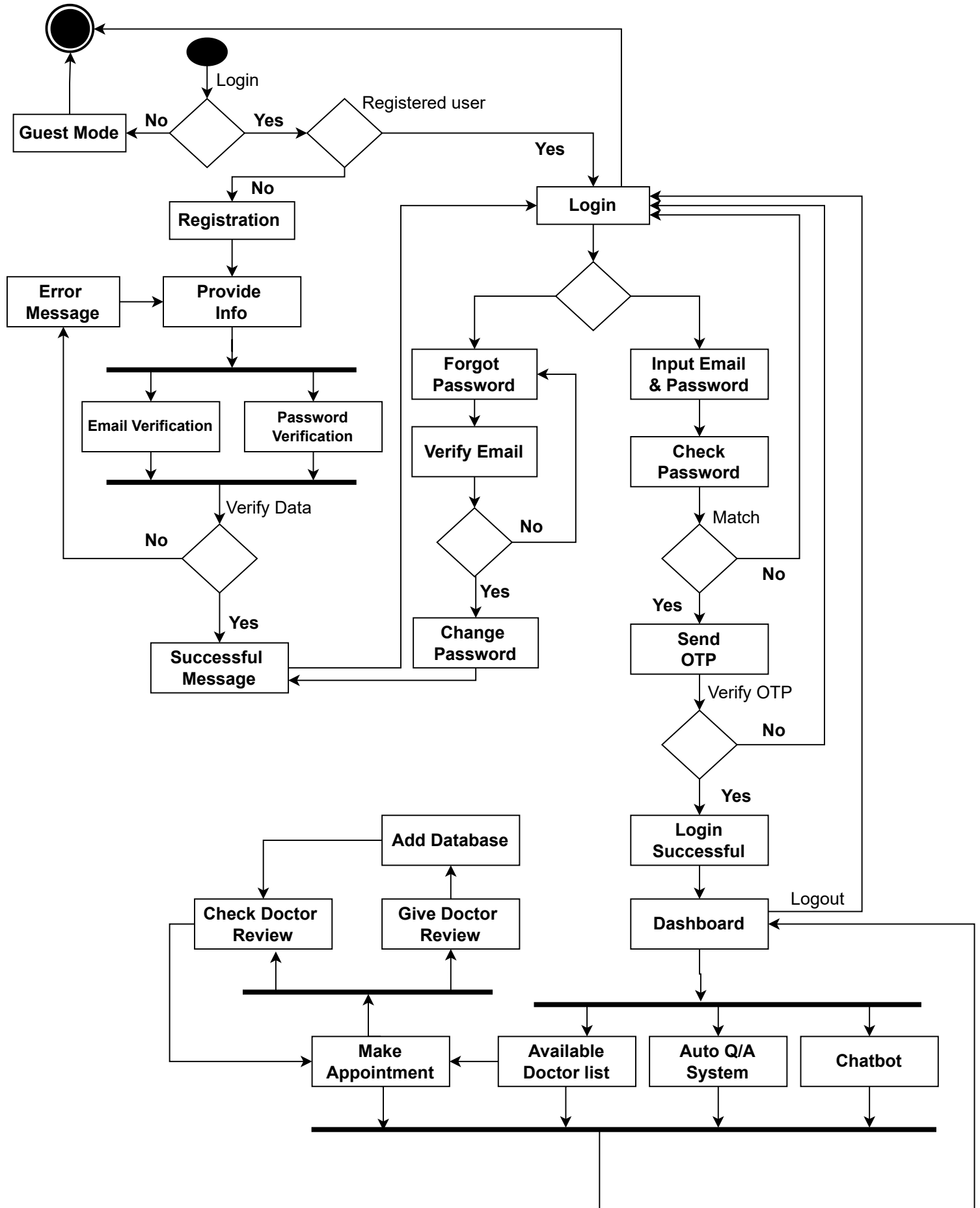
Use case Diagram : The use case diagram shows the system's operations from the viewpoint of the user without describing the system's structure. Use case diagrams represent the goals of system user interactions and define functional requirements in a system. It also specifies the context and requirements of a system and can model the basic flow of events in a use case.

Use Case Diagram : Mental Health Solution & Peaceful Mind

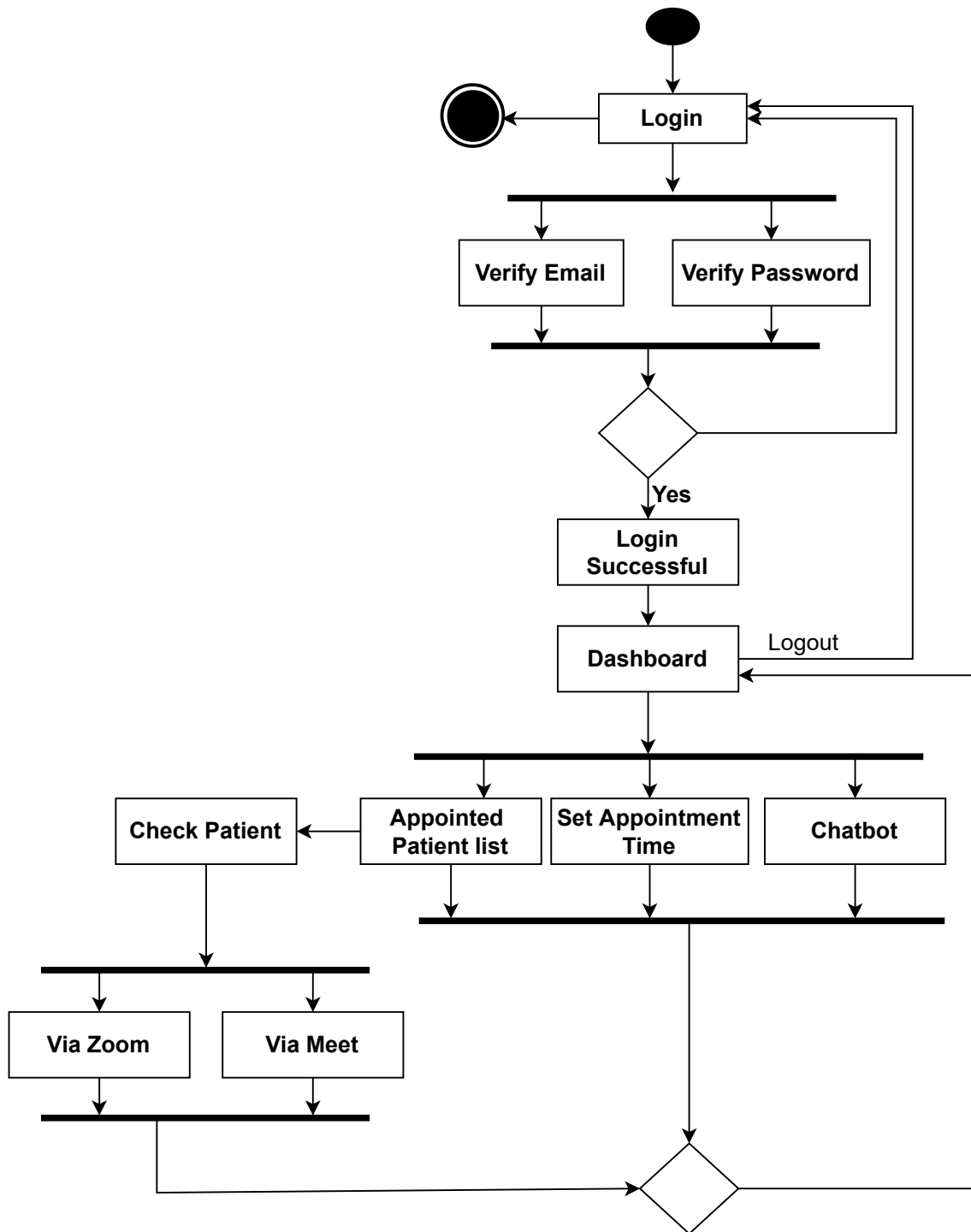


Activity Diagram : Activity diagram is another important behavioral diagram in UML diagram to describe dynamic aspects of the system. A flowchart used to represent the movement of activities inside a system is called an activity diagram. The following diagrams show the system's most crucial operations.

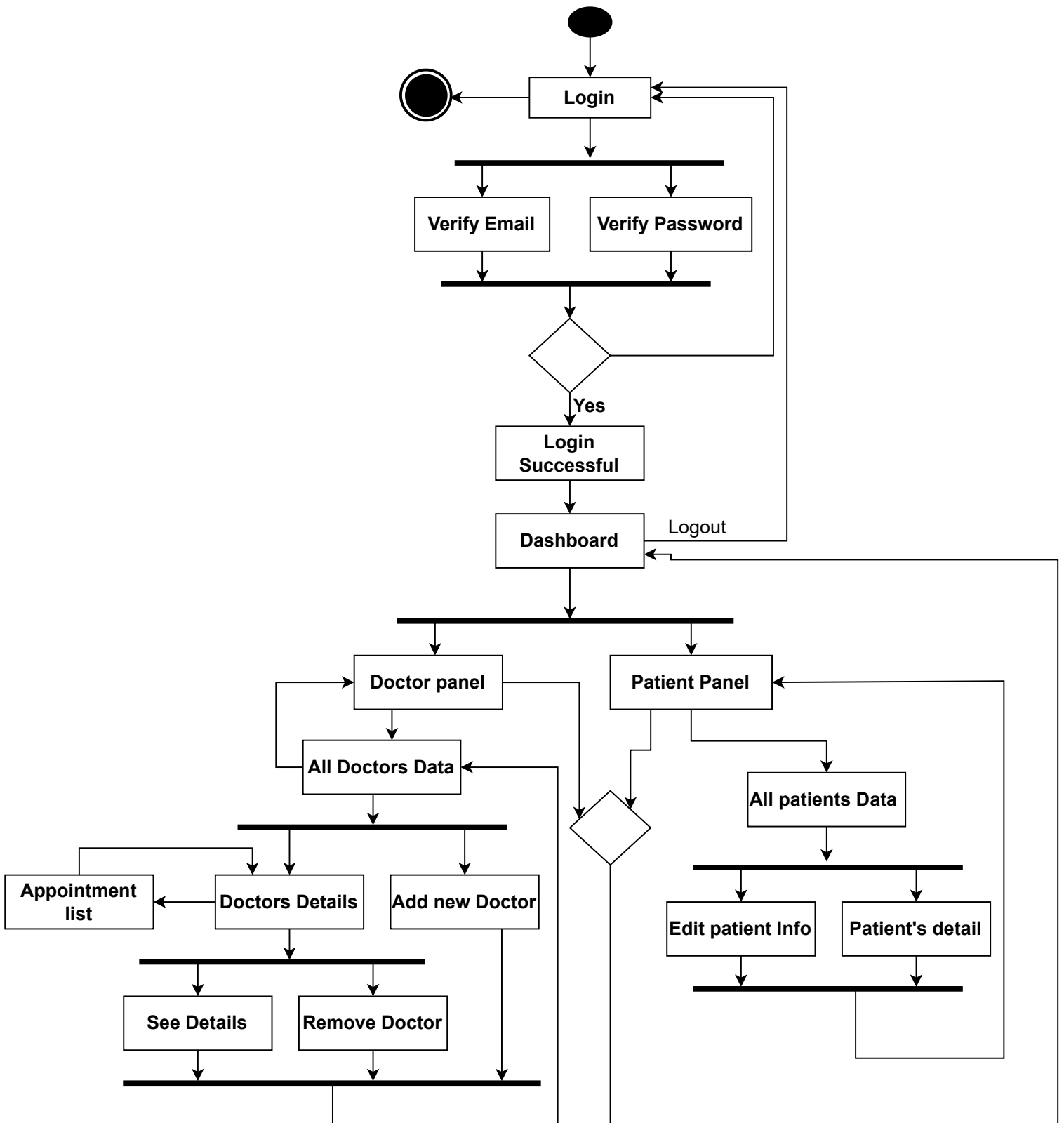
Activity Diagram for Patient



Activity Diagram for Doctor

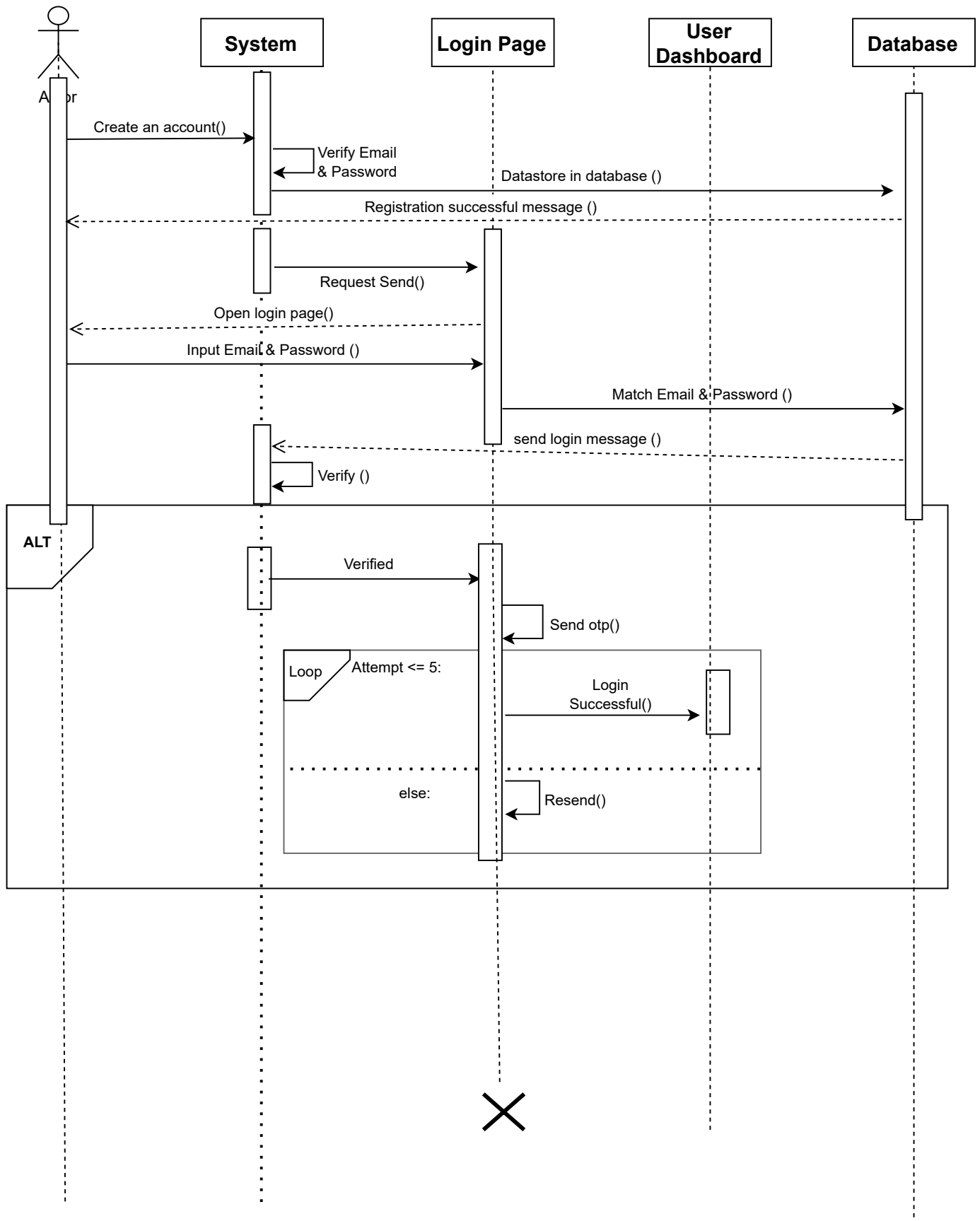


Activity Diagram for Admin

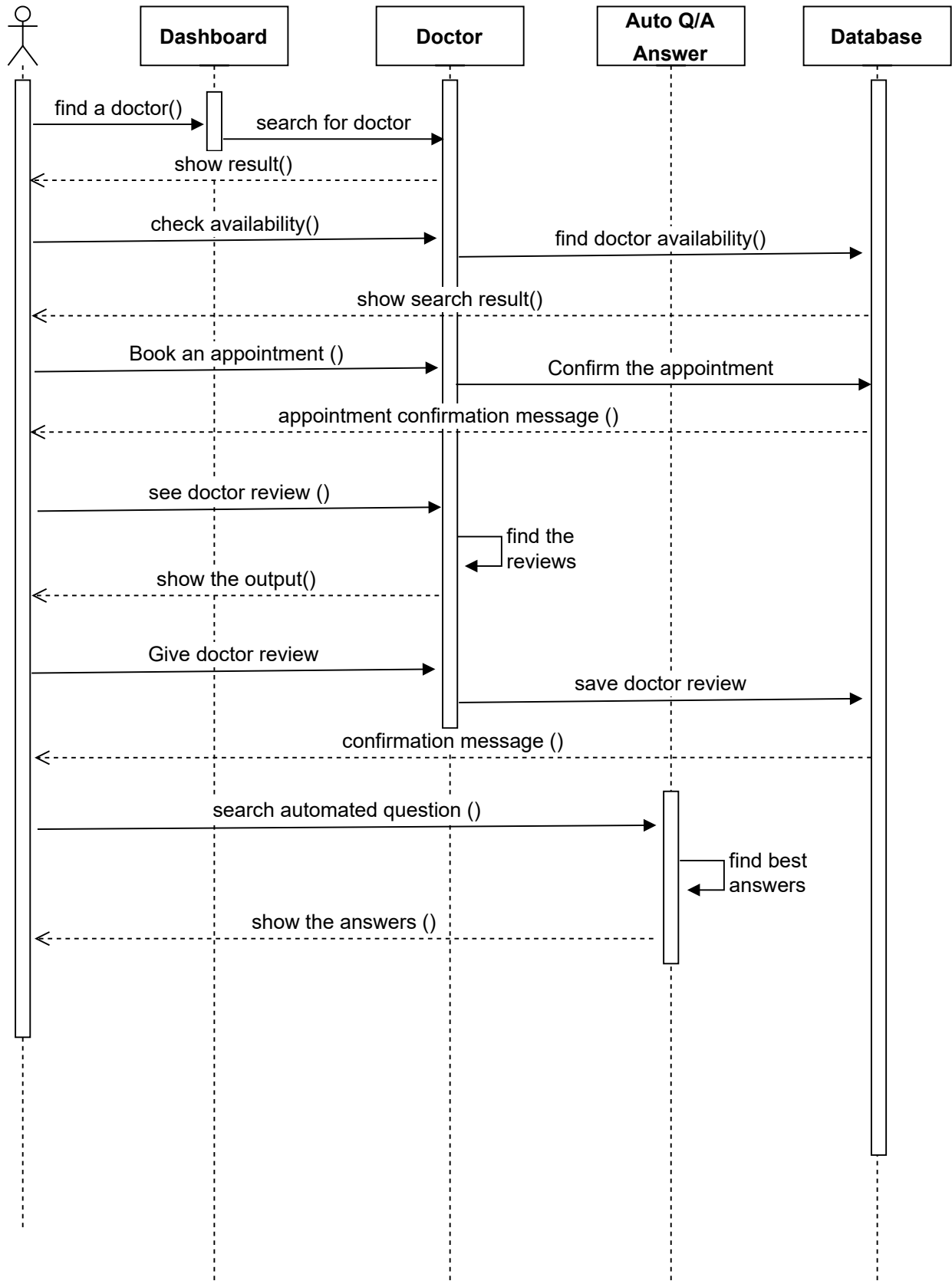


Sequence Diagram : A sequence diagram, a type of interaction diagram, demonstrates how and in what order a group of objects interact. A group of objects connected by lifelines, as well as the messages they send throughout the course of an interaction, make up a sequence diagram.

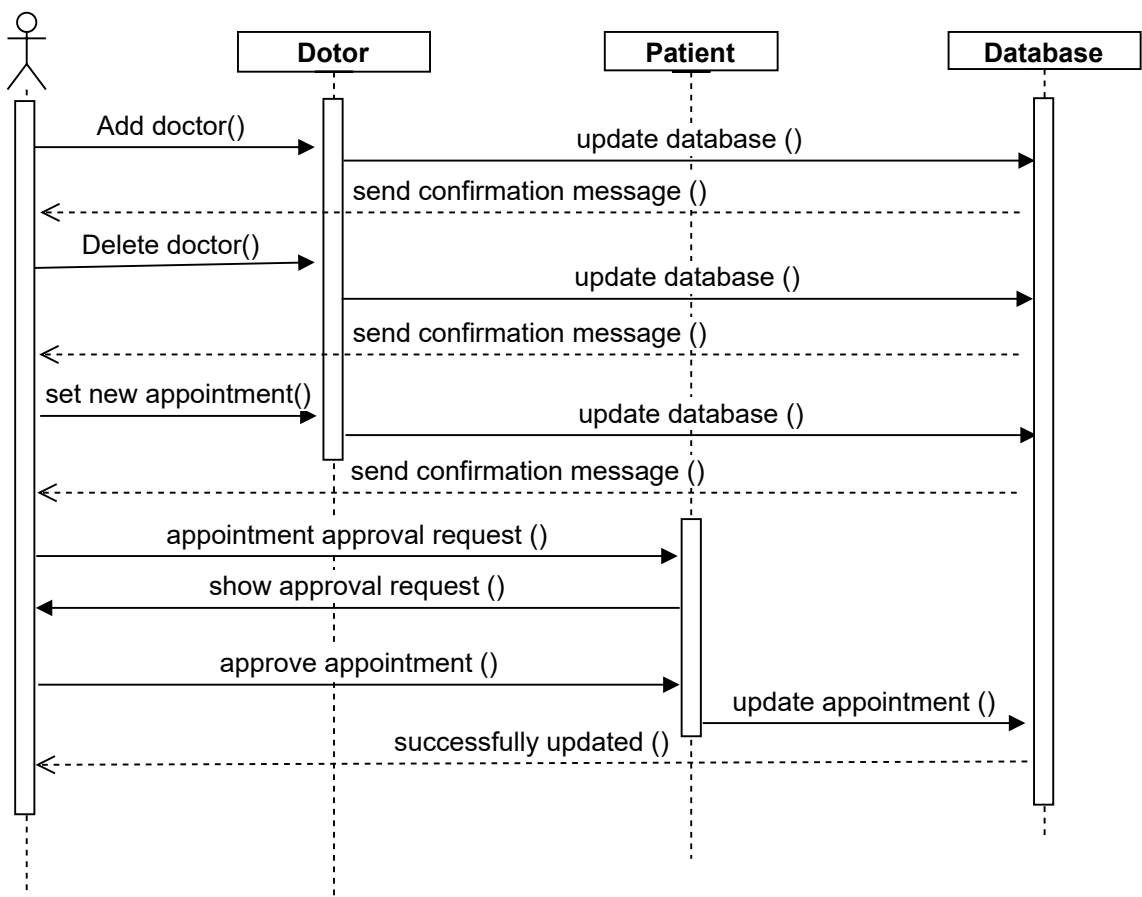
Sequence Diagram for Login and Registration



Sequence Diagram for patient panel

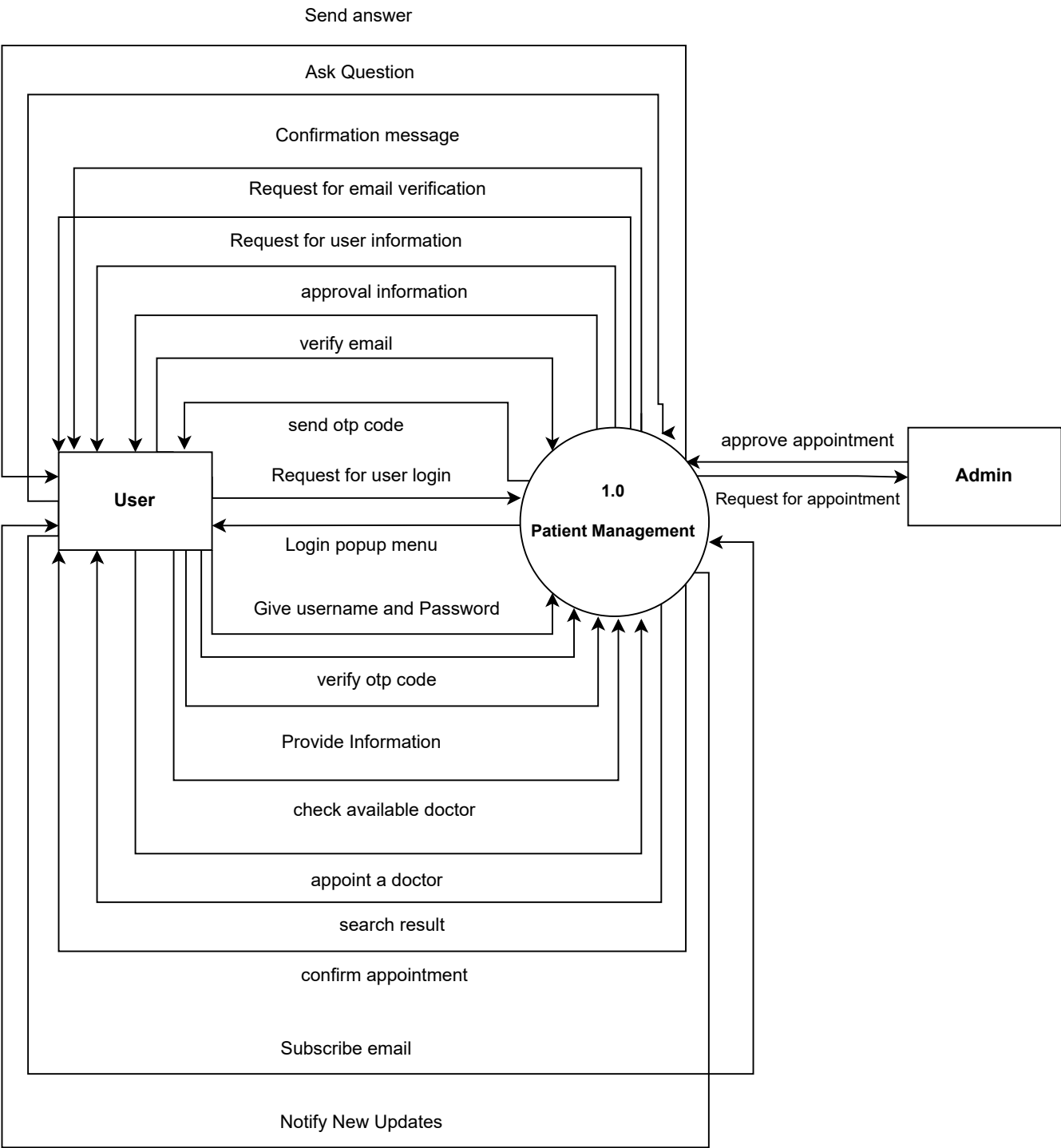


Sequence Diagram for admin panel

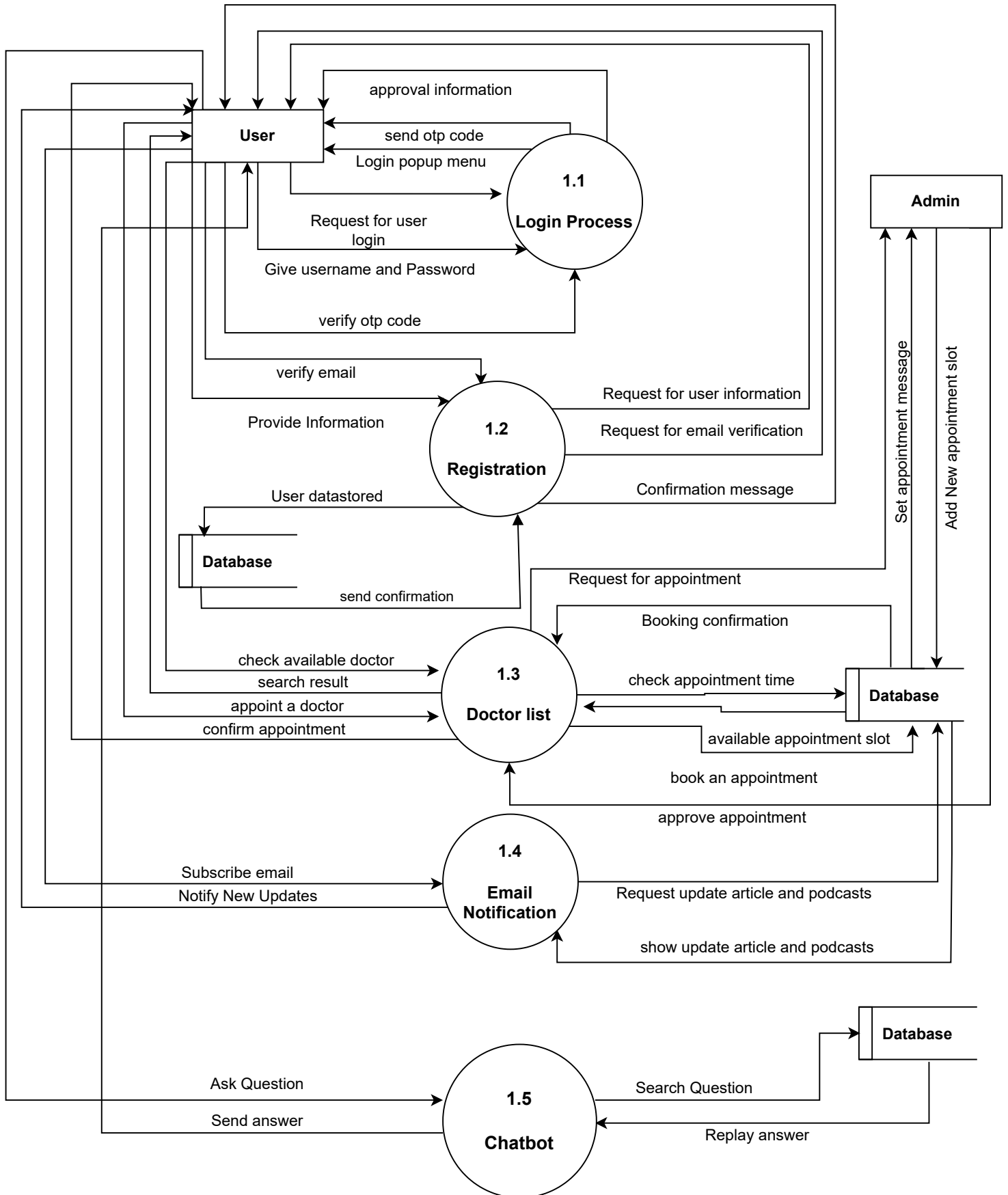


Data Flow Diagram : A Data Flow Diagram (DFD) is a graphical representation of data "flow" through a computer system and depicts how information flows through a process or system. In our diagram we mention those very clearly as the flow of data can be imagined easily.

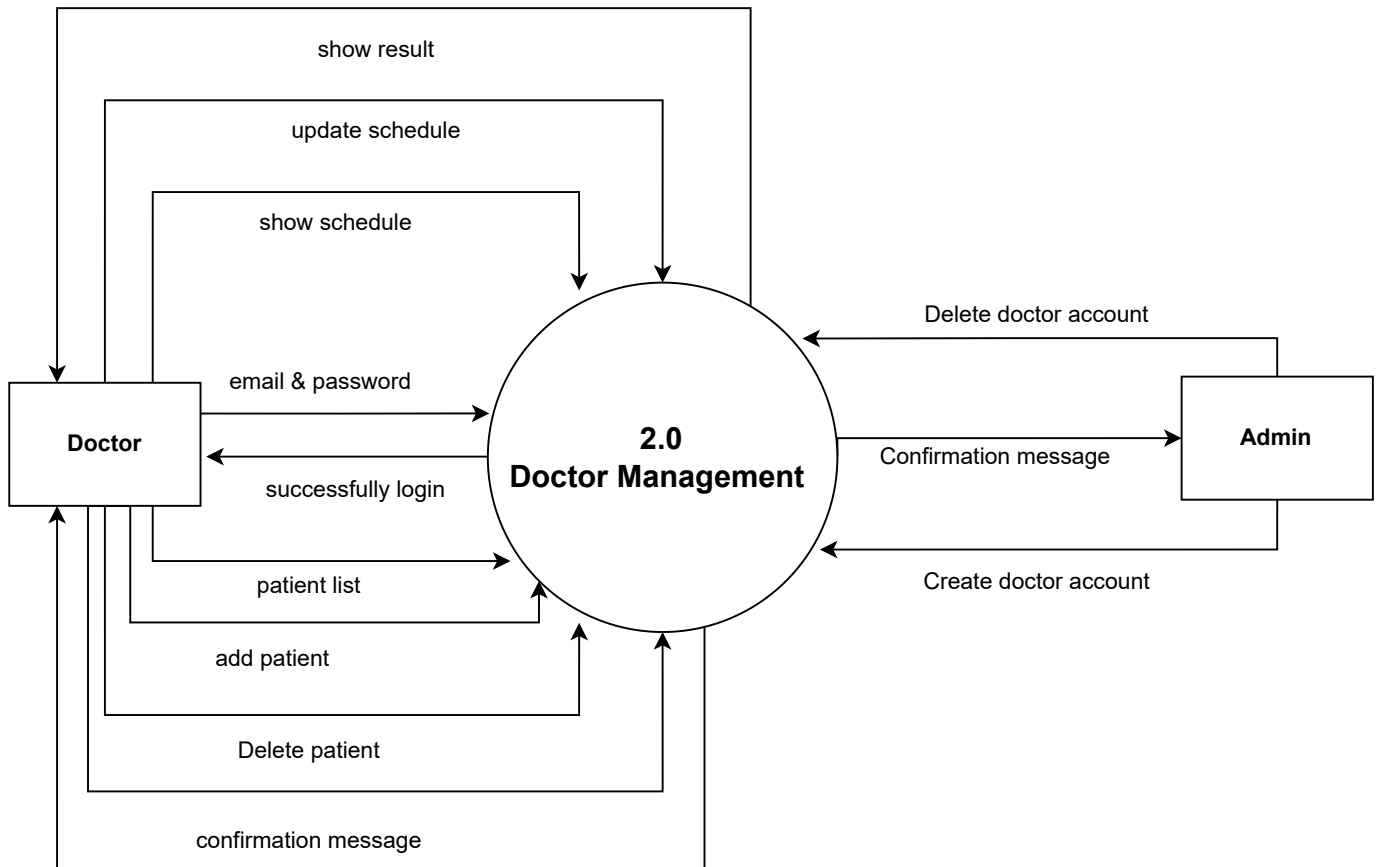
Data Flow Diagram for Patient



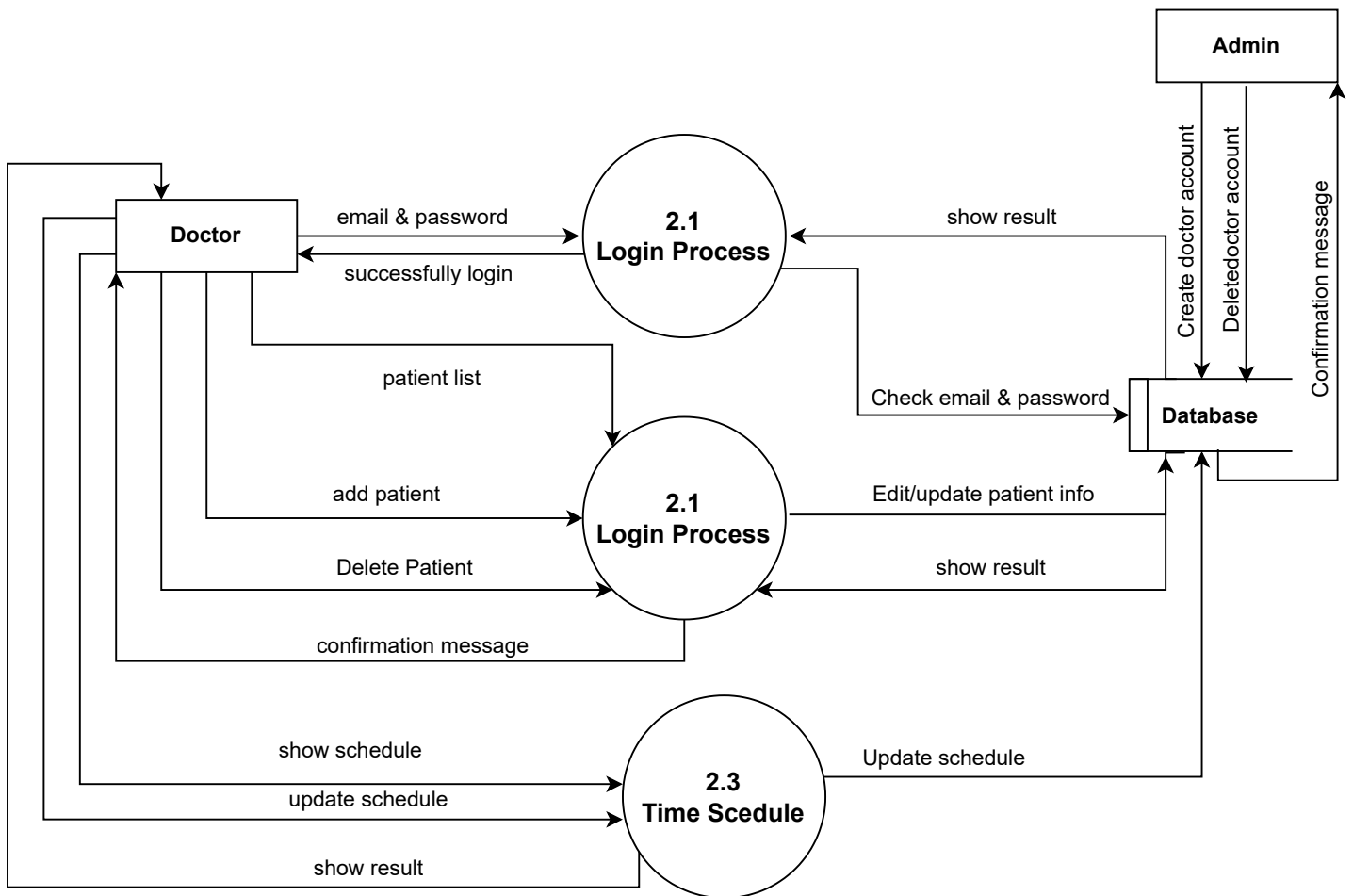
Level 1 Diagram



Data Flow Diagram for Doctor

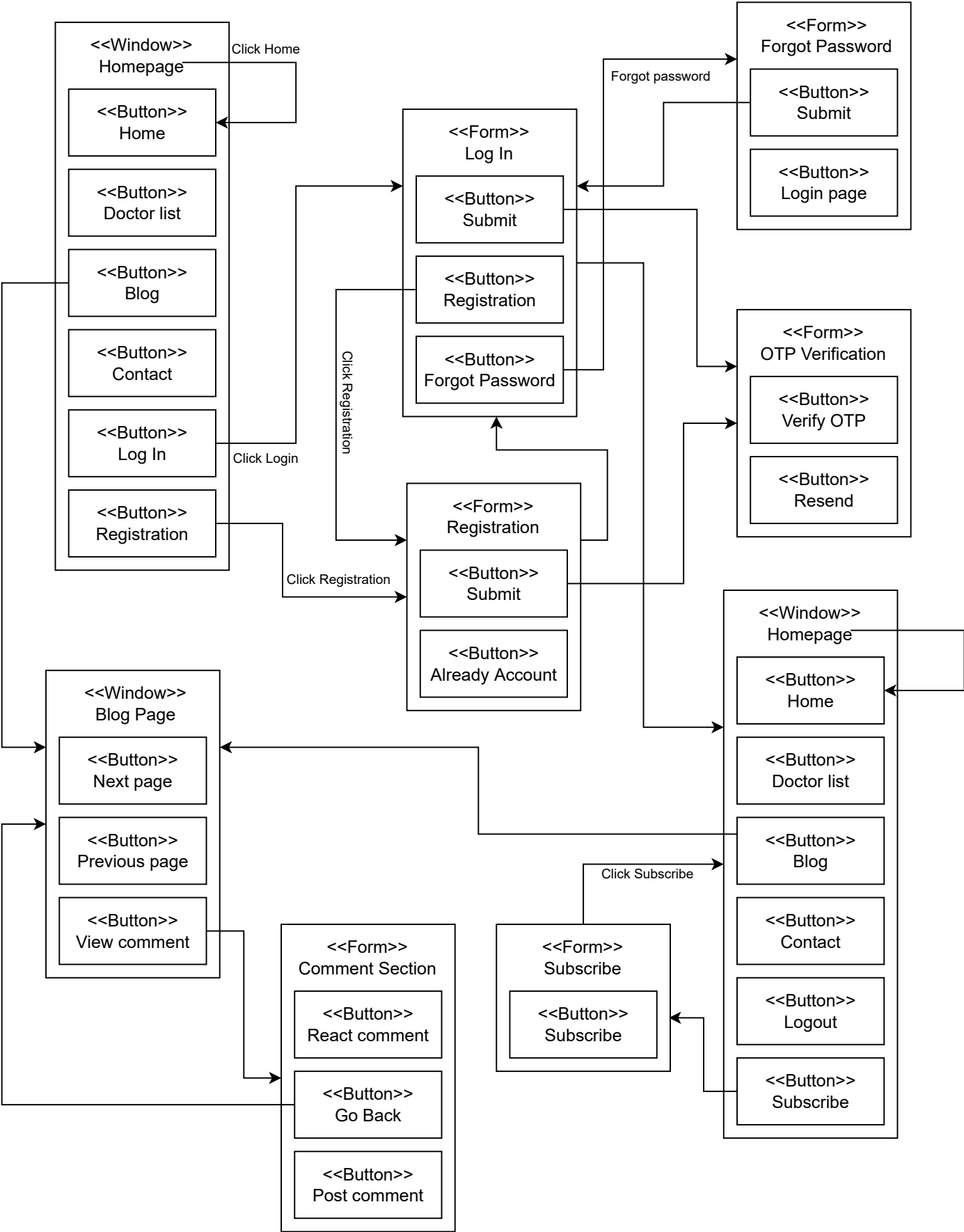


Level 1 Diagram

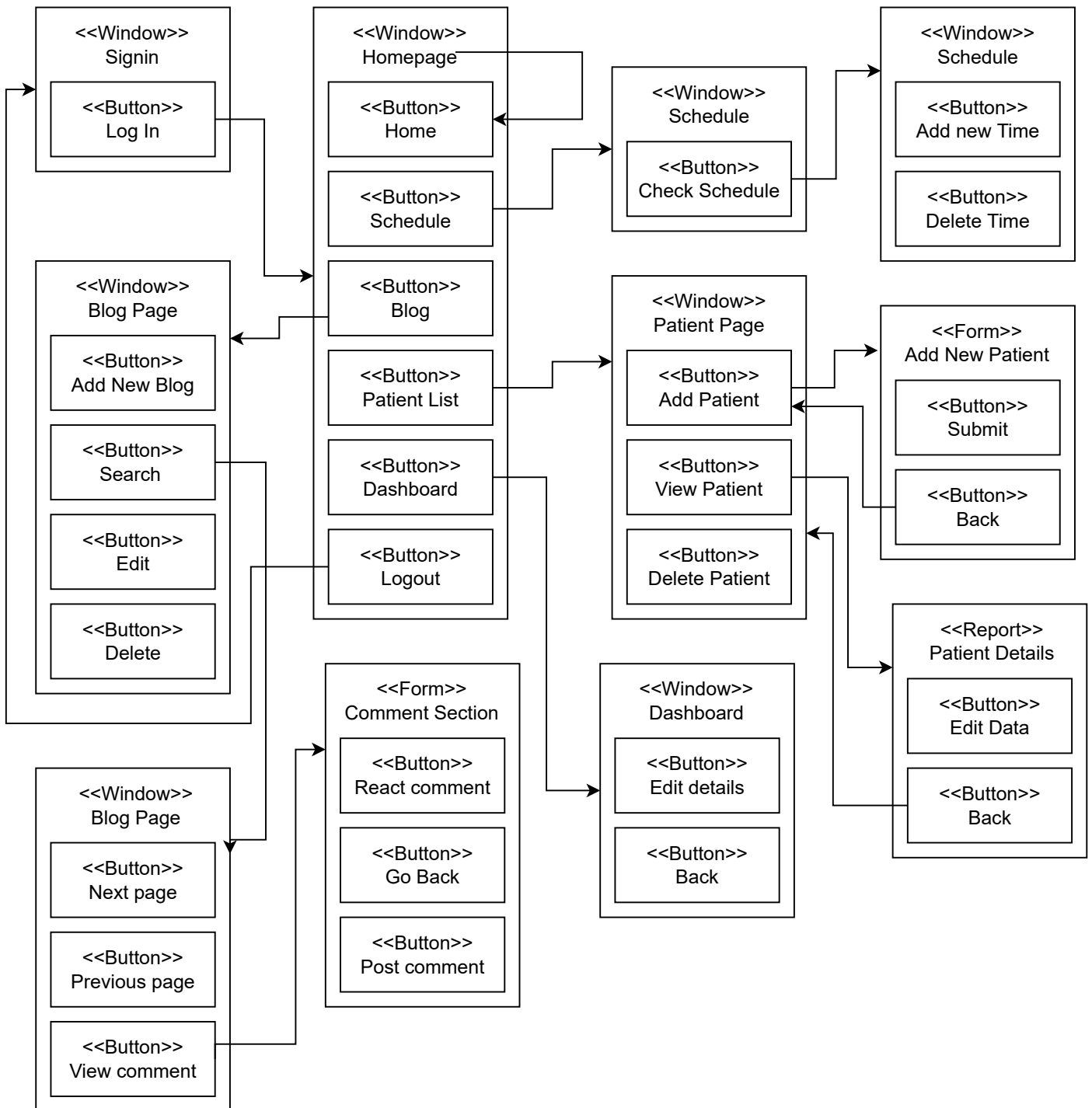


Window navigation Diagram : A window navigation diagram illustrates the overall design of the interface and how the user should navigate it. We see the user interface in a variety of ways in the following illustrations. Here, you may observe every screen, form, and report that the system will employ.

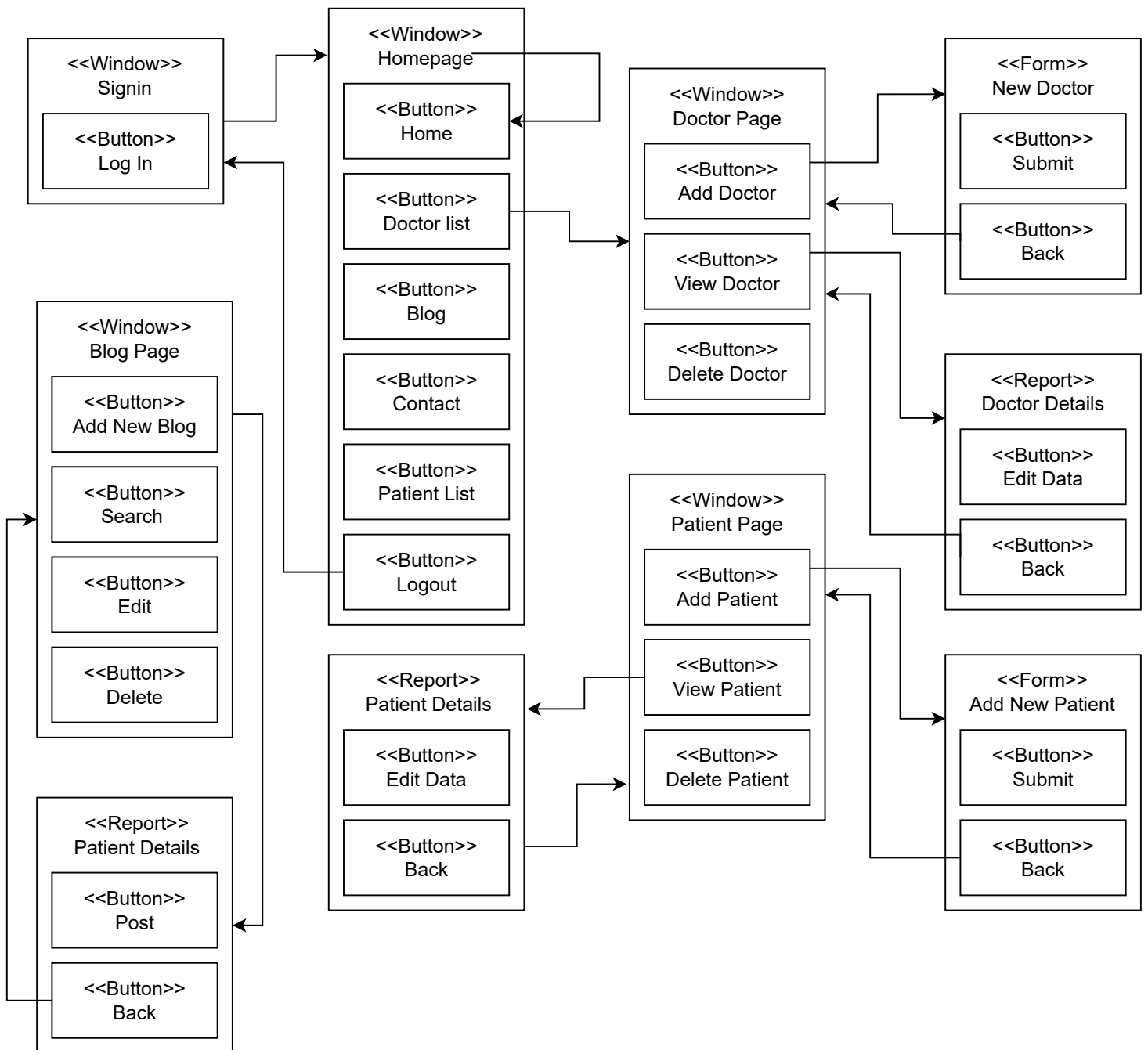
Windows Navigation Diagram of Login and Registration for Patient



Windows Navigation Diagram for Doctor



Windows Navigation Diagram for Admin



Conclusion:

The Mental Health system has helped to improve mental health conditions efficiently through the services of the website and service delivery. This page provides a brief overview of several services, and explains where patients can find more information. The system may include a community psychiatric nurse (CPN), a psychologist, an occupational therapist, a counsellor and a community support worker, as well as a social worker. Lastly, this system will work to eradicate superstitions, stigmas about mental illness from society and encourage people to fight against mental disorders with love, care, courage and proven scientific knowledge. It yearns to be the first choice of people regarding physical health services too in the coming years.