VEER NARMAD SOUTH GUJARAT UNIVERSITY
University Campus, Udhna-Magdalla Road, Surat – 395001, Gujarat, India.

Department of Information and Communication Technology
M.Sc. (ICT) Programme

PROJECT TITLE

ONLINE HEALTHCARE SYSTEM

AS PARTIAL REQUIREMENT FOR THE DEGREE

OF

MASTER OF SCIENCE IN INFORMATION AND COMMUNICATION TECHNOLOGY (MSC ICT 2 Year Course)

2024-25

(SEMESTER – I)

GUIDED BY:

Kamlendu Pandey

SUBMITTED BY:

Asti Paladiya

Diya Panchal

[10003]

VEER NARMAD SOUTH GUJARAT UNIVERSITY

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

M.Sc. (ICT) PROGRAMME

CERTIFICATE

This is to certify that ASTI PALADIYA

Exam Seat Number: **10003** has worked on Project **"Healthcare System "** at **HOME** as partial fulfilment of the requirements for 1ST Semester – M.Sc. (Information and Communication Technology), During the academic year 2023-24.

Date: 29th December 2023

Place: Dept. of ICT, VNSGU, Surat.

Internal Project Guide	Corse Coordinator	Head of the Department
M.Sc. (I.C.T.)1st Semester	M.Sc. (I.C.T.) Programmer	Department of I.C.T.
Department of I.C.T.	Department of I.C.T.	Veer Narmad South Gujarat
Veer Narmad South Gujarat	Veer Narmad South Gujarat	University, Surat
University, Surat	University, Surat	

VEER NARMAD SOUTH GUJARAT UNIVERSITY

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

M.Sc. (ICT) PROGRAMME

CERTIFICATE

This is to certify that PANCHAL DIYA VIJAYBHAI

Exam Seat Number: **1029** has worked on Project **"Healthcare System "** at **HOME** as partial fulfilment of the requirements for 1ST Semester – M.Sc. (Information and Communication Technology), During the academic year 2023-24.

Date: 29th December 2023

Place: Dept. of ICT, VNSGU, Surat.

Internal Project Guide	Corse Coordinator	Head of the Department
M.Sc. (I.C.T.)1st Semester	M.Sc. (I.C.T.) Programmer	Department of I.C.T.
Department of I.C.T.	Department of I.C.T.	Veer Narmad South Gujarat
Veer Narmad South Gujarat	Veer Narmad South Gujarat	University, Surat
University, Surat	University, Surat	

ACKNOWLEDGEMENT

The successful completion of this project would not have been possible without the guidance, support, and encouragement of many individuals. We sincerely thank everyone who contributed their time, knowledge, and expertise to help us bring this project to fruition.

We extend our heartfelt gratitude to the **J.P. Dawer Institute of Information Science & Technology, Surat**, for providing us with the opportunity to work on this real-world project. The platform and resources made available to us played a vital role in the project's success.

We are thankful to **Professor Kamlendu Pandey**, our mentor and project coordinator, for his invaluable guidance, constant encouragement, and unwavering support throughout our journey. His ability to inspire and provide practical solutions to challenges has been instrumental in shaping this project into its current form.

Lastly, we want to express our appreciation to all those who have directly or indirectly supported us, be it through their technical assistance, motivation, or encouragement. Your contributions, big or small, have made a meaningful impact on the development of this system.

Thank you all for being a part of this journey and for helping us achieve this milestone.

Thanking All.

Asti Paladiya

Diya Panchal

INDEX

1.Introduction

An Online Healthcare System is a digital platform designed to bring together patients, doctors, and other healthcare professionals. It simplifies and enhances the way healthcare services are provided by enabling smooth communication, easy access to medical care, and efficient interaction between all involved. This system helps bridge the gap between healthcare providers and patients, using technology to ensure faster, more convenient, and reliable healthcare services.

1.1 Objective of the System

- The primary objective of the Online Healthcare System is to:
    - Make it easy for patients to access healthcare services like doctor consultations, prescriptions, and medical records.
    - Help doctors manage their appointments, check patient details, and track treatment progress effortlessly.
    - Simplify the coordination between pharmacies, hospitals, and other healthcare providers.
    - Ensure medicines and other services are delivered on time.
    - Improve healthcare efficiency while reducing the time and effort spent on administrative tasks.

1.2 Problem Definition

- Traditional healthcare systems face several problems that make things difficult for both patients and healthcare providers:

  Long Waiting Times: Patients often have to wait too long for appointments and treatments, which can delay proper care.

  Difficulty Accessing Medical Records: In emergencies, it's hard to quickly find important medical records, which can slow down urgent treatment.

  Disorganized Data: Information is often scattered and not stored in one place, causing confusion and inefficiency.

  Error-Prone Manual Work: Many tasks like record-keeping and coordinating services are done manually, which can lead to mistakes.

  The **Online Healthcare System** solves these problems by providing a digital platform where everything is organized, fast, and accessible, ensuring better care for everyone.

1.3 Core Components

- The core components of the Online Healthcare System include:

  Patient Module: Profile management, appointment booking, access to prescriptions, and medical history.

  Doctor Module: Schedule management, patient consultation, and treatment tracking.

  Pharmacy Integration: Online ordering and delivery of medicines based on e-prescriptions.

  Hospital Management: Bed availability, billing, and department coordination.

  Admin Panel: Overseeing the platform's operations, managing users, and ensuring data security.

1.4 Project Profiles

(A) Project Profile

Project Title	Online Healthcare System
Front-End	JSF, Prime Faces
Back-End	MySQL 5.7.16
Hardware Requirement	Processor of 800 MHz Pentium (R), Minimum 512 MB RAM and Above, Minimum 40 GB Hard Disk and Above and Mouse, Keyboard.
Software Specification	Front End Software: Net beans-13 Back End: MySQL 5.7.16 Operating System: Windows 10
Development Tools	Net beans-13, MySQL 5.7.16
Submitted By	**Kamlendu Pandey**

1.5 Advantages of the Proposed System

- **Accessibility**: Patients can get healthcare services even if they live far away or can't visit the hospital.

- **Efficiency**: The system helps avoid unnecessary delays and ensures everything runs smoothly between doctors, patients, and other staff.

- **Data Centralization**: All patient records, like medical history and reports, are kept in one secure place, making it easy to access whenever needed.

- **Time-Saving**: Patients can consult doctors online, and services like appointments and reports are quicker, saving time for both patients and doctors.

- **Cost-Effective**: It lowers costs by reducing the need for extra paperwork, travel, or manual work in hospitals.

- **Real-Time Updates**: Patients and doctors are instantly informed about things like appointments, test results, and medicine deliveries.

- **Improved Patient Outcomes**: Better communication and regular updates help doctors provide more effective treatment, leading to healthier patients.

1.6 Future Enhancement

AI-Powered Diagnostics: The system uses artificial intelligence to study medical reports and give helpful suggestions about the patient's condition.

Wearable Integration: Devices like fitness trackers or smartwatches can connect to the system to monitor health information like heart rate or blood pressure.

Telemedicine: Patients can consult with specialist doctors through video calls, making it easier to get expert opinions from anywhere.

Language Localization: The system supports regional languages, so more people can use it comfortably in their own language.

Blockchain Security: Patient records are stored securely using blockchain technology, ensuring no one can change or misuse them without permission.

Predictive Analytics: The system uses data and machine learning to predict things like upcoming disease outbreaks or healthcare needs, helping in better planning.

Advanced IoT Integration: Smart devices can track a patient's health remotely (like checking oxygen levels or glucose) and send updates to doctors for better monitoring.

1.7 Project Scope

- The scope of the Online Healthcare System encompasses:

  Patient Care: Ensuring seamless and effective communication between patients and healthcare providers.

  Healthcare Providers: Simplifying operational workflows for hospitals, doctors, and pharmacies.

  Global Accessibility: Making healthcare services accessible to users worldwide.

  Scalability: Designing a modular system that can be expanded to include additional services, users, and features.

  Research and Analytics: Offering tools for healthcare professionals to analyze trends and improve medical practices.

2. Requirement Gathering and Requirement Analysis

Efficient requirement gathering and analysis are essential for building a robust and user-centric Online Healthcare System. This phase ensures the system meets the expectations of all stakeholders and adheres to technical, operational, and legal constraints.

2.1 Requirement Gathering

Requirement gathering involves identifying and documenting the needs of stakeholders, functional aspects, and technical requirements for the system.

Stakeholders Involved

Patients: End-users seeking medical services like consultations, appointments, and prescriptions.

Doctors: Healthcare providers managing patient records, schedules, and treatment plans.

Pharmacists: Entities fulfilling medicine orders and updating inventory.

Hospital Administrators: Managers overseeing appointments, bed allocation, and billing.

System Admin: Responsible for managing user accounts, security, and system performance.

Requirements Collected

1. **Functional Requirements**:
    - Patient registration, appointment booking, and online consultation.
    - Doctor's schedule management and patient history access.
    - Pharmacy integration for medicine orders.

2. **Non-Functional Requirements**:
    - **Scalability**: Ability to handle increasing users and data.
    - **Security**: Ensuring patient data privacy and compliance with regulations like HIPAA.
    - **Performance**: Fast system response and minimal downtime.
    - **Usability**: Intuitive and user-friendly interface.

2.2 Feasibility Analysis

Feasibility analysis determines whether the project is viable in terms of technical, economic, operational, and legal aspects.

1. Technical Feasibility

- **Technology Stack**: Java for backend, MySQL for database, React/Angular for frontend.
- **Infrastructure**: Cloud hosting ensures high availability and scalability.
- **Integration**: Feasibility of integrating third-party APIs for video consultation and payment gateways.
- **Data Management**: Adequate storage and processing capabilities for maintaining patient records.

2. Economic Feasibility

- **Cost Estimation**:
  - Development costs, including hiring developers and procuring resources.
  - Maintenance and operational costs, including cloud services and updates.
- **Revenue Generation**:
  - Subscription plans for premium services.
  - Service fees for pharmacies.

3. Operational Feasibility

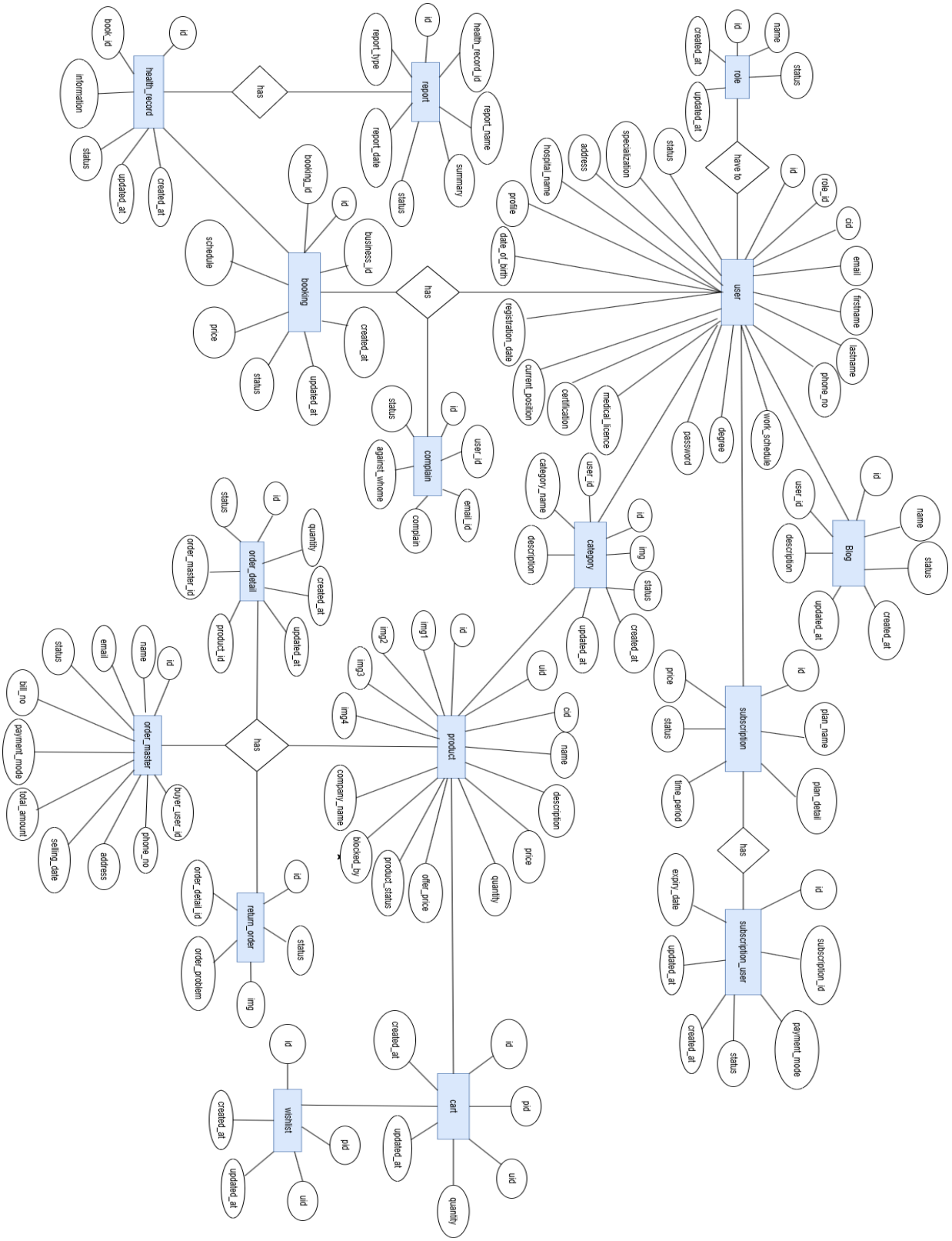
- **Ease of Adoption**:
  - Minimal learning curve for users through an intuitive interface.
  - Comprehensive training modules for medical staff and administrators.
- **Workflows**:
  - Streamlining appointment management and digital consultations.
  - Automating reminders and follow-ups for patients.
- **User Acceptance**:
  - Ensuring the system addresses real-world challenges faced by stakeholders.

4. Legal Feasibility

- **Data Privacy Compliance**:
  - Adhering to regulations like HIPAA (USA), GDPR (Europe), and other regional standards.
- **Contracts and Agreements**:
  - Establishing partnerships with hospitals and pharmacies.
- **Medical Liability**:
  - Legal agreements to define the roles and responsibilities of all parties using the platform.

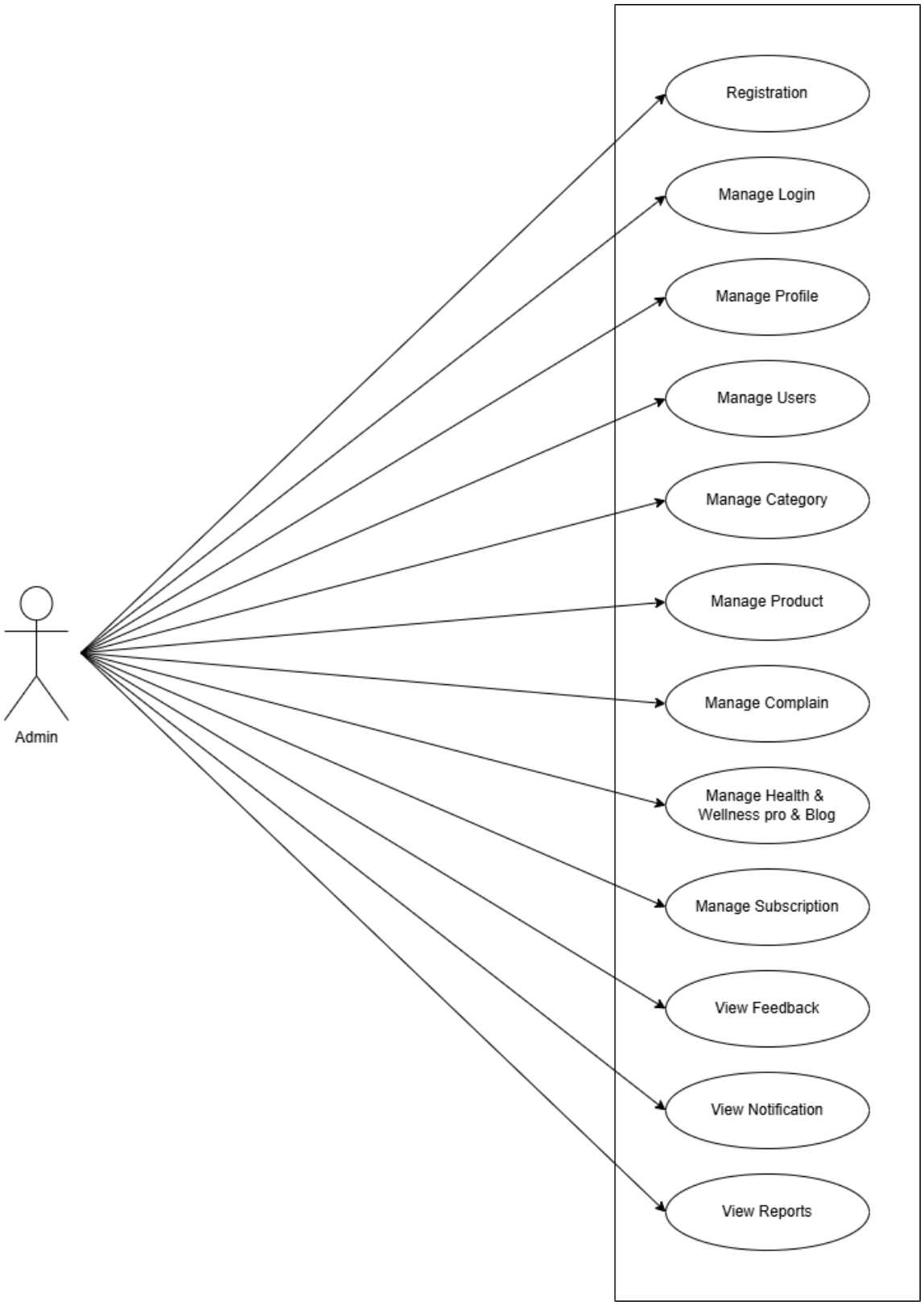
3.System Design

3.1 Entity Relationship Diagram

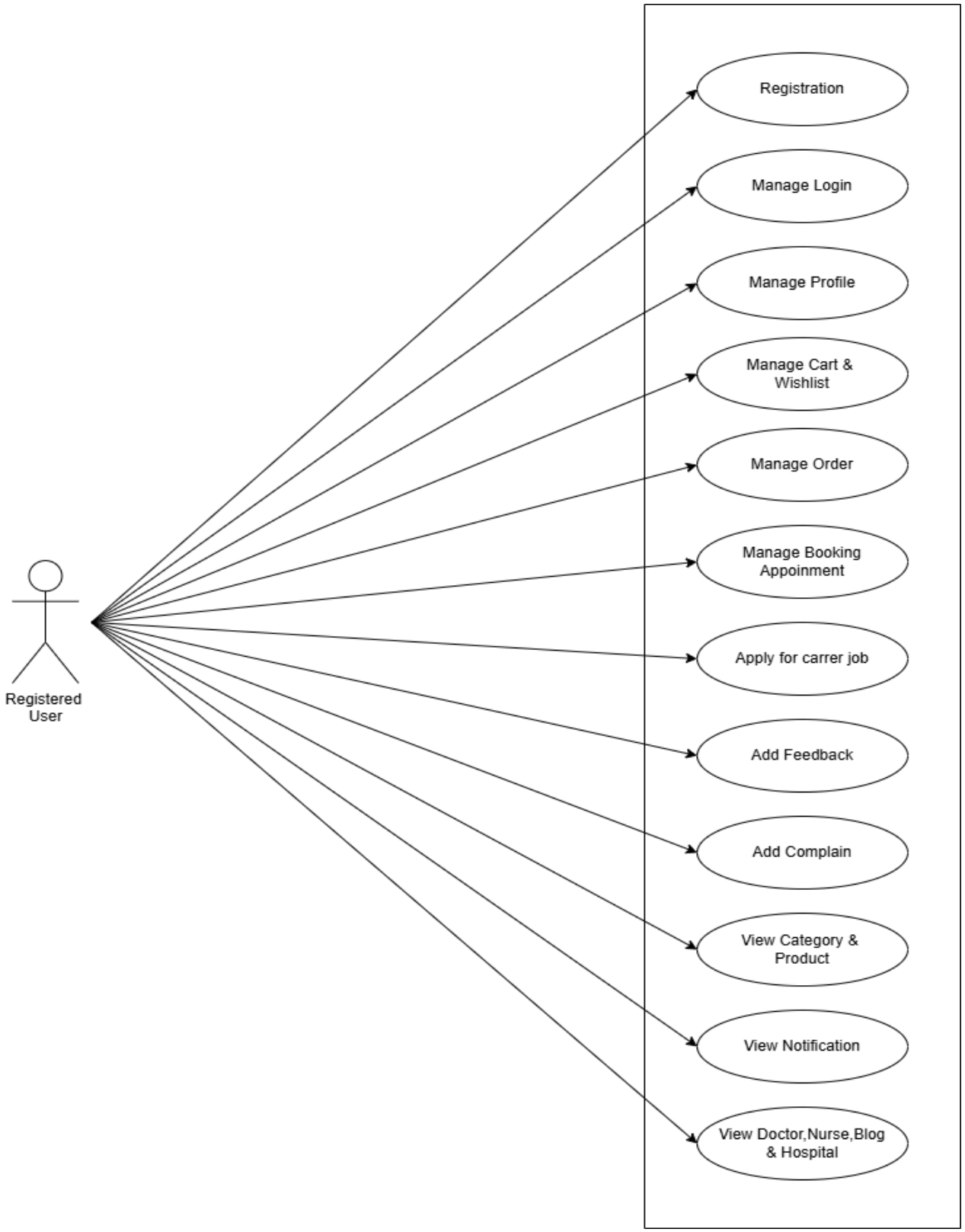


3.2 Use Case Diagram

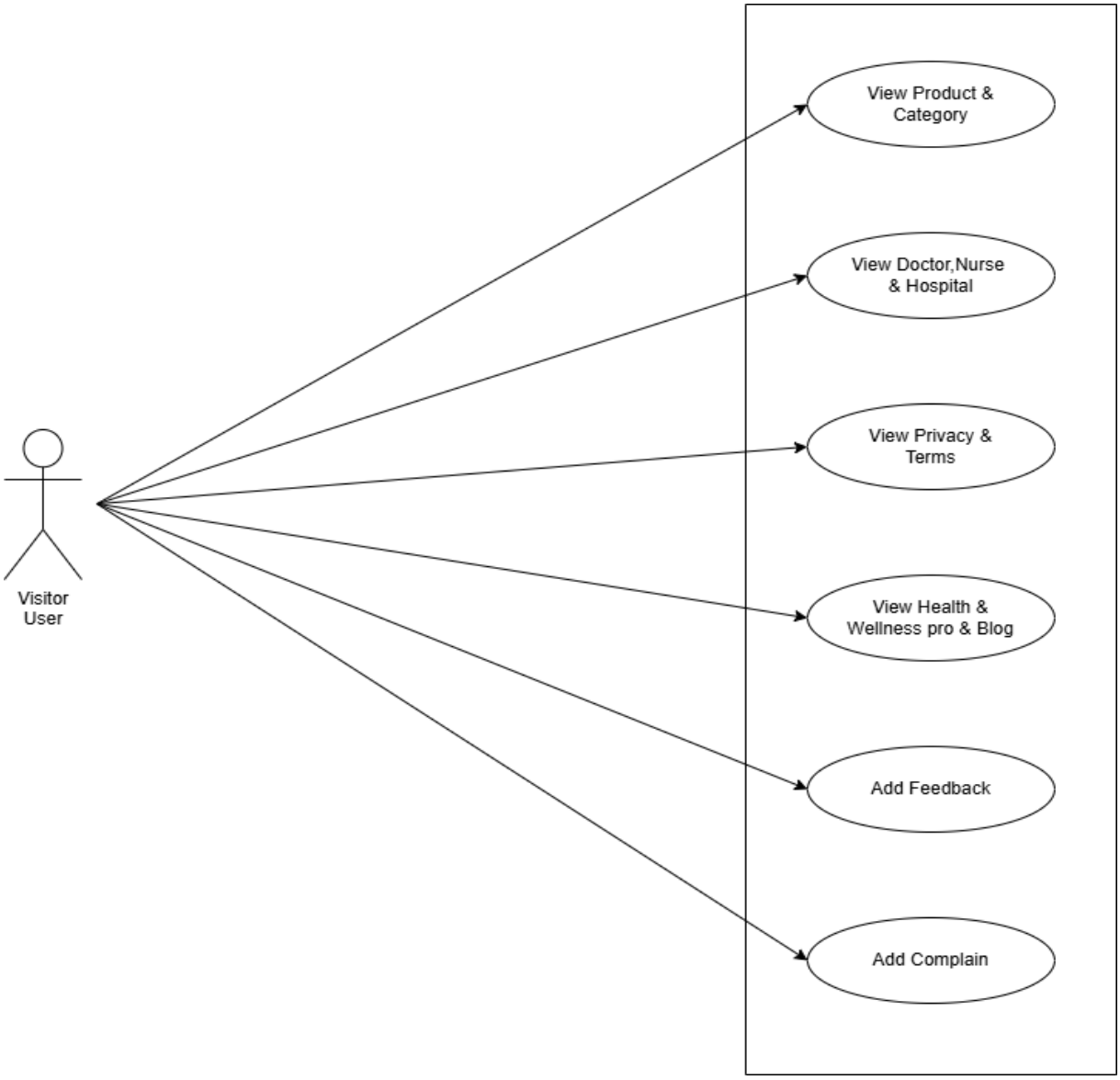
1.Admin



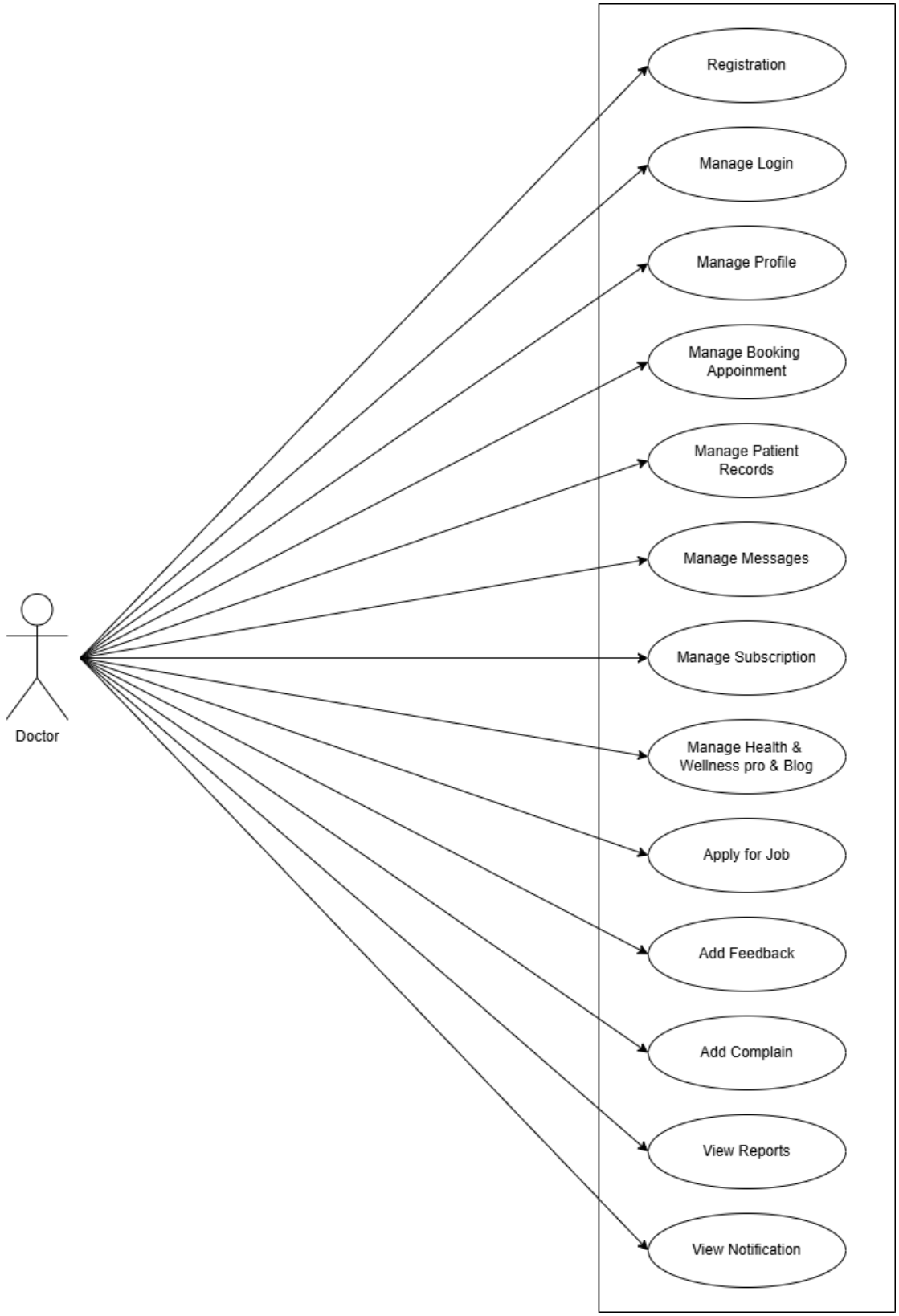
2.Register User:



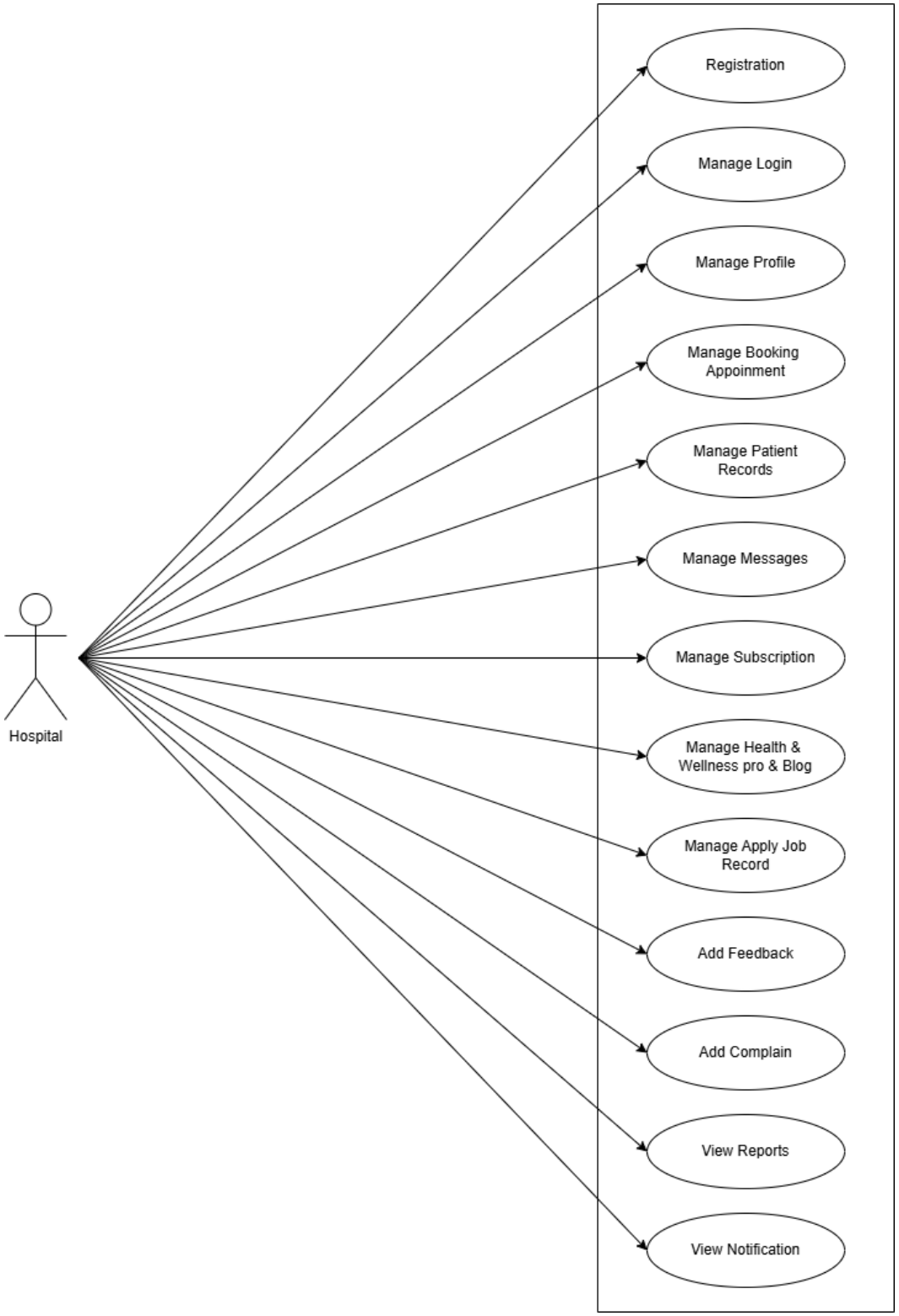
3.Visitor User:



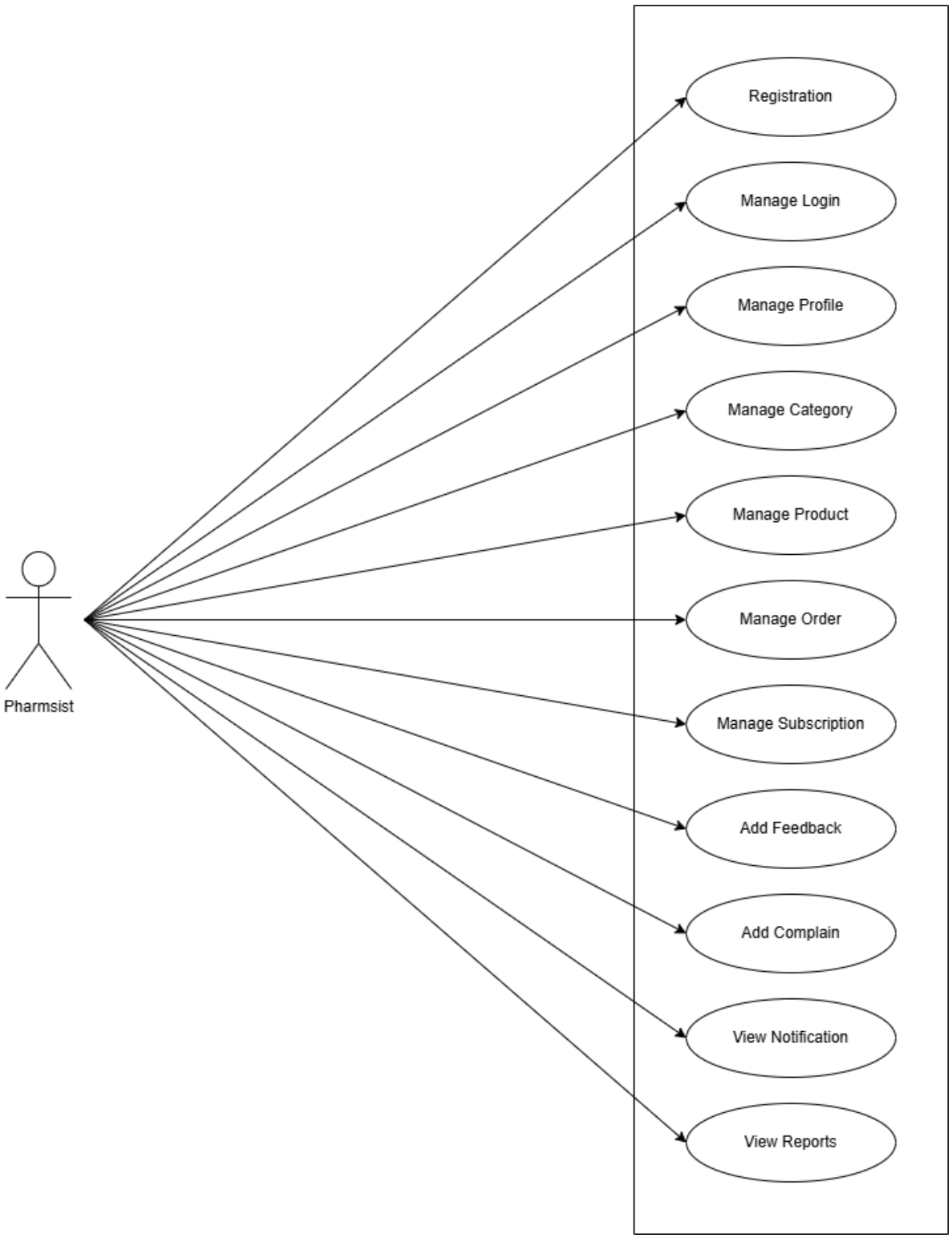
4.Doctor:


Doctor
Registration
Manage Login
Manage Profile
Manage Booking Appoinment
Manage Patient Records
Manage Messages
Manage Subscription
Manage Health & Wellness pro & Blog
Apply for Job
Add Feedback
Add Complain
View Reports
View Notification

5.Hospital:

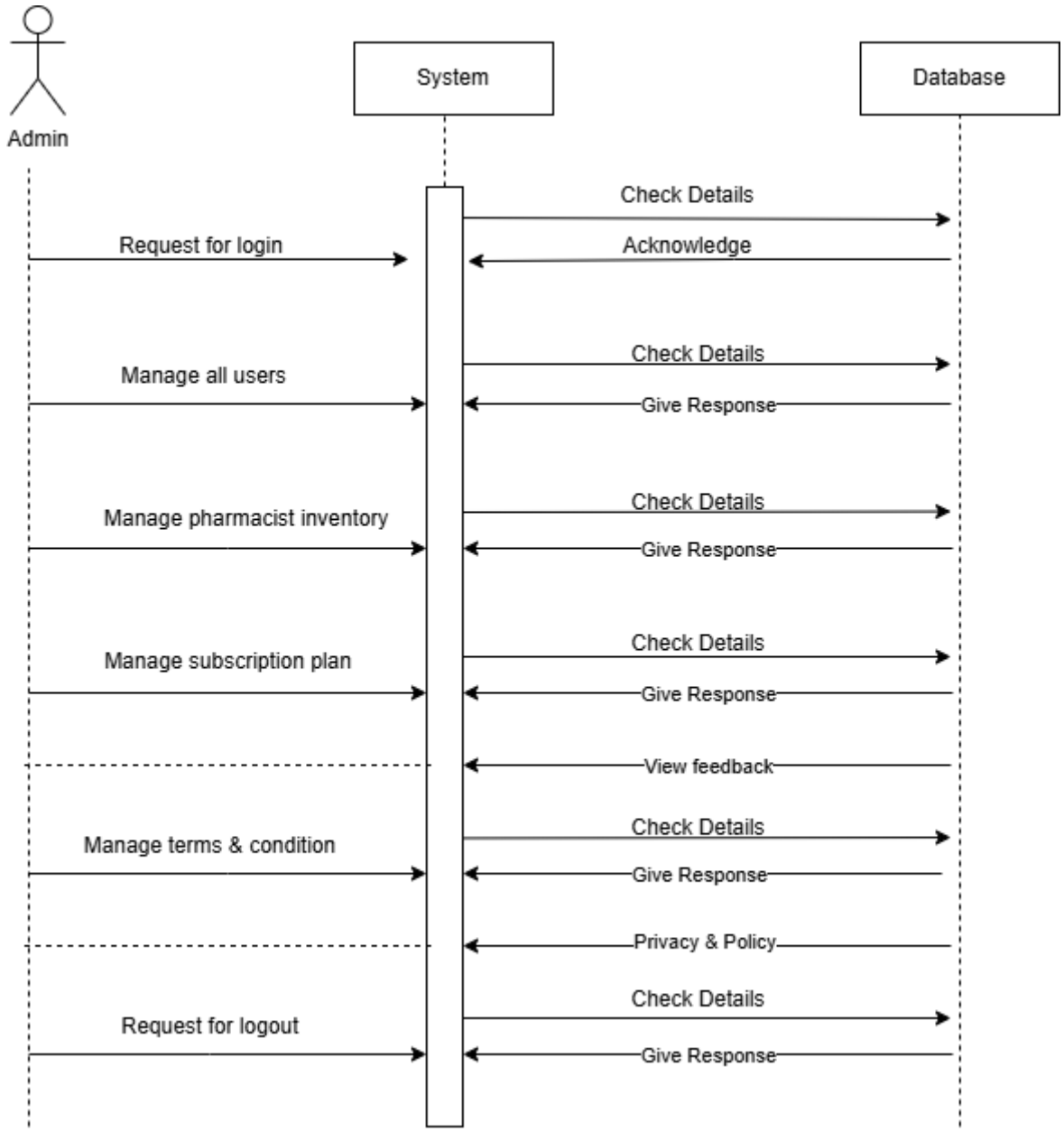

Hospital
Registration
Manage Login
Manage Profile
Manage Booking Appoinment
Manage Patient Records
Manage Messages
Manage Subscription
Manage Health & Wellness pro & Blog
Manage Apply Job Record
Add Feedback
Add Complain
View Reports
View Notification

6.Pharmsist:

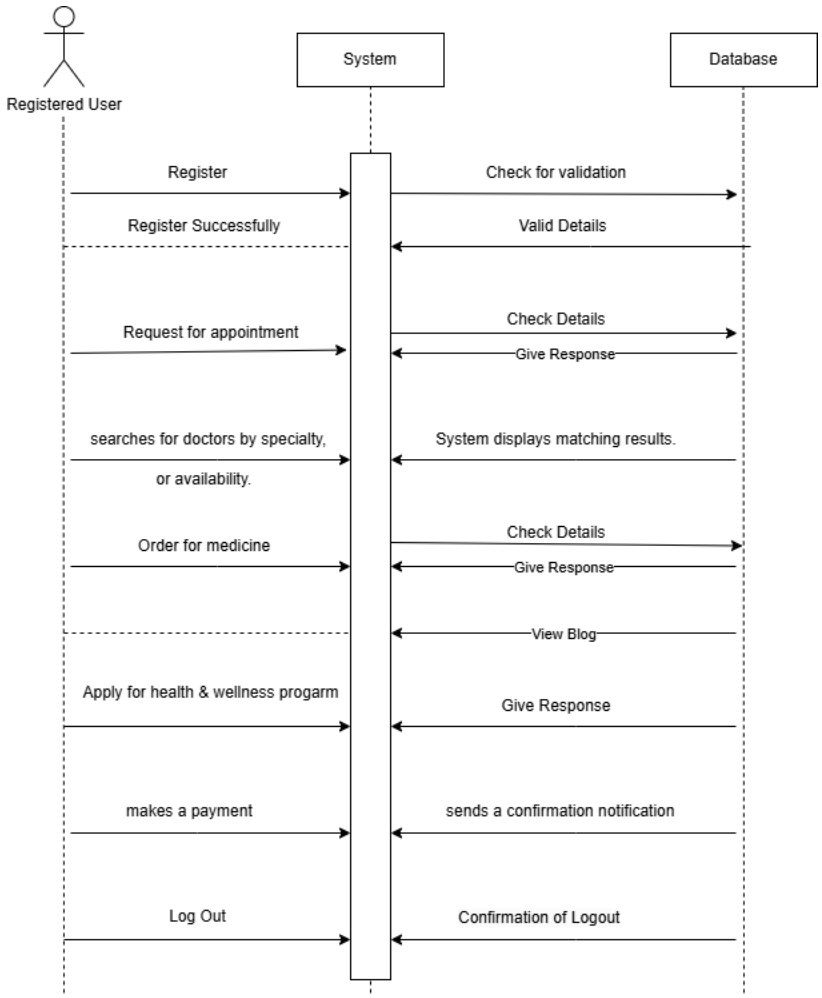

Pharmsist
Registration
Manage Login
Manage Profile
Manage Category
Manage Product
Manage Order
Manage Subscription
Add Feedback
Add Complain
View Notification
View Reports

3.3 Sequence Diagram

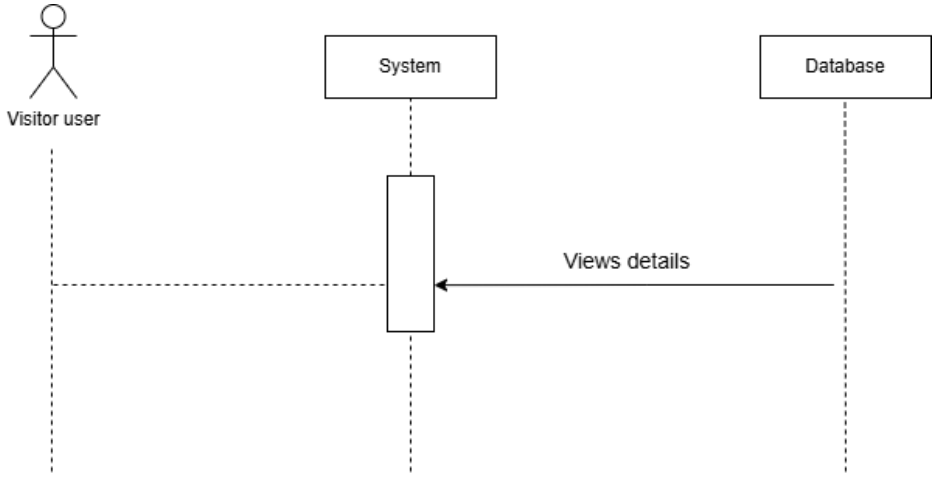
1.Admin



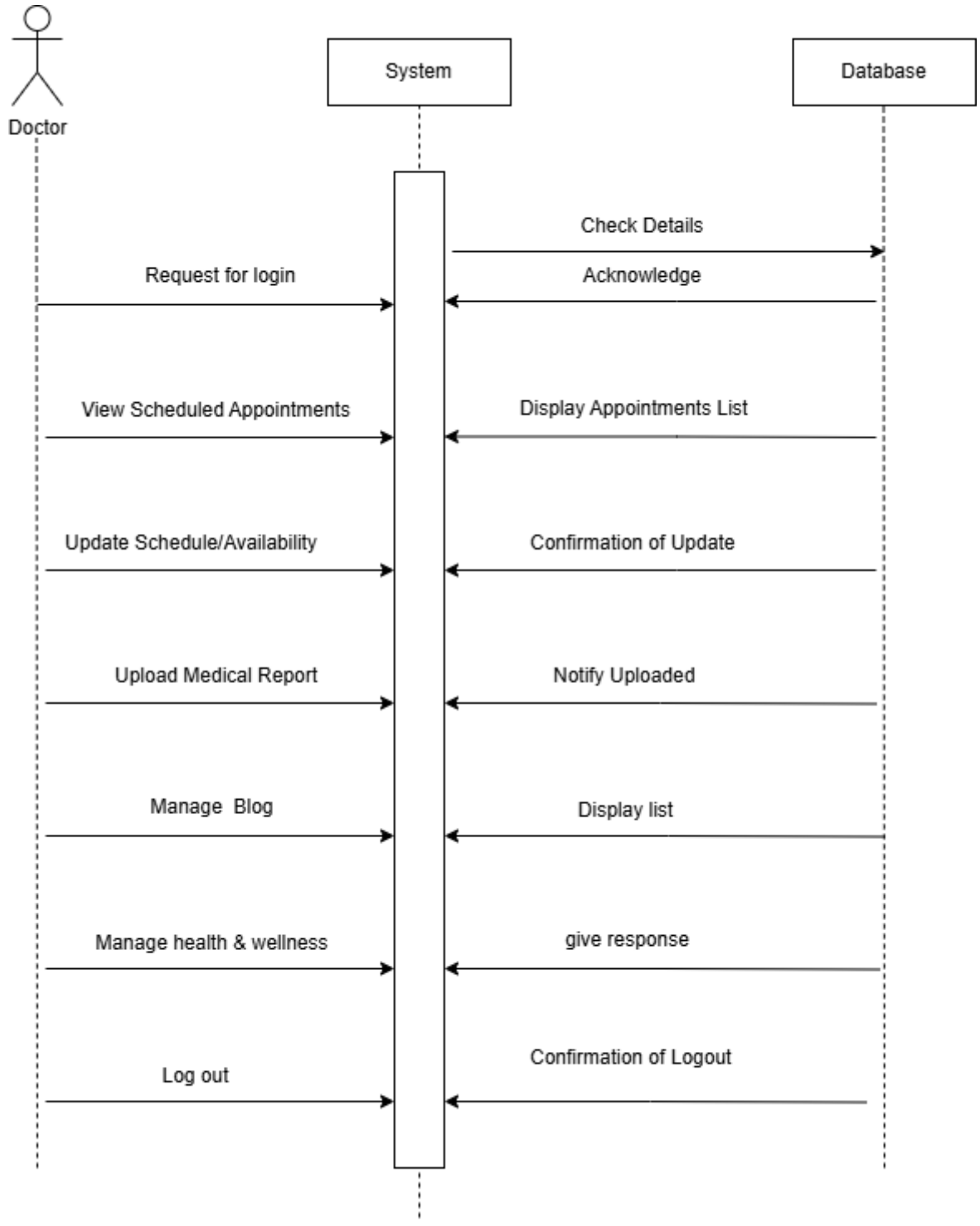
2. Register User



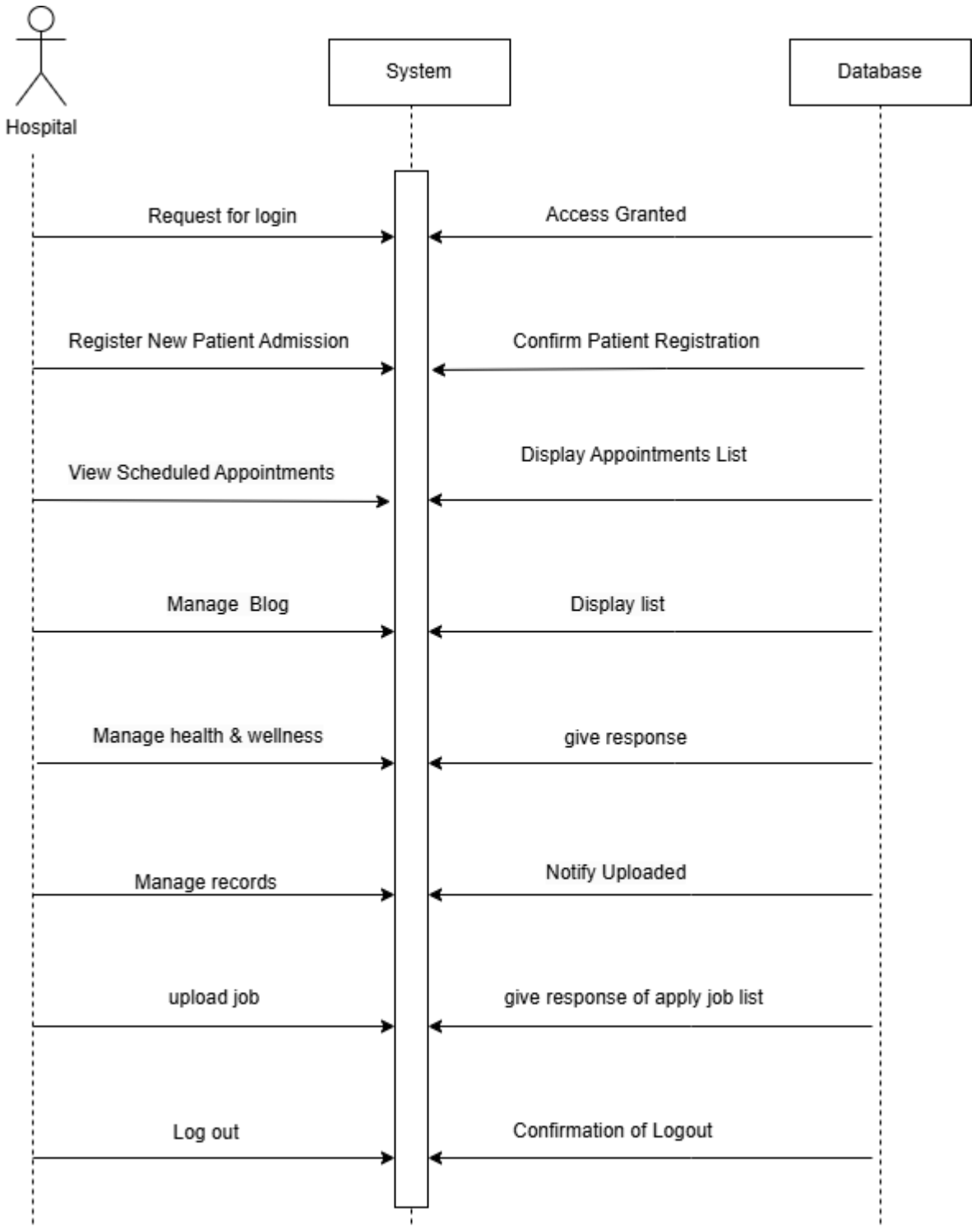
3.Visitor user



4.Doctor


Doctor
System
Database
Check Details
Request for login
Acknowledge
View Scheduled Appointments
Display Appointments List
Update Schedule/Availability
Confirmation of Update
Upload Medical Report
Notify Uploaded
Manage Blog
Display list
Manage health & wellness
give response
Confirmation of Logout
Log out

5.Hospital


Hospital
System
Database
Request for login
Access Granted
Register New Patient Admission
Confirm Patient Registration
View Scheduled Appointments
Display Appointments List
Manage Blog
Display list
Manage health & wellness
give response
Manage records
Notify Uploaded
upload job
give response of apply job list
Log out
Confirmation of Logout

6.Pharmacist