EAST WEST UNIVERSITY

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Course Title: Information System Analysis and Design
Course Code: CSE 347
Semester: Summer 2021

Project Name: Covid Care
Software Requirement Specification (SRS)

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SECTION 1- Introduction: Problem Definition, Motivation and Challenges

Problem definition-

The world is seeing increasing cases of Covid-19 virus. Hospital beds get filled as soon as a Covid-19 wave hits. This is making people more and more anxious as days pass. To tackle all these distress, this software system will be aimed at building a community for the people where they can come together and collect all the information regarding the covid-19 virus. Not only will they be able to help each other by sharing their experience but they will also be guided by experienced doctors. As a result people will not rush and crowd the hospitals as soon as they get mild symptoms of the Covid-19 virus. They can ensure the seriousness of their symptom sitting at home and they can know when exactly they need to contact hospitals. In the software's initial stage, the system will be designed to help the people in Bangladesh, that is the doctors and users involved will be region specific and all the information in the database will be for Bangladesh only.

Motivation-

- The main motivation for this system is to find a way to create awareness among the people to reduce the chances of further covid-19 waves and to help those who are already affected by Covid-19.
- According to specialists, it is advised that the people do not rush to hospitals as soon as they experience mild symptoms. However, people become anxious and thus visit hospitals to get doctor's suggestion as soon as possible. In a country like Bangladesh where hospitals get crowded as soon as a Covid-19 wave hits, visiting hospitals only because of mild symptoms only means less patients who have serious symptoms can be treated. This software is intended to help patients with mild symptoms so that they do not rush to hospitals.
- In a developing country like Bangladesh, many people of different job sectors are compelled to get out of homes amidst lockdown to earn money. An example is the readymade garments factory which plays a major contribution in earning revenue for the country and thus is not closed by the government during lockdown. Men and women are seen to go to work in these factories in groups which increase the chances of getting affected by the Covid-19 virus. So this software system will be designed to provide special features for garment workers. However, many garments worker will not be able to use the software system since many of them will not be technologically sound. So, a contract with the garments factory will be made. The garments worker then will be aided by someone in the garments factory whenever the workers need to access this software.

Business Model-

This software has a system to sell oxygen cylinders to users. Moreover, when users consult a doctor for prescription, the user is charged with a fee from which a percentage is deducted in the form of revenue for using this software system. Next, our system will also accept to show advertisements for different covid-19 related medical instruments like oximeter and Personal Protective Equipment (PPE) from different manufacturers.

Challenges-

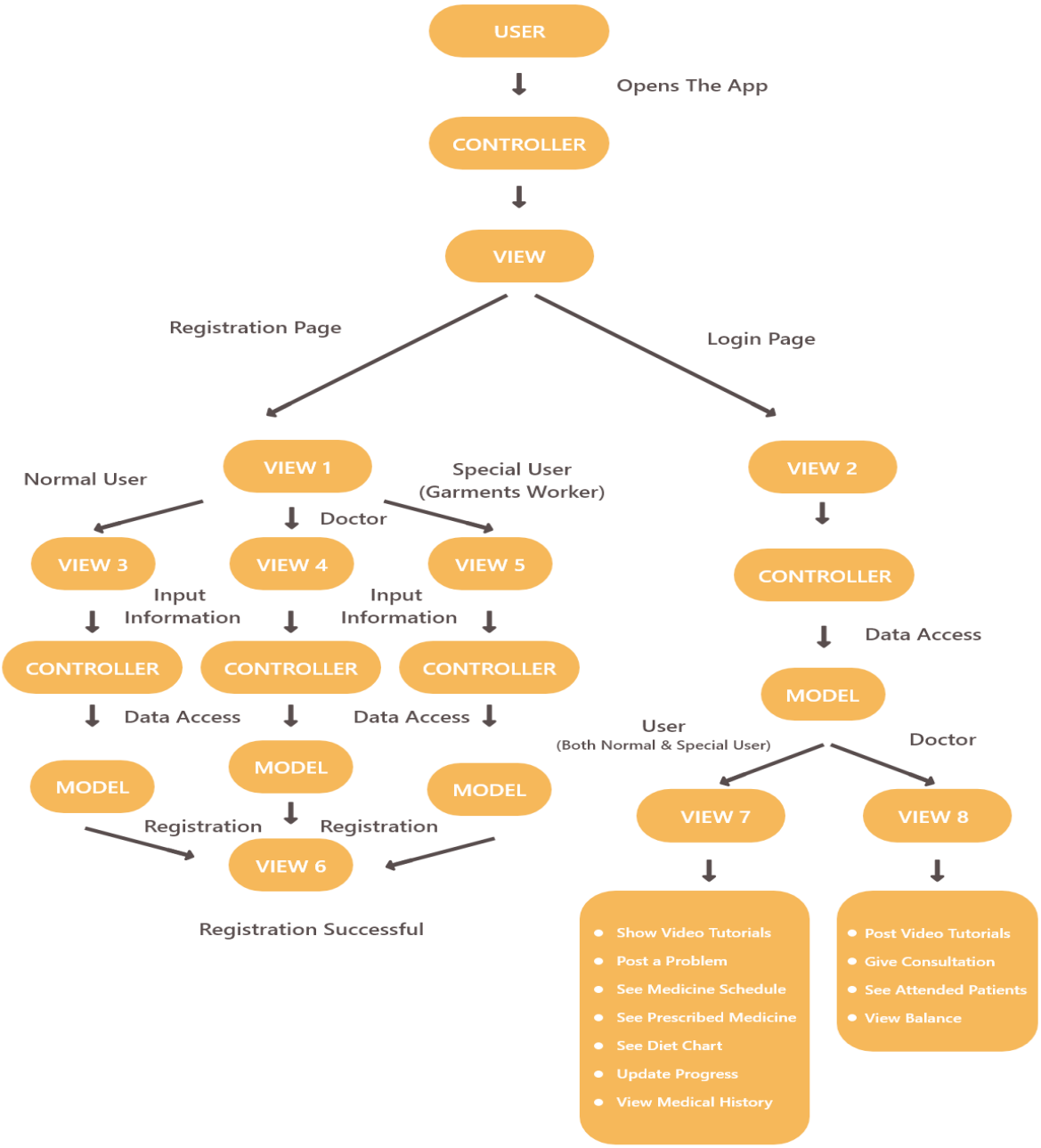
- In the face of the pandemic, we, those who are responsible to develop the software will not able to go out and communicate with different people to see what potential users may actually want from this system. So, all we were able to do is brainstorm and decide on as many features as we can to include in this system.

- This software system is quite a large project. We were able brainstorm a lot of features that we wanted to include in this project. However due to the limited number of team members and limited time, we will not be able to include all the possible features in this system before the project deadline.

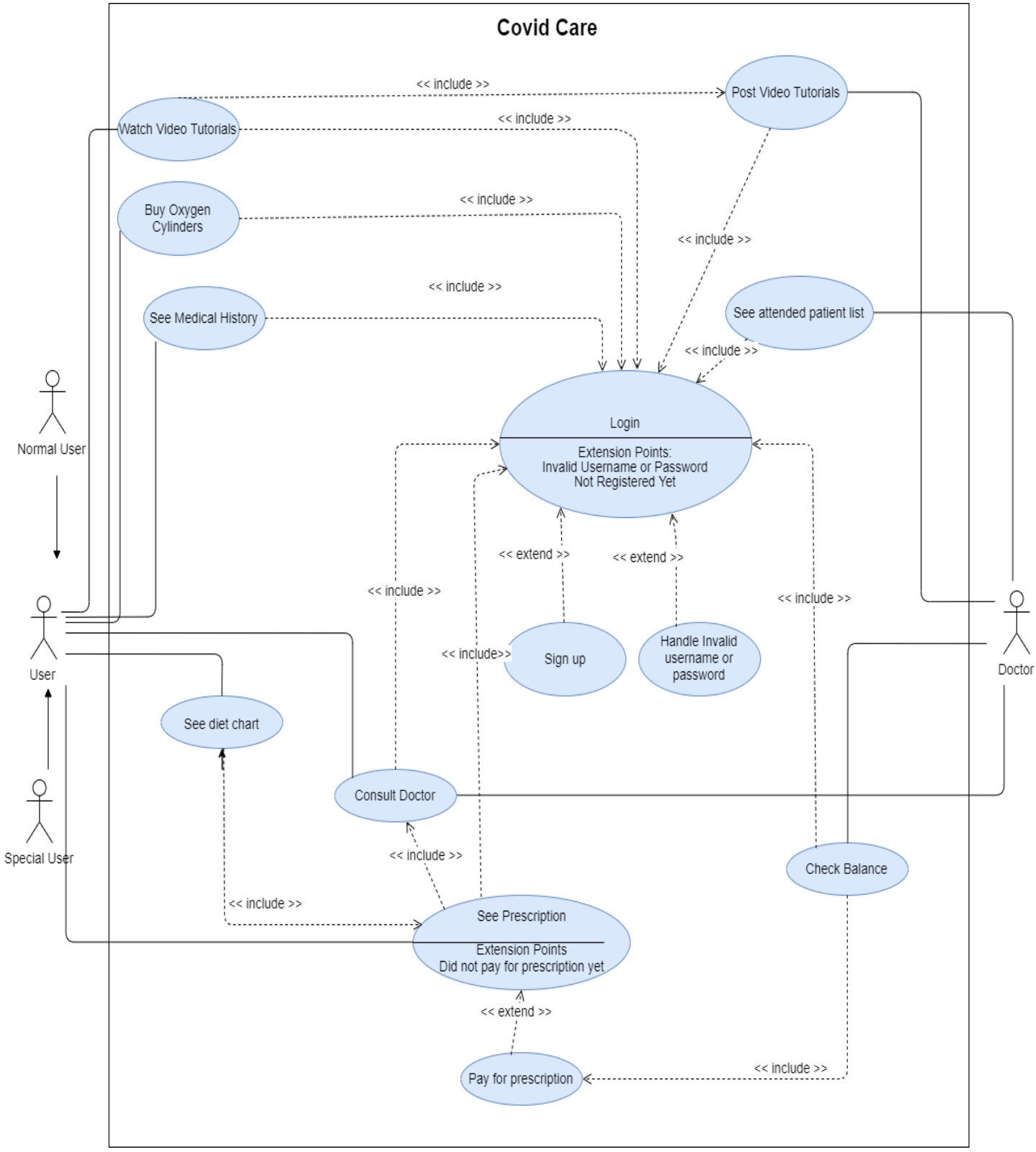
- The language and framework that are going to be used are fairly new to us, the software developers. So, it will take some time for the team members to get familiar to the new language and framework used, that is Python and Django.

- We have to make sure that the user interface is not too technical so that all the users find it easy to use.

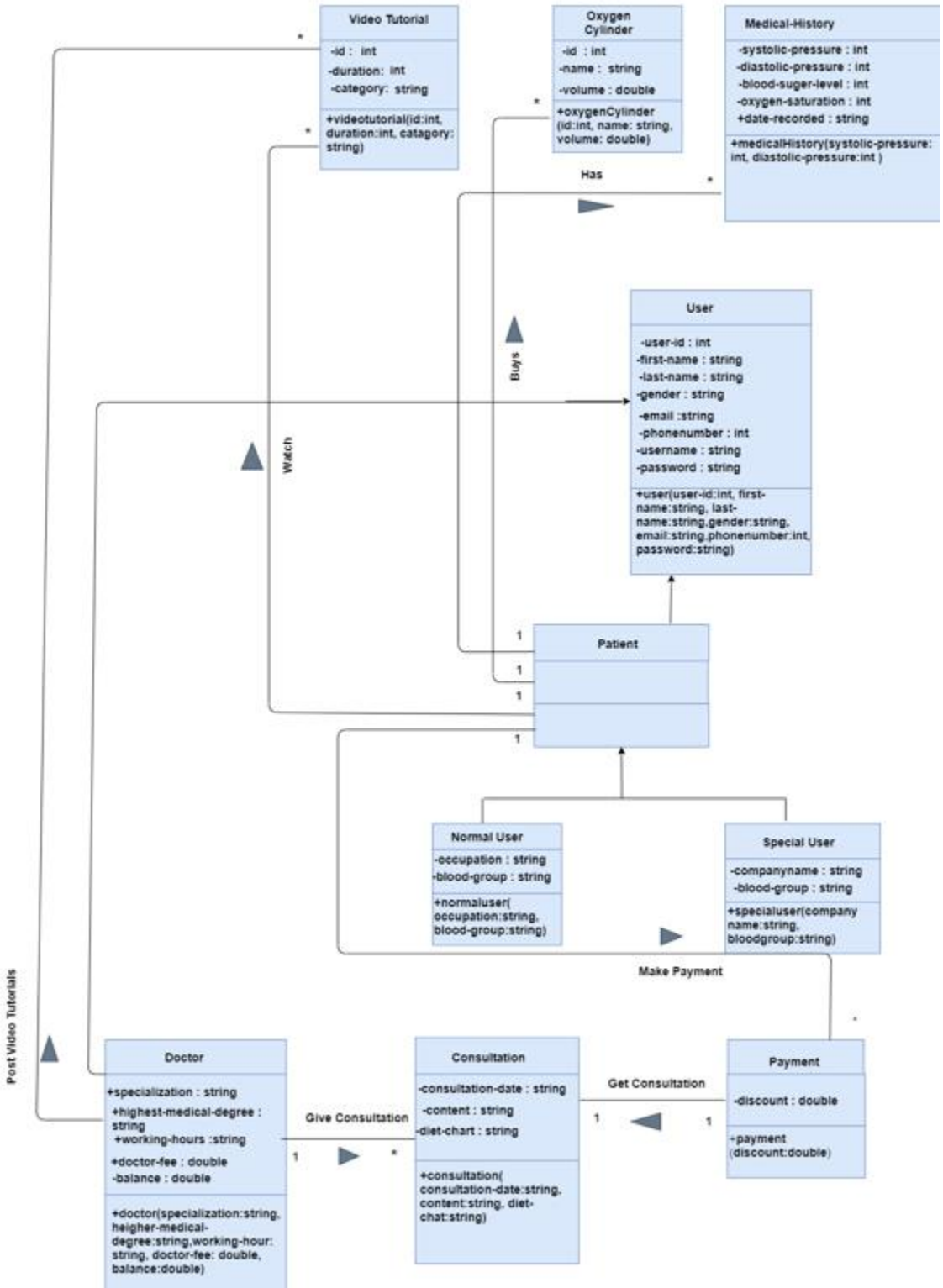
SECTION 2a- Model View Controller (MVC)



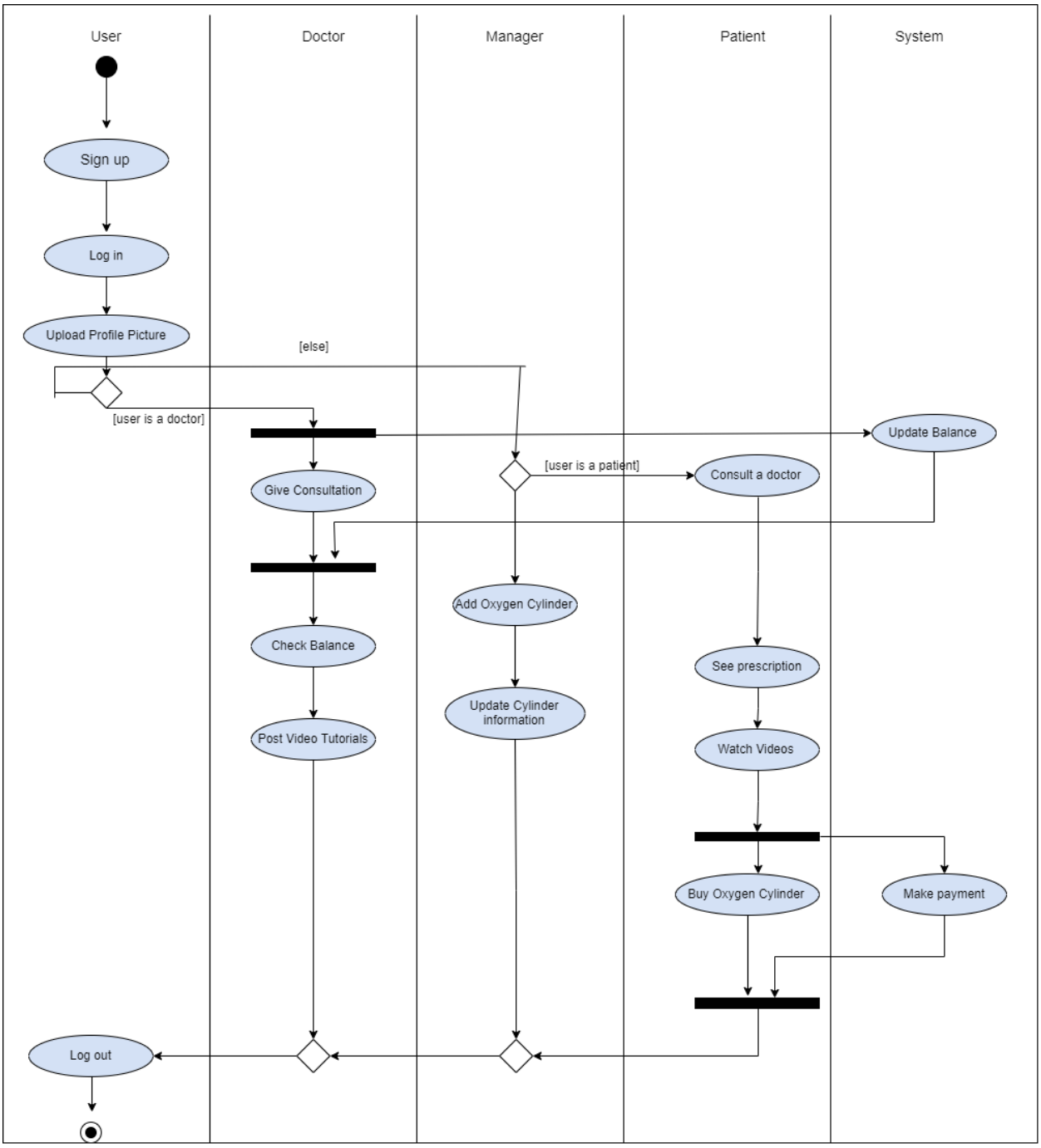
SECTION 2b- UML Use Case Diagram



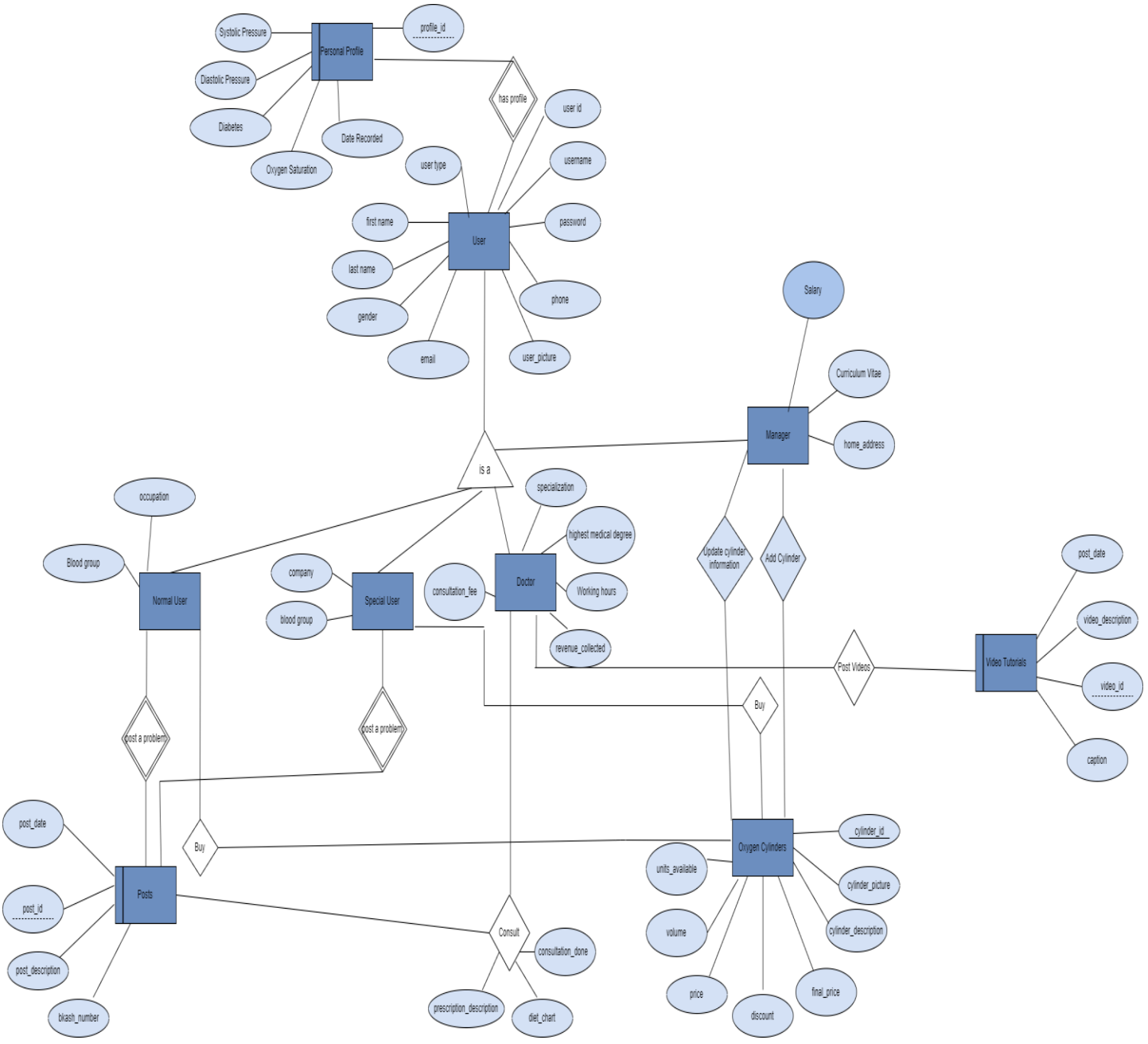
SECTION 2c- UML Class Diagram



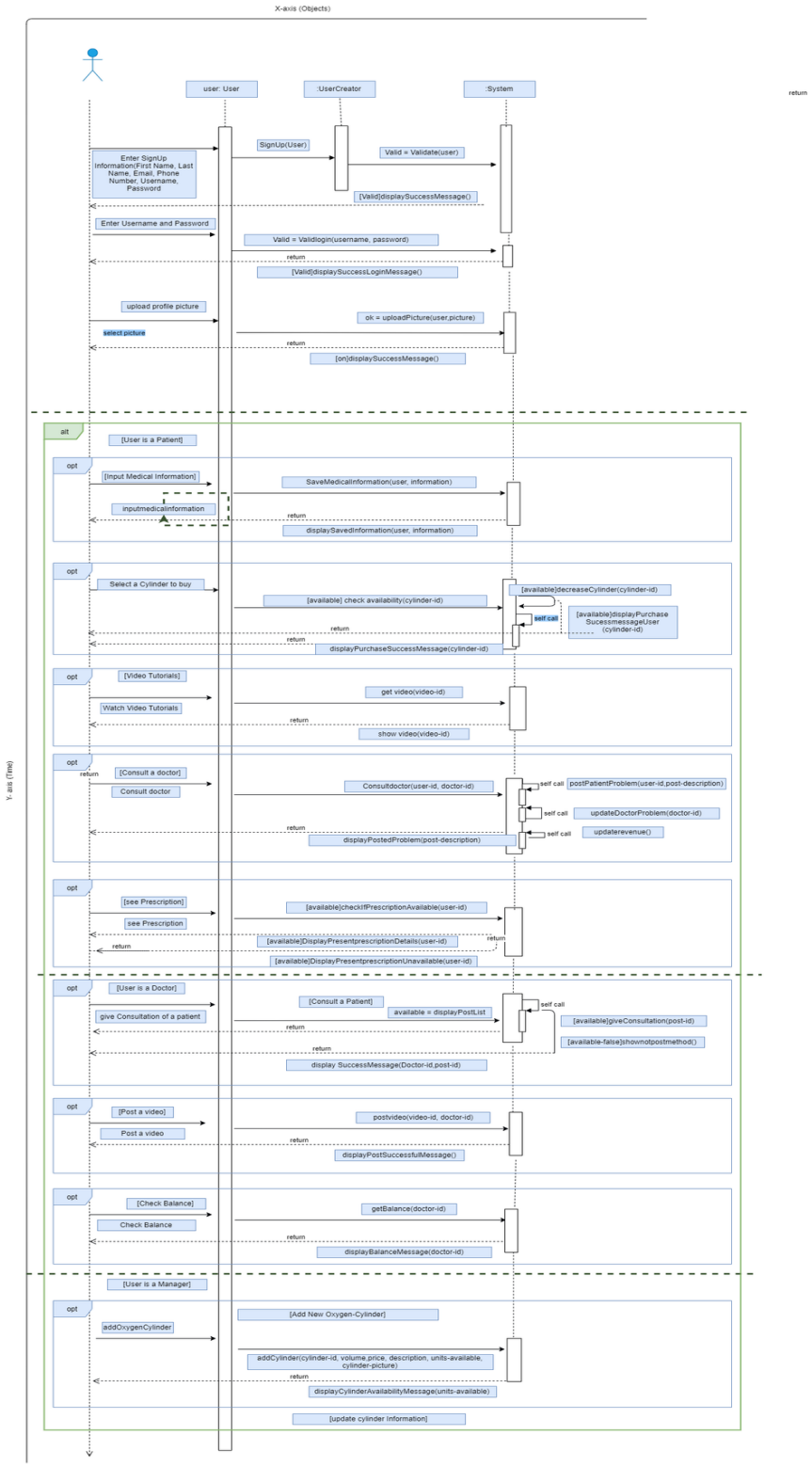
SECTION 2d- Activity Diagram



SECTION 2e- ER Diagram



SECTION 2f – Sequence Diagram



SECTION 3- Non functional requirements

3.1 User Friendly Interface: The software system's user interface (UI) should be made as user friendly as possible so that all the users can easily use the system.

3.2 Interface with modern design: Not only the user interface should be friendly but also must be of modern design.

3.3 Security and Privacy: User's data must not be misused in anyway. So, privacy of the users must be protected at all cost and the software must be a secured system.

SECTION 4- Functional requirements: Detailed Scenario Based Description

4.1 Sign up/Registration: There will be 3 types of users who can sign up/register in this software system. Based on the type of user, information needs to be entered:

- Normal users- Normal users can be corona affected people who need to get suggestions from doctors, or they can be just people who wants to get information on COVID-19 from this software system.

  ➔ *Scenario:* A person comes and tries to sign up as a normal user. He will need to enter the following information:
  - Full name
  - Gender
  - Date of birth
  - Email
  - Phone
  - Password
  - Username
  - Blood group

- Doctors- Experienced doctors can get involved in this software to help the corona affected patients.

  ➔ *Scenario:*A person comes and tries to sign up as a doctor. He will need to enter the following information:
  - Full name
  - Gender

  - email
  - phone
  - specialization
  - highest medical degree
  - working hours
  - doctor fee
  - username
  - password

- Special User- A contract will be signed with garments factory where the garments worker will be able to access all the features available for a normal user along with added benefits.

  ➔ *Scenario:* If a person tries to sign up as a garments worker/special user, he needs to enter the following information:
  - Full name
  - Gender
  - Email
  - Phone
  - Password
  - Username
  - Blood group
  - Company name
- Managers- managers will be able to update information about oxygen cylinders in the inventory

4.2. User verification during sign up/registration:

Whenever users register in this system, the admin will verify the user and only then will the users have full access of all the features of the system.

➔ *Scenario 1:*A user tries to sign up for the first time
The user will first need to state what type of user he is. Then, according to the type of user, he needs to enter all the required information. Verification of users is done on the basis of the user type:

- *Scenario 1a:* What happens when the user enters a NID, username, and password with which a user is already registered?

The user can not register since the same NID, username, and password for two users will not be allowed.

- *Scenario 1b:* What happens when the user enters unique phone number, username, and password?

  The user is successfully registered into the software system.
- *Scenario 1c:*What happens when a doctor or special user successfully enters all the valid information?

  If the user is a doctor or a special user(in our case a garment worker), the user must be verified by the admin and only then they will be allowed to access the rest of the user specific features.
- *Scenario 1d:* What happens when a normal user successfully enters all the valid information?

  The normal users do not need any verification and can enjoy the features of a normal user immediately.

4.3 User verification during login:

Whenever a verified user tries to login, the system will check whether the correct username and password is entered.

➔ *Scenario 1:* If a user tries to log in, he needs to enter his username and password. The system will then verify if the user really exists:

- *Scenario 2a:* What happens if the entered username and password are valid?

  If the username and password are valid, the user can access other user specific features.
- *Scenario 2b:*What happens if the entered username and password are not valid?

  If the username and password are not valid, he will not be allowed to access the user specific features and will be asked to enter the correct information again.

4.4User specific features for normal users:

- Users can watch Covid-19 related informative video tutorials which will be posted by experience doctors.
- Users can buy oxygen cylinders
  - ➔ *Scenario:*What happens if the user is a special user?
    If the user is a special user, that is, a garments worker, he will get 15 percent discount on all oxygen cylinders.
- Users can post his symptoms on a page. These medical problems can then be reviewed by a doctor who will then give primary consultation.
- Users can see a recommended diet chart which will be given by the doctors who are registered.
  - ➔ *Scenario 1a:*A user comes and posts his problem/symptom on the software system. What happens next?
    The postwill be reviewed by a doctor. The doctor can then give suggestions on what to do next. The doctor can also prescribe medicine and diet chart if needed. As soon as the doctor completes giving consultation through the software system, the user will be charged with a fee.
  - ➔ Scenario 1b: What happens when the user does not pay the fee?
    The user will not be able to access the suggestions/medicine/diet chart given by the doctor until he pays for the doctor's fee.
- The user can record his medical information, for example blood pressure, diabetes and oxygen saturation level for his own use.

4.5User specific features for doctors:

- Doctors can post Covid-19 related informative video tutorials for users to watch.
- Doctors can prescribe medicine, recommend diet charts and give suggestions to users who post their Covid-19 symptoms seeking help from the doctors.
  - ➔ *Scenario 1a:* A doctor comes to view a problem posted by a user. What happens next?
    Now, the doctor will inform them what to do next. He may give suggestions to stay at home or visit a hospital based on the seriousness of the symptoms. When a doctor finish giving consultation/ recommending diet chart/ prescribing medicine, the user will be charged with a fee which he needs to pay the doctor.

➔ *Scenario 1b*: A user pays a doctor's fee. What happens next?

As soon as the user pays, a 5 percent commission is cut from that amountas commission for using the software and thenthe doctor's current balance is updated.

- The doctors can see their current balance.
- The doctor can see the list of patients/users that the doctor has attended as of the current date.

4.6 User specific features for special users:

- The special users/garments workers will have all the features that are available to the normal users. To see the features available for normal users, please refer to the 4.3 of Functional Requirement in this section.
- The garments worker will have special discounts.
  - ➔ *Scenario 1a:*What happens when a garment worker tries to buy oxygen cylinders from this software?

    The garment worker will get 15 percent discount.
  - ➔ *Scenario 1b:*What happens when a garment worker tries to consult a doctor through this software?

    Any garments worker who tries to consult doctors through this software will get 10 percent discount.

4.7 Frequently Asked Questions (FAQ):

A frequently asked question (FAQ) page must be prepared where anyone can contribute to this community by sharing their experience of Covid-19 virus, and how they overcame it.

4.8 Other Required pages:

A page must be prepared where people can read about the software and its stakeholders (About us page). Also, a separate page must be prepared listing all the contact information (Contact us page).

Section 5: Technologies - Programming Language, Database, Others

- **Programming language:**Programming language that will be used in the backend of this software system is Python. It is one of the most popular and widely used programming languages in the world.

- **Web Framework:**Django web framework will be used to develop this system. It is a python web framework which can be used for rapid development. It can be used to make a secure website with clean and maintainable design.

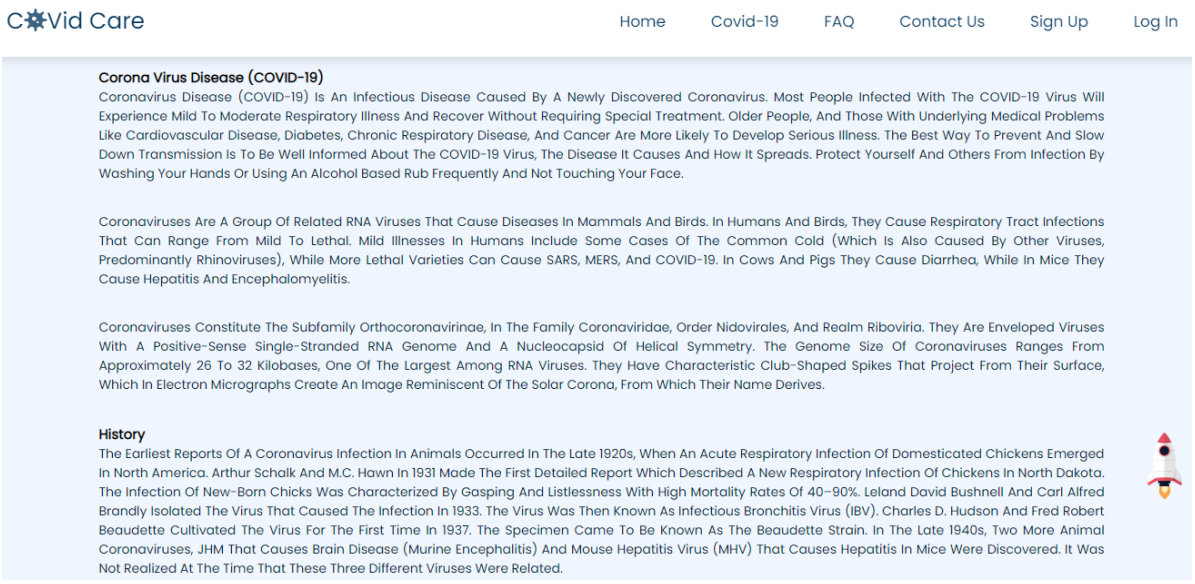
- **Database:** For the database, MySQL will be used to store all the information.MySQL is a relational database management system (RDBMS) based on Structured Query Language (SQL).MySQL is renowned for being the most secure and reliable database management system used in web applications. Not only this, MySQL can be relied upon to make high performance websites to ensure optimum speed.

- **Frontend:**For frontend, Bootstrap will be used to make the website responsive and mobile-first. So, users can access all features in all devices. Java Script will also be used to make the website interactive.

Section 6: GUI Screenshots

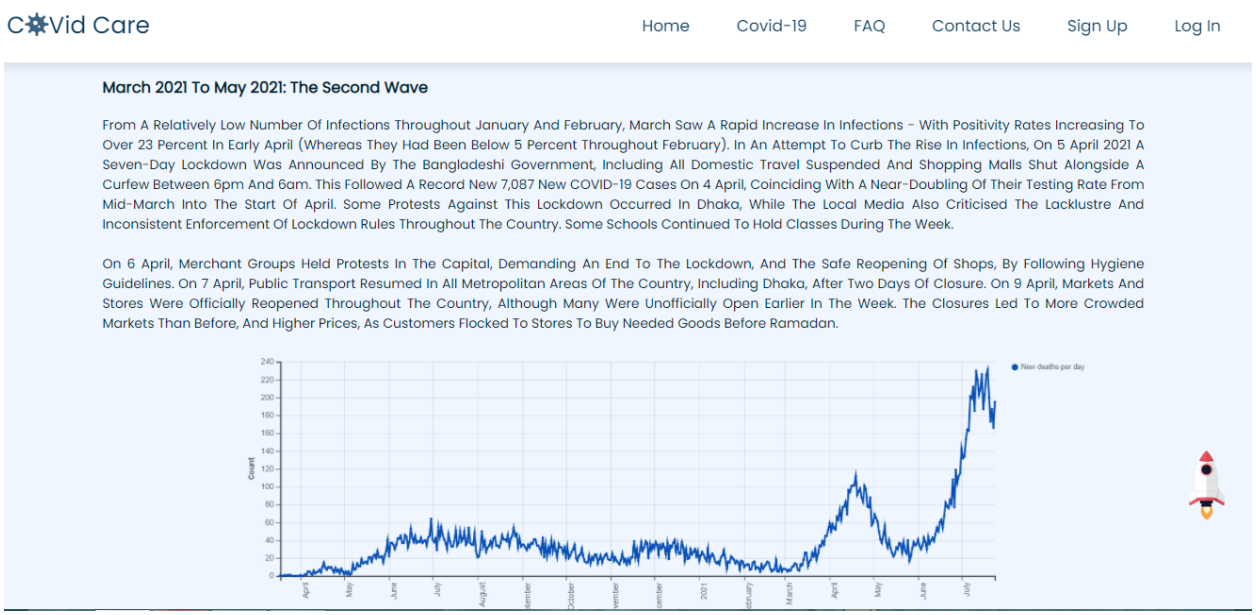
- Home Page

- **Covid-19 Page**



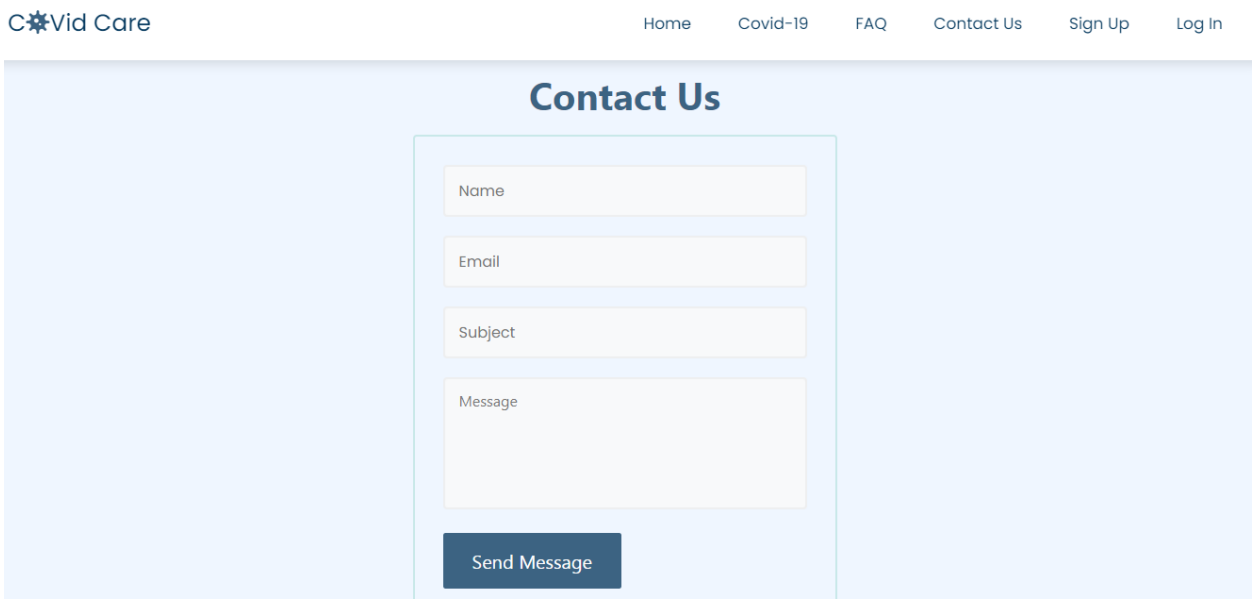
- **How to prevent covid-19 information page**

- **Covid-19 Statistics in Bangladesh**

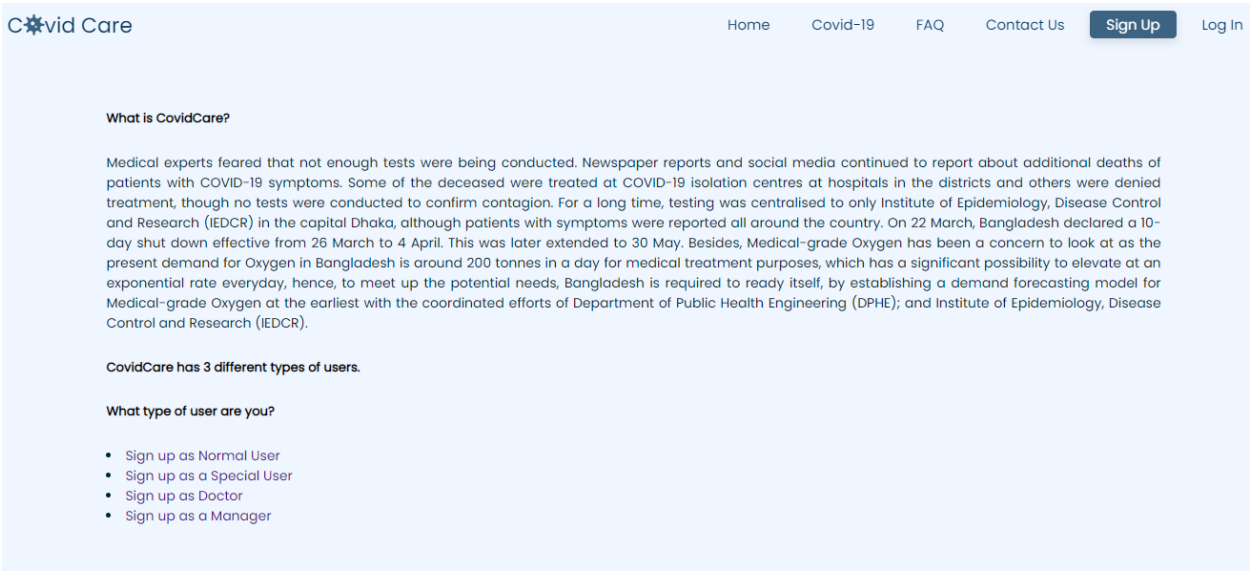


- **FAQ Page**

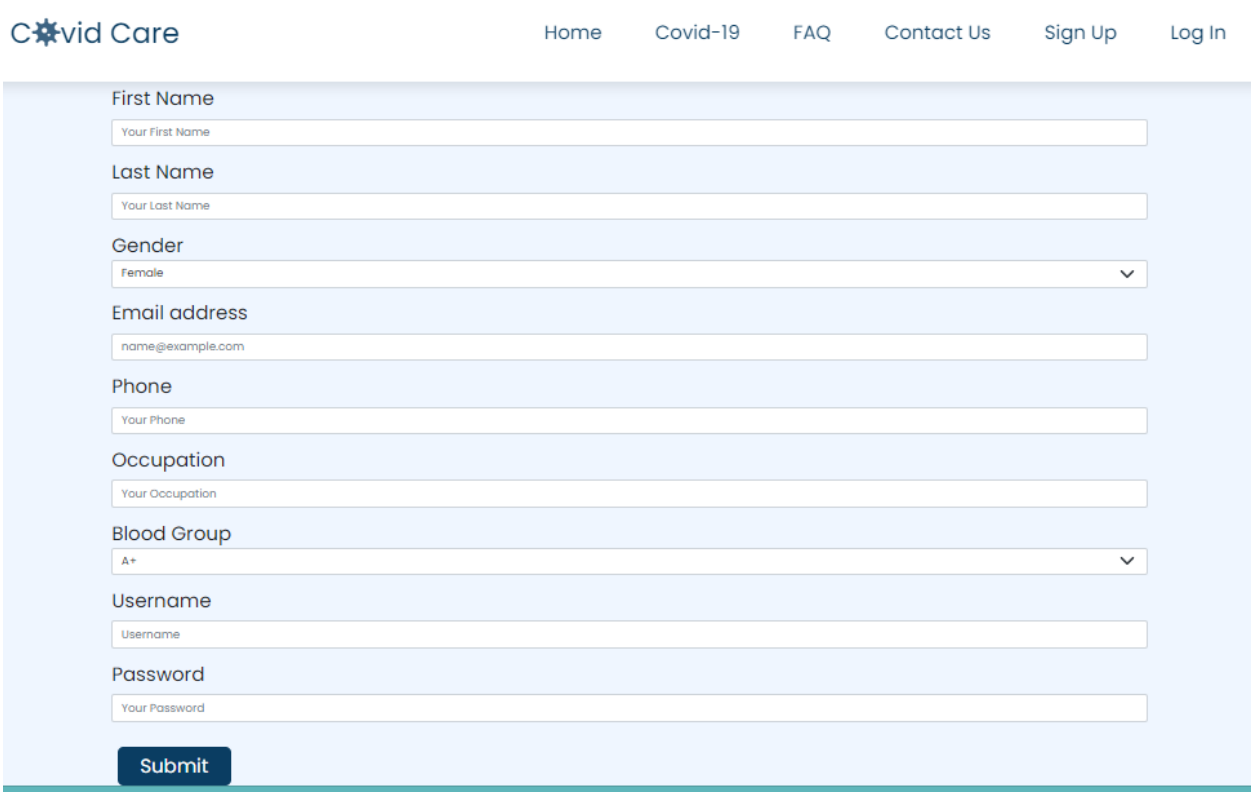
- **Contact Us Page**



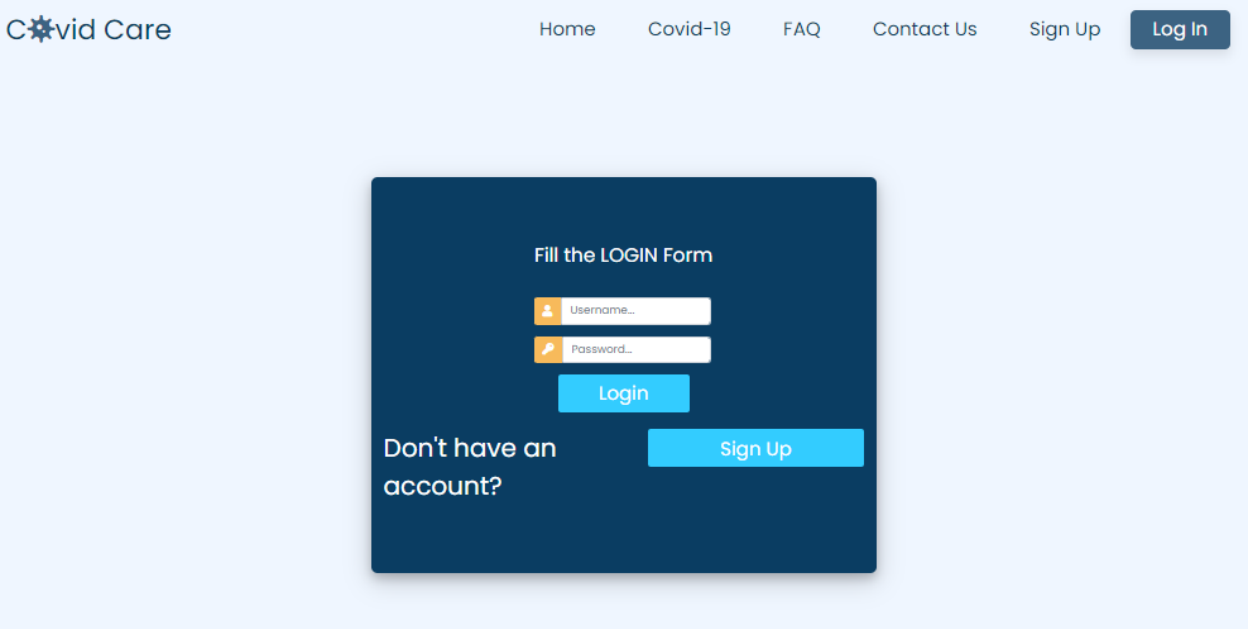
- **Sign up page for all users**



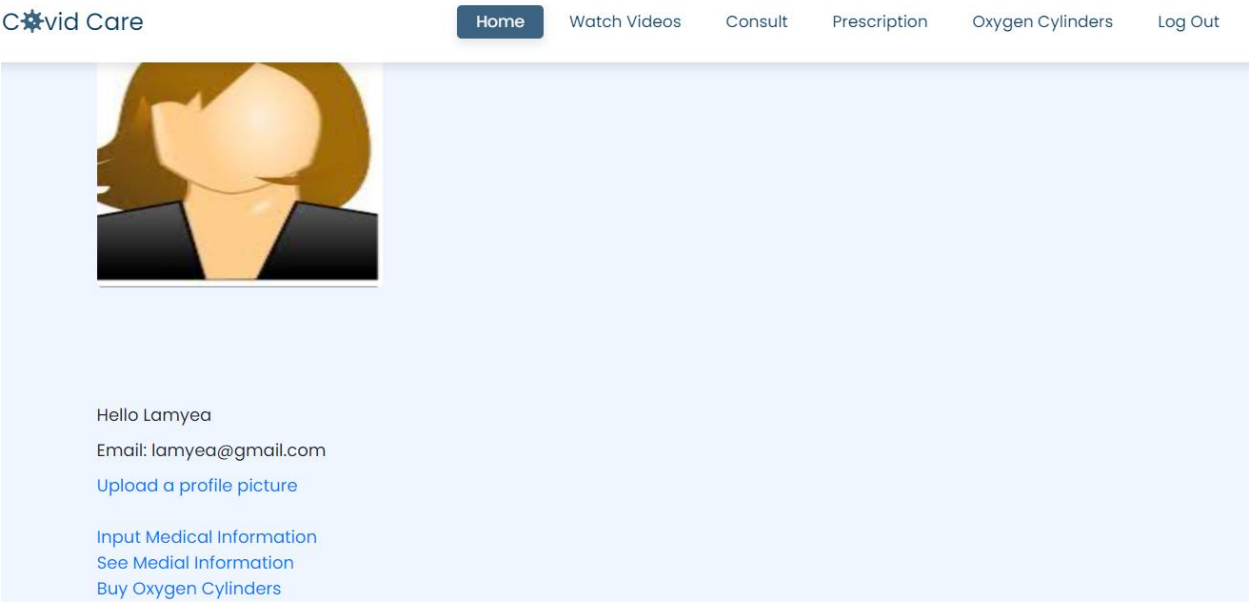
- **Sign up Form**



- **Log in form**

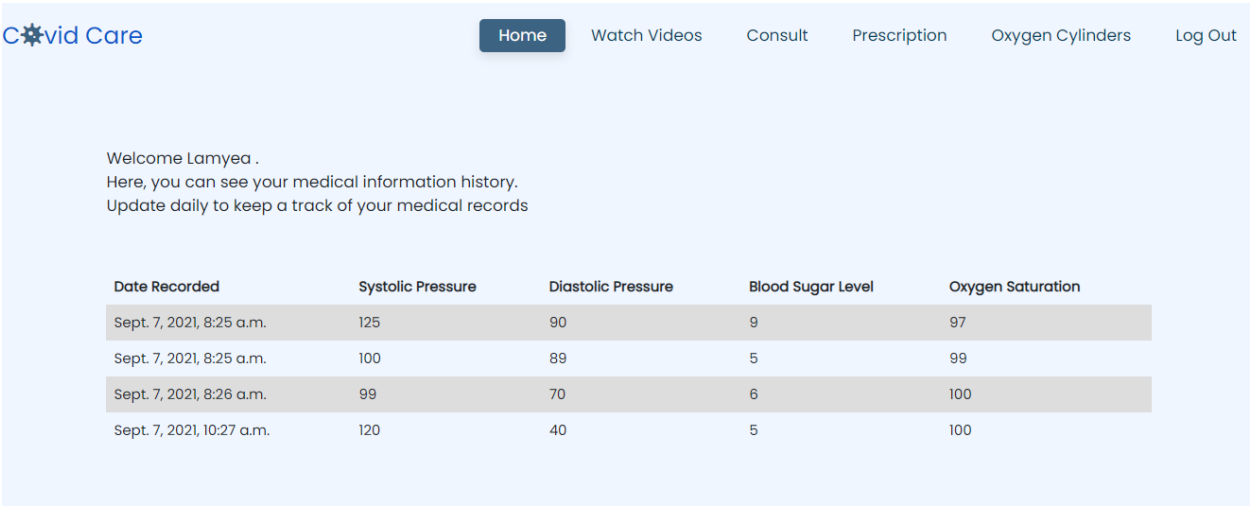


- **User home page**



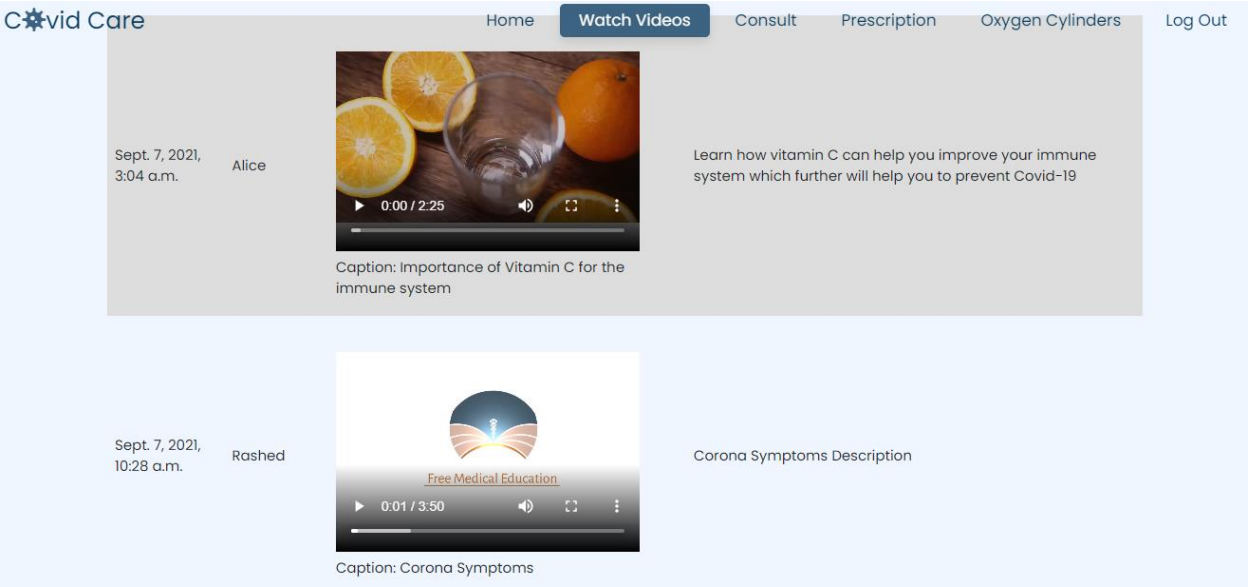
- **Medical Information Form**

- **Medical Information Display**

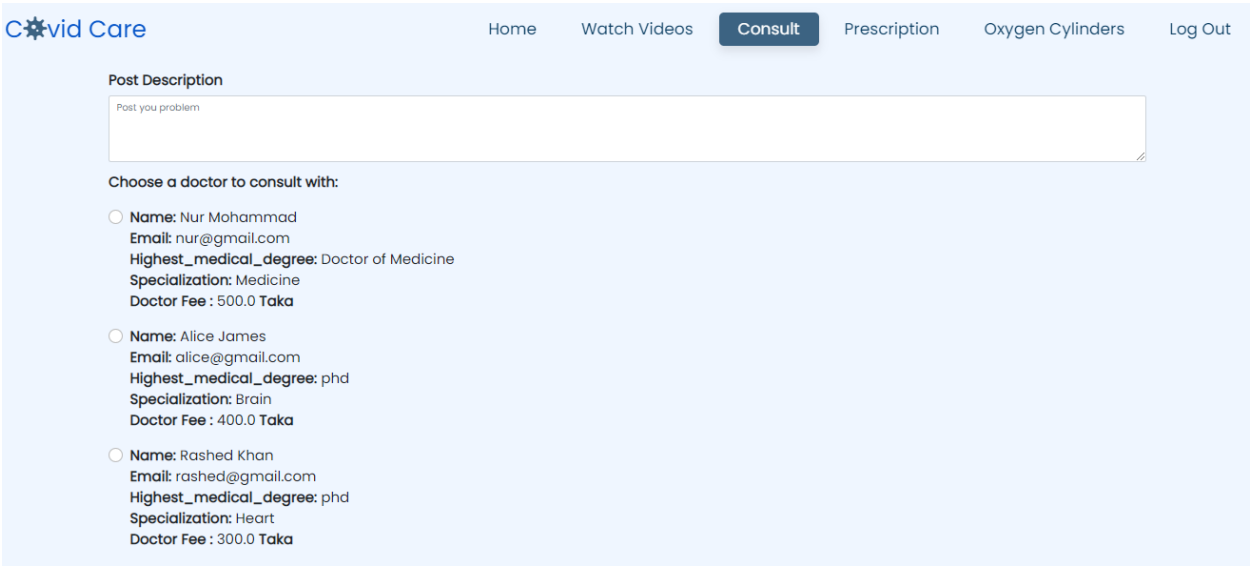


- **Cylinder Shop Page**

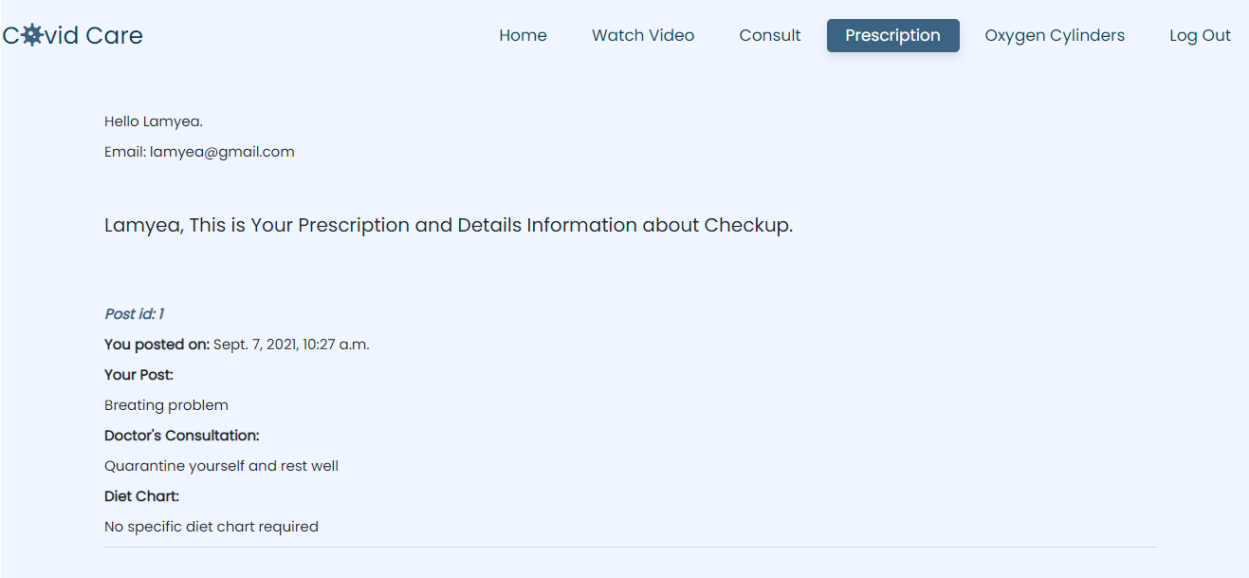
- **Display Videos Page**



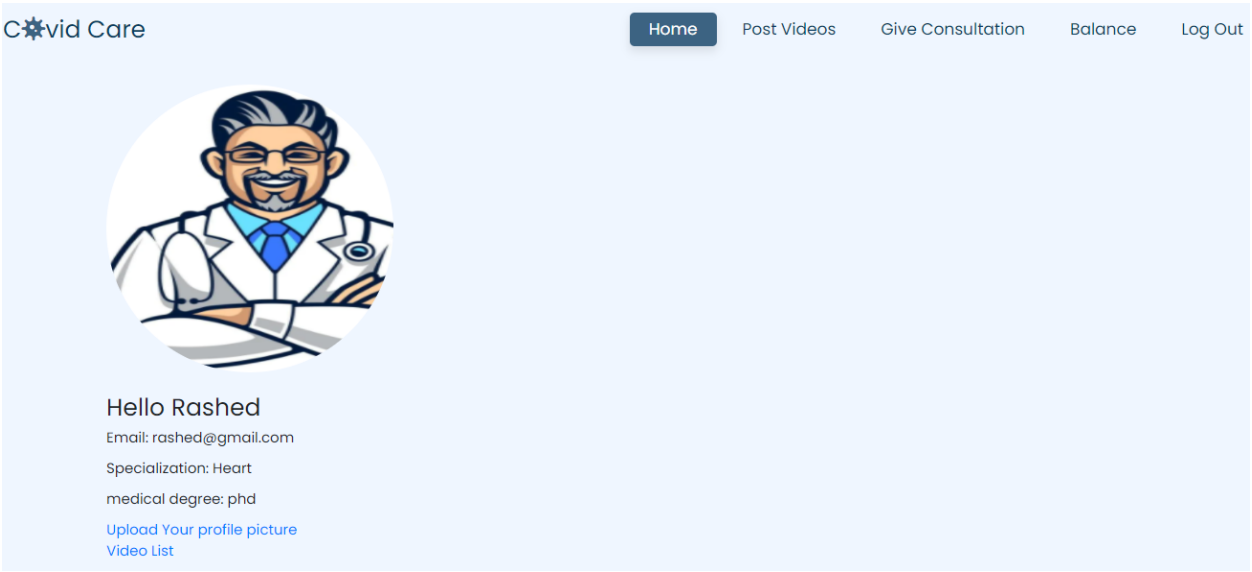
- **Get Consultation page for patients**



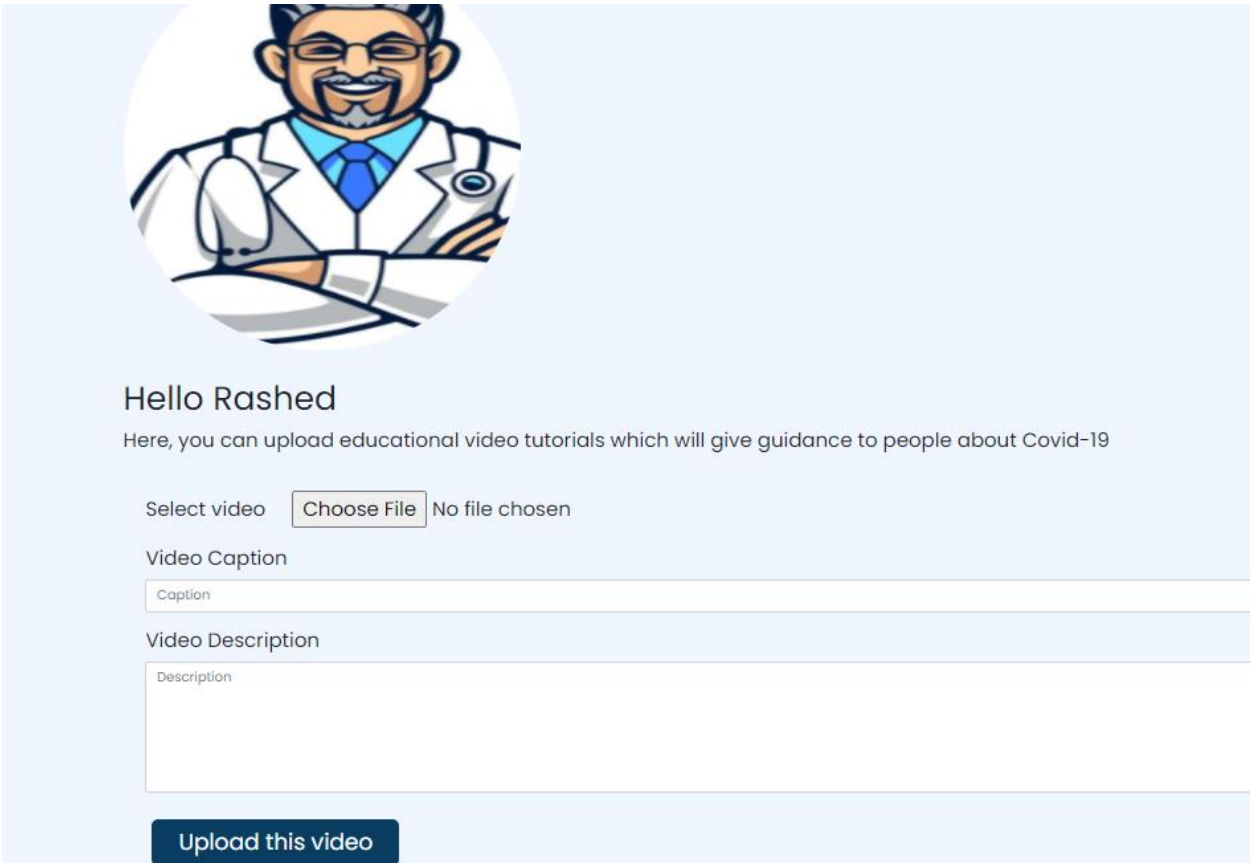
- **Display Prescription for patients**



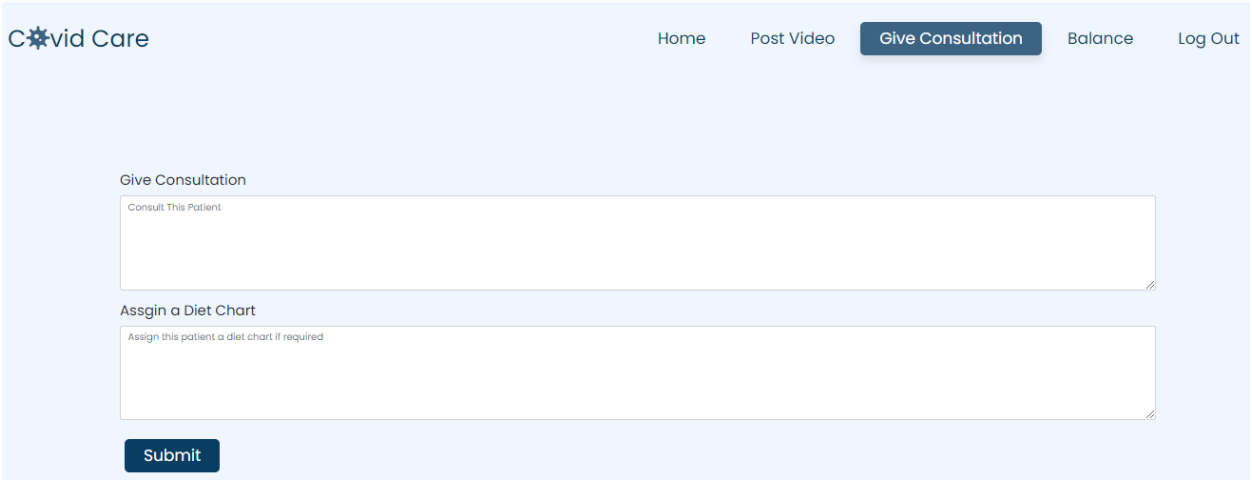
- **Doctor home page**



- **Upload Video page for doctor**

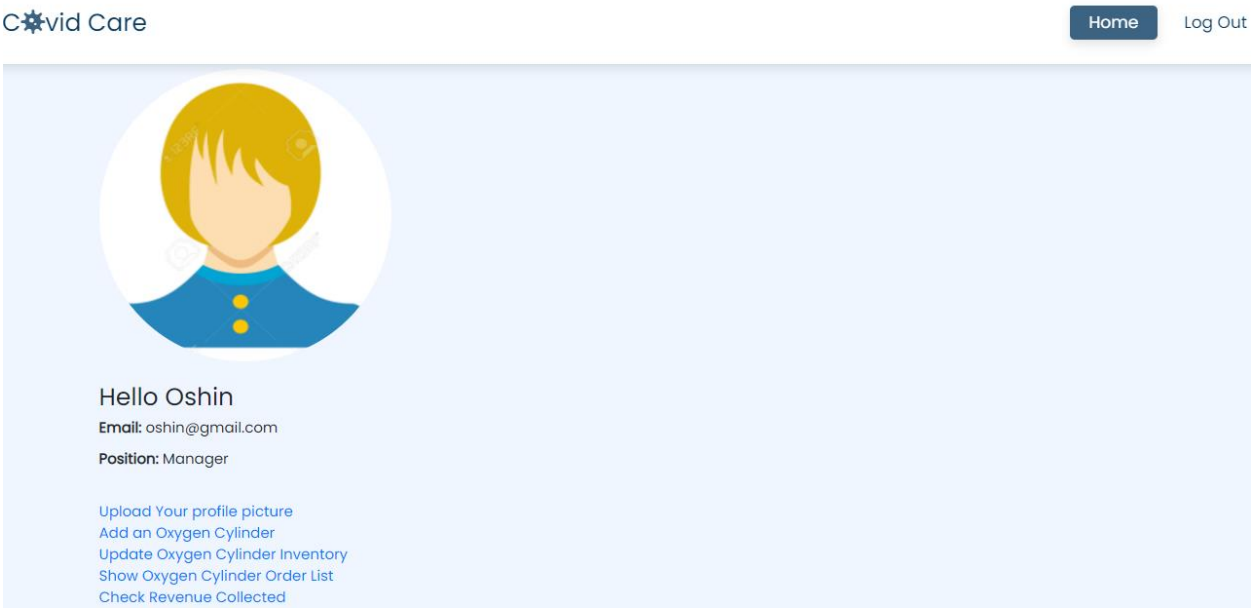


- **Give Consultation Page**

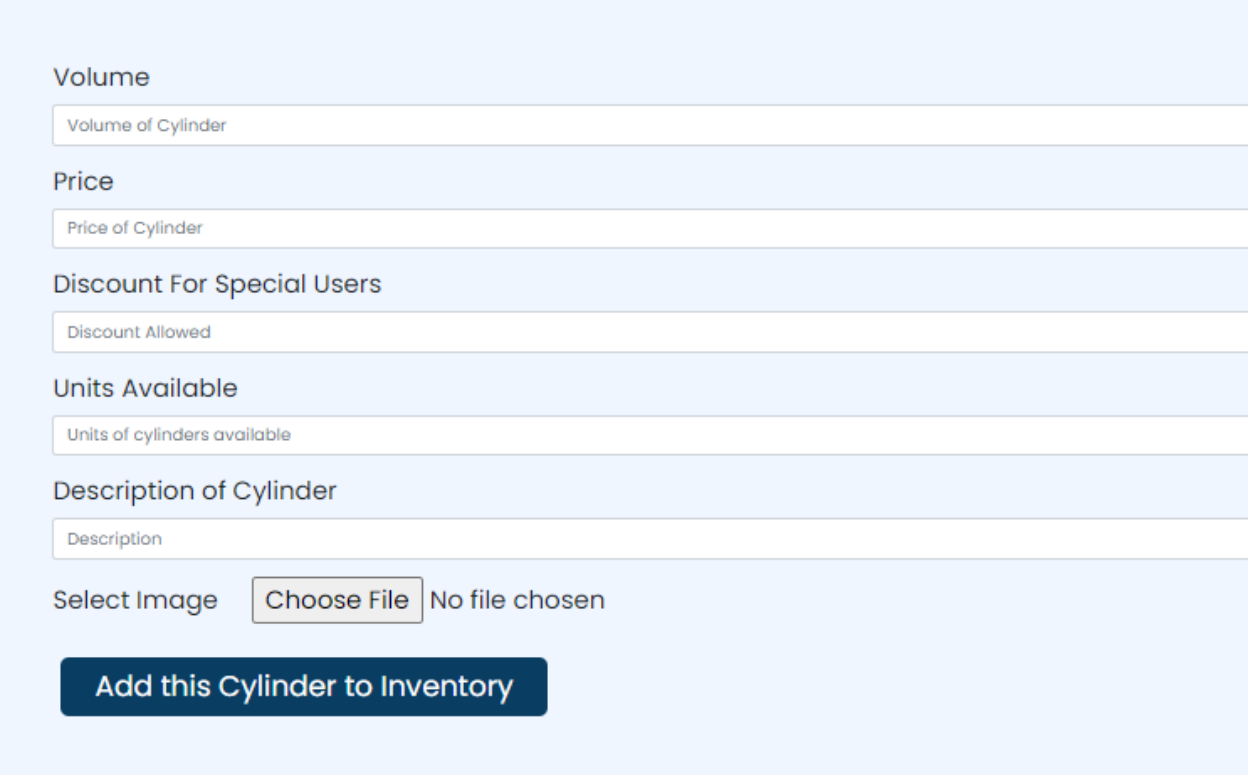


- **Check Balance Page for doctor**

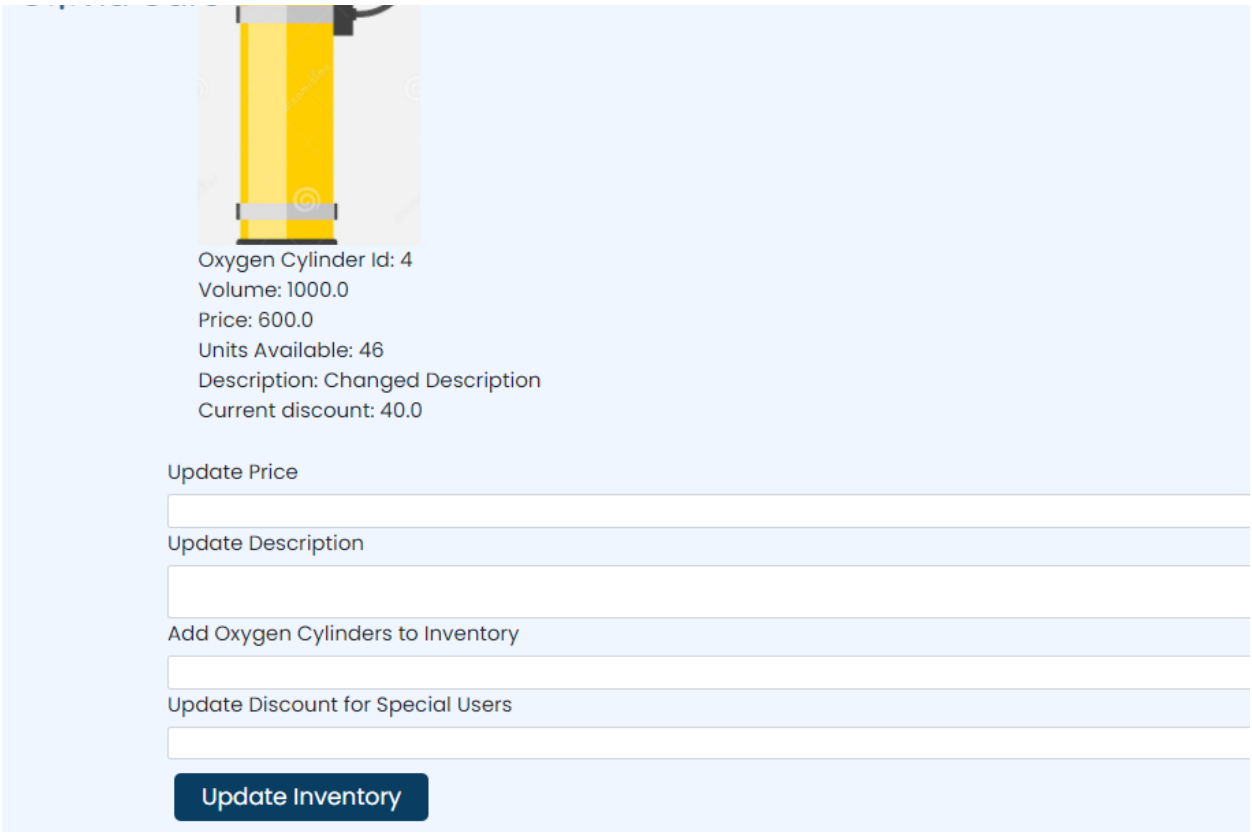
- **Manger home page**



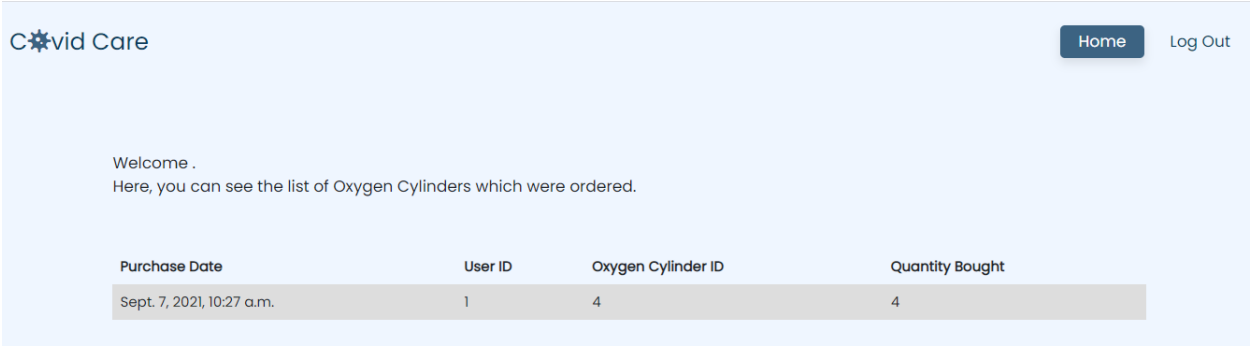
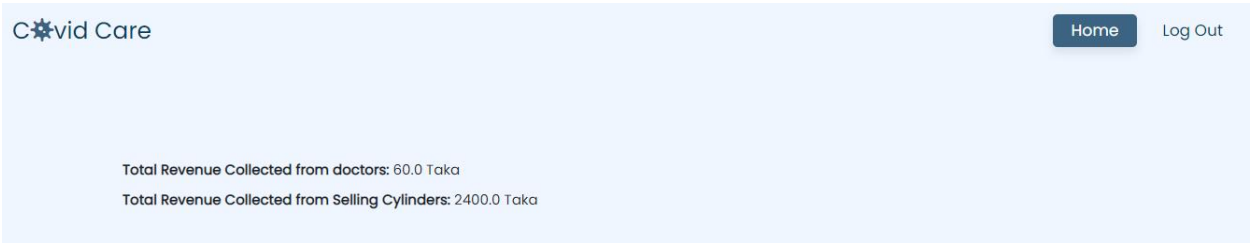
- **Add Oxygen cylinder as manager**



- **Update Cylinder information as manager**



- **Display Cylinder order list**



- **Display total revenue from the system**