SECOND REVIEW REPORT

VIRTUAL DOCTOR

Under the guidance of,

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Roll No **:** 2019202047

MCA Regular (6^{th} Semester)

VIRTUAL DOCTOR

PHASE 2 REPORT

Submitted by

ROGITHKUMAR B

2019202047

in partial fulfilment for the award of degree of

MASTER OF COMPUTER APPLICATION

A report of the project submitted to the faculty of

DEPARTMENT OF INFORMATION SCIENCE AND TECHNOLOGY

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BONAFIDE CERTIFICATE

Certified that this Report titled "**VIRTUAL DOCTOR**" is the bonafide work of **ROGITHKUMAR B(2019202047)** who carried out the work under my supervision. Certified further that to the best of my knowledge the work reported herein does not form part of any other thesis or dissertation on the basis of which a degree or award was conferred on an earlier occasion on this orany other candidate.

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ABSTRACT

One of the most important discoveries and creative developments that is playing a vital role in the professional world today is blockchain technology. Blockchain technology moves in the direction of persistent revolution and change. It is a chain of blocks that covers information and maintains trust between individuals no matter how far they are. Key concerns with blockchain applications in healthcare includes Network infrastructure security at all levels, Identity verification and authentication of all participants, Uniform patterns of authorization to access electronic health information.

The application will have three sides, One for Doctors and another one for patients and admin to manage both. The Doctors can voluntarily register themselves on our website for their particular profession and the people who are in need for a particular profession doctor they can approach that doctor with their appointment time. And if the doctor is okay with their appointment he/she can accept their proposal and he/she will consult virtully. The same information on the blockchain could allow individualpatients to easily unlock and share their health data with other providers or organizations, through a shareable privat providers or organizations, through a shareable private key. This could help to make health information technology (HIT) interoperable and collaborative between different users.

Solidity language is used to write smart contracts, and with the help of ganache we can deploy the contracts. It gives the GUI to view the blocks, ethers and gas used for tractions.We also use web3.js which is a Javascript library used to connect the deployed smart contract through the front end UI. This will be a web based application. Tools and Technologies: Remix IDE, Solidity, Ganache, web3.js, HTML5, CSS5, Bootstrap .

ACKNOWLEDGEMENT

The satisfaction that accompanies the success would be incomplete without mentioning the names of people who made it possible.

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Rogithkumar B

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CHAPTER -1

INTRODUCTION

1.1 GENERAL

Recently, the use of technology in Medicine and Healthcare has grown to a greater extent particularly during the pandemic period. The circulation of people in public is reduced considerably and people wish to do all possible work through online websites and mobile applications. Websites are the most popular and convenient means by which people can contact hospitals and other healthcare divisions. All the healthcare sectors require large database management systems to handle huge amounts of data regarding patients, doctors, consulting, and treatments. To solve this problem, a database management system is developed for the hospitals to maintain all the data efficiently that can be accessed by patients, doctors, and administrators via a common website. This system facilitates the patients to book appointments online and to view their medical profiles.

1.2 PROBLEM STATEMENT

The motive of the project is to store the medical records in a secure plathform The existing system stores the medical records of the patients in the Databases.In this project, the system will store the data and records of the patients and doctor in the Ethereum Blockchain.Blockchain technology increases the security in medical records.

1.3 MOTIVATION &OBJECTIVES OF THE STUDY

To Create a online application for connectioning patients and doctors virtualy and store the patients medical records in blockchain. The main motive to store the patients records is to maintanin them for furture use. So that the other healthcare organisation know the medical history and gives the treatment clarifing the patients medical history

1.4 DOMAIN

A blockchain is a distributed database that is shared among the nodes of a computer network. As a database, a blockchain stores information electronically in digital format. Blockchains are best known for their crucial role in cryptocurrency systems, such as Bitcoin, for maintaining a secure and decentralized record of transactions. The innovation with a blockchain is that it guarantees the fidelity and security of a record of data and generates trust without the need for a trusted third party.

One key difference between a typical database and a blockchain is how the data is structured. A blockchain collects information together in groups, known as blocks, that hold sets of information. Blocks have certain storage capacities and, when filled, are closed and linked to the previously filled block, forming a chain of data known as the blockchain. All new information that follows that freshly added block is compiled into a newly formed block that will then also be added to the chain once filled.

A database usually structures its data into tables, whereas a blockchain, like its name implies, structures its data into chunks (blocks) that are strung together. This data structure inherently makes an irreversible timeline of data when implemented in a decentralized nature. When a block is filled, it is set in stone and becomes a part of this timeline. Each block in the chain is given an exact time stamp when it is added to the chain.

CHAPTER -2

SYSTEM ARCHITECTURE

2.1 ARCHITECTURE DIAGRAM

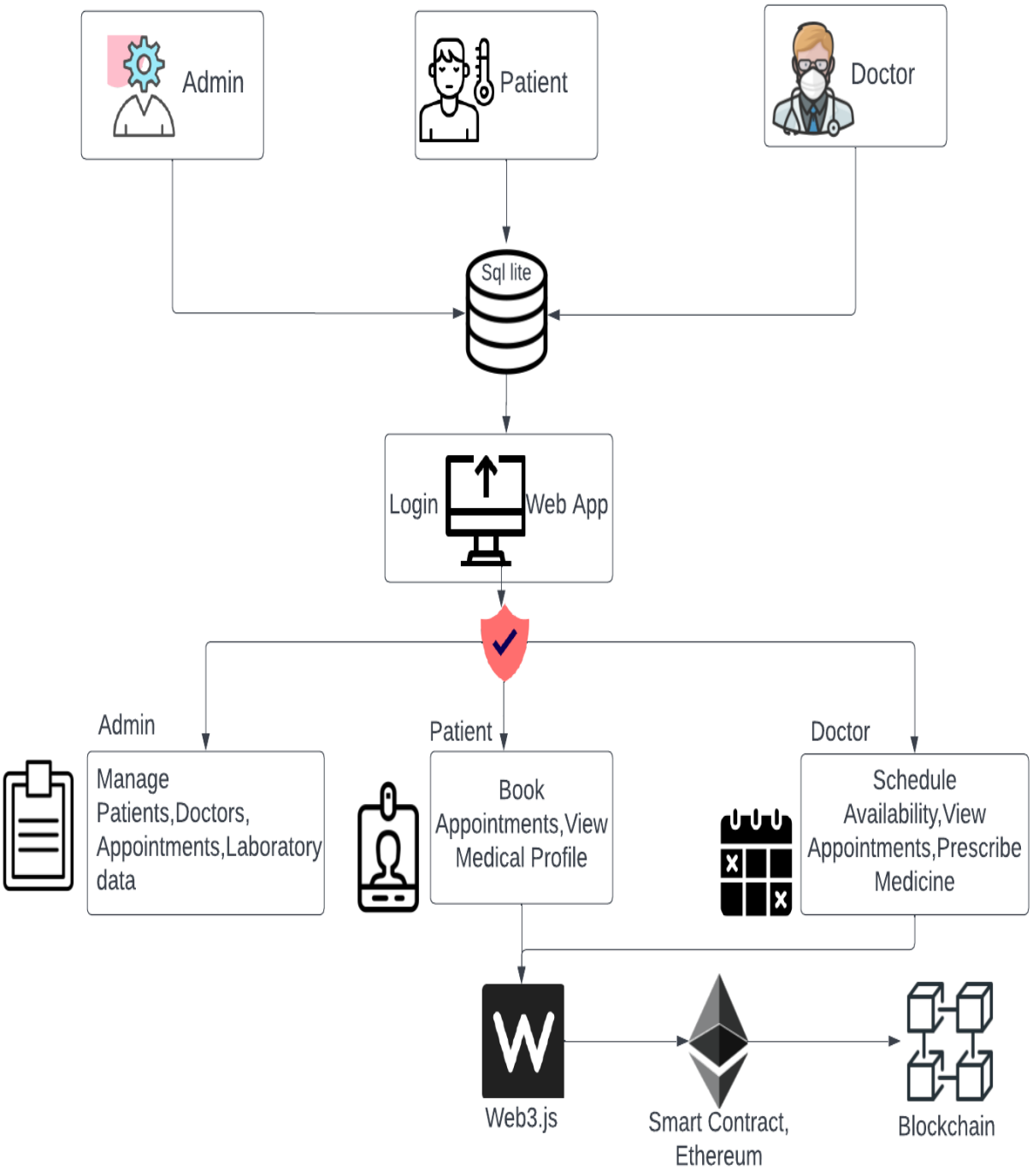


Fig2.1 Architecture Diagram

2.2 ARCHITECTURE EXPLANATION

The architecture diagram represents the online doctor consultation Management System which has three main modules, Admin module, Patient module and Doctor module. The Admin, Patient and Doctor has the accessibility and are connected to the Blockchain where interaction and exchange of data takes place.

The Blockchain holds all necessary details of the registered patients. The login control is accessible by admin, patient and doctor where, admin could manage patient's records, check for doctor's availability and so on.The patient could book appointments online based on the specialization and availability of doctors, could update their personal details and view their medical profile. The doctors could manage and view their everyday appointments, view patient's medical records and could prescribe medications online.

2.3 LIST OF MODULES

- Patients
- Doctors
- Admin
- Appointment bookings
- Online prescriptions

2.4 MODULES DESCRIPTION

PATIENT MODULE:

This module allows patients to feed their details like Date of Birth, Age, Blood group, Address, Email, contact number and also lets them in uploading their profile picture. If the patient's appointment is confirmed, they can view their appointment sheet. In case if the patient wants to cancel the appointments, they can go through the cancellation process through the website.

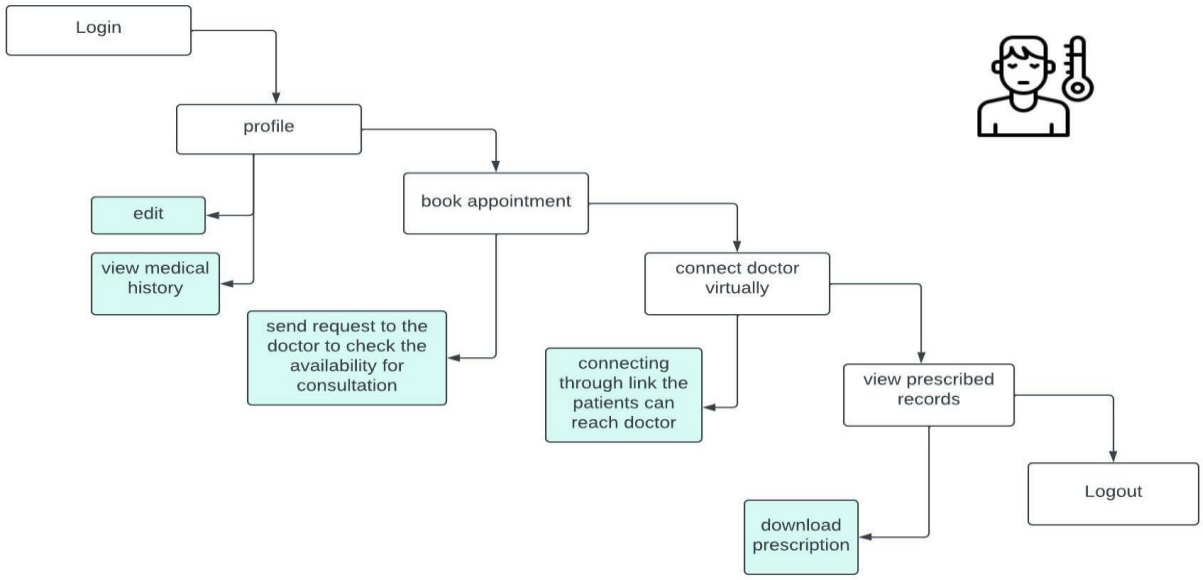


Fig2.2 patient flow diagram

DOCTOR MODULE:

Doctors can update their details (i.e., Name, specialization, doctor id, etc.) after login and can access his patient’s details, give medications regarding the appointment considering the medical history of the patient (previous appointments with all other doctors and their prescriptions with Laboratory Test Reports).

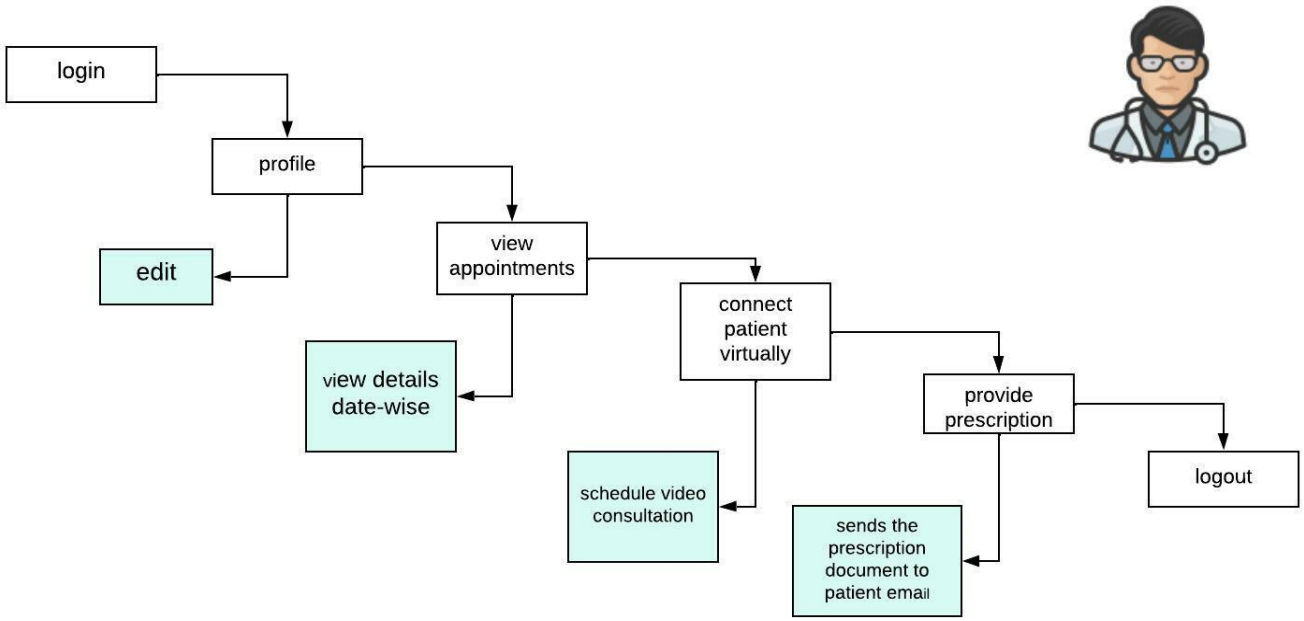


Fig2.3 Doctor flow diagram

ADMIN MODULE:

This Module includes all the Patient, Doctor personal, and medical profiles that can be accessed from the database. In here, adding new doctor profiles and deleting resigned doctors are processed. Also, the list of appointments with their status such as 'Booked', 'Consulted', 'Not Consulted', 'Cancelled' can be viewed by an admin. The patient is intimated with a remainder regarding the appointment on the booked date via Email from this Module. This module also includes a Laboratory section to view and upload Lab Reports prescribed by the doctor based on Appointment ID

APPOINTMENT BOOKINGS:

For fixing the appointment, the patient has to choose the doctor through the specialization required and available date and time of that particular doctor which will be displayed while booking. Before the appointment date, our application reminds the patient regarding the appointment through Email.

ONLINE PRESCRIPTIONS:

This module enables the doctors to provide medications through Online Prescription which will be added to the database in the patient's medical history and can be viewed by the patients and Laboratory (in case if Lab Test Prescriptions are available).

CHAPTER -3

IMPLEMENTATION

3.1 PLATFLOM / FRAMEWORK

- Operating System - windows os
- Programming Language - python django
- Environment - web3 js
- Code Editor - visual studio code

Major libraries used

- **Web3 -**

  Web3.py is a python library for interacting with Ethereum.its commonly found in decentralized apps to help with sending transactions,interaction with smart contracts,reading block data and a variety of other use cases.the original API was derived from the Web3.js javascript API,but has since evalved toward the needs and creature comforts of python developers.

- **WebSocket –**

  The WebSocket client library can be used to create a synchronous (blocking) WebSocket client or an asynchronous (non blocking, event driven) client. Both versions can interact with our API successfully, so the choice would depend upon the specific requirements of the implementation (such as whether other tasks needed to happen in parallel).

- **WebRTC –**

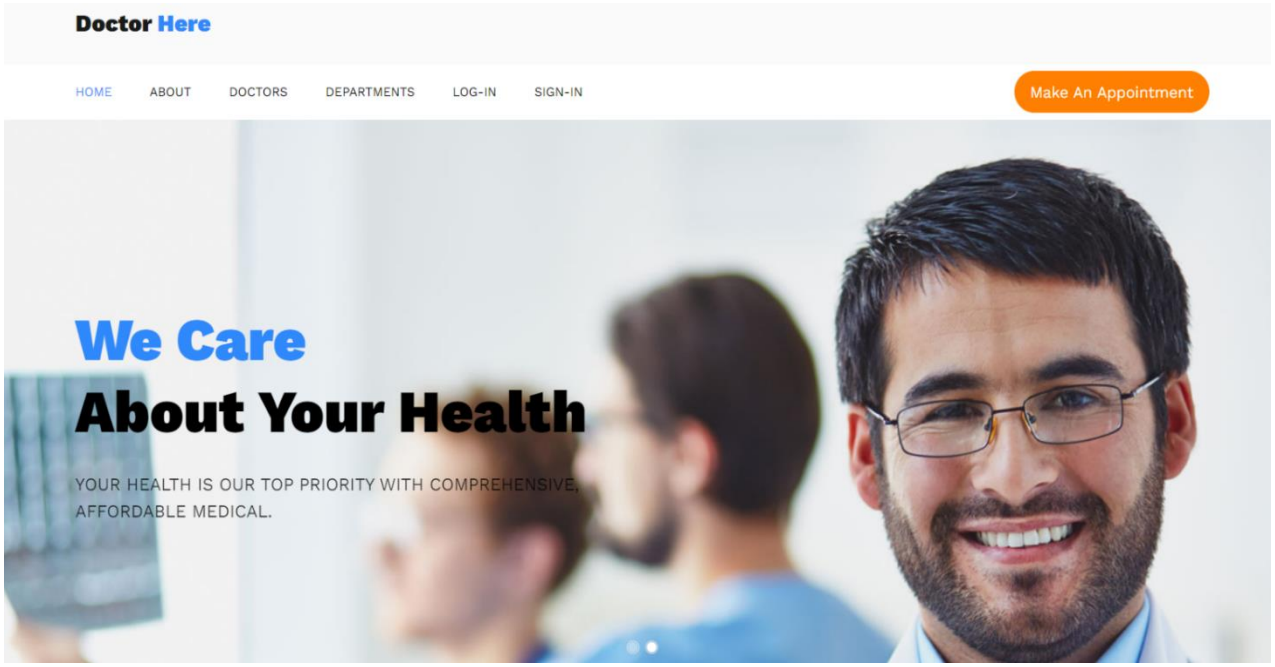
  Web Real-Time Communication (WebRTC) is a specification for a protocol implementation that enables web apps to transmit video, audio and data streams between clients and server.

- **Pillow –**

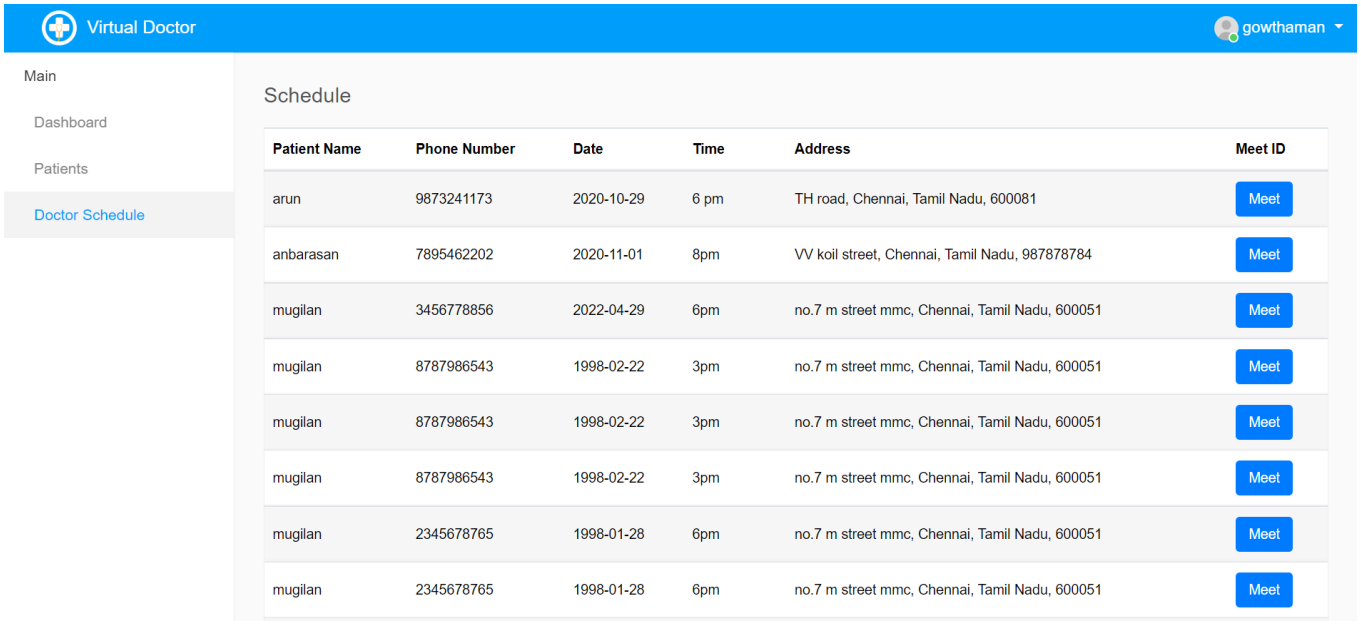
  Python pillow library is used to image class with it to show the image. The image modules that belong to the pillow package have a few inbuilt functions such as load images or create new images.

3.2 MODULE BASED SCREENSHOTS

HOME SCREEN:

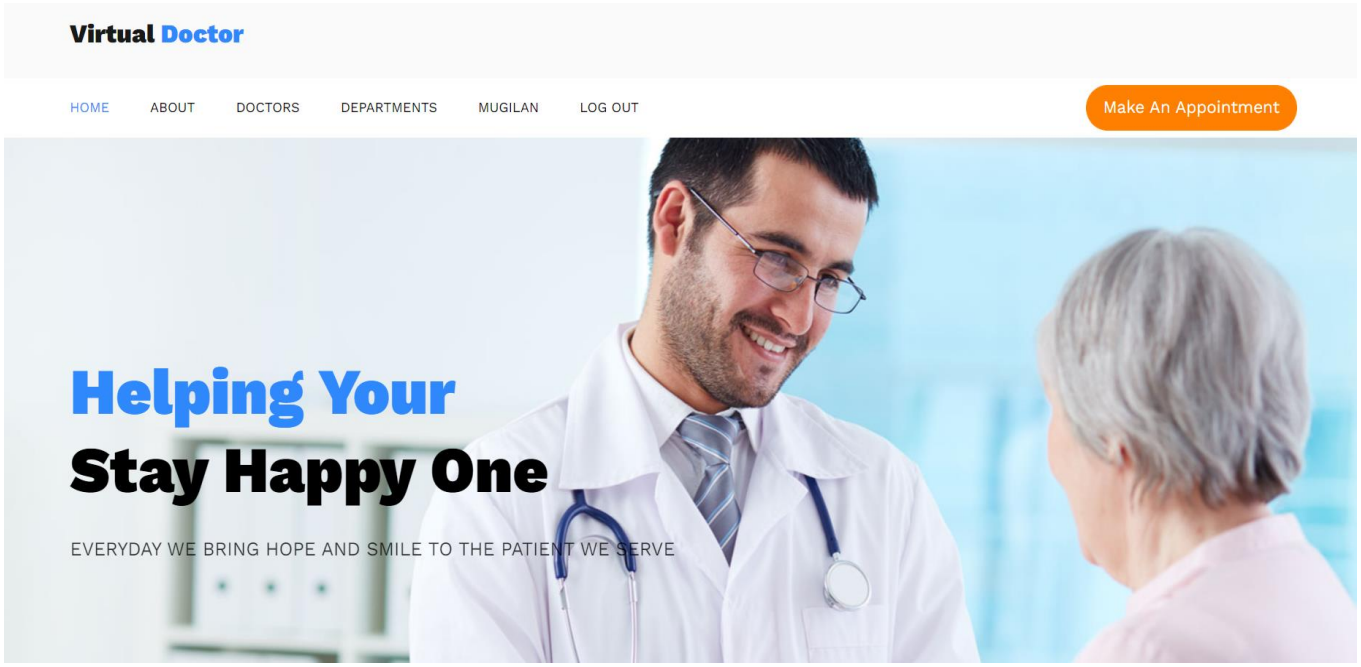


DOCTOR SCREEN:

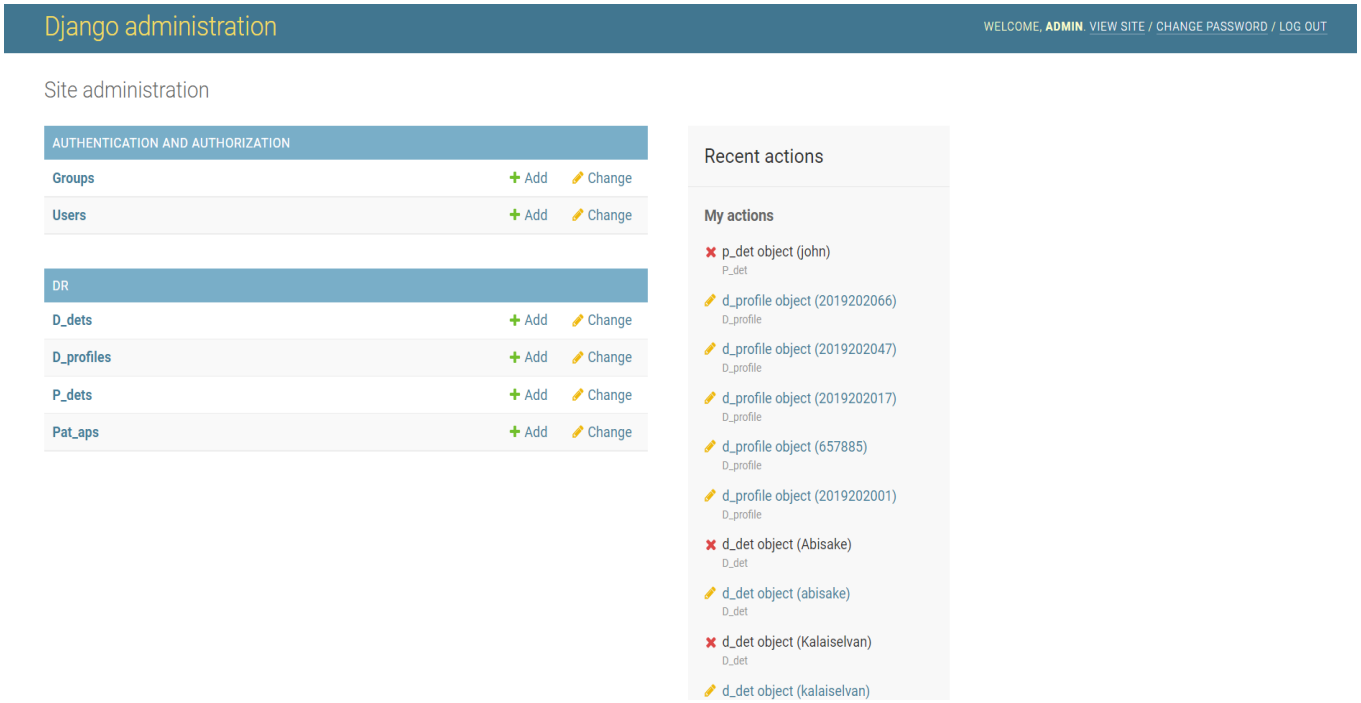


Patient Name	Phone Number	Date	Time	Address	Meet ID
arun	9873241173	2020-10-29	6 pm	TH road, Chennai, Tamil Nadu, 600081	Meet
anbarasan	7895462202	2020-11-01	8pm	VV koil street, Chennai, Tamil Nadu, 987878784	Meet
mugilan	3456778856	2022-04-29	6pm	no.7 m street mmc, Chennai, Tamil Nadu, 600051	Meet
mugilan	8787986543	1998-02-22	3pm	no.7 m street mmc, Chennai, Tamil Nadu, 600051	Meet
mugilan	8787986543	1998-02-22	3pm	no.7 m street mmc, Chennai, Tamil Nadu, 600051	Meet
mugilan	8787986543	1998-02-22	3pm	no.7 m street mmc, Chennai, Tamil Nadu, 600051	Meet
mugilan	2345678765	1998-01-28	6pm	no.7 m street mmc, Chennai, Tamil Nadu, 600051	Meet
mugilan	2345678765	1998-01-28	6pm	no.7 m street mmc, Chennai, Tamil Nadu, 600051	Meet

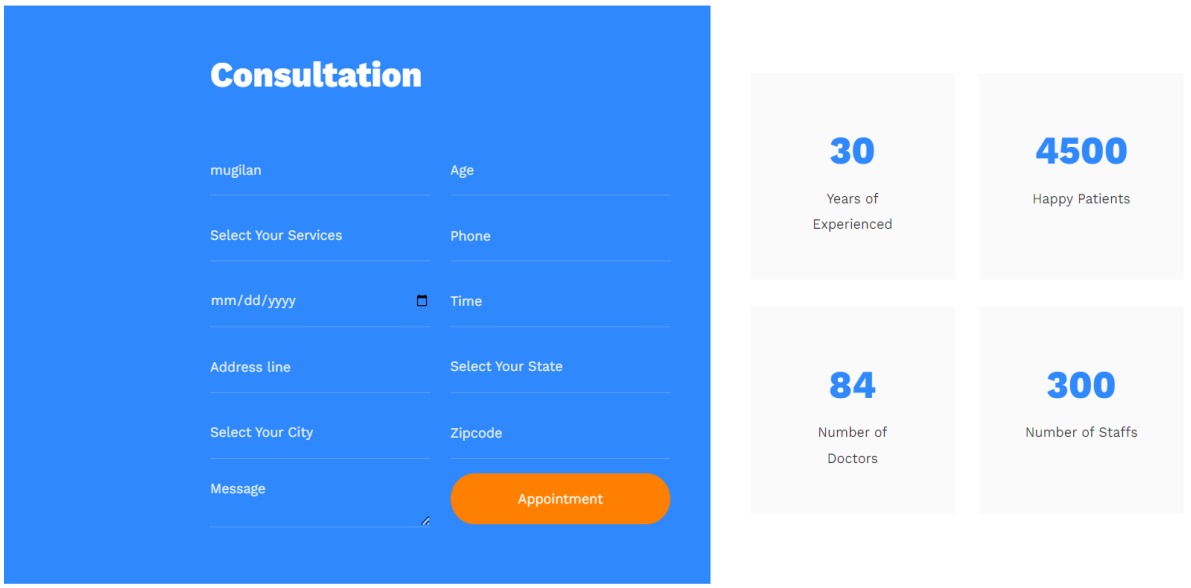
PATIENT SCREEN:



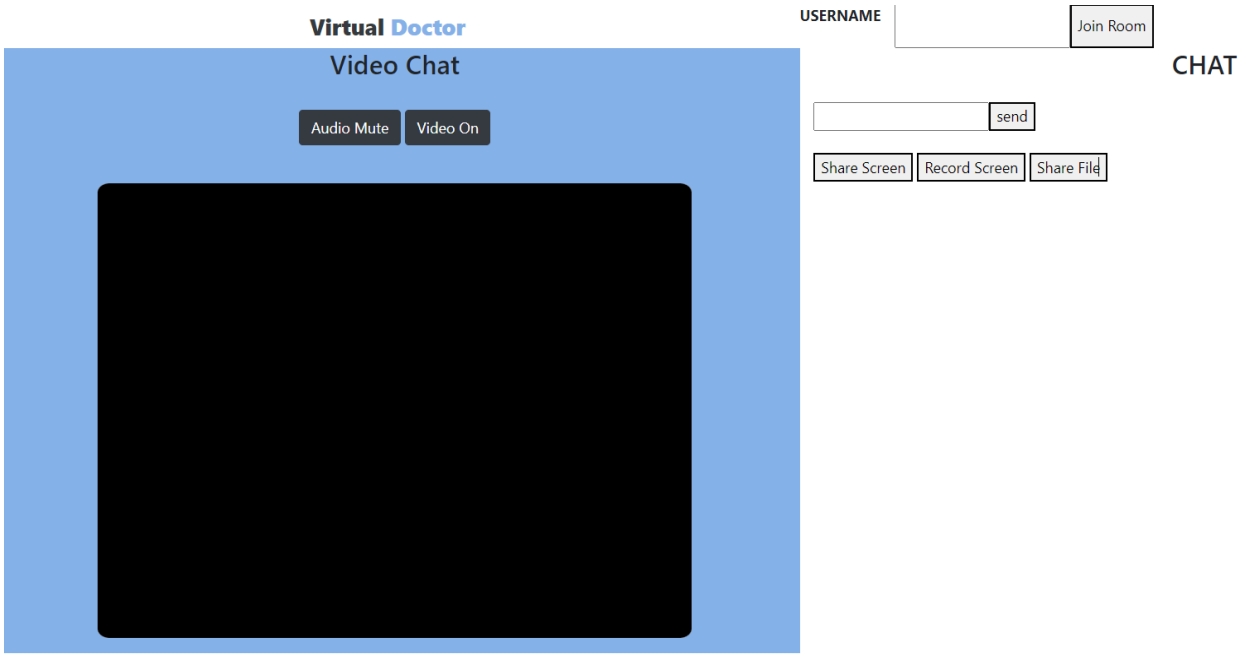
ADMIN SCREEN:



APPOINTMENT BOOKINGS SCREEN:



VIDEO CHAT SCREEN:



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GUIDE SIGNATURE