A Project Report on

Central Healthcare System

Submitted in partial fulfilment for the award of the degree of

B.Tech (Computer Science and Engineering)

By

Aditya Singh - 18BCB0061

Shreyansh Satvik - 18BCB0133

Raghav Jindal - 18BCE2080

Subham Kedia - 18BCE2085

Nimish Batra - 18BCE2087

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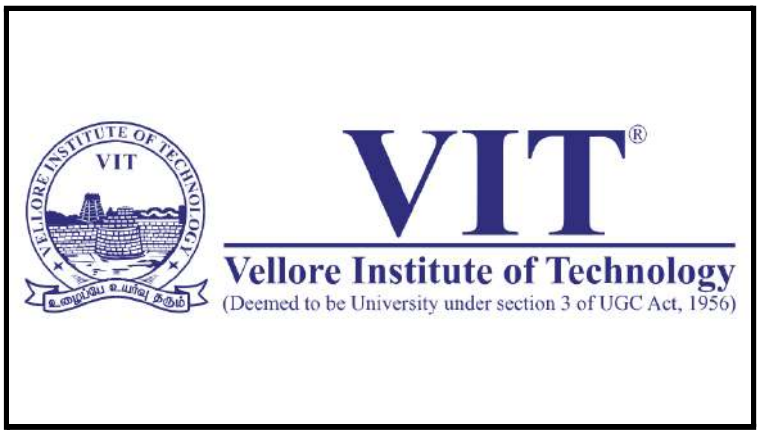
Under the guidance of

Ms. PADMA PRIYA R

Assistant Professor (Senior)



SCHOOL OF COMPUTER SCIENCE & ENGINEERING

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ABSTRACT

Due to the rapid increase in population and because of people's unhealthy lifestyle the number of patients have been increasing by the day due to which all the hospitals are flooded and have low availability at times. Recently a lot of hospitals have been running out of beds. Thus we propose a Central healthcare system aimed to provide premier superior quality services. We propose a method to solve the crisis of an emergency remote system and unavailability of a proper centralised system for medicine information . We are also adding a face - recognition login and aadhar verification to prevent identity theft and misuse. To solve emergency remote problems we are making a doctor chatbot and if the query is not solved by the chatbot then we will be re-directing the patient to chat directly with the doctor and further we will also be adding an emergency button that will help the patient to reach the hospital at earliest. For medicinal information we will be scanning the doctor's prescription and will show you the results from where you can purchase it online and all the information about it including its alternative and we will be adding a reminder for doses through google's calendar.

OBJECTIVE

Our primary objective is to provide a central healthcare system which would avoid last minute chaos.

Our second objective is providing a face-recognition login and aadhar verification that would help us in preventing identity theft and misuse of people's personal information.

Thirdly, we are going to provide a chatbot service. This service will be provided to all the patients at the first step. The patient can put up their problem in front of the chatbot and then the chatbot will provide them with the solution. In case the chatbot cannot provide the solution or the patient is not satisfied with the solution they can move forward to chat directly with the doctor.

The fourth objective is to help patients reach the nearest hospital at the earliest, this will be possible by sending an alert to the nearby ambulance and its driver to reach the patients location. The driver will receive the alert through SMS and he will get to know the patient's location, phone number and his Aadhar card number.

The last objective is to help people get medicines. At times people even face difficulty in reading the doctor's handwriting so our web application will help the patient recognize the name of the medicine and the places from where it can be bought online. If the medicine is out of stock the patient will even get to know the salts in the medicine and hence the alternatives available. In future the patient can even set the dosage in the web app and it will remind them to have their medicine on time.

INTRODUCTION

In today's time of crisis, hospitals have become really crowded and patients and their families are at the suffering end. To automate the process and to help patients know about the status of availability and to help them with medicinal information we are creating this centralized healthcare system so as to save people's time and the lives of their loved ones. We will be using natural language processing, Web scraping, blockchain and a few more technologies to get this project up and running.

PROBLEM STATEMENT-

Unavailability of beds and proper medical aid in hospitals.

Lack of proper guidance by medical staff due to less number of doctors being available.

Patients not being able to reach hospital in time.

Patients not able to recognize the correct medicine or not able to know which alternative to buy incase of unavailability of that particular medicine which has been prescribed by the doctor.

PROPOSED SOLUTION-

We have made a web application to solve the problem of the centralised health care system. We propose a method to solve the crisis of an emergency remote system and unavailability of a proper centralised system for medicine information . We have also added a face - recognition login and aadhar verification to prevent identity theft and misuse. To solve emergency remote problems we have made a doctor chatbot and if the query is not solved by the chatbot then we have redirected the patient to chat directly with the doctor and further we have also added an emergency button that will help the patient to reach hospital at earliest which when clicked will send an alert message to the nearest hospital and to the nearest ambulance. For medicinal information we will be scanning the doctor's prescription and will show you the results from where you can purchase it online and all the information about it including its alternative and we will be adding a reminder for doses through google's calendar .

LITERATURE SURVEY -

[1] Optical Character Recognition (OCR) is a piece of software that converts printed text and images into digitized form such that it can be manipulated by machine.Unlike human brain which has the capability to very easily recognize the text/ characters from an image, machines are not intelligent enough to perceive the information available in image. Therefore, a large number of research efforts have been put forward that attempts to transform a document image to format understandable for machine.OCR is a complex problem because of the variety of languages, fonts and styles in which text can be written,and the complex rules of

languages etc. Acquisition, Pre-processing, Segmentation, Feature extraction, classification are being used.

[2] Optical character recognition is an active research area that attempts to develop a computer system with the ability to extract text from images automatically. The objective of OCR is to achieve modification or conversion of any form of text or text-containing documents. In this paper we investigate OCR in four different ways. We give a detailed overview of the challenges that might emerge in the state-of-the-art of the field. We highlight developments and main applications and uses of OCR. A brief OCR history is also discussed. The paper provides a comprehensive review of the state of the art of the OCR field. Google Goggles is an Image Detection System which identifies the content of an image and provides desired results to the user. It also uses Tesseract OCR to detect textual data in images and extracts the text into editable format. But, one of the limitations of Goggles is that it isn't able to classify the data present, and considers it to be in raw form. Optical Character Recognition (OCR) is used in converting PDF files into editable DOC files.

[3] Due to the increased precision of the systems involved in the framework, the use of multimodal inputs in a smart healthcare framework is promising. We propose a user satisfaction detection system in this paper that uses two multimedia contents: speech and image. Satisfied, dissatisfied, and indifferent are the three levels of satisfaction. The user's speech and facial image are captured, transmitted to the cloud, and then analysed in the proposed system. The relevant stakeholders are then informed of the satisfaction

decision. The cloud is used to extract some features from these two inputs. Multimodal input signals are processed, namely, speech and image signals. A microphone records the speech from the user while a video camera captures the facial expressions

[4] To extract textual data from images & automate the process of storing contact details and storing reminders. Extraction of text and other forms of data from images and using them for particular use. To extract URLs from the image and allow user to browse directly from the app using Android System Web View. Using computer vision (Pytesseract) to extract useful information like text, contact details and hyperlinks from images. The android based app would allow users to enable storing the contact details, provide summary of the content ,opening of links directly from the app without needing to type the URL inside the browser. Optical Character Recognition (OCR) is used in converting PDF files into editable DOC files. Another limitation is that the text present in images of PDF files aren't extracted into editable format.

[5] Optical character recognition (OCR) method has been used in converting printed text into editable text. OCR is a very useful and popular method in various applications. Accuracy of OCR can be dependent on text preprocessing and segmentation algorithms. From the vehicle number plate they tried to extract vehicle numbers by using Tesseract and Transym. An image with the text is given as input to the TesseRact engine that is command based tool.Then it is processed by Tesseract command as Tesseract command takes two arguments: First argument is image file name that contains text and second argument is output text file in which

extracted text is stored. The output file extension is given as .txt by Tesseract, so no need to specify the file extension while specifying the output file name as a second argument in the Tesseract command.

[6] Computerized Drug Verification System (CDVS) is a research work geared towards establishing the means of identifying authentic drugs in Nigeria. The project is based on the National Agency for Food and Drug Administration Control (NAFDAC) number. The app can be used to verify the authenticity of drugs in the country in partnership with Mobile authentication Service (MAS) . Using a mobile app NAFDAC VERIFY drug verification shall take place and it works on both iOS and android.

[7] Blockchain technology is leveraging its innovative potential in various sectors. Research interest has focused on medical and health care applications. However, knowledge about the impact on the healthcare ecosystem is limited.This paper explores
a potential Paradigm shift And ecosystem Evolution in health Care utilizing blockchain technology. A literature review with case study on a pioneering initiative was conducted and along with a systematic life cycle analysis, this study sheds light on the evolutionary development of blockchain in health care scenarios and its interactive relationship among stakeholders

[8] Transfer Learning, where a model is first pre-prepared on an information-rich assignment before being adjusted on a downstream undertaking, has risen as an amazing method in common language handling (NLP). The adequacy of move learning has offered an ascend

to a variety of approaches, system, and practice. In this paper, we investigate the scene of move learning methods for NLP by presenting a bound together structure that changes over all content based language issues into a book-to-message design. Our precise investigation analyzes pre-preparing goals, models, unlabeled informational indexes, move draws near, and different components on many language getting undertakings. By consolidating the bits of knowledge from our investigation with scale and our new ''Colossal Clean Crawled Corpus'', we accomplish cutting edge results on numerous benchmarks covering rundown, question replying, text order, and that's just the beginning. To encourage future work on move learning for NLP, we discharge our informational collection, pre-prepared models, and code.

[9] 30% of inspected drug stores in 2003 were found with substandard / spurious/ falsely-labeled/ falsified/ counterfeit drugs. The economic burden on the population drug expenditures and on governments is high. This study aims to develop a pharmacy surveillance blockchain system and test its functions. Using Distributed Application (DApp) that will run on smart contracts, employing Swarm as the Distributed File System (DFS)

[10]Not at all like late language portrayal models, BERT is intended to pre-train profound bidirectional portrayals from unlabeled content by mutually molding on both left and right settings in all layers. Accordingly, the pre-prepared BERT model can be adjusted with only one extra yield layer to make cutting edge models for a wide scope of undertakings, for example, question noting and language derivation, without significant errand explicit design changes. BERT is adroitly basic and exactly incredible. It acquires

new best in class results on eleven normal language handling undertakings, including pushing the GLUE score to 80.5% (7.7% point supreme improvement), MultiNLI exactness to 86.7% (4.6% outright improvement), SQuAD v1.1 question noting Test F1 to 93.2 (1.5 point total improvement) and SQuAD v2.0 Test F1 to 83.1

[11] Convolutional networks are at the center of most cutting edge PC vision answers for a wide assortment of assignments. Albeit expanded model size and computational cost will in general mean quick quality increases for most errands (as long as enough marked information is accommodated preparing), computational proficiency and low boundary tally are as yet empowering factors for different use cases, for example, versatile vision and enormous information situations. Here we are investigating approaches to scale up networks in manners that target using the additional calculation as effectively as conceivable by appropriately factorized convolutions and forceful regularization. We benchmark our strategies on the ILSVRC 2012 grouping challenge approval set show significant increases over the best in class: 21.2% top-1 and 5.6% top-5 mistake for single edge assessment utilizing an organization with a computational expense of 5 billion duplicate includes per surmising and with utilizing under 25 million boundaries. With a troupe of 4 models and multi-crop assessment, we report 3.5% top-5 blunder and 17.3%.

[12] As we offer and store information on the web, another issue emerges is how to deal with such information over-burden and how the client will get or get to the best data in the least endeavors. To illuminate these issues, specialists spotout new methods called Web

Scraping. Web scratching is an extremely basic method which is utilized to produce organized information based on accessible unstructured information on the web. Scaping produced organized information at that point put away in a focal data set and investigated in spreadsheets. Customary reorder, Text graping and ordinary articulation coordinating, HTTP programming, HTML parsing, DOM parsing, Web scratching programming, Vertical accumulation stages, Semantic explanation perceiving and Computer vision website page analyzers are a portion of the regular strategies utilized for information scratching. Presently, there are bunches of programming accessible in the market for web scratching. Our paper is centered around the review on the data extraction procedure for example web scratching, various procedures of web scratching and a portion of the ongoing devices utilized for a web scraping

[13] This study presents a systematic literature review (SLR) of research on blockchain applications in the healthcare domain. Findings indicate that blockchain is being used to develop novel and advanced interventions to improve standards of handling, sharing, and processing of medical data and personal health records.SLRs offer readers comprehensive knowledge of the literature in a field through a holistic and organized précis that adheres to standard protocols. The current study adapted protocols which synthesized article assessment criteria from previously published SLRs. The SLR protocol consisted of three main phases, namely planning, execution, and reporting assimilated information.

[14] Attention is an undeniably mainstream instrument utilized in a wide scope of neural designs. The component itself has been

acknowledged in an assortment of configurations. In any case, in light of the relentless advances in this area, an efficient outline of consideration is as yet absent. In this article, we characterize a bound together model for consideration structures in characteristic language handling, with an emphasis on those intended to work with vector portrayals of the printed information. We propose a scientific categorization of consideration models as indicated by four measurements: the portrayal of the info, the similarity work, the appropriation work, and the assortment of the information or potentially yield. We present the instances of how earlier data can be misused in consideration models and talk about progressing research endeavors and open difficulties in the territory, giving the primary broad classification of the huge group of writing in this energizing area

[15] There are several areas of healthcare that could be enhanced using blockchain technologies. These include device tracking, clinical trials, pharmaceutical tracing, and health insurance. The information gathered can then be used to improve patient safety. Usage of patient records, drug tracking and device tracking

[16] Proposed idea is to create a medical chatbot using Artificial Intelligence. Both can diagnose the disease and provide basic details about the disease before consulting a doctor. Certain chatbots act as medical reference books, which helps the patient know more about their disease. Artificial intelligence chatbots are available 24*7, faster service cost savings but might require regular maintenance

[17] The increasing availability of electronic health data presents a major opportunity in healthcare. Machine learning (ML) can transform patient risk stratification broadly in the field of medicine. This could lead to targeted interventions that reduce the spread of health-care-associated pathogens. Introduction of ML, how ML can transform healthcare epidemiology.

[18] The paper here explains the modeling and performance in deep learning computation for an Assistant Conversational Agent (Chatbot) The model is developed to perform English to English translation. experiments are conducted using Tensorflow using python 3.6. The paper here also studies MacBook Air as a system for neural network and deep learning. Bidirectional Recurrent Neural Network has been used

[19]Any E-Commerce firm to survive must be of cutting edge and competitive edge. Web content mining enables them to attract and retain innumerable customers. The huge gap between Partial and exhaustive promotion when it comes to the deployment of web mining techniques. The results show that the model suits the economics behind the online businesses in both cases and thus helps to identify or enhance the underlying web mining techniques towards business success. The paper models web mining as a Game in Cournot Model to understand the varying role of web mining in online business successes. It also shows that there are two distinct types of online business based on web content promoted towards buy. Web usage mining and web content mining have been used.

[20]Decreases in establishment and capacity costs have expanded the interest for security frameworks, including video reconnaissance and computerized confirmation. The video observation frameworks, when checked by people, are dependent upon mistakes and are trying to scale. Confirmation frameworks can approve somebody utilizing a secret word or a card from another client. Facial acknowledgment calculations can settle this shortcoming by the traffic observing of referred to people or interlopers just as for individual biometric confirmation. Thus, this paper assesses the FaceNet approach utilizing the Labeled Faces in the Wild benchmark, just as assesses an AI strategy known as support vector machine (SVM) for the classification of embedding generated using FaceNet The recommended approach additionally models a constant facial acknowledgment framework consolidating FaceNet and SVM, arriving at 90% of precision utilizing a medium webcam.

METHODOLOGY -

Technology Stack -

1. Flask
2. Dialog Flow
3. Google Maps API Integration
4. Google Vision
5. Node Js
6. Python
7. Python Libraries like OpenCV,pandas,numpy,etc.
8. PHP
9. SQL

TECHNIQUES-

1. Natural Language Processing
2. Machine Learning
3. Web Scraping
4. Database Management
5. Computer Vision
6. Blockchain

DEPLOYMENT OF MODULES

Login:
Modules used are Facial Recognition library (only requires 1 photo). Competitor: Traditional training methods (requires more than 100 photos to train per person) In this module when the user registers on our website, they take a snapshot of theirs. This snapshot is stored in a folder named "data" where the snapshots of all our users are stored. Now when a user has to login into his account, he goes to the login page. There he is asked to take a snapshot of his face. This snapshot is stored in a folder "temp". Now the program runs the face recognition function and takes images of all the people who registered from the data folder and performs face encoding on each and stores it in an array.
Then it takes the image in the temp folder and compares the image to each image in the data folder and finds the distance between them. It stores the distance in another array. It sorts the array and finds the image with the minimum distance. If the distance is above a threshold it returns the name of the user of whose image it is. If the username matches for the user who is attempting to log in, it allows the person to complete the login and move into his account, else asks the person to try again or use the password.

Aadhar OCR: In this module, the user uploads their Aadhar card image and our system verifies the name and date of birth of the user from the Adhar card and the details provided.

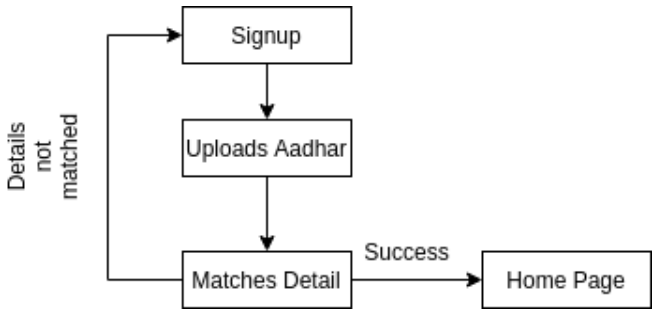


Fig :- Workflow of Aadhar OCR

For detecting text, we have used Google-Vision API from Aadhar Card. For finding Aadhar card we are using a regular expression to search for 12 digits number, for detection of the father's name we are searching for the keywords "C/O" or "D/O" or "S/O" as in Aadhar card the father's name appears after that, for detection of address we are selecting all the index from father's name till we find the PIN CODE which can be found by searching 6 digit number, for date of birth we are searching the particular format of the date that is present in Aadhar card like (dd/mm/yyyy).

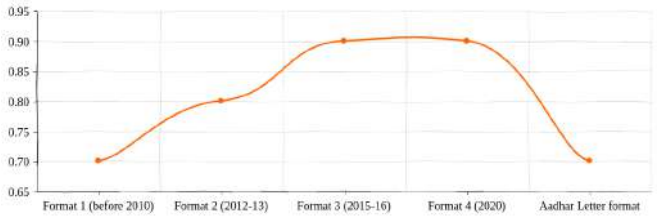


Fig : - Accuracy vs Aadhar Format

Chatbot and Live Chat: : In this module, for chatbot, we have used chatterbot and for a live chat, we have used socket.io to talk directly with the doctor.

In chatbot, we have trained our data for symptoms of 40,000 diseases and have with the details of 41 diseases in our chatbot and if the user is not happy with the results of the chatbot we are giving

the option to chat with the doctor in which we have used socket.io for live chat with doctors.

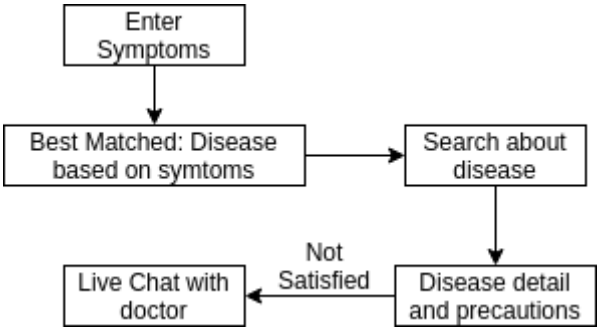


Fig :- LiveChat and chatbot workflow

SMS:
We are using this module to send SMS to the registered mobile numbers of users to inform them about any emergencies or information regarding their health.
We are using the Twilio API to do so.

Web Scraping:
This module is being used to scrape data off a website to gather the information required to create a database. Over here we are scraping the name of the medicine and its price in the Indian market to create a database for all the medicines present in India. This database would then be used to create the e-commerce part of our project. Modules used here are requests and BeautifulSoup.

First, we open and read the website present and check for all the data that is required. We then check the source code. In the source

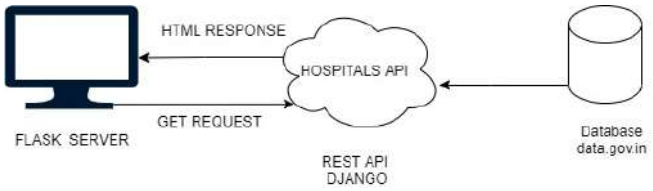
code, we check the data that is required and the HTML tags they are present in. Then using those tags we extract the required data.

Blockchain:
This module will help us to detect whether the medicines that we are getting are original or not, i.e, whether they are fake or expired and have been restamped.
The value of this module represents: Fighting Drug Forgery, Data Integrity, Enhanced Traceability and Elevated compliance regulatory.

The procedure that ensues for drug traceability would be as followed:
1] The manufacturer marks the produced drug with a unique code and a hash is produced. This information is stored on the blockchain.
2] These drugs are then sent to the wholesaler
3] The drug is then verified by the manufacturers and this transaction is further stored in the blockchain.
4] The wholesaler sends the drugs to the pharmacist.
5] Further verification is carried out and this transaction is also stored in the blockchain.
6] From the pharmacist the drugs are then delivered to the patients.
7] The patient also verifies the origin of the drug and this transaction would also be stored in the blockchain.

Hospital API:
This API fetches data of Hospitals from different cities of India. This API displays data like Id, State, City, Name, Category, Medicine, Address, Website, Specialization. We have developed a Django Rest API for getting the list of hospitals and we have taken the data from data.gov.in which is an Indian government data website. This API fetches data like city, state name of the hospital, medicine type, address, website and specialization of the hospital.

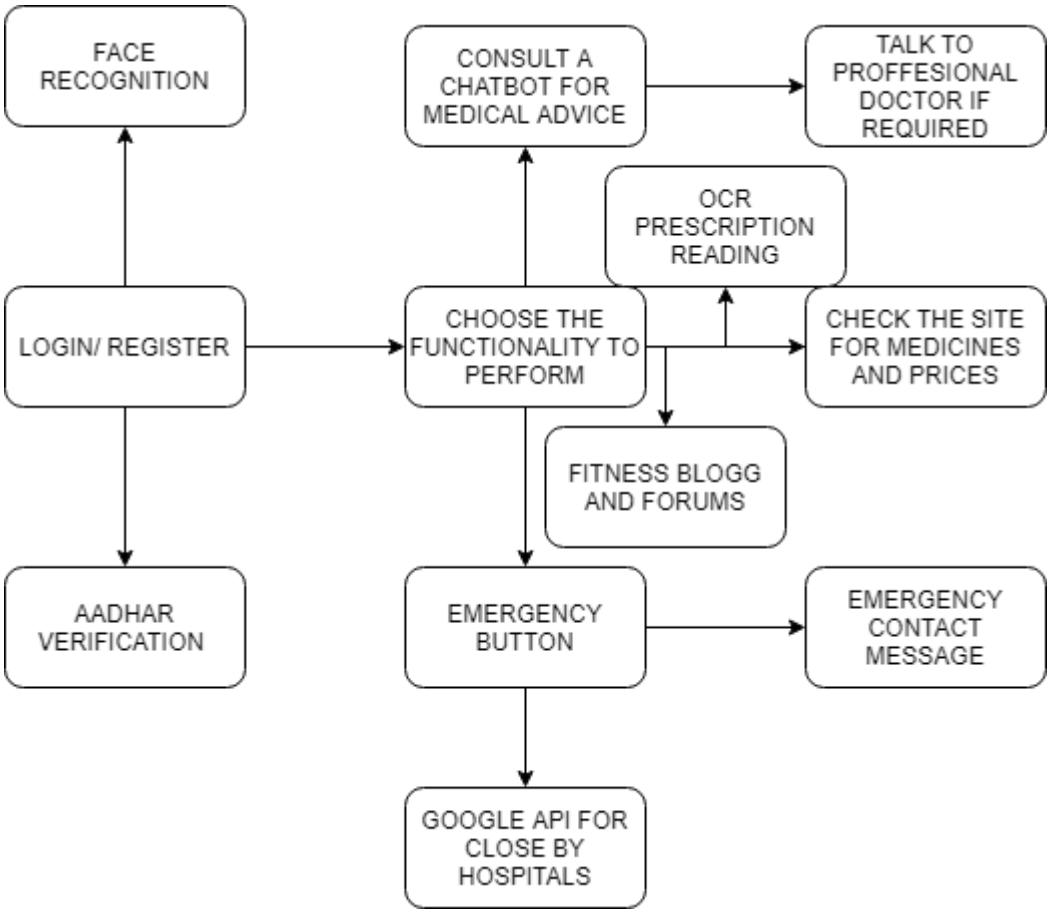
This API can find both the categories, private as well as public/ government hospitals. We have created an HTML form that takes the city name as an input and uses it as a search parameter to find the hospital. We display the data in tabular form.

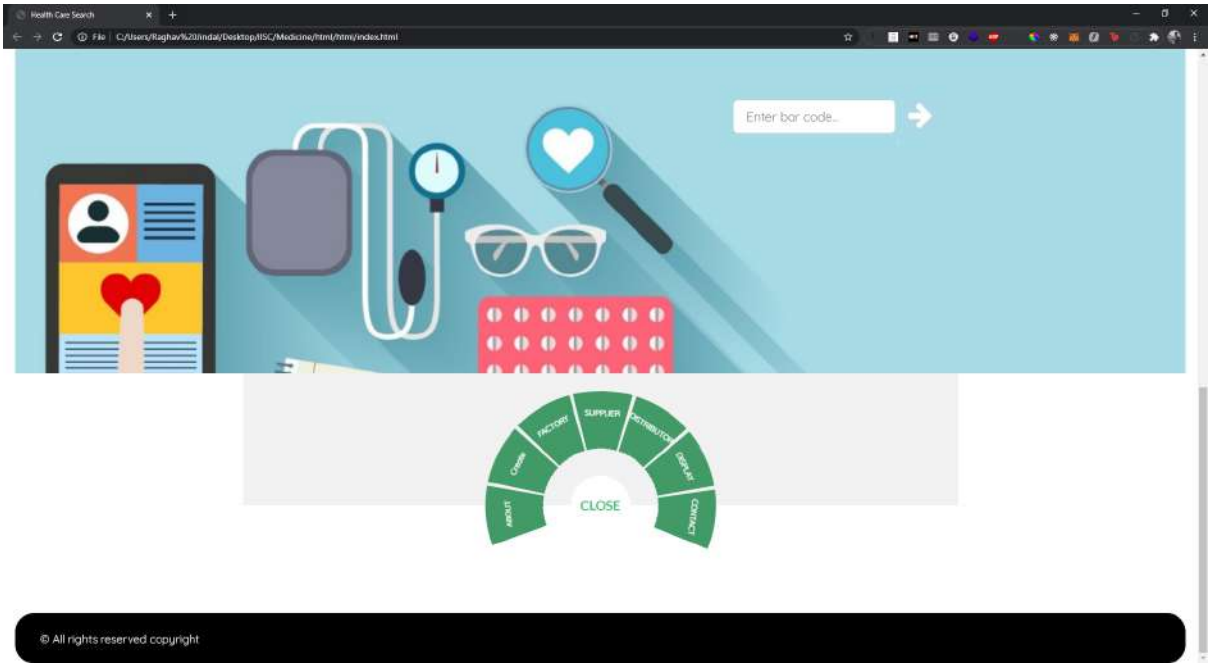


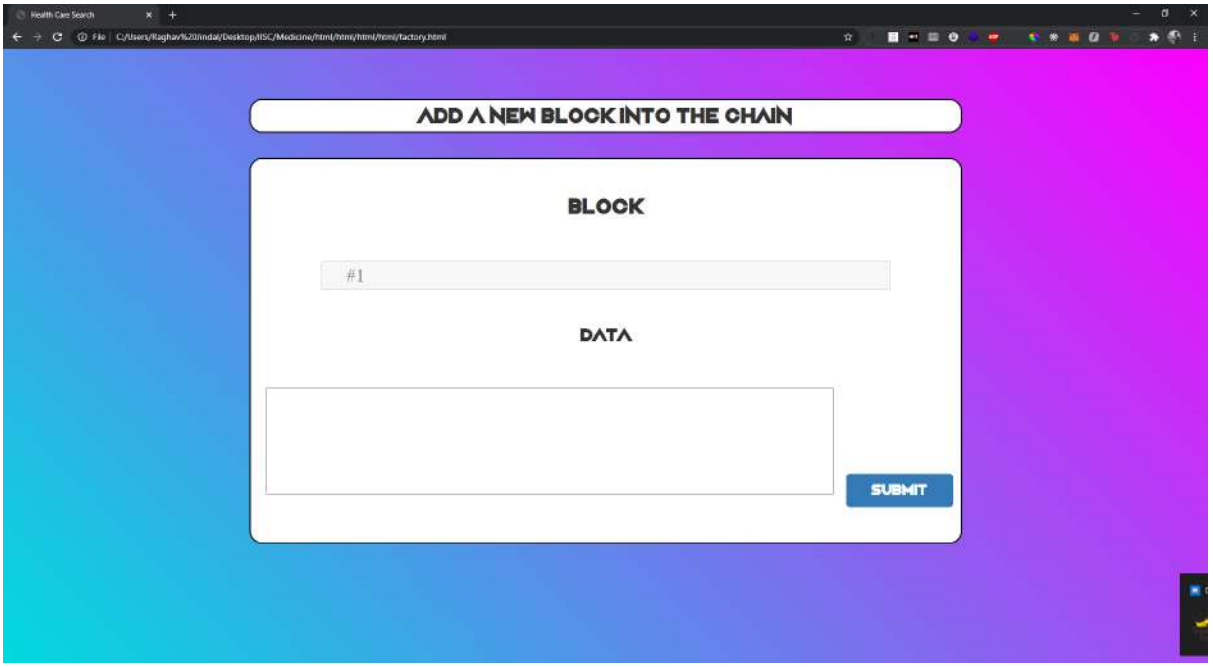
RESULTS

We come across the following results with the help of the modules in order to successfully run this project.
Under the Aadhar OCR, once the user attempts to sign up with certain details such as user name, email ID, Date Of Birth etc, these details are then further matched with the information available on their Aadhar card. If it matches, then the user is able to sign up.
The prescription OCR enables users to scan their own prescriptions to find their medicines online and also look out for their substitutes based on the salt composition of the prescribed medication. This will help them find out the alternatives of their medication in case of unavailability of their prescribed medicines.
The chatbot is set up with a trained data strength of 40,000 symptoms. It is able to respond accurately to the 41 diseases it has been trained in.
The ambulance button enables the user to send their live location to the driver who can access and reach the user's location easily.
Blockchain helps us in preventing drug forgery by verifying the source and origin of the drugs and whether they are suitable for consumption.

ARCHITECTURAL DIAGRAM






Health Care Search
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BLOCK
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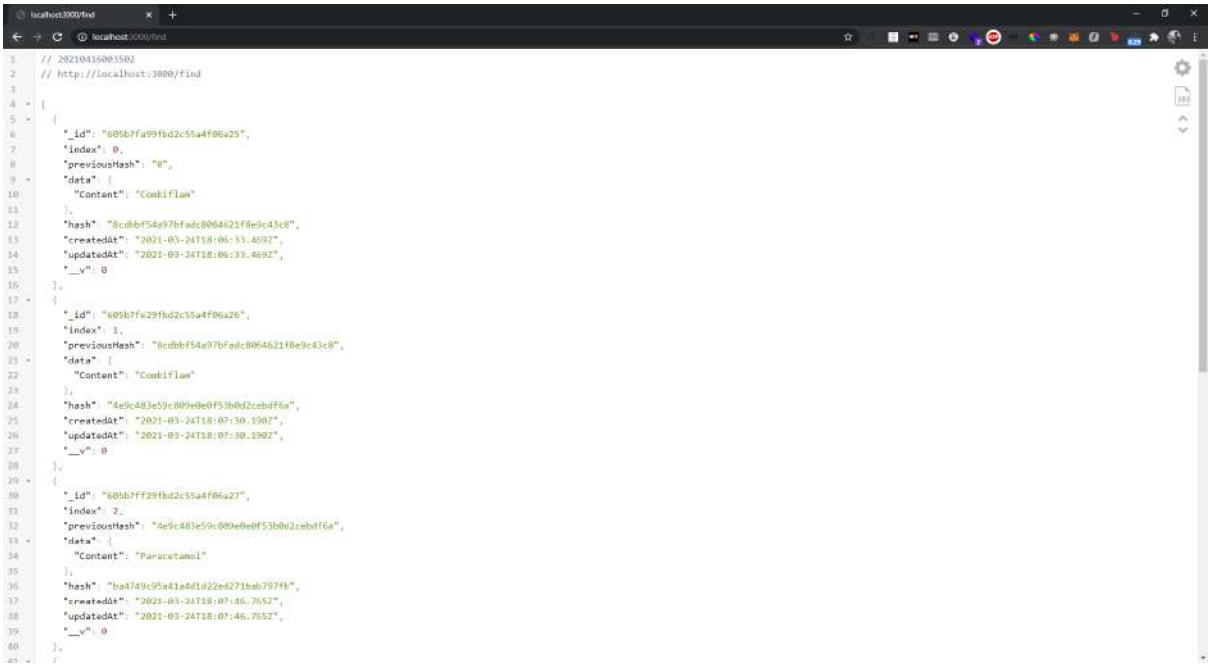
DATA
SUBMIT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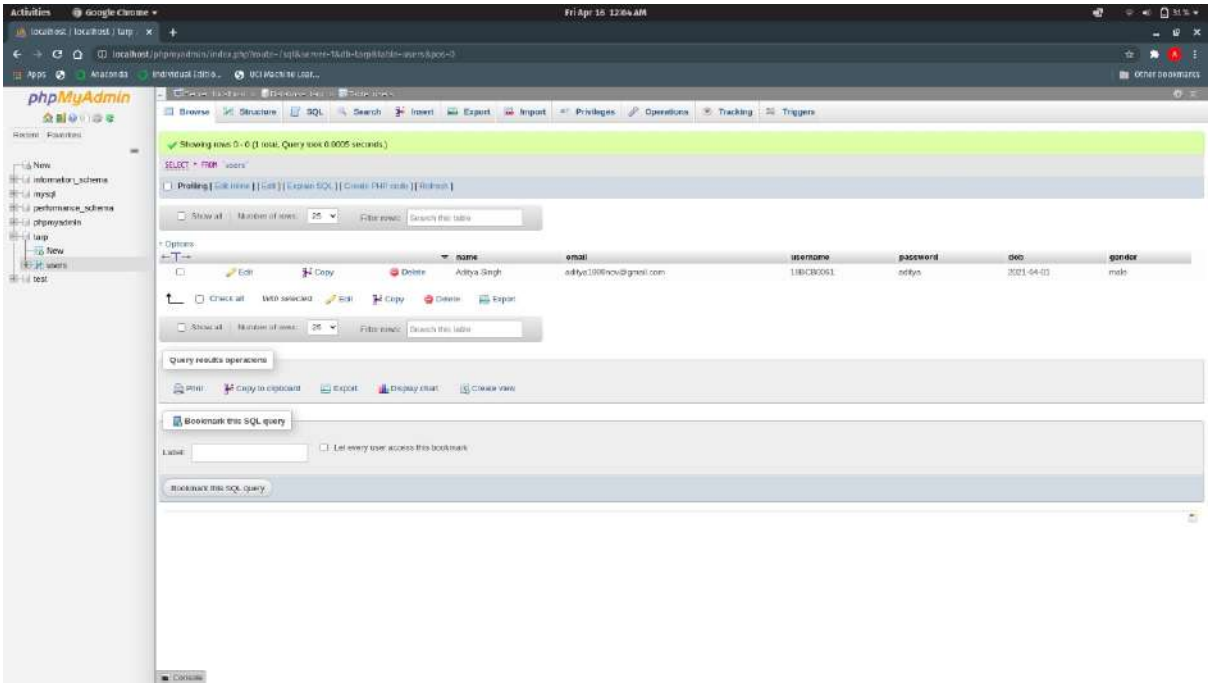

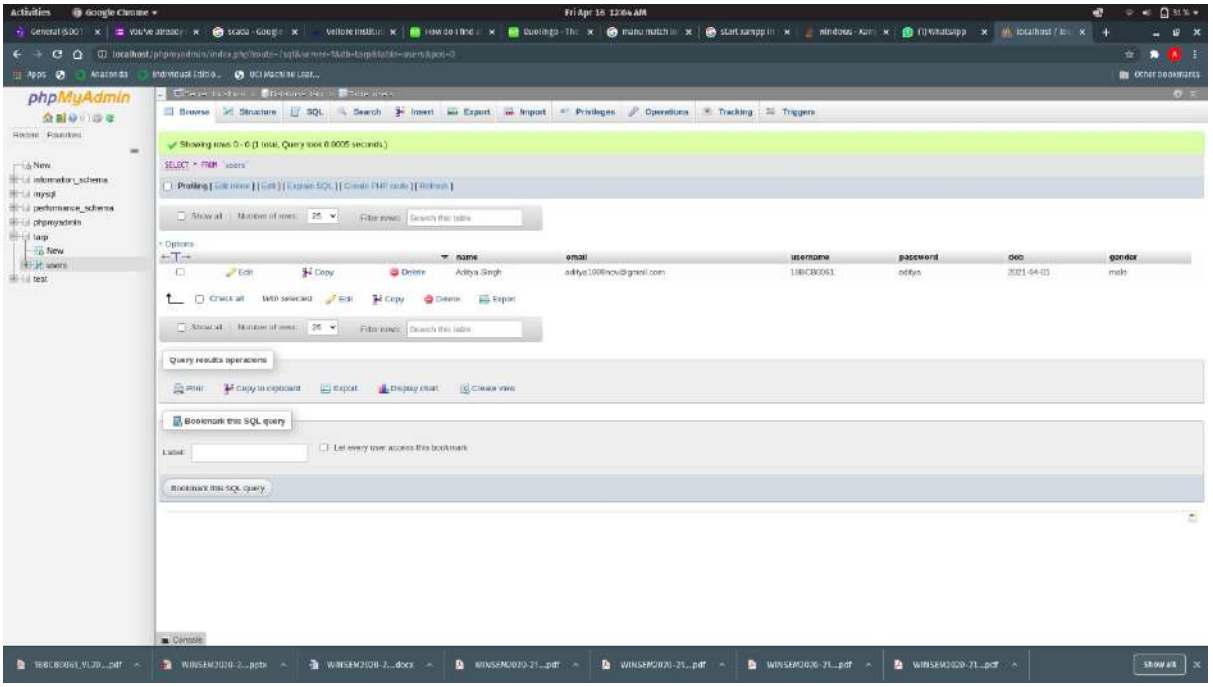

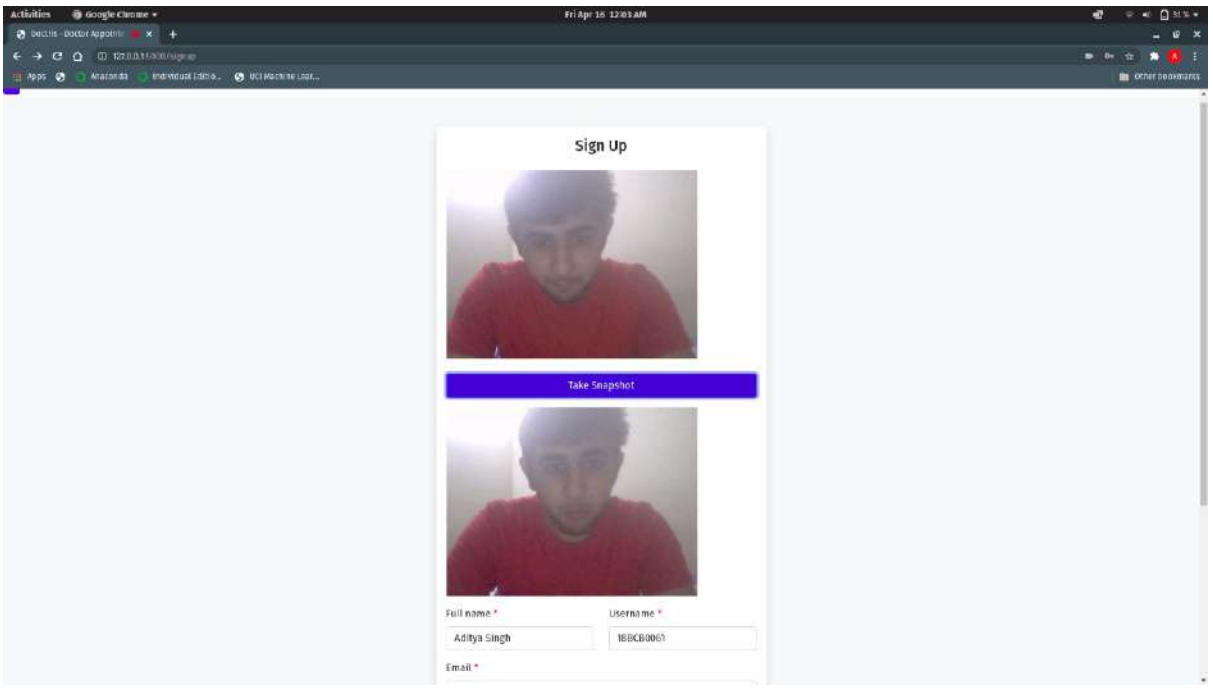
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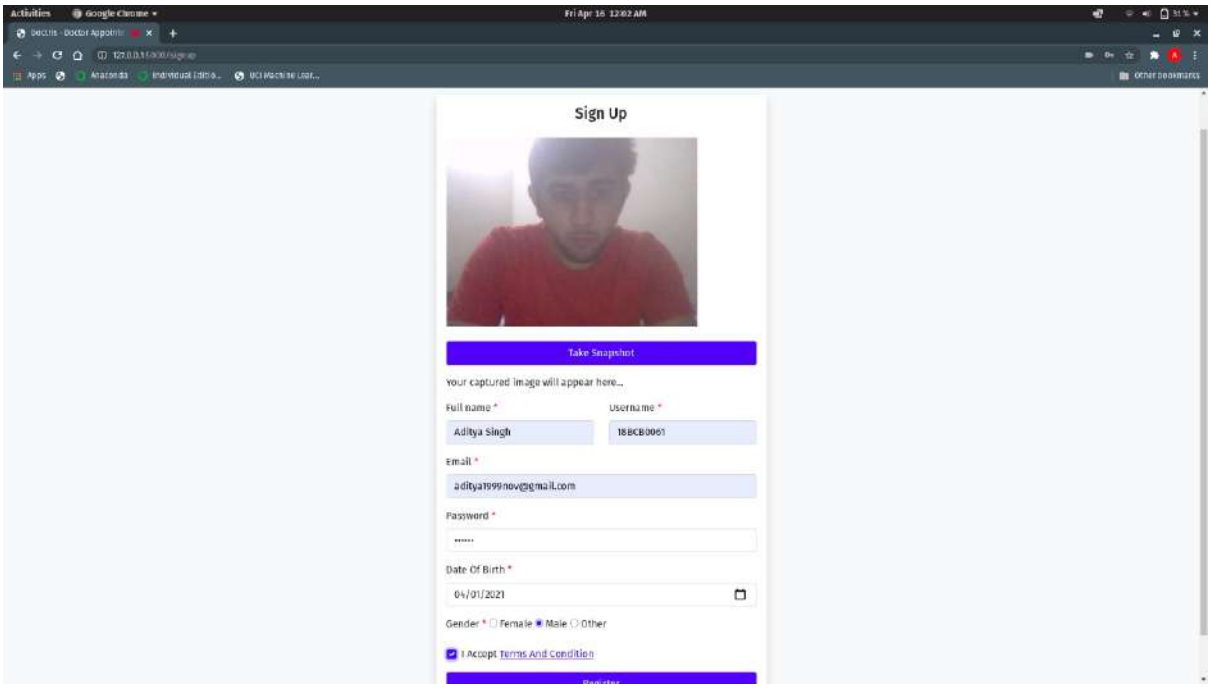
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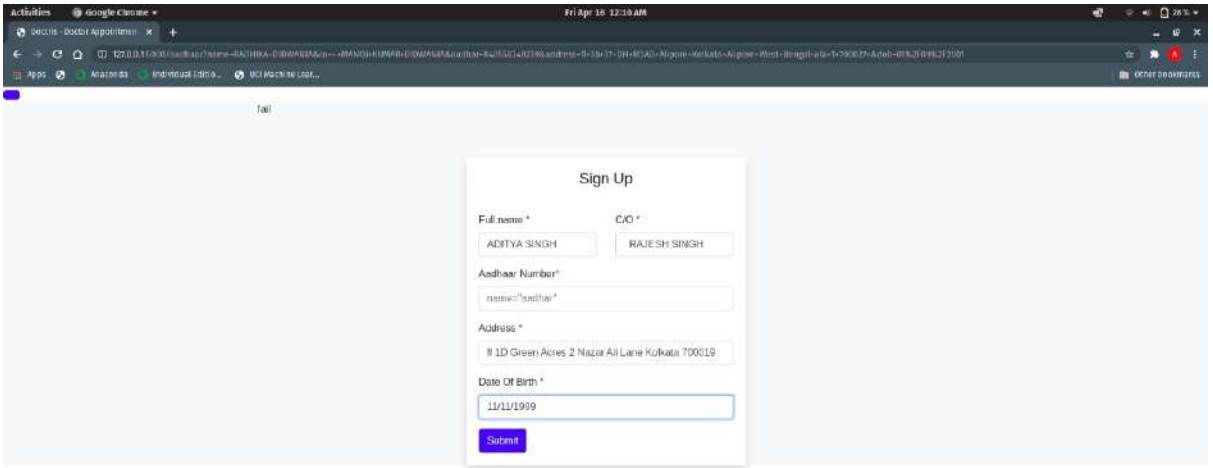
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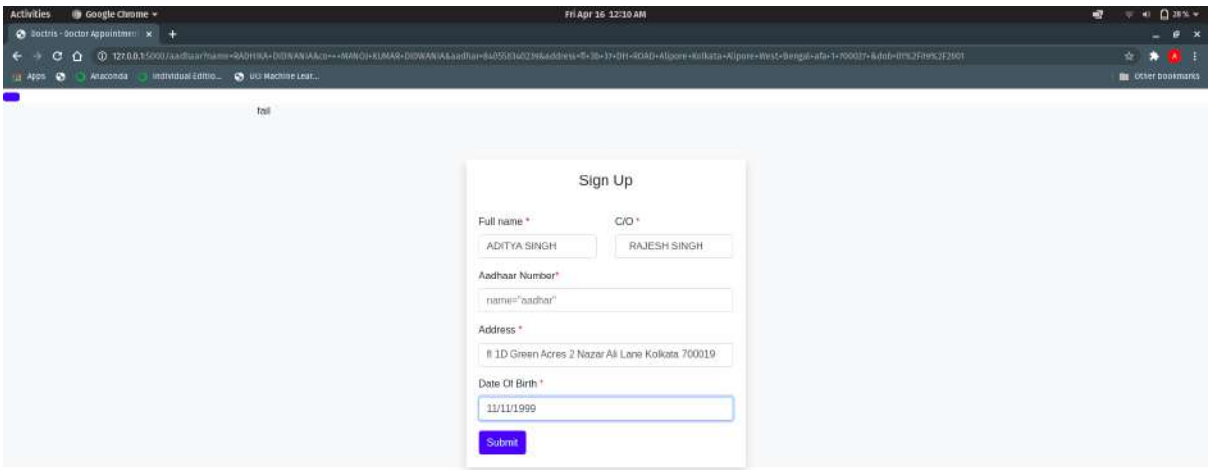
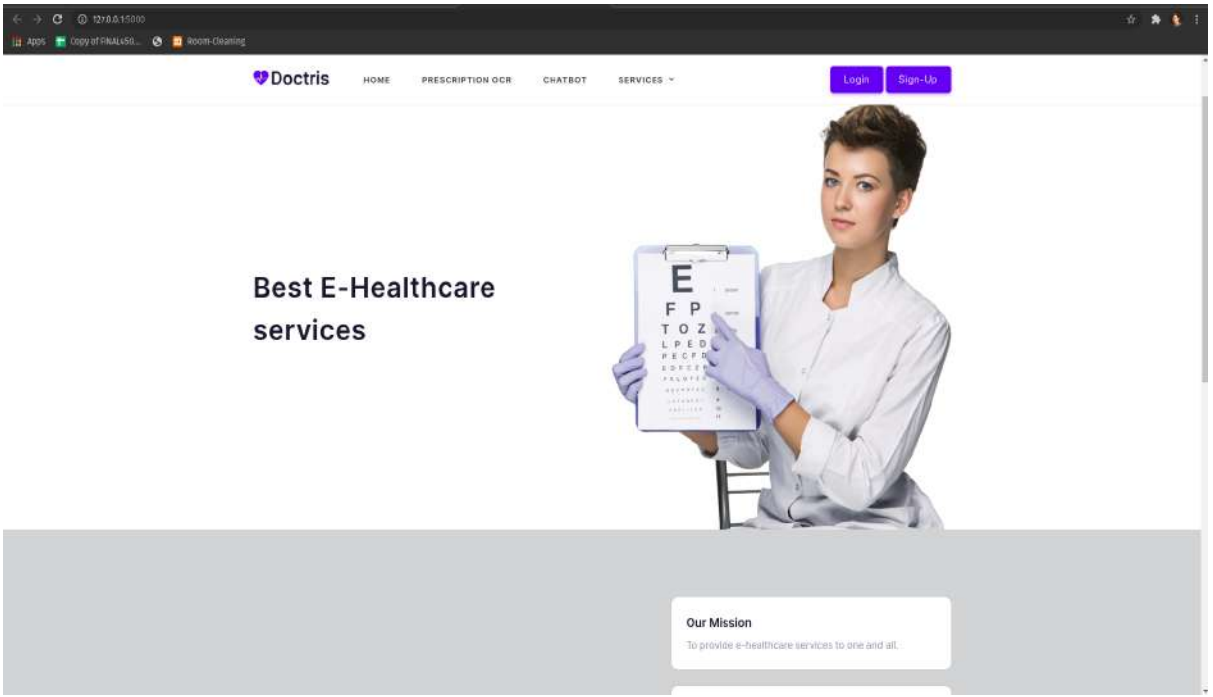
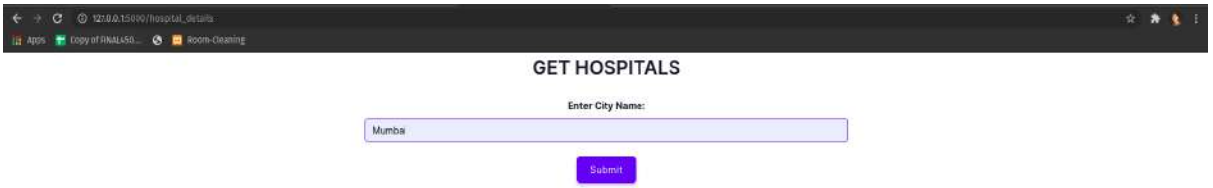
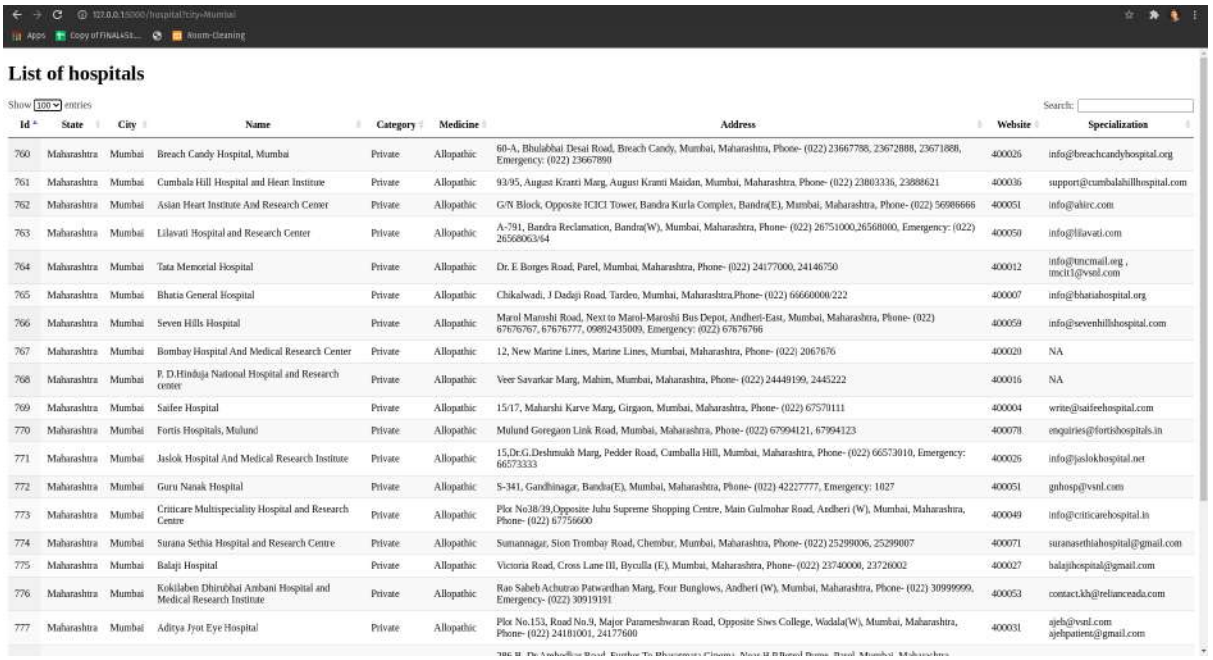
Fri Apr 16 12:10 AM
Other bookmarks
fail
Sign Up
Full name *
C/O *
ADITYA SINGH
RAJESH SINGH
Aadhaar Number*
Address *
1D Green Acres 2 Nazar Ali Lane Kolkata 700019
Date Of Birth *
11/11/1999
Submit


Activities
Google Chrome
Fri Apr 16 12:12 AM
Other bookmarks
Aadhaar Verification
Front Side *
Choose File
aditya_aadhar_f.jpeg
Back Side *
Choose File
aditya_aadhar_b.jpeg
Verify Aadhaar


Activities
Google Chrome
Fri Apr 16 12:10 AM
Doctris - Doctor Appointment
Apps
Anaconda
Other bookmarks
fail
Sign Up
Full name *
C/O *
ADITYA SINGH
RAJESH SINGH
Aadhaar Number*
name="aadhar"
Address *
fl 1D Green Acres 2 Nazar Ali Lane Kolkata 700019
Date Of Birth *
11/11/1999
Submit


Apps
Room-Cleaning
Doctris
HOME
PRESCRIPTION OCR
CHATBOT
SERVICES
Login
Sign-Up
Best E-Healthcare services
Our Mission
To provide e-healthcare services to one and all.

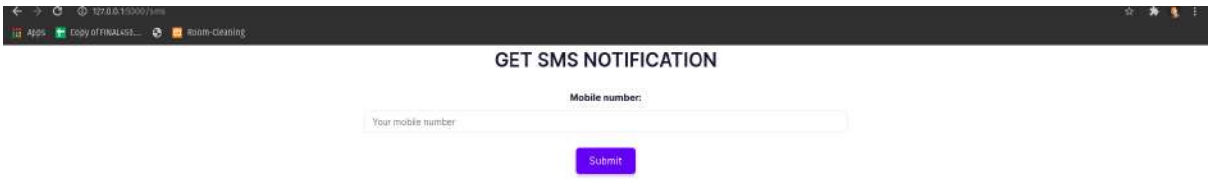




List of hospitals

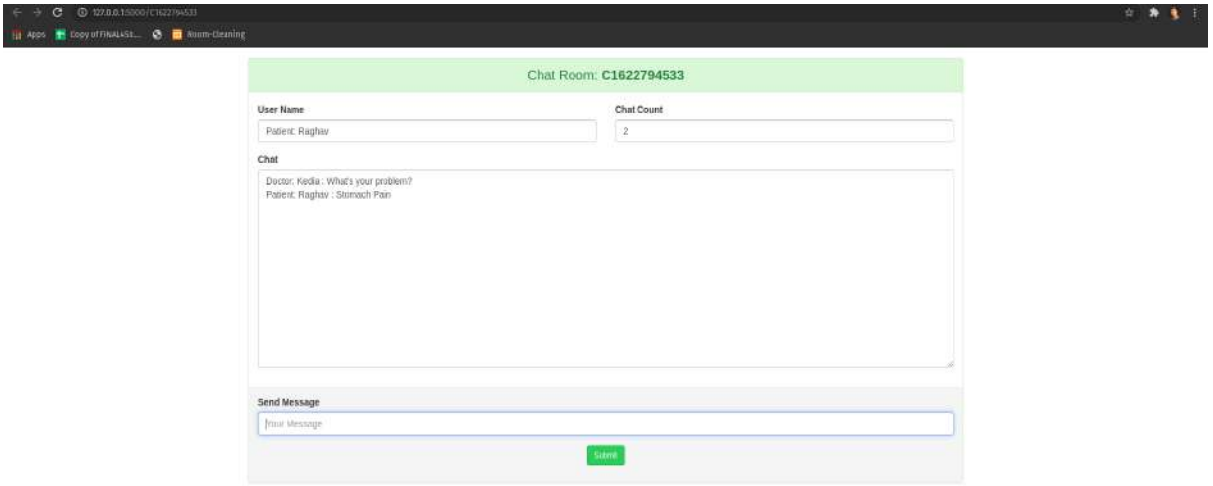
Show 100 entries Search:

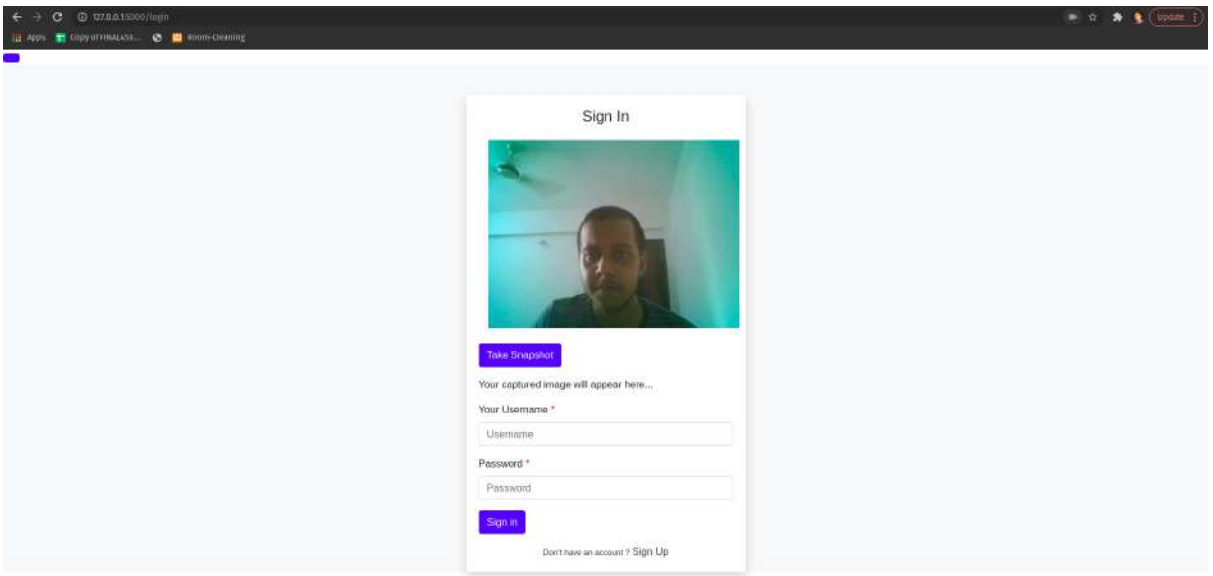
Id	State	City	Name	Category	Medicine	Address	Website	Specialization
760	Maharashtra	Mumbai	Breach Candy Hospital, Mumbai	Private	Allopathic	60-A, Bhulabhai Desai Road, Breach Candy, Mumbai, Maharashtra, Phone- (022) 23667788, 23672888, 23671888, Emergency: (022) 23667890	400026	info@breachcandyhospital.org
761	Maharashtra	Mumbai	Cumbala Hill Hospital and Heart Institute	Private	Allopathic	93/95, August Kranti Marg, August Kranti Maidan, Mumbai, Maharashtra, Phone- (022) 23803336, 23888621	400036	support@cumbalahillhospital.com
762	Maharashtra	Mumbai	Asian Heart Institute And Research Center	Private	Allopathic	G/N Block, Opposite ICICI Tower, Bandra Kurla Complex, Bandra(E), Mumbai, Maharashtra, Phone- (022) 56986666	400051	info@ahirc.com
763	Maharashtra	Mumbai	Lilavati Hospital and Research Center	Private	Allopathic	A-791, Bandra Reclamation, Bandra(W), Mumbai, Maharashtra, Phone- (022) 26751000,26568000, Emergency: (022) 26568063/64	400050	info@lilavati.com
764	Maharashtra	Mumbai	Tata Memorial Hospital	Private	Allopathic	Dr. E Borges Road, Parel, Mumbai, Maharashtra, Phone- (022) 24177000, 24146750	400012	info@tmcmail.org , tmc11@vsnl.com
765	Maharashtra	Mumbai	Bhatia General Hospital	Private	Allopathic	Chikalwadi, J Dadaji Road, Tardeo, Mumbai, Maharashtra,Phone- (022) 66660000/222	400007	info@bhatiahospital.org
766	Maharashtra	Mumbai	Seven Hills Hospital	Private	Allopathic	Marol Maroshi Road, Next to Marol-Maroshi Bus Depot, Andheri-East, Mumbai, Maharashtra, Phone- (022) 67676767, 67676777, 09892435009, Emergency: (022) 67676766	400059	info@sevenhillshospital.com
767	Maharashtra	Mumbai	Bombay Hospital And Medical Research Center	Private	Allopathic	12, New Marine Lines, Marine Lines, Mumbai, Maharashtra, Phone- (022) 2067676	400020	NA
768	Maharashtra	Mumbai	P. D.Hinduja National Hospital and Research center	Private	Allopathic	Veer Savarkar Marg, Mahim, Mumbai, Maharashtra, Phone- (022) 24449199, 2445222	400016	NA
769	Maharashtra	Mumbai	Saifee Hospital	Private	Allopathic	15/17, Maharshi Karve Marg, Girgaon, Mumbai, Maharashtra, Phone- (022) 67570111	400004	write@saifeehospital.com
770	Maharashtra	Mumbai	Fortis Hospitals, Mulund	Private	Allopathic	Mulund Goregaon Link Road, Mumbai, Maharashtra, Phone- (022) 67994121, 67994123	400078	enquiries@fortishospitals.in
771	Maharashtra	Mumbai	Jaslok Hospital And Medical Research Institute	Private	Allopathic	15,Dr.G.Deshmukh Marg, Pedder Road, Cumballa Hill, Mumbai, Maharashtra, Phone- (022) 66573010, Emergency: 66573333	400026	info@jaslokhospital.net
772	Maharashtra	Mumbai	Guru Nanak Hospital	Private	Allopathic	S-341, Gandhinagar, Bandra(E), Mumbai, Maharashtra, Phone- (022) 42227777, Emergency: 1027	400051	gnhosp@vsnl.com
773	Maharashtra	Mumbai	Criticare Multispeciality Hospital and Research Centre	Private	Allopathic	Plot No38/39,Opposite Juhu Supreme Shopping Centre, Main Gulmohar Road, Andheri (W), Mumbai, Maharashtra, Phone- (022) 67756600	400049	info@criticarehospital.in
774	Maharashtra	Mumbai	Surana Sethia Hospital and Research Centre	Private	Allopathic	Sumannagar, Sion Trombay Road, Chembur, Mumbai, Maharashtra, Phone- (022) 25299006, 25299007	400071	suranasethiahospital@gmail.com
775	Maharashtra	Mumbai	Balaji Hospital	Private	Allopathic	Victoria Road, Cross Lane III, Byculla (E), Mumbai, Maharashtra, Phone- (022) 23740000, 23726002	400027	balajihospital@gmail.com
776	Maharashtra	Mumbai	Kokilaben Dhirubhai Ambani Hospital and Medical Research Institute	Private	Allopathic	Rao Saheb Achutrao Patwardhan Marg, Four Bunglows, Andheri (W), Mumbai, Maharashtra, Phone- (022) 30999999, Emergency- (022) 30919191	400053	contact.kha@relianceada.com
777	Maharashtra	Mumbai	Aditya Jyot Eye Hospital	Private	Allopathic	Plot No.153, Road No.9, Major Parameshwaran Road, Opposite Siws College, Wadala(W), Mumbai, Maharashtra, Phone- (022) 24181001, 24177600	400031	ajeh@vsnl.com ajehpatient@gmail.com


GET SMS NOTIFICATION
Mobile number:
Your mobile number
Submit


ChatRoom
Doctris! Chat with our Doctor
Chat Now


ChatRoom
Doctris! Chat with our Doctor
Chat Now
Your Chat Room...
http://127.0.0.1:5000/C1622794533
Visit


Chat Room: C1622794533
User Name
Patient: Raghav
Chat Count
2
Chat
Doctor: Kedia : What's your problem?
Patient: Raghav : Stomach Pain
Send Message
Your Message
Submit


Sign In
Take Snapshot
Your captured image will appear here...
Your Username *
Username
Password *
Password
Sign in
Don't have an account ? Sign Up


Welcome to Doctris Virtual Assistant
Hi! I'm Doctris's Virtual Assistant, how may I assist you ?
Hi
How are you doing?
High fever
cough high_fever breathlessness,It might be Bronchial Asthma
malaria
An infectious disease caused by protozoan parasites from the Plasmodium family that can be transmitted by the bite of the Anopheles mosquito or by a contaminated needle or transfusion. Falciparum malaria is the most deadly type.,
Message
Send

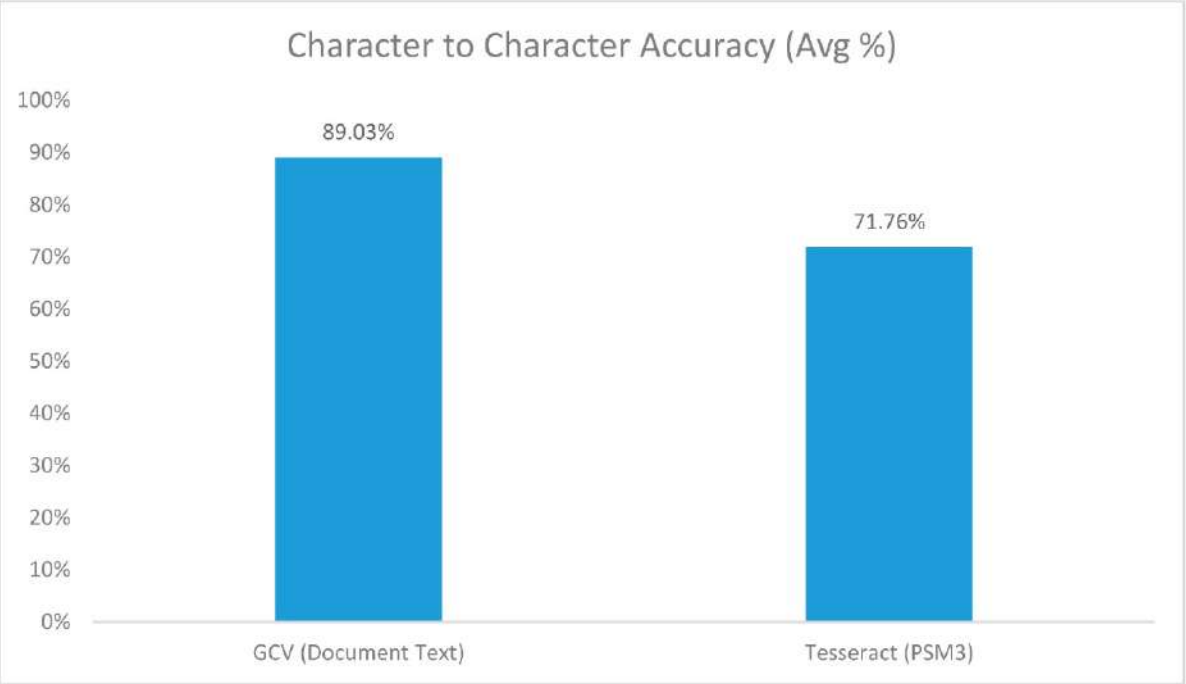
USP of our product

Our product is providing everything under one roof. Starting with our login module the facial recognition library being used by us only requires 1 photo whereas other products in the market require more than 100 photos per person to train the module properly, which is more of a traditional method.

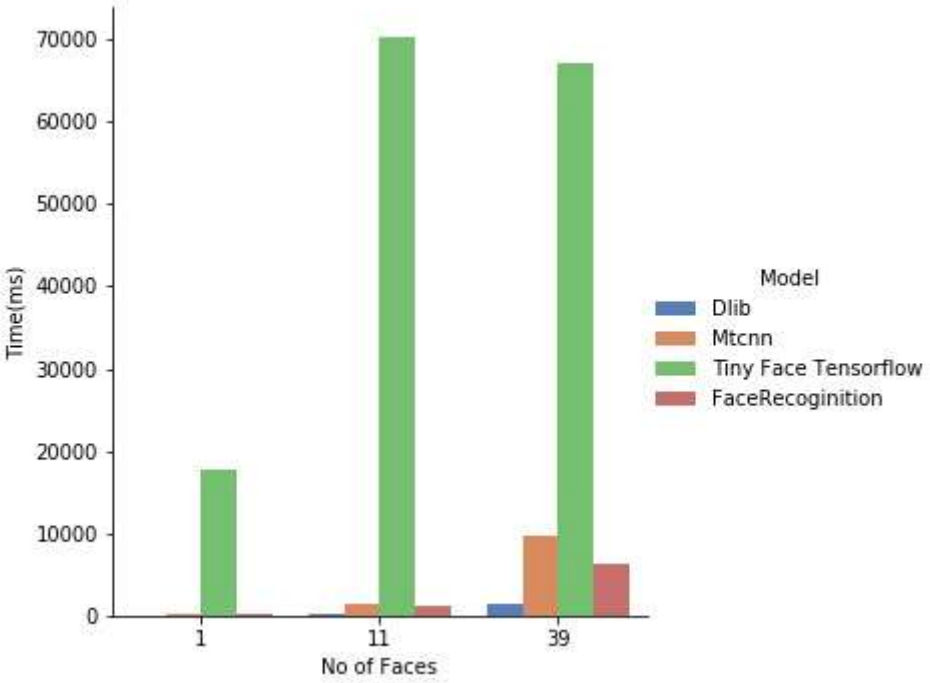
The aadhar OCR that we are using no such open source system exists. One of the most common competitors of our chatbot is rasa nlu, and even a few more traditional training based chatbots but the biggest problem with these is they are not useful for particular domain related work. Our chatbot allows the patient or its family member to talk and get a solution and if they aren't satisfied they can even get to talk to a doctor and get the desired medication or cure.

The prescription OCR that has been made by us no such open source system exists. Incase of OCR we have used google vision API and we find our competitor to be pytesseract.
Our main reason behind choosing google vision was its speed, google vision is much faster than pytesseract and its even much more accurate.Coming onto the part where scanning happens in case of pytesseract some of the unwanted elements are scanned whereas in case of google vision no more unwanted elements are recognized.

COMPLETED GRAPHS



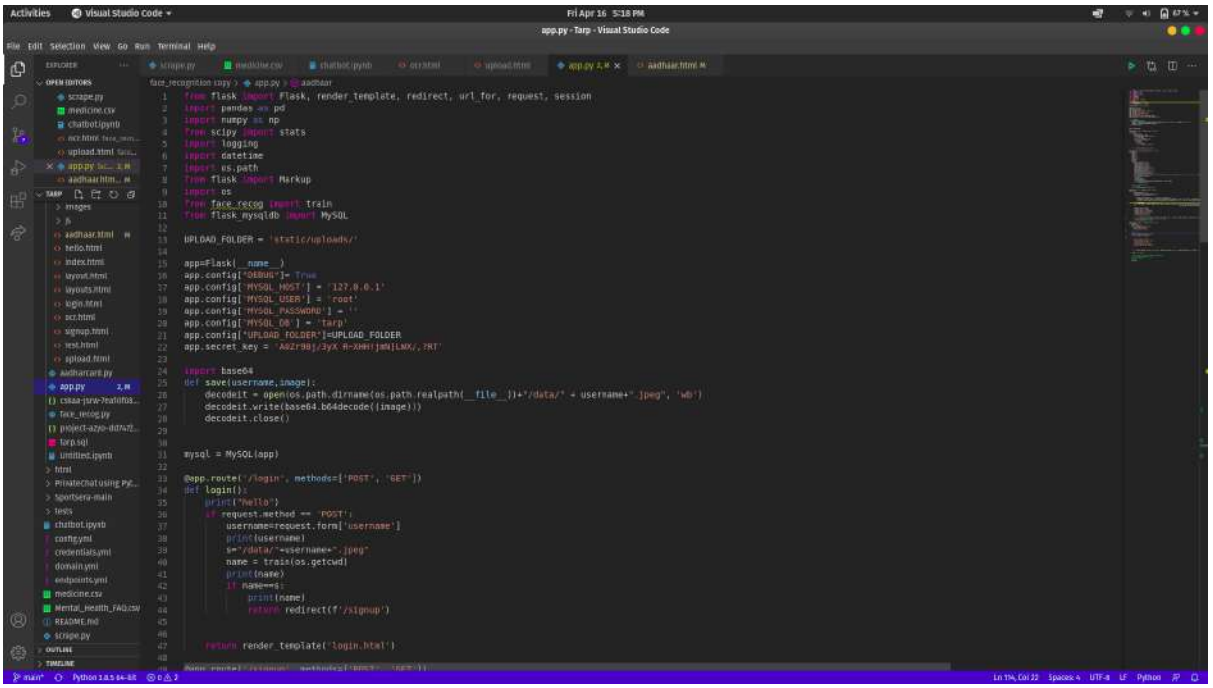
GOOGLE VISION VS TESSERACT (CHARACTER ACCURACY)

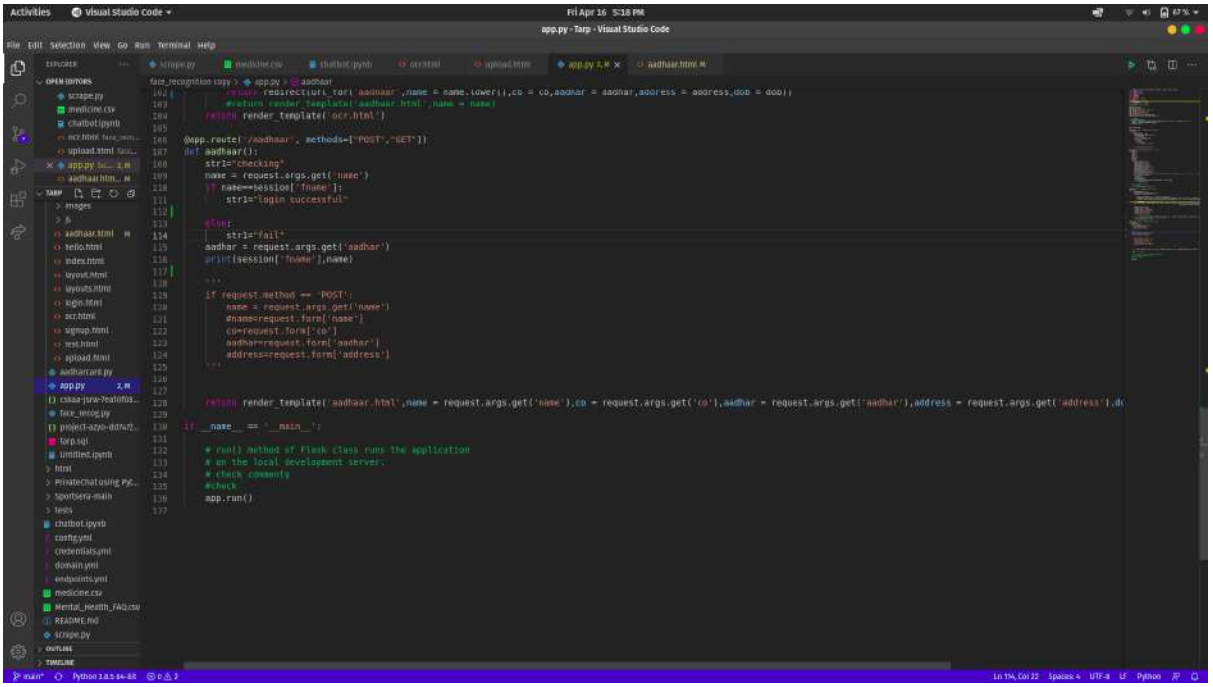


COMPARISON BETWEEN VARIOUS FACE RECOGNITION MODELS ON THE BASIS OF TIME TO DETECT FACE VS NO. OF FACES

Code:

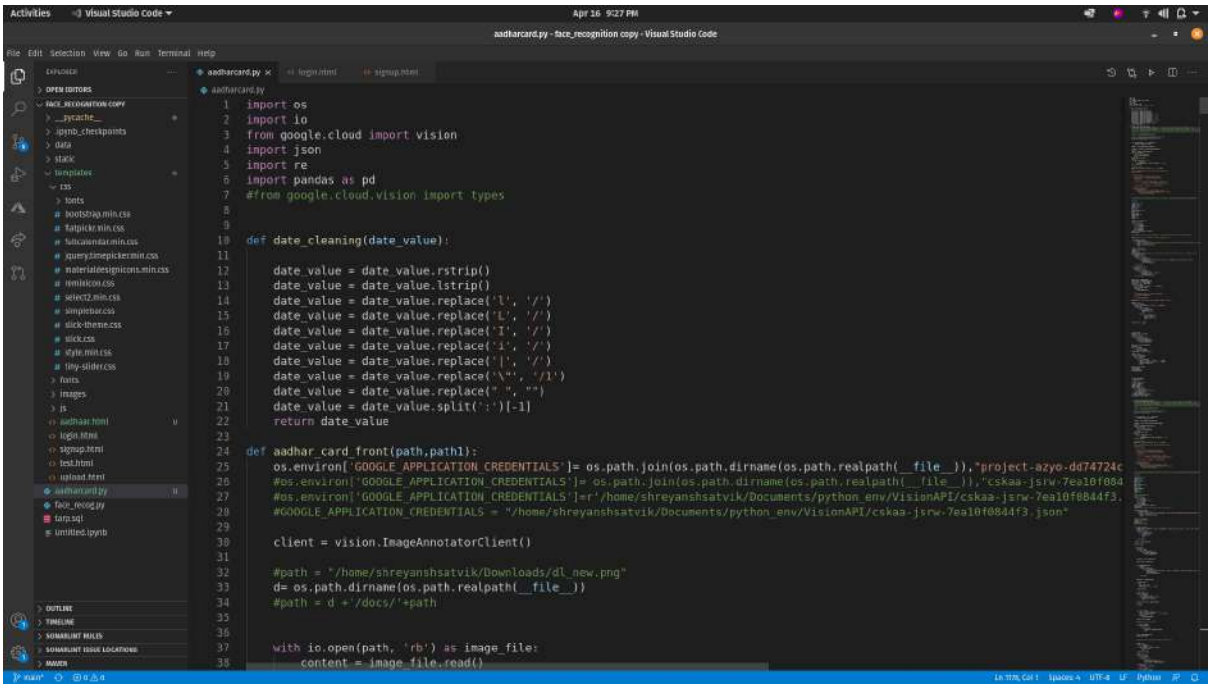
app.py



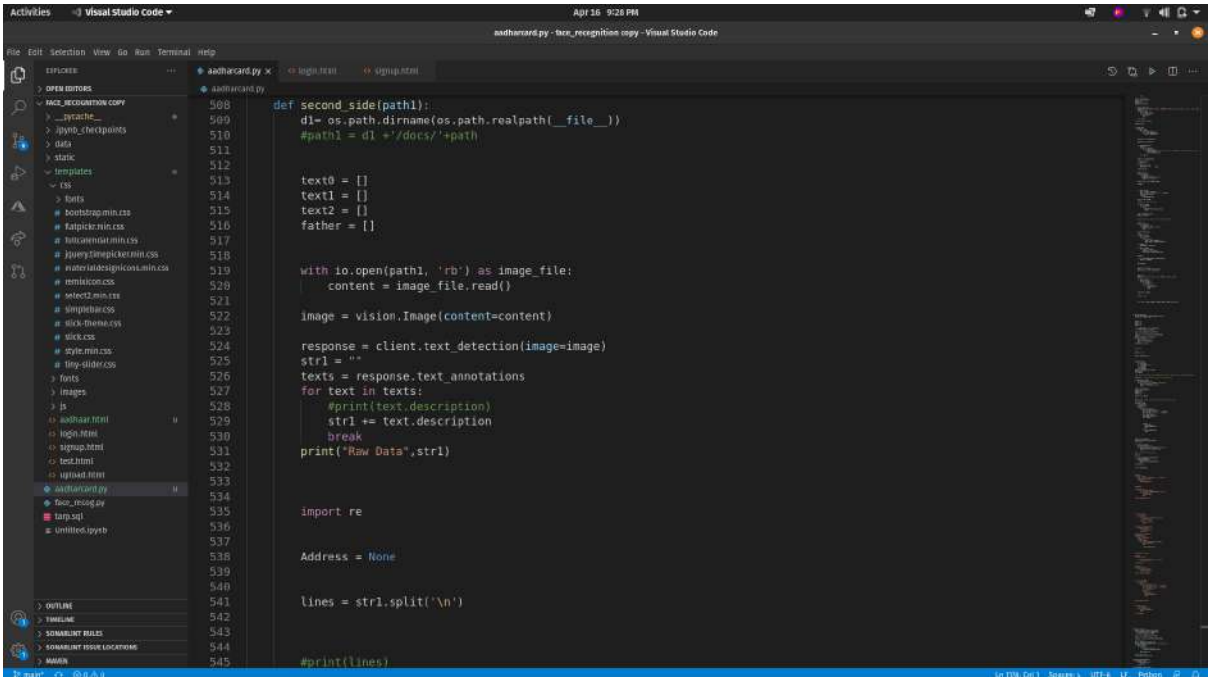


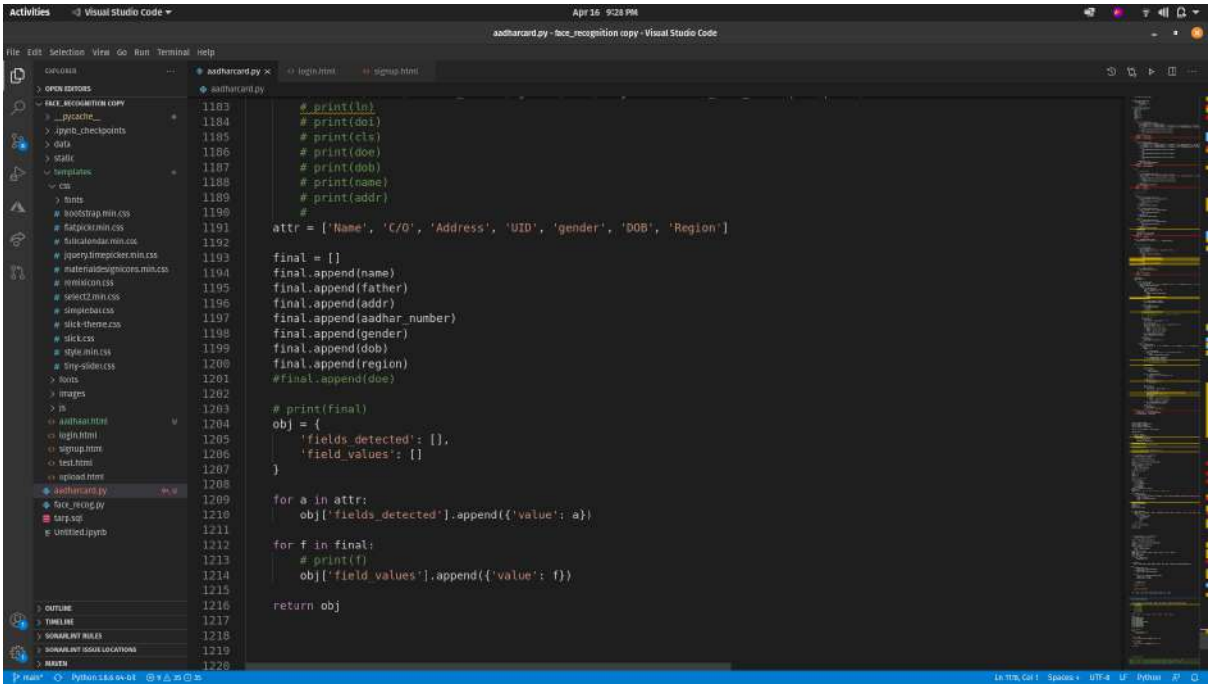
```
@app.route('/aadhaar', methods=["POST","GET"])
def aadhaar():
    str1="checking"
    name = request.args.get('name')
    if name==session['fname']:
        str1="login successful"

    else:
        str1="fail"
    aadhar = request.args.get('aadhar')
    print(session['fname'],name)

    '''
    if request.method == 'POST':
        name = request.args.get('name')
        #name=request.form['name']
        co=request.form['co']
        aadhar=request.form['aadhar']
        address=request.form['address']
    '''


    return render_template('aadhaar.html',name = request.args.get('name'),co = request.args.get('co'),aadhar = request.args.get('aadhar'),address = request.args.get('address'),d

if __name__ == '__main__':

    # run() method of Flask class runs the application
    # on the local development server.
    # check comment
    #check
    app.run()
```

aadharcard.py

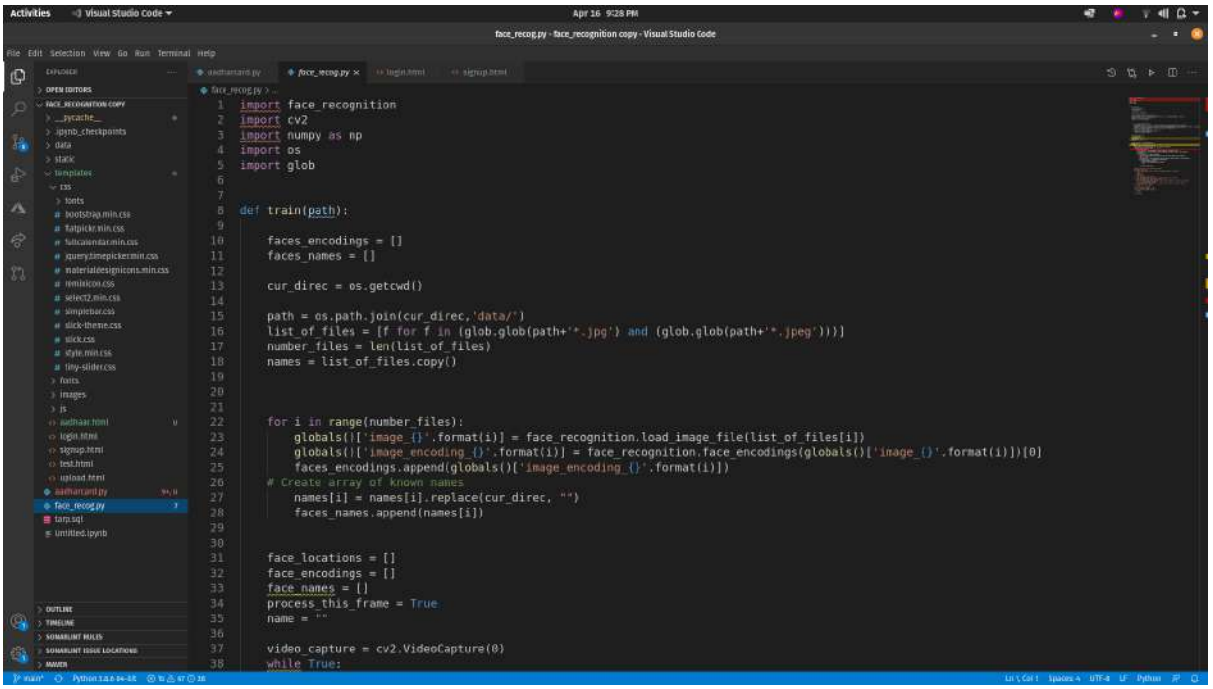


```
import os
import io
from google.cloud import vision
import json
import re
import pandas as pd
#from google.cloud.vision import types


def date_cleaning(date_value):

    date_value = date_value.rstrip()
    date_value = date_value.lstrip()
    date_value = date_value.replace('l', '/')
    date_value = date_value.replace('L', '/')
    date_value = date_value.replace('I', '/')
    date_value = date_value.replace('i', '/')
    date_value = date_value.replace('|', '/')
    date_value = date_value.replace("\"", "/1")
    date_value = date_value.replace(" ", "")
    date_value = date_value.split(':')[-1]
    return date_value

def aadhar_card_front(path,path1):
    os.environ['GOOGLE_APPLICATION_CREDENTIALS']= os.path.join(os.path.dirname(os.path.realpath(__file__)),"project-azyo-dd74724c
    #os.environ['GOOGLE_APPLICATION_CREDENTIALS']= os.path.join(os.path.dirname(os.path.realpath(__file__)),"cskaa-jsrw-7ea10f084
    #os.environ['GOOGLE_APPLICATION_CREDENTIALS']=r'/home/shreyanshsatvik/Documents/python_env/VisionAPI/cskaa-jsrw-7ea10f0844f3.
    #GOOGLE_APPLICATION_CREDENTIALS = "/home/shreyanshsatvik/Documents/python_env/VisionAPI/cskaa-jsrw-7ea10f0844f3.json"

    client = vision.ImageAnnotatorClient()

    #path = "/home/shreyanshsatvik/Downloads/dl_new.png"
    d= os.path.dirname(os.path.realpath(__file__))
    #path = d +'/docs/'+path


    with io.open(path, 'rb') as image_file:
        content = image_file.read()
```


Activities
Visual Studio Code
Apr 16 9:28 PM
aadharcard.py - face_recognition copy - Visual Studio Code
File Edit Selection View Go Run Terminal Help
aadharcard.py
login.html
signup.html
FACE_RECOGNITION COPY
templates
css
fonts
images
js
aadhaar.html
login.html
signup.html
test.html
upload.html
aadharcard.py
face_recog.py
tarp.sql
Untitled.ipynb
OUTLINE
TIMELINE
SONARLINT RULES
SONARLINT ISSUE LOCATIONS
MAVEN
def second_side(path1):
dl= os.path.dirname(os.path.realpath(__file__))
#path1 = dl +'/docs/'+path
text0 = []
text1 = []
text2 = []
father = []
with io.open(path1, 'rb') as image_file:
content = image_file.read()
image = vision.Image(content=content)
response = client.text_detection(image=image)
str1 = ""
texts = response.text_annotations
for text in texts:
#print(text.description)
str1 += text.description
break
print("Raw Data",str1)
import re
Address = None
lines = str1.split('\n')
#print(lines)

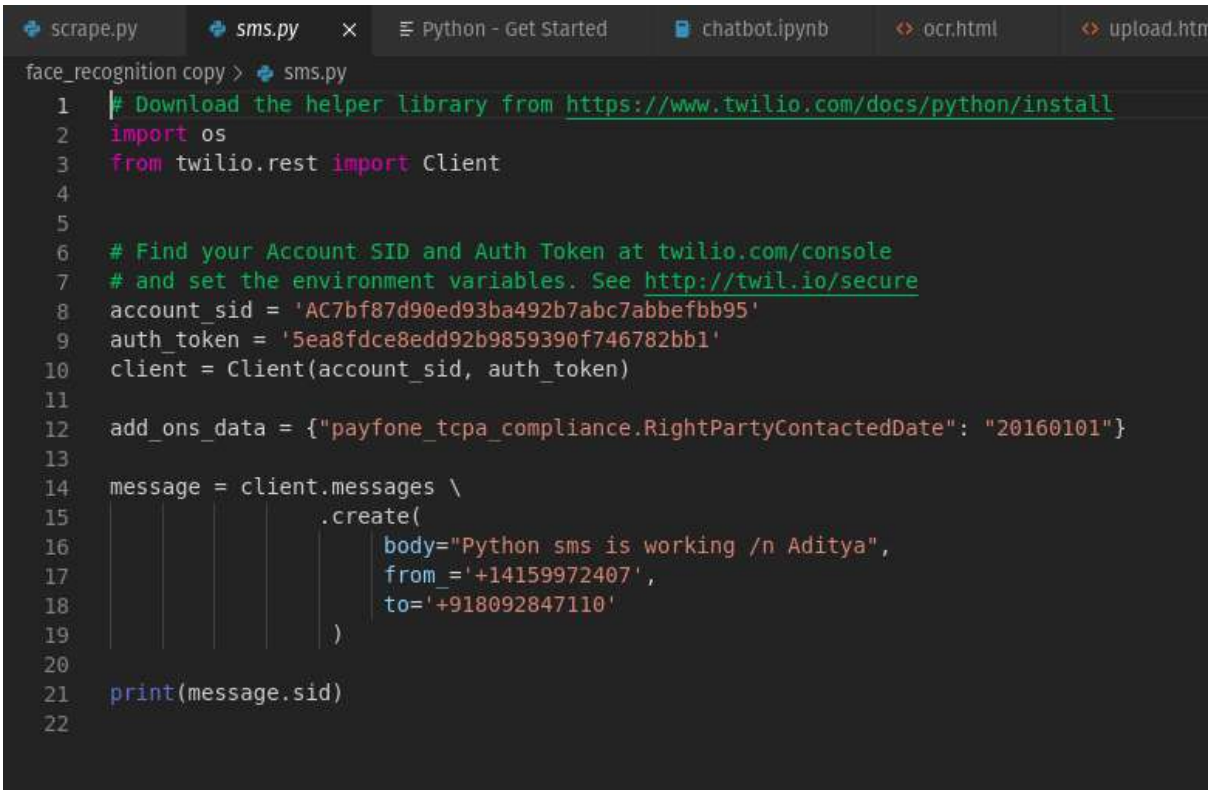

Activities
Visual Studio Code
Apr 16 9:28 PM
aadharcard.py - face_recognition copy - Visual Studio Code
File Edit Selection View Go Run Terminal Help
aadharcard.py
login.html
signup.html
FACE_RECOGNITION COPY
templates
css
fonts
images
js
aadhaar.html
login.html
signup.html
test.html
upload.html
aadharcard.py
face_recog.py
tarp.sql
Untitled.ipynb
OUTLINE
TIMELINE
SONARLINT RULES
SONARLINT ISSUE LOCATIONS
MAVEN
print(ln)
print(doi)
print(cls)
print(doe)
print(dob)
print(name)
print(addr)
#
attr = ['Name', 'C/O', 'Address', 'UID', 'gender', 'DOB', 'Region']
final = []
final.append(name)
final.append(father)
final.append(addr)
final.append(aadhar_number)
final.append(gender)
final.append(dob)
final.append(region)
#final.append(doe)
# print(final)
obj = {
'fields_detected': [],
'field_values': []
}
for a in attr:
obj['fields_detected'].append({'value': a})
for f in final:
# print(f)
obj['field_values'].append({'value': f})
return obj

facerecog.py



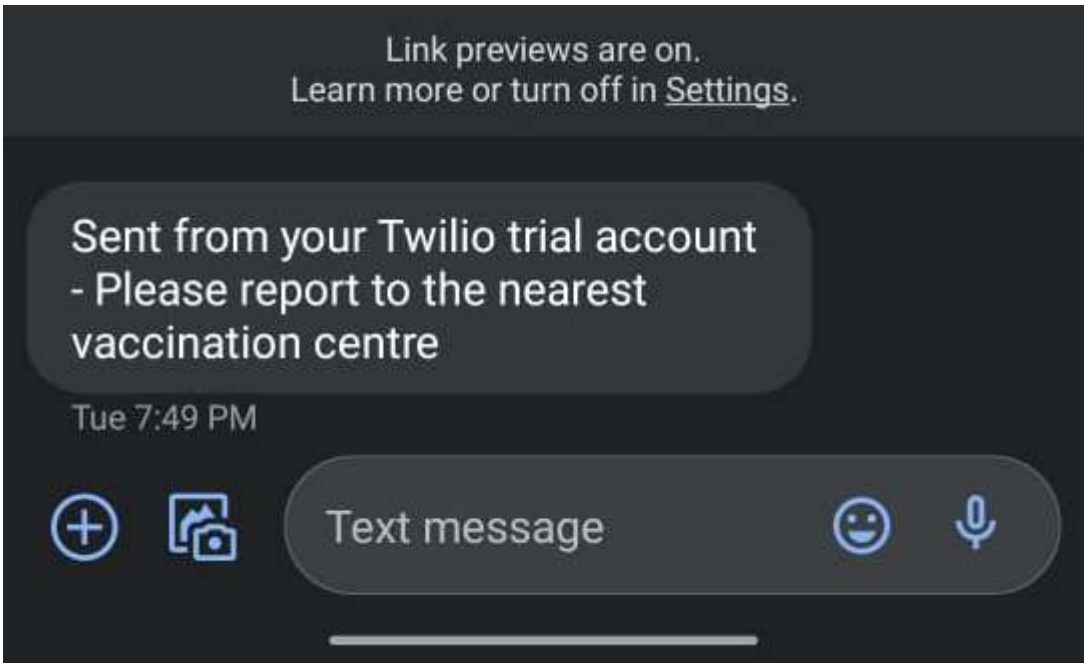
```python
import face_recognition
import cv2
import numpy as np
import os
import glob

def train(path):

    faces_encodings = []
    faces_names = []

    cur_direc = os.getcwd()

    path = os.path.join(cur_direc,'data/')
    list_of_files = [f for f in (glob.glob(path+'*.jpg') and (glob.glob(path+'*.jpeg')))]
    number_files = len(list_of_files)
    names = list_of_files.copy()



    for i in range(number_files):
        globals()['image_{}'.format(i)] = face_recognition.load_image_file(list_of_files[i])
        globals()['image_encoding_{}'.format(i)] = face_recognition.face_encodings(globals()['image_{}'.format(i)])[0]
        faces_encodings.append(globals()['image_encoding_{}'.format(i)])
    # Create array of known names
        names[i] = names[i].replace(cur_direc, "")
        faces_names.append(names[i])


    face_locations = []
    face_encodings = []
    face_names = []
    process_this_frame = True
    name = ""

    video_capture = cv2.VideoCapture(0)
    while True:
```

Sms.py

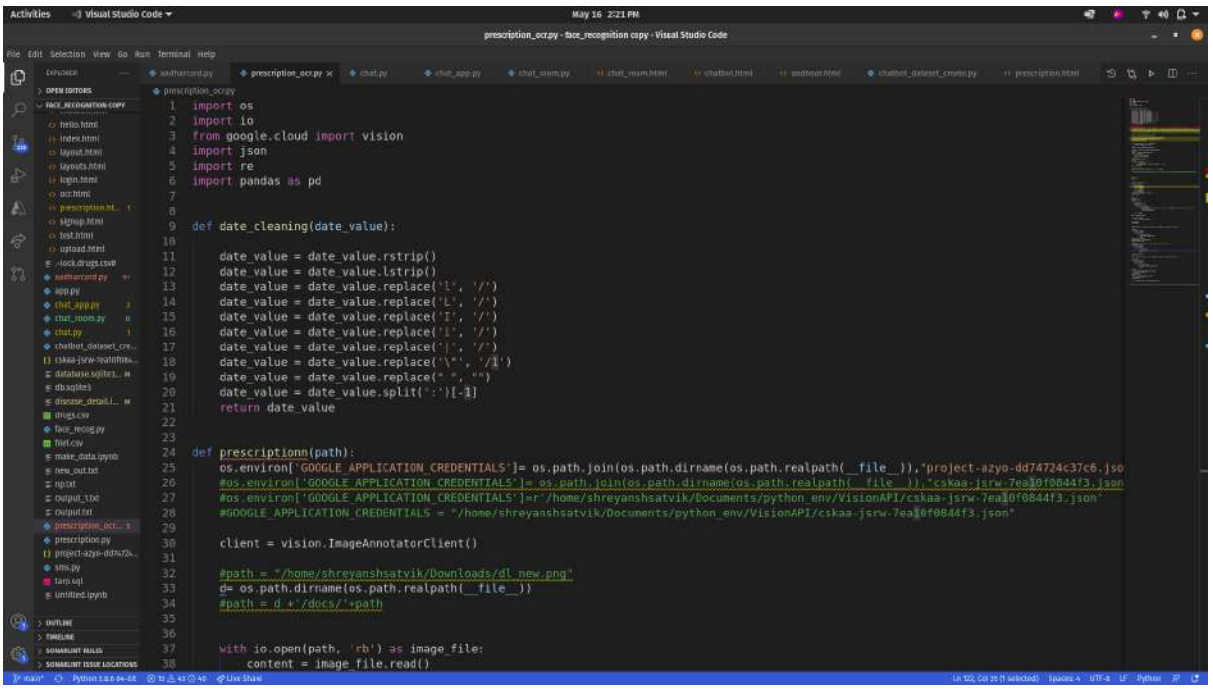


```python
# Download the helper library from https://www.twilio.com/docs/python/install
import os
from twilio.rest import Client


# Find your Account SID and Auth Token at twilio.com/console
# and set the environment variables. See http://twil.io/secure
account_sid = 'AC7bf87d90ed93ba492b7abc7abbefbb95'
auth_token = '5ea8fdce8edd92b9859390f746782bb1'
client = Client(account_sid, auth_token)

add_ons_data = {"payfone_tcpa_compliance.RightPartyContactedDate": "20160101"}

message = client.messages \
                .create(
                     body="Python sms is working /n Aditya",
                     from_='+14159972407',
                     to='+918092847110'
                 )

print(message.sid)
```

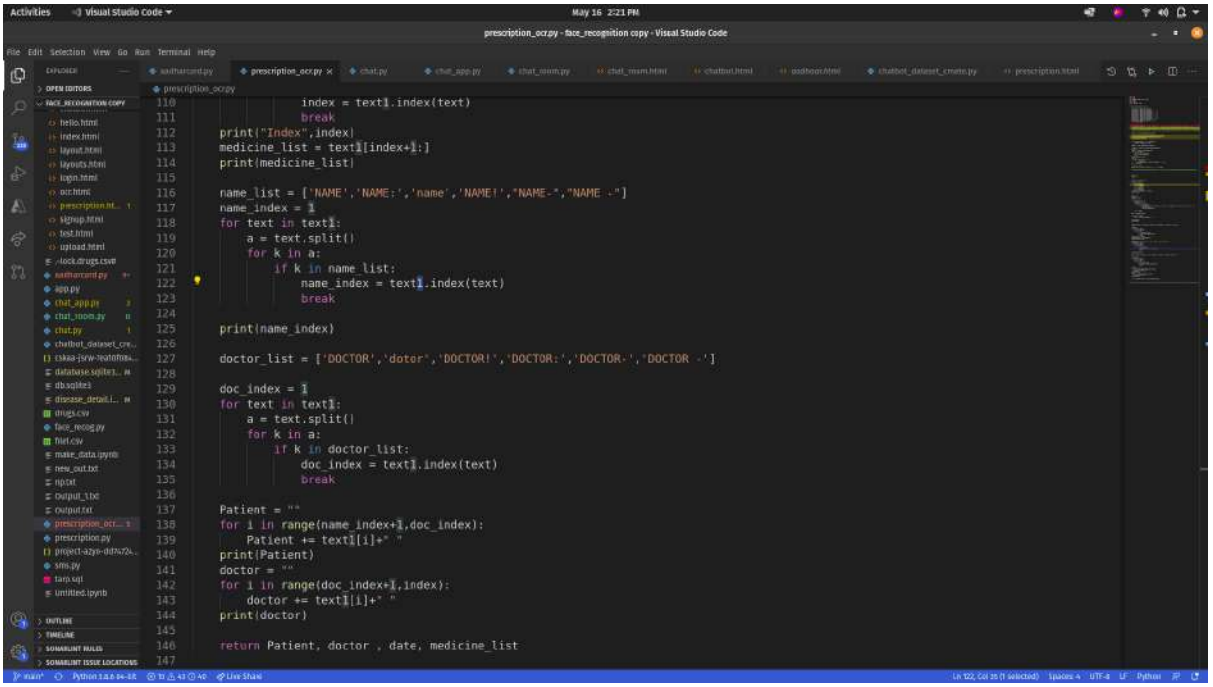
Output:



prescription_ocr.py



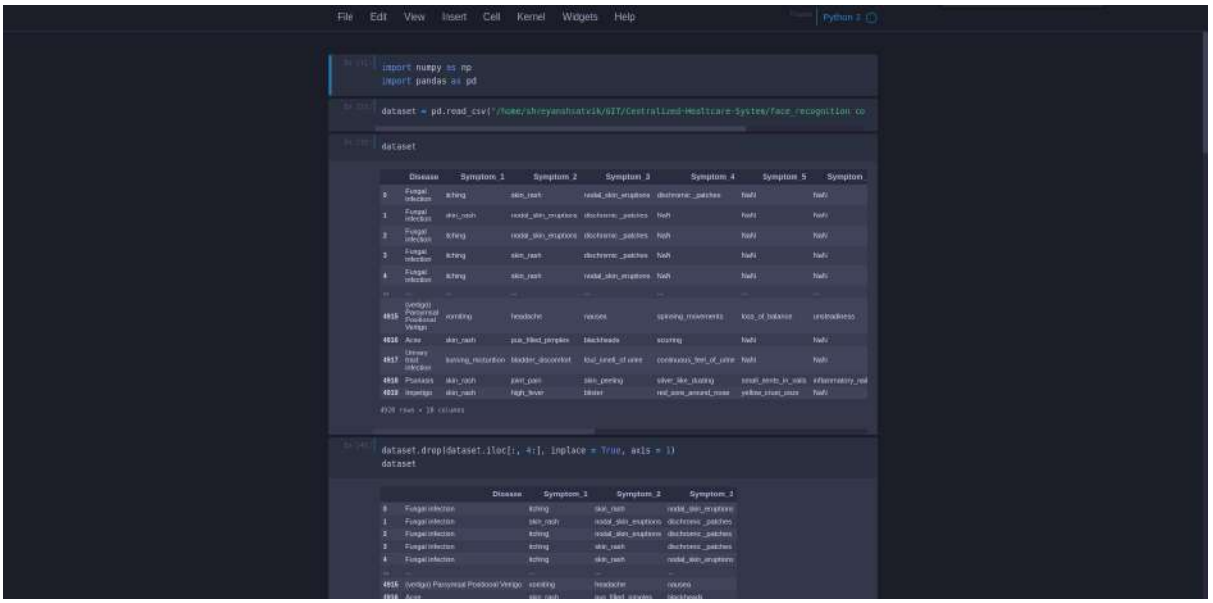
```python
import os
import io
from google.cloud import vision
import json
import re
import pandas as pd


def date_cleaning(date_value):

    date_value = date_value.rstrip()
    date_value = date_value.lstrip()
    date_value = date_value.replace('l', '/')
    date_value = date_value.replace('L', '/')
    date_value = date_value.replace('I', '/')
    date_value = date_value.replace('i', '/')
    date_value = date_value.replace('|', '/')
    date_value = date_value.replace('\"', '/1')
    date_value = date_value.replace(" ", "")
    date_value = date_value.split(':')[-1]
    return date_value


def prescriptionn(path):
    os.environ['GOOGLE_APPLICATION_CREDENTIALS']= os.path.join(os.path.dirname(os.path.realpath(__file__)),'project-azyo-dd74724c37c6.jso
    #os.environ['GOOGLE_APPLICATION_CREDENTIALS']= os.path.join(os.path.dirname(os.path.realpath(__file__)),"cskaa-jsrw-7ea10f0844f3.json
    #os.environ['GOOGLE_APPLICATION_CREDENTIALS']=r"/home/shreyanshsatvik/Documents/python_env/VisionAPI/cskaa-jsrw-7ea10f0844f3.json"
    #GOOGLE_APPLICATION_CREDENTIALS = "/home/shreyanshsatvik/Documents/python_env/VisionAPI/cskaa-jsrw-7ea10f0844f3.json"

    client = vision.ImageAnnotatorClient()

    #path = "/home/shreyanshsatvik/Downloads/dl_new.png"
    d= os.path.dirname(os.path.realpath(__file__))
    #path = d +'/docs/'+path


    with io.open(path, 'rb') as image_file:
        content = image_file.read()
```

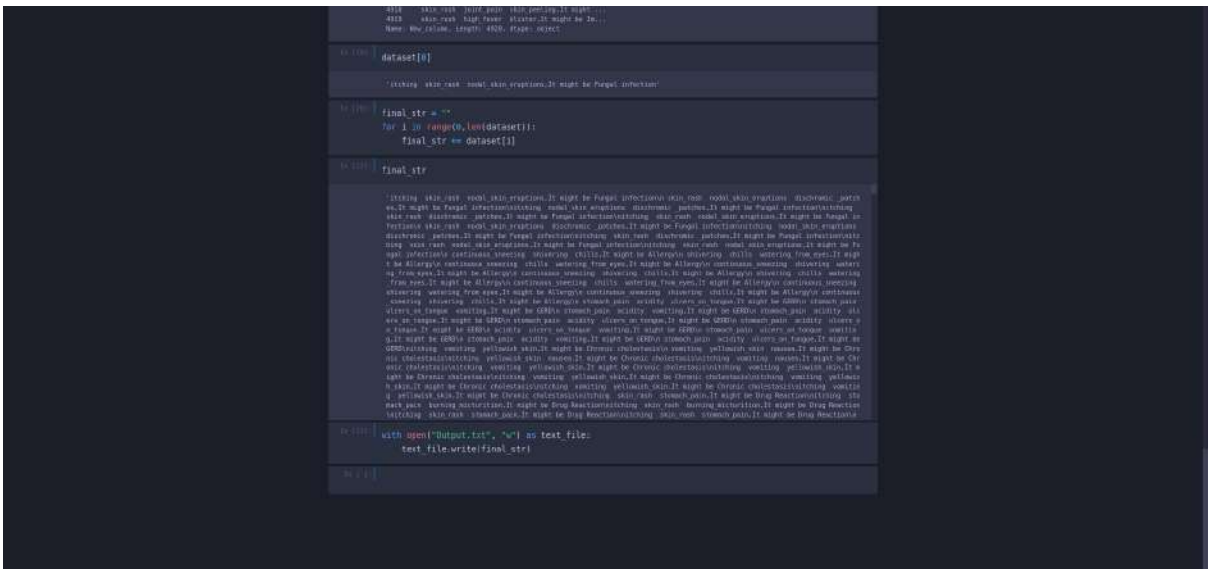

prescription_ocr.py - face_recognition copy - Visual Studio Code
index = text1.index(text)
break
print("Index",index)
medicine_list = text1[index+1:]
print(medicine_list)
name_list = ['NAME','NAME:','name','NAME!',"NAME-","NAME -"]
name_index = 1
for text in text1:
a = text.split()
for k in a:
if k in name_list:
name_index = text1.index(text)
break
print(name_index)
doctor_list = ['DOCTOR','dotor','DOCTOR!','DOCTOR:','DOCTOR-','DOCTOR -']
doc_index = 1
for text in text1:
a = text.split()
for k in a:
if k in doctor_list:
doc_index = text1.index(text)
break
Patient = ""
for i in range(name_index+1,doc_index):
Patient += text1[i]+" "
print(Patient)
doctor = ""
for i in range(doc_index+1,index):
doctor += text1[i]+" "
print(doctor)
return Patient, doctor , date, medicine_list

Output :


shreyanshsatvik@pop-os: ~/GIT/Centralized-Healtcare-System/face_recognition copy
(VisionAPI) (base) shreyanshsatvik@pop-os:~/GIT/Centralized-Healtcare-System/face_recognition copy$ python prescription_ocr.py
Raw Data 07/05/2021
NAME- SHREYANSH SATVIK
DOCTOR
Pr.SUDHIR STNGH
MEDICINES-
1. PARACETANOL
2-
ABACAVIR
3.
ANIFOSTINE
The converted dictionary is : {}
['07/05/2021', 'NAME- SHREYANSH SATVIK', 'DOCTOR', 'Pr.SUDHIR STNGH', 'MEDICINES-', '1. PARACETANOL', '2-', 'ABACAVIR', '3.', 'ANIFOSTINE']
['NAME- SHREYANSH SATVIK', 'DOCTOR', 'Pr.SUDHIR STNGH', 'MEDICINES-', '1. PARACETANOL', '2-', 'ABACAVIR', '3.', 'ANIFOSTINE']
['07/05/2021']
Index 3
['1. PARACETANOL', '2-', 'ABACAVIR', '3.', 'ANIFOSTINE']
0
Pr.SUDHIR STNGH
(VisionAPI) (base) shreyanshsatvik@pop-os:~/GIT/Centralized-Healtcare-System/face_recognition copy$

make_data.ipynb





```
dataset[0]

'itching  skin_rash  nodal_skin_eruptions.It might be Fungal_infection'

final_str = ""
for i in range(0,len(dataset)):
    final_str += dataset[i]

final_str

'itching  skin_rash  nodal_skin_eruptions.It might be Fungal_infection\n itching  skin_rash  nodal_skin_eruptions  dischromic  _patch
es.It might be Fungal_infection\nitching  nodal_skin_eruptions  dischromic  _patches.It might be Fungal_infection\nitching
skin_rash  dischromic  _patches.It might be Fungal_infection\nitching  skin_rash  nodal_skin_eruptions.It might be Fungal_in
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hing  skin_rash  nodal_skin_eruptions.It might be Fungal_infection\nitching  skin_rash  nodal_skin_eruptions.It might be Fu
ngal_infection\n continuous_sneezing  shivering  chills.It might be Allergy\n shivering  chills  watering_from_eyes.It migh
t be Allergy\n continuous_sneezing  chills  watering_from_eyes.It might be Allergy\n continuous_sneezing  shivering  wateri
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shivering  watering_from_eyes,It might be Allergy\n continuous_sneezing  shivering  chills.It might be Allergy\n continuous
_sneezing  shivering  chills.It might be Allergy\n stomach_pain  acidity  ulcers_on_tongue.It might be GERD\n stomach_pain
ulcers_on_tongue  vomiting,It might be GERD\n stomach_pain  acidity  vomiting,It might be GERD\n stomach_pain  acidity  ul
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GERD\nitching  vomiting  yellowish_skin.It might be Chronic cholestasis\n vomiting  yellowish_skin  nausea.It might be Chro
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g  yellowish_skin.It might be Chronic cholestasis\nitching  skin_rash  stomach_pain.It might be Drug Reaction\nitching  sto
mach_pain  burning_micturition.It might be Drug Reaction\nitching  skin_rash  burning_micturition.It might be Drug Reaction
\nitching  skin_rash  stomach_pain.It might be Drug Reaction\nitching  skin_rash  stomach_pain,It might be Drug Reaction\n

with open("Output.txt", "w") as text_file:
    text_file.write(final_str)
```
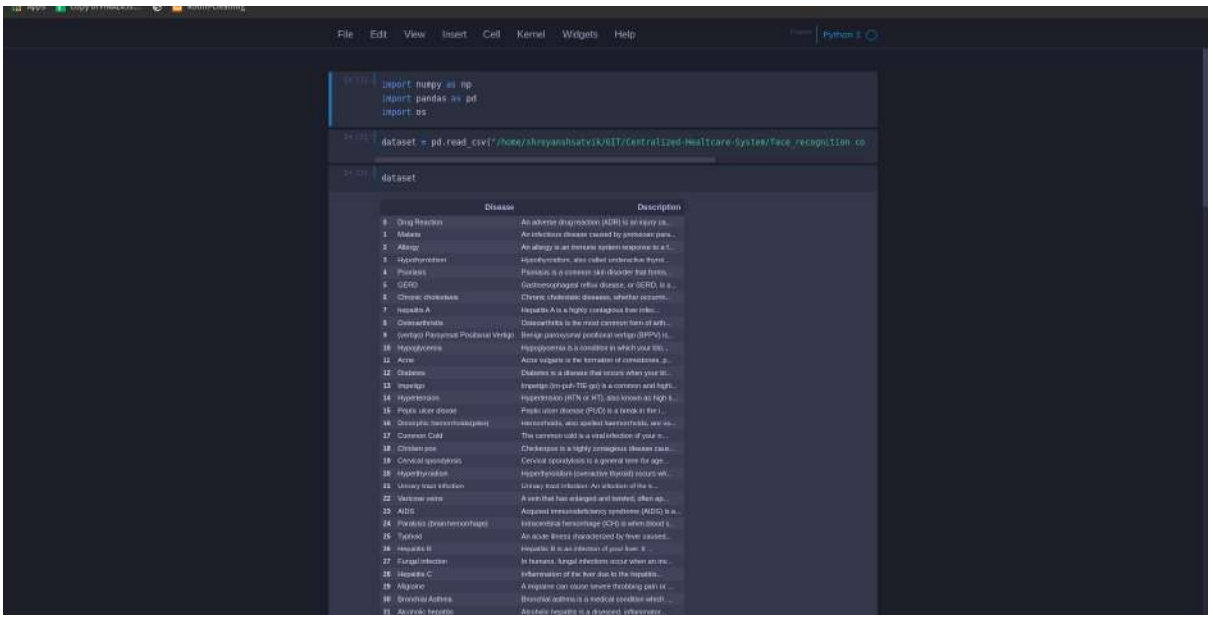
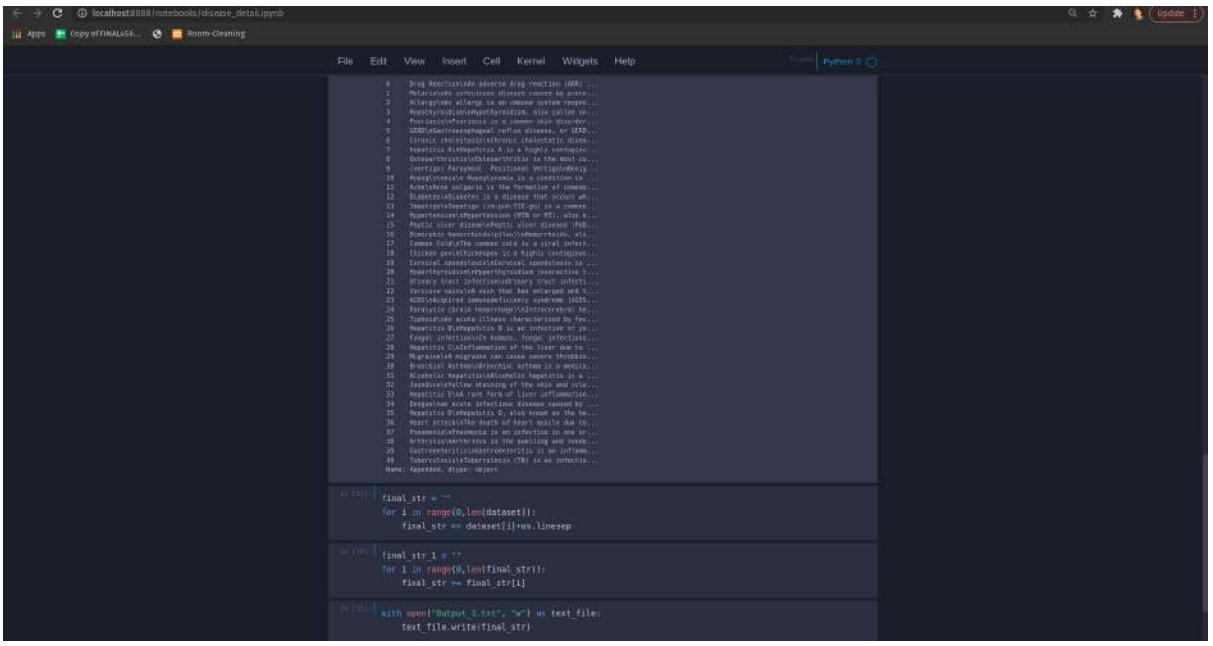

disease_detail.ipynb



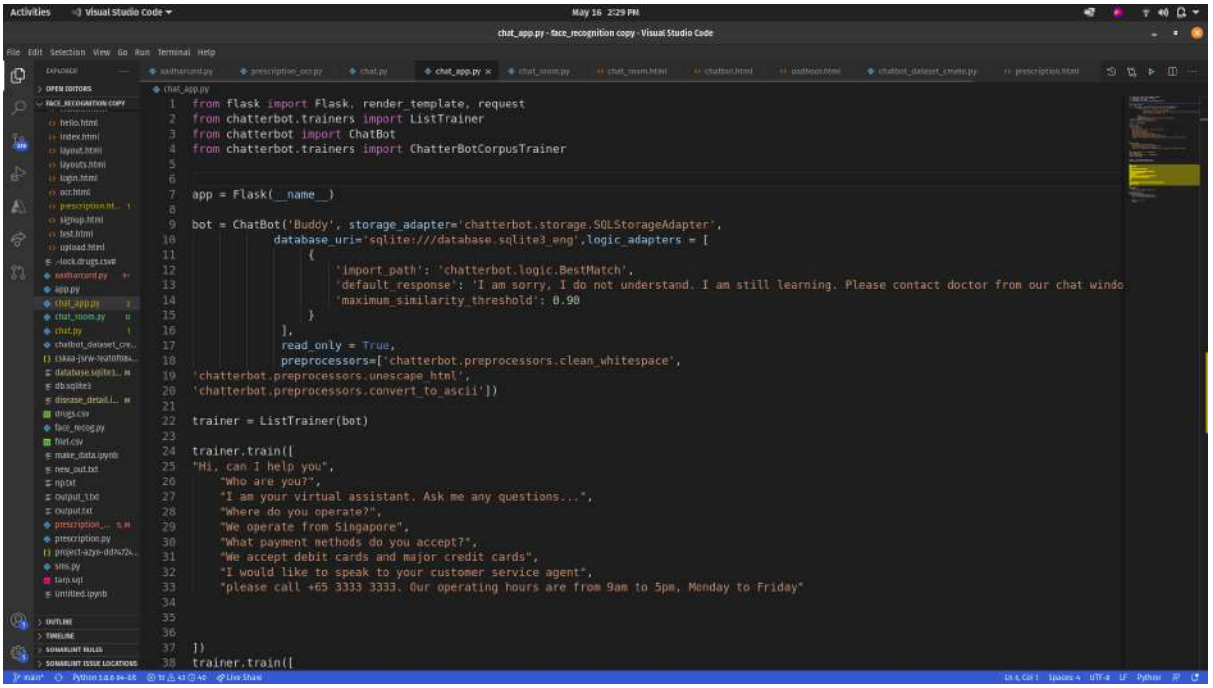
File Edit View Insert Cell Kernel Widgets Help

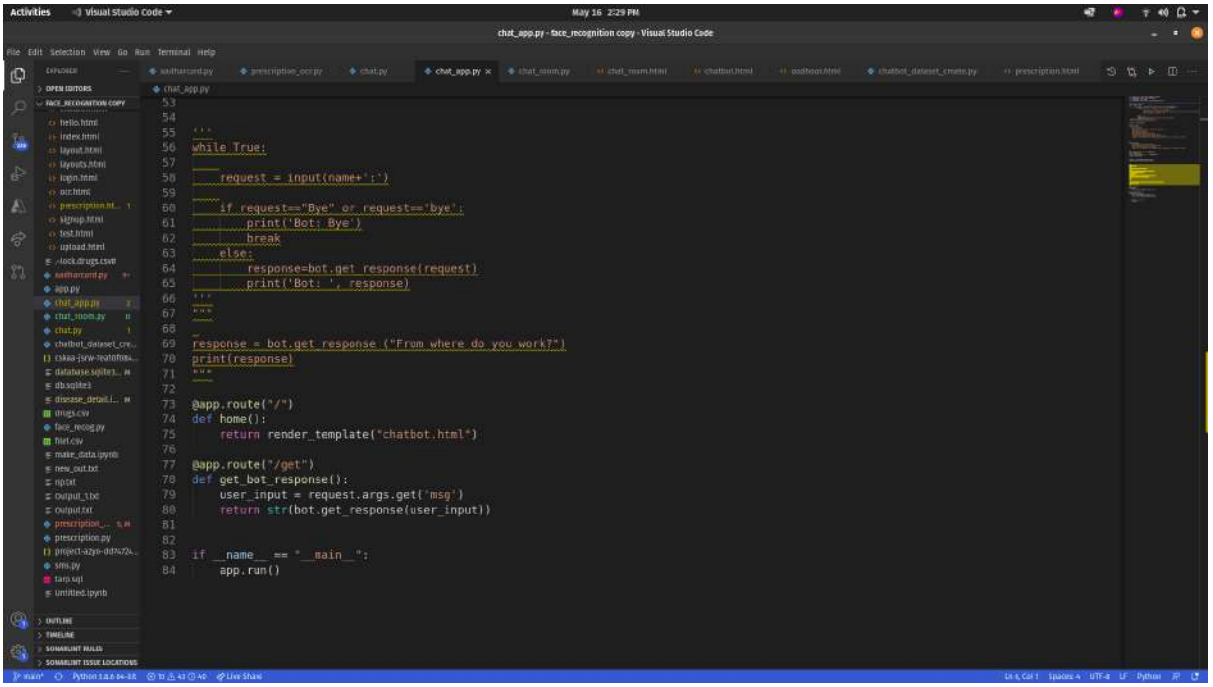
```
import numpy as np
import pandas as pd
import os

dataset = pd.read_csv('/home/shreyanshsatvik/OIT/Centralized-Healthcare-System/face_recognition_co

dataset
```

	Disease	Description
0	Drug Reaction	An adverse drug reaction (ADR) is an injury ca...
1	Malaria	An infectious disease caused by protozoan para...
2	Allergy	An allergy is an immune system response to a f...
3	Hypothyroidism	Hypothyroidism, also called underactive thyroi...
4	Psoriasis	Psoriasis is a common skin disorder that forms...
5	GERD	Gastroesophageal reflux disease, or GERD, is a...
6	Chronic cholestasis	Chronic cholestatic diseases, whether occurrin...
7	Hepatitis A	Hepatitis A is a highly contagious liver infec...
8	Osteoarthritis	Osteoarthritis is the most common form of arth...
9	(vertigo) Paroxysmal Positional Vertigo	Benign paroxysmal positional vertigo (BPPV) is...
10	Hypoglycemia	Hypoglycemia is a condition in which your bloo...
11	Acne	Acne vulgaris is the formation of comedones, p...
12	Diabetes	Diabetes is a disease that occurs when your blo...
13	Impetigo	Impetigo (im-puh-TIE-go) is a common and highl...
14	Hypertension	Hypertension (HTN or HT), also known as high b...
15	Peptic ulcer disease	Peptic ulcer disease (PUD) is a break in the i...
16	Dimorphic hemorrhoids(piles)	Hemorrhoids, also spelled haemorrhoids, are va...
17	Common Cold	The common cold is a viral infection of your n...
18	Chicken pox	Chickenpox is a highly contagious disease caus...
19	Cervical spondylosis	Cervical spondylosis is a general term for age...
20	Hyperthyroidism	Hyperthyroidism (overactive thyroid) occurs wh...
21	Urinary tract infection	Urinary tract infection: An infection of the k...
22	Varicose veins	A vein that has enlarged and twisted, often ap...
23	AIDS	Acquired immunodeficiency syndrome (AIDS) is a...
24	Paralysis (brain hemorrhage)	Intracerebral hemorrhage (ICH) is when blood s...
25	Typhoid	An acute illness characterized by fever caused...
26	Hepatitis B	Hepatitis B is an infection of your liver. It ...
27	Fungal infection	In humans, fungal infections occur when an ina...
28	Hepatitis C	Inflammation of the liver due to the hepatitis...
29	Migraine	A migraine can cause severe throbbing pain or ...
30	Bronchial Asthma	Bronchial asthma is a medical condition which ...
31	Alcoholic hepatitis	Alcoholic hepatitis is a diseased, inflammator...


File Edit View Insert Cell Kernel Widgets Help
final_str = ""
for i in range(0,len(dataset)):
final_str += dataset[i]+os.linesep
final_str_1 = ""
for i in range(0,len(final_str)):
final_str += final_str[i]
with open("Output_1.txt", "w") as text_file:
text_file.write(final_str)

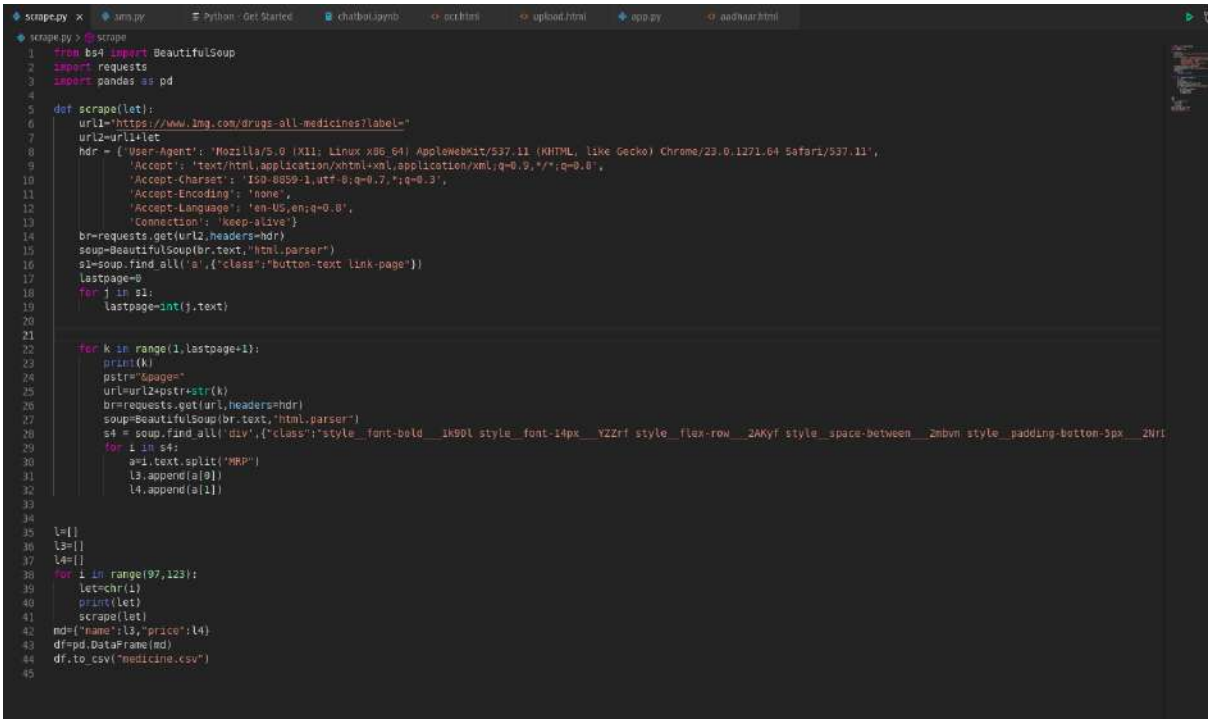
chat_app.py


chat_app.py - face_recognition copy - Visual Studio Code
from Flask import Flask, render_template, request
from chatterbot.trainers import ListTrainer
from chatterbot import ChatBot
from chatterbot.trainers import ChatterBotCorpusTrainer
app = Flask(__name__)
bot = ChatBot('Buddy', storage_adapter='chatterbot.storage.SQLStorageAdapter',
database_uri='sqlite:///database.sqlite3_eng',logic_adapters = [
{
'import_path': 'chatterbot.logic.BestMatch',
'default_response': 'I am sorry, I do not understand. I am still learning. Please contact doctor from our chat windo
'maximum_similarity_threshold': 0.90
}
],
read_only = True,
preprocessors=['chatterbot.preprocessors.clean_whitespace',
'chatterbot.preprocessors.unescape_html',
'chatterbot.preprocessors.convert_to_ascii'])
trainer = ListTrainer(bot)
trainer.train([
"Hi, can I help you",
"Who are you?",
"I am your virtual assistant. Ask me any questions...",
"Where do you operate?",
"We operate from Singapore",
"What payment methods do you accept?",
"We accept debit cards and major credit cards",
"I would like to speak to your customer service agent",
"please call +65 3333 3333. Our operating hours are from 9am to 5pm, Monday to Friday"
])
trainer.train([



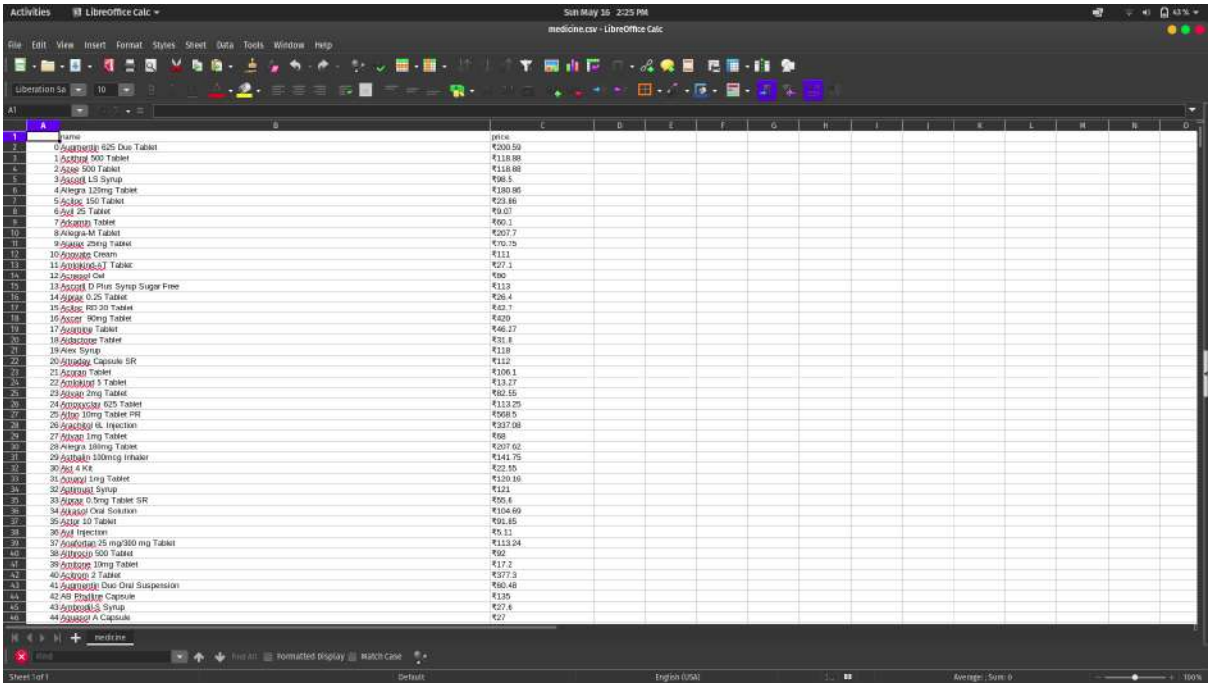
```
'''
while True:
    request = input(name+':')
    if request=="Bye" or request=='bye':
        print('Bot: Bye')
        break
    else:
        response=bot.get_response(request)
        print('Bot: ', response)
'''
"""
response = bot.get_response ("From where do you work?")
print(response)
"""

@app.route("/")
def home():
    return render_template("chatbot.html")

@app.route("/get")
def get_bot_response():
    user_input = request.args.get('msg')
    return str(bot.get_response(user_input))


if __name__ == "__main__":
    app.run()
```

Scraper.py

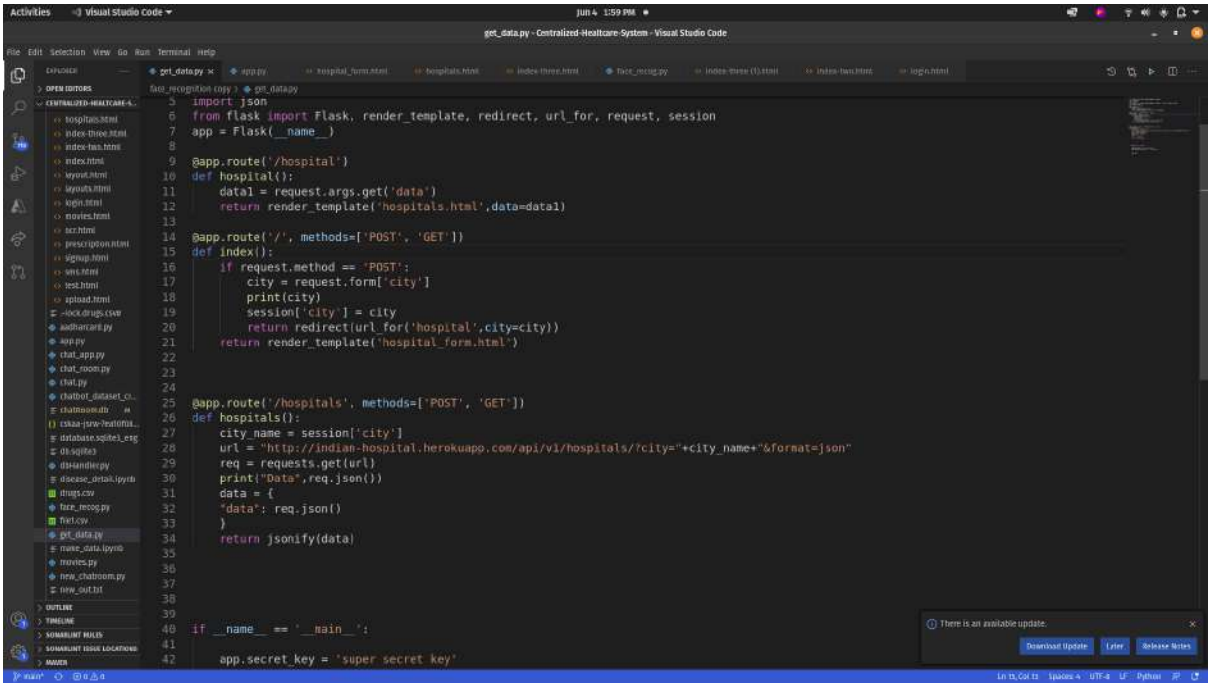


```
from bs4 import BeautifulSoup
import requests
import pandas as pd

def scrape(let):
    url1="https://www.1mg.com/drugs-all-medicines?label="
    url2=url1+let
    hdr = {'User-Agent': 'Mozilla/5.0 (X11; Linux x86_64) AppleWebKit/537.11 (KHTML, like Gecko) Chrome/23.0.1271.64 Safari/537.11',
           'Accept': 'text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8',
           'Accept-Charset': 'ISO-8859-1,utf-8;q=0.7,*;q=0.3',
           'Accept-Encoding': 'none',
           'Accept-Language': 'en-US,en;q=0.8',
           'Connection': 'keep-alive'}
    br=requests.get(url2,headers=hdr)
    soup=BeautifulSoup(br.text,"html.parser")
    s1=soup.find_all('a',{"class":"button-text link-page"})
    lastpage=0
    for j in s1:
        lastpage=int(j.text)


    for k in range(1,lastpage+1):
        print(k)
        pstr="&page="
        url=url2+pstr+str(k)
        br=requests.get(url,headers=hdr)
        soup=BeautifulSoup(br.text,"html.parser")
        s4 = soup.find_all('div',{"class":"style__font-bold___1k9Dl style__font-14px___YZZrf style__flex-row___2AKyf style__space-between___2mbvn style__padding-bottom-5px___2Nrt
        for i in s4:
            a=i.text.split('MRP')
            l3.append(a[0])
            l4.append(a[1])


l=[]
l3=[]
l4=[]
for i in range(97,123):
    let=chr(i)
    print(let)
    scrape(let)
md={"name":l3,"price":l4}
df=pd.DataFrame(md)
df.to_csv("medicine.csv")
```

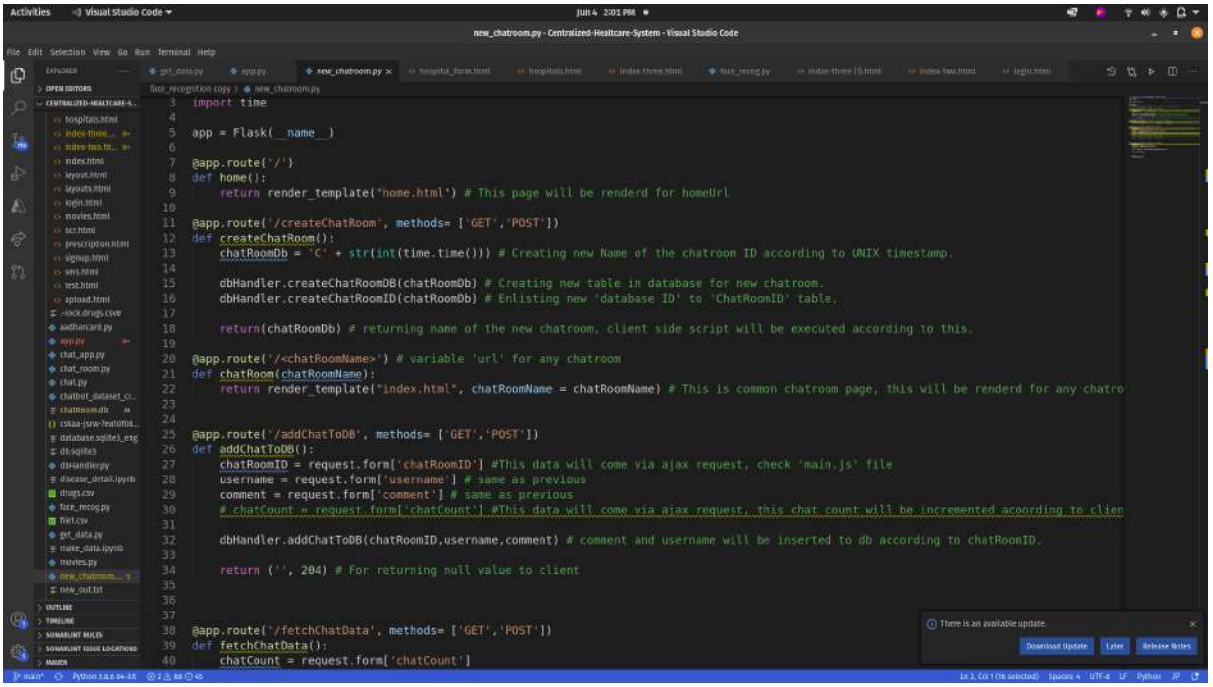
Output:



get_data.py



Chat_room.py


Activities
Visual Studio Code
Jun 4 2:01 PM
new_chatroom.py - Centralized-Healtcare-System - Visual Studio Code
File Edit Selection View Go Run Terminal Help
import time
app = Flask(__name__)
@app.route('/')
def home():
return render_template('home.html') # This page will be renderd for homeUrl
@app.route('/createChatRoom', methods= ['GET','POST'])
def createChatRoom():
chatRoomDb = 'C' + str(int(time.time())) # Creating new Name of the chatroom ID according to UNIX timestamp.
dbHandler.createChatRoomDB(chatRoomDb) # Creating new table in database for new chatroom.
dbHandler.createChatRoomID(chatRoomDb) # Enlisting new 'database ID' to 'ChatRoomID' table.
return(chatRoomDb) # returning name of the new chatroom, client side script will be executed according to this.
@app.route('/<chatRoomName>') # variable 'url' for any chatroom
def chatRoom(chatRoomName):
return render_template("index.html", chatRoomName = chatRoomName) # This is common chatroom page, this will be renderd for any chatro
@app.route('/addChatToDB', methods= ['GET','POST'])
def addChatToDB():
chatRoomID = request.form['chatRoomID'] #This data will come via ajax request, check 'main.js' file
username = request.form['username'] # same as previous
comment = request.form['comment'] # same as previous
# chatCount = request.form['chatCount'] #This data will come via ajax request, this chat count will be incremented acoording to clien
dbHandler.addChatToDB(chatRoomID,username,comment) # comment and username will be inserted to db according to chatRoomID.
return ('', 204) # For returning null value to client
@app.route('/fetchChatData', methods= ['GET','POST'])
def fetchChatData():
chatCount = request.form['chatCount']
There is an available update.
Download Update
Later
Release Notes

CONCLUSION

Our product is providing everything under one roof. There are many products in the market providing most of our services but individually or with lesser or complex features. Starting with our login module the facial recognition library being used by us only requires 1 photo whereas other products in the market require more than 100 photos per person to train the module properly, which is more of a traditional method.

The aadhar OCR that we are using no such open source system exists. One of the most common competitors of our chatbot is rasa nlu, and even a few more traditional training based chatbots but the biggest problem with these is they are not useful for particular domain related work. Our chatbot allows the patient or its family member to talk and get a solution and if they aren't satisfied they can even get to talk to a doctor and get the desired medication or cure.Rasa

The prescription OCR that has been made by us no such open source system exists. Incase of OCR we have used google vision API and we find our competitor to be pytesseract.
Our main reason behind choosing google vision was its speed, google vision is much faster than pytesseract and its even much more accurate.Coming onto the part where scanning happens in case of pytesseract some of the unwanted elements are scanned whereas in case of google vision no more unwanted elements are recognized.

Central Healthcare System

Aditya Singh
School of Computer Science and Engineering
Vellore Institute of Technology
Vellore, India
adityasingh.2018@vitstudent.ac.in

Shreyansh Satvik
School of Computer Science and Engineering
Vellore Institute of Technology
Vellore, India
shreyansh.satvik2018@vitstudent.ac.in

Raghav Jindal
School of Computer Science and Engineering
Vellore Institute of Technology
Vellore, India
raghav.jindal2018@vitstudent.ac.in

Subham Kedia
School of Computer Science and Engineering
Vellore Institute of Technology
Vellore, India
subham.kedia2018@vitstudent.ac.in

Prof. Padma Priya R
School of Computer Science and Engineering
Vellore Institute of Technology
Vellore, India
padmapriya.r@vit.ac.in

Nimish Batra
School of Computer Science and Engineering
Vellore Institute of Technology
Vellore, India
nimish.batra2018@vitstudent.ac.in

***Abstract*—Due to the rapid increase in population and because of people's unhealthy lifestyle the number of patients have been increasing by the day due to which all the hospitals are flooded and have low availability at times. Recently a lot of hospitals have been running out of beds. Thus we propose a Central healthcare system aimed to provide premier superior quality services. We propose a method to solve the crisis of an emergency remote system and unavailability of a proper centralised system for medicine information . We are also adding a face - recognition login and aadhar verification to prevent identity theft and misuse. To solve emergency remote problems we are making a doctor chatbot and if the query is not solved by the chatbot then we will be re-directing the patient to chat directly with the doctor and further we will also be adding an emergency button that will help the patient to reach hospital at earliest. For medicinal information we will be scanning the doctor's prescription and will show you the results from where you can purchase it online and all the information about it including its alternative and we will be adding a reminder for doses through google's calendar.**

Keywords—Central Healthcare System, medicine, chatbot, face recognition.

I. OBJECTIVE

Our primary objective is to provide a central healthcare system in order avoid last minute chaos due to low or no availability.

Our second objective is providing a face-recognition login and aadhar verification that would help us in preventing identity theft and misuse of people's personal information.

Thirdly we are going to provide a chatbot service. This service will be provided to all the patients at the first step. The patient can put up their problem in front of the chatbot and then the chatbot will provide them with the solution. In case the chatbot cannot provide the solution or the patient is not satisfied with the solution they can move forward to chat directly with the doctor.

The fourth objective is to help patients reach the nearest hospital at the earliest, this will be possible by sending an alert to the nearby ambulance and its driver to reach the patients location. The driver will receive the alert through SMS and would get to know patients location, phone number and their Aadhar card number.

The last objective is to help people get medicines. At times people even face difficulty in reading the doctor's handwriting so our web application will help the patient recognize the name of the medicine and the places from where it can be purchased online. If the medicine is out of stock the patient will even get to know the salts in the medicine and hence the alternatives available. The patient can set the dosage in google calendar. The web app will remind them to have their medicine on time by using google calendar.

II. Introduction

In today's time of crisis, hospitals have become really crowded and patients and their families are at the suffering end. To automate the process and to help patients know about the status of availability and to help them with medicinal information we are creating this centralized healthcare system so as to save people's time and the lives of their loved ones. We will be using natural language processing, Web scraping, blockchain and a few more technologies to get this project up and running.

III. Problem statement

Unavailability of beds and proper medical aid in hospitals.

Lack of proper guidance by medical staff due to fewer doctors being available. Patients not being able to reach the hospital in time.

Patients not able to recognize the correct medicine or not able to know which alternative to buying in case of unavailability of that particular medicine that has been prescribed by the doctor.

IV. Proposed Solution

We will be making a web application to solve the problem of the centralized health care system. We propose a method to solve the crisis of an emergency remote system and the unavailability of a proper centralized system for medicinal information. We are also adding a face-recognition login and Aadhar verification to prevent identity theft and misuse. To solve emergency remote problems we are making a doctor chatbot and if the query is not solved by the chatbot then we will be re-directing the patient to chat directly with the doctor and further, we will also be adding an emergency button that will help the patient to reach the hospital at earliest which when clicked will send an alert message to the nearest hospital and to the nearest ambulance. For medicinal information, we will be scanning the doctor's prescription and will show you the results from where you can purchase it online and all the information about it including its alternative and we will be adding a reminder for doses through google's calendar.

V. Literature Survey

[1] Optical Character Recognition (OCR) is a piece of programming that converts printed text and pictures into a digitized design so much that it will in general be constrained by a machine. Unlike the human frontal cortex which has the ability to conveniently see the substance/characters from an image, machines are not shrewd enough to see the information available in an image. Along these lines, incalculable assessment attempts have been progressed that try to change a record picture to a plan sensible for machines. OCR is an eccentric issue because of the variety of vernaculars, text based styles, styles in which text can be created and the baffling rules of lingos, etc Obtaining, Pre-getting ready, Segmentation, Feature extraction, portrayal are being used.

[2] Optical character acknowledgment is a functioning examination region that endeavors to foster a PC framework with the capacity to extricate text from pictures consequently. The target of OCR is to accomplish alteration or change of any type of text or text-containing reports. In this paper, we research OCR in four distinct ways. We give an itemized outline of the difficulties that may arise in the cutting edge field. We feature advancements and primary applications and employment of OCR. A short OCR history is likewise talked about. The paper gives an exhaustive survey of the best in class of the OCR field. Google Goggles is an Image Detection System that recognizes the substance of a picture and gives wanted outcomes to the client. It additionally utilizes Tesseract OCR to identify text based information in pictures and concentrates the content into an editable arrangement. Yet, one of the impediments of Goggles is that it can't group the information present, and believes it to be in crude structure. Optical Character Recognition (OCR) is utilized in changing over PDF documents into editable DOC records.

[3] Because of the expanded accuracy of the frameworks engaged with the structure, the utilization of multimodal contributions to a

brilliant medical care system is promising. We propose a client fulfillment identification framework in this paper that utilizes two media substances: discourse and picture. Fulfilled, disappointed, and impassive are the three degrees of fulfillment. The client's discourse and facial picture are caught, communicated to the cloud, and afterward dissected in the proposed framework. The significant partners are then educated regarding the fulfillment choice. The cloud is utilized to remove a few highlights from these two data sources. Multimodal input signals are handled, specifically, discourse and picture signals. A receiver records the discourse from the client while a camcorder catches the looks.

[4] The optical character acknowledgment (OCR) technique has been utilized in changing over printed text into editable content. OCR is an exceptionally valuable and mainstream strategy in different applications. The precision of OCR can be subject to message preprocessing and division calculations. From the vehicle number plate, they attempted to remove the vehicle number by utilizing Tesseract and Transym. A picture with the content is given as a contribution to the TesseRact motor that is an order based instrument. At that point it is prepared by Tesseract order as Tesseract order takes two contentions: The principal contention is the picture document name that contains text and the subsequent contention is a yield text record in which removed content is put away. The yield record augmentation is given as .txt by Tesseract, so no compelling reason to determine the document expansion while indicating the yield record name as the second contention in Tesseract order.

[5] The optical character acknowledgment (OCR) technique has been utilized in changing over printed text into editable content. OCR is an exceptionally valuable and mainstream strategy in different applications. The precision of OCR can be subject to message preprocessing and division calculations. From the vehicle number plate, they attempted to remove the vehicle number by utilizing Tesseract and Transym. A picture with the content is given as a contribution to the TesseRact motor that is an order based instrument. At that point it is prepared by Tesseract order as Tesseract order takes two contentions: The principal contention is the picture document name that contains text and the subsequent contention is a yield text record in which removed content is put away. The yield record augmentation is given as .txt by Tesseract, so no compelling reason to determine the document expansion while indicating the yield record name as the second contention in Tesseract order.

[6] Computerized Drug Verification System (CDVS) is an examination work outfitted towards building up the methods for recognizing credible medications in Nigeria. The task depends on the National Agency for Food and Drug Administration Control (NAFDAC) number. The application can be utilized to check the genuineness of medications in the country in organization with Mobile Authentication Service (MAS). Utilizing a versatile application NAFDAC VERIFY drug check will happen and it chips away at the two iOS and Android.

[7] Blockchain innovation is utilizing its inventive potential in different areas. Exploration interest has zeroed in on clinical and medical services applications. In any case, information about the effect on the medical services environment is restricted. This paper investigates a potential Paradigm shift And biological system Evolution in medical care using blockchain innovation. A writing survey with a contextual investigation on a spearheading drive was led and alongside a precise life cycle examination, this examination reveals insight into the transformative improvement of blockchain in medical care situations and its intuitive relationship among partners.

[8] Transfer Learning,where a model is first pre-arranged on a data rich task prior to being changed on a downstream endeavor, shares ascended as a stunning technique for all intents and purposes language taking care of (NLP). The sufficiency of move learning has offered to rise to an assortment of approaches, frameworks, and practices. In this paper, we research the location of move learning strategies for NLP by introducing a bound together construction that changes generally content-based language issues into a book-to-message plan. Our exact examination dissects pre-planning objectives,

models, unlabeled enlightening lists, move moves close, and various segments on numerous dialects getting endeavors. By solidifying the pieces of information from our examination with scale and our new "Colossal Clean Crawled Corpus", we achieve forefront results on various benchmarks covering summary, question answering, text request, and that is only the start. To energize future work on move learning for NLP, we release our instructive assortment, pre-arranged models, and code.

[9] 30% of investigated pharmacies in 2003 were found with unsatisfactory /misleading /erroneously marked/misrepresented/fake medications. The monetary weight on the populace drug uses and on governments is high. This investigation plans to foster a drug store observation blockchain framework and test its capacities. Utilizing Distributed Application (DApp) that will run on keen agreements, utilizing Swarm as the Distributed File System (DFS)

[10] Not in the slightest degree like late language depiction models, BERT is proposed to pre-train significant bidirectional depictions from unlabeled substances by commonly shaping on both left and right settings in all layers. As needs be, the pre-arranged BERT model can be changed with just one additional yield layer to make bleeding edge models for a wide extent of endeavors, for instance, question taking note of and language induction, without critical task unequivocal plan changes. BERT is competently fundamental and precisely mind boggling. It obtains new top tier results on eleven ordinary language taking care of endeavors, including pushing the GLUE score to 80.5% (7.7% point incomparable improvement), MultiNLI precision to 86.7% (4.6% by and large improvement), SQuAD v1.1 question noticing Test F1 to 93.2 (1.5 point complete improvement) and SQuAD v2.0 Test F1 to 83.1

[11]Convolutional networks are at the point of convergence of most cutting edge PC vision answers for a wide blend of errands. However expanded model size and computational cost will in ordinary mean quick quality additions for most errands (to the extent that enough stepped information is obliged preparing), computational capacity and low cutoff check are now captivating components for different use cases, for example, adaptable vision and huge information conditions. Here they have investigated approaches to manage expanding networks in propensities that objective using the additional calculation as effectively as conceivable by appropriately factorized convolutions and solid regularization. We benchmark our frameworks on the ILSVRC 2012 social affair challenge support set show basic augmentations more than the top level: 21.2% top-1 and 5.6% top-5 misunderstanding for single edge assessment utilizing a relationship with a computational expense of 5 billion duplicate joins for each deriving and with utilizing under 25 million cutoff points. With an organization of 4 models and multi-crop evaluation, we report 3.5% top-5 blunder and 17.3%.

[12] As we offer and store data on the web, another issue that arises is the way to manage such data over-weight and how the customer will get or get to the best information at all undertakings. To enlighten these issues, experts spot out another technique called Web Scraping. Web scraping is a very fundamental strategy that is used to create coordinated data dependent on available unstructured data on the web. Scaping created coordinated data by then set aside in central informational index and examine in bookkeeping pages. Standard reorder, Text graping and customary verbalization planning, HTTP programming, HTML parsing, DOM parsing, Web scraping programming, Vertical amassing stages, Semantic clarification seeing and Computer vision site page analyzers are a bit of the normal systems used for data scraping. By and by, there are lots of programming open on the lookout for web scraping. Our paper is revolved around the audit of the information extraction methodology for instance web scraping, different systems of web scraping and a part of the continuous gadgets used for a web scraping

[13] This examination presents a deliberate writing survey (SLR) of exploration on blockchain applications in the medical care area. Discoveries show that blockchain is being utilized to foster novel and progressed intercessions to

improve principles of dealing with, sharing, and preparing clinical information and individual wellbeing records.SLRs offer perusers extensive information on the writing in a field through a comprehensive and coordinated précis that holds fast to standard conventions. The current examination adjusted conventions that blended article appraisal models from recently distributed SLRs. The SLR convention comprised of three primary stages, specifically arranging, execution, and revealing acclimatized data.

[14] Consideration is an unquestionably standard instrument used in a wide extent of neural plans. The actual part has been recognized in a variety of designs. Regardless, considering the persistent advances around here, a productive layout of thought is at this point missing. In this article, we describe a headed together model for thought structures in trademark language taking care of, with an accentuation on those proposed to work with vector depictions of the printed data. We propose a logical arrangement of thought models as demonstrated by four estimations: the depiction of the data, the closeness work, the assignment work, and the variety of the data or possibly yield. We present the examples of how prior information can be abused in thought models and talk about advancing exploration tries and open challenges in the domain, giving the essential wide characterization of the gigantic gathering of writing in this invigorating region

[15] There are a few spaces of medical care that could be improved utilizing blockchain advancements. These incorporate gadget following, clinical preliminaries, drug following, and health care coverage. The data accumulated would then be able to be utilized to improve patient security. Utilization of patient records, drug following and gadget following

[16] The proposed thought is to make a clinical chatbot utilizing Artificial Intelligence. The bot can analyze the infection and give essential insights regarding the illness prior to counseling a specialist. Certain chatbots go about as clinical reference books, which helps the patient find out about their illness. Man-made brainpower chatbots are accessible 24*7, quicker assistance cost investment funds however may require standard upkeep

[17] The expanding accessibility of electronic health information presents a significant chance in medical services. AI (ML) can change patient danger delineation comprehensively in the field of medication. This could prompt focus on intercessions that diminish the spread of medical care related microbes. Presentation of ML, how ML can change medical services and the study of disease transmission.

[18]The paper here clarifies the demonstrating and execution in profound learning calculation for an Assistant Conversational Agent (Chatbot) The model is created to perform English to English interpretation. Tests are directed utilizing Tensorflow utilizing python 3.6. The paper here additionally considers MacBook Air as a framework for neural organizations and profound learning. A Bidirectional Recurrent Neural Network has been utilized

[19]E-Commerce firms should be bleeding edge and cutthroat edge. Web content mining empowers them to draw in and hold multitudinous clients. The immense hole among Partial and thorough advancement with regards to the arrangement of web mining methods. The outcomes show that the model suits the financial aspects behind the online organizations in the two cases and along these lines assists with recognizing or upgrading the hidden web mining strategies towards business achievement. The paper models web mining as a Game in Cournot Model to comprehend the differing job of web mining in online business victories. It additionally shows that there are two particular sorts of online business dependent on web content advanced towards purchase. Web utilization mining and web content mining have been utilized.

[20]Diminishes in foundation and limit costs have extended the interest for security structures, including video surveillance and modernized affirmation. The video perception systems, when checked by individuals, are subject to botches and are attempting to scale. Affirmation systems can support someone using a mysterious word or a card from another customer. Facial affirmation

computations can settle this deficiency by the traffic seeing alluded to individuals or gatecrashers similarly concerning individual biometric affirmation. Consequently, this paper surveys the FaceNet approach using the Labeled Faces in the Wild benchmark, similarly as evaluates an AI system known as help vector machine (SVM) for the grouping of installing created utilizing FaceNet The suggested approach moreover models a consistent facial affirmation structure uniting FaceNet and SVM, showing up at 90% of accuracy using a medium webcam.

VI. Methodology

Technology Stack -

1. Flask
2. Socket.io
4. Google Vision
5. Node Js
6. Python Libraries like OpenCV, pandas, NumPy, etc.
7. PHP
8.Chatterbot
9. Restful API
8. SQL

VII. Techniques

1. Natural Language Processing
2. Machine Learning
3. Web Scraping
4. Database Management
5. Computer Vision
6. Blockchain

VIII. Architectural Designs

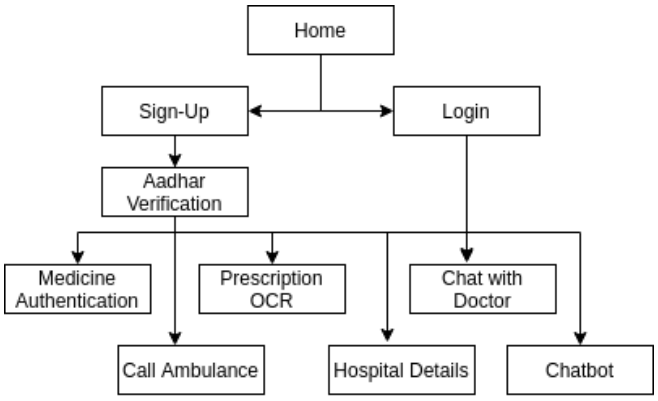


Figure: Architectural Design

IX. Deployment of Modules

Login:
Modules used are Facial Recognition library (only requires 1 photo). Competitor: Traditional training methods (requires more than 100 photos to train per person)
In this module when the user registers on our website, they take a snapshot of theirs. This snapshot is stored in a folder named “data” where the snapshots of all our users are stored
Now when a user has to login into his account, he goes to the login page. There he is asked to take a snapshot of his face. This snapshot is stored in a folder ”temp”. Now the program runs the face recognition function and takes images of all the people who registered from the data folder and performs face encoding on each and stores it in an array.
Then it takes the image in the temp folder and compares the image to each image in the data folder and finds the distance between them. It stores the distance in another array. It sorts the array and finds the image with the minimum distance. If the distance is above a threshold it returns the name of the user of whose image it is. If the username matches for the user who is attempting to log in, it allows the person to complete the login and move into his account, else asks the person to try again or use the password.

Aadhar OCR: In this module, the user uploads their Aadhar card image and our system verifies the name and date of birth of the user from the Adhar card and the details provided.

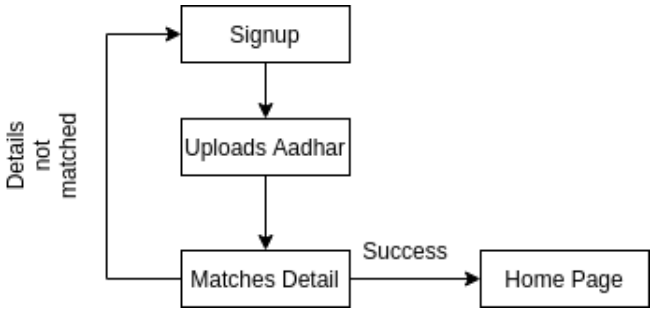


Fig :- Workflow of Aadhar OCR

For detecting text, we have used Google-Vision API from Aadhar Card. For finding Aadhar card we are using a regular expression to search for 12 digits number, for detection of the father's name we are searching for the keywords "C/O" or "D/O" or "S/O" as in Aadhar card the father's name appears after that, for detection of address we are selecting all the index from father's name till we find the PIN CODE which can be found by searching 6 digit number, for date of birth we are searching the particular format of the date that is present in Aadhar card like (dd/mm/yyyy).

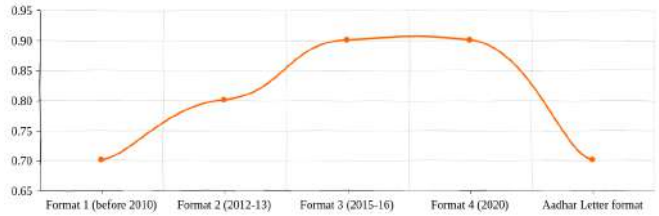


Fig : - Accuracy vs Aadhar Format

Chatbot and Live Chat: In this module, for chatbot, we have used chatterbot and for a live chat, we have used socket.io to talk directly with the doctor.

In chatbot, we have trained our data for symptoms of 40,000 diseases and have with the details of 41 diseases in our chatbot and if the user is not happy with the results of the chatbot we are giving the option to chat with the doctor in which we have used socket.io for live chat with doctors.

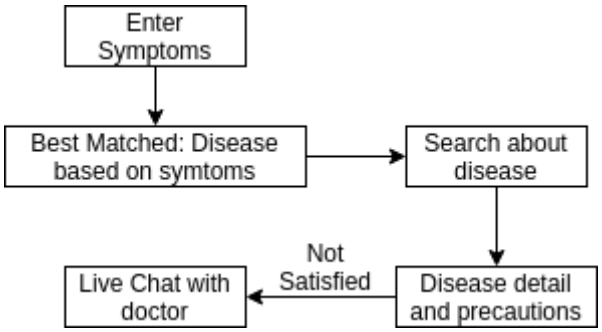


Fig :- LiveChat and chatbot workflow

SMS:
We are using this module to send SMS to the registered mobile numbers of users to inform them about any emergencies or information regarding their health.
We are using the Twilio API to do so

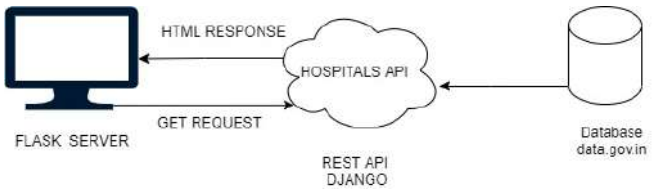
Web Scraping:
This module is being used to scrape data off a website to gather the information required to create a database. Over here we are scraping the name of the medicine and its price in the Indian market to create a database for all the medicines present in India. This database would then be used to create the e-commerce part of our project. Modules used here are requests and BeautifulSoup.

First, we open and read the website present and check for all the data that is required. We then check the source code. In the source code, we check the data that is required and the HTML tags they are present in. Then using those tags we extract the required data.

Blockchain:
This module will help us to detect whether the medicines that we are getting are original or not, i.e, whether they are fake or expired and been restamped.
The value of this module represents: Fighting Drug Forgery, Data Integrity, Enhanced Traceability and Elevated compliance regulatory.

The procedure that ensues for drug traceability would be as followed:
1] The manufacturer marks the produced drug with a unique code and a hash is produced. This information is stored on the blockchain.
2] These drugs are then sent to the wholesaler
3] The drug is then verified by the manufacturers and this transaction is further stored in the blockchain.
4] The wholesaler sends the drugs to the pharmacist.
5] Further verification is carried out and this transaction is also stored in the blockchain.
6] From the pharmacist the drugs are then delivered to the patients.
7] The patient also verifies the origin of the drug and this transaction would also be stored in the blockchain.

Hospital API:
This API fetches data of Hospitals from different cities of India.
This API displays data like Id, State, City, Name, Category, Medicine, Address, Website, Specialization. We have developed a Django Rest API for getting the list of hospitals and we have taken the data from data.gov.in which is an Indian government data website. This API fetches data like city, state name of the hospital, medicine type, address, website and specialization of the hospital. This API can find both the categories, private as well as public/ government hospitals. We have created an HTML form that takes the city name as an input and uses it as a search parameter to find the hospital. We display the data in tabular form.



X. Results

We come across the following results with the help of the modules in order to successfully run this project.
Under the Aadhar OCR, once the user attempts to signs up with certain details such as user name, email ID, Date Of Birth etc, these details are then further matched with the information available on their Aadhar card. If it matches, then the user is able to sign up.
The prescription OCR enables users to scan their own prescriptions to find their medicines online and also look out for their substitutes based on the salt composition of the prescribed medication. This will help them find out the alternatives of their medication in case of unavailability of their prescribed medicines.
The chatbot is set up with a trained data strength of 40,000 symptoms. It is able to respond accurately to the 41 diseases it has been trained in.
The ambulance button enables the user to send their live location to the driver who can access and reach the user's location easily.
Blockchain helps us in preventing drug forgery by verifying the source and origin of the drugs and whether they are suitable for consumption.

XI. Conclusion

Our product is providing everything under one roof. There are many products in the market providing most of our services but individually or with lesser or complex features. Starting with our login module the facial recognition library being used by us only requires 1 photo whereas other products in the market require more than 100 photos per person to train the module properly, which is more of a traditional method.

The aadhar OCR that we are using no such open source system exists. One of the most common competitors of our chatbot is rasa nlu, and even a few more traditional training based chatbots but the biggest problem with these is they are not useful for particular domain related work. Our chatbot allows the patient or its family member to talk and get a solution and if they aren't satisfied they can even get to talk to a doctor and get the desired medication or cure.Rasa

The prescription OCR that has been made by us no such open source system exists. Incase of OCR we have used google vision API and our we find our competitor to be pytesseract.
Our main reason behind choosing google vision was its speed, google vision is much faster than pytesseract and its even much more accurate.Coming onto the part where scanning happens in case of pytesseract some of the unwanted elements are scanned whereas in case of google vision no more unwanted elements are recognized.

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