PYTHON Project

I. INTRODUCTION

PROJECT TOPIC : ***COVID-19 India live updates & Probability Detector***

INTRODUCTION :

Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus.Most people who fall sick with COVID-19 will experience mild to moderate symptoms and recover without special treatment.

The virus that causes COVID-19 is mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales. These droplets are too heavy to hang in the air, and quickly fall on floors or surfaces. One can be infected by breathing in the virus if he/she is within close proximity of someone who has COVID-19, or even by touching a contaminated surface and then the eyes, nose or mouth.

The Ministry of Home Affairs (MHA) on Friday asked states and Union Territories to take necessary steps to regulate crowds ahead of festivals. India recorded a new high of 59,118 new cases on Friday taking its tally to 1,18,46,652.

PURPOSE :

The purpose of the project is to keep the user abreast of the current COVID-19 scenario in the country and make better decisions regarding measures to protect their health.This app shall employ Python module ‘requests’ to connect to a website. Further, through ‘Beautiful Soup 4 ’ it shall scrape data pertaining to COVID-19, such as:

Number of Total cases

Number of Active cases

Number of Fatalities due to Covid-19

Number of recovered patients

The scraped data will be displayed on the screen through a Graphical User Interface. Flask shall be employed for the same.

NOVELTY :

This web app also includes a covid 19 probability detector. The user has to enter certain details like

- fever value
- age
- body pain (yes/no)
- runny nose (yes/no)
- breathing status (no difficulty/mild difficulty/severe difficulty)

based on the above values the webapp will calculate the probability of the person to contract Covid 19. This probability is calculated by using Machine Learning (Logistic regression). The dataset consists of dummy values.

This application can prove as an immense help in the following ways :

1. Instead of gathering people in crowds and testing randomly, we can use this webapp in order to calculate the probability of a person contracting Covid 19 by just entering a few details. This will save the resources, time and reduce the risk of spreading the virus
2. This webapp can also be used to decide which person needs to be vaccinated at the earliest. This can be achieved by taking additional information from the user such as if he/she has any medical condition which tends to increase his/her probability of contracting the virus such as diabetes, asthma, etc.
3. Currently the government has been following a strict age group category to vaccinate people. This webapp can be used to categorise people for the vaccination purpose.

EXISTING SYSTEMS/SIMILAR SYSTEMS :

Similar systems exist which update us about the number of active cases, the total number of vaccinations done, etc. Most of the news websites along with the official government websites have been constantly updating us about the same. The following table below provides some of the links that have a similar system :

Sr. No.	**URL <copy paste>**
1.	https://www.bing.com/covid/local/india
2.	https://github.com/CSSEGISandData/COVID-19
3.	https://www.india.com/coronavirus/
4.	https://www.ndtv.com/coronavirus/india-covid-19-tracker
5.	https://coronaclusters.in/
6.	https://www.mygov.in/covid-19/
7.	https://www.hindustantimes.com/

1. Bing.com : It is a website which specifies the covid 19 data from all over the world. It provides numerical data of the cases and map tracking system as well.
2. COVID-19 Data Repository by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins University : This is the data repository for the 2019 Novel Coronavirus Visual Dashboard operated by the Johns Hopkins University Center for Systems Science and Engineering (JHU CSSE). Also, Supported by ESRI Living Atlas Team and the Johns Hopkins University Applied Physics Lab (JHU APL).
3. india.com : It is a website which specifies the covid 19 data from all over the world. It provides numerical data of the cases.
4. ndtv.com : It is a website which specifies the covid 19 data from all over the world. It provides numerical data of the cases.
5. coronacluster.in : It is a website which specifies the covid 19 data from all over the world. It provides numerical data of the cases.
6. mygov.in : It is a website which specifies the covid 19 data from all over the world. It provides numerical data of the cases.
7. hindustantimes.com : If we scroll down we can see that the news website updates us with details related to covid .

II. DESIGN

ACTOR-WISE FUNCTIONALITIES :

User :

1. The user can view the statistics (count) pertaining to COVID-19.
2. The user can enter the details mentioned in the novelty in order to check the probability of the person contracting Covid 19.

FUNCTIONAL REQUIREMENTS :

1. **Python Requests Module**
   Requests is a simple, yet elegant HTTP library.

2. **Beautiful Soup 4 Module**
   Beautiful Soup is a Python library for pulling data out of HTML and XML files. It works with your favorite parser to provide idiomatic ways of navigating, searching, and modifying the parse tree. It commonly saves programmers hours or days of work.

3. **Python Flask module**
   Flask is a lightweight WSGI web application framework. It is designed to make getting started quick and easy, with the ability to scale up to complex applications. It began as a simple wrapper around Werkzeug and Jinja and has become one of the most popular Python web application frameworks.

4. **Python pickle module**
   The pickle module implements binary protocols for serializing and de-serializing a Python object structure.

HARDWARE REQUIRED :

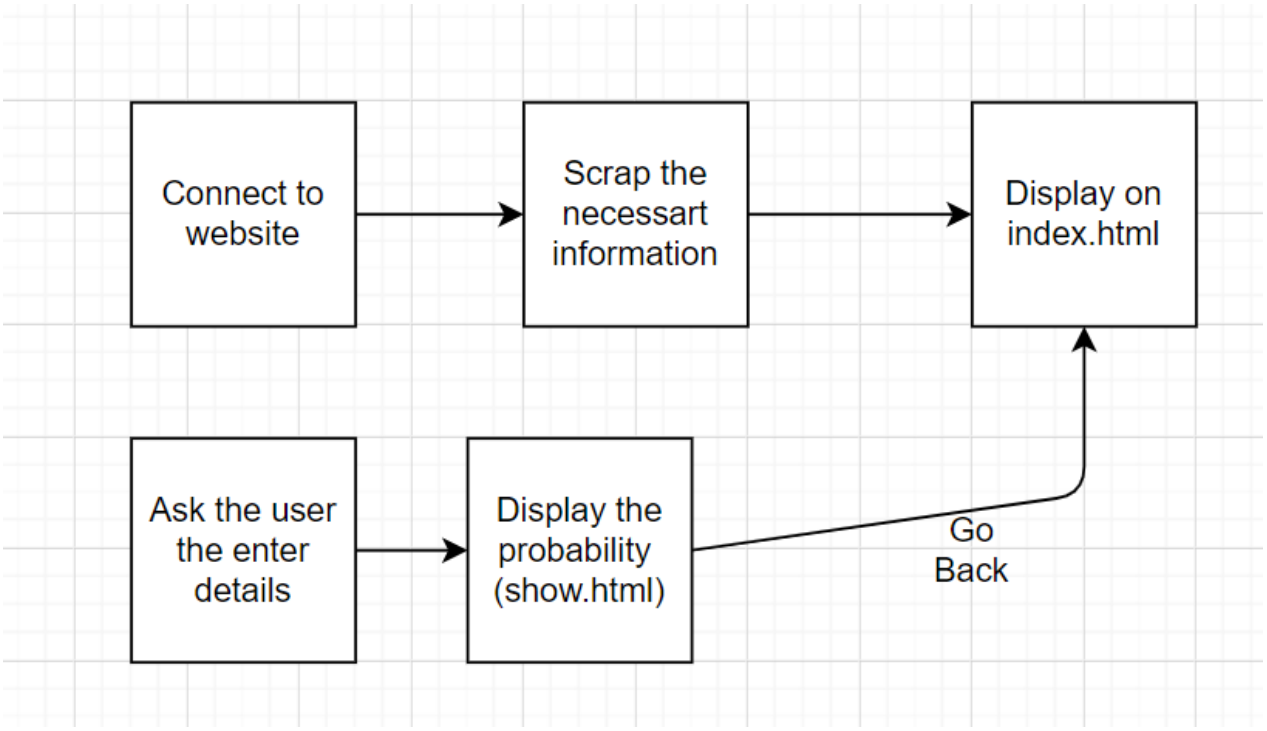
1. Processor intel core i3 pentium or other advanced versions
2. speed : min 1.1 Ghz
3. Ram : 4GB
4. Hard disk : (min) 80GB

SOFTWARES AND DATABASE REQUIRED :

Frontend : HTML, CSS, Bootstrap

Backend : Python

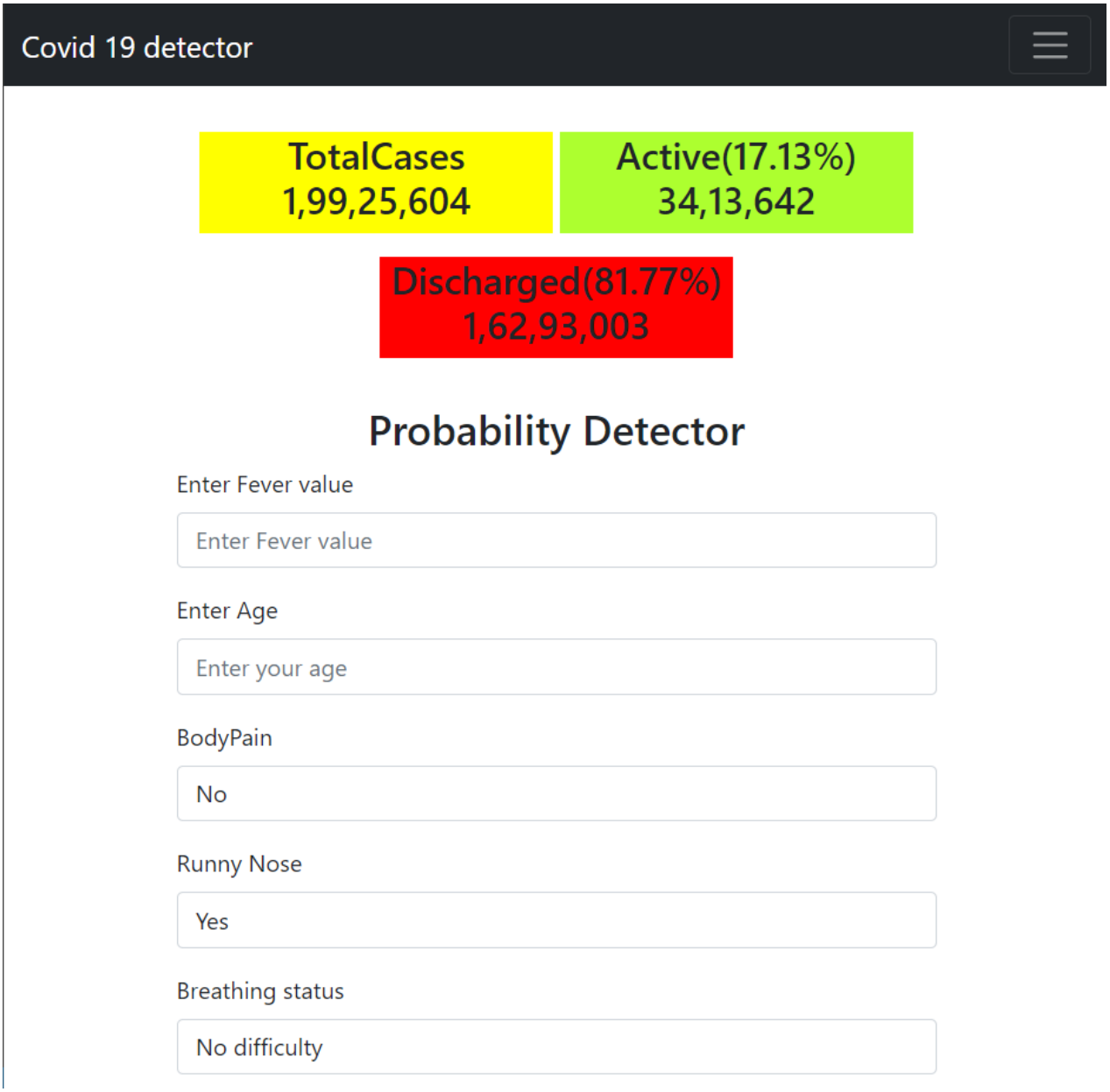
ARCHITECTURE:

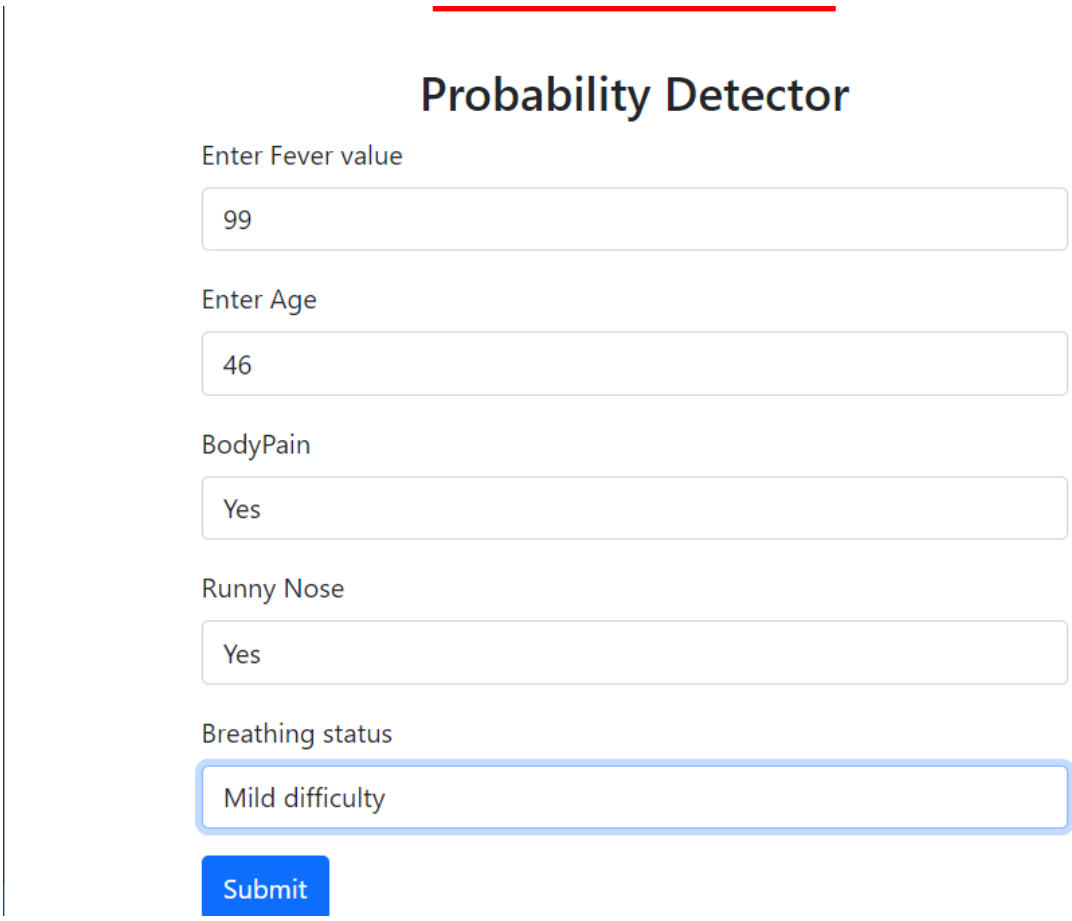


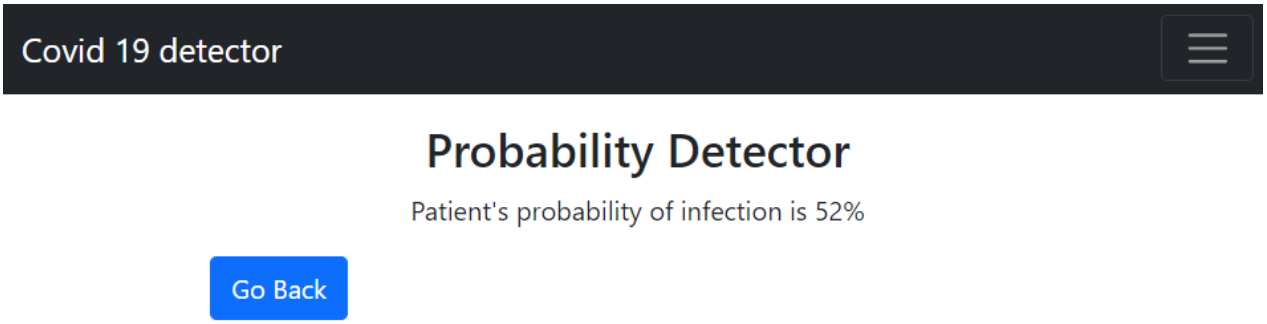
ALGORITHM :

1. Send request to the website from which you want to scrape data
2. Scrape relevant data from the chosen website to be displayed on the screen
3. Use Flask to display the data scraped from the website
4. Enter the details of the user like fever, age, body pain etc.
5. Calculate the probability using Logistic regression
6. Display the probability

RESULTS :


Covid 19 detector
TotalCases
1,99,25,604
Active(17.13%)
34,13,642
Discharged(81.77%)
1,62,93,003
Probability Detector
Enter Fever value
Enter Fever value
Enter Age
Enter your age
BodyPain
No
Runny Nose
Yes
Breathing status
No difficulty


Probability Detector
Enter Fever value
99
Enter Age
46
BodyPain
Yes
Runny Nose
Yes
Breathing status
Mild difficulty
Submit


Covid 19 detector
Probability Detector
Patient's probability of infection is 52%
Go Back

CONCLUSION :

Although a lot of websites provide us with the updates of Covid 19, the probability detector in our project proves to have a slight edge over all the other existing systems. Using an accurate dataset might increase the accuracy of the model output. Thus, it will be of immense help for fighting against coronavirus.