Covid-19 Live Data Analysis Through AN API

A Project Report Submitted

By

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CERTIFICATE

This is to certify that the project work entitled **"Covid-19 Live Data Analysis Through API"** is the work done by **Kesa Fatima** and submitted to **Mr. Mayur Dev Sewak, General Mnager, Operation, Eisystems Services & Mr. Chandan Verma, Trainer, ICT Domain, Eisystems Services.**

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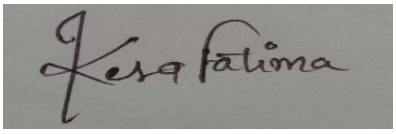
Date: 03/08/2022

STUDENT DECLARATION

I, **Kesa Fatima** hereby certify that the work, which is being presented in the project entitled **"Covid-19 Live Data Analysis Through API"** by me is an authentic record of my original work carried out under the supervision of **Mr. Chandan Verma, Trainer, ICT Domain, Eisystems Services** & submitted to **Mr. Mayur Dev Sewak, General Mnager, Operation, Eisystems Services & Mr. Chandan Verma, Trainer, ICT Domain, Eisystems Services.**



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Date: 03/08/2022

ACKNOWLEDGEMENT

I would like to extend my sincere thanks to all of them. I am highly indebted to **Mr. Chandan Verma, Trainer, ICT Domain, Eisystems Services** for their guidance and constant supervision as well as for providing necessary information regarding the project & also for their support.

Finally, yet importantly, our special thanks go to my parents who have given me their unequivocal support, patience, endless encouragement, and priceless sacrifices and prayers throughout the educational years of my life.

Date: 03/08/2022

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LIST OF ABBREVIATION

ABBREVIATION	DESCRIPTION
API	APPLICATION PROGRAMMING INTERFACE
JSON	JAVASCRIPT OBJECT NOTATION
OOP	OBJECT-ORIENTED PROGRAMMING
DB	DATA BASE

ABSTRACT

The main purpose of this project is to provide the latest data related to COVID 19.
Since, this project is made through an API, so the data is automatically updated when it is fetched each time resulting in providing up to date records.

In the present pandemic time, the data related to COVID statuses has been an important thing to trace and fight the situation. Hence, this project is made by keeping in mind the need of the time. The project contains the console to fetch the latest data of the country and also the data of all the provinces furthermore the data comprises of the current status for the Confirmed Cases, Recovered Patients, the Death Records and the Active Cases.
This project is build through an API which helps in getting the updated tally related to COVID 19 data.
Our public data API provides access to all of our data at a national and state level. We provide data in JSON format.

CHAPTER-1

INTRODUCTION TO COVID-19 LIVE DATA ANALYSIS THROUGH AN API

1.1 Introduction

- In the present pandemic time, the data related to COVID statuses has been an important thing to trace and fight the situation.

  Hence, this project is made by keeping in mind the need of the time.

  The project contains the console to fetch the latest data of the country and also the data of all the provinces furthermore the data comprises of the current status for the Confirmed Cases, Recovered Patients, the Death Records and The Active Cases.

  This project is build through an API which helps in getting the updated tally related to COVID 19 data.
- During the current coronavirus pandemic, monitoring the evolution of COVID-19 cases is of utmost importance for the authorities to make informed policy decisions (e.g., lock-downs), and to raise awareness in the general public for taking appropriate public health measures. At the time of the pandemic outbreak, a lack of laboratory tests, materials, and human resources implied that the evolution of officially confirmed cases did not represent the total number of cases. Even now, there are significant differences across countries in terms of the availability of tests. For this reason, given the rapid progression of the pandemic, in some cases health authorities are forced to make important decisions based on sub-optimal data. For this reason, alternatives to testing that can be rapidly deployed are likely to help authorities, as well as the general population, to better understand the progress of a pandemic, particularly at its early stages or in low income countries, where massive testing is unfeasible.

1.2 IMPORTANCE

- It helps in getting the updated tally related to COVID-19 data through an API.
- It provides data in JSON format.
- Our public data API provides access to all of our data at a national and state level.
- The data is automatically updated when it is fetched each time resulting in providing up to date records through an API.
- It provides the latest and updated data related to COVID 19.

1.3 OBJECTIVE

The main objective of this project is to provide the latest data related to COVID 19.
Since, this project is made through API, so the data is automatically updated when it is fetched each time resulting in providing up to date records.

CHAPTER-2

HOW COVID-19 LIVE DATA ANALYSIS THROUGH AN API WORK

2.1 WORKING

In this project, at first, the user gets an interface to enter his/her name and gets a greeting after proceeding further.

After that the user is asked to -

Click 1 to see the overall **data of the country**
Click 2 to see the data **province wise**

- If user clicks 1, the country API gets hit and fetches the latest tally of the country.
- If user clicks 2, system fetches province wise data and shows it to user.
- In case if the user enters an incorrect option, the system will ask to select the correct option.

After pressing 1 or 2 when the data is fetched, then the system asks user whether he/she wants to continue or start over.

2.2 REQUEST-RESPONSE DIAGRAM

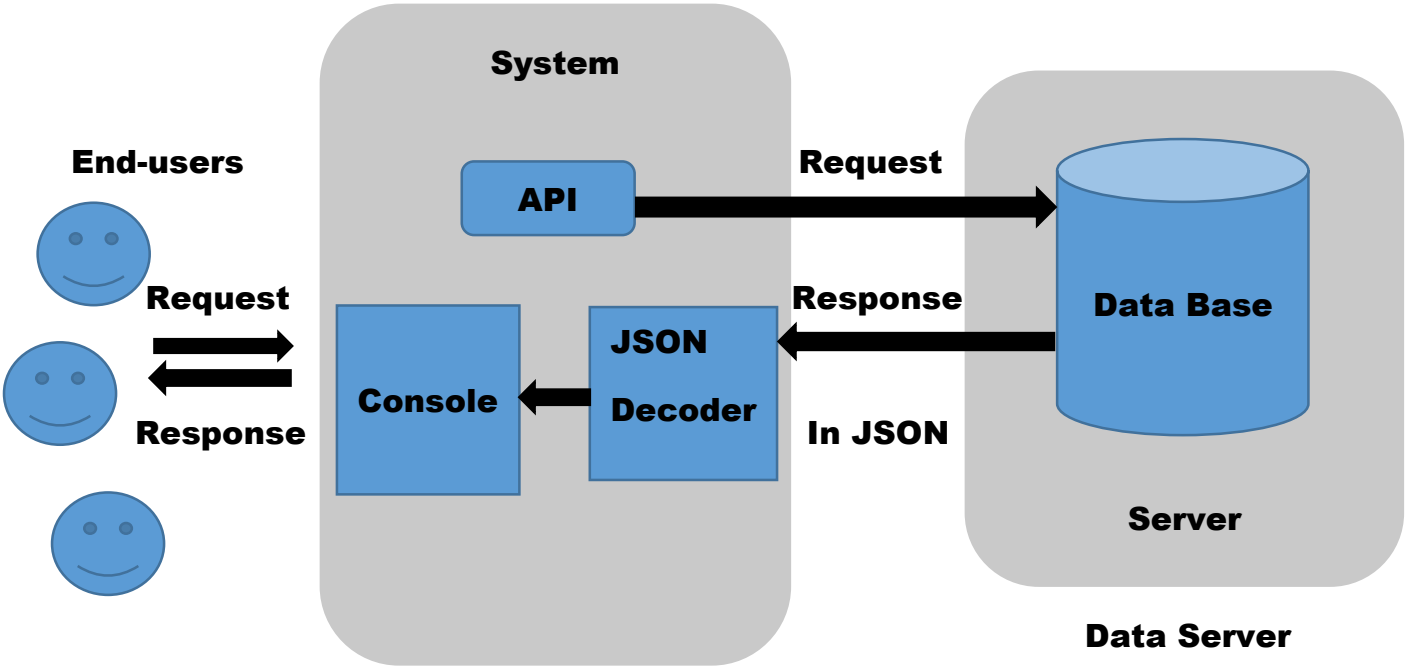

Figure 2.1: Request-Response Diagram

2.3 TECHNOLOGY USED

- **PYTHON -** Python is an interpreted, object-oriented, high-level programming language with dynamic semantics. Its high-level built in data structures, combined with dynamic typing and dynamic binding, make it very attractive for Rapid Application Development, as well as for use as a scripting or glue language to connect existing components together. Python's simple, easy to learn syntax emphasizes readability and therefore reduces the cost of program maintenance. Python supports modules and packages, which encourages program modularity and code reuse. The Python interpreter and the extensive standard library are available in source or binary form without charge for all major platforms, and can be freely distributed.

CHAPTER-3

INTRODUCTION TO AN API AND JSON API

3.1 WHAT IS AN API?

Application Programming Interface (API) is a software interface that allows two applications to interact with each other without any user intervention. API is a collection of software functions and procedures. In simple terms, API means a software code that can be accessed or executed. API is defined as a code that helps two different software's to communicate and exchange data with each other.
It offers products or services to communicate with other products and services without having to know how they're implemented.

HOW DOES AN API WORK?

To understand the functionality of the API, let see the following example:

API EXAMPLE 1:

Let see how API works using simple daily life example. Imagine that you went to a restaurant to take lunch or dinner. The waiter comes to you gives you a menu card, and you will provide personalize it order like you want a veg sandwich but without onion.

After some time, you will get your order from the waiter. However, it is not that simple as it looks as there is some process that happens in between.

Here, the waiter plays an important part as you will neither go to the kitchen to collect your order nor will you tell the kitchen staff what you want all this done by the waiter.

API also does the same by taking your request, and just like the waiter tell the system what you want and give a response back to you.

API EXAMPLE 2:

After understanding the concept, let us take some more technical examples.

For example, you go to the movie site, you enter your movie, name, and credit card information, and behold, you print out tickets.

They are collaborating with other applications. This integration is called "seamless," as you never have a clue when a software role is passed from one application to another.

WHY WOULD WE NEED AN API?

Here, are some reason for using API:

- Application Programming Interface acronym API helps two different software's to communicate and exchange data with each other.
- It helps you to embed content from any site or application more efficiently.
- APIs can access app components. The delivery of services and information is more flexible.
- Content generated can be published automatically.
- It allows the user or a company to customize the content and services which they use the most.
- Software needs to change over time, and APIs help to anticipate changes.

FEATURES OF AN API

Here are some important features of API:

- It offers a valuable service (data, function, audience).
- It helps you to plan a business model.
- Simple, flexible, quickly adopted.
- Managed and measured.
- Offers great developer support.

TYPES OF AN API

There are mainly four main types of APIs:

- **Open APIs:** These types of APIs are publicly available to use like OAuth APIs from Google. It has also not given any restriction to use them. So, they are also known as Public APIs.
- **Partner APIs:** Specific rights or licenses to access this type of API because they are not available to the public.
- **Internal APIs:** Internal or private. These APIs are developed by companies to use in their internal systems. It helps you to enhance the productivity of your teams.
- **Composite APIs:** This type of API combines different data and service APIs.

3.2 WHAT IS JSON API?

People develop APIs for a variety of reasons, such as to create a tool to facilitate internal processes or an external product for customers or to build a third party tool. And for such purpose JSON comes to the rescue. The open standard format JSON follows shared conventions that help in increasing productivity, take advantage of generalized tooling, and focus on the web applications.

Note: JSON is an independent component, which can be used by any framework or technology.

JSON or JavaScript Object Notation is an encoding scheme that is designed to eliminate the need for an ad-hoc code for each application to communicate with servers that communicate in a defined way. JSON API module exposes an implementation for data stores and data structures, such as entity types, bundles, and fields.

WHAT ARE ITS ADVANTAGES OVER CORE REST API?

Well, there are lots of advantages, but to mention a few:

- It reduces both the number of requests and the amount of data transmitted between clients and servers.
- Unlike core REST module, JSON API is Zero configuration Drupal module.
- By enabling the JSON API module, you can immediately gain a full REST API for every type in your Drupal application.
- JSON API inspects entity type and bundle to provide URLs to access each one of them using the standard HTTP methods, GET, POST, PATCH, and DELETE (we will discuss more on HTTP methods while talking about Document Structure).
- JSON is not simply a format like JSON or HAL+JSON. The default format appears like:

  `/jsonapi/{entity_type}/{bundle}/{uuid}?_format=api_json`

- It also controls which HTTP methods should be used, what HTTP response codes should be returned under specific request, the format of the response body, and the link between resources.

CHAPTER-4

The COVID-19 Pandemic

4.1 COVID-19 PANDEMIC

The COVID-19 pandemic, also known as the coronavirus pandemic, is an ongoing global pandemic of coronavirus disease 2019 (COVID-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). The novel virus was first identified from an outbreak in Wuhan, China, in December 2019. Attempts to contain it there failed, allowing the virus to spread to other areas of China and later worldwide. The World Health Organization (WHO) declared the outbreak a public health emergency of international concern on 30 January 2020 and a pandemic on 11 March 2020. As of 1 August 2022, the pandemic had caused more than 577 million cases and 6.4 million confirmed deaths, making it one of the deadliest in history.

Disease	Coronavirus disease 2019 (COVID-19)
Virus strain	Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)
Source	Bats,[1] likely indirectly[2]
Location	Worldwide
Index case	Wuhan, China 30°37′11″N 114°15′28″E
Date	17 November 2019 – present (2 years and 8 months)
Confirmed cases	577,451,612[3]
Deaths	6,400,578[3] (reported) 15–26 million[4] (estimated)
Fatality rate	1.11%[3]

Figure 4.1: Covid-19 Pandemic

COVID-19 symptoms range from undetectable to deadly, but most commonly include fever, dry cough, and fatigue. Severe illness is more likely in elderly patients and those with certain underlying medical conditions. COVID-19 transmits when people breathe in air contaminated by droplets and small airborne particles containing the virus. The risk of breathing these in is highest when people are in close proximity, but they can be inhaled over longer distances, particularly indoors. Transmission can also occur if contaminated fluids reach the eyes, nose or mouth, and, rarely, via contaminated surfaces. Infected persons are typically contagious for 10 days, and can spread the virus even if they do not develop symptoms. Mutations have produced many strains (variants) with varying degrees of infectivity and virulence.[5][6]

COVID-19 vaccines have been approved and widely distributed in various countries since December 2020. Other recommended preventive measures include social distancing, wearing masks, improving ventilation and air filtration, and quarantining those who have been exposed or are symptomatic. Treatments include monoclonal antibodies,[7] novel antiviral drugs, and symptom control. Governmental interventions include travel restrictions, lockdowns, business restrictions and closures, workplace hazard controls, quarantines, testing systems, and tracing contacts of the infected.

The pandemic has triggered severe social and economic disruption around the world, including the largest global recession since the Great Depression.[8] Widespread supply shortages, including food shortages, were caused by supply chain disruption. The resultant near-global lockdowns saw an unprecedented pollution decrease. Educational institutions and public areas were partially or fully closed in many jurisdictions, and many events were cancelled or postponed. Misinformation circulated through social media and mass media, and political tensions intensified. The pandemic raised issues of racial and geographic discrimination, health equity, and the balance between public health imperatives and individual rights.

CHAPTER-5

CODING – INPUT AND OUTPUT

5.1 INPUT

```
# importing the requests library
import requests
class covid:
    name='abc'
    user=0

    def getName(self):
        print("Welcome in my world")
        self.name = input("Enter your name: ")
        print("Hello",self.name )
        self.getInput()

    def getInput(self):
        self.user = input("What do you want to see?\nClick 1 for Country Current Status or Click 2 for Province Wise Result: ")
        self.begin()

    def begin(self):
        if self.user == '1':
            self.countrycurentstatus()
        elif self.user == '2':
            self.provincewiseresult()
        else:
            print('Invalid Input')
            self.startOver()

    def end(self):
```

Figure 5.1: Input-1

```
        print("You are out from my world")


    def countrycurentstatus(self):
        URL = "https://api.covid19api.com/dayone/country/india"
        r = requests.get(url = URL)

        # extracting data in json format
        data = r.json()
        length = len(data)
        new_data = data[length-1]
        val = ''
        val +="Country =>"+new_data['Country']+"\n"
        val +="Confirmed =>"+str(new_data['Confirmed'])+"\n"
        val +="Deaths =>"+str(new_data['Deaths'])+"\n"
        val +="Recovered =>"+str(new_data['Recovered'])+"\n"
        val +="Active =>"+str(new_data['Active'])+"\n"
        print(val)
        self.startOver()

    def provincewiseresult(self):
        URL = "https://api.covid19api.com/live/country/india/status/confirmed"
        r = requests.get(url = URL)

        # extracting data in json format
        data = r.json()
        for i in range(len(data)):
            val =""

            new_data = data[i]

            val +="Province =>"+new_data['Province']+"\n"
            val +="Confirmed =>"+str(new_data['Confirmed'])+"\n"
            val +="Deaths =>"+str(new_data['Deaths'])+"\n"
            val +="Recovered =>"+str(new_data['Recovered'])+"\n"
            val +="Active =>"+str(new_data['Active'])+"\n"
            print(val)
        self.startOver()


    def startOver(self):
        inp = input("Press 0 to start Over or Press 1 to continue: ")
        if inp == '0':
            self.getName()
        elif inp == '1':
            self.getInput()
        else:
            print("Invalid Input")
            self.end()

obj = covid()
obj.getName()
```

Figure 5.2: Input-2

5.2 OUTPUT

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Install the latest PowerShell for new features and improvements! https://aka.ms/PSWindows

PS C:\Users\91630\Desktop\Python_Training_Project> & 'C:\Users\91630\AppData\Local\Programs\Python\Python310\python.exe' 'c:\Users\91630\.vscode\extensions\ms-python.python-2022.10.1\pythonFiles\lib\python\debugpy\adapter/../..\debugpy\launcher' '61782' '--' 'c:\Users\91630\Desktop\Python_Training_Project\Python_Project.py'
Welcome in my world
Enter your name: Alifia
Hello Alifia
What do you want to see?
Click 1 for Country Current Status or Click 2 for Province Wise Result: 1
Country =>India
Confirmed =>44067144
Deaths =>526477
Recovered =>0
Active =>43523579

Press 0 to start Over or Press 1 to continue: 1
What do you want to see?
Click 1 for Country Current Status or Click 2 for Province Wise Result: 2
```

Figure 5.3: Output-1

```
Province =>Lakshadweep
Confirmed =>11414
Deaths =>52
Recovered =>0
Active =>11362

Province =>Gujarat
Confirmed =>1250009
Deaths =>10964
Recovered =>0
Active =>1239045

Province =>Meghalaya
Confirmed =>94987
Deaths =>1605
Recovered =>0
Active =>93382

Province =>Maharashtra
Confirmed =>8037181
Deaths =>148080
Recovered =>0
Active =>7889101

Province =>Uttar Pradesh
Confirmed =>2100024
Deaths =>23561
Recovered =>0
Active =>2076463

Province =>Himachal Pradesh
Confirmed =>295674
Deaths =>4157
Recovered =>0
Active =>291517

Province =>Rajasthan
Confirmed =>1292937
Deaths =>9577
Recovered =>0
Active =>1283360

Province =>Jharkhand
Confirmed =>439349
Deaths =>5327
Recovered =>0
Active =>434022

Province =>Uttarakhand
Confirmed =>441502
Deaths =>7705
Recovered =>0
Active =>433797

Province =>Bihar
Confirmed =>842205
Deaths =>12282
Recovered =>0
Active =>829923

Province =>Kerala
Confirmed =>6712280
Deaths =>70412
Recovered =>0
Active =>6641868

Province =>Ladakh
Confirmed =>28821
Deaths =>228
Recovered =>0
Active =>28593

Province =>Tripura
Confirmed =>105385
Deaths =>927
Recovered =>0
Active =>104458

Province =>Andaman and Nicobar Islands
Confirmed =>10398
Deaths =>129
Recovered =>0
Active =>10269

Province =>Punjab
Confirmed =>771413
Deaths =>17807
Recovered =>0
Active =>753606
```

Figure 5.4: Output-2

```
Province =>Telangana
Confirmed =>815679
Deaths =>4111
Recovered =>0
Active =>811568

Province =>Andhra Pradesh
Confirmed =>2330404
Deaths =>14733
Recovered =>0
Active =>2315671

Province =>West Bengal
Confirmed =>2087715
Deaths =>21334
Recovered =>0
Active =>2066381

Province =>Chhattisgarh
Confirmed =>1163771
Deaths =>14059
Recovered =>0
Active =>1149712

Province =>Delhi
Confirmed =>1949736
Deaths =>26305
Recovered =>0
Active =>1923431

Province =>Sikkim
Confirmed =>41390
Deaths =>468
Recovered =>0
Active =>40922

Province =>Assam
Confirmed =>736307
Deaths =>8014
Recovered =>0
Active =>728293

Province =>Haryana
Confirmed =>1026808
Deaths =>26311
Recovered =>0
Active =>1928197

Province =>Tripura
Confirmed =>106522
Deaths =>930
Recovered =>0
Active =>105592

Province =>Tamil Nadu
Confirmed =>3542779
Deaths =>38032
Recovered =>0
Active =>3504747

Province =>Maharashtra
Confirmed =>8045606
Deaths =>148101
Recovered =>0
Active =>7897505

Province =>Rajasthan
Confirmed =>1294034
Deaths =>9578
Recovered =>0
Active =>1284456

Province =>Punjab
Confirmed =>773530
Deaths =>17814
Recovered =>0
Active =>755716

Province =>West Bengal
Confirmed =>2092880
Deaths =>21359
Recovered =>0
Active =>2071521

Province =>Bihar
Confirmed =>843305
Deaths =>12284
Recovered =>0
Active =>831021
```

Figure 5.5: Output-3

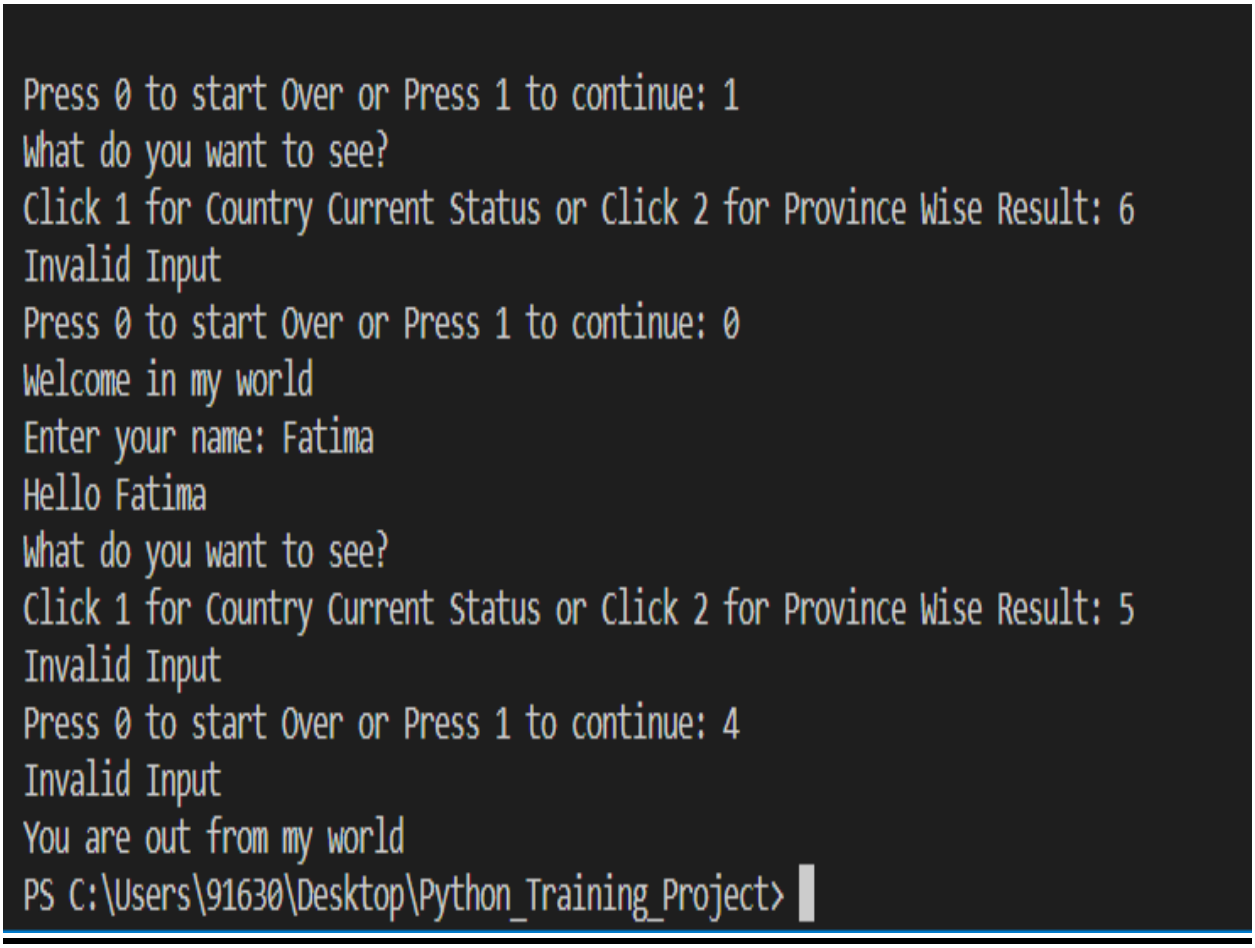

Figure 5.6: Output-4

CHAPTER 6

CONCLUSION AND FUTURE WORK

6.1 CONCLUSION AND FUTURE WORK

The Covid-19 Pandemic is a huge struggle for all of us. The Project I am making will seek to find the answers to the most pertinent questions as to what is it that makes the covid-19 such a tragedy and what all people are the ones who are most affected by it. Using this Data Analysis Project, we can easily fetch the updated data because in the present pandemic time, the data related to COVID statuses has been an important thing to trace and fight the situation. This project is build through an API which helps in getting the updated tally related to COVID 19 data.

CHAPTER 7

REFERENCES

7.1 REFERENCES

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