

**KENDRIYA VIDYALAYA MINAMBAKKAM CHENNAI-600 027**

**INFORMATICS PRACTICES PROJECT- 2020-21**



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**CERTIFICATE**

**This is to certify that V.S. Roshan, Donna Gadiel and Dhanyashree. M of class 12 C of Kendriya Vidyalaya Minambakkam have successfully completed their Informatics practices project on the topic COVID- 19: DATA PLOTS for the academic year 2020-2021 under the guidance of Mrs. Nasreen Salma, PGT, computer science as per the CBSE guidelines.**

**Signature of internal examiner                    Signature of external examiner**

**Signature of principal                                School seal**

ACKNOWLEDGEMENT

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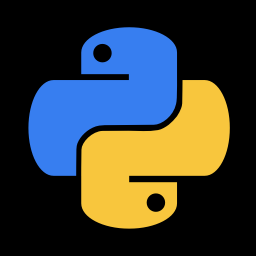
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**INTRODUCTION TO TKINTER**

Python offers multiple options for developing GUI (Graphical User Interface). Out of all the GUI methods, tkinter is the most commonly used method. It is a standard Python interface to the Tk GUI toolkit shipped with Python. Python with tkinter is the fastest and easiest way to create the GUI applications. Creating a GUI using tkinter is an easy task.  
**To create a tkinter app:**

1. Importing the module – tkinter
2. Create the main window (container)
3. Add any number of widgets to the main window
4. Apply the event Trigger on the widgets.



**INTRODUCTION**



The aim of our IP project is to provide quality and effective decision making through the help of graphs from pre and post covid-19 situations. The graphs help in analysing and forecasting the future through the understanding of past trends. Our goal is to help businesses firms to get the latest graphs in a one stop destination for easy planning.

Analytics 2.0 is a business software which can be used by business firms. Only those with the registered username and password can access the software to increase privacy and safety.

Due to the COVID-19 pandemic, the economic environment has seen a disruption due to which there has been drastic changes in the demand and supply chains. It becomes crucial for Businessmen to learn and have an idea about the changing business climate. The lockdown and Quarantine has also meddled with the supply and demand. Through the graphs we can create a rough assumption about the required plan of action.

We created a GUI (Graphic User Interface) through the help of Tkinter, a python module to achieve a website like output. Through the help of widgets like buttons and other features of tkinter, we were able to learn and execute various codes.

We put into action our pre-existing knowledge on python pandas,pyplot and mysql to use in visualising data as graphs.

 The main feature of our project is the visualisation of data for easy understanding and thus all the other softwares and codes used are for the purpose of visualisation only.

We have collected csv secondary datas from trustworthy websites like WHO and have plotted them through pyplot, a module of python.

\*Data collected as on \_\_\_\_\_\_\_\_\_\_\_\_

**System Requirements**

**Software**

Windows/Mac OS

Python 3 (idle or anaconda).

Mysql

**Packages installed**

Pandas

Matplotlib

NumPy

Sql connect

Tkinter

**Hardware**

4 GB ram

1GB hard disk space

**SOURCE CODE**

**#Project Title: Covid- Analytics 2.0**

# importing required Packages

from tkinter import \*

import numpy as np

import pandas as pd

import matplotlib.pyplot as plt

#importing Mysql connector package

import mysql.connector

from tkinter import messagebox

# Creating Main Screen- Home Page

master = Tk()

master.geometry('350x350')

master.title("Welcome to Covid-19 Analysis Project")

#canvas = Canvas(width=900, height=100,bg='#F6CE76')

canvas = Canvas(width=250, height=500,bg='white')

canvas.pack(side=TOP,expand=YES, fill=BOTH)

gif1 = PhotoImage(file='homescreen.png')

#canvas.create\_image(500,100, image=gif1, anchor=NW)

canvas.create\_image(200,3, image=gif1, anchor=NW)

pane = Frame(master,background="white")

pane.pack(fill=BOTH)

#Creating Function for showing Description about the Project

def clickabout():

master.destroy()

global about1

about1= Tk()

about1.geometry('350x350')

about1.title("About Our Project Analytics 2.0")

canvas = Canvas(width=250, height=500, bg='#EAD7C0')

canvas.pack(expand=YES,fill=BOTH)

gif5 = PhotoImage(file='about.png')

canvas.create\_image(200,3,image=gif5,anchor=NW)

pane = Frame(about1)

pane.pack(fill=BOTH)

about = Button(pane, text = "Proceed",background = "mediumvioletred", fg = "white", font=("Arial Bold", 20),command=loginscreen)

about.pack(side = TOP,expand = True,fill=BOTH)

#about.pack(side = TOP, expand = True, fill = BOTH)

#about.pack(side = TOP, expand = True)

mainloop()

#creating Login Screen

def loginscreen():

about1.destroy()

global tkWindow

tkWindow = Tk()

tkWindow.geometry('400x150')

tkWindow.title('Login Form')

#username label and text entry box

usernameLabel = Label(tkWindow, text="User Name")

usernameLabel.pack()

usernameEntry = Entry(tkWindow)

usernameEntry.pack()

#password label and password entry box

passwordLabel = Label(tkWindow,text="Password")

passwordLabel.pack()

passwordEntry = Entry(tkWindow, show='\*')

passwordEntry.pack()

#login button

def validateLogin():

#Retrieving details entered in username and password textbox

user=usernameEntry.get()

pwd=passwordEntry.get()

#Establishing connection with Mysql Database

mydb = mysql.connector.connect(host="localhost", user="root",passwd="1234",database="covid")

mycursor = mydb.cursor()

sql = "Select \* from users where uname=%s and pwd= %s"

val = (user, pwd)

mycursor.execute(sql, val)

result=mycursor.fetchall()

#checking Validity of details entered with database Record

if(int(mycursor.rowcount)==1):

# if it is valid user call the clicked function to show menu screen

clicked()

else:

#Message box showing the user to enter valid details

messagebox.showerror("Invalid Values", "Enter valid Username and Password ")

loginButton = Button(tkWindow, text="Login", command=validateLogin)

loginButton.pack()

mainloop()

def clicked():

tkWindow.destroy()

master1 = Tk()

master1.geometry('800x800')

master1.title("Visualizing the impact of Covid-19")

pane1 = Frame(master1)

pane1.pack(fill=BOTH)

#Analyis #1

def click1():

#Displaying Top 5 mostly affected countries

# info1=['USA','India','Brazil','France','Russia']

# data1=[11789012,9095806,6020164,2071499,2064748]

#Reading details from csv file containing top 5 mostly affected countries

top5= pd.read\_csv("top5.csv",names=['country','data'],skiprows=1,nrows=5)

info1=top5.country

data1=top5.data

fig1=plt.figure(figsize=(9, 2))

plt.bar(info1,data1,color=['#2CBDFE','#47DBCD','blue','#9D2EC5','pink','#661D98','cyan','#F5B14C','orange','#00FF00'])

plt.xlabel('Countries')

plt.ylabel('Confirmed Cases')

plt.title('TOP 5 MOSTLY AFFECTED COUNTRIES AS ON 22.11.2020', weight='bold')

plt.show()

fig1.savefig('top5.png', bbox\_inches='tight', dpi=150)

gif1 = PhotoImage(file='top5.png')

canvast.delete(ALL)

canvast.create\_image(40, 40, image=gif1, anchor=NW)

mainloop()

#button to display Top 5 Most Affected Countries

b1 = Button(pane1, text = "Top 5 Most Affected Countries",

background = "red", fg = "white",font=("Arial Bold", 20),command=click1)

b1.pack(side = TOP, expand = True, fill = BOTH)

#Analyis #2

def click2():

#info2=['USA','Brazil','India','Mexico','UK']

#data2=[258333,168141,132223,100104,53775]

#Displaying Top 5 most Testing done countries

testmost= pd.read\_csv("testing.csv",names=['country','data'],skiprows=1,nrows=5)

info2=testmost.country

data2=testmost.data

fig2=plt.figure(figsize=(7, 2))

plt.bar(info2,data2,color=['#2CBDFE','#47DBCD','blue','#9D2EC5','pink','#661D98','cyan','#F5B14C','orange','#00FF00'])

plt.title('Top 5 Most Testing done Countries', weight='bold')

plt.ylabel('Total Tests / Total Population')

plt.xlabel('Country')

fig2.savefig('mosttestingdone.png', bbox\_inches='tight', dpi=150)

gif2 = PhotoImage(file='mosttestingdone.png')

canvast.delete(ALL)

canvast.create\_image(40, 40, image=gif2, anchor=NW)

mainloop()

#button to display Top 5 Most Covid -19 Testing done Countries

b2 = Button(pane1, text = "Top 5 Most Covid -19 Testing done Countries",

background = "blue", fg = "white",font=("Arial Bold", 20),command=click2)

b2.pack(side = TOP, expand = True, fill = BOTH)

#Analysis 3

def click3():

#info3=['Maharashtra','Karnataka','AP','TamilNadu','Kerala']

#data3=[1774455,871342,861092,768340,557441]

#Displaying Top 5 mostly affected countries

topstates= pd.read\_csv("topstates.csv",names=['states','data'],skiprows=1,nrows=5)

info3=topstates.states

data3=topstates.data

fig3=plt.figure(figsize=(7,2), dpi=80)

plt.bar(info3,data3,color=['#2CBDFE','#47DBCD','blue','#9D2EC5','pink','#661D98','cyan','#F5B14C','orange','#00FF00'])

plt.ylabel('Number of Confirmed Cases')

plt.xlabel('States/UnionTerritory')

plt.title('States with maximum confirmed cases', weight='bold')

fig3.savefig('top5statesconfirmed.png', bbox\_inches='tight', dpi=150)

gif3 = PhotoImage(file='top5statesconfirmed.png')

canvast.delete(ALL)

canvast.create\_image(100, 40, image=gif3, anchor=NW)

mainloop()

#button to display Top 5 states in India - Confirmed covid cases

b3 = Button(pane1, text = "Top 5 states in India - Confirmed covid cases",

background = "green", fg = "white",font=("Arial Bold", 20),command=click3)

b3.pack(side = TOP, expand = True, fill = BOTH)

#Analysis # 4

def click5():

#info5=['Chennai','Coimbatore','Chengalpatu','Thiruvallur','Salem']

#data5=[211555,47380,46717,40265,29199]

#Displaying Top 5 mostly affected districts in TamilNadu

topdistrict= pd.read\_csv("topdistrict.csv",names=['District','data'],skiprows=1,nrows=5)

info5=topdistrict.District

data5=topdistrict.data

fig5=plt.figure(figsize=(7,2), dpi=80)

plt.bar(info5,data5,color=['#2CBDFE','#47DBCD','blue','#9D2EC5','pink','#661D98','cyan','#F5B14C','orange','#00FF00'])

plt.title("Top 5 Mostly Affected Districts in TamilNadu", weight='bold')

fig5.savefig('top5districts.png', bbox\_inches='tight', dpi=150)

gif5 = PhotoImage(file='top5districts.png')

canvast.delete(ALL)

canvast.create\_image(100, 40, image=gif5, anchor=NW)

mainloop()

#button to display Top 5 mostly affected districts in TamilNadu

b5 = Button(pane1, text = "Top 5 Mostly Affected Districts in TamilNadu",

background = "orange", fg = "white",font=("Arial Bold", 20),command=click5)

b5.pack(side = TOP, expand = True, fill = BOTH)

canvast = Canvas(width=150, height=800, bg='GREY')

canvast.pack(expand=YES, fill=BOTH)

#Analyis #5

def click4():

#info4=['USA','Brazil','India','Mexico','UK']

#data4=[258333,168141,132223,100104,53775]

topdeath= pd.read\_csv("topdeath.csv",names=['Country','data'],skiprows=1,nrows=5)

info4=topdeath.Country

data4=topdeath.data

fig4=plt.figure(figsize=(3,3), dpi=80)

plt.bar(info4,data4,color=['#2CBDFE','#47DBCD','blue','#9D2EC5','pink','#661D98','cyan','#F5B14C','orange','#00FF00'])

plt.title("Top 5 Countries with Maximum Death Rate", weight='bold')

fig4.savefig('top5countrydeath.png', bbox\_inches='tight', dpi=150)

gif4 = PhotoImage(file='top5countrydeath.png')

canvast.delete(ALL)

canvast.create\_image(40, 40, image=gif4, anchor=NW)

mainloop()

#button to display Maximum Death Covid Cases Details

b4 = Button(pane1, text = "Top 5 Countries with Maximum Death covid cases",

background = "black", fg = "white",font=("Arial Bold", 20),command=click4)

b4.pack(side = TOP, expand = True, fill = BOTH)

b1 = Button(pane, text = "Proceed !",

background = "hotpink", fg = "white", font=("Arial Bold", 20),command=clickabout)

b1.pack(side = TOP, expand = True)

mainloop()

**#Creating Database Covid**

import mysql.connector

mydb = mysql.connector.connect(

host="localhost",

user="root",

passwd="1234",

database="covid"

)

mycursor = mydb.cursor()

mycursor.execute("CREATE DATABASE covid")

mydb.commit()

#Creating Table Users

mycursor.execute("CREATE TABLE users (uname VARCHAR(10), pwd VARCHAR(8))")

mydb.commit()

#inserting Records in to the table Users

sql = "INSERT INTO users (uname, pwd) VALUES (%s, %s)"

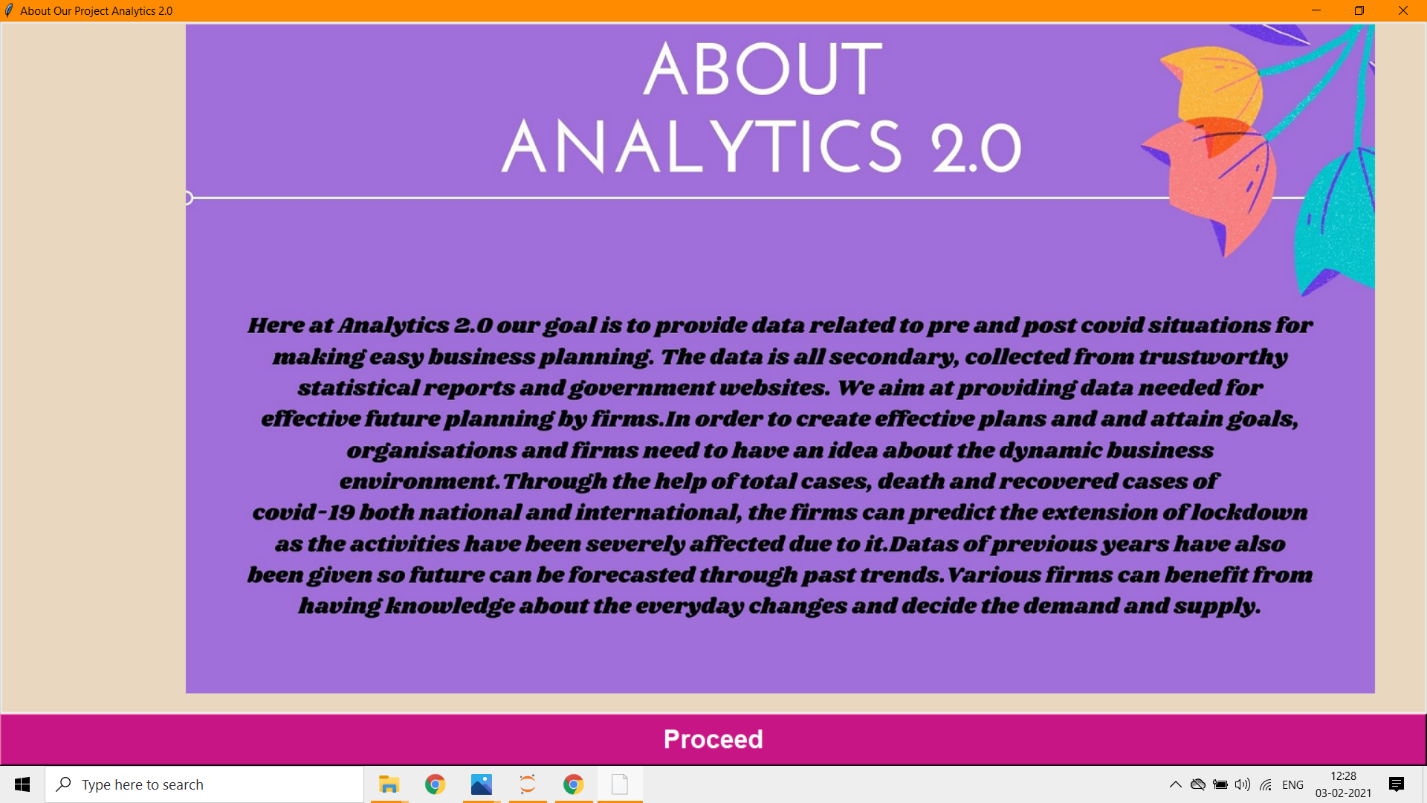
val = ("Admin", "admin123")

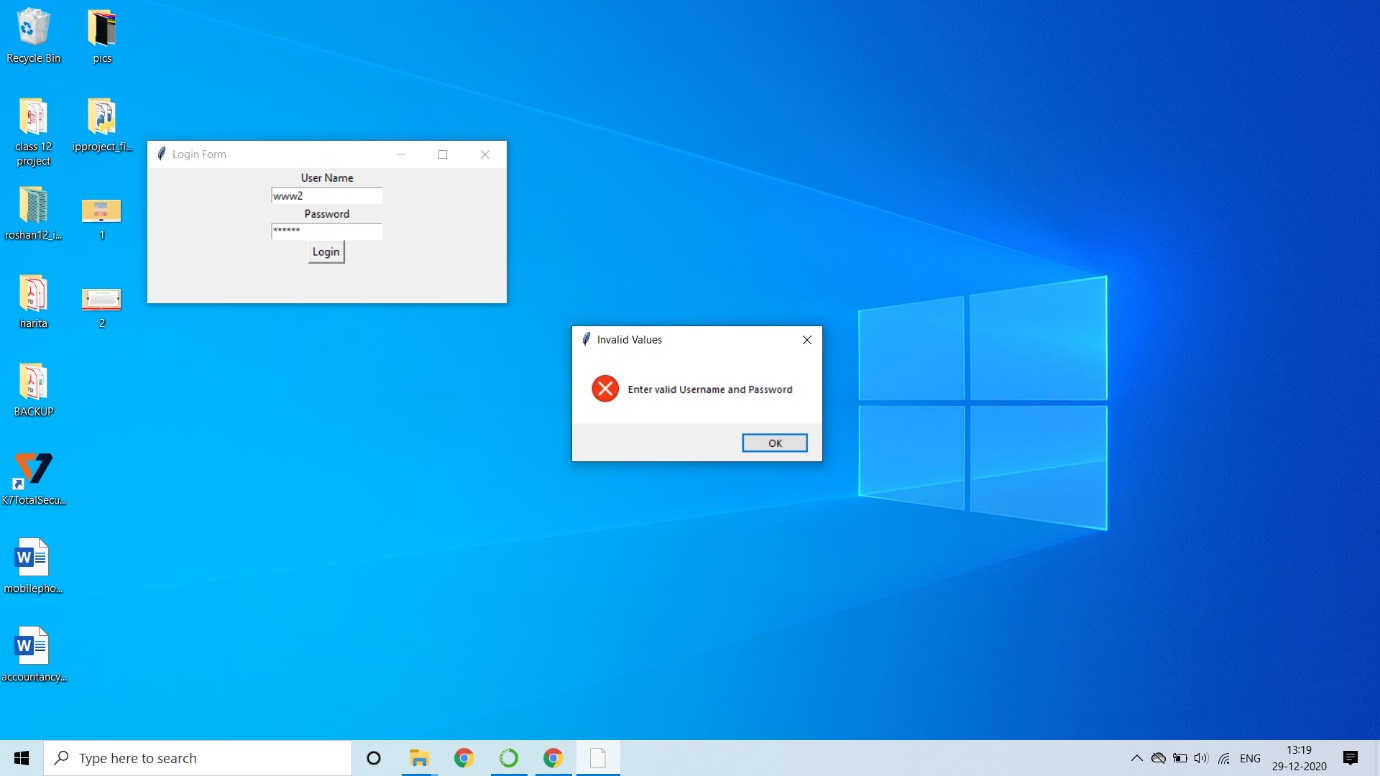
mycursor.execute(sql,val)

mydb.commit()

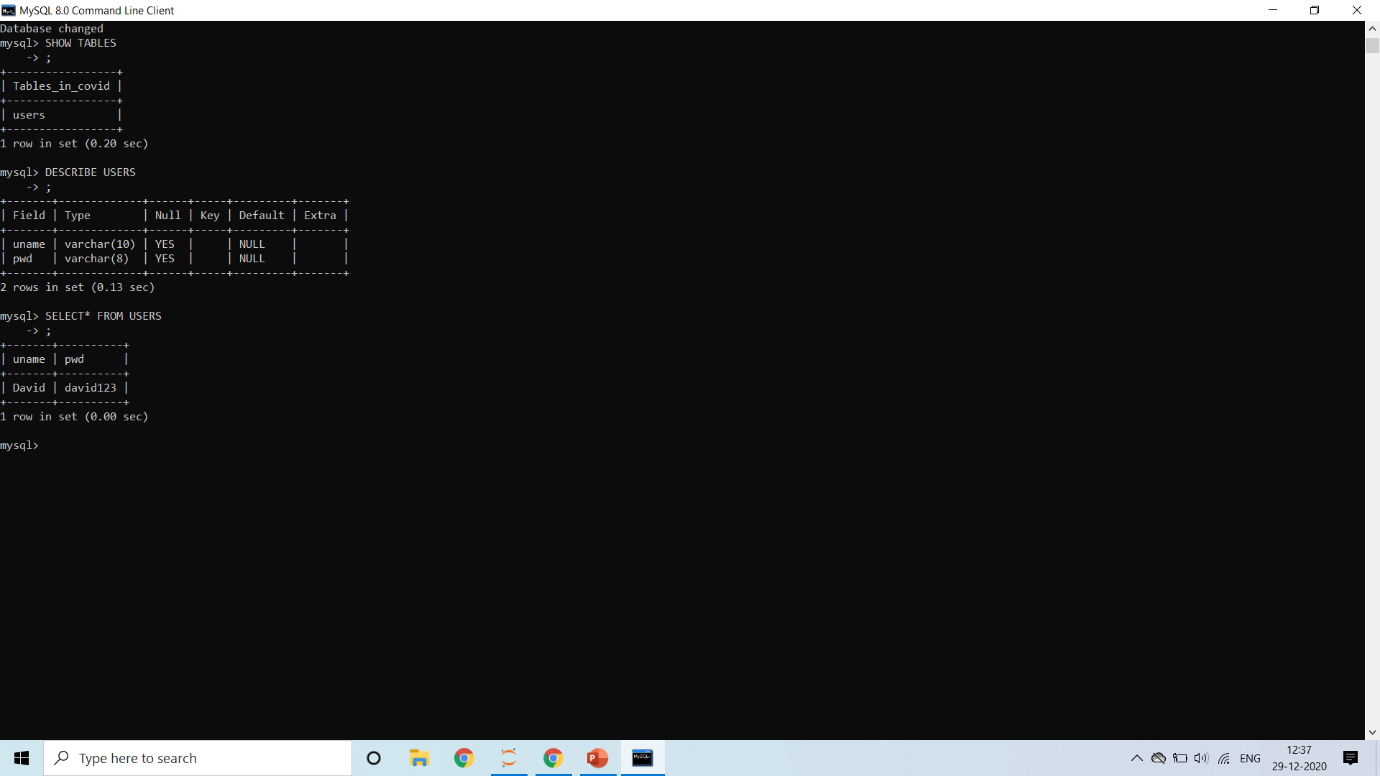
**SNAPSHOTS**

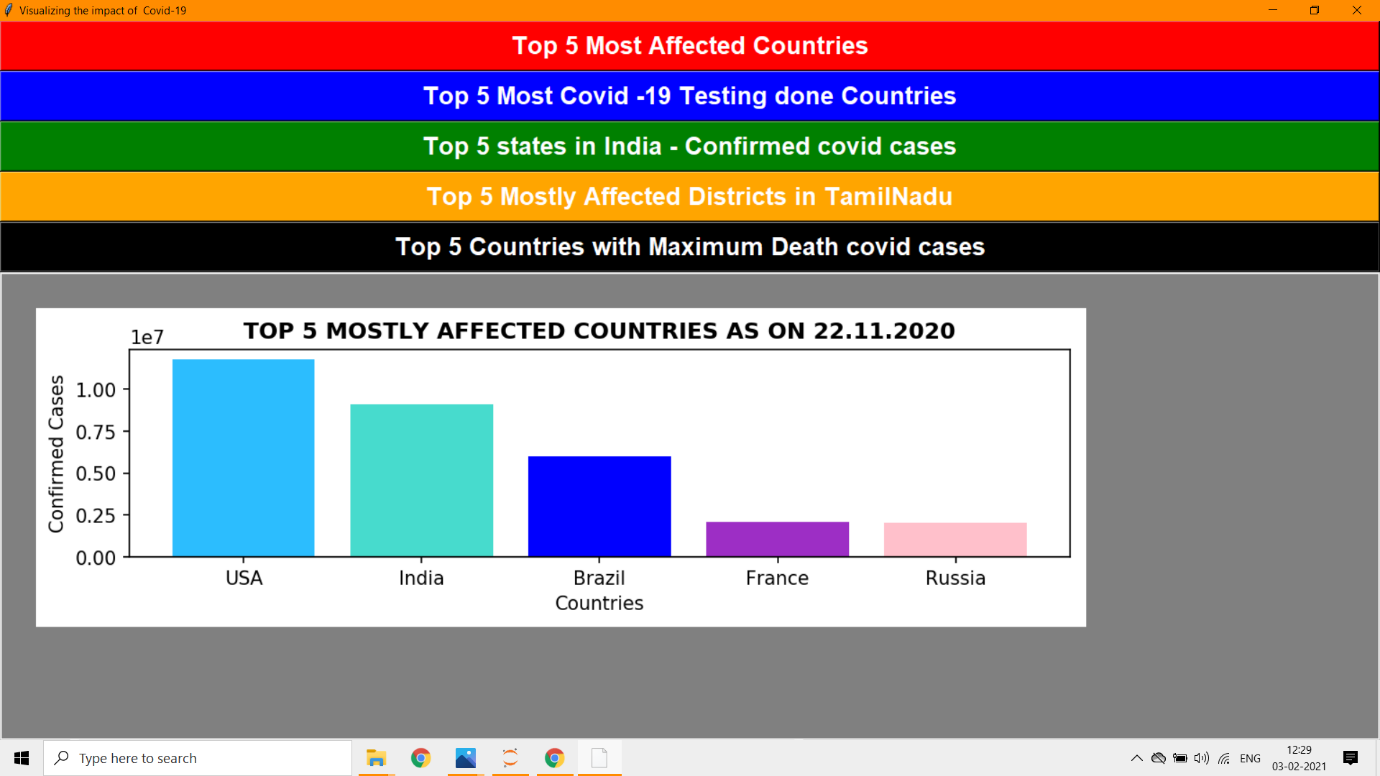


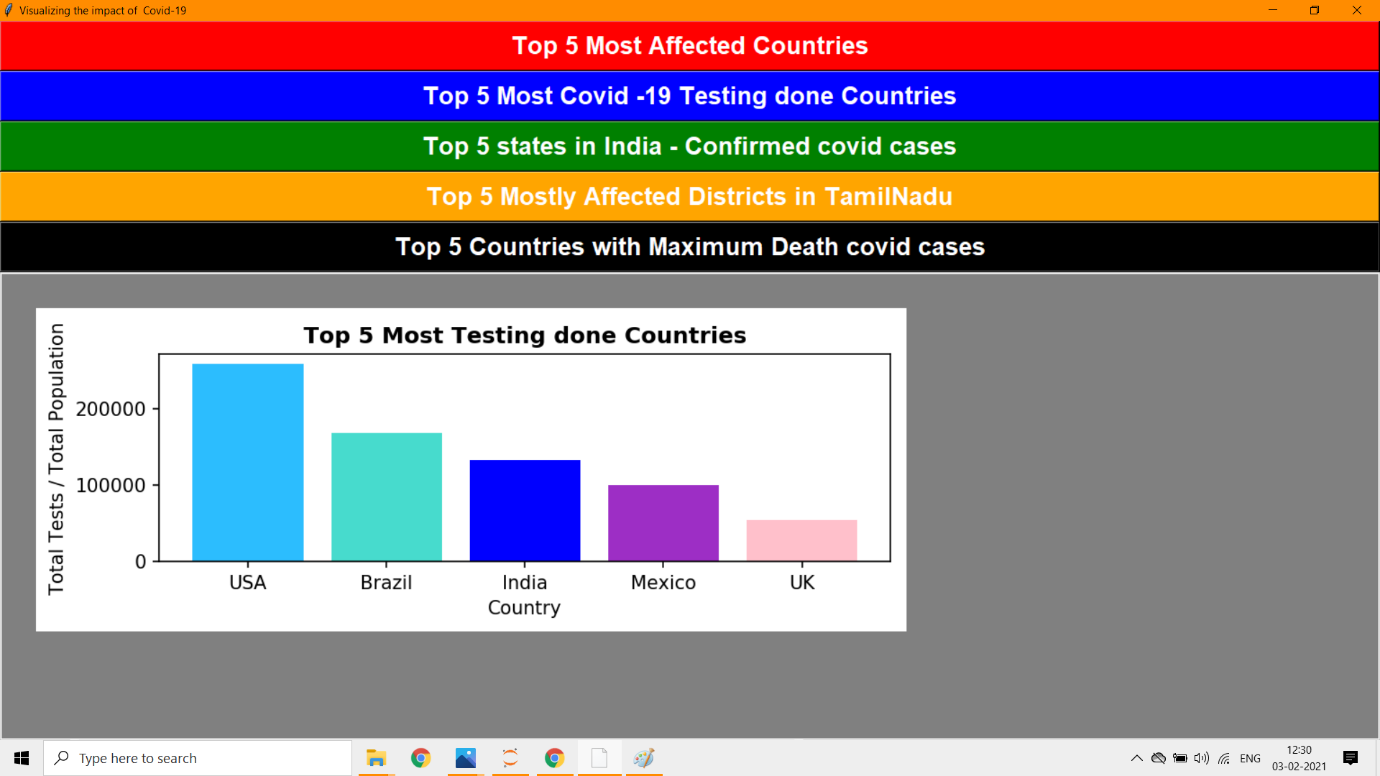


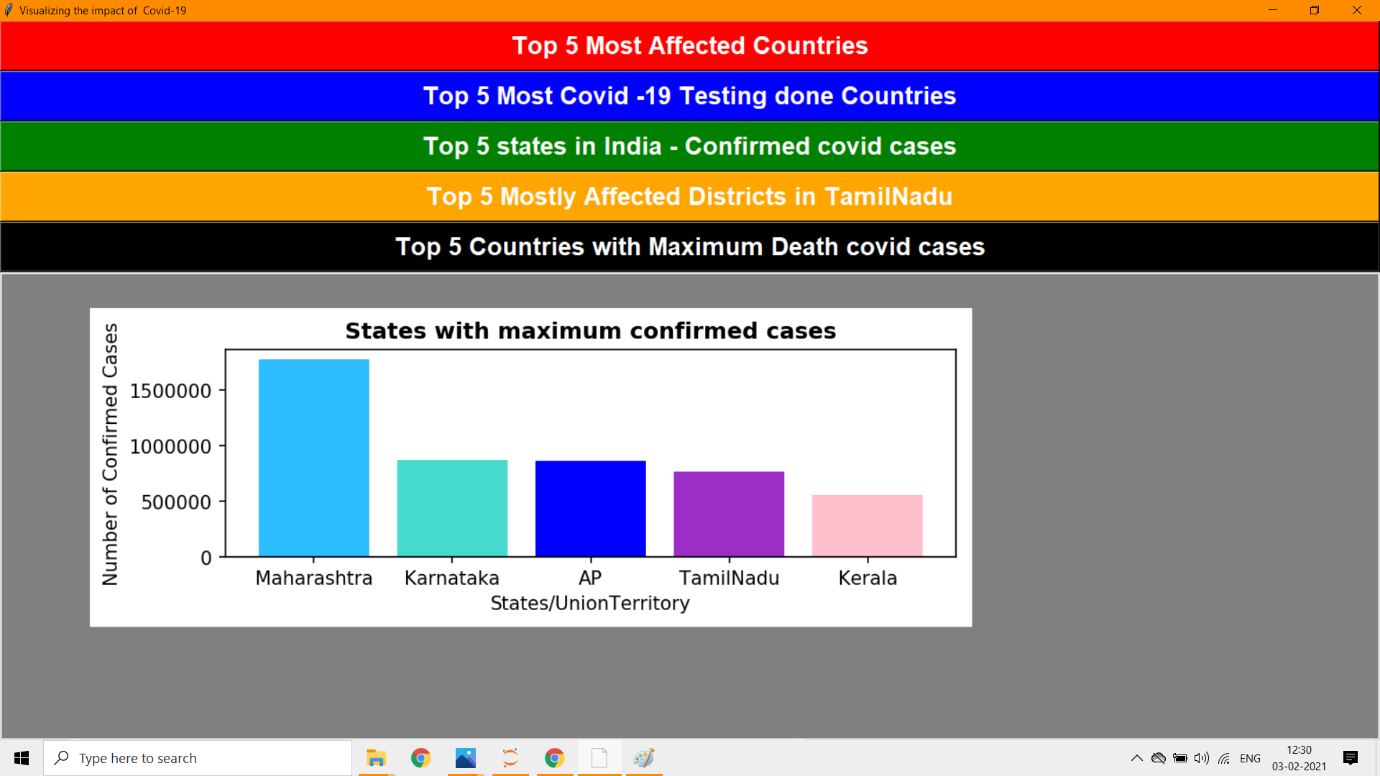


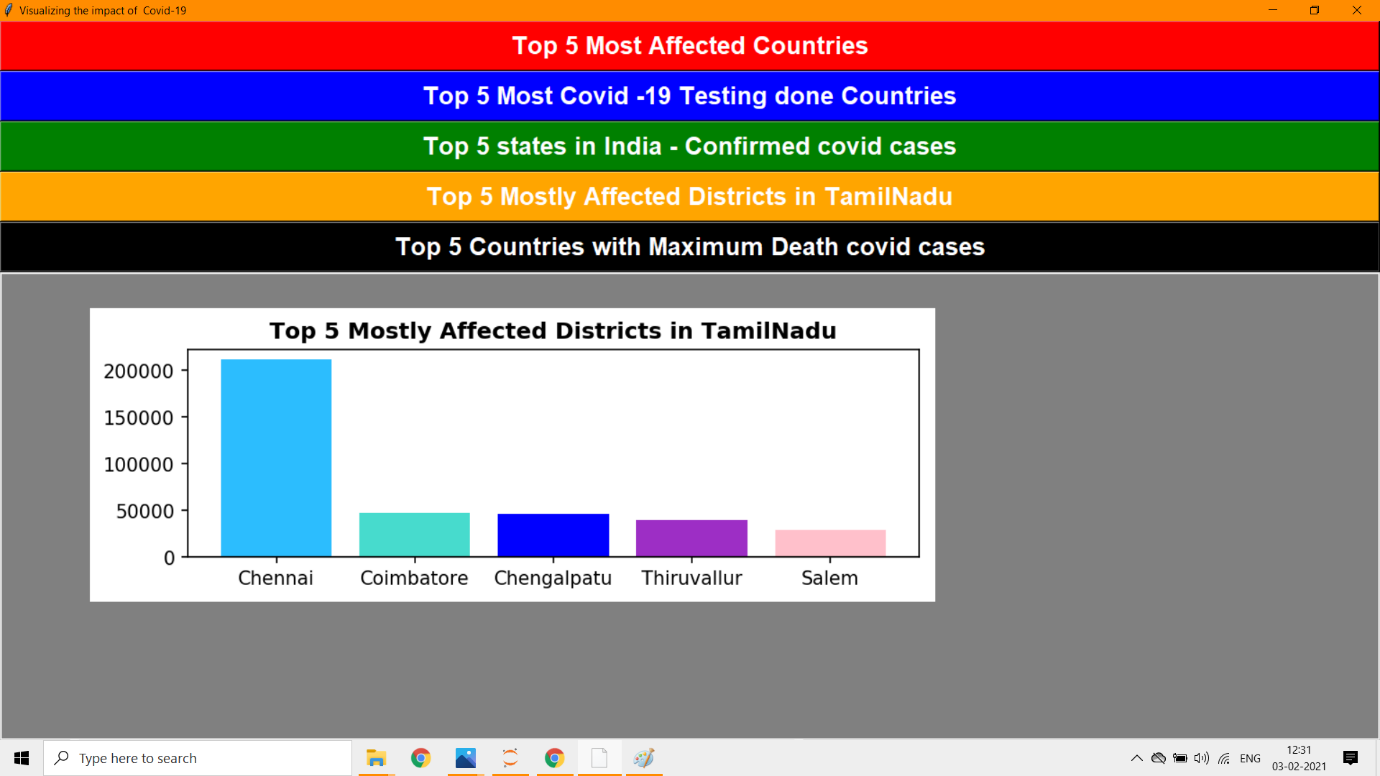


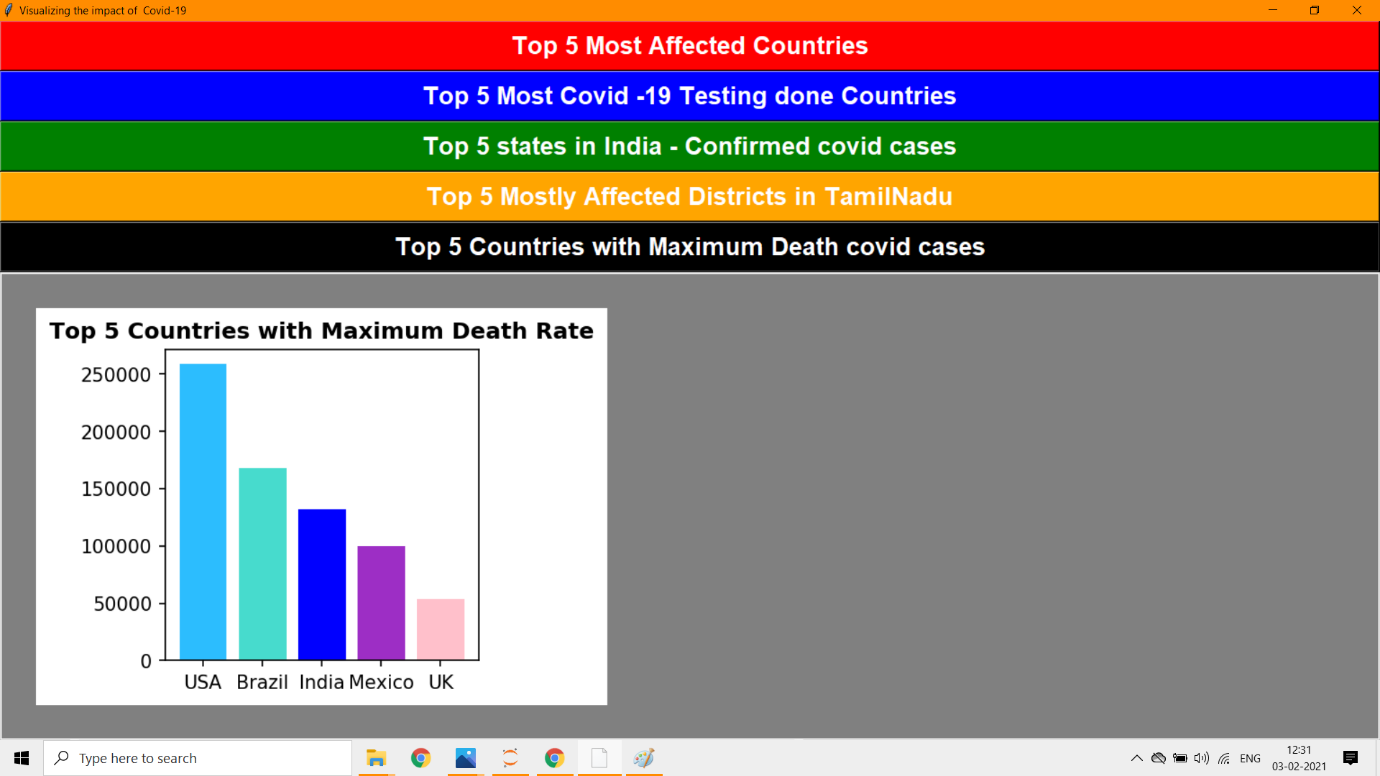












**CONCLUSION**

THROUGH THIS PROJECT, WE WERE ABLE TO WIDEN OUR KNOWLEDGE AND LEARN ABOUT TKINTER,

DATA ANALYSIS AND VISUALIZATION PACKAGES SUCH AS PANDAS AND MATPLOTLIB. WE ALSO UNDERSTOOD THE DYNAMIC NATURE OF THE BUSINESS ENVIRONMENT WHILE COLLECTING OUR DATA. WE WERE ABLE TO ACT AND COORDINATE AS A GROUP AND COMPLETE OUR PROJECT. WE LEARNT TO APPLY THEORITICAL KNOWLEDGE AS PRACTICALS.

**BIBLIOGRAPHY**

1. https://covid19.who.int/

2. https://www.oneindia.com/coronavirus-affected-cities-districts-in-india.html

3. urworldindata.org/grapher/full-list-total-tests-for-covid-19?time=2020-02-20..latest

4. www.anaconda.com

5. https://stackoverflow.com/

6. https://www.guru99.com/python-mysql-example.html

7. https://www.geeksforgeeks.org/python-read-csv-using-pandas-read\_csv/

8. https://pythonbasics.org/matplotlib-bar-chart/