

#FOR INDIA, UNITED STATES, BRAZIL AND MEXICO

```
import COVID19Py
import pandas as pd
import matplotlib.pyplot as plt
import pytz
from datetime import datetime
```

*****IMPORTING THE LIBRARIES FOR DATA FETCHING, PROCESSING AND VISUALIZATION****

```
covid19 = COVID19Py.COVID19()
location = covid19.getLocationByCountryCode("IN", timelines=True)
# covid19.getLocationByCountryCode("TWO LETTER COUNTRY CODE", timelines=True)
arr = location[0]['timelines']['confirmed']['timeline']
date = [] ***INITIALIZING DATE ARRAY FOR PLOTTING**
data = [] ***INITIALIZING DATA ARRAY CONSISTING OF TOTAL REPORTED COVID-19 CASES TILL THAT DATE
dd = pd.DataFrame.from_dict(arr.items())
```

```
dd.columns = ["date", "data"]
dd['date'] = [x[:10] for x in dd['date']]
datep = [str(x) for x in dd['date'].values]
minp = min(dd['data'].values)
maxp = max(dd['data'].values)
z = dd['data'].values
datap = [z[0]]
datap.extend([int(z[i]-z[i-1]) for i in range(1,len(z))]) ***DATAP CONSISTS NUMBER OF COVID-19 CASES REPORTED DAILY**
```

```
import numpy as np
import requests as r
import matplotlib.pyplot as plt
from pytrends.request import TrendReq
import sklearn.preprocessing as pre
import pandas as pd
pytrend = TrendReq()
pytrend.build_payload(kw_list=['loss of smell'], timeframe='2020-01-01 2020-06-25',geo='IN')
#pytrend.build_payload(kw_list=['GOOGLE SEARCH TEXT'], timeframe='START_DATE END_DATE',geo='TWO DIGIT COUNTRY CODE')
tren = pytrend.interest_over_time()
***LIBRARY TO FETCH GOOGLE SEARCH DATA AS DATAFRAME **
```

```

datex = [str(x)[:10] for x in tren.index.values]
minx = min(tren['loss of smell'].values) ***MINX DENOTES THE MINIMUM NUMBER OF SEARCHES FOR LOSS OF SMELL ON A DAY**
maxx = max(tren['loss of smell'].values) ***MINX DENOTES THE MAXIMUM NUMBER OF SEARCHES FOR LOSS OF SMELL ON A DAY**
datax = [int(x) for x in tren['loss of smell']]

```

***** IN ABOVE THREE STATEMENTS REPLACE LOSS OF SMELL BY THE CUSTOM SEARCH TRENDS OF YOUR CHOICE*****

```

ar = []
i = 0
j = 0
while i < len(datex) and j < len(datep):
    if datex[i] == datep[j]:
        ar.append([datex[i], datax[i], datap[j]])
        i += 1
        j += 1
    elif datetime.strptime(datex[i], '%Y-%M-%d') < datetime.strptime(datep[j], '%Y-%M-%d'):
        ar.append([datex[i], datax[i], 0])
        i += 1 ***COUNTER VARIABLE FOR NUMBER OF DATA POINTS IN DATE MATRIX**
    elif datetime.strptime(datex[i], '%Y-%M-%d') > datetime.strptime(datep[j], '%Y-%M-%d'):
        ar.append([datep[j], 0, datap[j]])
        j += 1 ***COUNTER VARIABLE FOR NUMBER OF DATA POINTS IN DATA MATRIX**

```

*****THE ABOVE BLOCK MAKES THE GOOGLE TRENDS PLOT AND THE COVID CASES PLOT COMPATIBLE TO EACH OTHER****

```

import numpy as np
ar = np.asarray(ar)
sc = pre.StandardScaler()
xtick = [ar[:, 0][x] for x in range(0, len(ar[:, 0]), 20)]
pp = sc.fit_transform(ar[:, 1:])
import matplotlib.dates as mdates
fig, ax = plt.subplots()
ax.plot(ar[:, 0], pp)
months = mdates.MonthLocator()
ax.xaxis.set_minor_locator(months) ***RESIZING THE X AXIS DISPLAY FREQUENCY TO MONTHS FOR THE DATE VARIABLE
plt.xticks(xtick)
fig.autofmt_xdate()
plt.show()

```

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#FOR FRANCE
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```
import pandas as pd
import matplotlib.pyplot as plt
import statistics
from os import path
import numpy as np
import datetime
import requests as r
from pytrends.request import TrendReq
```

```
data = pd.read_csv('https://opendata.ecdc.europa.eu/covid19/casedistribution/csv')
d=data.loc[data['countriesAndTerritories'] == 'France']
*** d=data.loc[data['countriesAndTerritories']=='NAME OF COUNTRY']
***THE DATA WILL BE UP-TO-DATE
dataa=d["cases"]
dataa.index = d['dateRep']
dataa.index = pd.to_datetime(dataa.index, dayfirst=True)
pytrend = TrendReq()
pytrend.build_payload(kw_list=['fievre'], timeframe='2020-01-22 2020-07-01',geo='FR')
*** pytrend.build_payload(kw_list=['GOOGLE SEARCH TEXT'],timeframe='STARTING
DATE(YYYY/MM/DD) ENDING DATE(YYYY/MM/DD)',geo='COUNTRY_CODE')
tren = pytrend.interest_over_time()
plt.plot(tren['fievre']/max(tren['fievre']))
plt.plot(dataa/max(dataa))
plt.show()
```