COVID 19 USING COGNOS

Data Analytics with Cognos – Phase 3

DOCUMENTATION

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Phase 3: Development Part 1

Problem Statement:

Start bulding the covid 19 cases analysis using IBM Cognos for visualization. Load the dataset using python and data manipulation libraries (e.g., pandas).

Dataset Link:

https://www.kaggle.com/datasets/chakradharmattapalli/covid-19-cases

Overview the process

1.Import Libraries:

Begin by importing the necessary libraries, such as pandas for data manipulation.

2.Load the Dataset:

Use pd.read_csv() or other appropriate methods to load your dataset into a pandas DataFrame.

3.Explore the Dataset:

Display the initial rows, check for missing values, and explore basic statistics to understand the structure and content of the data.

4.Handle Missing Values:

Decide on an appropriate strategy for dealing with missing values, such as dropping rows or filling values based on a specific strategy.

5.Additional Preprocessing Steps:

Depending on the nature of your data, consider additional preprocessing steps such as feature scaling, handling outliers, processing date-time features, dealing with text data, feature engineering, or discretization.

Loading the dataset:

1.Importing libraries

Here, for preprocessing the dataset and manipulate the data,

pandas is the library used to frame the data.

Code:

```
import pandas as pd
```

2.Loading the dataset

In this step, we are framing the data into the table using

DataFrame in pandas, and display the head or 5 rows of the

dataset.

Code:

```
# Replace with the actual filename
```

```
file_path=data=pd.read_csv("C:/Users/sagee/Downloads/Covid_19_cases4.csv")
data
```

Preprocessing the dataset

3.Explore the dataset:

After framing data, the first few or five rows of the data in

displayed using the head() function.

Code:

```
data
```

Output:

```
dateRep         day     month   year    cases   deaths  countriesAndTerritories
0       31-05-2021      31      5       2021    366     5       Austria
1       30-05-2021      30      5       2021    570     6       Austria
2       29-05-2021      29      5       2021    538     11      Austria
3       28-05-2021      28      5       2021    639     4       Austria
4       27-05-2021      27      5       2021    405     19      Austria
...     ...     ...     ...     ...     ...     ...     ...
2725    06-03-2021      6       3       2021    3455    17      Sweden
2726    05-03-2021      5       3       2021    4069    12      Sweden
2727    04-03-2021      4       3       2021    4884    14      Sweden
2728    03-03-2021      3       3       2021    4876    19      Sweden
2729    02-03-2021      2       3       2021    6191    19      Sweden
2730 rows × 7 columns
```

Code:

```
print(data.head())
```

OUTPUT

```
dateRep  day  month  year  cases  deaths countriesAndTerritories
0  31-05-2021   31     5  2021    366      5              Austria
1  30-05-2021   30     5  2021    570      6              Austria
2  29-05-2021   29     5  2021    538     11               Austria
3  28-05-2021   28     5  2021    639      4              Austria
```

```
4  27-05-2021   27     5  2021    405     19              Austria
```

4.Check for missing values:

In this step, the missing values or null values, if it present in the data are separated and number of null values are shown through this code.

Code:

```
print("Missing values:\n", data.isnull().sum())
```

OUTPUT

```
Missing values:
 dateRep                   0
day                     0
month                      0
year                    0
cases                    0
deaths                    0
countriesAndTerritories    0
dtype: int64
```

5.Check datatype:

In this step, the data type of the columns are discussed

Code: `print("Data Types:\n", data.dtypes)`

Output:

```
Data Types:
 dateRep                   object
day                      int64
month                       int64
year                     int64
cases                     int64
deaths                     int64
countriesAndTerritories    object
```

```
dtype: object
```

6.Check basic statistics:

the statistics of the columns such as count, mean, std, min, max, 25%, 50%, 75% are shown through the describe() function command.

Code:

```
print("Summary Statistics:\n", data.describe())
```

Output:

```
Summary Statistics:
              day        month    year        cases       deaths
count  2730.000000  2730.000000  2730.0   2730.000000  2730.000000
mean     16.000000     4.010989  2021.0   3661.010989    65.291941
std       8.765919     0.818813     0.0   6490.510073   113.956634
min       1.000000     3.000000  2021.0  -2001.000000    -3.000000
25%       8.000000     3.000000  2021.0    361.250000     2.000000
50%      16.000000     4.000000  2021.0    926.500000    14.500000
75%      24.000000     5.000000  2021.0   3916.250000    72.000000
max      31.000000     5.000000  2021.0  53843.000000   956.000000
```

7.Additional Preprocessing steps:

Perform any other preprocessing steps that are specific to your dataset and analysis goals. This may include scaling numeric features, handling outliers, or creating new features.

8.Saving Preprocessed dataset:

In this step, if we made substantial changes to the dataset and want to save the preprocessed version, you can use the following Code.

Code:

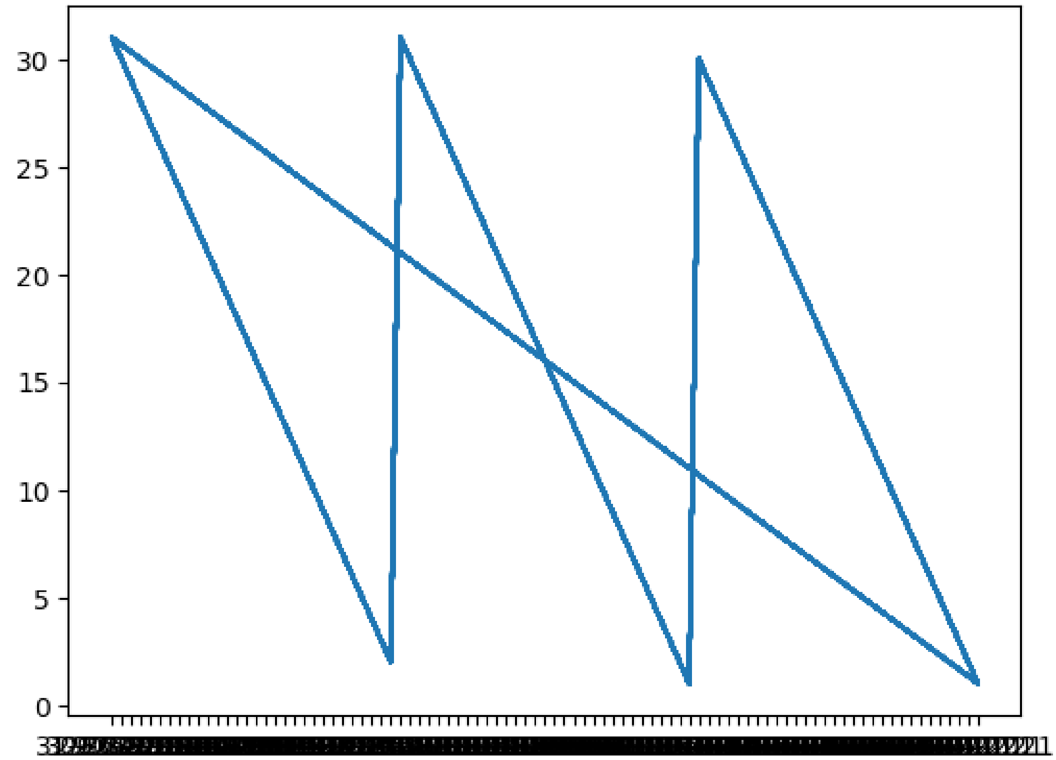
```
# Save the preprocessed dataset to a new CSV file
data.to_csv('preprocessed_dataset.csv', index=False)
```

9.Vizualization:

Code:

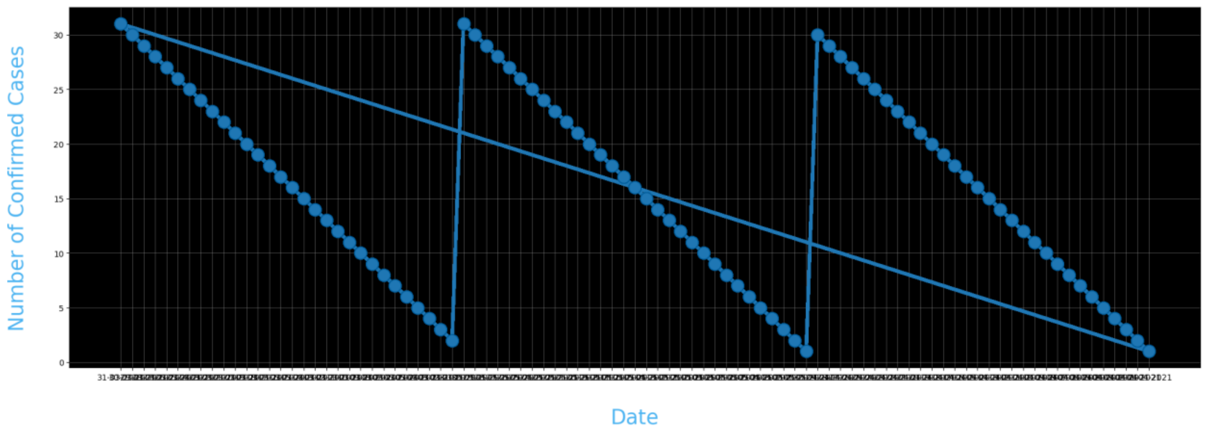
```
import numpy as np

import pandas as pd

import matplotlib.pyplot as plt



data = pd.read_csv("C:/Users/sagee/Downloads/Covid_19_cases4.csv")


Y = data.iloc[61:,1].values

R = data.iloc[61:,3].values

D = data.iloc[61:,5].values

X = data.iloc[61:,0]


plt.plot(X,Y)
```

Output:



```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt

data = pd.read_csv("C:/Users/sagee/Downloads/Covid_19_cases4.csv")

Y = data.iloc[61:,1].values
R = data.iloc[61:,3].values
D = data.iloc[61:,5].values
X = data.iloc[61:,0]

plt.figure(figsize=(25,8))

ax = plt.axes()
ax.grid(linewidth=0.4, color='#8f8f8f')

ax.set_facecolor("black")
ax.set_xlabel('\nDate',size=25,color='#4bb4f2')

ax.set_ylabel('Number of Confirmed Cases\n',

                              size=25,color='#4bb4f2')


ax.plot(X,Y,

              color='#1F77B4',

              marker='o',

              linewidth=4,

              markersize=15,

              markeredgecolor='#035E9B')
```

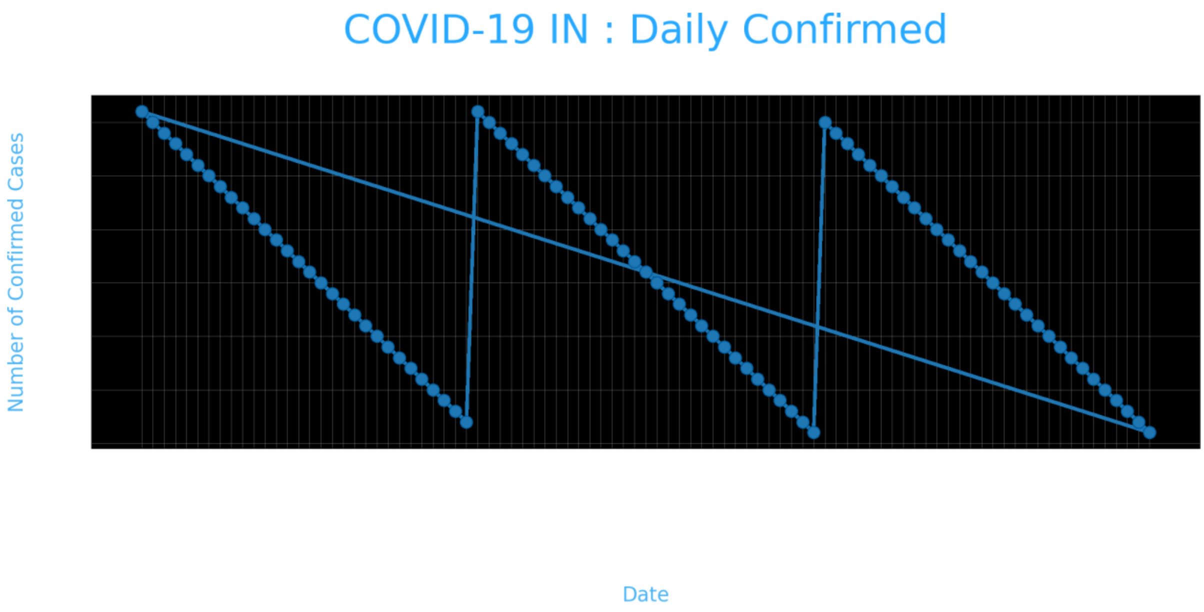
Output:



```
import numpy as np

import pandas as pd

import matplotlib.pyplot as plt


data = pd.read_csv("C:/Users/sagee/Downloads/Covid_19_cases4.csv")


Y = data.iloc[61:,1].values

R = data.iloc[61:,3].values

D = data.iloc[61:,5].values
```

```
X = data.iloc[61:,0]


plt.figure(figsize=(25,8))


ax = plt.axes()
ax.grid(linewidth=0.4, color='#8f8f8f')


ax.set_facecolor("black")
ax.set_xlabel('\nDate',size=25,color='#4bb4f2')
ax.set_ylabel('Number of Confirmed Cases\n',
                          size=25,color='#4bb4f2')


plt.xticks(rotation='vertical',size='20',color='white')
plt.yticks(size=20,color='white')
plt.tick_params(size=20,color='white')


for i,j in zip(X,Y):
        ax.annotate(str(j),xy=(i,j+100),color='white',size='13')


ax.annotate('Second Lockdown 15th April',
                          xy=(15.2, 860),
                          xytext=(19.9,500),
                          color='white',
                          size='25',
                          arrowprops=dict(color='white',
                                                             linewidth=0.025))


plt.title("COVID-19 IN : Daily Confirmed\n",
                 size=50,color='#28a9ff')


ax.plot(X,Y,
                 color='#1F77B4',
                 marker='o',
                 linewidth=4,
                 markersize=15,
                 markeredgecolor='#035E9B')
```

Output:

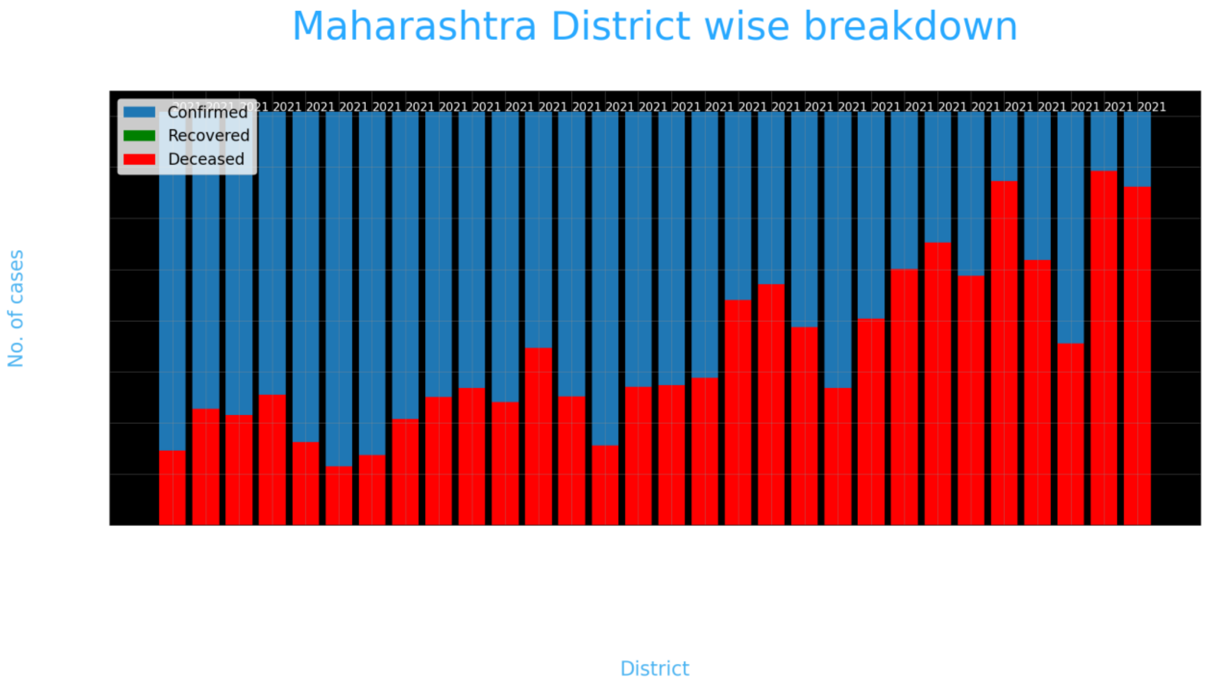


```
data = pd.read_csv("C:/Users/sagee/Downloads/Covid_19_cases4.csv")
data.head()

re=data.iloc[:30,5].values
de=data.iloc[:30,4].values
co=data.iloc[:30,3].values
x=list(data.iloc[:30,0])
```

```
plt.figure(figsize=(25,10))
ax=plt.axes()

ax.set_facecolor('black')
ax.grid(linewidth=0.4, color='#8f8f8f')


plt.xticks(rotation='vertical',
          size='20',
          color='white')#ticks of X

plt.yticks(size='20',color='white')


ax.set_xlabel('\nDistrict',size=25,
              color='#4bb4f2')
ax.set_ylabel('No. of cases\n',size=25,
              color='#4bb4f2')


plt.tick_params(size=20,color='white')


ax.set_title('Maharashtra District wise breakdown\n',
              size=50,color='#28a9ff')

plt.bar(x,co,label='re')
plt.bar(x,re,label='re',color='green')
plt.bar(x,de,label='re',color='red')
```

```
for i,j in zip(x,co):
          ax.annotate(str(int(j)),
                                        xy=(i,j+3),
                                        color='white',
                                        size='15')

plt.legend(['Confirmed','Recovered','Deceased'],
                    fontsize=20)
```

Output:



Conclusion:

In conclusion, the outlined data loading and preprocessing steps provide a foundational framework for preparing a dataset for analysis in Python using the pandas library. By following these steps, you can ensure that your data is in a suitable format and quality for further exploration and visualization tasks.