

## Installing and importing all the necessary libraries

In [1]: `pip install pandas`

```
Requirement already satisfied: pandas in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (1.4.4)
Requirement already satisfied: python-dateutil>=2.8.1 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from pandas) (2.8.2)
Requirement already satisfied: pytz>=2020.1 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from pandas) (2022.1)
Requirement already satisfied: numpy>=1.18.5 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from pandas) (1.21.5)
Requirement already satisfied: six>=1.5 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from python-dateutil>=2.8.1->pandas) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

In [2]: `pip install numpy`

```
Requirement already satisfied: numpy in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (1.21.5)
Note: you may need to restart the kernel to use updated packages.
```

In [3]: `pip install matplotlib`

```
Requirement already satisfied: matplotlib in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (3.5.2)
Requirement already satisfied: packaging>=20.0 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (21.3)
Requirement already satisfied: pyparsing>=2.2.1 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (3.0.9)
Requirement already satisfied: kiwisolver>=1.0.1 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (1.4.2)
Requirement already satisfied: pillow>=6.2.0 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (9.2.0)
Requirement already satisfied: numpy>=1.17 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (1.21.5)
Requirement already satisfied: cyclor>=0.10 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (0.11.0)
Requirement already satisfied: fonttools>=4.22.0 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (4.25.0)
Requirement already satisfied: python-dateutil>=2.7 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from matplotlib) (2.8.2)
Requirement already satisfied: six>=1.5 in /Users/egekeser/opt/anaconda3/lib/python3.9/site-packages (from python-dateutil>=2.7->matplotlib) (1.16.0)
Note: you may need to restart the kernel to use updated packages.
```

In [4]: `import pandas as pd`

In [5]: `import numpy as np`

```
In [6]: import matplotlib.pyplot as plt
```

## Reading the documents

```
In [36]: covidDataSet = pd.read_csv("/Users/egekeser/Documents/Ege/Kodlama Projeleri/  
enrichmentDataSet = pd.read_csv("/Users/egekeser/Documents/Ege/Kodlama Proje
```

## Creating the dataframes

```
In [8]: dfCovidDataSet = pd.DataFrame(covidDataSet)
```

```
In [9]: dfEnrichmentDataSet = pd.DataFrame(enrichmentDataSet)
```

```
In [10]: dfCovidDataSet.head(15)
```

Out [10]:

	Unnamed: 0	Cases	countyFIPS	County Name	State	StateFIPS	Date	Deaths
0	0	0	0	Statewide Unallocated	AL	1	2020-01-22	0
1	1	0	1001	Autauga County	AL	1	2020-01-22	0
2	2	0	1003	Baldwin County	AL	1	2020-01-22	0
3	3	0	1005	Barbour County	AL	1	2020-01-22	0
4	4	0	1007	Bibb County	AL	1	2020-01-22	0
5	5	0	1009	Blount County	AL	1	2020-01-22	0
6	6	0	1011	Bullock County	AL	1	2020-01-22	0
7	7	0	1013	Butler County	AL	1	2020-01-22	0
8	8	0	1015	Calhoun County	AL	1	2020-01-22	0
9	9	0	1017	Chambers County	AL	1	2020-01-22	0
10	10	0	1019	Cherokee County	AL	1	2020-01-22	0
11	11	0	1021	Chilton County	AL	1	2020-01-22	0
12	12	0	1023	Choctaw County	AL	1	2020-01-22	0
13	13	0	1025	Clarke County	AL	1	2020-01-22	0
14	14	0	1027	Clay County	AL	1	2020-01-22	0

In [11]: dfCovidDataSet.dtypes

```
Out[11]: Unnamed: 0      int64
Cases      int64
countyFIPS  int64
County Name object
State      object
StateFIPS  int64
Date       object
Deaths     int64
dtype: object
```

```
In [16]: dfEnrichmentDataSet.head(15)
```

```
Out[16]:
```

	state	county	candidate	party	total_votes	won
0	Delaware	Kent County	Joe Biden	DEM	44552	True
1	Delaware	Kent County	Donald Trump	REP	41009	False
2	Delaware	Kent County	Jo Jorgensen	LIB	1044	False
3	Delaware	Kent County	Howie Hawkins	GRN	420	False
4	Delaware	New Castle County	Joe Biden	DEM	195034	True
5	Delaware	New Castle County	Donald Trump	REP	88364	False
6	Delaware	New Castle County	Jo Jorgensen	LIB	2953	False
7	Delaware	New Castle County	Howie Hawkins	GRN	1282	False
8	Delaware	Sussex County	Donald Trump	REP	71230	True
9	Delaware	Sussex County	Joe Biden	DEM	56682	False
10	Delaware	Sussex County	Jo Jorgensen	LIB	1003	False
11	Delaware	Sussex County	Howie Hawkins	GRN	437	False
12	District of Columbia	District of Columbia	Joe Biden	DEM	39041	True
13	District of Columbia	District of Columbia	Donald Trump	REP	1725	False
14	District of Columbia	District of Columbia	Write-ins	WRI	298	False

```
In [18]: dfEnrichmentDataSet.dtypes
```

```
Out[18]: state      object
county    object
candidate  object
party     object
total_votes  int64
won        bool
dtype: object
```

```
In [23]: # I filtered the main dataset to North Carolina since we will be working with
dfCovidDataSet = dfCovidDataSet[dfCovidDataSet['State'] == 'NC']
```

```
In [24]: dfCovidDataSet.head(15)
```

```
Out[24]:
```

	Unnamed: 0	Cases	countyFIPS	County Name	State	StateFIPS	Date	Deaths
1923	1923	0	0	Statewide Unallocated	NC	37	2020-01-22	0
1924	1924	0	37001	Alamance County	NC	37	2020-01-22	0
1925	1925	0	37003	Alexander County	NC	37	2020-01-22	0
1926	1926	0	37005	Alleghany County	NC	37	2020-01-22	0
1927	1927	0	37007	Anson County	NC	37	2020-01-22	0
1928	1928	0	37009	Ashe County	NC	37	2020-01-22	0
1929	1929	0	37011	Avery County	NC	37	2020-01-22	0
1930	1930	0	37013	Beaufort County	NC	37	2020-01-22	0
1931	1931	0	37015	Bertie County	NC	37	2020-01-22	0
1932	1932	0	37017	Bladen County	NC	37	2020-01-22	0
1933	1933	0	37019	Brunswick County	NC	37	2020-01-22	0
1934	1934	0	37021	Buncombe County	NC	37	2020-01-22	0
1935	1935	0	37023	Burke County	NC	37	2020-01-22	0
1936	1936	0	37025	Cabarrus County	NC	37	2020-01-22	0
1937	1937	0	37027	Caldwell County	NC	37	2020-01-22	0

```
In [23]: # I also filtered the presidential elections dataset to North Carolina since
dfEnrichmentDataSet = dfEnrichmentDataSet[dfEnrichmentDataSet['state'] == 'N
```

```
In [24]: dfEnrichmentDataSet.head(15)
```

```
Out[24]:
```

	State	CountyName	candidate	party	total_votes	won
15746	North Carolina	Alamance County	Donald Trump	REP	46056	True
15747	North Carolina	Alamance County	Joe Biden	DEM	38825	False
15748	North Carolina	Alamance County	Jo Jorgensen	LIB	686	False
15749	North Carolina	Alamance County	Howie Hawkins	GRN	223	False
15750	North Carolina	Alamance County	Don Blankenship	CST	151	False
15751	North Carolina	Alamance County	Write-ins	WRI	150	False
15752	North Carolina	Alexander County	Donald Trump	REP	15888	True
15753	North Carolina	Alexander County	Joe Biden	DEM	4145	False
15754	North Carolina	Alexander County	Jo Jorgensen	LIB	127	False
15755	North Carolina	Alexander County	Write-ins	WRI	34	False
15756	North Carolina	Alexander County	Don Blankenship	CST	24	False
15757	North Carolina	Alexander County	Howie Hawkins	GRN	18	False
15758	North Carolina	Alleghany County	Donald Trump	REP	4527	True
15759	North Carolina	Alleghany County	Joe Biden	DEM	1486	False
15760	North Carolina	Alleghany County	Jo Jorgensen	LIB	35	False

```
In [27]: # I narrowed down the date range to a week to see the COVID-19 cases trend a
# as the end of the week.

WeekStartDate = '2023-07-17'
WeekEndDate = '2023-07-23'

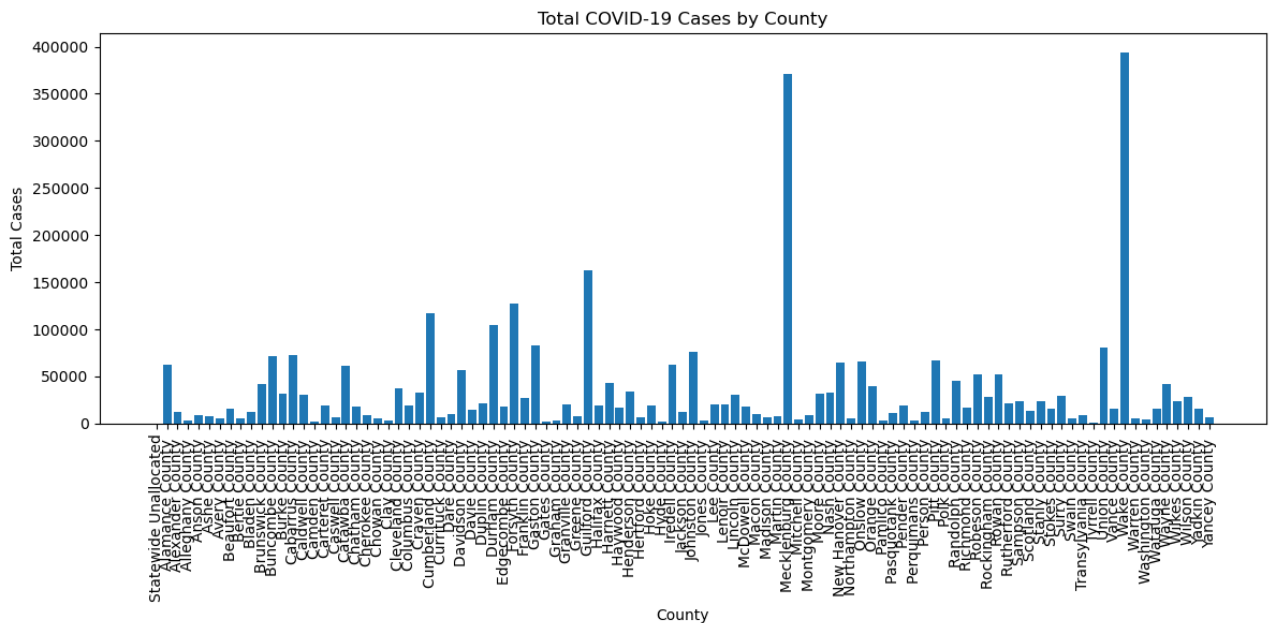
WeekData = dfCovidDataSet[(dfCovidDataSet['Date'] >= WeekStartDate) & (dfCov
WeekData.head(15)
```

Out [27]:

	Unnamed: 0	Cases	countyFIPS	County Name	State	StateFIPS	Date	Deaths
<b>4018717</b>	4018717	11	0	Statewide Unallocated	NC	37	2023- 07-17	0
<b>4018718</b>	4018718	62441	37001	Alamance County	NC	37	2023- 07-17	585
<b>4018719</b>	4018719	12844	37003	Alexander County	NC	37	2023- 07-17	161
<b>4018720</b>	4018720	3810	37005	Alleghany County	NC	37	2023- 07-17	23
<b>4018721</b>	4018721	8549	37007	Anson County	NC	37	2023- 07-17	114
<b>4018722</b>	4018722	7692	37009	Ashe County	NC	37	2023- 07-17	96
<b>4018723</b>	4018723	5608	37011	Avery County	NC	37	2023- 07-17	49
<b>4018724</b>	4018724	16239	37013	Beaufort County	NC	37	2023- 07-17	189
<b>4018725</b>	4018725	5515	37015	Bertie County	NC	37	2023- 07-17	78
<b>4018726</b>	4018726	12161	37017	Bladen County	NC	37	2023- 07-17	150
<b>4018727</b>	4018727	41603	37019	Brunswick County	NC	37	2023- 07-17	389
<b>4018728</b>	4018728	71806	37021	Buncombe County	NC	37	2023- 07-17	727
<b>4018729</b>	4018729	32201	37023	Burke County	NC	37	2023- 07-17	371
<b>4018730</b>	4018730	72938	37025	Cabarrus County	NC	37	2023- 07-17	576
<b>4018731</b>	4018731	30720	37027	Caldwell County	NC	37	2023- 07-17	376

In [38]: *# I displayed all the counties' total COVID-19 cases.*

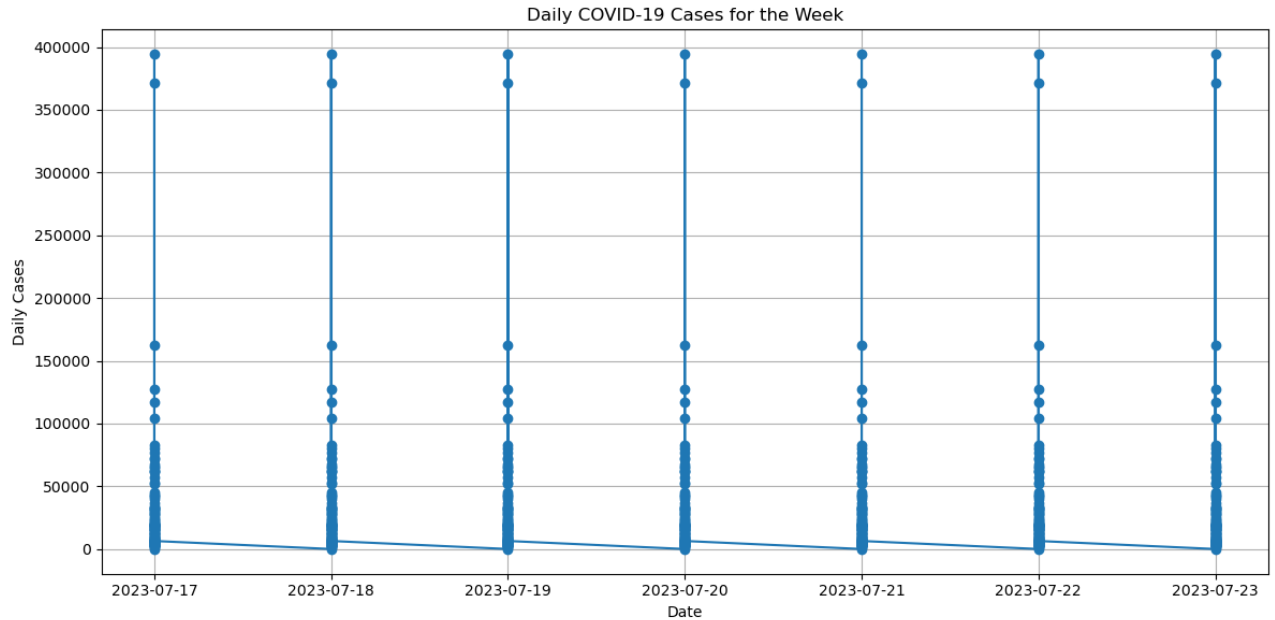
```
plt.figure(figsize=(12, 6))
plt.bar(WeekData["County Name"], WeekData["Cases"])
plt.xlabel("County")
plt.ylabel("Total Cases")
plt.title("Total COVID-19 Cases by County")
plt.xticks(rotation=90)
plt.tight_layout()
plt.show()
```



In [39]: *# I compared number of cases day by day for each county. According to my ana  
# cases are stable.*

```
plt.figure(figsize=(12, 6))
plt.plot(WeekData['Date'], WeekData['Cases'], marker='o', linestyle='-')
plt.xlabel('Date')
plt.ylabel('Daily Cases')
plt.title('Daily COVID-19 Cases for the Week')
plt.grid(True)
plt.tight_layout()
plt.show()
```





In [34]: *# Merging the two datasets.*

```
dfMerged = pd.concat([dfCovidDataSet, dfEnrichmentDataSet], axis = 1)
```

In [35]: dfMerged.head(50)

Out[35]:

	Unnamed: 0	Cases	countyFIPS	County Name	State	StateFIPS	Date	Deaths	state
<b>1923</b>	1923.0	0.0	0.0	Statewide Unallocated	NC	37.0	2020-01-22	0.0	Illinois
<b>1924</b>	1924.0	0.0	37001.0	Alamance County	NC	37.0	2020-01-22	0.0	Illinois
<b>1925</b>	1925.0	0.0	37003.0	Alexander County	NC	37.0	2020-01-22	0.0	Illinois
<b>1926</b>	1926.0	0.0	37005.0	Alleghany County	NC	37.0	2020-01-22	0.0	Illinois
<b>1927</b>	1927.0	0.0	37007.0	Anson County	NC	37.0	2020-01-22	0.0	Illinois
<b>1928</b>	1928.0	0.0	37009.0	Ashe County	NC	37.0	2020-01-22	0.0	Illinois
<b>1929</b>	1929.0	0.0	37011.0	Avery County	NC	37.0	2020-01-22	0.0	Illinois
<b>1930</b>	1930.0	0.0	37013.0	Beaufort County	NC	37.0	2020-01-22	0.0	Illinois
<b>1931</b>	1931.0	0.0	37015.0	Bertie County	NC	37.0	2020-01-22	0.0	Illinois

<b>1932</b>	1932.0	0.0	37017.0	Bladen County	NC	37.0	2020-01-22	0.0	Illinois
<b>1933</b>	1933.0	0.0	37019.0	Brunswick County	NC	37.0	2020-01-22	0.0	Illinois
<b>1934</b>	1934.0	0.0	37021.0	Buncombe County	NC	37.0	2020-01-22	0.0	Illinois
<b>1935</b>	1935.0	0.0	37023.0	Burke County	NC	37.0	2020-01-22	0.0	Illinois
<b>1936</b>	1936.0	0.0	37025.0	Cabarrus County	NC	37.0	2020-01-22	0.0	Illinois
<b>1937</b>	1937.0	0.0	37027.0	Caldwell County	NC	37.0	2020-01-22	0.0	Illinois
<b>1938</b>	1938.0	0.0	37029.0	Camden County	NC	37.0	2020-01-22	0.0	Illinois
<b>1939</b>	1939.0	0.0	37031.0	Carteret County	NC	37.0	2020-01-22	0.0	Illinois
<b>1940</b>	1940.0	0.0	37033.0	Caswell County	NC	37.0	2020-01-22	0.0	Illinois
<b>1941</b>	1941.0	0.0	37035.0	Catawba County	NC	37.0	2020-01-22	0.0	Illinois
<b>1942</b>	1942.0	0.0	37037.0	Chatham County	NC	37.0	2020-01-22	0.0	Illinois
<b>1943</b>	1943.0	0.0	37039.0	Cherokee County	NC	37.0	2020-01-22	0.0	Illinois
<b>1944</b>	1944.0	0.0	37041.0	Chowan County	NC	37.0	2020-01-22	0.0	Illinois
<b>1945</b>	1945.0	0.0	37043.0	Clay County	NC	37.0	2020-01-22	0.0	Illinois
<b>1946</b>	1946.0	0.0	37045.0	Cleveland County	NC	37.0	2020-01-22	0.0	Illinois
<b>1947</b>	1947.0	0.0	37047.0	Columbus County	NC	37.0	2020-01-22	0.0	Illinois
<b>1948</b>	1948.0	0.0	37049.0	Craven County	NC	37.0	2020-01-22	0.0	Illinois
<b>1949</b>	1949.0	0.0	37051.0	Cumberland County	NC	37.0	2020-01-22	0.0	Illinois
<b>1950</b>	1950.0	0.0	37053.0	Currituck County	NC	37.0	2020-01-22	0.0	Illinois
<b>1951</b>	1951.0	0.0	37055.0	Dare County	NC	37.0	2020-01-22	0.0	Illinois
<b>1952</b>	1952.0	0.0	37057.0	Davidson	NC	37.0	2020-	0.0	Illinois

				County		01-22			
<b>1953</b>	1953.0	0.0	37059.0	Davie County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1954</b>	1954.0	0.0	37061.0	Duplin County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1955</b>	1955.0	0.0	37063.0	Durham County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1956</b>	1956.0	0.0	37065.0	Edgecombe County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1957</b>	1957.0	0.0	37067.0	Forsyth County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1958</b>	1958.0	0.0	37069.0	Franklin County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1959</b>	1959.0	0.0	37071.0	Gaston County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1960</b>	1960.0	0.0	37073.0	Gates County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1961</b>	1961.0	0.0	37075.0	Graham County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1962</b>	1962.0	0.0	37077.0	Granville County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1963</b>	1963.0	0.0	37079.0	Greene County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1964</b>	1964.0	0.0	37081.0	Guilford County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1965</b>	1965.0	0.0	37083.0	Halifax County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1966</b>	1966.0	0.0	37085.0	Harnett County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1967</b>	1967.0	0.0	37087.0	Haywood County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1968</b>	1968.0	0.0	37089.0	Henderson County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1969</b>	1969.0	0.0	37091.0	Hertford County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1970</b>	1970.0	0.0	37093.0	Hoke County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1971</b>	1971.0	0.0	37095.0	Hyde County	NC	37.0	2020- 01-22	0.0	Illinois
<b>1972</b>	1972.0	0.0	37097.0	Iredell County	NC	37.0	2020- 01-22	0.0	Illinois

