In [1]:

```
# Installing the Geopandas
!pip install geopandas
```

```
Requirement already satisfied: geopandas in ./opt/anaconda3/lib/python3.8/site
-packages (0.10.2)
Requirement already satisfied: fiona>=1.8 in ./opt/anaconda3/lib/python3.8/sit
e-packages (from geopandas) (1.8.20)
Requirement already satisfied: shapely>=1.6 in ./opt/anaconda3/lib/python3.8/s
ite-packages (from geopandas) (1.8.0)
Requirement already satisfied: pandas>=0.25.0 in ./opt/anaconda3/lib/python3.
8/site-packages (from geopandas) (1.2.4)
Requirement already satisfied: pyproj>=2.2.0 in ./opt/anaconda3/lib/python3.8/
site-packages (from geopandas) (3.3.0)
Requirement already satisfied: attrs>=17 in ./opt/anaconda3/lib/python3.8/site
-packages (from fiona>=1.8->geopandas) (20.3.0)
Requirement already satisfied: six>=1.7 in ./opt/anaconda3/lib/python3.8/site-
packages (from fiona>=1.8->geopandas) (1.15.0)
Requirement already satisfied: cligj>=0.5 in ./opt/anaconda3/lib/python3.8/sit
e-packages (from fiona>=1.8->geopandas) (0.7.2)
Requirement already satisfied: setuptools in ./opt/anaconda3/lib/python3.8/sit
e-packages (from fiona>=1.8->geopandas) (52.0.0.post20210125)
Requirement already satisfied: click>=4.0 in ./opt/anaconda3/lib/python3.8/sit
e-packages (from fiona>=1.8->geopandas) (7.1.2)
Requirement already satisfied: click-plugins>=1.0 in ./opt/anaconda3/lib/pytho
n3.8/site-packages (from fiona>=1.8->geopandas) (1.1.1)
Requirement already satisfied: munch in ./opt/anaconda3/lib/python3.8/site-pac
kages (from fiona>=1.8->geopandas) (2.5.0)
Requirement already satisfied: certifi in ./opt/anaconda3/lib/python3.8/site-p
ackages (from fiona>=1.8->geopandas) (2020.12.5)
Requirement already satisfied: python-dateutil>=2.7.3 in ./opt/anaconda3/lib/p
ython3.8/site-packages (from pandas>=0.25.0->geopandas) (2.8.1)
Requirement already satisfied: pytz>=2017.3 in ./opt/anaconda3/lib/python3.8/s
ite-packages (from pandas>=0.25.0->geopandas) (2021.1)
Requirement already satisfied: numpy>=1.16.5 in ./opt/anaconda3/lib/python3.8/
site-packages (from pandas>=0.25.0->geopandas) (1.20.1)
```

In [2]:

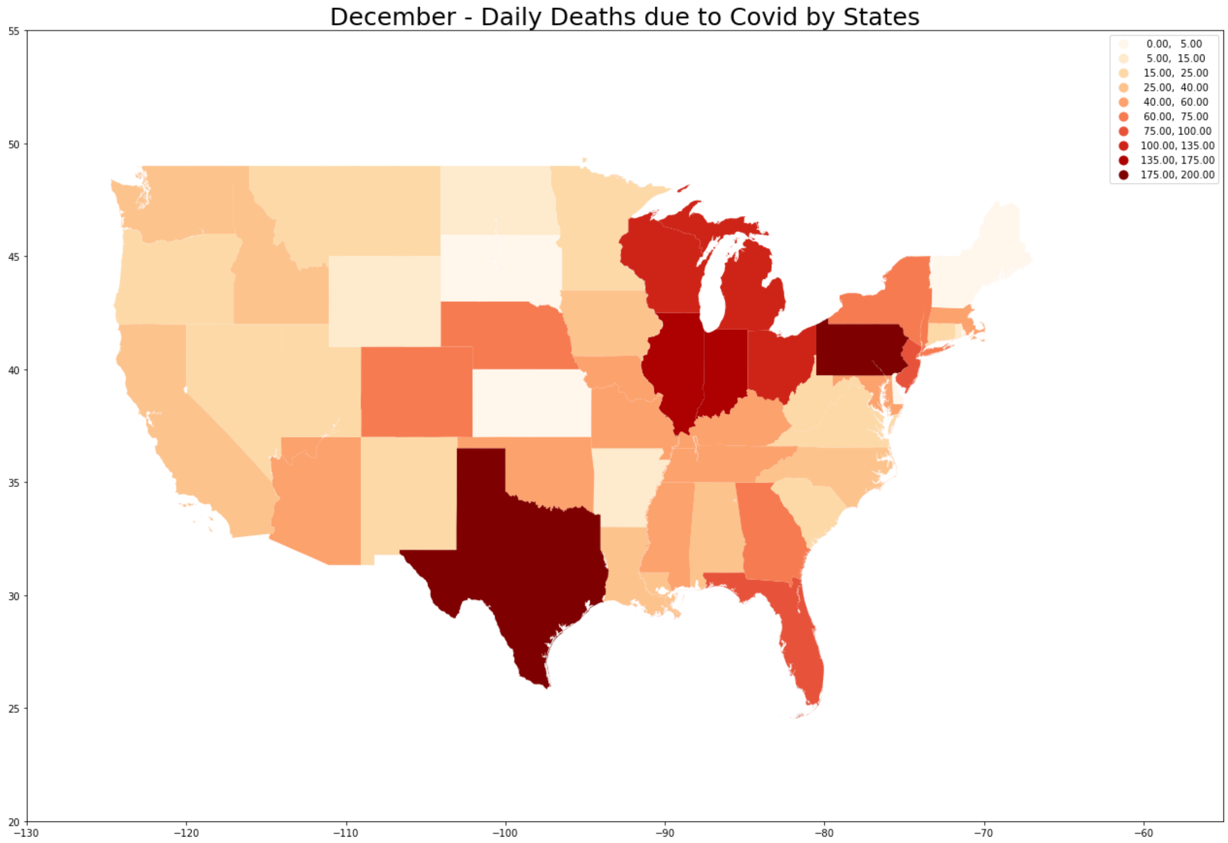
```
# Installing the Map Classify
! pip install mapclassify
```

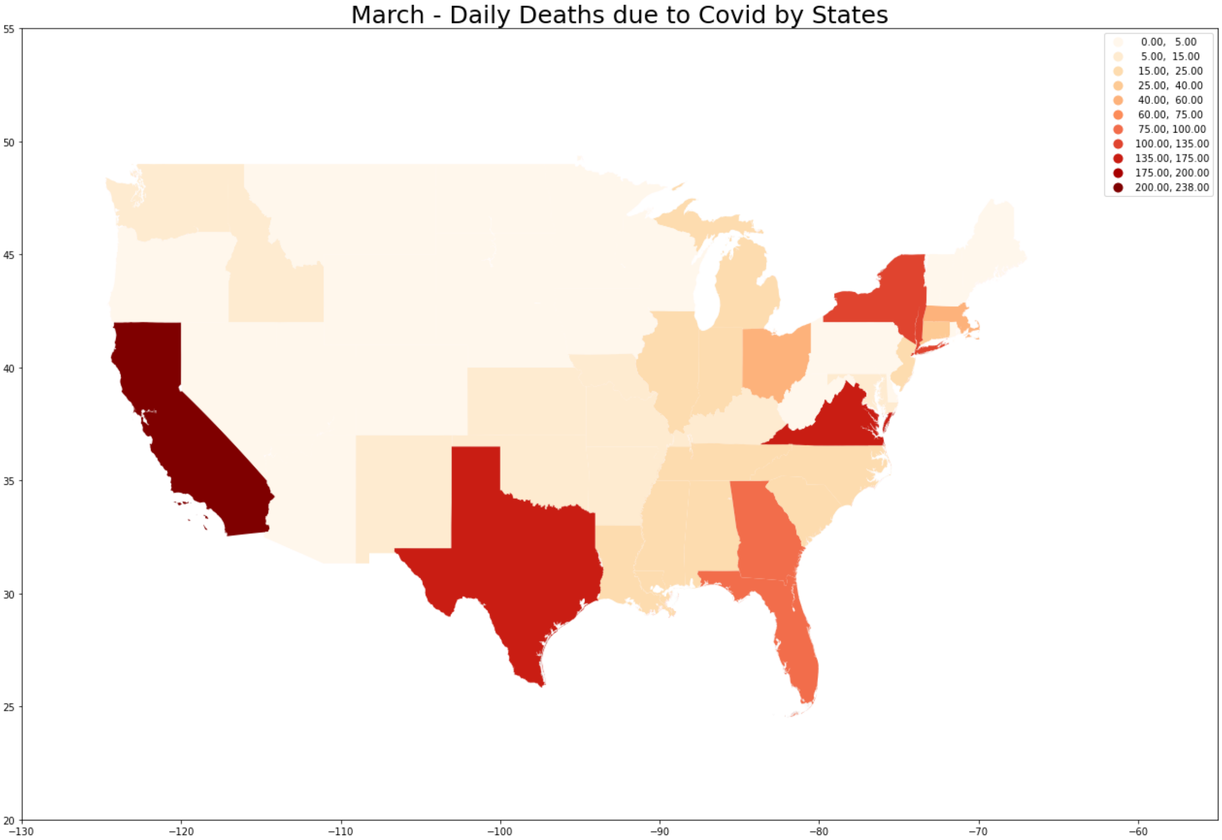
```
Requirement already satisfied: mapclassify in ./opt/anaconda3/lib/python3.8/si
te-packages (2.4.3)
Requirement already satisfied: pandas>=1.0 in ./opt/anaconda3/lib/python3.8/si
te-packages (from mapclassify) (1.2.4)
Requirement already satisfied: numpy>=1.3 in ./opt/anaconda3/lib/python3.8/sit
e-packages (from mapclassify) (1.20.1)
Requirement already satisfied: scipy>=1.0 in ./opt/anaconda3/lib/python3.8/sit
e-packages (from mapclassify) (1.6.2)
Requirement already satisfied: networkx in ./opt/anaconda3/lib/python3.8/site-
packages (from mapclassify) (2.5)
Requirement already satisfied: scikit-learn in ./opt/anaconda3/lib/python3.8/s
ite-packages (from mapclassify) (0.24.1)
Requirement already satisfied: python-dateutil>=2.7.3 in ./opt/anaconda3/lib/p
ython3.8/site-packages (from pandas>=1.0->mapclassify) (2.8.1)
Requirement already satisfied: pytz>=2017.3 in ./opt/anaconda3/lib/python3.8/s
ite-packages (from pandas>=1.0->mapclassify) (2021.1)
Requirement already satisfied: six>=1.5 in ./opt/anaconda3/lib/python3.8/site-
packages (from python-dateutil>=2.7.3->pandas>=1.0->mapclassify) (1.15.0)
Requirement already satisfied: decorator>=4.3.0 in ./opt/anaconda3/lib/python
3.8/site-packages (from networkx->mapclassify) (5.0.6)
Requirement already satisfied: threadpoolctl>=2.0.0 in ./opt/anaconda3/lib/pyt
hon3.8/site-packages (from scikit-learn->mapclassify) (2.1.0)
Requirement already satisfied: joblib>=0.11 in ./opt/anaconda3/lib/python3.8/s
ite-packages (from scikit-learn->mapclassify) (1.0.1)
```

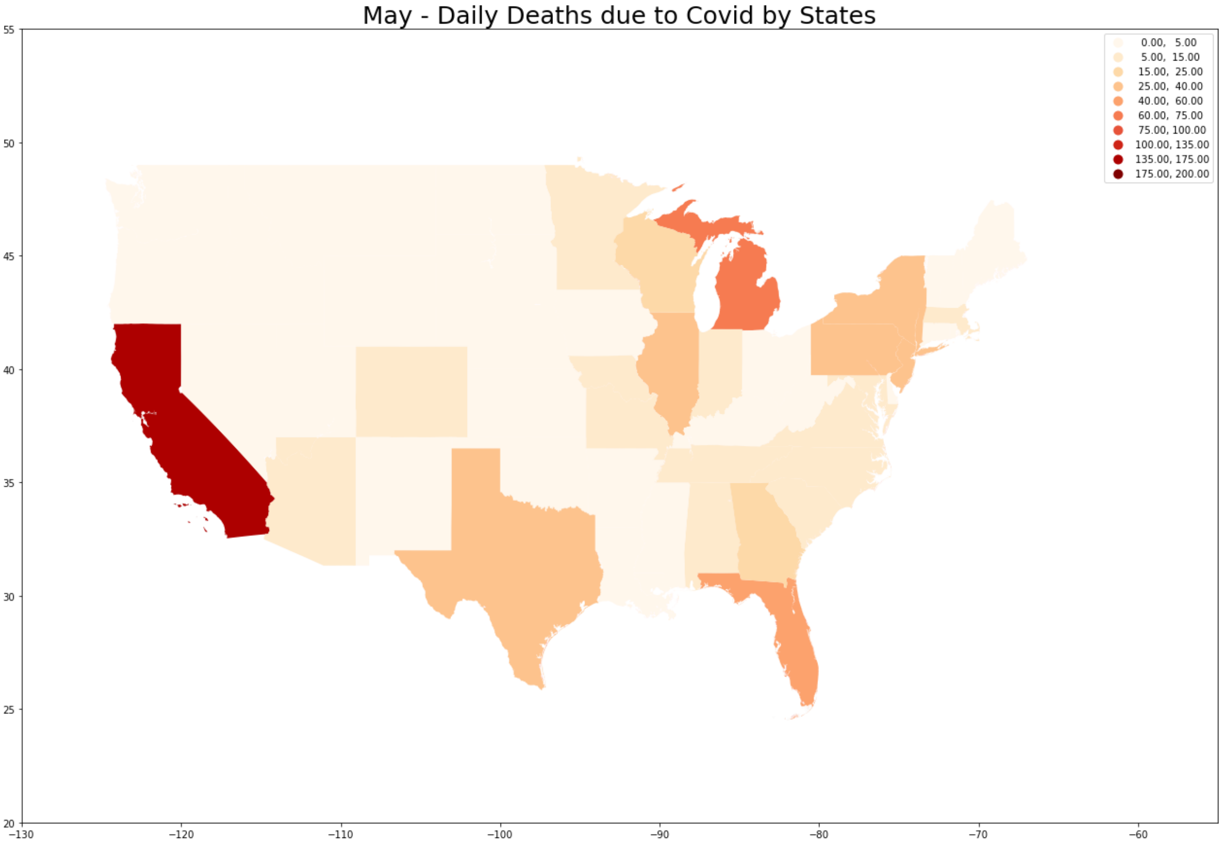
In [6]:

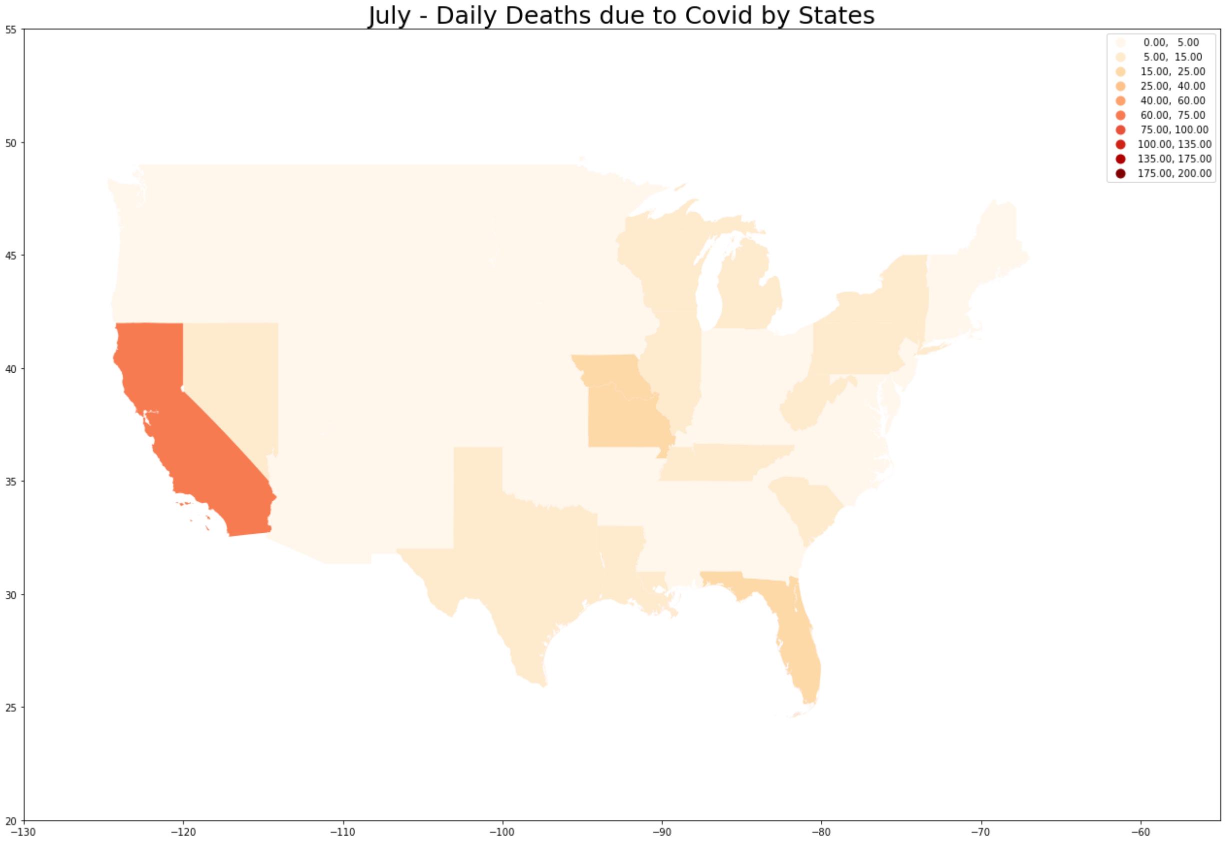
```
# Visualizing Death Data
```

```
import geopandas
import pandas as pd
import matplotlib.pyplot as plt
import mapclassify as mc

#Importing the Shape file of the USA
geo_usa = geopandas.read_file('/Users/rajanpc/Desktop/Project1/STATE_MAP')

#Fitting the Data on the Map of the USA
for i in ['December.csv','March.csv','May.csv','July.csv','Oct.csv','December.
    df= pd.read_csv('/Users/rajanpc/Desktop/Project1/STATE_MAP/Death_Data/{}'
    gdf = pd.concat([geo_usa, df], axis=1)
    gdf.plot(column='Death', scheme='user_defined', classification_kwds={'bins
    plt.xlim(-130,-55)
    plt.ylim(20,55)
    plt.title('{} - Daily Deaths due to Covid by States'.format(i[:-4]),fonts.
    plt.show()
```

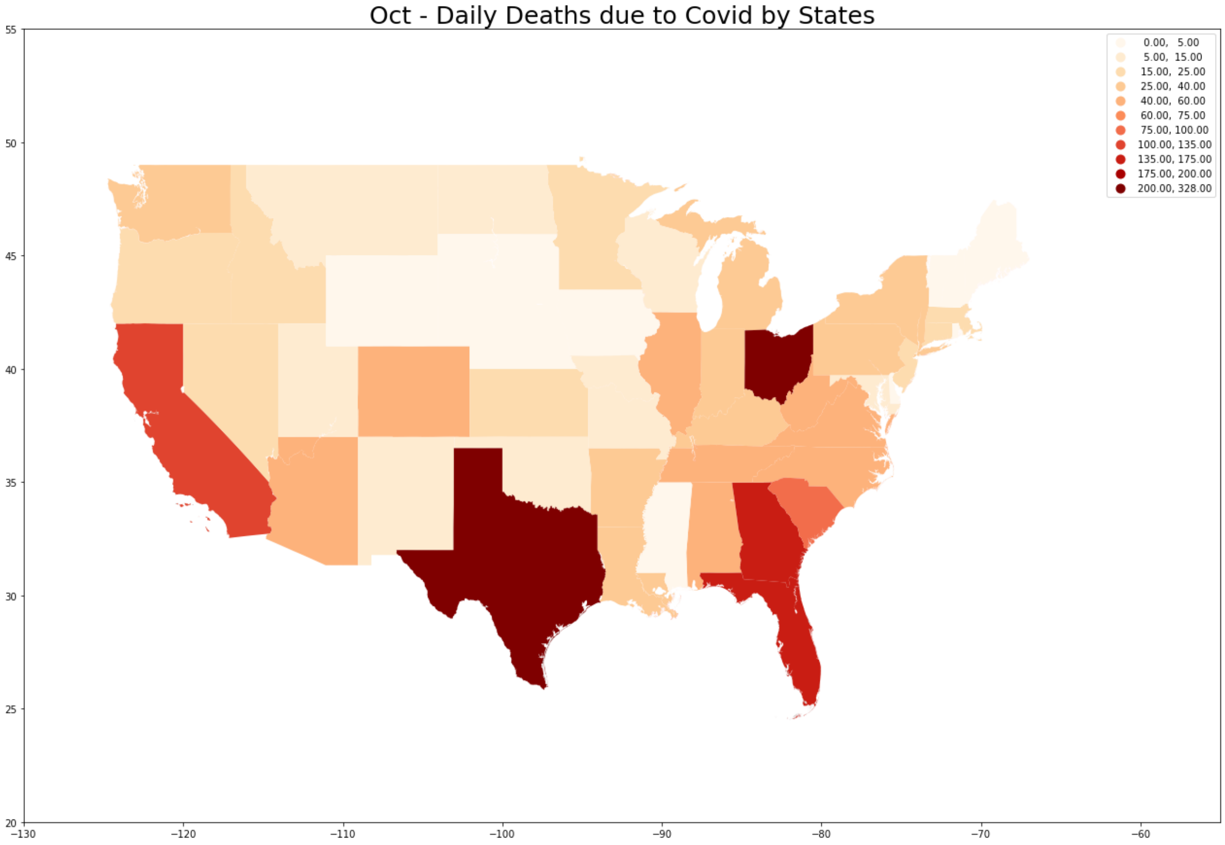



March - Daily Deaths due to Covid by States
0.00, 5.00
5.00, 15.00
15.00, 25.00
25.00, 40.00
40.00, 60.00
60.00, 75.00
75.00, 100.00
100.00, 135.00
135.00, 175.00
175.00, 200.00
200.00, 238.00
55
50
45
40
35
30
25
20
−130
−120
−110
−100
−90
−80
−70
−60

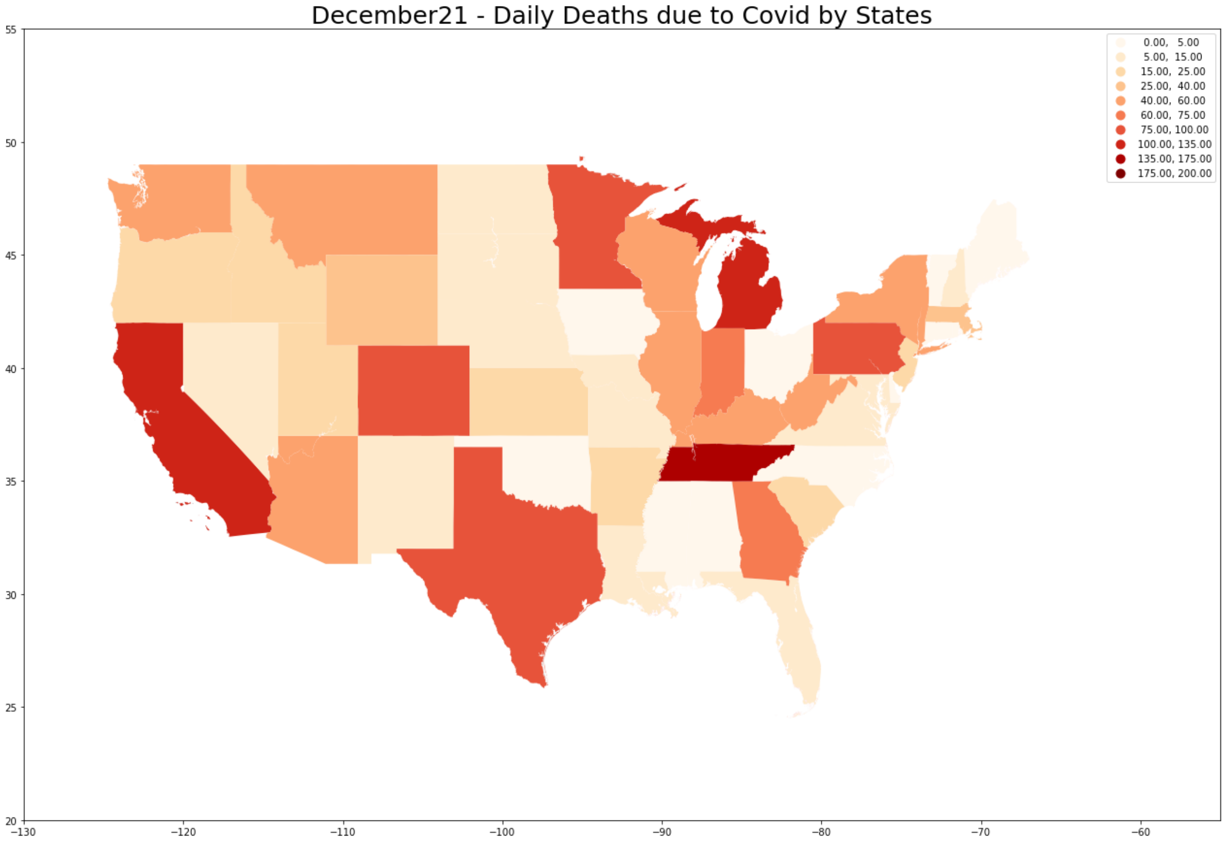

May - Daily Deaths due to Covid by States
0.00, 5.00
5.00, 15.00
15.00, 25.00
25.00, 40.00
40.00, 60.00
60.00, 75.00
75.00, 100.00
100.00, 135.00
135.00, 175.00
175.00, 200.00
55
50
45
40
35
30
25
20
−130
−120
−110
−100
−90
−80
−70
−60



July - Daily Deaths due to Covid by States



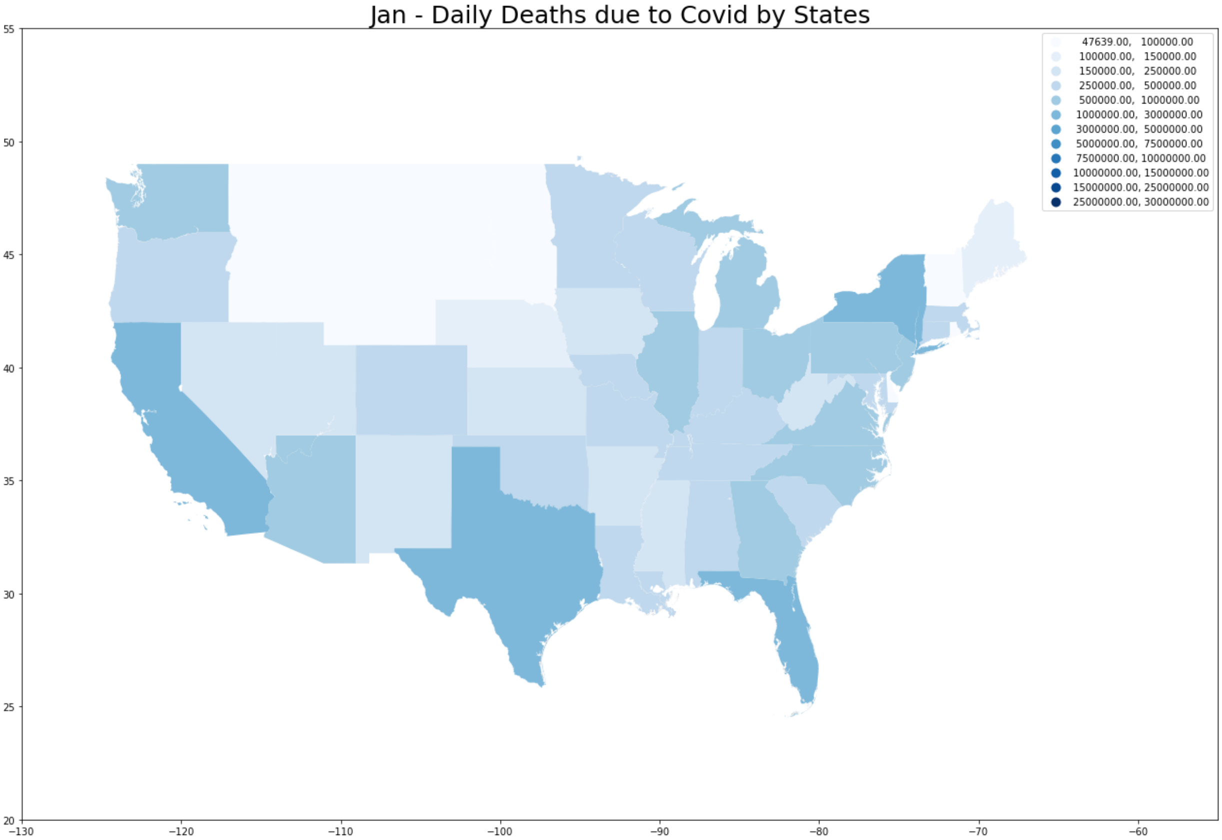
Oct - Daily Deaths due to Covid by States



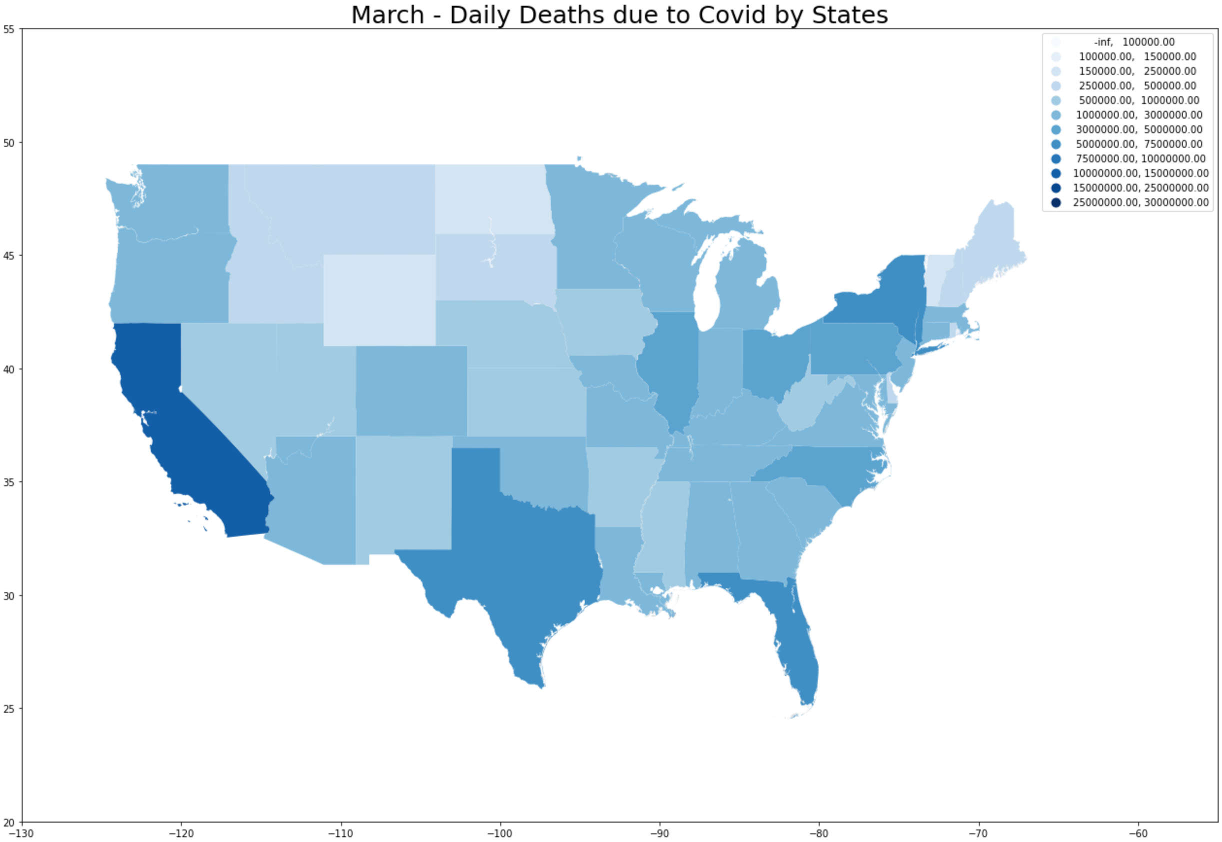
December21 - Daily Deaths due to Covid by States

In [13]:

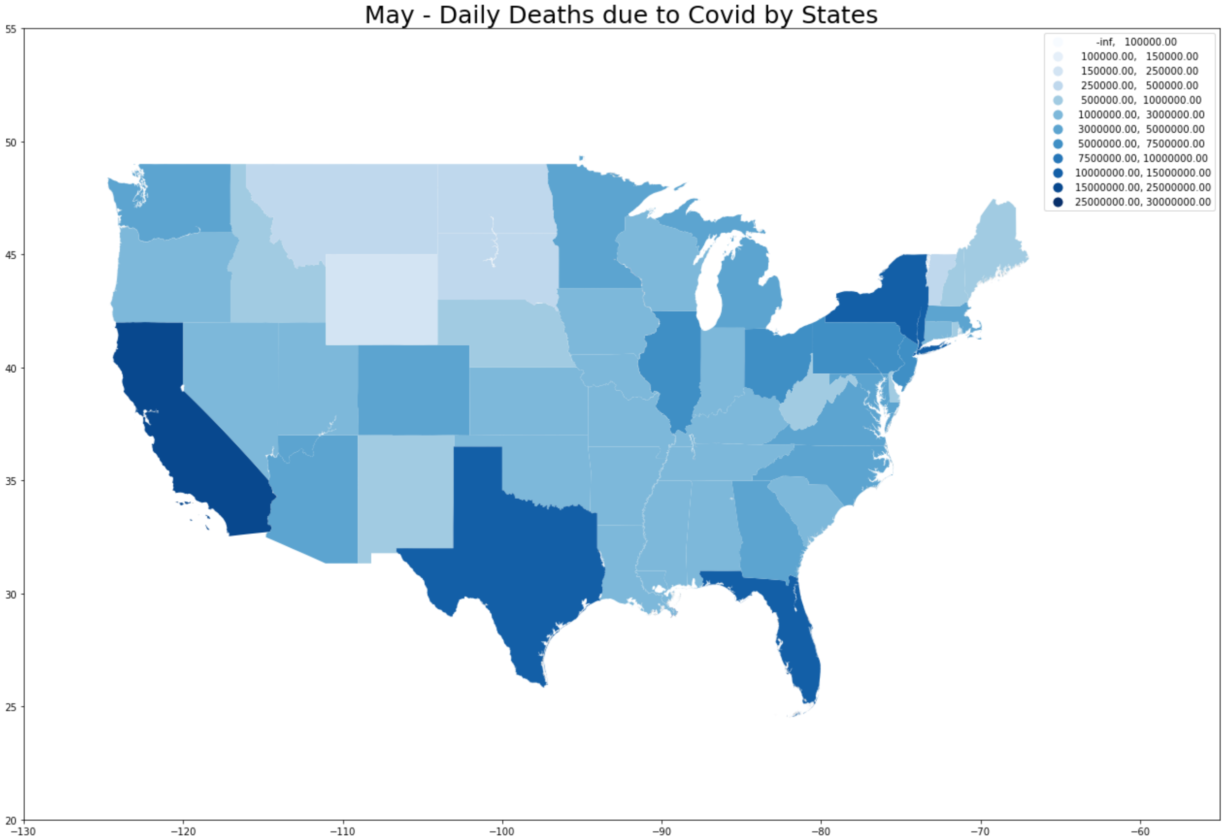
```
# Visualizing Death Data

import geopandas
import pandas as pd
import matplotlib.pyplot as plt
import mapclassify as mc

#Importing the Shape file of the USA
geo_usa = geopandas.read_file('/Users/rajanpc/Desktop/Project1/STATE_MAP')

#Fitting the Data on the Map of the USA
for i in ['Jan.csv','March.csv','May.csv','July.csv','Sept.csv','December.csv
    df= pd.read_csv('/Users/rajanpc/Desktop/Project1/STATE_MAP/Vaccination_Da
    gdf = pd.concat([geo_usa, df], axis=1)
    gdf.plot(column='Vaccination', scheme='user_defined', classification_kwds
    plt.xlim(-130,-55)
    plt.ylim(20,55)
    plt.title('{} - Daily Deaths due to Covid by States'.format(i[:-4]),fonts
    plt.show()
```



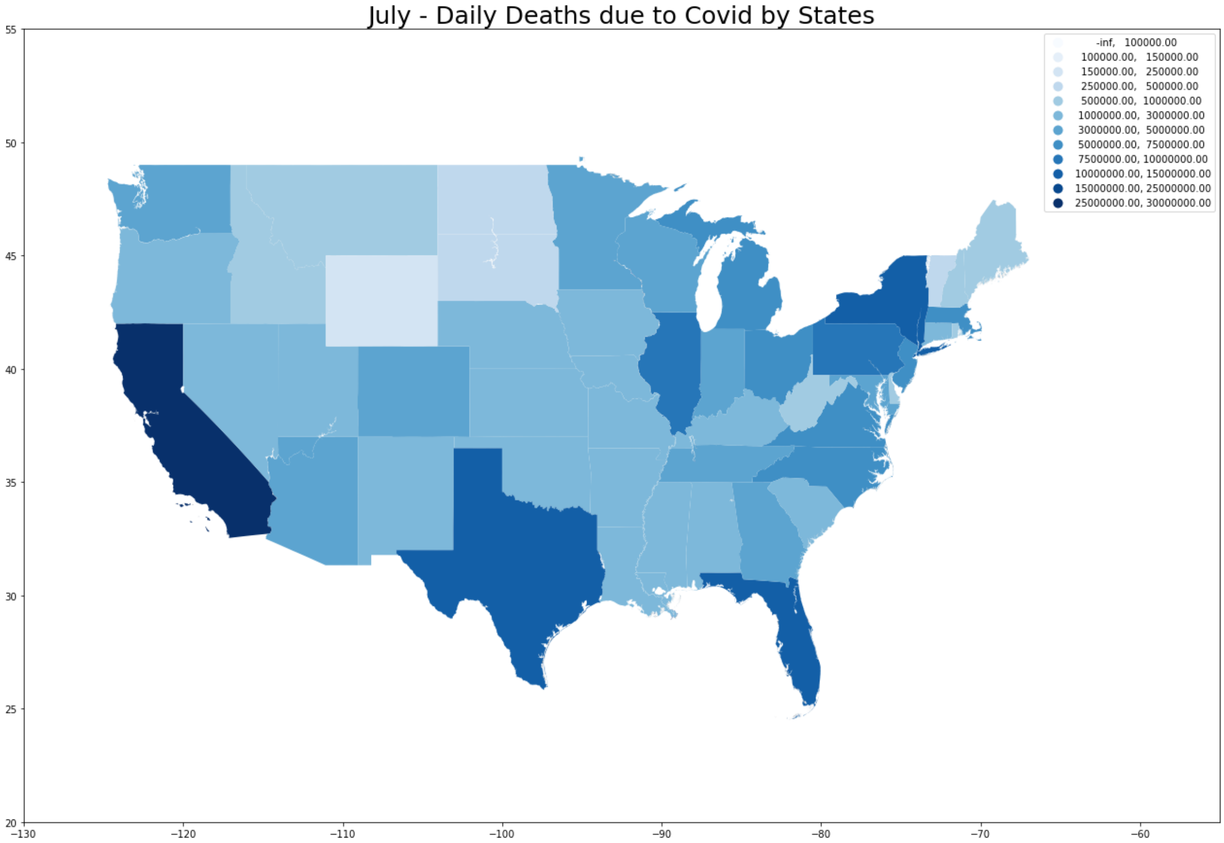
Jan - Daily Deaths due to Covid by States



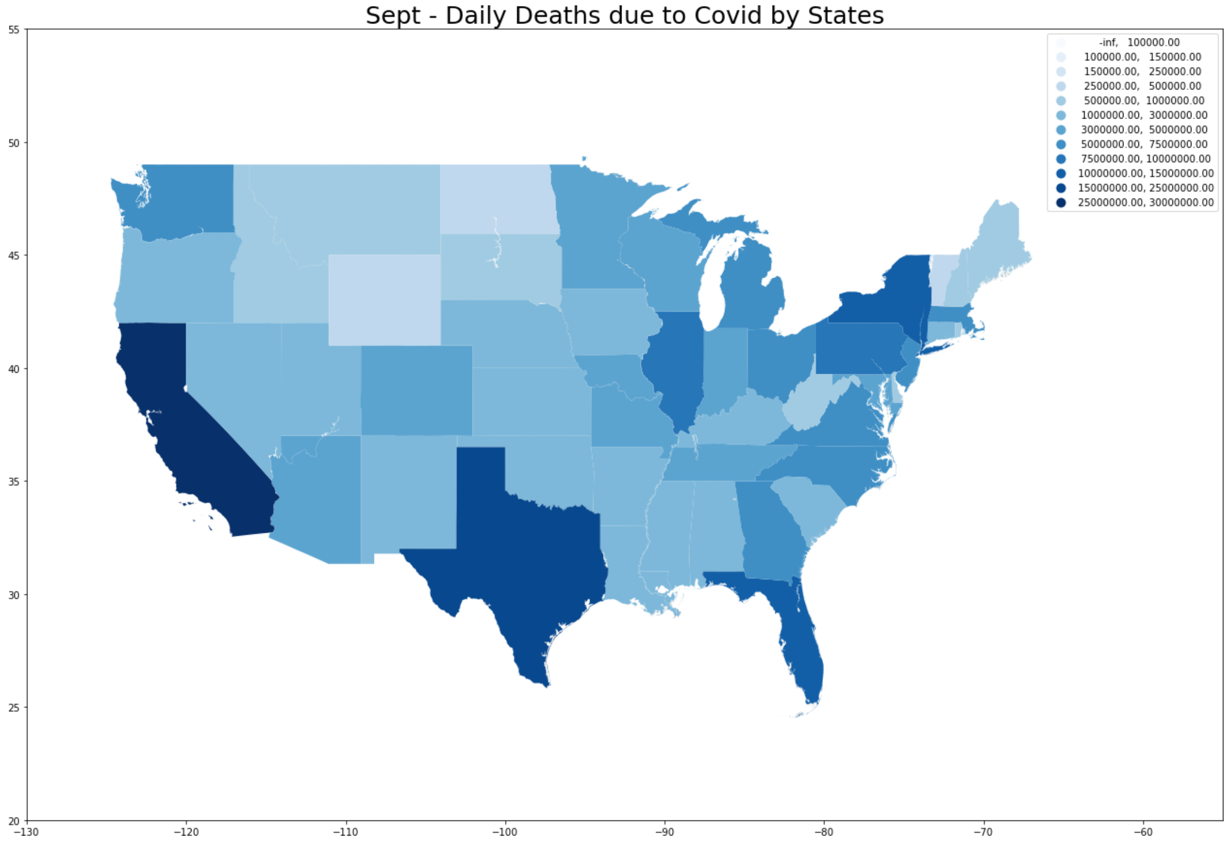
March - Daily Deaths due to Covid by States

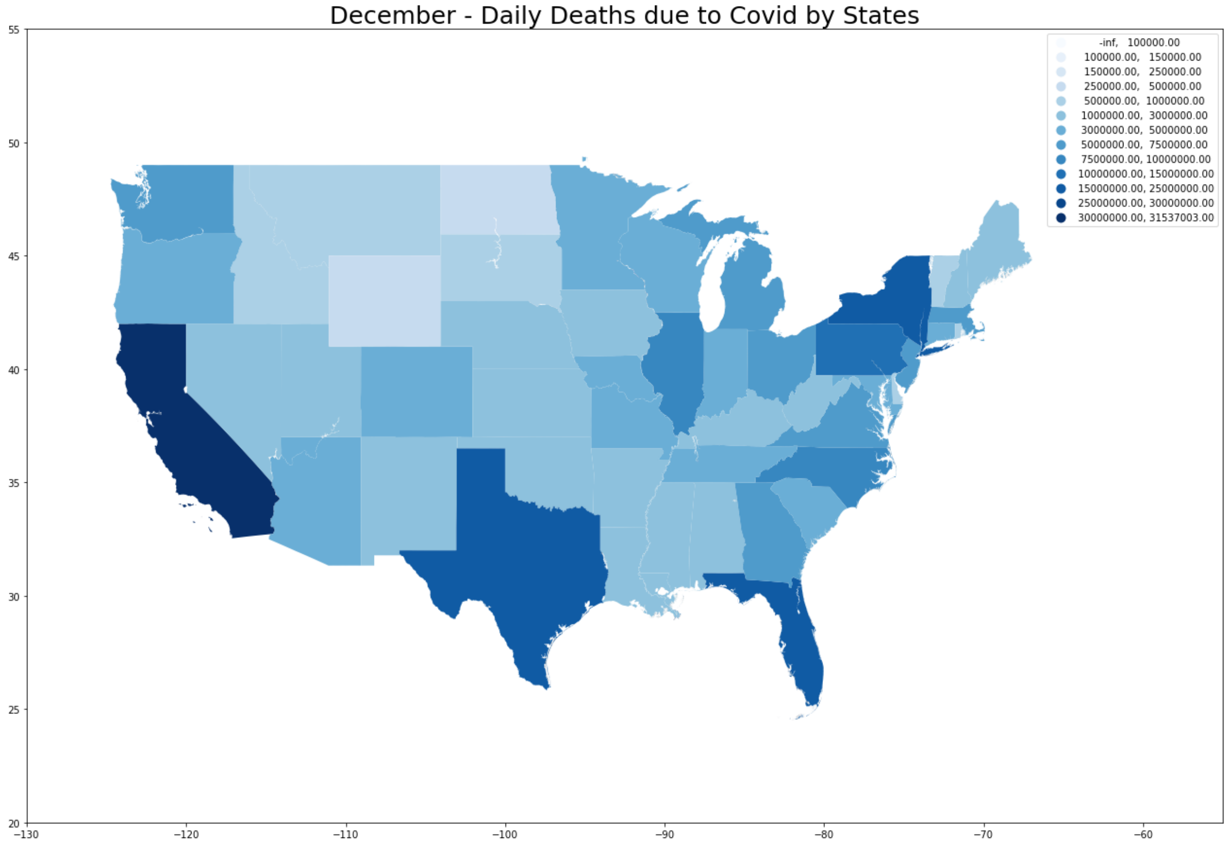


May - Daily Deaths due to Covid by States



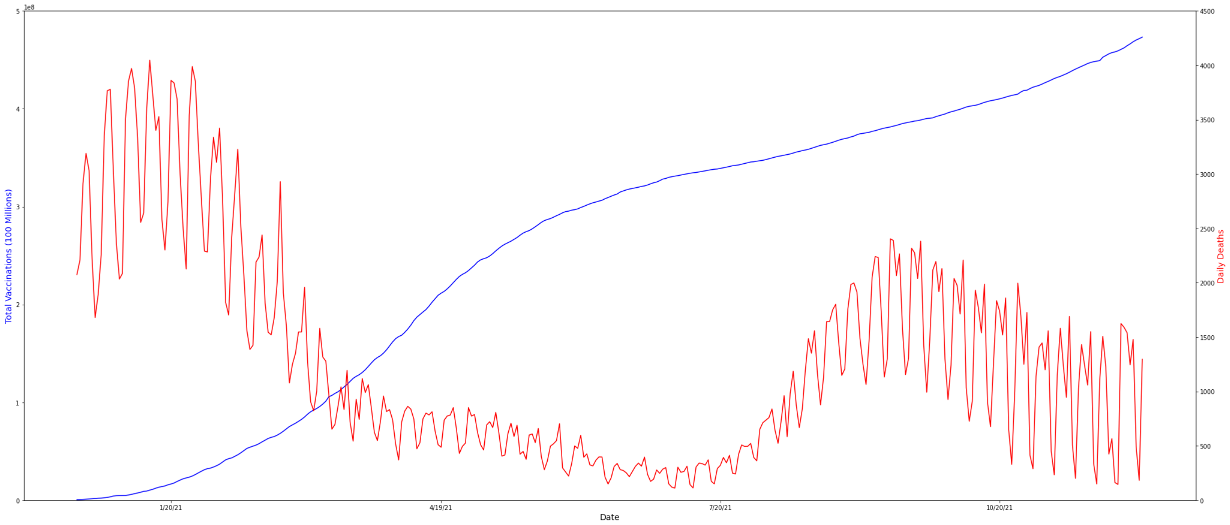
July - Daily Deaths due to Covid by States





In [14]:

```
import pandas as pd
import matplotlib.pyplot as plt
import matplotlib.dates as mdates

df_death=pd.read_csv("/Users/rajanpc/Desktop/Project1/Daily_Deaths.csv")
df_death

fig,ax = plt.subplots(figsize=(35, 15))
ax.plot(df_death.Date, df_death.Vaccination, color="blue")
ax.set_xlabel("Date",fontsize=14)
ax.set_ylabel("Total Vaccinations (100 Millions)",color="blue",fontsize=14)
ax.set_ylim(0,500000000)
#ax.set_xlim(0,10)

ax2=ax.twinx()
ax2.xaxis.set_major_locator(mdates.MonthLocator(interval=3))
#ax2.set_xlim(0,10)
ax2.plot(df_death.Date, df_death.Deaths ,color="red")
ax2.set_ylabel("Daily Deaths",color="red",fontsize=14)
ax2.set_ylim(0,4500)

plt.show()
```


1e8
Total Vaccinations (100 Millions)
Daily Deaths
1/20/21
4/19/21
7/20/21
10/20/21
Date