In [8]:

```
import pandas as pd
import numpy as np
import matplotlib.pyplot as mp
pd.options.mode.chained_assignment = None  # default='warn'
```

In [9]:

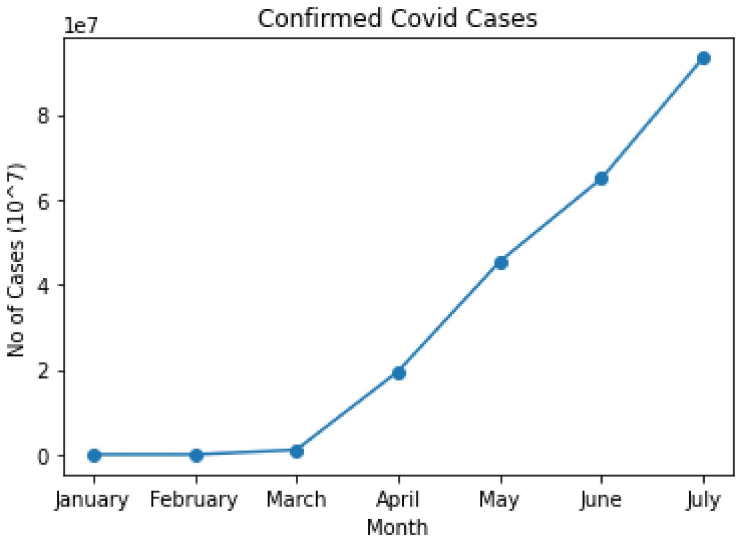
```
df=pd.read_csv("usa_county_wise.csv")
pd.set_option('display.max_rows',190)
df1=df.drop(["Province_State","UID","iso2","iso3","code3","FIPS","Admin2","Lat","Long_","Co
df2=df1.copy()
df2["Date"] = pd.to_datetime(df2["Date"])
df2['month']=df2['Date'].dt.month.astype("str")
df3=df2.groupby("month").sum()
df3["DeathPercentage"]=(df3.Deaths.astype("int")/df3.Confirmed.astype("int"))*100
df3
```

Out[9]:

month	Confirmed	Deaths	DeathPercentage
1	38	0	0.000000
2	378	1	0.264550
3	1091068	26160	2.397651
4	19552582	1035013	5.293485
5	45407574	2728676	6.009297
6	64933835	3518537	5.418650
7	93360473	3703024	3.966372

In [10]:

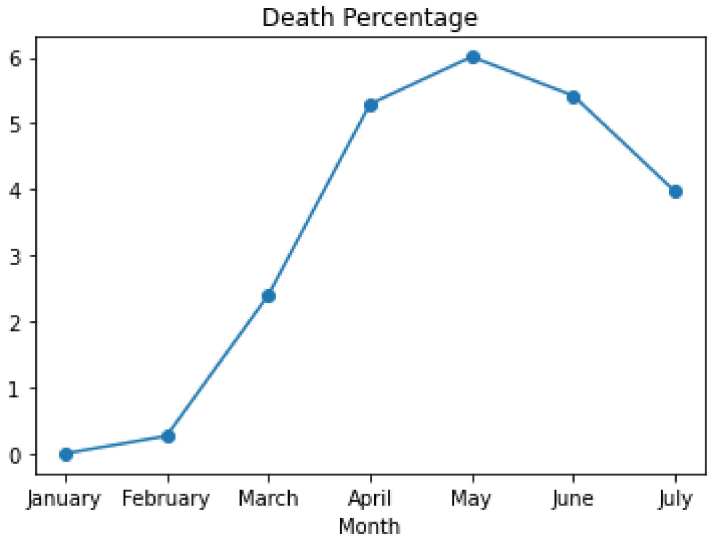
```
m=["January","February","March","April","May","June","July"]
y=df3.Confirmed
mp.plot(m,y)
mp.scatter(m,y)
mp.xlabel('Month')
mp.ylabel('No of Cases (10^7)')
mp.title('Confirmed Covid Cases')
mp.show()
```



Here, we can see that the Number of Covid cases rose exponentially after March 2020. This corresponds to first wave of Covid-19 in USA.

In [11]:

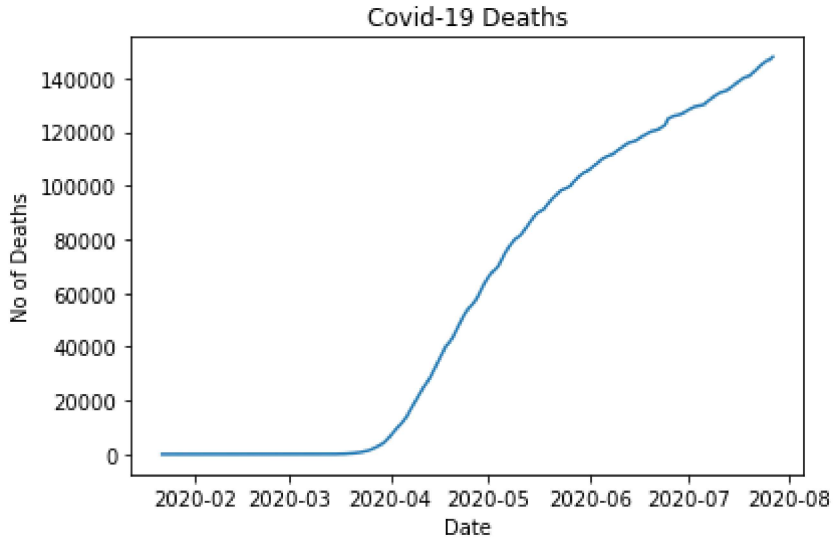
```
m=["January","February","March","April","May","June","July"]
y=df3.DeathPercentage
mp.scatter(m,y)
mp.plot(m,y)
mp.xlabel('Month')
mp.title('Death Percentage')
mp.show()
# Deaths Vs Confirmed Cases Percentage Graph
```



Covid cases continued to increase after the first wave. Initially the Recovery rate was low which resulted in a higher Death percentage. This was seen as hospitals across the USA suffered an initial shock due to the sudden exponential increase in cases and lack of data about the virus. But with time the situation improved and the recovery rate increased both due to improved facilities in hospitals, production of more medicines, restriction on international flights and lockdowns in some of the states. This can be seen in the graph as the Death percentage took a fall in the later months.

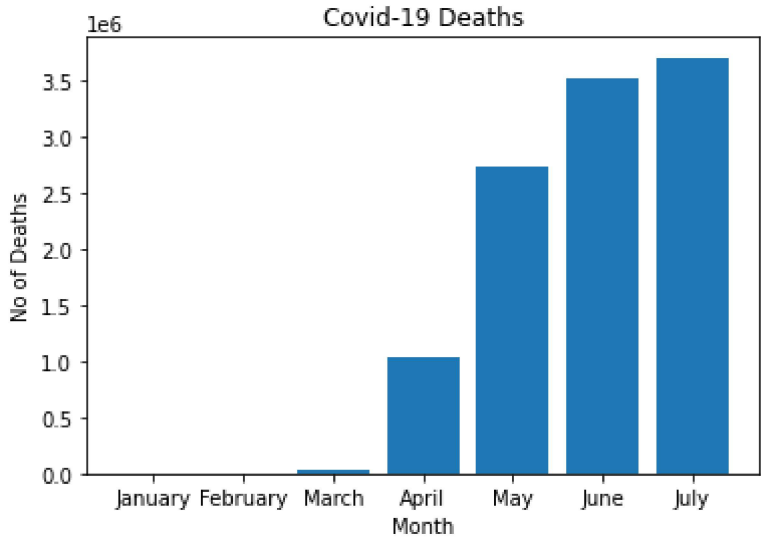
In [12]:

```
x=df2.Date.unique()
y=df2.groupby("Date").sum().Deaths
mp.plot(x,y)
mp.xlabel('Date')
mp.title('Covid-19 Deaths')
mp.ylabel('No of Deaths')
mp.show()
```



In [13]:

```
m=["January","February","March","April","May","June","July"]
y=df3.Deaths
mp.xlabel('Month')
mp.title('Covid-19 Deaths')
mp.ylabel('No of Deaths')
mp.bar(m,y)
mp.show()
```



The number of deaths across USA increased exponentially as the pandemic spread and the situation worsened. The highest number of deaths in these months was in July.