In [2]:
```
import pandas as pd
```

In [3]:
```
url = "https://raw.githubusercontent.com/WidhyaOrg/datasets/master/covid19.csv"
```

In [4]:
```
df = pd.read_csv(url)
```

In [5]:
```
edited_df=df.groupby("Date",sort=False,axis=0).sum()
```

In [6]:
```
edited_df
```

Out[6]:

Date	Sno	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths
30/01/20	1	1	0	0	0
31/01/20	2	1	0	0	0
01/02/20	3	2	0	0	0
02/02/20	4	3	0	0	0
03/02/20	5	3	0	0	0
04/02/20	6	3	0	0	0
05/02/20	7	3	0	0	0
06/02/20	8	3	0	0	0
07/02/20	9	3	0	0	0
08/02/20	10	3	0	0	0
09/02/20	11	3	0	0	0
10/02/20	12	3	0	0	0
11/02/20	13	3	0	0	0
12/02/20	14	3	0	0	0
13/02/20	15	3	0	0	0
14/02/20	16	3	0	0	0
15/02/20	17	3	0	0	0
16/02/20	18	3	0	0	0
17/02/20	19	3	0	0	0
18/02/20	20	3	0	0	0
19/02/20	21	3	0	0	0
20/02/20	22	3	0	0	0
21/02/20	23	3	0	0	0
22/02/20	24	3	0	0	0
23/02/20	25	3	0	0	0

Date	Sno	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths
24/02/20	26	3	0	0	0
25/02/20	27	3	0	0	0
26/02/20	28	3	0	0	0
27/02/20	29	3	0	0	0
28/02/20	30	3	0	0	0
29/02/20	31	3	0	0	0
01/03/20	32	3	0	0	0
02/03/20	102	5	0	0	0
03/03/20	150	5	1	3	0
04/03/20	255	12	16	3	0
05/03/20	291	14	16	3	0
06/03/20	327	15	16	3	0
07/03/20	492	18	16	3	0
08/03/20	556	23	16	3	0
09/03/20	954	30	16	3	0
10/03/20	1098	42	16	3	0
11/03/20	1242	44	16	3	0
12/03/20	1508	57	17	3	0
13/03/20	1677	64	17	3	1
14/03/20	1846	67	17	10	2
15/03/20	2177	93	17	13	2
16/03/20	2550	97	17	13	2
17/03/20	2775	113	24	14	3
18/03/20	3417	126	25	14	3
19/03/20	4161	148	25	20	4
20/03/20	4770	191	32	23	4
21/03/20	5709	244	39	23	4

In [7]:
```
edited_df.drop('Sno',axis=1,inplace=True)
```

In [8]:
```
edited_df
```

Out[8]:

Date	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths
30/01/20	1	0	0	0

Date	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths
31/01/20	1	0	0	0
01/02/20	2	0	0	0
02/02/20	3	0	0	0
03/02/20	3	0	0	0
04/02/20	3	0	0	0
05/02/20	3	0	0	0
06/02/20	3	0	0	0
07/02/20	3	0	0	0
08/02/20	3	0	0	0
09/02/20	3	0	0	0
10/02/20	3	0	0	0
11/02/20	3	0	0	0
12/02/20	3	0	0	0
13/02/20	3	0	0	0
14/02/20	3	0	0	0
15/02/20	3	0	0	0
16/02/20	3	0	0	0
17/02/20	3	0	0	0
18/02/20	3	0	0	0
19/02/20	3	0	0	0
20/02/20	3	0	0	0
21/02/20	3	0	0	0
22/02/20	3	0	0	0
23/02/20	3	0	0	0
24/02/20	3	0	0	0
25/02/20	3	0	0	0
26/02/20	3	0	0	0
27/02/20	3	0	0	0
28/02/20	3	0	0	0
29/02/20	3	0	0	0
01/03/20	3	0	0	0
02/03/20	5	0	0	0
03/03/20	5	1	3	0
04/03/20	12	16	3	0
05/03/20	14	16	3	0

Date	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths
06/03/20	15	16	3	0
07/03/20	18	16	3	0
08/03/20	23	16	3	0
09/03/20	30	16	3	0
10/03/20	42	16	3	0
11/03/20	44	16	3	0
12/03/20	57	17	3	0
13/03/20	64	17	3	1
14/03/20	67	17	10	2
15/03/20	93	17	13	2
16/03/20	97	17	13	2
17/03/20	113	24	14	3
18/03/20	126	25	14	3
19/03/20	148	25	20	4
20/03/20	191	32	23	4
21/03/20	244	39	23	4

In [9]:
```
edited_df['Total']=edited_df.sum(axis=1)
```

In [10]:
```
edited_df
```

Out[10]:

Date	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Total
30/01/20	1	0	0	0	1
31/01/20	1	0	0	0	1
01/02/20	2	0	0	0	2
02/02/20	3	0	0	0	3
03/02/20	3	0	0	0	3
04/02/20	3	0	0	0	3
05/02/20	3	0	0	0	3
06/02/20	3	0	0	0	3
07/02/20	3	0	0	0	3
08/02/20	3	0	0	0	3
09/02/20	3	0	0	0	3
10/02/20	3	0	0	0	3

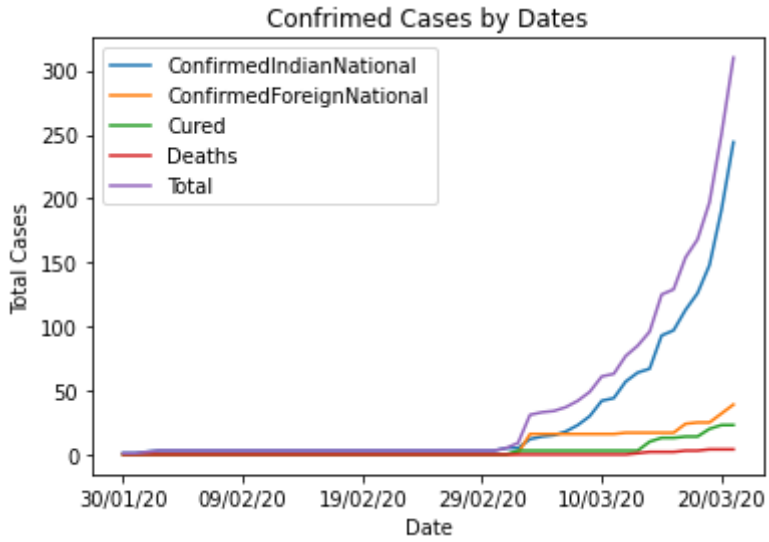
Date	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Total
11/02/20	3	0	0	0	3
12/02/20	3	0	0	0	3
13/02/20	3	0	0	0	3
14/02/20	3	0	0	0	3
15/02/20	3	0	0	0	3
16/02/20	3	0	0	0	3
17/02/20	3	0	0	0	3
18/02/20	3	0	0	0	3
19/02/20	3	0	0	0	3
20/02/20	3	0	0	0	3
21/02/20	3	0	0	0	3
22/02/20	3	0	0	0	3
23/02/20	3	0	0	0	3
24/02/20	3	0	0	0	3
25/02/20	3	0	0	0	3
26/02/20	3	0	0	0	3
27/02/20	3	0	0	0	3
28/02/20	3	0	0	0	3
29/02/20	3	0	0	0	3
01/03/20	3	0	0	0	3
02/03/20	5	0	0	0	5
03/03/20	5	1	3	0	9
04/03/20	12	16	3	0	31
05/03/20	14	16	3	0	33
06/03/20	15	16	3	0	34
07/03/20	18	16	3	0	37
08/03/20	23	16	3	0	42
09/03/20	30	16	3	0	49
10/03/20	42	16	3	0	61
11/03/20	44	16	3	0	63
12/03/20	57	17	3	0	77
13/03/20	64	17	3	1	85
14/03/20	67	17	10	2	96
15/03/20	93	17	13	2	125
16/03/20	97	17	13	2	129

Date	ConfirmedIndianNational	ConfirmedForeignNational	Cured	Deaths	Total
17/03/20	113	24	14	3	154
18/03/20	126	25	14	3	168
19/03/20	148	25	20	4	197
20/03/20	191	32	23	4	250
21/03/20	244	39	23	4	310

In [11]:
```
import matplotlib.pyplot as plt
```

In [18]:
```
edited_df.plot.line(title='Confrimed Cases by Dates',ylabel='Total Cases')
```

Out[18]:
```
<AxesSubplot:title={'center':'Confrimed Cases by Dates'}, xlabel='Date', ylabel='Tot
al Cases'>
```



In [21]:
```
t=[]
t=edited_df['Total']
b=[]
b=t[33:]
b
```

Out[21]:
```
Date
03/03/20      9
04/03/20     31
05/03/20     33
06/03/20     34
07/03/20     37
08/03/20     42
09/03/20     49
10/03/20     61
11/03/20     63
12/03/20     77
13/03/20     85
14/03/20     96
15/03/20    125
16/03/20    129
17/03/20    154
18/03/20    168
```

```
19/03/20    197
20/03/20    250
21/03/20    310
Name: Total, dtype: int64
```

In [22]:

```
z=0
i=0
for n in range(1,18):
    j=n-1
    x=b[j]
    y=b[n]
    r=((y-x)/x) #Rate of Increase
    z=z+r
ravg=z/18 #Rate of Increase Avareage
```

In [24]:

```
import math
```

In [25]:

```
PO=31
T=26
e1=math.exp(ravg*T)
PT=PO*e1
PT
```

Out[25]:

```
28453.94548835082
```

In [ ]: