

# MATPLOTLIB

```
In [1]: import matplotlib as mpl  
import matplotlib.pyplot as plt  
import numpy as np  
import pandas as pd
```

## CALLING FILE IN CSV FORMAT AND DEFINED AS DATA

```
In [2]: data = pd.read_csv('district.csv')
```

### Top 15 data from dataset

```
In [37]: data.head(15)
```

```
Out[37]:
```

	district	active	confirmed	deceased	recovered
0	Ahmadnagar	17	42	2	23
1	Yavatmal	69	79	0	10
2	Washim	1	2	0	1
3	Solapur	93	99	6	0
4	Sindhudurg	1	2	0	1
5	Satara	21	32	2	9
6	Sangli	3	29	1	25
7	Ratnagiri	2	8	1	5
8	Raigarh	44	71	3	24
9	Parbhani	1	2	0	1
10	Palghar	119	169	4	46
11	Osmanabad	0	3	0	3
12	Nashik	179	197	12	6
13	Nandurbar	10	11	1	0
14	Nanded	3	3	0	0

### bottom 10 data from dataset

```
In [4]: data.tail(15)
```

Out[4]:

	district	active	confirmed	deceased	recovered
19	Jalgaon	30	40	9	1
20	Hingoli	14	15	0	1
21	Gondiya	0	1	0	1
22	Dhule	22	25	3	0
23	Chandrapur	0	2	0	2
24	Buldana	3	21	1	17
25	Bid	0	1	0	1
26	Bhandara	1	1	0	0
27	Aurangabad	102	131	7	22
28	Amravati	17	28	7	4
29	Akola	30	39	1	8
30	Ahmadnagar	17	42	2	23
31	Mumbai	5679	7061	290	1092
32	Thane	755	943	16	172
33	Pune	912	1248	88	248

In [5]:

data.describe

#it 'describes' the data and shows you how the dataset Looks

```
Out[5]: <bound method NDFrame.describe of
          overed
0    Ahmadnagar      17      42      2      23
1    Yavatmal        69      79      0      10
2     Washim         1       2      0       1
3    Solapur         93      99      6       0
4   Sindhudurg       1       2      0       1
5    Satara          21      32      2       9
6    Sangli          3       29      1      25
7   Ratnagiri        2       8      1       5
8    Raigarh         44      71      3      24
9   Parbhani         1       2      0       1
10   Palghar        119     169      4      46
11 Osmanabad        0       3      0       3
12   Nashik          179     197     12      6
13 Nandurbar        10      11      1       0
14   Nanded          3       3      0       0
15   Nagpur          100     139      2      37
16    Latur          3       12      1       8
17 Kolhapur          10      14      0       4
18   Buldana         3       21      1      17
19   Jalgaon         30      40      9       1
20   Hingoli         14      15      0       1
21   Gondiya         0       1      0       1
22    Dhule          22      25      3       0
23 Chandrapur        0       2      0       2
24   Buldana         3       21      1      17
25    Bid            0       1      0       1
26   Bhandara        1       1      0       0
27 Aurangabad       102     131      7      22
28   Amravati        17      28      7       4
29    Akola          30      39      1       8
30 Ahmadnagar       17      42      2      23
31    Mumbai         5679     7061     290    1092
32    Thane          755      943     16     172
33    Pune           912     1248     88     248>
```

In [ ]:

```
In [38]: data.shape
#it shows you rows and coloums
```

Out[38]: (34, 5)

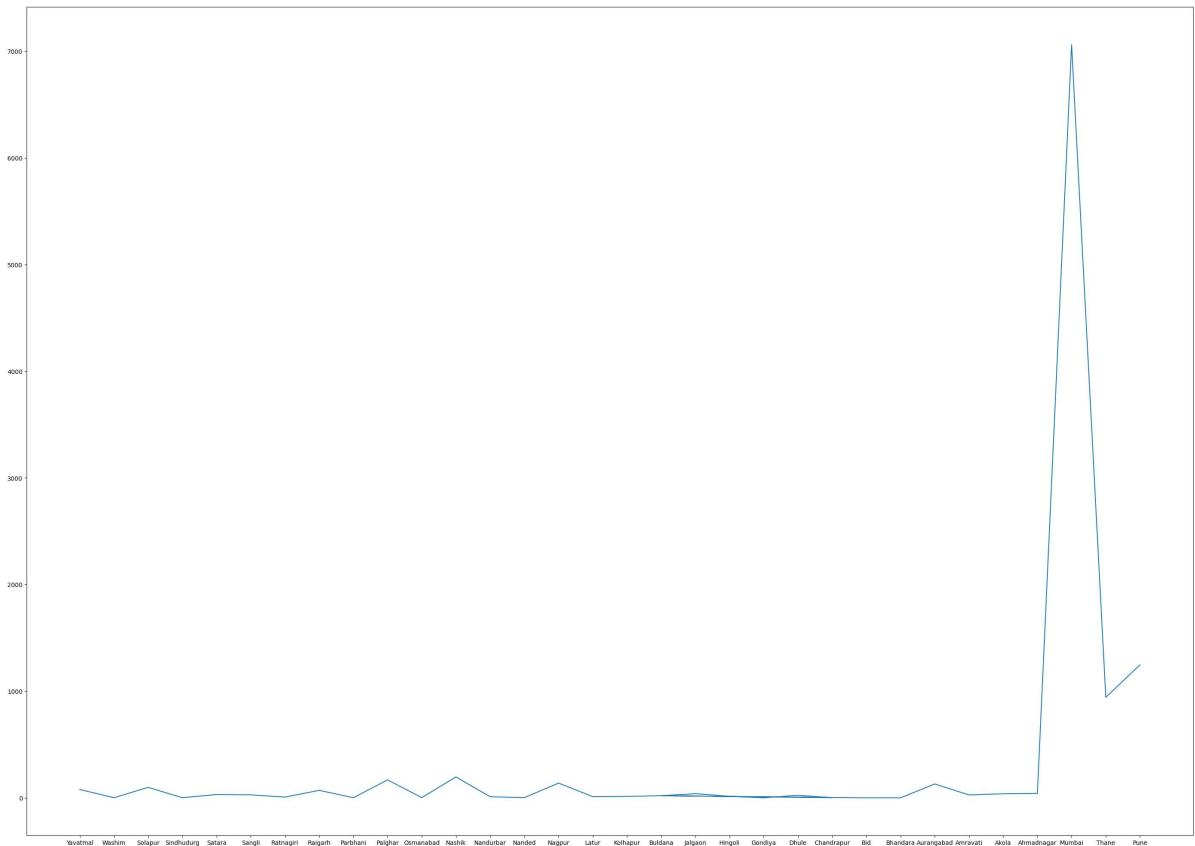
## line plot

```
In [7]: #designating the data values to a alphabet.
```

```
Y = data.iloc[1:,1].values
R = data.iloc[1:,2].values
D = data.iloc[1:,3].values
W = data.iloc[1:,4].values
X = data.iloc[1:,0]

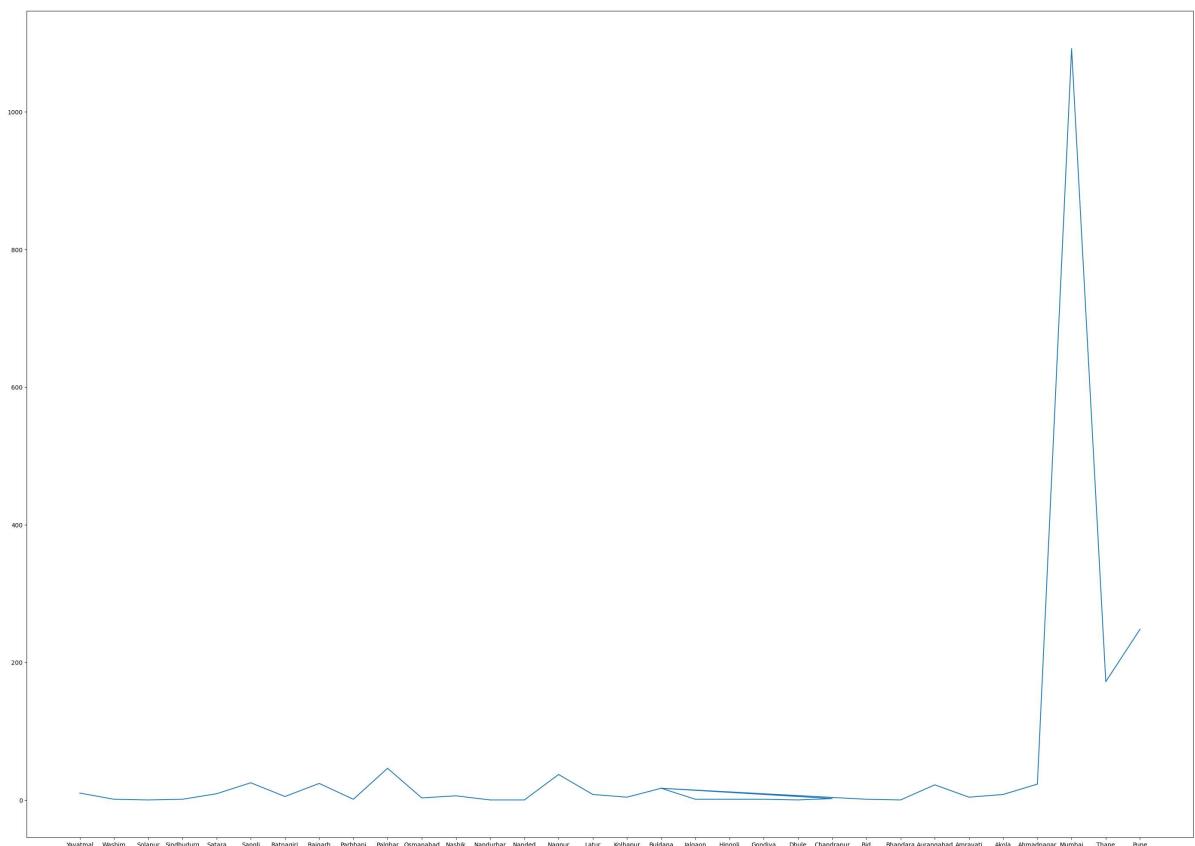
#Line plot between District(X) and Active cases(Y)
plt.figure(figsize=(35,25))
plt.plot(X, R)
```

Out[7]: [&lt;matplotlib.lines.Line2D at 0x227ba5ec280&gt;]

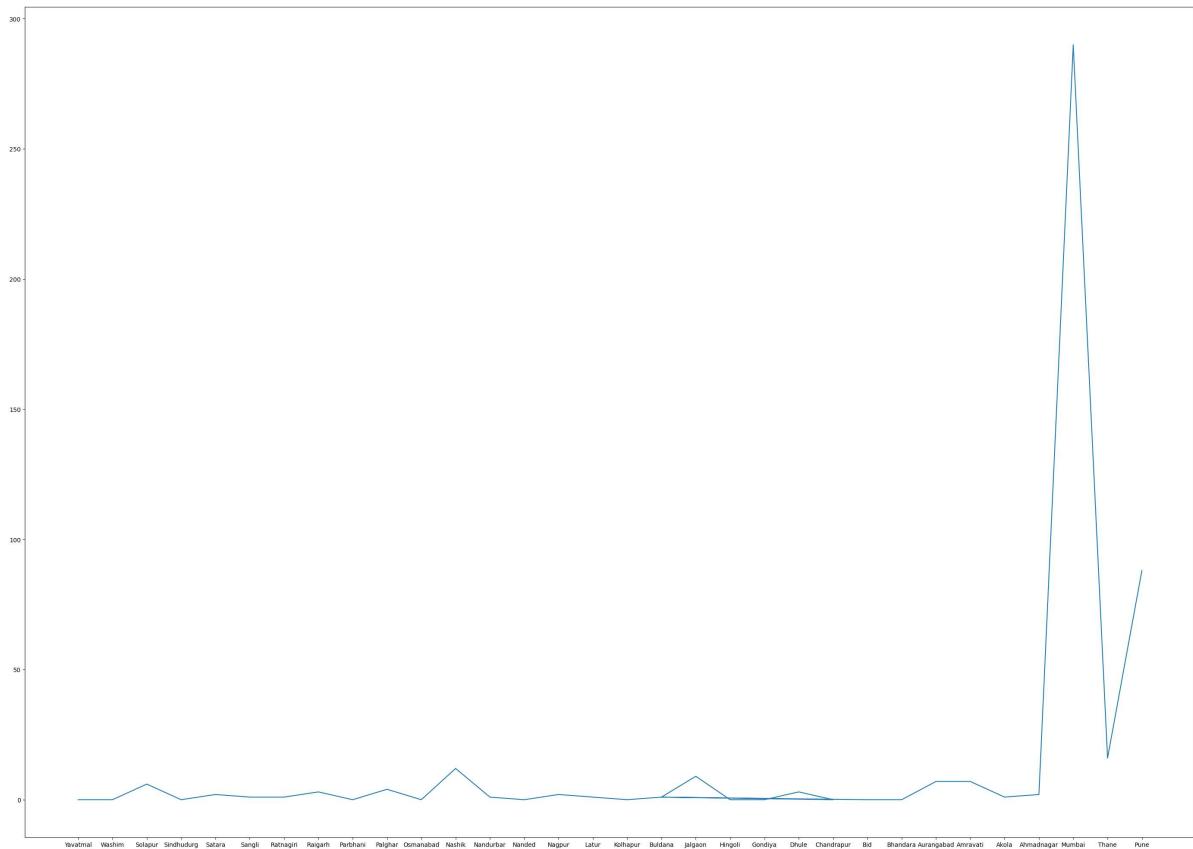


```
In [8]: plt.figure(figsize=(35,25))
plt.plot(X, W)
#Line plot between District(X) and Deceased cases(W)
```

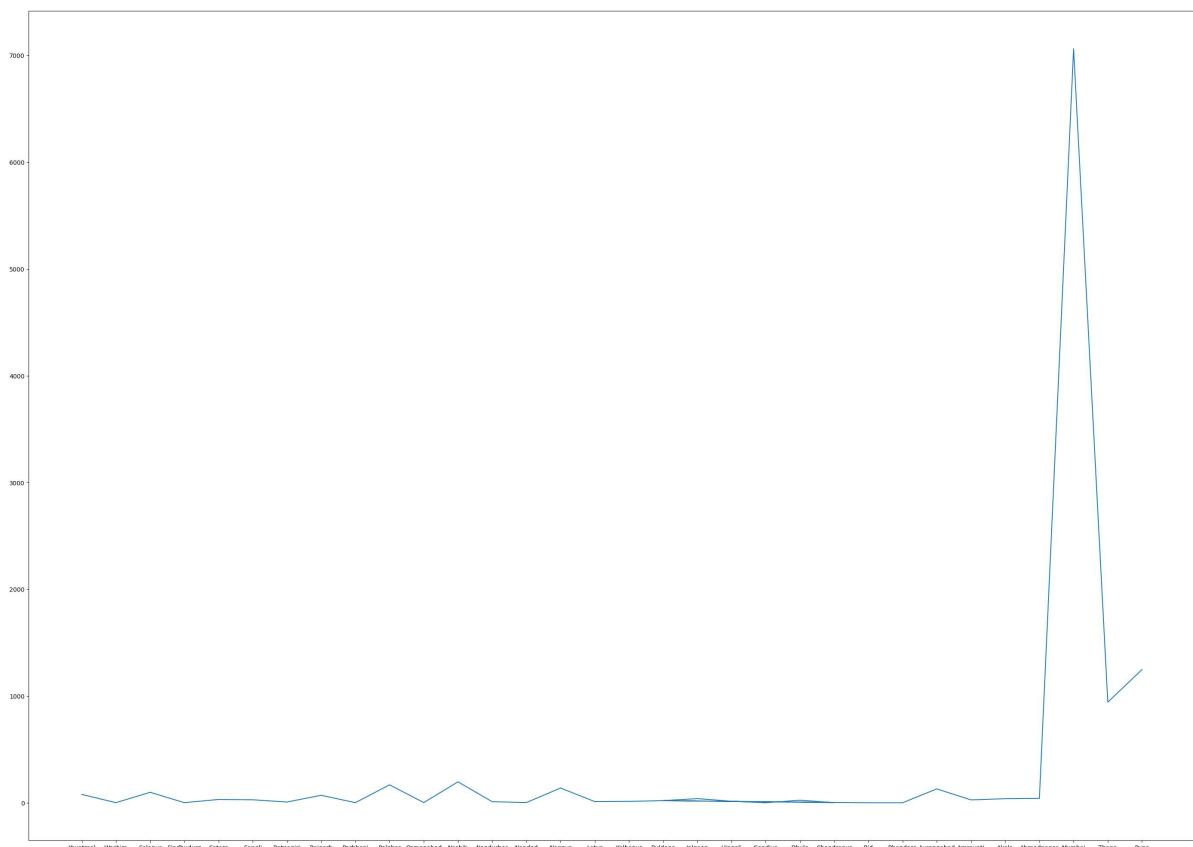
Out[8]: [`<matplotlib.lines.Line2D at 0x227bacdddf0>`]



```
In [9]: plt.figure(figsize=(35,25))
plt.plot(X, D)
#Line plot between District(X) and Recovered cases(D)
```

Out[9]: [`<matplotlib.lines.Line2D at 0x227bc287190>`]

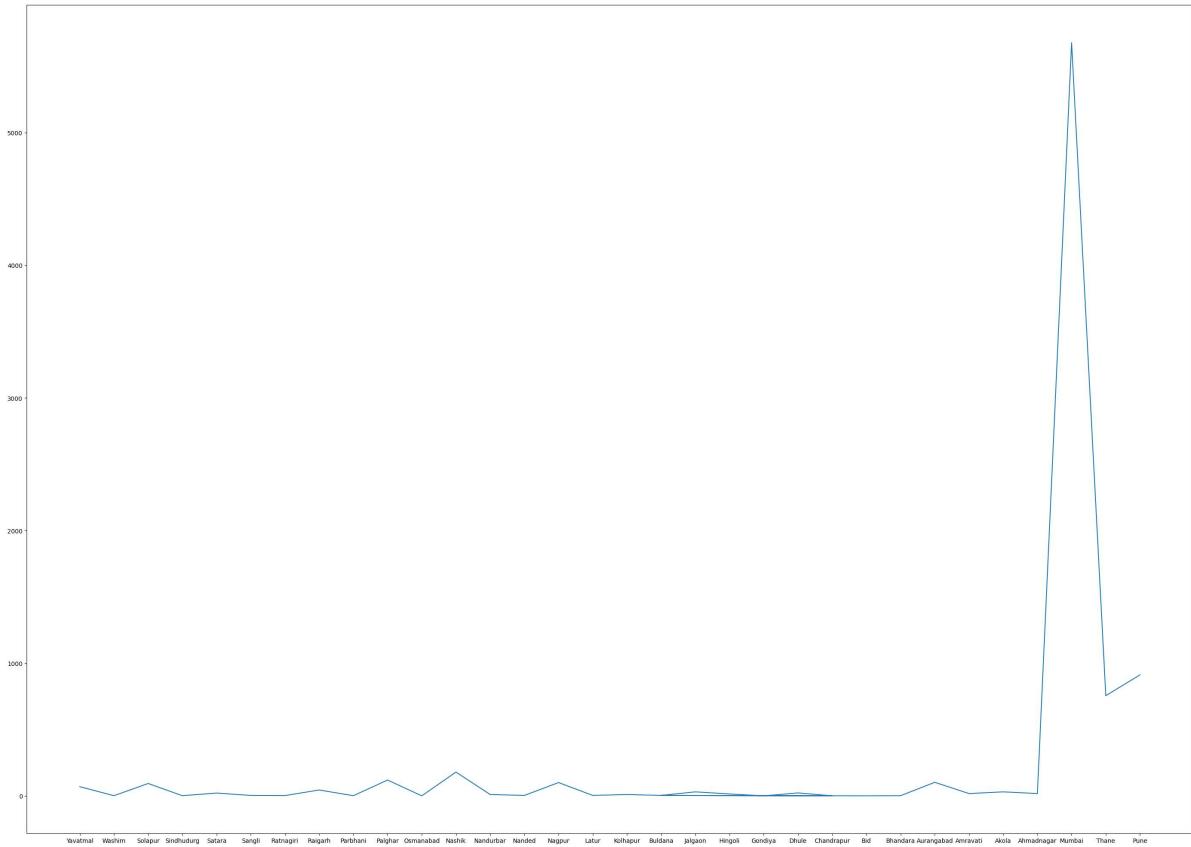
In [10]: `plt.figure(figsize=(35,25))  
plt.plot(X, R)  
#Line plot between District(X) and Confirmed cases(R)`

Out[10]: [`<matplotlib.lines.Line2D at 0x227bc328a30>`]

In [11]: `plt.figure(figsize=(35,25))  
plt.plot(X, Y)`

```
#Line plot between District(X) and Active cases(Y)
```

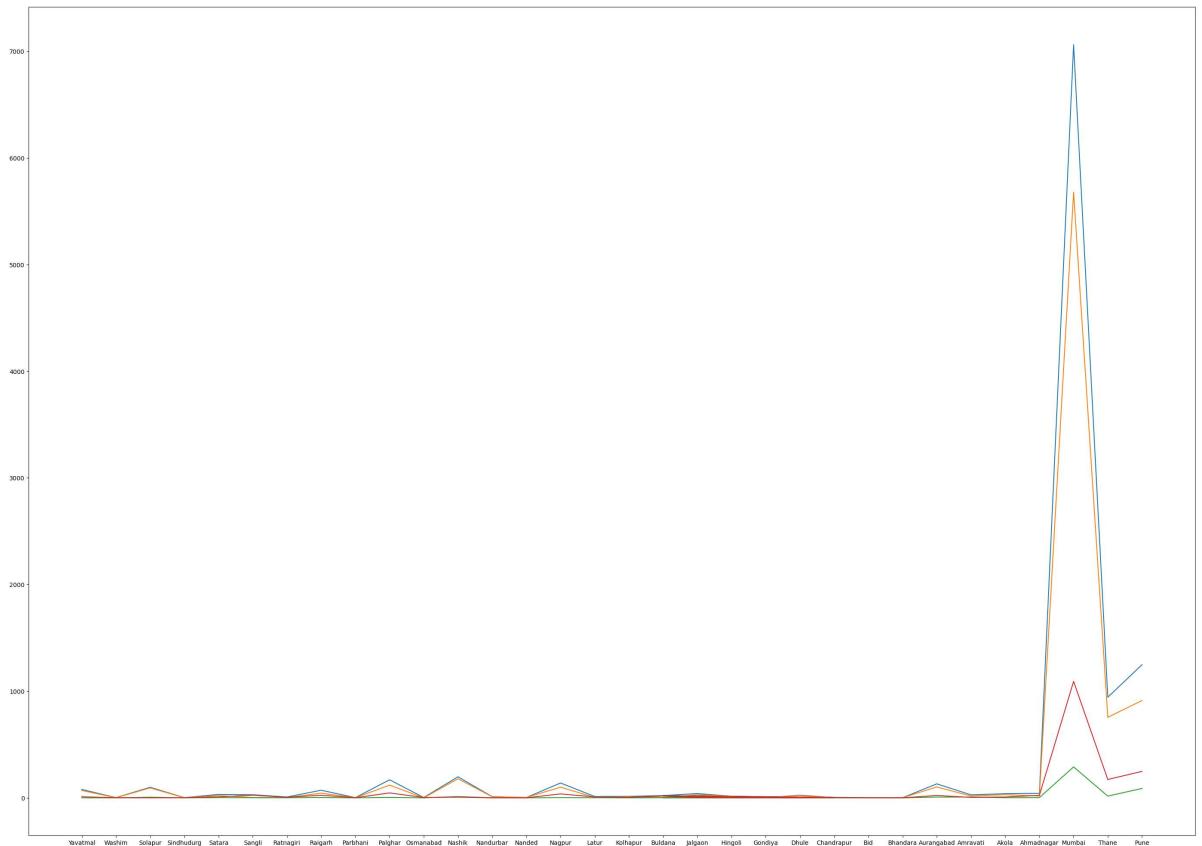
Out[11]: [matplotlib.lines.Line2D at 0x227bc3d8580]



In [12]:

```
#Line plot between District(X) and Active cases(Y)
#Line plot between District(X) and Confirmed cases(R)
#Line plot between District(X) and Recovered cases(D)
#Line plot between District(X) and Deceased cases(W)
plt.figure(figsize=(35,25))
plt.plot(X, R)
plt.plot(X, Y)
plt.plot(X, D)
plt.plot(X, W)
```

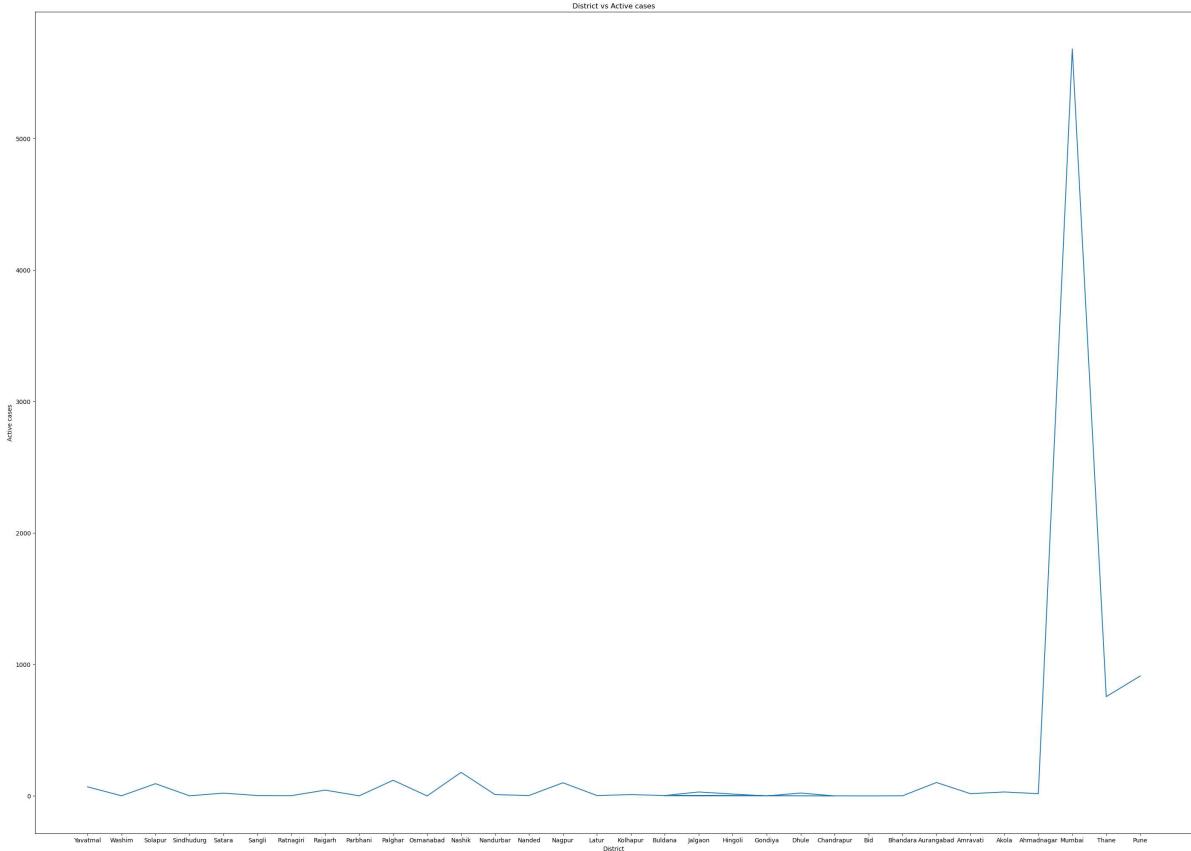
Out[12]: [matplotlib.lines.Line2D at 0x227bc48b730]



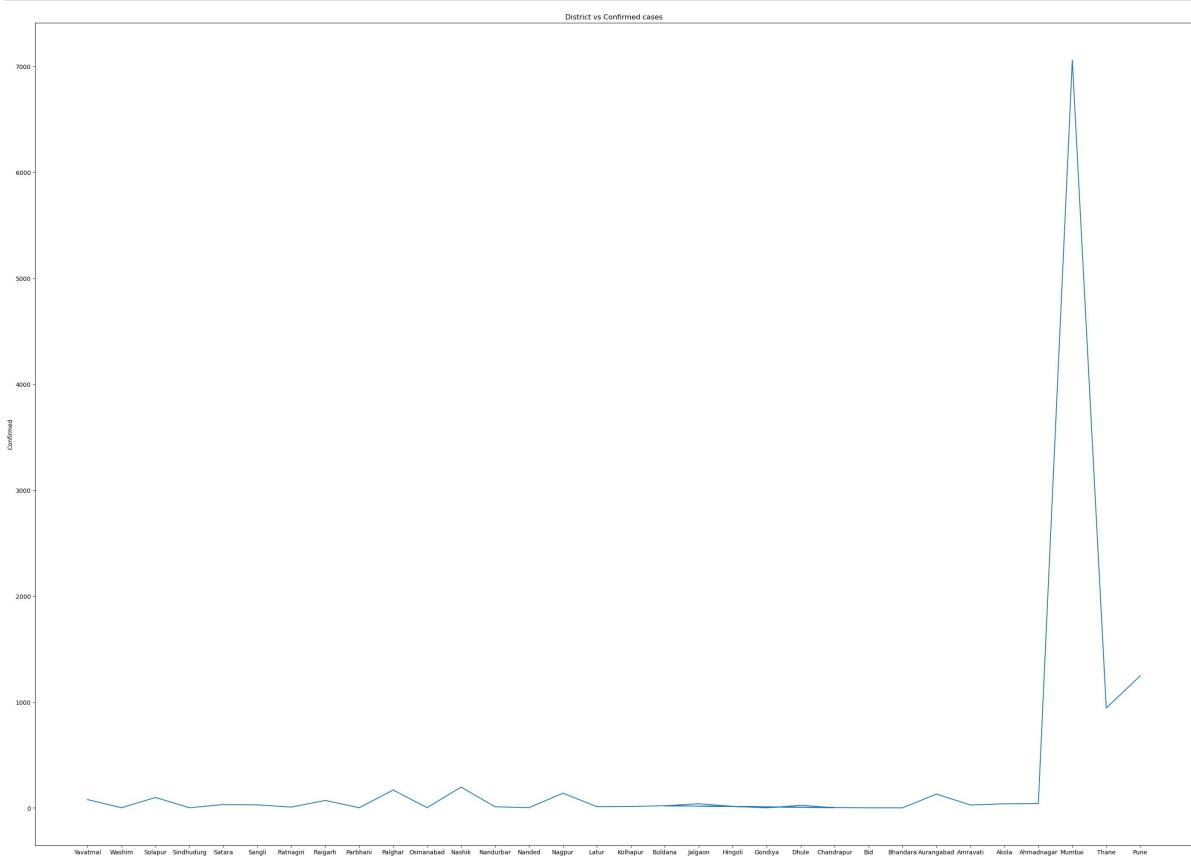
## Adding Title and labels

```
In [13]: plt.figure(figsize=(35,25))
plt.plot(X, Y)
plt.xlabel('District')
plt.ylabel('Active cases')
plt.title('District vs Active cases')
plt.show()
```

## district

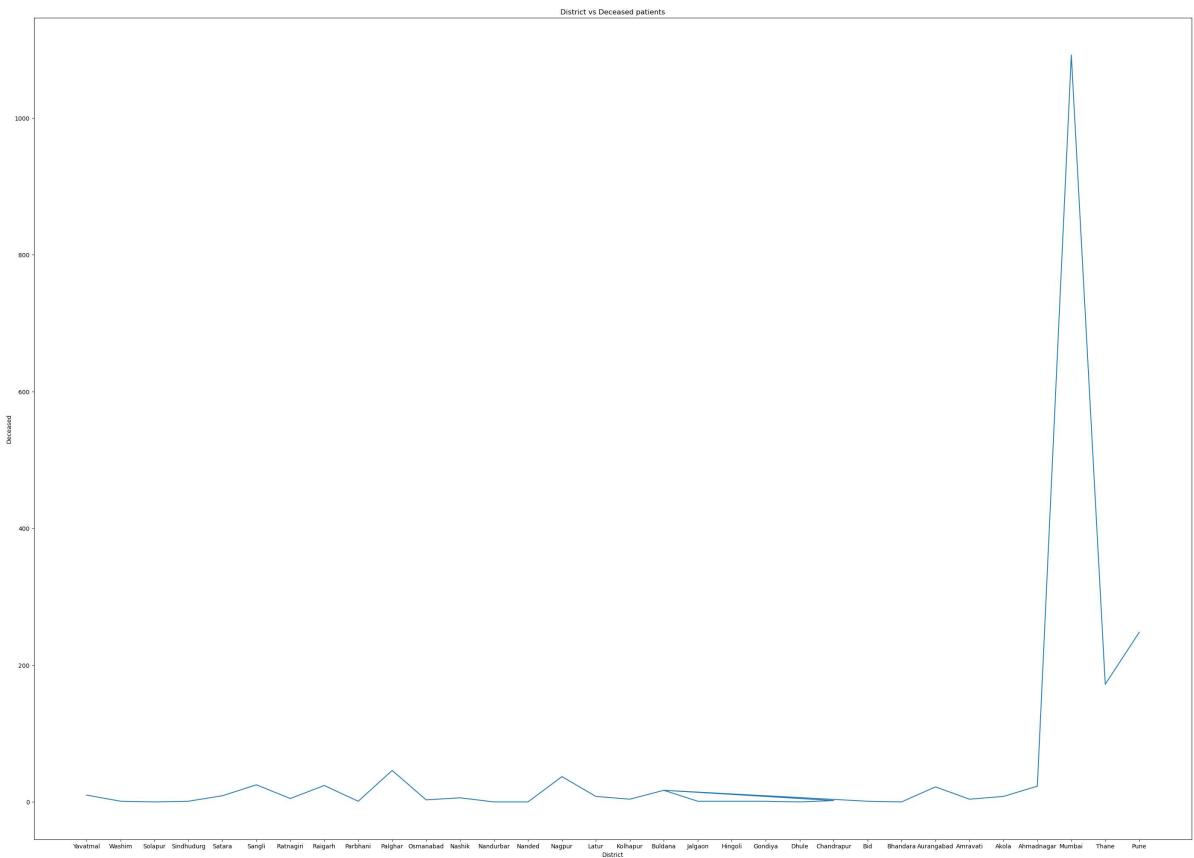


```
In [14]: plt.figure(figsize=(35,25))
plt.plot(X, R)
plt.xlabel('District')
plt.ylabel('Confirmed')
plt.title('District vs Confirmed cases')
plt.show()
```

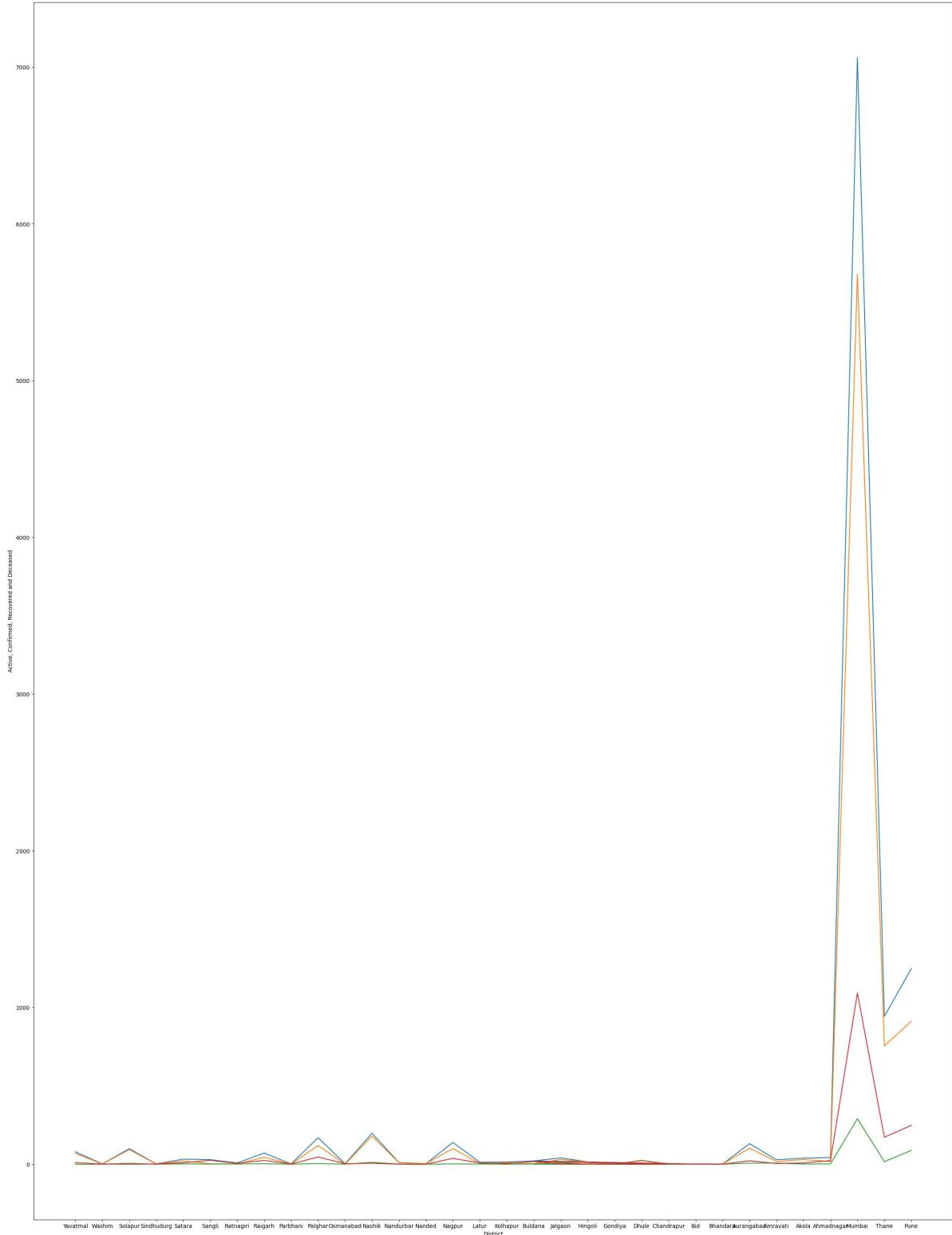


```
In [15]: plt.figure(figsize=(35,25))
plt.plot(X, W)
```

```
plt.xlabel('District')
plt.ylabel('Deceased')
plt.title('District vs Deceased patients')
plt.show()
```



```
In [16]: plt.figure(figsize=(30,40))
plt.plot(X, R)
plt.plot(X, Y)
plt.plot(X, D)
plt.plot(X, W)
plt.xlabel('District')
plt.ylabel('Active, Confirmed, Recovered and Deceased')
plt.title('DISTRICT vs -Active, Confirmed, Recovered and Deceased- ')
plt.show()
```

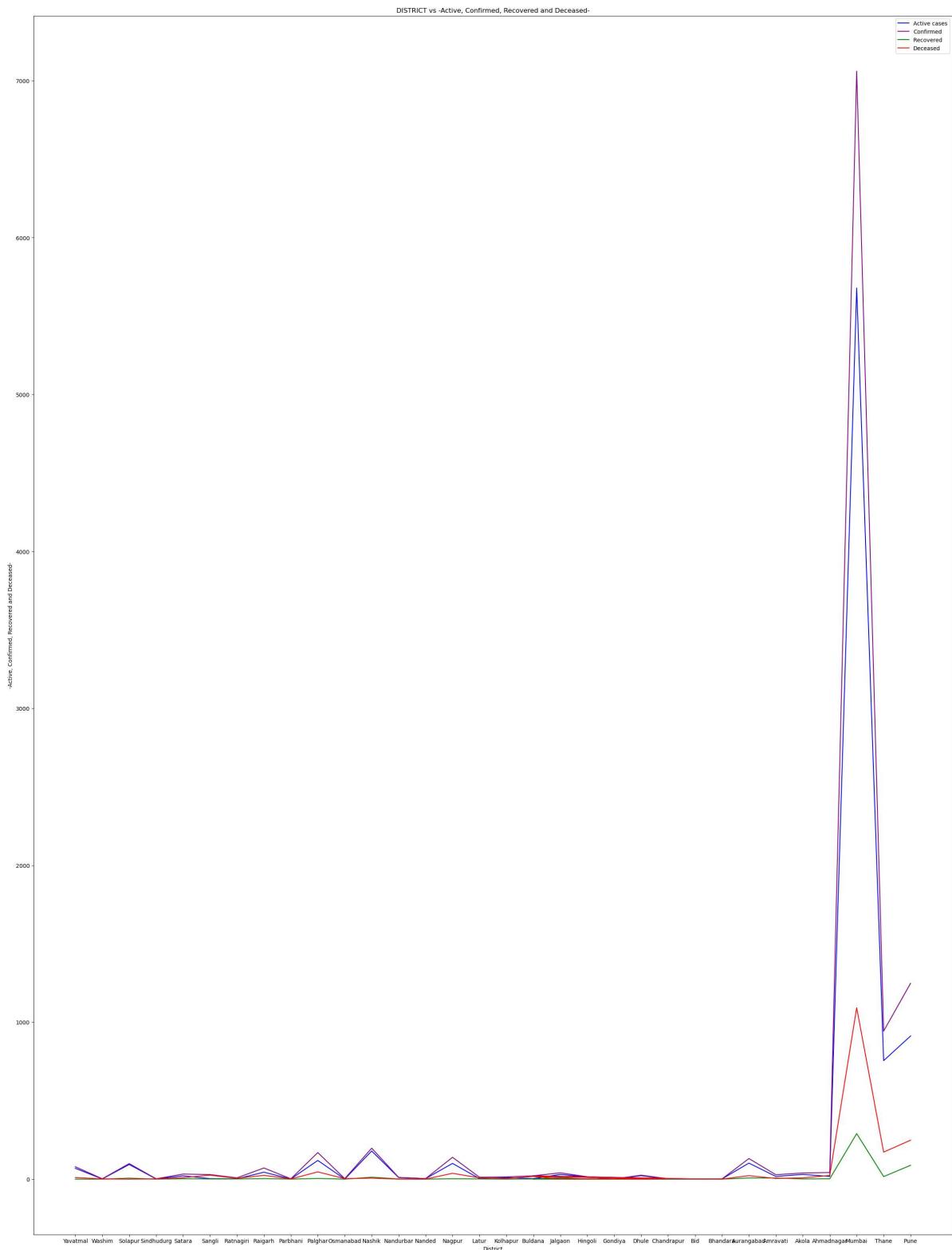


## Add legends for the graph

```
In [17]: #Line plot between District(X) and Active cases(Y)
#Line plot between District(X) and Confirmed cases(R)
#Line plot between District(X) and Recovered cases(D)
#Line plot between District(X) and Deceased cases(W)

plt.figure(figsize=(30,40))
plt.plot(X, Y, label="Active cases", color = "blue")
plt.plot(X, R, label="Confirmed", color = "purple")
plt.plot(X, D, label="Recovered ", color = "Green")
plt.plot(X, W, label="Deceased", color = "red")
```

```
plt.xlabel('District')
plt.ylabel('-Active, Confirmed, Recovered and Deceased-')
plt.title('DISTRICT vs -Active, Confirmed, Recovered and Deceased-')
plt.legend()
plt.show()
```

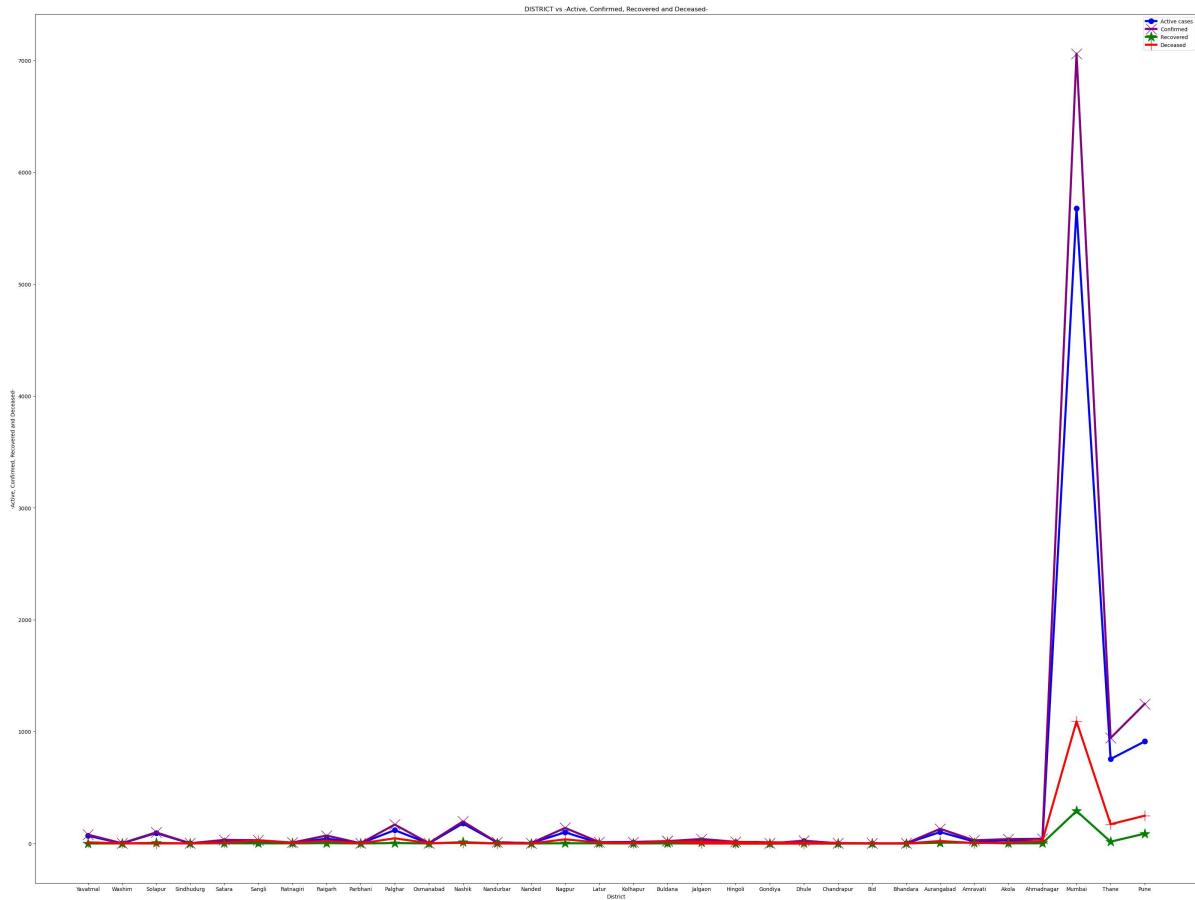


## Customization

In [25]:

```
plt.figure(figsize=(40,30))
plt.plot(X, Y, label="Active cases", color = "blue", linewidth = 4, marker = '.', markersize=10)
plt.plot(X, R, label="Confirmed", color = "purple", linewidth = 4, marker = 'x', markersize=10)
plt.plot(X, D, label="Recovered ", color = "Green", linewidth = 4, marker = '*', markersize=10)
plt.plot(X, W, label="Deceased", color = "red", linewidth = 4, marker = '+', markersize=10)
```

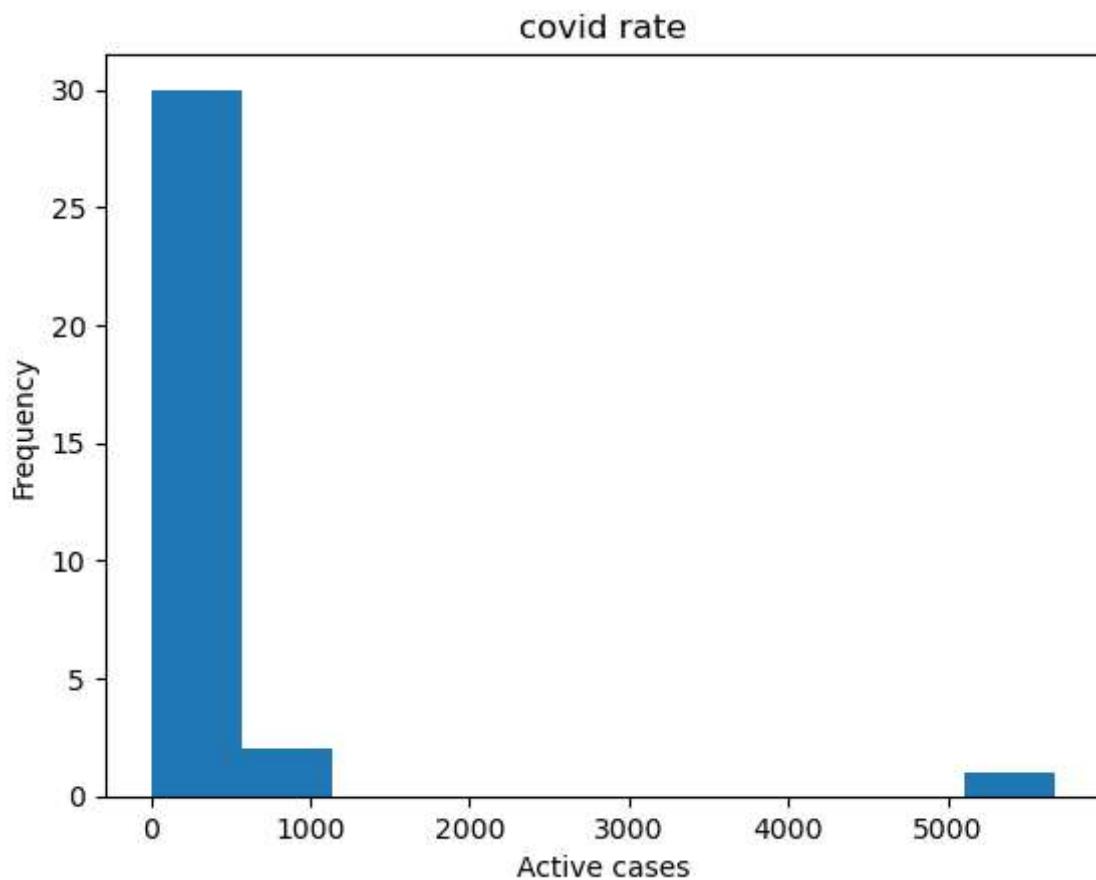
```
plt.xlabel('District')
plt.ylabel('-Active, Confirmed, Recovered and Deceased-')
plt.title('DISTRICT vs -Active, Confirmed, Recovered and Deceased-')
plt.legend()
plt.show()
```



## Histogram

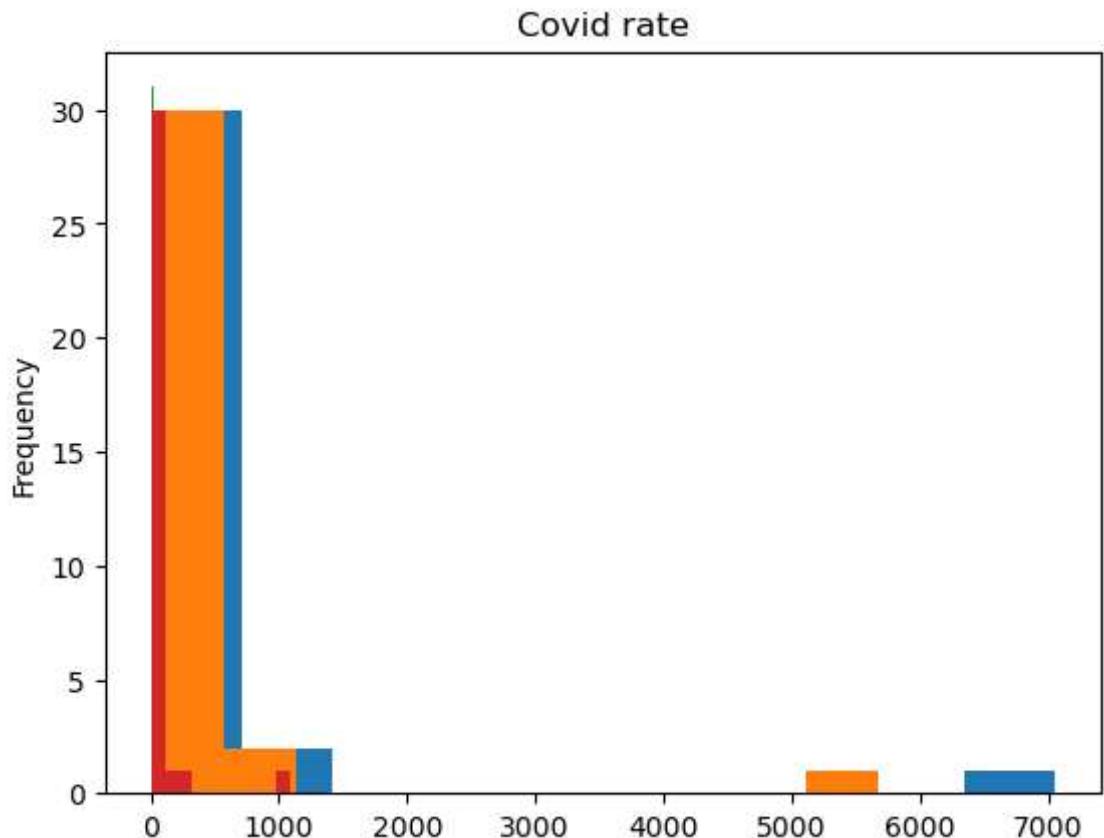
In [26]:

```
plt.hist(Y)
plt.xlabel("Active cases")
plt.ylabel("Frequency")
plt.title("covid rate")
plt.show()
```



```
In [27]: plt.hist(R)
plt.hist(Y)
plt.hist(D)
plt.hist(W)

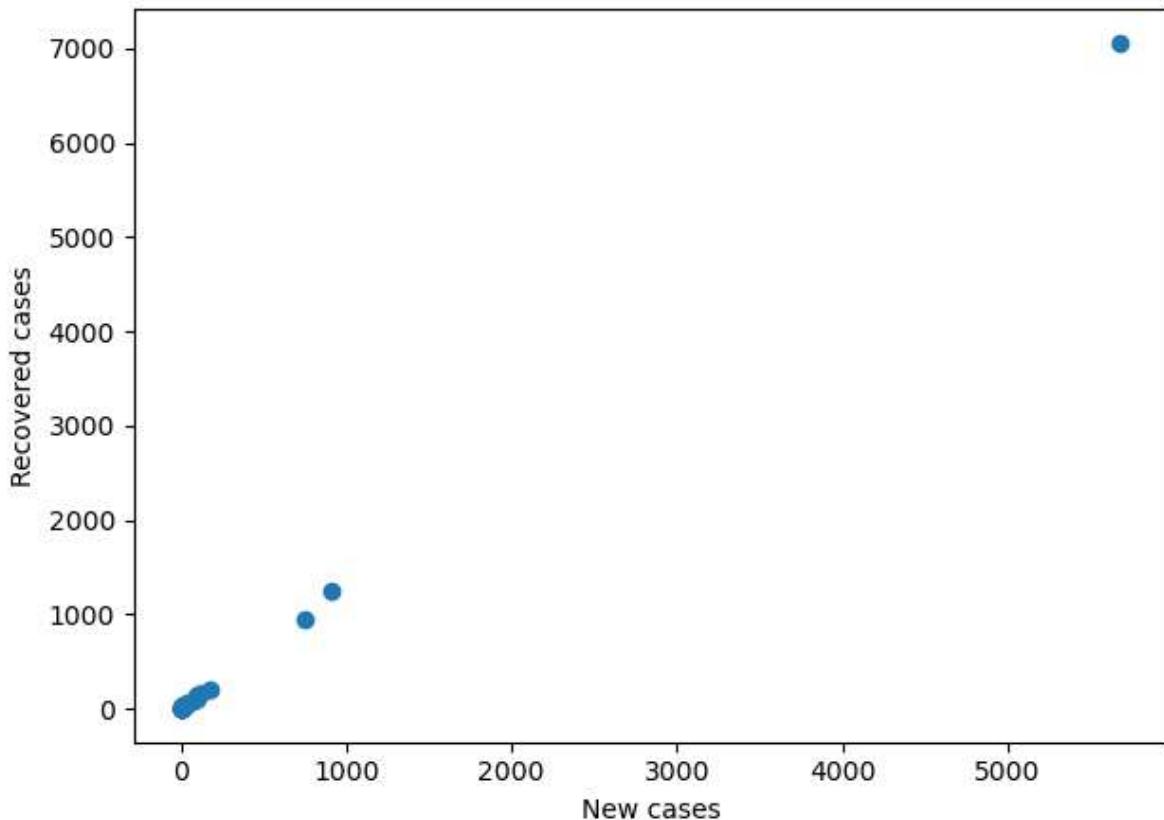
plt.ylabel("Frequency")
plt.title("Covid rate")
plt.show()
```



## Scatter plot

```
In [31]: plt.scatter(Y, R)
plt.xlabel("New cases")
plt.ylabel("Recovered cases")
plt.title("Scatter Plot of new and recovered cases")
plt.tight_layout()
plt.show()
```

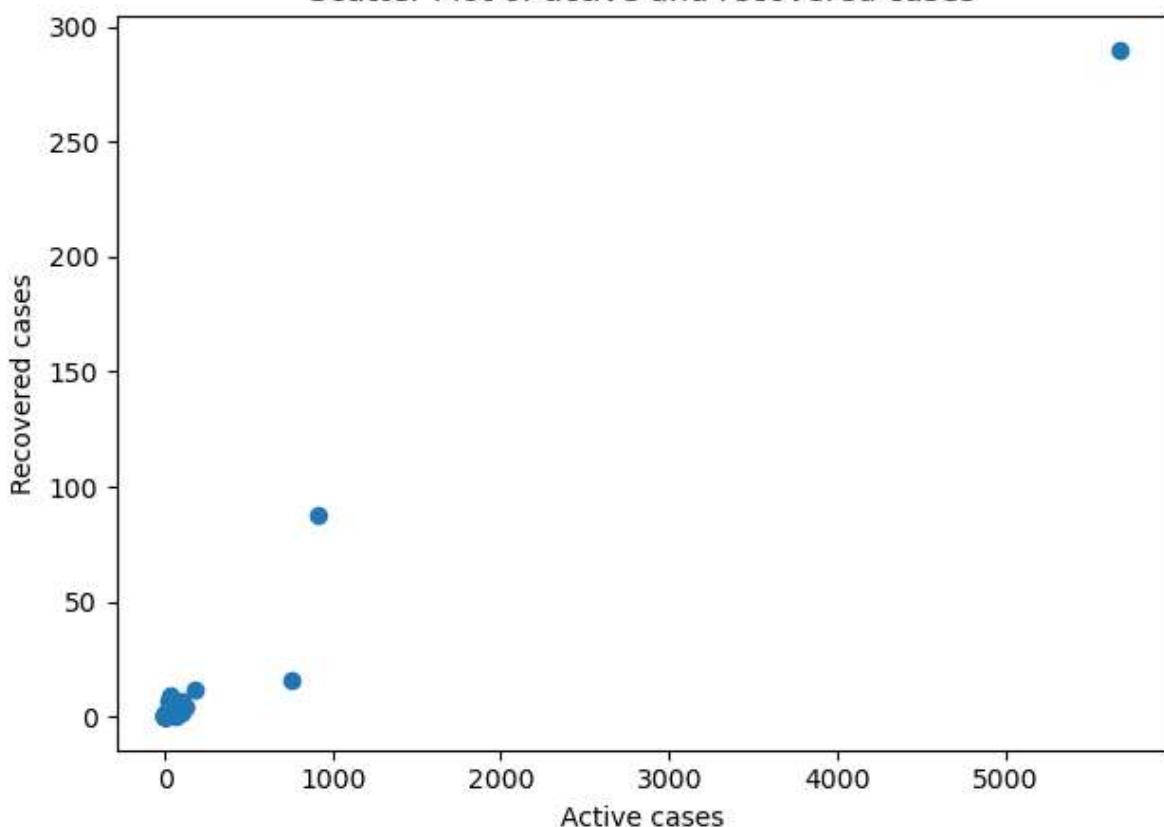
Scatter Plot of new and recovered cases



In [32]:

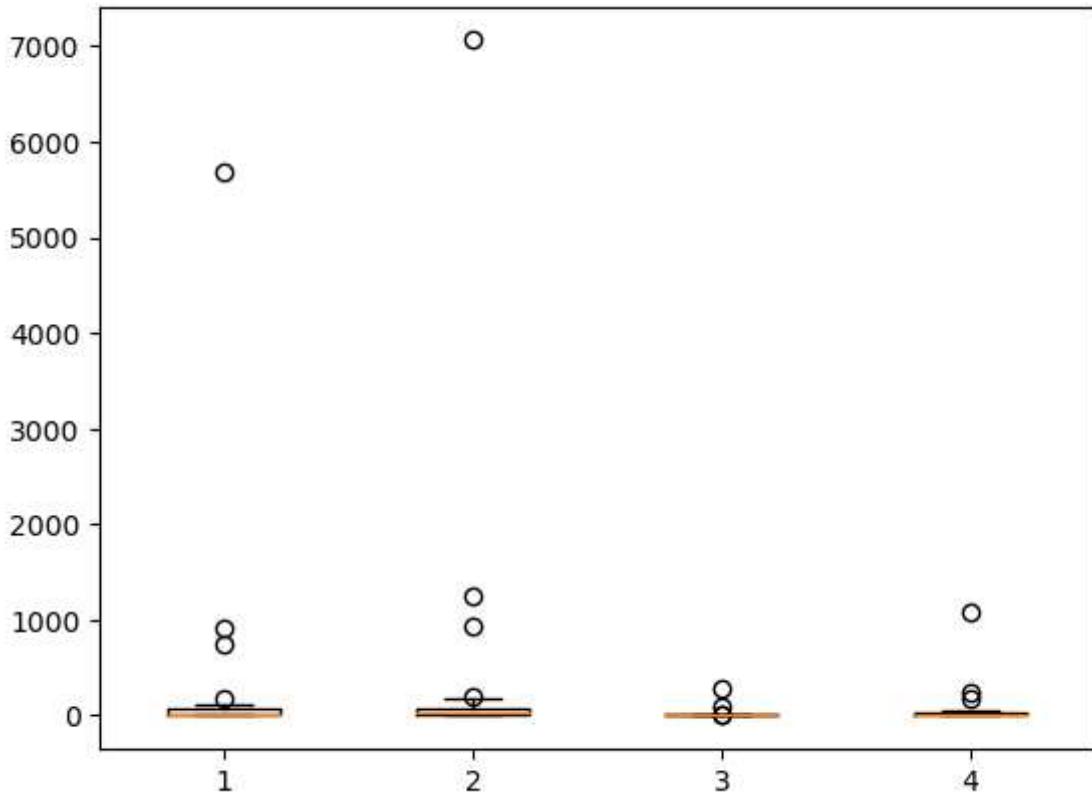
```
plt.scatter(Y, D)
plt.xlabel("Active cases")
plt.ylabel("Recovered cases")
plt.title("Scatter Plot of active and recovered cases")
plt.tight_layout()
plt.show()
```

Scatter Plot of active and recovered cases



## Box plot

```
In [33]: collections = [Y, R, D, W]
plt.boxplot(collections)
plt.show()
```

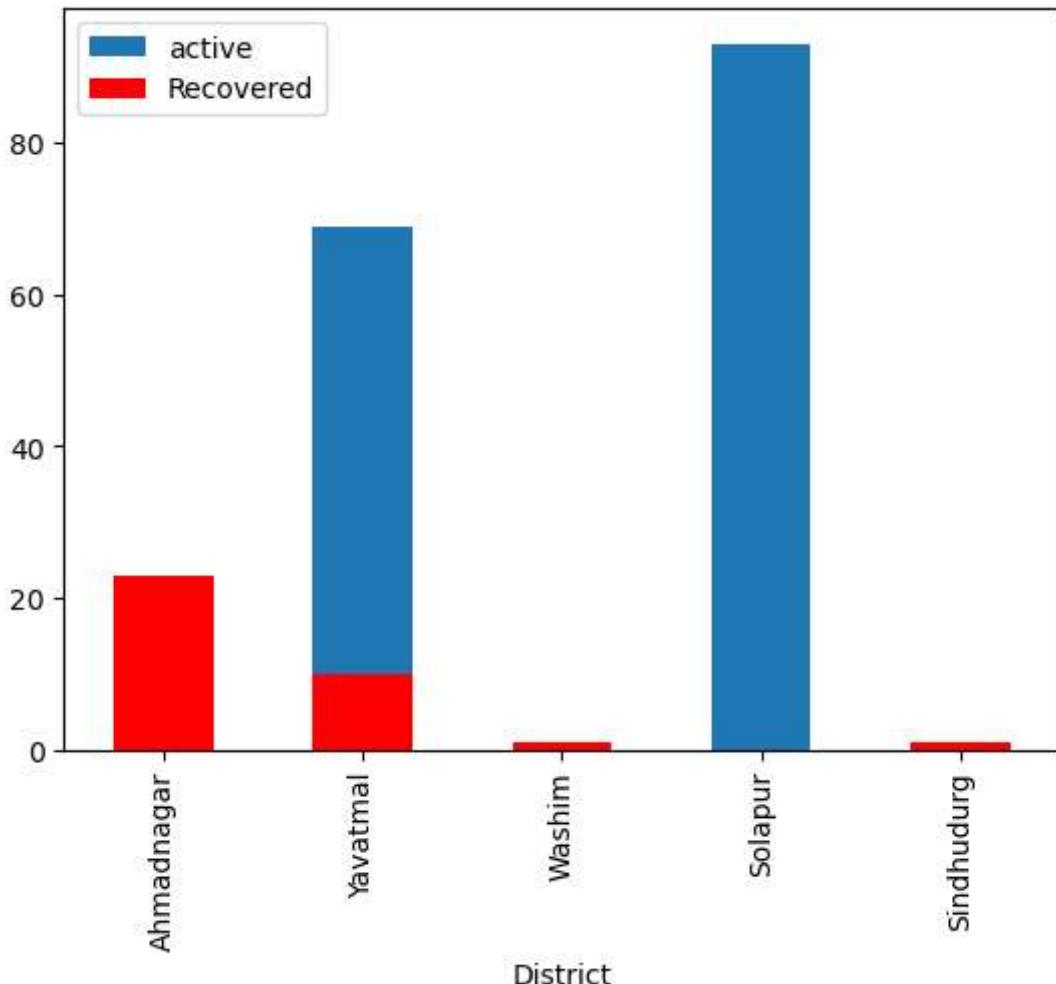


## Bar graph

```
In [35]: df = pd.DataFrame({
    'District': ['Ahmadnagar', 'Yavatmal', 'Washim', 'Solapur', 'Sindhudurg'],
    'active':[17,69,1,93,1],
    'Confirmed': [42,79,2,99,2],
    'Recovered':[23,10,1,0,1],
    'Deceased':[2,0,0,6,0]
})

ax = df.plot(x="District",y="active",kind="bar")
df.plot(x="District", y="Recovered", kind="bar", ax=ax, color="red")
```

Out[35]: <AxesSubplot:xlabel='District'>

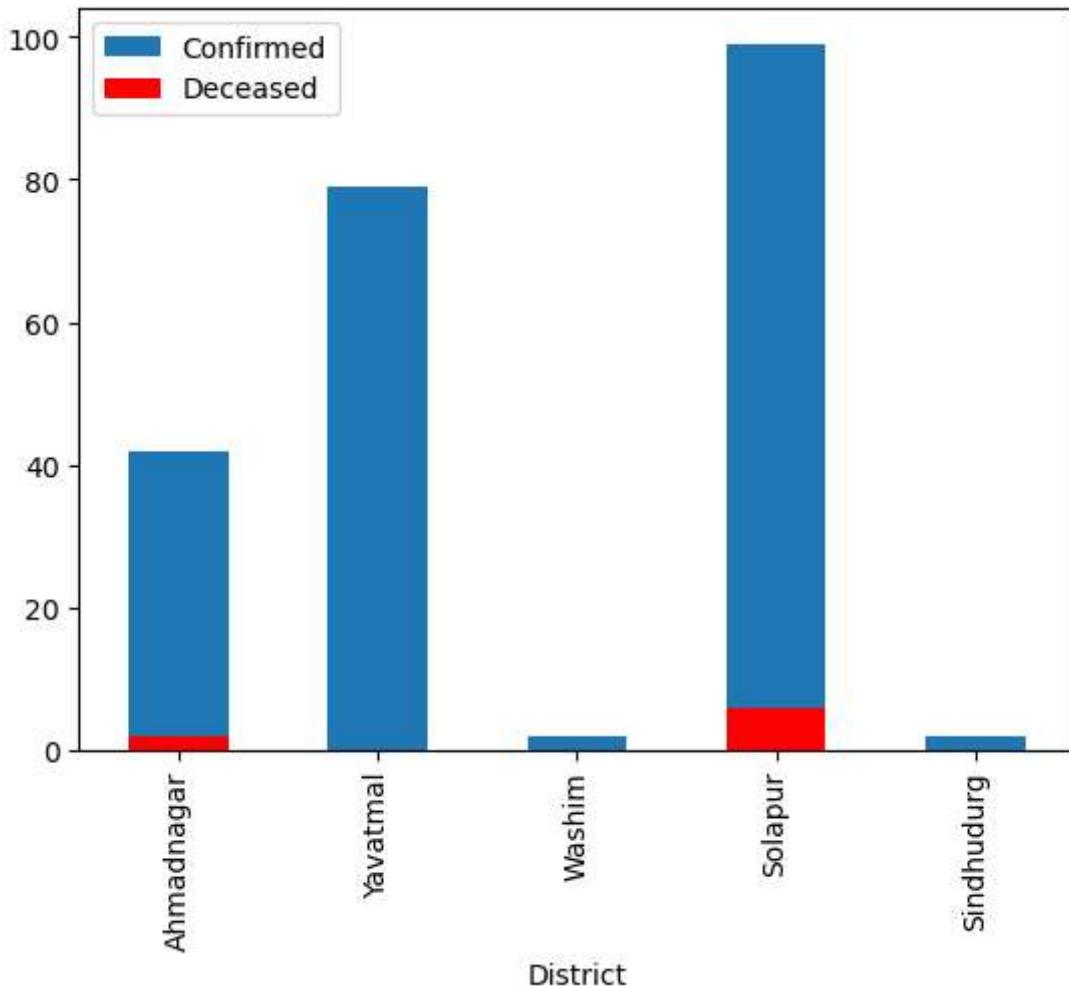


```
In [36]: df = pd.DataFrame({
    'District': ['Ahmadnagar', 'Yavatmal', 'Washim', 'Solapur', 'Sindhudurg'],
    'active':[17,69,1,93,1],
    'Confirmed': [42,79,2,99,2],
    'Recovered':[23,10,1,0,1],
    'Deceased':[2,0,0,6,0]

})

ax = df.plot(x="District",y="Confirmed",kind="bar")
df.plot(x="District", y="Deceased", kind="bar", ax=ax, color="red")
```

Out[36]: <AxesSubplot:xlabel='District'>



**thank you and have nice day**