Assignment No. 5

Name: Onkar Chakrawar Roll No.: 1714008

1. Plotting specific area year wise.

In [3]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [6]:
```
df = pd.read_csv("16_Casualties_under_police_firing_and_lathi_charge.csv")
```

In [7]:
```
df.head(20)
```

Out[7]:

	Area_Name	Year	Group_Name	Civilians_Injured	Civilians_Killed	No_of_Firings	Policemen_Injured	Policemen_Killed
0	Andaman & Nicobar Islands	2001	Against Extremists & Terrorists	0	0	0	0	0
1	Andhra Pradesh	2001	Against Extremists & Terrorists	4	105	108	14	8
2	Arunachal Pradesh	2001	Against Extremists & Terrorists	0	0	0	0	0
3	Assam	2001	Against Extremists & Terrorists	4	26	37	3	9
4	Bihar	2001	Against Extremists & Terrorists	0	7	12	13	5
5	Chandigarh	2001	Against Extremists & Terrorists	0	0	0	0	0
6	Chhattisgarh	2001	Against Extremists & Terrorists	14	2	2	14	2
7	Dadra & Nagar Haveli	2001	Against Extremists & Terrorists	0	0	0	0	0
8	Daman & Diu	2001	Against Extremists & Terrorists	0	0	0	0	0
9	Delhi	2001	Against Extremists & Terrorists	0	6	2	13	0
10	Goa	2001	Against Extremists & Terrorists	0	0	0	0	0
11	Gujarat	2001	Against Extremists & Terrorists	0	0	0	0	0
12	Haryana	2001	Against Extremists & Terrorists	0	0	0	0	0
13	Himachal Pradesh	2001	Against Extremists & Terrorists	0	0	0	0	0
14	Jammu & Kashmir	2001	Against Extremists & Terrorists	82	97	308	86	26
15	Jharkhand	2001	Against Extremists & Terrorists	5	12	58	24	22
16	Karnataka	2001	Against Extremists & Terrorists	0	0	0	0	0
17	Kerala	2001	Against Extremists & Terrorists	0	0	0	0	0
18	Lakshadweep	2001	Against Extremists & Terrorists	0	0	0	0	0
19	Madhya Pradesh	2001	Against Extremists & Terrorists	0	0	0	0	0

In [5]:
```
df.shape
```

Out[5]: (1749, 8)

In [6]:
```
df1 = df[df.Policemen_Injured > 0]
```

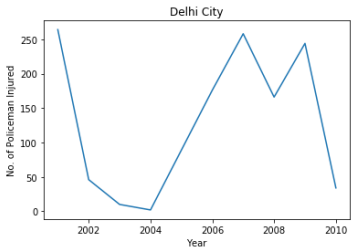
In [7]:
```
df1.shape
```

Out[7]: (632, 8)

In [8]:
```
d_delhi = df1[df1['Area_Name']=='Delhi']
```

In [9]:
```
d_delhi.shape
```

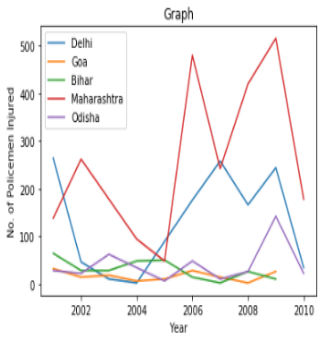
```
Out[9]: (28, 8)

In [10]: d_delhi1 = d_delhi.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [11]: print(d_delhi1.head())

   Year  Policemen_Injured
0  2001                264
1  2002                 46
2  2003                 10
3  2004                  2
4  2006                176

In [15]: x = d_delhi1["Year"]
         y = d_delhi1["Policemen_Injured"]
         plt.plot(x,y)
         plt.xlabel("Year")
         plt.ylabel("No. of Policeman Injured")
         plt.title("Delhi City")
         plt.show()
```



2. Plotting any five area year wise.

```
In [35]: d_delhi = df1[df1['Area_Name']=='Delhi']

In [36]: d_delhi1 = d_delhi.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [37]: print(d_delhi1.head())

   Year  Policemen_Injured
0  2001                264
1  2002                 46
2  2003                 10
3  2004                  2
4  2006                176

In [38]: d_Assam = df1[df1['Area_Name']=='Assam']

In [39]: d_Assam1 = d_Assam.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [40]: print(d_Assam1.head())

   Year  Policemen_Injured
0  2001                 32
1  2002                 14
2  2003                 18
3  2004                  6
4  2005                 10

In [41]: d_Bihar = df1[df1['Area_Name']=='Bihar']
```

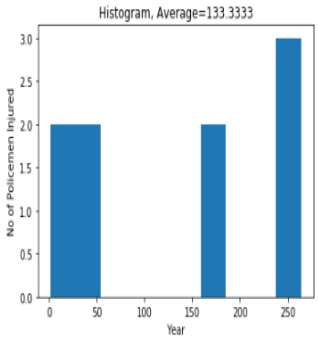
```
In [42]: d_Bihar1 = d_Bihar.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [43]: print(d_Bihar1.head())

   Year  Policemen_Injured
0  2001                 64
1  2002                 28
2  2003                 28
3  2004                 48
4  2005                 50

In [44]: d_Maharashtra = df1[df1['Area_Name']=='Maharashtra']

In [45]: d_Maharashtra1 = d_Maharashtra.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [46]: print(d_Maharashtra1.head())

   Year  Policemen_Injured
0  2001                138
1  2002                262
2  2003                178
3  2004                 94
4  2005                 48

In [47]: d_Odisha = df1[df1['Area_Name']=='Odisha']

In [48]: d_Odisha1 = d_Odisha.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [49]: print(d_Odisha1.head())

   Year  Policemen_Injured
0  2001                 28
1  2002                 22
2  2003                 62
3  2005                  6
4  2006                 48

In [50]: x1 = d_delhi1["Year"]
         y1 = d_delhi1["Policemen_Injured"]
         x2=d_Assam1["Year"]
         y2=d_Assam1["Policemen_Injured"]
         x3=d_Bihar1["Year"]
         y3=d_Bihar1["Policemen_Injured"]
         x4=d_Maharashtra1["Year"]
         y4=d_Maharashtra1["Policemen_Injured"]
         x5=d_Odisha1["Year"]
         y5=d_Odisha1["Policemen_Injured"]
         plt.plot(x1,y1,label='Delhi')
         plt.plot(x2,y2,label='Assam')
         plt.plot(x3,y3,label='Bihar')
         plt.plot(x4,y4,label='Maharshtra')
         plt.plot(x5,y5,label='Odisha')
         plt.xlabel("Year")
         plt.ylabel("No. of Policemen Injured")
         plt.title("Graph")
         plt.show()
         plt.legend(['Delhi','Goa','Bihar','Maharashtra','Odisha'])

Out[51]: <matplotlib.legend.Legend at 0x2930e4f860>
```



3. Plotting histogram which gives average.

```
In [52]: import numpy as np
         import pandas as pd
         import matplotlib.pyplot as plt

In [53]: df = pd.read_csv("16_Casualties_under_police_firing_and_lathi_charge.csv")

In [54]: df1 = df[df.Policemen_Injured > 0]

In [55]: d_delhi = df1[df1['Area_Name']=='Delhi']

In [56]: d_delhi1 = d_delhi.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})

In [57]: mean=np.mean(d_delhi1)
         print(mean)

         Year                2005.555556
         Policemen_Injured    133.333333
         dtype: float64

In [58]: y = d_delhi1["Year"]

In [59]: ranks=d_delhi1['Policemen_Injured']

In [60]: bins=ranks
```

```
In [62]: plt.hist(ranks, bins=10, histtype='bar', rwidth=1)
         plt.xlabel('Year')
         plt.ylabel('No of Policemen Injured')
         plt.title('Histogram, Average=133.3333')
         plt.show()
```



4. Plotting Scatter plot which gives average.

In [63]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [64]:
```
df = pd.read_csv("16_Casualties_under_police_firing_and_lathi_charge.csv")
```

In [65]:
```
df1 = df[df.Policemen_Injured > 0]
```

In [66]:
```
d_delhi = df1[df1['Area_Name']=='Delhi']
```

In [67]:
```
d_delhi1 = d_delhi.groupby('Year', as_index=False).agg({"Policemen_Injured": "sum"})
```

In [68]:
```
mean=np.mean(d_delhi1)
print(mean)
```

```
Year                2005.555556
Policemen_Injured    133.333333
dtype: float64
```

In [69]:
```
x= d_delhi1["Year"]
y=d_delhi1['Policemen_Injured']
plt.scatter(x,y)
plt.xlabel('Year')
plt.ylabel('No of Policemen Injured')
plt.title('Histogram, Average=133.3333')
plt.show()
```