```
import numpy as np
import matplotlib.pyplot as plt
```

1. Line Plot

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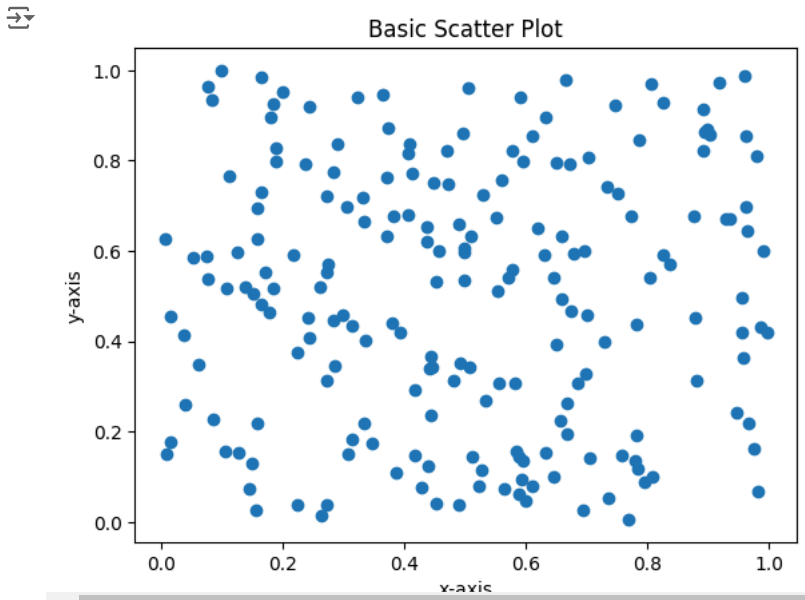
2.Scatter Plot

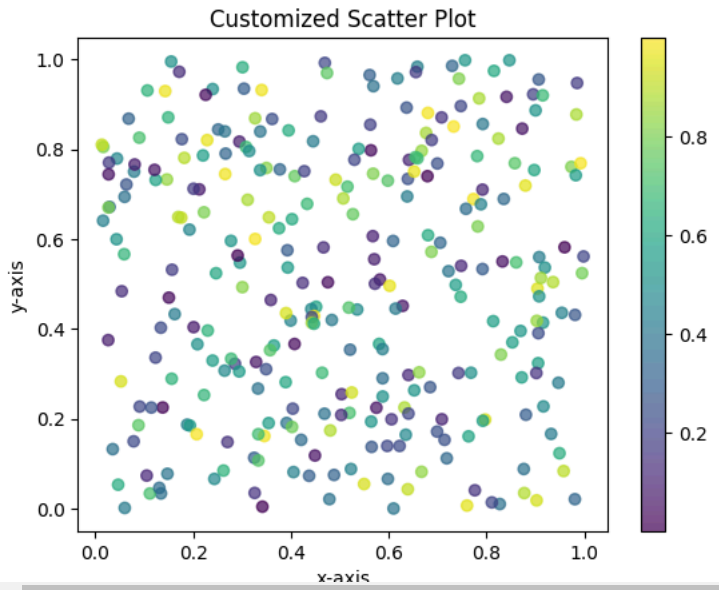
2.1 Basic Scatter Plot

```
x=np.random.rand(200)
y=np.random.rand(200)
plt.scatter(x,y)
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Basic Scatter Plot')
plt.show()
```



2.2 Customized Scatter Plot

```
x=np.random.rand(300)
y=np.random.rand(300)
z=np.random.rand(300)
plt.scatter(x,y,marker='o',c=z,alpha=.7,cmap='viridis')
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Customized Scatter Plot')
plt.legend
plt.colorbar()
plt.show()
```

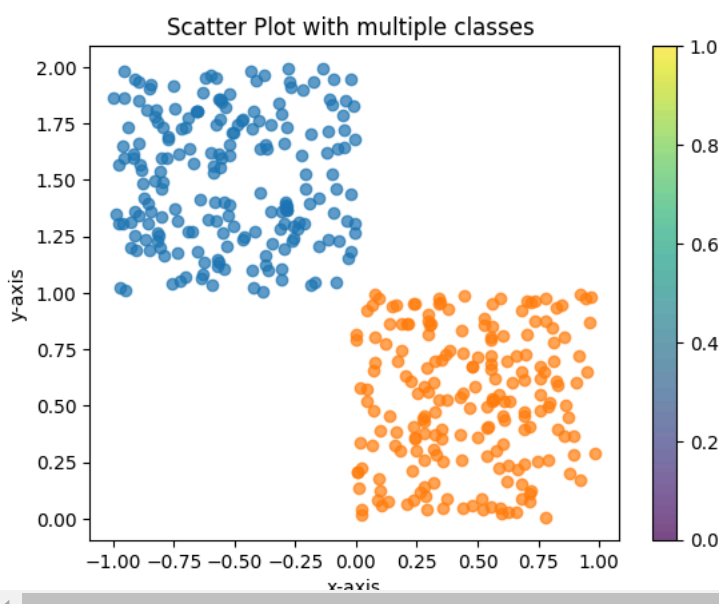


2.3 Scatter Plot with Multiple classes

```
x1=np.random.rand(200)-1
y1=np.random.rand(200)+1

x2=np.random.rand(200)
y2=np.random.rand(200)

plt.scatter(x1,y1,marker='o',alpha=.7)
plt.scatter(x2,y2,marker='o',alpha=.7)
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Scatter Plot with multiple classes ')
plt.legend
plt.colorbar()
plt.show()
```

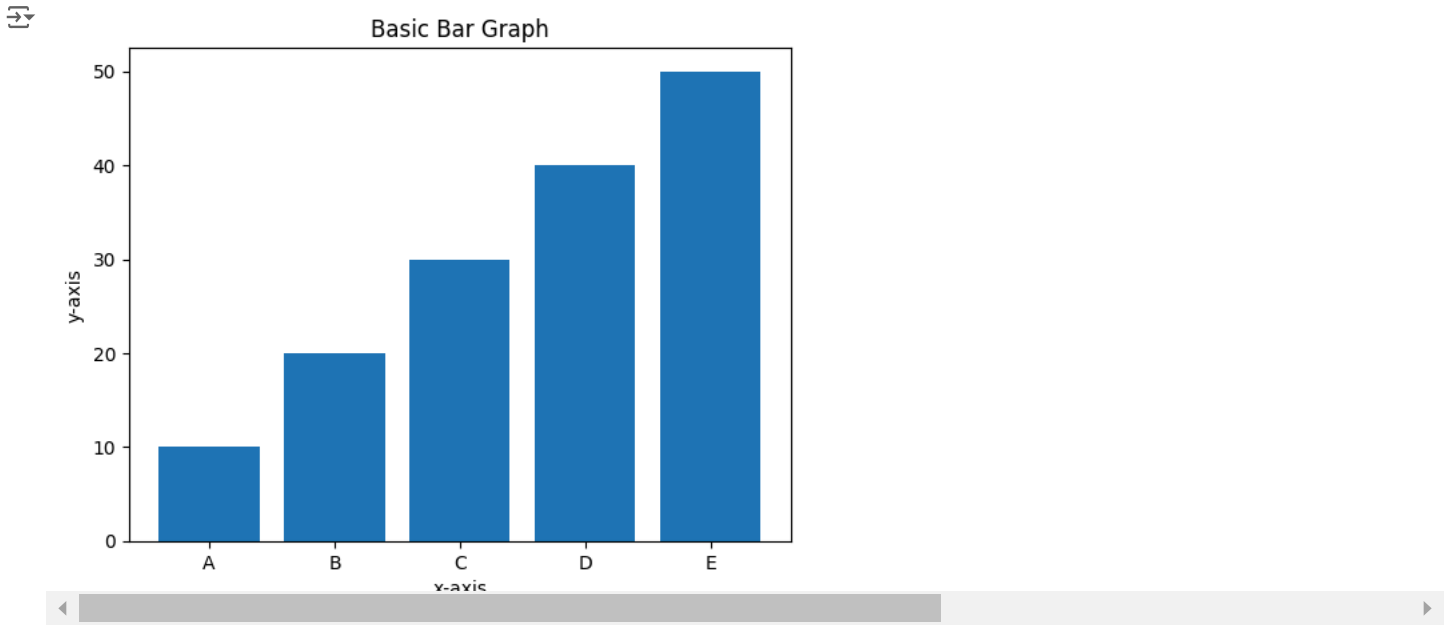


Double-click (or enter) to edit

3. Bar Graph

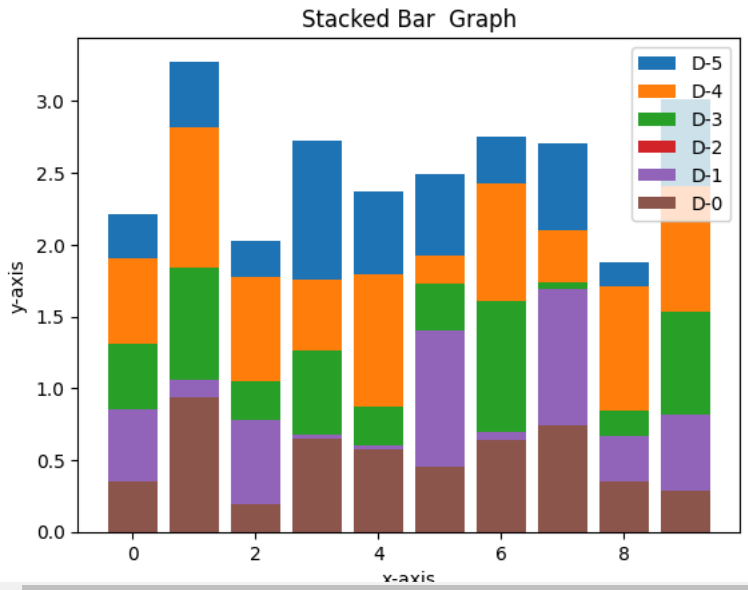
3.1 Basic Bar Graph

```
x=np.array(['A','B','C','D','E'])
y=np.array([10,20,30,40,50])
plt.bar(x,y)
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Basic Bar Graph')
plt.show()
```



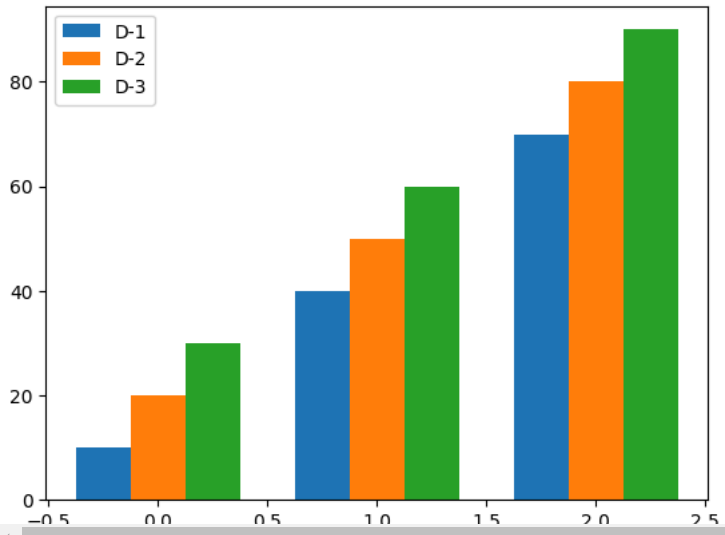
3.2 Stacked Bar Graph

```
data=np.random.rand(10,5)
plt.bar(np.arange(10),data[:,0]+data[:,1]+data[:,2]+data[:,3]+data[:,4],label='D-5')
plt.bar(np.arange(10),data[:,0]+data[:,1]+data[:,2]+data[:,3],label='D-4')
plt.bar(np.arange(10),data[:,0]+data[:,1]+data[:,2],label='D-3')
plt.bar(np.arange(10),data[:,0]+data[:,1],label='D-2')
plt.bar(np.arange(10),data[:,0]+data[:,1],label='D-1')
plt.bar(np.arange(10),data[:,0],label='D-0')
plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Stacked Bar  Graph')
plt.legend()
plt.show()
```



3.3 Grouped Bar Graph

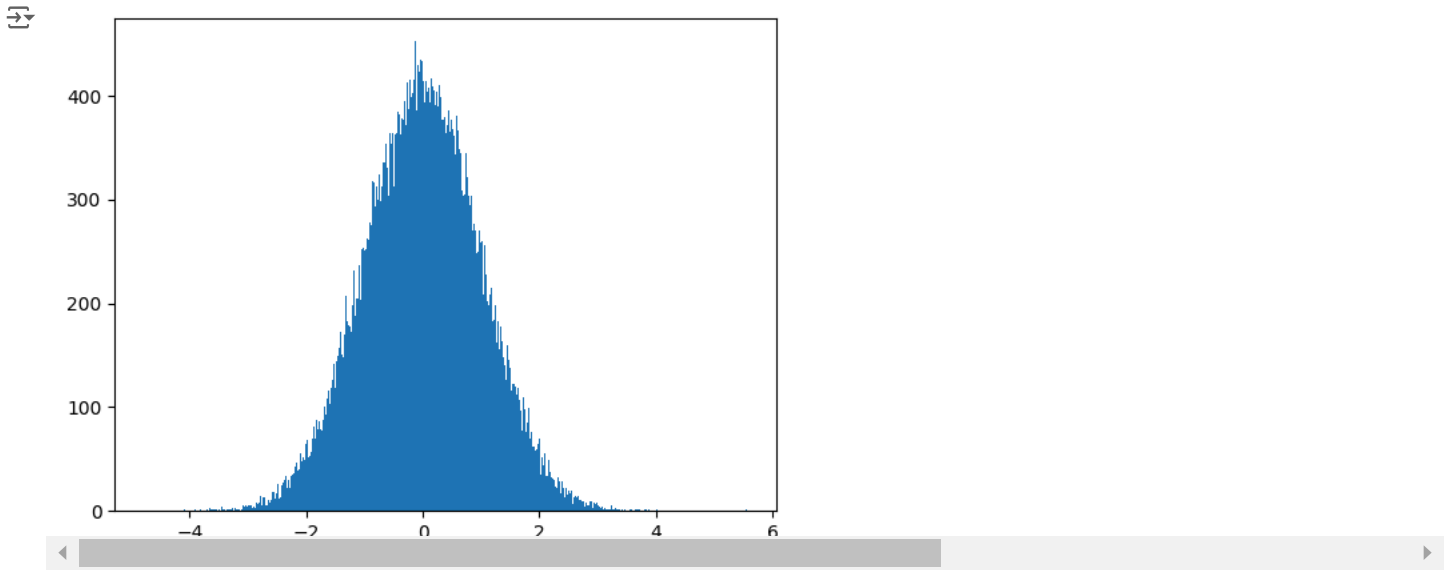
```
data=np.array([[10,20,30],
               [40,50,60],
               [70,80,90]])
width=.25
x=np.arange(3)
plt.bar(x-width,data[:,0],width,label='D-1')
plt.bar(x,data[:,1],width,label='D-2')
plt.bar(x+width,data[:,2],width,label='D-3')
plt.legend()
plt.show()
```



4. Histogram

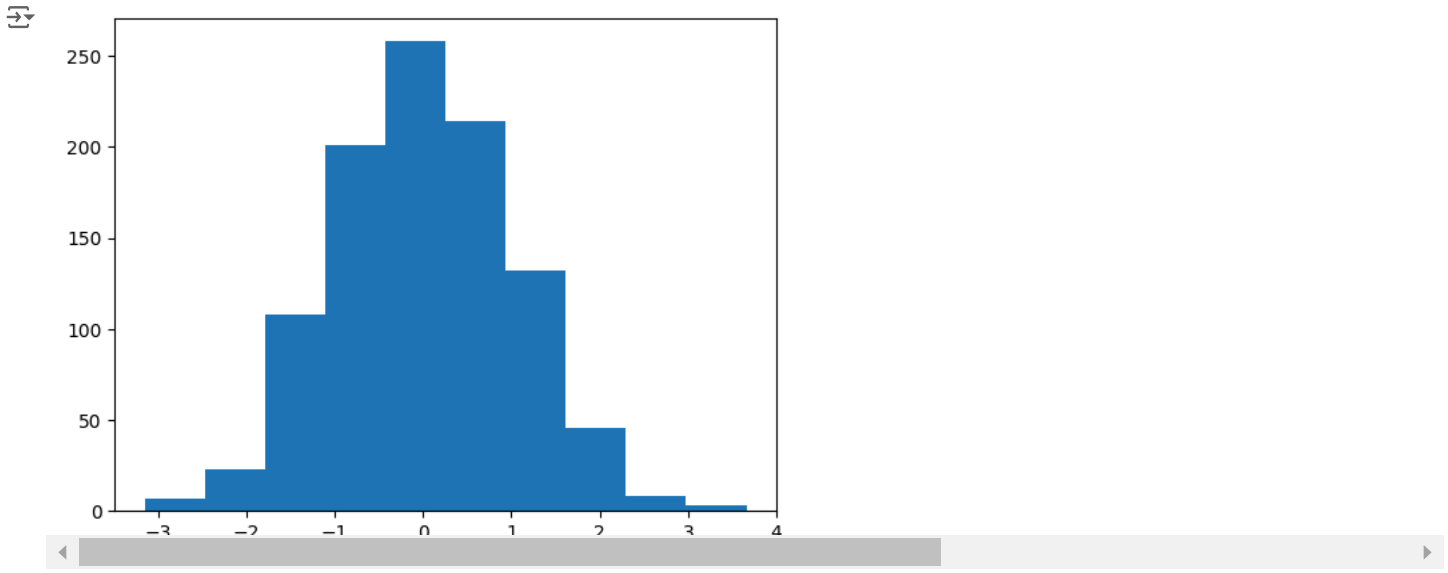
4.1 Basic Histogram

```
data =np.random.randn(100000)
plt.hist(data, bins=1000)
plt.show()
```

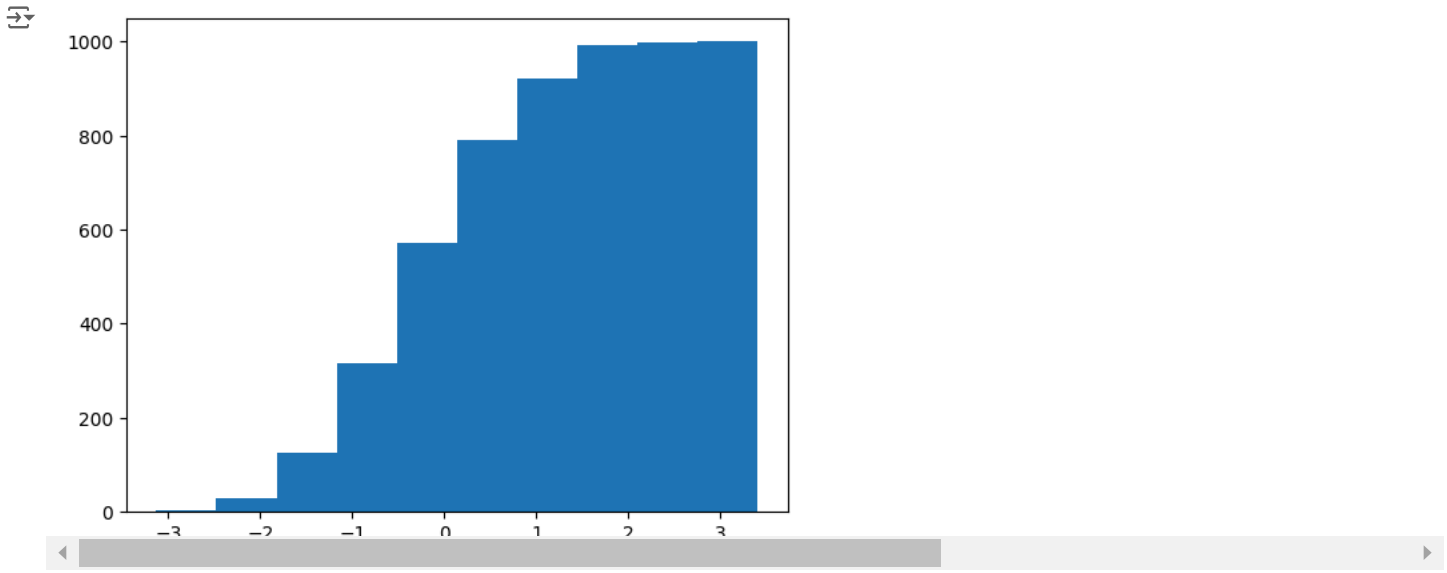


4.2 Cumulative Histogram

```
data =np.random.randn(1000)
plt.hist(data,bins=10)
plt.show()
```



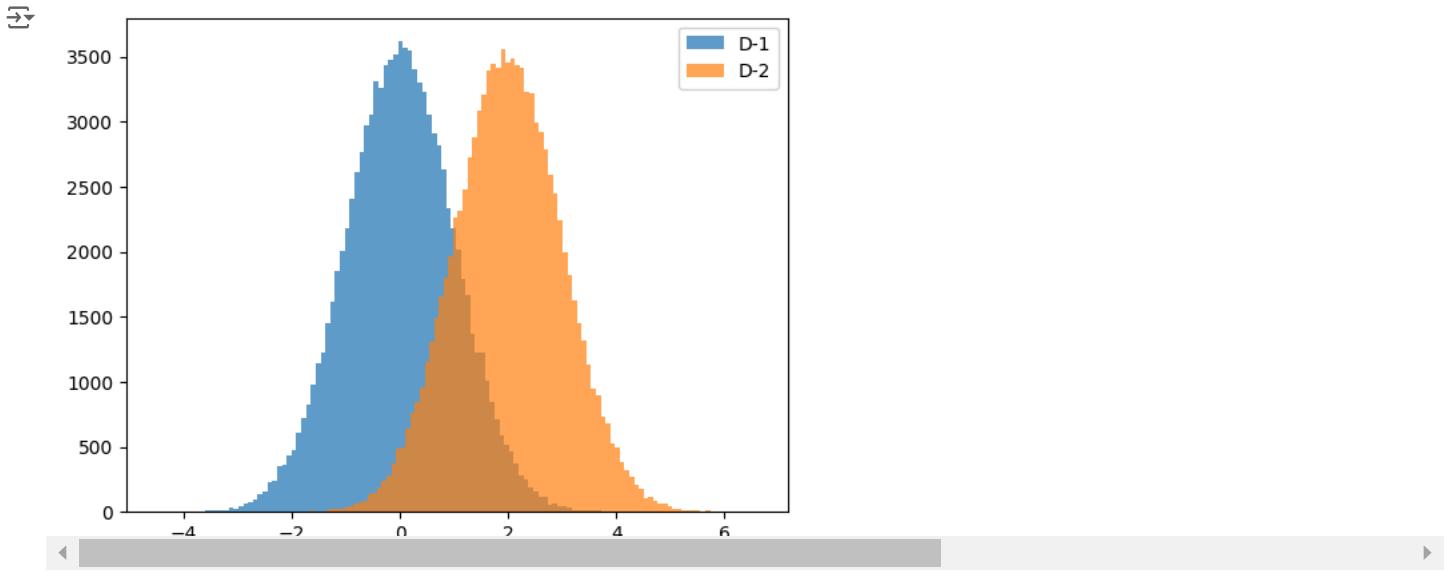

```
data =np.random.randn(1000)
plt.hist(data,bins=10,cumulative=True)
plt.show()
```



4.3 Histogram with multiple datasets

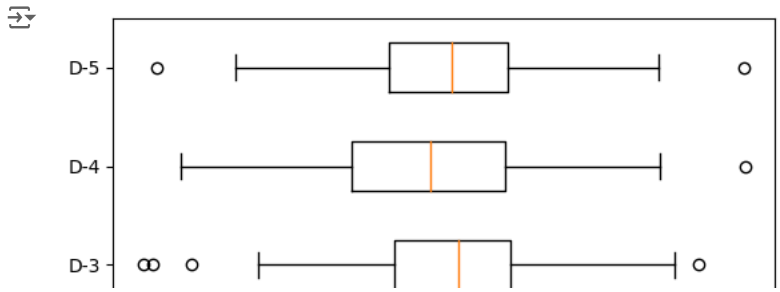
```
data1=np.random.randn(100000)
data2=np.random.randn(100000)+2
plt.hist(data1,bins=100,cumulative=False,alpha=.7  , label='D-1')
plt.hist(data2,bins=100,cumulative =False ,alpha=.7 ,label='D-2')
plt.legend()

plt.show()
```



5. Box Plot

```
data=np.random.randn(100,5)
plt.boxplot(data,labels=['D-1','D-2','D-3','D-4','D-5'], vert=False)
plt.show()
```



6. Heatmap

```
data=np.random.randn(10,10)
plt.imshow(data)
plt.colorbar()
plt.show()
```