EXPERIMENT 1

Question: Write a program of ML in python to find Mean, Median & Mode

Aim: The aim of the program is to calculate & display Mean, Median & Mode

Procedure:

#Mean

```
import numpy as np
a=[36,67,89,45,63,71]
x=np.mean(a)
print(x)
```

Output:

```
61.833333333333336
```

#Median

```
import numpy as np
a=[36,67,89,45,63,71]
x=np.median(a)
print(x)
```

Output:

```
65.0
```

#Mode

```
from scipy import stats
a=[36,67,89,45,63,71,45]
x=stats.mode(a)
print(x)
```

Output:

```
ModeResult(mode=array([45]), count=array([2]))
```

EXPERIMENT 2

Question: Write a program of ML in python to find variance and standard deviation

Aim: The aim of the program is to calculate & display variance and standard deviation

Procedure:

```
#variance
import numpy as np
a=[36,67,89,45,63,71]
x=np.var(a)
print(x)
```

Output:

```
300.13888888888886
```

```
#std deviation
import numpy as np
a=[36,67,89,45,63,71]
x=np.std(a)
print(x)
```

Output:

```
17.324516988617283
```

Result: Program executed successfully.

EXPERIMENT 3

Question: Write a program to Data Distribution in ML Python

Aim: The aim of the program is to plot a data distribution graph in ML Python

Procedure:

#Draw a histogram

import numpy as np

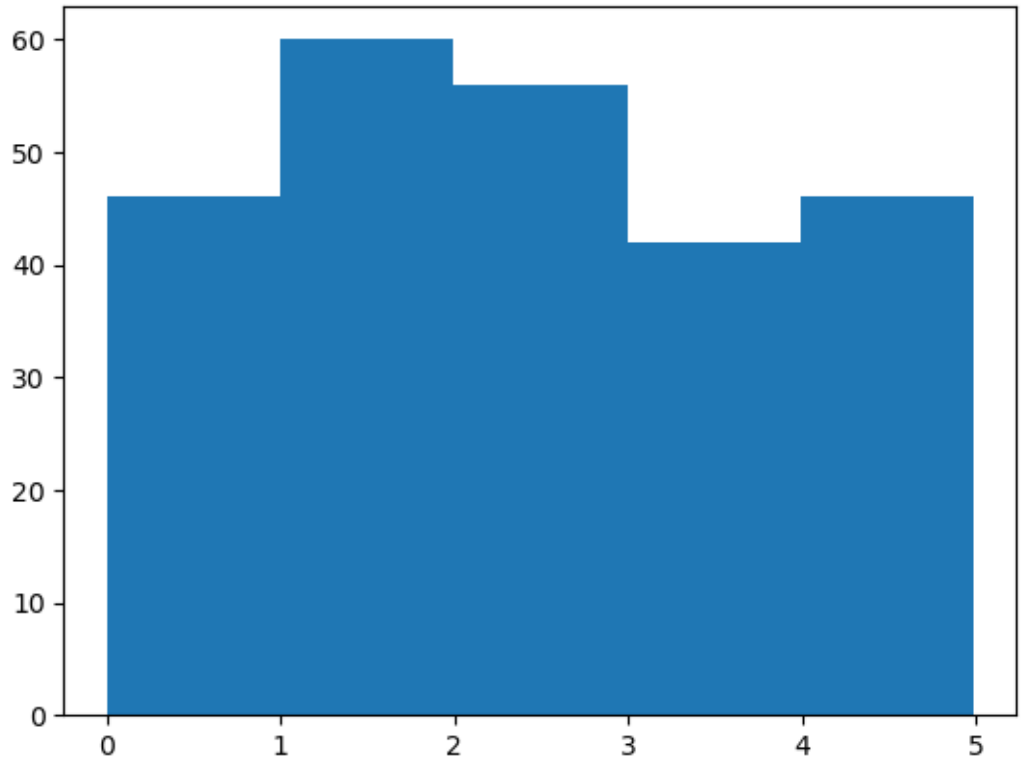
import matplotlib.pyplot as plt

x=np.random.uniform(0.0,5.0,250)

plt.hist(x,5)

plt.show()

Output:



#Big data distribution

import numpy as np

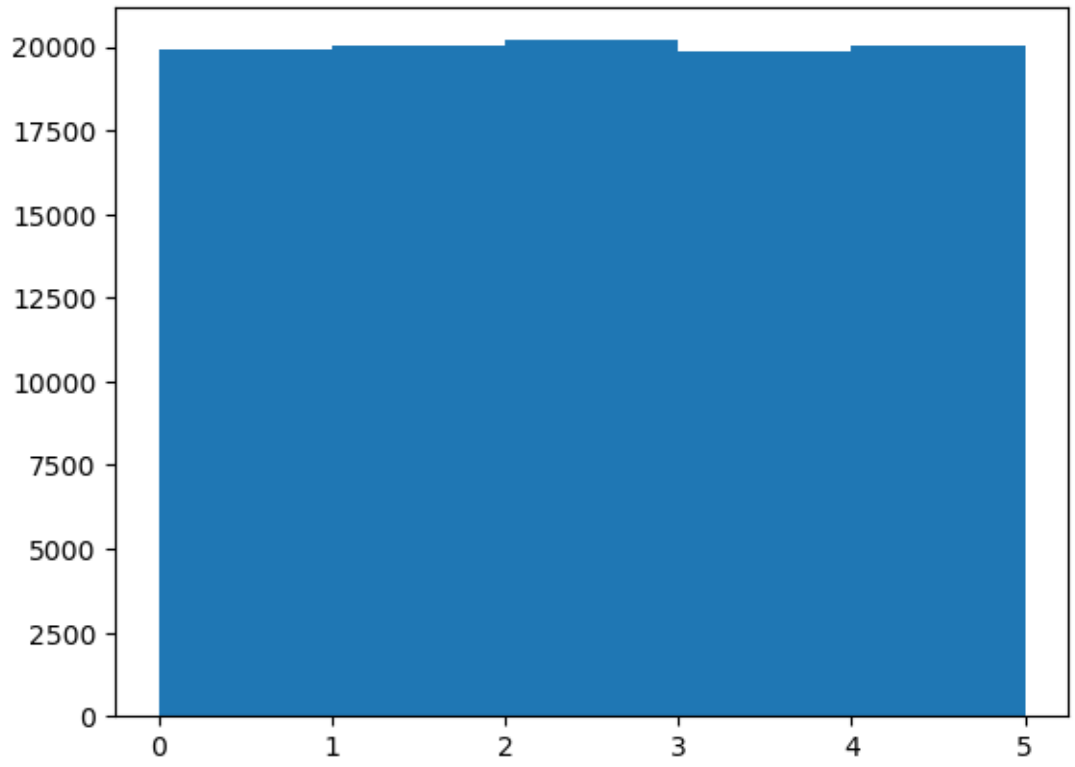
import matplotlib.pyplot as plt

x=np.random.uniform(0.0,5.0,100000)

plt.hist(x,5)

plt.show()

Output:



Result: Program executed successfully.

EXPERIMENT 4

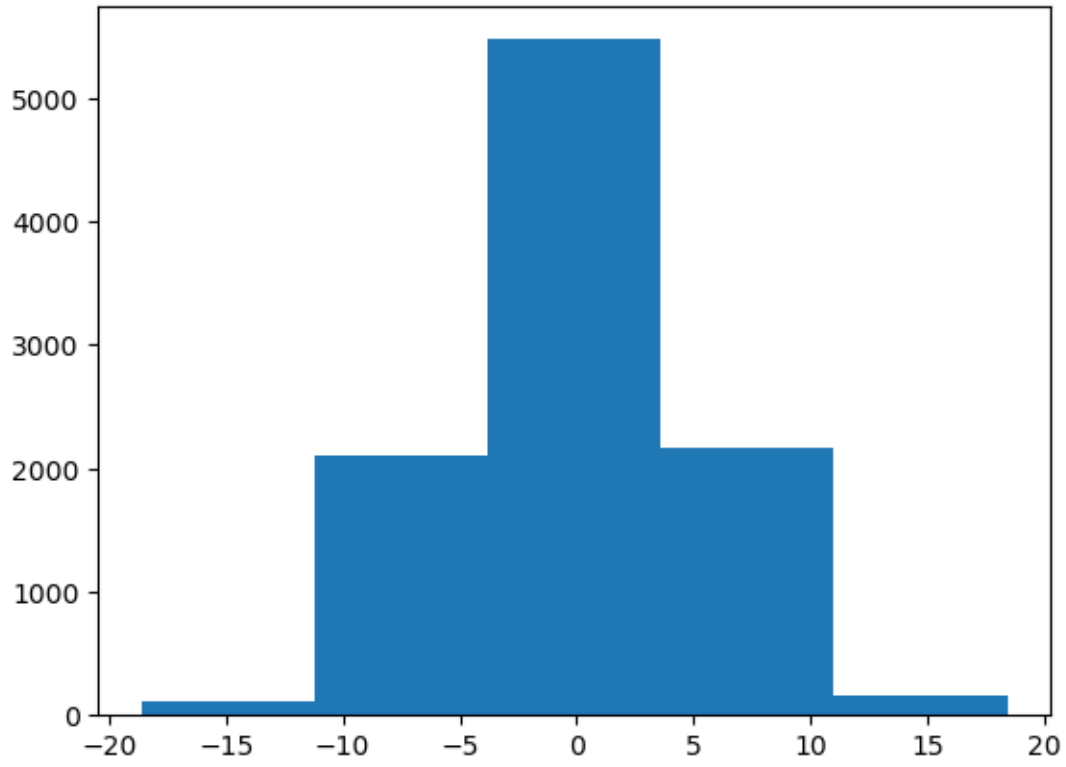
Question: Write a program to Normal Data Distribution in ML Python

Aim: The aim of this program to plot a normal data distribution graph in ML Pyhton

Procedure:

```
#Normal data distribution

import numpy as np

import matplotlib.pyplot as plt

x=np.random.normal(0.0,5.0,10000)

plt.hist(x,5)

plt.show()
```

Output:



Result: Program executed successfully.

EXPERIMENT 5

Question: Write a program for scatter plot in ML python

Aim: The aim of this program is to plot a scatter graph in ML python

Procedure:

#Scatter plot

import numpy as np

import matplotlib.pyplot as plt

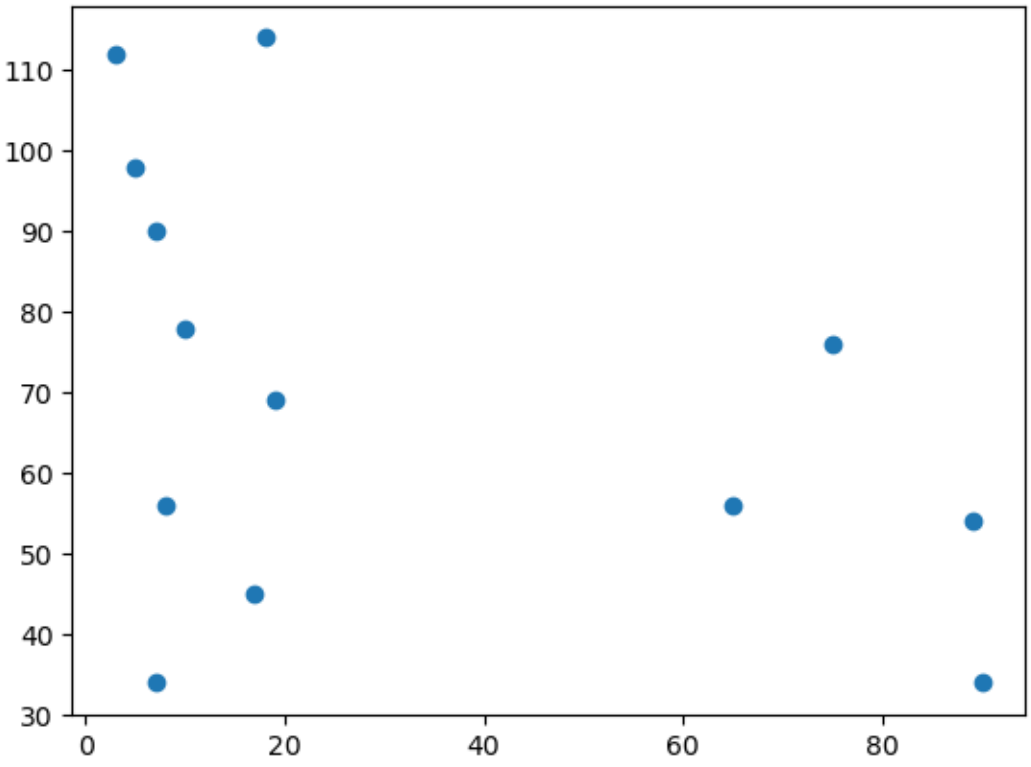
x= [3,7,8,10,5,17,18,19,7,75,89,90,65]

y= [112,34,56,78,98,45,114,69,90,76,54,34,56]

plt.scatter(x,y)

plt.show

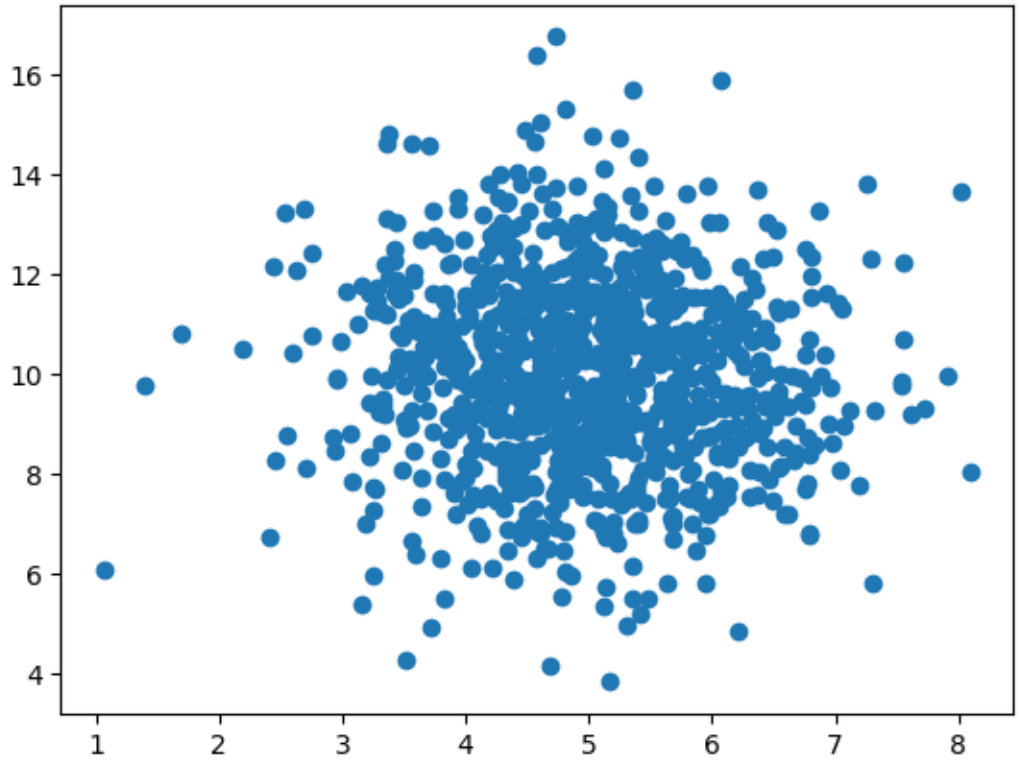
Output:



#Normal distribution Scatter plot

```
import numpy as np

import matplotlib.pyplot as plt


x= np.random.normal(5.0,1.0,1000)

y= np.random.normal(10.0,2.0,1000)


plt.scatter(x,y)

plt.show
```

Output:



Result: - We successfully plot the scatter plot.

EXPERIMENT 6

Question: Write a program to calculate the Linear Reggression in Python

Aim: The aim of this program is to calculate the Linear Reggression in Python

Procedure:

```
from sklearn.linear_model import LinearRegression

x=np.array([[98],[78],[45],[89],[70],[66],[32],[100],[55],[43]])

y=np.array([8,5,2,9,6,5.5,1,10,2,1.6])

model = LinearRegression()

model.fit(x,y)

print("Linear Regression Intercept:", model.intercept_)

print("Linear Regression Coefficient :\n", model.coef_)
```

Output:

```
Linear Regression Intercept: -3.9146236052176615
Linear Regression Coefficient :
 [0.13202106]
```

Result:

We successfully got the intercept and coefficient of Linear Regression model

EXPERIMENT - 7

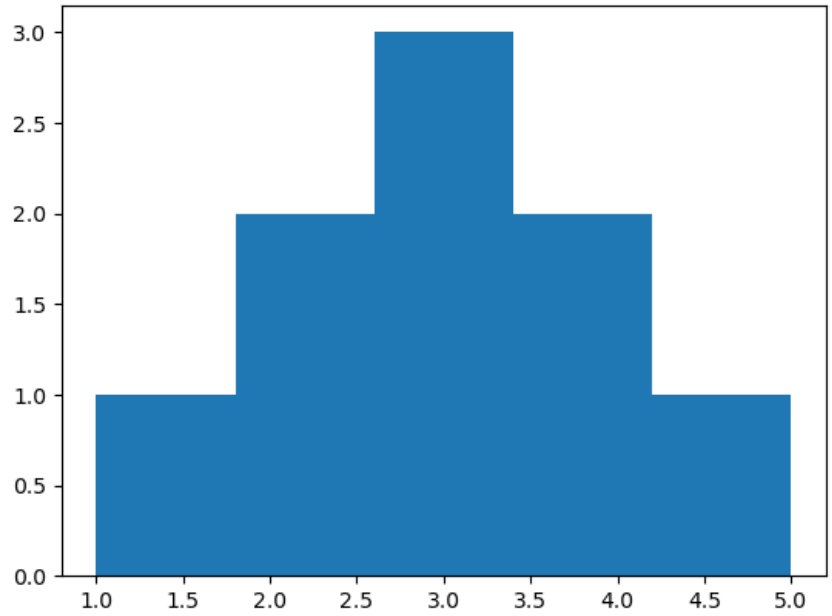
Question: Write a program to plot Histogram, Box plot, Scatter Plot

Aim: The aim of this program is to plot histogram, boxplot and scatter plot.

Procedure:

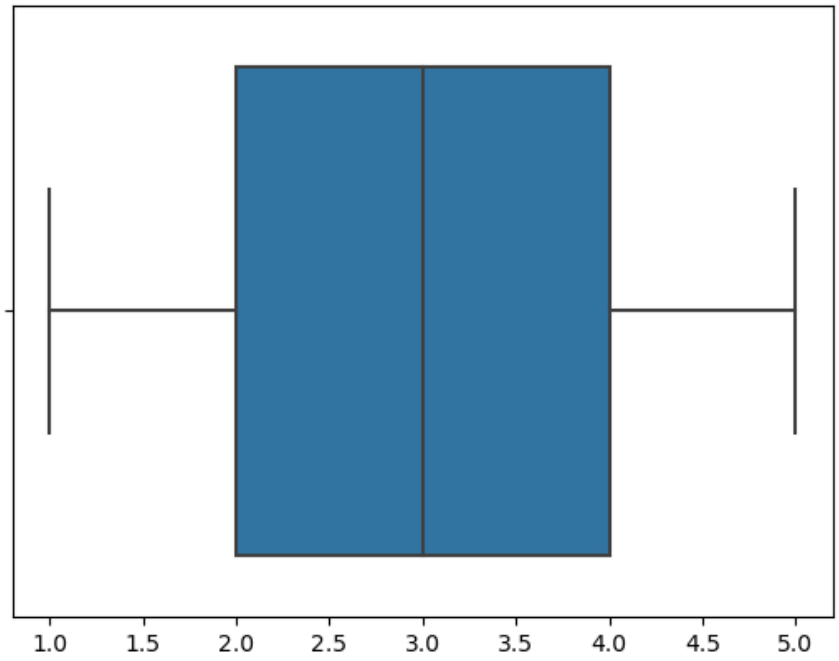
```
# Histogram

import matplotlib.pyplot as plt

data = [1,2,2,3,3,3,4,4,5]

plt.hist(data,bins=5)

plt.show()
```

Output:




```
# Box Plot

import seaborn as sns

data = [1,2,2,3,3,3,4,4,5]

sns.boxplot(data)

plt.show()
```

Output:



Scatter Plot

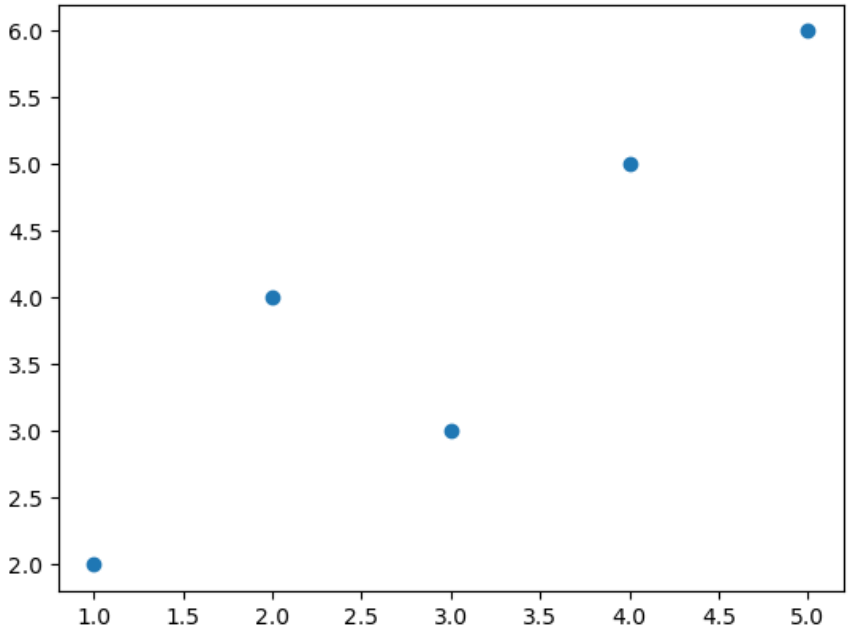
x = [1,2,3,4,5]

y = [2,4,3,5,6]

plt.scatter(x,y)

plt.show()

Output:



Result: - We successfully plot the histogram, boxplot and scatterplot in python.