Plotting with Pyplot

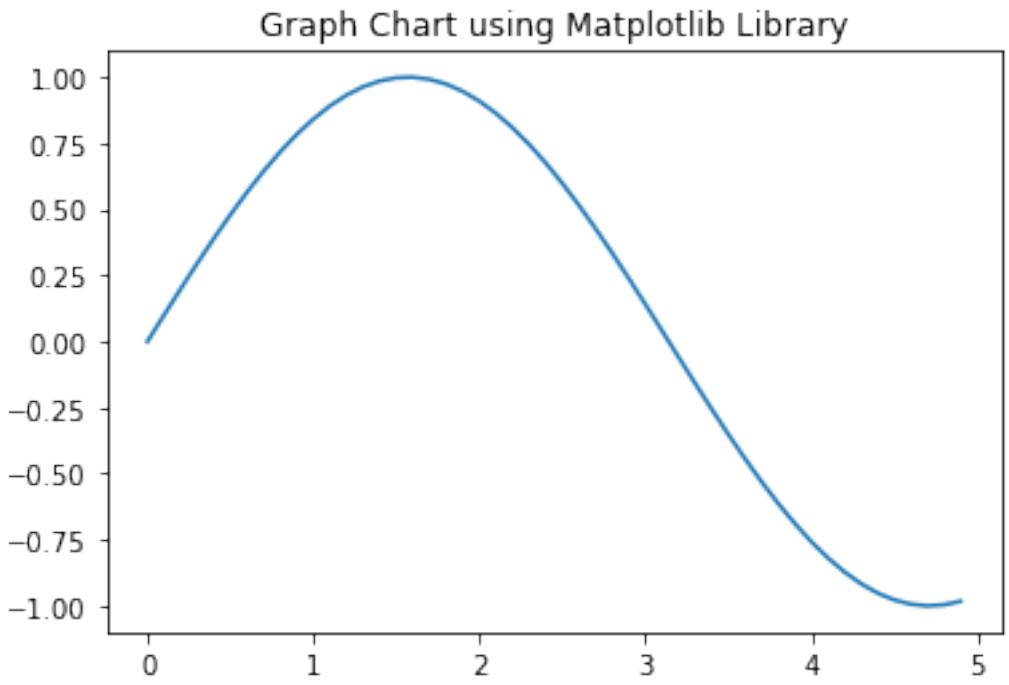
April 24, 2019

```
In [83]: print("\nSANJEEV SHARMA")
         print("\nInformatics Practices(New)\nCLASS XII\nCode No. 065 \n2019-20\nUnit 1: Data H
```

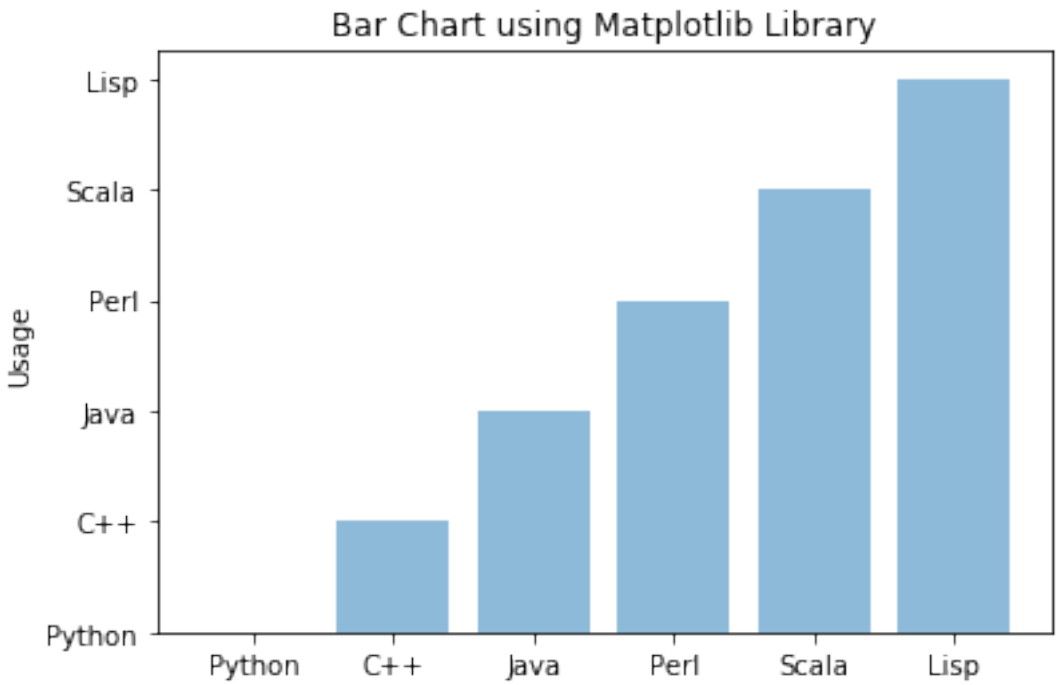
```
SANJEEV SHARMA

Informatics Practices(New)
CLASS XII
Code No. 065
2019-20
Unit 1: Data Handling DH-2
Plotting with Pyplot
```

```
In [3]: # A Python program to draw Graph chart using Matplotlib Library
        import numpy as np
        import matplotlib.pyplot as plt

        x = np.arange(0, 5, 0.1);
        y = np.sin(x)
        plt.title("Graph Chart using Matplotlib Library")
        plt.plot(x, y)
```

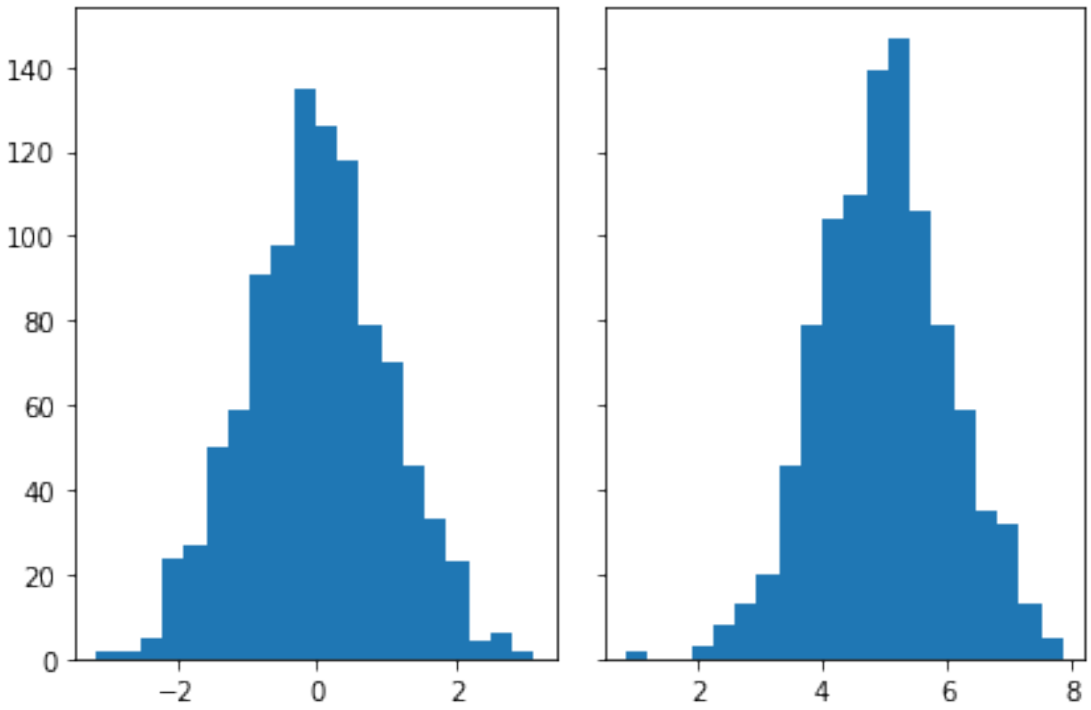
```
Out[3]: [<matplotlib.lines.Line2D at 0x7f1e180be630>]
```



In [5]:
```
# A Python program to draw Bar chart using Matplotlib Library

import matplotlib.pyplot as plt

languages = ('Python', 'C++', 'Java', 'Perl', 'Scala', 'Lisp')
y_pos = [0,1,2,3,4,5]
performance = [10,8,6,4,2,1]

plt.bar(y_pos, languages, align='center', alpha=0.5)
plt.xticks(y_pos, languages)
plt.ylabel('Usage')
plt.title('Bar Chart using Matplotlib Library')

plt.show()
```

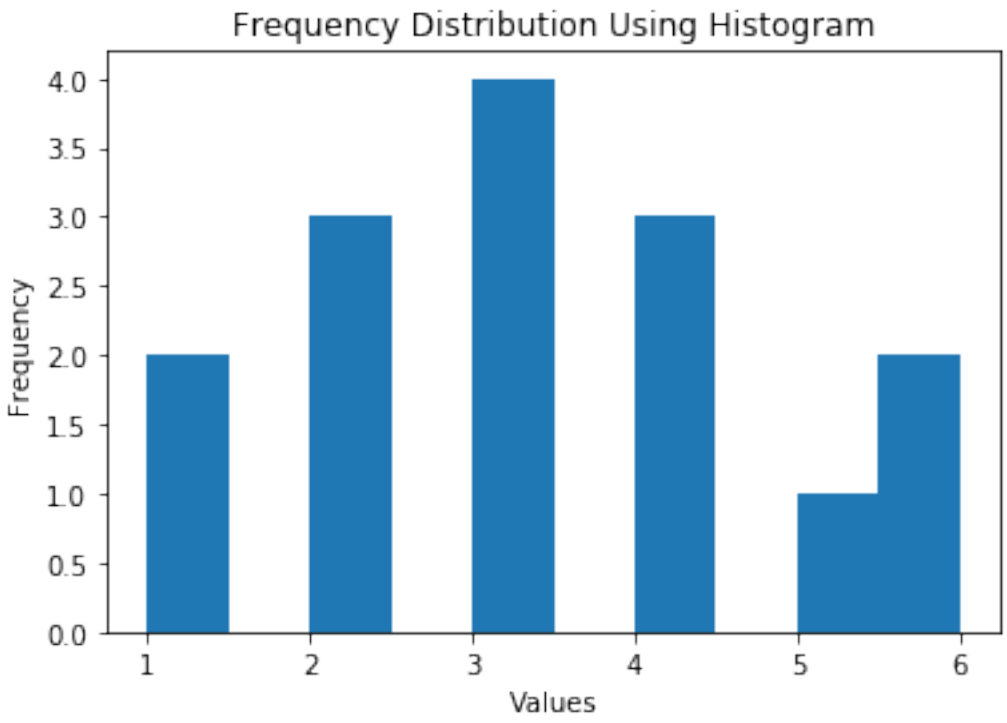



```
In [7]: N_points = 1000
        n_bins = 20

        # Generate a normal distribution, center at x=0 and y=5
        x = np.random.randn(N_points)
        y = .4 * x + np.random.randn(1000) + 5

        fig, axs = plt.subplots(1, 2, sharey=True, tight_layout=True)

        # We can set the number of bins with the `bins` kwarg
        axs[0].hist(x, bins=n_bins)
        axs[1].hist(y, bins=n_bins)

Out[7]: (array([  2.,   0.,   0.,   3.,   8.,  13.,  20.,  46.,  79., 104., 110.,
                139., 147., 106.,  79.,  59.,  35.,  32.,  13.,   5.]),
         array([0.84240951, 1.19312563, 1.54384176, 1.89455788, 2.245274  ,
                2.59599012, 2.94670624, 3.29742236, 3.64813849, 3.99885461,
                4.34957073, 4.70028685, 5.05100297, 5.4017191 , 5.75243522,
                6.10315134, 6.45386746, 6.80458358, 7.1552997 , 7.50601583,
                7.85673195]),
         <a list of 20 Patch objects>)
```

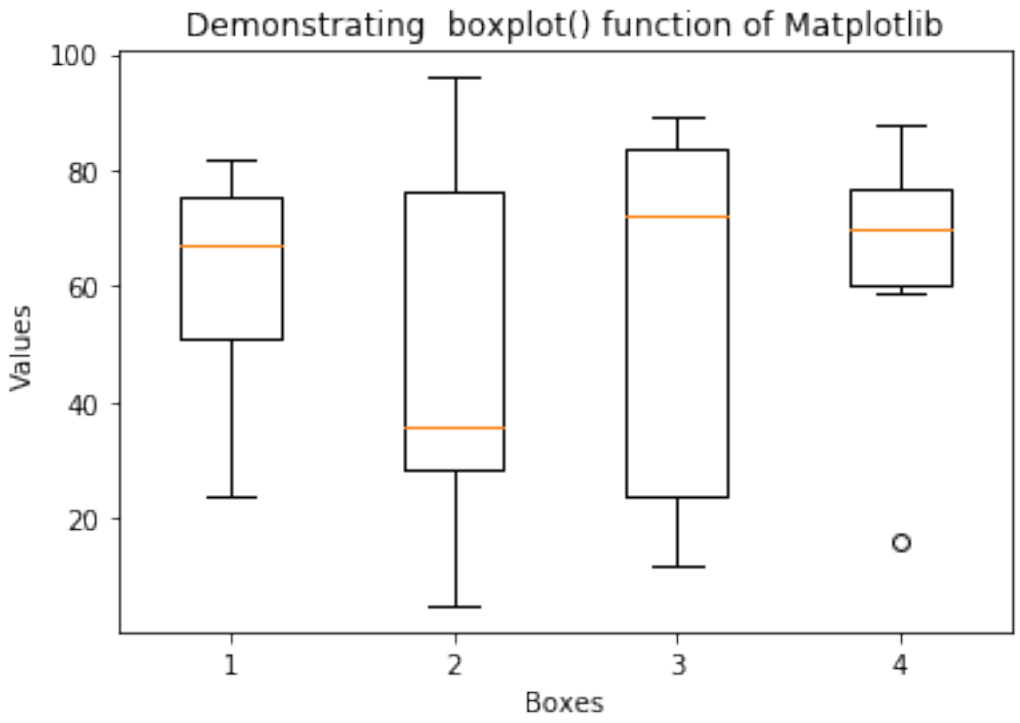


In [13]:
```
# A Python program of Frequency Distribution Using Histogram

import matplotlib.pyplot as plt
import numpy as np

FData =[1,2,3,4,3,2,5,6,4,3,2,1,3,4,6]

plt.xlabel('Values')
plt.ylabel('Frequency')
plt.title('Frequency Distribution Using Histogram')

plt.hist(FData)
```

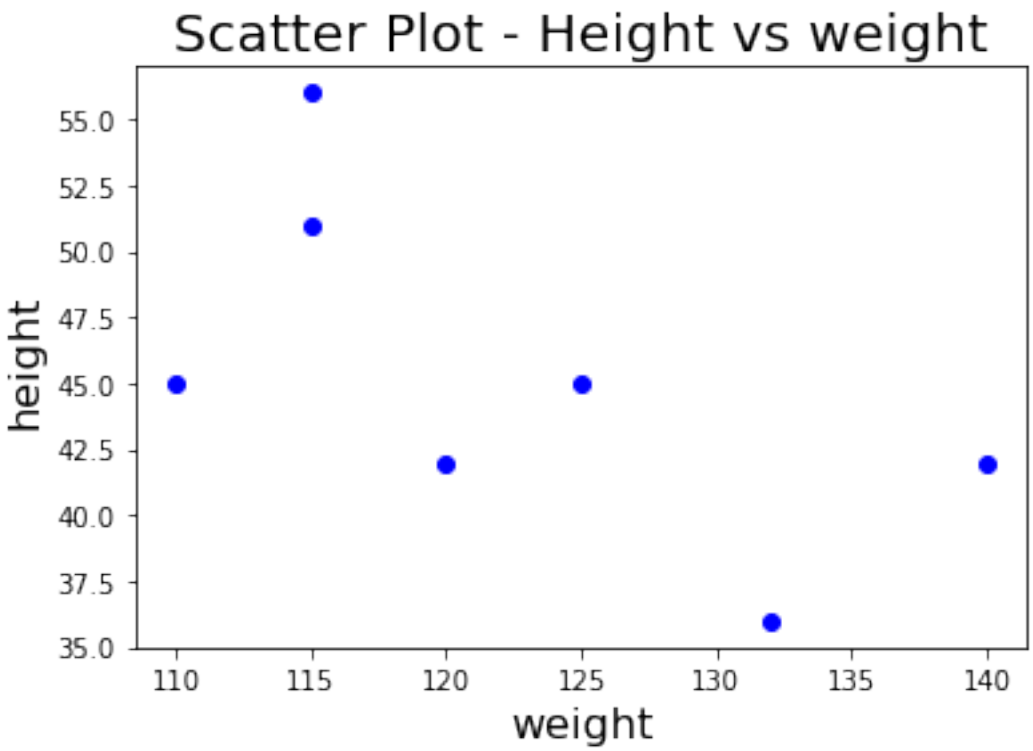
Out[13]:
```
(array([2., 0., 3., 0., 4., 0., 3., 0., 1., 2.]),
 array([1. , 1.5, 2. , 2.5, 3. , 3.5, 4. , 4.5, 5. , 5.5, 6. ]),
 <a list of 10 Patch objects>)
```



In [39]:
```
# A Python program demonstrating  boxplot() function of Matplotlib
import matplotlib.pyplot as plt
Students = ["Arsi","Anchal","Arzoo","Muskan" ,"Pallavi" ,"Shambhvi" ,"Ishita"]
Math = [82,76,24,40,67,62,75]
Hindi=[62,5,91,25,36,32,96]
English=[23,89,12,78,72,89,25]
Science=[59,73,70,16,81,61,88]

box_plot_data=[Math,Hindi,English,Science]
plt.title("Demonstrating  boxplot() function of Matplotlib")
plt.xlabel('Boxes')
plt.ylabel('Values')

# Use of boxplot Function
plt.boxplot(box_plot_data)

plt.show()
```

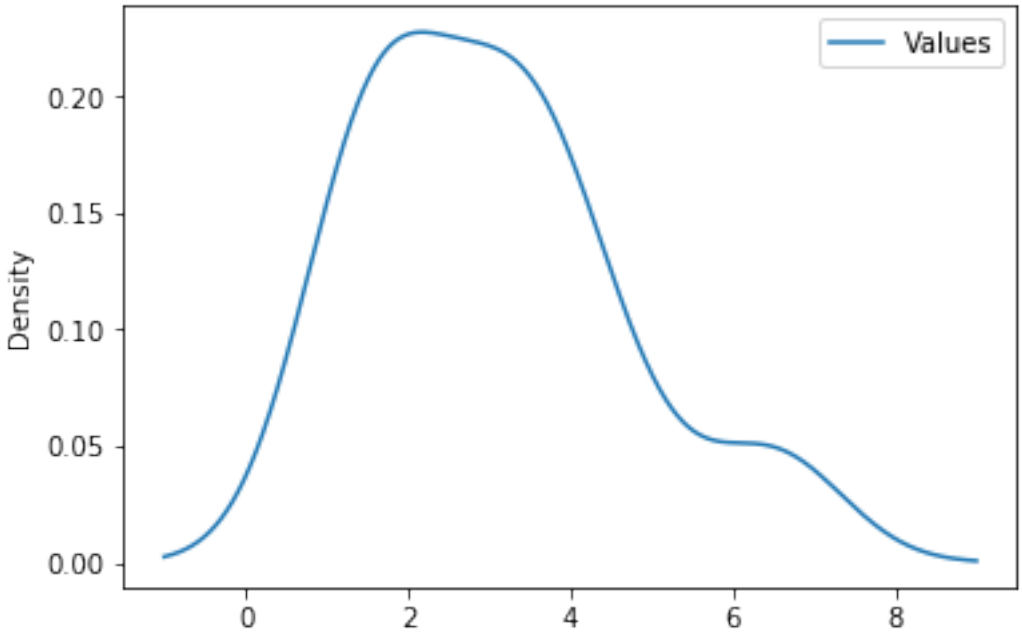



```
In [58]: # A Python program demonstrating  scatter() function of Matplotlib
         import matplotlib.pyplot as plt
         Students = ["Arsi","Anchal","Arzoo","Muskan" ,"Pallavi" ,"Shambhvi" ,"Ishita"]
         Height = [120,125,115,110,132,140,115]
         Weight=[42,45,51,45,36,42,56]

         # Use of Scatter Function
         plt.scatter(Height,Weight, c='b') # c= 'b''means colour = blue
         plt.xlabel('Height', fontsize=16)
         plt.ylabel('Height', fontsize=16)
         plt.title('Scatter Plot - Height vs Weight',fontsize=20)

         plt.show()
```



In [82]:
```
# A Python program demonstrating  Frequency Polygon
import pandas as pd

Data = (1.5,1.5,1.5,1.5,1.5,1.5,1.5,2.5,2.5,2.5,3.5,3.5,3.5,3.5,3.5,3.5,4.5,4.5,6.5,6

df = pd.DataFrame({'Values': Data}) # Creation of Dictionary
df.plot(kind='density')
print("\nFrequency Polygon\n")
```

```
Frequency Polygon
```



In [ ]: