Matplotlib

Matplotlib Introduction

- Matplotlib is a low level graph plotting library in python that serves as a visualization utility.
- Matplotlib is open source and we can use it freely.
- Matplotlib was created by John D. Hunter.

Installation of Matplotlib

pip install matplotlib

```
[1]  !pip install matplotlib
```

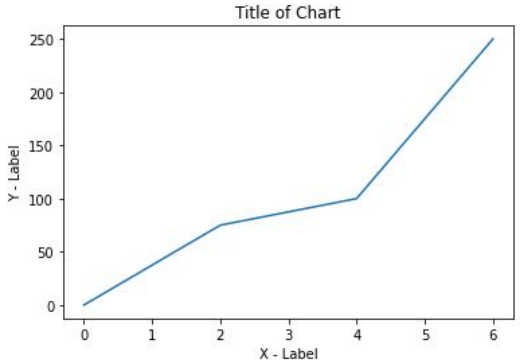
```
Requirement already satisfied: matplotlib in /usr/local/lib/python3.7/dist-packages (3.2.2)
Requirement already satisfied: cycler>=0.10 in /usr/local/lib/python3.7/dist-packages (from matplotlib) (0.11.0)
Requirement already satisfied: kiwisolver>=1.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib) (1.3.2)
Requirement already satisfied: pyparsing!=2.0.4,!=2.1.2,!=2.1.6,>=2.0.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib) (3.0.7)
Requirement already satisfied: numpy>=1.11 in /usr/local/lib/python3.7/dist-packages (from matplotlib) (1.19.5)
Requirement already satisfied: python-dateutil>=2.1 in /usr/local/lib/python3.7/dist-packages (from matplotlib) (2.8.2)
Requirement already satisfied: six>=1.5 in /usr/local/lib/python3.7/dist-packages (from python-dateutil>=2.1->matplotlib) (1.15.0)
```

Import Matplotlib

```
[2]  import matplotlib
     print(matplotlib.__version__)
```

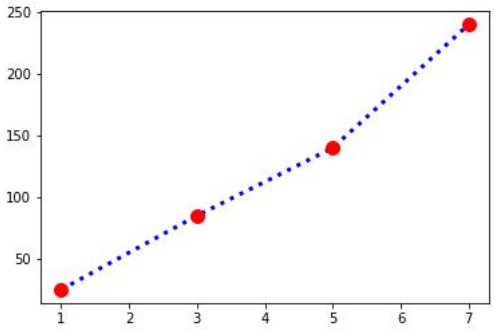
```
3.2.2
```

```
[3]  import matplotlib.pyplot as plt
     import numpy as np
     xpoints = np.array([0,2,4,6])
     ypoints = np.array([0,75,100,250])
     plt.title("Title of Chart")
     plt.xlabel("X - Label")
     plt.ylabel("Y - Label")
     plt.plot(xpoints, ypoints)
     plt.show()
```

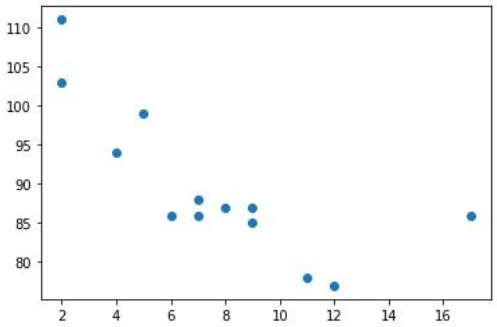


```
[4]  x = np.array([1,3,5,7])
     y = np.array([25,85,140,240])

     # ms = marker size, mec = marker edge color, mfc = marker face color,
     plt.plot(x, y,marker = 'o',ms = 10,mec = 'r', mfc = 'r',linestyle = 'dotted', color = 'b',linewidth = '3')
     plt.show()
```

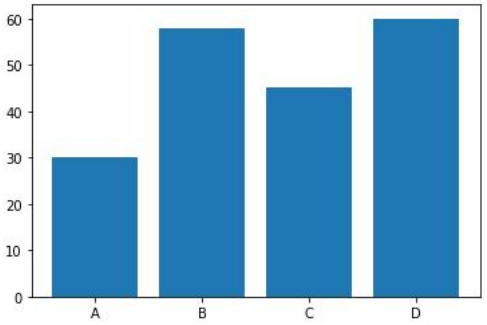



```
[5]  # scater plot
     x = np.array([5,7,8,7,2,17,2,9,4,11,12,9,6])
     y = np.array([99,86,87,88,111,86,103,87,94,78,77,85,86])
     plt.scatter(x, y)
     plt.show()
```



```
[6]  #Bar chart
     x = np.array(["A", "B", "C", "D"])
     y = np.array([30, 58, 45, 60])

     plt.bar(x,y)
     plt.show()
```




```
[7]  # Pie chart
     y = np.array([15, 35, 20, 30])

     plt.pie(y)
     plt.show()
```