Topics

- Data Visualization
- modules matplot library and scikit learn
- pandas and scikit learn are for data processing
- matplot library and seaborn are for data visualization
- The vision means we can represent the data points in a graph/plot
- graphical representation of data points in a plane

In [1]:
```python
import matplotlib.pyplot as plt
```

In [2]:
```python
print(dir(plt))
```

...

In [13]:
```python
# Sample Graph of 2 list of values
x=[1,2,3,4,5] # asceding order
y=[10,20,30,40,50]
z=[34.5,67.8,70.8,89.7,95.6]
plt.title("Sample Plot")
plt.plot(x,y) # function
plt.xlabel("x-axis") # giving name to the x-axis
plt.ylabel("y-axis")
plt.show() # function
```

...

In [33]:
```python
# multiple plots in a plane
plt.title("Multiple plots")
plt.plot(x,y,color="green",linestyle="--",label='first') # dashed
plt.plot(y,z,color="blue",linestyle="dashed",label='second')
plt.plot(x,z,color="red",linestyle="-.",label="third") # dashed dot
plt.legend() # by default loc=4 bottom right
#loc=1:top right;loc=2:top left;loc=3:bottom left and loc=4:bottom rig
plt.show()
```

...

In [25]:
```python
# plot between days and temp
from matplotlib import style
style.use("ggplot") # grid plot
days=[1,2,3,4,5]
temp=[36,35,37.7,38,40.2]
plt.plot(days,temp,color="blue",linestyle='--',linewidth=5,marker="o"
plt.xlabel("Days",fontsize=15)
plt.ylabel("Temperature",fontsize=10)
plt.show()
```

...

Plotting Equations

In [34]:
```python
1  import numpy as np
```

In [48]:
```python
1  x=np.random.rand(3,3) # 0&1 # 9 values in x and
2  y=x**2+2 # 9 values in y
3  plt.plot(x,y)
4  plt.show()
```

. . .

In [47]:
```python
1  plt.plot(x,label='3 rows') # random array contains 3 rows:each row rep
2  plt.legend()
3  plt.show()
```

. . .

In [45]:
```python
1  x
```

. . .

In [49]:
```python
1  y
```

. . .

In [51]:
```python
1  plt.plot(y)
2  plt.show()
```

. . .

In [53]:
```python
1  plt.plot(x,y)
2  plt.show()
```

. . .

In [68]:
```python
1  a=np.arange(0,4*np.pi,0.1) # 0 to 3.14 array
2  b=np.sin(a)
3  plt.plot(a,b,'go')
4  plt.show()
```

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bar graphs

- bar graph
- histogram

In [82]:
```python
1  course=['Python','Java','Web','Database']
2  p1=[30,50,40,70]
3  p2=[90,89,56,46]
4  p3=[30,50,98,36]
5  plt.bar(course,p1,width=0.5,color='green',align='edge',edgecolor="r",1
6  plt.show()
```

. . .

In [79]:
```python
plt.bar(p1,course,color='m',align='edge',edgecolor='y',linewidth=2)
plt.show()
```

...

In [89]:
```python
plt.barh(course,p2,color='g')
#plt.bar(p2,course,color='r')
plt.show()
```

...

In [ ]:
```python

```