Activity 7 – LINEAR REGRESSION

In [2]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
from sklearn.model_selection import train_test_split
from sklearn.linear_model import LinearRegression
```

In [3]:
```
data = pd.read_csv("Salary_Data.csv")
```

In [4]:
```
data.head(10)
```

Out[4]:

	YearsExperience	Salary
0	1.1	39343.0
1	1.3	46205.0
2	1.5	37731.0
3	2.0	43525.0
4	2.2	39891.0
5	2.9	56642.0
6	3.0	60150.0
7	3.2	54445.0
8	3.2	64445.0
9	3.7	57189.0

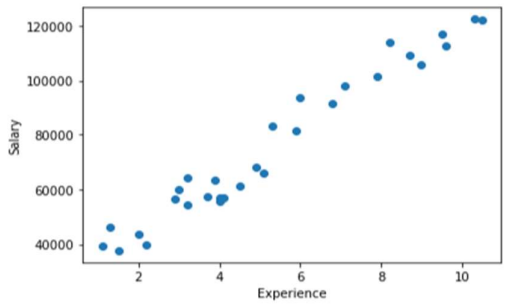
In [5]:
```
x = np.array(data["YearsExperience"]).reshape(-1,1)
x
```

Out[5]:
```
array([[ 1.1],
       [ 1.3],
       [ 1.5],
       [ 2. ],
       [ 2.2],
       [ 2.9],
       [ 3. ],
       [ 3.2],
       [ 3.2],
       [ 3.7],
       [ 3.9],
       [ 4. ],
       [ 4. ],
       [ 4.1],
       [ 4.5],
       [ 4.9],
       [ 5.1],
       [ 5.3],
       [ 5.9],
       [ 6. ],
       [ 6.8],
       [ 7.1],
       [ 7.9],
       [ 8.2],
       [ 8.7],
       [ 9. ],
       [ 9.5],
       [ 9.6],
       [10.3],
       [10.5]])
```

In [6]:
```
y = data["Salary"]
y
```

Out[6]:
```
0      39343.0
1      46205.0
2      37731.0
3      43525.0
4      39891.0
5      56642.0
6      60150.0
7      54445.0
8      64445.0
9      57189.0
10     63218.0
11     55794.0
12     56957.0
13     57081.0
14     61111.0
15     67938.0
16     66029.0
17     83088.0
18     81363.0
19     93940.0
20     91738.0
21     98273.0
22    101302.0
23    113812.0
24    109431.0
25    105582.0
26    116969.0
27    112635.0
28    122391.0
29    121872.0
Name: Salary, dtype: float64
```

```
plt.xlabel("Experience")
plt.ylabel("Salary")
plt.show()
```



[8]:
```
# Data splitting
X_train, X_test, y_train, y_test = train_test_split(x,y,test_size = 0.3)

print(len(X_train))
print(len(X_test))
```

```
21
9
```

[9]:
```
model = LinearRegression()
model.fit(X_train,y_train)
```

t[9]:
```
LinearRegression()
```

[10]:
```
i = model.predict([[4]])
print(i)
```

```
[63892.80298879]
```

[11]:
```
# Evaluate the model
acc = model.score(X_test,y_test)
print(acc)
```

```
0.9721580319418861
```