Multiple Linear Regression Model

Step 1 - *Importing Libraries*

```
In [1]:   import numpy as np
          import pandas as pd
          from sklearn.linear_model import LinearRegression
          from sklearn.model_selection import train_test_split
          import matplotlib.pyplot as plt
```

Step 2 - *Importing Dataset*

```
In [2]:   df = pd.read_csv("Dataset\Salary_Data.csv")
          df.head()
```

Out[2]:

	YearsExperience	Age	Salary
0	1.1	21.0	39343
1	1.3	21.5	46205
2	1.5	21.7	37731
3	2.0	22.0	43525
4	2.2	22.2	39891

Step 3 - *Splitting dataset into training data and testing data*

```
In [3]:   x = df[["YearsExperience","Age"]]
          y = df["Salary"]
```

Step 4 - *Fit Linear Regression Model*

```
In [4]:   model = LinearRegression()
          model = model.fit(x, y)

          model
```

Out[4]:   LinearRegression()

```
In [5]:   # Coefficients of Model
```

```
model.coef_
```

Out[5]: array([6153.35330145, 1836.01359426])

In [6]:
```
# Intercept of Model

b = model.intercept_
b
```

Out[6]: -6661.98719881312

In [7]:
```
i1 = model.coef_[0]
i2 = model.coef_[1]
```

Step 5 - *Prediction*

Formula for Prediction : Salary = i1*YearsExperience* + *12*Age + b

In [8]:
```
model.predict([[1.1,21]])
```

Out[8]: array([38662.98691225])

Assignment

In [9]:
```
# How to test the efficiency of the model

x_train, x_test, y_train, y_test = train_test_split(x, y, test_size=0.2, random_state=0

reg = LinearRegression().fit(x_train, y_train)

train_score = reg.score(x_train, y_train)
test_score  = reg.score(x_test, y_test)

efficiency = test_score*100

print("Efficiency of Model :", efficiency)
```

Efficiency of Model : 98.77833011811587