

```
Linear Regression with Python
Predictive Analytics Using Supervised machine learning
Import the Libraries

In [1]:
import warnings
warnings.simplefilter('ignore')

Import numpy and pandas

In [2]:
import numpy as np
import pandas as pd

Import data visualization library

In [3]:
import matplotlib.pyplot as plt
%matplotlib inline

Import the dataset

In [4]:
Food_dataset = pd.read_csv('Food_demand.csv')

In [5]:
Food_dataset

Out [5]:
   id  week  center_id  meal_id  checkout_price  base_price  emailer_for_promotion  homepage_featured  num_orders
0    1000000    3      157    2760      233.83      231.83              0              0              149
1    1000001    100     104    2956      486.03      583.03              0              0              161
2    1000002    143     75    1971      328.86      327.86              0              0              149
3    1000003    41     24    2539      145.53      145.53              0              0              540
4    1000004    45     83     2539       95.06      120.34              0              0              271
...
...
1994  1002177    89     72    3111      130.04      177.51              0              0              68
1995  1002178    24     50    2444      604.31      606.31              0              0              109
1996  1002179    43     80    2914      291.06      291.06              0              0              366
1997  1002180    58     58    473.39      473.39              0              0              42
1998  1002191    105     177    2322      284.27      284.27              0              0              485
1999 rows x 9 columns

In [6]:
Food_dataset.shape

Out [6]:
(1999, 9)

In [7]:
Food_dataset.head()

Out [7]:
   id  week  center_id  meal_id  checkout_price  base_price  emailer_for_promotion  homepage_featured  num_orders
0    1000000    3      157    2760      233.83      231.83              0              0              149
1    1000001    100     104    2956      486.03      583.03              0              0              161
2    1000002    143     75    1971      328.86      327.86              0              0              149
3    1000003    41     24    2539      145.53      145.53              0              0              540
4    1000004    45     83     2539       95.06      120.34              0              0              271
...
...
1994  1002177    89     72    3111      130.04      177.51              0              0              68
1995  1002178    24     50    2444      604.31      606.31              0              0              109
1996  1002179    43     80    2914      291.06      291.06              0              0              366
1997  1002180    58     58    473.39      473.39              0              0              42
1998  1002191    105     177    2322      284.27      284.27              0              0              485
1999 rows x 9 columns

In [8]:
Food_dataset.drop(['id', 'week', 'center_id', 'meal_id', 'checkout_price', 'emailer_for_promotion', 'homepage_featured'], axis = 1)

In [9]:
Food_dataset

Out [9]:
   base_price  num_orders
0      231.83           149
1      583.03           161
2      327.86           149
3      145.53           540
4      120.34           271
...
...
1994      177.51             68
1995      606.31           109
1996      291.06           366
1997      473.39            42
1998      284.27           485
1999 rows x 2 columns

In [10]:
x = Food_dataset.iloc[:,0]

In [11]:
x.shape

Out [11]:
(1999,)

In [12]:
x=Food_dataset.iloc[:,0].values.reshape(-1,1)

In [13]:
x.shape

Out [13]:
(1999, 1)

In [14]:
x

Out [14]:
array([[231.83],
       [583.03],
       [327.86],
       ...,
       [177.51],
       [606.31],
       [291.06],
       [473.39],
       [284.27]])

In [15]:
y = Food_dataset.iloc[:,1].values.reshape(-1,1)

In [16]:
y.shape

Out [16]:
(1999, 1)

In [17]:
y

Out [17]:
array([[149],
       [161],
       [149],
       ...,
       [68],
       [109],
       [366],
       [42],
       [485]], dtype=int64)

In [18]:
plt.scatter(x,y)
plt.show()

Out [18]:


In [26]:
from sklearn.model_selection import train_test_split

In [28]:
x_train, x_test, y_train, y_test = train_test_split(x,y,test_size = 0.2,random_state=0)

In [29]:
x_train.shape

Out [29]:
(1599, 1)

In [30]:
x_test.shape

Out [30]:
(408, 1)

In [31]:
y_train.shape

Out [31]:
(1599, 1)

In [32]:
from sklearn.linear_model import LinearRegression

In [33]:
ln = LinearRegression()

Train the model Linear Regression

In [34]:
ln.fit(x_train,y_train)

Out [34]:
LinearRegression()

In [35]:
y_pred = ln.predict(x_test)

In [36]:
y_pred

Out [36]:
array([[233.34343189],
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