**What is Linear?**

First, let’s say that you are shopping at Big Bazaar. Whether you buy goods or not, you have to pay Rs 20 for parking ticket. Each apple price Rs 10, and you have to buy an (*x)* item of apple. Then we can populate a price list as below:

|  |  |
| --- | --- |
| Quantity | Price (Apple + Parking) |
| 1 | 30 |
| 2 | 40 |
| 3 | 50 |
| 4 | 60 |
| 5 | 70 |
| 6 | 80 |
| 7 | 90 |
| 8 | 100 |
| 9 | 110 |
| 10 | 120 |

It’s easy to predict (or calculate) the Price based on Value and vice versa using the equation of **y=2+1.5x** for this example or:

**Y = m\*x + c**

c = 20

m = 10

A **linear function** has one independent variable and one dependent variable. The independent variable is ***x*** and the dependent variable is ***y***.

* ***c*** is the constant term or the y intercept. It is the value of the dependent variable when ***x*** = 0.
* ***m*** is the coefficient of the independent variable. It is also known as the slope and gives the rate of change of the dependent variable.

**Coding Details & Explanation :**

* Code is attached in sperate file named Simple Linear Regression Simple Linear Regression.py.
* Coding is performed using python and jupyter notebook.
* In the last we are performing prediction for quantity as 91. Following is the code line that you can observe in code.
* # Predicting the price for Quantity 91

print(regressor.predict([[91]]))

Predicted result : 930

You can experiment with your own values and obtain the result

* Lastly, we calculated slope and intercept

#To retrieve the intercept :

print(regressor.intercept\_) = 20 i.e. in case our parking ticket price.

#For retrieving the slope or gradient:

print(regressor.coef\_) = 10 i.e. price of each apple