Logistic Regression

→ Classification Algorithm

→ In Regression Problem we used to predicted a continuous value. where as, in classification Problem we predict whether it is a yes or no type.

→ In Linear Regression we used distance travelled to price of car. In Classification we will use some other features also to predict whether the car is Costly or cheaper
(yes) (no)

→ Consider some features like
- ⇒ Rank Size
- ⇒ Mileage
- ⇒ Manufacturer

Now, these features will be feed to a mathematical function $F(x)$ and that function will gives different probabilities.

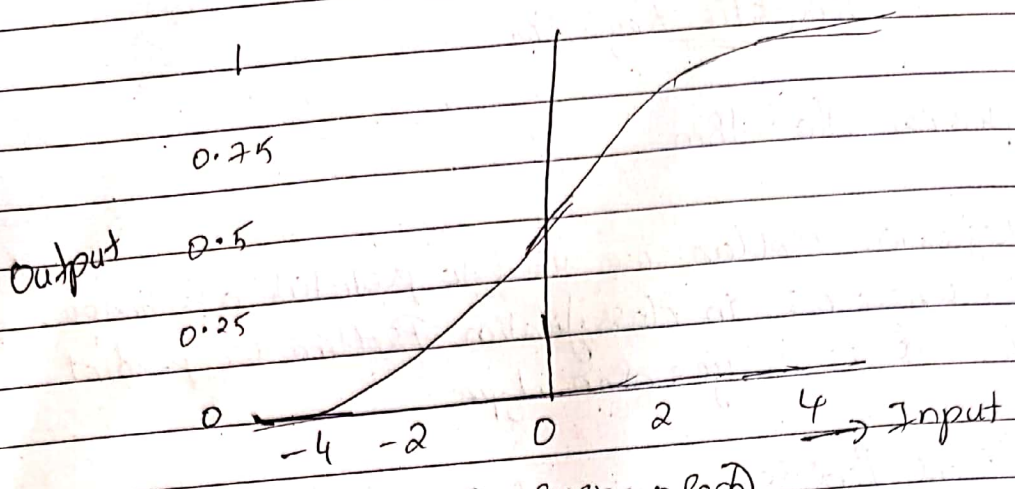
Suppose, if the probability is > 0.5 then car is costlier. This can happen vice-versa also.

→ Function would be like

→ Sigmoid

$$F(x) = \frac{1}{1+e^{-(A_1x_1 + A_2x_2 + A_3x_3)}}$$

Here A_1, A_2, A_3 are weights and x_1, x_2, x_3 are features respectively.



(Logistic regression graph)

Our aim is to maximize probability. For that we can delive gradient with respect to weights and set it to 0. Then run gradient descent to get optimal weights.