Future Connect Media

Machine learning Part C

Part of Future Connect Media's IT Course

By Abhishek Sharma

Topics to be covered:

Future
Connect
Media

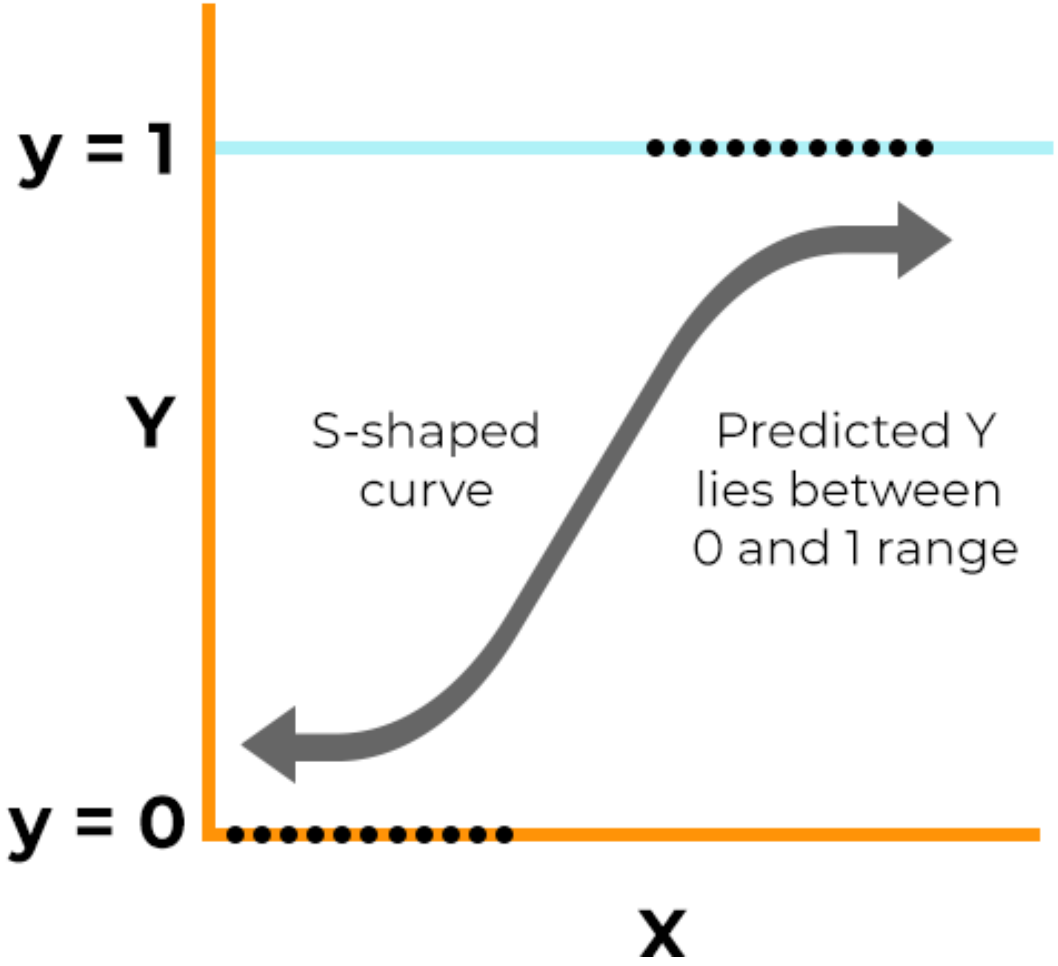
- Logistic Regression
- Logistic Regression VS Linear Regression

Future Connect Media

Logistic Regression

- The **logistic regression** statistic modeling technique is used when we have a binary outcome variable. For example: given the parameters, will the student pass or fail? Will it rain or not? etc.

- So, though we may have continuous or categorical independent variables, we can use the logistic regression modeling technique to predict the outcome when the outcome variable is binary.

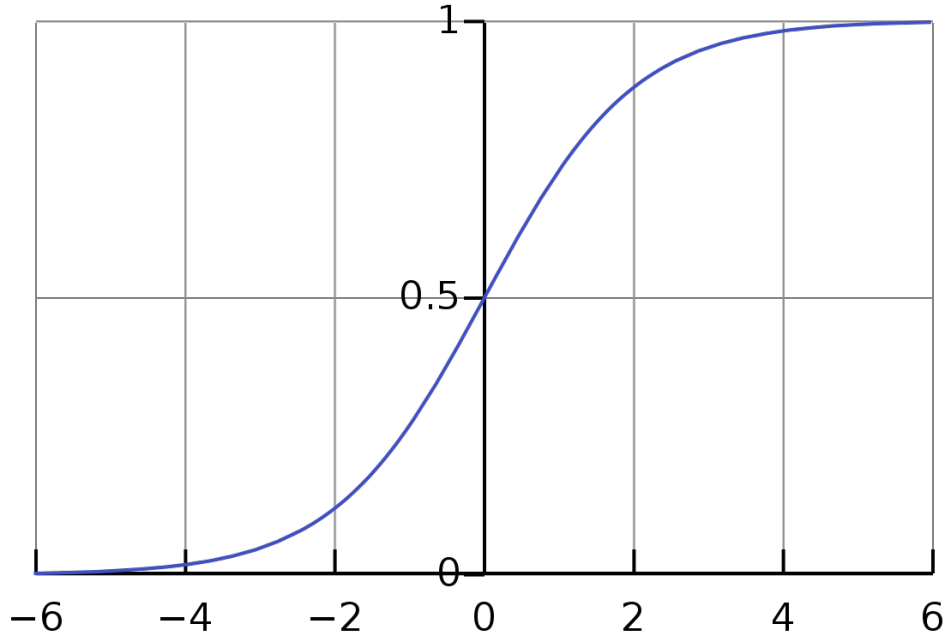


Logistic vs Linear Regression

- In order to know to difference between Logistic Regression and Linear Regression, first you will need to know what is **Logistic function:**

- The Logistic function is referred to as an activation function for logistic regression and is defined as:

$$f(x) = \frac{1}{1 + e^{-x}}$$



Future Connect Media

Continue……

- This is a linear Regression for single and multiple input variables:
- For converting the Linear Regression to Logistic Regression, we input this equation into logistic function.

Linear Regression: Single Variable

$$\hat{y} = \beta_0 + \beta_1 x + \epsilon$$

Predicted output | Coefficients | Input | Error

Linear Regression: Multiple Variables

$$\hat{y} = \beta_0 + \beta_1 x_1 + \ldots + \beta_p x_p + \epsilon$$