

Linear regression is a linear approach to compute the relationship between the dependent variable and the independent variables. Linear regression is often used in predictive analysis. In linear regression, a straight line is drawn which follows the below equation and known as hypothesis function.

Equation for Linear regression.

Here,
 θ = Denotes co-efficient matrix
 X = Denotes the matrix of independent variables
 $h_{\theta}(x)$ = Denotes a hypothesis function.

Figure 1: Basic Linear Regression

The coefficients θ are derived using the cost function, $J(\theta)$ which is shown in equation 5. When the cost function is minimized the values of the coefficients are considered derived.

$$J(\theta) = \frac{1}{2m} \sum_{i=1}^m (h_{\theta}(x_i) - y_i)^2$$

Here,
 m is the number of features
 Y_i is an element of output set $Y = y_1, y_2, y_3, \dots, y_n$ of the training dataset.

[illegible]