

<https://towardsdatascience.com/activation-functions-and-its-types-which-is-better-a9a5310cc8f?gi=51be57d90db>

<https://www.geeksforgeeks.org/activation-functions-neural-networks/>

<https://youtu.be/aircAruvnKk>

The main purpose of the activation function is to make the network more powerful. If we aren't using activation functions, we will get a linear network which cannot perform complex operations.

Also another important feature of a Activation function is that it should be differentiable. We need it to be this way so as to perform backpropagation optimization strategy while propagating backwards in the network to compute gradients of Error(loss) with respect to Weights and then accordingly optimize weights using Gradient descend or any other Optimization technique to reduce Error.

$y = (\text{number of Inputs} * \text{Respective Weights}) + \text{bias}$

A bias is the value which is added with the input layers but before output layers.

The main purpose of the activation function is that it will shift the activation graph away from the

Activation functions types :-

Sigmoid function :-

It is a function which is plotted as 'S' shaped graph.

•Equation :

$$A = 1/(1 + e^{-x})$$

•Nature : Non-linear. Notice that X values lies between -2 to 2, Y values are very steep.

This means, small changes in x would also bring about large changes in the value of Y.

•Value Range : 0 to 1

- Uses : Usually used in output layer of a binary classification, where result is either 0 or 1, as value for sigmoid function lies between 0 and 1 only so, result can be predicted easily to be 1 if value is greater than 0.5 and 0 otherwise.