Activation Function:-

Classfication of Activation based on Types, Usage, Number_of_classes, O/P_values

a)Types of Activation Function:-
1)Linear Activation Function
2)Non-Linera Activation Function:-

Linear Activation Function:-
The function is a line or linear. Therefore, the output of the functions will not be confined between any range.i,e,, the o/p is b/w (+ve)infinity to (-ve)infinity
Equation : f(x) = x
Range : (-infinity to infinity)
It doesn't help with the complexity or various parameters of usual data that is fed to the neural networks.So it was not commonly used in Neural network.

Non-linear Activation Function:-
The Nonlinear Activation Functions are the most used activation functions.
The Nonlinear Activation Functions are mainly divided on the basis of their range or curves-

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b)Usage of Activatiion Functions:-
1)Used in Hidden Layers:-Ex:-Relu Activation function(bcz it was used in convolution_layer)
2)Used in O/P_layers of /neural network:-Ex:-Sigmoid,Softmax,Tanh

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c)Number of classes:-
1)Sigmoid & Tanh:-The Sigmoid & tanh function is mainly used classification between two classes.
2)Softmax:-This is the only activation function used for Multi_class.

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d)O/P_values:-
1)Based on ranges:-
1)Sigmoid:-o/p range[0,1]
2)Tanh:- o/p range[-1,1]
3)Relu:- o/p range[o ,if x<0
x ,if x>=x]

2)Based on Probability:-
1)Softmax:-
Rather than range it gives the probabiity.by using its exponential formula.based on the highest probability of the class i,e,,Softmax used for multi class problem .'. which class probability value is higher it will gives that as o/p.

Working of Softmax activation function is
imp:-"https://www.youtube.com/watch?v=8ah-qhvaQqU"<---see this

read:-"https://towardsdatascience.com/activation-functions-neural-networks-1cbd9f8d91d6"
