Dear Scholars,

Assessment is a test to check our understanding about Deep learning. Carefully read the questions and as per the statement the execution needs to be carried out.

Duration of the test will be 90 minutes only. Answer all the questions, don't leave out any.

Note:

You are encouraged to work independently and to have original ideas in implementing the solutions.

Its an academic offense to share your username and password. Plagiarism is also a serious offense.

You are not allowed to browse on internet, which will be taken as academic offence

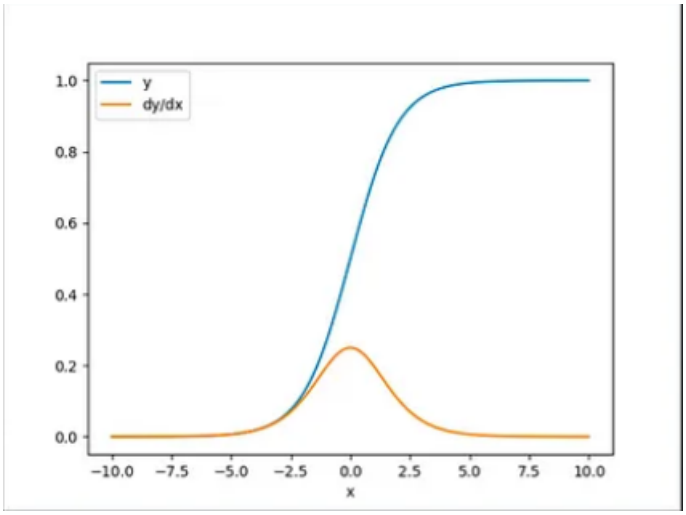
Google Colab is allowed, any other tab or browsing windows are found open, it will be taken as misconduct and grade will be zero

I am sure , you appreciate the need for assessment. **This is a test of your knowledge and also your integrity. I HOPE YOU WILL COME OUT AS A MORE SELF RESPECTING PERSON!**

Best wishes to all

Dr. Biji C. L.

1. Compute and plot the derivative of the sigmoid function. Implement using TensorFlow using Automatic Differentiation using GradientTape function [10 Marks]



2. (i) For Image classification of animal-like cat, dog, elephant, horse, and human , the target and output is given
   y_true = [[0, 1, 0],
   [0, 0, 1]]
   y_pred = [[0.05, 0.95, 0.56],
   [0.1, 0.4, 0.1]]
   Calculate categorical cross-entropy loss using tensorflow.
   (ii) Given y_true = [1, 0] and y_pred = [[0.15, 0.75, 0.1], [0.75, 0.15, 0.1]], calculate sparse Categorical Cross entropy using tensorflow

3. Implement a CNN for CIFAR dataset. Print the classification report and confusion matrix with and with out hyper parameter tuning