DL/DLOps (2023)
Lab Assignment 1: Perceptron and MLP [10 Marks]
Deadline: 14/01/2023, 23:59:59
There will be a 25% penalty for each day of late submission.

Guidelines for submission

1. Perform all tasks in a single colab file.
2. The colab file should be properly named with your complete roll number XYZ (ex: “XYZ_Lab_Assignment_1.ipynb”).
3. Try to write the code in functions and provide comments for readability wherever possible.
4. Submit the downloaded colab file [.ipynb] in the classroom.
6. Plagiarism will not be tolerated, and strict action will be taken as per institute policies.

Question 1 [4 Marks]

Implement a perceptron using the IRIS dataset. Perform backpropagation for two iterations.

Question 2 [6 Marks]

Implement an MLP using the IRIS dataset. Perform backpropagation for 15 iterations. The initial weights of the MLP should be randomly initialized. You can choose the activation function and loss function at your convenience, which gives the best performance.

The MLP should have 2 hidden layers, one with 4 neurons and one with 5 neurons. The input layer should have 4 neurons and the output layer should have 3 neurons.

Note - The backpropagation should be implemented from scratch using NumPy, and the use of inbuilt functions in PyTorch is not allowed for the same. Use of TensorFlow is not permitted, and marks shall not be given for the same.