CS561 - ARTIFICIAL INTELLIGENCE LAB

ASSIGNMENT-6: Neural Networks

(Read all the instructions carefully & adhere to them.)

Date:2nd November, 2021 **Deadline: 9th November, 2021**

Total Credit: 20

Instructions:

1. The assignment should be completed and uploaded by **9th Nov, 2021, 11:59 PM IST.**
2. Markings will be based on the correctness and soundness of the outputs. Marks will be deducted in case of plagiarism.
3. Proper indentation and appropriate comments are mandatory.
4. Make proper documentation of all results and observations with their analysis.
5. You should zip all the required files and name the zip file as:
roll_no_of_all_group_members .zip , eg. 1501cs11_1201cs03_1621cs05.zip.
6. Upload your assignment (**the zip file**) in the following link:
https://www.dropbox.com/request/U0bEGRUHhUS6ngqd7MYd

For any queries regarding this assignment you can contact:
Zishan Ahmad (zeeman.zishan@gmail.com)
Kanchan Jha (jha.kanchan15@gmail.com)
Gitanjali Singh (gitanjali.singh228@gmail.com)

Questions

---

1. Design and implement an artificial neural network to simulate XOR gate. Assign appropriate values to weights and thresholds to edges and nodes in the neural network.

Note: Do not use any DL library (Keras, pyTorch etc.) to implement the XOR gate

2. Go through the attached IRIS and MNIST datasets and design a Multi-Layer Perceptron (MLP) classifier. Train the feedforward networks using the given datasets and show the evaluation in terms of precision, recall, f-score and accuracy. Experiment with the number of neurons in the hidden layer and plot an accuracy v/s number of neurons graph.

Note: You can use any DL library to implement the classifier

Data Sets:

IRIS: https://archive.ics.uci.edu/ml/machine-learning-databases/iris/iris.data (Divide the data into train and validation sets having 80% of each class in train and rest for the test).

MNIST: http://yann.lecun.com/exdb/mnist/