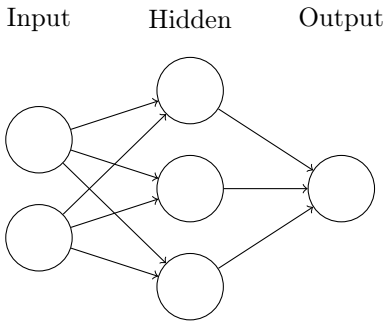
Homework No. 6

Multilayer Perceptron

Multi-layer Perceptron is a class of feedforward artificial neural network. an MLP consists of at least three layers of nodes: an input layer, a hidden layer and an output layer. Except for the input nodes, each node is a neuron that uses a nonlinear activation function. MLP utilizes a supervised learning technique called *backpropagation* for training. Its multiple layers and non-linear activation distinguish MLP from a linear perceptron. It can distinguish data that is not linearly separable.

Implement an MLP and train it using the training dataset – which consists of several lines with each line corresponding to a sample; each sample is a point in XY plane with a label equal to either zero or one. Test your network using the test file.
For this homework, we want to make our network over-fit (?); which is not something we usually want. To maximize your score, your network should have an accuracy of 98%. Needless to say, you should not use the test data to train your network.
Please clearly indicate for what test(s) your network did not correctly predict the labels. Describe your network; how many layers does it have? How many neurons are in each of the layers?

Upload a zip file containing your source code along with the summary.



Extras

Your homework will receive extra points for each of the following parts:
Extra ♭. network having an accuracy more than 99.7%.
Extra ♯. visualizing the data and the partitioning of your network.

Test Cases

Download the test cases here.

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