CPSC 481 – Section 4 – Project 2: Multilayer Perceptron (MLP)

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Project Development Report

The program begins by feeding in an initial Classified Set feature vectors from a text file. These sets are divided into a training set and a holdout set, one used for training the program and the other for testing the accuracy. Each of the vector will be in the format of (id (vector) label). The constructor will initialize the number of inputNode, hiddenNode, outputNode, and randomize the weights for all the connections from input to hidden, and hidden to output.

Once the data is set, the program will start the feedforward() function. All the data is in the form of matrices and calculations will be handle by the pre-defined functions in numpy. The feedforward() function will then calculate a guess and using that guess to calculate the error, how far it is away from the target. Using the error, the program will begin backpropagating and we can then adjust the weights connecting the nodes to have a better accuracy. The process will then be repeated for 10,000 times to train the network. The remaining holdout set will then be used to test our accuracy.