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Assignment 4 (written)

TASK1

The code is working completely fine for 2 layers and 10 training rounds but I did not get the good accuracy number.

Classification Accuracy= 0.09576901086335049

Task1b

python3 neural_network.py pendigits_training.txt pendigits_test.txt 2 10 10

Classification Accuracy= 0.09576901086335049

python3 neural_network.py pendigits_training_string.txt pendigits_test_string.txt 2 10 10

Classification Accuracy= 0.09605488850771869

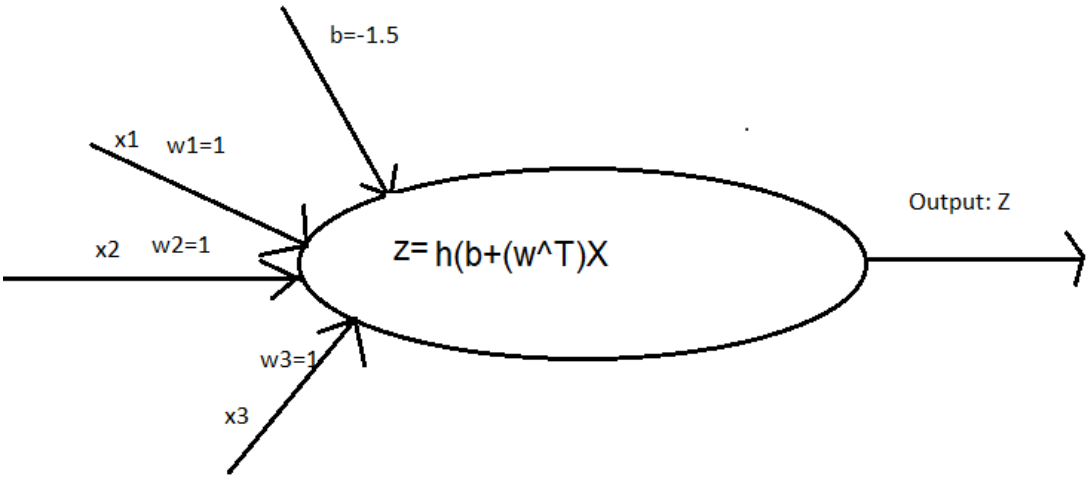
python3 neural_network.py yeast_training.txt yeast_test.txt 2 10 10

Classification Accuracy= 0.15495867768595042

Best accuracy I could obtain was for yeast set.

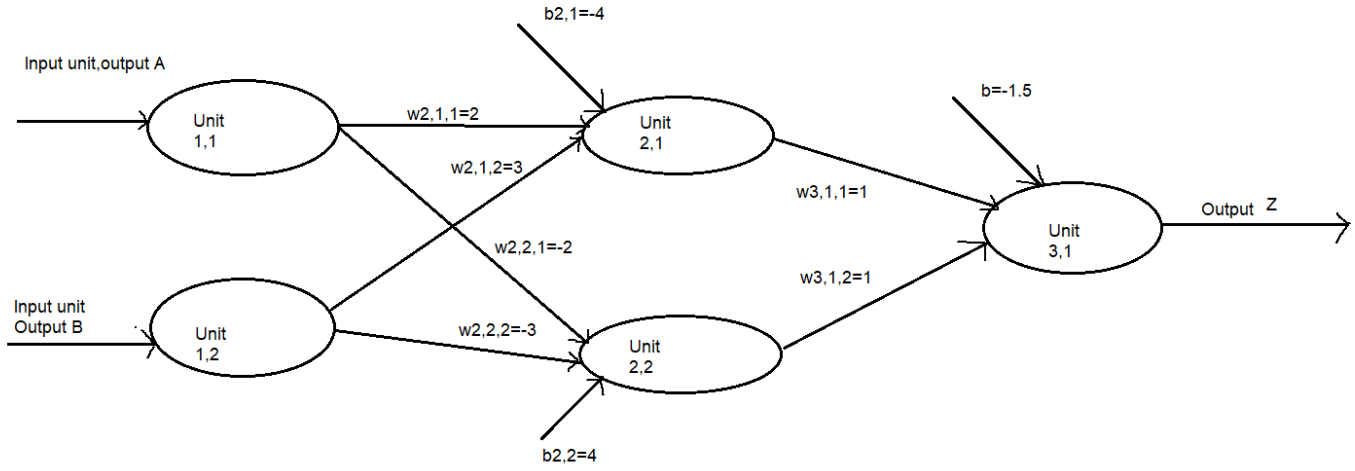
TASK2

Design of the perceptron that takes 3 Boolean inputs is as below:



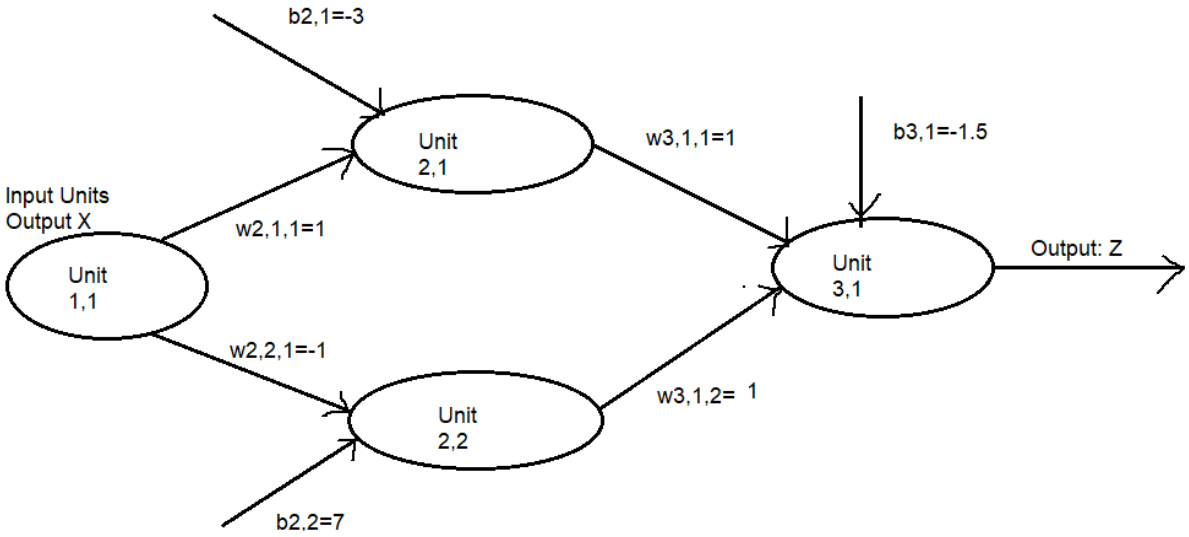
TASK3

The drawing that shows the outputs and inputs of the layer is as below:



TASK4

Yes, it is possible to design a neural network.



TASK5

If all the weights are initialized with the value of zero, then all the neurons follow same pattern and learns same features during the training which is not worth it at all as all the neurons show same behavior; it learns nothing at all. The value will have similar values the classification accuracy will be entirely different than it is supposed to be.