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CS 3120

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Homework 5 Report

**Program Overview:**

This program simulates a simple “3-6-2” neural network.

1. Switched the Y training data to:

19 y=np.array(([0,1],[1,0],[1,0],[0,1]), dtype=float)

1. Changed the dimension of the weight matrices to be a 3 x 6 for weight1 and a 6 x 2 for weight2

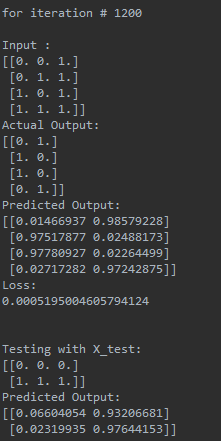
36 self.weights1= np.random.rand(self.input.shape[1],6)  
37 self.weights2 = np.random.rand(6,2)

1. Created a test method to use feed forward to test the extra two samples

59 def test(self, X):  
60 self.layer1 = sigmoid(np.dot(X, self.weights1))  
61 self.layer2 = sigmoid(np.dot(self.layer1, self.weights2))  
62 return self.layer2

**Program Results:**

1. With the two extra samples, the predicted output for [0, 0, 0] is [0, 1] and the predicted output for [1, 1, 1] is also [0,1]
2. The dimension of the first weight is 3 x 6 and the second weight’s dimension is 6 x 2

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