Assignment-2

CSCE-588

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In this assignment I implemented gradient descent optimization algorithm for single layer and 2-layer neural network. I used back propagation for learning in two-layer network.

Single layer network has input layer of 12288 nodes and single output. We train the network for 209 images which map to either cat or not. We have labelled set which indicates whether a particular image is cat or not. Testing is performed on 50 test images. The weight vectors are randomly initialized and are trained for 209 images.
The learning weight used is 0.05
Accuracy optained:68.0

Two-layer network has layer of 12288 nodes and hidden layer of 952 nodes and one output node.
Two-layer neural network has two weight matrices one from input to hidden layer and other from hidden to output layer. We use back propagation to train the network and update the weights.
Learning parameter used is 0.000001

```
Train Set:
(12288, 209)
Test Set:
(12288, 50)
Train Label:
(1, 209)
Test Label:
(1, 50)
Accurancy: 64.0
```

Comparison:
I get almost the same accuracy for both the network. Lesser the learning rate better is the Accuracy.

I have implemented the code using **python-2.6** and **Pycharm.**