Programming Assignment 1 - Report

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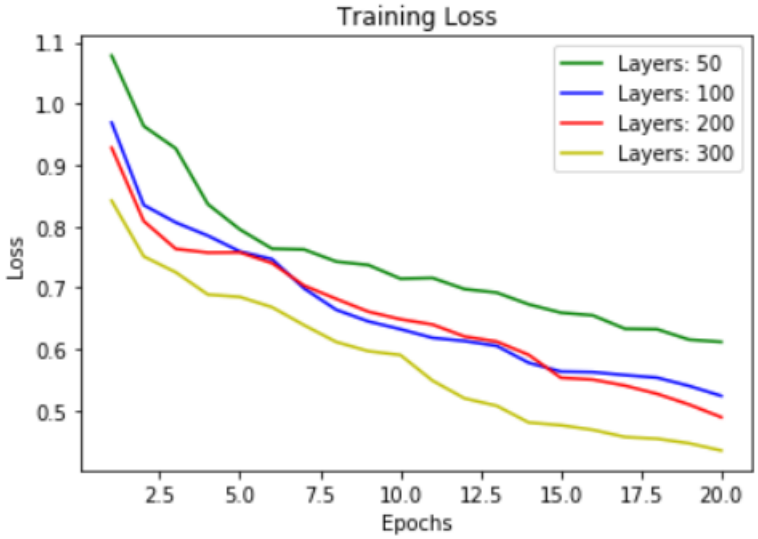
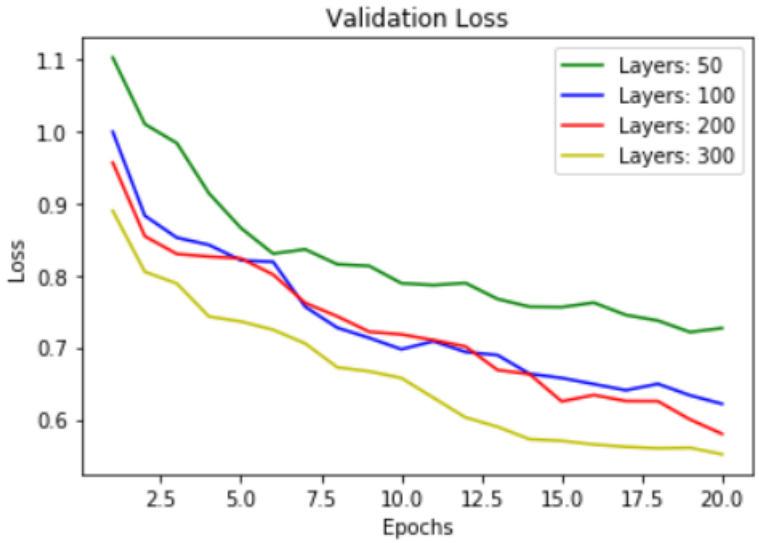
1 Answer 1:

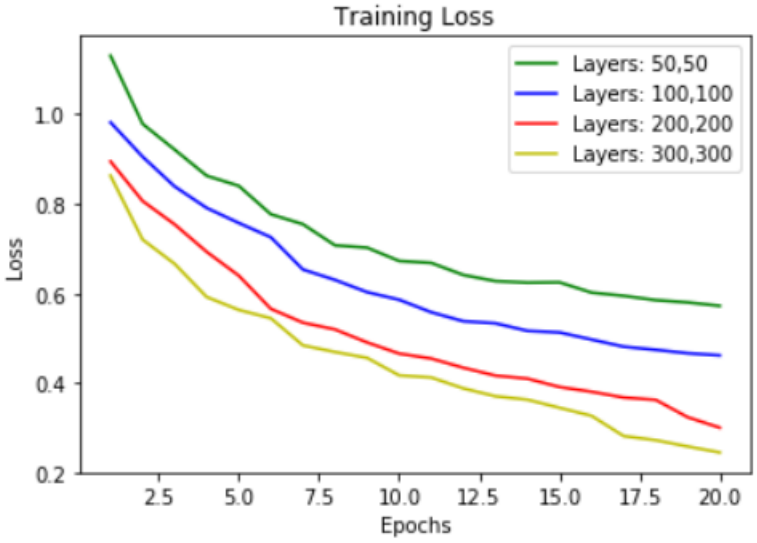
Hidden Layers : 1
Optimizer : Adam
Batch Size : 20
Activation : Sigmoid
Initial Learning Rate : 0.001
Annealing : True

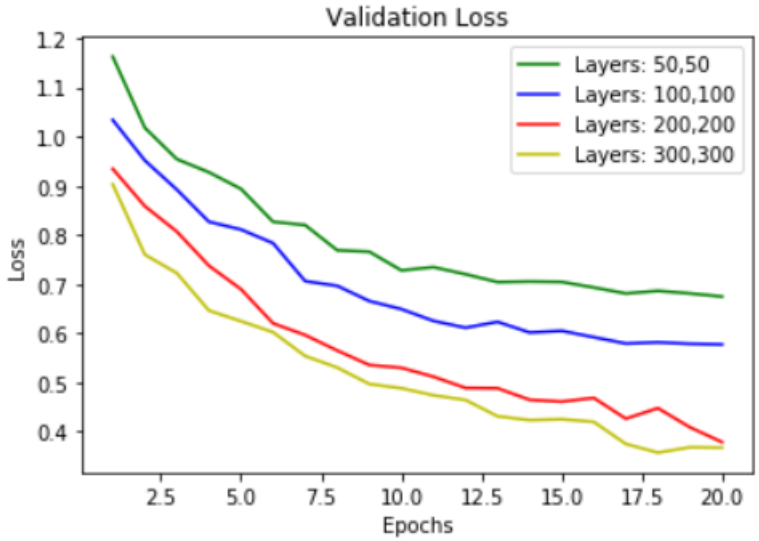




2 Answer 2:

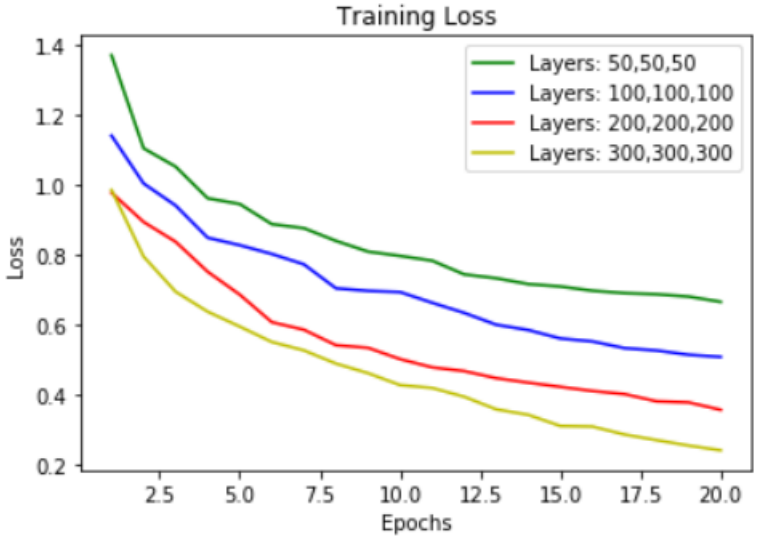
Hidden Layers : 2
Optimizer : Adam
Batch Size : 20
Activation : Sigmoid
Initial Learning Rate : 0.001
Annealing : True

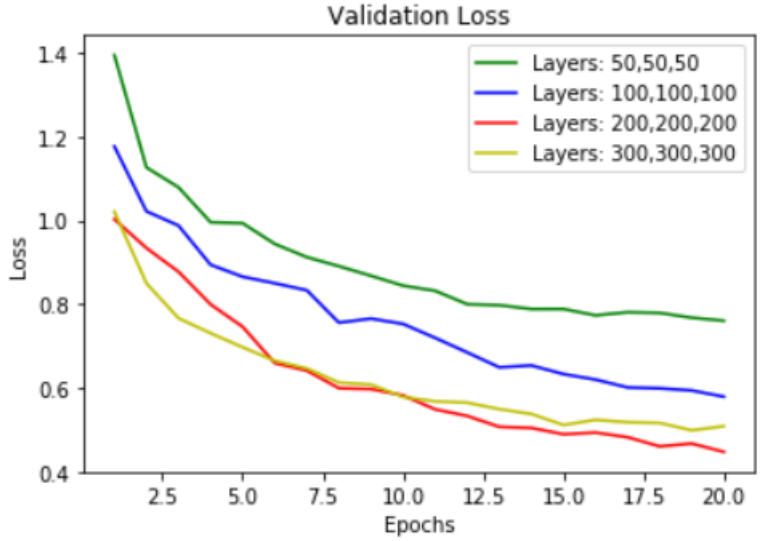




3 Answer 3:

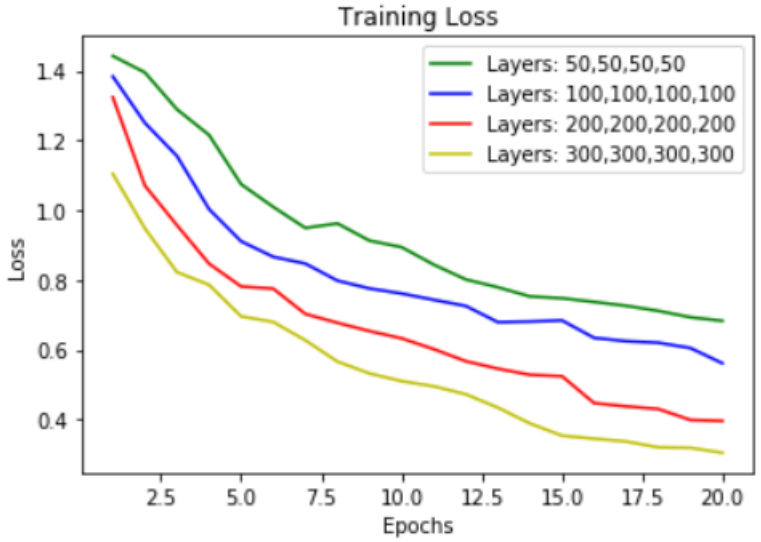
Hidden Layers : 3
Optimizer : Adam
Batch Size : 20
Activation : Sigmoid
Initial Learning Rate : 0.001
Annealing : True

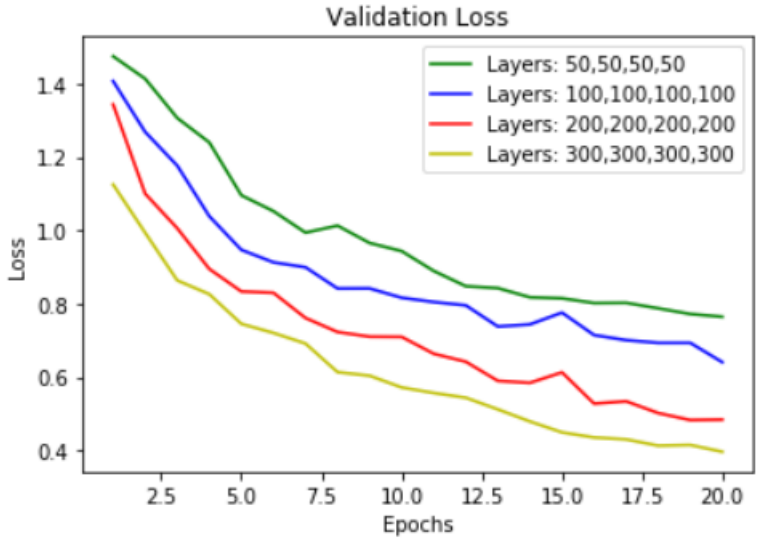




4 Answer 4:

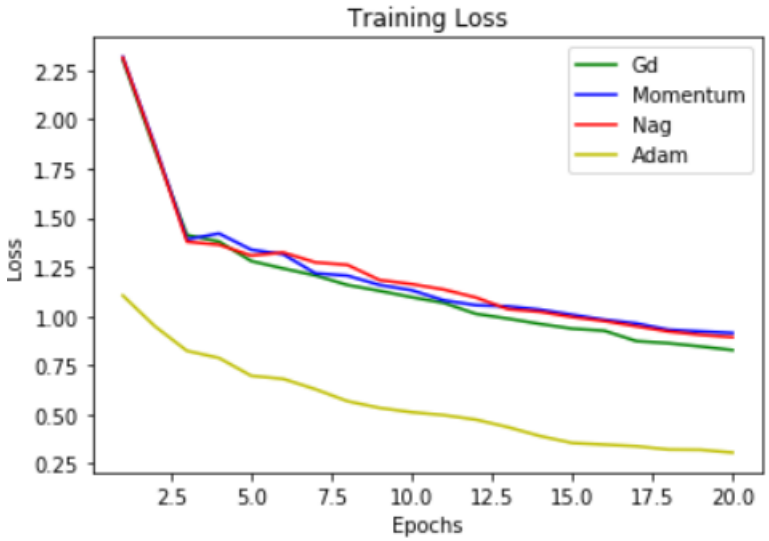
Hidden Layers : 4
Optimizer : Adam
Batch Size : 20
Activation : Sigmoid
Initial Learning Rate : 0.001
Annealing : True

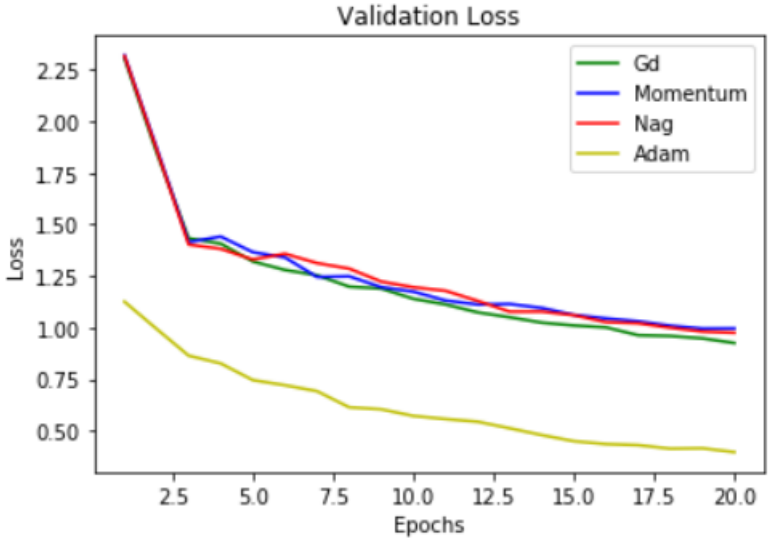




5 Answer 5:

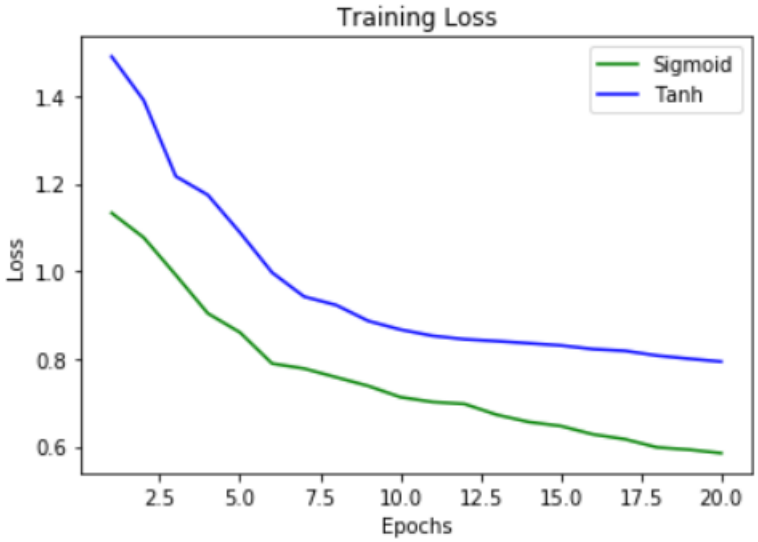
Hidden Layers : 4
Neurons in each layer : 300
Optimizer : Adam
Loss : Cross Entropy
Activation : Sigmoid
Batch Size : 20
Initial Learning Rate for Adam : 0.001
Initial Learning Rate for GD : 0.001
Initial Learning Rate for NAG : 0.0001
Gamma NAG : 0.9
Initial Learning Rate for Momentum : 0.0001
Gamma Momentum : 0.9
Annealing : True

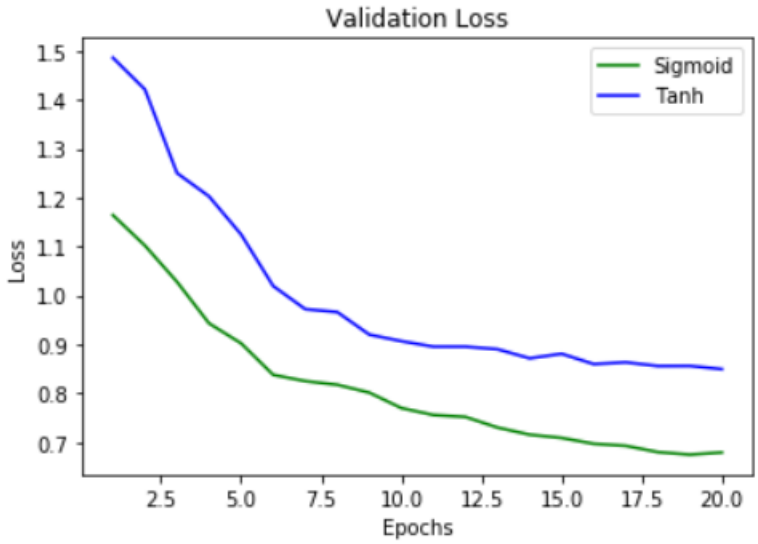




6 Answer 6:

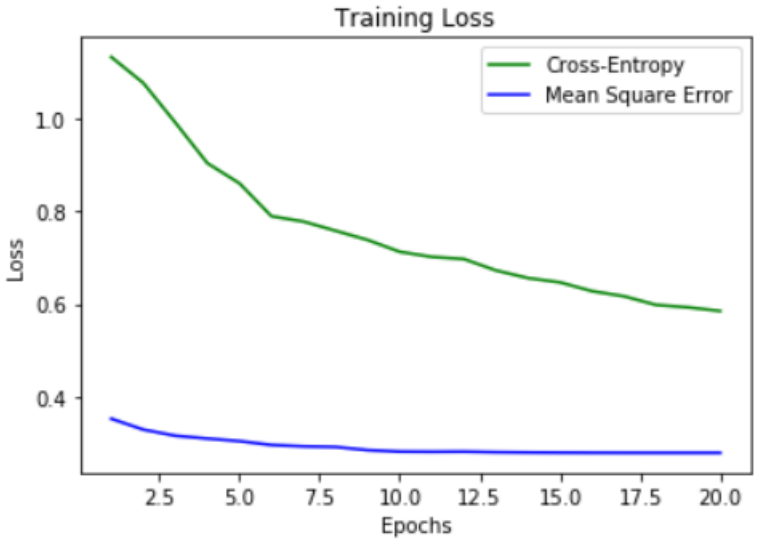
Hidden Layers : 2
Neurons in each layer : 100 Optimizer : Adam
Batch Size : 20
Loss : Cross Entropy
Initial Learning Rate : 0.001
Annealing : True

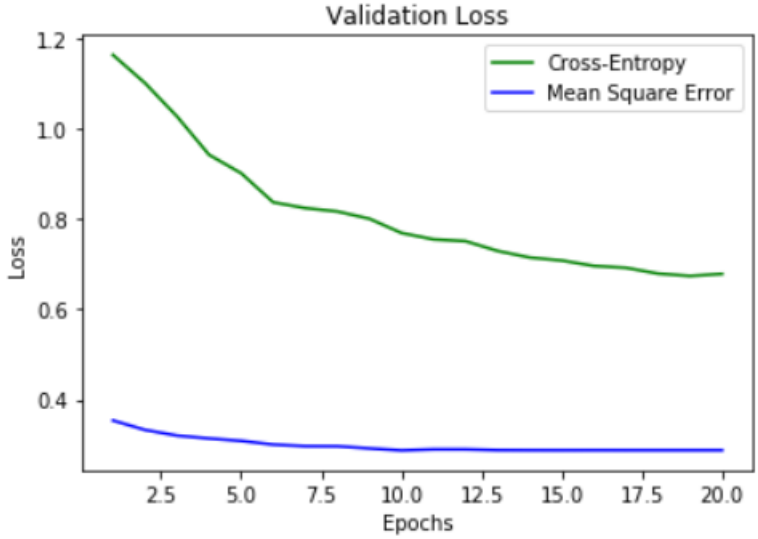




7 Answer 7:

Hidden Layers : 2
Neurons in each layer : 100
Optimizer : Adam
Batch Size : 20
Activation : Sigmoid
Initial Learning Rate : 0.001
Annealing : True

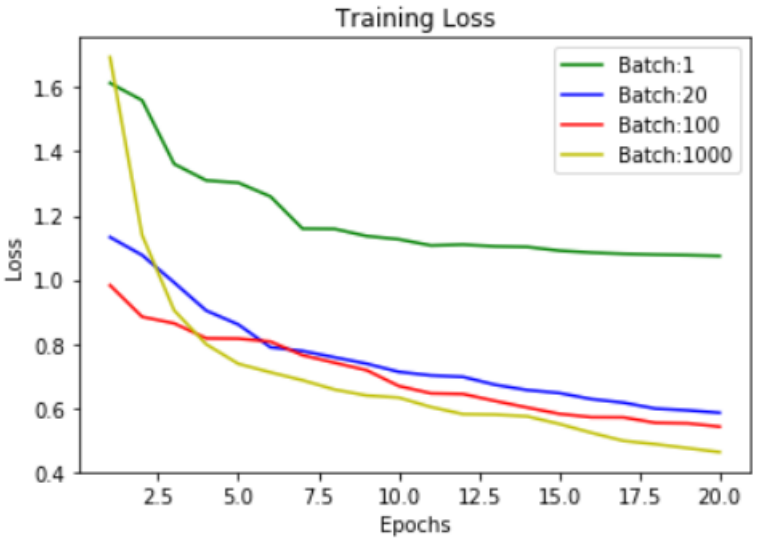


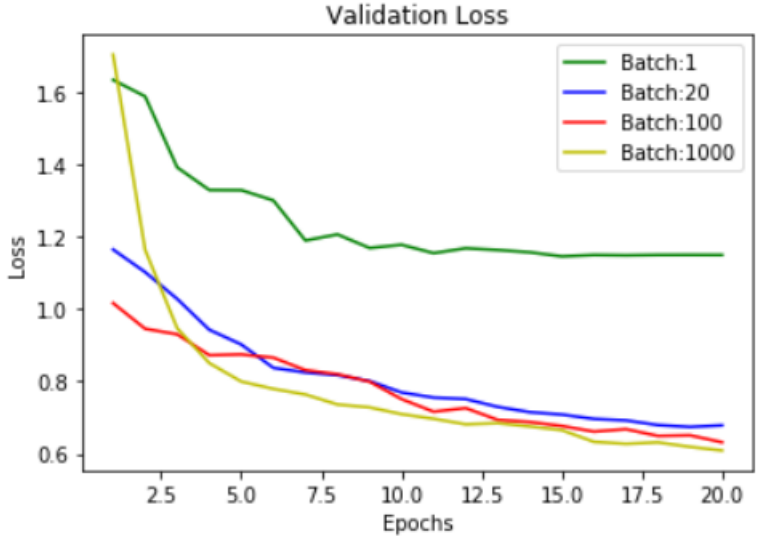


8 Answer 8:

Hidden Layers : 2
Neurons in each layer : 100
Optimizer : Adam
Loss : Cross Entropy
Activation : Sigmoid
Initial Learning Rate : 0.001

Annealing : True





9 Note

The results used in the report are obtained **without** using PCA, Dropout and L2 regularization.
However, for improving the model's performance on the Kaggle dataset, we have used PCA for dimensionality reduction, and have used Dropout and L2 regularization to prevent overfitting.