

GCN One Layer Aggregation Implementation

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1 Implementation Details

1. Data split - 70% train, 20% val, 10% test - from both categories in the same ratio.
2. Weights initialization
Two weights w_1 - $[30 \times 30]$ between ip layer and hidden layer and w_2 $[1 \times 30]$ between hidden layer and output layer.
 w_1 - with values in range $(0, 0.05)$
 w_2 - with values in range $(0, 0.05)$
3. Learning rate - 0.2
4. Initial epochs - 2000
5. Activations - sigmoid at both the places.
6. Batch Gradient Descent.
7. Final chosen weights are from epoch no. 805, as at this epoch loss on val set has started to steadily increase, where as loss on train is still decreasing (graphs are also attached showing the same). Model has started to overfit the train set after 805th epoch.
Both the graphs are loss(y axis) vs. no.of epochs (x axis).

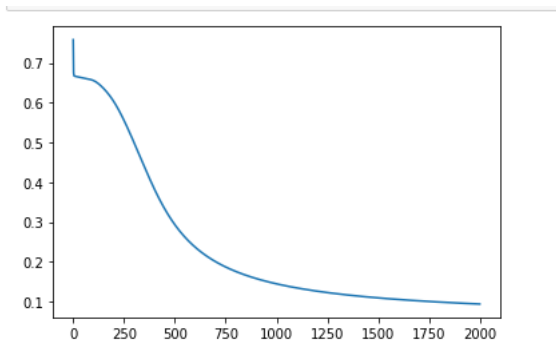


Figure 1: Loss on Train set (y-axis) vs. No. of epochs (x-axis)

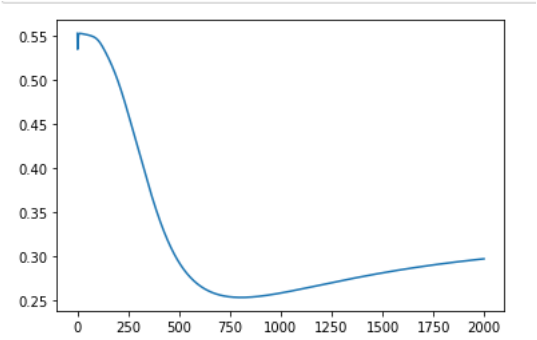


Figure 2: Loss on validation set (y-axis) vs. No. of epochs (x-axis)

2 Accuracy

- 1. Accuracy of model developed on Test set (with graph created from **test set** itself) - 86.20%
- 2. Accuracy of model developed on Test set (with graph created from **train set**) - 98.27%

Model	Accuracy	F1 Score
SVM	77.58%	77.19
KNN(5)	89.65%	88
Logistic Regression	89.65%	88
Model	86.20%	77.77