



# **Ahsanullah University of Science and Technology**

**Department of Computer Science and Engineering**

**Course No** : CSE4238  
**Course Name** : Soft Computing Lab

**Assignment No** : 02

## **Submitted By:**

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Session : Fall - 2020  
Section : B (B2)

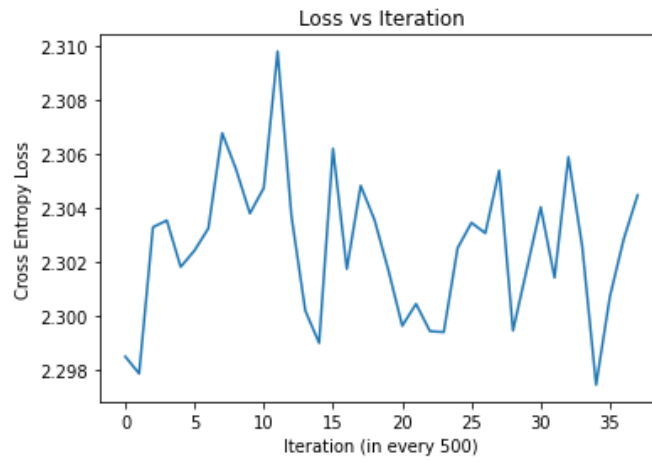
**The comparison between Exp\_1 and Exp\_2 for the first dataset is given below :**

	Batch size	No of hidden layer	No of Nodes in hidden layer	Input dimension	Iteration	Optimizer	Highest Accuracy
Exp_1	20	6	200	28*28	20000	SGD	9.92
Exp_2	128	2	200	28*28	20000	Adam	72.13

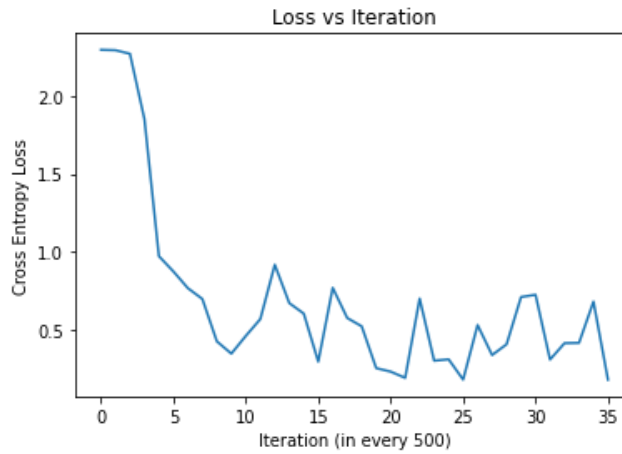
**Discussion:** In Experiment-1 we used 6 layers and get 9.92% accuracy. And in Experiment-2 used 2 layers and get 72.13% accuracy.

I got less accuracy in Experiment 1 because we use 6 layers and the model trained over fitted. Then I used a fewer number of hidden layers in Experiment -2 and got a good accuracy.

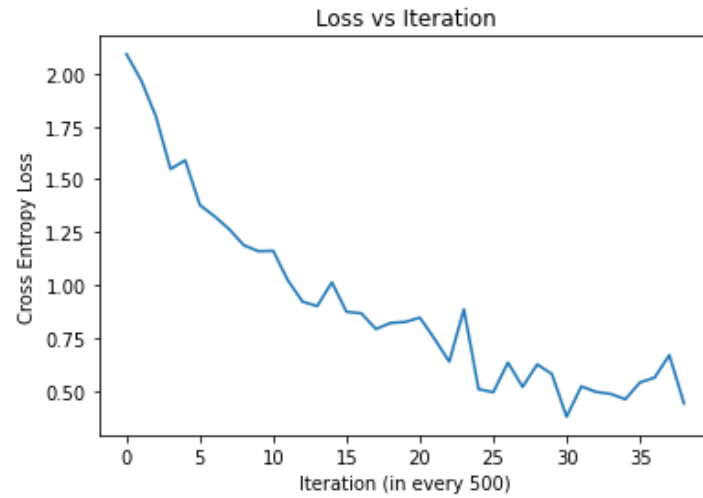
**Loss vs Iteration graph of experiment 1 for First Dataset is given below:**



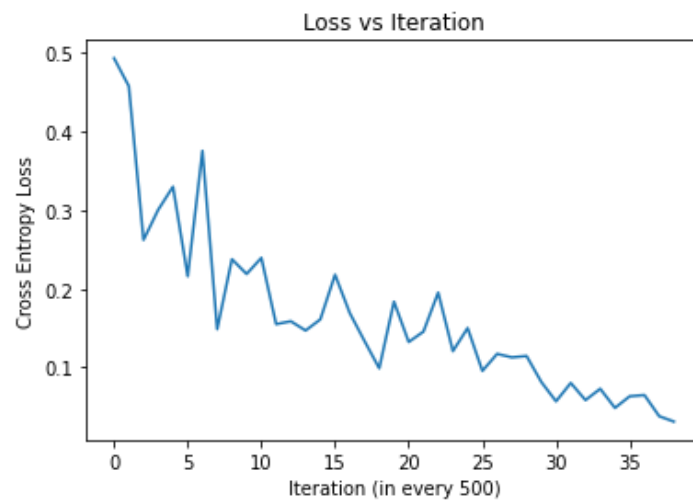
**Loss vs Iteration graph of experiment 1 for Second Dataset is given below:**



**Loss vs Iteration graph of experiment 2 for First Dataset is given below-**



**Loss vs Iteration graph of experiment 2 for Second Dataset is given below-**



**The comparison between Experiment 1 and Experiment 2 for the first dataset and Second dataset is given below-**

	Dataset 1						Dataset 2					
	Batch size	No of hidden layer	Input dimension	Iteration	Optimizer	Highest Accuracy	Batch size	No of hidden layer	Input dimension	Iteration	Optimizer	Highest Accuracy
<b>Experiment1</b>	20	6	28*28	20000	SGD	9.92	20	6	28*28	20000	SGD	87.05
<b>Experiment2</b>	128	2	28*28	20000	Adam	72.13	128	2	28*28	20000	Adam	88.97

For dataset-1, In Experiment-1 we used 6 layers and get 9.92% accuracy. In Experiment-2, I used 2 layers and get 72.13% accuracy. In Experiment-1 we get less accuracy because model is overfitted.

That's why we used a smaller number of hidden layers in Experiment -2.

For dataset-2, In Experiment-1 we used 6 layer and get 87.05 % accuracy. In Experiment-2 used 2 layers and get 88.97% accuracy. In Experiment-2 we get more accuracy than Experiment-1 because the model in experiment-2 is not overfitted (since I used smaller number of hidden layers).

**GitHub link:** <https://github.com/atiqueziad/cse4238-assignment-2>