AHSANULLAH UNIVERSITY OF SCIENCE & TECHNOLOGY

Assignment on Deep Neural Networks

Course No: CSE 4238

Course Name: Soft Computing Lab

Section: C   Lab Group: C2

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Submitted to:

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Report

This Study is on Deep Neural Networks using Pytorch. A model was created using Dataset-C and this model was tested by another Dataset-2.

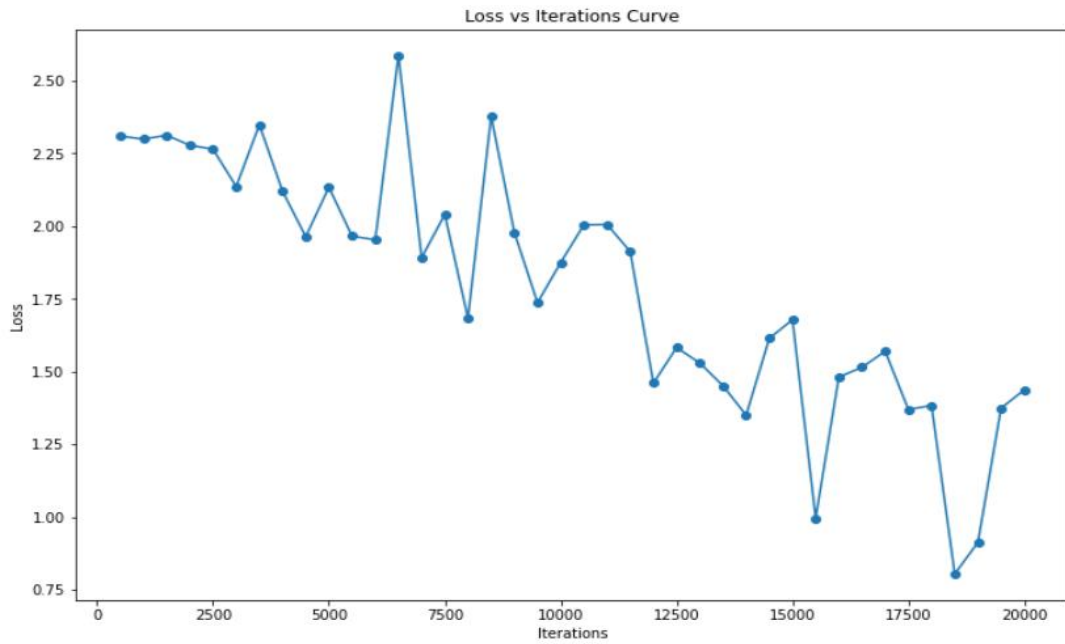1. **Make necessary tables to show the comparison between two experiments for the first dataset and discuss them.**

   Answer: The comparison between experiment-1 and experiment-2 (two adjustments) for the first dataset are shown below:

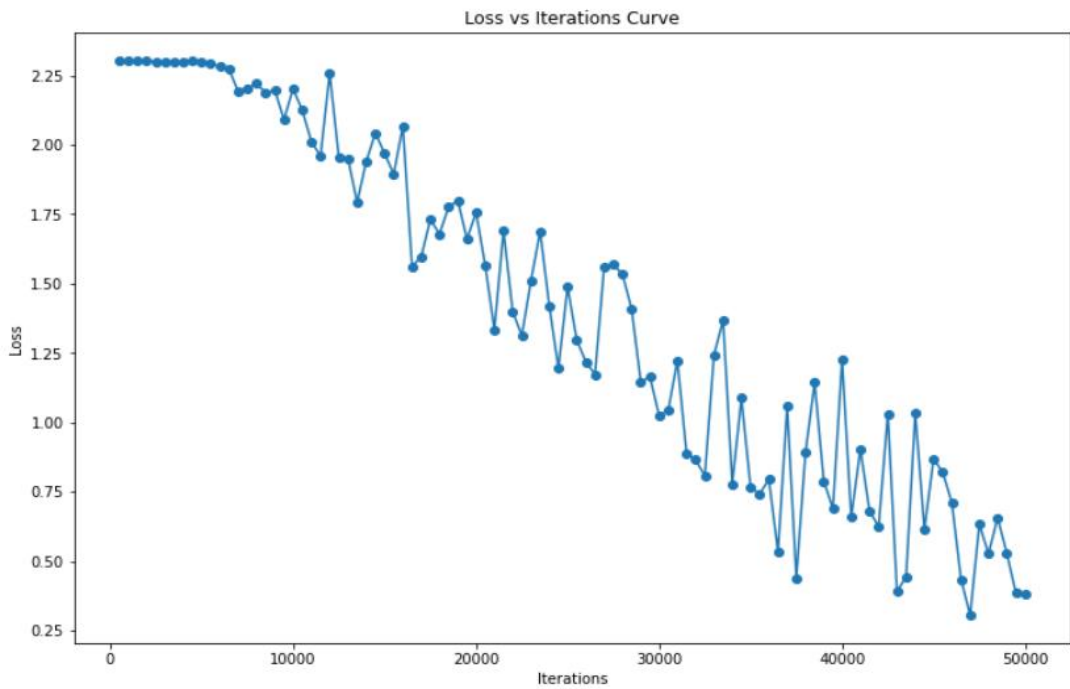| Experiment Name	Experiment-1	Experiment-2 (1st Adjustment)	Experiment-2 (2nd Adjustment)
Hidden Layers	6	8	8
Hidden Layer-1	ELU	ELU	ELU
Hidden Layer-2	ELU	ELU	ELU
Hidden Layer-3	ELU	ELU	ELU
Hidden Layer-3	ELU	ELU	ELU
Hidden Layer-5	ELU	ELU	ELU
Hidden Layer-6	ELU	ELU	ELU
Hidden Layer-7	-	ReLU	ELU
Hidden Layer-8	-	ReLU	ELU
Batch Size	20	50	60
Iterations	20000	50000	60000
Optimizer	ASGD	ASGD	ASGD
Min Loss	0.8043	0.3829	0.0644
Max Accuracy	**60.6996%**	**79.5062%**	**85.0823%**

2. **Show the Loss vs Iteration graph.**
   Answer: The Loss vs Iteration graph for experiment-1 and experiment-2 (two adjustments) are shown below:
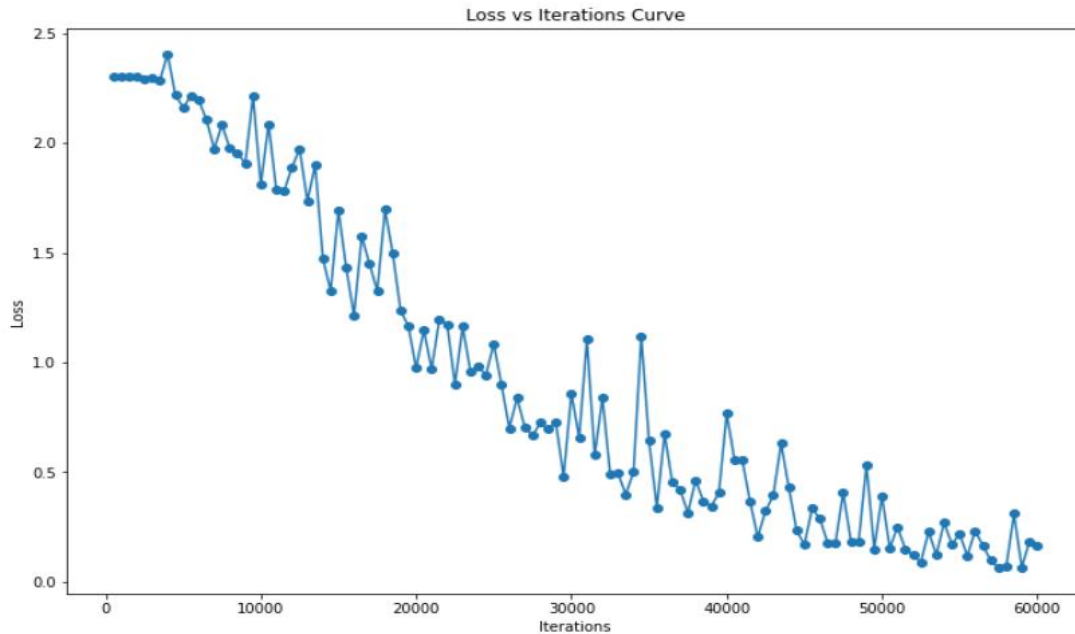
For, experiment-1:

Loss vs Iterations Curve

For, experiment-2 (1st Adjustment):

Loss vs Iterations Curve

For, experiment-2 (2nd Adjustment):

Loss vs Iterations Curve

3. Make a comparison of the results between the first dataset and second dataset by tables/graph/charts. Then discuss the results of those if they vary. Discuss the reasons behind them.

Answer: The comparison of the results between the first dataset and second dataset (two adjustments) are given below:

Experiment Names	Accuracy	
	Dataset-1	Dataset-2
Experiment-1	**60.6996%**	**86.52%**
Experiment-2 (1st Adjustment)	**79.5062%**	**86.46%**
Experiment-2 (2nd Adjustment)	**85.0823%**	**86.89%**

The accuracy varied a lot between the two datasets for Experiment-1.
The accuracy varied a little between the two datasets for Experiment-2 (1st Adjustment).

The accuracy varied slightly between the two datasets for Experiment-2 (2nd Adjustment).

Here, the accuracy varied because two datasets are different. Dataset-1 is a Bangla digit dataset and Dataset-2 is a clothing dataset.

4. **Upload your code in Github and share the link in your report.**
   Link: https://github.com/othiru/SoftComputingAssignment2