

# Special Topics In Computer Science

Assignment # 01

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## Analysis of the experiments

### Question 1)

Which experiment gave you the highest test accuracy?  
What were the parameters?

### Answer)

Experiment # 9 gave me highest accuracy the parameters were the following:

Hidden Layer 1: 256

Hidden Layer 2: 32

Epochs: 5

Learning Rate: 0.001

Batch Size: 32

Optimizer: Adam

Test Accuracy: 0.9906

### Question 2)

Looking at your epochs experiments, what's the relationship between training time and accuracy?

**Answer)**

From the epochs experiments, I learned that training for longer periods doesn't always work well. We have to train for an optimal number of times to gain higher accuracy. At 5 Epochs, we got the highest accuracy.

**Question 3)**

How did increasing the hidden layer sizes affect accuracy? Was there a point where bigger wasn't better?

**Answer)**

It does affect the accuracy slightly, With higher Hidden Layer, the accuracy is slightly down. In one experiment when Hidden Layer one was 512 & Hidden layer 2 was 32, the accuracy was pretty low compared to other experiments.

**Question 4)**

Which optimizer performed best? Why do you think this happened?

**Answer)**

Adam performed best because it adapts the learning rate for each parameter, which makes training faster and more stable compared to the others.

### **Question 5)**

Which experiment gave you the best balance of accuracy and training time?

### **Answer)**

Experiment 9 gave me the best balance. The accuracy was the highest of all experiments. The Parameters were the following in this experiment:

Hidden Layer 1: 256

Hidden Layer 2: 32

Epochs: 5

Learning Rate: 0.001

Batch Size: 32

Optimizer: Adam

Test Accuracy: 0.9906