Computer Science 161 Kitu Komya
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1. There are a total of 4 layers:
   - 1 input layer
   - 2 hidden layers
   - 1 output layer

   Number of nodes per layer:
   - 1 input layer = 784 neurons
   - 1st hidden layer = 512 neurons
   - 2nd hidden layer = 128 neurons
   - 1 output layer = 10 neurons

2. ReLUs are used as the activation function.
   The mathematical function is max(0, a) where a = Wx + b (where W are the weights, x are the inputs, and b are the biases).

3. The test accuracy on 10,000 test images is 96%. My parents would be proud.

4. By reducing the number of neurons in the hidden layer by a factor of 16 (from 512 to 32 and from 128 to 8), the test accuracy on 10,000 test images is 88%. My parents would be a little less proud.

5. Yes, there is a difference, since 96% is not equal to 88%. With a higher number of neurons, the test accuracy improves because the model becomes more adaptive, finding more distinguishing features that improve accuracy. However, the cost of accuracy with a larger number of neurons are space and time limits. We must also be careful to not over-fit our data by having too many neurons. Thus, striking a fine balance is essential.

6.

# of Iterations	Test Accuracy
10	66%
20	62%
50	85%
100	85%
200	90%
350	91%
500	92%
700	94%
850	94%
1000	95%

Yes, in general, as the number of iterations increases, the test accuracy increases as well. Because more iterations means that the model is adapting more to the training data, the accuracy generally improves. In our case, we are lucky to see that the test data has not necessarily been over-fit since the test accuracy continually increases instead of dipping down, but it eventually does plateau. In the beginning, as the number of iterations increases, the test accuracy improves significantly, but eventually the gain is marginal, leading us to find a suitable number of iterations once the test accuracy plateaus.