Practice Test #2

1. Run both programs. The dense network should give a test set accuracy of around 0.88; the convolutional network should give an accuracy of around 0.91.
   * Done
2. Without changing the number of layers, decrease the number of units in the networks (that is, minimize the number of trainable parameters) to find the smallest network that can provide a test set accuracy of 0.80 for each of the architectures
   * Dense Model

Text

Description automatically generated

* + CNN Model

Text

Description automatically generated

1. The dense\_model and cnn\_model functions use hardcoded input sizes. Modify them to receive the input size as a parameter and test both of them with the CIFAR10 dataset.
   * Text

     Description automatically generated
   * Text

     Description automatically generated
2. For both models and datasets, simulate the situation where your training set is small by using only 1000 randomly-chosen training examples. Evaluate the performance in all 4 cases (dense and CNN with fashionMNIST and CIFAR10)
   * \*Assuming that reducing the parameters was not supposed to be reversed back to normal
   * MNIST
     1. Dense: 0.40 testing and 0.49 in training
     2. CNN: 0.42 testing and 0.38 in training
   * CIFAR-10
     1. Dense: 0.10 testing and 0.11 in training
     2. CNN: 0.2 testing and 0.14 training
3. Datasets:
   * Fashion MNIST:
     1. Dense: 0.81 of validation accuracy
     2. CNN: 0.79 of validation accuracy
   * CIFAR:
     1. Dense: 0.34 of validation accuracy
     2. CNN: 0.42 of validation accuracy