Homework #2   Due date: 2022/03/22

1. This homework is based on the sample code, cnn.py, of image classification consisting of a three-layered convolutional neural network followed by a two-layered fully-connect neural network. The data used in this code is the CIFAR10 dataset, which contains $60,000$ color (three channels) images in 10 classes, with 6,000 images in each class. The dataset is divided into $50,000$ training images and $10,000$ testing images. Please execute this code and report the final accuracy of test data.

2. The training data to cnn.py are 32×32 color images. Please change the code and use the Fashion MNIST [1] dataset which contains $70,000$ grayscale images in 10 categories. Compare the accuracy using CNN versus FCNN. Use your own fashion data and compare the accuracy of classification results of these two neural network models.

3. Please change the code and classify the MNIST dataset of the handwritten digits [2] dataset. Compare the accuracy using CNN versus FCNN. Use your own hand-writing data and compare the accuracy of classification results of these two neural network models.

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[1] `https://github.com/zalandoresearch/fashion-mnist`
[2] `http://yann.lecun.com/exdb/mnist/`