Assignment: CNNs for Image Classification

1. Using Python/Numpy/Tensorflow implement the LeNet5 image classification network, model.
2. Train the above model using MNIST data. Validate the model on the MNIST test data.
    a. What training and validation accuracy were you able to achieve?
    b. Analyze the quality of the model by comparing training and validation loss.
3. Train the above model using Fashion-MNIST data. Validate the model on the Fashion-MNIST test data.
    a. What training and validation accuracy were you able to achieve?
    b. Analyze the quality of the model by comparing training and validation loss.
4. How can we improve the results further? Data Augmentation?
5. Important Resources
    a. https://www.tensorflow.org/tutorials/images/classification
    b. https://www.tensorflow.org/versions/r2.1/api_docs/python/tf/keras/datasets/mnist
    c. https://www.tensorflow.org/versions/r2.1/api_docs/python/tf/keras/datasets/fashion_mnist
    d. https://www.tensorflow.org/tutorials/images/data_augmentation
    e. https://www.tensorflow.org/api_docs/python/tf/keras/preprocessing/image/ImageDataGenerator
    f. https://www.wouterbulten.nl/blog/tech/data-augmentation-using-tensorflow-data-dataset/