Columbia University
IEOR4742 – Deep Learning for OR & FE (Hirsa)
Assignment 2 – Convolutional Neural Networks (CNNs) for Image Classification

- Objective: Apply a `CNN` to a standard image dataset (e.g., `CIFAR-10`) for classification tasks.
- Tasks:
  - use a deep learning framework like `TensorFlow` or `PyTorch` to build and train a `CNN`.
  - experiment with various `CNN` architectures, such as deeper networks or adding more convolutional layers.
  - Evaluate the model's performance on training and validation data, including confusion matrices and accuracy.

Problem 1 (Convolutional Neural Networks): In the sample code *example_CNN_CIFAR.ipynb*:

(a) Add one more convolutional layer with max pooling and assess the impact of the additional convolutional layer on accuracy.

(b) What is the number of parameters we are trying to learn in the original code, and how does it change with the extra layer?

Problem 2 (Batch Normalization): For Problem 1, assess the impact of batch normalization on learning speed and accuracy.