Project of Group 1

Description

- **MNIST dataset**: It collects 70,000 grayscale images in size of 28×28 for the handwritten digit recognition task, where 60,000 grayscale images are used for training and 10,000 are used for testing.
- **Fashion MNIST**: It is highly similar to MNIST dataset but depicts fashion products (t-shirt, trouser, pullover, dress, coat, sandal, shirt, sneaker, bag, and ankle boot).
- **CIFAR-10 dataset**: It consists of 60,000 images with size $32 \times 32 \times 3$ including 10 different classes: airplane, automobile, bird, cat, deer, dog, frog, horse, ship, and truck. The dataset contains 50,000 training and 10,000 testing images.

First apply a classic classification *(the choise of methodology is arbitrary)*, Then apply one of *HOSVD* or *HOOI* to improve the *accuracy* and other performance metrics of the classification method. For description of HOOI and HOSVD, please read General Intro.pdf.

- You must have a comparison based on the increase of ranks.
- You must report the time of computations in case of speed comparison.

Hint: use *Colab Jupyter*, since the computations maybe take some time and RAM.