

Exercise - 1

1 Practical

This task is meant to get you acquainted with PyTorch or Tensorflow or Keras framework which you will be using for the course exercises and also the project. So the time you spend on this task is an investment for the project. You are free to choose any framework that you feel comfortable working with.

Useful Links :

[. PyTorch](#)

[. Tensorflow](#)

[. Keras](#)

NOTE - Before getting started make sure you have the required packages installed along with a suitable IDE you want to work on. Also if your computer doesn't support these installations, you can also work on [Google Colab](#). Here Google provides computational capacity (to some extent) for running deep learning codes. These are same as Jupyter Notebooks.

1.1 Task

The following steps will guide you in creating your own experiment.

- Download and prepare CIFAR-10 dataset (it is already available in the above mentioned libraries)
 - [PyTorch](#)
 - [Keras and Tensorflow](#)
- Write a simple CNN network for classifying images
 - use LeakyReLU as the activation function
 - use SGD as the optimizer and 0.0001 as the learning rate, and keep all default parameters
 - Report the accuracy on the test set
- Change the optimiser to Adam and run again the experiment. Report accuracy on test set.
- Swap the LeakyReLUs for Tanh. Then run again the experiment and report accuracy on test set. Make a separate file for this experiment.
- Visualize the results of these runs on a Tensorboard. Just put any screenshot of the web interface with the experiments to prove you got it working is enough. (for example- show the training loss on tensorboard)