★ Assignment 1

⇒ Goals:

* Understand the basic Image Classification pipeline & data-driven approach (train/predict stages)
* Understand the train/val/test splits
  ↳ Use of validation data for hyperparameter tuning.
* Develop proficiency in writing efficient vectorized code with numpy.
* Implement and apply a k-Nearest Neighbor (kNN) classifier
* Implement and apply a multiclass SVM classifier.
* Implement & apply Softmax classifier.
* Implement & apply Two layer neural network classifier
* Understand the difference & tradeoffs between these classifiers.
* Get a basic understanding of performance improvements from using higher-level representation than raw pixels.

{ Color Histogram, Histogram of Gradients (HOG) features }

★ Setup Instructions

{Working remotely on Google Colaboratory}

{Combination of Jupyter notebook and Google Drive}

⇒ GC runs entirely in the cloud & comes preinstalled with many packages (e.g PyTorch & Tensorflow), so everyone has access to the same dependencies.

⇒ Colab benefits from free access to hardware accelerators like GPUs (K80, P100) and TPUs.