1. Collect at least 20 images of two categories: cats and dogs from the internet. Determine any two features. Apply kNN classifier to classify at least 5 images (different from the 40 images). Apply your algorithm by varying k from 1 to 20, and see the best suited k.
2. For the same set of images and same features, build a perceptron to classify the images. Start the training with similar weights to both the features, and then train with the 40 samples to build the classifier. Apply the classifier on 5 images.
3. Construct a multi layer perceptron with 3 layers for the same dataset, train it, and see whether the result improves or not.

Collect the images from internet, to form your own dataset. Do not worry if your algorithm gives less accuracy for the collected dataset. The algorithm will be verified, rather than only the accuracy.

Submit your assignment by creating a single folder, with your roll number as name, and uploading a Google drive, which will be forwarded to you by Mr. Jaydeep.

The hierarchy of your folder should be as follows:
Your main folder should contain 4 folders: Dataset, Question1, Question2 and Question3. The last three folders will contain all the code and source files related to the corresponding question. The first folder will contain two subfolders: Training set and Testing set.

Programs may be written in any language (C/MATLAB/Python).

Dataset creation and feature selection will have 10 marks altogether. The three questions will carry 10 marks each. Hence, total 40 marks.

Deadline for submission of assignments is, Monday 12th October 11:59PM. Please note that, this is the final deadline and will not be extended.