You need to do the following task:

1. Isolated Digit Recognition using Discrete HMMs (code). Use the given features also extract your own features and compare the results.
2. Use the HMMs trained in task 1 to recognize continuous digits. You need to concatenate the HMMs trained in task 1 to recognize continuous digits. Use only the given features.

Datasets:

Digit dataset: This dataset consists of spoken utterances. The MFCC feature files and the original .wav files given.

Data: download here, Group Mapping: Download here

Continues digits dataset:

- Download development data from here and test data from here.
- The data contains directories with the group numbers.
- Each directory contains MFCC features from utterances of multiple digits (corresponding to the isolated digits assigned to your batch).
- The set of digits uttered are given below: symbol - uttered word 1 - one 2 - two 3 - three 4 - four 5 - five 6 - six 7 - seven 8 - eight 9 - nine z - zero o - o
- In development data, the file name represents spoken digits. Eg. In file 534.mfcc, the digits spoken are five three four.
- Test data consists of 5 unlabeled sequences (blind data). Provide the possible sequence of digits obtained in the report.

Feature File Format:

- The data given are the MFCC features of speech audio.
- Structure of MFCC file: The first line of the MFCC file contains two space-separated integers. First integer N_C - The dimension of the feature vector (The number of MFC coefficients) Second integer N_F - The number of frames, the .wav file is divided into.
- The next NF rows contain the MFCC features of dimension NC. Each row corresponds to a feature vector in the sequence. Please note that NF varies with the example.

Guidelines:

1. You need to plot ROC, DET and confusion matrices for task 1.

2. You can include graphs and tables for your results.