Subject: 21AIE315

Lab Session: 06

Notes:

1. Please read the assignment notes carefully and comply to the guidelines provided.
2. Code should be checked into the GitHub and the report to TurnItIn. These details shall be provided in the Lab.
3. If you have not completed the prerequisite assignments, please complete them before starting these assignments.
4. Please use your headphone / earphones for lab experiments. Avoid using the device microphone / speakers (not to disturb others).

References:

- https://numpy.org/doc/stable/reference/routines.fft.html
- https://docs.scipy.org/doc/scipy/reference/generated/scipy.signal.spectrogram.html

Main Section (Mandatory):

Please use the recorded voice of yours used in last lab session. If needed, record a few more speech signals.

A1. Take a portion of your recorded signal which represents a vowel sound. Perform FFT on the signal snippet and observe the amplitude spectrum. Repeat the same for a few vowel sounds.

A2. Repeat the A1 for a consonant sound. Perform the same for a few consonant sounds.

A3. Repeat A2 for few slices of silence & non-voiced portions of the recorded speech signal.

A4. Now you have acquainted yourself with spectral amplitudes of various consonants and vowel-based phonemes. Generate the spectrogram of the signal and observe the change points of the signals with associated speech segments. Observe to identify the consonants and vowels from the spectrogram.

Report Assignment:

1. Update your last week's report by updating the introduction, literature review sections. Please conduct literature review with the downloaded papers. The Reference section should be added / updated with the list of papers used for literature review. Please make sure to align your introduction to your project scope.
2. Add the experiments conducted on your recorded speech in Methodology section. Write the results obtained in results analysis section.
3. Summarize the outcomes of your experiments in conclusion section.