Lab Exercises 1
ELEC 9723, Session 1 2017

Write a function in MATLAB that accepts as inputs a signal (array) and its sampling frequency (value) and plots the magnitude and phase spectra. The x-axis must be frequency labelled in Hz.

1. Read a speech file (`speech.mat`, 8 kHz sampling rate), get total number of samples in the file and display the time waveform.

2. Select a frame in the unvoiced region (`framesize = 256` samples). Calculate the frame length in milliseconds.

3. Perform FFT, plot the magnitude spectrum for that particular frame. Observe formant Frequencies (Use the function that you wrote)

4. Select a frame in the voiced region (`framesize = 256` samples)

5. Perform FFT, plot the magnitude spectrum for that particular frame. Observe formant Frequencies (Use the function that you wrote)

6. Record your own voice using the microphone provided and displays the time waveform. Hint: use sound recorder available in Windows, and set the properties to 8 kHz, mono, 8 bit/sample.

7. Plot the magnitude spectra for a region of voiced speech and a region of unvoiced speech from this recorded sample.

8. Use the `soundsc` command to listen to the speech.