Lab Assignment 4 – Tuesday Batch

a) All plots/graphs should have suitable title, labels, axis scaling and (legends if any).
b) Use live-script for more flexibility and report generation.
c) Section 1 of the MATLAB code should contain Author's name and ID number.
d) Name the file of lab session 4 as L4_201#A#PS####G.pdf

Exercise -1

a) Generate one second duration of sinusoidal signal with Amp of 5V, Freq of 50 Hz sampled at 1000 Hz.
b) In figure 1, use 2 subplots - 1) to plot the signal in time domain and 2) showing the single sided frequency spectrum (one below other).
c) Add noise to above signal using noise = k*randn(1,length(time)), and show the output in figure2.
d) Figure 2 should have subplot 1) for time domain corrupted signal and 2) single sided frequency spectrum. Vary the value of k to observe the effect of noise in time and frequency domain.
e) Use Moving-average filter of length M to suppress/reduce the noise of the signal. Show the filtered output in figure3.
f) Figure 3 should have subplot 1) for time domain filtered signal and 2) single sided frequency spectrum. Vary the value of M to observe the effect of filter in time and frequency domain.

P.S. – You can use N=1000 for matching resolution value.