

Design and test the low-pass filter nature of a moving-average filter using MATLAB GUI. Consider summation of 'k' sinusoidal signal as input ($x(t) = A1 \sin(2\pi f1 t) + A2 \sin(2\pi f2 t) + \dots$), obtain filtered-signal by passing this signal through the designed moving-average filter. Use a slider to vary the value of **M**. Plot the magnitude response of the designed filter. Plot the single sided magnitude spectrum of input and filtered output signals. Choose appropriate values of k and M in design. Lower, upper bounds as well as selected values should be displayed in the GUI. You can additionally use “Plot” or “Enter” button functionality for displaying the plots.

