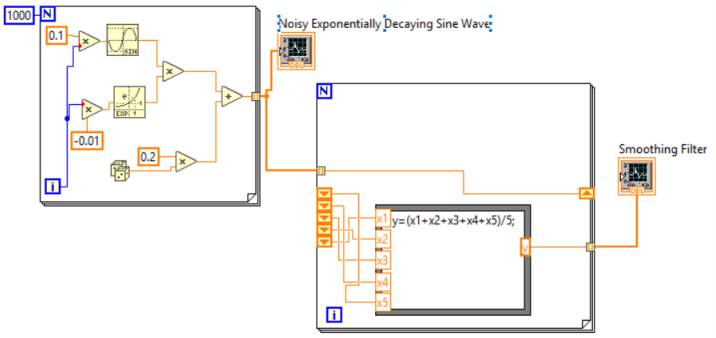
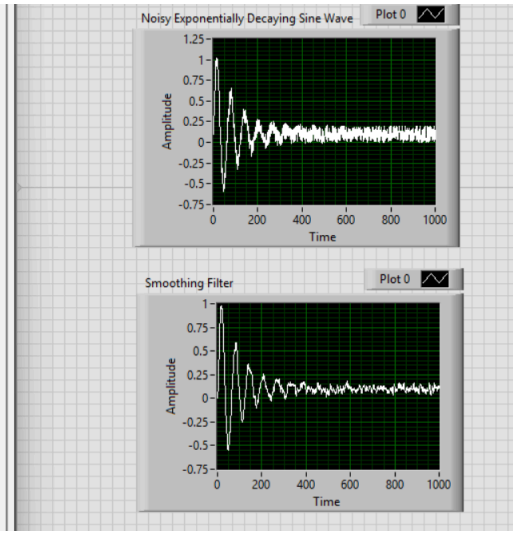
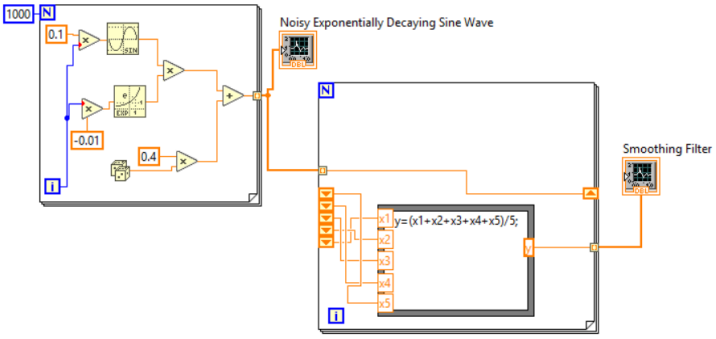
ECE 182 Lab #11 Recovering a Clean Signal from a Noisy Signal
Day of Submission:11/19/2025
Name of student: Frank Tamburro

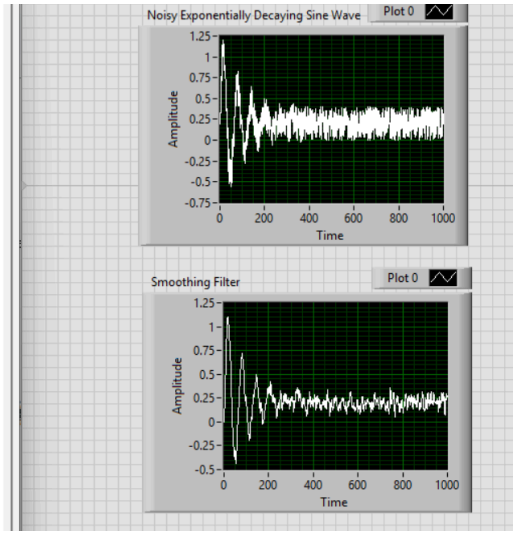
Results

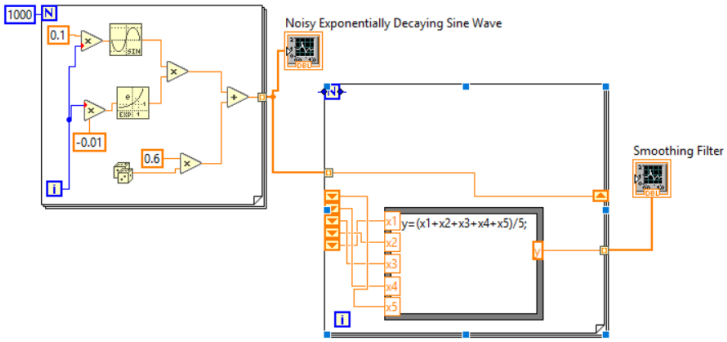
5 different inputs

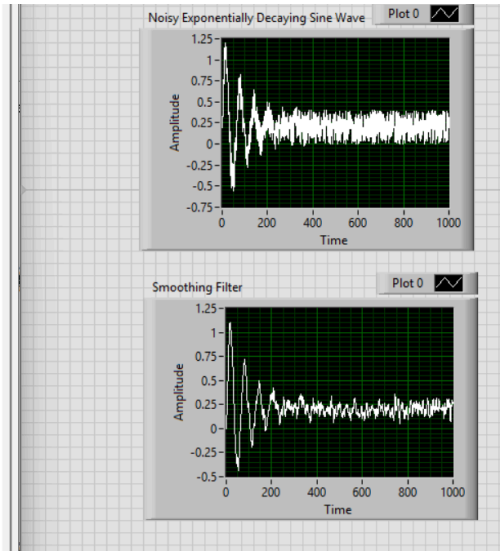


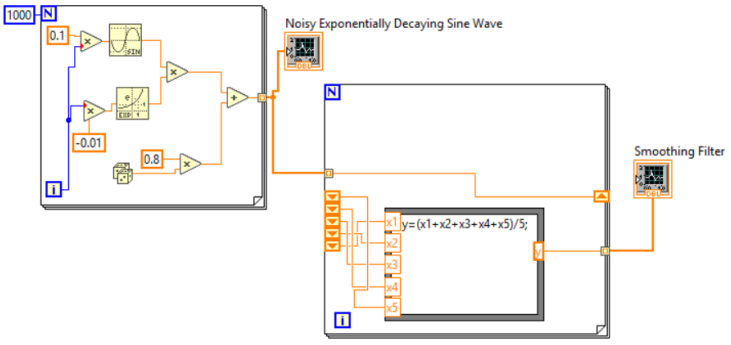


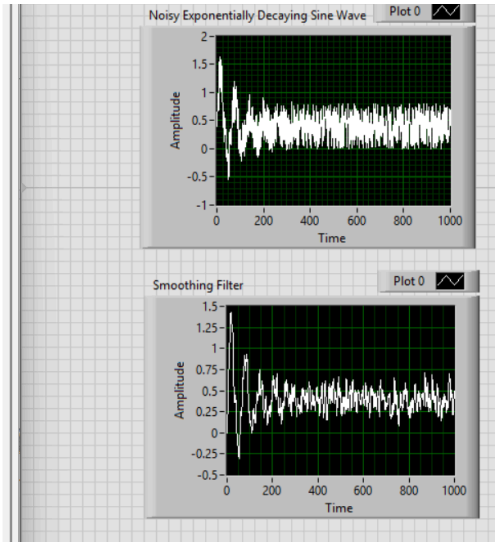


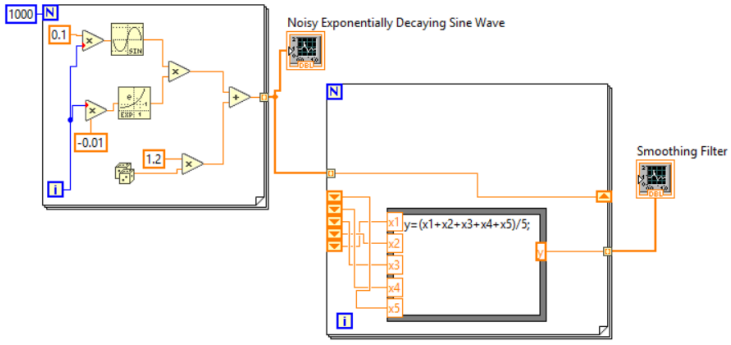


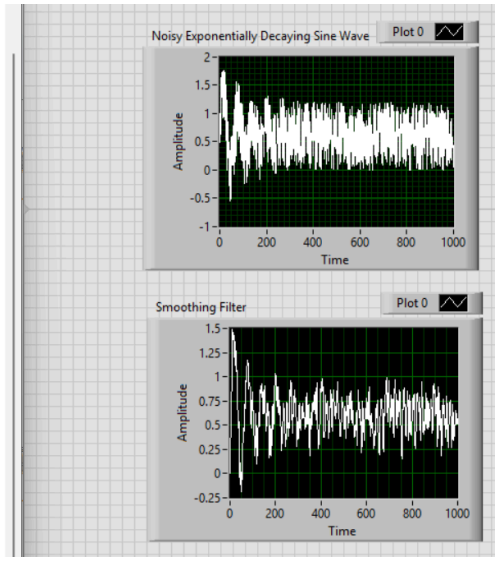





1000
0.1
-0.01
0.8
Noisy Exponentially Decaying Sine Wave
Smoothing Filter
y=(x1+x2+x3+x4+x5)/5;


Noisy Exponentially Decaying Sine Wave
Plot 0
Amplitude
Time
Smoothing Filter
Plot 0
Amplitude
Time


1000
0.1
-0.01
1.2
Noisy Exponentially Decaying Sine Wave
Smoothing Filter
y=(x1+x2+x3+x4+x5)/5;


Noisy Exponentially Decaying Sine Wave
Plot 0
Amplitude
Time
Smoothing Filter
Plot 0
Amplitude
Time

Summary

Lab 11 focused on recovering a clean signal from a noisy exponentially decaying sine wave using LabVIEW. The experiment required generating a noisy signal and then building a smoothing filter to reduce the noise while preserving the underlying waveform shape. A 5 point moving average filter was implemented using a shift register and a formula node inside a For Loop. This method effectively lowered the high frequency noise without significantly distorting the original signal. Overall, the exercise reinforced LabVIEW programming skills and helped illustrate the importance of noise reduction techniques in signal processing.