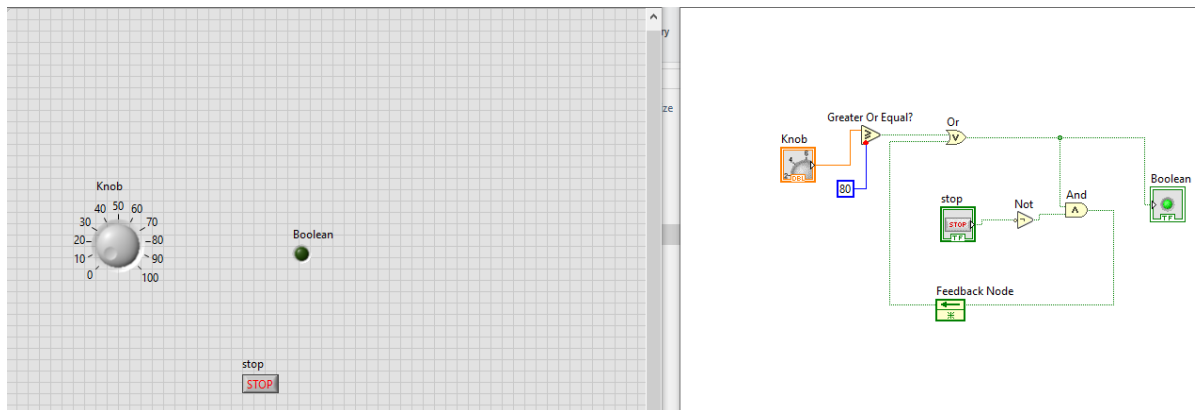
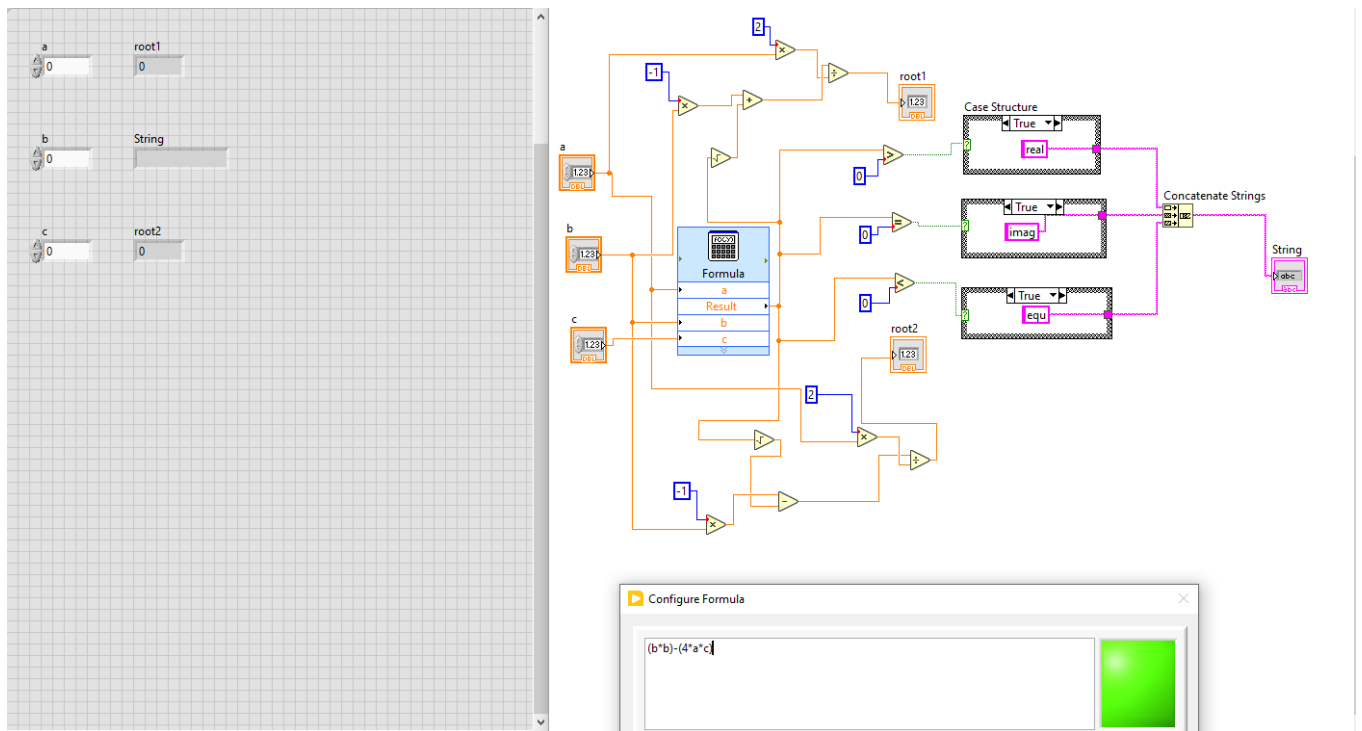


Simulate a pressure alarm using a pressure input ranging from 0 to 100 Pa. Create an LED alarm that switches on when the pressure exceeds 80 Pa and resets with a switch.

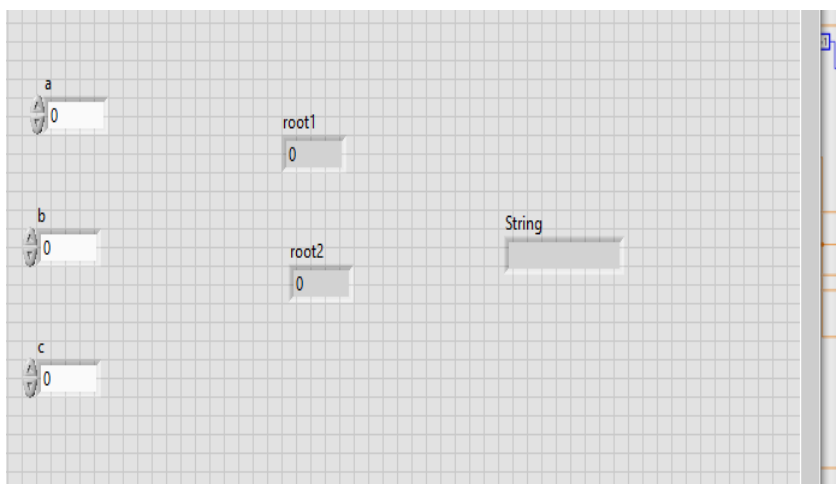


Create a subVI to find the roots of a quadratic equation and call it in a main VI.

i) (Main VI)



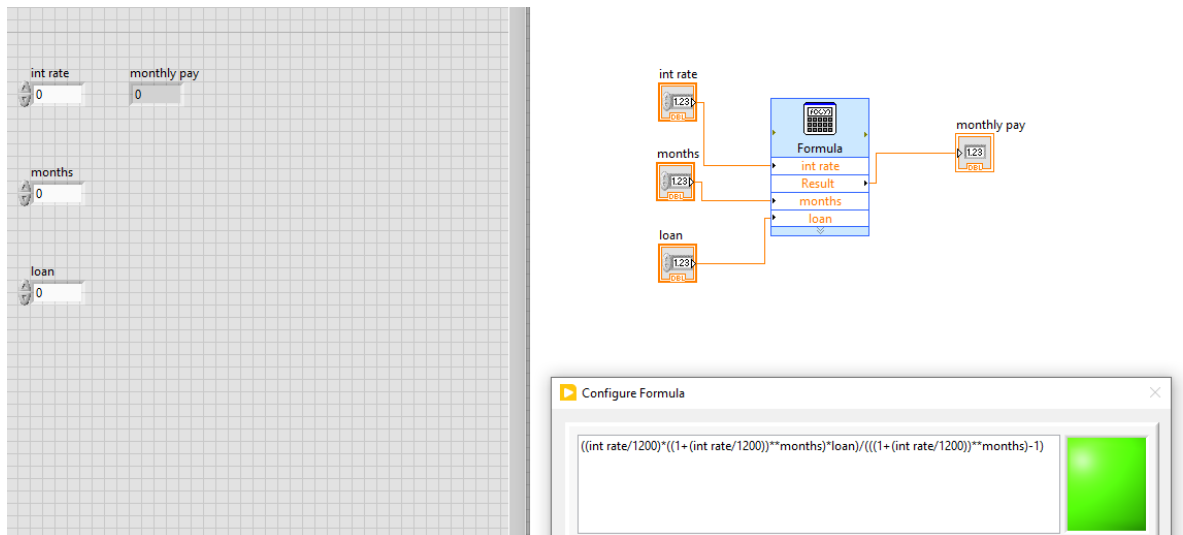
ii) (Sub VI)



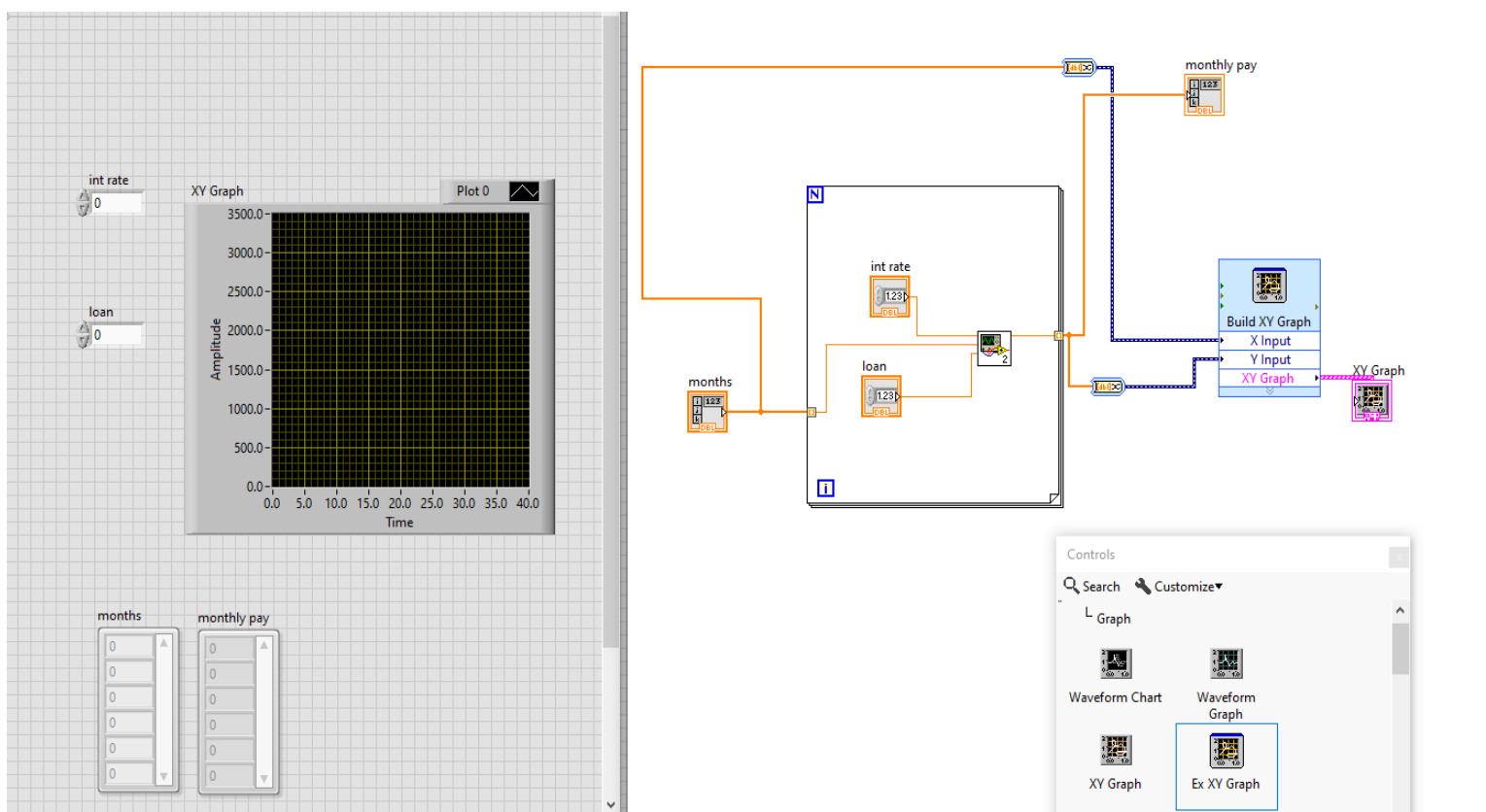
Create a subVI to calculate monthly payment based on loan amount, months, and interest rate.
In the main VI:

- Use the subVI to plot a graph/chart for user-defined loan amounts and interest rates (for 3, 6, 8, 12, 24, and 36 months).
- Build a 1D array for monthly payments and provide input for an XY graph.

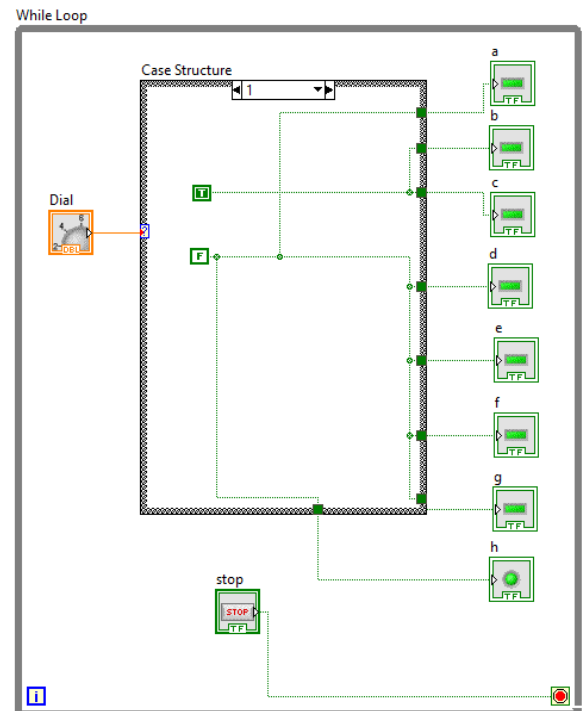
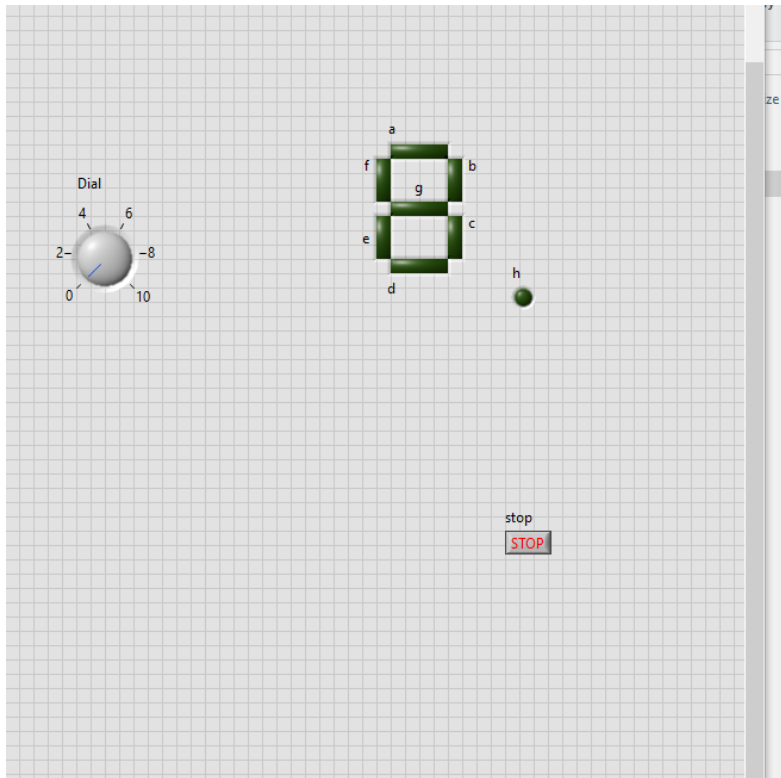
(Main VI)



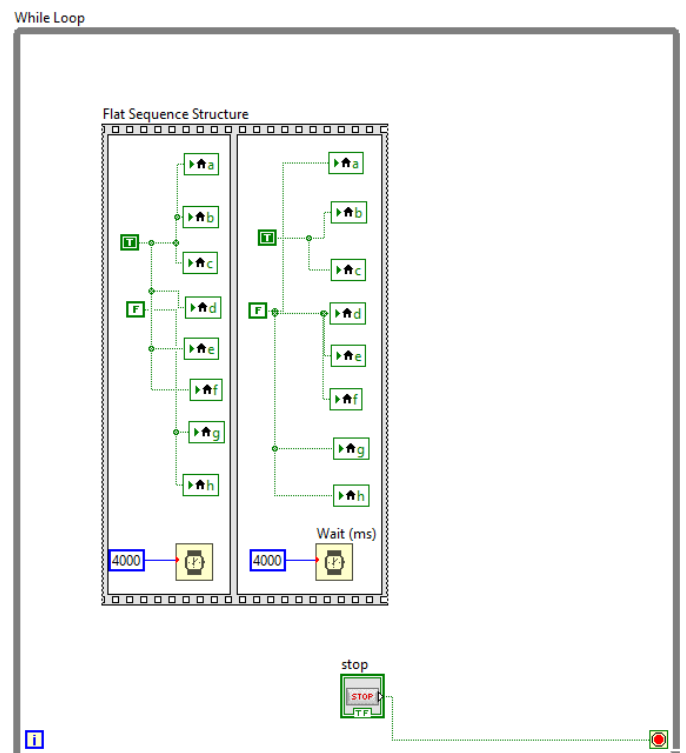
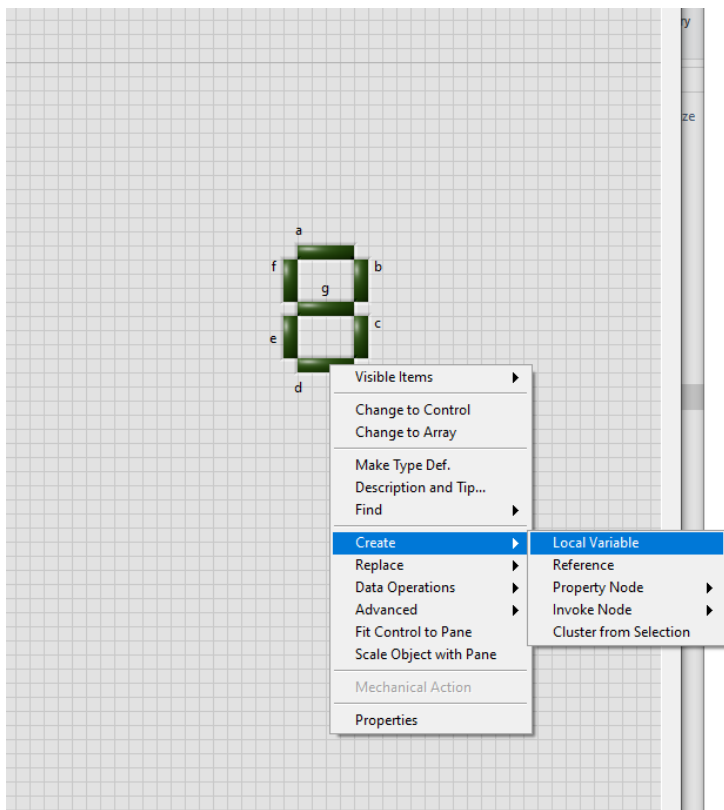
(Sub VI)



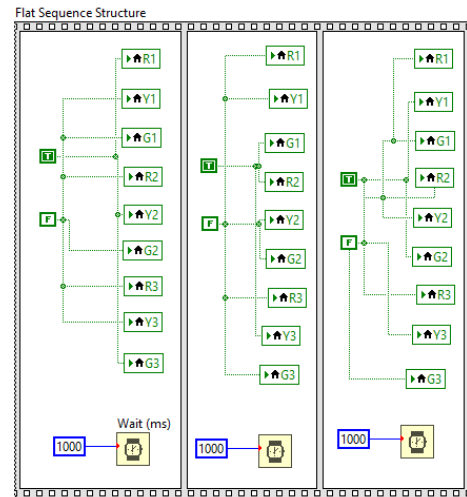
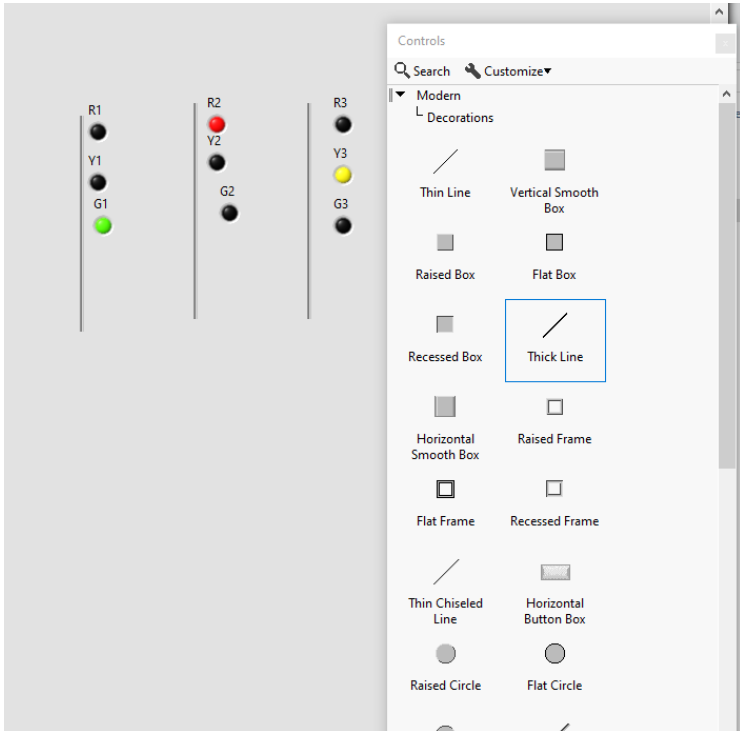
Build a VI to create a seven-segment LED display using case structures. (Need to add true and false constants for all the remaining LED's)



Build a VI to have the 7-segment display count from 0 to 4 in 4 seconds using flat sequence structures. (Need to complete for all the cases)

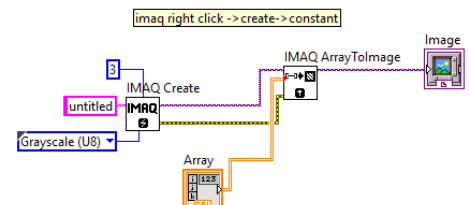
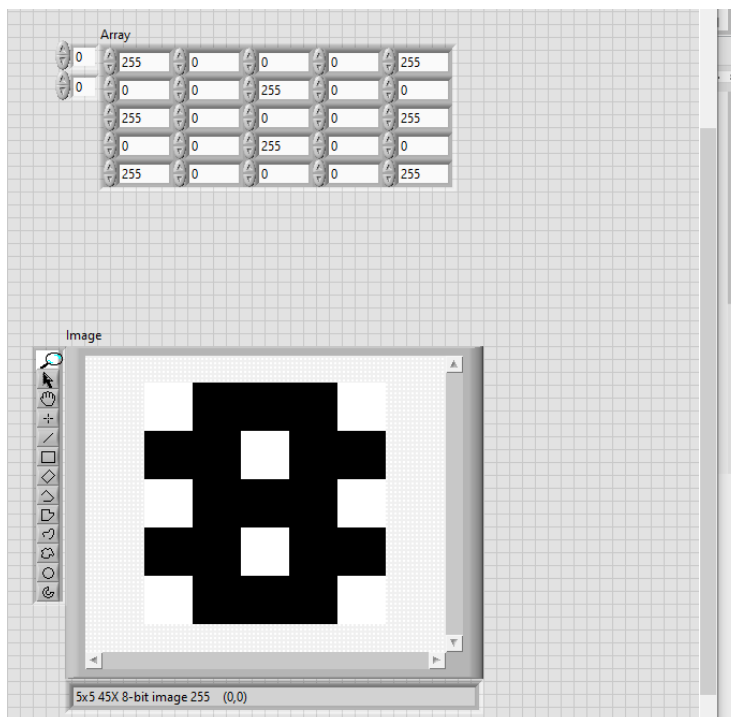


Build a traffic signal display for three lanes (red, green, yellow, and green right where needed). Assume free left turns and sufficient timing for each signal. Use front panel decorations to show the street.

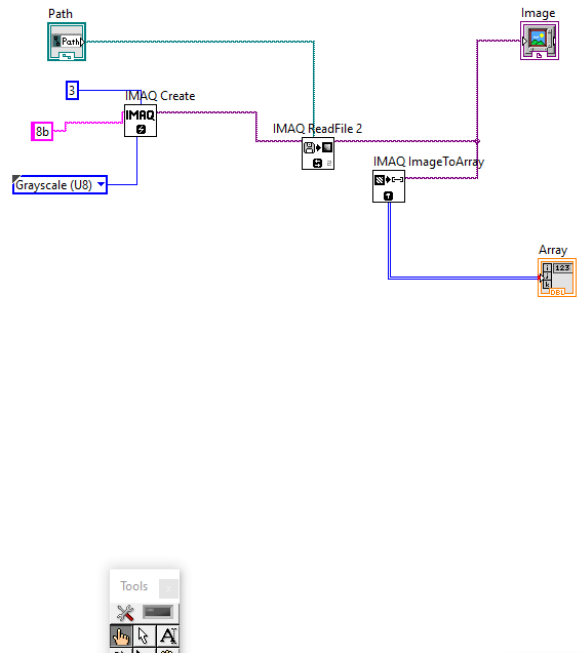
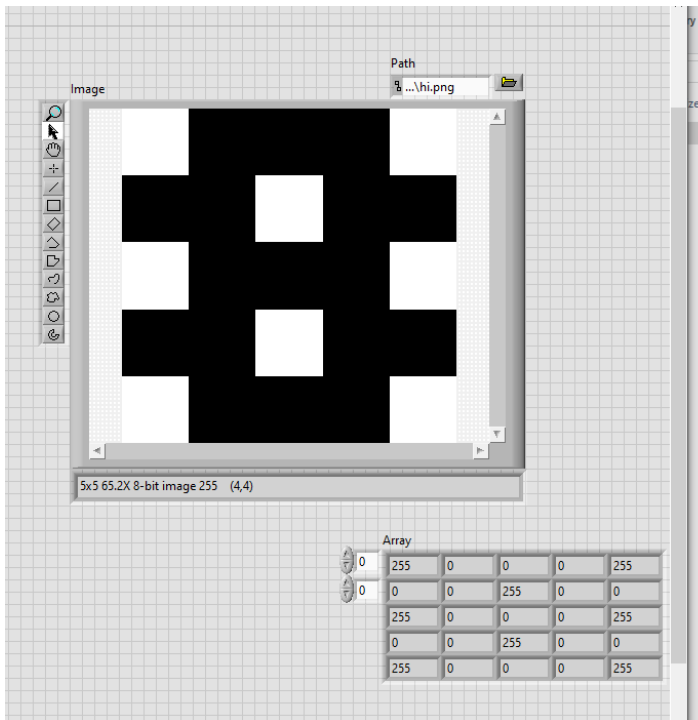


Convert a 2D array to a grayscale image, and convert a grayscale image to a 2D array. Perform edge detection.

i) Array to Grayscale

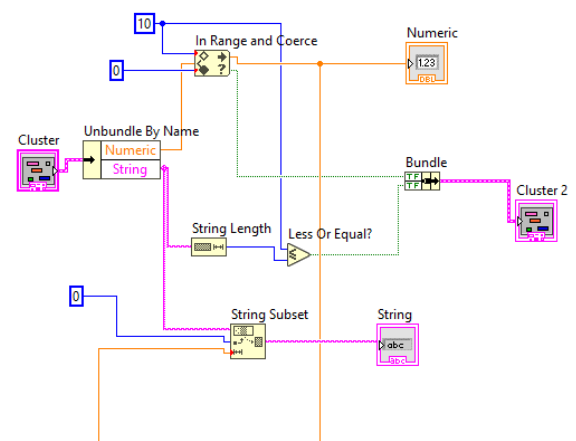
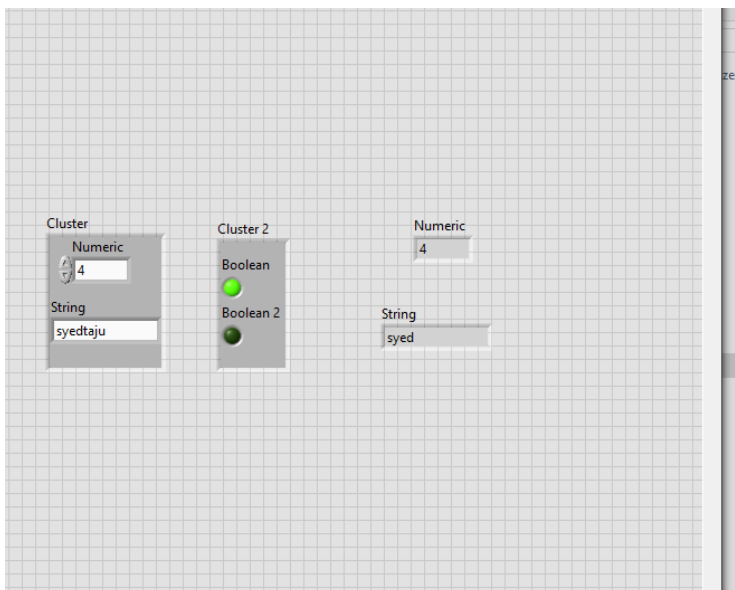


ii) Grayscale to Array

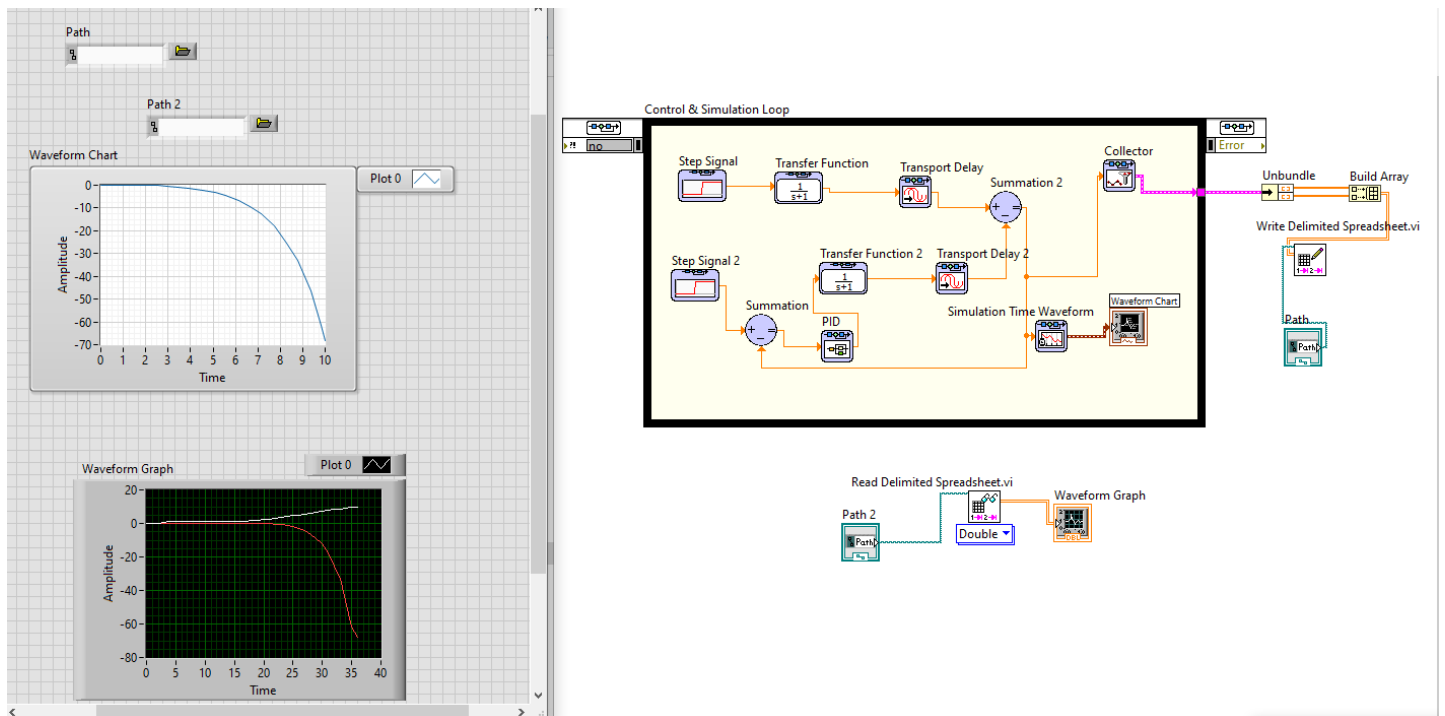


Create a VI to coerce cluster elements (String, Boolean, Numeric) to a specific range:

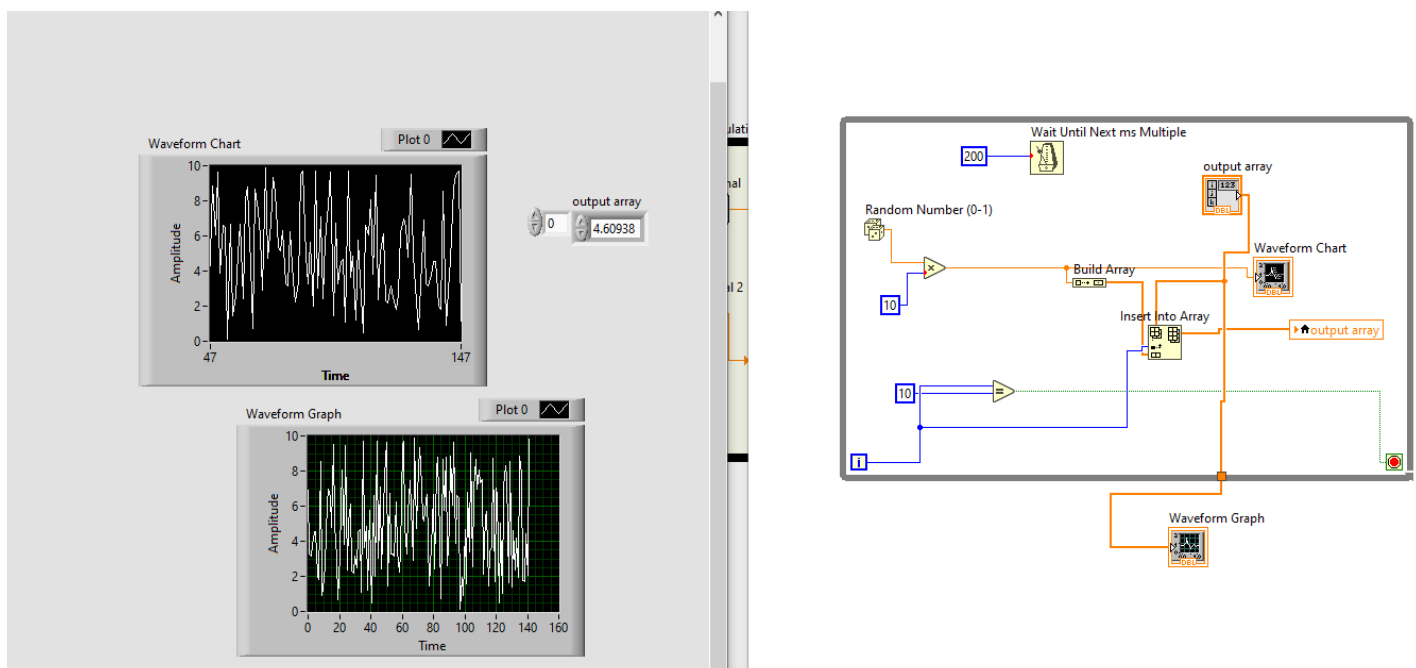
- Specify the upper and lower numeric limits.
- Specify the maximum string length.
- Display the coerced output (string and number) back as a cluster.



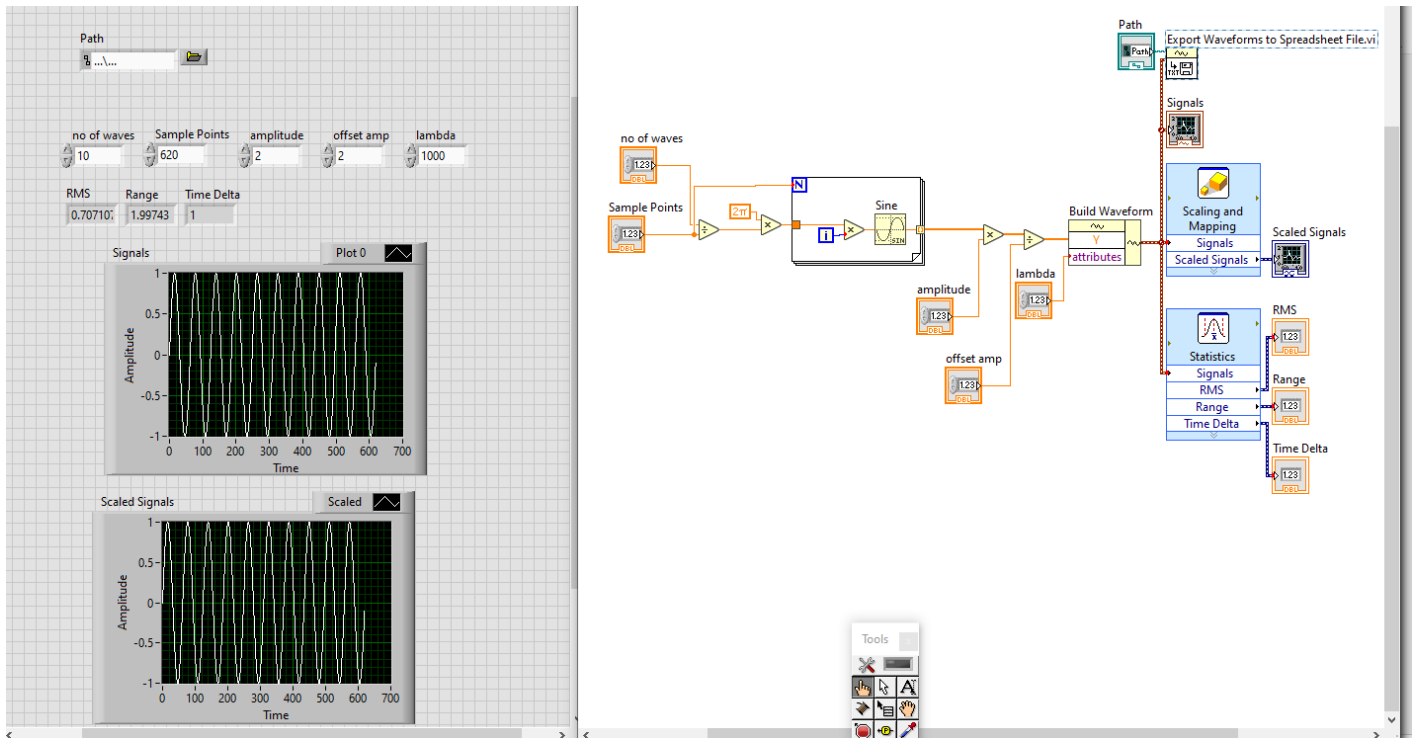
Implement an open-loop system for a process and disturbance transfer function with a 1-second delay. Collect data and save it to a file. Use the given transfer function equations.



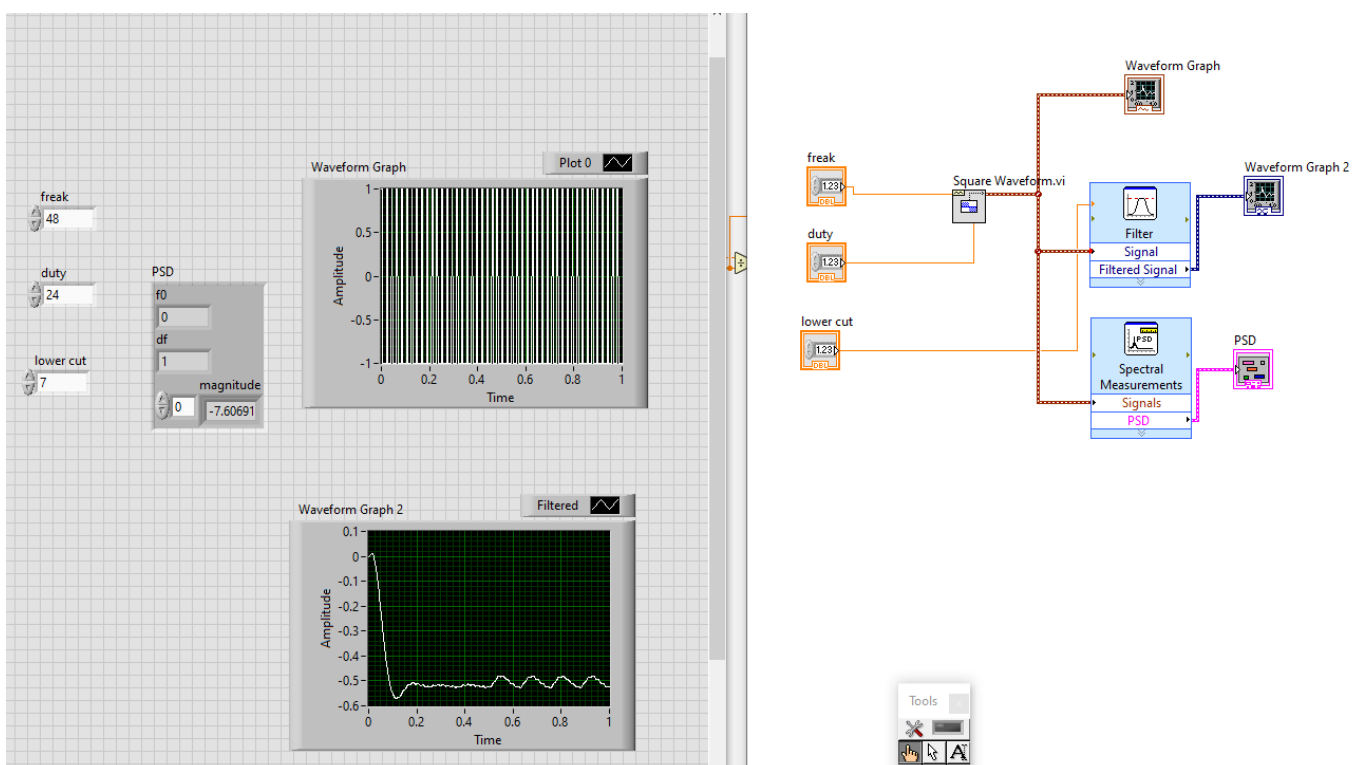
Build a VI to generate 50 random numbers and plot them on a waveform chart using while loops. Accumulate random numbers in an array and display them.



Generate sine waves with varying amplitudes and wavelengths. Use inputs for amplitude, frequency, and phase offset to create and scale waveforms. Write the waveform to a file path specified by the user.



Allow users to specify frequency and duty cycle to generate square waveforms. Measure functions such as power spectral density and apply signal filtering with a cut-off frequency.



Implement the step response of an open-loop system for a process transfer function (with a 1-second delay) and disturbance transfer function using simulation loops and control design.

