LabView Extra Challenges

Looping Structures

- Using only a While Loop, build a combination For Loop and While Loop that stops either when it reaches a number of iterations specified with a front panel control or when you click a stop button.

Arrays, Graphs, and Clusters

- Build a VI that reverses the order of an array that contains 100 random numbers. For example, array[0] becomes array[99], array[1] becomes array[98], and so on.
- Build a VI that generates a 2Darray of three rows by 10 columns that contains random numbers. After generating the array, index each row and plot each row on its own graph. The front panel should contain three graphs.
- Build a VI that simulates the roll of a die with possible values $1-6$ and records the number of times that the die rolls each value. The input is the number of times to roll the die, and the outputs include the number of times the die falls on each possible value. Use only one shift register.
- Build a VI that generates a 1D array and then multiplies pairs of elements together, starting with elements 0 and 1, and returns the resulting array. For example, the input array with values 1 23 10 5 7 11 results in the output array 23 50 77.
- Build a VI that has two inputs, Threshold and Input Array, and one output, Output Array. Output Array contains values from Input Array that are greater than Threshold. Save the VI as 'Array Over Threshold.vi'. Create another VI that generates an array of random numbers between 0 and 1 and uses the Array Over Threshold VI to output an array with the values greater than 0.5.

Strings and File I/O

- Build a VI that generates a 2D array of 3 rows × 100 columns of random numbers and writes the data transposed to a spreadsheet file. Add a header to each column.Use the high-level File I/O VIs located on the Functions»File I/O palette.
- Build a VI that converts tab-delimited spreadsheet strings to comma-delimited spreadsheet strings, that is, spreadsheet strings with columns separated by commas and rows separated by end of line characters. Display both the tab-delimited and comma-delimited spreadsheet strings on the front panel.
- Modify the temperature data logger from Exercise 4-5, so that the VI does not create a new file each time the VI is run. Append the data to end of the existing file that the VI created. Run the VI several times, and verify that the VI did append the new temperature readings.