

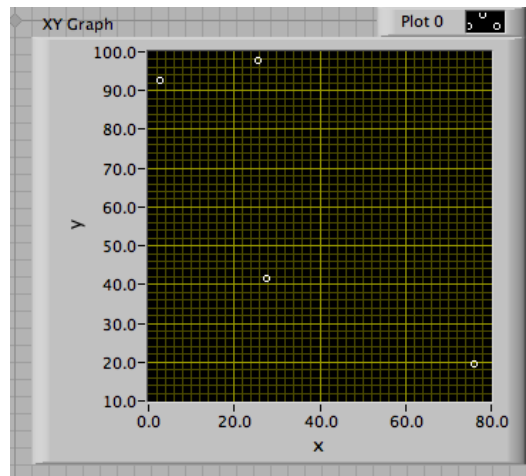
Lecture Notes #12 - 22/February/2012

Midterm review exercise #3

Start generating random numbers between 0 and 100, inside a for loop. What is the average of 5 numbers? What is the average of 10000 numbers?

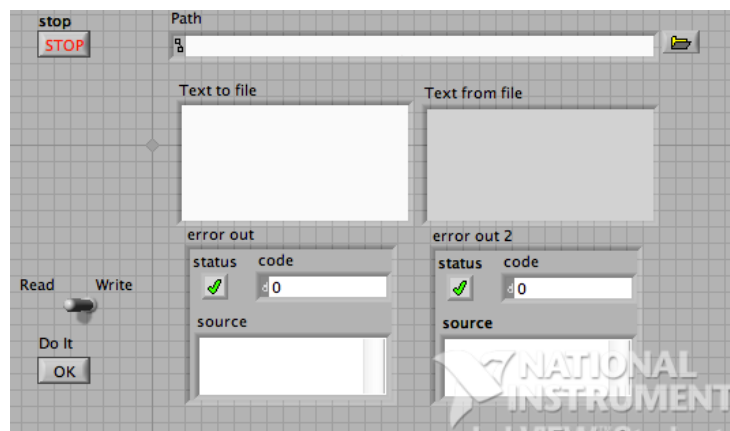
Midterm review exercise #4

Generate a XY plot very similar to the one below, where each point is a random XY coordinate. Use the **Express XY graph** block in the front panel to make your life much easier. Instead of just 4 points (as shown in the image), simulate 400 points.

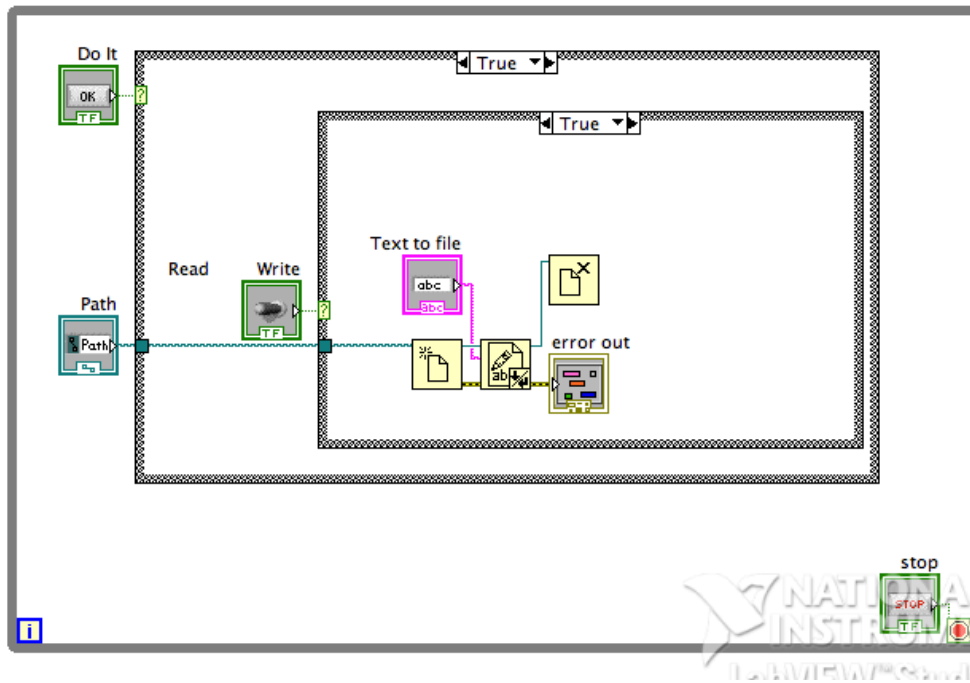
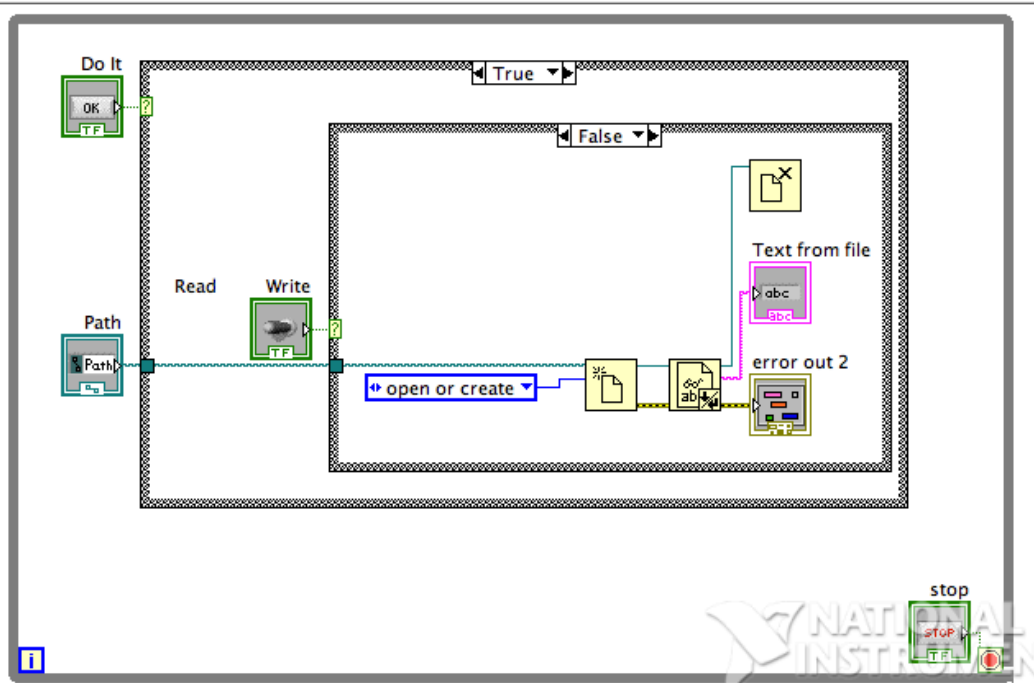


Midterm review exercise #5 - File I/O

Goal: Create a simple interactive VI that accepts user text and writes it to a text file. Additionally, the VI will also allow the user to open and read a text file (the one just created or any other).

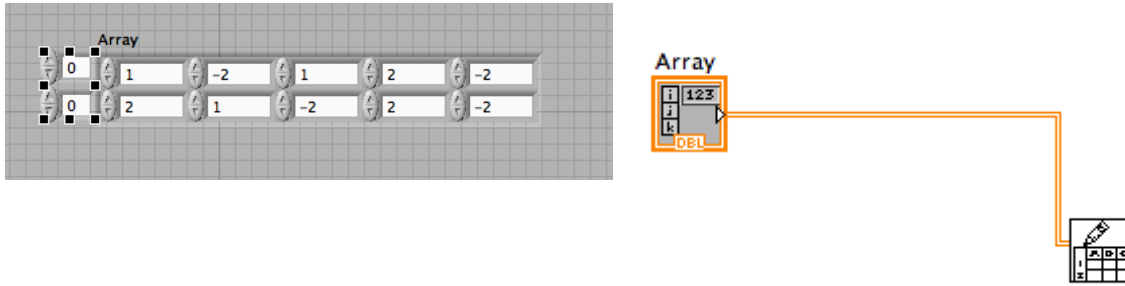


Here is a possible solution.



The file path control is in the front panel =>Express=>Text Controls=>File path control

Writing data into a spreadsheet

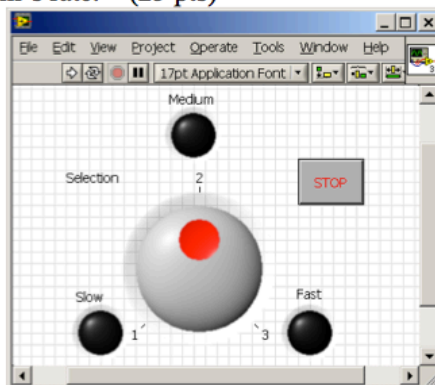


Reading data from a spreadsheet



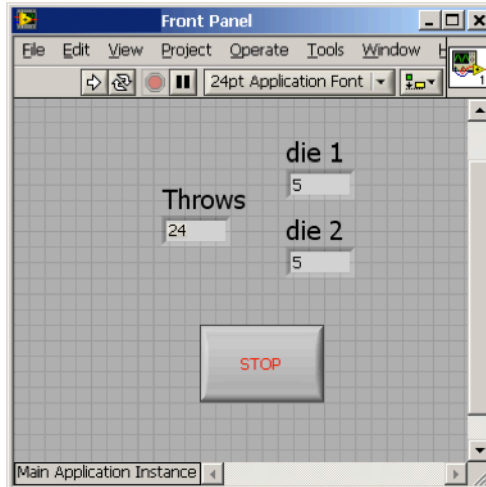
Midterm review exercise #6

3. Design a VI that has a front panel like that shown below. The rotary switch selects one LED at a time. The three LEDs are yellow, green, and red for Slow, Medium, and Fast. The Slow LED pulses at a 400 millisecond rate. The Medium flashes at twice Slow's rate and the Fast LED flashes at twice the Medium's rate. (25 pts)



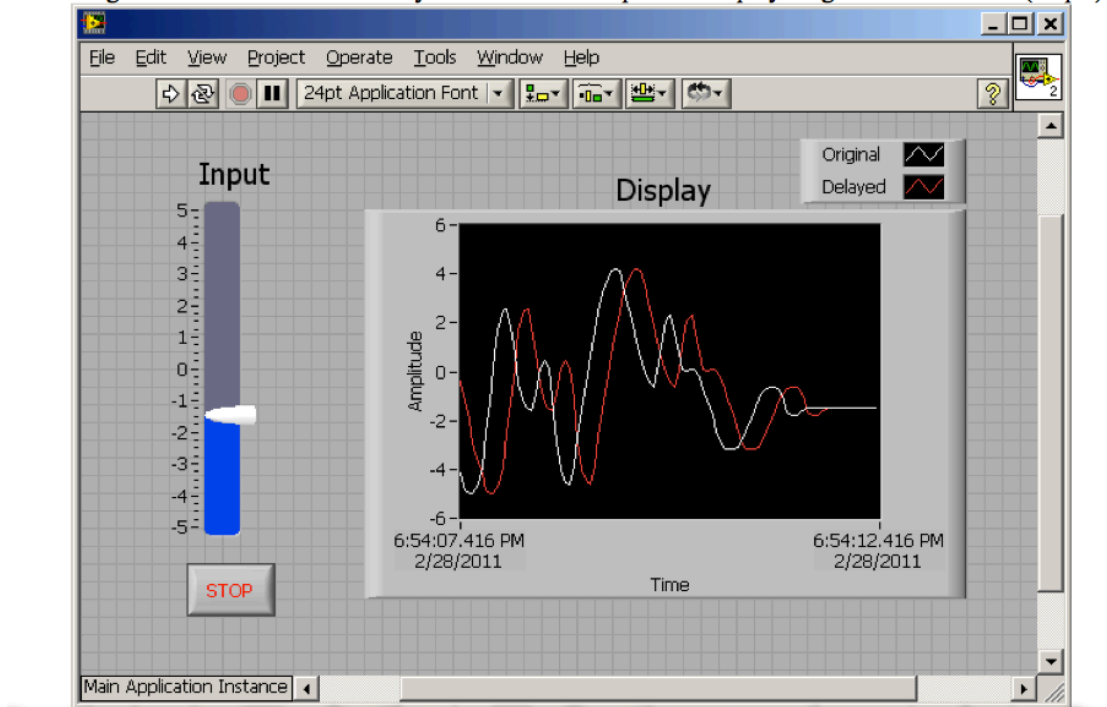
Midterm review exercise #7

1. Design a VI that simulates the throw of two die. The program continues to 'throw' as long as the two die have different values (or the user stops the program). When both dice get the same value the program stops and displays the die values and the number of throws it took to get a match. The front panel of the program is shown below. NOTE: The floating-point values of the die have to be slightly different to get the simulation to work right (otherwise a match is always found on the first toss). To start, consider random numbers with ranges of 0.55 to 6.05 and 0.51 to 6.01 to get integer values from 1 to 6 inclusive. (25 pts)



Midterm review exercise #8

2. Design a VI with a Front Panel as shown below. The user input is displayed every 50 milliseconds along with a 250 millisecond delayed version. The input and display ranges are as shown. (25 pts)



Homework due next class:

- For each of the following questions submit your answers and also your virtual instrument (VI) files to manhattan. Homework submitted after 8am on the following class day will not be graded.

Question #1

http://www.nunoalves.com/classes/spring_2012_engr110/old_midterms/old_3.pdf