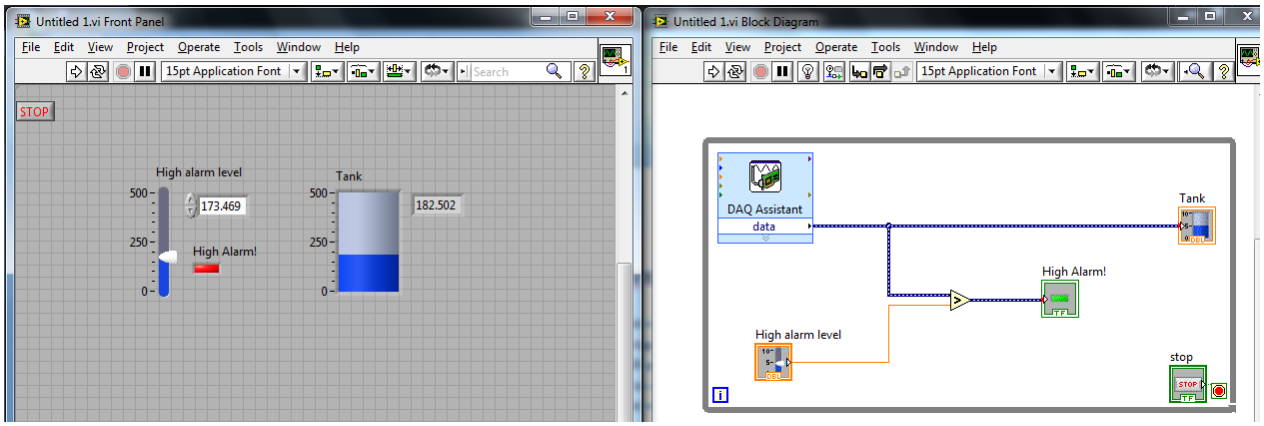
National Instruments LabVIEW 2010 software exercise #2

In this exercise, you will configure the DAQ to receive a 1-5 VDC signal from an imaginary water level transmitter, sensing the height of water inside a storage tank. The signal will be "scaled" to register as 0 to 500 gallons of water (0 gallons at 1 volt signal ; 500 gallons at 5 volt signal), and will be displayed as a vertical bar graph (resembling the tank's filling) and also as a value in a numerical indicator. Finally, you will program a "Boolean" (on/off) indicator "LED" on the Front Panel to activate if the water level ever exceeds a high-alarm point.

The finished Virtual Instrument project should look something like this:



Here is a condensed summary of steps to take :

- Place necessary objects in Block Diagram window:
  - DAQ Assistant (analog input), While loop, and "Greater?" comparison function
- Place necessary objects in Front Panel window:
  - "Tank" numerical indicator, "Pointer Slide" numerical control, and "LED"
- Configure objects:
  - DAQ Assistant for analog input (channel 0), 0 to 5 volt "RSE" input range, creating a "Custom Scaling" formula so that 1 to 5 volts gets converted into 0 to 500 gallons. *I will let you figure out the necessary y=mx+b formula to do this!*
  - Tank object should have a numerical indicator, and be scaled for 0 to 500 gallons
  - High alarm level slide-control should also have a numerical indicator, and be scaled for 0 to 500 gallons
- Link objects together in Block Diagram:
  - DAQ Assistant output to Tank indicator and comparison function
  - High Alarm slide control output to comparison function
  - Comparison function to High Alarm LED object
- Try running the project!
  - Using a multimeter, verify analog input scaling (1 volt = 0 gal and 5 volts = 500 gal)