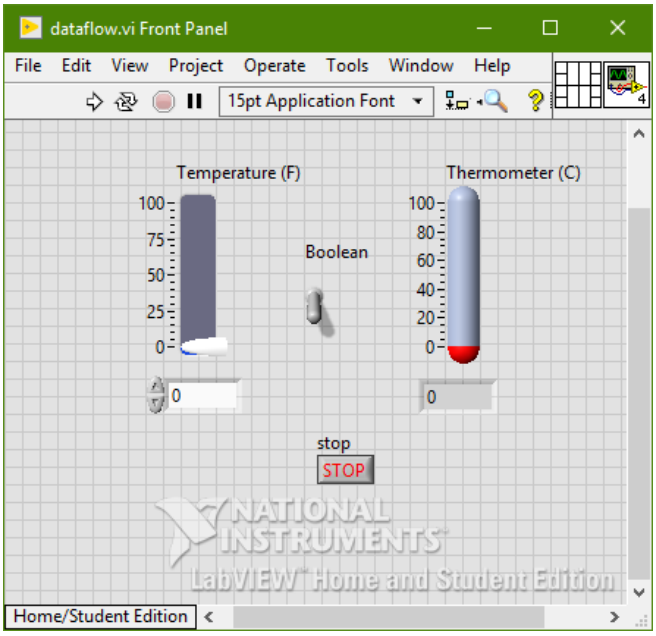
An Example of LabVIEW

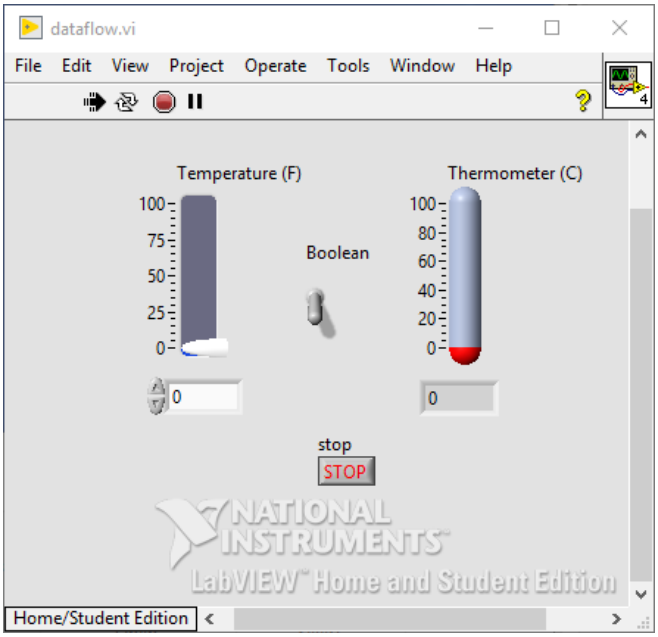
Purpose of this Virtual Instrument: take signal from a sensor (a thermometer), process it in the desired way (either converting from Fahrenheit to Celsius or keep it as Fahrenheit), and display the processed signal.

Front panel, not running:



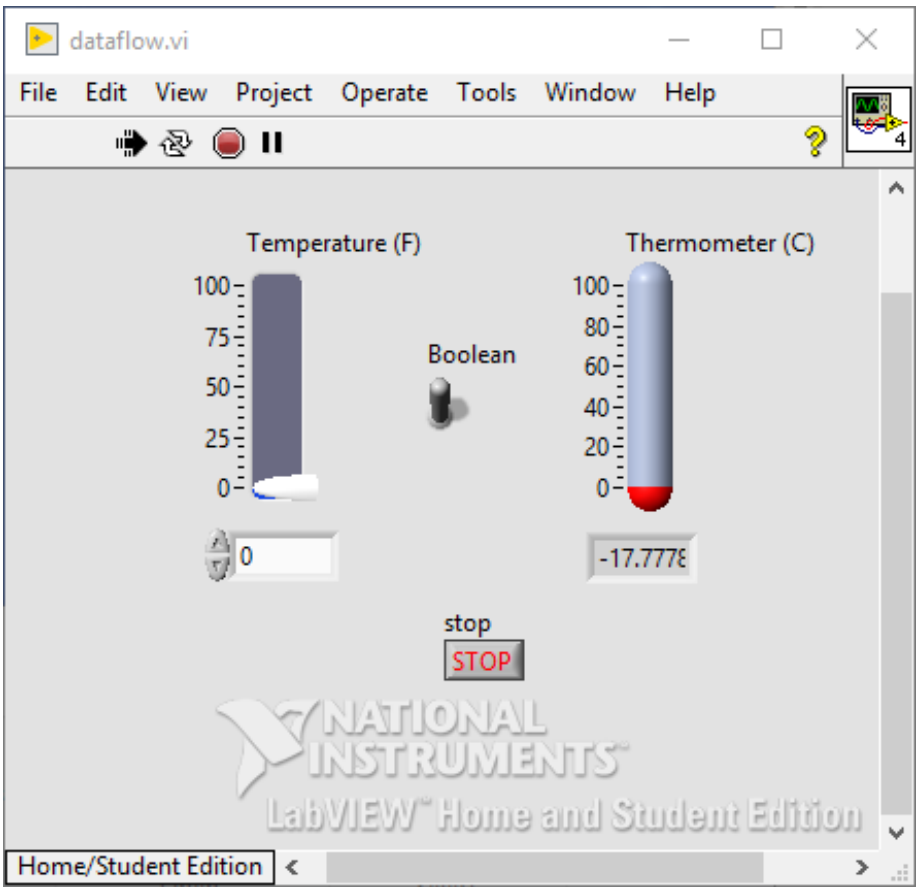
Notes: the sensor consists of manual inputs here; two other manual inputs are “Boolean”, which controls whether F is converted to C, and “Stop”, which makes the system stop running from the front.

Front panel, running, “Boolean” = false:



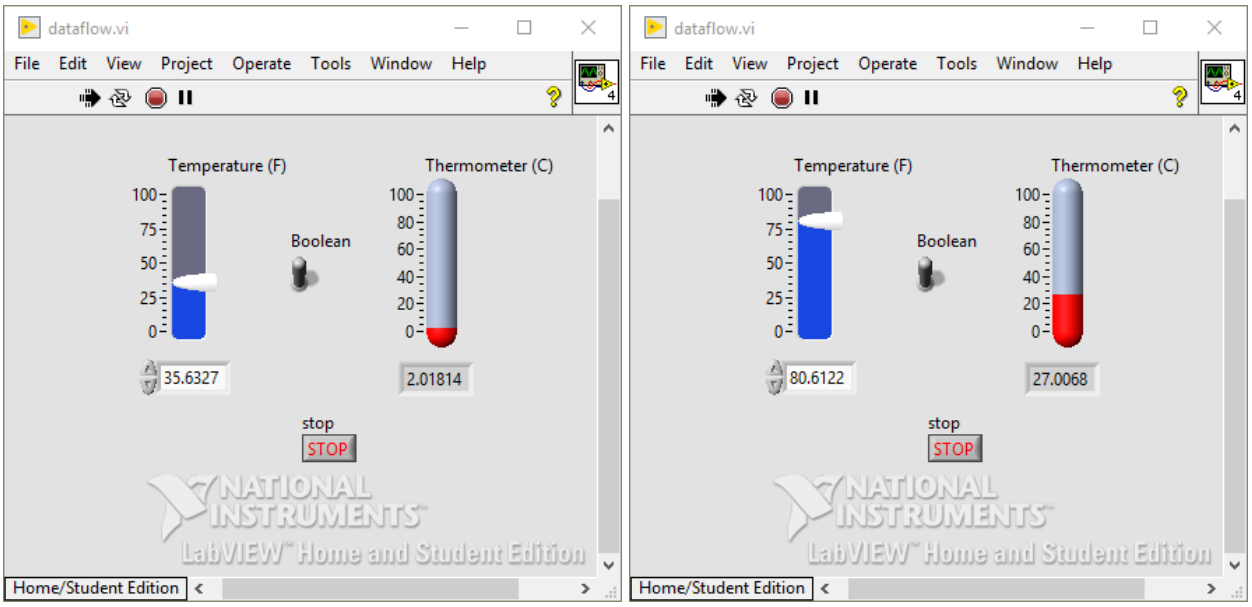
Notes: the input is going in steadily, but the F to C conversion is not happening because the “Boolean” switch is off, therefore the output is equal to the input.

Front panel, running, “Boolean” = true, input = 0:



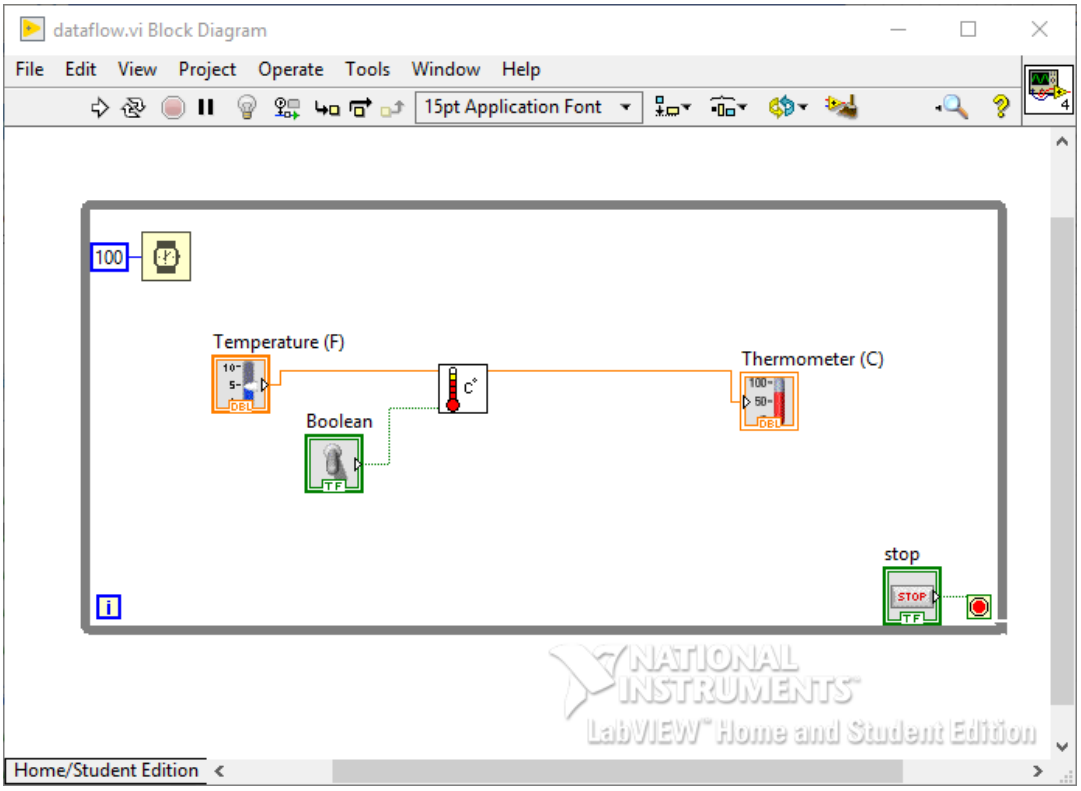
Notes: now the processing is being done, and the C value correctly matches the F value on its screen, though the mercury thermometer can’t go that low.

Front panel, running, “Boolean” = true, input nonzero:



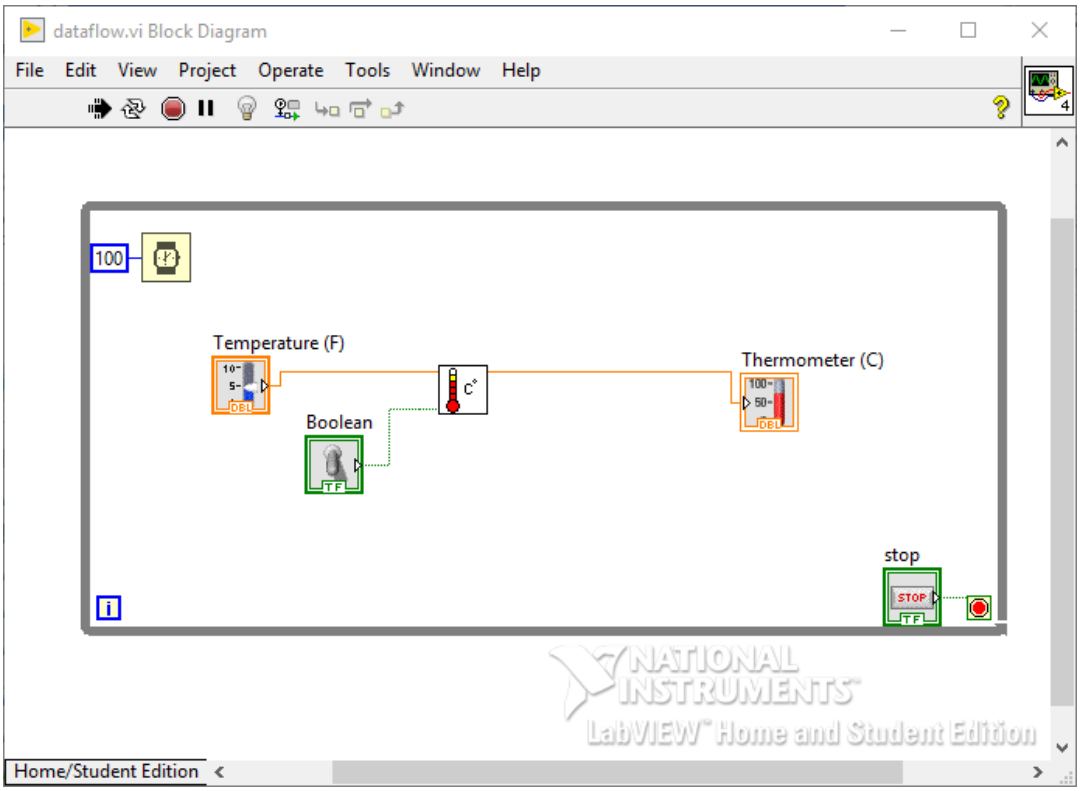
Notes: the input temperature rises to positive C values.

Block diagram, not running:



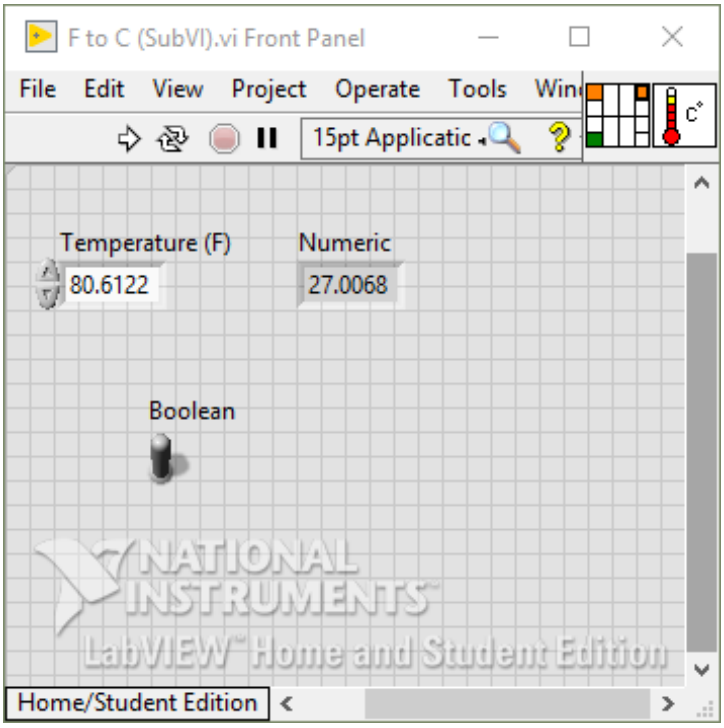
Notes: everything you can see on the front panel has a title above it here; things without titles are needed to make them work, from behind the scenes.

Block diagram, running:



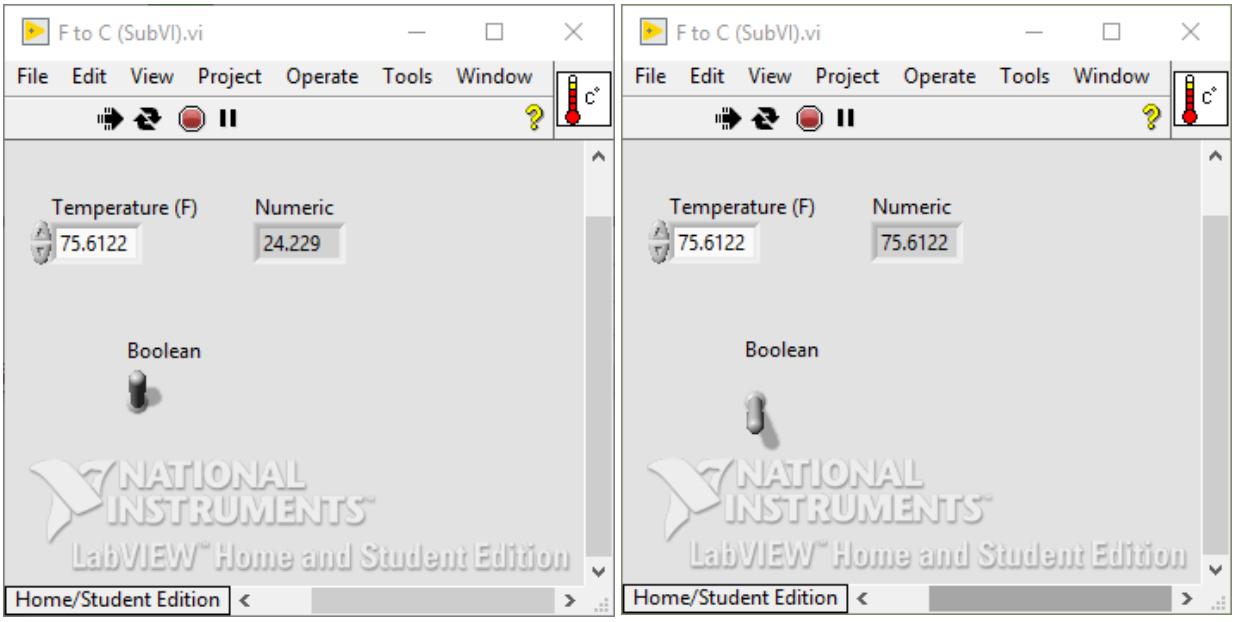
Notes: none of the interaction happens on the block diagram; the only difference is that the “Run” button above the diagram has changed in appearance slightly.

F to C front panel, not running:



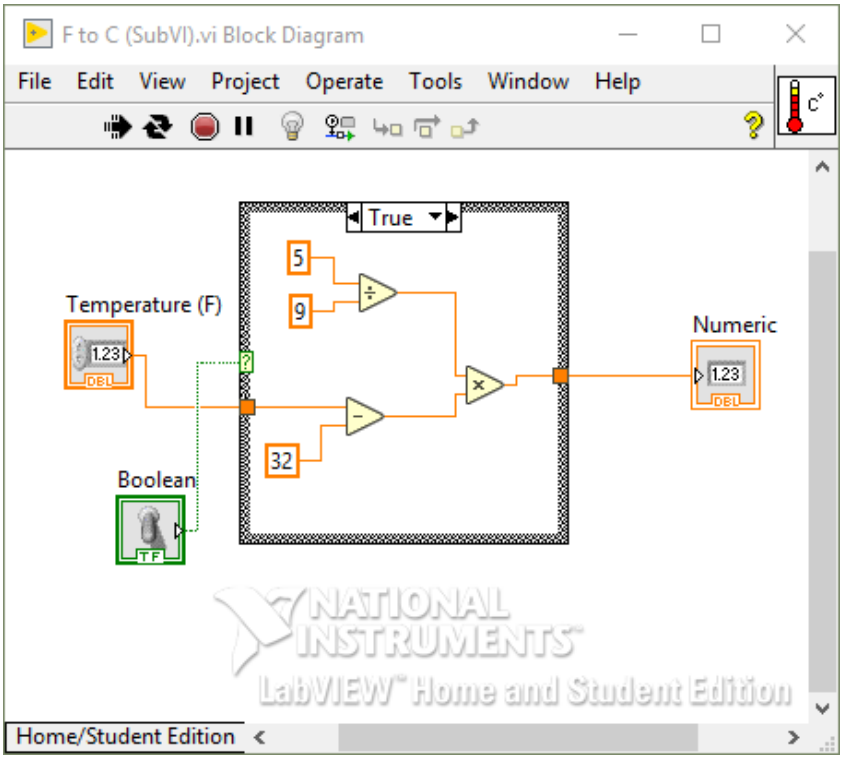
Notes: double-click on the thermometer symbol in the block diagram above, and the front panel of the Virtual Instrument it represents pops up, where the conversion from F to C is made, if the “Boolean” switch is on.

F to C front panel, running:



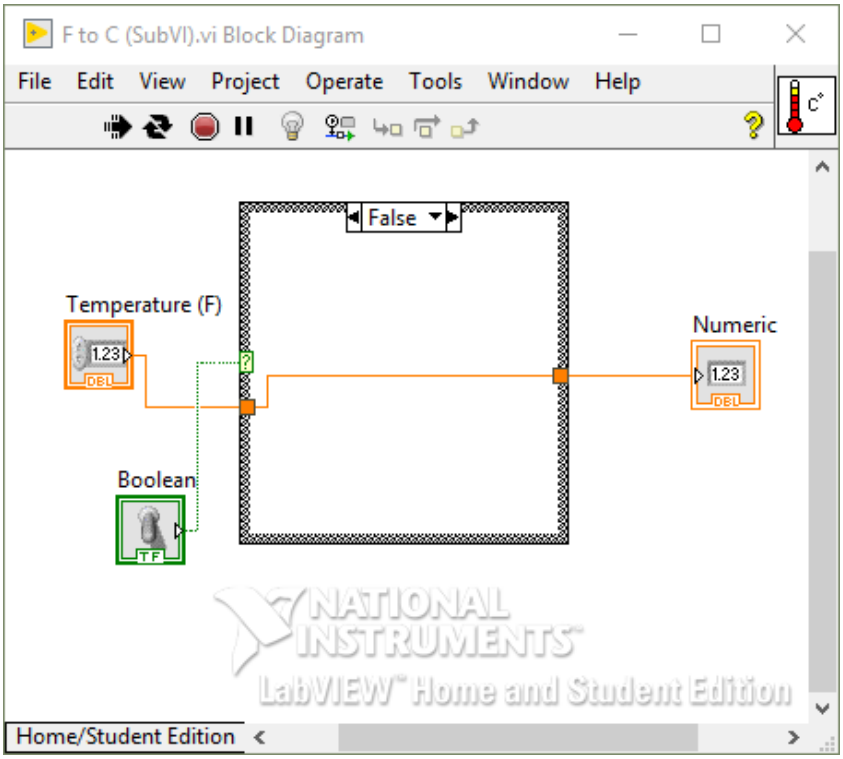
Notes: set it running continuously (without the loop around the dataflow.vi block diagram, it will carry everything out once and stop), change the input Temperature, and turn the “Boolean” to false.

F to C block diagram, True:



Notes: again, notice that there is no interaction between the view of the block diagram and the front panel; “Boolean” is set to false as the system is continuously running, but we’re currently looking at how to process values when it’s set to true.

F to C block diagram, False:



Notes: now we see what happens when “Boolean” is set to False.