PHYS 4580, 6/7280 Lab Guide supplement for "Getting Started With LabVIEW", Fall 2012

Ideally you'll complete the first three exercises fairly efficiently, with no or little difficulty (40 mins., 40 mins, 30 mins.) – a little less than 2 hours. That will leave "Acquiring Data and Communicating with Instruments" (another 30 minutes exercise). In this case, you'll make use of the USB-6009 14-bit multi-function DAQ device. You should use your friend the Internet to download the data sheet if you don't already have that.

Follow the "Getting Started With LabVIEW" guide, Part 4 on DAQ and instrument communication. Since we may not have sufficient separate setups for each student, please work together within your team on a single setup. If you encounter an insurmountable barrier, and/or have extra time, please pursue other "DAQ" exercise as you see fit. For example, you can (a) generate a sine wave output from the Analog Out, (b) try to digitize the analog out on an Analog In channel (is this possible?), and also try to output a sine wave on AO0 and a cosine wave on AO1 – one might expect the output/update rate to be slower than when using one AO channel alone.

For this lab write-up, please prepare a 2-3 page report describing in your own words (using relevant vocabulary learned from this lab) what LabVIEW is, what it can do, how you used it in these lab exercises, and how you would envision using it in your own research or to automate something in your life (dorm room, apartment, etc.). You can include a couple of LabVIEW-specific figures if you'd like to be able to refer to them. Include an Introduction, the structure of a simple LabVIEW .vi (including front panel and block diagram), what *you* see as unique features of LV, and a fairly detailed description of your own invented application (planned, envisioned, but likely not actually implemented). Include a sketch/drawing of "data flow" and any relevant objects or instruments for your invented application. You can capture window screenshots by using the PrntScrn and/or Alt-PrntScrn buttons on the keyboard and then pasting them into an image to transfer to your USB drive.