Laboratory #01 ENEE 148A Fall 2016

This lab is an individual effort. Complete the following tasks:

1. **Connect the Raspberry Pi (RPi) to the peripheral hardware**
   1. Unpack the RPi kit and make sure that all components are there.
   2. Put the RPi into the protective case (bottom only).
   3. Connect the cable to the GPIO (input/output pins). Make sure you connect it according to UTF instructions – there are two ways to connect it but only one way is correct!
   4. Connect the keyboard USB connector and the mouse USB connector to two of the USB ports on the front of the Raspberry Pi.
   5. Put an HDMI – DVI-D adapter on one end of the HDMI cable and plug the DVI-D output into the proper connector on the back of the computer monitor on the lab workbench. *(Note: the converter & cable may already be connected to the monitor.)*
   6. Use the monitor buttons to change the input to HDMI.
   7. Insert the micro SD card into the RPI.
   8. Take out the power cord (USB A on one side and micro USB on the other) and the power supply. Connect the USB A connector to the power supply and plug the supply into the power strip. Connect the micro USB to the back of the RPi The power light indicator should glow red.
2. **Start the Raspberry Pi GUI**
   1. After connecting power, the RPi should boot up in a few minutes.
   2. Play around in the GUI. See if you can connect to the internet. See if you can find the power point lecture slides. See if you can find a document that explains how to connect the RPi to a laptop computer. Explore other applications available to you.
3. **Open, compile and run the first sample code for the class.** 
   1. Open the “Geany” editor. *(Menu🡪Programming🡪 “Geany Programmer’s Editor”)*
   2. Start a new project with *Project🡪New* and name it ex01 and then press *create*.
   3. Open a new file with *File🡪New.*
   4. Download the example code ex\_01\_01.c from ELMS. *(Menu🡪Internet🡪 “Epiphany Web Browser”)...* then double-click on User Login screen and go from there…downloading it to the RPi works best…
   5. Cut and paste ex\_01\_01.c into Geany.
   6. Save the file with *File🡪Save* and then name it ex01\_01.c.
   7. Compile and build the code. (Drop down menu *(Build-🡪 build)*
   8. Run the code (Drop down menu: Build-🡪 execute)
4. **Write, compile and run a program that says, “Hi, my name is [put your name here]” on one line, “One interesting fact about me is [put G-rated fact here]” on the second line, and “The reason I chose to take ENEE 148A was [put your reason here]” on the third line.**
   1. Open a new project named “Ex\_01\_my\_name”
   2. Type in the code or modify the first example – don’t forget comment lines (after writing it).
   3. Compile and build the code. (Drop down menu: Build-🡪 build)
   4. Fix any syntax errors as needed.
   5. Run the code when there are no errors (Drop down menu: Build-🡪 execute)
   6. Save the project (Drop-down menu: file-🡪save / save all)
   7. Show instructor the code output.
5. **Copy the code into a text file (e.g. you could use LibreOffice or Leafpad)**
6. **Send the file to yourself via the internet.**
7. **Copy ex\_01\_02.c from ELMS and modify the comments (to reflect your contribution). Have it print the electric field at three distances of your choosing for a charge of 1 nC (10-9 Coulombs)**
8. **Copy the code into a text file (e.g. you could use LibreOffice or Leafpad)**
9. **Send the file to yourself via the internet.**
10. **Write a code that prints out the first names of 5 of the students in your section, one name per line (Do NOT use your name in that list).**
11. **Copy the code into a text file (e.g. you could use LibreOffice or Leafpad)**
12. **Send the file to yourself via the internet.**

**You must turn in a copy of the three codes you have modified as your “lab report” by Sept. 14, 2016.**