Homework 1
Welcome, Setup, and Some Light Reading

Assigned: Friday, January 8, 11:00AM

Due: Friday, January 15, 11:00AM (Hard Deadline)

Submission Instructions

Submit this assignment on Gradescope. You must submit every page of this PDF. We recommend using the free online tool PDFescape to edit and fill out this PDF. You may also print, handwrite, and scan this assignment.

1 Set Up a Ubuntu Virtual Machine

One of the goals of this class is to understand systems work so that you can customize and improve them for yourself. On CAEN, course environments are already set up and everything "just works". On a brand new Ubuntu install, however, we will have to find, install, set up and manage many tools ourselves.

Recall from lecture that a virtual machine (VM) is a fake computer running as a program. We'll use a VM in this course as a playground to test things out and work without risking anything on your day-to-day machine. To kick things off, we start by getting a basic environment set up this week.

One final thought: Homework in this class will often be a little underspecified. You are expected to Google, to try things, and to fail from time to time. Making mistakes is highly encouraged, it's how you learn. We have many office hours if you find yourself getting stuck, but we will always start with the questions, "What have you tried so far?" and "Why do you think that didn't work?"

1. Get a copy of the **Desktop** version of **Ubuntu 15.10** (n.b. this is a big download, consider doing it on campus).
2. Download and install VirtualBox.
3. Open VirtualBox and create a new virtual machine. Most of the defaults are fine. The default hard drive size of 8 GB is a little small, I recommend going bigger (50 GB or so). By default, disk images are *sparse*, which means it won't take 50 GB of real disk space to create a fake disk, rather the fake disk will grow on demand as it's used, so there's not a lot of harm in choosing a big number.
4. Install Ubuntu on your new virtual machine. I recommend "Downloading updates while installing".
5. Once Ubuntu is running, install the Guest Additions (try VirtualBox's Devices menu → Insert Guest Additions CD Image; you'll need to reboot once this finishes).
   Q: What are Guest Additions? What do they do? What changed after you installed them and rebooted your VM?
   Guest additions an extra bits of software that one can install on their virtual machine so as to get some extra performances such as automatic resizing, drag-and-drop file management, seamless mode, general performance improvement.
6. Play around with your new machine! Try writing and running a Hello World program. What about other tools you've used before? Can you get an old course project running?

2 Readings

Each of these are short blog posts, 5-10 minute reads. I selected these to give you a little exposure to some varying perspectives. The authors, Joel in particular, have several other very interesting posts that I highly encourage exploring. After each reading, write a response for the given question.

Biculturalism by Joel Spolsky
http://www.joelonsoftware.com/articles/Biculturalism.html

Q: Has your computing experience thus far aligned more with "Windows culture" or "unix culture"? What makes you feel that way?

I started my journey of programming at my freshmen year, when I have already switched from Windows to OS X. So I would think that I am more aligned with the "unix culture" because I don't really have many opportunities to work on projects that interact with end-users and that I learned my programming skills in an environment where most people are unix programmers.

These two articles use the word "research" a lot, but the points made apply well to any work in computer science.

Helping my students overcome command-line bullshittery by Phillip Guo
http://www.pgbovine.net/command-line-bullshittery.htm
and the counter-point
On the value of command-line "bullshittery" by Eytan Adar
https://medium.com/@eytanadar/on-the-value-of-command-line-bullshittery-94dc19ec8c61

Q: What did you take away from these articles?

A few things that I learned from these articles:

1. Command-line bullshittery can be really hard.
2. Command-line bullshittery might stop one from advancing his/her research/work while having nothing to do with one's intellectual worth.
3. Learning command-line bullshittery isn't just memorizing all those steps and procedures, it involves meta-cognition --- the mental process of identifying errors and using whatever one can to solve that problem while iteratively bettering the process itself.