COP 4600 - Homework 1

Due February 10, 2020

## **Total points: 5pt**

# Problem 1: Install a Unix environment on your computer (1 pt)

* Install a Unix command line environment on your computer. There are several ways in which you can proceed:
  + Install Linux on your computer (potentially, in parallel with your current OS).
  + Install Linux in a virtual machine in your system.
    - VirtualBox (<https://www.virtualbox.org/wiki/Downloads>) is a good choice.
    - Both Windows and MacOS packages are available
  + Use the Linux Subsystem for Windows
    - <https://docs.microsoft.com/en-us/windows/wsl/install-win10>
  + Ubuntu 18.04.3 LTS (Bionic Beaver) is a good choice for the Linux distribution, but feel free to choose something else.
  + Use the command line in MacOS (but you need to enable / install command line development tools)
* Get familiar with the operation of the bash shell: how to run programs in the foreground, background, how to kill processes, how to list running processes etc.
  + Use publicly available resources to figure this out (e.g. google how to use bash)
* Write a small “Hello world, my name is <<Your Name>>” program in C, compile and run it. Substitute your own name.
  + Note, that you might need to install additional packages to your distribution. Use publicly available resources to figure this out.

**What to submit:** Screenshots documenting the progress of your work. Paste the screenshots into a Word document, under section Problem 1. Add enough text such that a reader can understand what is going on. If there were problems, add screenshots of them and also how you solved them.

# Problem 2: Read the introduction chapter from the Arpaci-Dusseau book: (2 pt)

<http://pages.cs.wisc.edu/~remzi/OSTEP/>

The chapter to read is Chapter 2 – Introduction.

**What to submit:** Summarize the chapter in 200 words, add it to the Word document, under Problem 2.

# Problem 3: Reproduce the code experiments from the chapter (2pt)

* Download the code from github (see the link from the book chapter, or go to <https://github.com/remzi-arpacidusseau/ostep-code>
* The code you are interested in, is in the “intro” subdirectory
* Please note that there might be some slight difference between what you see in the chapter and what there is in the code:
  + For instance: in the github version, the mem program requires an initial value (an integer)
  + thread is called “threads”
  + Adapt the way you run them to the code (you don’t have to changed the code)

**What to submit:** Screenshots of the experiments reproducing the observations from the chapter on your own computer. Paste them in a word file, under Problem 3.