**ExploreCSC4100/5100 – Homework 1 – Processes**

**https://pages.cs.wisc.edu/~remzi/OSTEP/cpu-api.pdf**

1. Write a program that calls fork(). Before calling fork(), have the main process access a variable (e.g., x) and set its value to something (e.g., 100). What value is the variable in the child process? What happens to the variable when both the child and parent change the value of x?
2. Write another program using fork(). The child process should print “hello”; the parent process should print “goodbye”. You should try to ensure that the child process always prints first; can you do this without calling wait() in the parent?
3. Write a program that calls fork() and then calls some form of exec() to run the program /bin/ls. See if you can try all of the variants of exec(), including (on Linux) execl(), execle(), execlp(), execv(), execvp(), and execvpe(). Why do you think there are so many variants of the same basic call?
4. Write a program that creates two children, and connects the standard output of one to the standard input of the other, using the pipe() system call.