COMP301 - OPERATING SYSTEMS

Fall'21
ASSIGNMENT - 1
DUE: 10th December'21, 11:59PM

Part 1

- Write a C program for Linux that calls the fork() system call in **4 iterations** of a loop to create multiple processes.
- Every time a Child process is created, before doing anything else, it prints its PID and the PID of its parent.
- Every process **waits** for any of its further Child processes to completely execute and finish.
- **Before** going into wait(), every Child process runs a loop, that calls a mathematical function of your choice from the library math.h on a float/double variable, as many number of times, that should take the loop to complete all iterations in 2 to 3 seconds (test it separately first).
- **Before** the wait() and for-loop, each process reads the starting clock time, and after the wait() line, reads the ending clock time (clock() system call can be used). The difference of both times is the time taken by a process.
- When a process ends, it prints the execution time of each process followed by its PID for you to make a note of.

Part 2

- Draw a process tree that shows all the parent and child processes. Each node (process) should also have the execution time mentioned along its PID.

SUBMISSION DETAILS:

1. File 1: 12-12345.c your main code file (the program must compile without and errors)
2. File 2: 12-12345.png your process tree drawn using software or paper.
3. Upload the 2 files to Moodle.