Hamin Han

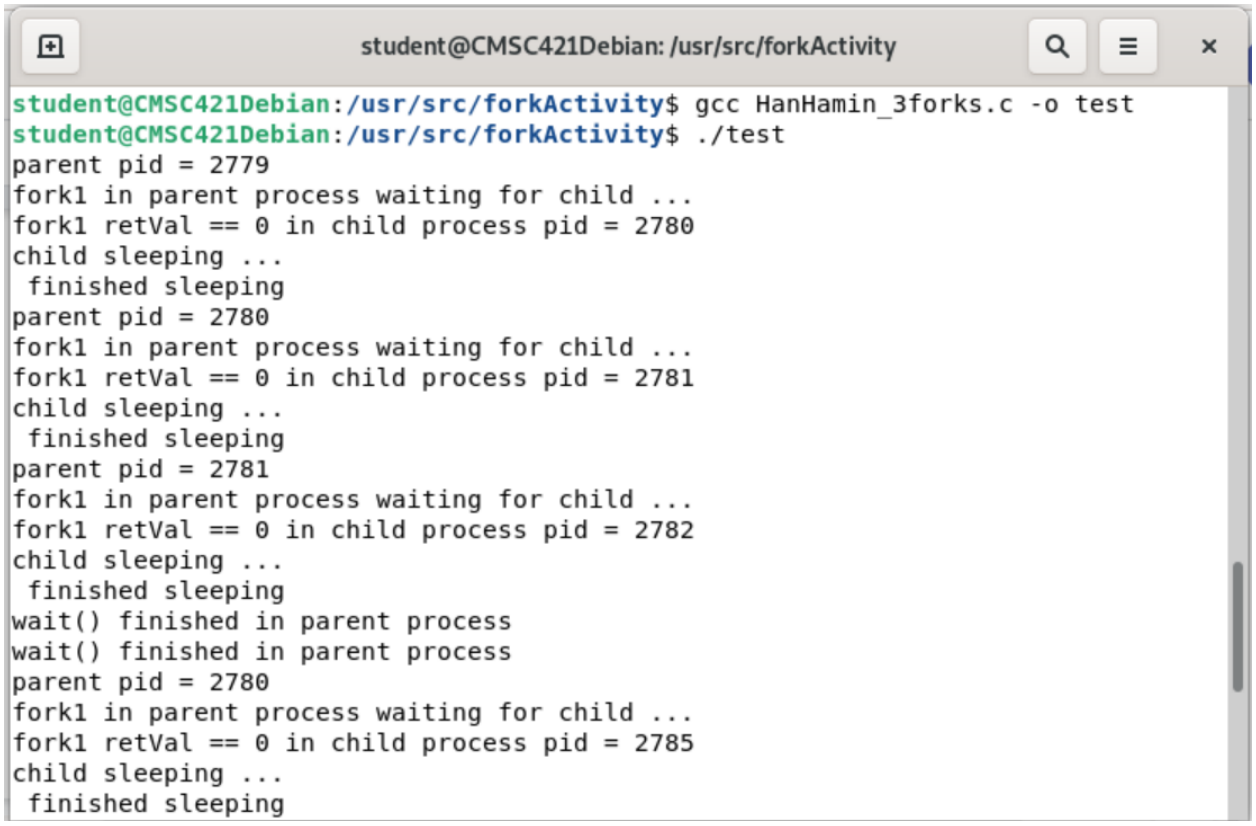
Professor Maya Larson

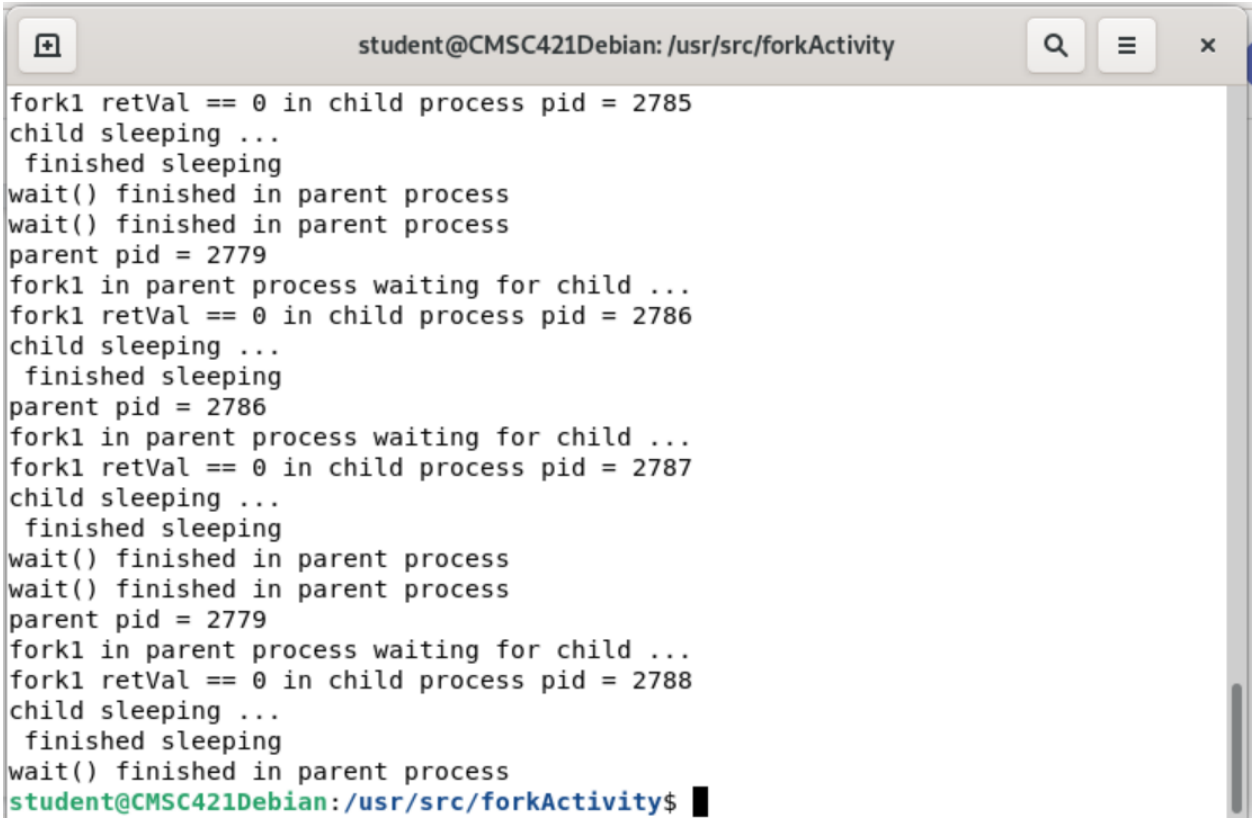
CMSC 421 - 100

20 February 2022

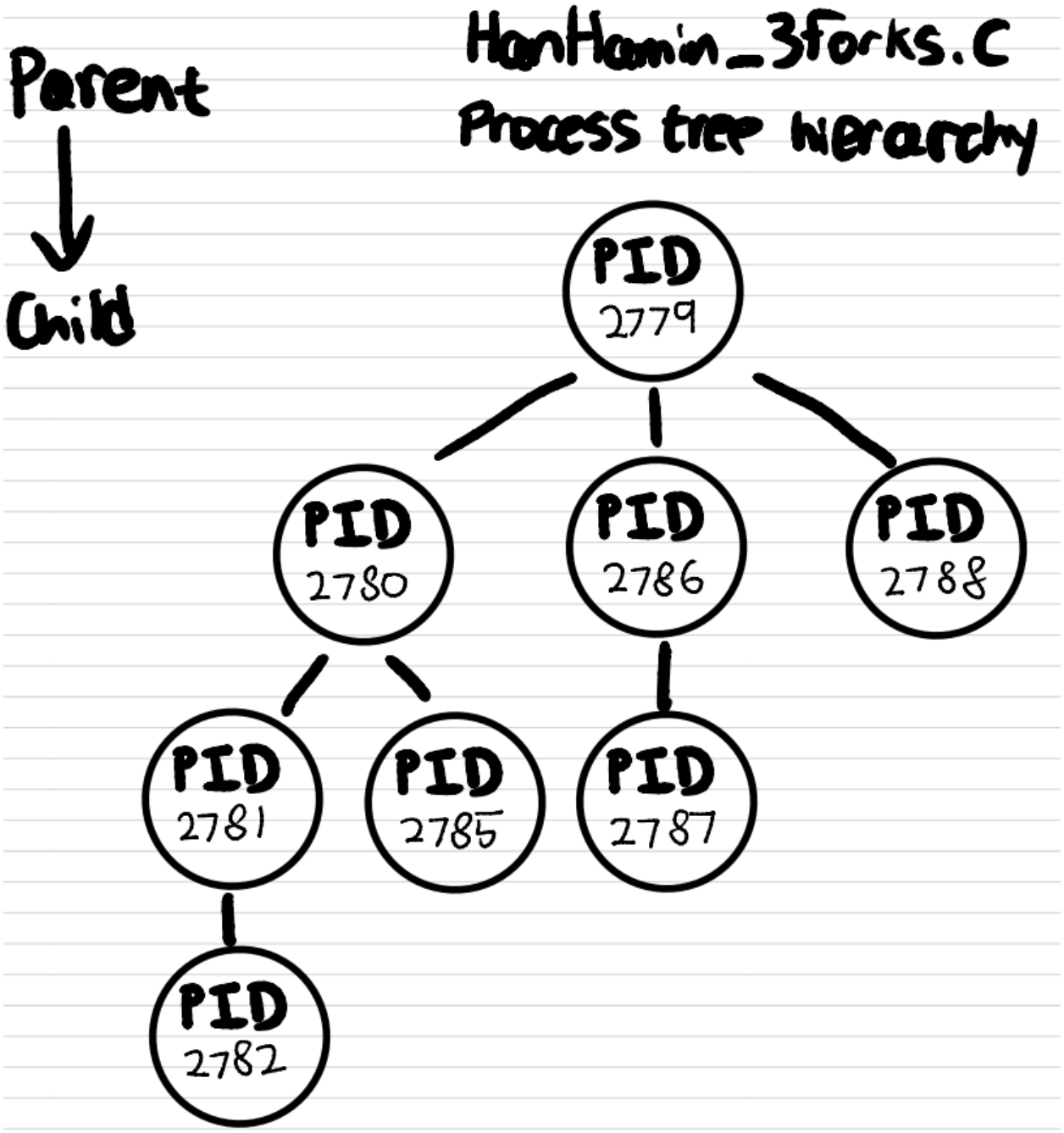
Fork Activity

HanHamin_3forks.c Output




student@CMSC421Debian: /usr/src/forkActivity
fork1 retVal == 0 in child process pid = 2785
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 2779
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 2786
child sleeping ...
 finished sleeping
parent pid = 2786
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 2787
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 2779
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 2788
child sleeping ...
 finished sleeping
wait() finished in parent process
student@CMSC421Debian:/usr/src/forkActivity$

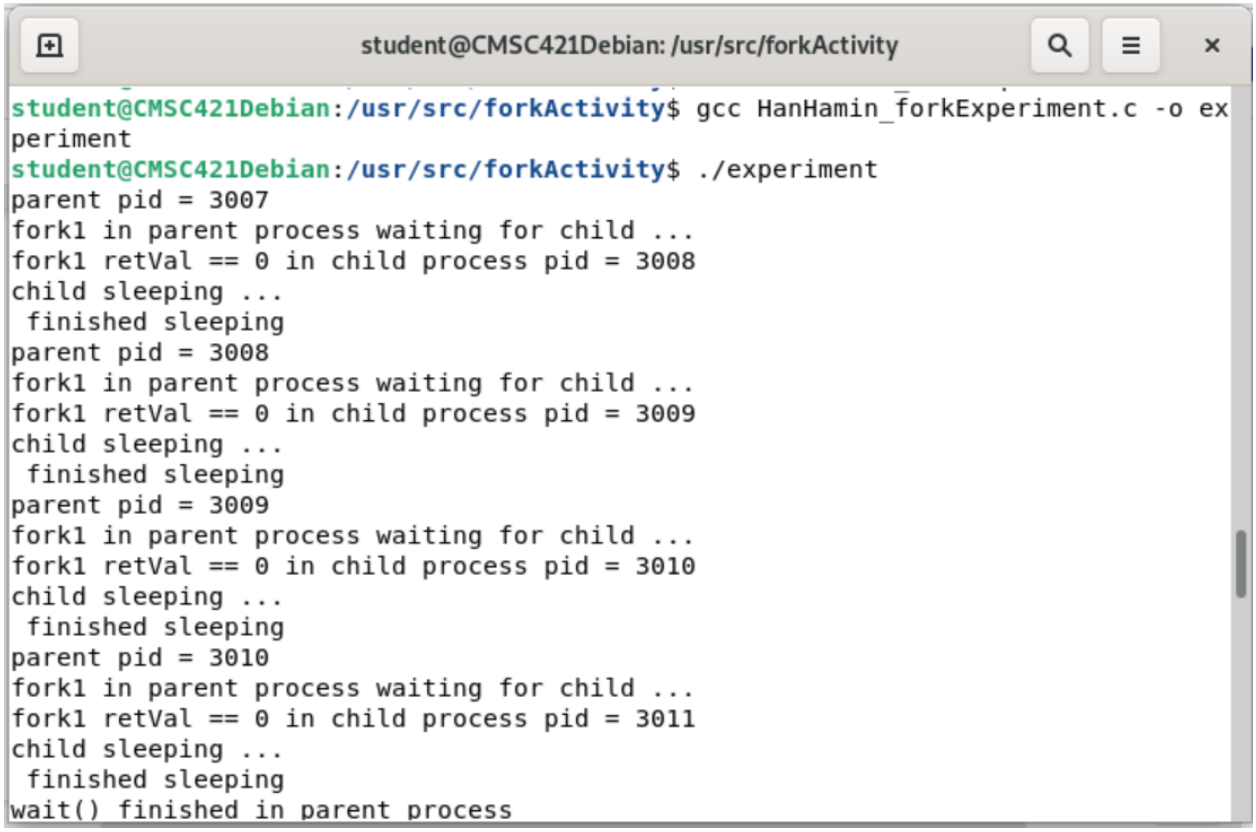
HanHamin_3forks.c PID Process Tree Hierarchy

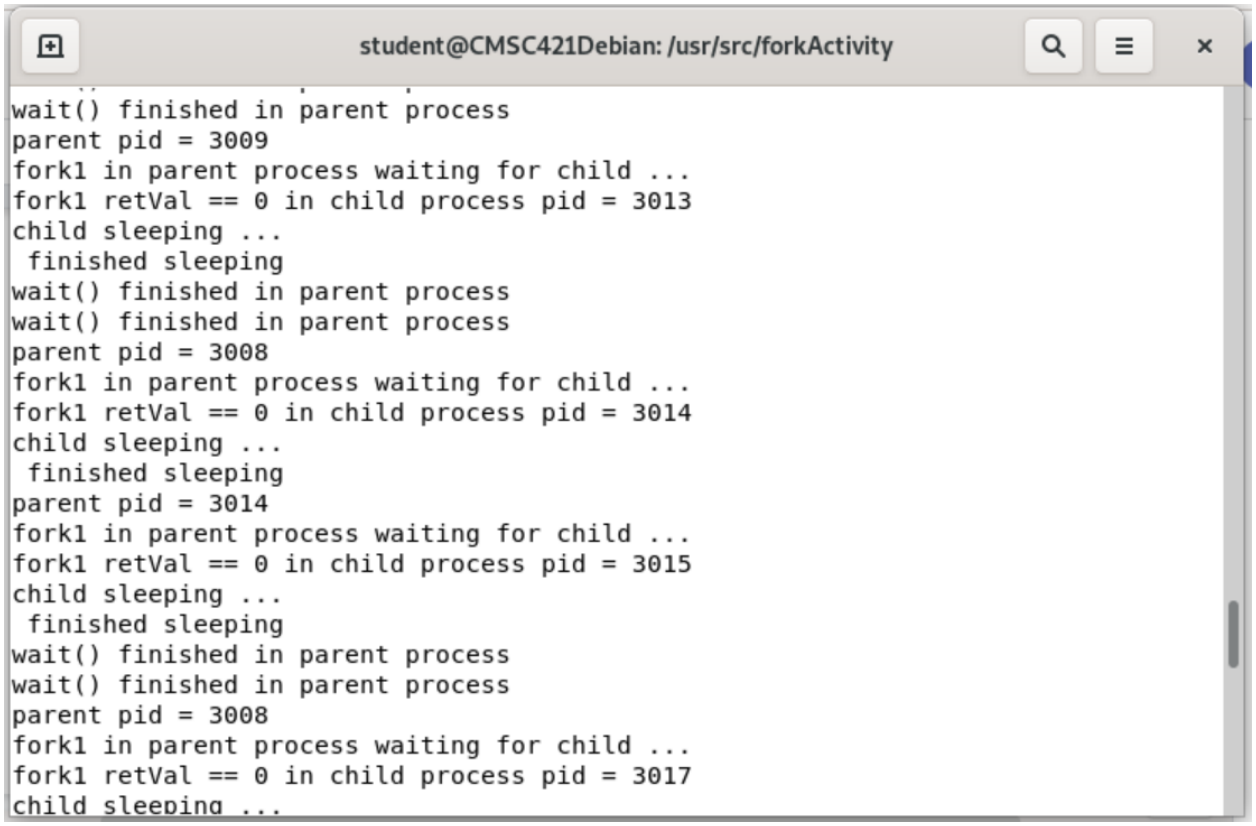


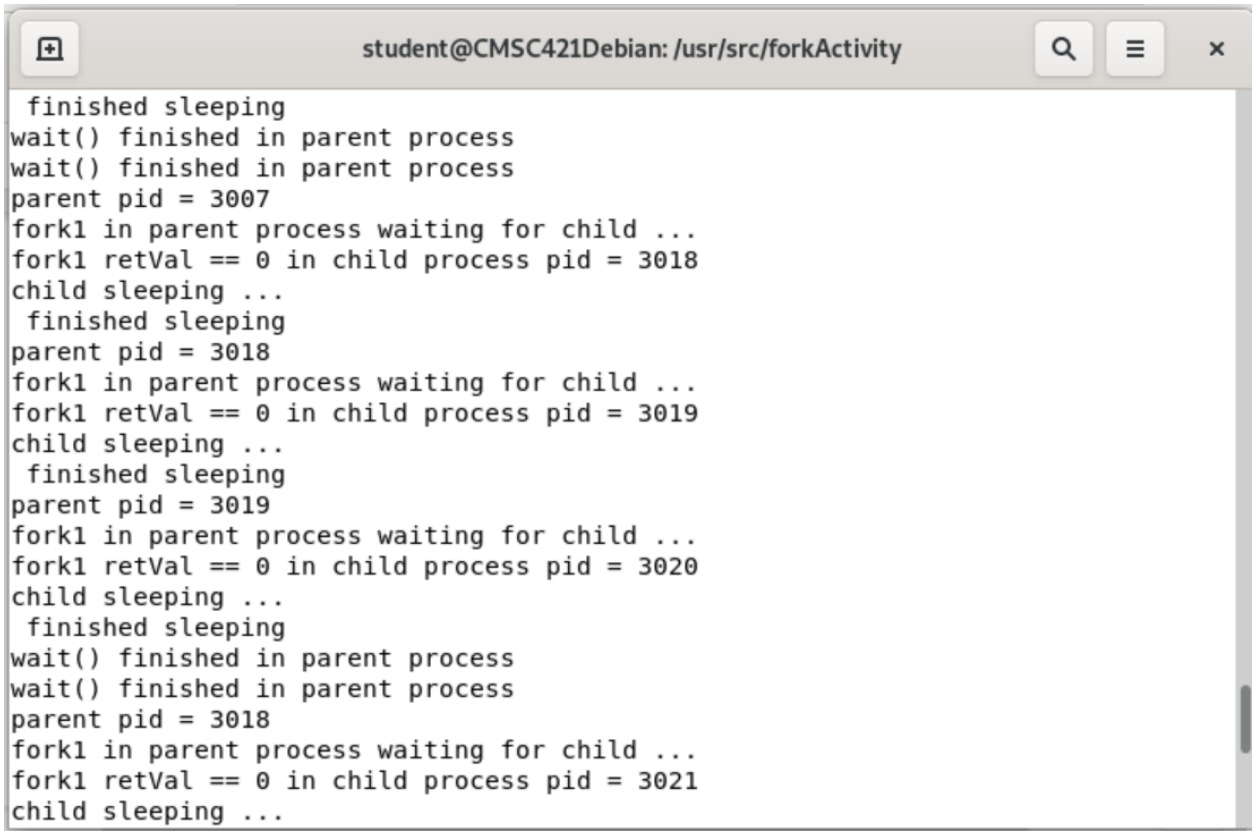
HanHamin_forkExperiment.c

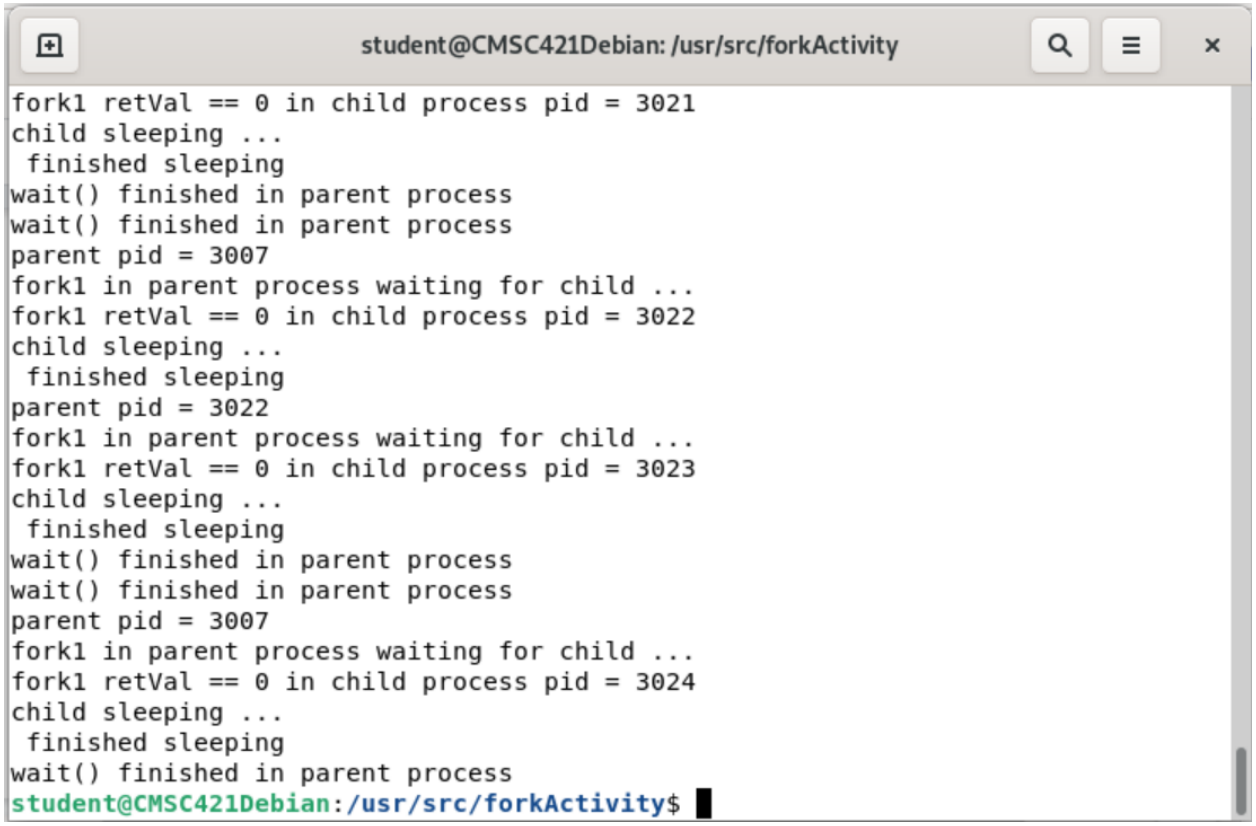
I have copied the program from part 2 and renamed the file to HanHamin_forkExperiment. With this new program, I wanted to experiment with more than 3 forks. There were 8 processes with three forks so there should be definitely more than 8 processes that are created. The rule is 2^n process where n is the number of forks. So I expect that with 4 forks, there should be 2^4, 16 total processes. If I were to draw a process tree for the new program, I think part of the tree on the left side would look like the tree for the previous program, where there are more levels and more nodes. And as expected, there were a total of 16 processes.

HanHamin_forkExperiment.c Output




student@CMSC421Debian: /usr/src/forkActivity
wait() finished in parent process
parent pid = 3009
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3013
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 3008
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3014
child sleeping ...
 finished sleeping
parent pid = 3014
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3015
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 3008
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3017
child sleeping ...


student@CMSC421Debian: /usr/src/forkActivity
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 3007
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3018
child sleeping ...
 finished sleeping
parent pid = 3018
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3019
child sleeping ...
 finished sleeping
parent pid = 3019
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3020
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 3018
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3021
child sleeping ...


student@CMSC421Debian: /usr/src/forkActivity
fork1 retVal == 0 in child process pid = 3021
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 3007
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3022
child sleeping ...
 finished sleeping
parent pid = 3022
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3023
child sleeping ...
 finished sleeping
wait() finished in parent process
wait() finished in parent process
parent pid = 3007
fork1 in parent process waiting for child ...
fork1 retVal == 0 in child process pid = 3024
child sleeping ...
 finished sleeping
wait() finished in parent process
student@CMSC421Debian:/usr/src/forkActivity$