CECS 326-08/09 Lab Assignment 1 (5 points)

Due: 9/16/2020 for Wednesday Section

9/21/2020 for Monday Section

Submit by lab class time on BeachBoard

This assignment is about fork(), exec(), and wait() system calls, and commandline arguments.

Write two C/C++ programs, to be named parent.cpp and child.cpp and compiled into executable *parent* and *child*, respectively that, when run, will work as follows:

***parent***

1. takes in a list of gender-name pairs from the commandline arguments
2. creates as many child processes as there are in the gender-name pairs and passes to each child process a child number and a gender-name pair
3. waits for all child processes to terminate
4. output “All child processes terminated. Parent exits.” And terminates.

***child***

1. receives a child number and one gender-name pair arguments from parent
2. outputs “Child # x, a boy (or girl), name xxxxxx.”
3. Note: content of output depends on data received from parent

**Sample run**

To invoke the execution:

>*parent* girl Nancy boy Mark boy Joseph

*parent* process does the following:

1. outouts “I have 3 children.” -- Note: the number 3 comes from the number of gender-name pairs in the commandline arguments
2. creates 3 child processes, and have each execute *child* and passes to it an integer that represents the child number and one gender-name pair arguments
3. waits for all child processes to terminate, then
4. outputs “All child processes terminated. Parent exits.”

Output from *child* processes

From first child process:

Child # 1: I am a girl, and my name is Nancy.

From second child process:

Child # 2, I am a boy, and my name is Mark.

From third child process:

Child # 3, I am a boy, and my name is Joseph.

**Submit on BeachBoard** the source programs *parent.cpp* and *child.cpp*, a screenshot that shows successful compile of both programs as well as a successful run, and a cover page that provides your name, your student ID, course # and section, assignment #, due date, submission date, and a clear program description detailing what the programs are about. Format of the cover page should follow the cover page template on BeachBoard. The programs must be properly formatted and adequately commented to enhance readability and understanding. Detailed documentation on all system calls are especially needed.