**CECS 326 Sec01**

Operating Systems

Elias Woldie (ID 027805724)

Assignment 1

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**Program Description**

1. **What all the programs together are designed to do?**

The programs are designed to demonstrate inter-process communication and process creation in a parent-child relationship. The **parent** program takes in a list of names as command-line arguments, creates a child process for each name, and passes the child number and the name to the **child** program. The **child** program then prints out its number and name. After all the child processes have terminated, the parent process prints a message indicating that all child processes have terminated and then it exits.

1. **What each individual program does?**
   1. **child.cpp**
      1. **Purpose:** The **child** program is designed to receive a child number and the child’s name as command-line arguments and print out a message containing this information.
      2. **Behavior:** When executed with the command **./child 2 Mary**, it produces the output **I am child number 2, and my name is Mary.** and then exits.
   2. **parent.cpp**
      1. **Purpose:** The parent program is designed to create a specified number of child processes based on the number of names provided as command-line arguments. It then assigns each child process to execute the child program, passing along a child number and a name from the command-line arguments.
      2. **Behavior:** When executed with the command **./parent Nancy Roberto Joseph**, it prints, **I have 3 children**. It then creates three child processes, each of which executes the **child** program, resulting in each child process printing a message like, **I am child number 1, and my name is Nancy.** The order of the child process messages may vary due to concurrent execution. After all child processes have terminated, the **parent** process prints, **All child processes terminated. Parent exits.** and exits.