Assignment #2 Semaphores completed by Huimin Chen(24017423)

<https://github.com/Hmmsien/CISC3320.git>

Problem statement:

write a program that uses semaphores to simulate mediated access to three computer resources:

1. 5 printers
2. 6 plotters
3. 4 scanners

Requirement:

1. Declare and initialize the semaphores with the appropriate values.

2. Create a routine that loops through a sequence 4 times. In each iteration the process

a. forks a child process.

i. uses a random number generator (1-3) to determine which resource it will request

ii. uses native semaphore function or one that you create to request the appropriate resource

iii. Print the process’ PID and the requested resource type

iv. Print the process’ PID and the success/failure of the request

v. if the resource is available - sleep for a random time between 1-3 seconds and then release the resource using appropriate the semaphore function

vi. if the resource is not available – sleep for a random between 2-4 seconds and repeat the request (go to step ii).

vii. Terminate

b. Sleeps for a random time between 1-3 seconds

Assumptions:

Using fork() command to create first child process

Then use a nested fork() to create the grandchild process

And use getpid() to display the PID