

Assignment 1: Threads

In this assignment we used the pthread library to demonstrate a simple use of threads. In particular, we had to create a child thread from a parent thread and kill the child thread when the 'Enter' key is read in the parent thread. The source code for accomplishing this is written in C and ran on an Ubuntu. It can be accessed [here](#).

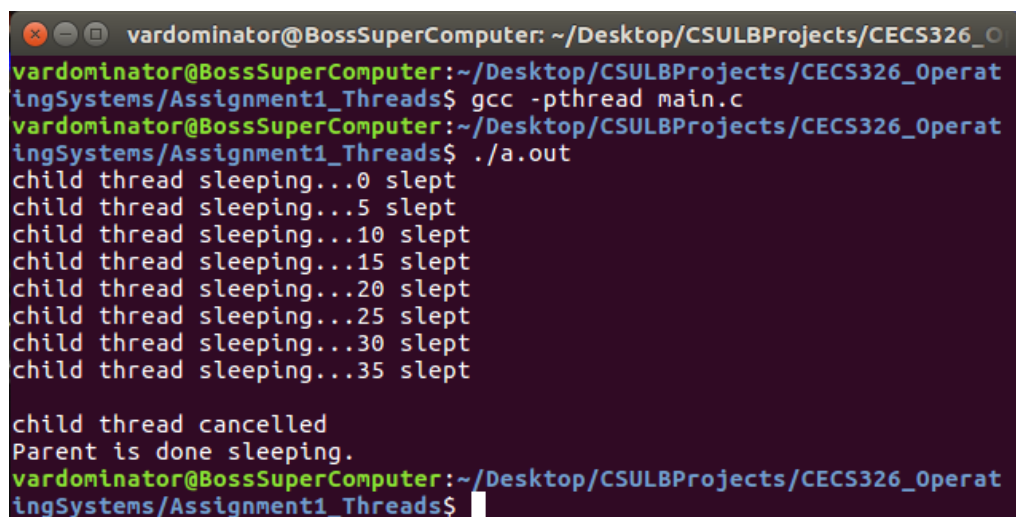
Question 1:

The operating system represents each process using a **process control block (PCB)**. The PCB includes all of the information about the process, namely its **I/O status information**. This portion includes the list of devices that are allocated to the corresponding process. When a process is multithreaded, its PCB is expanded to allow multiple threads to access the same information and resources specified within the PCB. In our case, a separate thread is continuously printing messages while the main thread is waiting for a keyboard input. This is possible because of the reasons mentioned above: multiple threads within processes share resources specified within the PCB of the process. A new thread does not steal access to a particular resource of I/O device when it is created, and therefore one thread could hang out while another waits for input.

Question 2:

Based on the previous answer this is definitely possible. Since the same I/O resources are being shared by all of the threads within a process and since the child thread is branched off from the parent thread, it is possible halt a sleeping child thread.

Executed code:



```
vardominator@BossSuperComputer: ~/Desktop/CSULBProjects/CECS326_Operat
ingSystems/Assignment1_Threads$ gcc -pthread main.c
vardominator@BossSuperComputer:~/Desktop/CSULBProjects/CECS326_Operat
ingSystems/Assignment1_Threads$ ./a.out
child thread sleeping...0 slept
child thread sleeping...5 slept
child thread sleeping...10 slept
child thread sleeping...15 slept
child thread sleeping...20 slept
child thread sleeping...25 slept
child thread sleeping...30 slept
child thread sleeping...35 slept

child thread cancelled
Parent is done sleeping.
vardominator@BossSuperComputer:~/Desktop/CSULBProjects/CECS326_Operat
ingSystems/Assignment1_Threads$
```