

**Before Starting Homework**

- Do not upload to generative AI.
- Complete the Programming Assignment before beginning the written portion of the homework..
- Answer all questions below.
- **Type** answers and upload to Canvas in PDF format.

## 1 Question 1: Parent, Child, and Grandchild

Consider the file `example/example.c` in your homework repository. The methods `parent()`, `child()` and `grandchild()` each update the global variable `counter`. Each process prints the address of `counter`, and they all see the same address in memory. However, after updates have completed, each process sees a different value within `counter`. Explain how this is possible. **If you want to run this program, the executable is `build/examples/example`.**

## 2 Question 2: Process Ordering

In part 1 of your programming assignment, you guarantee that the child process runs the method `child()` before the parent process runs the method `parent()`. How could you change your code to instead guarantee that the parent runs the method `parent()` before the child runs the method `child()`.

## 3 Question 3: Scheduler

Assume three jobs are passed to the scheduler you created in part 2 of your programming assignment. Assume all jobs arrived at  $t=0$ . They contain the following information :

Job	Priority	IDX	Time
0	0	1	4
1	1	0	6
2	1	2	3

Answer the following questions about these jobs. Show your work for partial credit :

1. If you run these jobs with your priority scheduler, what is the turnaround time of each job? What is the response time of each job?

2. If you run these jobs with your priority + round-robin scheduler, with a time slice of 2, what is the turnaround time of each job? What is the response time of each job?