

CS 481 Lab 1 and ½

Due by 11:59pm on Monday, 30 April, as an e-mail to the instructor (jedcrandall@gmail.com). Please send only PDF. It's unlikely that there will be any extensions, since this is a makeup lab.

Lab 1 and ½ is a makeup lab for Lab 1. I will grade Lab 1 and ½ out of 100 points, then add this to your lab 1 score. If the sum of your Lab 1 score plus your Lab 1 and ½ score is more than 120 points total, I'll give you a score of 100 on both Lab 1 and the final and you don't need to take the final. If your total falls between 100 and 119, inclusive, I'll give you 100 on Lab 1 but you'll still need to take the final. If your total is less than 100, then this total is what will be put in as your Lab 1 grade in the gradebook.

Refer to the syllabus about cheating and collaboration. If a single sentence of your writeup is copied from another source without proper attribution you'll receive a 0 on the assignment.

If you do not want me to share your lab 1 and ½ writeup with others (such as showing it to the class as a good example or giving it to other students in the future who are curious about multithreading), please indicate this clearly at the top of your writeup.

For Lab 1 and ½, there is no fixed instructions or format. Your overall goal should be to assess the performance of two different versions of producer-consumer and explain in as much detail as you can why their relative performance is such that it is. I suggest that you start with system call traces, then move to more advanced traces such as library call traces with timestamps or kernel-level traces such as SystemTap or ftrace. The expected scope of work is roughly the same as Lab 1.

You should demonstrate that the semaphore version of producer-consumer has better performance than the version that uses its semaphores like simple mutex locks, and then explain why.

The semaphore version is here:

<http://www.cs.unm.edu/~crandall/481spring2012/stuff/knockel-lab6.c>

The mutex lock version is here:

<http://www.cs.unm.edu/~crandall/481spring2012/stuff/knockel-lab6-lock.c>

In terms of the level of detail I expect in the writing, guidance for cheating and collaboration, refer to the lab 1 assignment writeup or email me.