CSC 412 – Operating Systems

Lab Session 09, Fall 2019

Tuesday, November 12th, 2019 and Thursday, November 14th, 2019

What This Lab Is About

This lab is about adding synchronization to a multithreaded application. The task that we are going to perform is very simple/silly, but I hope you will understand that this is a template for multithreaded applications that would do real work.

1 Starting point

The starting point for this lab is the "single-threaded sorting" code of the "Communicastions 1" code handout that I posted on Sakai a while back, and that I am sure you have carefully looked at. The only difference is that I replaced the array by a vector, because we are going to add elements later on.

2 Task 1: Multithreading

First, we are going to create a thread that is going to be dedicated to running the randomized bubblesort algorithm. We want this thread to keep running forever so we are going to remove the limit on the number of tests. Next, the "main thread" is going to start listening to input from the standard input. Check if the input is an integer and print it out back to the terminal for verification.

3 Task 2: Fix synchronization

Now, whenever the user enters an integer in the standard input, we want the main thread to add this element to the array.