Spring 2017 ECEN 4313, CSCI 4830-010

Concurrent Programming

Homework 1

Assigned: 01/17/2017; Due: 01/24/2017, before class.

This is warm-up homework assignment. The goal is to make sure that you can compile and run concurrent Java code and access the class Moodle. Please submit your homework through Moodle.

Problem 1

Write a Java program to create 128 threads. Have each thread increment a single global counter variable (common to all the threads) 100 times. Initial value of the counter variable should be set to 0. Print the value of the counter variable after all of the 128 threads finish execution. Use the `Thread.join()` function to block the main thread until all of the 128 threads finish execution.

Submit a well-commented `.java` file.

Problem 2

Modify the program written in Problem 1 such that the code for incrementing the counter variable is protected by a lock or a synchronized block or method. Explain briefly (comment in your `.java` file is sufficient) how you ensure mutual exclusion for accesses to the shared variable.

Submit a well-commented `.java` file.