Cosc 4740 – Lab03
Creating and Using Threads

1.1 Starting Repo

Accept the GitHub lab here: https://classroom.github.com/a/6wevcYPh
Starting repo will have a standard readme and initial code for you in: stat_thread.cpp

1.2 Goal

You will be designing and implementing a multi-threaded program that will calculate three separate statistic on a given list of numbers using separate threads. The statistics that will be calculated are the average, minimum, and maximum. The program will be run in a terminal and passed at least one number with no limit on the number of passed arguments.

The program will first split into three separate worker threads. The first thread will calculate the average, the second will calculate the minimum, and the third will calculate the maximum.
For example, suppose your program is passed the integers:

90 81 78 95 79 72 85

The program should report:

The average value is 82.8571
The minimum value is 72
The maximum value is 95

1.3 Task/Code

A stub of the code has been provided in the stat_thread.cpp file provided to you in the starting GitHub repo. You need to complete the code and follow any instructions listed in the comments.

The variables representing the average, minimum, and maximum will be in the main function. The worker threads will set these values, and the parent thread will output the values once the workers have finished.

Make sure that your code works with any given number, including negative and floating-point values, and that it works with only one number.

To compile the code, we need to link the thread library, so the command looks like this:

g++ stat_thread.cpp -o stats -pthread Run by typing ./stat 90 81 78 95 79 72 85

Make sure you test with different sets of numbers.

1.4 Submission

1. Your code pushed to git
2. An updated readme pushed to git
3. The output of your code with at least three different sets of numbers
    a. For example, in a text file
4. Do not include any other files in your repo