

## COMPSCI 3SH3- Operating Systems Lab3 Assignment

- a) Textbook Question 4.22 **\*Please see attached documents for the source code, I will submit them as a separate file**

### Explanation:

My program starts with function declarations for the three calculations (average, minimum, maximum). These functions use a simple brute force algorithm to calculate these values. In addition, I defined my own struct to aid in these calculations, as in C, it is quite tedious to calculate the length of an array. The struct has two attributes: size, which represents the number of numbers passed as arguments to the program, and \*values, which is an array to hold the actual values themselves.

In the main function, I first check if there were any arguments given to the program; if not, the program exits with an error message.

Next, I use the atoi() function to populate a temporary array with the input values, and save it to a data struct variable, data\_s. Finally, the program creates three threads, and passes a function pointer to each one to separately compute the average, minimum, and maximum. The program finally terminates by calling pthread\_join() on all three threads, and prints out the computed average, minimum, and maximum values, which were declared as global variables.

- b) Textbook Question 4.23 **\*Please see attached documents for the source code, I will submit them as a separate file**

### Explanation:

In this program, there is only need for creating one thread. The thread is passed the printPrimes(n) function, which prints all prime numbers from 2 to n, inclusive. Again, I first check that the function is passed a value; if not, the program terminates with an error message. Else, a thread is created and passed printPrimes(n).