Lab 4 Instruction

It is the time! Say "Goodbye" to a single thread process. In this project, we will write a multithreaded program that calculates various statistical values for a list of numbers. This program will be passed a series of numbers on the command line and will then create three separate worker threads. One thread will determine the average of the numbers, the second will determine the maximum value, and the third will determine the minimum value. For example, suppose your program is passed the integers

90 81 78 95 79 72 85

The program will report,

The average value is 82
The minimum value is 72
The maximum value is 95

The variables representing the average, minimum, and maximum values will be stored globally. The worker threads will set these values, and the parent thread will output the values once the workers have exited. (We could obviously expand this program by creating additional threads that determine other statistical values, such as median and standard deviation.) 1. Since you will use pthread library in Linux environment you must include pthread.h and compile the source code with -lpthread option because GCC doesn't do auto-linking of libraries triggered by header inclusion.
Here is an example,

```
gcc  -lpthread -o testpid test.o pid.o
```

The start code is at the bottom of the page if you want to use.

Submission Instruction:

1. Substitute the file name with YourLoginName.c, compile, execute your program and take a screenshot. (5 pts)
2. Output the average value in console and take a screenshot. (5 pts)
3. Output the minimum and the maximum value in console and take a screenshot. (5 pts)

You can take one screenshot after finishing step 2 and step 3.

Upload .c file and the PDF file.
The .c file should be named as YourLoginName.c.
The PDF file comprising your screenshots needs to be named following this format, K200LoginName_YourLastName.pdf
Both files need to be submitted here in Moodle.

Submission failed to meet the submission requirement will not be graded. Grade may be forfeited.