CPSC-24500: Object-Oriented Programming
Week 7 Programming Assignment

FastPrime C# Assignment (20 points). This should look familiar. It is the same application we wrote last week ported to C#.

Write a command line C# application that will programmatically find prime numbers [link] and store those numbers sorted in an output file.

#	Requirement	Points
1	The application must be developed entirely in C#, compile under Visual Studio 2017, and run in a standard windows command line environment.	6
2	Take in two command line arguments that represent the start and end number to consider. The application should find all prime numbers within the inclusive range. For example, I could pass in 2 and 1,000,000. In addition, the application should fail gracefully with a meaningful error message if inappropriate arguments are passed into the application.	3
3	The application should utilize multiple threads.	2
4	An output file should be created in the current folder and named FastPrime.txt or FastPrime.bin (if you chose to store the prime numbers as binary). I should contain a sorted list of the prime numbers that were found. If you use a text file, it should contain one number per line with no other characters. Binary files should include ONLY a sorted list of integers.	3
5	Each prime number should be printed to the console window when it is found along with a reference to the thread that found the number. After the program has completed, it should print to the command prompt (1) the number of prime number found (and stored in the file), (2) the start time, (3) the finish time, and (4) elapsed time. All should be valid, reported to the second, and displayed in a visually appealing format.	2
6	The application should be FAST, this will be scored relative to other timings.	2
7	Submit two files. The first file should be the single C# file named "Program.cs" that was used in the application. You should include your full name in a comment at the beginning of the C# file that you submit. The second file should be the release executable called "FastPrime.exe". You should have testing this executable from the command line and verified that it worked before submitting it to me.	2

If your solution does not compile and execute without errors when it is submitted, you will lose 6 points AND I will send it back to you to fix and resubmit before I attempt to continue grading the assignment.

Do not copy another student's work. I will use MOSS to detect plagiarism and will not ask for clarification if MOSS concludes you have copied another student's work.

Tackle this problem gradually and make sure that you review the examples that we cover in class. The main goal of our discussions, lectures, and examples this week are intended to allow you to successfully deliver this application. Also, don't hesitate to post something on our discussion board or to reach out to me directly if you need assistance.

Pace yourself. Do not attempt to do this in one night.

Good luck!