**Multithreading in c#**

1. Create n threads that write to the out.txt text file. Threads should attach the following line of text to the file: Date and time of recording: \_\_\_\_\_\_\_; Thread id: \_\_\_\_\_\_\_\_\_\_\_ Take a random break time in the main thread loop after each entry. What problems can occur when writing to a file at the same time
2. Prevent simultaneous writing to a file by two threads using one of the following methods

a) Mutex

b) Monitor

c) Critical section

1. Write a simple TCP port scanner that can detect the service on a given port. The scanner should allow the user to select the port range to be scanned and display a report containing: Port No. - Active / inactive. The program should use the TCPClient class. Measure the scanner's time when using a single thread and if multiple threads are used.

**Report**

The report must contain:

1. The source code of the program with the description

2. Screen shots from testing and running the program

**Useful links**

1. Creating threads in c#

<https://msdn.microsoft.com/en-us/library/btky721f.aspx>

<https://www.tutorialspoint.com/csharp/csharp_multithreading.htm>

1. Passing parameter to thread

<http://www.interviewsansar.com/2016/07/03/how-to-pass-parameter-to-thread-in-csharp/>

1. Thread synchronization

<https://www.c-sharpcorner.com/UploadFile/de41d6/monitor-and-lock-in-C-Sharp/>

<https://www.c-sharpcorner.com/UploadFile/1d42da/threading-with-mutex/>

<https://msdn.microsoft.com/pl-pl/library/system.threading.mutex(v=vs.110).aspx>