Wayne State University

CSC 4420 – Multithreading and Sorting

Points Possible: 100

1. This program is based on the concept of parallel programming. Using pthread in c/c++, you can write a code to execute merge sort. Use the following link for a better understanding: https://www.geeksforgeeks.org/merge-sort-using-multi-threading/

    This program uses a 20-length array and 4 threads. But you need to work on a more detailed analysis of the performance. So, look at the following table:

Num of Elements (10^6)	Num of Threads	Time
10,00,000	1	
10,00,000	2	
10,00,000	4	
10,00,000	8	
10,00,000	16	

Re-write the given code where you need to generate 10^6 (10,00,000) random integers. Use the different number of threads from the table (total 5 combinations). Calculate the time for each run and draw a graph where the x-axis shows the number of threads and the y-axis shows the time.

Submit a detailed report with a graph. Also, add a code separately in the .c extension.