Quick Sort

Due Mar 9, 2020 by 11:59pm **Points** 10
Available Mar 2, 2020 at 8pm - Mar 9, 2020 at 11:59pm 7 days

This assignment was locked Mar 9, 2020 at 11:59pm.

0. READ THE INSTRUCTIONS BELOW **COMPLETELY AND CAREFULLY** BEFORE PROCEEDING.

0.1 THE CLASS LECTURE ON PARALLEL PARTITIONING HAS MORE DETAILS ON HOW THEY WORK. READ IT BEFORE PROCEEDING.

Introduction

1. In this assignment you will be implementing

a) a regular quick sort algorithm that uses swap to implement the partitioning stage

b) a parallel quick sort algorithm that uses a prefix sum

2. This time, the declaration for the required classes are provided. These must not be changed, and your implementation must follow them.

3. Some of the functions for the class has already been implemented for you. You only need to fill in the functions with the "TODO" in numlist.cc (try "grep TODO *"). DO NOT CHANGE THE PROVIDE SKELETON CODE OR ADD NEW FUNCTIONS.

4. Implement the two functions and verify that your code works correctly. Use the provided output files to compare your answer.

a) For example, your code should produce the same output as in the file

unittest_ans_t11111_s111_ypar.txt

when you execute your code with ./mysort -t 11111 -s 111 -y par -o <your output file name>

5. Make sure your code has no memory leaks (using valgrind).

6. Your code should work beyond the provided unit tests. That is, even if it does work for all the given tests, if the code has an identifiable bug (i.e., by reading the source code), points WILL be deducted.

7. As before, do the homework in your own repo, commit, and **push to Bitbucket**. If you do not push to Bitbucket, the TA and I cannot see the code, and it will be considered a late assignment (i.e., not graded).

Some Rubric (3)

Criteria	Ratings		Pts
Unit Test 1 Unit test for quick sort using some random -t and -s options	**2 pts** **Full Marks**	**0 pts** **No Marks**	2 pts
Unit Test 2 Unit test for quick sort using some random -t and -s options	**2 pts** **Full Marks**	**0 pts** **No Marks**	2 pts
Unit Test 3 Unit test for quick sort using some random -t and -s options	**2 pts** **Full Marks**	**0 pts** **No Marks**	2 pts
Unit Test 4 Unit test for quick sort using some random -t and -s options	**2 pts** **Full Marks**	**0 pts** **No Marks**	2 pts
Comments, Readability, and Understandability	**2 pts** **Full Marks**	**0 pts** **No Marks**	2 pts
			Total Points: 10