**Name:\_\_Shengyuan\_\_\_\_\_\_\_\_\_\_\_**

**Total points: 45/45**

**CODE: 20 points in total**

| **Requirement** | **Points** | **Comment** |
| --- | --- | --- |
| General code updates | | |
| * Makefile updates (2) * Output for running scripts using -e option or printf change (3) | 5/5 |  |
| Input data creation (5 points) |  |  |
| * The generateRandomString function produces a random string (2) * The generateRandomString is parallelized correctly. (2) * Trng used correctly (1) | 5/5 |  |
| Generating counts (3 points) | | |
| * The countEachLetter function uses reduction on the entire array. (2) * Correctly count the number of each character in the input string (1) | 3/3 |  |
| Creating the final sorted output string (7 points) | | |
| * Correctly create a prefix sum array and fill it with correct values from the counts array. (2) * Detect the starting and ending point for each thread to update the output correctly (3) * Fill the portion of each thread with correct ASCII character (2) | 7/7 |  |
| **TOTAL** | 20/20 |  |

**REPORT: 25 points in total**

| **Requirement** | **Points** | **Comment** |
| --- | --- | --- |
| Your name and general formatting (1) | 1 |  |
| Well-written prose explaining the setting of work (5 points) | | |
| 1. How you profiled the sequential version of the code and what you discovered. (1) 2. Updates to the code sections to enable parallelism. (3) 3. How to compile the code (0.5) 4. How to run the versions of the program. (0.5) | 5 |  |
| Well-written prose explaining the methods you used to obtain your data, including: (9 points) | | |
| 1. What scripts you used to generate your data. (1) 2. Updated scripts properly (2) 3. Description of your methodology: how many times you ran your experiments and what conditions you used (i.e. cases you tried). (3) 4. Generated data in spreadsheet correctly (3) | 9 |  |
| Well-written prose containing your findings regarding the speedup of the parallel version, including (10 points) | | |
| 1. Clear explanation of test cases you tried, (1 point) 2. Graphs depicting speedup and efficiency, and (3 points) 3. Explanation of results. (6 points)    1. Address what condition the program exhibits strong/weak scalability.    2. Reference to obtained experimental results | 10 |  |
| **TOTAL** | 25/25 |  |