COMP5112/MSBD5009
Assignment 1 Grading Criteria

February 2025

1 Compiled and Executed Correctly (60%)

The submitted code will be compiled and executed using three distinct input files across five different configurations (n = 1, 2, 6, 12 - oversubscribe, and 12 - multinode). Each combination of input file and configuration will be evaluated against the standard output. In total, there will be $3 \times 5 = 15$ combinations, with each combination contributing 4% to the overall score.

2 Performance Evaluation (40%)

The performance of MPI programs is expected to improve with an increase in the number of physical cores utilized. A reference solution has been provided by TA for comparison purposes. Under varying configurations, the end-to-end latency of your program should remain below $(1 + \alpha)\mathbf{T}_{\text{ref}}$, where $\alpha > 0$. If the latency exceeds $(1 + \alpha)\mathbf{T}_{\text{ref}}$, your score will be reduced by $\frac{\mathbf{T}}{(1+\alpha)\mathbf{T}_{\text{ref}}} - 1$. Should the latency surpass $2(1 + \alpha)\mathbf{T}_{\text{ref}}$, all points will be forfeited. Your code will be executed multiple times, and only the minimum latency recorded will be considered for evaluation. There is no need to include timing code in your submission, as the latencies referenced here will be derived from the output displayed on your screen. TAs will modify the α parameter to ensure that the majority of students achieve satisfactory scores.

Note that, given the program is not computation-intensive, the multi-node performance will be primarily influenced by network transferring. Consequently, the evaluation of your program's performance will focus exclusively on single-node configurations.

For your reference, we provide the latencies of TA's solution with input_4.txt in csl2 machine.

n parameter	latency/s
1	0.124
2	0.067
4	0.039
6	0.03
12 (oversubscribe)	0.031