

CSCI 375 Project #4

Due date: Final Exam

How to submit it? Email your source code (with proper comments) and output with the analysis report

In this lab, you will simulate readers' and writers' problems from Project 3 using one of three OS-level libraries, as we did in Project 1, and application-level OpenMP, as we did in Project 2.

Three readers and two writers characterize five processes.

Up to two reader processes can be included in their critical section without any writer process. For the writer process to go into its critical section, it should check whether any reader or writer process is in the critical section.

The critical section in this problem is reading the shared data buffer for reader processes and updating the shared data buffer for writer processes. Implementing real shared data for readers and writers is optional, but you must specify the following things in your sample output.

- When the reader or writer process enters its critical section, it must report whether any reader(s) or writer(s) other than itself.
- You may print out the data you read or write when implementing a buffer. (Optional)
- You must include the “Panic Messages” generating function when the rules behind this semi-critical section problem are not observed. If your solution is correct, the panic message should not be printed.

Subproject 1: You should implement this with *OS libraries as a separate thread for each reader and writer.*

Subproject 2: You should implement this with the *OpenMP with each reader and writer thread in the parallel region.*

You should not copy from other students or let other students use your code. Violation of this policy will result in an automatic F grade for both parties.