Gebze Technical University – Computer Engineering Faculty

CSE 344 – 2022 Homework 2 Report

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In this homework we are implementing a multi-thread application using exactly 2 system V semaphore.

There is a data file containing ‘1’ and ‘2’ characters same number. There is also a supplier detached thread reading this character by character from the data file.

One of the semaphores is used for character ‘1’ other one using for character ‘2’ for counting the input.

If the supplier thread can obtain ‘1’ and ‘2’ in that case both semaphores are 1 and ready to consume from the consumer thread and decrease the semaphores by 1 in this way other consumer threads can block the semop() state because semaphore value can decrease and lock by only one thread. Other thread works only for another supplier increase the ‘1’ and ‘2’ semaphores. And each consumer thread loops the N times which is the command line argument.

The basic implementation is described in my implementation for the sake of printf() synchr() synchronization. Supplier thread increases the semaphore value by 2 but in an order first increase occurs right after the reading and the second increase happens after the printing delivered sentence. In the consumer thread first print the wait state before the hen a supplier ensures the semaphore value 2 then the consumer directly decreases the value by 2 then prints the consumed.

We are waiting for the consumer using the join function and waiting for the supplier thread in the main thread using thread_exit(0) method.