Operating Systems - Lab Assignment 2

Deadline: Nov. 24, 2022

In this assignment, you will write a program that creates three threads. These threads access a shared integer, called `buffer`, one at a time. The `buffer` will initially be set to 0. Each thread should print its thread ID, process ID, and the `buffer`'s current value in one statement, then increment the `buffer` by one. Use a mutex to ensure this whole process is not interrupted. Have the threads modify the `buffer` 15 times. When each thread is done, it should return the number of times it modified the `buffer` to the main thread. The output would be as below:

```
$ ./lab2.out
TID: 3077897072, PID: 30656, Buffer: 0
TID: 3069504368, PID: 30656, Buffer: 1
TID: 3059014512, PID: 30656, Buffer: 2
TID: 3077897072, PID: 30656, Buffer: 3
TID: 3069504368, PID: 30656, Buffer: 4
TID: 3077897072, PID: 30656, Buffer: 5
TID: 3059014512, PID: 30656, Buffer: 6
TID: 3069504368, PID: 30656, Buffer: 7
TID: 3077897072, PID: 30656, Buffer: 8
TID: 3059014512, PID: 30656, Buffer: 9
TID: 3069504368, PID: 30656, Buffer: 10
TID: 3077897072, PID: 30656, Buffer: 11
TID: 3069504368, PID: 30656, Buffer: 12
TID: 3059014512, PID: 30656, Buffer: 13
TID: 3069504368, PID: 30656, Buffer: 14
TID 3077897072 worked on the buffer 5 times
TID 3069504368 worked on the buffer 6 times
TID 3059014512 worked on the buffer 4 times
Total buffer accesses: 15
```