CS334

Network Programming

Lab Experiment 8

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AIM

Implement the First Readers-Writers Problem (Using Threads and Shared Memory)

THEORY

In situations where a database has to be shared among several users or concurrent processes there arises the need to bring about access control to ensure smooth working. Mainly two types data access is required, READING DATA and EDITING DATA, in the former case the multiple users can READ at the same time, while EDITING data cannot be allow at the same time as this can lead to data corruption and or false outputs. Here we generally classify the two groups into READER and WRITER.

In first readers-writers problem, multiple readers are possible. But while one reader is in critical section, no writers can come up. Also, only one writer can come up in critical section.

- Writer can only write when the read count is zero or there are no readers waiting.
- If the first reader executes wait(wrt) operation before the writer does, then writer gets blocked.
- Only when the last reader exits, it calls the signal(wrt) operation signalling writer to continue
- Similarly, when a writer starts writing(readcount=0) then the first reader gets blocked on wait(wrt) and this blocks all the readers.

HOW TO RUN

To open in terminal:

- gcc -pthreadexp8.c
- a.exe

Enter no of readers and writers.

Screenshots