



Government Engineering College Thrissur

Network Programming Lab

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S6, CSE

First Readers Writers Problem

AIM

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

THEORY

The readers-writers problem is a classical problem of process synchronization, it relates to a data set such as a file that is shared between more than one process at a time. Among these various processes, some are Readers - which can only read the data set (but here we modify the data as per test case); they do not perform any updates, some are Writers - can both read and write in the data sets.

The readers-writers problem is used for managing synchronization among various reader and writer processes so that there are no problems with the data sets, i.e. no inconsistency is generated.

HOW TO USE?

1. Navigate to the main directory containing the program.
2. Open terminal 1
3. Type `$ gcc -pthread first_readers_writers.c`
4. Enter `$./a.out` to see the output
5. Verify the output.

RESULT

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

Output Screenshots

TERMINAL 1
(First
Reader-Writers
Problem)

```
(base) navaneeth@navaneeth-lap:~/Documents/2021/Network Lab/Readers-Writers-problem$ ./a.out

Enter the number of Readers: -2
Number of readers cannot be negetive or zero
Enter the number of Readers: 2

Enter the number of Writers: 0
Number of writers cannot be negetive or zero
Enter the number of Writers: 2

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Initial value of cnt: 1
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-----Writer-----
Writer 1 incremented cnt to 2

-----Reader-----
Reader 1: read cnt as 2
Reader 1: decremented cnt to 1

-----Writer-----
Writer 0 incremented cnt to 2

-----Reader-----
Reader 0: read cnt as 2
Reader 0: decremented cnt to 1

-----
Final value of cnt: 1
-----
```