

EXPERIMENT 8 :

IMPLEMENT FIRST READERS WRITERS PROBLEM (USING
THREADS AND SHARED MEMORY)

PROGRAM

1. Compile the code :

```
gcc first_rw_prob.c -pthread -o first_rw
```

```
n00b@ubuntu:~/NetworkingLab/EXP_8$ gcc first_rw_prob.c -pthread -o first_rw  
n00b@ubuntu:~/NetworkingLab/EXP_8$
```

2. Run the program

- a. No Reader and Writer

```
n00b@ubuntu:~/NetworkingLab/EXP_8$ ./first_rw  
Number of READERS : 0  
Number of WRITERS : 0  
-----  
NO READERS OR WRITERS  
-----  
n00b@ubuntu:~/NetworkingLab/EXP_8$
```

- b. No reader but writer is present

```
n00b@ubuntu:~/NetworkingLab/EXP_8$ ./first_rw
Number of READERS : 0
Number of WRITERS : 1

-----

NO READERS

-----

WRITERS
W0

-----

===== Operation log =====

W1 [MODIFIED]

VALUE AFTER OPERATIONS : 1
n00b@ubuntu:~/NetworkingLab/EXP_8$
```

- c. No writer but reader is present

```
n00b@ubuntu:~/NetworkingLab/EXP_8$ ./first_rw
Number of READERS : 1
Number of WRITERS : 0

-----

READERS
R0

-----

NO WRITERS

-----

===== Operation log =====

R1 [READ]

VALUE AFTER OPERATIONS : -1
n00b@ubuntu:~/NetworkingLab/EXP_8$
```

- d. Both readers and writers are present

```
n00b@ubuntu:~/NetworkingLab/EXP_8$ ./first_rw
Number of READERS : 3
Number of WRITERS : 3

-----

READERS
R0      R1      R2

-----

WRITERS
W0      W1      W2

-----

===== Operation log =====

R1 [READ]
R3 [READ]
W1 [MODIFIED]
W2 [MODIFIED]
W3 [MODIFIED]
R2 [READ]

VALUE AFTER OPERATIONS : 0
n00b@ubuntu:~/NetworkingLab/EXP_8$
```

```

n00b@ubuntu:~/NetworkingLab/EXP_8$ ./first_rw
Number of READERS : 3
Number of WRITERS : 4
-----

READERS

R0      R1      R2

-----

WRITERS

W0      W1      W2      W3

-----

===== Operation log =====

R2 [READ]
R3 [READ]
W1 [MODIFIED]
W2 [MODIFIED]
W4 [MODIFIED]
W3 [MODIFIED]
R1 [READ]

VALUE AFTER OPERATIONS : 1
n00b@ubuntu:~/NetworkingLab/EXP_8$

```

```

n00b@ubuntu:~/NetworkingLab/EXP_8$ ./first_rw
Number of READERS : 4
Number of WRITERS : 3
-----

READERS

R0      R1      R2      R3

-----

WRITERS

W0      W1      W2

-----

===== Operation log =====

R2 [READ]
R3 [READ]
W1 [MODIFIED]
R4 [READ]
W2 [MODIFIED]
W3 [MODIFIED]
R1 [READ]

VALUE AFTER OPERATIONS : -1
n00b@ubuntu:~/NetworkingLab/EXP_8$

```