

### Activity 9.2 – Process Synchronization and Deadlock

Compile and run the code list above. Screenshot the result and answer the following questions.

```
root@--:~# ./mutex.out
Thread 1 trying to acquire the lock
Thread 1 acquired the lock
Thread 2 trying to acquire the lock
Thread 1 reads the value of the shared variable as: 1
Local update by Thread 1: 2
Value of the shared variable updated by Thread 1 is: 2
Thread 1 released the lock
Thread 2 acquired the lock
Thread 2 reads the value of the shared variable as: 2
Local update by Thread 2: 1
Value of the shared variable updated by Thread 2 is: 1
Thread 2 released the lock
Final value of the shared variable is 1
```

- a. What is the final value of the shared variable?

**The final result of shared value is 1**

- b. Which thread obtains the lock first?

**Thread 1 obtained the lock first and will increment it by 1 ( $1+1 = 2$ )**

- c. If the other thread first obtains the lock, what will be the final value of the shared variable?

**In the case that thread 2 obtain the lock first and decrement it by 1 ( $1 - 1 = 0$ ) the final result will still be the same. Since after the thread 2 released the lock and gave it to thread 1, the thread 1 will then read the initial value as 0 and increment it by 1 ( $0 + 1 = 1$ )**