Reader Write Problem

A dataset is shared among a number of concurrent processes

- Readers – only read the dataset; they do not perform any updates
    - Never a problem if only readers access the data; no waiting necessary
- Writers – can both read and write
    - Problem if some writer accesses data; thus, exclusive access only for writing
- Problem - allow multiple concurrent readers to read at the same time
    - Only one single writer can access the shared data at the same time
    - And if a writer is active, readers wait for it to finish

Note: Solve this using Semaphore.

Possible Cases			
Case 1	Read	Read	Allow
Case 2	Read	Write	Not Allow
Case 3	Write	Read	Not Allow
Case 4	Write	Write	Not Allow

```
int readercount = 0;
semaphore r = 1;
semaphore w = 1;
```

Code for reader Portion

```
While(true)
{
Sem_wait (r)
readercount = readercount + 1;
if(readercount == 1)

Sem_wait(w);

Sem_post(r);

{

Access CS/Shared Data

}

Sem_Wait(r)
readercount = readercount -1;
if (readercount == 0)
then
Sem_post(w)
Sem_post(r)
```

Code for Writer portion

```
void writer(void)
{
While(true)
{
Sem_wait(w)
{
Access to CS/ Shared Data
}

Sem_post(w)
```