

```

#include<stdio.h>
//#include<stdlib.h>
#include<semaphore.h>
#include<pthread.h>
sem_t wrt;
pthread_mutex_t mutex;
int cnt=1;
int numreader=0;
void *writer(void *wno)
{
    sem_wait(&wrt);
    cnt=cnt*2;
    printf("Writer %d modified cnt to %d \n",(((int)wno)),cnt);
    sem_post(&wrt);
}

void *reader(void *rno)
{
    pthread_mutex_lock(&mutex);
    numreader++;
    if(numreader==1)
    {
        sem_wait(&wrt);
    }
    pthread_mutex_unlock(&mutex);
    printf("Reader %d: read cnt as %d \n",((int)rno),cnt);
    pthread_mutex_lock(&mutex);
    numreader--;
    if(numreader==0)
    {
        sem_post(&wrt);
    }
    pthread_mutex_unlock(&mutex);
}

int main()
{
    pthread_t read[10],write[5];
    pthread_mutex_init(&mutex,NULL);
    sem_init(&wrt,0,1);
    int a[10]={1,2,3,4,5,6,7,8,9,10};
    for(int i=0;i<10;i++)
    {
        pthread_create(&read[i],NULL,(void*)reader,(void*)&a[i]);
    }
    for(int i=0;i<5;i++)
    {
        pthread_create(&write[i],NULL,(void*)writer,(void*)&a[i]);
    }

    for(int i=0;i<10;i++)
    {
        pthread_join(read[i],NULL);
    }
    for(int i=0;i<5;i++)
    {
        pthread_join(write[i],NULL);
    }
}

```

```
pthread_mutex_destroy(&mutex);  
sem_destroy(&wrt);  
return 0;  
}
```