

Pritee Parwekar

## //READER-WRITER PROBLEM

```
#include<stdio.h>
#include<stdlib.h>

typedef int semaphore;
semaphore mutex =1,db = 1;
int rc = 0;

void down(int *a)
{
    *(a)--;
}
void up(int *a)
{
    *(a)++;
}
void reader()
{
    down(&mutex);
    rc++;
    if(rc==1)
        down(&db);
    up(&mutex);
    printf("\nreader is accessing db ");
    down(&mutex);
    rc--;
    if(rc==0)
        up(&db);
    up(&mutex);
}

void writer()
{
    down(&db);
    printf("\nwriter is updating db\n");
    up(&db);
}

int main()
{
    int w=0;
    printf("\n\n\t\tAssumptions:\n\n\n");
    printf("\nthe writer can write infinte no of times\nthe
reader can read infinite no of times\n");
    while(1)
    {
        int ch;
        printf("\n\n1.read\n2.write\n3.exit");
        printf("\nenter the choice:");
        scanf("%d",&ch);
        switch(ch)
        {
            case 1: if(w==0)
```

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```
                                printf("\nthere is no data in db\nreader
cannot read\n");
                                else
                                {
                                    reader();
                                }
                                break;
                                case 2: w=1;writer();break;
                                case 3:exit(0);
                                }
                                }
                                return 0;
                                }
```

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