produtor.c

```
#include <stdio.h>
#include <stdlib.h>
#include <sys/types.h>
#include <sys/shm.h>
#include <semaphore.h>

#define MEM_SZ 4096
#define BUFF_SZ MEM_SZ-sizeof(int)

struct shared_area{
        char buffer[BUFF_SZ];
        sem_t mutex;
}

main()
{
        int i;
        key_t key=1234;
        struct shared_area *shared_area_ptr;
        void *shared_memory = (void *)0;
        int shmid;

        shmid = shmget(key,MEM_SZ,0666|IPC_CREAT);
        if ( shmid == -1 )
        {
                printf("shmget falhou\n");
                exit(-1);
        }

        printf("shmid=%d\n",shmid);

        shared_memory = shmat(shmid,(void*)0,0);

        if (shared_memory == (void *) -1 )
        {
                printf("shmat falhou\n");
                exit(-1);
        }

        printf("Memoria compartilhada no endereco=%x\n",(int) shared_memory);

        shared_area_ptr = (struct shared_area *) shared_memory;
        sem_init(&(shared_area_ptr->mutex),1,1);

        for(i=0;i<BUFF_SZ;i++)
                shared_area_ptr->buffer[i]=0;

        for(;;)
        {
                sem_wait(&(shared_area_ptr->mutex));
                for(i=0;i<BUFF_SZ;i++)
                        shared_area_ptr->buffer[i]='#';
                sem_post(&(shared_area_ptr->mutex));
                printf("Produziu %d bytes\n",i);
        }
        sem_destroy(&(shared_area_ptr->mutex));
    exit(0);
}
```

Consumidor.c

```
#include <stdio.h>
#include <stdlib.h>
#include <sys/types.h>
#include <sys/shm.h>
#include <semaphore.h>

#define MEM_SZ 4096
#define BUFF_SZ MEM_SZ-sizeof(int)

struct shared_area{
        char buffer[BUFF_SZ];
        sem_t mutex
}


main()
{
        int i;
        key_t key=1234;
        struct shared_area *shared_area_ptr;
        void *shared_memory = (void *)0;
        int shmid;

        shmid = shmget(key,MEM_SZ,0666|IPC_CREAT);
        if ( shmid == -1 )
        {
                printf("shmget falhou\n");
                exit(-1);
        }

        printf("shmid=%d\n",shmid);

        shared_memory = shmat(shmid,(void*)0,0);

        if (shared_memory == (void *) -1 )
        {
                printf("shmat falhou\n");
                exit(-1);
        }

        printf("Memoria compartilhada no endereco=%x\n",(int) shared_memory);

        shared_area_ptr = (struct shared_area *) shared_memory;
        sem_init(&(shared_area_ptr->mutex),1,1);

        for(i=0;i<BUFF_SZ;i++)
                shared_area_ptr->buffer[i]=0;

        for(;;)
        {
                        sem_wait(&(shared_area_ptr->mutex));
                        for(i=0;i<BUFF_SZ;i++){
                                printf("%c",shared_area_ptr->buffer[i]);
                        }
                        printf("\nConsumiu %d bytes\n",i);
                        sem_post(&(shared_area_ptr->mutex));
        }
        sem_destroy(&(shared_area_ptr->mutex));
    exit(0);
}
```