

```

#include<stdio.h>

#include<stdlib.h>

int mutex=1,full=0,empty=3,x=0;

int main()
{
    int n;

    void producer();

    void consumer();

    int wait(int);

    int signal(int);

    printf("\n 1.Producer\n 2.Consumer\n 3.Exit");

    while(1)
    {
        printf("\n Enter your choice:");

        scanf("%d",&n);          switch(n)
        {

            case 1: if((mutex==1)&&(empty!=0)) producer();

            else

            printf("\n Buffer is full!!");

            break;

            case 2: if((mutex==1)&&(full!=0))

            consumer();

            else

            printf("\n Buffer is empty!!");

            break;

            case 3:

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        exit(0);

        break;
    }

}

return 0;

}

int wait(int s)
{
    return (--s);
}

int signal(int s)
{
    return(++s);
}

void producer()
{
    mutex=wait(mutex);

    full=signal(full);

    empty=wait(empty);

    x++;

    printf("\n Producer produces the item %d",x);

    mutex=signal(mutex);
}

void consumer()
{
    mutex=wait(mutex);
```

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full=wait(full);

empty=signal(empty);

printf("\n Consumer consumes item %d",x);

    x--;

    mutex=signal(mutex);

}
```

```
1.Producer
2.Consumer
3.Exit
Enter your choice:1

Producer produces the item 1
Enter your choice:1

Producer produces the item 2
Enter your choice:1

Producer produces the item 3
Enter your choice:1

Buffer is full!!
Enter your choice:1

Buffer is full!!
Enter your choice:2

Consumer consumes item 3
Enter your choice:2

Consumer consumes item 2
Enter your choice:2

Consumer consumes item 1
Enter your choice:2

Buffer is empty!!
Enter your choice:
```