

12. producer and the consumer

Code:

```
#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("\n1.Producer\n2.Consumer\n3.Exit");

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

        scanf("%d",&n);

        switch(n)
        {
            case 1:  if((mutex==1)&&(empty!=0))
                        producer();
                    else
                        printf("Buffer is full!!");
                    break;

            case 2:  if((mutex==1)&&(full!=0))
                        consumer();
                    else
                        printf("Buffer is empty!!");
                    break;

            case 3:
                        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("\nProducer produces the item %d",x);
    mutex=signal(mutex);
}
void consumer()
{
    mutex=wait(mutex);
    full=wait(full);
    empty=signal(empty);
    printf("\nConsumer consumes item %d",x);
    x--;
    mutex=signal(mutex);
}

```

Output:

```
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:2

Consumer consumes item 3
Enter your choice:2

Consumer consumes item 2
Enter your choice:3

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Process exited after 14.11 seconds with return value 0
Press any key to continue . . . |
```