Producer & Consumer

```c
#include<stdio.h>
#include<stdlib.h>
int mutex=1,full=0,empty=3,x=0;
void producer();
void consumer();
int wait(int);
int signal(int);

int main(){
int n;
printf("1.Producer\n2.Consumer\n3.Exit");
while(1){
   printf("\nEnter your choice: ");
   scanf("%d",&n);
   switch(n){
   case 1:if((mutex==1)&&(empty==0))
         printf("Buffer is full");
         else
            producer();
         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);
}
```

```
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: 2

Consumer consumes item 3
Enter your choice: 2

Consumer consumes item 2
Enter your choice: 3
```