#include <stdio.h>

#include <stdlib.h>

# define SIZE 5

int mutex = 1, empty = SIZE, full = 0, item = 0;

int wait(int w){

return (--w);

}

int signal(int s){

return (++s);

}

void producer(){

mutex=wait(mutex);

full=signal(full);

empty=wait(empty);

printf("\nProducer produces the item %d",++item);

mutex=signal(mutex);

}

void consumer(){

mutex=wait(mutex);

full=wait(full);

empty=signal(empty);

printf("\nConsumer consumes item %d",item--);

mutex=signal(mutex);

}

int main(){

printf("Press 1 for Producer\nPress 2 for Consumer\nPress 3 for Exit\n");

int n;

while(1){

printf("\nEnter your choice : ");

scanf("%d",&n);

switch(n){

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

producer();

else

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

break;

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

consumer();

else

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

break;

case 3: exit(0);

break;

}

}

}