#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);

empty = signal(empty);

full = wait(full);

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 full!!\n");

break;

case 3: exit(0); break;

}

}

return 0;

}