#include <stdio.h>

#include <stdlib.h>

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

int wait(int s) {

return (--s);

}

int signal(int s) {

return (++s);

}

void producer() {

mutex = wait(mutex);

full = signal(full); // Correct: Increase full count when producing

empty = wait(empty); // Correct: Decrease empty count when producing

x++;

printf("\nThe Producer has produced item %d\n", x);

mutex = signal(mutex);

}

void consumer() {

mutex = wait(mutex);

full = wait(full); // Correct: Decrease full count when consuming

empty = signal(empty); // Correct: Increase empty count when consuming

printf("\nThe Consumer has consumed item %d\n", x);

x--;

mutex = signal(mutex);

}

int main() {

int n;

printf("Enter size of Buffer: ");

scanf("%d", &empty); // Get buffer size

printf("\n1. Producer\n2. Consumer\n3. Exit\n");

while (1) {

printf("Enter your choice: ");

scanf("%d", &n);

switch (n) {

case 1:

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

producer();

else

printf("\nBuffer is Full\n");

break;

case 2:

if (mutex == 1 && full != 0)

consumer();

else

printf("\nBuffer is Empty\n");

break;

case 3:

exit(0);

default:

printf("Invalid choice\n");

break;

}

}

return 0;

}