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All Competitions > Week of Code 31 > Zero-One Game

Zero-One Game

by **zemen**

| Problem | Submissions | Leaderboard | Discussions |

Your submission will run against only preliminary test cases. Full test cases will run at the end of the day.

Alice and Bob are playing the following game:

- The game starts with a sequence of zeroes and ones.

- Alice and Bob take alternating turns, and Alice always moves first.

- During each turn, a player removes *one* element from the sequence that satisfies the following:

  - It is not the first or last element.

  - It must be surrounded by zeroes on both sides.

- The first player who can't take their turn loses the game.

- Both players always move optimally.

For example, the diagram below depicts the three possible first moves for the sequence $\{0, 0, 0, 0, 1, 0\}$:
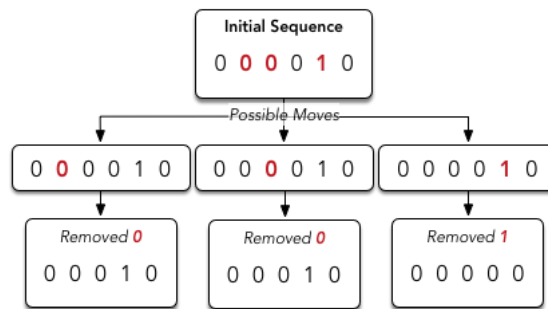
Alice and Bob play g games. Given the initial sequence of numbers for each game, print the name of each game's winner on a new line (i.e., `Alice` or `Bob`).

Input Format

The first line contains an integer, g, denoting the number of games. The subsequent lines describe each game in the following format:

1. The first line contains a single integer denoting n (the length of the sequence).

2. The second line contains n space-separated integers denoting the respective values of the initial sequence. Each element is either zero or one.

Constraints

- $1 \le g \le 10^4$

- $1 \le n \le 10^5$

- The sum of n over all games doesn't exceed 10^6.

Output Format

For each game, print the name of the winner on a new line (i.e. `Alice` or `Bob`).

Sample Input 0
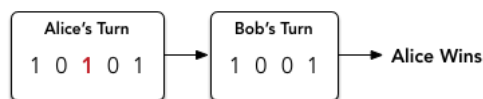
```
3
4
1 0 0 1
5
1 0 1 0 1
6
0 0 0 0 0 0
```

Sample Output 0

```
Bob
Alice
Bob
```

Explanation 0

Alice and Bob play the following $g = 3$ games:

1. No element in $\{1, 0, 0, 1\}$ is surrounded by zeroes on both sides, so Alice cannot make her first move. Because Bob wins by default, we print `Bob` on a new line.

2. Alice removes one element from $\{1, 0, 1, 0, 1\}$ and Bob is left with no moves:

   Thus, we print `Alice` on a new line.

3. Each player removes some zero from $\{0, 0, 0, 0, 0, 0\}$ until only the two zeroes at either end remain (because all elements are zero, the choice of element to remove is arbitrary), at which point Alice is left with no moves:

   Thus, we print `Bob` on a new line.

f   y   in

Contest ends in 5 days

Submissions: 2223
Max Score: 40
Difficulty: Medium

Rate This Challenge:
★★★★☆

More

Current Buffer (saved locally, editable) ⑂ ⟲   Java 7 ⌄

```java
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      public static void main(String[] args) {
```

```java
10          Scanner in = new Scanner(System.in);
11          int g = in.nextInt();
12          for(int a0 = 0; a0 < g; a0++){
13              int n = in.nextInt();
14              int[] sequence = new int[n];
15              for(int sequence_i=0; sequence_i < n; sequence_i++){
16                  sequence[sequence_i] = in.nextInt();
17              }
18              // If Alice wins, print 'Alice' on a new line; otherwise, print 'Bob'
19
20              ArrayList<Integer> sinRodeos = new ArrayList<Integer>();
21              sinRodeos.add(sequence[0]);
22              int calculateNumbers = 0;
23               for (int i = 1; i < sequence.length - 1; i++)
24                {
25                    if (sequence[i] ==1 && sequence[i - 1] == 0 && sequence[i + 1] == 0)
26                    {
27                        calculateNumbers++;
28                    }else{
29                        sinRodeos.add(sequence[i]);
30                    }
31                }
32                sinRodeos.add(sequence[sequence.length-1]);
33
34                for (int i = 1; i < sinRodeos.size() -1;i++  )
35                {
36                    if (sinRodeos.get(i) == 0 && sinRodeos.get(i-1) == 0 && sinRodeos.get(i+1) == 0)
37                    {
38                        calculateNumbers++;
39                    }
40                }
41
42                if( calculateNumbers % 2 == 0)
43                {
44
45                    System.out.println("Bob");
46                }
47                else
48                {
49                    System.out.println("Alice");
50                }
51
52
53          }
54      }
55 }
56
```

Line: 51 Col: 1

⬆ Upload Code as File   ☐ Test against custom input   Run Code   Submit Code

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