Ultra Even

University of Melbourne Competitive Programming Club

Problem Statement

An array is 'ultra even' if the sum of every subarray of the array is even. Given an array of length n, you are to determine whether a subarray is even or not.

For example, the array $[1, 4, 5, 2]$ is not 'ultra even' because the subarray $[4, 5]$ has a sum of 9 which is not even (it also has other odd subarrays).

A subarray of an array is defined as some consecutive elements of the array (including of size one). For example, given the array $[1, 4, 5, 2]$ then $[4, 5, 2]$ is a subarray but $[4, 2]$ is not.

Input

Your first line will contain a single integer n, representing the length of your given array.
Your next n lines will contain n space-separated integers, being the integers of the array in order.

Output

You should output `YES` if the array is 'ultra even', otherwise output `NO`.

Constraints

$1 \leq n \leq 10^5$

Need help?

For this question, we have left some **boiler-plate code at the bottom of the document**.

Sample Cases

Input 1

```
4
1 4 5 2
```

Output 1

```
NO
```

Explanation 1

As mentioned, the subarray [4, 5] is has an odd sum.

Input 2

```
3
2 4 6
```

Output 2

```
YES
```

Boiler-plate code

Input will be taken from the standard input and output to the standard output. Some examples of how this can be done for different languages are below. The boiler-plate code is tailored to this problem.

For Python

```
n = int(input())
input_array = [int(x) for x in input().split()]

# do your calculations below
ans = "YES"

# print the answer
print(ans)
```

For C++

```
#include <iostream>
#include <vector>
#include <string>

using namespace std;

int main() {
    int n;
    cin >> n;
    vector<int> arr(n);
    for(int i=0; i<n; ++i)
        cin >> arr[i];

    // do your calculations below
    string ans = "YES";

    // print the answer
    cout << ans << '\n'; // the new-line character is not required.
}
```

For Java

Please make sure to have your filename be the same as the class name. You may submit with whatever class name you want.

```
import java.util.*;

public class Filename {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);

        int n = in.nextInt();
        int[] inputArray = new int[n];
        for(int i=0; i<n; i++) {
            inputArray[i] = in.nextInt();
        }

        // do your calculations below
        String ans = "YES";

        // output the answer
        System.out.println(ans);

        in.close();
    }
}
```