

## B. XOR Specia-LIS-t

time limit per test: 1 second  
 memory limit per test: 256 megabytes  
 input: standard input  
 output: standard output

YouKn0wWho has an integer sequence  $a_1, a_2, \dots, a_n$ . Now he will split the sequence  $a$  into one or more consecutive subarrays so that each element of  $a$  belongs to exactly one subarray. Let  $k$  be the number of resulting subarrays, and  $h_1, h_2, \dots, h_k$  be the lengths of the longest increasing subsequences of corresponding subarrays.

For example, if we split  $[2, 5, 3, 1, 4, 3, 2, 2, 5, 1]$  into  $[2, 5, 3, 1, 4]$   $[3, 2, 2, 5]$   $[1]$ , then  $h = [3, 2, 1]$ .

YouKn0wWho wonders if it is possible to split the sequence  $a$  in such a way that the bitwise XOR of  $h_1, h_2, \dots, h_k$  is equal to 0. You have to tell whether it is possible.

The longest increasing subsequence (LIS) of a sequence  $b_1, b_2, \dots, b_m$  is the longest sequence of valid indices  $i_1, i_2, \dots, i_k$  such that  $i_1 < i_2 < \dots < i_k$  and  $b_{i_1} < b_{i_2} < \dots < b_{i_k}$ . For example, the LIS of  $[2, 5, 3, 3, 5]$  is  $[2, 3, 5]$ , which has length 3.

An array  $c$  is a subarray of an array  $b$  if  $c$  can be obtained from  $b$  by deletion of several (possibly, zero or all) elements from the beginning and several (possibly, zero or all) elements from the end.

### Input

The first line contains a single integer  $t$  ( $1 \leq t \leq 10\,000$ ) — the number of test cases.

The first line of each test case contains a single integer  $n$  ( $2 \leq n \leq 10^5$ ).

The second line of each test case contains  $n$  integers  $a_1, a_2, \dots, a_n$  ( $1 \leq a_i \leq 10^9$ ).

It is guaranteed that the sum of  $n$  over all test cases doesn't exceed  $3 \cdot 10^5$ .

### Output

For each test case, print "YES" (without quotes) if it is possible to split into subarrays in the desired way, print "NO" (without quotes) otherwise. You can print each letter in any register (upper or lower).

### Example

input	Copy
4	
7	
1 3 4 2 2 1 5	
3	
1 3 4	
5	
1 3 2 4 2	
4	
4 3 2 1	
output	Copy
YES	
NO	
YES	
YES	

### Note

In the first test case, YouKn0wWho can split the sequence in the following way:  $[1, 3, 4]$ ,  $[2, 2]$ ,  $[1, 5]$ . This way, the LIS lengths are  $h = [3, 1, 2]$  and the bitwise XOR of the LIS lengths is  $3 \oplus 1 \oplus 2 = 0$ .

In the second test case, it can be shown that it is impossible to split the sequence into subarrays that will satisfy the condition.

### Codeforces Round #752 (Div. 2)

Finished

#### → Virtual participation

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Start virtual contest

#### → Problem tags

\*1100

No tag edit access

#### → Contest materials

- Announcement (en)
- Tutorial (en)