



🎁 Codeforces celebrates 10 years! We are pleased to announce the crowdfunding-campaign. Congratulate us by the link <https://codeforces.com/10years>.

## B. Array Sharpening

time limit per test: 1 second

memory limit per test: 256 megabytes

input: standard input

output: standard output

You're given an array  $a_1, \dots, a_n$  of  $n$  non-negative integers.

Let's call it *sharpened* if and only if there exists an integer  $1 \leq k \leq n$  such that  $a_1 < a_2 < \dots < a_k$  and  $a_k > a_{k+1} > \dots > a_n$ . In particular, any strictly increasing or strictly decreasing array is *sharpened*. For example:

- The arrays [4], [0, 1], [12, 10, 8] and [3, 11, 15, 9, 7, 4] are sharpened;
- The arrays [2, 8, 2, 8, 6, 5], [0, 1, 1, 0] and [2, 5, 6, 9, 8, 8] are **not** sharpened.

You can do the following operation as many times as you want: choose any **strictly positive** element of the array, and decrease it by one. Formally, you can choose any  $i$  ( $1 \leq i \leq n$ ) such that  $a_i > 0$  and assign  $a_i := a_i - 1$ .

Tell if it's possible to make the given array *sharpened* using some number (possibly zero) of these operations.

### Input

The input consists of multiple test cases. The first line contains a single integer  $t$  ( $1 \leq t \leq 15\,000$ ) — the number of test cases. The description of the test cases follows.

The first line of each test case contains a single integer  $n$  ( $1 \leq n \leq 3 \cdot 10^5$ ).

The second line of each test case contains a sequence of  $n$  non-negative integers  $a_1, \dots, a_n$  ( $0 \leq a_i \leq 10^9$ ).

### Codeforces Round #616 (Div. 2)

Finished

#### → Practice?

Want to solve the contest problems after the official contest ends? Just register for practice and you will be able to submit solutions.

Register for practice

#### → Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

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

Output

For each test case, output a single line containing "Yes" (without quotes) if it's possible to make the given array sharpened using the described operations, or "No" (without quotes) otherwise.

Example

input	Copy
10 1 248618 3 12 10 8 6 100 11 15 9 7 8 4 0 1 1 0 2 0 0 2 0 1 2 1 0 2 1 1 3 0 1 0 3 1 0 1	
output	Copy
Yes Yes Yes No No Yes Yes Yes Yes No	

Note

In the first and the second test case of the first test, the given array is already sharpened.

→ Problem tags

greedy implementation \*1300

No tag edit access

→ Contest materials

- Announcement (en) ×
- Tutorial (en) ×

In the third test case of the first test, we can transform the array into [3, 11, 15, 9, 7, 4] (decrease the first element 97 times and decrease the last element 4 times). It is sharpened because  $3 < 11 < 15$  and  $15 > 9 > 7 > 4$ .

In the fourth test case of the first test, it's impossible to make the given array sharpened.

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