Milo's Diary

by sn23581

The weekend was coming and guess what - Milo decided to go on a City Break!

As soon as he landed, he got a map of the city, where every tourist spot was marked. The city has N tourist spots, numbered from $1, 2, \ldots N$. He decided to start visiting the places sequentially starting from 1, then 2, then 3 and so on.

Milo keeps a diary, where he was writing about the spots as he was visiting them. Sadly, due to lack of adequate time, he may not write about all the spots. So he decided when he is free to write, he will always write about the last spot he visited until then. If he has finished writing about it, then he will write about the one that he visited immediately before, and so on until there is no other spot left to write about!

Today you found a diary, and on the index you saw a list of numbers, which is the sequence of the spots that it contains writings about.

Can you determine if this can be Milo's diary or not?

Remember, he is not willing to write about any spot more than once. For example, if he visited 3 places $(1, 2, 3)$ and wrote about the 3^{rd} one, and then visited another place (4) and wrote about it as well, next spot he writes about [given that he visits no other spot meanwhile], is spot 2.

Input Format

Input begins with a line with an integer M, the number of elements in the list you found, followed by M space separated integers on a new line.

Constraints:

- $1 <= M <= 1000000$
- each element is in the range $[1, 1000000007]$

Output Format

Output YES if it is possible that Milo has written this diary, NO otherwise.

Sample Input

Note that the sample inputs below are for two separate test cases demonstrating both a YES and a NO case.

```
4
2 4 3 5

4
4 1 2 3
```

Sample Output

```
YES

NO
```

Explanation

Milo visited 1st and 2nd spots, then wrote about the 2nd one. Then visited 3rd and 4th spots, wrote about the 4th one, then visited the 5th one and finally wrote about that as well. So the sequence of spots written about which is found in his diary is 2 4 3 5, so the input corresponds to the way Milo may have written about the trip in his diary.

Submissions: 433

Max Score: 75

Difficulty: Moderate

More

Current Buffer (saved locally, editable) Java 8

```
1  import java.io.*;
2  import java.util.*;
3
4  public class Solution {
5
6      public static void main(String[] args) {
7          /* Enter your code here. Read input from STDIN. Print output to STDOUT.
   Your class should be named Solution. */
8      }
9  }
```

Line: 1 Col: 1

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