Riyad And His Increasing Array

You are given an array of **N** integers.

In this array in a single operation, you can choose any i (where **1**<=**i**<=**N**) such that **a[i]>0** and decrease **a[i]** by **1**.

You have to determine is it possible to make the given array **sorted** (**strictly increasing**) after using some number of operation (**probably 0**) described above.

Input

Input starts with an integer N **(1 ≤ N ≤ 100000),** number of element of the array.

Next line contains N separated integers $\mathbf{a_i}$ **(1 ≤** $\mathbf{a_i}$ **≤** $\mathbf{10^9}$**).**

Output

Print "YES" (without quotes) ,if you can make the array **sorted** (**strictly increasing**), otherwise print "NO".

Example

Input:

7

5 2 3 9 88 9 10

Output:

YES