

Prefix table?**P99427_en**

Let s be a string of size n . For each $0 \leq i < n$, let $s_i = s[0..i]$, and let p_i be the longest prefix of s_i that is also a suffix of s_i (excluding s_i itself). The prefix table P for s is a vector of n integers that stores at $P[i]$ the size of p_i .

For instance, let s be "aabaacaabaa". The prefix table in this case is

0	1	2	3	4	5	6	7	8	9	10
a	a	b	a	a	c	a	a	b	a	a
0	1	0	1	2	0	1	2	3	4	5

For example, $P[8] = 3$ corresponds to $p_8 = \text{"aab"}$, the longest proper prefix and proper suffix of $s_8 = \text{"aabaacaab"}$.

As other examples, the prefix table of "zzzzzz" is $[0, 1, 2, 3, 4, 5]$, and the prefix table of "ababa" is $[0, 0, 1, 2, 3]$.

Given a vector of integers, could it be the prefix table of some string?

Input

Input consists of several cases, each with n , followed by $P[0], \dots, P[n-1]$. You can assume $1 \leq n \leq 10^5$ and $0 \leq P[i] < n$.

Output

For each case, print "yes" or "no" depending on whether the given numbers can define the prefix table of some string. Assume that we use an alphabet with an unlimited number of different characters.

Sample input

```
5 0 1 2 0 1
4 0 1 0 3
3 1 2 1
6 0 0 1 1 2 2
1 0
```

Sample output

```
yes
no
no
no
yes
```

Problem information

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