Problem B
Factoring a Function

Time limit: 1 second
Memory limit: 256 megabytes

Problem Description

Given a function $f : \{1, \ldots, n\} \to \{1, \ldots, n\}$ mapping integers $1, \ldots, n$ into values among $1, \ldots, n$. We say f can be factored into two functions $g : \{1, \ldots, n\} \to \{1, \ldots, m\}$ and $h : \{1, \ldots, m\} \to \{1, \ldots, n\}$ if the following conditions hold.

- $m \leq n$.
- $h(g(x)) = f(x)$ for $x \in \{1, \ldots, n\}$.
- $g(h(x)) = x$ for $x \in \{1, \ldots, m\}$.

For example, $f(x) = 2$ for $n = 3$ can be factored into $g(x) = 1$ and $h(x) = 2$ by choosing $m = 1$.

If there does not exist such integer m, function g, and function h, then we say that f cannot be factored.

Input Format

Each test case consists of two lines. The first line is an integer n ($1 \leq n \leq 5$) indicating the domain and range of f. The second line consists of n integers $f(1), \ldots, f(n)$ saparated by blanks where $f(i) \in \{1, \ldots, n\}$ for $i \in \{1, \ldots, n\}$.

The input is terminated by $n = 0$, and there are at most 3456 test cases.

Output Format

For each test case, output `yes` if we can factor f into some g and h. Otherwise, output `no`.

Sample Input

```
3
1 2 3
2
2 1
3
2 2 2
0
```

Sample Output

```
yes
no
yes
```