B. Christmas Spruce

Consider a rooted tree. A rooted tree has one special vertex called the root. All edges are directed from the root. Vertex u is called a *child* of vertex v and vertex v is called a *parent* of vertex u if there exists a directed edge from v to u. A vertex is called a *leaf* if it doesn't have children and has a parent.

Let's call a rooted tree a *spruce* if its every non-leaf vertex has at least 3 leaf children. You are given a rooted tree, check whether it's a spruce.

The definition of a rooted tree can be found here.

Input

The first line contains one integer n — the number of vertices in the tree ($3 \leq n \leq 1\,000$). Each of the next n - 1 lines contains one integer p_i ($1 \leq i \leq n$ - 1) — the index of the parent of the $i + 1$-th vertex ($1 \leq p_i \leq i$).

Vertex 1 is the root. It's guaranteed that the root has at least 2 children.

Output

Print "Yes" if the tree is a spruce and "No" otherwise.

Examples

input
```
4
1
1
1
```

output
```
Yes
```

input
```
7
1
1
1
2
2
2
```

output
```
No
```

input
```
8
1
1
1
1
3
3
3
```

output
```
Yes
```

Note

The first example:

The second example:

It is not a spruce, because the non-leaf vertex 1 has only 2 leaf children.

The third example: