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: https://en.wikipedia.org/wiki/Tree_(graph_theory)

Input

The first line contains one integer n – the number of vertices in the tree ($3 \leq n$ 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 ($1 \leq p_i \leq i$).

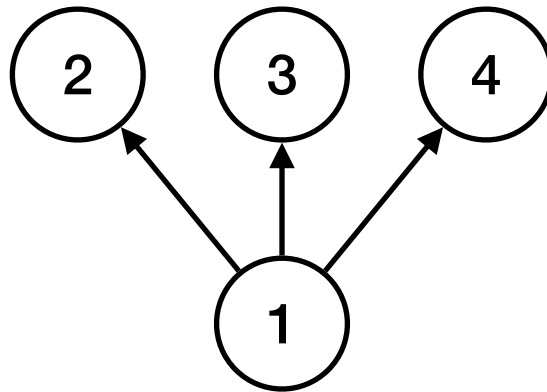Vertex 1 is the root. It's guaranteed that the root has at least 2 children.

Output

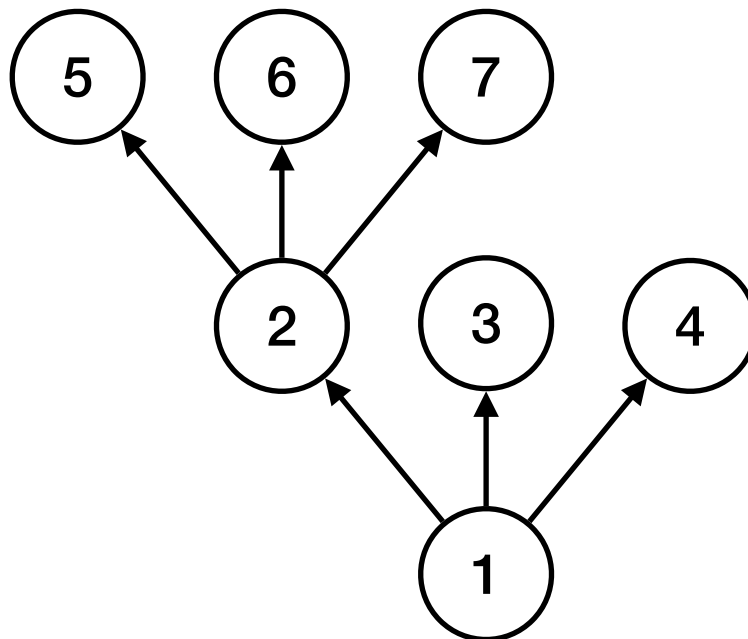Print "Yes" if the tree is a spruce and "No" otherwise.

Input	Output
4 1 1 1	Yes
7 1 1 1 2 2 2	No
8 1 1 1 1 3 3 3	Yes

Note
The first example:

2 3 4

1

The second example:

5 6 7

2 3 4

1

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

6 7 8

2 3 4 5

1