Problem G
Glass Key

Time limit: 5 seconds
Memory limit: 2048 megabytes

Problem Description

Cinderella left the balls after dancing all night with the prince, but she left in such a rush that she dropped her glass key off! Cinderella knew the prince would try the key on every door to find her, but now she wonders if she would accidentally share the same door key with her stepsister Drizella.

After a fine amount of investigation, she found the original blueprint of Drizella's key. She noticed that blueprints of a key are unrooted tree graphs with the following properties:

- Every node has at most 3 other nodes adjacent to it.

- A node with 3 adjacent nodes is called a *joint*.

- There are at least 2 joints.

- There exist a simple path that contains every joint.

Recall that:

- An unrooted tree graph is a connected graph with n nodes and $n - 1$ edges.

- Two nodes u and v are adjacent to each other if and only if $\{u, v\}$ is an edge in the graph.

- A simple path is a sequence $v_1, v_2, \ldots, v_k$ of vertices such that

  - v_i and v_{i+1} are adjacent for $1 \le i \le k - 1$.

  - $v_i \ne v_j$ for $i \ne j$.

An example of a blueprint looks like this.
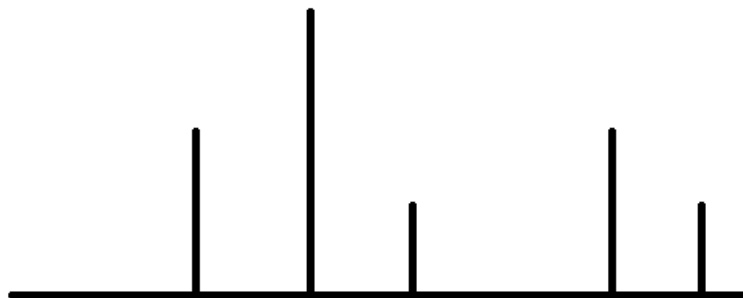
By reading the comments on the blueprint, she learned that a key is made from the following procedure from a blueprint:

1. The locksmith finds 2 leaf nodes a and b such that the simple path $a, u_1, u_2, \ldots, u_k, b$ contains every joint.

2. Edges on the a-b path are forged as a horizontal bar at the baseline.

3. Edges not on the path lie above the baseline as a straight vertical bars.

4. A key is described as the sequence of lengths of vertical bars above each joint, in the order from a to b.

For example, the following graph is a blueprint with the key sequence $[2, 3, 1, 2, 1]$.
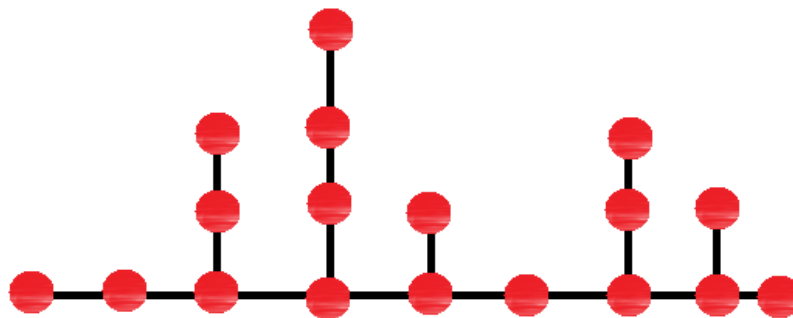
Given Cinderella's key and the blueprint of Drizella's key, tell Cinderella if she can possibly share the same key with Drizella.

Input Format

The first line contains an integer n, the number of vertices in the blueprint of Drizella's key. The ith of the next $n-1$ lines contains two integers a_i and b_i describing an edge in the blueprint.

The next line contains an integer m, the length of Cinderella's key. The next line contains m integers $c_1, c_2, \ldots, c_m$ describing Cinderella's key.

Output Format

If it is possible that Cinderella and Drizella share the same key, print "YES". Otherwise, print "NO".

Technical Specification

- $1 \le m \le n \le 10^6$

- $0 \le a_i, b_i \le n - 1$ for $i = 1, 2, \ldots, n$

- The edges $\{a_i, b_i\}$ form a valid key blueprint.

- $1 \le c_j \le 10^9$ for $j = 1, 2, \ldots, m$

Sample Input 1

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14
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Sample Output 1

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YES
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```
4 13
2 5
5 8
1 11
11 7
9 2
1 13
12 0
8 1
10 6
9 6
3 9
7 12
2
2 2
```