E. Bear and Drawing

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

Limak is a little bear who learns to draw. People usually start with houses, fences and flowers but why would bears do it? Limak lives in the forest and he decides to draw a tree.

Recall that *tree* is a connected graph consisting of n vertices and $n - 1$ edges.

Limak chose a tree with n vertices. He has infinite strip of paper with two parallel rows of dots. Little bear wants to assign vertices of a tree to some n distinct dots on a paper so that edges would intersect only at their endpoints — drawn tree must be planar. Below you can see one of correct drawings for the first sample test.

Is it possible for Limak to draw chosen tree?

Input

The first line contains single integer n ($1 \le n \le 10^5$).

Next $n - 1$ lines contain description of a tree. i-th of them contains two space-separated integers a_i and b_i ($1 \le a_i, b_i \le n, a_i \ne b_i$) denoting an edge between vertices a_i and b_i. It's guaranteed that given description forms a tree.

Output

Print "`Yes`" (without the quotes) if Limak can draw chosen tree. Otherwise, print "`No`" (without the quotes).

Examples

input
8 1 2 1 3 1 6 6 4 6 7 6 5 7 8
output
Yes

input
13 1 2 1 3 1 4 2 5 2 6 2 7 3 8 3 9 3 10 4 11 4 12 4 13
output
No