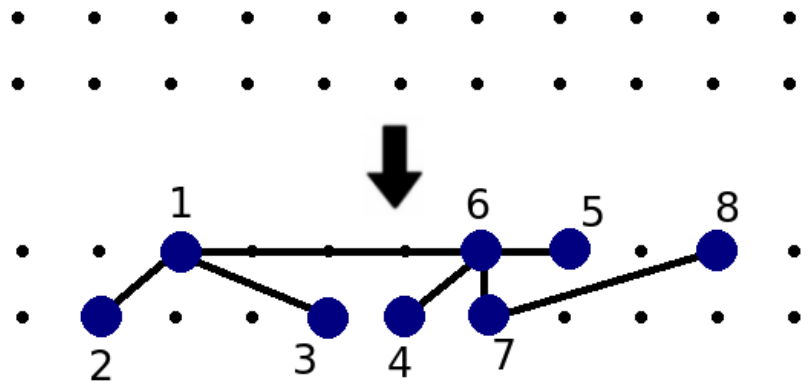
C. Bear and Drawing

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 Copy

```
8
1 2
1 3
1 6
6 4
6 7
6 5
7 8
```

output Copy

```
Yes
```

input Copy

```
13
1 2
1 3
1 4
2 5
2 6
2 7
```

Codeforces Round #318 [RussianCodeCup Thanks-Round] (Div. 1)

Finished

Practice

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ACM-ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++11 5.1.0

Choose file: 选择文件 未选择任何文件

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ Problem tags

constructive algorithms | dfs and similar | trees

No tag edit access

→ Contest materials

- Announcement
- Tutorial

```
3 8
3 9
3 10
4 11
4 12
4 13
```

output Copy

```
No
```