A. Legendary Coach Mode

Time limit : 1 sec
Memory Limit : 256 MB

Problem Statement

Rishabh is very sad as all of his friends have the legendary coach mode access but he doesn't. To help him his friends gave him a problem. They will give him the coach mode access if he is able to solve the problem but as a lazy person he is, he in-turn gave the problem to you. Now it's on you to help him get the legendary coach mode access. The problem is :

You are given a tree with N nodes. Each edge in this tree has a number associated with it. A path in this tree is a happy path if all adjacent edges in the path have different numbers. Also, a node is happy if every simple path with that node as one of its endpoints is a happy path.

Let X be the number of happy nodes in the tree. You need to print X^{X^X} modulo $10^9 + 7$.

Input

The first line of input contains a single integer N ($1 \leq N \leq 10^5$).
Each of the next N - 1 lines contains 3 integers a_i, b_i, c_i indicating that there is an edge froma_i to b_i with number c_i on it. ($1 \leq a_i, b_i, c_i \leq N$)
It is guaranteed that the given edges form a tree.

Output

Output a single number : X^{X^X} modulo $10^9 + 7$ where X is the number of happy nodes.
If there are no happy nodes output 0.

Sample Input 1

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

Sample output 1

```
418385479
```

Sample Input 2

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

5 6 2
7 8 1

Sample output 2

0

Sample Input 3

9
1 2 2
1 3 1
1 4 5
1 5 5
2 6 3
3 7 3
4 8 1
5 9 2

Sample output 3

60594596

Explanation

For Sample 1 : Number of Happy Nodes = 4
For Sample 2 : Number of Happy Nodes = 0
For Sample 3 : Number of Happy Nodes = 5