

D. 0-1-Tree

time limit per test: 2 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a tree (an undirected connected acyclic graph) consisting of n vertices and $n - 1$ edges. A number is written on each edge, each number is either 0 (let's call such edges 0-edges) or 1 (those are 1-edges).

Let's call an ordered pair of vertices (x, y) ($x \neq y$) **valid** if, while traversing the simple path from x to y , we never go through a 0-edge after going through a 1-edge. Your task is to calculate the number of **valid** pairs in the tree.

Input

The first line contains one integer n ($2 \leq n \leq 200000$) — the number of vertices in the tree.

Then $n - 1$ lines follow, each denoting an edge of the tree. Each edge is represented by three integers x_i, y_i and c_i ($1 \leq x_i, y_i \leq n, 0 \leq c_i \leq 1, x_i \neq y_i$) — the vertices connected by this edge and the number written on it, respectively.

It is guaranteed that the given edges form a tree.

Output

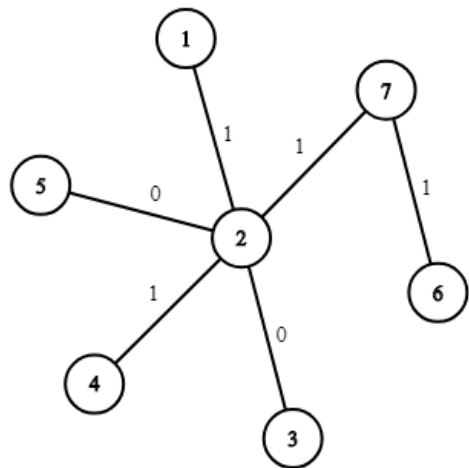
Print one integer — the number of **valid** pairs of vertices.

Example

input	Copy
<pre>7 2 1 1 3 2 0 4 2 1 5 2 0 6 7 1 7 2 1</pre>	
output	Copy
<pre>34</pre>	

Note

The picture corresponding to the first example:




Educational Codeforces Round 64
(Rated for Div. 2)

Contest is running

00:38:04

Contestant



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Language: GNU G++11 5.1.0

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