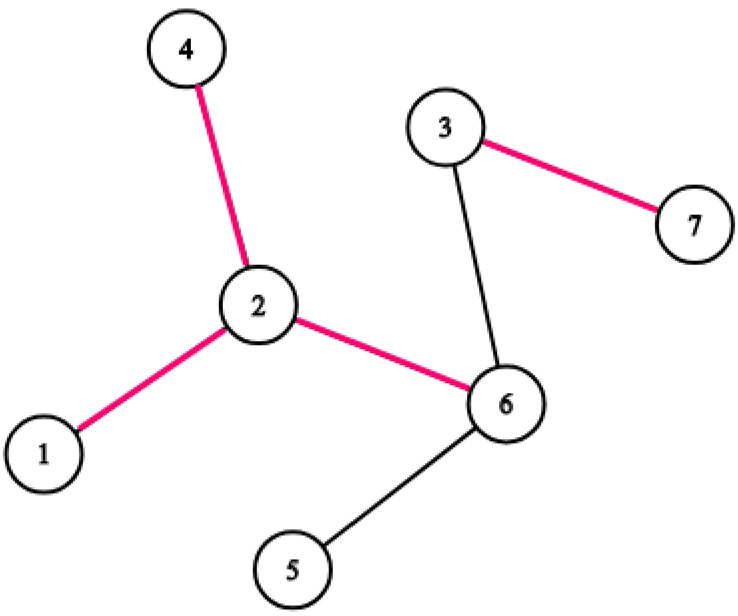
Problem C. Edgy Trees

Time limit 2000 ms
Mem limit 262144 kB

You are given a tree (a connected undirected graph without cycles) of n vertices. Each of the $n-1$ edges of the tree is colored in either black or red.

You are also given an integer k. Consider sequences of k vertices. Let's call a sequence $[a_1, a_2, \ldots, a_k]$ *good* if it satisfies the following criterion:

- We will walk a path (possibly visiting same edge/vertex multiple times) on the tree, starting from a_1 and ending at a_k.
- Start at a_1, then go to a_2 using the shortest path between a_1 and a_2, then go to a_3 in a similar way, and so on, until you travel the shortest path between a_{k-1} and a_k.
- If you walked over at least one black edge during this process, then the sequence is good.



Consider the tree on the picture. If $k=3$ then the following sequences are good: $[1, 4, 7]$, $[5, 5, 3]$ and $[2, 3, 7]$. The following sequences are not good: $[1, 4, 6]$, $[5, 5, 5]$, $[3, 7, 3]$.

There are n^k sequences of vertices, count how many of them are good. Since this number can be quite large, print it modulo 10^9+7.

Input

The first line contains two integers n and k ($2 \le n \le 10^5$, $2 \le k \le 100$), the size of the tree and the length of the vertex sequence.

Each of the next $n-1$ lines contains three integers u_i, v_i and x_i ($1 \le u_i, v_i \le n$, $x_i \in \{0, 1\}$), where u_i and v_i denote the endpoints of the corresponding edge and x_i is the color of this edge (0 denotes red edge and 1 denotes black edge).

Output

Print the number of good sequences modulo $10^9 + 7$.

Sample 1

Input	Output
4 4 1 2 1 2 3 1 3 4 1	252

Sample 2

Input	Output
4 6 1 2 0 1 3 0 1 4 0	0

Sample 3

Input	Output
3 5 1 2 1 2 3 0	210

Note

In the first example, all sequences (4^4) of length 4 **except** the following are good:

- $[1, 1, 1, 1]$
- $[2, 2, 2, 2]$
- $[3, 3, 3, 3]$
- $[4, 4, 4, 4]$

In the second example, all edges are red, hence there aren't any good sequences.