

Rainbow Roads



You are given a tree with n nodes (conveniently numbered from 1 to n). Each edge in this tree has one of n colors. A path in this tree is called a *rainbow* if all adjacent edges in the path have different colors. Also, a node is called *good* if every simple path with that node as one of its endpoints is a *rainbow* path.

Find all the *good* nodes in the given tree.

A simple path is a path that does not repeat any vertex or edge.

1 Input

The first line of input contains a single integer n ($1 \leq n \leq 50,000$).

Each of the next $n - 1$ lines contains three space-separated integers a_i , b_i , and c_i ($1 \leq a_i, b_i, c_i \leq n$; $a_i \neq b_i$), describing an edge of color c_i that connects nodes a_i and b_i .

It is guaranteed that the given edges form a tree.

2 Output

On the first line of the output, print k , the number of good nodes.

In the next k lines, print the indices of all good nodes in numerical order, one per line.

For the first sample, node 3 is good since all paths that have node 3 as an endpoint are rainbow. In particular, even though the path 3—4—5—6 has two edges of the same color (i.e. 3—4, 5—6), it is still rainbow since these edges are not adjacent.

3 Sample Input and Output

8 1 3 1 2 3 1 3 4 3 4 5 4 5 6 3 6 7 2 6 8 2	4 3 4 5 6
8 1 2 2 1 3 1 2 4 3 2 7 1 3 5 2 5 6 2 7 8 1	0
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	5 1 2 3 6 7
10 9 2 1 9 3 1 9 4 2 9 5 2 9 1 3 9 6 4 1 8 5 1 10 5 6 7 9	4 1 6 7 9