Problem E. Experiments With Divine Trees

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	1024 mebibytes

Consider a tree with a gold or bronze coin placed at each vertex. Such a tree is called a *Divine Tree* if the following process is possible:

1. Zero or more times repeat the following action: select a pair of vertices that are directly connected by an edge, and swap the coins placed in those vertices.
2. Delete at most one edge from the tree. This operation may be done only once after all operations of type 1 are performed.
3. After the operation of type 2, the tree is divided into at most two trees, and for each resulting tree, the vertices contain the coins of the same metal.

You are given a tree with n vertices without the coins placed at the vertices. There are 2^n ways to place coins such that exactly one coin is placed at each vertex. How many of them satisfy both of the following conditions?

- The tree is a Divine Tree.
- We can choose a leaf and remove it along with its coin, so that the new tree is a Divine Tree as well.

Because the answer may be too large, print it modulo 998 244 353.

Input

The first line of input contains an integer n: the number of the vertices in the tree ($2 \le n \le 10^5$).

Each of the following $n - 1$ lines contains two integers u_i and v_i and defines one edge ($1 \le u_i, v_i \le n$; $u_i \ne v_i$).

You may assume that the given graph is a tree.

Output

Print the answer modulo 998 244 353.

Examples

standard input	*standard output*
3 1 3 3 2	8
4 1 2 2 3 2 4	10
7 1 2 1 4 1 5 1 6 2 3 2 7	84