The Doubling Game 2

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	512 megabytes

The Doubling Game is more of a puzzle than a game. The game board consists of n fields numbered with integers from 1 to n. The fields are connected by $n-1$ segments such that from every field one can move to any other field by only traveling along the connecting segments. In other words, the game board forms a tree. Initially, every vertex of the tree contains exactly one token.

The only available move is to select two fields connected by a segment with the same (positive) number of tokens and transfer all tokens from one of these fields to the other.

Your task is to count how many different token arrangements the board can have after any (possibly empty) sequence of moves. Two arrangements are considered different if and only if there is at least one field that contains a different number of tokens in both arrangements. Since the number of arrangements can be very large, it is enough if you provide the remainder of the division by $10^9 + 7$.

Input

The first line of input contains one integer n ($1 \le n \le 3 \cdot 10^5$) indicating the number of fields on the board.

The next $n-1$ lines contain two integers each a_i and b_i ($1 \le a_i, b_i \le n; a_i \ne b_i$) indicating that fields a_i and b_i are connected by a segment.

Output

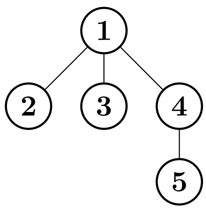
In the only line of the output, there should be one integer indicating the remainder of the division by $10^9 + 7$ of the number of possible token arrangements.

Example

standard input	standard output
5 1 2 1 3 1 4 4 5	21

Note

The game board in the sample test (along with vertex numbers) looks as follows:



Some of the possible token arrangements, for instance: