Educational DP Contest AtCoder P - Independent Set

Time limit: 1.0s **Memory limit:** 1G

There is a tree with N vertices, numbered $1, 2, \ldots, N$. For each i $(1 \leq i \leq N-1)$, the i-th edge connects Vertex x_i and y_i.

Taro has decided to paint each vertex in white or black. Here, it is not allowed to paint two adjacent vertices both in black.

Find the number of ways in which the vertices can be painted, modulo $10^9 + 7$.

Constraints

- All values in input are integers.
- $1 \leq N \leq 10^5$
- $1 \leq x_i, y_i \leq N$
- The given graph is a tree.

Input Specification

The first line will contain the integer N.

The next $N-1$ lines will each contain 2 space separated integers x_i, y_i.

Output Specification

Print the number of ways in which the vertices can be painted, modulo $10^9 + 7$.

Sample Input 1

```
3
1 2
2 3
```

Sample Output 1

```
5
```

Explanation For Sample 1

There are five ways to paint the vertices, as follows:

Sample Input 2

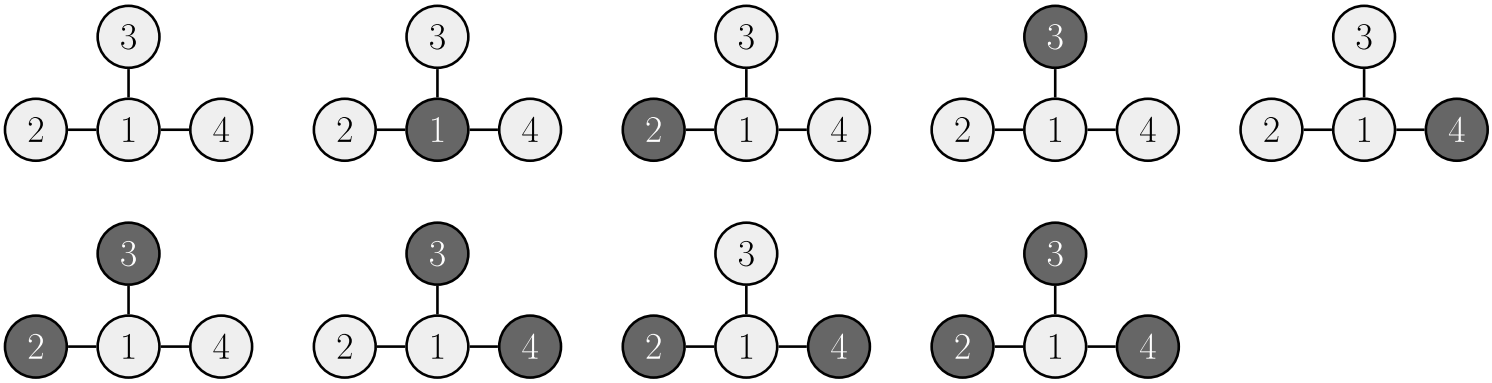
```
4
1 2
1 3
1 4
```

Sample Output 2

```
9
```

Explanation For Sample 2

There are nine ways to paint the vertices, as follows:



Sample Input 3

```
1
```

Sample Output 3

```
2
```

Sample Input 4

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

Sample Output 4

```
157
```