
Number of connected components

P81115_en

Vint-i-dosè Concurs de Programació de la UPC - Final (2024-10-02)

You are given a tree, that is, an undirected, connected graph with no cycles. Can you count how many (non-empty) connected subgraphs it contains?

Input

Input consists of several trees, each one with the number of vertices n , followed by its $n - 1$ edges. You can assume $1 \leq n \leq 10^5$, that vertices are numbered between 0 and $n - 1$, and that the given edges indeed form a tree.

Output

For every given tree, print its number of connected subgraphs. As this number may be large, make the computations modulo $10^8 + 7$.

Sample input

```
1
2 1 0
3 2 0 1 2
4 0 3 0 2 0 1
4 3 2 2 1 1 0
7 1 6 0 4 4 2 4 3 4 6 3 5
```

Sample output

```
1
3
6
11
10
44
```

Problem information

Author : Edgar Moreno

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