
Optimal blue-red tree

P24951_en

Vintè Concurs de Programació de la UPC - Semifinal (2021-06-15)

You are given an undirected connected graph with no cycles. You must paint every node either blue or red. Painting in blue costs 1 per node, while painting in red costs 2 per node. Your goal is to minimize the total cost of painting the tree. There is just one restriction: Each node can have, at most, one adjacent node with the same color than itself.

Input

Input consists of several trees, each one with the number of nodes n , followed by $n - 1$ pairs $x y$ for the edges. Nodes are numbered from 0. Assume $1 \leq n \leq 10^5$.

Output

Print the minimum cost to color each tree.

Sample input

```
1
3 0 1 1 2
5 0 1 1 2 2 3 3 4
8 3 7 7 4 0 6 6 1 7 6 2 6 5 7
```

Sample output

```
1
4
6
10
```

Problem information

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