

Notice: 1:由于本OJ建立在Linux平台下，而许多题的数据在Windows下制作，请注意输入、输出语句及数据类型及范围，避免无谓的RE出现。 2:本站即将推出针对初学者的试题系统(与目前OJ是分开的，互不影响)，内容覆盖从语法入门到NOI的所有知识点，敬请关注。

3637: Query on a tree VI

Time Limit: 8 Sec Memory Limit: 1024 MB

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Description

You are given a tree (an acyclic undirected connected graph) with n nodes. The tree nodes are numbered from 1 to n .

Each node has a color, white or black. All the nodes are black initially.

We will ask you to perform some instructions of the following form:

- $0\ u$: ask for how many nodes are connected to u , two nodes are connected iff all the node on the path from u to v (inclusive u and v) have a same color.
- $1\ u$: toggle the color of u (that is, from black to white, or from white to black).

Input

The first line contains a number n denoted how many nodes in the tree ($1 \leq n \leq 10^5$). The next $n - 1$ lines, each line has two numbers (u, v) describe a edge of the tree ($1 \leq u, v \leq n$). The next line contains a number m denoted how many operations we are going to process ($1 \leq m \leq 10^5$). The next m lines, each line describe a operation (t, u) as we mentioned above ($0 \leq t \leq 1, 1 \leq u \leq n$).

Output

For each query operation, output the corresponding result.

Sample Input

```
5
1 2
1 3
1 4
1 5
3
0 1
1 1
0 1
```

Sample Output

```
5
1
```

HINT

Source

By xiaodao

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