3639: Query on a tree VII

Time Limit: 10 Sec Memory Limit: 512 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, and a weight.

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

- 0 u : ask for the maximum weight among the nodes which 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).
- 2 u w: change the weight of u to w.

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 2 lines, each line contains n number, the first line is the initial color of each node(0 or 1), and the second line is the initial weight, let's say W_i, of each node($|W_i| \leq 10^9$).
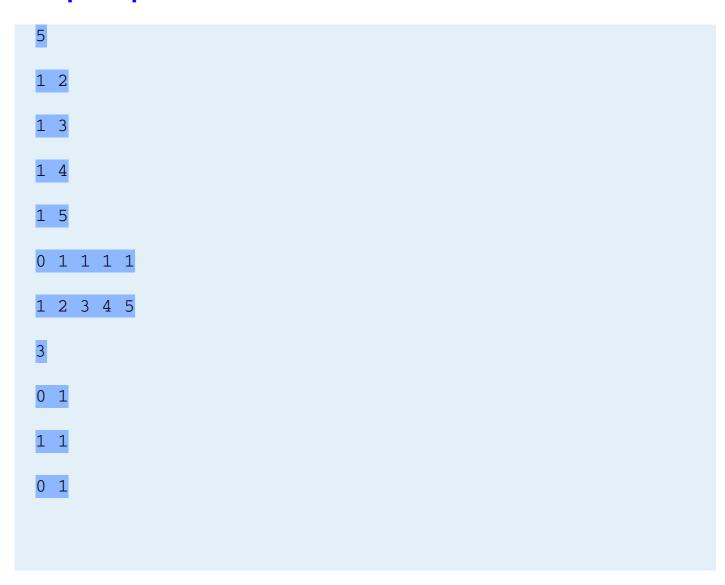
The next line contains a number m denoted how many operations we are going to process($1 \leq m \leq 10^5$). The next m lines, each line describe a operation (t, u) as we

mentioned above$(0 \le t \le 2, 1 \le u \le n, |w| \le 10^9)$.

Output

For each query operation, output the corresponding result.

Sample Input

```
5

1  2

1  3

1  4

1  5

0  1  1  1  1

1  2  3  4  5

3

0  1

1  1

0  1
```

Sample Output

```
1

5
```

HINT

Source

By xiaodao

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