Our lazy white falcon finally decided to learn heavy-light decomposition. Her teacher gave an assignment for her to practice this new technique. Please help her by solving this problem.

You are given a tree with N nodes and each node's value is initially 0. The problem asks you to operate the following two types of queries:

- "1 u x" assign x to the value of the node u.
- "2 u v" print the maximum value of the nodes on the unique path between u and v.

Input Format

First line consists of two integers seperated by a space: N and Q.
Following $N-1$ lines consisting of two integers denotes the undirectional edges of the tree.
Following Q lines consist of the queries you are asked to operate.

Constraints

$$1 \leq N, Q, x \leq 50000$$

It is guaranteed that input denotes a connected tree with N nodes. Nodes are enumerated with 0-based indexing.

Output Format

For each second type of query print single integer in a single line, denoting the asked maximum value.

Sample Input

```
3 3
0 1
1 2
1 0 1
1 1 2
2 0 2
```

Sample Output

```
2
```

Explanation

After the first two updates value of the 0th node is 1 and 1st node is 2. That is why maxiumum value on the path between 0 and 2 is $max(1, 2) = 2$.