



CONTESTS TOP GYM PROBLEMSET GROUPS RATING API CALENDAR HELP 10 YEARS! ** HOME

SUBMIT CODE MY SUBMISSIONS STATUS HACKS STANDINGS CUSTOM INVOCATION PRORI EMS ROOM

E. Xenia and Tree

time limit per test: 5 seconds memory limit per test: 256 megabytes input: standard input output: standard output

Xenia the programmer has a tree consisting of n nodes. We will consider the tree nodes indexed from 1 to n. We will also consider the first node to be initially painted red, and the other nodes — to be painted blue.

The distance between two tree nodes v and u is the number of edges in the shortest path between v and u

Xenia needs to learn how to quickly execute queries of two types:

- 1. paint a specified blue node in red;
- 2. calculate which red node is the closest to the given one and print the shortest distance to the closest red node.

Your task is to write a program which will execute the described queries.

The first line contains two integers n and m ($2 \le n \le 10^5$, $1 \le m \le 10^5$) — the number of nodes in the tree and the number of queries. Next n-1 lines contain the tree edges, the i-th line contains a pair of integers a_i , b_i $(1 \le a_i, b_i \le n, a_i \ne b_i)$ — an edge of the tree.

Next m lines contain gueries. Each guery is specified as a pair of integers t_i , v_i $(1 \le t_i \le 2, 1 \le v_i \le n)$. If $t_i = 1$, then as a reply to the query we need to paint a blue node v_i in red. If $t_i = 2$, then we should reply to the query by printing the shortest distance from some red node to node v_i .

It is guaranteed that the given graph is a tree and that all queries are correct.

Output

For each second type query print the reply in a single line.

Examples

input	Сору
5 4	
1 2	
2 3	
2 4	
4 5	
2 1	
2 5	
1 2	
2 5	
output	Сору
0	
3	
2	

Codeforces Round #199 (Div. 2) **Finished**

Practice



→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

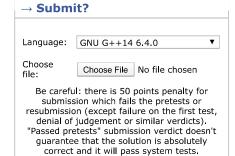
→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest



Submit

ightarrow Last submissions Submission Time Verdict May/26/2020

Accepted



→ Contest materials

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