

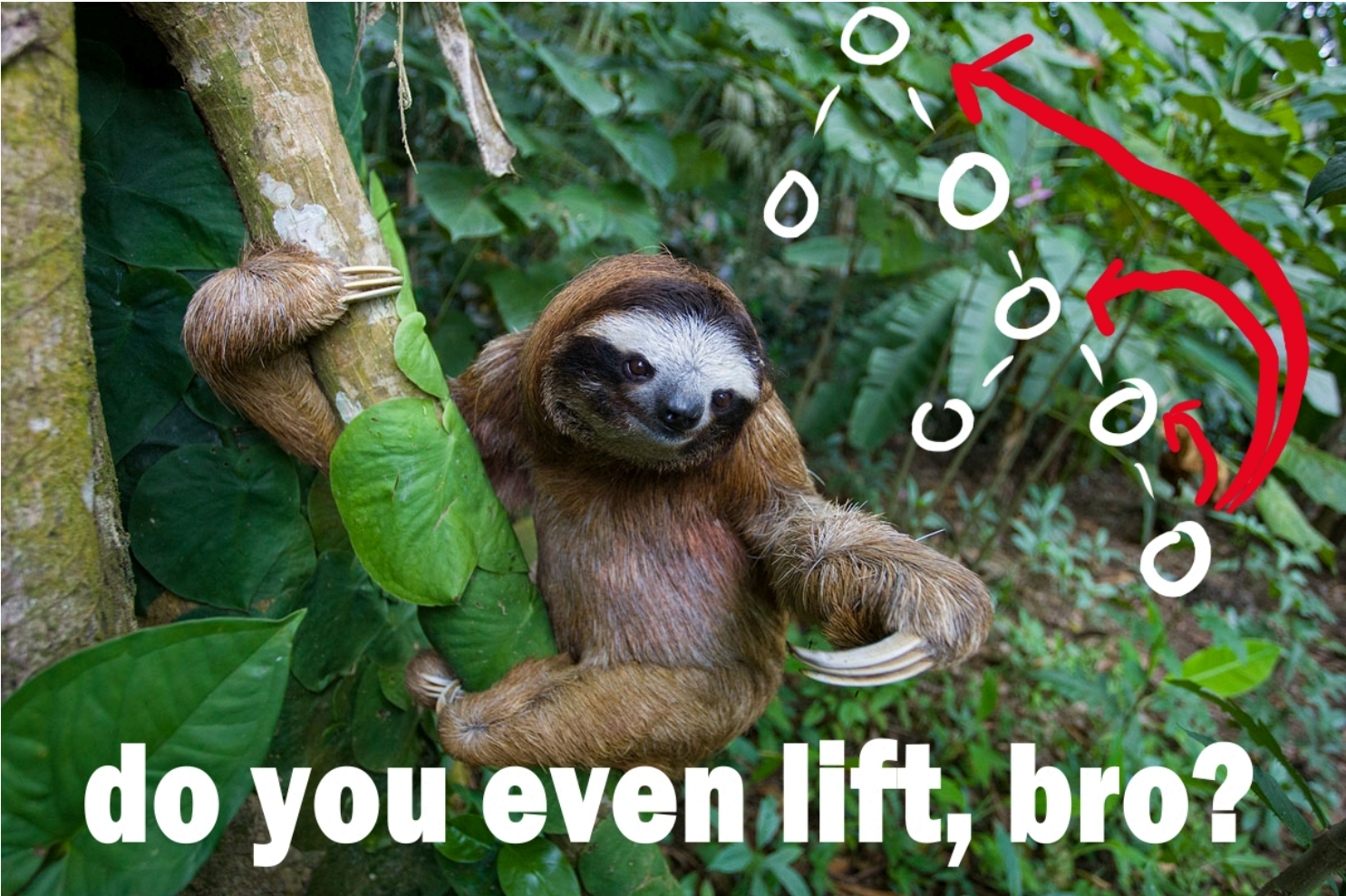
C. Sloth Naptime

time limit per test: 5 seconds

memory limit per test: 256 megabytes

As probably know, sloths live on trees. Accordingly, David has a pet sloth which he lets play on his unweighted trees when he solves programming problems. Occasionally, David will notice that his sloth is located on a particular node a in the tree, and ask it to move to some other node b .

Of course, the sloth is as well-intentioned as can be, but alas, it only has enough energy to move across at most c edges. If the sloth needs to cross fewer than c edges to get to node b , it will get there and then take a nap. Otherwise, it will get as close as possible before it retires and hangs idly awaiting further digestion.



Where will the sloth end up? Also, since this happens quite often, David would like you to answer q queries, each one of the similar form.

Input

The first line will contain a single integer n , the number of nodes in the tree. The following $n - 1$ lines will contain two integers u and v , describing the edges in the tree. These edges will form a tree.

After that, there will be a single line containing an integer q , the number of times David will motivate his sloth to move. q lines follow, each containing three integers a , b , and c : the node the sloth starts on, the node David asks the sloth to move to, and the energy the sloth has when starting.

$$1 \leq n, q \leq 3 * 10^5$$

$$1 \leq a, b, c, u, v \leq n$$

Output

For each query, output a single integer: the id of the node that the sloth must sleep at.

Examples

input	Copy
1 1 1 1 1	
output	Copy
1	

input	Copy
3 3 2 2 1 3 2 2 2 1 1 2 3 3 3	
output	Copy
2 1 3	

AlgorithmsThread Tree Basics Contest

Finished

Practice

★

About Contest

AlgorithmsThread Tree Basics contest. Problems written by David Harmeyer (SecondThread), with some data/ideas from Travis Meade.

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

Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

Submit?

Language: GNU G++20 13.2 (64 bit, win)

Choose file: Choose File No file chosen

Submit

Last submissions

Submission	Time	Verdict
320691394	May/21/2025 22:02	Accepted
320690862	May/21/2025 21:55	Accepted
320690690	May/21/2025 21:53	Runtime error on test 1
317788744	Apr/30/2025 02:45	Accepted
317683575	Apr/29/2025 03:35	Accepted
317677097	Apr/29/2025 00:31	Accepted

Contest materials

Announcement (en)

input	Copy
<pre>5 4 2 1 4 5 4 3 4 5 3 5 2 3 5 4 1 5 5 4 5 4 1 5 4</pre>	
output	Copy
<pre>5 5 5 5 5</pre>	

Supported by

