Begin:
2024-08-29
21:00
UTC+5.5

☆ Placement Test Series - 2

End:
2024-08-29
23:15
UTC+5.5

Elapsed:
1:54:15

Running

Remaining:
0:20:44

Overview | Problem | Status | Rank (1:54:05) | 0 Comments

Setting

A B C D

Submit

Status | My Status

Translate | PDF

Time limit	2000 ms
Mem limit	1048576 kB

B - A Suburbia

Problem Statement

Imagine you're the mayor of a small town with N residents. Each resident lives in a different house numbered *1 to N*, and the houses are connected by roads. The town's map can be represented as a tree, where each vertex represents a house and each edge represents a road.

Your goal is to determine the "remoteness" of each house. The remoteness of a house is defined as the total distance (in terms of the number of roads) to all other houses in the town.

Constraints

- $2 \leq N \leq 2 \times 10^5$
- $1 \leq u_i < v_i \leq N$
- The given graph is a tree.
- All values in input are integers.

Input

Input is given from Standard Input in the following format:

$$
\begin{aligned}
&N \\
&u_1 \ \ v_1 \\
&u_2 \ \ v_2 \\
&\vdots \\
&u_{N-1} \ \ v_{N-1}
\end{aligned}
$$

Output

Print N lines.

The i-th line should contain "remoteness" of i-th house

Sample 1

Input copy	Output copy
3 1 2 2 3	3 2 3

We have:

$$dis(1,1)+dis(1,2)+dis(1,3)=0+1+2=3,$$

$$dis(2,1)+dis(2,2)+dis(2,3)=1+0+1=2,$$

$$dis(3,1)+dis(3,2)+dis(3,3)=2+1+0=3.$$

Sample 2

Input copy	Output copy
2 1 2	1 1

Sample 3

Input copy	Output copy
6 1 6 1 5 1 3	5 9 9 9

Server Time: 2024-08-29 22:54:15 UTC+5.5