Meow Tree

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	256 megabytes

Meow is learning Computing Mathematics I. Meow has a tree with N nodes and the root node is 1. Meow wants to find the sum of the depth of all nodes and the number of leaf nodes of the tree. Since you (if you're from FSKTM) have learned Computing Mathematics I, can you help Meow?

Note:

1. **The depth of the root node is 0.**

2. **A leaf node is a node with degree equal to 1.**

3. **The root node can be a leaf node if it has degree which equals to 1.**

Input

The first line contains a single integer N ($1 \leq N \leq 3 \cdot 10^5$).

The next $N - 1$ lines describe the tree. Each line contains two space-separated integers u and v ($1 \leq u, v \leq N$) describing an edge between vertices u and v.

Output

Output two space-separated integers — the sum of the depth of all nodes and the number of leaf nodes of the tree.

Example

standard input	standard output
5 1 2 2 3 4 2 3 5	8 3

Note

The depth of node 1 is 0. The depth of node 2 is 1. The depth of node 3 and node 4 is 2. The depth of node 5 is 3. The sum is 8.

The leaf nodes are node 1, node 4, and node 5.