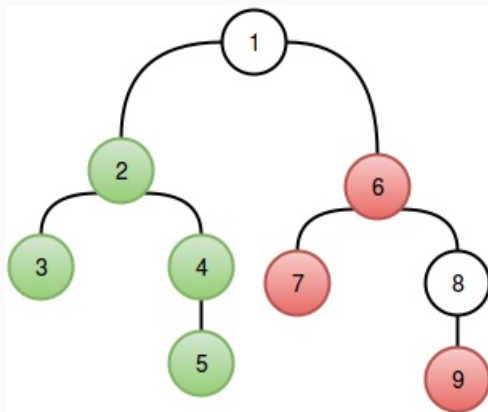


Treeland is a country with  $n$  cities and  $n - 1$  roads. There is exactly *one* path between any two cities.

The ruler of Treeland wants to implement a self-driving bus system and asks tree-loving Alex to plan the bus routes. Alex decides that each route must contain a subset of *connected* cities; a subset of cities is *connected* if the following two conditions are true:

1. There is a path between every pair of cities which belongs to the subset.
2. Every city in the path must belong to the subset.



In the figure above,  $\{2, 3, 4, 5\}$  is a *connected* subset, but  $\{6, 7, 9\}$  is not (for the second condition to be true, 8 would need to be part of the subset).

Each self-driving bus will operate within a *connected segment* of Treeland. A connected segment  $[L, R]$  where  $1 \leq L \leq R \leq n$  is defined by the connected subset of cities  $S = \{x \mid x \in \mathbb{Z} \text{ and } L \leq x \leq R\}$ .

In the figure above,  $[2, 5]$  is a connected segment that represents the subset  $\{2, 3, 4, 5\}$ . Note that a single city can be a segment too.

Help Alex to find number of connected segments in Treeland.

### Input Format

The first line contains a single positive integer,  $n$ . The  $n - 1$  subsequent lines each contain two positive space-separated integers,  $a_i$  and  $b_i$ , describe an edge connecting two nodes in tree  $T$ .

### Constraints

- $1 \leq n \leq 2 \times 10^5$
- $1 \leq a_i, b_i \leq n$

### Subtasks

- For **25%** score:  $1 \leq n \leq 2 \times 10^3$
- For **50%** score:  $1 \leq n \leq 10^4$

### Output Format

Print a single integer: the number of segments  $[L, R]$ , which are connected in tree  $T$ .

### Sample Input

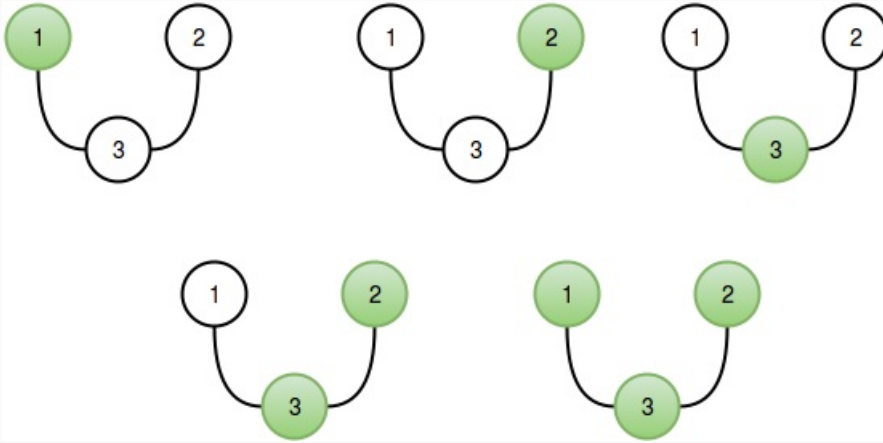
```
3
1 3
3 2
```

### Sample Output

```
5
```

### Explanation

The connected *segments* for our test case are:  $[1, 1]$ ,  $[2, 2]$ ,  $[3, 3]$ ,  $[2, 3]$ , and  $[1, 3]$ . These *segments* can be represented by the respective subsets:  $\{1\}$ ,  $\{2\}$ ,  $\{3\}$ ,  $\{2, 3\}$ , and  $\{1, 2, 3\}$ .



Note:  $[1, 2]$  is not a connected segment. It represents the subset  $\{1, 2\}$  and the path between **1** and **2** goes through **3** which is not a member of the subset.