Problem C. Shymbulak

Input file:	`shymbulak.in`
Output file:	`shymbulak.out`
Time limit:	1.5 seconds
Memory limit:	256 megabytes
Feedback	`full`
Grading system	`each test is graded separately`

On the famous kazakh resort Shymbulak there are N interesting places for tourists, which are connected by N roads of equal length. Roads are bidirectional. The road system is constructed in such way that from any place you can reach any other place, but sometimes it takes too many steps. Before adding new roads the resort administration wants to know, how many paths are there between all pairs of places which situated farthest apart from each other.

Pairs of places which situated farthest apart from each other means such pairs of places that the shortest path between them is maximal. The answer you should calculate is the total number of shortest paths between all pairs of places that satisfy the condition above.

Input

The first line of the input file contains integer N ($3 \le N \le 200\,000$). Each of the next N lines contains 2 integers — numbers of places, which are connected by a road. It is guaranteed that all roads connect different pairs of places.

Output

Output one integer — a number of shortest paths between all pairs of places which situated farthest apart from each other.

Examples

shymbulak.in	shymbulak.out
6 1 2 1 3 2 4 4 3 4 5 4 6	4
4 1 2 1 3 1 4 4 3	2

Note

In the first example farthest apart places are 1, 5 and 1, 6. For every pair there are two different paths. So the answer is 4.

For 30% points $N \le 500$.

For 50% points $N \le 5\,000$.