

DMOPC '17 Contest 4 P3 - Third Place

Time limit: 1.0s **Memory limit:** 256M

Roger, Jessica, and Victor held an impromptu math contest, where Roger promptly got third place (what did you expect?). The third place prize was the second-longest path in a weighted tree with N nodes. However, when he went to collect his prize, he felt as though he had been scammed. Thus, he hires you to write a program to print the length of this path so that he may file a formal complaint to the contest organizers.

Constraints

For all subtasks:

$$1 \leq a_i, b_i \leq N$$

$$1 \leq c_i \leq 10^5$$

Subtask 1 [20%]

$$3 \leq N \leq 1\,000$$

Subtask 2 [80%]

$$3 \leq N \leq 100\,000$$

Input Specification

The first line of input will contain N .

The next $N - 1$ lines of input will contain 3 space-separated integers, $a_i b_i c_i$, indicating there exists an edge of weight c_i between nodes a_i and b_i .

Output Specification

A single integer, the length of the second-longest path in the tree.

Sample Input 1

```
4
1 2 1
1 3 1
1 4 1
```

Sample Output 1

2

Sample Input 2

```
5
1 2 1
2 3 1
3 4 1
4 5 1
```

Sample Output 2

3