

# DMOPC '17 Contest 4 P3 - Third Place

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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

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For all subtasks,  $1 \leq a_i, b_i \leq N$  and  $1 \leq c_i \leq 10^5$ .

### Subtask 1 [20%]

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

### Subtask 2 [80%]

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

## Input Specification

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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

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

## Sample Input 1

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

## Sample Output 1

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```
2
```

## Sample Input 2

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

## Sample Output 2

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```
3
```