

# 8<sup>th</sup> South African Regional ACM Collegiate Programming Competition

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## Problem E – Orange balloon Delay

You are at a LAN party where nobody has brought a switch big enough for everybody to plug into. Instead, you have built a complicated network by connecting multiple switches together. What is worse, the network cables are of dubious quality, and introduce delays into the network when packets must be retransmitted.

You are trying to determine whether the network problems will be serious enough to affect gameplay. Given a description of the network, determine the maximum delay between any two devices on the network.

The network consists of  $N$  devices (computers or switches), connected by  $N-1$  cables. There is exactly one route from any device to any other device. The delay between two devices is the sum of the delays of the cables (assume that switching does not introduce any delay).

### Input format

The input consists of multiple test cases. The first line of each test case contains  $N$ , the number of devices, which are numbered from 1 to  $N$ . The next  $N-1$  lines describe the cables. Each line consists of three integers  $A$ ,  $B$  and  $D$ , separated by spaces, indicating a cable that connects devices  $A$  and  $B$  and which introduces delay  $D$ . The input is terminated by a line containing the number 0.

### Output format

For each test case, output a line containing a single integer, the maximum delay between any two devices for that test case.

### Constraints

$2 \leq N \leq 100000$   
 $1 \leq D \leq 1000$  for each cable

### Sample Input

```
4
1 2 3
1 3 5
1 4 4
5
1 2 10
1 3 1
3 4 6
3 5 7
0
```

### Sample Output

```
9
18
```