Coding Assignemnt 1

Due: 17 October, 2025 6pm PT

Maximum Weight Path on Trees

Problem Description

Consider a tree with N vertices and $N-1$ (undirected) edges, where each edge e is associated with a weight w. Given a path on the tree, its weight is the sum of weights of all the edges in the path.

Please write a program that prints the weight of the path in the tree with maximum weight.

Warning: The input tree may not be a binary tree, so this is not just a regurgitation of a similar algorithm from class.

Input

The input format is as shown below.

N		
u_1	v_1	w_1
u_2	v_2	w_2
...		

More precisely, the input consists of N lines:

- The first line of the input contains one integer N ($3 \leq N \leq 10^5$).
- Each of the next $N-1$ lines describes an edge of the tree with three integers: u_i and v_i, the two endpoints of the edge; and w_i ($-10^4 \leq w_i \leq 10^4$), the length of the edge.

Output

Output 1 line with a single integer, the weight of the maximum weight path in the tree.

Constraints

- $4 \leq N \leq 10^5$
- $1 \leq u_i, v_i \leq N$
- $-10^4 \leq w_i \leq 10^4$
- The time limit is 3 seconds for both C/C++ and Python.

Test Cases

Your program will be evaluated on 5 visible test cases and 5 hidden test cases. Each test case is worth 0.6 points.

Sample Input 1:

```
6
1 2 8
1 3 6
2 4 4
4 5 4
2 6 4
```

Sample Output 1:

```
22
```

Sample Input 2:

```
7
1 2 -5
1 3 11
1 4 -5
2 5 2
5 6 8
2 7 2
```

Sample Output 2:

```
16
```

Sample Explanation

The maximum weight path in Sample 2 is $3-1-2-5-6$, with total weight $11+(-5)+2+8=16$.

Submission Guideline

Write your program in either C, C++ or Python **in a single file**. Name your file `TreePath.ext` where `ext` is `c`, `cpp` or `py` depending on your language. Submit the file on Gradescope. You can make at most 10 submission attempts.

Python Users: Depending on your implementation, your code may need the following two lines:

```
import sys
sys.setrecursionlimit(200000)
```