Maximum sum of paths P36665_en

Desè Concurs de Programació de la UPC - Final (2012-09-15)

You are given a tree with n nodes, where each edge has a positive cost. Let x and y be any two adjacent nodes. Define $p(x, y)$ as the maximum cost of all paths (with no repeated nodes) whose first step goes from x to y. Define $c(x)$ as the sum of $p(x, y)$ for all y adjacent to x. Please compute the maximum value of $c(x)$ among all nodes x.

Input

Input consists of several cases. Every case begins with the number of nodes n, followed by $n - 1$ edges, each one with two different nodes and the cost of the edge between them. Assume $2 \leq n \leq 10^5$. The nodes are numbered starting at zero. Each cost is an integer number between 1 and 1000. The given graph is always a tree. The number of steps between any two nodes is never larger than 1000.

Output

For every case, print the maximum $c(x)$, and how many nodes x achieve such a value.

Sample input

```
2   0 1 100
3   1 0 10  1 2 20
4   1 0 10  1 2 20  3 1 30
6   0 2 20  1 2 50  2 3 100  3 4 30  3 5 40
```

Sample output

```
100 2
30 3
60 1
220 1
```

Problem information

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