E. DZY Loves Planting

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

DZY loves planting, and he enjoys solving tree problems.

DZY has a weighted tree (connected undirected graph without cycles) containing n nodes (they are numbered from 1 to n). He defines the function $g(x, y)$ $(1 \le x, y \le n)$ as the longest edge in the shortest path between nodes x and y. Specially $g(z, z) = 0$ for every z.

For every integer sequence $p_1, p_2, ..., p_n$ $(1 \le p_i \le n)$, DZY defines $f(p)$ as .

DZY wants to find such a sequence p that $f(p)$ has maximum possible value. But there is one more restriction: the element j can appear in p at most x_j times.

Please, find the maximum possible $f(p)$ under the described restrictions.

Input

The first line contains an integer n $(1 \le n \le 3000)$.

Each of the next n - 1 lines contains three integers a_i, b_i, c_i $(1 \le a_i, b_i \le n; 1 \le c_i \le 10000)$, denoting an edge between a_i and b_i with length c_i. It is guaranteed that these edges form a tree.

Each of the next n lines describes an element of sequence x. The j-th line contains an integer x_j $(1 \le x_j \le n)$.

Output

Print a single integer representing the answer.

Examples

input
4 1 2 1 2 3 2 3 4 3 1 1 1 1

output
2

input
4 1 2 1 2 3 2 3 4 3 4 4 4 4

output
3

Note

In the first sample, one of the optimal p is $[4, 3, 2, 1]$.