

homework9.2 Coin Park

Description

Kazuma went to the coin park to collect coins. The park is a rooted tree consisting of n vertices with the entrance at vertex 1 and exits at leaves. There are some coins on vertices. Kazuma is now at the entrance. He wants to go to an exit and collect the coins along the way. But he doesn't want to visit a vertex more than once. What is the maximum number of coins he can get?

Input Format

The first line contains an integer $n(3 \leq n \leq 10000)$ - the number of vertices of the coin park.

The second line contains n integers $a_1, a_2, \dots, a_n(0 \leq a_i \leq 100)$, the number of coins on each vertex.

Then follow $n-1$ lines. Each line contains two integers $u, v(1 \leq u, v \leq n, u \neq v)$, meaning that there is an (bidirectional) edge between vertex u and vertex v .

It is guaranteed that the park is a rooted tree such that there is a path between any two vertices.

Output Format

A single integer - the maximum number of coins Kazuma can collect.

Sample Input	Sample Output
3 5 5 4 2 3 2 1	14

5 1 0 9 8 4 2 1 2 3 5 3 2 4	14
9 6 14 12 19 17 15 20 4 1 1 8 8 6 6 5 6 3 1 4 4 2 9 7 7 2	60

Hint