TREET

Little Chanu is so madly in love with his gf that he arrived late at his friends treat. Now everyone is angry with him. To teach Little Chanu a lesson they arranged all the dishes in the form of a tree [They too know about Data Structures, this "tree" refers to the one in Graph Theory, in case you didn't realize] and put a constraint on Chanu, that he cannot eat two dishes that are adjacent to each other. Chanu can eat any dish at-max once.
Each dish has a satisfaction value (S_i for i'th dish). Chanu obviously wants to maximize his satisfaction. Help Little Chanu to find out what subset of dishes to eat.
[Dishes are numbered from 1 to N]

Input:

First line contains N, number of dishes.
Next line contains N integers, ith integer denotes S_i.
Next line N-1 lines contain 2 integers u, v denoting that dish u and dish v are adjacent in the tree.

Output:

Output the sum of satisfaction value of the optimal subset.

Constraints:

$1 <= N <= 10^5$
$1 <= S_i <= 10^9$
$1 <= u, v <= N$
It is guaranteed that dishes are arranged in the form a tree.
Time Limit: 1 sec

Sample Input 1:

```
5
10 2 3 4 5
1 2
1 3
3 4
3 5
```

Sample Output 1:

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19
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