2925. Maximum Score After Applying Operations on a Tree

Description

There is an undirected tree with `n` nodes labeled from `0` to `n - 1`, and rooted at node `0`. You are given a 2D integer array `edges` of length `n - 1`, where `edges[i] = [a_i, b_i]` indicates that there is an edge between nodes `a_i` and `b_i` in the tree.

You are also given a **0-indexed** integer array `values` of length `n`, where `values[i]` is the **value** associated with the `i^th` node.

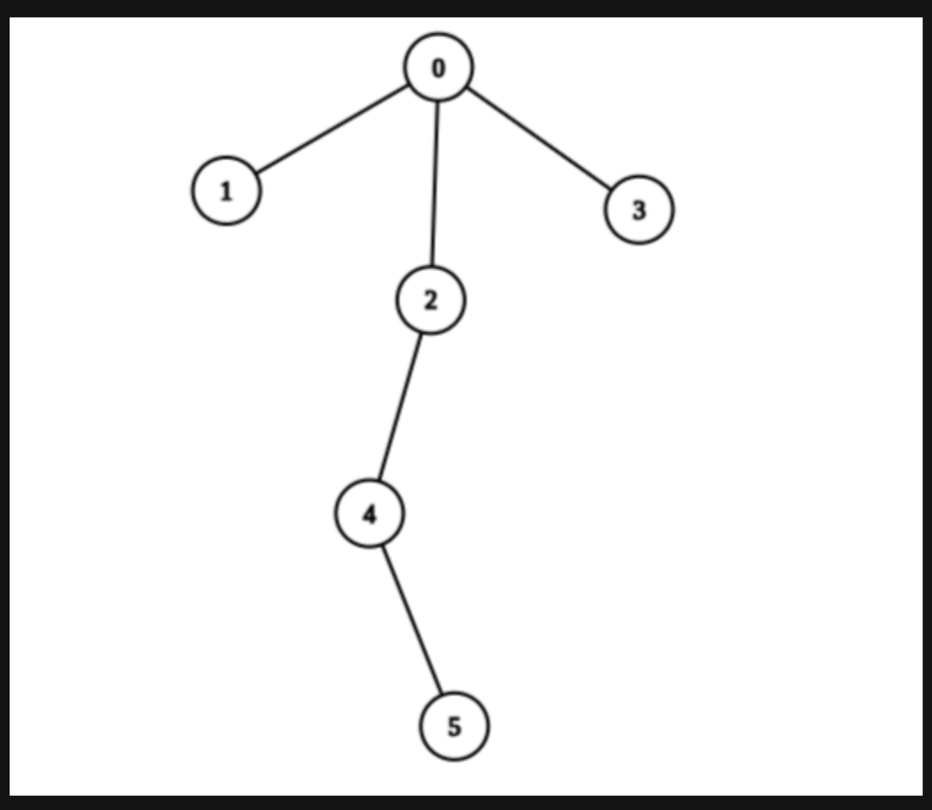
You start with a score of `0`. In one operation, you can:

- Pick any node `i`.
- Add `values[i]` to your score.
- Set `values[i]` to `0`.

A tree is **healthy** if the sum of values on the path from the root to any leaf node is different than zero.

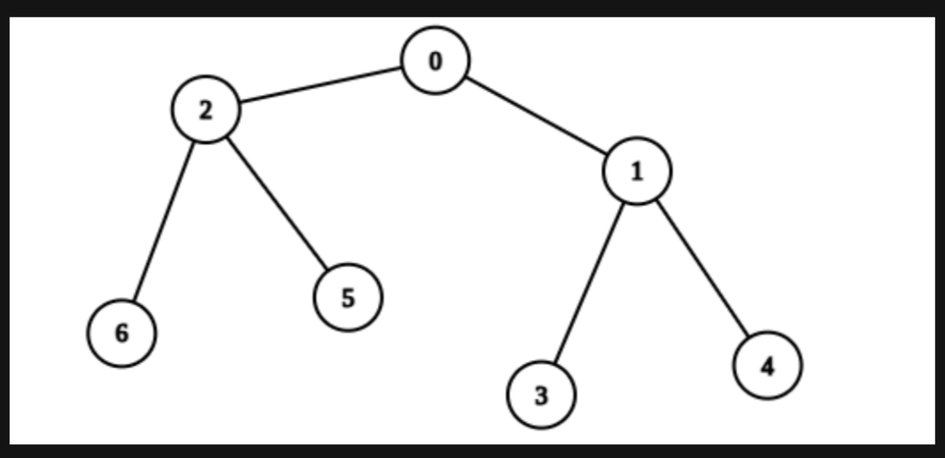
Return *the **maximum score** you can obtain after performing these operations on the tree any number of times so that it remains **healthy**.*

Example 1:




```
Input: edges = [[0,1],[0,2],[0,3],[2,4],[4,5]], values = [5,2,5,2,1,1]
Output: 11
Explanation: We can choose nodes 1, 2, 3, 4, and 5. The value of the root is non-zero. Hence, the sum of values on the path from the root to any leaf is different than zero. Therefore, the tree is healthy and the score is values[1] + values[2] + values[3] + values[4] + values[5] = 11.
It can be shown that 11 is the maximum score obtainable after any number of operations on the tree.
```

Example 2:




```
Input: edges = [[0,1],[0,2],[1,3],[1,4],[2,5],[2,6]], values = [20,10,9,7,4,3,5]
Output: 40
Explanation: We can choose nodes 0, 2, 3, and 4.
- The sum of values on the path from 0 to 4 is equal to 10.
- The sum of values on the path from 0 to 3 is equal to 10.
- The sum of values on the path from 0 to 5 is equal to 3.
- The sum of values on the path from 0 to 6 is equal to 5.
Therefore, the tree is healthy and the score is values[0] + values[2] + values[3] + values[4] = 40.
It can be shown that 40 is the maximum score obtainable after any number of operations on the tree.
```

Constraints:

- `2 <= n <= 2 * 10^4`
- `edges.length == n - 1`
- `edges[i].length == 2`
- `0 <= a_i, b_i < n`
- `values.length == n`
- `1 <= values[i] <= 10^9`
- The input is generated such that `edges` represents a valid tree.