863. Sum of Distances in Tree

Difficulty : Hard

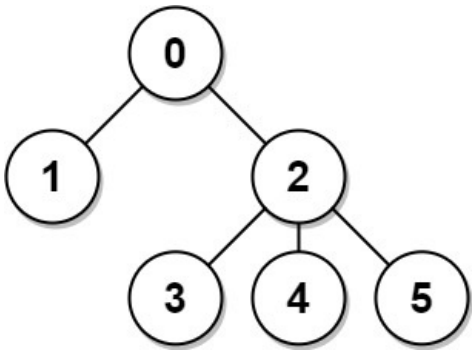
https://leetcode.com/problems/sum-of-distances-in-tree

There is an undirected connected tree with `n` nodes labeled from `0` to `n - 1` and `n - 1` edges.

You are given the integer `n` and the array `edges` where `edges[i] = [a_i, b_i]` indicates that there is an edge between nodes `a_i` and `b_i` in the tree.

Return an array `answer` of length `n` where `answer[i]` is the sum of the distances between the `i^th` node in the tree and all other nodes.

Example 1:




```
Input: n = 6, edges = [[0,1],[0,2],[2,3],[2,4],[2,5]]
Output: [8,12,6,10,10,10]
Explanation: The tree is shown above.
We can see that dist(0,1) + dist(0,2) + dist(0,3) + dist(0,4) + dist(0,5)
equals 1 + 1 + 2 + 2 + 2 = 8.
Hence, answer[0] = 8, and so on.
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Example 2:


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Input: n = 1, edges = []
Output: [0]
```
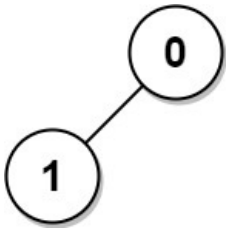

Example 3:




```
Input: n = 2, edges = [[1,0]]
Output: [1,1]
```

Constraints:

- `1 <= n <= 3 * 10^4`
- `edges.length == n - 1`
- `edges[i].length == 2`
- `0 <= a_i, b_i < n`
- `a_i != b_i`
- The given input represents a valid tree.