1443. Minimum Time to Collect All Apples in a Tree

Hint

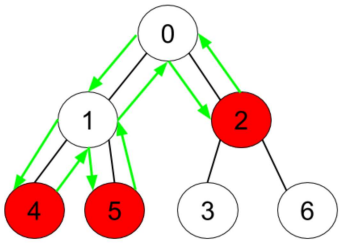
Medium 3.3K 273

Companies

Given an undirected tree consisting of `n` vertices numbered from `0` to `n-1`, which has some apples in their vertices. You spend 1 second to walk over one edge of the tree. *Return the minimum time in seconds you have to spend to collect all apples in the tree, starting at **vertex 0** and coming back to this vertex.*

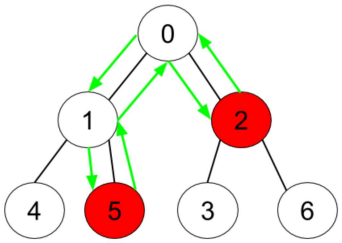
The edges of the undirected tree are given in the array `edges`, where `edges[i] = [ai, bi]` means that exists an edge connecting the vertices a_i and b_i. Additionally, there is a boolean array `hasApple`, where `hasApple[i] = true` means that vertex `i` has an apple; otherwise, it does not have any apple.

Example 1:



Input: n = 7, edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]], hasApple = [false,false,true,false,true,true,false]
Output: 8
Explanation: The figure above represents the given tree where red vertices have an apple. One optimal path to collect all apples is shown by the green arrows.

Example 2:



Input: n = 7, edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]], hasApple = [false,false,true,false,false,true,false]
Output: 6
Explanation: The figure above represents the given tree where red vertices have an apple. One optimal path to collect all apples is shown by the green arrows.

Example 3:

Input: n = 7, edges = [[0,1],[0,2],[1,4],[1,5],[2,3],[2,6]], hasApple = [false,false,false,false,false,false,false]
Output: 0

Constraints:

- `1 <= n <= 10^5`
- `edges.length == n - 1`
- `edges[i].length == 2`
- `0 <= ai < bi <= n - 1`
- `hasApple.length == n`

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Seen this question in a real interview before? 1/4

Yes No

Discussion (87)

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