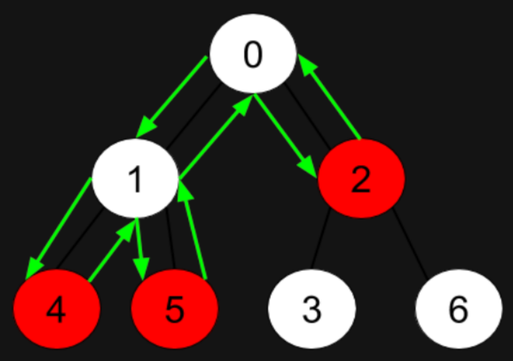
1443. Minimum Time to Collect All Apples in a Tree

Description

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.*

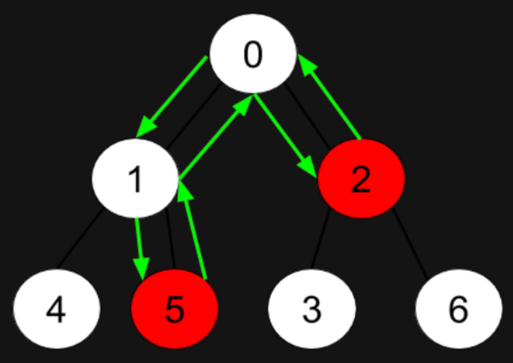
The edges of the undirected tree are given in the array `edges`, where `edges[i] = [a i , b i ]` means that exists an edge connecting the vertices `a i` and `b i`. Additionally, there is a boolean array `hasApple`, where `hasApple[i] = true` means that vertex `i` has an apple; otherwise, it does not 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 <= a i < b i <= n - 1`
- `hasApple.length == n`