Univalued Subtrees   Problem Code: **UNI100**

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Univalued Subtrees

You are given a tree of N nodes. Each of the nodes will be numbered from 0 to N-1 and each node i is associated with a value v_i.

Assume the tree is rooted at node 0.

A node y is said to be descendant of node x if x occurs in the path from node 0 to node y. A subtree rooted at node x is defined as set of all nodes which are descendants of x (**including x**).

A subtree is called univalued if the values of all the nodes in the subtree are equal.

Given the tree and values associated with nodes in the tree, you are required to find the number of univalued subtrees in the tree.

Input

The first line contains an integer N which is the number of nodes in the tree. The next N lines contain N integers representing the values associated with each node i.e ith line contains the value associated with node i-1. The next N-1 lines give the information of edges in the tree. Each line contains two space separated integers x and y denoting an edge between node x and node y.

Output

You have to print the number of univalued subtrees that are contained in the given tree.

Constraints

N<=30000

Example

```
Input:
5
0
0
1
1
1
0 1
0 2
2 3
2 4
Output:
4
```

Explanation

The subtree rooted at node 0 is not univalued because it contains node 1 with value 0 and node 2 with value 1. But subtrees rooted at nodes 1, 2, 3, 4 are all univalued.

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