B. Coloring a Tree

time limit per test: 1 second
memory limit per test: 256 megabytes
input: standard input
output: standard output

You are given a rooted tree with n vertices. The vertices are numbered from 1 to n, the root is the vertex number 1.

Each vertex has a color, let's denote the color of vertex v by c_v. Initially $c_v = 0$.

You have to color the tree into the given colors using the smallest possible number of steps. On each step you can choose a vertex v and a color x, and then color all vectices in the subtree of v (including v itself) in color x. In other words, for every vertex u, such that the path from root to u passes through v, set $c_u = x$.

It is guaranteed that you have to color each vertex in a color different from 0.

You can learn what a rooted tree is using the link: https://en.wikipedia.org/wiki/Tree_(graph_theory)   .

Input

The first line contains a single integer n ($2 \le n \le 10^4$) — the number of vertices in the tree.

The second line contains n - 1 integers $p_2, p_3, ..., p_n$ ($1 \le p_i < i$), where p_i means that there is an edge between vertices i and p_i.

The third line contains n integers $c_1, c_2, ..., c_n$ ($1 \le c_i \le n$), where c_i is the color you should color the i-th vertex into.

It is guaranteed that the given graph is a tree.

Output

Print a single integer — the minimum number of steps you have to perform to color the tree into given colors.

Examples

input
6 1 2 2 1 5 2 1 1 1 1 1

output
3

input
7 1 1 2 3 1 4 3 3 1 1 1 2 3

output
5

Note

The tree from the first sample is shown on the picture (numbers are vetices' indices):

On first step we color all vertices in the subtree of vertex 1 into color 2 (numbers are colors):

On seond step we color all vertices in the subtree of vertex 5 into color 1:

On third step we color all vertices in the subtree of vertex 2 into color 1:

The tree from the second sample is shown on the picture (numbers are vetices' indices):

On first step we color all vertices in the subtree of vertex 1 into color 3 (numbers are colors):

On second step we color all vertices in the subtree of vertex 3 into color 1:

On third step we color all vertices in the subtree of vertex 6 into color 2:

On fourth step we color all vertices in the subtree of vertex 4 into color 1:

On fith step we color all vertices in the subtree of vertex 7 into color 3: