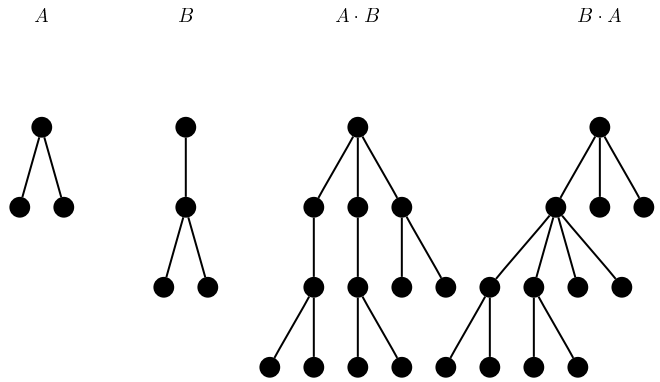
Problem A. Prime Tree

Input file:	*standard input*
Output file:	*standard output*
Time limit:	2 seconds
Memory limit:	512 mebibytes

Bobo proposes a multiplication operation on rooted trees.

Let A and B be two arbitrary rooted trees. Then $T = A \cdot B$ is built by making a copy of B for each vertex $x \in A$ and merging the root of this copy with x (see the following figure for more details). We then call A and B *factors* of T.



Apparently, we have $T \cdot \mathbf{1} = \mathbf{1} \cdot T = T$, where $\mathbf{1}$ is the rooted tree with only one vertex. So, $\mathbf{1}$ is a factor of every rooted tree, and every rooted tree is a factor of itself. And if a rooted tree T only has T and $\mathbf{1}$ as his factors, we call T a *prime* tree.

Bobo has a rooted tree T with n nodes which are conveniently labeled with $1, 2, \ldots, n$. He wants to factor T into multiplication of as many prime trees as possible (that is, find an equation $T = T_1 \cdot T_2 \cdots T_m$ where T_i $(1 \le i \le m)$ are prime trees and m is maximum).

Note that $\mathbf{1}$ is not a prime tree.

Input

The input contains zero or more test cases, and is terminated by end-of-file. For each test case:

The first line contains an integer n, the number of nodes $(2 \le n \le 10^6)$.

The second line contains $(n-1)$ integers $p_2, p_3, \ldots, p_n$, where p_i is the parent of the i-th node $(1 \le p_i \le i-1)$.

It is guaranteed that the sum of all n does not exceed 10^6.

Output

For each test case, output an integer denoting the maximum number of prime factors.

Example

standard input	standard output
12 1 1 1 1 2 2 4 5 5 6 10 3 1 1 6 1 1 1 2 3 13 1 1 1 2 2 3 3 4 5 6 7 8	3 1 2 1