

## F. Treeland Tour

time limit per test: 5 seconds  
memory limit per test: 256 megabytes  
input: standard input  
output: standard output

The "Road Accident" band is planning an unprecedented tour around Treeland. The RA fans are looking forward to the event and making bets on how many concerts their favorite group will have.

Treeland consists of  $n$  cities, some pairs of cities are connected by bidirectional roads. Overall the country has  $n - 1$  roads. We know that it is possible to get to any city from any other one. The cities are numbered by integers from 1 to  $n$ . For every city we know its value  $r_i$  — the number of people in it.

We know that the band will travel along some path, having concerts in **some** cities along the path. The band's path will not pass one city twice, each time they move to the city that hasn't been previously visited. Thus, the musicians will travel along some path (without visiting any city twice) and in some (not necessarily all) cities along the way they will have concerts.

The band plans to gather all the big stadiums and concert halls during the tour, so every time they will perform in a city which population is *larger* than the population of the previously visited **with concert** city. In other words, the sequence of population in the cities where the concerts will be held is *strictly increasing*.

In a recent interview with the leader of the "road accident" band promised to the fans that the band will **give concert** in the largest possible number of cities! Thus the band will travel along some chain of cities of Treeland and have concerts in some of these cities, so that the population number will increase, and the number of concerts will be the largest possible.

The fans of Treeland are frantically trying to figure out how many concerts the group will have in Treeland. Looks like they can't manage without some help from a real programmer! Help the fans find the sought number of concerts.

### Input

The first line of the input contains integer  $n$  ( $2 \leq n \leq 6000$ ) — the number of cities in Treeland. The next line contains  $n$  integers  $r_1, r_2, \dots, r_n$  ( $1 \leq r_i \leq 10^6$ ), where  $r_i$  is the population of the  $i$ -th city. The next  $n - 1$  lines contain the descriptions of the roads, one road per line. Each road is defined by a pair of integers  $a_j, b_j$  ( $1 \leq a_j, b_j \leq n$ ) — the pair of the numbers of the cities that are connected by the  $j$ -th road. All numbers in the lines are separated by spaces.

### Output

Print the number of cities where the "Road Accident" band will have concerts.

### Examples

input
6 1 2 3 4 5 1 1 2 2 3 3 4 3 5 3 6
output
4

input
5 1 2 3 4 5 1 2

1	3
2	4
3	5

output
--------

3
---