**A. Party**
https://codeforces.com/contest/115/problem/A

time limit per test: 3 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

A company has n employees numbered from 1 to n. Each employee either has no immediate manager or exactly one immediate manager, who is another employee with a different number. An employee A is said to be the superior of another employee B if at least one of the following is true

- Employee A is the immediate manager of employee B
- Employee B has an immediate manager employee C such that employee A is the superior of employee C.

The company will not have a managerial cycle. That is, there will not exist an employee who is the superior of his/her own immediate manager.

Today the company is going to arrange a party. This involves dividing all n employees into several groups: every employee must belong to exactly one group. Furthermore, within any single group, there must not be two employees A and B such that A is the superior of B.

What is the minimum number of groups that must be formed?

**Input**
The first line contains integer n ($1 \leq n \leq 2000$) – the number of employees.
The next n lines contain the integers $p_i$ ($1 \leq p_i \leq n$ or $p_i = -1$). Every $p_i$ denotes the immediate manager for the i-th employee. If $p_i$ is -1, that means that the i-th employee does not have an immediate manager.
It is guaranteed, that no employee will be the immediate manager of him/herself $p_i \neq i$. Also, there will be no managerial cycles.

**Output**
Print a single integer denoting the minimum number of groups that will be formed in the party.

| Input | Output |
|---|---|
| 5<br>-1<br>1<br>2<br>1<br>-1 | 3 |

**Note**
For the first example, three groups are sufficient, for example:

- Employee 1
- Employees 2 and 4
- Employees 3 and 5