8009 Flea Circus

In the famous flying flea circus there are n fleas and n boxes. The boxes are numbered $1, \ldots, n$ and the fleas are also numbered $1, \ldots, n$. Initially there is exactly one flea on each box. We are given n numbers $a_1, \ldots, a_n$ where a_i is the number of the flea on box i. Each flea wants to be on the box whose number is the same as the number of the flea. Each second the tamer cracks the whip, some of the fleas pair up and then each pair switches their position (after the swap there is again exactly one flea on each box). How quickly can the fleas achieve happiness (that is, what is the smallest number of seconds needed for each flea to reach the box whose number agrees with the number of the flea)?

Input

The first line contains the number of instances of the problem. Each instance is described on two lines. The first line contains n (the number of the fleas and also the number of the boxes). The next line contains numbers $a_1, \ldots, a_n$. You may assume that $n \leq 1,000$.

Output

The output contains one line for each instance. The line contains the smallest number of steps needed for each flea to end up on the box whose number agrees with the number of the flea.

Explanation:

For sample input 1 the fleas are already happy. For sample input 2 pairs 1-2 and 3-4 switch position (at the first whip crack) and all fleas are happy. For sample input 3 first pair 2-3 switches position (at the first whip crack) and then pair 1-3 switches position (at the second whip crack) making all fleas happy.

Sample Input

```
3
2
1 2
4
2 1 4 3
3
2 3 1
```

Sample Output

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0
1
2
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