

Julius Princes Test

Before distributing the kingdom Julius thought to take the test of princes to make a king. Julius thought to give them a sequence of n numbers from 0 to n . Now he told them that if $a[i]=i$ then i is our soldier.

For example, array $[0, 2, 1]$ has 1 soldier and array $[0, 1, 2]$ has 3 soldiers. Caesar also added that if any two soldiers are not at their places i.e. $a[i]$ is not equal to i then he could swap the two positions such that the number of soldiers can be increased in the army. Note that the princes can swap the position at most once. So the king asks the prince to tell the **maximum** number of the soldiers in the army.

Input

The input first line contains the number of test cases t ($1 \leq t \leq 100$) and then the next line contains the total number of elements n ($1 \leq n \leq 10^5$) in the sequence and then the next line contains n integers a_0, a_1, \dots, a_n .

Output

Print the t lines that contain the answer to the above problem.

Example

Input:

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1
5
0 1 3 4 2
```

Output:

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3
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