



Switch to Non-IDE mode

Contest Code: FEB222C Problem Code: NOFIX



Chef has a sequence of N integers $A = [A_1, A_2, \dots, A_N]$. He can perform the following operation any number of times (possibly, zero):

- Choose **any** positive integer K and insert it at any position of the sequence (possibly the beginning or end of the sequence, or in between any two elements).

For example, if $A = [5, 3, 4]$ and Chef selects $K = 2$, then after the operation he can obtain one of the sequences $[2, 5, 3, 4]$, $[5, 2, 3, 4]$, $[5, 3, 2, 4]$, or $[5, 3, 4, 2]$.

Chef wants this sequence to satisfy the following condition: for each $1 \leq i \leq |A|$, $A_i \neq i$. Here, $|A|$ denotes the length of A .

Help Chef to find the **minimum** number of operations that he has to perform to achieve this goal. It can be proved that under the constraints of the problem, it's always possible to achieve this goal in a finite number of operations.

Input Format

- The first line of input contains an integer T , denoting the number of test cases. The description of T test cases follows.
- The first line of each test case contains an integer N .
- The second line contains N space-separated integers A_1, A_2, \dots, A_N .

Output Format

For each test case, print a single line containing one integer — the **minimum** number of operations that Chef has to perform to achieve the given condition.

Constraints

- $1 \leq T \leq 10^4$
- $1 \leq N \leq 10^5$
- $1 \leq A_i \leq 10^9$
- Sum of N over all test cases does not exceed $2 \cdot 10^5$.

Subtasks

Subtask #1 (100 points): Original constraints

Sample Input 1

```
3
3
2 4 5
3
4 1 3
4
3 2 4 2
```

Sample Output 1

```
0
1
2
```

Explanation

Test case 1: The given sequence does not contain any index i such that $A_i = i$. Hence Chef does not have to perform any operation.

Test case 2: In the given sequence, $A_3 = 3$. Chef can choose $K = 2$ and insert it before the first element, making the sequence $A = [2, 4, 1, 3]$, which does not contain any index i for which $A_i = i$.

Test case 3: In the given sequence, $A_2 = 2$. Chef can perform the following sequence of operations:

- Choose $K = 5$ and insert it before the first element. The sequence becomes $A = [5, 3, 2, 4, 2]$, and now $A_4 = 4$.
- Choose $K = 3$ and insert it between the third and fourth element. The sequence becomes $A = [5, 3, 2, 3, 4, 2]$, which does not contain any index i for which $A_i = i$.

It can be verified that there is no way to satisfy the given condition in less than two operations.

PYTH 3.6

Code gets autosaved every second

1 # cook your dish here

2

0:0

Open File

Run

Submit

Custom Input

Note: Your program will be run with no input.

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