Spider-Man

Spider-Man has lost his ability to shoot spider-webs due to an unfortunate accident. He can now only jump between buildings.

You will be given a map of New York City. For every street in the city, you will be given a sequence of heights of the buildings in the street. For every building, Spider-Man can only jump to buildings that are just before the current building in the street-sequence and that are of a lesser or same height as the current building (Yeah, he's more disabled than you imagined). If, while looking back at the buildings that came before in the sequence, he encounters a building that is taller than the one he is currently standing, he can't jump past that. Also, he can't jump between streets.

Now, Spider-Man wants to map out all the streets so that he can fight criminals even with his disability. You have to help him figure out for every building in every street, how far back he can jump.

Input Format

The first line contains S, the number of streets in the city.

The following lines give details of every street. For every street k, ($1 \leq k \leq S$), you are first given N_k, the number of buildings in the street. The next N_k lines give, in sequence, the heights of the buildings in the street.

Note that all numbers wil be non-negative integers.

Constraints

$1 \leq S \leq 1000$

$1 \leq N_k \leq 1000000$

Output Format

For each street k, you have to print N_k lines, where line i ($1 \leq i \leq N_k$) is JB_i, the number of buildings Spider-Man can jump back from building i (including building i).

Sample Input 0

```
1
8
10
8
9
5
4
6
7
9
```

Sample Output 0

```
1
1
2
```

```
1
1
3
4
7
```

Explanation 0

There are 8 buildings of heights $10, 8, 9, 5, 4, 6, 7$ and 9 in that order. For building 1, Spider-Man can only jump on the same building :(. From building number 3, he can jump on the same building, but also to building number 2 (height 8). So, $JB_3 = 2$. And so on. Lastly, from building 8, he can jump to all the previous buildings except for the first one (note that he can jump past building 3 since it's of the same height). So, $JB_8 = 7$.