G. Paint Charges

time limit per test: 4 seconds
memory limit per test: 256 megabytes
input: standard input
output: standard output

A horizontal grid strip of n cells is given. In the i-th cell, there is a paint charge of size a_i. This charge can be:

- either used to the left — then all cells to the left at a distance less than a_i (from $\max(i - a_i + 1, 1)$ to i inclusive) will be painted,
- or used to the right — then all cells to the right at a distance less than a_i (from i to $\min(i + a_i - 1, n)$ inclusive) will be painted,
- or not used at all.

Note that a charge can be used no more than once (that is, it **cannot** be used simultaneously to the left and to the right). It is allowed for a cell to be painted more than once.

What is the minimum number of times a charge needs to be used to paint all the cells of the strip?

Input

The first line of the input contains an integer t ($1 \le t \le 100$) — the number of test cases in the test. This is followed by descriptions of t test cases.

Each test case is specified by two lines. The first one contains an integer n ($1 \le n \le 100$) — the number of cells in the strip. The second line contains n positive integers $a_1, a_2, \ldots, a_n$ ($1 \le a_i \le n$), where a_i is the size of the paint charge in the i-th cell from the left of the strip.

It is guaranteed that the sum of the values of n in the test does not exceed 1000.

Output

For each test case, output the minimum number of times the charges need to be used to paint all the cells of the strip.

Example

input Copy

```
13
1
1
2
1 1
2
2 1
2
1 2
2
2 2
3
1 1 1
3
3 1 2
3
1 3 1
```

```
7
1 2 3 1 2 4 2
7
2 1 1 1 2 3 1
10
2 2 5 1 6 1 8 2 8 2
6
2 1 2 1 1 2
6
1 1 4 1 3 2
```

output Copy

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

Note

In the third test case of the example, it is sufficient to use the charge from the 1-st cell to the right, then it will cover both cells 1 and 2.

In the ninth test case of the example, you need to:

- use the charge from the 3-rd cell to the left, covering cells from the 1-st to the 3-rd;
- use the charge from the 5-th cell to the left, covering cells from the 4-th to the 5-th;
- use the charge from the 7-th cell to the left, covering cells from the 6-th to the 7-th.

In the eleventh test case of the example, you need to:

- use the charge from the 5-th cell to the right, covering cells from the 5-th to the 10-th;
- use the charge from the 7-th cell to the left, covering cells from the 1-st to the 7-th.