Task C. Streak achievement

There is gonna be added a new very tricky achievement to the WoT, which tracks the longest streak of increasing experience earned in battles. To continue a streak you have to earn strictly more exp in one of the next battles than the experience previously earned. If you earn less or an equal amount of experience in the next battle then that battle doesn't count towards the streak, but it doesn't reset the streak to 0 either. So players have unlimited attempts to continue the current streak, or they can try to start a new one. The player also doesn't have to stop their current streak to start a new one. In other words, any increasing subsequence of battles is a valid streak. The player's profile displays the longest streak considering all player's battles.

The players with a premium account could break the streak once but still continue achievement progress. In other words, with a premium any increasing subsequence of battles with one break is considered a valid streak.

Your task is to calculate the longest streak for player if they don't have a premium account and if they do.

Input

The first line contains n - the total number of player's battles. The next line has a_i experiences earned in all battles in chronological order separated by spaces.

$1 \leq n \leq 10^5$

$1 \leq a_i \leq 10^8$

Output

Length of the longest streak if the player doesn't have a premium account and length of the longest streak if the player has one, separated by space.

Example 1

Input

```
8
190 200 210 70 60 150 170 90
```

Output

```
3 6
```

Explanation

The longest streak without premium:
3 (190, 200, 210 or 70, 150, 170 or 60, 150, 170)
With premium:
6 (190, 200, 210, 60, 150, 170 or 190, 200, 210, 70, 150, 170)

190, 200, 210 make a 3-streak.
Then 70 doesn't increase the streak, meaning the player still has a 3-streak.
60 – premium protection makes a 4-streak.
150 is more than 60, which makes a 5-streak.
170 – 6-streak.

Premium protection could also be applied to (210,70). Then 60 does not increase a streak. In total, we have the same result – 6-streak, but with a different subsequence (190,200,210,70,150,170).

Example 2

Input

```
10
5 5 9 4 5 5 1 1 4 7
```

Output

```
3 5
```

Explanation

The longest streak without premium:
3 (4, 5, 7 or 1, 4, 7)
With premium:
5 (5, 9, 4, 5, 7 or 5, 9, 1, 4, 7 or 4, 5, 1, 4, 7)

How to send a solution?

Your solution should be a console program in one of the available programming languages (C++11 or Python 3.6). The program must read from the standard input stream (std::cin in C++ language) the input data (it is guaranteed that when checking the solution it will be exactly in the format and the ranges as described in the "Input data"section), and output the answer to the standard output stream (std::cout in C++) in the format described in the "Output data"section. Extra spaces at the end of lines will be ignored. To send a solution, you need to select a task in the system and a programming language. Then, send the source file with the code. It will be checked by the system in different test runs. The test is considered passed if the program outputs the correct answer and meets the time and memory limits. One point is granted for each test passed. The scores for all tests are summed up. The first tests are always from the examples given in the description. The overall result for the task is determined by the solution that scored the maximum number of points. It will be hidden in the system, and only the result of the first 10 tests of the task will be available to you. The number of attempts is not limited.