Competitive Programming SS24

Submit until end of contest

Problem: planning (1.0 second timelimit)

You are currently planning the Contests in the next semester you wish to attend. Due to your good networking skills you gathered informations about all contest which will take place this semester. For every contest you know the date and expected difficulty.

To make your semester as interesting as possible, you want to take part in as many contests as possible. However you don't necessarily want to take part in all contests as you want to have a nice difficulty curve along the semester. At the start of the semester you want all successive to increase in difficulty. When the semester comes to a close you want to apply your new skills to dominate the scoreboard. So decide to take part in contest such that the difficulty decreases.

More formally you want to choose a subsequence of contest such that there is a contest in this sequence, for which all previous contest steadily increase in difficulty and all following contests steadily decrease in difficulty. You don't mind if this contest is the first or last in the semester.

Input In the first line you get n $(1 \leq n \leq 5000)$ the number of contests this semester. In the next line you get n numbers d_i $(1 \leq d_i \leq 10^6)$ the expected difficulty of the contests sorted by their date.

Output Output a line containing the maximum number of contests you can take part in.

Sample input	Sample output
10 9 7 2 5 6 1 3 4 1 8	5
6 1 1 2 2 1 1	3
6 1 2 3 4 5 6	6