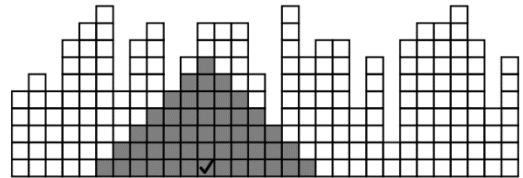


Problem K

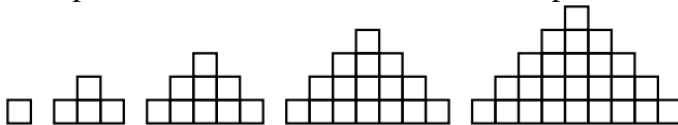
Keystone Triangle

Time Limit: 1 Second
Memory Limit: 512 megabytes

In a classic art exhibition room, Leo Da Vi creates artwork from n consecutive stone pillars with respective heights a_1, a_2, \dots, a_n . He wants to create an isosceles triangle sculpture, but currently, each stone pillar has a different height, similar to the illustrated figure beside.



Leo decided to start sculpting each stone pillar, always from the top to the bottom of each column, so that in the end, only an isosceles triangle remains from the stone pillars. He can only sculpt on each stone pillar and not transfer them to another pillar. The image below illustrates the first five stone triangle shapes that Leonardo desires, with heights of 1, 2, 3, 4, and 5, respectively.



Given the sequence of heights of each stone pillar, could you help Leonardo determine the maximum height the isosceles triangle can reach? In the illustrative figure above, with 30 pieces of stone, the tallest isosceles triangle has a height of 7.

Input

The first line of the input contains an integer n ($1 \leq n \leq 50000$), representing the number of pillars. The second line contains n integers a_1, a_2, \dots, a_n ($1 \leq a_i \leq n$), indicating the heights of each pillar.

Output

Your program must produce a single line with an integer H , representing the maximum height a triangle could have at the end.

Sample Input

Sample Output

16 5 6 5 8 9 10 5 8 9 5 7 9 9 9 6 3	6
8 5 1 1 1 1 1 1 3	1