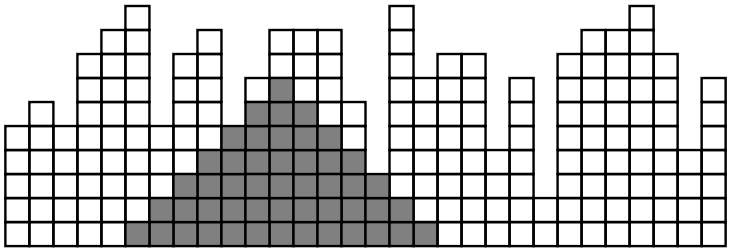
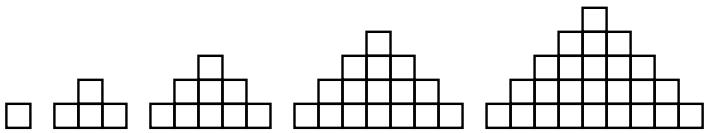
Problem I

Isosceles

Two brothers were playing with wooden blocks trying to build a wall which was still incomplete, with the columns having different heights, as in this picture.



They then decided to remove blocks from the wall, always from the top of the columns, so as to leave a triangle in the end. They can only remove blocks from the wall, not move them from one column to another, and the triangle must be complete. The picture below illustrates the first five triangles, of the type they are interested in, with heights $1, 2, 3, 4$ and 5 respectively.



Given the sequence of column heights in the wall, your program should help the brothers find the maximum possible height for a triangle in the end. For the wall shown in the first figure, with 30 block columns, the highest possible triangle would have height equal to seven.

Input

The first line of the input contains an integer N, $1 \leq N \leq 50000$, representing the number of columns in the wall. The second line contains N integers A_i, $1 \leq A_i \leq N$, for $1 \leq i \leq N$, indicating the heights of the columns.

Output

For each test case in the input, your program must produce a single line, containing An integer H,, representing the maximum possible height for a triangle in the end.

Examples

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