6th South African Regional
ACM Collegiate Programming Competition

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Problem B – Blue balloon
Book Shelf

Alex is busy unpacking a big box of books onto his bookshelf. Like most people, Alex likes his books to be arranged such that their height on the bookshelf increases from left to right (i.e. the shortest book is on the left, and as one moves towards the right end of the bookshelf the books heights either remain the same as the previous book or increase, until the right-most book is reached which is the tallest on the shelf).

Unfortunately, Alex also has a strange way of unpacking his books. As he takes a book out of the box, he wants to put it on the shelf without moving any of his other books, such that the books are still arranged in an acceptable way. For each book, Alex can either put it on the shelf, or put it aside (i.e. not put it on the shelf): if he puts it aside, then he will never put that book on the shelf.

Alex wants to get as many books onto the shelf as possible: your task is to work out the maximum number of books that he can get onto the shelf and still maintain the arrangement of increasing height from left to right.

Explained example

Suppose Alex's box contains 5 books, with the following heights:

```
2 5 1 3 4
```

Books are drawn strictly from left to right, then the best number of books that Alex can fit on the shelf is 4.

There are two possible ways of doing this:

```
2 3 4 5
1 3 4 5
```

In the first case, Alex puts the book with height 2 on the left side of the shelf. The book with height 5 goes to the right side. The book with height 1 can't be placed on the shelf (since it would be shorter than the book with height 2, and so would ruin the arrangement). The book with height 3 goes to the left side, and then the book with height 4 can go either to the left or right side.

In the second case, Alex could put the book with height 2 aside. Then he places the book with height 5 on the right side, the book with height 1 on the left side, the book with height 3 on the left side, and the book with height 4 on either the left or right side.

Input

Each input record will start with a single integer, *N* which represents the number of books in the box to be placed on its own shelf. If *N* is *-1*, this means that the end of the input has been reached, and your program should stop.

For each *N, 1* $\leq N \leq$ *100,* a row entry containing exactly *N* space-separated integers, each of which representing a height of a book in the box will be given. The order in which these heights are given is the order in which Alex takes books from the box. The height of each book will be in the range *[1, 100]*.

Output

For each input record, your program should output a single integer onto a single line, which is the maximum number of books that could be placed onto the bookshelf.

Sample Input

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

Sample Output

```
4
6
```