Metro-train Sorting

METRO

150 Points

Angelina is a metro-train driver. She drives metro-trains. She also arranges the coaches within each metro-train. She prefers to put the coaches in decreasing order of weight, with the heaviest coach at the front of the metro-train.

Now that, sorting of metro-train coaches is not that easy. One cannot simply pick up a coach and place it somewhere else. It is impractical to insert a coach within an existant metro-train. A coach may only be added to the beginning and end of the metro-train.

Coaches arrive at the metro-train station in a predetermined order. When each coach arrives, Angelina can add it to the beginning or end of her metro-train, or refuse to add it at all. The resulting metro-train should be as long as possible, but the coaches within it must be ordered by weight. Given the weights of the coaches in the order in which they arrive, what is the longest possible metro-train that Angelina can make?

Input

The first line contains an integer 0 <= n <= 2000, the number of coaches. Each of the following n lines contains a positive integer giving the weight of a coach. No two coaches have the same weight.

Output

The output will be the maximum length of the train that can be made from the given set of coaches.

EXAMPLE:

Input:

```
3
1
2
3
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Output:

```
3
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