Birthday Cake (200 points)

Introduction

It is your birthday! In your culture, there is a birthday tradition that goes as follows:

One-by-one, each of your guests gives you a cake of a certain weight (measured in cakeypounds). You must either eat the cake or throw it back into the face of the guest. This is *not* considered rude. However, it is **extremely rude** to eat a cake that weighs **less** than a cake that you have **previously** eaten; you must never do this.

Given the weights (in cakeypounds) of the cakes presented (in-order), what is the largest number of cakeypounds of cake that you can eat during the ceremony without being rude?

Input Specifications

On the first line, you will be given the number of guests $1 \leq N \leq 100$ at your party. The following N lines will each be a positive integer $1 \leq W_i \leq 100$ representing the weight of the cake presented (in cakeypounds). These cake weights are given in-order of presentation.

WARNING: *Given that there may be up to 100 guests, an entirely un-optimized brute-force approach may exceed the time limit.*

Output Specifications

Output the maximum cakeypounds of cake that you could possibly eat during the ceremony without being rude (i.e. without eating a cake weighing less than one that you have previously eaten).

Sample Input/Output

Input

```
3
10
6
6
```

Output

```
12
```

Explanation

Waiting to eat the second cake (6 cakeypounds) allows you to eat the last cake also (6 cakeypounds). This allows you to eat 12 cakeypounds total without being rude.

Input

```
4
10
```

4
5
3

Output

10

Explanation

Eating only the first cake (10 cakeypounds) allows you to eat the most without being rude. Eating the final, smallest cake (3 cakeypounds) after any of the other cakes would be considered rude.