

## E. Greedy Change

time limit per test: 2 seconds  
memory limit per test: 256 megabytes

Billy investigates the question of applying greedy algorithm to different spheres of life. At the moment he is studying the application of greedy algorithm to the problem about change. There is an amount of  $n$  coins of different face values, and the coins of each value are not limited in number. The task is to collect the sum  $x$  with the minimum amount of coins. Greedy algorithm with each its step takes the coin of the highest face value, not exceeding  $x$ . Obviously, if among the coins' face values exists the face value 1, any sum  $x$  can be collected with the help of greedy algorithm. However, greedy algorithm does not always give the optimal representation of the sum, i.e. the representation with the minimum amount of coins. For example, if there are face values  $\{1, 3, 4\}$  and it is asked to collect the sum 6, greedy algorithm will represent the sum as  $4 + 1 + 1$ , while the optimal representation is  $3 + 3$ , containing one coin less. By the given set of face values find out if there exist such a sum  $x$  that greedy algorithm will collect in a non-optimal way. If such a sum exists, find out the smallest of these sums.

### Input

The first line contains an integer  $n$  ( $1 \leq n \leq 400$ ) — the amount of the coins' face values. The second line contains  $n$  integers  $a_i$  ( $1 \leq a_i \leq 10^9$ ), describing the face values. It is guaranteed that  $a_1 > a_2 > \dots > a_n$  and  $a_n = 1$ .

### Output

If greedy algorithm collects any sum in an optimal way, output -1. Otherwise output the smallest sum that greedy algorithm collects in a non-optimal way.

### Examples

<b>input</b>	<a href="#">Copy</a>
5 25 10 5 2 1	
<b>output</b>	<a href="#">Copy</a>
-1	

  

<b>input</b>	<a href="#">Copy</a>
3 4 3 1	
<b>output</b>	<a href="#">Copy</a>
6	

### → Attention

The package for this problem was not updated by the problem writer or Codeforces administration after we've upgraded the judging servers. To adjust the time limit constraint, a solution execution time will be multiplied by 2. For example, if your solution works for 400 ms on judging servers, then the value 800 ms will be displayed and used to determine the verdict.

### Codeforces Beta Round 10

Finished

Practice



### → Virtual participation

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Language: GNU G++23 14.2 (64 bit, ms) ▼

Choose file: [Choose File](#) No file chosen

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### → Last submissions

Submission	Time	Verdict
<a href="#">325278281</a>	Jun/20/2025 15:47	Accepted

→ **Problem tags**

constructive algorithms

\*2600

No tag edit access

→ **Contest materials**

- Announcement (en)



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