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Stack Stabilization (Chapter 1)

Level 1 Time limit: 5s Not started

Note: Chapter 2 is a harder version of this puzzle.

There's a stack of N inflatable discs, with the ith disc from the top having an initial radius of R_i inches.

The stack is considered *unstable* if it includes at least one disc whose radius is larger than or equal to that of the disc directly under it. In other words, for the stack to be *stable*, each disc must have a strictly smaller radius than that of the disc directly under it.

As long as the stack is unstable, you can repeatedly choose any disc of your choice and deflate it down to have a radius of your choice which is strictly smaller than the disc's prior radius. The new radius must be a positive integer number of inches.

Determine the minimum number of discs which need to be deflated in order to make the stack stable, if this is possible at all. If it is impossible to stabilize the stack, return -1 instead.

Constraints

$1 \le N \le 50$
$1 \le R_i \le 1{,}000{,}000{,}000$

Sample test case #1

```
N = 5
R = [2, 5, 3, 6, 5]
```

```
Expected Return Value = 3
```

Sample test case #2

```
N = 3
R = [100, 100, 100]
```

```
Expected Return Value = 2
```

Sample test case #3

```
N = 4
R = [6, 5, 4, 3]
```

```
Expected Return Value = -1
```

Sample Explanation

In the first case, the discs (from top to bottom) have radii of $[2", 5", 3", 6", 5"]$. One optimal way to stabilize the stack is by deflating disc 1 from $2"$ to $1"$, deflating disc 2 from $5"$ to $2"$, and deflating disc 4 from $6"$ to $4"$. This yields final radii of $[1", 2", 3", 4", 5"]$.

In the second case, one optimal way to stabilize the stack is by deflating disc 1 from $100"$ to $1"$ and disc 2 from $100"$ to $10"$.

In the third case, it is impossible to make the stack stable after any number of deflations.

The code editor for solving puzzles is only available on wider screens.

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