codility

Training center

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TASKS DETAILS

1. MissingInteger

EASY

Find the smallest positive integer that does not occur in a given sequence.

Task Score	Correctness	Performance
66%	100%	25%

Task description

This is a demo task.

Write a function:

```
def solution(A)
```

that, given an array A of N integers, returns the smallest positive integer (greater than 0) that does not occur in A.

For example, given A = [1, 3, 6, 4, 1, 2], the function should return 5.

Given A = [1, 2, 3], the function should return 4.

Given A = [−1, −3], the function should return 1.

Assume that:

- N is an integer within the range [1..100,000];
- each element of array A is an integer within the range [−1,000,000..1,000,000].

Complexity:

- expected worst-case time complexity is O(N);
- expected worst-case space complexity is O(N) (not counting the storage required for input arguments).

Solution

Programming language used:	Python
Total time used:	1 minutes
Effective time used:	1 minutes
Notes:	*not defined yet*

Task timeline

20:15:59 20:16:21

Code: 20:16:20 UTC, py, final, score: **66**

show code in pop-up

```
1  # Solution 1
2  def solution(A):
3      bigger = max(A)
4      if bigger <= 0:
5          return 1
6
7      for i in range(1, bigger):
8          if i not in A:
9              return i
10
11     return bigger + 1
```

Analysis summary

The following issues have been detected: timeout errors.

Analysis

Detected time complexity: **O(N**2)**

expand all	**Example tests**	
▶	example1 first example test	✔ OK
▶	example2 second example test	✔ OK
▶	example3 third example test	✔ OK
expand all	**Correctness tests**	
▶	extreme_single a single element	✔ OK
▶	simple simple test	✔ OK
▶	extreme_min_max_value minimal and maximal values	✔ OK
▶	positive_only shuffled sequence of 0...100 and then 102...200	✔ OK
▶	negative_only shuffled sequence -100 ... -1	✔ OK
expand all	**Performance tests**	
▶	medium chaotic sequences length=10005 (with minus)	✔ OK
▶	large_1 chaotic + sequence 1, 2, ..., 40000 (without minus)	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.56 sec.
▶	large_2 shuffled sequence 1, 2, ..., 100000 (without minus)	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.64 sec.
▶	large_3 chaotic + many -1, 1, 2, 3 (with minus)	✘ TIMEOUT ERROR running time: >6.00 sec., time limit: 0.58 sec.