codility

Check out Codility training tasks

Candidate Report: Anonymous

Test Name:

Summary Timeline

Test Score

100 out of 100 points

100%

Tasks in Test

	Time Spent	Task Score
MissingInteger Submitted in: Python	4 min	100%

TASKS DETAILS

MEDIUM

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

Task Score	Correctness	Performance
100%	100%	100%

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.

Write an **efficient** algorithm for the following assumptions:

- 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].

Solution

Programming language used:	Python
Total time used:	4 minutes
Effective time used:	4 minutes
Notes:	*not defined yet*

Task timeline

12:56:20 12:59:58

Code: 12:59:58 UTC, py, final, score: **100** show code in pop-up

```
1  def solution(a):
2      max_elem = max(a)
3      if max_elem < 1:
4          return 1
5      source_set = set(a)
6      complete_set = set(range(1, max_elem + 1))
7      diff = complete_set - source_set
8      if diff:
9
```

```
10          return min(diff)
11      else:
            return max_elem + 1
```

Analysis summary

The solution obtained perfect score.

Analysis

Detected time complexity: **O(N) or O(N * log(N))**

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)	✓ OK
▶	large_2 shuffled sequence 1, 2, ..., 100000 (without minus)	✓ OK
▶	large_3 chaotic + many -1, 1, 2, 3 (with minus)	✓ OK