



g center

lity training tasks

Congratulations

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Training ticket

Session

ID: trainingZCJJSH-24Q
Time limit: 120 min.

Status: closed

Created on: 2017-09-05 16:12 UTC
Started on: 2017-09-05 16:12 UTC
Finished on: 2017-09-05 16:12 UTC

Tasks in test

1 | **PermMissingElem**
Submitted in: Python

Correctness

100%

Performance

100%

Task score

100%

Test score ?

100%

100 out of 100 points

How likely are you to recommend Codility to your friends and colleagues?

*Not at all likely**Extremely likely*

Task description

A zero-indexed array A consisting of N different integers is given. The array contains integers in the range $[1..(N + 1)]$, which means that exactly one element is missing.

Your goal is to find that missing element.

Write a function:

```
def solution(A)
```

that, given a zero-indexed array A, returns the value of the missing element.

For example, given array A such that:

```
A[0] = 2  
A[1] = 3  
A[2] = 1  
A[3] = 5
```

the function should return 4, as it is the missing element.

Assume that:

- N is an integer within the range $[0..100,000]$;
- the elements of A are all distinct;
- each element of array A is an integer within the range $[1..(N + 1)]$.

Complexity:

- expected worst-case time complexity is $O(N)$;
- expected worst-case space complexity is $O(1)$, beyond input storage (not counting the storage required for input arguments).

Elements of input arrays can be modified.

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Solution

Programming language used: Python

Total time used: 1 minutes



Effective time used: 1 minutes



Notes: *not defined yet*

Task timeline



16:12:18

16:12:58

Code: 16:12:57 UTC, py, final,
score: 100

[show code in pop-up](#)

```
1 def solution(A):  
2     n = len(A)+1  
3  
4     actual_sum = 0  
5     expected_sum = n*((n+1))/2  
6     for i in A:  
7         actual_sum += i  
8  
9     return expected_sum-actual_sum
```

Analysis summary

The solution obtained perfect score.

Analysis



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

collapse all		Example tests	
▼	example example test		✓ OK
1.	0.020 s	OK	
collapse all		Correctness tests	
▼	empty_and_single empty list and single element		✓ OK
1.	0.016 s	OK	
2.	0.016 s	OK	
▼	missing_first_or_last the first or the last element is missing		✓ OK
1.	0.020 s	OK	
2.	0.016 s	OK	
▼	single single element		✓ OK
1.	0.016 s	OK	
2.	0.016 s	OK	
▼	double two elements		✓ OK
1.	0.016 s	OK	
2.	0.016 s	OK	
3.	0.016 s	OK	
▼	simple simple test		✓ OK

1. 0.016 s OK

collapse all

Performance tests

▼ medium1 ✓ OK

medium test, length = ~10,000

1. 0.024 s OK

▼ medium2 ✓ OK

medium test, length = ~10,000

1. 0.028 s OK

▼ large_range ✓ OK

range sequence, length = ~100,000

1. 0.104 s OK

2. 0.060 s OK

3. 0.060 s OK

▼ large1 ✓ OK

large test, length = ~100,000

1. 0.112 s OK

▼ large2 ✓ OK

large test, length = ~100,000

1. 0.068 s OK

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