

TASKS DETAILS

EASY	1.				
	PermMissingElem	Task Score	Correctness	Performance	?
	Find the missing element in a given permutation.	20%	20%	20%	

Task description

An 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 an 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 $O(1)$ (not counting the storage required for input arguments).

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Solution

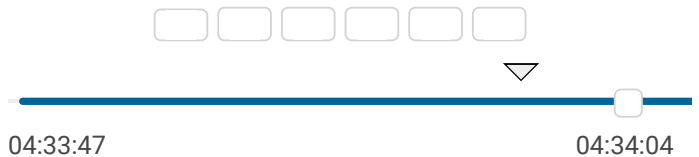
Programming language used: Python

Total time used: 1 minutes ?

Effective time used: 1 minutes ?

Notes: *not defined yet*

Task timeline



Code: 04:34:03 UTC, py,
final, score: 20

[show code in pop-up](#)

```
1 # Solution 2
2 def solution(A):
3     if not A:
4         return 1
5     if 1 not in A:
6         return 1
7     size = len(A)
8     for i in range(size):
9         idx = i + 1
10        if idx not in A:
11            return idx
```

Analysis summary

The following issues have been detected: runtime errors, timeout errors.

For example, for the input [1] the solution terminated unexpectedly.

Analysis ?

expand all	Example tests	
▶ example		✓ OK
example test		
expand all	Correctness tests	
▶ empty_and_single		✗ RUNTIME ERROR
empty list and single element		tested program terminated with exit code 1
▶ missing_first_or_last		✗ RUNTIME ERROR
the first or the last element is missing		tested program terminated with exit code 1
▶ single		✗ RUNTIME ERROR
single element		tested program terminated with exit code 1
▶ double		✗ RUNTIME ERROR
two elements		tested program terminated with exit code 1
▶ simple		✓ OK
simple test		
expand all	Performance tests	
▶ medium1		✓ OK
medium test, length = ~10,000		
▶ medium2		✗ TIMEOUT ERROR
medium test, length = ~10,000		running time: 0.96 sec., time limit: 0.19 sec.
▶ large_range		✗ TIMEOUT ERROR
range sequence, length = ~100,000		running time: >6.00 sec., time limit: 0.56 sec.
▶ large1		✗ TIMEOUT ERROR
large test, length = ~100,000		running time: >6.00 sec., time limit: 0.53 sec.
▶ large2		✗ TIMEOUT ERROR
large test, length = ~100,000		running time: 5.12 sec., time limit: 0.40 sec.