

## TASKS DETAILS

EASY	1.	<b>PermMissingElem</b>	Task Score	Correctness	Performance	
		Find the missing element in a given permutation.	100%	100%	100%	

### 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: 2 minutes

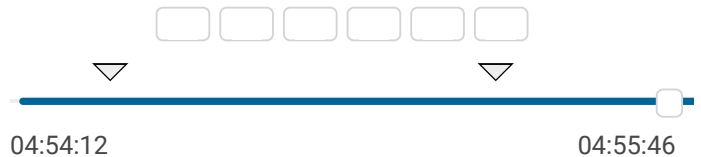


Effective time used: 2 minutes



Notes: not defined yet

### Task timeline



Code: 04:55:46 UTC, py,  
final, score: 100

[show code in pop-up](#)

```
1 def solution(A):
2     total = len(A)
3     items_sorted = sorted(A)
4     for position in range(1, total+1):
5         if items_sorted[position-1] == position:
6             continue
7         else:
8             return position
9     return total + 1
```

### Analysis summary

The solution obtained perfect score.

### Analysis ?

Detected time  
complexity:

$O(N)$  or  $O(N * \log(N))$

expand all	Example tests	
▶	example example test	✓ OK
expand all	Correctness tests	
▶	empty_and_single empty list and single element	✓ OK
▶	missing_first_or_last the first or the last element is missing	✓ OK
▶	single single element	✓ OK
▶	double two elements	✓ OK
▶	simple simple test	✓ OK
expand all	Performance tests	
▶	medium1 medium test, length = ~10,000	✓ OK
▶	medium2 medium test, length = ~10,000	✓ OK
▶	large_range range sequence, length = ~100,000	✓ OK
▶	large1 large test, length = ~100,000	✓ OK
▶	large2 large test, length = ~100,000	✓ OK