

Test Name:

Summary Timeline

Tasks summary

Task	Time spent	Score
MissingInteger C#	1 min	100%

Total score

100%

Tasks Details

Medium	1. MissingInteger	Task Score	Correctness	Performance
	Find the smallest positive integer that does not occur in a given sequence.	100%	100%	100%

Task description

This is a demo task.

Write a function:

```
class Solution { public int solution(int[] 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

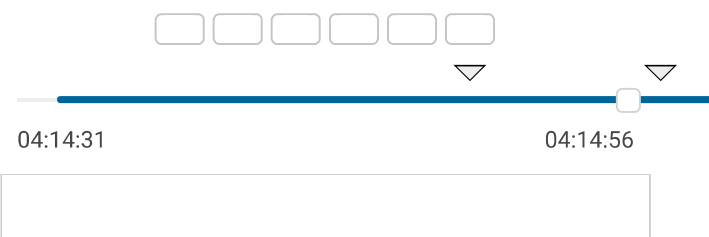
Programming language used: C#

Total time used: 1 minutes ?

Effective time used: 1 minutes ?

Notes: not defined yet

Task timeline ?



```
1 using System;
2
3 /* Lesson 4.4 - Missing Integer
4  * Paulo Santos
5  * 24.Nov.2022
6  */
7 class Solution {
8     public int solution(int[] A) {
9
10         /*
11          * Check the inputs
12          */
13         if (A == null)
14             throw new ArgumentNullException("A is n
15
16         var mis = 0;
17         Array.Sort(A);
18         for (var i = 0; i < A.Length; i++) {
19             if (A[i] <= mis)
20                 continue;
21
22             if (++mis == A[i])
23                 continue;
24             else if (mis < A[i])
25                 return mis;
26         }
27         return (mis == 0 ? 1 : mis + 1);
28     }
29 }
```

Analysis summary

The solution obtained perfect score.

Analysis

Detected time complexity:

O(N) or O(N * log(N))

expand all	Example tests	
▶ example1		✓ OK
first example test		
▶ example2		✓ OK
second example test		
▶ example3		✓ OK
third example test		
expand all	Correctness tests	
▶ extreme_single		✓ OK
a single element		
▶ simple		✓ OK
simple test		
▶ extreme_min_max_value		✓ OK
minimal and maximal values		

▶ positive_only	✓ OK
shuffled sequence of 0...100 and then 102...200	
▶ negative_only	✓ OK
shuffled sequence -100 ... -1	
expand all	Performance tests
▶ medium	✓ OK
chaotic sequences length=10005 (with minus)	
▶ large_1	✓ OK
chaotic + sequence 1, 2, ..., 40000 (without minus)	
▶ large_2	✓ OK
shuffled sequence 1, 2, ..., 100000 (without minus)	
▶ large_3	✓ OK
chaotic + many -1, 1, 2, 3 (with minus)	