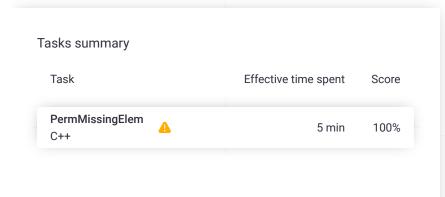
Codility_

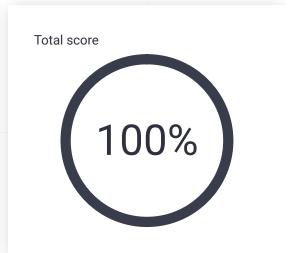
Screen Report: Anonymous

Test Name:

Summary Timeline

Check out Codility training tasks





Tasks Details

1. PermMissingElem
Find the missing element in a given permutation.

Task Score
Correctness
Performance
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:

int solution(vector<int> &A);

that, given an array A, returns the value of the missing element.

For example, given array A such that:

A[0] = 2

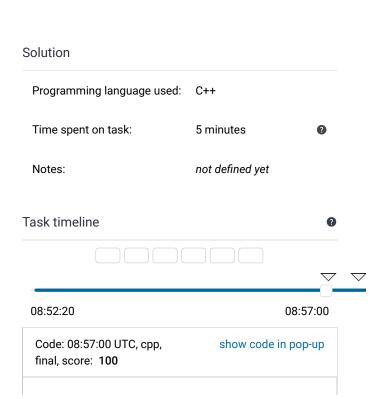
A[1] = 3

A[2] = 1

A[3] = 5

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

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



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- 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)].

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```
1
     #include <numeric>
2
     #include <vector>
3
4
     using namespace std;
5
6
     int solution(vector<int> &A) {
7
         // Implement your solution here
8
9
         if(A.empty())
10
         {
11
             return 1;
12
13
14
         unsigned int N{static_cast<unsigned int>(A.siz
15
16
         // First get the expected sum if no element is
         unsigned int expectedSum{ ((N+1) * (N+2)) / 2}
17
18
         unsigned int actualSum{ accumulate(A.begin(),
19
20
         return expectedSum - actualSum;
21
    }
```

Analysis summary

The solution obtained perfect score.

Analysis

 $\begin{array}{c} \text{O(N) or} \\ \text{Oetected time complexity:} & \text{O(N *} \\ \text{log(N))} \end{array}$

expand all Example tests				
>	example example test	√ OK		
expand all C		Correctness tests		
•	empty_and_sing empty list and singl			
•	missing_first_or the first or the last of			
•	single single element	√ 0 K		
•	double two elements	√ OK		
•	simple simple test	√ OK		
expand all Performance tests				
•	medium1 medium test, length	✓ OK = ~10,000		
•	medium2 medium test, length	✓ OK = ~10,000		
•	large_range	√ OK		

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range sequence, length = ~100,000				
•	large1	√ OK		
•	large2	√ OK		

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