

AVAILABLE
LESSONS:*Lesson 1*
Iterations*Lesson 2*
Arrays*Lesson 3*
**Time
Complexity***Lesson 4*
Counting
Elements*Lesson 5*
Prefix Sums*Lesson 6*
Sorting*Lesson 7*
Stacks and
Queues*Lesson 8*
Leader*Lesson 9*
Maximum slice
problem*Lesson 10*
Prime and
composite
numbers

PAINLESS

PermMissingElem

START

Find the missing element in a given permutation.

Programming language: C++ ▼

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:

```
int solution(vector<int> &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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Lesson 11

Sieve of
Eratosthenes

Lesson 12

Euclidean
algorithm

Lesson 13

Fibonacci
numbers

Lesson 14

Binary search
algorithm

Lesson 15

Caterpillar
method

Lesson 16

Greedy
algorithms

Lesson 17

Dynamic
programming

Lesson 90

Tasks from
Indeed Prime
2016 challenge

Lesson 99

Future training

For programmers

[Lessons](#) [Challenges](#)
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