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PAINLESS

OddOccurrencesInArray

START

Find value that occurs in odd number of elements.

Programming language: C++ ▼

Human language: English ▼

A non-empty zero-indexed array A consisting of N integers is given. The array contains an odd number of elements, and each element of the array can be paired with another element that has the same value, except for one element that is left unpaired.

For example, in array A such that:

A[0] = 9 A[1] = 3 A[2] = 9
A[3] = 3 A[4] = 9 A[5] = 7
A[6] = 9

- the elements at indexes 0 and 2 have value 9,
- the elements at indexes 1 and 3 have value 3,
- the elements at indexes 4 and 6 have value 9,
- the element at index 5 has value 7 and is unpaired.

Write a function:

```
int solution(vector<int> &A);
```

that, given an array A consisting of N integers fulfilling the above conditions, returns the value of the unpaired element.

For example, given array A such that:

A[0] = 9 A[1] = 3 A[2] = 9
A[3] = 3 A[4] = 9 A[5] = 7
A[6] = 9

the function should return 7, as explained in the example above.

Assume that:

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

- N is an odd integer within the range $[1..1,000,000]$;
- each element of array A is an integer within the range $[1..1,000,000,000]$;
- all but one of the values in A occur an even number of times.

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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