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codility

Training center

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Demo ticket

Session

ID: demoEY7CH8-5WH
Time limit: 120 min.

Status: closed

Created on: 2014-03-17 16:01 UTC
Started on: 2014-03-17 16:01 UTC
Finished on: 2014-03-17 16:06 UTC

Tasks in test

Task score

Test score

100%

100 out of 100 points

EASY

1. PermMissingElem

Find the missing element in a given permutation.

score: 100 of 100

Task description

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:

```
def solution(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.

Solution

Programming language used: Python

Total time used: 5 minutes

Effective time used: 5 minutes

Notes: correct functionality and scalability

Task timeline

16:01:36 16:06:14

Code: 16:06:14 UTC, py, final, score: **100.00**

```
01. def solution(A):
02.     miss = 0
03.     for a in A:
04.         miss ^= a
05.
06.     for i in xrange(1, len(A) + 2):
07.         miss ^= i
08.
09.     return miss
```

Analysis

Detected time complexity:

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

test	time	result
example example test	0.050 s.	OK

empty empty list	0.050 s.	**OK**
single single element	0.050 s.	**OK**
double two elements	0.050 s.	**OK**
simple simple test	0.050 s.	**OK**
medium1 medium test, length = ~10,000	0.070 s.	**OK**
medium2 medium test, length = ~10,000	0.070 s.	**OK**
large_range range sequence, length = ~100,000	0.140 s.	**OK**
large1 large test, length = ~100,000	0.230 s.	**OK**
large2 large test, length = ~100,000	0.160 s.	**OK**

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