



Demo ticket

Session

ID: demoPBGNPV-KR5 Time limit: 120 min.

Status: closed

Created on: 2014-04-24 17:38 UTC Started on: 2014-04-24 17:38 UTC Finished on: 2014-04-24 18:22 UTC

Tasks in test

1 | {} PermCheck

Correctness Performance

100%

100%

Task score

100%

Test score

2

1000/0

100 out of 100 points

1. PermCheck

Check whether array A is a permutation.

score: 100 of 100



Task description

A non-empty zero-indexed array A consisting of N integers is given. A $\it permutation$ is a sequence containing each element from 1 to N once, and only once.

For example, array A such that:

A[0] = 4

A[1] = 1

A[2] = 3A[3] = 2

is a permutation, but array A such that:

A[0] = 4

A[1] = 1

A[2] = 3

is not a permutation.

The goal is to check whether array A is a permutation. Write a function:

def solution(A)

that, given a zero-indexed array A, returns 1 if array A is a permutation and 0 if it is not.

For example, given array A such that:

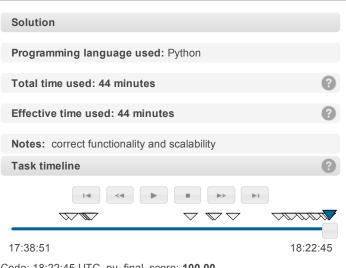
A[0] = 4

A[1] = 1

A[2] = 3

A[3] = 2

the function should return 1. Given array A such that:



Code: 18:22:45 UTC, py, final, score: 100.00

```
def solution(A):
          n = len(A)
count = [0] * (n+1)
02.
03.
          for v in A:
04.
05.
               # out of range
                if v > n:
07
                     return 0
08.
                # duplicate
09.
                elif count[v]:
                    return 0
10.
12.
                     count[v] += 1
13.
          return 1
```

A[0] = 4 A[1] = 1A[2] = 3

the function should return 0. Assume that:

- N is an integer within the range [1..100,000];
- each element of array A is an integer within the range [1..1,000,000,000].

Complexity:

- expected worst-case time complexity is O(N);
- expected worst-case space complexity is O(N), beyond input storage (not counting the storage required for input arguments).

Elements of input arrays can be modified.

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Analysis



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

test	time	result
Example tests		
example1 the first example test	0.050 s.	ок
example2 the second example test	0.050 s.	ок
Correctness tests		
extreme_max single element with maximal value	0.050 s.	ок
single single element	0.050 s.	ок
double two elements	0.050 s.	ок
antiSum1 total sum is corret (equals 1 + 2 + N), but it is not a permutation, N = 3	0.050 s.	ок
Performance tests		
medium_permutation permutation, N = ~10,000	0.060 s.	ок
antiSum2 total sum is corret (equals 1 + 2 + N), but it is not a permutation, N = \sim 100,000	0.230 s.	ок
large_permutation large permutation, N = ~100,000	0.230 s.	ок
large_range sequence 1, 2,, N, N = ~100,000	0.240 s.	ок
extreme_values all the same values, N = ~100,000	0.200 s.	ок

Training center

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