

Demo ticket

Session

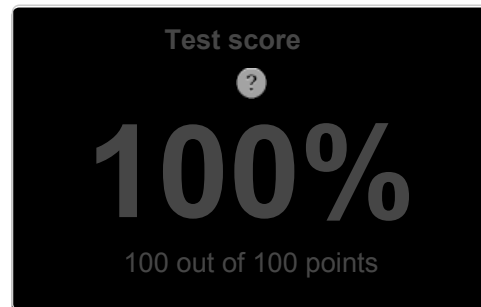
ID: demoU6Y9Z7-7X4
Time limit: 120 min.

Status: closed

Created on: 2014-03-17 07:40 UTC
Started on: 2014-03-17 07:40 UTC
Finished on: 2014-03-17 07:44 UTC

Tasks in test

Task score



EASY

1. AbsDistinct

Compute number of distinct absolute values of sorted array elements.

score: 100 of 100



Task description

A non-empty zero-indexed array A consisting of N numbers is given. The array is sorted in non-decreasing order. The *absolute distinct count* of this array is the number of distinct absolute values among the elements of the array. For example, consider array A such that:

```
A[0] = -5
A[1] = -3
A[2] = -1
A[3] = 0
A[4] = 3
A[5] = 6
```

The absolute distinct count of this array is 5, because there are 5 distinct absolute values among the elements of this array, namely 0, 1, 3, 5 and 6.

Write a function:

```
def solution(A)
```

that, given a non-empty zero-indexed array A consisting of N numbers, returns absolute distinct count of array A. For example, given array A such that:

```
A[0] = -5
A[1] = -3
A[2] = -1
A[3] = 0
A[4] = 3
A[5] = 6
```

the function should return 5, as explained above. Assume that:

- N is an integer within the range [1..100,000];
- each element of array A is an integer within the range [-2,147,483,648..2,147,483,647];
- array A is sorted in non-decreasing order.

Complexity:

Solution

Programming language used: Python

Total time used: 5 minutes

Effective time used: 5 minutes

Notes: correct functionality and scalability

Task timeline



07:40:26

07:44:51

Code: 07:44:51 UTC, py, final, score: 100.00

```
1. def solution(A):
2.     return len(set([abs(a) for a in A]))
3.
```

Analysis

Detected time complexity:

$O(N)$ or $O(N \cdot \log(N))$

| test | time | result |
|---------------|----------|--------|
| example | 0.050 s. | OK |
| example test | 0.050 s. | OK |
| one_element | 0.050 s. | OK |
| two_elements | 0.050 s. | OK |
| same_elements | 0.050 s. | OK |

- 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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Codility

| | | |
|---------------------------|----------|-----------|
| simple | 0.050 s. | OK |
| simple_no_zero | 0.050 s. | OK |
| simple_no_same | 0.050 s. | OK |
| simple_no_negative | 0.050 s. | OK |
| simple_no_positive | 0.050 s. | OK |
| arith_overflow | 0.050 s. | OK |
| medium_chaotic1 | 0.050 s. | OK |
| medium_chaotic2 | 0.050 s. | OK |
| long_sequence_no_negative | 0.140 s. | OK |
| long_sequence_no_positive | 0.120 s. | OK |
| long_sequence | 0.220 s. | OK |

Training center