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Training ticket

Session

ID: training3X4J9Q-CKQ

Time limit: 120 min.

Status: closed

Created on: 2016-06-22 17:31 UTC

Started on: 2016-06-22 17:31 UTC

Finished on: 2016-06-22 17:32 UTC

Tasks in test

1 | **PassingCars**
Submitted in: Java

Correctness

100%

Performance

100%

Task score

100%

Test score ?

100%

100 out of 100 points

EASY

1. PassingCars

Count the number of passing cars on the road.

score: 100 of 100

**Task description**

A non-empty zero-indexed array *A* consisting of *N* integers is given. The consecutive elements of array *A* represent consecutive cars on a road.

Array *A* contains only 0s and/or 1s:

- 0 represents a car traveling east,
- 1 represents a car traveling west.

The goal is to count passing cars. We say that a pair of cars (*P*, *Q*), where $0 \leq P < Q < N$, is passing when *P* is traveling to the east and *Q* is traveling to the west.

For example, consider array *A* such that:

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

We have five pairs of passing cars: (0, 1), (0, 3), (0, 4), (2, 3), (2, 4).

Write a function:

```
class Solution { public int solution(int[] A); }
```

that, given a non-empty zero-indexed array *A* of *N* integers, returns the number of pairs of passing cars.

The function should return -1 if the number of pairs of passing cars

Solution

Programming language used: Java

Total time used: 2 minutes

?

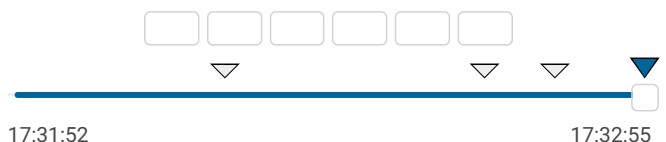
Effective time used: 2 minutes

?

Notes: *not defined yet*

Task timeline

?



Code: 17:32:55 UTC, java, final,
score: 100

[show code in pop-up](#)

```
1 class Solution {
2     private static final int EAST = 0;
3     private static final int LIMIT = 1_000_000_000;
4
5     public int solution(int[] A) {
6         int multiplier = 0;
7         int counter = 0;
8     }
```

exceeds 1,000,000,000.

For example, given:

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

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 that can have one of the following values: 0, 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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```

9      for (int carDirection : A) {
10         if(carDirection == EAST) {
11             multiplier++;
12         } else {
13             counter += multiplier;
14             if(counter > LIMIT) {
15                 return -1;
16             }
17         }
18     }
19
20     return counter;
21 }
22 }
```

Analysis summary

The solution obtained perfect score.

Analysis



Detected time complexity:
 $O(N)$

expand all	Example tests	
▶ example	example test	✓ OK
expand all	Correctness tests	
▶ single	single element	✓ OK
▶ double	two elements	✓ OK
▶ simple	simple test	✓ OK
▶ small_random	random, length = 100	✓ OK
▶ small_random2	random, length = 1000	✓ OK
expand all	Performance tests	
▶ medium_random	random, length = ~10,000	✓ OK
▶ large_random	random, length = ~100,000	✓ OK
▶ large_big_answer	0..01..1, length = ~100,000	✓ OK
▶ large_alternate	0101..01, length = ~100,000	✓ OK
▶ large_extreme	large test with all 1s/0s, length = ~100,000	✓ OK

Training center