codility

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Candidate Report: Anonymous

Test Name:

Summary | Timeline

Test Score

100 out of 100 points

100%

Tasks in Test

	Time Spent	Task Score
PassingCars Submitted in: Java	1 min	100%

TASKS DETAILS

EASY

1. **PassingCars**
Count the number of passing cars on the road.

Task Score	Correctness	Performance
100%	100%	100%

Task description

A non-empty 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 ≤ 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 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 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.

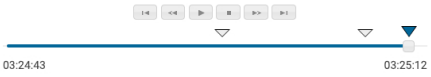
Write an **efficient** algorithm for the following assumptions:

- 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.

Solution

Programming language used:	Java
Total time used:	1 minutes
Effective time used:	1 minutes
Notes:	*not defined yet*

Task timeline



03:24:43 03:25:12

Code: 03:25:11 UTC, java, final, score: 100

show code in pop-up

```
1  import java.util.*;
2
3  class Solution {
4      public int solution(int[] A) {
5          int countOfZeros = 0, count = 0;
6
7          for (int i = 0; i < A.length; i++){
8              if (A[i] == 0) countOfZeros++;
9              if (A[i] == 1) count += countOfZeros;
10             if (count > 1000000000) return -1;
11         }
12         return count;
13     }
14 }
```

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