Codility_

Candidate Report: trainingH8FNYN-7D8

Check out Codility training tasks

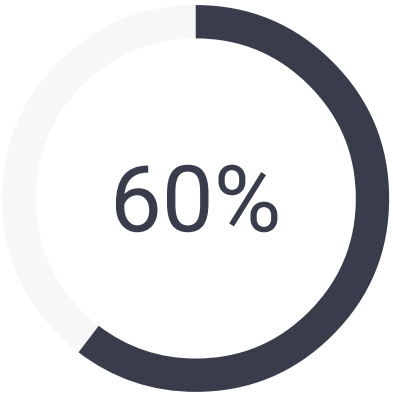
Test Name:

Summary Timeline

Tasks summary

Task	Time spent	Score
PassingCars C	35 min	60%

Total score



Tasks Details

Easy

1. PassingCars

Count the number of passing cars on the road.

Task Score	Correctness	Performance
60%	80%	40%

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
```

Solution

Programming language used:	C
Total time used:	35 minutes
Effective time used:	35 minutes
Notes:	*not defined yet*

Task timeline

```
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:

```
int solution(int A[], int N);
```

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.

08:58:02 09:32:59

Code: 09:32:59 UTC, c, final, score: **60** show code in pop-up

```c
// you can write to stdout for debugging purposes, e
// printf("this is a debug message\n");
int *prefix_sums(int *A, int N){
    int *P = (int *)malloc((N+1)*sizeof(int));
    P[0] = 0;
    for (int i = 1; i<(N+1); i++){
        P[i] = P[i-1] + A[i];
        //printf("%d ", P[i]);
    }
    return P;
}

int factorial(int n){
    int ret = 1;
    if (n <= 1) return ret;
    for (int i = 2; i<=n; i++){
        ret *= i;
    }
    return ret;
}

int combination(int top, int bot){
    return factorial(top)/factorial(bot)/factorial(t
}

int solution(int A[], int N) {
    // write your code in C99 (gcc 6.2.0)
    int ret = 0;
    int *P = prefix_sums(A,N);

    for (int i = 0; i<N; i++){
        if (!A[i]) {
            ret += P[N]-P[i];
        }
    }

    free(P);
    return ret;
}
```

Analysis summary

The following issues have been detected: wrong answers.

For example, for the input `[0, 1, 0, 1, 0, 1]` the solution returned a wrong answer (got 391401 expected 6).

Analysis

expand all Example tests

▶ example ✓ OK
example test

expand all Correctness tests

▶

single single element	✓ OK
▶ double two elements	✓ OK
▼ simple simple test	✗ WRONG ANSWER got 391401 expected 6
1. 0.001 s **WRONG ANSWER**, got 391401 expected 6	
▶ small_random random, length = 100	✓ OK
▶ small_random2 random, length = 1000	✓ OK

collapse all Performance tests

▼ medium_random random, length = ~10,000	✓ OK
1. 0.001 s **OK**	
▼ large_random random, length = ~100,000	✗ WRONG ANSWER got 1248768710 expected -1
1. 0.004 s **WRONG ANSWER**, got 1248768710 expected -1	
▼ large_big_answer 0..01..1, length = ~100,000	✗ WRONG ANSWER got -1794967296 expected -1
1. 0.004 s **WRONG ANSWER**, got -1794967296 expected -1	
2. 0.001 s **OK**	
▼ large_alternate 0101..01, length = ~100,000	✗ WRONG ANSWER got 1250025000 expected -1
1. 0.004 s **WRONG ANSWER**, got 1250025000 expected -1	
2. 0.004 s **OK**	
▼ large_extreme large test with all 1s/0s, length = ~100,000	✓ OK
1. 0.004 s **OK**	
2. 0.004 s **OK**	
3. 0.004 s **OK**	