Codility_

CodeCheck Report: trainingTZ4ZJA-9KS

Test Name:

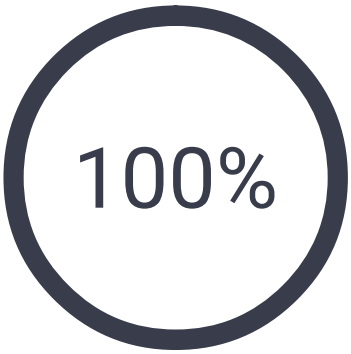
Check out Codility training tasks

Summary Timeline

Tasks summary

Task	Time spent	Score
MaxProfit JavaScript ⚠	26 min	100%

Total score



Tasks Details

1. MaxProfit

Easy

Given a log of stock prices compute the maximum possible earning.

Task Score	Correctness	Performance
100%	100%	100%

Task description

An array A consisting of N integers is given. It contains daily prices of a stock share for a period of N consecutive days. If a single share was bought on day P and sold on day Q, where 0 ≤ P ≤ Q < N, then the *profit* of such transaction is equal to A[Q] − A[P], provided that A[Q] ≥ A[P]. Otherwise, the transaction brings *loss* of A[P] − A[Q].

For example, consider the following array A consisting of six elements such that:

```
A[0] = 23171
A[1] = 21011
A[2] = 21123
A[3] = 21366
A[4] = 21013
A[5] = 21367
```

If a share was bought on day 0 and sold on day 2, a loss of 2048 would occur because A[2] − A[0] = 21123 − 23171 = −2048. If a share was bought on day 4 and sold on day 5, a profit of 354 would occur because A[5] − A[4] = 21367 − 21013 = 354. Maximum possible profit was 356. It would occur if a share was bought on day 1 and sold on day 5.

Write a function,

Solution

Programming language used:	JavaScript
Total time used:	26 minutes
Effective time used:	26 minutes
Notes:	*not defined yet*

Task timeline

05:33:13 05:58:21

Code: 05:58:20 UTC, js, final, score: **100** show code in pop-up

```
1  // you can write to stdout for debugging purposes,
2  // console.log('this is a debug message');
3
```

```
function solution(A);
```

that, given an array A consisting of N integers containing daily prices of a stock share for a period of N consecutive days, returns the maximum possible profit from one transaction during this period. The function should return 0 if it was impossible to gain any profit.

For example, given array A consisting of six elements such that:

```
A[0] = 23171
A[1] = 21011
A[2] = 21123
A[3] = 21366
A[4] = 21013
A[5] = 21367
```

the function should return 356, as explained above.

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

- N is an integer within the range [0..400,000];
- each element of array A is an integer within the range [0..200,000].

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```
4  function solution(A) {
5      var N = A.length;
6
7      var max_profit = 0;
8      var min = 200001;
9
10     for (var i = 0; i < N; i++) {
11         if (min > A[i]) {
12             min = A[i];
13         } else {
14             max_profit = Math.max(max_profit, A[i]
15         }
16     }
17
18     return max_profit;
19 }
```

Analysis summary

The solution obtained perfect score.

Analysis

Detected time complexity: **O(N)**

expand all	Example tests	
▶	example example, length=6	✓ OK
expand all	Correctness tests	
▶	simple_1 V-pattern sequence, length=7	✓ OK
▶	simple_desc descending and ascending sequence, length=5	✓ OK
▶	simple_empty empty and [0,200000] sequence	✓ OK
▶	two_hills two increasing subsequences	✓ OK
▶	max_profit_after_max_and_before_min max profit is after global maximum and before global minimum	✓ OK
expand all	Performance tests	
▶	medium_1 large value (99) followed by short V-pattern (values from [1..5]) repeated 100 times	✓ OK
▶	large_1 large value (99) followed by short pattern (values from [1..6]) repeated 10K times	✓ OK
▶	large_2 chaotic sequence of 200K values from [100K..120K], then 200K values from [0..100K]	✓ OK
▶	large_3 chaotic sequence of 200K values from [1..200K]	✓ OK