Codility_

Candidate Report: trainingR3D9ZU-JZ4

Check out Codility training tasks

Test Name:

Summary Timeline

Tasks summary

Task	Time spent	Score
MaxProfit Java 8 ⚠	42 min	88%

Total score

Identity verification
Add another layer of security with Identity Verification, learn more.

Tasks Details

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

Task Score	Correctness	Performance
88%	80%	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,

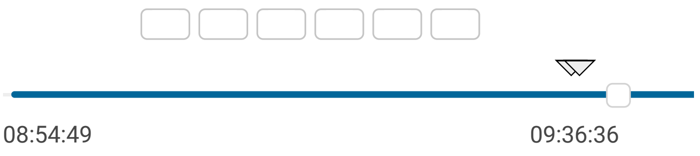
```
class Solution { public int solution(int[] A); }
```

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.

Solution

Programming language used:	Java 8
Total time used:	42 minutes
Effective time used:	42 minutes
Notes:	*not defined yet*

Task timeline



Code: 09:36:36 UTC, java, final, score: **88**

show code in pop-up

```
// you can also use imports, for example:
// import java.util.*;

// you can write to stdout for debugging purposes,
// System.out.println("this is a debug message");

class Solution {
    public int solution(int[] A) {
        int min=A[0];
        int mp=0;
        int p=0;
```

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].

```
        for(int i=0;i<A.length;i++){
            if(min>A[i]){
                min=A[i];
            }
            else{
                mp=A[i]-min;
                if(p<mp){
                    p=mp;
                }
            }


        }
        return p;
        // write your code in Java SE 8
    }
}
```

Analysis summary

The following issues have been detected: runtime errors.

For example, for the input [ ] the solution terminated unexpectedly.

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	✗ RUNTIME ERROR tested program terminated with exit code 1
▸ 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

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