Codility_

CodeCheck Report: training23PMJH-QDT

Test Name:

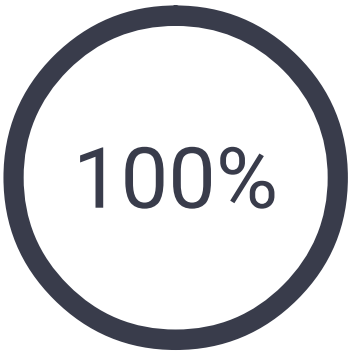
Check out Codility training tasks

Summary Timeline

Tasks summary

Task	Time spent	Score
Triangle Java 8	43 min	100%

Total score



Tasks Details

Easy

1. Triangle

Determine whether a triangle can be built from a given set of edges.

Task Score	Correctness	Performance
100%	100%	100%

Task description

An array A consisting of N integers is given. A triplet (P, Q, R) is *triangular* if 0 ≤ P < Q < R < N and:

- A[P] + A[Q] > A[R],
- A[Q] + A[R] > A[P],
- A[R] + A[P] > A[Q].

For example, consider array A such that:

```
A[0] = 10    A[1] = 2    A[2] = 5
A[3] = 1     A[4] = 8    A[5] = 20
```

Triplet (0, 2, 4) is triangular.

Write a function:

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

that, given an array A consisting of N integers, returns 1 if there exists a triangular triplet for this array and returns 0 otherwise.

For example, given array A such that:

```
A[0] = 10    A[1] = 2    A[2] = 5
A[3] = 1     A[4] = 8    A[5] = 20
```

the function should return 1, as explained above. Given array A such that:

Solution

Programming language used:	Java 8
Total time used:	43 minutes
Effective time used:	43 minutes
Notes:	*not defined yet*

Task timeline

06:35:06 07:17:19

Code: 07:17:18 UTC, java, final, score: **100** show code in pop-up

```
1  // you can also use imports, for example:
2  // import java.util.*;
3
4  // you can write to stdout for debugging purposes,
```

```
A[0] = 10    A[1] = 50    A[2] = 5
A[3] = 1
```

the function should return 0.

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

- N is an integer within the range [0..100,000];
- each element of array A is an integer within the range [−2,147,483,648..2,147,483,647].


```
5  // System.out.println("this is a debug message");
6
7  class Solution {
8      public int solution(int[] A) {
9          final int A_LENGTH = A.length;
10
11         if (A_LENGTH < 3) {
12             return 0;
13         }
14
15         quicksort(A, 0, A_LENGTH - 1);
16
17         for (int i = 2; i < A_LENGTH; i++) {
18             if ((long)A[i] < (long)A[i - 2] + (lon
19                 return 1;
20             }
21         }
22
23         return 0;
24     }
25
26     private void quicksort(int arr[], int left, in
27         int index = partition(arr, left, right);
28
29         if (left < index - 1) {
30             quicksort(arr, left, index - 1);
31         }
32
33         if (index < right) {
34             quicksort(arr, index, right);
35         }
36     }
37
38     private int partition(int arr[], int left, int
39         int pivot = arr[(left + right) / 2];
40
41         while (left <= right) {
42             while (arr[left] < pivot) {
43                 left++;
44             }
45
46             while (arr[right] > pivot) {
47                 right--;
48             }
49
50             if (left <= right) {
51                 int tmp = arr[left];
52                 arr[left++] = arr[right];
53                 arr[right--] = tmp;
54             }
55         }
56
57         return left;
58     }
59 }
60
```

Analysis summary

The solution obtained perfect score.

Analysis

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

expand all	Example tests	
▶	example example, positive answer, length=6	✓ OK
▶		

example1 example, answer is zero, length=4	✓ OK	
expand all	Correctness tests	
▶ extreme_empty empty sequence	✓ OK	
▶ extreme_single 1-element sequence	✓ OK	
▶ extreme_two_elems 2-element sequence	✓ OK	
▶ extreme_negative1 three equal negative numbers	✓ OK	
▶ extreme_arith_overflow1 overflow test, 3 MAXINTs	✓ OK	
▶ extreme_arith_overflow2 overflow test, 10 and 2 MININTs	✓ OK	
▶ extreme_arith_overflow3 overflow test, 0 and 2 MAXINTs	✓ OK	
▶ medium1 chaotic sequence of values from [0..100K], length=30	✓ OK	
▶ medium2 chaotic sequence of values from [0..1K], length=50	✓ OK	
▶ medium3 chaotic sequence of values from [0..1K], length=100	✓ OK	
expand all	Performance tests	
▶ large1 chaotic sequence with values from [0..100K], length=10K	✓ OK	
▶ large2 1 followed by an ascending sequence of ~50K elements from [0..100K], length=~50K	✓ OK	
▶ large_random chaotic sequence of values from [0..1M], length=100K	✓ OK	
▶ large_negative chaotic sequence of negative values from [-1M..-1], length=100K	✓ OK	
▶ large_negative2 chaotic sequence of negative values from [-10..-1], length=100K	✓ OK	
▶ large_negative3 sequence of -1 value, length=100K	✓ OK	