Codility_

CodeCheck Report: training4D5T5C-A5R

Test Name:

Check out Codility training tasks

Summary | Timeline

Tasks summary

Task	Time spent	Score
CountNonDivisible ⚠ Python	8 min	100%

Total score

Tasks Details

Medium

1. CountNonDivisible

Calculate the number of elements of an array that are not divisors of each element.

Task Score	Correctness	Performance
100%	100%	100%

Task description

You are given an array A consisting of N integers.

For each number A[i] such that 0 ≤ i < N, we want to count the number of elements of the array that are not the divisors of A[i]. We say that these elements are non-divisors.

For example, consider integer N = 5 and array A such that:

```
A[0] = 3
A[1] = 1
A[2] = 2
A[3] = 3
A[4] = 6
```

For the following elements:

- A[0] = 3, the non-divisors are: 2, 6,
- A[1] = 1, the non-divisors are: 3, 2, 3, 6,
- A[2] = 2, the non-divisors are: 3, 3, 6,
- A[3] = 3, the non-divisors are: 2, 6,
- A[4] = 6, there aren't any non-divisors.

Write a function:

```
def solution(A)
```

that, given an array A consisting of N integers, returns a sequence of integers representing the amount of non-divisors.

Result array should be returned as an array of integers.

For example, given:

```
A[0] = 3
A[1] = 1
A[2] = 2
A[3] = 3
A[4] = 6
```

the function should return [2, 4, 3, 2, 0], as explained above.

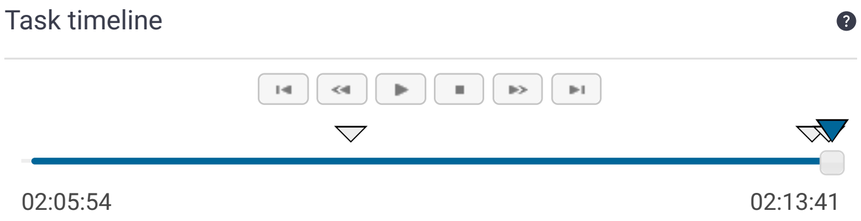
Write an **efficient** algorithm for the following assumptions:

- N is an integer within the range [1..50,000];
- each element of array A is an integer within the range [1..2 * N].

Solution

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

Task timeline



Code: 02:13:41 UTC, py, final, score: **100**

show code in pop-up

```python
# you can write to stdout for debugging purposes, e.g.
# print("this is a debug message")

def solution(A):
    # write your code in Python 3.6
    N = len(A)
    if N == 0:
        return [0]
    elif N == 1:
        return [0]
    elif N == 2:
        arr = [0, 0]
        if A[1]>A[0]:
            arr[0] = 1
        else:
            if A[0]/A[1]-A[0]//A[1]!=0.0:
                arr[0] = 1
        if A[0]>A[1]:
            arr[1] = 1
        else:
            if A[1]/A[0]-A[1]//A[0]!=0.0:
                arr[1] = 1
        return [arr[0], arr[1]]
    elif N > 3:
        max_ = max(A)
        B = [N]*(max_+1)
        nones = 0
        for el in A:
            if el != 1:
                i = 1
                while el*i <= max_:
                    B[el*i] -= 1
                    i += 1
            else:
                nones += 1
        res = []
        for el in A:
            res.append(B[el]-nones)
        return res
```

Analysis summary

The solution obtained perfect score.

Analysis

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

expand all	Example tests	
▶	example example test	✔ OK
expand all	**Correctness tests**	
▶	extreme_simple extreme simple	✔ OK
▶	double two elements	✔ OK
▶	simple simple tests	✔ OK
▶	primes prime numbers	✔ OK
▶	small_random small, random numbers, length = 100	✔ OK
expand all	**Performance tests**	
▶	medium_random medium, random numbers length = 5,000	✔ OK
▶	large_range 1, 2, ..., N, length = ~20,000	✔ OK
▶	large_random large, random numbers, length = ~30,000	✔ OK
▶	large_extreme large, all the same values, length = 50,000	✔ OK