Codility_ for Programmers

Lessons Challenges Hi, Bernie ▾

AVAILABLE LESSONS:

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Iterations

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Arrays

Lesson 3
Time Complexity

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Counting Elements

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Leader

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Maximum slice problem

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Prime and composite numbers

Lesson 11

NumberOfDiscIntersections

START

Compute the number of intersections in a sequence of discs.

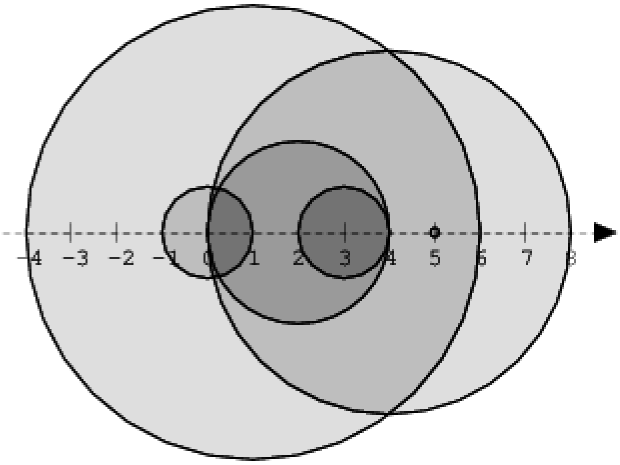
Programming language: C ▾

We draw N discs on a plane. The discs are numbered from 0 to N − 1. An array A of N non-negative integers, specifying the radiuses of the discs, is given. The J-th disc is drawn with its center at (J, 0) and radius A[J].

We say that the J-th disc and K-th disc intersect if J ≠ K and the J-th and K-th discs have at least one common point (assuming that the discs contain their borders).

The figure below shows discs drawn for N = 6 and A as follows:

```
A[0] = 1
A[1] = 5
A[2] = 2
A[3] = 1
A[4] = 4
A[5] = 0
```



There are eleven (unordered) pairs of discs that intersect, namely:

- discs 1 and 4 intersect, and both intersect with all the other discs;
- disc 2 also intersects with discs 0 and 3.

Write a function:

Sieve of Eratosthenes

Lesson 12
Euclidean algorithm

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Binary search algorithm

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Caterpillar method

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Dynamic programming

Lesson 90
Tasks from Indeed Prime 2015 challenge

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Tasks from Indeed Prime 2016 challenge

Lesson 92
Tasks from Indeed Prime 2016 College Coders challenge

Lesson 99
Future training

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

that, given an array A describing N discs as explained above, returns the number of (unordered) pairs of intersecting discs. The function should return −1 if the number of intersecting pairs exceeds 10,000,000.

Given array A shown above, the function should return 11, as explained above.

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 [0..2,147,483,647].

For programmers

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