UPCOMING CHALLENGES:

indeed prime
Indeed Prime Challenge
1 days 6 hours left

CURRENT CHALLENGES:

Scandium 2016

PAST CHALLENGES

indeed prime
Indeed Prime 2

indeed prime
Indeed Prime

Calcium 2015

Kalium 2015

Argon 2015

Chlorum 2014

Sulphur 2014

Phosphorus 2014

Silicium 2014

RESPECTABLE

# NumberOfDiscIntersections

START

Compute the number of intersections in a sequence of discs.

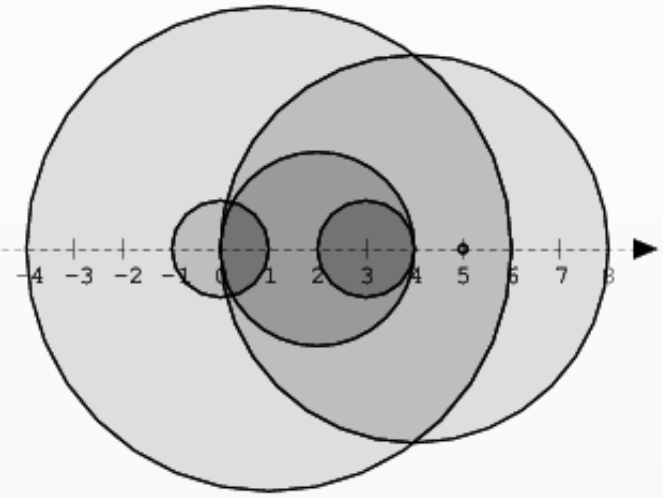
Programming language: C++

We draw N discs on a plane. The discs are numbered from 0 to N − 1. A zero-indexed 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:

```
int solution(vector<int> &A);
```

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.

Assume that:

- 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].

Complexity:

- expected worst-case time complexity is O(N*log(N));
- expected worst-case space complexity is O(N), beyond input storage (not counting the storage required for input arguments).

Elements of input arrays can be modified.

Tau 2012

Sigma 2012

Rho 2012

Pi 2012

Omicron 2012

Xi 2012

Nu 2011

Mu 2011

Lambda 2011

Kappa 2011

Iota 2011

Theta 2011

Eta 2011

Zeta 2011

Epsilon 2011

Delta 2011

Gamma 2011

**Beta 2010**

Alpha 2010