PAINLESS

# CountTriangles

START

Count the number of triangles that can be built from a given set of edges.

Programming language: C++

A zero-indexed array A consisting of N integers is given. A triplet (P, Q, R) is *triangular* if it is possible to build a triangle with sides of lengths A[P], A[Q] and A[R]. In other words, 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] = 12
```

There are four triangular triplets that can be constructed from elements of this array, namely (0, 2, 4), (0, 2, 5), (0, 4, 5), and (2, 4, 5).

Write a function:

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

that, given a zero-indexed array A consisting of N integers, returns the number of triangular triplets in this array.

For example, given array A such that:

```
A[0] = 10    A[1] = 2    A[2] = 5
A[3] = 1     A[4] = 8    A[5] = 12
```

the function should return 4, as explained above.

Assume that:

- N is an integer within the range [0..1,000];
- each element of array A is an integer within the range [1..1,000,000,000].

Complexity:

- expected worst-case time complexity is $O(N^2)$;
- 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.

Future training

**For programmers**

Lessons Challenges
Terms FAQ

**For companies**

Tour About us
Pricing Jobs
Blog Terms
Privacy Cookies
API

**Sign up for our newsletter:**

Information about upcoming challenges, solutions and lessons directly in your inbox.

Your email Sign up

**Social:**

**Contact us:**

For customer support queries:
UK +44 (0) 208 970 78 68
US 1-415-466-8085
support@codility.com

For sales queries:
UK +44 (0) 208 970 78 67
US 1-415-466-8085
sales@codility.com