

AVAILABLE
LESSONS:*Lesson 1*
Iterations*Lesson 2*
Arrays*Lesson 3*
Time Complexity*Lesson 4*
Counting
Elements*Lesson 5*
Prefix Sums*Lesson 6*
Sorting*Lesson 7*
Stacks and
Queues*Lesson 8*
Leader*Lesson 9*
Maximum slice
problem*Lesson 10*
Prime and
composite
numbers*Lesson 11*

PAINLESS

Triangle

START

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

Programming language: C++ ▼

Human language: English ▼

A zero-indexed array *A* consisting of *N* integers is given. A triplet (*P*, *Q*, *R*) is *triangular* if $0 \leq P < Q < R < N$ 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:

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

that, given a zero-indexed 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:

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

the function should return 0.

Assume that:

- *N* is an integer within the range [0..100,000];

Sieve of
Eratosthenes

Lesson 12

Euclidean
algorithm

Lesson 13

Fibonacci
numbers

Lesson 14

Binary search
algorithm

Lesson 15

Caterpillar
method

Lesson 16

Greedy
algorithms

Lesson 17

Dynamic
programming

Lesson 90

Tasks from
Indeed Prime
2016 challenge

Lesson 99

Future training

- each element of array A is an integer within the range $[-2,147,483,648..2,147,483,647]$.

Complexity:

- expected worst-case time complexity is $O(N \cdot \log(N))$;
- 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.

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