

CodeCheck Report: training7J2YWR-FS7

Test Name:

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Summary Timeline

Tasks summary

Task	Time spent	Score
StoneWall C++	35 min	100%

Total score



Tasks Details

Easy

1. **StoneWall**

Cover "Manhattan skyline" using the minimum number of rectangles.

Task Score

100%

Correctness

100%

Performance

100%

Task description

You are going to build a stone wall. The wall should be straight and N meters long, and its thickness should be constant; however, it should have different heights in different places. The height of the wall is specified by an array H of N positive integers. H[l] is the height of the wall from l to l+1 meters to the right of its left end. In particular, H[0] is the height of the wall's left end and H[N-1] is the height of the wall's right end.

The wall should be built of cuboid stone blocks (that is, all sides of such blocks are rectangular). Your task is to compute the minimum number of blocks needed to build the wall.

Write a function:

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

that, given an array H of N positive integers specifying the height of the wall, returns the minimum number of blocks needed to build it.

For example, given array H containing N = 9 integers:

```
H[0] = 8    H[1] = 8    H[2] = 5
H[3] = 7    H[4] = 9    H[5] = 8
H[6] = 7    H[7] = 4    H[8] = 8
```

Solution

Programming language used:

C++

Total time used:

35 minutes

?

Effective time used:

35 minutes

?

Notes:

not defined yet

Task timeline

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00:36:15

01:10:56

Code: 01:10:56 UTC, cpp, final, score: 100

[show code in pop-up](#)

1

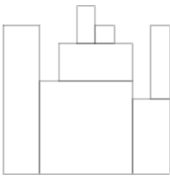
// you can use includes, for example:

2

// #include <algorithm>

3

the function should return 7. The figure shows one possible arrangement of seven blocks.



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

- N is an integer within the range [1..100,000];
- each element of array H is an integer within the range [1..1,000,000,000].

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Test results - Codility

```
4 // you can write to stdout for debugging purposes
5 // cout << "this is a debug message" << endl;
6 #include <stack>
7
8 int solution(vector<int> &H) {
9     int ladrillo = 0;
10    stack<int> muro;
11
12    for (auto i:H) {
13        while (!muro.empty() && i < muro.top())
14            muro.pop();
15    }
16    if (muro.empty() || i > muro.top()) {
17        muro.push(i);
18        ++ladrillo;
19    }
20 }
21 return ladrillo;
22 }
```

Analysis summary

The solution obtained perfect score.

Analysis

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

Example tests	
▶ example	✓ OK

Correctness tests	
▶ simple1	✓ OK
▶ simple2	✓ OK
▶ simple3	✓ OK
▶ simple4	✓ OK
▶ boundary_cases	✓ OK

Performance tests	
▶ medium1	✓ OK
▶ medium2	✓ OK
▶ medium3	✓ OK
▶ medium4	✓ OK
▶ large_piramid	✓ OK
▶ large_increasing_decreasing	✓ OK
▶ large_up_to_20	✓ OK
▶ large_up_to_100	✓ OK
▶ large_max	✓ OK