

Send Money Internationally For Free Up to 500GBP

[MORE INFO >](#)[Search](#)[Software Engineering Jobs](#)[Interview Puzzles](#)[© Disclaimer and Privacy](#)

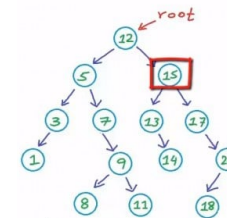
ALGORITHMS, BLOCKCHAIN AND CLOUD

[ARCHIVE](#)[CODING](#)[LINUX](#)[FORUM](#)[ALGORITHMS](#)[HARDWARE](#)[Home](#) ▶ [Algorithms](#) ▶ How to Check If An Array is Monotonic?Tags: [algorithm](#), [monotonic array](#), [monotonic increasing or decreasing](#)

How to Check If An Array is Monotonic?

[September 3, 2018](#) [No Comments](#) [algorithms, c / c++](#)

Recommended for you

Finding the
Predecessor and Suc...[helloacm.com](#)[AddThis](#)Facebook Onsite
Interview Preparation...[helloacm.com](#)

Send Money Internationally For Free Up to 500GBP

[MORE INFO >](#)

Missing template

An [array](#) is called monotonic if it is either monotone increasing or monotone decreasing.

“ An array A is monotone increasing if for all $i \leq j$, $A[i] \leq A[j]$. An array A is monotone decreasing if for all $i \leq j$, $A[i] \geq A[j]$. Return true if and only if the given array A is monotonic.

Example 1:

Input: [6,5,4,4]

Output: true

Example 2:

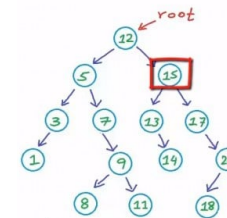
Input: [1,3,2]

Output: false

TWO PASSES ALGORITHM TO TEST IF ARRAY IS MONOTONIC

We can scan the array twice (two passes) with $O(N)$ complexity (with space <https://helloacm.com/how-to-check-if-an-array-is-monotonic/>)

Recommended for you



Finding the Predecessor and Suc...

helloacm.com

AddThis



Facebook Onsite Interview Preparation...

helloacm.com

Send Money Internationally For Free Up to 500GBP

MORE INFO >

another to test if array is monotonic decreasing, based on the definition. The C++ implementation is straightforward, as follows:

```

1 class Solution {
2     public:
3         bool isMonotonicIncreasing(vector<int>& A) {
4             for (int i = 1; i < A.size(); ++ i) {
5                 if (A[i] < A[i - 1]) {
6                     return false;
7                 }
8             }
9             return true;
10        }
11
12        bool isMonotonicDecreasing(vector<int>& A) {
13            for (int i = 1; i < A.size(); ++ i) {
14                if (A[i] > A[i - 1]) {
15                    return false;
16                }
17            }
18            return true;
19        }
20
21        bool isMonotonic(vector<int>& A) {
22            return isMonotonicIncreasing(A) || isMonotonicDecreasing(A);
23        }
24    };

```

2 Comments

2 Comments

1 Comment

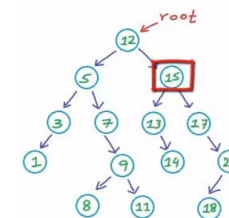
No Comments

Alternatively, we define a integer comparison function *sgn* which returns -1, 0 or 1 to represent the relations between two integers, smaller, equal or bigger.

Next, we keep track of the *prev* variable which stores a non-zero comparison result. If we see the opposite, the answer is false.

```
1 class Solution {
2 public:
3     bool isMonotonic(vector<int>& A) {
4         auto sgn = [](int a, int b) { // local functions
5             return a < b ? -1 : (a == b) ? 0 : 1;
6         };
7     }
8 }
```

Recommended for you



Finding the Predecessor and Suc...

helloacm.com

AddThis

Facebook Onsite
Interview Preparation...

helloacm.com

Send Money Internationally For Free Up to 500GBP
MORE INFO >



RELATED POSTS

The Wiggle Sort Algorithm on Array of Integers

The Wiggle Sorting may produce more than one possible outcome as long as the final...

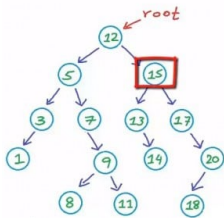
Teaching Kids Programming - Algorithm to Check If Array is Monotonic

An array is monotonic if it is either monotone increasing or monotone decreasing.
An array...

Check If an Array Represents a Max Heap (Danny Heap Algorithm)

Given a list of integers nums, return whether it represents a max heap. That is

Recommended for you



Finding the Predecessor and Suc...

helloacm.com

AddThis



Facebook Onsite Interview Preparation...

helloacm.com

Send Money Internationally For Free Up to 500GBP

[MORE INFO >](#)[Relative Sort Array Algorithm: Sort Array Based on Predefined Sequence](#)

Given two arrays arr1 and arr2, the elements of arr2 are distinct, and all elements...

[Divide the Array into Group of Integers with Size using GCD Algorithm](#)

X of a Kind in a Deck of Cards In a deck of cards, each...

[Array Recursive Index Algorithm By Simulation](#)

Given a list of integers nums and an integer k, let's create a new set...

[Using Bitmasking Algorithm to Compute the Combinations of an Array](#)

Given two integers n and k, return all possible combinations of k numbers out of...

[How to Check if Array/List Contains Duplicate Numbers or Strings in Python using Set?](#)

In Python, we can check if an array or list contains duplicate items using the...

[Two Pointer Algorithm to Count Triangle Triplets in an Array](#)

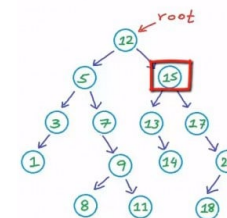
Given a list of non-negative integers nums, return the total number of 3 unique numbers...

[Even Frequency of Array using Sort or Hash Map](#)

Given a list of integers nums, return whether all numbers appear an even number of...

Leave a Reply

Recommended for you



Finding the Predecessor and Suc...

[helloacm.com](#)

[AddThis](#)



Facebook Onsite Interview Preparation...

[helloacm.com](#)

Send Money Internationally For Free Up to 500GBP
MORE INFO >



Comment Text*

Name*

Email*

Website

Post Comment

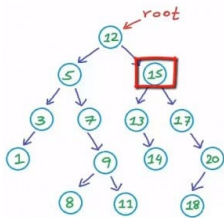
FORUMS

- Data Structure & Algorithms
- How-Tos and Everything Else *
- Programming Languages
- SEO, WordPress, Coding for the Web

RECENT TOPICS

- Facebook Interview
- stack
- Adsense Earning Report Nov/2016
- Adsense Earning Report October/2016

Recommended for you



Finding the Predecessor and Suc...
helloacm.com
AddThis



Facebook Onsite Interview Preparation...
helloacm.com

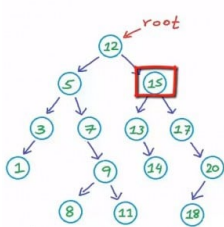
Send Money Internationally For Free Up to 500GBP
MORE INFO >



data structure delphi
depth first search algorithm
dynamic programming
dynamic programming algorithm
greedy algorithm hardware
implementation java javasc
leetcode linux math nun
online judges php program
programming language pythc
Python Programming recursiv
shell steemit string algorithm
Teaching Kids Programming t
Two pointer algorithm vbscrip
Youtube Video

Algorithms, Blockchain and Cloud Copyright © 2022.
All rights Reserved © 2014~ 2022 | Uptime **3605** Days, **2827** Posts and **13** Pages, **756** comments
Highly Recommended: [TopCashBack UK](#) | [Quidco CashBack UK](#) | [\\$2.5 Vultr Cloud VPS](#) | [\\$5 Linode](#)
[\\$5 DO Cloud VPS](#) | [PlusNet Fibre](#) | [QuickHostUK](#) | [Namesilo Domain](#) | [Watch TV Online \(Video Streaming\)](#)
[VPS Reviews](#) | [Popular Link Resources](#)
Follow Us: [Linkedin Page](#) | [Facebook Page](#) | [Twitter](#) | [Sites @ Github](#)
Make Your Wordpress Fast Again! **This Wordpress is accelerated by WP Rocket Plugin!**

Recommended for you



Finding the Predecessor and Suc...
helloacm.com



Facebook Onsite Interview Preparation...
helloacm.com