

# SHORT PROGRAMMING QUESTIONS

Please submit by pushing to a new github repository and sending the link

## DEPTH FIRST TREE TRAVERSAL

Discuss an algorithm to traverse a tree, depth first.

## CHARACTERS IN STRINGS

Implement a function with signature `find_chars(string1, string2)` that takes two strings and returns a string that contains only the characters found in string1 and string two in the order that they are found in string1. Implement a version of order  $N*N$  and one of order  $N$ .

## ARRAY COMPACTION

Write a function that takes as input a sorted array and modifies the array to compact it, removing duplicates.

Notes: The input array might be very large.

For example:

- input array = [1, 3, 7, 7, 8, 9, 9, 9, 10]
- transformed array = [1, 3, 7, 8, 9, 10]

## ROTATING AN ARRAY

Write a function that takes an array of integers and returns that array rotated by  $N$  positions.

For example, if  $N=2$ , given the input array [1, 2, 3, 4, 5, 6] the function should return [5, 6, 1, 2, 3, 4]

## LEAST COMMON MULTIPLE

The least common multiple of a set of integers is the smallest positive integer that is a multiple of all of the integers in the set.

Write a function that takes an array of integers and efficiently calculates and returns the LCM.

## ANGULAR JS

Please create an angularjs app that uses [angular-pouchdb](#). It should contain some automated tests for the angular-pouchdb **put** function (not the underlying pouchdb one). That's all. Recommend Karma and Jasmine for tests. No need to add tests optional arguments, just basic **put**.