Assignment 3

Please read **turn-in checklist** at the end of this document before you start doing exercises.

**Problems To Hand In (Java Implementation)**:

1. Write a recursive function that finds the largest element in an array. You may assume that the input array has at least one element in it (and, of course, you may not use the max() function provided in Java libraries).

Example, given the input array A[] = {12,25,36,85,28}, you should return 85 as the largest element.

**This function must be a recursive one and cannot contain a loop.**

Find a file called Problem1.java in assignment 3 folder.

Complete the method of largest().

Test your method in the main method provided following the comments.

**Note: Full credit (30 points) will be awarded for a recursive program that does not contain a loop. Programs that are NOT recursive/containing loops will be scored out of 5 points.**

1. Write a recursive function that counts the number of decimal digits in an integer.

Specifically, given an integer, num, when we pass that into a function Countdigit(num), the function returns an integer that’s a count of the number of the decimal digits in the variable num.

**This function must be a recursive one and cannot contain a loop.**

Find a file called Problem2.java in assignment 3 folder.

Complete the method of Countdigit().

Test your method in the main method provided following the comments.

**Note: Full credit (30 points) will be awarded for a recursive program that does not contain a loop. Programs that are NOT recursive/containing loops will be scored out of 5 points.**

**Problems NOT to Hand In (Practice Problems):**

The following problems are NOT collected and NOT graded. However, some of these problems will be used in quizzes, so it is in your best interest to do practice problems.

Solutions to practical problems will be discussed AFTER quizzes (To be fair with the class, the instructor will NOT answer questions about practice problems BEFORE quizzes. If asked, the instructor will show similar problems discussed during lectures).

1. Leetcode 153:

<https://leetcode.com/problems/find-minimum-in-rotated-sorted-array/>

1. Leetcode 4:

<https://leetcode.com/problems/median-of-two-sorted-arrays/>

1. Leetcode 1982:

<https://leetcode.com/problems/find-array-given-subset-sums/>

**TURN-IN CHECKLIST:**

1. **All your source code\* of “Problems To Hand In”. Remember to include your name, the date, and the course number in comments near the beginning of your code.**

**\* The source code you submit must contain all the files necessary to run your program. These files will typically be***.java***files containing programs.**

1. **Create a folder and name it 'FirstName\_LastName\_assignment\_3'. In the newly created folder copy and paste your files (.java files). Then compress the folder, and push it to Brightspace.**