Lab Assignment **2**

CS 301 – Data Structures

Problem 1:

You are given an integer array A and two integers i and j. You can assume that i ≤ j and that A is large enough to include A[i] and A[j]. Write an iterative function and a recursive function that determines the largest number in A[i], A[i + 1], ..., A[j].

Problem 2

You are given an integer array A and two integers i and j. You can assume that i ≤ j and that A is large enough to include A[i] and A[j]. Write an iterative function and recursive function that reverses the elements in the range A[i], . . . , A[j].

Implementation

You are given a file Lab*2*.java (which you can download from canvas). The file contains a class Lab2 with the four functions: ***problem1Iterative***, ***problem1Recursive***, ***problem2Iterative*** and ***problem2Recursive***. Implement your solutions in the corresponding functions. Do not make any changes outside of these functions, except to also complete the required helper function; such changes will be undone. Do not output anything to the terminal in these functions.

Use comments in your code to clearly state which part of your code handles the base case and which part handles the recursive step.

The program already implemented in the file Lab*2*.java randomly generates test cases. This file contains a small number of test cases. The seed of the random number generator is set to ensure the same test cases whenever to program is executed. Note that the purpose of the tests is for you to avoid major mistakes. Passing all given tests does not imply that your algorithm is correct, especially that is has the expected runtime.

Submission

For your submission, upload the file Lab*2*.java with your implementation to canvas. This is an individual assignment. Therefore, a submission is required from each student.

Deadline: On Canvas.