Lab Assignment 7

CS 301 – Data Structures

Problem 1

Your are given the root nodes of two binary search trees. Determine if both trees store the same numbers. Note that the trees do not need to be equivalent in structure; the question is only if they store the same numbers.

Problem 2

Your are given the root node of a binary search tree T and two integers *min* and *max*. Note that *min* and *max* are not necessarily stored in the tree. Determine the sum of all keys stored in T that are larger than or equal to *min*, and smaller than or equal to *max*. Implement your algorithm recursively. Clearly state base case and recursive step in your code.

Implementation

You are given a file *Lab7.java* (which you can download from canvas). The file contains a class `Lab7` with the two functions `problem1` and `problem2`. Implement your solutions in the corresponding functions. **Do not make any changes outside of these two functions (e. g. by adding helper functions); such changes will be undone.** Do not output anything to the terminal.

The program already implemented in the file *Lab7.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 *Lab7.java* with your implementation to canvas.

This is an individual assignment. Therefore, a submission is required from each student.