CS 3350 Assignment 4 Due: Wednesday, April 5, 11:59 p.m.

The goal of this assignment is to practice with the operations of trees.

You are given an assignment4.cpp file. Create an empty project and include the given cpp file.

**Your Tasks:**

1. Complete the function of int height(Node\* root) that returns the height of a tree.
2. Complete the function of int size(Node\* root) that returns the total number of nodes in the tree.
3. Complete the bool isComplete(Node\* root) that returns a Boolean value indicating whether the tree is a complete tree or not.
4. Complete the void convert\_BST(Node\* root) that converts the given binary tree to a binary search tree, but maintain its original structure: The position of nodes in the tree does not change, but the keys in the nodes are changed to make it a binary search tree.

**Note:**

1. **You are not allowed to change anything inside the main () function.**
2. **You can include any C++ library. You can also write any helper function to help you complete the four tasks.**

**Sample output:**

Text

Description automatically generated

**What to submit**

* A single assignment4.cpp file

**Grading Rubric**

\_\_\_\_\_\_\_ (4) proper documentation/comments where appropriate.

\_\_\_\_\_\_ (2) implementation of int height(Node\* root)

\_\_\_\_\_\_\_ (2) implementation of int size(Node\* root)

\_\_\_\_\_\_\_ (6) implementation of bool isComplete(Node\* root)

\_\_\_\_\_\_\_ (6) implementation of void convert\_BST(Node\* root)