

CA320 - Assignment 2 - AVL Trees

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I acknowledge that the work submitted in this assignment is my own work and does not breach the DCU Academic Integrity Policy.

Description

The first of the two main functions is insert, insert accepts a value and a tree and returns a new tree with the value inserted into it. When insert is called a helper function called balance is called to balance the tree if it is needed to. balance will call another helper function called check balance to see if the tree is not balanced, if it is not it will then check the way in which the tree is unbalanced, this is done by comparing the heights of the given trees subtrees. There are four cases to balance for, these being:

- Left Left
- Right Right
- Left Right
- Right Left

There are multiple other helper functions that will be called while we are balancing the functions, these being rotateRight, rotateLeft, getRightTree, getLeftTree and getValue.

The other main function in the program is printTree, printTree accepts a tree and returns nothing but prints out the tree in the terminal. printTree calls a helper function, called printTreeHelper, so we can track the indentation level. printTreeHelper returns a list with the strings which have their corresponding indentation. printTree takes this list and splits them by a newline then prints it to the terminal.