

IT206 Assignment

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TOPIC: AVL TREES

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Readme:

- This program will prompt the user to input a valid preorder traversal of a valid BST. Then the preorder traversal will be used to create a BST.
- After this all the balance factors of the BST will be calculated and the corresponding values for each node will be shown in the output
- Then the BST will then be converted into an AVL tree by using the inorder traversal of the BST, which is also the sorted array of the preorder traversal.
- Using the inorder traversal, a balanced binary search tree will be created which will also be AVL tree.(Logic is similar to searching by using binary search, like using mid element in the sorted array recursively to be inserted in the tree).
- After the AVL tree is created all the balance factors are re-calculated and then shown in the console.
- Then the user will be prompted to insert one element which is not present in the AVL tree(the program doesn't check for duplicate keys and will fail if given as input for insertion).
- Then the element will be inserted in the AVL just like an element is inserted in a BST and then the imbalances are

checked and the required rotations are performed and shown in the console.

- Finally, after all the rotations the preorder, inorder and postorder traversals of the final computed tree will be shown along with the balance factors which will also be calculated finally after insertion.