Task 1:

Avl insertion Algorithm

AVL Insertion Algorithm

1. Create a Node:a

2. Check if Tree is Empty:

3. If the Tree is Not Empty:

Perform Binary Search Tree (BST) insertion:

If key < current node’s key → go to the left subtree.

If key > current node’s key → go to the right subtree.

Recursively insert in the correct position.

4. Update Height:

After insertion, update the height of the current node:

5. Calculate Balance Factor:

o Balance Factor = height of left subtree − height of right subtree

6. Check for Imbalance:

7. Apply Rotations:

8. Repeat Step 4–7 up the recursion stack