

getInput() function has constant time complexity because everything is running once.

getInputFile() function has time complexity  $O(n)$  because for loop runs  $n$  times which is equal to the input size.

BuildAVLTree() has time complexity  $(n \log n)$  because for loop runs  $n$  times and in the for loop it inserts the value in tree which takes  $\log n$  time complexity for  $n$  elements.

insertNodeAVL() has time complexity  $O(\log n)$  because it inserts the node in a tree by comparing with the other nodes, so every time it traverses to the left or right node to insert the value in perfect location and after that it gets the height of the tree to make it an AVL tree.

printAVL() tree has  $O(n)$  time complexity because we traverse to every node in the tree and print the tree in inorder and preorder.

$$O(n) + O(n) = O(n)$$

DeleteNodeAVL() has time complexity  $O(n \log n)$  because it first searches for the node to delete by comparing with other nodes and then deletes it.

DeleteAVLTree() has  $O(n)$  time complexity because we traverse to every node in a tree and delete it.