CSE225 DATA STRUCTURES, 2020(FALL)

PROJECT #1 REPORT

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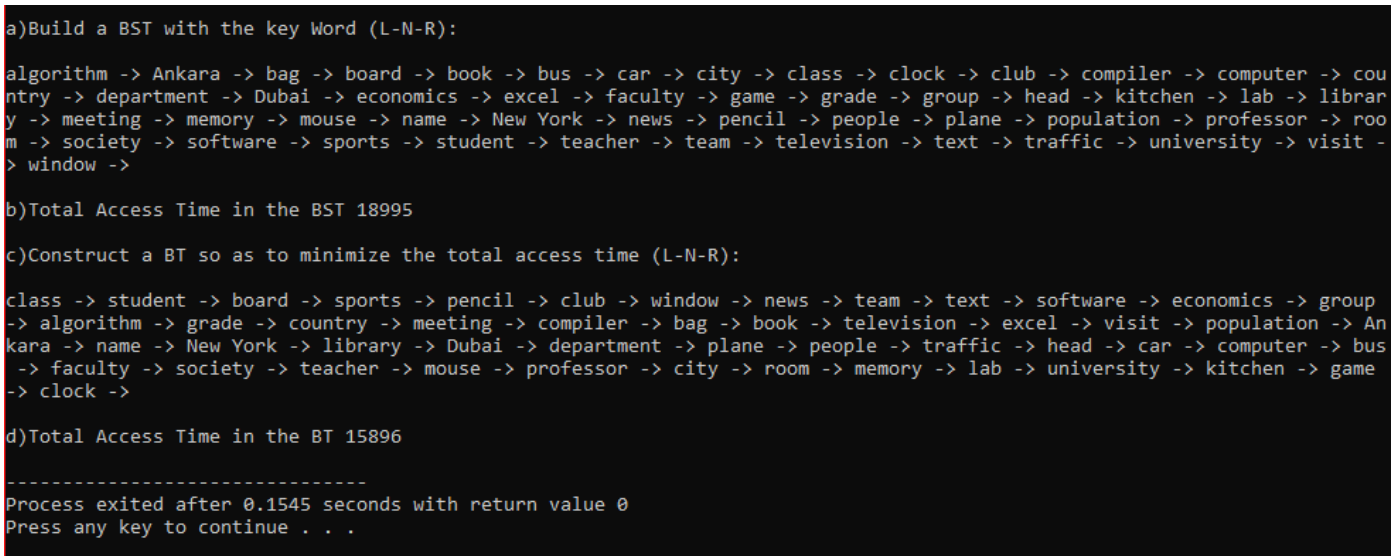

A,b,c and d parts is shown above.

e)Discuss your results in (b) and (d):

As you can see in the picture above in b part we have total access time in the BST as 18995. And in the d part of the program we have total access time in BT as 15896.
The reason of the difference is in part a we build a binary search tree which compares the inputs before inserting in the tree. If the given input is greater than the current node then the program insert it to the right child of the current node, otherwise insert it to the left child of the current node. By doing that we create our tree with the higher number of depth levels.
In part c we build a complete binary tree in which all the levels are completely filled except possibly the lowest one, which is filled from the left. With this way we can decrease the number of depth levels in our tree.
The formula of calculating the node's access time is equal to "frequency * depth level" of that node
And if we add all those access times we can find the total access time of that tree.
As you can see the total access time is proportional to the depth level so the BST's total access time is greater than the BT's total access time.