Data Structures and Algorithms Lab

05. Binary Search Trees

Lab Code: 19ECSP201 **Lab No:** 05 **Semester:** III
Date: 06 Sept, 2019 **Batch:** C2

Question: Computer Representation of a Binary Search Tree
Objective: Usage of list representation to implement a BST and its operations

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Implement and add the following functions to the working BST code that you have with you. You are supposed to implement as many functions as you can in the given time slot.

1. Print the in-degree of the root node of the tree

2. Implement the recursive tree search algorithm given below:

TREE-SEARCH (x, k)
If x = NULL or k = key[x]
  then return x
If k < key[x]
  then return TREE-SEARCH(left[x], k)
  else return TREE-SEARCH(right[x], k)

3. Print the number of edges in the tree

4. Delete all the nodes lesser than user given K from the tree

5. Count the number of nodes having a value greater than the given value K

6. Print the in-order successor of the given item

7. Find the minimum valued item from the tree

8. Count the number of external nodes (root and leaf nodes) in the tree

9. Print the address of the root node

10. Find and print the number of comparisons made to search a given item from the tree

11. Count the number of nodes present at level 1 of the tree

12. Implement the insert_into_bst function using recursion

13. Count and print the number of leaf nodes present in the tree

14. Find the memory occupied by the tree in terms of bytes

15. Find the number of edges between the root node and the largest element in the tree

**** Happy Coding ****