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| **Name** |  |
| **CMS ID** |  |
| **Date** |  |

**Objectives:**

After completing this Lab students will able to

1. Understand the concept and usage of Binary trees and binary search trees.
2. Implement Binary search trees.

For revision of the concepts of binary search trees, please refer to the lectures uploaded to google classroom. Call me anytime if you need any help. Here are the tasks that you need to perform

1. Implement the following methods for Binary search trees
   1. Insertion
   2. Deletion
   3. In order traversal
   4. Post order traversal
   5. Search a data in tree
   6. Pre order traversal
   7. Displaying the successors of a node
   8. Displaying the predecessor of a node
   9. Destroying whole tree (Destructor, Destroy function)
   10. Copying tree (Copy constructor, assignment operator overloading)

Test your implementation using following inputs

Input Data: 45, 88, 54, 76, 98, 1, 2, 20, 6, 53, 42, 100, 86, 32, 28, 65, 14

Inorder (sorted): 1 2 6 14 20 28 32 42 45 53 54 65 76 86 88 98 100

Postorder: 14 6 28 32 42 20 2 1 53 65 86 76 54 100 98 88 45

Preorder: 45 1 2 20 6 14 42 32 28 88 54 53 76 65 86 98 100

Height of BST: 6

Root for BST is: 45

Check whether 10 is in the tree? false

Delete 53

Updated Inorder data (sorted): 1 2 6 14 20 28 32 42 45 54 65 76 86 88 98 100

Min Value :1

Max Value :54

A path from the root to 6 is: 45 1 2 20 6