15CSE374
INTRODUCTION TO DATA STRUCTURES AND ALGORITHMS

Sarath tv

Last Lecture

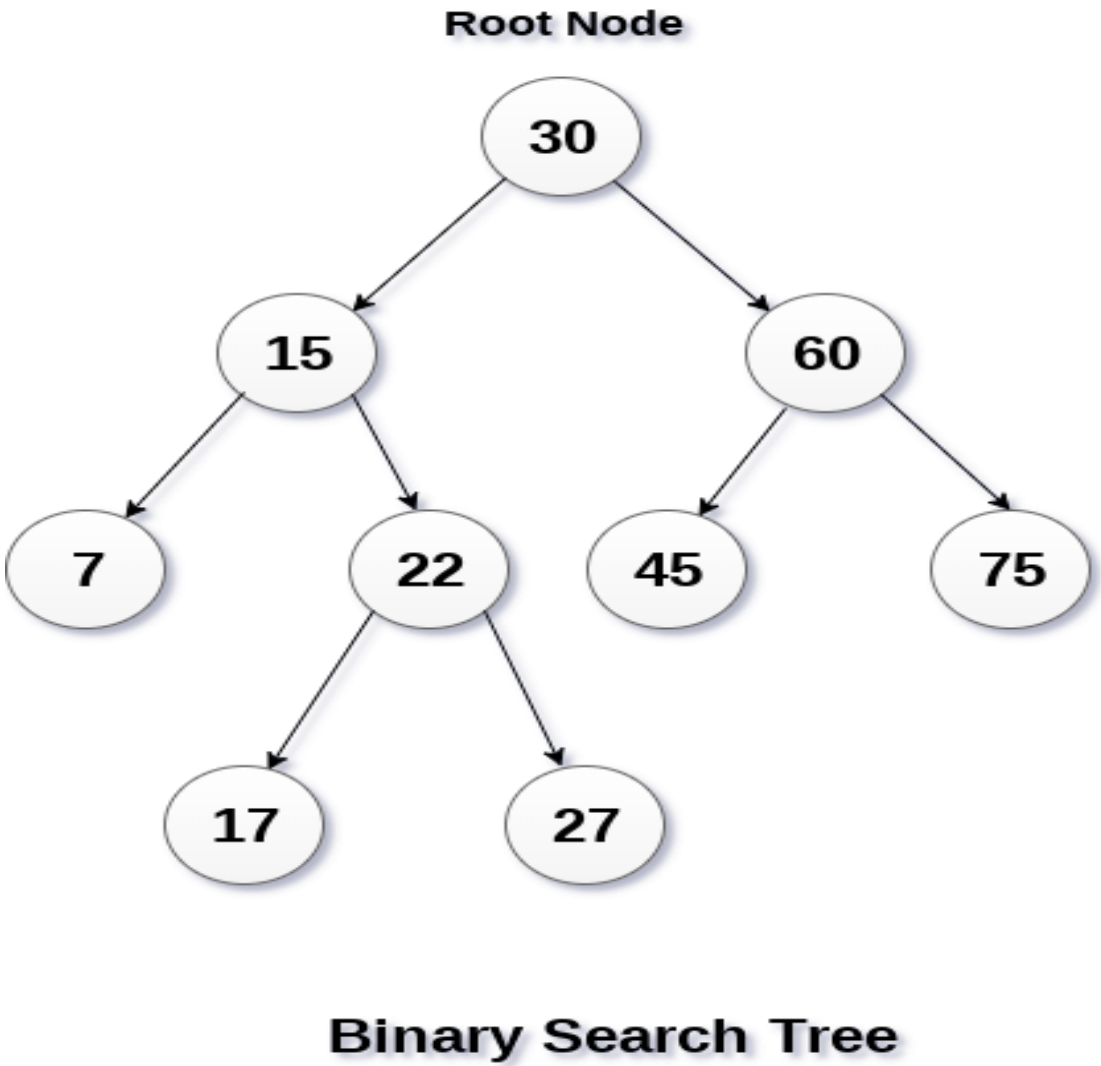
- Binary tree traversal
- DFS.
- BFS.

BST

- A binary search tree is a *data structure that quickly allows us to maintain a sorted list of numbers*.
- It is composed of nodes, which store data and also links to up to two other child nodes.
- It is the relationship between the leaves linked to and the linking leaf, also known as the parent node, which makes the binary tree such an efficient data structure.

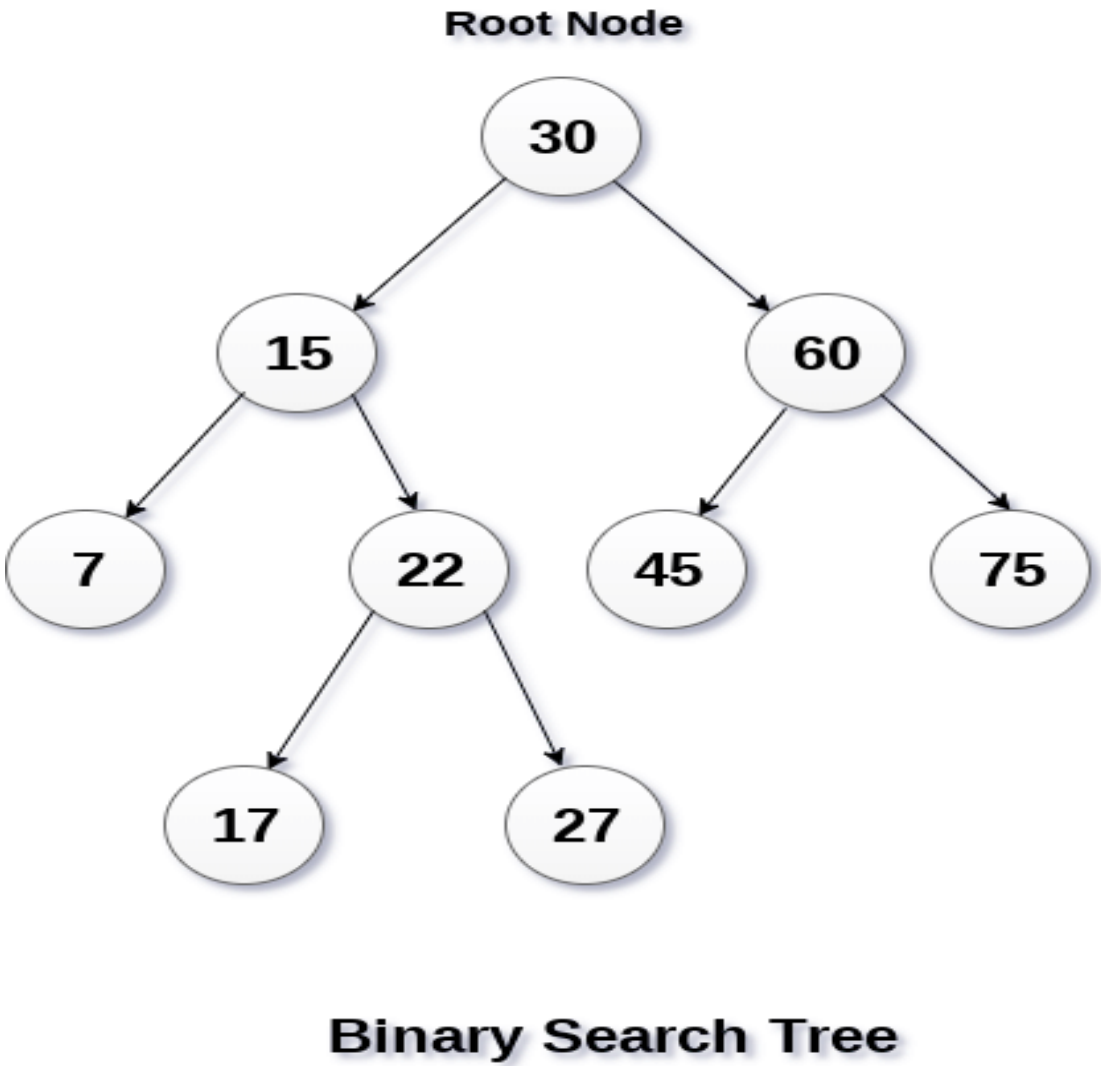
BST

- For a binary tree to be a binary search tree,
  - The data of all the nodes in the left sub-tree of the root node should be less than the data of the root.
  - The data of all the nodes in the right subtree of the root node should be greater than equal to the data of the root.
- As a result, the leaves on the **farthest left** of the tree have the **lowest** values, whereas the **leaves** on the **right** of the **tree** have the **greatest values**.



Binary Search Tree

Traversals

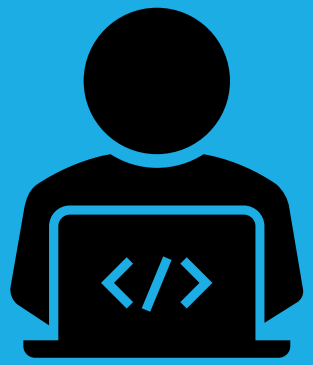


Discussion

- There must be no duplicate nodes.
- Inorder traversal of BST always produces sorted output.
- Time complexity

Interfaces

- Add nodes.
- Find nodes/Search node.
- Traversal
- Find min/max in tree.



THANK YOU!!!!!