

## Binary Trees

**Notebook:** Completed Algorithms

**Created:** 03-07-2020 10:19 AM

**Author:** Sachin Pandey

---

1. **Binary Search Trees:** This is a data structure which supports insertion, deletion, set membership, min, max, successor and predecessor in  $O(h)$  time complexity.

1. Introduction to Trees
  1. Linear DS
  2. Trees
  3. Vocabulary related to trees
  4. Properties of Trees
  5. Height and Depth
2. Binary Trees
  1. Definition
  2. Logical and Programmatical View
  3. Types of BT
    1. Proper BT
    2. Complete BT
    3. Perfect BT
    4. Balanced BT
  4. Concept of Level and Height of different BT
  5. Implementation of BT
    1. Dynamically created nodes
    2. Arrays (Complete BT)
3. Binary Search Trees
  1. Definition of BST
  2. Insertion of element
  3. Searching an element
  4. Deletion of an element
  5. Min / Max element
  6. Successor / Predecessor of an element
  7. Height of BST
4. Binary Search Tree Traversal
  1. Breadth First Traversal / Level Order Traversal
  2. Depth First Traversal
    1. Preorder
    2. Postorder
    3. Inorder
5. Checking if a BT is a BST
6. Diameter of BST
7. Lowest Common Ancestor of an element in BST

