DSA through C++

Binary Search Tree

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Agenda

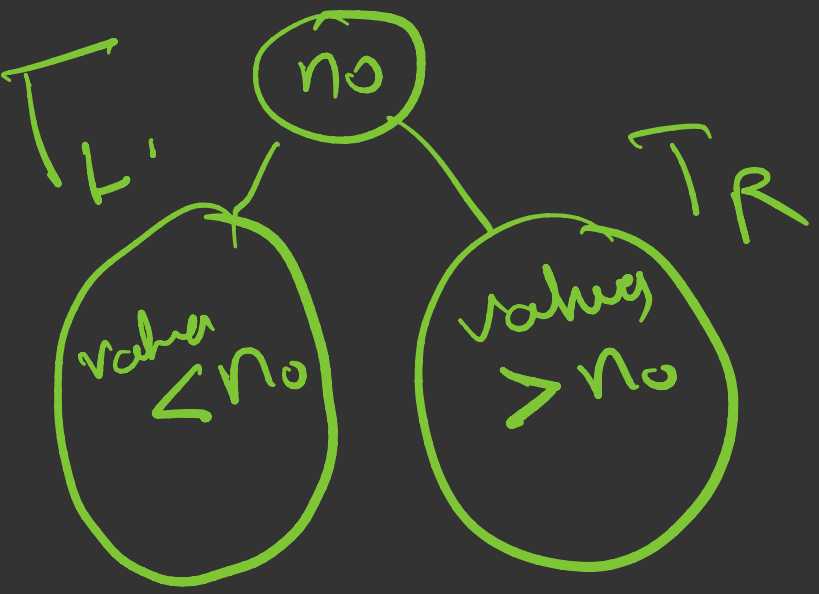
1. Binary Search Tree
2. Implementation of BST

Binary Search Tree

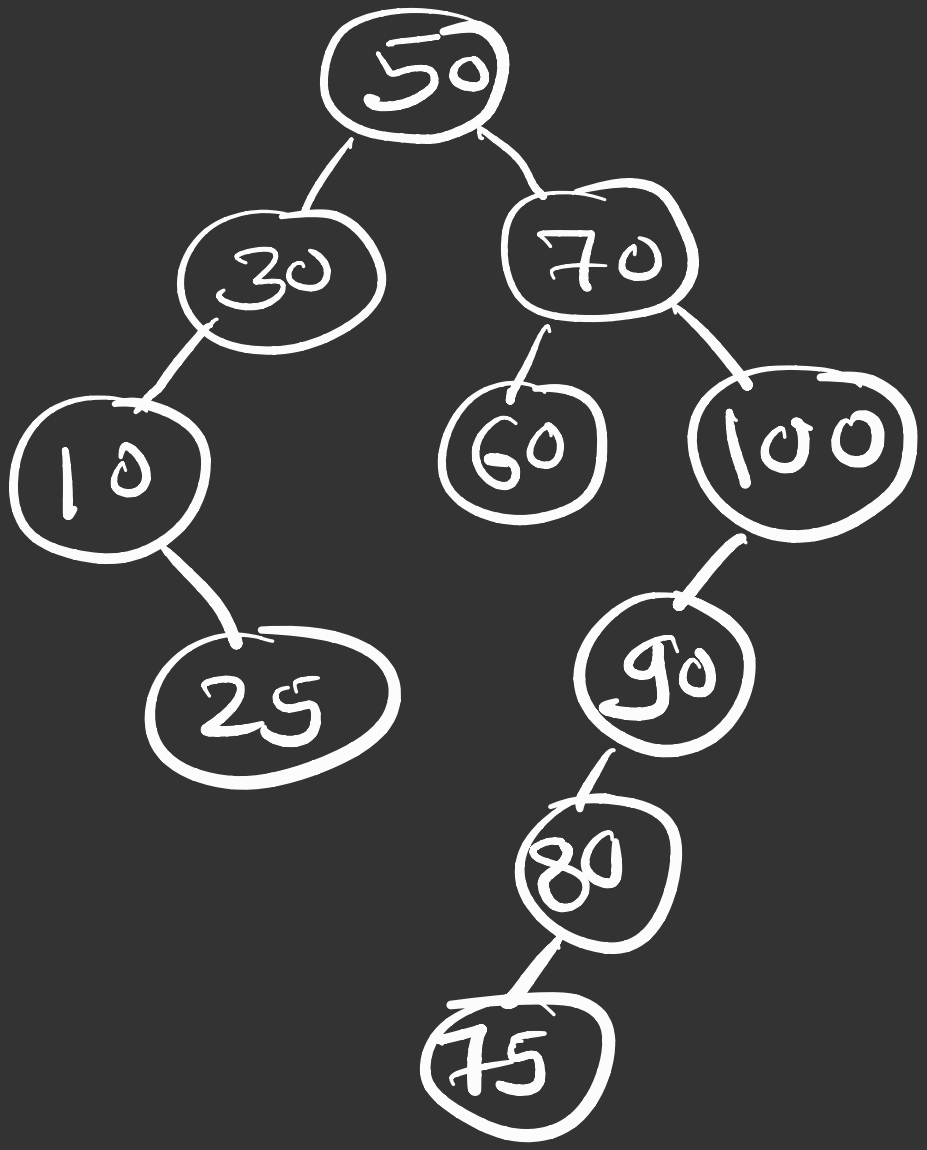
A binary search tree is the most important data structure, that enables one to search for and find an element with an average running time

$$f(n) = O(\log_2 n)$$

Duplicate values are not allowed in BST (By default)



50 70 30 100 90 60 80 10
25 75



Binary Search Tree is a binary tree with the value at node N is greater than every value in the left subtree of N and is less than every value in the right subtree of N.

Unless, explicitly said, BST doesn't allow duplicate values.

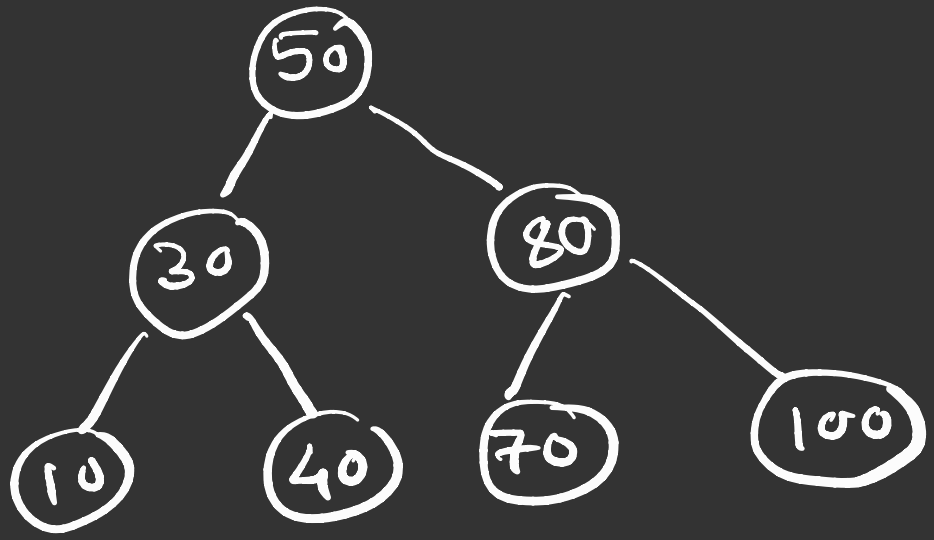
Implementation

1. node
2. Insertion
3. Traversing
4. Search
5. Deletion

node

```
Struct node
{
    node *left;
    int item;
    node *right;
};
```

Insertion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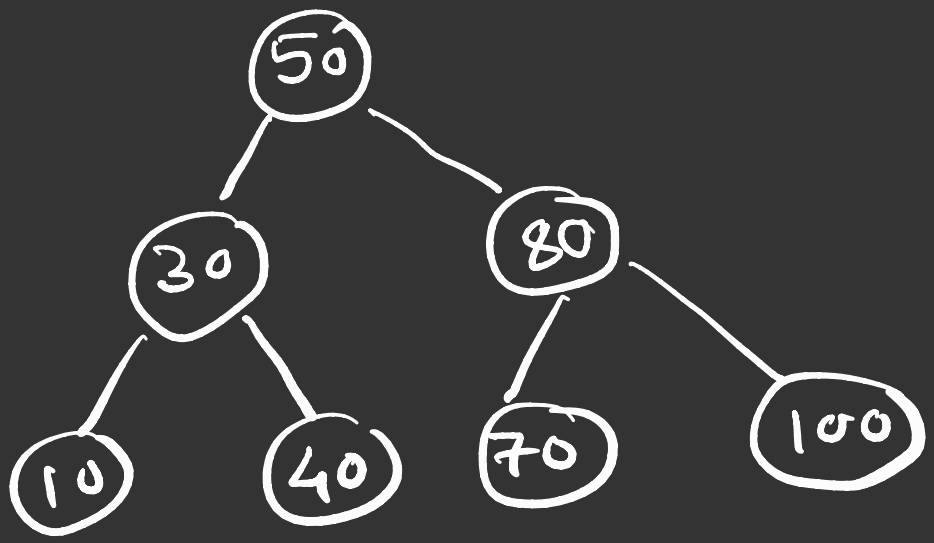
30
80
10
40
70
100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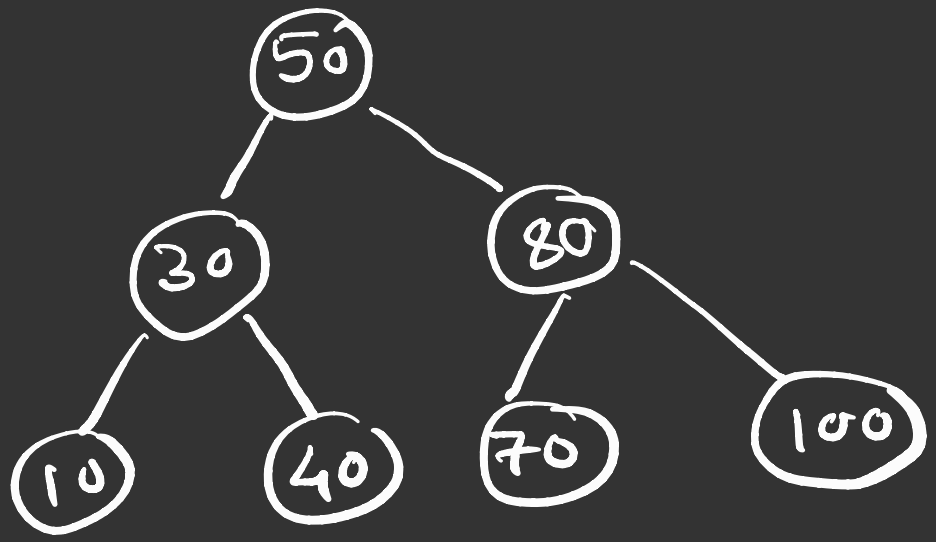
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Deletion