Binary Search Tree

What??

Binary Tree

→ Atmost 2 child nodes

① Data < Parent Node Data

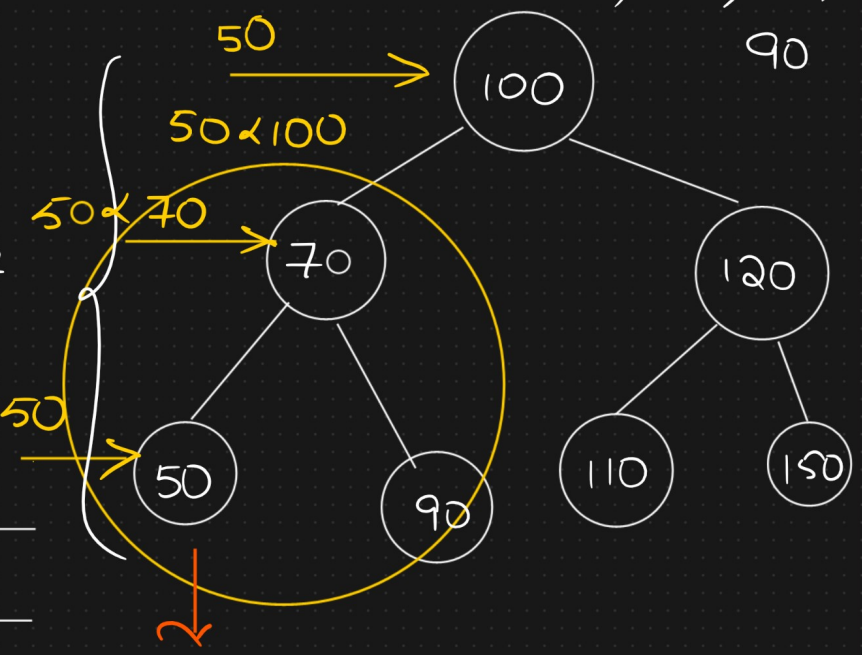
→ Left child node

② Data > Parent Node Data

→ Right child node

Balanced BST

100, 70, 120, 150, 110, 50, 90



True

Why ??

Realtime Application

→ Searching

→ x = 50 ??

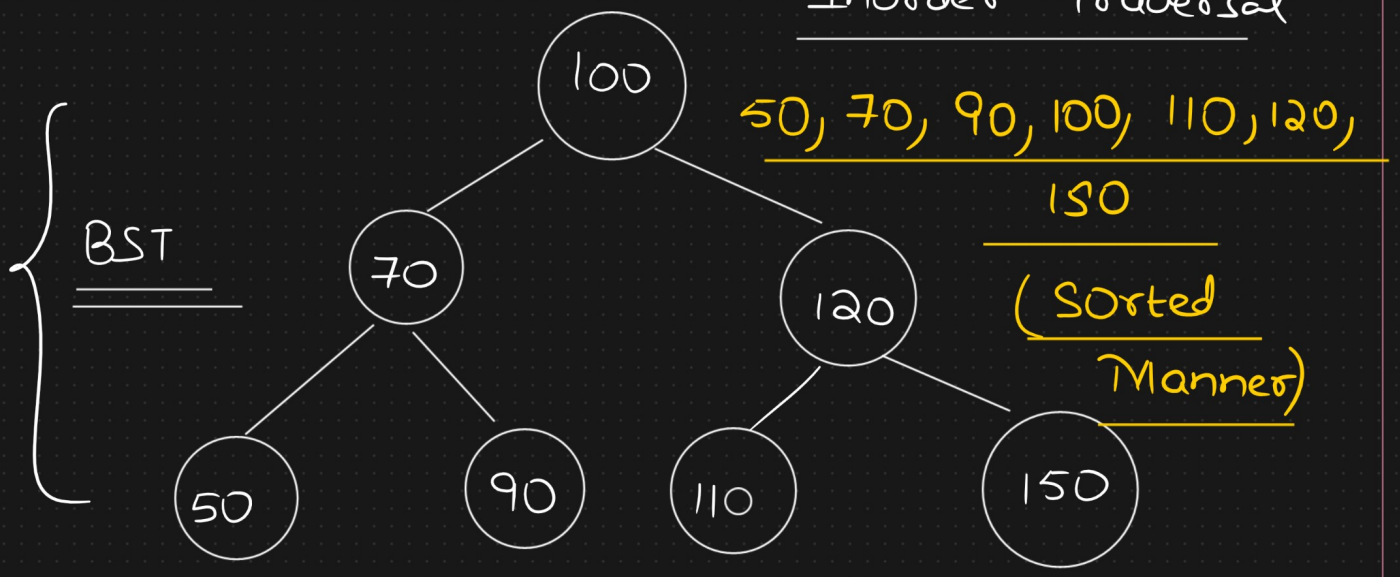
→ $O(\log_2 n)$

Balanced BST

Property

BST ⤵

Inorder Traversal



50, 70, 90, 100, 110, 120, 150

(Sorted Manner)

Inorder Traversal

```
① inOrder(node.left);
② print(node.data);
③ inOrder(node.right);
```

Given BST ⟶ Inorder Traversal

↓

Sorted array

↓

valid BST

$h = \log_2 n$

Balanced BST

↓

Almost equal distribution of nodes (Left & Right subtree)

$h \approx n$

Imbalanced BST

↓

Unequal distribution of nodes (Left & Right subtree)

50, 70, 90, 120, 40, 150