* Difference between the two list libraries in C++ :→

STL list < list (Doubly Linked list) / forward_list (Singly Linked list)

Interfaces { Comparable → compareTo() } Logic inside same class
{ Comparator → compare() } Logic outside class

(both used for sorting)

(Sep: 2025) (Dec : 2025) (Jan 2026) (HackerRank)

* Create a function in C++ to swap any two types of data.

(Generic) swap (a , b) ⇒ int , int / char , char / float , float

int a: 10, 20 — int b: 20, 10

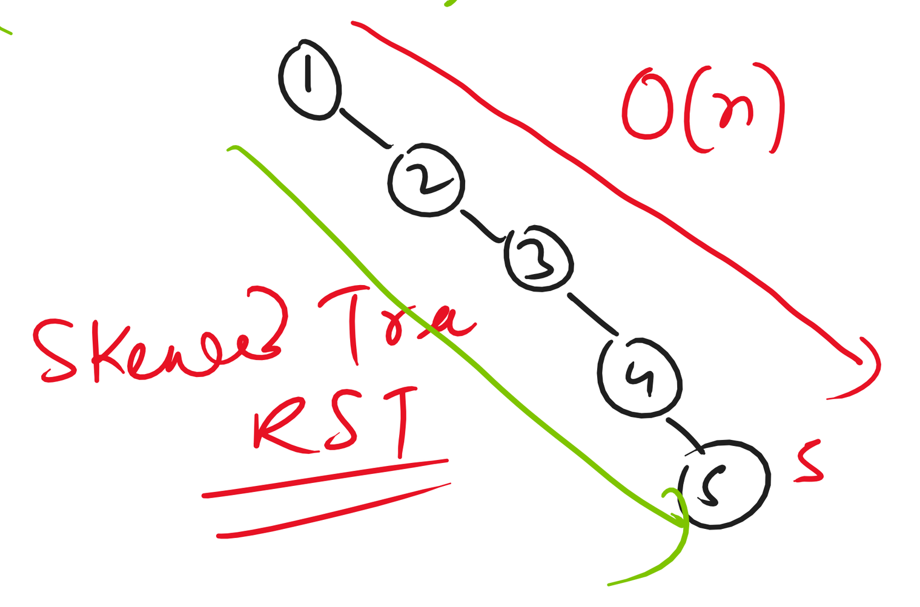
char a: 'a', 'b' — char b: 'b', 'a'

(AI)
(JDBC) → [database]
(Components) (90%)
(CRUD)
git commands

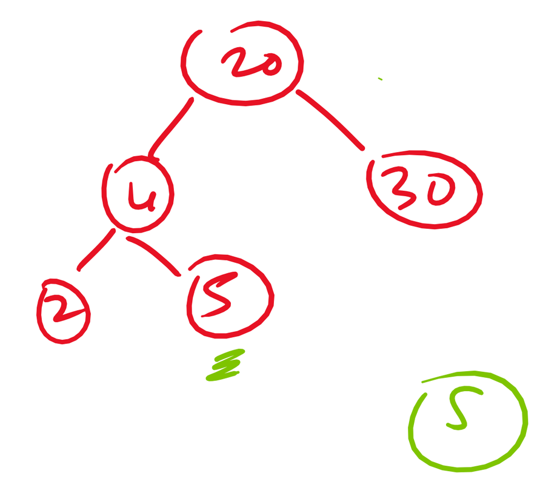
* Non-linear Data Structures :→ (Recursion)

1. Trees : Binary Tree
Binary Search Tree — L<N<R → Balanced: → AVL Tree, → Red Black Tree

(1,2,3,4,5)

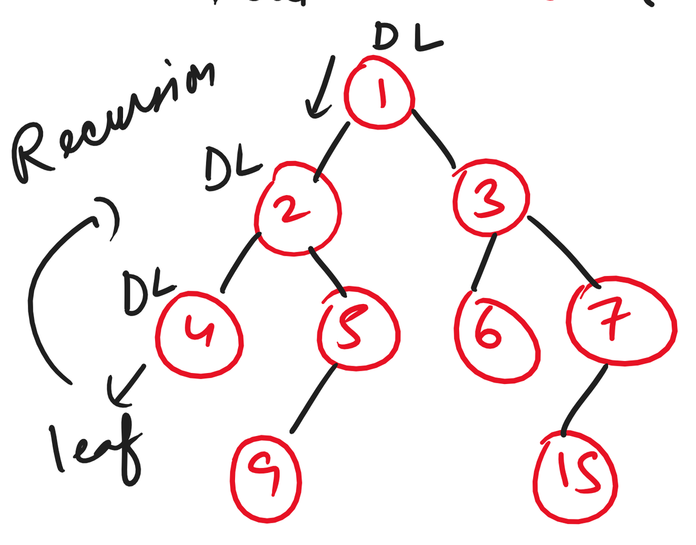


bf = lh − rh (0 to ±1)



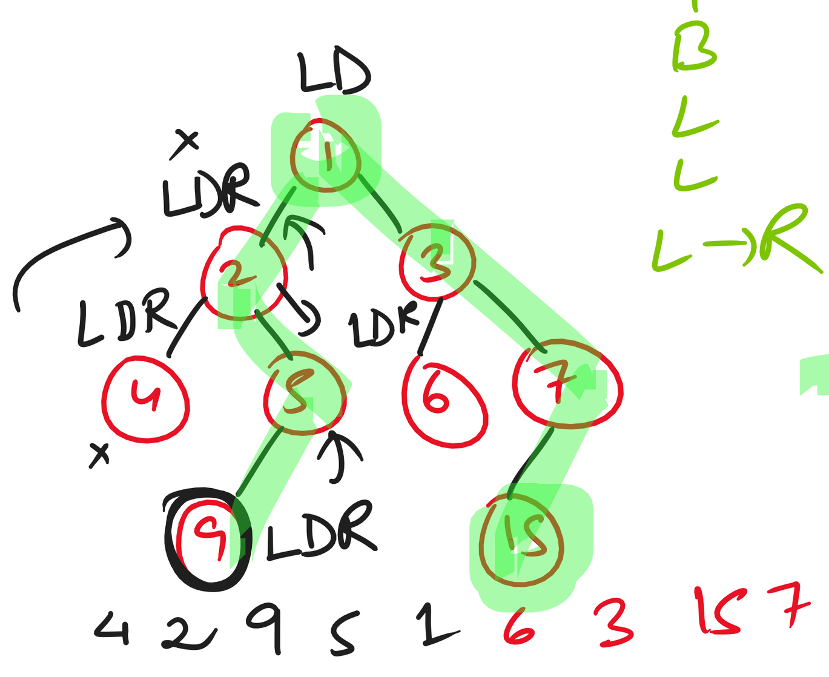
* Binary Tree Traversals:→

(DFS & BFS)
↳ Pre → {DLR}
In → {LDR}
Post → {LRD}



1, 2, 4, 5, 9, 3, 6, 7, 15 (1st)

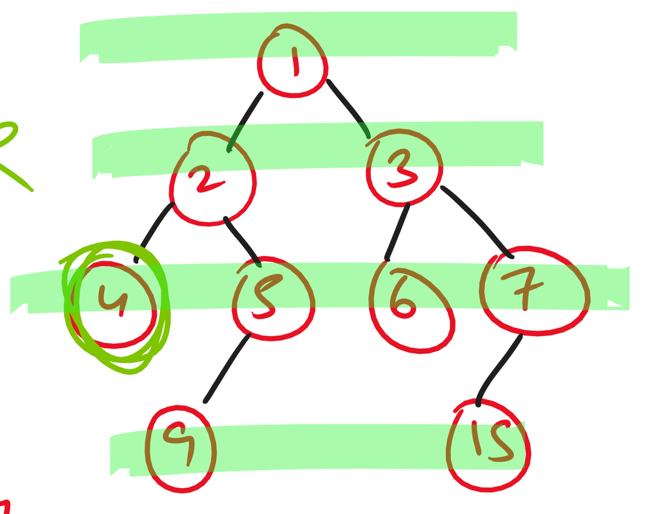
− inorder



4 2 9 5 1 6 3 15 7

T B L L L→R

4 9 5 2 6 15 7 3 1 — last

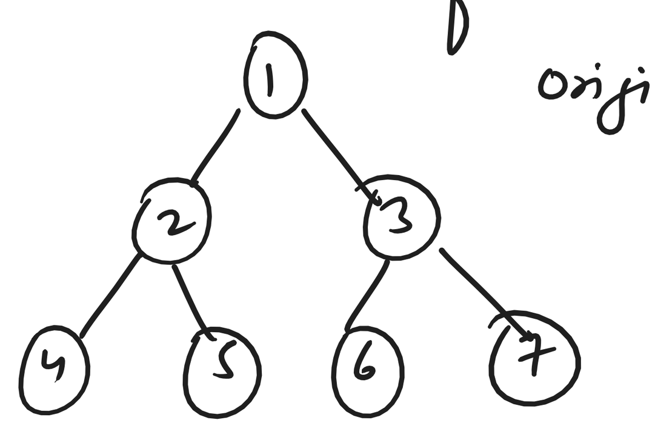


Trees Interview Questions :→ Recursion (7−12 LPA) ⇓ (Lg Soft) (Lumen Tech)

* (Accenture / Capgemini / TCS / Wipro / Mphasis)

(Mirror of A Binary Tree)

original

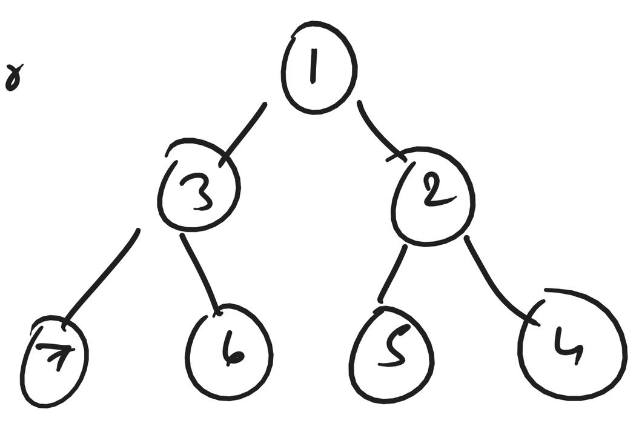


→ 4 2 5 1 6 3 7

Tree Temp = r.l
r.l = r.r
r.r = temp

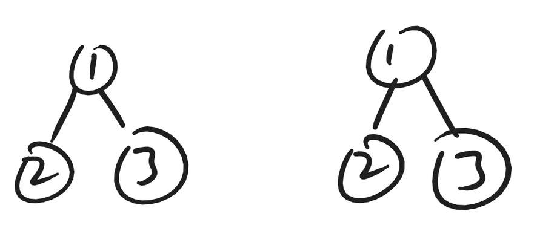
⇒ mirrorTree(Tree root)
{
}

mirror

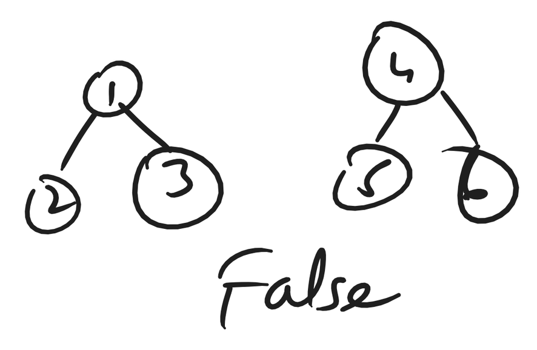


→ 7 3 6 1 5 2 4

Identical Trees:→



True



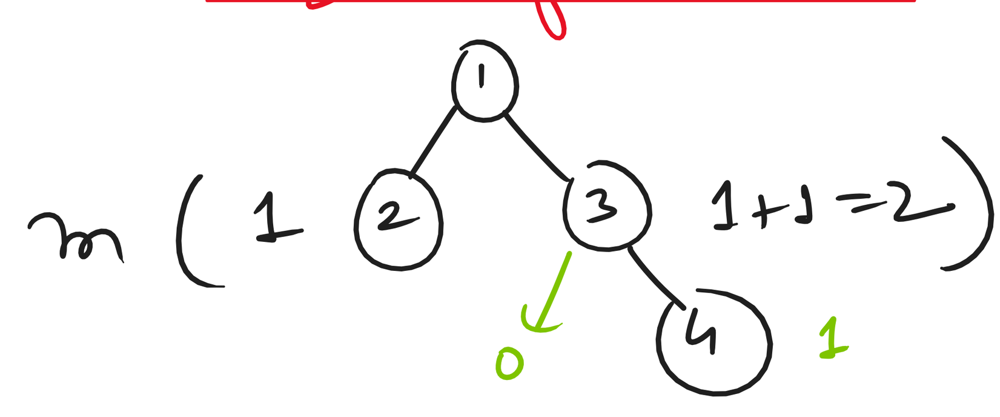
False

boolean areIdentical(Tree t₁ , Tree t₂){

}

* Height of a Tree :

The max no of nodes from root to any of its descendants.
h=3.



pseudo − code = max(lh, rh) + 1;

Recursion Tree :→

[Striver
code help → babbar]
Abdul Bari
Kunal Kushwaha

findHeight (root) +1
1 + (2) = (3)
fh(2) → (1)
m(1,r)+1
0 1+1 = (2)
fh(3) m(1,r)+1
lh = 0
4 = 1

(Theory + Implementation + Problems)