0 1 2 3 4 5 6

[6, 2, 5, 4, 5, 1, 6]

ls: [-1 -1 1 1 3 -1 5]

rs: [1 5 3 5 5 7 7]

area: [6 10 5 12 5 7 6]

result.

n = 7.

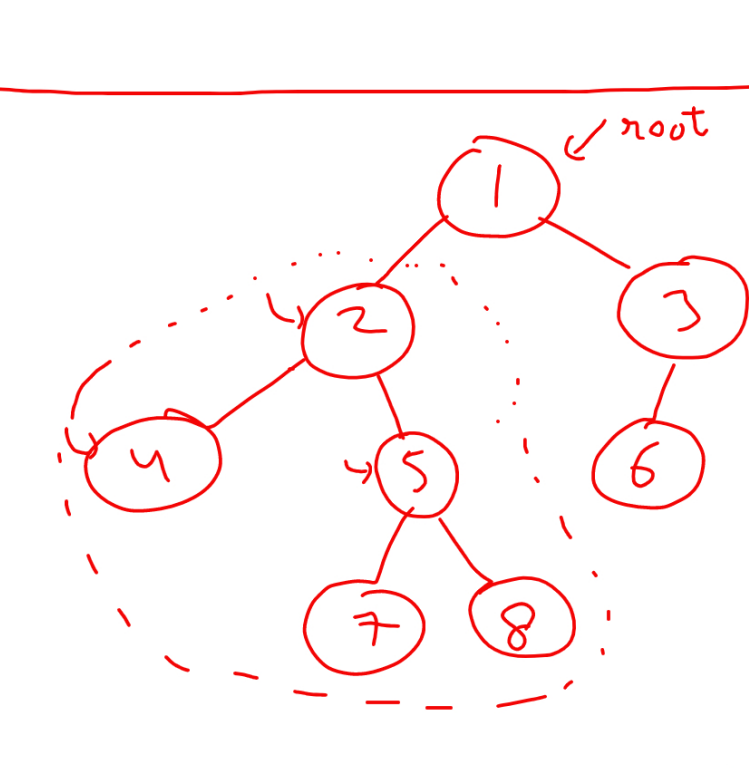
rs[i] - ls[i] - 1

O(n)

→ 1
→ 10
→ 11
100
101
110
111

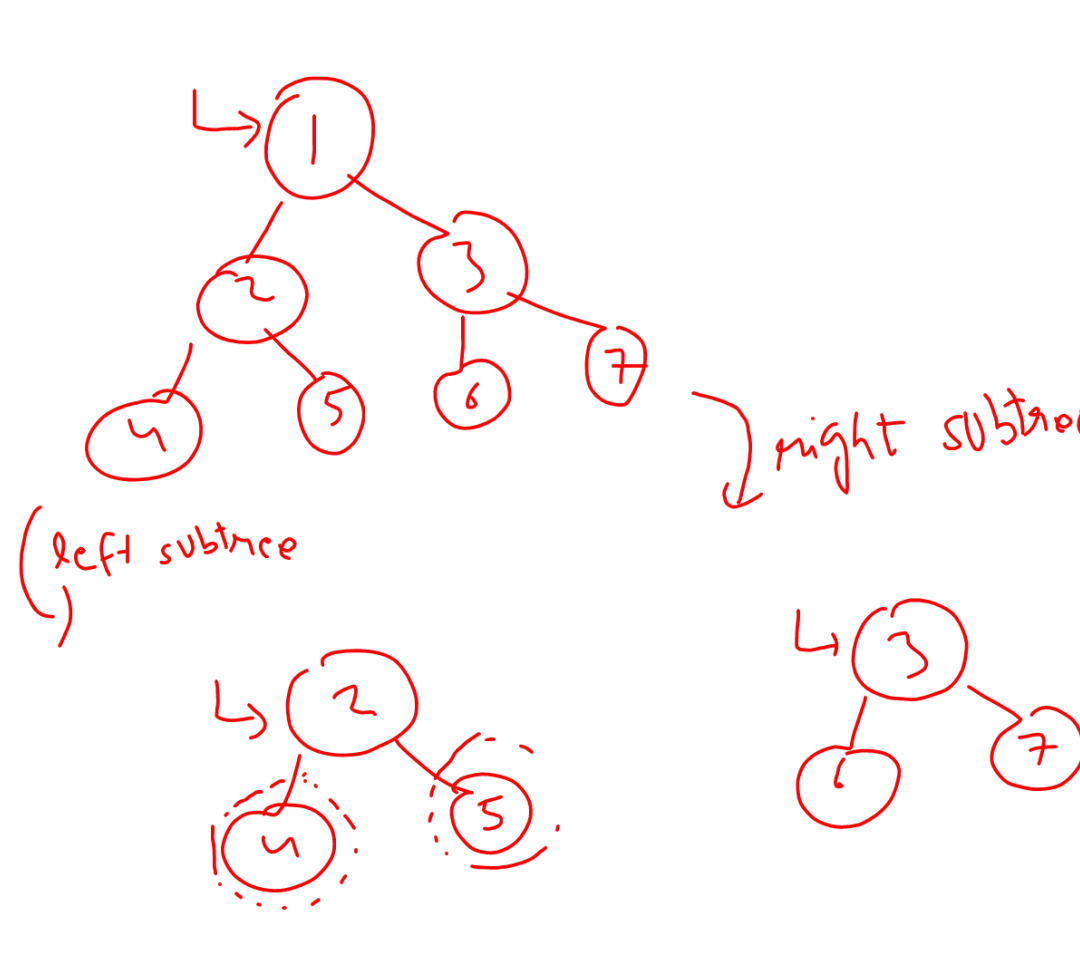
front → ~~1~~, ~~10~~, ~~11~~, 100, 101, 110, 111

[1, 10, 11]


root
1
2
3
4
5
6
7
8

Preorder:
→ Process the current node
→ " " left subtree
→ " " right subtree

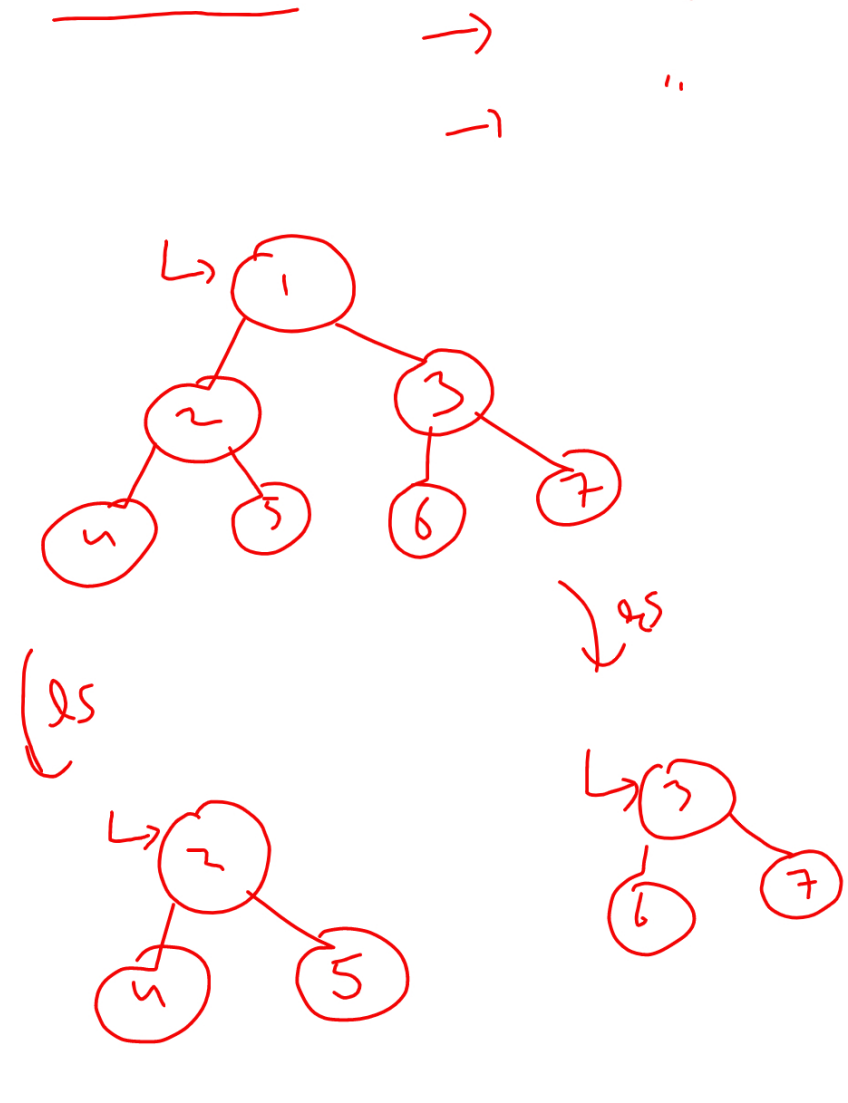
[1, 2, 4, 5, 7, 8, 3, 6]


1
2
3
4
5
6
7
right subtree
left subtree
2
4
5
3
6
7

[1, 2, 4, 5, 3, 6, 7]

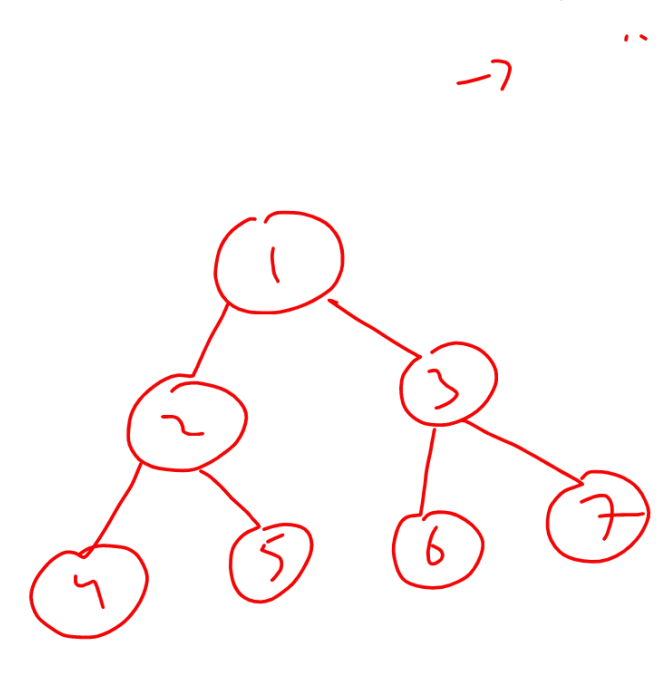
head

Postorder:
→ Process the left subtree
→ " " right subtree
→ " " current node


1
2
3
4
5
6
7
rs
ls
2
4
5
3
6
7

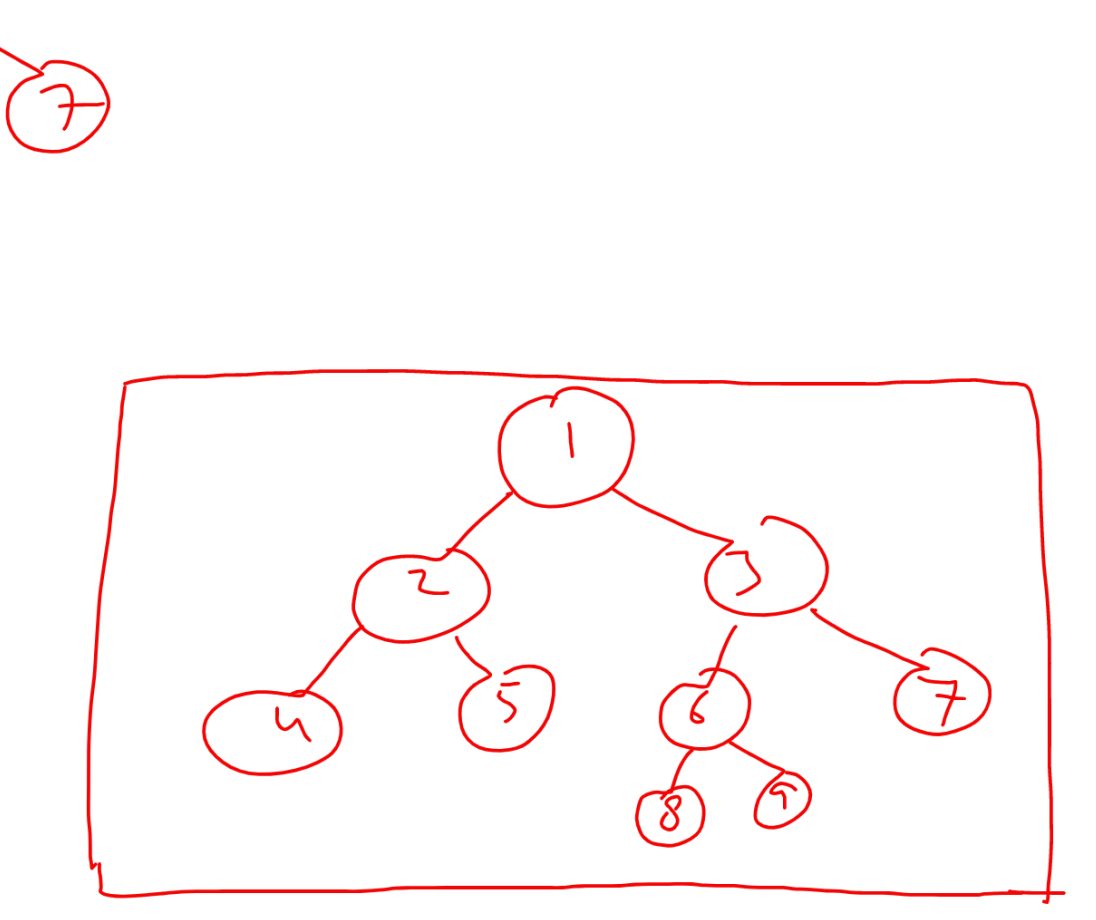
[4, 5, 2, 6, 7, 3, 1] ✓

Inorder:
→ Process the left subtree
→ Process the current node
→ " " right subtree



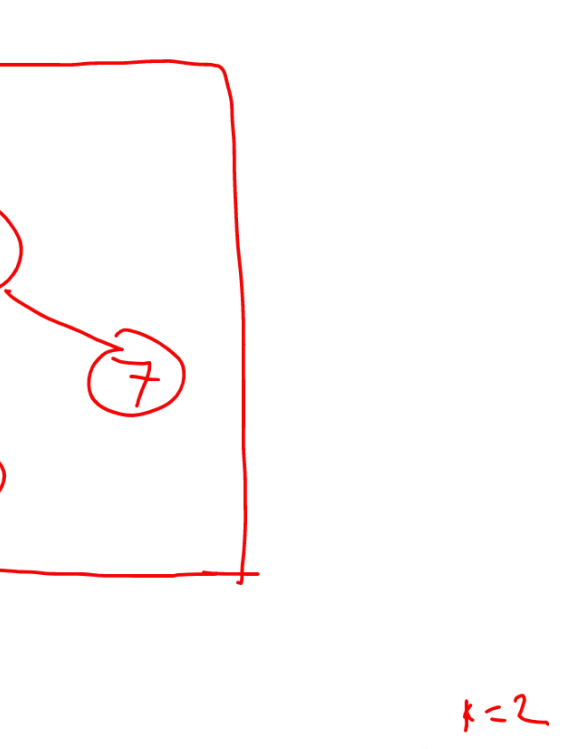
[4, 2, 5, 1, 6, 3, 7] ✓

Level-order:



[1, 2, 3, 4, 5, 6, 7, 8, 9]

⇒ [get_kth_level(root, K)]


K=2
1
K=1
2
K=1
3
K=0
4
5
K=0
6
K=0
7
K=0

K=2

[1, 2, 4, 5, 3, 6, 7]

K=0 ⇒ [1]
K=1 ⇒ [2, 3]
K=2 ⇒ [4, 5, 6, 7]
K=3 ⇒ [ ]

$[2^0 + 2^1 + 2^2 + \cdots + 2^{n-1}]$ 2^n

⇒ [4, 5, 6, 7]

→ O(height * n) ✓
→ O(n^2)

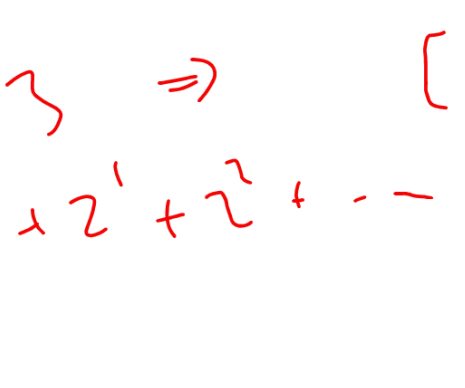
n n-1 0
0 1 1 1 1 1 1 1
1 0 0 0 0 0 0 0 ✓

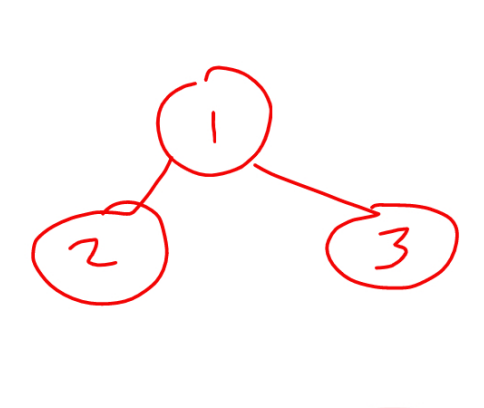
[0 → 5
0 → 5
0 → 5
\ ]

n^n

[0 → 5
0 → 5]

n^2





[1, 2, 3, 4, 5, 6, 7]

↓ ↓ ↓
1, 2, 3, 4, 5, 6, 7

queue: front → ~~1~~, ~~2~~, ~~3~~, ~~4~~, ~~5~~, ~~6~~, ~~7~~ STOP

O(n)

res: [1, 2, 3, 4, 5, 6, 7] ✓