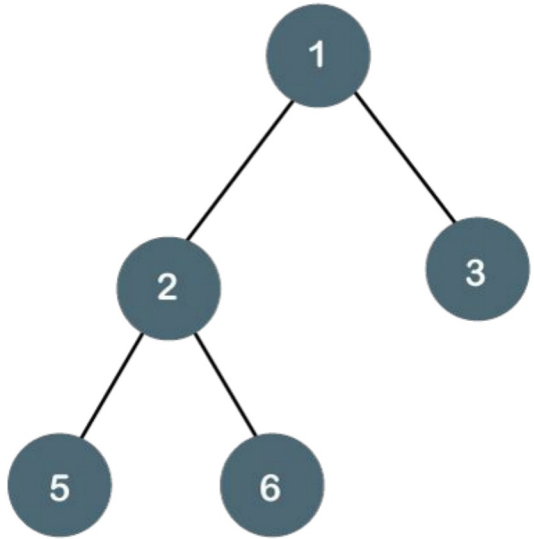
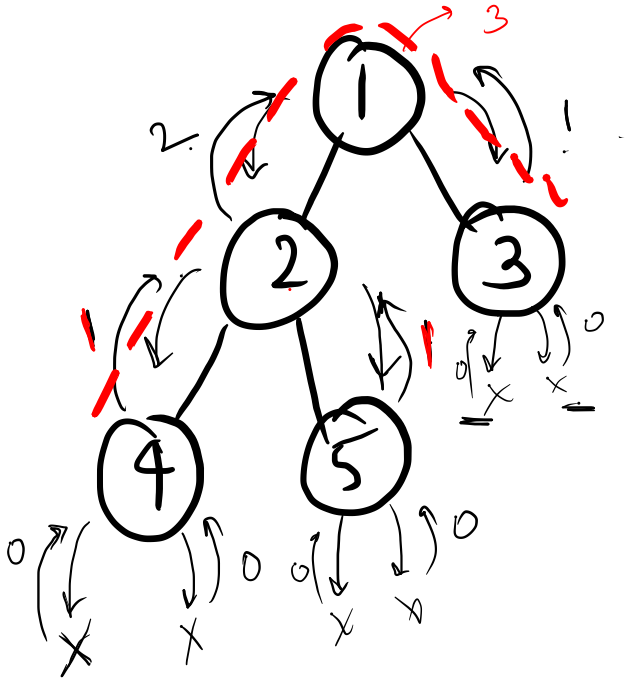
Interview Problems
TREES

By Gladden Rumao



① Diameter of Tree



height(left) + height(right)

height = 1 + max(left, right)

max = 2

if(root == null)

return 0

$$\text{Diameter} = \text{height(left)} + \text{height(right)}$$

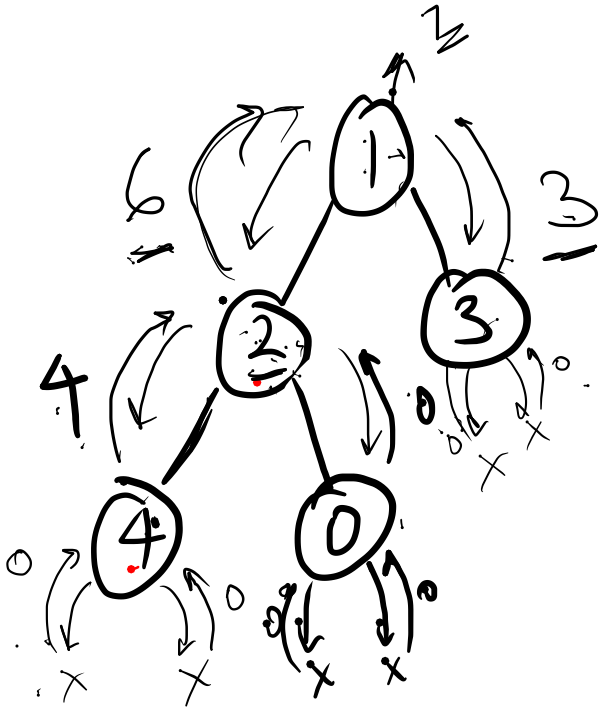
$$\text{height} = 1 + \max(\text{height(left)}, \text{height(right)})$$

$TC = O(n)$

$SC = O(h)$

(recursive stack space)

Maximum Path Sum

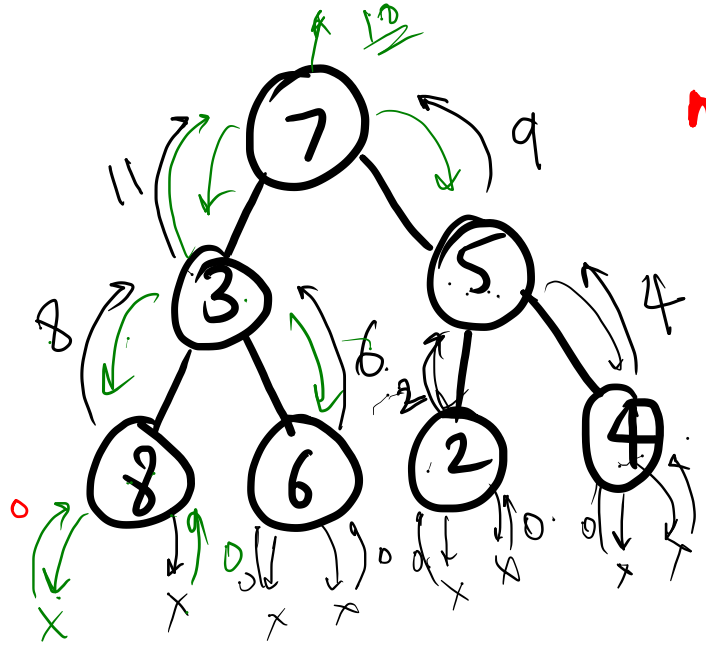


1 + 6 + 3

Max sum = root.val + f(left) + f(right)

max = ~~4~~ ~~6~~ 10

root.val + max(left, right)



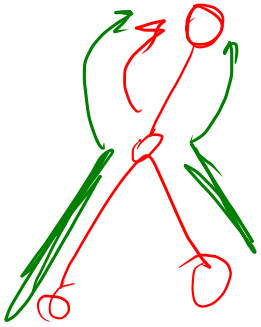
max = root.val + left + right

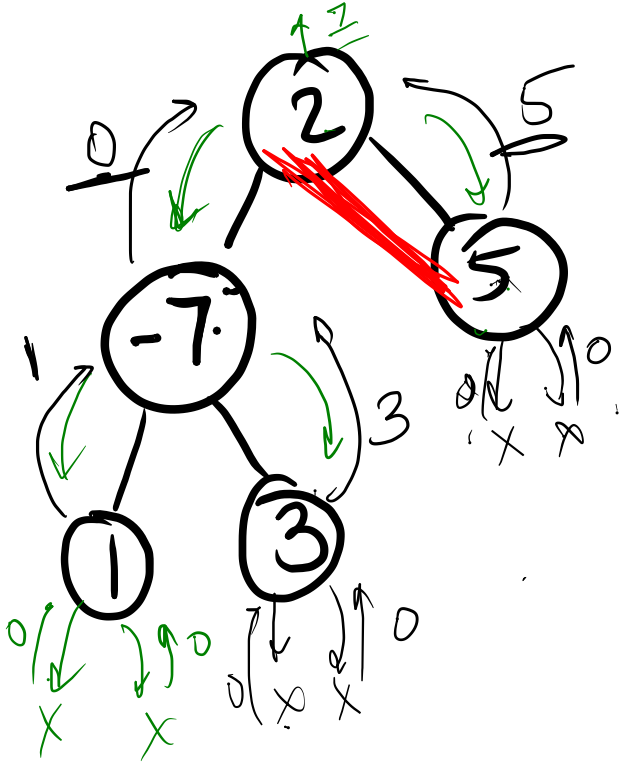
return = root.val + max(left, right)

max = -∞ 8 11 27

if (root = null)

return 0





max = $-\infty$

X

3

5

7

TC = O(n)

SC = O(h)

(recursive stack space)