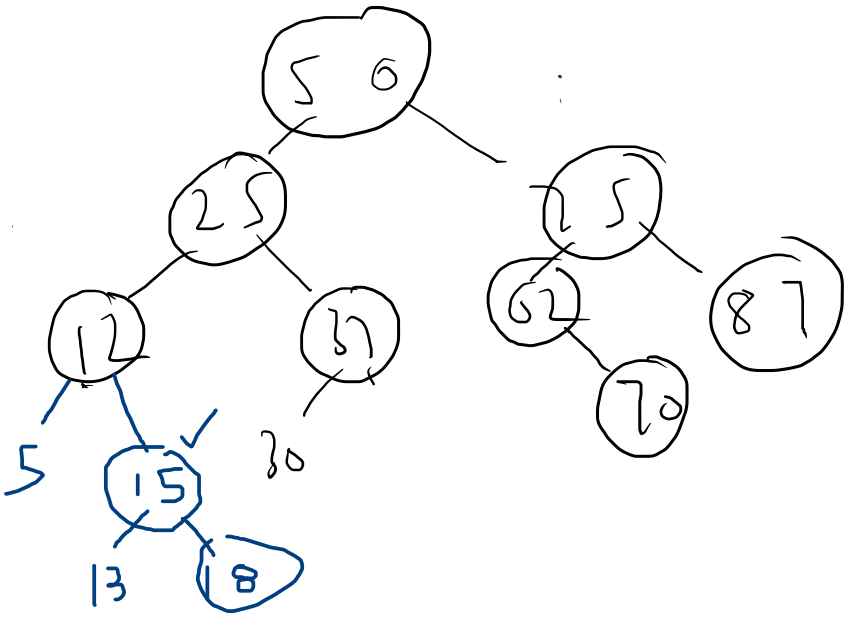
LCA of BST

1. 13 and 18 --> 15
2. 15 and 18 --> 15
3. 5 and 18 --> 12
4. 5 and 70 --> 50
5. 5 and 30 --> 25
6. 5 and 25 --> 25
7. 30 and 25 --> 25



ROOT to NODE path --> LCA (5, 30)

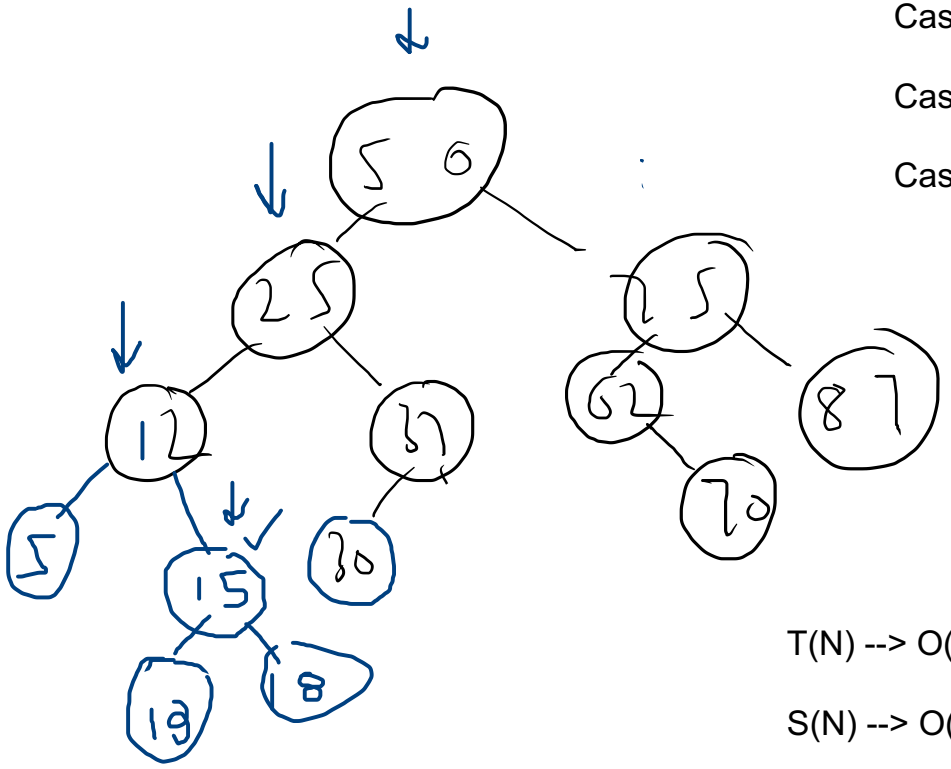
1. 50 --> 25 --> 12 --> 5
2. 50 --> 25 --> 37 --> 30

ROOT to NODE path --> LCA (12, 62)

1. 50 --> 25 --> 12
2. 50 --> 75 --> 62

M2

1. 13 and 18 --> 15
2. 15 and 18 --> 15
3. 5 and 18 --> 12
4. 5 and 70 --> 50
5. 5 and 30 --> 25
6. 5 and 25 --> 25
7. 30 and 25 --> 25



Case1: both nodes on left --> go left

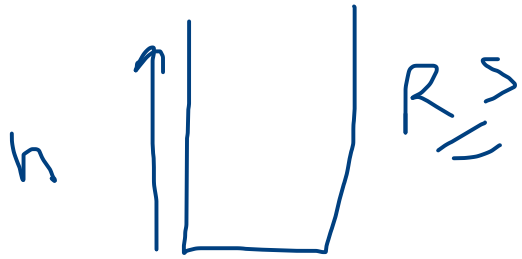
Case2: both nodes on right --> go right

Case3: both nodes in between --> ans

T(N) --> O(h)

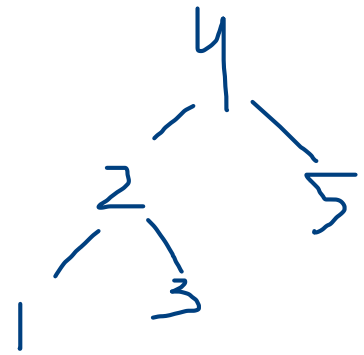
S(N) --> O(h)

13 & 18



Closest BST Value

tar = 3.7



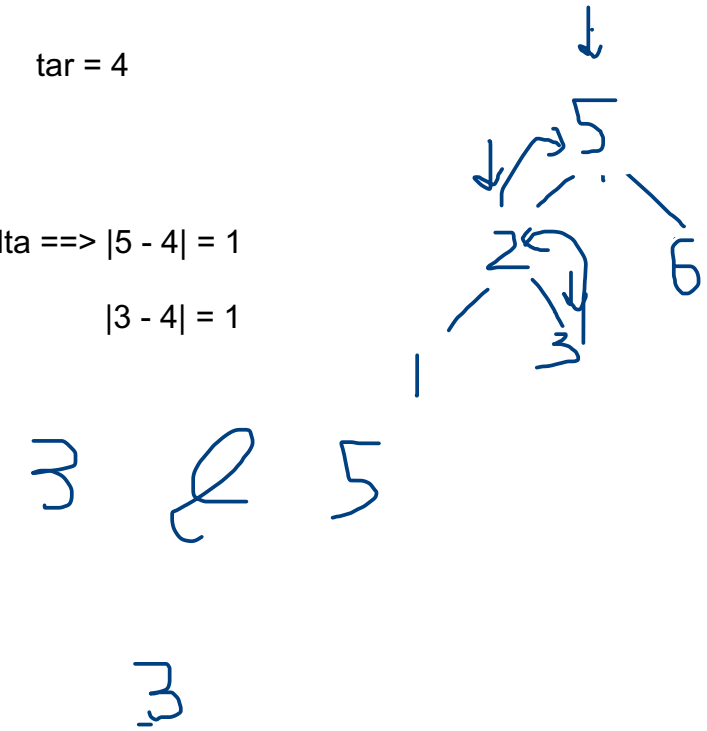
Δ =

|4 - 3.7| = .3
|3 - 3.7| = .7

1. find min diff

2. return min value --> multiple ans

tar = 4



delta ==> |5 - 4| = 1

|3 - 4| = 1

1. min_diff = 1

2. min_value with min diff = 3

every node

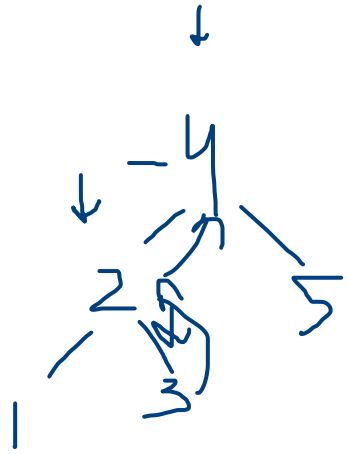
float delta = abs(curr - tar)
if (min_diff > delta) --> min_diff = delta

if (min_diff == delta) --> if (min_value > curr.val) --> min_value

1. tar < root --> go left

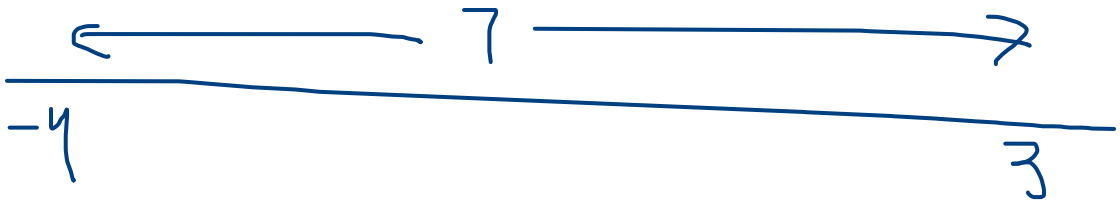
2. tar > root --> go right

t = 3

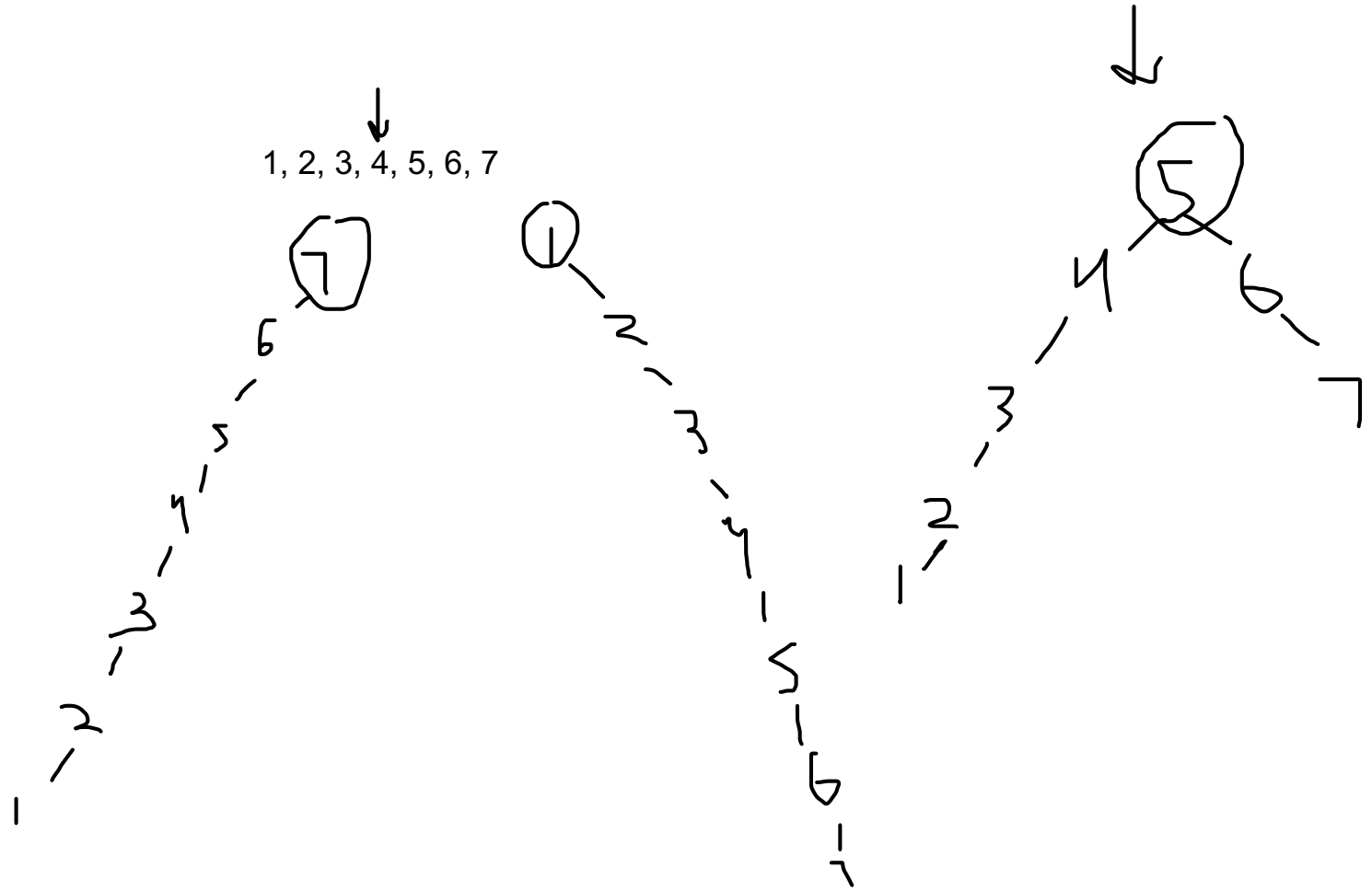


1. min_diff = ∞ + 0

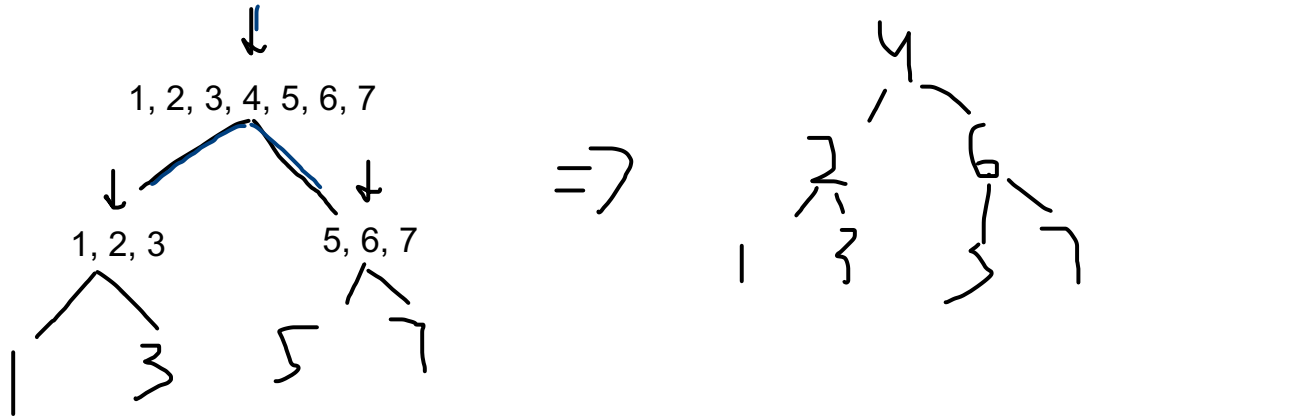
2. min_value with min diff = 4 + 2 = 3



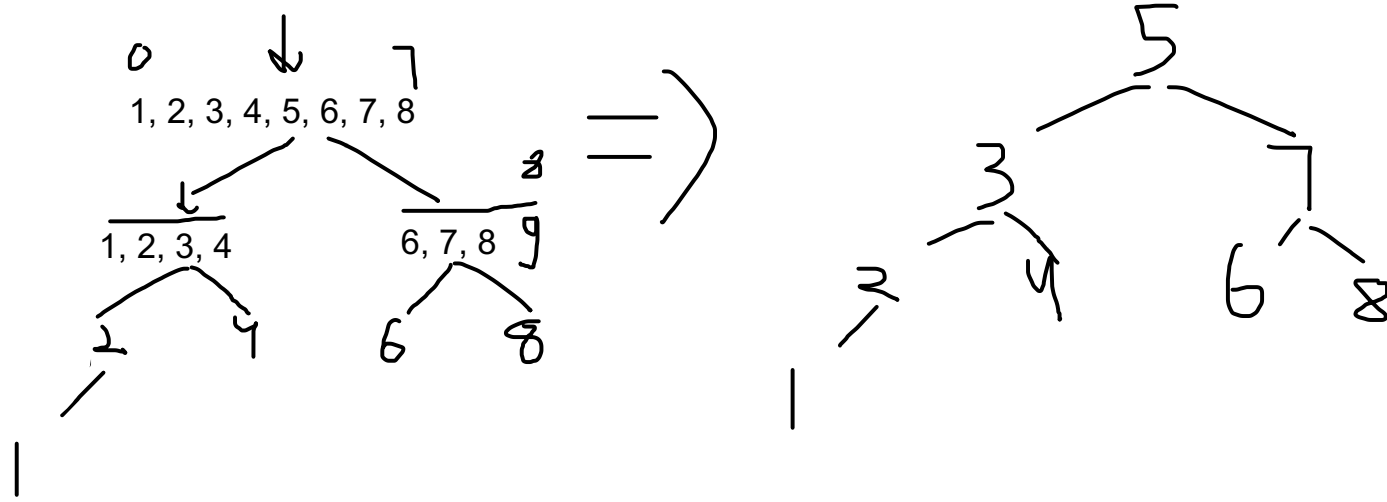
Construct BST from Inorder

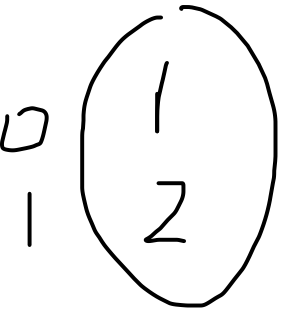


Odd = 1 mid only



EVEN --> 2 mids -->
Consider 2 mid





Balanced BST

$$\frac{0+7}{2} = 3 + 1$$

Construct from PreOrder

- left tree nodes --> smaller or eqaul than root

  right tree nodes --> greater than root

3, 2, 1, 6, 5, 7

Range for every tree