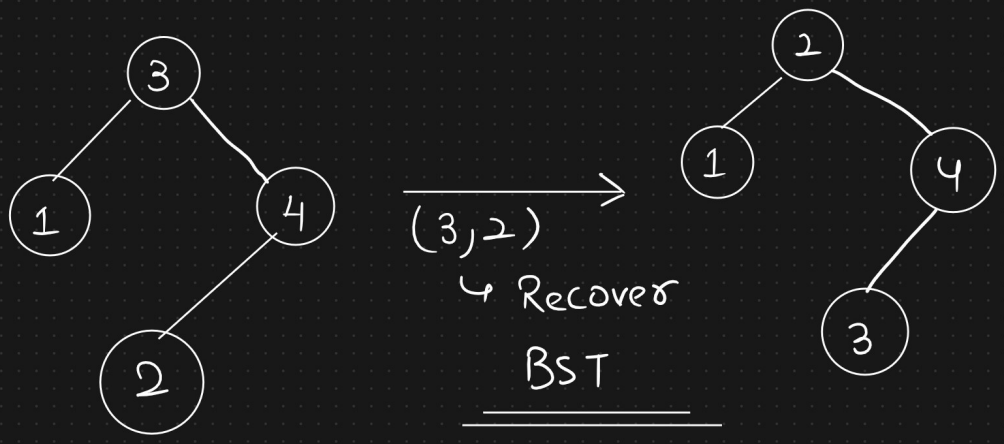
Recover Binary Search Tree



Inorder
- root.left
- root
- root.right

[1, 3, 2, 4]
1 2 3

Referenced
- a = 3
- b = 2

1 < 3
3 < 2 — X
2 < 4

a = ≠ 3
1 < 3 — True

for every BST, inorder traversal ⇓ sorted array in ascending order

$\Theta(n)$

(1, 3, 2, 4)
0 1 2 3
↑

a = ~~1~~ 3

i = 1

3 < 1 — No

i = 2

2 < 3 — Yes

b = ~~4~~ 2

i = 2

2 > 4 — No

i = 1

3 > 2 — Yes

Inorder Traversal

Swaps are not adjacent

Swap are adjacent

3, 25, 7, 8, 10, 15, 20, 5

first, mid, last

3 < 25

25 < 7

7 < 8

8 < 10

10 < 15

15 < 20

20 < 5

first && last

↳ swap the values of first & last

3, 5, 8, 7, 10, 15, 20, 25

first, mid

3 < 5

5 < 8

8 < 7

7 < 10

10 < 15

15 < 20

last → null

20 < 25

else:

swap the values of first & mid