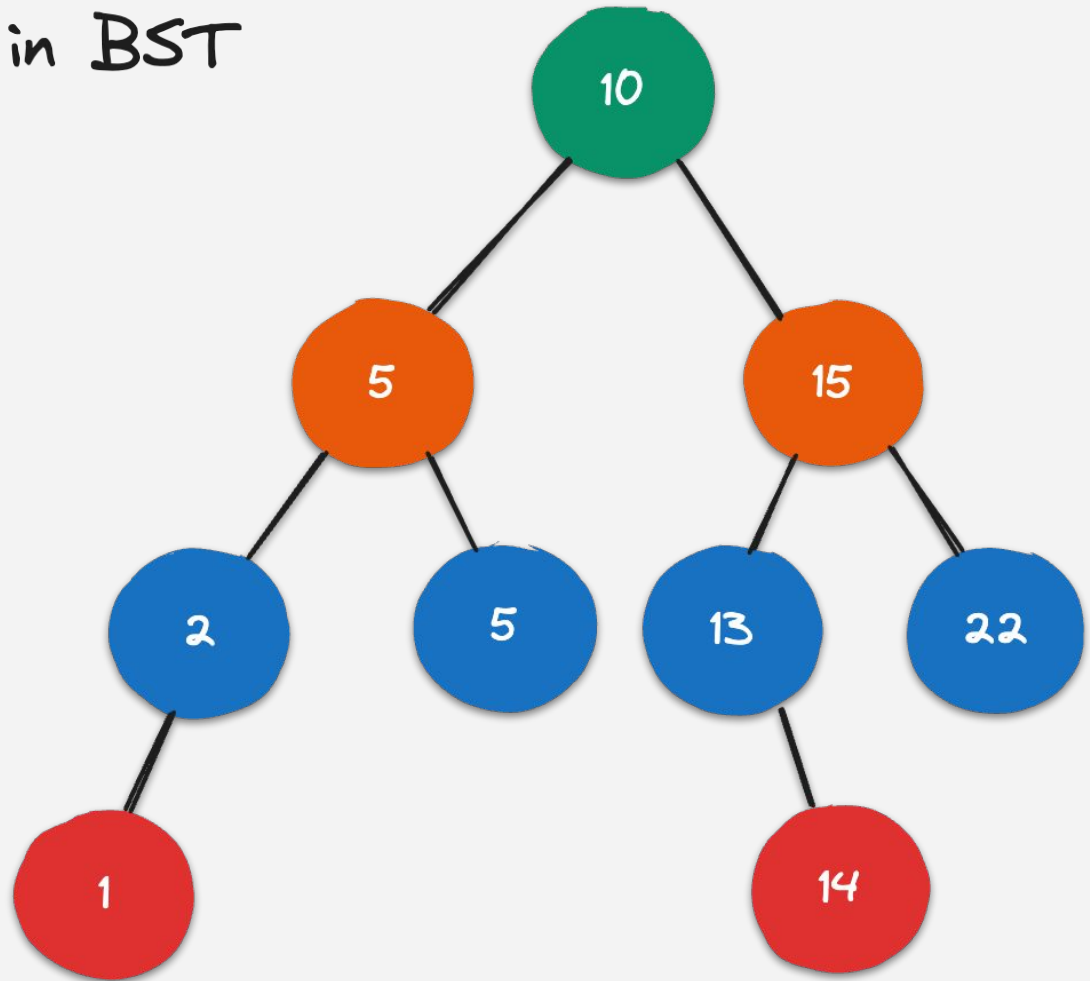


Challenge 01

Find closest value in BST

target = 12



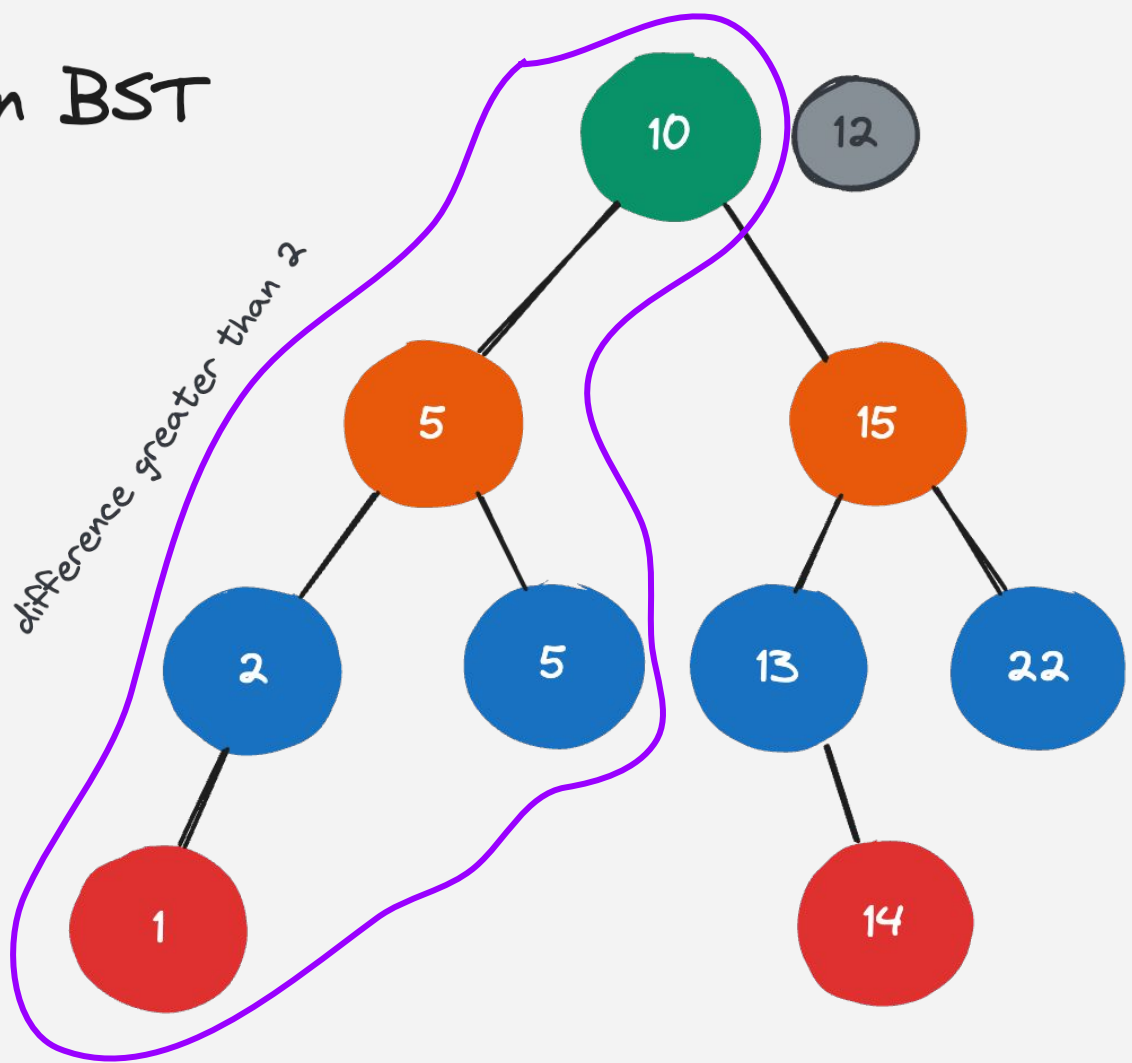
Find closest value in BST

target = 12

Step = 0

closest = root value (10)

$$|10 - 12| = 2$$



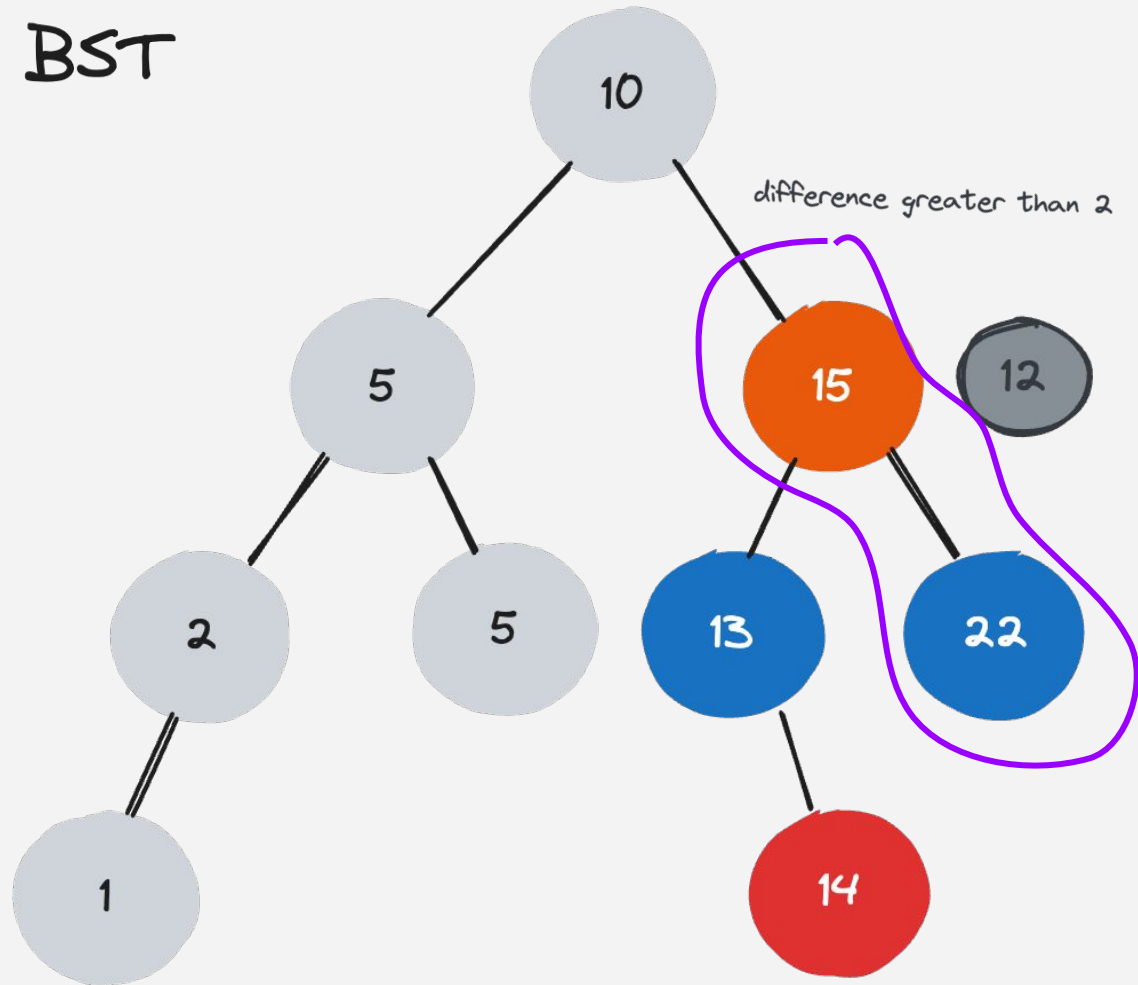
Find closest value in BST

target = 12

Step = 1

closest = 10

$$|10 - 12| = 2 < |15 - 12| = 3$$



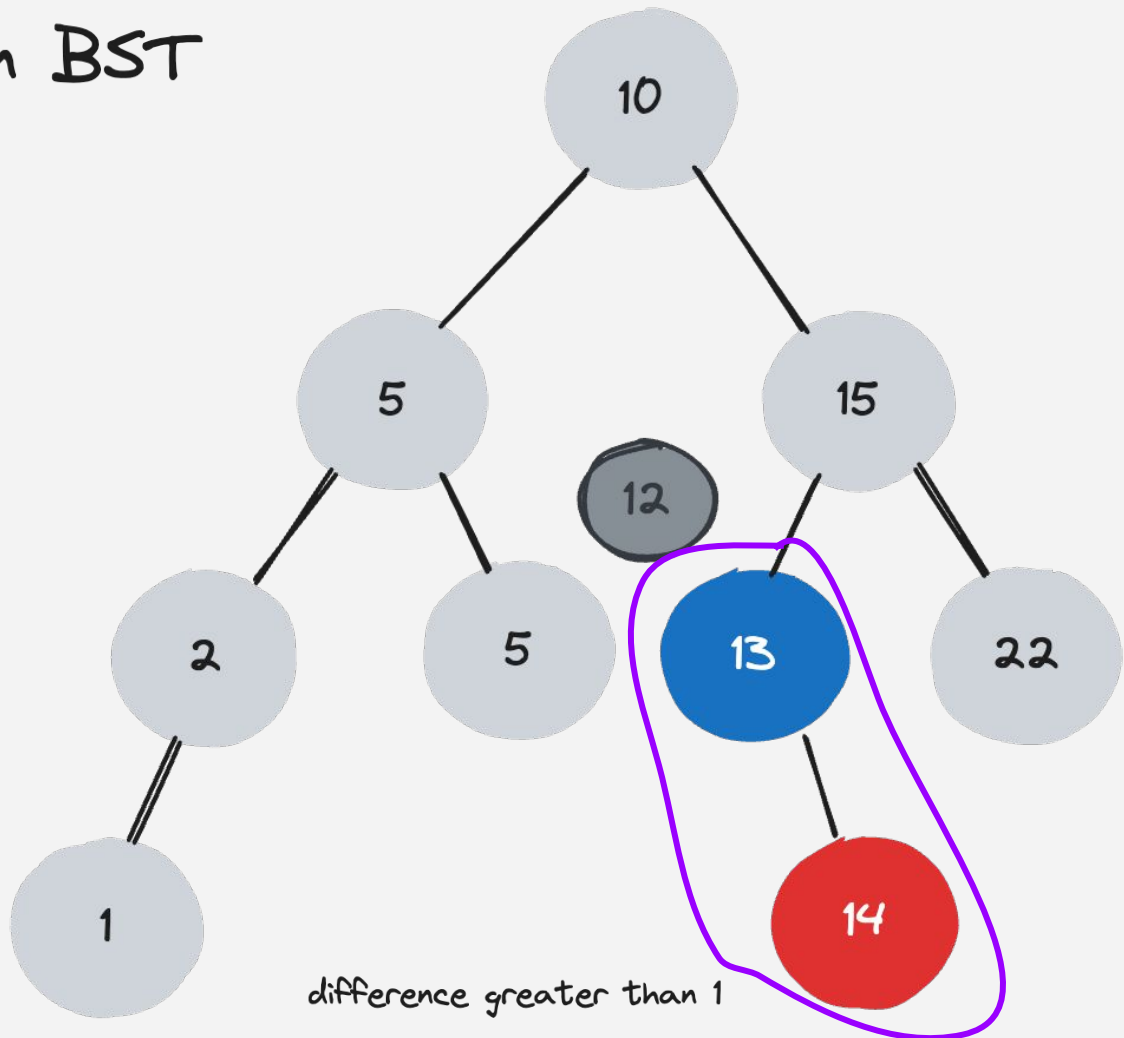
Find closest value in BST

target = 12

Step = 2

~~closest = 10~~ closest = 13

$|10 - 12| = 2 > |13 - 12| = 1$



Find closest value in BST

target = 12

Step = 3

return closest = 13

Avg:

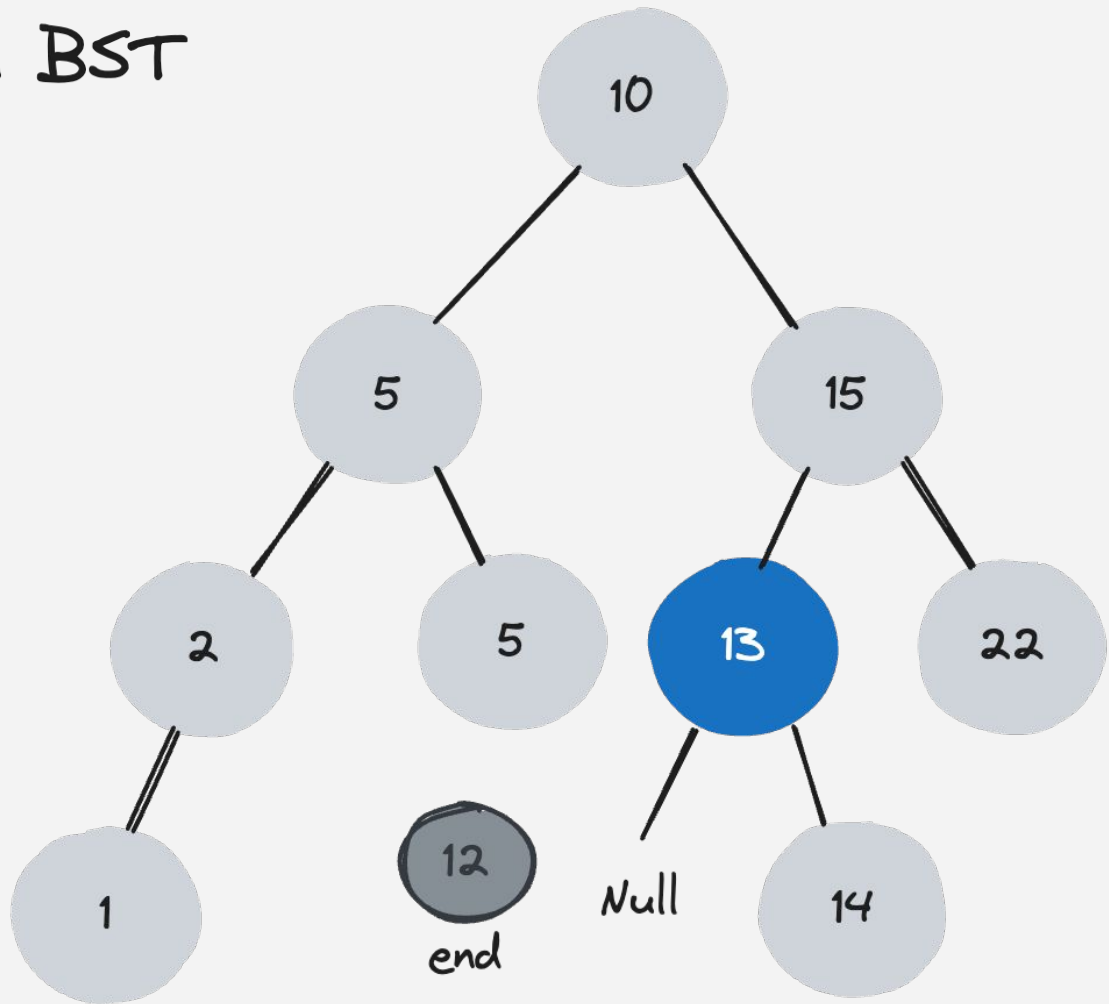
Time = $O(\log N)$

Space = $O(1)$

Worst:

Time = $O(N)$

Space = $O(1)$



Challenge 2

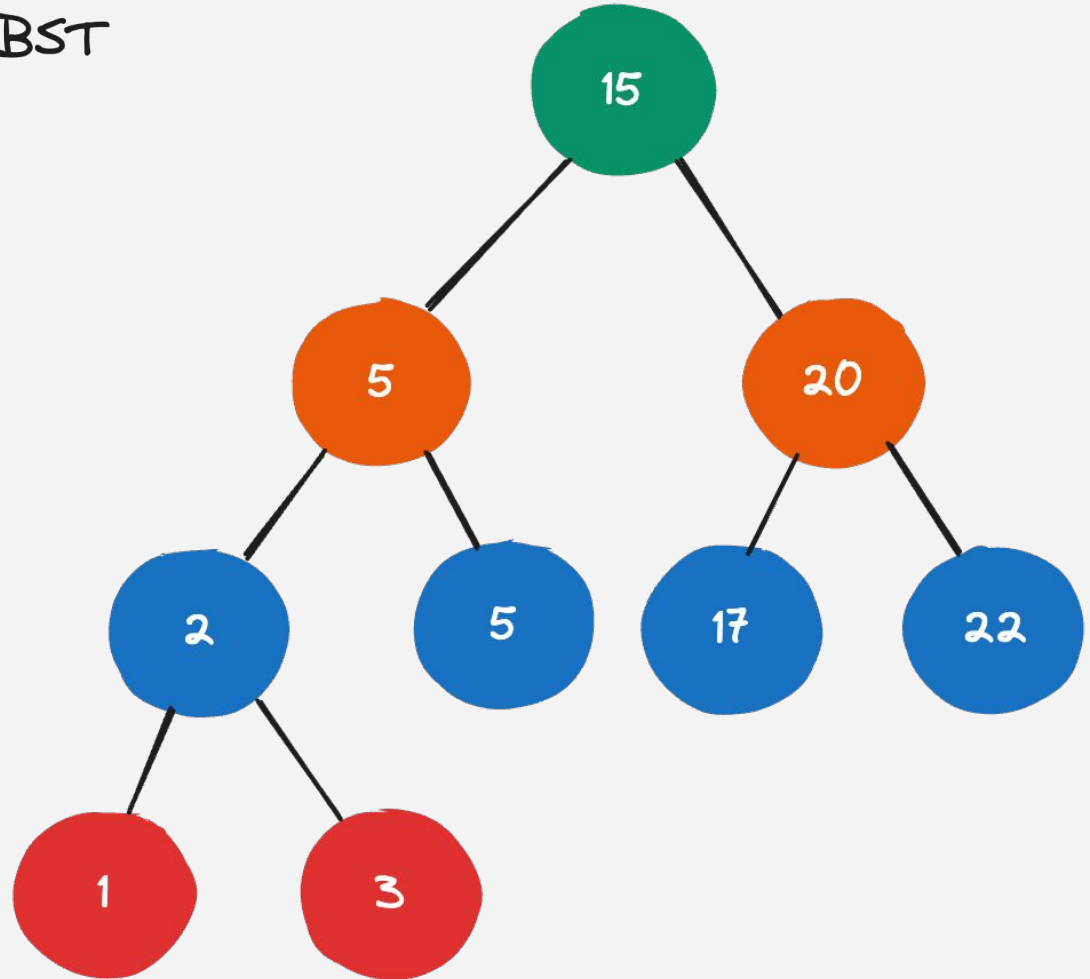
Find Kth Largest Value in BST

k = 3

output = 17

Idea 01: in-order traversal

Left
Visit
Right



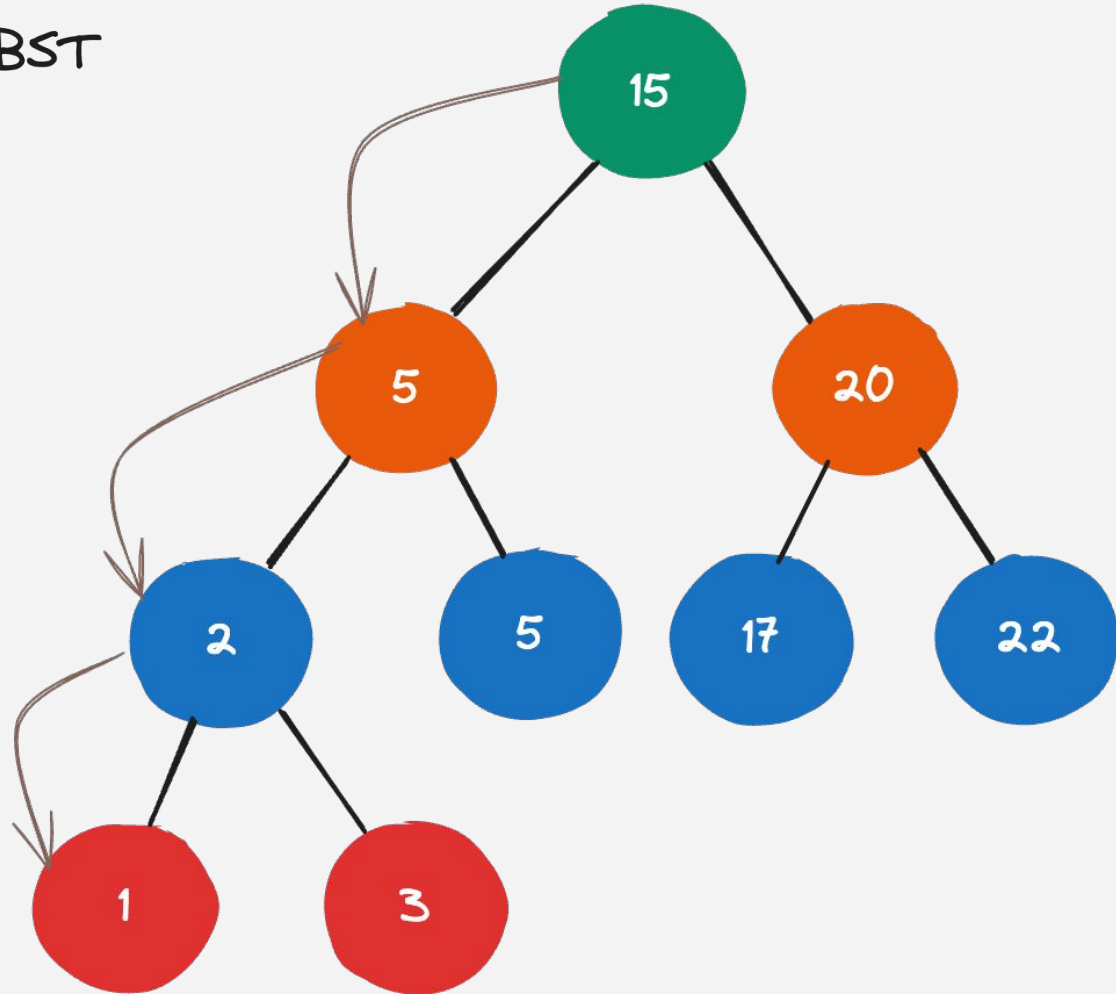
Find Kth Largest Value in BST

$k = 3$

output = 17

Idea 01: in-order traversal

Left
Visit
Right



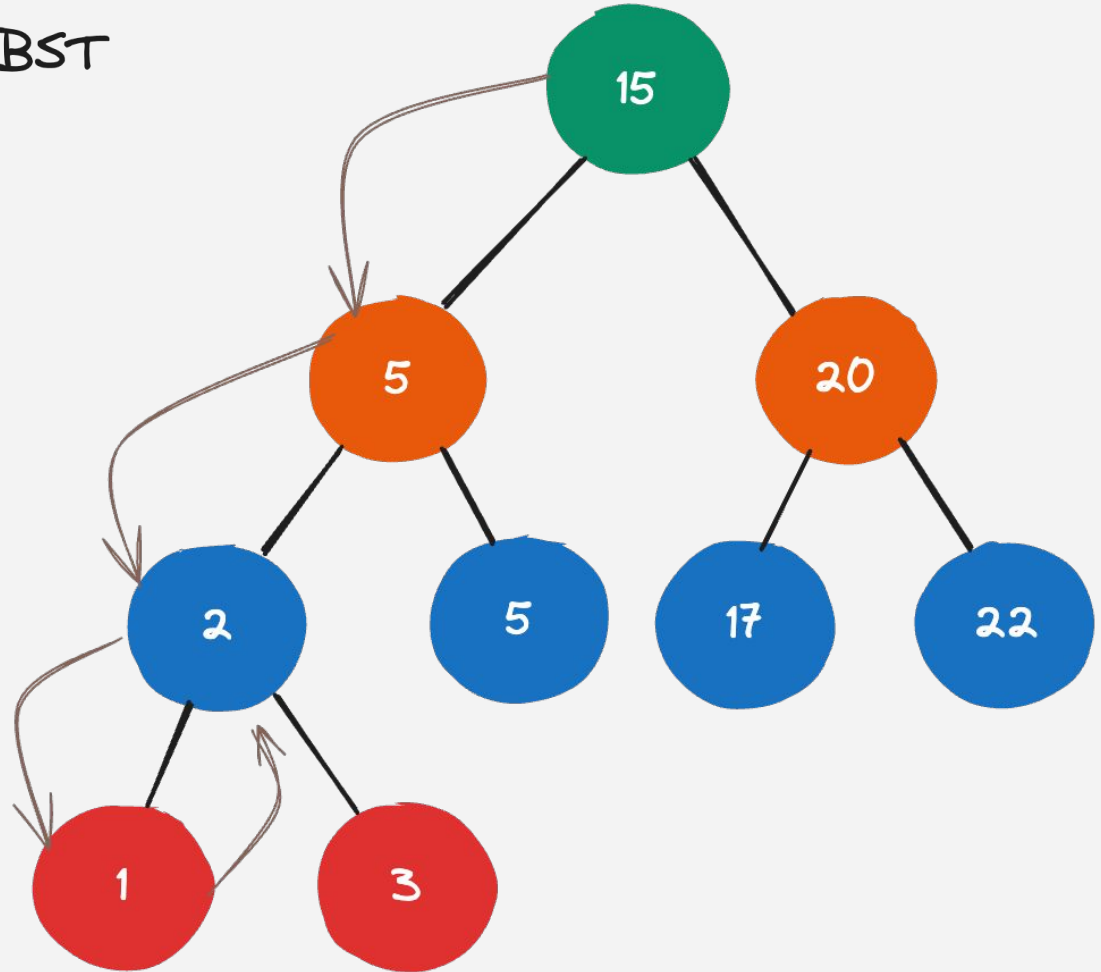
Find Kth Largest Value in BST

k = 3

output = 17

Idea 01: in-order traversal

Left
Visit
Right



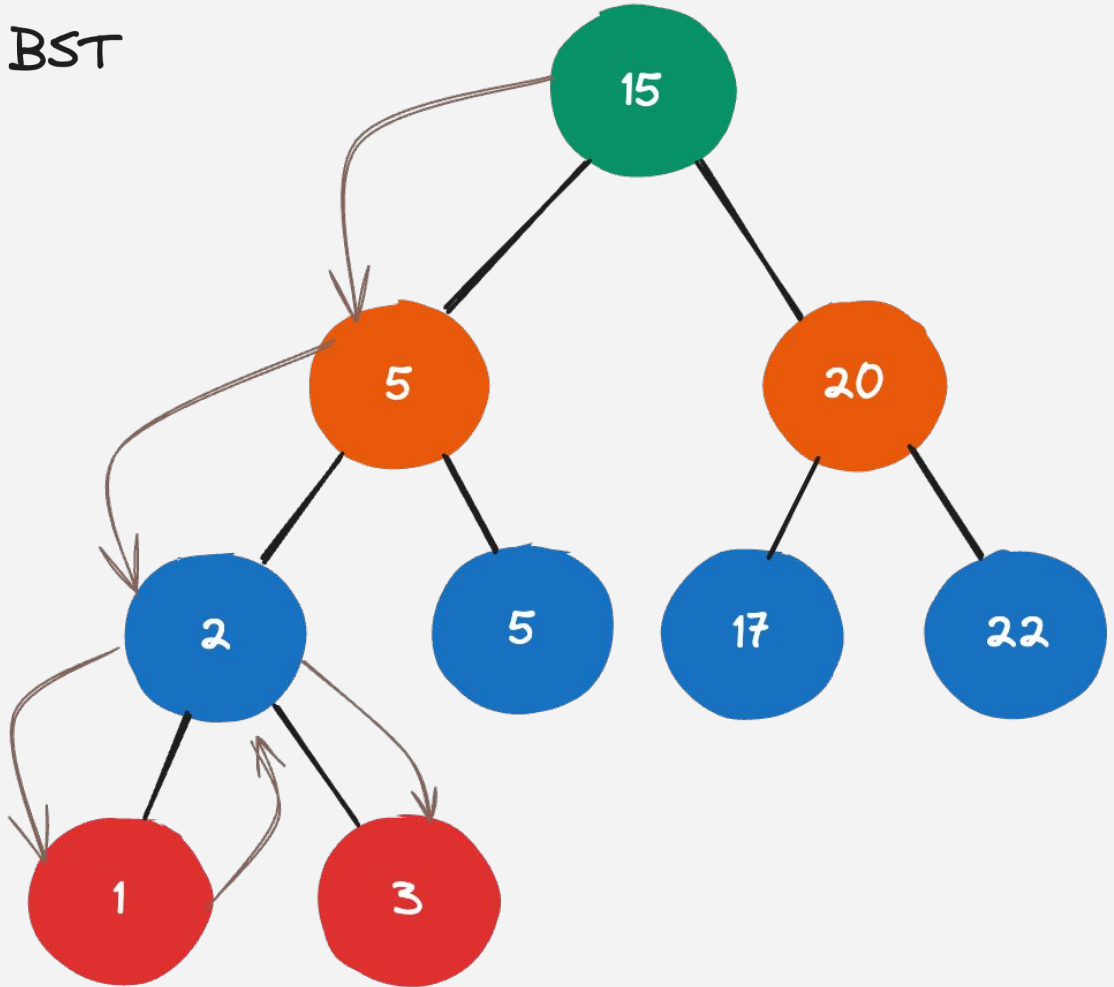
Find Kth Largest Value in BST

k = 3

output = 17

Idea 01: in-order traversal

Left
Visit
Right



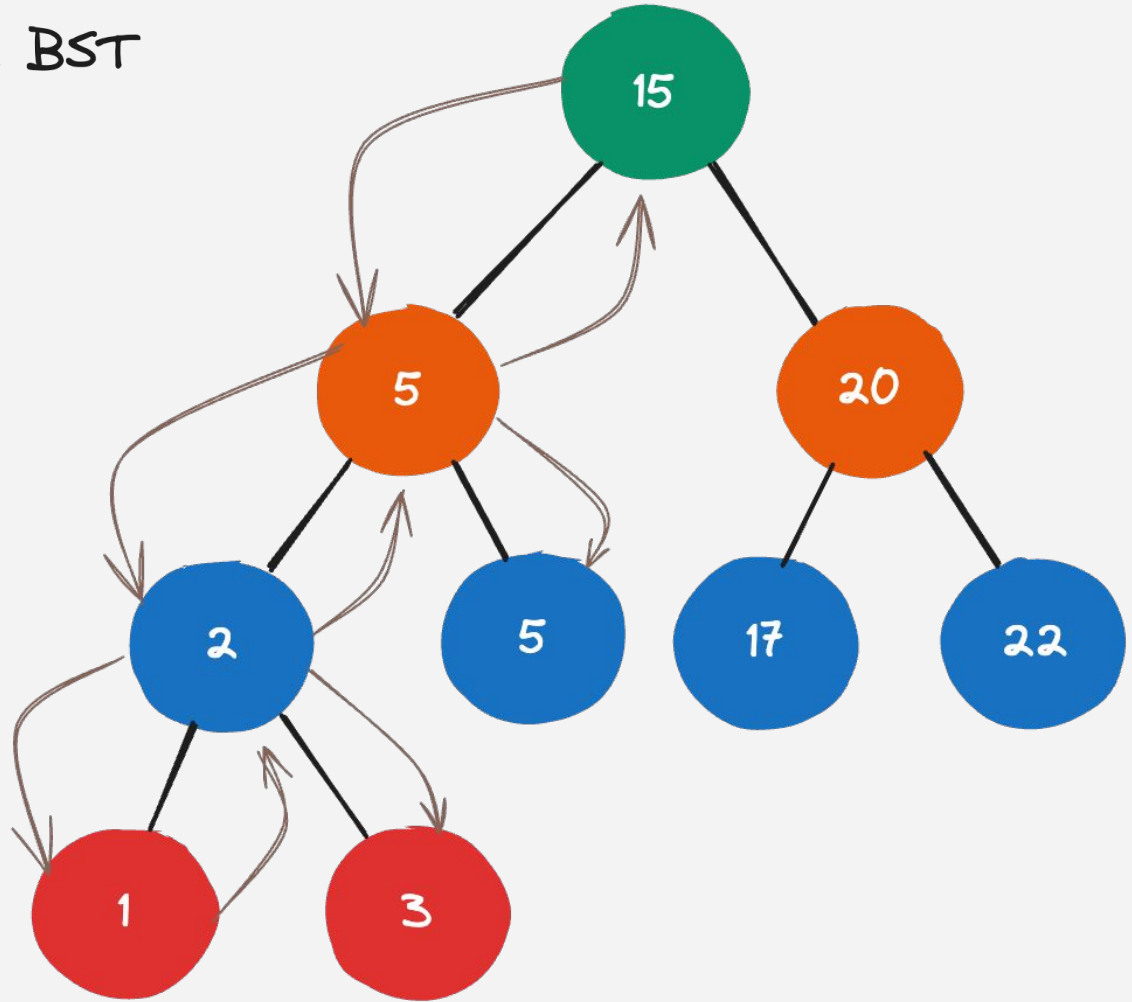
Find Kth Largest Value in BST

k = 3

output = 17

Idea 01: in-order traversal

Left
Visit
Right



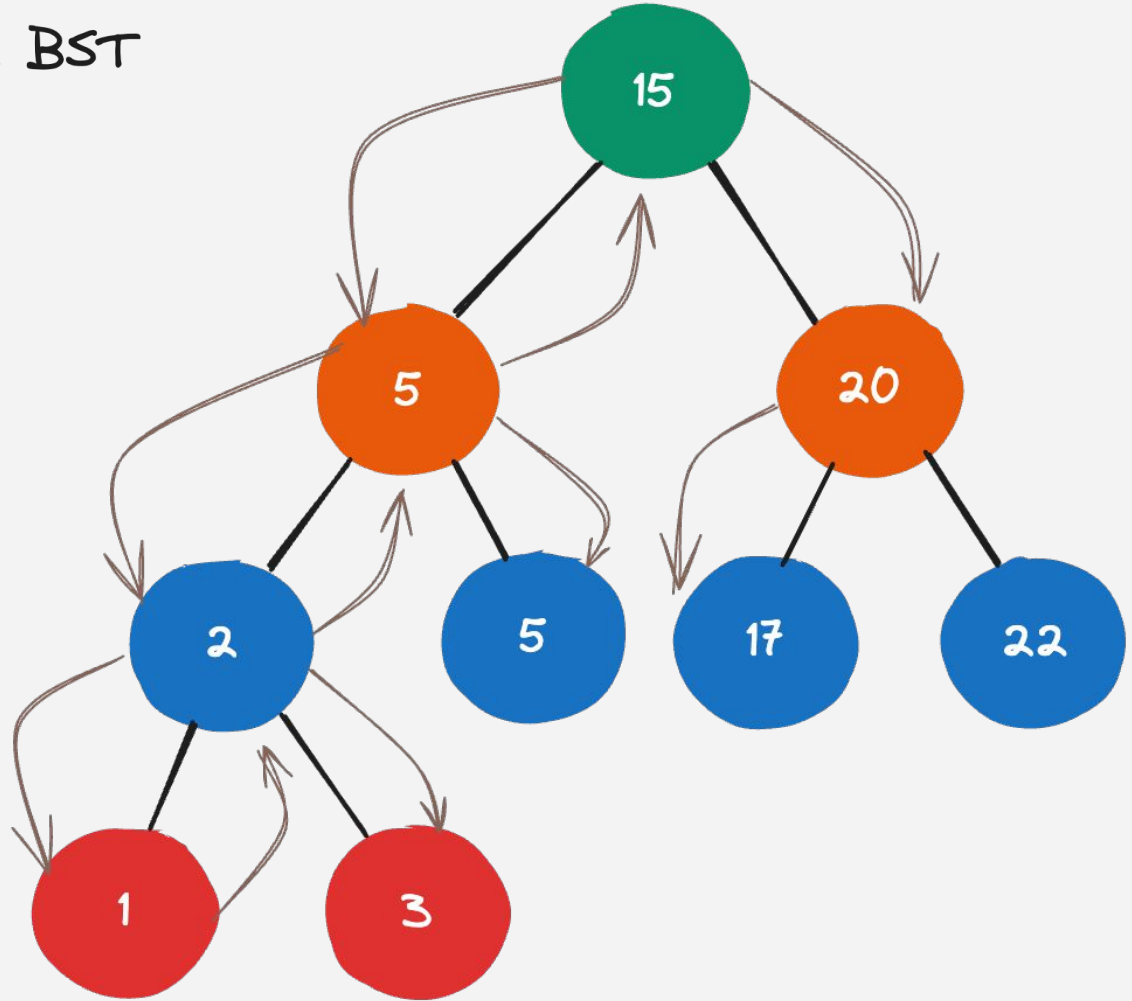
Find Kth Largest Value in BST

k = 3

output = 17

Idea 01: in-order traversal

Left
Visit
Right



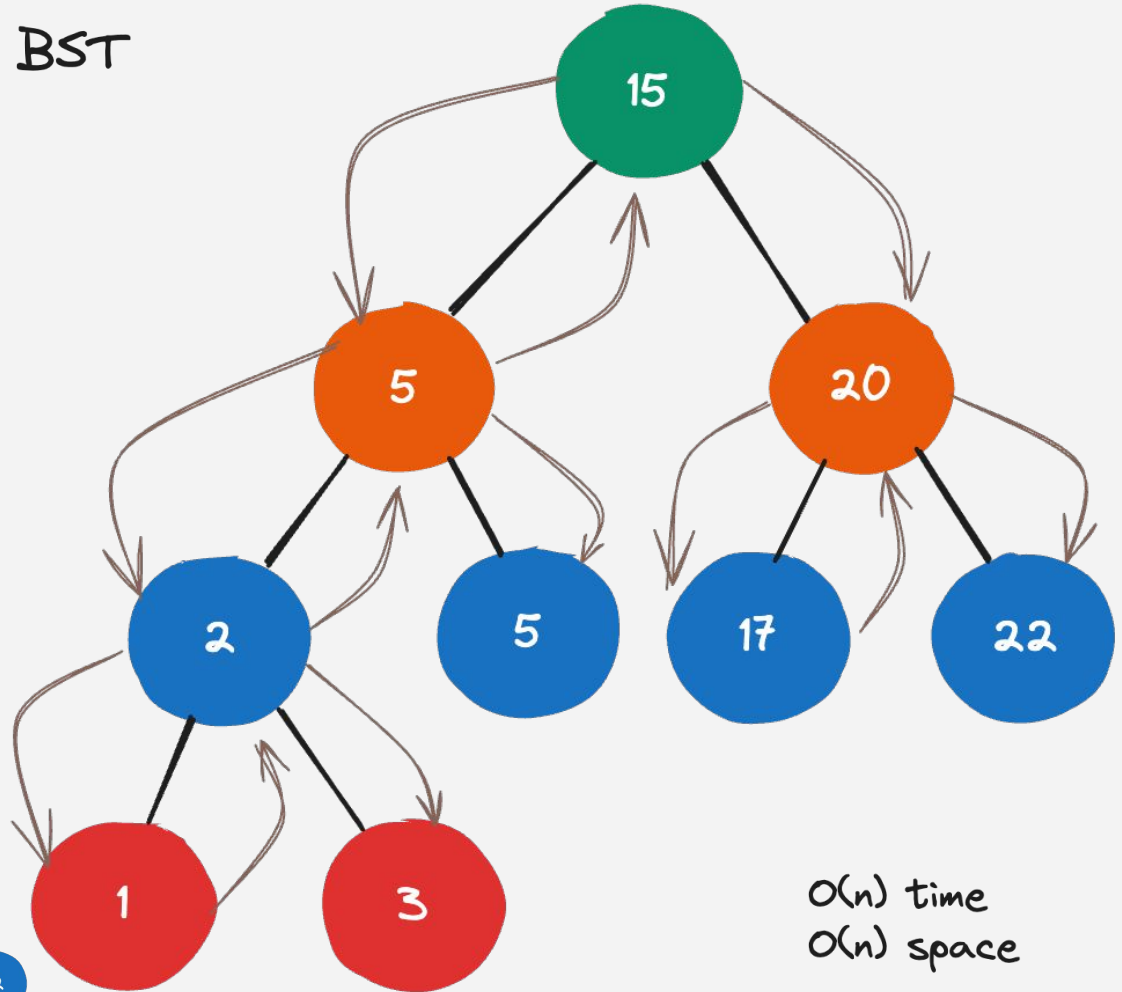
Find Kth Largest Value in BST

$k = 3$

output = 17

Idea 01: in-order traversal

Left
Visit
Right



$O(n)$ time
 $O(n)$ space



Find Kth Largest Value in BST

$k = 3$

output = 17

Idea 02: reverse
in-order traversal

Right
Visit
Left

