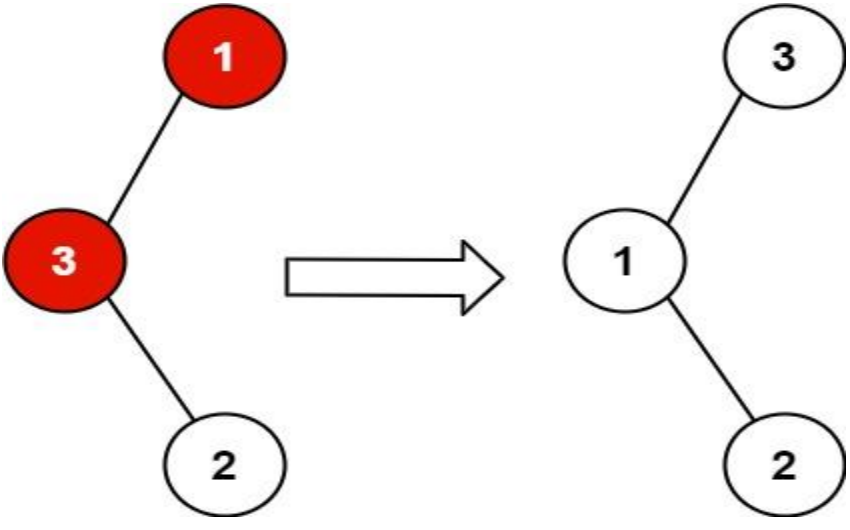
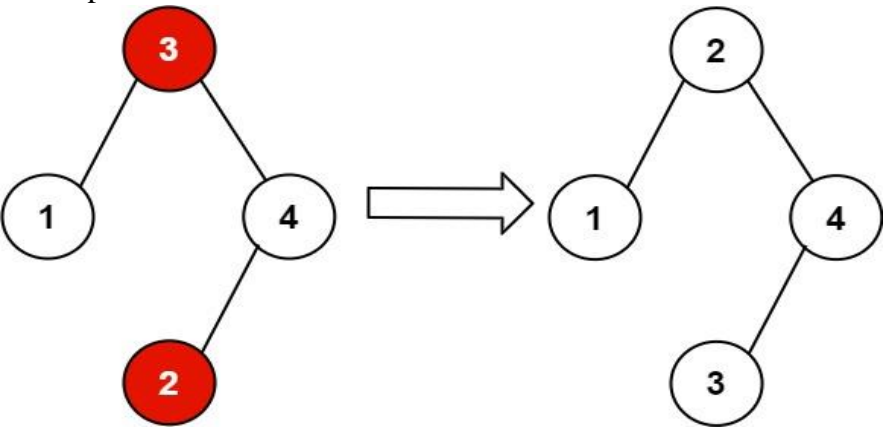
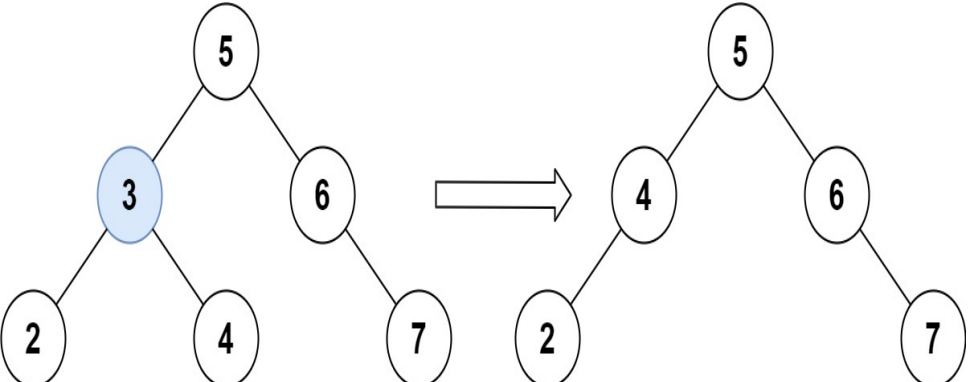
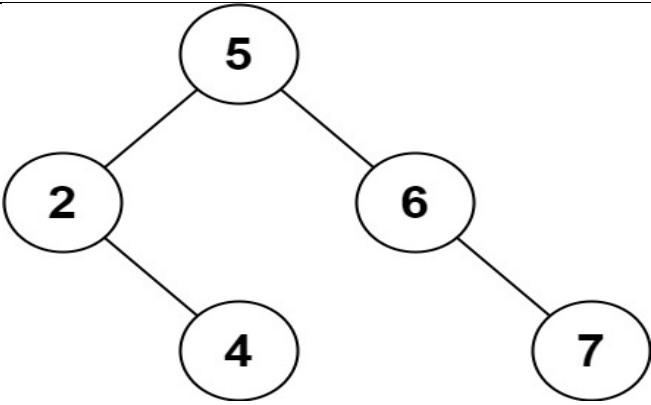
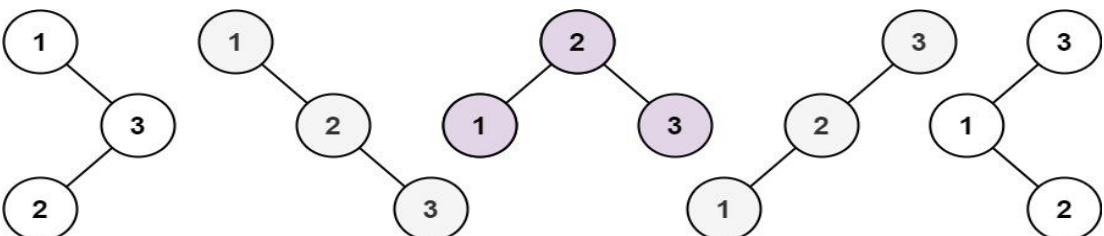


Q	Batch – S2
1	<p data-bbox="279 331 651 365">Validate Binary Search Tree</p> <p data-bbox="279 405 1326 439">Given the root of a binary tree, determine if it is a valid binary search tree (BST).</p> <p data-bbox="279 479 724 512">A valid BST is defined as follows:</p> <p data-bbox="279 553 1326 586">The left subtree of a node contains only nodes with keys less than the node's key.</p> <p data-bbox="279 627 1385 660">The right subtree of a node contains only nodes with keys greater than the node's key.</p> <p data-bbox="279 701 1102 734">Both the left and right subtrees must also be binary search trees.</p> <p data-bbox="279 786 427 819">Example 1:</p> <div data-bbox="279 840 901 1220"> <pre> graph TD 2((2)) --- 1((1)) 2 --- 3((3)) </pre> </div> <p data-bbox="279 1234 446 1267">Input: 2, 1, 3</p> <p data-bbox="279 1308 451 1341">Output: valid</p> <p data-bbox="279 1391 427 1424">Example 2:</p> <div data-bbox="279 1444 957 1803"> <pre> graph TD 5((5)) --- 1((1)) 5 --- 4((4)) 4 --- 3((3)) 4 --- 6((6)) </pre> </div> <p data-bbox="279 1827 644 1861">Input: 5, 1, 4, null, null, 3, 6</p> <p data-bbox="279 1881 477 1915">Output: invalid</p> <p data-bbox="279 1935 1169 1968">Explanation: The root node's value is 5 but its right child's value is 4.</p>

Q	Batch - S3
2	<p>Recover Binary Search Tree</p> <p>You are given the root of a binary search tree (BST), where the values of exactly two nodes of the tree were swapped by mistake. Recover the tree without changing its structure.</p>
	<p>Example 1:</p>  <pre> graph TD subgraph "Before" 1((1)) --- 3((3)) 1 --- 2((2)) end subgraph "After" 3_2((3)) --- 1_2((1)) 3_2 --- 2_2((2)) end "Before" --> "After" </pre>
	<p>Input: 1, 3, null, null, 2</p> <p>Output: [3,1, null, null, 2]</p> <p>Explanation: 3 cannot be a left child of 1 because $3 > 1$. Swapping 1 and 3 makes the BST valid.</p>
	<p>Example 2:</p>  <pre> graph TD subgraph "Before" 3((3)) --- 1((1)) 3 --- 4((4)) 4 --- 2((2)) end subgraph "After" 2_2((2)) --- 1_2((1)) 2_2 --- 4_2((4)) 4_2 --- 3_2((3)) end "Before" --> "After" </pre>

	<p>Input: 3, 1, 4, null, null, 2</p> <p>Output: 2, 1, 4, null, null, 3</p> <p>Explanation: 2 cannot be in the right subtree of 3 because $2 < 3$. Swapping 2 and 3 makes the BST valid.</p>
Q	Batch – S4
3	<p>Delete Node in a BST</p> <p>Given a root node reference of a BST and a key, delete the node with the given key in the BST. Return the root node reference (possibly updated) of the BST.</p> <p>Basically, the deletion can be divided into two stages:</p> <p>Search for a node to remove.</p> <p>If the node is found, delete the node.</p> <p>Example 1:</p>  <p>Input: root = [5,3,6,2,4,null,7], key = 3</p> <p>Output: [5,4,6,2,null,null,7]</p> <p>Explanation: Given key to delete is 3. So we find the node with value 3 and delete it. One valid answer is [5,4,6,2,null,null,7], shown in the above BST. Please notice that another valid answer is [5,2,6,null,4,null,7] and it's also accepted.</p>

	 <p>Example 2:</p> <p>Input: [5,3,6,2,4,null,7], key = 0</p> <p>Output: [5,3,6,2,4,null,7]</p> <p>Explanation: The tree does not contain a node with value = 0.</p>
Q	Batch – S5
4	<p>Unique Binary Search Trees</p> <p>Given an integer n, return the number of structurally unique BST's (binary search trees) which has exactly n nodes of unique values from 1 to n.</p> <p>Example:</p>  <p>Input: number of nodes n = 3</p> <p>Output: number of BSTs = 5</p>
	<p>Example 2:</p> <p>Input: number of nodes n = 1</p> <p>Output: number of BSTs = 1</p>