1373. Maximum Sum BST in Binary Tree

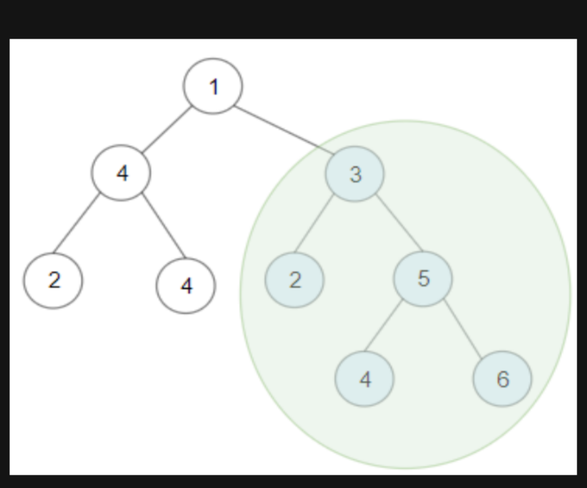
Description

Given a **binary tree** `root`, return *the maximum sum of all keys of **any** sub-tree which is also a Binary Search Tree (BST)*.

Assume a BST is defined as follows:

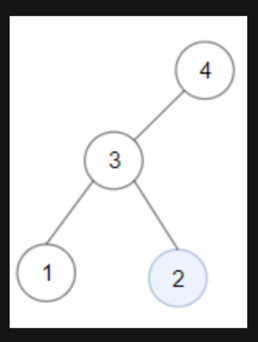
- The left subtree of a node contains only nodes with keys **less than** the node's key.
- The right subtree of a node contains only nodes with keys **greater than** the node's key.
- Both the left and right subtrees must also be binary search trees.

Example 1:




```
Input: root = [1,4,3,2,4,2,5,null,null,null,null,null,null,4,6]
Output: 20
Explanation: Maximum sum in a valid Binary search tree is obtained in root node with key equal to 3.
```

Example 2:




```
Input: root = [4,3,null,1,2]
Output: 2
Explanation: Maximum sum in a valid Binary search tree is obtained in a single root node with key equal to 2.
```

Example 3:

```
Input: root = [-4,-2,-5]
Output: 0
Explanation: All values are negatives. Return an empty BST.
```

Constraints:

- The number of nodes in the tree is in the range `[1, 4 * 10^4]`.
- `-4 * 10^4 <= Node.val <= 4 * 10^4`