

# Binary Search Tree (搜索树，一般只用DFS)

---

## DFS

Validate Binary Search Tree `dfs: valid_range`

Lowest Common Ancestor of a Binary Search Tree `dfs: binary_search`

Trim a Binary Search Tree `dfs`

Convert BST to Greater Tree `dfs: global_right_sum`

Largest BST Subtree in Binary Tree `dfs: isBST, maxSz, minVal, maxVal`

**Split BST** `dfs: 左(左/右) or (左/右)/右`

## DFS + 查增删改

Search in a Binary Search Tree `dfs: binary_search`

Insert into a Binary Search Tree `dfs, not balanced`

Delete Node in a BST `dfs: no child, one child, !two child!`

## DFS + Flatten

Convert Binary Search Tree to Sorted Doubly Linked List `dfs: head, tail`

## DFS + Traversal

Binary Search Tree Iterator (hasNext, next)

Inorder Successor in BST

## DFS + Construtction

Recover Binary Search Tree

Convert Sorted Array to Binary Search Tree `dfs`

Convert Sorted List to Binary Search Tree `dfs`

Verify Preorder Sequence in Binary Search Tree `O(nlog(n))` `O(n)?`

## DFS + (De)Serialization

Serialize and Deserialize BST (as compact as possible)

## iterator/ closest / smallest / mode

Kth Smallest Element in a BST `iterator + break`

Find Mode in Binary Search Tree `iterator + counter`

Two Sum IV - Input is a BST `iterator + set`

Closest Binary Search Tree Value I (1 node) `binary search`

Closest Binary Search Tree Value II (k node) `heapq.nsmallest: O(nlogk)` **`O(n)` two stacks?**