Topcoder archives - Trees and Bst – A set of hard conceptual problems by Alexander Mitrovic @slackcobra

1. Print nodes at k distance from root iter and rec ii. Print nodes at K distance from a given node iii. Print all nodes that are at a K distance from a leaf node

2. Count leaves iter and rec

3. Diagonal traversal

4. Iterative i. Pre 2. Post 3. In

5. Morris order traversal for i. In ii. Pre

6. Reverse Level order

7. Level order in spiral i. iter ii. Rec

8. Populate successors inorder

9. Successor and predecessor inorder (problem 43 is similar)

10. Check if a bt is bst

11. Horizontal distance

12. Remove duplicates of a given key

13. Check for children sum property

14. Order statistics bst

15. Kth greatest node bst

16. Level order traversal line by line

17. Check if all levels of two trees are anagrams or not

18. Average of levels in a bt

19. Maximum sum from a tree with adjacent levels not allowed

20. Check if leaf traversals of two trees are same

21. Lca

22. Distance

23. Diameter

24. Print in a vertical order

25. Diagonal sum

26. Boundary traversal

27. Remove keys outside given range

28. Floor and ceil

29. Sorted linked list to balanced bst

30. Sorted array to bst

31. Check for identical bst without constructing the actual bsts from arrays

32. Find a pair with given sum in a balanced BST

33. Binary tree to bst conversion

34. Min value from a bst

35. Max value from a bst

36. Deletion from bst

37. Construction of bst i. lot ii. Pre iii. Post or bt from given traversal i. LOT and In ii. Post and In iii. Pre and In

38. Sorted order printing of a given array that represents a BST

39. Minimum Possible value of |ai + aj – k| for given array and k using balanced bst

40. Shortest path between two nodes in array like representation of binary tree

41. Remove nodes on root to leaf paths of length < K

42. Print common nodes on path from root (or common ancestors)

43. Replace each node in binary tree with the sum of its inorder predecessor and successor

44. Query for ancestor-descendant relationship in a tree

45. Two nodes of a BST are swapped, correct the BST

46. Print BST keys in the given range

47. Find the largest BST subtree in a given Binary Tree

48. Merge two balanced bst ii. Merge two bst with constant extra space

49. Generate all possible permutations and print all possible bst possible with given array of numbers

50. Generate all subsets and do the same as in previous problem

51. BST to heap conversion in place

52. Heap to BST conversion in place

53. Check if each internal node of a BST has exactly one child

54. Convert a BST to a Binary Tree such that sum of all greater keys is added to every key

55. Add all greater values to every node in a given BST

56. Find if there is a triplet in a Balanced BST that adds to zero

57. Count pairs from two BSTs whose sum is equal to a given value x

58. Largest number in BST which is less than or equal to N

59. Find median of BST in O(n) time and O(1) space

60. Check if an array represents Inorder of Binary Search tree or not

61. Transform a BST to greater sum tree

62. Given n appointments, find all conflicting appointments using interval tree

63. In-place Convert BST into a max-Heap

64. Check whether BST contains Dead End or not

65. Find the closest element in Binary Search Tree

66. Find pairs with given sum such that pair elements lie in different BSTs

67. Replace every element with the least greater element on its right

68. Check if given sorted sub-sequence exists in binary search tree

69. Print Common Nodes in Two Binary Search Trees

70. How to implement decrease key or change key in Binary Search Tree

71. Count BST nodes that lie in a given range

72. Count BST subtrees that lie in given range

73. Leaf nodes from Preorder of a Binary Search Tree

74. Maximum element between two nodes of BST

75. Binary Search Tree insert with Parent Pointer

76. BST to dll in place with changing pointers

77. BST of strings is given. Print all anagrams by combining one or more strings if possible. Print all such possible strings.

78. Convert a BST to fenwick tree(Binary Inedexed Tree) by changing the addresses of current pointers

79. Permute all nodes and convert the given BST to a permutation tree(Decision tree)

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