

Top-20 Training Program (Binary Search Tree Problems)

Apply the solution building strategies discussed in class to solve following problems.

Group1: Basic problems

<https://leetcode.com/problems/minimum-absolute-difference-in-bst/description/>

<https://leetcode.com/problems/balanced-binary-tree/description/>

<https://leetcode.com/problems/validate-binary-search-tree/description/>

<https://leetcode.com/problems/recover-binary-search-tree/description/>

<https://leetcode.com/problems/find-mode-in-binary-search-tree/description/>

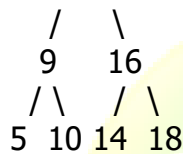
<https://leetcode.com/problems/two-sum-iv-input-is-a-bst/description/>

<https://leetcode.com/problems/trim-a-binary-search-tree/description/>

Problem: Floor & Ceil

Find an efficient algorithm to compute the floor and ceil of given element in a BST. Floor(x) refers to maximum element that is smaller than x. Ceil(x) refers to minimum element that is higher than x.

Input: 13



Output:

Floor(17): 16 Ceil(17): 18

Floor(10): 10 Ceil(10): 10

Problem: IP Lookup by Country

Find an efficient algorithm to determine what country a given IP address is coming from. An ip-to-country.csv data file is given as input and available under assignments folder of algorithmica github repository. The data file has four fields (beginning of IP address range, ending of IP address range, two character country code, and country name). Assume that the IP addresses are non-overlapping. This requirement arises in applications like credit card fraud detection, spam filtering, auto-selection of language on a web site, and web server log analysis.