PART 4 SUMMARY – Read and Memorize!

Data Structure Choices – When to Use!

Stack: push and pop to solve a problem

Queue: add and remove to solve a problem

Linked List: add anywhere, delete from anywhere, search sequentially (dynamic memory)

Search Tree: add fast, delete fast, **search fast,** sort fast (if balanced, add/delete/search is O(logN))

Heap Tree/PQ: add fast, delete fast, **keeping it sorted** (is always balanced and can be in static memory)**Can you pick the right data structure for a problem?**

PQ Heap Summary

You are using slots 0 through count-1

Remove from slot 0

Move the last element to slot 0 and re-heapify (trickle down)

Add to the very end

Trickle up

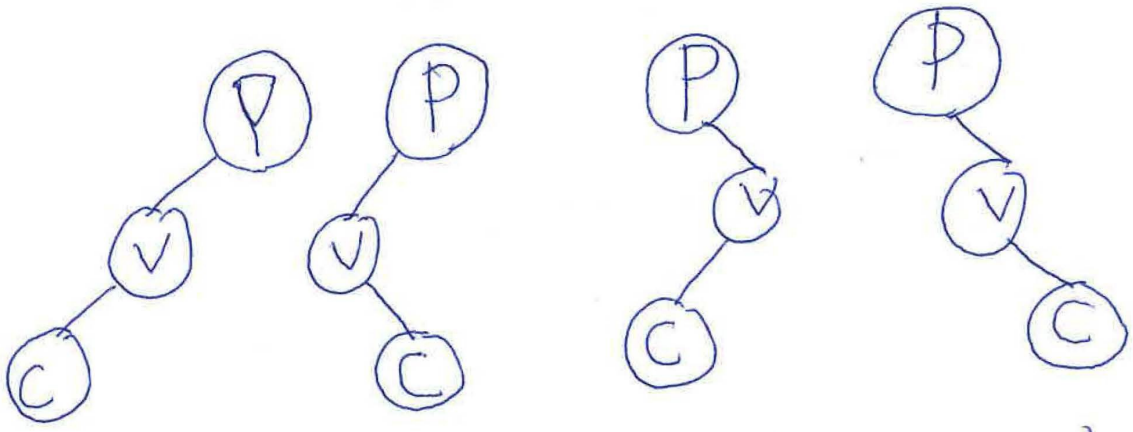
Trickle Down: LC = 2I +1 RC 2I +2

Trickle Up: I = (LC – 1)/2 or (RC-2)/2 LC is odd RC is even

See below

FOR SEARCH TREES:

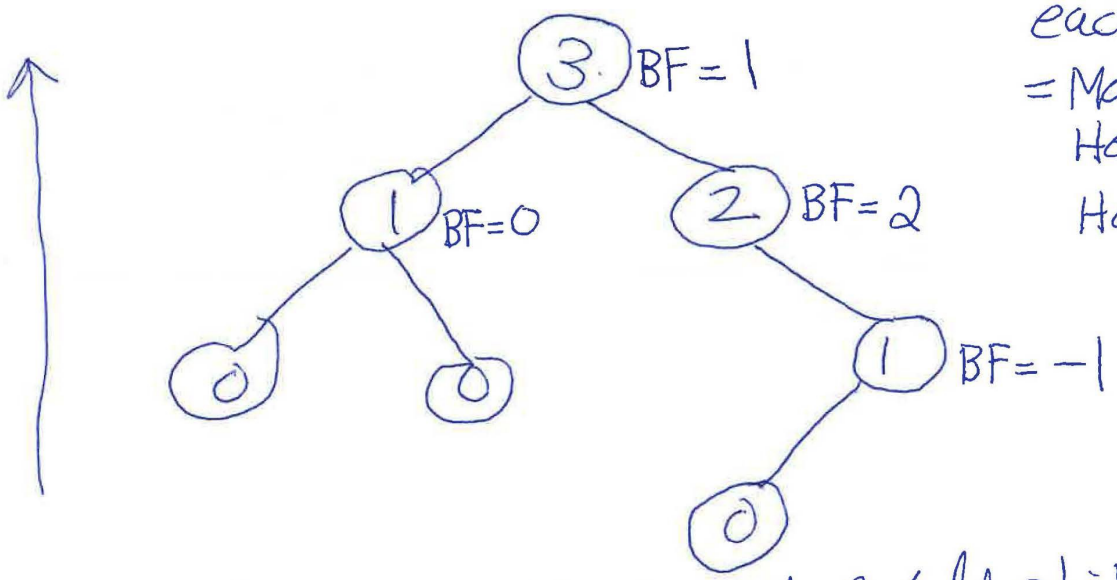
Deletion Case 2 (By Pass)



take care of all 4 cases & set the Up link of C.

Height & Balance Factor

Height inside each node = Max of Height of left & Height of Right



BF = Height of Rightchild − Height of LeftChild