

3/30/2022

① AVL Tree Delete

② AVL Tree Code

Delete

① Do a regular BST delete

- in some cases this is okay

- or an imbalance can be created

- do recursively, ~~facti~~ function returning new root.

- before the return check heights, rebalance if necessary, then return.

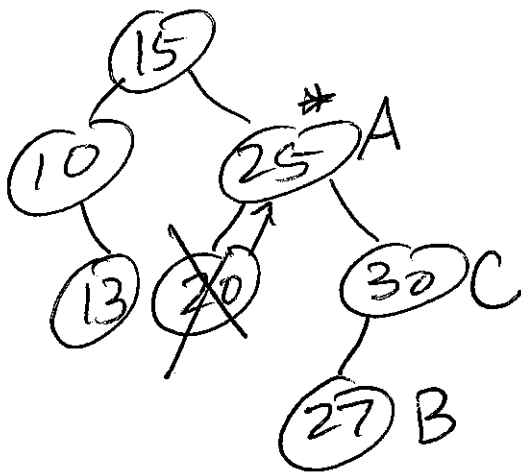
→ For insert this never triggers more than once. But for delete it can trigger multiple times $\leq O(\lg n)$, $n = \# \text{ nodes}$, can't trigger more than once at each level.

① DO REG OP

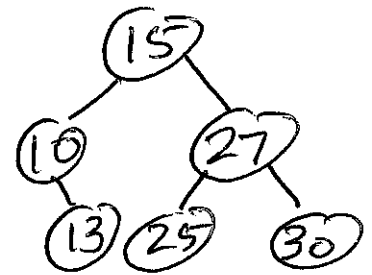
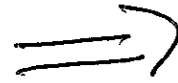
② TRACE UP TREE

③ REBALANCE WHENEVER YOU NEED

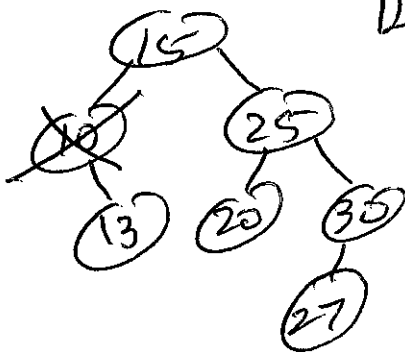
Example #1



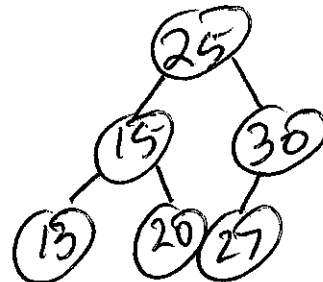
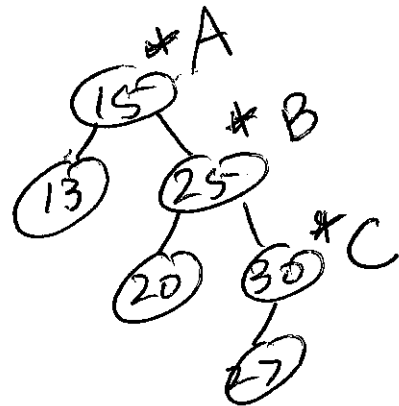
1. Del 20
2. Del 10



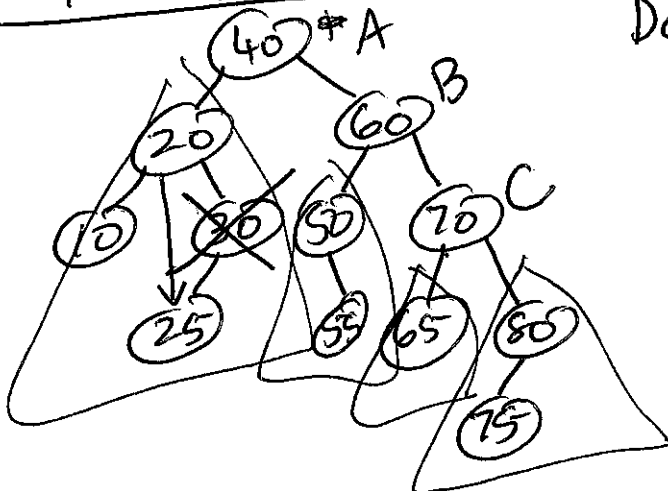
Example #2



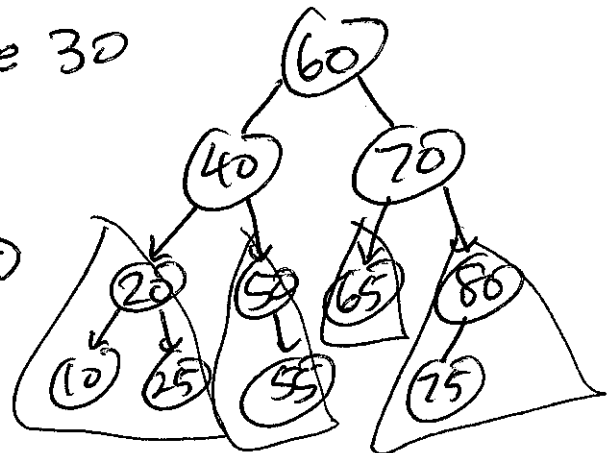
Del 10



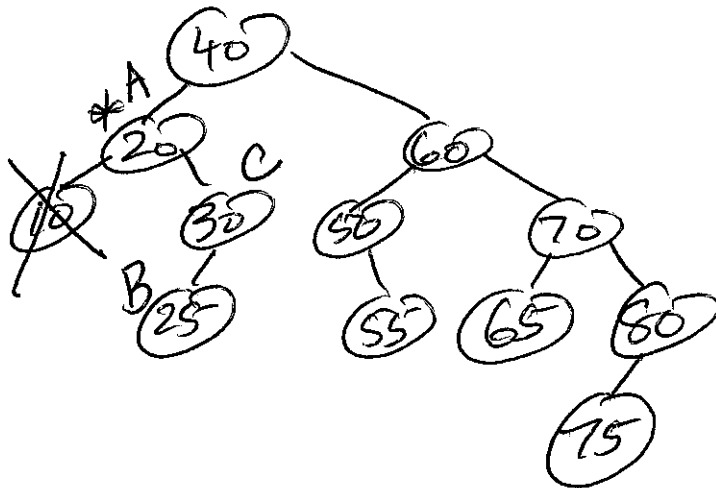
Example #3



Delete 30



Example #4



Del 10

⇒ imbalance @ 20

⇒ Fixed

⇒ imbalance @ 40

