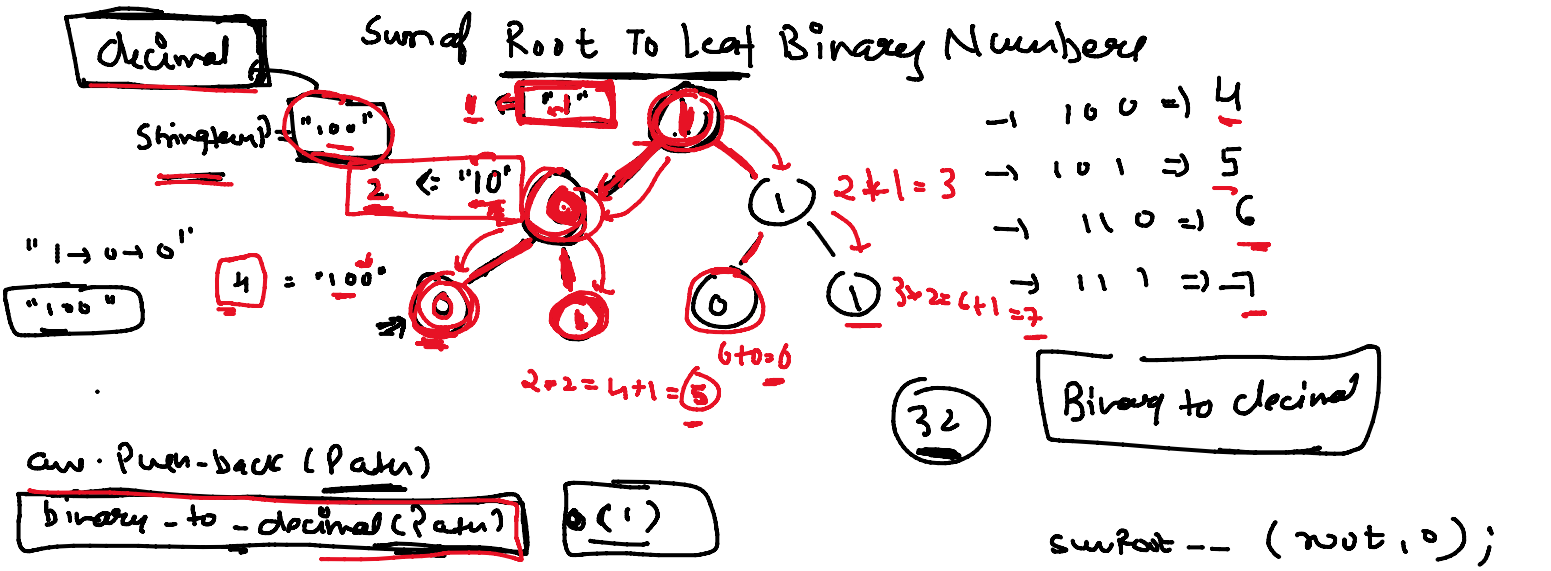
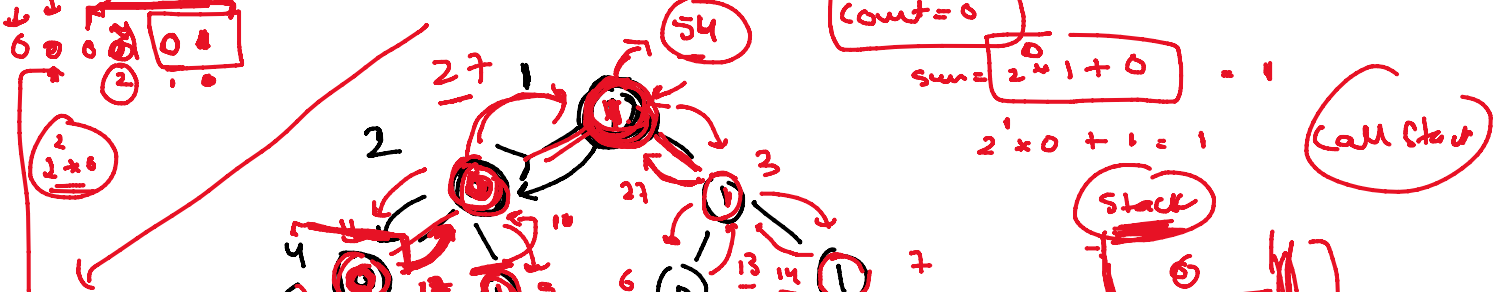
CLASS 62

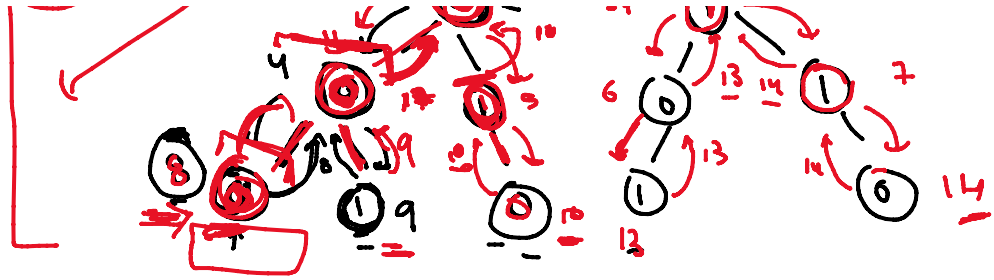
19 April 2023 21:19

Trees [Class 62]



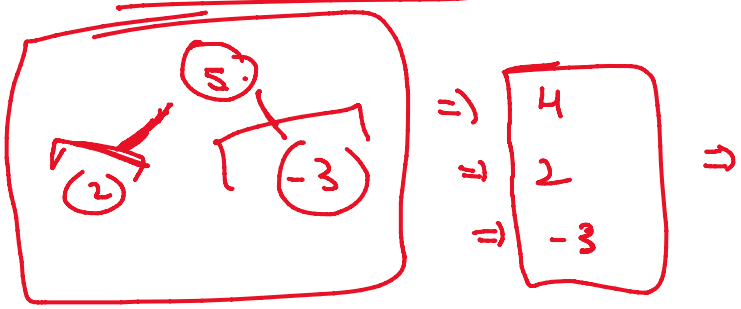

```
int sumRootToLeaf(Node* root, int sum, int count)
{
    if(root == NULL)
        return 0;

    sum = sum*2 + root->val;
    sum = pow(2,count)*root->val + sum

    if(root->left == NULL and root->right == NULL)
    {
        return sum;
    }

    int left = sumRootToleaf(root->left, sum);
    int right = " " " " (root->right, sum);
    return left + right;
```



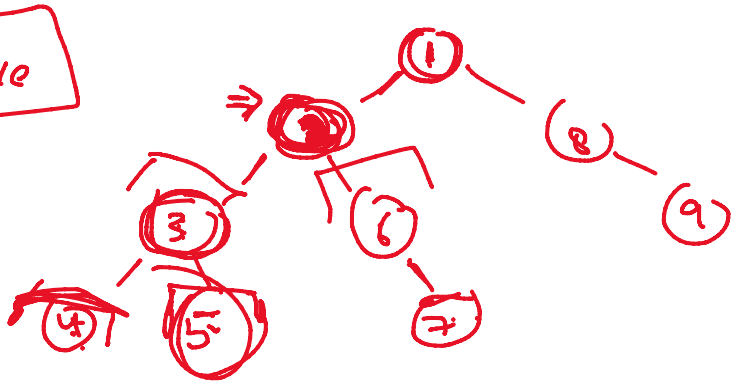


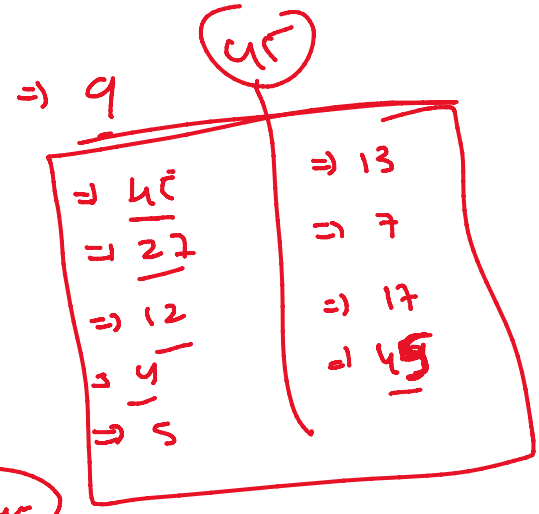
Reveal to Binary

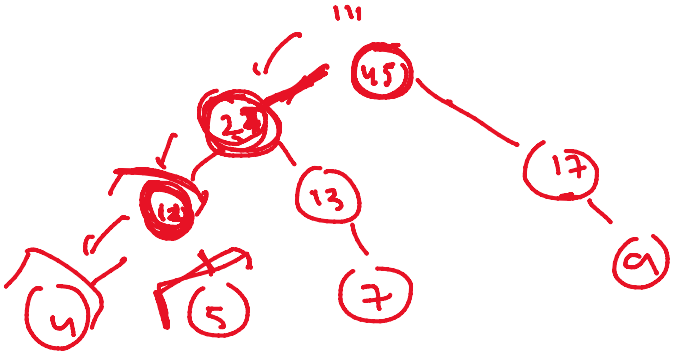
Most Frequ subtree sum



Brute force







map

map

sum

root → val +

subtreeSum(root → left) +
subtreeSum(" → right) +
root → val;

```
map<int,int> ma;
int subtreeSum(Node* root)
{   if(root == NULL)
```

return 0;

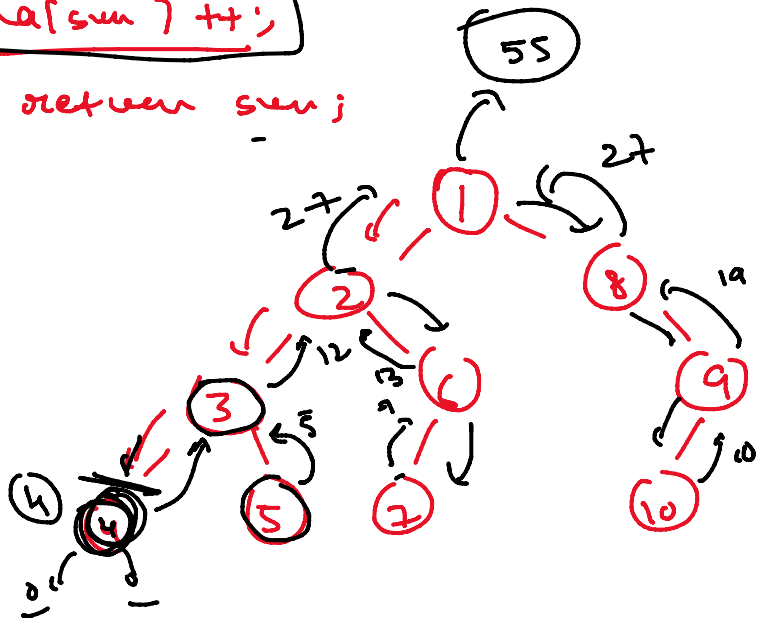
int left = subtreeSum(root->left);

int right = subtreeSum(root->right);

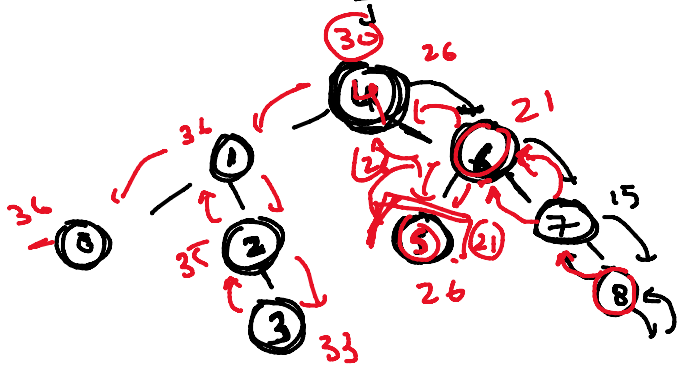
int sum = left + right + root->val;

ma[sum]++;

return sum;



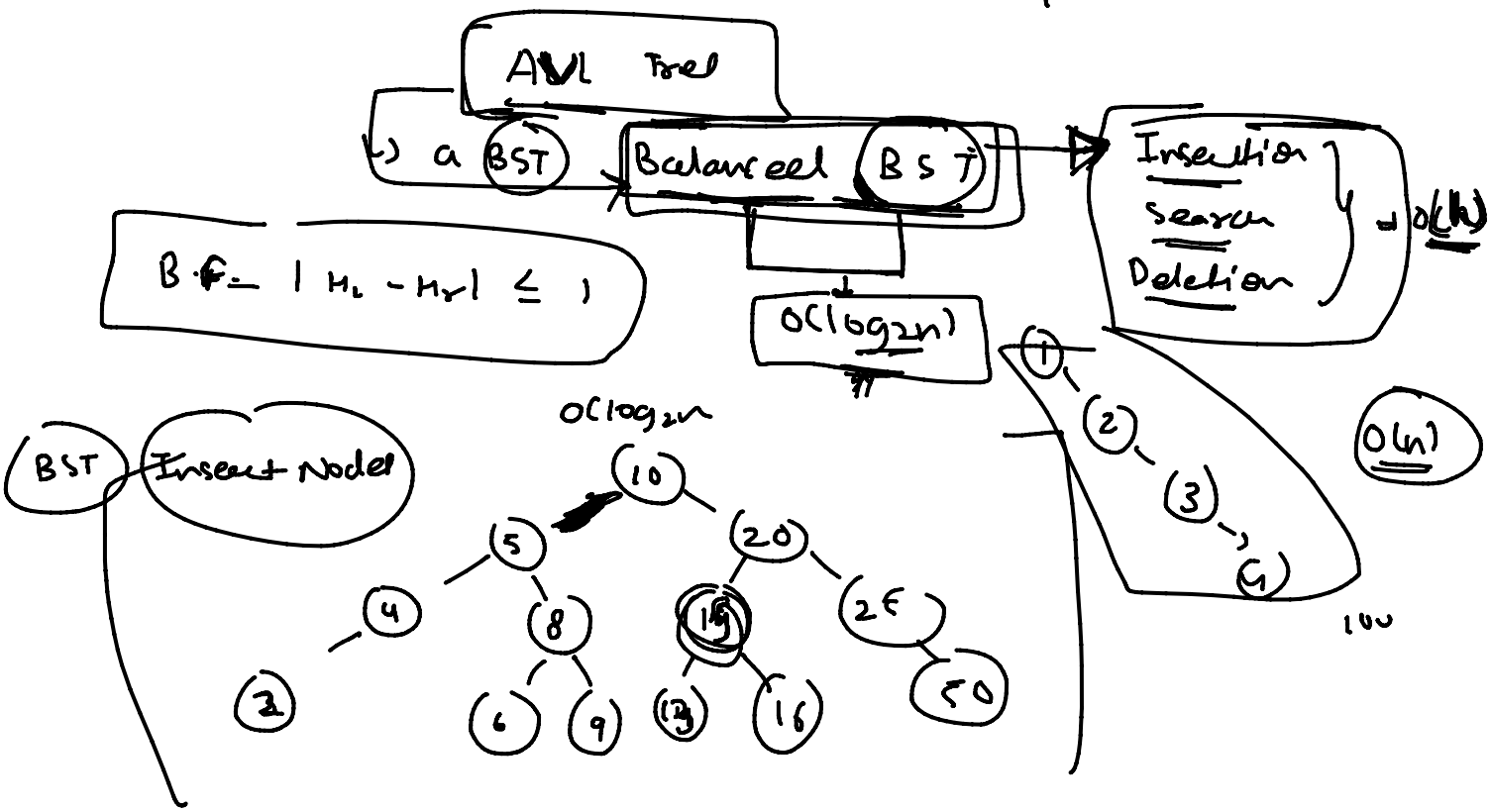
Convert BST to Greater Tree



sum = 33

```
void great ( Node * root , int & sum )
{  if ( root == NULL ) return;
   great (root->right , sum);
   sum += root -> val ;
   root -> val = sum ;
   great (root -> left);
}
```

```
great(root);
```



Insertion / Deletion , Balanced Tree → Unbalanced

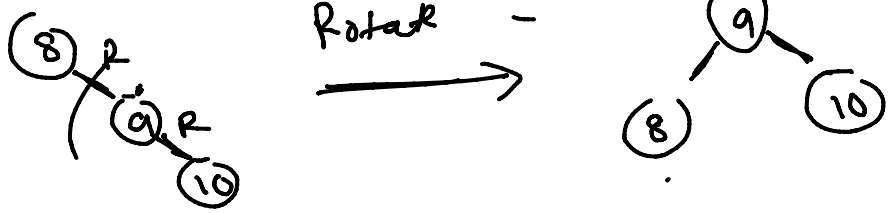
AVL Tree

balanced

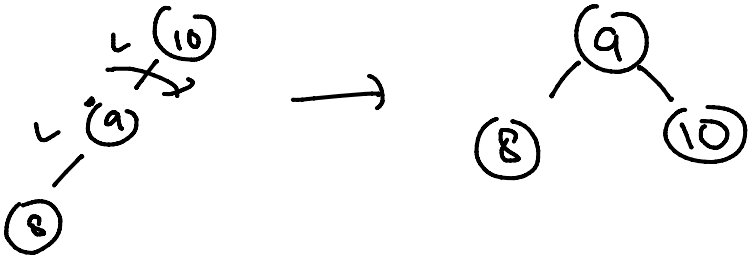
→ Rotations

4 type of Rotation

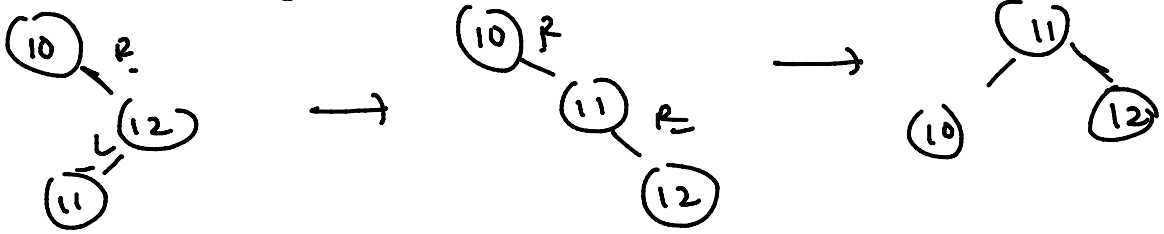
① RR unbalanced



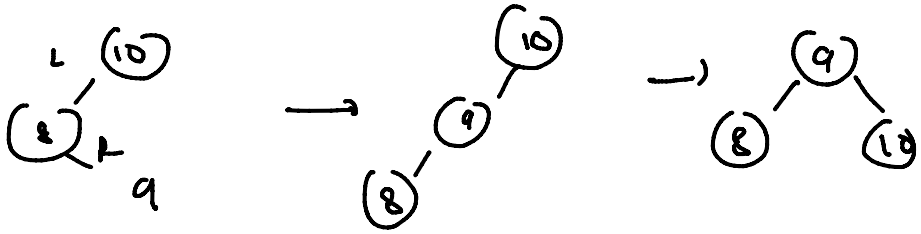
② LL unbalance

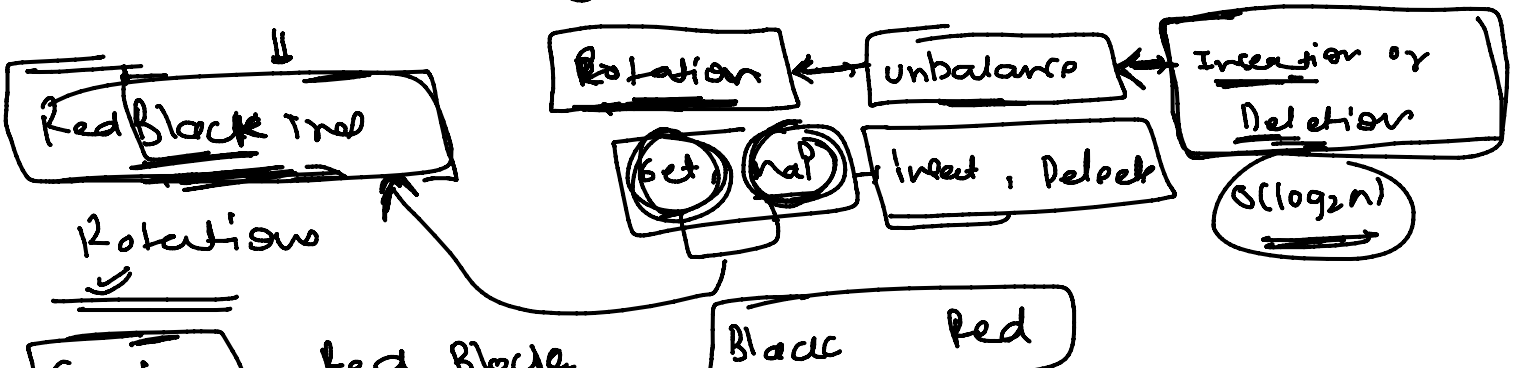


③ RL unbalancing 2 Rotation



④ LR unbalancing





Coloring

Red Blocks

Black Red

Rotations <<< AVL

Implementation

Recursion