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Amazon Interview Experience

- Difficulty Level :[Medium](#)
- Last Updated :16 Oct, 2018

Round: I

An Array $arr = \{7, 7, 8, 8, 9, 1, 1, 4, 2, 2\}$ has numbers appearing twice or once. Duplicates appear side by side everytime. Might be few numbers can be occur one time and just assume this is a right rotating array (just say an array can rotate k times towards right). Aim is to identify numbers that occurred once in array.

```
#include <stdio.h>
int main()
{
    int a[] = { 7, 7, 8, 8, 9, 1, 1, 4, 2, 2 }, i = 1, m = 10;
    int b[] = {7, 8, 8, 9, 1, 1, 4, 2, 2, 7}, i=1, m=10;
    if (a[0] == a[m - 1]) {
        a[m] = a[m - 1];
        m = m - 1;
    }
    printf("%d\n", a[m - 1]); // For cases like { 7, 7, 8, 8, 9, 1, 1, 4, 2, 3 }, a[] = { 7, 7, 8, 8, 9, 1, 1, 4, 4, 2 }
    for (; i < m; i++)
        if (a[i] == a[i - 1])
            continue;
        else
            printf("%d\n", a[i - 1]);
}
```

Input:

7, 7, 8, 8, 9, 1, 1, 4, 2, 2

Output:

9

4

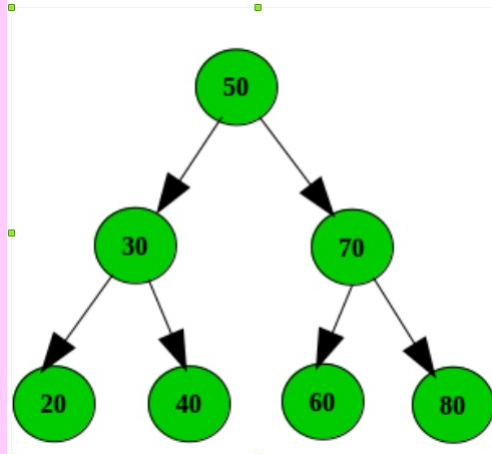
Round II:

In second round a question asked was asked regarding BST. Sum of key elements in individual path of BST (just say this sum as `path_weight`) and threshold path weight is given as input. If any of the pathweight is less than oversold path weight then that should be deleted from the tree.

Example :

Input:

Consider the below tree as input and threshold path weight is 110.



Output:

Below are the no of paths the input tree can make

path 1 : 50 -> 30 -> 20, Sum = 100

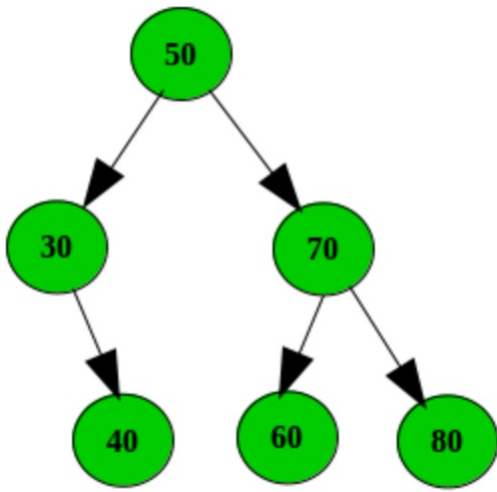
path 1 : 50 -> 30 -> 40, Sum = 120

path 1 : 50 -> 70 -> 60, Sum = 180

path 1 : 50 -> 70 -> 80, Sum = 200

In the current scenario path is less than the threshold path weight ($100 < 110$), So we have to destroy the path 1.

Tree after destroying the path 1.



Program for above task:

```

#include <stdio.h>
#include <stdlib.h>
\xc2\xa0\xc2\xa0
struct node {
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0int key;
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0struct node *left, *right;
};
\xc2\xa0\xc2\xa0\xc2\xa0
struct node* newnode(int element)
{
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0struct node* temp = (struct node*)malloc(sizeof(struct node));
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0temp->key = element;
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0temp->left = temp->right = NULL;
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0return temp;
}
\xc2\xa0\xc2\xa0\xc2\xa0
struct node* insert(struct node* root, int element)
{
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0if (root == NULL)
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0return newnode(element);
    \xc2\xa0\xc2\xa0\xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0if (element < root->key)
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0root->left = insert(root->left, element);
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0else if (element > root->key)
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0root->right = insert(root->right, element);
    \xc2\xa0\xc2\xa0\xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0return root;
}
\xc2\xa0\xc2\xa0\xc2\xa0
void inorder(struct node* mynode)
{
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0if (mynode != NULL) {
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0inorder(mynode->left);
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0printf("%d\n", mynode->key);
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0inorder(mynode->right);
    }
}
\xc2\xa0\xc2\xa0\xc2\xa0
struct node* minValueNode(struct node* node)
{
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0struct node* current = node;
    \xc2\xa0\xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0/* loop down to find the leftmost leaf */
    \xc2\xa0\xc2\xa0\xc2\xa0while (current->left != NULL)
    \xc2\xa0\xc2\xa0\xc2\xa0current = current->left;
    \xc2\xa0\xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0return current;
}
\xc2\xa0\xc2\xa0\xc2\xa0
struct node* deleteNode(struct node* root, int key)
{
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0// base case
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0if (root == NULL)
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0return root;
    \xc2\xa0\xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0// If the key to be deleted is smaller than the root's key,
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0then it lies in left subtree
    \xc2\xa0\xc2\xa0\xc2\xa0if (key < root->key)
    \xc2\xa0\xc2\xa0\xc2\xa0root->left = deleteNode(root->left, key);
    \xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0// If the key to be deleted is greater than the root's key,
    \xc2\xa0\xc2\xa0\xc2\xa0then it lies in right subtree
    \xc2\xa0\xc2\xa0\xc2\xa0else if (key > root->key)
    \xc2\xa0\xc2\xa0\xc2\xa0root->right = deleteNode(root->right, key);
    \xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0\xc2\xa0// if key is same as root's key, then This is the node
    \xc2\xa0\xc2\xa0\xc2\xa0to be deleted
    \xc2\xa0\xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0else {
    \xc2\xa0
    \xc2\xa0\xc2\xa0\xc2\xa0// node with only one child or no child
    \xc2\xa0\xc2\xa0\xc2\xa0if (root->left == NULL) {
    \xc2\xa0\xc2\xa0\xc2\xa0struct node* temp = root->right;
    \xc2\xa0\xc2\xa0\xc2\xa0free(root);
    \xc2\xa0\xc2\xa0return temp;
    }
    \xc2\xa0\xc2\xa0else if (root->right == NULL) {
    \xc2\xa0\xc2\xa0struct node* temp = root->left;
    \xc2\xa0\xc2\xa0free(root);
    \xc2\xa0return temp;
    }
    }
}
  
```