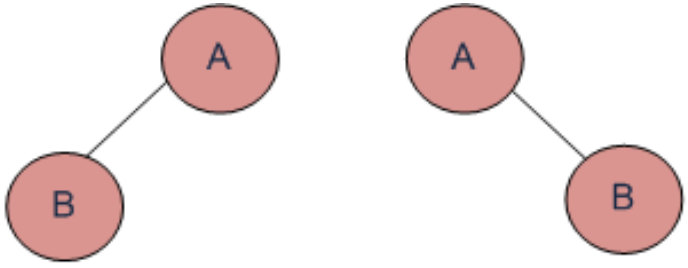
If you are given two traversal sequences, can you construct the binary tree?

It depends on what traversals are given. If one of the traversal methods is Inorder then the tree can be constructed, otherwise not.



Trees having Preorder, Postorder and Level-Order and traversals

Therefore, following combination can uniquely identify a tree.

Inorder and Preorder.
Inorder and Postorder.
Inorder and Level-order.

And following do not.
Postorder and Preorder.
Preorder and Level-order.
Postorder and Level-order.

For example, Preorder, Level-order and Postorder traversals are same for the trees given in above

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diagram.

Preorder Traversal = AB
Postorder Traversal = BA
Level-Order Traversal = AB

So, even if three of them (Pre, Post and Level) are given, the tree can not be constructed.

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smith • 4 months ago

when preorder and inorder is given:

code is

```
#include<stdio.h>

#include<malloc.h>

struct node

{

int data;

struct node *left;

struct node *right;

};

struct node *construct(int *,int *,struct node *,int ,int,int,int);
```

see more

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Rahul Singh • 11 months ago

@geeksforgeeks team if we know any one of the traversal except inorder we c
because we can ourself find the inorder traversal by sort the given traversal se

1 ▲ | ▼ • Reply • Share ›

Rahul ➦ Rahul Singh • 11 months ago

@Rahul Singh

We are talking about Binary tree not BST

11 ▲ | ▼ • Reply • Share ›

trilok sharma • a year ago

```
#include
#include
#include
using namespace std;

struct node
{
int data;
node *left;
node *right;
};

node* Newnode(int data)
{
node * curr;
curr = (node *)malloc(sizeof(node));
curr->data = data;
curr->left = curr->right = NULL;
```

see more

695

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karthik it should have been max_wrap= max_wrap -...

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Himanshu • a year ago

Here is a an algorithm from the URL http://stackoverflow.com/quest... that me
inorder and level order.

f(inorder, levelorder):
if length(levelorder) == 0:
return None
root = levelorder[0]#set root to first element in levelorder
subIn1, subIn2 = partition(inorder, levelorder[0]) #partition inorder based on roc
subLevel1 = extract(levelOrder, subIn1)#remove elements in level order not in
subLevel2 = extract(levelOrder, subIn2)#remove elements in level order not in
root->left = f(subIn1, subLevel1)
root->right = f(subIn2, subLevel2)
return root

1 ^ | v • Reply • Share ›

Avinash • 2 years ago

```
 /* Paste your code here (You may delete these lines if not
writing code) */
Construct Tree from given Inorder and Preorder traversals
April 16, 2010
Let us consider the below traversals:

Inorder sequence: D B E A F C
Preorder sequence: A B D E C F

BuildTree(inorder[],preorder[],start,end)
{
        static int preindex=0;
```

```
If start end return NULL;

struct node *newnode=new(preorder(preindex));
preindex=preindex+1;

If start==end return node;
```

see more

Reply • Share ›

Avinash • 2 years ago

Let us consider the below traversals:

Inorder sequence: D B E A F C
Preorder sequence: A B D E C F

BuildTree(inorder[],preorder[],start,end)
{
static int preindex=0;
If start>end return NULL;

struct node *newnode=new(preorder(preindex));
preindex=preindex+1;

If start==end return node;

int searchind=search(inorder,start,end,node->data);

node->left=BuildTree(inorder,preorder,start,searchind-1);
node->right=BuildTree(inorder,preorder,searchind+1,end);

see more

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Devansh • 2 years ago

Inorder of a tree is must as from other traversal we are getting the root node o child nodes which are in left subtree and right subtree as nodes which are in le inorder traversal and the ones which are in right subtree appears after root.

1 ^ | v • Reply • Share ›

An • 3 years ago

Hey can u xplain how to create a tree from inorder and level order !! I tried but knowledge of which child to attach to which root.

^ | v • Reply • Share ›

Anand • 3 years ago

Given a post order and pre order traversal you can still construct a unique tree childern's
anandtechblog.blogspot.com/201...

^ | v • Reply • Share ›

Anand • 3 years ago

anandtechblog.blogspot.com/201...

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manishj • 3 years ago

Let I(n) = i0,i1,i2,i3....in be elements of a inorder traversal of a binary tree.
Simillarly let Pre(n) = p0,p1,p2.....pn be the elements of a preorder traversal o

Now If we know that ik is root of binary tree , we can be sure that elements i0.. elements from 1k+1..in are in right-subtree rooted at ik(we can prove this by c

Now , if we fix ik to be root. We inturn fix its left subtree (i0..ik-1), and its right ri we fix the tree (we can apply induction on n to mathematically prove this).

Inorder to fix the root , we can use either pre-order traversal.In any preorder tra

binarytree. We can also use Postorder traversal Post(n) say q0..qn in which q

So this proves that inorder combined with either post-order or preorder unique

1 ^ | v • Reply • Share ›

Himanshu Aggarwal • 3 years ago

Similarly, for trees like :

```
    A                   A
   /        and         \
  B                     B
```

both have preorder(and level-order) AB and postorder BA

^ | v • Reply • Share ›

Himanshu Aggarwal • 3 years ago

consider Two Binary Trees

For tree1 :
Root = A
Left Chid = B

Preorder: A,B
Postorder: B,A

and for tree 2:
Root = A
Right Child = B

Preorder: A,B
Postorder: B,A

For given preorder and postorder two different binary trees can be formed

Karthick ➚ Himanshu Aggarwal • 2 years ago

Forget about binary tree. What about a BST with just pre-order or a po

wgpshashank • 3 years ago

It is not very clear why InOrder is a must to recreate the tree.
Can you please provide more details regarding the same?

tech.login.id2 • 4 years ago

It is not very clear why InOrder is a must to recreate the tree.
Can you please provide more details regarding the same?

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Rohini • 4 years ago

//preIndex is global

```
 node* BST::buildTree(int in[],int inStrt,int inEnd,int len,int pre[]
{
    if(preIndex >= len || inStrt > inEnd)
        return NULL;

    node *retNode = makeNode(pre[preIndex++]);

    if(inStrt == inEnd)
        return retNode;

    int inIndex = findNodeIn(in,inStrt, inEnd, retNode->data);
    retNode->left = buildTree(in, inStrt,inIndex-1,len,pre);
    retNode->right = buildTree(in,inIndex+1,inEnd,len,pre);
```

```
    return retNode;
```

see more

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GeeksforGeeks ➚ Rohini • 4 years ago

@Rohini: Thanks for providing the code. We have published it here.

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abhi ➚ GeeksforGeeks • 8 months ago

What about the case when we have duplicates in the Binary Tr

We can't identify the tree, right ?
suppose for the case : when all node values are 1's only.

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