算法设计上机题

1、 Given two binary trees and imagine that when you put one of them to cover the other, some nodes of the two trees are overlapped while the others are not.
You need to merge them into a new binary tree. The merge rule is that if two nodes overlap, then sum node values up as the new value of the merged node. Otherwise, the NOT null node will be used as the node of new tree.

Example 1:

```
Input:
      Tree 1                     Tree 2
          1                         2
         / \                       / \
        3   2                     1   3
       /                           \   \
      5                             4   7
Output:
Merged tree:
```

```
          3
         / \
        4   5
       / \   \
      5   4   7
```

2、 Given the root node of a binary search tree (BST) and a value. You need to find the node in the BST that the node's value equals the given value. Return the subtree rooted with that node. If such node doesn't exist, you should return NULL.

For example,

```
Given the tree:
        4
       / \
      2   7
     / \
    1   3


And the value to search: 2
You should return this subtree:
      2
     / \
    1   3
```