Feedback — Binary Search Trees

Help Center

You submitted this quiz on **Sun 27 Sep 2015 2:16 PM EDT**. You got a score of **1.40** out of **3.00**. You can attempt again, if you'd like.

```
To specify an array or sequence of values in an answer, separate the value
s in
the sequence by whitespace. For example, if the question asks for the firs
t
ten powers of two (starting at 1), then the following answer is acceptabl
e:

     1 2 4 8 16 32 64 128 256 512

If you wish to discuss a particular question and answer in the forums, ple
ase
post the entire question and answer, including the seed (which can be used
by
the course staff to uniquely identify the question) and the explanation (w
hich
contains the correct answer).
```

Question 1

```
(seed = 60751)
Give the level-order traversal of the BST that results after inserting
the following sequence of keys into an initially empty BST:

    38 26 78 55 31 42 11 86 94 13

Your answer should be a sequence of 10 integers, separated by whitespace.
```

You entered:

```
55  31  86  13  42  78  94  11  26  38
```

Your Answer		Score	Explanation
55 31 86 13 42 78 94 11 26 38	✖	0.00	
Total		0.00 / 1.00	

Question Explanation

```
The correct answer is: 38 26 78 11 31 55 86 13 42 94

Here is the level-order traversal of the BST after each insertion:

38:  38
26:  38 26
78:  38 26 78
55:  38 26 78 55
31:  38 26 78 31 55
42:  38 26 78 31 55 42
11:  38 26 78 11 31 55 42
86:  38 26 78 11 31 55 86 42
94:  38 26 78 11 31 55 86 42 94
13:  38 26 78 11 31 55 86 13 42 94
```

Question 2

```
(seed = 741548)
Given a BST whose level-order traversal is:

    73 25 74 20 44 92 15 57 96 45 62 53

What is the level-order traversal of the resulting BST after Hibbard deleti
ng
the following three keys?

    96 44 25

Your answer should be a sequence of 9 integers, separated by whitespace.
```

You entered:

73 45 74 20 57 92 15 53 62

Your Answer		Score	Explanation
73 45 74 20 57 92 15 53 62	✔	1.00	
Total		1.00 / 1.00	

Question Explanation

The correct answer is: 73 45 74 20 57 92 15 53 62

Here is the level-order traversal of the BST after each deletion:

96: 73 25 74 20 44 92 15 57 45 62 53
44: 73 25 74 20 57 92 15 45 62 53
25: 73 45 74 20 57 92 15 53 62

Question 3

(seed = 652803)
Which of the following statements about binary search and binary search trees are true? Check all that apply. Unless otherwise specified, assume that the binary search and binary search tree implementations are the one from lecture.

Your Answer		Score	Explanation
☑ Consider a BST containing N nodes that has height h. In the worst case, the number of key compares to find the minimum key equals N-1.	✖	0.00	The minimum is obtained by following left pointers, until reaching a leaf. No key compares are needed.
☑ In a BST, consider a node x that has two childre	✔	0.20	The successor is the leftmost node in the right subtree of x.

n. Then, the successor of x (the node containing the next largest key) has no left child.			
☐ Consider a BST containing N nodes that has height h. In the worst case, the number of key compares to search for a key equals h+1.	✖	0.00	In the worst case, there is one compare for each node on a path from the root to a leaf.
☑ One reason for storing the subtree counts in each node is to efficiently support both the floor and the ceiling operations.	✖	0.00	Neither our implementation of the floor method nor our implementation of the ceiling method uses the subtree counts.
☑ Given a BST, it is possible to obtain a sorted list of the keys in linear time.	✔	0.20	Use an inorder traversal.
Total		0.40 / 1.00	

Question Explanation