Feedback — Interview Questions: Elementary Symbol Tables

You submitted this homework on **Sun 24 Mar 2013 2:28 PM PDT -0700**. You will be able to view your score after the deadline passes.

These interview questions are for your own enrichment and are not assessed. If you click the *Submit Answers* button, you will get a hint.

Question 1

Java autoboxing and equals(). Consider two `double` values `a` and `b` and their corresponding `Double` values `x` and `y`.

- Find values such that `(a == b)` is `true` but `x.equals(y)` is `false`.
- Find values such that `(a == b)` is `false` but `x.equals(y)` is `true`.

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: IEEE floating point arithmetic has some peculiar rules for `0.0`, `-0.0`, and `NaN`. Java requires that `equals()`

implements an equivalence relation.

Question 2

Check if a binary tree is a BST. Given a binary tree where each `Node` contains a key, determine whether it is a binary search tree. Use extra space proportional to the height of the tree.

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: design a recursive function `isBST(Node x, Key min, Key max)` that determines whether `x` is the root of a binary search tree with all keys between `min` and `max`.

Question 3

Inorder traversal with constant extra space. Design an algorithm to perform an inorder traversal of a binary search tree using only a constant amount of extra space.

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: you may modify the BST during the traversal provided you restore it upon completion.

Question 4

Web tracking. Suppose that you are tracking N web sites and M users and you want to support the following API:

- User visits a website.
- How many times has a given user visited a given site?

What data structure or data structures would you use?

Your Answer	Score	Explanation
Total	0.00 / 0.00	

Question Explanation

Hint: maintain a symbol table of symbol tables.