**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.

**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.

**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.

**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?