

CS231 Fall 2013 Lecture 31

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1 Administrative Topics

- CS251 is a prereq for graphics
- Come to dinner on Tues and other events. RSVP!
- Please don't unplug ethernet from computers in bobs

2 Binary Search Trees

Binary search trees are binary trees that are ordered such that an in-order traversal visits the nodes in sorted order.

2.1 Add

We need to add nodes so that the left kid is smaller than the node and the right kid is bigger.

In today's class, we are fixing up the add method that Dale presented on Monday. Dale presented the method as we would like it to look, but never ran it because he knew it wouldn't work. The problem was that it always asked a Null node to add a kid. And the Null node wouldn't do anything. So new new nodes were added.

So we improve it by testing whether or not a kid is null.

Then we make another improvement by having our add method return the updated subtree. This new method requires fewer if-statements. And the NullNode's method just makes a new TreeNode and returns it.

2.2 Sorting

We can use a binary search tree to sort.

Just add every item, then do an in-order traversal that adds each element to an ArrayList.

This involves writing a wrapper class and adding the addToList method to the BST.