Programming Assignment - 9
Symbol Table and BSTs

No Programming required.

1. Symbol Tables

a) Give a trace of the process of inserting the keys E A S Y Q U E S T I O N into an initially emptytable using SequentialSearchST. Use an unsorted list. How many compares are involved?

b) Give a trace of the process of inserting the keys E A S Y Q U E S T I O N into an initially empty table using BinarySearchST. Use a sorted array. How many compares are involved?

2. Binary Search Tree

a) Draw the BST that results when you insert the keys M I D T E R M Q U E S T I O N S, in that order (associating the value i with the i^{th} key, as per the convention discussed in class) into an initially empty tree. How many compares are needed to build the tree?

b) Draw the sequence of BSTs that result when you delete the keys from the tree in question 2.a, one by one, in the order they were inserted.

c) Draw the sequence of BSTs that result when you delete the keys from the tree in question 2.a, one by one, in alphabetical order.

d) Draw the sequence of BSTs that result when you delete the keys from the tree in question 2.a, one by one, by successively deleting the key at the root.

e) Give the sequences of nodes examined when the methods in BST are used to compute each of the following quantities for the tree in question 2.a. You must show every step in the recursive method call, including the call arguments return values.

   a. floor("P")
   b. select(5)
   c. ceiling("V")
   d. rank("S")