Problem Set #8
Due in class Wednesday, 23 May 2007

Reading: Chapter 13

Problem 1: Cormen 12.1-1
For the set of keys 1, 4, 5, 10, 16, 17, 21, draw binary search trees of height 2, 3, 4, 5, and 6.

Problem 2: Cormen 12.1-2
What is the difference between the binary-search-tree property and the min-heap property (see page 129 of the book)? Can the min-heap property be used to print out the keys of an n-node tree in sorted order $O(n)$ time? Explain how or why not.

Problem 3: Cormen 12.1-3
Give a nonrecursive algorithm that performs an inorder tree walk. (*Hint:* There is an easy solution that uses a stack as an auxiliary data structure and a more complicated but elegant solution that uses no stack but assumes that two pointers can be tested for equality.)

Problem 4: Cormen 12.2-2
Write recursive version of the TREE-MINIMUM and TREE-MAXIMUM procedures.

Problem 5: Cormen 12.2-5
Show that if a node in a binary search tree has two children, then its successor has no left child and its predecessor has no right child.