Algorithms (COT 6405): Assignment 8

Due date: October 30 (Thursday)

Problem 1 (4 points)
Give an efficient *nonrecursive* algorithm that prints all elements of a binary search tree in sorted order, and specify the worst-case running time of your algorithm.

Problem 2 (6 points)
This problem is inherited from the midterm; you should write a solution even if you received the full credit for solving it during the exam.

Suppose that we have four algorithms, called A_0, A_1, A_2, and A_3, whose respective running times are n, n^2, $\lg n$, and 2^n. If we use a certain old computer, then the maximal sizes of problems solvable in an hour by these algorithms are s_0, s_1, s_2, and s_3. Suppose that we have replaced the old computer with a new one, which is k times faster. Now the maximal size of problems solvable in an hour by A_0 is $k \cdot s_0$. What are the maximal problem sizes for the other three algorithms if we run them on the new computer?