Test 2 will be Thursday, April 17, in class. It will be closed-book and notes, except for one 8.5” x 11” sheet of paper containing any notes that you want. (Yes, you can use both the front and back of this piece of paper.) The test will cover the following topics (and maybe more).

**Chapter 4 (only sections 4.4 to end of the chapter)**
Simple sorts: bubble sort (without (Listing 4.17) and with check to stop early (Listing 4.18)), selection sort, insertion sort
Advanced sorts: merge sort, quick sort

**Chapter 5: Trees**
Terminology: node, edge, root, child(ren), parent, sibling, leaf, subtree, path, branch, level, height
Binary Tree implementations: list of lists, and pointer-based (leftChild, rightChild, parent)
Applications/Usage: parse tree, evaluation of parse tree
Tree traversals: preorder, inorder, postorder

Binary Search Trees (BSTs): implementation of search (get method), insertion (put method), and deletion (delete_key method) plus their corresponding theta notation for each operation
Be able to draw the BST tree resulting from a sequence of insertions and deletions of keys.

AVL Trees: height-balanced property, balance factors (TL, EQ, TR), pivot node, left rotation, right rotation, double rotation
implementation of search (get method), and insertion (put method) plus their corresponding theta notation for each operation
Be able to draw the AVL tree resulting from a sequence of insertions of keys.

Priority Queue: enqueue and dequeue based on priority (NOT on FIFO order of insertion)
Implementations: (for each, understand the theta notation for enqueue and dequeue operations)
1) ORDEREDLIST that’s ordered by priority, or
2) binary heap
Binary heap
terminology: complete tree, heap-order property, list representation, max heap, min heap
implementation and theta notation of methods: insert, percUp, percDown, minChild, delMin, buildHeap
Heap sort

**Lab 10:** Understand the concept and importance of program profiling