CS451 Software Engineering

Assignment 1

In this assignment you will specify and implement 3 data structures that each support following operations:
1. Insert
2. Find
3. Remove
4. Report (in sorted order)

The Data Structures you must implement are:
1. Sorted linked list
2. Binary search tree
3. Binary heap

7 sets of photocopied descriptions of these data structures have been placed on reserve in the Drexel Library. They are available on a first-come-first-serve basis for the duration of 2 hours.

Online materials on the same topic are available from the CS451 website (see Week 1).

Specification
These data structures must be specified using structured natural language. Please specify the all 4 operations on all 3 data structures.

Implementation
The data structures must be implemented using the Java programming language. You can assume that the elements are of type int and should be sorted in non-decreasing order. Assume that no duplicate nodes (i.e., nodes with the same integer) exist in the data structures.

Submission Guidelines:
1. Assignments must be submitted via the submit command located on the queen.cs.drexel.edu Unix machine. Type “submit” at the command prompt, and follow the menu options.
2. Submit all source code.
3. Submit all documentation (HTML of PDF formats preferred)
4. Your program will be run by the TA.
5. Submit a Makefile (optional but appreciated).
More Information on the Data Structures:

1. Sorted linked list


2. Binary search tree


3. Binary heap