CSCI 1321 (Principles of Algorithm Design II), Fall 2010

Review for Final Exam

1 Format of the exam

The exam will be at the scheduled time for the course final, December 15 at 8:30am. The exam will be about twice the length of the first exam (intended to take 75 minutes), but you can use the full three-hour period if you like. You may use any notes or papers you care to bring (with the exception of any materials from this course in previous years), but you may not use books (other than the course textbook), each other's papers, or a calculator or computer, *except* that you may use a browser to look at material on the course Web site or Sun/Oracle's documentation of the Java library.

Questions will mostly be similar in format to the ones on the midterm — some short-answer or multiple choice, some "what does this program do/print", some "write a program to do this task". The quizzes and minute essays are also a reasonable guide to the kinds of questions I might ask, though questions on exams are apt to be longer and/or more difficult.

2 Topics to review

You are responsible for all material covered in class or in the assigned reading. (See the lecture topics and assignments page[1] for a list of assigned reading.) The focus will be on material covered since the first exam, but there may be questions on earlier material as well, since (1) this exam is worth more points, and (2) the material is cumulative in nature. You should review in particular the following topics.

- Basic Java syntax and semantics, including classes, `import`, the difference between primitive types and objects, generics, and exceptions.
- Inheritance and interfaces.
- Polymorphism.
- String processing — the Java `String` class and how to use it.
- Arrays in Java; sorting and searching of arrays.
- Linked lists, in general and in Java.
- Stacks and queues — as ADTs, implementation using arrays, implementation using linked lists, implementation of priority queue using heap.
- GUIs and graphics in Java.
- Recursion.
- Binary trees (particularly tree traversal), sorted binary trees, and heaps, at the level of the class discussion.

[1] `http://www.cs.trinity.edu/~bmassing/Classes/CS1321_2010fall/HTML/schedule.html`

- I/O in Java — files and streams, at the level of the class discussion.
- Basics of multithreading and networking in Java, at the level of the class discussion.