CSCI 1321 (Principles of Algorithm Design II), Fall 2007
Review for Final Exam

The exam will be at the scheduled time for the course final, December 12 at 8:30am. It will consist of two parts, student presentations of their games (worth 50 points) and a written exam (worth 150 points), as described in the following two sections.

1 Student presentations

Each student will have 10 minutes to present his or her game. Each presentation should include the following.

- A discussion of the game's design, including discussion of the classes involved and how they fit into the overall design. A UML diagram might be helpful.

- A brief description of what you learned from writing the game and what you might do differently if you were starting again from scratch.

- A demo of the game.

For the discussion/description part, you can use some kind of presentation software (e.g., OpenOffice), or just talk and draw pictures on the whiteboard. You should be prepared to answer questions from me and from your classmates (so allow a minute or two for that purpose).

2 Written exam

2.1 Format

You may use your textbook and 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 other books, 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 at Sun's documentation of the Java library.

Questions will mostly be similar in format to the ones in quizzes and minute essays, but probably longer and/or more difficult. There might also be a few multiple-choice or short-answer questions. Overall they will probably be similar in format, length, and difficulty to the questions on the midterm.

2.2 Topics to review

You are responsible for all material covered in class or in the assigned reading. (See the schedule 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.

- 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) and sorted binary trees, at the level of the class discussion.

- I/O in Java — files and streams.

- Basics of multithreading and networking in Java, at the level of the class discussion.