Midterm Review
FPP

1. The midterm will be timed 10:00 am to 12:00 (possibly a few extra minutes).

2. The midterm will be closed book, closed notes, and no use of laptops or electronic devices.

3. Structure of exam: True/False, Multiple Choice, Short Answer and two and a half programming questions. Note that several multiple choice questions will be like those given in Quizzes 1 and 2.

4. Topics to be prepared for

    A. Rules concerning static variables and methods. For example, static methods cannot access instance variables or instance methods

    B. Rules concerning visibility qualifiers private, public and package level. In particular, be sure you know how to gain access to protected variables and methods by accessing a subclass (see Lesson 4).

    C. Know how the bitwise operators work – be prepared to do a computation.

    D. Know the rules for Java 8 interfaces.

    E. Know the rules for working with the four types of nested classes.

    F. Know the rules for inheritance

        i. Constructor rules

        ii. What kind of access does a subclass have to superclass methods and variables?

        iii. Order of initialization when a subclass constructor is invoked.

        iv. Dynamic binding

    G. Apply the principle that Java passes arguments by value not by reference.

    H. Overriding equals. You should know three ways to do this (including use of composition instead of inheritance) and best practices concerning these approaches

I. You need to know what a "functional interface" is and how to use the @FunctionalInterface annotation

J. You need to know how to use the Comparable interface (Comparators will be on the final exam, not the midterm)

K. **Programming Questions**.
   a. You will be given a programming problem about polymorphism -- see slides 40-48 in Lesson 4 and lab problem prog4-2

   b. You will be given a programming problem concerning the equals method -- see prog4-6.

L. **SCI**. There will be a question that asks you to write a short essay on the relationship between SCI principles and principles discussed in the course so far.

Practice Problems for the Midterm

OO Practice and Protected keyword practice in the Practice Problems folder of MidermReview in Sakai.