

# CS4233-A04 Final Exam Study Guide

If you have read the assigned readings, done the homework assignments, attended the lectures and studied the class notes, you should be adequately prepared for the exam. These notes identify some of the specific areas that you might encounter on the exam.

## General O-O knowledge

- You should be able to describe the Liskov Substitution Principle (LSP) and the Open-Closed Principle (OCP) (taken from Bob Martin's guest lecture). See pp. 221-2 in the textbook and <http://www.objectmentor.com/resources/articles/lsp.pdf>. The OCP states that classes should be open for extension, but closed for modification.
- Given examples, you should be able to decide whether the LSP or OCP are applied and, if they are, whether they are applied properly.
- You should know the Stable Dependencies Principle (SDP) and Stable Abstractions Principle (SAP).
- Know what it means for a class or package to be more or less stable than another.
- What is *type inquiry*? See section 7.2 of the text. How is it realized in Java?
- What is serialization? See section 7.5 of the text. You should be able to describe what serialization is, and given a class, describe / illustrate how it is serialized.

## Patterns

- You should be able to draw a UML diagram for each of the patterns we've covered this half of the term. You can find the UML diagrams for them at sites like <http://www.patterndigest.com>.
- You should be able to describe each of the patterns we've covered, when they are appropriate, what they are designed to do, and discuss the benefits and possible disadvantages of them.
- You should be able to identify patterns from their associated UML diagrams, or from code segments.
- Patterns you should be familiar with are: Strategy, Composite, Façade, Template, Adapter, Decorator, Factory (Method), Singleton.
- Given a context, you should be able to apply (or describe how to apply) specific patterns.

## Components

- What are Java Beans? What are they used for?
- What are the characteristics of Java Beans? (properties, methods, events)
- What is reflection (introspection)?
- How is reflection related to Java Beans?
- What are frameworks? What are they used for? Give an example of a framework?
- What is the purpose of the Class class and the Method class in Java?

## Threads

While threads were part of the midterm, we have been talking about threads throughout the term. You should not be surprised to find a question or two about threads on this test.