COMP 4882

Final Study Guide

Spring 2012

Fair warning: The following list of topics may be incomplete (although it should be pretty good). Any material covered in the course is fair game for the Final (unless I specifically say otherwise).

The Final will focus on the following material covered since the Midterm, but it may also include some material covered on the Midterm.

Java Servlet Pages (JSPs)

- Understand how a Web Container translates JSPs to Servlets.
- Know the various JSP tags:
    - <%, <%=, <%!, <%@ (page, include, taglib)
- Know the most commonly used JSP implicit objects:
    - out, request, response, session, application, config

Domain Models

- Be able to represent a Domain Model as a UML class diagram based on a textual specification.
    - Know/apply the noun-phrase technique.
    - Know/apply thinking like a mapmaker.
- Be able to read/interpret/create UML class diagrams.
    - Know/apply classes, attributes, and associations.
    - Know/apply multiplicities.
    - Know/apply generalization relationships.
        - Know/apply the “100% Rule”.
        - Know/apply the “Is-a Rule”.
        - Know when to model a subclass.
    - Know/apply abstract classes.
- Know the “secret of modeling” (see slide 34 of the Domain Models lecture)

Logical Architecture

- Know what a logical architecture is.
- Be able to draw a UML package diagram representing a logical architecture.
    - Know how to denote packages and their dependencies.
    - Understand UML package namespaces.
- Know about layered architectures.
    - Know the common layers.
    - Know the benefits of layered architectures.
- Know/understand how the Domain Model relates to the Domain Layer.
- Know/understand the Model-View Separation principle.

Design Class Diagrams

- Be able to create Design Class Diagrams (DCDs).
  - Be able to denote attributes, operations, visibility, ordered lists, data types, non-data types, methods, constructors, inheritance, dependencies, interfaces, etc.
- Understand design as a refinement process.
  - Know how Domain Models can be refined into DCDs.

Object-Oriented Design

- Understand what is meant by Responsibility-Driven Design.
- Know and be able to apply the Larman GRASP patterns covered in class.
  - Creator pattern
  - Information Expert pattern
  - Low Coupling pattern
  - High Cohesion pattern
  - Polymorphism pattern
  - Protected Variations pattern
- Understand the relationship between coupling and cohesion.
- Know and be able to apply the Law of Demeter.

Formal Specification

- Know the pros/cons of formal specification.

Ethics (from the Quinn handouts)

- Be familiar with the Software Engineering Code of Ethics.
  - Understand the 8 principles.
  - Know Quinn's alternative list of cross-cutting principles
- Know what *globalization* is and the arguments for and against it.
- Know what the *digital divide* is and the arguments surrounding it.
  - Know what *net neutrality* is and the arguments surrounding it.