CptS 487
Software Design and Architecture

Lesson 17

Midterm Review

WASHINGTON STATE UNIVERSITY
World Class. Face to Face.

Instructor: Bolong Zeng

Announcement

- Midterm Exam
  - Thursday, 02/22, in class, in-person
  - 20% of your total grades
  - One sheet of letter sized notes allowed
    - Can be printed; can be double sided;
  - Covers everything until Lesson 16.

OO & UML

- Basics of Class diagrams & Sequence diagrams
  - The different types of relationships in class diagrams
  - Association; aggregation; composition

Design Patterns

- Creational Patterns
  - Factory, Abstract Factory, Builder, Singleton
- Structural Patterns
  - Composite
- Behavioral Patterns
  - Command, Memento

- Know their structures, strengths and weaknesses. Be able to explain when to use these patterns.
- Be able to contrast ones that might have similar purposes, such as Factory vs. Abstract Factory; Factory vs. Builder; Command vs. Memento;
- Know how to apply patterns for a problem.

Design Principles

- Lessons 6 & 7
  - In particular, the SOLID principles
    - SRP: Single-Responsibilty
    - OCP: Open-Closed
    - LSP: Liskov Substitution
    - ISP: Interface-Segregation
    - DIP: Dependency-Inversion
  - Know what they mean, what you might do to follow these principles. Simple examples for each principle.
  - Concepts of cohesion and coupling in general

Architecture

- Concepts of Architecture
  - Subsystems, Components, Services/Interfaces

- Multi-layered & MVC
  - Can give examples of software that follow these two Architecture Patterns.
  - Occasions/Reasons to adopt one or the other.