Final Review

OO Concepts

- Abstraction
- Encapsulation
- Inheritance
- Polymorphism

UML Fundamentals

- UML constructs
  - Classes
  - Hierarchies

Executing…

- **Applications**
  - **The main method**
- **JUnit Tests**
  - **JUnit `TestCase`**
    - `assertXxx…` **methods**
  - **Test methods**

Java Basics

- **Variable declarations**
  - **Types**
- **Expressions**
  - **Variables**
  - **Operators**

Java Constructs

- **Classes**
  - **Methods**
  - **Fields/Attributes/Variables**
- **Branching**
  - `if/else`
  - `switch`
- **Looping**
  - `while`
  - `for`
  - `do/while`
- **Arrays**

Type Manipulation

- **Casting**
- **Generics**
- **Boxing**

Tools

- **Compiler**
  - javac
- **Virtual Machine**
  - java
- **Document extraction**
  - javadoc
- **Classpath**

Library Classes

- **Collections**
  - ArrayList
  - HashMap
  - Iterator
- **String helpers**
  - StringBuffer
  - StringBuilder

Modifiers

- **Visibility**
  - public
  - private
  - protected
  - package **(default)**
- **Other**
  - static
  - final

Class Design

- **Coupling**
- **Cohesion**
- **Refactoring**

Inheritance

- **Interface**
- **Class**
- **Abstract classes**
- **Use of super**
  - **Constructor**
  - **Method invocation**
- **Polymorphism**
- **Type conversion and testing**
- **Using final**

Inheritance

- **Static vs. dynamic type**
- **Method resolution**
- **Access modifiers**
- **Composition**

Error Handling

- **Exceptions**
  - Hierarchy
  - Checked/unchecked
- **Declaration**
- **Processing**
  - Throw
  - Try
  - Catch
  - Finally
- **Chaining**