

Object-Oriented Programming, Analysis, and Design

Study Guide

Posted: February 2008

- Review of Basic OO Concepts
 - Encapsulation (Information Hiding)
 - Inheritance
 - Polymorphism (many forms)
 - Virtual Functions
 - Access attributes
- UML Introduction
 - Use Cases
 - Use Case Diagrams
 - Class Diagrams
 - Sequence Diagrams
 - State Diagrams
- OO Design Principles
 - Favor Composition over Inheritance
 - Program to an interface...
 - Open-Closed Principle (OCP)
 - Liskov substitution Principle (LSP)
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- Design Patterns
 - What is a Design Pattern and why are they useful?
 - Types of Design Patterns
 - Creational Patterns
 - Abstract Factory, Builder, Factory Method, Prototype, Singleton
 - Structural Patterns
 - Adapter, Bridge, Composite, Decorator, Facade, Flyweight, Proxy
 - Behavioral Patterns

- Chain of Responsibility, Command, Interpreter, Iterator, Mediator, Memento, Observer, State, Strategy, Template Method, Visitor
- Rational Unified Process (Fall 2005)
 - Inception
 - Elaboration
 - Construction
 - Transition
 - Use Cases Cockburn Style
- Software Refactoring (Spring 2007)
 - Bad smells in code (23)
 - Categories of refactorings
- Refactoring to Patterns
- Anti-Patterns
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