

Design Patterns

A 2-day Intensive workshop on Design Patterns. Software design pattern is a general, reusable solution to a commonly occurring problem within a given context in software design. It is a description or template for how to solve a problem that can be used in many different situations. Design patterns are formalized best practices that the programmer can use to solve common problems when designing an application or system. The class covers the basics of UML, SOLID principles, and the 23 GOF design patterns

students participating in the workshop will be introduced and experienced the best practices of using Design Patterns as part of the design and development effort

AUDIENCE

Developers

KNOWLEDGE REQUIREMENTS

Object Oriented Language Development

LENGTH

3-4 Days

BONUS

Modern Enterprise Architecture Patterns

SYLLABUS

Course Introduction

UML Introduction

Principles of Software Design (SOLID)

Design Patterns

Creational Patterns

Structural Patterns

Behavioral Patterns

Summary

HARDWARE AND SOFTWARE REQUIREMENTS

Computer Requirements

- No hands-on labs, no student computers required

Supported Operating Systems

- Not relevant

Additional Software Requirements

- Not Relevant

Class HW required (If delivered on customer site)

- Projector 1024*768 minimum resolution (HD preferred)
- White Board
- Erasable Markers
- Desktops or Laptops (see HW Requirements)
- 12-24 ports Switch
- Internet connectivity
- Electricity outlets for all computers/monitors and other equipment.
- At least 3 electricity outlets next to instructor location.

AGENDA

Lesson 1: Course Introduction

Duration: 0.5 hour

- Course Introduction
- Courseware walkthrough
- Course environment
- Documentation

Lesson 2: UML Introduction

Duration: 1.5 hours

- What is UML?
- UML Diagrams
- Use Case Model
- Domain Model
- Class Diagram
- Sequence Diagram
- Object Diagram
- State Diagram
- Collaboration Diagram

Lesson 3: Introduction to Software Design

Duration: 1.5 hours

- Assumptions and Goals
- SOLID

Lesson 4: Design Patterns

Duration: 0.5 hour

- 23 Basic Design Patters
- Enterprise Software patterns

Lesson 5: Creational Patterns

Duration: 0.5 day

- Factory Method
- Prototype
- Abstract Factory
- Builder
- Singleton

Lesson 6: Structural Patterns

Duration: 0.5 day

- Façade
- Adapter
- Proxy
- Bridge
- Decorator
- Composite
- Flyweight

Lesson 7: Behavioral Patterns

Duration: 0.5 day

- Observer
- Template Method
- State
- Strategy
- Command
- Iterator
- Visitor

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- Chain of Responsibility
 - Mediator
 - Memento
 - Interpreter

Lesson 8: Summary

Duration: 0.5 hour

- Summary
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