OOP Principles & Design Patterns Training

Duration: **5 Day**

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The Object Oriented Design Patterns training course examines the catalog of design patterns outlined in the Design Patterns: Elements of Reusable Software book. The Object Oriented Design Patterns training goes through all three categories of patterns: structural, creational, and behavioral. In addition to examining the patterns, our Object Oriented Design Patterns training looks at the history of design patterns, the appropriateness of the adoption, and sample implementations in Java, PHP, or C#.

Prerequisites

There are no prerequisites for this course.

Who Should Attend

Experienced OO programmers wanting to learn advanced concepts.

What You Will Learn

- Describe the history, motivations, and principles of design pattern
- Understand how and where design patterns fit into software architecture
- Identify the three general areas of design patterns
- Properly choose a design pattern based on a use case
- Refactor existing code into a design pattern

Training Outline

Introduction to Design Patterns

- What is a pattern
- What are DPs
- History of Design Patterns
- What is their purpose
- How are they structured
- Types of Design Patterns
- Technology / Language Agnostic
- Technology / Language Specific
- Anti-patterns

DP and OO Design

- Review of Object Oriented Concepts
- DPs role in OO design
- Adopting Design Patterns
- Where do they fit in

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- Validity of their adoption
- Pros and Cons us using them
- Applying Design Patterns
- Common issues with design patterns

Refactoring

- What is refactoring
- What is the refactoring procedure
- How do you ensure the refactoring effort worked
- Refactoring to design patterns
- Refactoring implementations of design patterns

General OO Design Patterns

- Gang of Four Book
- Structured around three main categories
- Creational, Behavioral, Structural
- Working with the GoF Book as a catalogue

Creational Patterns

- What are creational patterns
- When would you detect / apply a creational pattern
- Pattern description
- Pattern UML
- Implementation-level example
- Real-world example
- Lab

Structural Patterns

- What are structural patterns
- When would you detect / apply a creational pattern
- Pattern description
- Pattern UML
- Implementation-level example
- Real-world example
- Lab

Behavioral Patterns

- What are structural patterns
- When would you detect / apply a creational pattern
- Pattern description
- Pattern UML
- Implementation-level example
- Real-world example
- Lab