

Java Design Patterns

Duration: 4 Days

What you will learn

This Java Patterns course reviews common and emerging patterns specific to Java SDK and EE development. You'll learn the depth and evolution of pattern-based techniques in Java, with particular emphasis on Java EE 6 conventions.

Learn To:

Distinguish between Java EE 5 and Java EE 6 pattern-based features.

Implement relevant patterns in each tier of the Java EE environment.

Re-factor code to improve inter-tier communications.

Relate pattern-based development to an implementation architecture.

Apply object-oriented principles and design guidelines.

Implement well-known patterns to Java-specific code problems.

Lab Exercises

The lab exercises show you how to identify, apply and re-factor selected patterns into code, using a NetBeans or Eclipse IDE and the GlassFish Application Server v3. You'll also learn a subset of UML notation to expedite communicating through design instead of code.

Java Design Patterns

In design patterns, the responsibility of each component is identified by role. The conventions of design pattern documentation make it easier for development teams to communicate their programming intentions and provide a reference point for the entire Java development community.

Java-Based Frameworks

The Java language and popular Java-based frameworks incorporate more proven development practices into their programming interfaces with each major release. These practices, referred to as design patterns, document well-known names, code implementation and re-factoring techniques, and the risks and trade-offs associated with using them.

Related Training

Required Prerequisites

Experience with Java SE and Java EE development

Developing Applications for the Java EE 6 Platform

Course Objectives

Identify key design principles of object-oriented development

Apply Java-specific implementation techniques to well-known patterns

Use patterns to complete a Java application design

Use patterns to complete a web-tier application design

Use patterns to complete a business-tier application design

Use patterns to improve communication between Java EE tiers

Identify and refactor anti-patterns in working code

Using part of a sample architecture scheme

select design patterns for implementing the scheme

Course Topics

Reviewing Object-Oriented Principles in Java

Describe how OO concepts apply to Java

Describe how OO principles apply to Java

List the goals of an OO language

Interpret Unified Modeling Language (UML) notation and create UML diagrams

Identify selected design patterns

Reviewing Gang of Four Patterns

List key behavioral, creational and structural patterns

Apply the Facade pattern

Apply the Strategy pattern

Apply the Observer pattern

Apply the Composite pattern

Review the Model-View-Controller (MVC) patterns

Implementing Patterns in Java

Use implementation patterns designed for Java

List forces affecting class, state, and behavioral patterns

Describe how patterns, idioms and refactoring differ from each other

Exploring Changes in Java EE Technology

Describe the design goals of the Java EE model

Describe improvements in the Java EE 6 model

Implementing Integration Patterns

Describe design patterns for the integration tier

Review Java EE integration changes that apply design patterns

Identify use cases for applying integration tier patterns

Implementing Patterns in Business Components

Describe the role of an enterprise bean

Describe design patterns for the business tier

Implementing Infrastructural Patterns in Java EE

Describe the role of infrastructural Java EE patterns

Describe the Service Starter pattern

Describe the Singleton pattern

Describe the Bean Locator pattern

Describe the Resource Binder pattern

Implementing More Infrastructure Patterns

Describe how Java EE interceptors work

Describe the Dependency Injection Extender pattern

Describe the Payload Extractor pattern

Describe the Context Holder pattern

Describe the Thread Tracker pattern

Exploring Anti-Patterns

Describe the Law of Leaky Abstractions

Define AntiPatterns

Describe Integration Tier AntiPatterns

Describe Business Tier AntiPatterns

Describe Presentation Tier AntiPatterns

Selecting Patterns for Architecture

Define the roles of architect, designer, and developer

Describe the relationship between design patterns and architecture

List guidelines for applying patterns to an architectural solution