Java EE Patterns (SL-500-EE5)

The Patterns course provides students with a thorough description of software design patterns that can be used with the Java Platform, Enterprise Edition (Java EE platform) technology to effectively solve complex business problems. Studying design patterns, such as the patterns presented in this course, assists developers in learning tried and proven techniques for solving specific types of common design problems. The design patterns described in this course help developers design enterprise applications that are more flexible, maintainable, reliable, and efficient.

This course describes the Java EE patterns, which were created by the Professional Services organization and the Java EE Blueprints group of Sun Microsystems, Inc. These patterns are based on these groups' many years of experience with a wide range of enterprise applications. Development teams can leverage this industry experience and avoid many costly and time-consuming project roadblocks by understanding and implementing these patterns.

This course also describes many of the Gang of Four object-oriented design patterns that provide the basis for the Java EE patterns and also provide the basis for good object-oriented design. Understanding these patterns is critical to the effective use of the Java EE patterns and valuable in the design of any object-oriented system.

Students learn how to create effective software designs for Java EE technology applications through a series of lectures and exercises.

Who Can Benefit

Students who can benefit from this course include individuals responsible for the design of distributed software applications. This includes:

- Java technology programmers
- Java EE software developers
- Enterprise architects

Prerequisites

To succeed fully in this course, students must be able to:

- Develop enterprise Java applications
- Read and work with Object-Oriented modeling techniques, such as the Unified Markup Language (UML)
- Explain the use of technologies within the Java EE platform
- Work with the following Java technologies: Enterprise JavaBeans, JavaServer Pages, and servlets

Skills Gained

Upon completion of this course, students should be able to:

Select an appropriate Gang of Four or Java EE pattern to solve a specific problem.
Apply a Gang of Four or Java EE pattern to an architecture and implementation.
Design and implement more effective Java EE applications.

Related Courses

Before:

Object-Oriented Analysis and Design Using UML (OO-226)
Developing Architectures for Enterprise Java Applications (SL-425)
Developing Applications for the Java EE Platform (FJ-310)
Web Component Development with Servlet and JSP Technologies (SL-314)
Business Component Development With Enterprise JavaBeans Technology (SL-351)

Course Content

Module 1 - Exploring Object-Oriented Design Principles and Design Patterns

Describe the fundamental object-oriented design concepts
Describe the fundamental object-oriented design principles
Describe the characteristics of design patterns

Module 2 - Using Gang of Four Behavioral Patterns

Describe the basic characteristics of the Behavioral patterns
Apply the Strategy pattern
Apply the Command pattern
Apply the Iterator pattern
Apply the Observer pattern

Module 3 - Using Gang of Four Creational Patterns

Describe the basic characteristics of the Creational patterns
Apply the Factory Method pattern
Apply the Abstract Factory pattern
Apply the Singleton pattern

Module 4 - Using Gang of Four Structural Patterns

Describe the basic characteristics of the Structural patterns
Apply the Facade pattern
Apply the Proxy pattern

Apply the Adapter pattern
Apply the Composite pattern
Apply the Decorator pattern

Module 5 - Using Architectural Building Blocks

Compare architectural patterns to design patterns
Apply the Model View Controller pattern
Apply the Layers pattern
Explain tiers and layers in Java EE platform applications

Module 6 - Introducing Java EE Patterns

Describe the Java EE pattern philosophy
Describe the Java EE patterns and tiers in the Java EE pattern catalog

Module 7 - Using Integration Tier Patterns

List the features and purpose of the Integration Tier patterns
Apply the Service Activator pattern
Apply the Data Access Object (DAO) pattern
Apply the Domain Store pattern
Apply the Web Service Broker pattern

Module 8 - Using Presentation-to-Business Tier Patterns

Describe basic characteristics of the business tier Java EE patterns that facilitate communication with the presentation tier
Apply the Service Locator pattern
Apply the Session Facade pattern
Apply the Business Delegate pattern
Apply the Transfer Object pattern

Module 9 - Using Intra-Business Tier Patterns

Describe the basic characteristics of the Intra-Business Tier patterns
Apply the Application Service pattern
Apply the Business Object pattern
Apply the Transfer Object Assembler pattern
Apply the Composite Entity pattern
Apply the Value List Handler pattern

Module 10 - Using Presentation Tier Patterns

Describe basic characteristics of the Presentation Tier Java EE patterns
Describe the Model 2 Architecture and the Apache Struts Framework
Apply the Intercepting Filter pattern
Apply the Front Controller pattern
Apply the Application Controller pattern
Apply the Context Object pattern

Module 11 - More Presentation Tier Patterns

Apply the View Helper pattern
Apply the Composite View pattern
Apply the Dispatcher View pattern
Apply the Service to Worker pattern

Module 12 - Exploring AntiPatterns

Define AntiPatterns
Describe Integration Tier AntiPatterns
Describe Business Tier AntiPatterns
Describe Presentation Tier AntiPatterns

Module 13 - Applying Java EE BluePrints Design Guidelines

Describe the Java EE BluePrints design guidelines
Describe the Java Pet Store demo software
Describe the Java EE patterns used in the Java Pet Store demo software