Spring 3.x and the Web

Course Summary

Description

The Spring framework is an application framework that provides a lightweight container that supports the creation of simple-to-complex components in a non-invasive fashion. Spring's flexibility and transparency is congruent and supportive of incremental development and testing. The framework's structure supports the layering of functionality such as persistence, transactions, view-oriented frameworks, and enterprise systems and capabilities. Spring's Aspect-Oriented Programming (AOP) framework enables developers to declaratively apply common features and capabilities across data types in a transparent fashion.

As an enabler for rich web interfaces, the Spring framework represents a significant step forward. If you want to deliver an web application within the Spring framework, you'll find this course essential.

Objectives

At the end of this course, students will be able to:

- Work with the technologies that form the foundation for Ajax
- Integrate Ajax into Spring to provide a rich, interactive web interface
- Understand how to use Struts and JSF within the Spring framework
- Use Spring's Web Flow as a framework to build interfaces for complex web applications
- Work with HTTPUnit and Spring to facilitate unit testing in the context of the web
- Interoperate with RESTful services from within Spring 3.x
- Understand and work Spring Security to acquire and process authentication credentials as well as enforce authorization on enterprise resources
- Understand how to defend Spring applications from the

Topics

- Spring MVC In-Depth
- Spring Web Flow
- Spring and Struts
- Testing in Spring
- Spring Security Framework
- Implementing REST with Spring (Optional)
- Spring and Ajax

Audience

This an intermediate level and beyond Java/Spring training course, designed for developers who need to understand how and when to use Spring applications with the web.

Prerequisites

Attendees should have practical basic Java development experience as well as an understanding of the Spring framework.

Duration

Three days

ProTech
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... to Your Success!"

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Course Outline

I. Spring MVC In-Depth
- A. Spring MVC Review
  1. Spring MVC Review
  2. Spring MVC application Layers
  3. Request Life Cycle in Spring MVC
  4. HandlerMapping
  5. Controllers
  6. Interceptors
  7. ViewResolver
- B. HandlerMapping
  1. Mapping URLs to Controllers
  2. HandlerMapping Interface
  3. RequestMapping Annotation
  4. Mapping Requests
  5. Custom Handler Mapping
- C. Controllers
  1. Spring MVC's Controller Hierarchy
  2. How to Select a Controller
  3. Controller Interface
  4. Controller annotation
  5. Form Controllers
  6. Handling Exceptions
  7. Testing Controllers
- D. Validation
  1. Types of Validators
  2. Validator Interface
  3. Controller with Validator
  4. Errors Interface
  5. JSR-303 Bean Validation API
  6. Injecting a Validator
- E. HandlerInterceptors
  1. HandlerInterceptor Lifecycle Points
  2. LocaleChangeInterceptor
  3. UserRoleAuthorizationInterceptor
  4. WebContentInterceptor
- F. Views
  1. ViewResolvers
  2. ViewResolver Hierarchy
  3. View Processing
  4. Chaining ViewResolvers
  5. Integrating View Technologies
- G. Spring's form Tag Library
  1. The Spring Form tags
  2. Using a PropertyEditor
  3. Survey of form tags

II. Spring Web Flow
- A. Spring WebFlows
  1. Spring WebFlows Components
  2. Configuring Spring WebFlows
  3. WebFlow FlowExecutor
  4. Triggering an Event
  5. Subflows

III. Spring and Struts
- A. Spring and Struts
  1. Struts and "Model 2" (MVC)
  2. Spring and Struts
  3. Spring's DelegationRequestProcessor
  4. DI on Action Classes

IV. Testing in Spring
- A. Unit Testing and Spring
  1. Spring Can Make Testing Much Easier
  2. Spring Supports Spring-Specific Tests
- B. Testing Spring Web Applications
  1. Testing a SpringMVC Controller
  2. Creating Request and Response Objects
  3. Streamlining Your Assertions
  4. Unit Testing a Spring-MVC Web Application

V. Spring Security Framework
- A. Enterprise Spring Security
  1. Spring Security Framework
  2. Security Interceptors – Function and Types
  3. Performing Authentication
  4. Wiring in Encoders and Salts
  5. Access Decision Managers
  6. Votes and Voters
- B. Spring Web Security
  1. Spring Security Works by Interception
  2. Securing a Web page
  3. The Standard Set of Filters
  4. Using Spring Security with Spring Beans
  5. SecurityContextHolder

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Course Outline (cont'd)

VI. Implementing REST with Spring (Optional)

A. Overview of REST
   1. REpresentational State Transfer
   2. REST Characteristics
   3. REST Elements
   4. REST Architectural Principles
   5. REST and HTTP
   6. REST/HTTP: Representation-Oriented
   7. REST Design Principles

B. RESTful Services in Spring
   1. Spring Support for REST
   2. Spring's Parameter Injection
   3. Handling Transformations in Spring
   4. Negotiated view-based rendering
   5. HTTP Message Converters

C. RESTful Clients in Spring
   1. Spring's Hidden Method Field
   2. Processing Incoming REST Requests
   3. Spring's Support for REST Clients
   4. Performing GET Requests and Other Methods
   5.

VII. Spring and Ajax

A. Ajax Review
   1. Ajax Basics
   2. The Purpose of Ajax
   3. Traditional Web Application
   4. Ajax Web Application

B. XMLHttpRequestObject (XHR) Mechanics
   1. Creating an XMLHttpRequest Object
   2. Using an XMLHttpRequest Object
   3. Asynchronous -vs- Synchronous Requests
   4. Handling the Response

C. Spring AJAX with DWR
   1. DWR Mechanics
   2. DWR communication
   3. DWR Clients
   4. Spring and DWR Configuration
   5. Configuring DWR and Spring
   6. Spring DWR Client html