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Module Title : Spring-MVC Web Applications
Duration : 5 days

Outline

1. Overview of Spring

A. Java EE: The Good, The Bad, and the Ugly
B. Enter the Framework
C. Spring Value Proposition
D. The Spring Container
E. Web Applications
F. Persistence Support
G. Aspect-Oriented Programming
H. The Java EE Module(s)

2. The Container

. JavaBeans, Reconsidered
A. The Factory Pattern
B. Inversion of Control
C. XML View: Declaring Beans
D. Java View: Using Beans
E. Singletons and Prototypes

3. Instantiation and Configuration

. Configuring Through Properties
A. Configuration Namespaces
B. The p: Notation
C. Bean (Configuration) Inheritance
D. Configuring Through Constructors
E. Bean Post-Processors
F. Lifecycle Hooks
G. Integrating Existing Factory Code
H. Awareness Interfaces

4. Dependency Injection

. Assembling Object Graphs
A. Dependency Injection
B. Single and Multiple Relationships
C. The Utility Schema
D. Using Spring Expression Language (SpEL)
E. Inner Beans
F. Autowiring
G. @Component, @Service, & Company
H. @Autowired Properties
I. Best Practices with Spring Annotations
J. Java Classes as @Configurations
K. AnnotationConfigApplicationContext
L. Capabilities and Limitations
M. Mixing and Importing XML and Java Configurations

5. Assembling Object Models

. Collections and Maps
A. Support for Generics
B. The Spring Utility Schema (util:)
C. Autowiring to Multiple Beans
D. Order of Instantiation
E. Bean Factory vs. Application Context

6. The Web Module

. Servlets and JSPs: What's Missing
A. The MVC Pattern
B. The Front Controller Pattern
C. DispatcherServlet
D. A Request/Response Cycle
E. The Strategy Pattern
F. Web Application Contexts
G. Annotation-Based Handler Mappings
H. @Controller and @RequestMapping

I. "Creating" a Model
J. Views and View Resolvers

7. Handling Requests

. Matching URLs
A. Identifying Views
B. Request Parameters
C. Injectable Parameters
D. Command Objects
E. Return Types
F. HTTP Methods
G. Path Variables
H. Scope and Granularity of Command Objects
I. Headers and Cookies
J. RESTful Web Services

8. Working with Forms

. Form Processing in Spring MVC
A. Command Objects in Request Methods
B. Spring Custom Tags
C. <form:form> and Friends
D. Text Fields, Check Boxes, and Buttons
E. Radio Buttons and Select/Option Lists
F. Command objects at Session Scope
G. Limitations of @SessionAttributes

9. Data Binding

. A Consolidated Process
A. Property Editors
B. DataBinder and @InitBinder Methods
C. Converters and Formatters
D. Using <mvc:annotation-driven/>
E. Custom Formatters

10. Validation

. Validating Form Input
A. Spring Validators
B. Deriving a Validator Reference
C. Applying a Validator
D. <form:errors>
E. Bean Validation, a/k/a JSR-303
F. Configuring Bean-Validation Support
G. Automatic Support with @Valid

11. Configuring Spring MVC

. Configuring Message Sources
A. Resolving Error Codes
B. Codes for Bean Validation
C. HandlerExceptionResolver
D. @ExceptionHandler
E. @ControllerAdvice for Global Error Handling

12. Interceptors

. Interceptors
A. Configuring Interceptors
B. Filters in the Request-Handling Cycle

13. Persistence with JDBC

. Reducing Code Complexity
A. The DataAccessException Hierarchy
B. JdbcTemplate
C. RowMapper<T> and ResultSetExtractor<T>
D. The DaoSupport Hierarchy
E. Capturing Generated Keys
F. Transaction Control
G. TransactionTemplate
H. Isolation Levels
I. Transaction Propagation

14. Persistence with JPA

. Object/Relational Mapping

A. The Java Persistence API

B. JpaDaoSupport and JpaTemplate

C. @PersistenceUnit and @PersistenceContext

D. Shared Entity Managers

E. Using <tx:annotation-driven>

F. The @Transaction Annotation

G. Isolation and Propagation

H. A Limitation of @Transactional

I. Understanding Entity States

J. Bean Validation in JPA

K. Optimistic Locking