

Developing J2EE Applications Using Spring Framework Course Outline

1. Introduction to the Spring Framework

- What is the Spring Framework?
- Spring Characteristics
- Spring Modules
- Why Spring?
- Problems with EJB
- Spring Philosophies
- Alternatives to Spring
- Simple Example
- What is Inversion of Control?
- IoC Example
- Spring Containers
- Bean Creation
- Bean Destruction
- Wiring Beans
- Bean Element
- Dependency Injection Primitives and Strings
- Dependency Injection - References
- Dependency Injection Inner Beans
- Dependency Injection Lists, Arrays and Sets
- Dependency Injection Maps
- Dependency Injection - Properties
- Constructor Injection
- Constructor Injection Handling Multiple Arguments
- Constructor vs. Setter Injection
- Autowiring
- Autowiring Example
- Autowiring
- Mixing Explicit and Autowiring
- Special Spring Interfaces
- BeanPostProcessor
- BeanFactoryPostProcessor
- PropertyPlaceholderConfigurer
- CustomEditorConfigurer
- Awareness Interfaces
- Listening For and Publishing Events

2. Aspect-Oriented Programming in Spring

- What is AOP?
- Cross-Cutting Concerns
- AOP Concepts
- AOP in Spring
- Types of Advice
- Before Advice
- After Returning Advice

- Around Advice
- Throws Advice
- Pointcuts
- Advisors
- NameMatchMethodPointcut
- RegexpMethodPointcut
- ControlFlowPointcut
- IntroductionInterceptor
- DelegatingIntroductionInterceptor
- IntroductionAdvisor
- BeanNameAutoProxyCreator
- DefaultAdvisorAutoProxyCreator
- Metadata Autoproxying

3. Database Integration and Transaction Management

- DAO Support in Spring
- DataAccessException
- Using DataSources
- DAO Templates
- DAO Templates and Callbacks
- Using Spring with JDBC
- Writing Data with JdbcTemplate
- Reading Data with JdbcTemplate
- Reading Single-Row Scalar Data
- ORM Tool Support in Spring
- Hibernate
- Hibernate Session Factory
- Spring LocalSessionFactoryBean
- Spring HibernateTemplate
- Spring HibernateCallback
- HibernateTemplate Convenience Methods
- Transactions
- Transaction Management in Spring
- Spring Transaction Managers
- Programmatic Transactions
- Declarative Transactions
- Transaction Attributes
- Transaction Propagation Behavior
- Transaction Isolation Levels
- Read-Only and Timeouts
- NameMatchTransactionAttributeSource
- Declaring Transactions with Metadata
- Inheriting Transaction Details
- Autoproxying Transactions

4. Spring MVC

- Spring MVC Components
- DispatcherServlet
- Context Loaders
- Spring MVC Example
- Mapping Web Requests
- BeanNameUrlHandlerMapping
- CommonsPathMapHandlerMapping
- Using Multiple Handler Mappings
- Controller Hierarchy
- AbstractCommandController
- SimpleFormController
- AbstractWizardFormController
- MultiActionController
- ThrowawayController
- View Resolution
- InternalResourceViewResolver
- BeanNameViewResolver
- XmlViewResolver
- ResourceBundleViewResolver
- Using Multiple View Resolvers
- Binding Views to Models

5. Web Application Alternatives

- Velocity Templates
- Configuring Velocity in Spring
- Velocity View Resolution
- Using Velocity Utility Tools
- Accessing Session/Request Attributes in Velocity
- Binding Velocity Views to the Model
- FreeMarker
- Configuring FreeMarker in Spring
- FreeMarker View Resolution
- Accessing Session/Request Attributes in FreeMarker
- Binding FreeMarker Views to the Model
- Jakarta Tiles
- Configuring Tiles in Spring
- Tiles View Resolution
- Tiles Component Controller
- Creating Excel Spreadsheets
- Creating PDF Documents
- Creating Other Non-HTML Documents
- Jakarta Struts
- Configuring Spring in Struts
- Spring-Aware Struts Actions
- Delegate Requests to Struts Action Beans
- DelegatingRequestProcessor

6. Accessing Enterprise Services

- Remoting in Spring
- Clients of RMI Services
- Exporting RMI Services
- Hessian and Burlap
- Clients of Hessian/Burlap Services
- Exporting Hessian/Burlap Services
- Spring HTTP Invoker
- Clients of HTTP Invoker Services
- Exporting HTTP Invoker Services
- Clients of EJB Services
- Clients of Web Services
- Accessing Objects in JNDI
- Using the Quartz Scheduler
- Configuring a Quartz Job
- Scheduling a Quartz Job
- Starting Quartz Jobs
- Scheduling a Quartz Job Using a Cron Expression
- MethodInvokingJobDetailFactoryBean
- Sending Email
- Message-Oriented Middleware and JMS
- Sending JMS Messages
- Receiving JMS Messages
- Converting Messages