CDT630 The Struts Framework
4 days

This 4-day course shows JSP and servlet programmers how to build web applications using the Apache Struts framework. Students learn the Struts architecture and see how it captures a great deal of pre-existing best practice: in model/view/controller action mappings, form beans and custom tags for working with HTML forms, input validation, and the Tiles view-building framework. Two chapters near the end of the course cover configuration techniques and other advanced topics.

Prerequisites

- Java Programming
- J2EE (Servlet and JSP) Programming
- Basic knowledge of XML is recommended but not essential.

Learning Objectives

- Use Struts actions and action mappings to take control of HTTP requests/responses.
- Manage HTML form input and output with form beans, and use these beans to simplify data handling in the controller.
- Use JSTL and Struts custom tags to build robust and reusable JSP presentation logic.
- Support multiple client locales with various internationalization techniques.
- Define validation rules for input forms, and provide clear user feedback.
- Build complex presentations using decoupled, reusable tiles, screens and layouts.

Timeline: 4 days.

Chapter 1. Struts Architecture

- MVC and Model 2
- Command Pattern
- Jakarta Struts
- More XML, Less Java!
- Action Mappings
- JavaBeans in Struts
- Working with Forms
- Validation
- Presentation Technology
- Tiles

Chapter 2. Action Mappings

- Command Pattern for Web Applications
- ActionServlet
- Action and Action Mappings
- Struts Configuration
- Selecting a Forward
- Global Forwards
- Declarative Exception Handling
- Global Exception Handlers

Chapter 3. Forms

- Working with HTML Forms
- Action Forms, a/k/a Form Beans
- Relationship to Input
- Relationship to Actions
- Relationship to the Model
- Relationship to Output
- DynaActionForm and Map-Backed Forms
- Validation
- Coarse-Grained Form Beans

Chapter 4. Struts Tag Libraries

- Building View Components
- Struts Tag Libraries
- Attributes and Struts Expressions
- Building Forms
- <html:form>
- <html:text> et. al.
- Forms and Form Beans
- Scope and Duration of Form Data
- Managing Hyperlinks
- Error Messages
- Logic Tags

Chapter 5. The JSP Standard Tag Library

- JSTL Overview
- JSP Expression Language
- Core Tags
- Formatting Tags
- SQL Tags
- XML Tags
- Mixing JSTL, EL, Scripts and Actions
- Indexed Properties and Struts HTML Forms

Chapter 6. Internationalization and Localization

- i18n in Java
- i18n in Actions
- i18n in JSTL
- i18n in Validation

Chapter 7. Input Validation

- Validation in Web Applications
- Validation in Struts
- The Struts Validator Plug-In
- Validating ActionForm Subtypes
- Configuring Validation
- Standard Validators
- Rules
- The ActionMessages Class
- Is <html:form> Necessary?
- Reporting Errors
- Multi-Page Validation
- Client-Side Validation
- Limitations on the Client Side
- Implementing a Validator
- Implementing ActionForm.validate
- Mapping-Based Validation

Chapter 8. Advanced Configuration

- Struts Configuration in Depth
- Wildcards
- Extensions
- The Configuration Object Model
- Subclasses and <set-property>
- Plug-Ins
- Integrating Other Frameworks
- Role-Based Security
- Chaining Actions
- The ComposableRequestProcessor Class
- Configuring Command Chains
- Modules

Chapter 9. Under the Hood

- Global Objects
- Specialized Struts Actions
- The Utility Package
- The Commons BeanUtils Class
- Form Beans as Adapters to the Business Tier
- Reusing Validation Rules
- Graceful Validation

Chapter 10. Tiles

- Consistent Look and Feel
- Reusable Layouts and Content
- The Tiles Framework
- Instantiating Layouts
- Body-Wrap Insertions
- Tiles and Stylesheets
- Working with Tiles Attributes
- The Tiles Context
- Definitions
- Aggregation and Inheritance
- The Tiles Plug-In
- Forwarding to Definitions
- Performance Considerations

Appendix A. Learning Resources

Appendix B. Quick Reference

ca/j8