

Course 432: **Building J2EE Web Applications using Servlets/JSPs and Struts (5 days)**

Course Description...

This five-day, hands-on workshop offers a comprehensive hands-on course in the design and programming of servlets and JSPs, including all the important concepts and hands on labs that will have you building working Struts applications in no time flat. This course provides core Struts knowledge that can be used as the foundation for developing production-quality web applications. This course extends that discussion to cover a preview of Struts 2.0 and how it relates to current Struts applications.

Servlets and JavaServer Pages are key server-side Java technologies for building web applications. Servlets are programs that run on a web server; they can respond to client requests and create dynamic content.

Java Servlets allow flexible generation of dynamic content without the limitations of CGI-based applications or those created in a web server-specific manner. The JavaServer Pages (JSP) technology allows one to separate static from dynamic content while harnessing the power of Java Servlets.

Struts is an open source, Model-View-Controller (MVC) framework developed by The Apache Software Foundation as part of its Jakarta project. Struts is built on top of JSP, Servlets, and tag libraries. After reading the first J2EE Blueprints from Sun with their explanation of MVC and how to accomplish it with custom tags, Servlets, and JSP, one can clearly see that Struts is a manifestation of Sun's J2EE MVC vision.

Struts addresses many major issues in using vanilla Servlets/JSP to build web systems. It solves the problem of controller complexity by removing the workflow logic from the Servlets, and directing workflow in an XML configuration file. Struts improves on the limited form support in JSP by adding numerous capabilities to form processing including easy validation, easy error display, and the refilling of form input on form retries from a users previous entries. It minimizes the complexity of JSP pages, by supplying a very extensive and flexible set of custom tag libraries for many of the standard operations needed in JSP pages.

This course will get you up to speed with Struts in a very short time. It includes all the important concepts, and hands on labs that will have you building working Struts applications in no time flat. As an additional bonus, the course includes a preview of Struts 2.0 and how it relates to existing Struts applications.

Learning Objectives...

This intensive course will give you the skills to design and build scalable, secure, maintainable web applications - leveraging ROI's extensive experience in the delivery of scalable enterprise

applications with complex web interfaces based on J2EE technologies. Throughout this training, you will be confronted with common web application design problems and given the tools you will need to solve them, such as J2EE design patterns. You will also be exposed to a range of J2EE and web technologies such as Servlets, JSPs, EJBs, JNDI, Struts and XML, and advice on when and how to use them.

Students will also learn about the capabilities of servlets, their advantages over CGI, servlet architecture, and session management. Developers will also learn about JSP syntax, deployment, and application models, how to use Java as a scripting language, how to use custom tags, and how to build robust and capable web applications using Servlets and JSP. Topics include:

- Design and build web applications from both business and technical requirements
- Build web interfaces with JSPs, Servlets, Applets, and JavaScript (JavaScript is optional)
- Write maintainable web applications that separate HTML and Java
- Understand the design and development of web applications using Servlets and JSPs
- Make Servlets cooperate and share data
- Store and process session information
- Deal with concurrency issues
- Understand and create JavaServer Pages (JSPs)
- Link Servlets and JSPs
- Use Java as a scripting language in JSPs
- Use the built in JSP objects
- Embed JavaBeans in a JSP
- Use JavaBeans in a JSP
- Use servlets and JSP together
- Understand good design techniques including MVC, Command and State patterns
- Understand the problems with vanilla servlets/JSP, and the motivation for Struts
- Understand MVC and the Struts architecture Understand the Struts controller, Struts views, and Struts resource bundles
- Create & configure applications using Struts
- Define views, actions, and FormBeans
- Use Struts for form processing
- Use ActionMappings
- Handle errors and debug Struts applications
- Utilize Struts validation framework
- Use the Bean, Logic, and HTML Custom Tag Libraries
- Use the flow-of-control custom tags
- Preview of changes in Struts 2.0 and how they relate to current Struts applications

Who should attend...

This an intermediate level J2EE/Struts training course, designed for Java developers that need to further extend their skills in web development and Struts.

Prerequisites...

Attendees should have an extensive working knowledge in developing Java applications.

See next page for a detailed course outline...



Course Outline...

J2EE Application Architecture

- Technical Overview of J2EE
- J2EE Application Architectures (Web based)

Web Applications

- Understanding Web Applications
- Configuring Web Applications

Writing HTTP Servlets

- Introduction to Servlets
- Processing Input Data
- Server-side Control
- Client-side Control
- Maintaining Client State - Sessions
- Application and Session Events

Filters

- Overview of Filters
- Filtering the Request and Response

Writing JSP Pages

- Introduction to JSP
- Implicit Objects
- Actions, JavaBeans, and Custom Tags

Getting Started with Struts

- Jakarta Struts Project
- MVC and Struts
- Review Servlets, JSP and Web Applications
- Struts Controller, Views and Resources
- Struts Architecture

Your First Struts Application

- Configuring Struts applications
- Input JSP
- Defining Actions
- Defining Action Forms
- Defining FormBeans
- Action Mappings

Mapping the Model to the View

- Review using Custom Tags
- Introducing Struts Tags
- Defining beans into the model
- Working with headers
- Working with Beans
- Using Logic Tags
- Using HTML Tags
- Handling message resources
- Working with HTML forms and form beans
- Iterating over lists and sublists
- Conditionally including parts of your JSP
- Using JSTL in place of the Struts Custom Tags (optional lesson)



Uploading Files and I18n

- Locales
- PropertyResourceBundles
- Formatting Messages
- Message Resources
- Internationalization

Putting It All Together

- Create the Application
- Forward Action
- Searching
- Prepopulating Forms
- Validating forms
- Showing and Editing Error Messages
- Handling Exceptions
- FormBeans vs. Value Objects
- Add/Edit/Delete Listing

Advanced Forms Management (Optional)

- Working with DynaActionForms
- Struts Validator : Email, mask, range, length, date and credit card validation
- Creating Validation Rules
- Validation.xml
- Use the Correct Form Bean
- Put it together: Add into the Project

Working with the Tiles Custom Library (Optional)

- Defining templates
- Using put and insert
- Advanced tile features (optional lesson)

Please contact your ROI representative to discuss course customization!!!