

Training: Capstone Courseware
109 JavaServer Pages

TRAINING GOALS:

Version 2.0.2

This four-day course develops skills in **JavaServer Pages**, or **JSP**, which is the standard means of authoring dynamic content for Web applications under the Java Enterprise platform. It treats JSP 2.0, including older features such as scriptlets but focusing on newer features and techniques, including JSP expressions and the JSTL. At the end of the course, students will be well prepared to author JSPs for small- or large-scale Web applications, either "by hand" (they use only a text editor in class) or using an authoring tool.

The first module begins with an introduction of Web applications in general, shows how Java servlets and JSPs establish a framework for writing Web applications, and then covers JSP 2.0 features in detail, from scripting elements to use of dedicated JavaBeans to JSP expressions, and quick introductions of JSTL and custom tag development.

By the end of the module students will be able to create their own JSP applications, including interactive applications using HTML forms and pages that perform fairly complex processing using scripts and or actions. Although scripting is covered, the scriptless authoring style encouraged by the JSP 2.0 specification is emphasized, and students will be well equipped to develop concise and effective JSP applications.

The second module covers the JSTL, or JSP Standard Tag Library, actually a set of four custom tag libraries that establish a portable standard for common processing tasks in JSP. JSTL is a major part of the new scriptless authoring style encouraged (and enabled) by the JSP 2.0 specification. This module covers all four JSTL libraries in depth:

- The core actions, which support JSP expressions for JSP 1.x containers, flow control for procedural processing in JSPs, and resource access.
- The formatting and internationalization/localization actions, which standardize formatted numeric and date/time output as well as multi-language support.
- The SQL actions, which dramatically simplify access to relational data from a JSP.
- The XML actions, which give JSPs a simple, powerful framework by which to parse, address and transform XML data using XPath and XSLT.

Each individual tag in each library is covered, with precise syntactic rules shown in a standard format in the student guide, and JSTL techniques and best practices are discussed for each library. An extensive set of example applications illustrates common usage of each major group of actions, and the module culminates with a wrap-up workshop that brings core, SQL, and XML techniques to bear in

a single application.

CONSPECT:

Module 1. Introduction to JSP

- Chapter 1. Web Applications
 - The World Wide Web
 - HTML
 - Web Servers
 - HTTP
 - Dynamic Web Pages
 - CGI
 - Java Web Technologies
 - Servlets
 - JSP
- Chapter 2. JSP Architecture
 - JSP Containers
 - Servlet Architecture
 - Page Translation
 - Types of JSP Content
 - Directives
 - Content Type
 - Buffering
 - Scripting Elements
 - JSP Expressions
 - Standard Actions
 - Custom Actions and JSTL
 - Objects and Scopes
 - Implicit Objects
 - JSP Lifecycle
- Chapter 3. Scripting Elements
 - Translation of Template Content
 - Scriptlets
 - Expressions
 - Declarations
 - Dos and Don'ts

- Implicit Objects for Scriptlets
- The request Object
- The response Object
- The out Object
- Chapter 4. Interactive JSP Applications
 - HTML Forms
 - Reading CGI Parameters
 - JSPs and Java Classes
 - Error Handling
 - Session Management
 - The Session API
 - Cookies and JSP
- Chapter 5. Using JavaBeans
 - Separating Presentation and Business Logic
 - JSP Actions
 - JavaBeans
 - Working with Properties
 - and
 - Using Form Parameters with Beans
 - Objects and Scopes
 - Working with Vectors
- Chapter 6. The Expression Language and the JSTL
 - Going Scriptless
 - The JSP Expression Language
 - EL Syntax
 - Type Coercion
 - Error Handling
 - Implicit Objects for EL
 - The JSP Standard Tag Library
 - Role of JSTL
 - The Core Actions
 - Using Beans with JSTL
 - The Formatting Actions
 - Scripts vs. EL/JSTL
- Chapter 7. Advanced JSP Features
 - Web Components

- Forwarding
- Inclusion
- Passing Parameters
- Custom Tag Libraries
- Tag Library Architecture
- Implementing in Java or JSP
- Threads
- Strategies for Thread Safety
- XML and JSP
- JSP for Web Services

Module 2. The JSP Standard Tag Library

- Chapter 1. Effective JSTL
 - The JSP Standard Tag Library
 - JSTL Namespaces
 - Going Scriptless
 - Object Instantiation
 - Sharing Objects
 - Decomposition
 - Parameterization
- Chapter 2. The Core Actions
 - The JSTL Core Library
 - Gotchas
 - Conditional Processing
 - Iterative Processing
 - Iterating Over Maps
 - Tokenizing Strings
 - Catching Exceptions
 - Resource Access
- Chapter 3. The Formatting and i18n Actions
 - The JSTL Formatting Library
 - Locales
 - Determining Locale
 - Time Zones
 - Setting Locale and Time Zone
 - Formatting and Parsing Dates

- Formatting and Parsing Numbers
- Internationalization
- Working with Resource Bundles
- Supporting Multiple Languages
- Chapter 4. The SQL Actions
 - The JSTL SQL Library
 - Using Relational Data
 - Connecting with a DriverManager
 - Connecting via a DataSource
 - The Result Interface
 - Making a Query
 - Inserts, Updates and Deletes
 - Parameterized SQL
 - Transactions
- Chapter 5. The XML Actions
 - The JSTL XML Library
 - Using XML
 - XML Data Sources
 - Parsing and Addressing
 - Using XPath in JSTL
 - XPath vs. EL
 - XPath Context
 - Implicit Objects for XPath
 - Conditional Processing
 - Iterative Processing
 - Changing XPath Context
 - Working with XML Namespaces
 - Using XSLT
 - Chaining Transformations
 - Reading XML from the Request Body
 - XML and SOAP Web Services
- Appendix A. Learning Resources

REQUIREMENTS:

- Knowledge of HTML and background in Web applications will be helpful but is not strictly necessary. Deep Java experience is not required, but some familiarity with the language is recommended for some of the exercises.

Difficulty level



CERTIFICATE:

The participants will obtain certificates signed by Capstone Courseware.

TRAINER:

Authorized Capstone Courseware Trainer.