



ASCIT

2809 S. 160th Street, Suite 201
Omaha, NE 68130

Consulting .. Training .. Mentoring .. Development

Servlets & JSP Development

5 Days

Learn to develop and test server-side applications based on the Java 2 platform, Enterprise Edition (J2EE) component model using Tomcat. Develop and test server-side applications that use servlets and JavaServer Pages (JSPs) for the control and flow of e-business applications.

Topics

- Develop and test servlets
- Develop and test JavaServer Pages (JSPs)
- Develop and test J2EE applications following the Model/View/Controller architecture
- Integrate business logic using Java Beans and Java Database Connectivity (JDBC)
- Apply best practices to servlet and JSP development

What you will learn

After completing this course, the student should be able to:

- Build servlets according to the current Servlet 2.3 specification
- Build JSPs according to the current JSP 1.2 specification
- Build custom JSP tag libraries
- Integrate servlets and JSPs into a complete J2EE application
- Deploy a J2EE application using Tomcat.

Practical work

Students will have the opportunity to build a simple Java program, servlets and JSPs. Students will also deploy a J2EE application.

Audience

Java programmers who build server-side web applications.

Prerequisites

You should understand essential concepts of Object-Oriented Programming and be able to write simple Java programs with assistance.

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Course Outline

1. J2EE Overview

- Introduction
- Why Do We Need J2EE?
- J2EE Components
- J2EE Technologies
- Useful J2SE Technologies
- Application Artifacts
- J2EE Architecture
- J2EE 1.4 Version Levels
- J2EE Software Packaging
- Deployment Descriptor
- Enterprise Archive (EAR)
- Web Modules and WAR
- EJB Modules
- Building Module Dependency

2. Servlet Basics

- Objectives
- History CGI
- Server Extension APIs
- Java Servlet
- Servlet Container
- Servlet Responsibilities
- J2EE and Servlet
- The Servlet Class
- The HttpServlet Class
- An Example Hello World
- The Servlet Container
- The Servlet API
- Life Cycle Initialization
- Life Cycle Initialization
- Example Initialization
- Life Cycle Processing
- Life Cycle Processing
- Life Cycle Destroy
- User Input
- Example User Input
- Output to Client
- Servlet Error Handling
- Threading Issues

3. Servlet Interaction Interface

- Objectives
- Request
- Request Parameters
- Request Attributes
- Request Headers
- Request Path
- Other Request Information
- Response
- Cookies
- Setting Cookies
- Servlet Context
- Servlet Context Attributes
- Resource
- Session Tracking
- Tracking Techniques
- Cookies
- Cookies an Example
- HTML Hidden Fields
- Using HttpSession
- Session Invalidation
- An Example of Session Tracking Code...
- An Example of Session Tracking Code
- An Example of Session Tracking Code
- An Example of Session Tracking Code
- An Example of Session Tracking Code
- An Example of Session Tracking Code
- An Example of Session Tracking Code
- HttpSession - URL Rewriting
- Summary

4. JavaServer Page (JSP) Basics

- Objectives
- JavaServer Pages
- A Simple Example - Hello.jsp
- JSP Benefits
- Evolution of Dynamic Content Technologies
- How JSP Works
- JSP Invocation
- JSP Scripting Elements
- The XML Syntax
- JSP Directive
- page Directive Attributes
- page Directive an Example



- page Attribute errorPage
- page Attribute isErrorPage
- Using XML Syntax
- Directives include
- Include an Example
- Include an Example
- Include at compile time vs. at request time
- Request time inclusion
- JSP Declarations
- Declarations an Example
- JSP Expressions
- JSP Expressions an Example
- JSP Scriptlets
- JSP Scriptlets an Example
- JSP Scriptlets an Example
- JSP Comments
- JSP Predefined Variables
- The request Object
- The response Object
- The out Object
- Out an Example

5. Using Java Beans with JSP

- Objectives
- What is a JavaBean?
- Structure of a JavaBean
- Life Cycle
- Properties
- Very Simple Bean
- Using Java Beans in JSP
- The <jsp:useBean> tag
- Java Bean scope
- <jsp:useBean> in Action
- The <jsp:getProperty> tag
- The <jsp:setProperty> tag
- Mapping all the request parameters
- Another Example
- Mixing Scriptlets and Bean tags

6. Servlet Programming Advanced

- Objectives
- Key Issues for Web Application Development Productivity
- Web Application Programming Model MVC
- Model
- View
- Controller

- What is JDBC?
- JDBC Architecture
- JDBC: Basic Steps
- Loading a Driver
- DB2 UDB JDBC Drivers
- Oracle JDBC Drivers
- Create a Connection
- Connection
- Statement
- PreparedStatement
- ResultSet
- ResultSet
- ResultSet
- Example JDBC Servlet With Transactions
- Close the Connection
- Need for Connection Pooling
- Connection Pooling in JDBC 2.0
- Connection Pooling
- Basic Steps in Using JDBC Connection Pooling
- Access a DataSource
- Get a Connection
- Release Connections
- Connection Pool Example
- Resource References
- JavaBeans
- MVC Implementation
- Request Dispatching
- Request Dispatching - Forward vs. Include
- HTTP Redirection
- Dispatch vs. redirection
- Integrating Servlet and JSP
- Calling a JSP from a Servlet
- Request Dispatching - forward Request to JSP
- Supply Result information to the JSP
- A Simple Example
- Display JavaBean Properties in JSP

7. Servlet Filters

- Objectives
- What is a filter?
- Why use a filter?
- Uses for Filtering
- Features of filters
- The Filter interface
- How a filter works
- In what order?
- A simple logging filter
- Configuring the filter



- Mapping the filter
- The Web Deployment Descriptor
- Common filter tasks
- Request and Response Wrappers

8. Servlet Event Listener

- What are Listeners
- Types of Listeners
- Writing a Servlet Context Listener
- Writing a Servlet Context Attribute Listener
- Writing a Session Activation Listener
- Writing a Session Attribute Listener
- Registering Listeners
- Lifecycle of Listeners

9. Custom Tag Libraries

- Introduction
- Tag Attributes
- Tag Body
- Tag Library Descriptor
- Tag Library Descriptor Details
- carPrice.tld
- The Java Server Page
- Writing a Simple Tag Handler Class
- Tag Handler Life Cycle
- Rendering Content
- Implementing Empty Body Tag
- Example: CarPriceHandler
- CarPriceHandler
- carPrice.jsp
- Implementing a Tag With Unprocessed Body
- Handling Tag Bodies
- Implementing Body Processing
- Example: Body Tag Support
- Implementing an Iteration Tag
- Nested Tags
- Summary

10. J2EE Security

- Security Functionality
- What Can You Secure in J2EE?
- Challenge Mechanism
- Basic Challenge
- Client Certificates
- Form-based Authentication

- User Registry
- J2EE Authorization Model
- Protecting Web Resources
- Protecting EJB Methods
- EJB Delegation Policies
- Delegation Scenario
- Defining Roles at Application Level

11. Introduction to Struts

- Objectives
- What is Struts?
- Why Struts?
- Struts Components
- The Controller Layer
- The View Layer
- The Form Bean
- A Simple Action
- Struts Configuration
- Define HelloAction
- Invoking HelloAction
- Finding Information About Struts

12. JSP Expression Language and Standard Tag Library

- JSP Expression Language (EL)
- Basic Usage
- Built-in Objects
- Working With Arrays and Maps
- Operators
- Full Example
- JSP Standard Tag Library (JSTL)
- Run Time Version
- Basic Tags
- Condition Tags
- Iterator Tags
- Internationalization (I18N)
- Setting Preferred Locale
- Specifying Resource Bundle
- Display Translated Text
- Display Number
- Display Date
- JDBC Tags
- Specify Data Source
- Performing a Query
- Display Result
- Pagination Example



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