

JSP

Overview and Setup

- Understanding the role of servlets
- Evaluating servlets vs. other technologies
- Understanding the role of JSP
- Configuring the server
- Configuring your development environment
- Testing the server setup

Servlet Basics

- The basic structure of servlets
- A simple servlet that generates plain text
- A servlet that generates HTML
- Servlets and packages
- Some utilities that help build HTML
- The servlet life cycle
- Servlet debugging strategies

Handling the Client Request: Form Data

- The role of form data
- Creating and submitting HTML forms
- Reading individual request parameters
- Reading the entire set of request parameters
- Handling missing and malformed data
- Dealing with incomplete form submissions
- Filtering special characters out of the request parameters

Handling the Client Request: HTTP Request Headers

- Reading HTTP request headers
- Building a table of all the request headers
- Understanding the various request headers
- Reducing download times by compressing pages
- Differentiating among types of browsers

Generating the Server Response: HTTP Status Codes

- Format of the HTTP response
- How to set status codes
- What the status codes are good for
- Shortcut methods for redirection and error pages
- A servlet that redirects users to browser-specific pages

- A front end to various search engines

Generating the Server Response: HTTP Response Headers

- Format of the HTTP response
- Setting response headers
- Understanding what response headers are good for
- Building Excel spread sheets
- Generating JPEG images dynamically
- Sending incremental updates to the browser

Handling Cookies

- Understanding the benefits and drawbacks of cookies
- Sending outgoing cookies
- Receiving incoming cookies
- Tracking repeat visitors
- Specifying cookie attributes
- Differentiating between session cookies and persistent cookies
- Simplifying cookie usage with utility classes
- Modifying cookie values
- Remembering user preferences

Session Tracking

- Implementing session tracking from scratch
- Using basic session tracking
- Understanding the session-tracking API
- Differentiating between server and browser sessions
- Encoding URLs
- Storing immutable objects vs. storing mutable objects
- Tracking user access counts
- Accumulating user purchases
- Implementing a shopping cart
- Building an online store

JSP Intro and Overview

- Understanding the need for JSP
- Evaluating the benefits of JSP
- Comparing JSP to other technologies
- Avoiding JSP misconceptions
- Understanding the JSP lifecycle
- Installing JSP pages
- Looking at JSP in the real world

Invoking Java Code with JSP Scripting Elements

- Static vs. dynamic text
- Dynamic code and good JSP design
- JSP expressions
- Servlets vs. JSP pages for similar tasks
- JSP scriptlets
- JSP declarations
- Predefined variables
- Comparison of expressions, scriptlets, and declarations

Controlling the Structure of Generated Servlets: The JSP page Directive

- Understanding the purpose of the page directive
- Designating which classes are imported
- Specifying the MIME type of the page
- Generating Excel spreadsheets
- Participating in sessions
- Setting the size and behavior of the output buffer
- Designating pages to handle JSP errors
- Controlling threading behavior

Including Files and Applets in JSP Pages

- Using `jsp:include` to include pages at request time
- Using `<%@ include ... %>` (the include directive) to include files at page translation time
- Understanding why `jsp:include` is usually better than the include directive
- Using `jsp:plugin` to include applets for the Java Plug-in

Using JavaBeans Components in JSP Documents

- Understanding the benefits of beans
- Creating beans
- Installing bean classes on your server
- Accessing bean properties
- Explicitly setting bean properties
- Automatically setting bean properties from request parameters
- Sharing beans among multiple servlets and JSP pages

Integrating Servlets and JSP: The Model View Controller (MVC) Architecture

- Understanding the benefits of MVC
- Using `RequestDispatcher` to implement MVC
- Forwarding requests from servlets to JSP pages
- Handling relative URLs

- Choosing among different display options
- Comparing data-sharing strategies

Simplifying Access to Java Code: The JSP 2.0 Expression Language

- Motivating use of the expression language
- Understanding the basic syntax
- Understanding the relationship of the expression language to the MVC architecture
- Referencing scoped variables
- Accessing bean properties, array elements, List elements, and Map entries
- Using expression language operators
- Evaluating expressions conditionally

Using and Deploying Web Applications

- Purpose of Web applications
- Structure of Web applications
- Setting up Web applications with Tomcat
- Giving custom addresses to servlets
- Sharing data among Web applications

Controlling Web Application Behavior with web.xml

- Location and purpose of web.xml
- Custom URLs
- Initialization parameters
- Preloading pages
- Welcome pages
- Error pages

Creating Custom JSP Tag Libraries: The Basics

- Java-based tags
 - Components of a tag library
 - Basic tags
 - Tags that use body content
 - Tags that optionally use body content
- JSP-based tags (tag files)
 - Components of a tag library
 - Basic tags
 - Tags that use attributes
 - Tags that use body content

Accessing Databases with JDBC

- Overview of JDBC technology
- JDBC drivers
- Seven basic steps in using JDBC
- Using JNDI with JDBC
- Retrieving data from a ResultSet
- Using prepared and callable statements
- Handling SQL exceptions
- Submitting multiple statements as a transaction

Ajax: Asynchronous Page Updates

- The basic Ajax process
- Using dynamic content and JSP
- Using dynamic content and servlets
- Sending GET data
- Sending POST data
- Displaying HTML results
- Parsing and displaying XML results