

## Developing Java Web Applications: Hands-On - 4 Days

### *Course 570 Overview*

- You Will Learn How To**
- Build data-driven Web applications with server-side Java technologies
  - Add a Web interface to your databases using Java servlets
  - Generate dynamic Web pages with JavaServer pages (JSP)
  - Personalise content for users with cookies and sessions using the Java Servlet API
  - Integrate JSP custom tags to minimise scriptlet code
  - Create Web applications using the Struts framework

**Course Benefits** Java servlets and JavaServer Pages allow developers to leverage the power of the Java platform and create object-oriented, scalable, n-tier applications. In this course, you learn how to integrate key components of the Java Enterprise Edition (Java EE), including servlets and JSP technologies to create dynamic data-driven Web applications.

**Who Should Attend** Those involved in developing Web applications with Java. Knowledge of Java at the level of Course 471, "Java Programming Comprehensive Introduction", plus real-world Java programming experience, are assumed. Knowledge of Web technologies and HTML is helpful.

**Hands-On Training** Throughout this course, extensive hands-on exercises provide you with practical experience in developing Java Web applications, including:

- Installing and configuring a servlet/JSP server
- Accessing databases with servlets
- Personalising a Web site using sessions
- Building a shopping cart application
- Leveraging reusable components and Java Server Pages
- Integrating JSP custom tags
- Developing MVC components using the Struts framework
- Deploying Web applications using the WAR file format

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### Course 570 Outline

#### Introduction and Overview

##### Web application development

- The requirements of a Web application
- Components of an n-tier architecture

##### Key components of Java EE for Web development

- Servlets
- JSP
- XML

#### Generating Content with Servlets

##### Getting started with servlets

- Integrating servlets into the Web application architecture
- Configuring the servlet development environment
- Avoiding common servlet pitfalls

##### Utilising the Java Servlet API

- Servlet life cycle methods
- Accessing servlet environment variables

##### Creating Web-based forms for user input

- Adding text fields and drop-down lists
- Linking forms to servlets
- Retrieving form data in the servlet

#### Accessing Databases with Servlets

##### Extending servlets with Java Database Connectivity (JDBC)

- Connecting to the database
- Submitting SQL statements
- Retrieving and processing data

##### Formatting database results

- Constructing an HTML table
- Adding drill-down features

#### Maintaining State in Java Web Applications

##### Reading and writing cookies to personalise Web content

- Retrieving cookies from a client request
- Sending cookies to the client
- Circumventing cookie limitations

##### Managing application state with sessions

- Creating a unique session for each user
- Storing and retrieving Java objects within sessions
- Controlling a session's life span
- Creating application and session event listeners
- Implementing a shopping cart

#### Creating JavaServer Pages (JSP)

##### JSP fundamentals

- Design goals of JSP
- Using JSP scriptlets, expressions and declarations
- Communicating with the client using built-in JSP server objects
- Leveraging the JSP 2 Expression Language (EL)

##### State management with JSP

- Accessing cookies and sessions
- Storing common application data

#### Designing JSP and Servlet Architectures

##### Integrating JSP and JavaBeans

- Promoting object reuse
- Separating application logic from the presentation

##### Calling JSP from servlets

- Forwarding Java objects to JSP
- Using JavaBeans to transfer data
- Servlet and JSP design patterns

#### Integrating JSP Custom Tags

##### Leveraging the Tag Extension mechanism

- The role of JSP custom tags
- Applying the JSP Standard Tag Library (JSTL)

##### Developing custom tags

- Creating custom tags with JSP 2 tag files
- Customising tag behaviour with attributes

#### Developing Struts 1 Applications

##### Struts 1 framework overview

- Components of the Struts framework
- Model-View-Controller (MVC) architecture

##### Developing Struts components

- Building the JavaBean model
- Presenting a view with JSP
- Dispatching actions with the controller

#### Deploying Your Java Web Application

- Defining the deployment descriptor
- Creating a Web Application Archive (WAR) file
- Adding role-based application security