Web Component Development With Servlet and JSP Technologies [SL314]

Course Objectives:

Upon completion of this course, students should be able to:

- Write servlets using the Java programming language (Java servlets)
- Create robust web applications using Struts, session management, filters, and database integration
- Write JSP pages
- Create easy to maintain JSP pages using the Expression Language, JSP Standard Tag Library (JSTL), and the Struts Tiles framework
- Create robust web applications that integrate Struts and JSP pages

Who Should Attend:

Developers with skills equivalent to that of a Sun Certified Java Developer, who are creating web components (such as servlets and custom tags), can benefit. This is not a course for web page designers using Hypertext Markup Language (HTML), JavaScript technology, or other web presentation technologies.

Prerequisites:

To succeed fully in this course, students should be able to:

- Write Java technology applications, demonstrating significant programming ability
- Integrate existing Java code (for example, reuse existing classes created by other team members)
- Design Java technology applications
- Functionally describe the benefits of an n-tier architecture
- Write a web page using HTML

Hands-On:

This course includes practical exercises that enable you to test your new skills and begin to transfer them into your working environment.

Duration: Five days **Time:** 9am to 5pm **Venue:** BT Frontline Technologies

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Course Description:

JavaServer Pages (JSP page) technology and servlets are the key web-tier technologies defined in the Java Platform, Enterprise Edition (Java EE platform). The Web Component Development With Servlet and JSP Technologies course provides experienced developers of Java technology applications the knowledge and skills to quickly build web applications from JSP page and servlet technologies using the Sun Java System Application Server, and the Apache Struts framework. Students are exposed to the current methods for analyzing, designing, developing,and deploying web applications with Java technologies. Lab exercises provide students with experience in constructing and deploying the small-to-medium scale web applications found in intranet and low-volume commercial sites. The course features the Java EE 5 technology, and uses the Java EE 5 SDK. The students perform the lab exercises using the NetBeans Integrated Development Environment (IDE) 5.5. This course is also an ideal method of preparing for the revised Sun Certified Web Component Developer (SCWCD) for Java EE 5 certification examination. However, an SCWCD candidate should also spend six months building web applications using the JSP page and servlet technologies before taking the exam.

1. Introduction to Web Application Technologies

- Describe web applications
- Describe Java Platform, Enterprise Edition 5 (Java EE 5)
- Describe Java servlet technology
- Describe JavaServer Pages technology
- Define three-tier architecture
- Define Model-View-Controller (MVC) architecture

2. Developing a View Component

- Design a view component
- Describe the Hypertext Transfer Protocol
- Describe the web container behavior
- Develop a simple HTTP servlet
- Configure and deploy a servlet

3. **Developing a Controller Component**
   - Design a controller component
   - Create an HTML form
   - Describe how HTML form data is sent in an HTTP request
   - Develop a controller servlet
   - Dispatch from a controller servlet to a view servlet

4. **Developing Dynamic Forms**
   - Describe the servlet life cycle
   - Customize a servlet with initialization parameters
   - Explain error reporting within the web form
   - Repopulating the web form

5. **Sharing Application Resources Using the Servlet Context**
   - Describe the purpose and features of the servlet context
   - Develop a servlet context listener to initialize a shared application resource

6. **Designing the Business Tier**
   - Describe the Analysis model
   - Design entity components
   - Design service components

7. **Developing a Web Application Using Struts**
   - Design a web application using the Struts MVC framework
   - Develop a Struts action class
   - Configure the Struts action mappings

8. **Developing Web Applications Using Session Management**
   - Describe the purpose of session management
   - Design a web application that uses session management
   - Develop servlets using session management
   - Describe the cookies implementation of session management
   - Describe the URL-rewriting implementation of session management

9. **Using Filters in Web Applications**
   - Describe the web container request cycle
   - Describe the Filter API
   - Develop a filter class
   - Configure a filter in the web.xml file

10. **Integrating Web Applications With Databases**
    - Map sample data structure into database entities
    - Design a web application to integrate with a DBMS
    - Configuring a DataSource and Java Naming and Directory Interface (JNDI) API

11. **Developing JSP Pages**
    - Describe JSP page technology
    - Write JSP code using scripting elements
    - Write JSP code using the page directive
    - Write JSP code using standard tags
    - Write JSP code using the Expression Language (EL)
    - Configure the JSP page environment in the web.xml file

12. **Developing JSP Pages Using Custom Tags**
    - Describe the Java EE job roles involved in web application development
    - Design a web application using custom tags
    - Use JSTL tags in a JSP page

13. **Developing Web Applications Using Struts Action Forms**
    - Describe the components in a Struts application
    - Develop an ActionForm class
    - Develop a JSP page for a View form
    - Configure the View forms

14. **Building Reusable Web Presentation Components**
    - Describe how to build web page layouts from reusable presentation components
    - Include JSP segments
    - Develop layouts using the Struts Tiles framework