Web Component Development Using Servlet & JSP Technology (EE6)

Module-2: Introduction to Java Server Pages(JSP)

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Certified Expert

Java EE 6 Web
Component Developer

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Introduction to Java Server Pages(JSP)

Objectives

Upon completion of this module, you should be able to:

- Describe a significant weakness in servlets when used alone.
- Write a simple Java Server Page (JSP)
- Describe the translation of a JSP into a servlet
- Understand the basic goals of MVC

Relevance

Discussion – The following questions are relevant to understanding how to develop a view component:

- How easy would it be to edit HTML that is created by a Java program?

- What would make a good separation of concerns for a web application?

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A Weakness in Servlets

- Most modern web applications have elegant and complex user interface designs. The designs are often created by dedicated web designers, and even if that is not the case, the HTML pages that implement the designs are frequently created using "What You See Is What You Get" (WYSIWYG) Graphical User Interface (GUI) based design tools. Such design tools work on HTML, not on HTML embedded in Java program code.

- Because of this, the pure servlet approach becomes unmanageable—often catastrophically—when maintenance is required on the web pages. Having to re-type all the HTML code back into out.print(...) statements would be a very time consuming and error prone process.

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Addressing the Problem With JSPs

Soon after the original introduction of servlets, Java Server Pages, usually called simply JSPs, were introduced to address this problem.

While a servlet is a Java source file containing embedded HTML, a JSPmight be considered to be an HTML file with Java embedded in it.

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Example of a very simple JSP.

```jsp
<%--
Simple Hello World JSP example
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01
Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">

<html>
<body>
<% out.print("welcome to jsp"); %>
</body>
</html>
```

Key Elements of JSPs

Within <% ... %> pairs, three distinct variations are exemplified.
These are:

- Comments
- A "page directive"
- An "expression"

How a JSP Is Processed

Before a JSP is executed for the first time, it is converted to an equivalent Servlet.

Reading Input Parameters From the Browser

```html
<html>
<head>
	<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>JSP Page</title>
</head>
<body>
<h1>Hello
<%= request.getParameter("customerName") %>
</h1>
</body>
</html>
```

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Sending Parameters in an HTTP GET Request

http://localhost:8080/SL314m2ex2/index.jsp?customerName=Corporal+Jones

Note that the space is encoded as a plus sign (+). Other encodings are required for many other symbols, but such conversions are beyond the scope of this module.

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Remaining Problems
With the JSP Approach

- The JSP approach resultsin Java code embedded in an HTML source file. Because of this,programmers and web-designers must share the same file, and changesmade by one group might cause bugs in the work of the other group.

- In fact, the root of the problem is that one of the basic tenets of good software design has been broken. That tenet states that unrelated concerns should be separated in the source code.
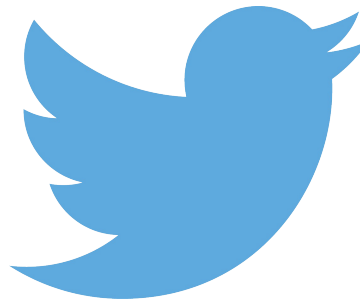
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