CS320 Web and Internet Programming
JSP Scripting Elements and Page Directives

Chengyu Sun
California State University, Los Angeles

Java Server Page (JSP)

- ◆ Why?
  - It's tedious to generate HTML using println()
  - Separate presentation from processing
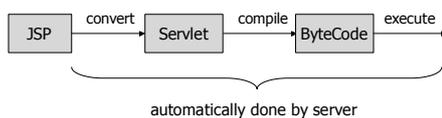- ◆ How?
  - *Java code* embedded in *HTML documents*

HelloJSP1.jsp

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0
Transitional//EN">
<HTML>
<HEAD><TITLE>Hello JSP 1</TITLE></HEAD>
<BODY>A JSP without J or S.</BODY>
</HTML>
```

HelloJSP2.jsp

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.0
Transitional//EN">
<HTML>
<HEAD><TITLE>JSP Hello World</TITLE></HEAD>
<BODY>Hello World on <%= new java.util.Date() %>.
</BODY>
</HTML>
```

How Does JSP Work?

JSP → convert → Servlet → compile → ByteCode → execute →

automatically done by server

- ◆ Look under $CATALINA_HOME/work/Catalina/localhost/*context_name*

Some Simple Observations about the JSP/Servlets

- ◆ In package org.apache.jsp
- ◆ _jspService() handles everything
  - replaces service() in HttpServlet
  - What happened to doGet(), doPost(), ...??
- ◆ HTML text → out.write(...)
- ◆ A number of pre-defined variables
  - request, response, out
  - config, pageContext
  - page, session, application

JSP Components

- HTML template text
- Code elements of Java
  - Scripting elements
  - Directives
  - Beans
  - Expression language
  - Custom tag libraries

Comments

- **<%--** Hidden Comments **--%>**
- **<!--** Output (HTML) Comments **-->**

JSP Expressions

- **<%=** Java expression **%>**
  - What's an expression??
- The expression is evaluated, converted to a string (how??), and inserted into the output, *at runtime*
- Example: BGColor.jsp

Pre-defined Variables

- request, response, out
- session, application
- config, pageContext
- page

Scriptlets

- **<%** Java code **%>**
- *All* code goes into _jspService()
  - What about class variables? other methods?

Scriptlet Example

```
<% if( Math.random() < 0.5) { %>
<H1>Have a <I>nice</I> day!</H1>
<% } else { %>
<H1>Have a <I>lousy</I> day!</H1>
<% } %>
```

Declarations

◆ **<%!** class variables or methods **%>**

◆ Example: LifeCycle.jsp
- Overriding init()

Package Revisited

◆ Import Java class libraries
- **<%@** page import="package1.*" **%>**
- **<%@** page import="p1.a, p2.*" **%>**

◆ Using user created classes or third party packages
- Where??
- How??

Directives

◆ Affect the overall structure of the JSP/servlet

◆ **<%@** *type attr="value" … * **%>**

◆ Three type of directives
- page
- include
- taglib

Some Page Directives

<%@ page import="java.util.*, java.util.zip.*" %>

<%@ page contentType="text/html" %>

<%@ page pageEncoding="Shift_JIS" %>

<%@ page session="false" %> <%-- default is true --%>

◆ isELIgnored, errorPage, isErrorPage