Java Server Pages

* Simply an HTML web page that contains additional bits of code that execute application logic to generate dynamic content.
* Java Server Pages Actions (JSP tags) perform a variety of functions and extend the capabilities of JSP.
* Java Server Pages Actions use XML-like syntax, and are used to manage JavaBeans component.
* Directives are instructions that are processed by the JSP engine when the page is compiled to a servlet.
* Directives are used to set page-level instructions, insert data from external files, and specify custom tag libraries
  + <%@ %>
* Motivation
  + It is typically a good idea to separate business logic from presentation concern
    - Allows modern web development teams to be divided up into programmers and web page authors / designers
    - Fosters component reuse (e.g. the same data object can be consumed by user agents of varying capabilities and needs)
  + Servlets can be very powerful for programming business logic, but are very awkward to use when generating static (i.e. template) content.
  + (X)HTML marked-up documents are very convenient for static content generation but cannot be used to program business logic (or generate dynamic content arising from data produced by the business logic).
* Features
  + Text-based document capable of generating both static and dynamic content (typically intermixed)
  + Mark-up based document syntax (JSP-style or XML-style), combining (X) HTML elements as well as standard and custom JSP elements; thus, web page authors can feel right “at home” with the mark-up syntax.
  + Embedded Java Coding support via “scriptlets”
    - <% %>
  + Template text are converted into JSPWriter
* Components
  + Template (i.e. static) text
  + JSP elements
    - Directives
      * <%@ page ContentType=”text/html” pageEncoding=”UTF-8” %>
      * <%@ page import=”java.util.Random” %>
        + autoFlush
        + buffer
        + contentType
        + errorPage
        + extends
        + import
        + info
        + isELIgnored
        + isErrorPage
        + isThreadSafe
        + language
        + pageEncoding
        + session
      * <%@ taglib uri=”http://java.sun.com/jsp/jstl/core” prefix=”c” %>
        + prefix
        + taglib
        + uri
* Scripting Elements
  + Declarations
    - <%! int a = 100; %>
    - <%! int square(int n) { return n\*n ; } %>
* Expressions
  + <% String s = new java.util.Date().toString(); %>
* Scriptlets
  + <% for(int i = 0; i < 10 ; i++) { out.println(i); } %>
* Actions
  + Standard actions
    - <jsp:directive.include>, <jsp:directive.page>
    - <jsp:declarations> <jsp:scriptlet>
    - <jsp:expression> <jsp:include>, <jsp:forward>
    - <jsp:useBean>, <jsp:setProperty>, <jsp:getProperty>
    - <jsp:plugin>, <jsp:param>, <jsp:params>, <jsp:fallback>
    - <jsp:element>, <jsp:attribute>, <jsp:body>
    - <jsp:text>
* Custom Actions (JSTL)
  + JSTL, user-written custom tag libraries
* Expression Language (EL)
  + ${ }
* Implicit Scripting Objects
  + request, response, out, pageContext
  + session, pageContext, application
  + config, page, exception
* Implicit EL Objects
  + pageContext
  + pageScope
  + requestScope
  + sessionScope
  + applicationScope
  + param, paramValues
  + header, headervalues
  + cookie
  + initparam
* Comments
  + <%-- this is a JSP comment --%>