Ryan Songcuan

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Module 9 Assignment

JSTL and XPath

JSTL stands for JSP Standard Tag Library. According to the site JavaTPoint, JSTL represents a set of tags to simplify the JSP development. We learned used JSP Action Tags in previous modules, for example when implementing Java Beans we learned about <jsp:useBean>, <jsp:setProperty>, and <jsp:getProperty>. While useful in those specific situations, JSP Action tags have limited functionality. JSTL is helpful where those tags lack, as there is a lot more that can be done with JSTL tags. JavaTPoint lists three key advantages of using JSTL. The first is “fast development,” as the JSTL tags simplify what code needs to be written in the JSP. The second is “code reusability,” as the JSTL tags can be used on various pages. The third advantage is no need to use scriptlet tag, which is self-explanatory but can be avoided when using JSTL tags.

JSTL provides five types of tags primarily. The first are core tags, using the prefix <c:>. These tags provide variable support, URL management, and flow control, and more. Next are function tags <fn:>, which provide support for string manipulation and length. The third type are formatting tags <fmt:>, that provide support for message formatting, number and date formatting, and more. Another type are SQL tags <sql:>, which provide SQL database support. And finally, the fifth type, which pertains most to the next part of this paper, are XML tags <x:>, which provide flow control, transformation, and more, essentially providing a JSP-centric way of manipulating and creating XML documents, according to JavaTPoint.

As is the case with any of the JSTL tag types, a line must be included at the top of the file indicating the use of JSTL-XML tags. The syntax is as follows:

**<**%@ taglib uri="http://java.sun.com/jsp/jstl/xml" prefix="x" %**>**

In order for your program to identify XML components, an XPath related library needs to be added to the classpath. XPath, shorthand for XML Path Language, is a language that is used to navigate through the elements and attributes in an XML document. The textbook describes a XPath related library called Xalan, which is an open-source library from Apache. Once the xalan.jar file is downloaded, it needs to be added to Tomacat’s lib folder, and at that point is able to be utilized for your program’s needs. XPath identifies nodes through patterns, and in XPath the seven types of nodes are element, attribute, text, namespace, processing-instruction, comment, and document. JSTL XML tags assist in this flow control for XPath.

The site TutorialsPoint lists ten JSTL XML tags and their corresponding descriptions. x:out is similar to the <%= … > tag that we are familiar with from JSP files, but is specifically for XPath expressions. x:parse is used to parse the XML data specified in the tag body or an attribute. x:set is used to set a variable to the value of an XPath expression. x:choose is a conditional tag that establishes a context for mutually exclusive conditional operations, which are contained within the next two tags. x:when is the first subtag of <x:choose>, which includes its body if the condition is true. x:otherwise is the second subtag of <x:choose>, which only runs if the prior condition is false. x:if is similar to the <x:choose> tag, however, will only include its body if the condition is true, and will ignore the body if the condition is false. x:forEach loops over nodes in an XML document. x:transform will apply an XSL, or Extensible Stylesheet Language, transformation on the XML document. x:param is used along with < x:transform> to set a parameter in the XSLT stylesheet.

XSL is comparable to CSS in that it describes how to display and transform XML documents. While CSS deals with predefined HTML tags, XSL uses a combination of XPath, XQuery, which is the language to query XML documents, and XSLT, which is a language to transform and change the structure of XML documents. These components are necessary due to the nature of XML documents without predefined tags.

The example files included with this submission feature a simple XML file “sample.xml” showing the name, email, phone number, and address of a person. The JSP file “JSTLParse.jsp” uses JSTL core and XML tags. The first use of the core tag is <c:import> to connect this JSP file to the XML file. The XML tag <x:parse> parses the sample.xml document implementing the standard interface of a Document Object Model (DOM). The <x:set> tags then assign the variables following the var= to the XPath expressions following the select=. In the HTML portion of the JSP file, the core tag <c:out> displays the result of the expressions.

Sources

*JSTL Tutorial and Examples*. (n.d.). JavaTPoint. https://www.javatpoint.com/jstl

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*XJTL JSTL JSP Examples: XML Parsing and XML Processing*. (n.d.). Devsphere. http://www.devsphere.com/xml/taglib/process/examples.html