

THỰC HÀNH CHUYÊN ĐỀ JAVA

(TUẦN 8)

GIẢNG VIÊN: MAI VĂN MẠNH







1. JSTL – Java Standard Tag Library

Để sử dụng JSTL cần thêm thư viện *.jar vào thư mục **WEB-INF\lib**.

Ngoài ra, trong các file *.jsp cần khai báo JSTL Library (ở đầu file) trước khi sử dụng. Có nhiều loại Library khác nhau như **Core Library**, **SQL Library**, **Function Library** (chứa các hàm được định nghĩa sẵn).

Một số Tag truy vấn CSDL (**SQL Library**)








```
<%@ taglib prefix="sql"
      uri="http://java.sun.com/jsp/jstl/sql" %>
```

Tag	Description
<sql:setDataSource> 	Creates a simple DataSource suitable only for prototyping
<sql:query> 	Executes the SQL query defined in its body or through the sql attribute.
<sql:update> 	Executes the SQL update defined in its body or through the sql attribute.
<sql:param> 	Sets a parameter in an SQL statement to the specified value.
<sql:dateParam> 	Sets a parameter in an SQL statement to the specified java.util.Date value.
<sql:transaction > 	Provides nested database action elements with a shared Connection, set up to execute all statements as one transaction.

Một số Tag cơ bản trong JSTL (Core Library)

http://www.tutorialspoint.com/jsp/jsp_standard_tag_library.htm

```
<%@ taglib prefix="c"
    uri="http://java.sun.com/jsp/jstl/core" %>
```

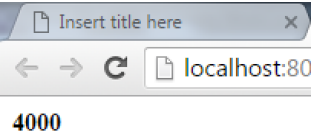
Tag	Description
<c:out > 	Like <%= ... >, but for expressions.
<c:set > 	Sets the result of an expression evaluation in a 'scope'
<c:remove > 	Removes a scoped variable (from a particular scope, if specified).
<c:catch> 	Catches any Throwable that occurs in its body and optionally exposes it.
<c:if> 	Simple conditional tag which evaluates its body if the supplied condition is true.
<c:choose> 	Simple conditional tag that establishes a context for mutually exclusive conditional operations, marked by <when> and <otherwise>
<c:when> 	Subtag of <choose> that includes its body if its condition evaluates to 'true'.
<c:otherwise > 	Subtag of <choose> that follows <when> tags and runs only if all of the prior conditions evaluated to 'false'.
<c:import> 	Retrieves an absolute or relative URL and exposes its contents to either the page, a String in 'var', or a Reader in 'varReader'.
<c:forEach > 	The basic iteration tag, accepting many different collection types and supporting subsetting and other functionality .
<c:forTokens> 	Iterates over tokens, separated by the supplied delimiters.
<c:param> 	Adds a parameter to a containing 'import' tag's URL.
<c:redirect > 	Redirects to a new URL.
<c:url> 	Creates a URL with optional query parameters

Một số hàm trong JSTL (Function Library)

```
<%@ taglib prefix="fn"
    uri="http://java.sun.com/jsp/jstl/functions" %>
```

Function	Description
fn:contains() ↗	Tests if an input string contains the specified substring.
fn:containsIgnoreCase() ↗	Tests if an input string contains the specified substring in a case insensitive way.
fn:endsWith() ↗	Tests if an input string ends with the specified suffix.
fn:escapeXml() ↗	Escapes characters that could be interpreted as XML markup.
fn:indexOf() ↗	Returns the index withing a string of the first occurrence of a specified substring.
fn:join() ↗	Joins all elements of an array into a string.
fn:length() ↗	Returns the number of items in a collection, or the number of characters in a string.
fn:replace() ↗	Returns a string resulting from replacing in an input string all occurrences with a given string.
fn:split() ↗	Splits a string into an array of substrings.
fn:startsWith() ↗	Tests if an input string starts with the specified prefix.
fn:substring() ↗	Returns a subset of a string.
fn:substringAfter() ↗	Returns a subset of a string following a specific substring.
fn:substringBefore() ↗	Returns a subset of a string before a specific substring.
fn:toLowerCase() ↗	Converts all of the characters of a string to lower case.

Ví dụ 1. Sử dụng **set** để tạo giá trị (biến) và **out** để in giá trị

<pre><body> <c:set var="salary" value="\${2000*2}"/> <c:out value="\${salary}"/> </body></pre>	 <p>4000</p>
---	---

Ví dụ 2. Sử dụng câu lệnh if

```
<body>
<c:set var="salary" scope="session" value="${2000*2}"/>
<c:if test="${salary > 2000}">
  <p>My salary is: <c:out value="${salary}"/></p>
</c:if>
</body>
</html>
```

This would produce following result:

My salary is: 4000

Ví dụ 3. Sử dụng câu lệnh choose/when/otherwise

```
<body>
<c:set var="salary" scope="session" value="${2000*2}"/>
<p>Your salary is : <c:out value="${salary}"/></p>
<c:choose>
  <c:when test="${salary <= 0}">
    Salary is very low to survive.
  </c:when>
  <c:when test="${salary > 1000}">
    Salary is very good.
  </c:when>
  <c:otherwise>
    No comment sir...
  </c:otherwise>
</c:choose>
</body>
</html>
```

This would produce following result:

Your salary is : 4000
Salary is very good.

Ví dụ 4. Sử dụng câu lệnh **forEach**:

```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<html>
<head>
<title><c:forEach> Tag Example</title>
</head>
<body>
<c:forEach var="i" begin="1" end="5">
    Item <c:out value="${i}"/><p>
</c:forEach>
</body>
</html>
```

This would produce following result:

```
Item 1
Item 2
Item 3
Item 4
Item 5
```

Ví dụ 4. Sử dụng câu lệnh **redirect**: Sử dụng để chuyển trang web

```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<html>
<head>
<title><c:redirect> Tag Example</title>
</head>
<body>
<c:redirect url="http://www.photofuntoos.com"/>
</body>
</html>
```

Ví dụ 5. Sử dụng câu lệnh **import kết hợp với **param**:** Câu lệnh **import** dùng để nhúng nội dung của một trang khác vào trang hiện tại, câu lệnh **param** dùng để gửi kèm theo tham số (GET) khi import.

If you need to pass parameters to a `<c:import>` tag, use the `<c:url>` tag to create the URL first as shown below:

```
<c:url value="/index.jsp" var="myURL">
  <c:param name="trackingId" value="1234"/>
  <c:param name="reportType" value="summary"/>
</c:url>
<c:import url="${myURL}"/>
```

Above request would pass URL as below - Try it yourself.

```
"/index.jsp?trackingId=1234;reportType=summary"
```

Ví dụ 6. Sử dụng câu lệnh **setDataSource**: sử dụng để khai báo các thông tin kết nối tới Cơ sở dữ liệu.

Consider the following information about your MySQL database setup:

- We are using JDBC MySQL driver.
- We are going to connect to TEST database on local machine.
- We would use user_id and mypassword to access TEST database.

All the above parameters would vary based on your MySQL or any other database setup. Keeping above parameters in mind, following is a simple example to use `setDataSource` tag:

```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql"%>
<html>
<head>
<title>JSTL sql:setDataSource Tag</title>
</head>
<body>

<sql:setDataSource var="snapshot" driver="com.mysql.jdbc.Driver"
  url="jdbc:mysql://localhost/TEST"
  user="user_id" password="mypassword"/>

<sql:query dataSource="${snapshot}" sql="..." var="result" />

</body>
</html>
```

You will start using `<sql:setDataSource>` in subsequent SQL tags.

Ví dụ 7. Sử dụng câu lệnh **query**: Truy vấn cơ sở liệu

```
<%@ page import="java.io.*,java.util.*,java.sql.*"%>
<%@ page import="javax.servlet.http.*,javax.servlet.*" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql"%>

<html>
<head>
<title>JSTL sql:query Tag</title>
</head>
<body>

<sql:setDataSource var="snapshot" driver="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost/TEST"
    user="root" password="pass123"/>

<sql:query dataSource="${snapshot}" var="result">
SELECT * from Employees;
</sql:query>

<table border="1" width="100%">
<tr>
<th>Emp ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Age</th>
</tr>
<c:forEach var="row" items="${result.rows}">
<tr>
<td><c:out value="${row.id}"/></td>
<td><c:out value="${row.first}"/></td>
<td><c:out value="${row.last}"/></td>
<td><c:out value="${row.age}"/></td>
</tr>
</c:forEach>
</table>

</body>
</html>
```

Now try to access above JSP, which should display the following result:

Emp ID	First Name	Last Name	Age
100	Zara	Ali	18
101	Mahnaz	Fatma	25
102	Zaid	Khan	30
103	Sumit	Mittal	28

Ví dụ 8. Sử dụng câu lệnh **update**: Cập nhật cơ sở liệu

```
<%@ page import="java.io.*,java.util.*,java.sql.*"%>
<%@ page import="javax.servlet.http.*,javax.servlet.*" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql"%>

<html>
<head>
<title>JSTL sql:update Tag</title>
</head>
<body>

<sql:setDataSource var="snapshot" driver="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost/TEST"
    user="root" password="pass123"/>

<sql:update dataSource="${snapshot}" var="count">
    INSERT INTO Employees VALUES (104, 2, 'Nuha', 'Ali');
</sql:update>

<sql:query dataSource="${snapshot}" var="result">
    SELECT * from Employees;
</sql:query>

<table border="1" width="100%">
<tr>
<th>Emp ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Age</th>
</tr>
<c:forEach var="row" items="${result.rows}">
<tr>
<td><c:out value="${row.id}"/></td>
<td><c:out value="${row.first}"/></td>
<td><c:out value="${row.last}"/></td>
<td><c:out value="${row.age}"/></td>
</tr>
</c:forEach>
</table>

</body>
</html>
```

Now try to access above JSP, which should display the following result:

Emp ID	First Name	Last Name	Age
100	Zara	Ali	18

Ví dụ 9. Sử dụng câu lệnh **param** kết hợp với **update**: Tham số

```
<%@ page import="java.io.*,java.util.*,java.sql.*"%>
<%@ page import="javax.servlet.http.*,javax.servlet.*" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql"%>

<html>
<head>
<title>JSTL sql:param Tag</title>
</head>
<body>

<sql:setDataSource var="snapshot" driver="com.mysql.jdbc.Driver"
    url="jdbc:mysql://localhost/TEST"
    user="root" password="pass123"/>

<c:set var="empId" value="103"/>

<sql:update dataSource="${snapshot}" var="count">
    DELETE FROM Employees WHERE Id = ?
    <sql:param value="${empId}" />
</sql:update>

<sql:query dataSource="${snapshot}" var="result">
    SELECT * from Employees;
</sql:query>

<table border="1" width="100%">
<tr>
<th>Emp ID</th>
<th>First Name</th>
<th>Last Name</th>
<th>Age</th>
</tr>
<c:forEach var="row" items="${result.rows}">
<tr>
<td><c:out value="${row.id}"/></td>
<td><c:out value="${row.first}"/></td>
<td><c:out value="${row.last}"/></td>
<td><c:out value="${row.age}"/></td>
</tr>
</c:forEach>
</table>

</body>
</html>
```

Ví dụ 10. Sử dụng phương thức **contains()** kiểm tra chuỗi a có chứa chuỗi b.

```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/functions" prefix="fn" %>
<html>
<head>
<title>Using JSTL Functions</title>
</head>
<body>

<c:set var="theString" value="I am a test String"/>

<c:if test="${fn:contains(theString, 'test')}">
    <p>Found test string<p>
</c:if>

<c:if test="${fn:contains(theString, 'TEST')}">
    <p>Found TEST string<p>
</c:if>

</body>
</html>
```

This would produce following result:

Found test string

Ví dụ 11. Sử dụng phương thức **length()** lấy kích thước của một chuỗi

```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/functions" prefix="fn" %>
<html>
<head>
<title>Using JSTL Functions</title>
</head>
<body>

<c:set var="string1" value="This is first String."/>
<c:set var="string2" value="This is second String." />

<p>Length of String (1) : ${fn:length(string1)}</p>
<p>Length of String (2) : ${fn:length(string2)}</p>

</body>
</html>
```

This would produce following result:

Length of String (1) : 21
Length of String (2) : 22

2. BÀI TẬP

Bài 1. Làm lại một số ví dụ minh họa trong phần hướng dẫn để hiểu nội dung bài học. Yêu cầu như sau:

- **Phần Core Library:** 5 ví dụ
- **Phần Function Library:** 2 ví dụ
- **Phần SQL Library:** Không cần làm (Áp dụng trong bài tập 2)

Bài 2. Cho trước cỡ dữ liệu (file *.sql) và mã nguồn website. Yêu cầu sinh viên viết JSTL (100% JSTL kết hợp với html, không dùng Java code) để hiển thị nội dung như hình sau.

STT	Tên	Tuổi	Email	Người nước ngoài	Tên có chữ M
16	Mai Ngoc Thang	30	mnthang@it.tdt.edu.vn	<input type="checkbox"/>	May mắn
17	Au Mau Duong	24	amduong@it.tdt.edu.vn	<input type="checkbox"/>	May mắn
18	Johnny Depp	36	johnnydepp@it.tdt.edu.vn	<input checked="" type="checkbox"/>	
19	Brad Pitt	34	bradpitt@it.tdt.edu.vn	<input checked="" type="checkbox"/>	
20	Vo Hoang Anh	27	vhanh@it.tdt.edu.vn	<input type="checkbox"/>	
21	Nguyen Chi Thien	30	ncthien@it.tdt.edu.vn	<input type="checkbox"/>	

Sinh viên cần thêm các thư viện *.jar của JSTL và JDBC vào thư mục WEB-INF/lib.