

DEZVOLTAREA APLICATIILOR WEB

CURS 5

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- suport (The Java EE 5Tutorial)
 - Capitolul 7 – JavaServer Pages Standard Tag Library

- O multime de taguri standard
 - flow control
 - manipularea documentelor XML
 - internationalizare
 - accesarea bazelor de date prin SQL
 - functii comune utilitare

- Librarii de taguri identificate prin URI:
 - **Core:** <http://java.sun.com/jsp/jstl/core>
 - **XML:** <http://java.sun.com/jsp/jstl/xml>
 - **Internationalization:** <http://java.sun.com/jsp/jstl/fmt>
 - **SQL:** <http://java.sun.com/jsp/jstl/sql>
 - **Functions:** <http://java.sun.com/jsp/jstl/functions>

Area	Subfunction	Prefix
Core	Variable support Flow control	URL management Miscellaneous c
XML	Core Flow control	Transformation x
I18N	Locale Number and date formatting	Message formatting fmt
Database	SQL	sql
Functions	Collection length	String manipulation fn

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

- implicit: imbricare
- explicit: expunere informatii
 - atribut `var`
 - EL – folosire `<jsp:userBean>`

```
<c:set var="bookId" value="{param.Remove}"/>
<jsp:useBean id="bookId" type="java.lang.String" />
<% cart.remove(bookId); %>
<sql:query var="books" dataSource="{applicationScope.bookDS}">
    select * from PUBLIC.books where id = ?
    <sql:param value="{bookId}" />
</sql:query>
```

Area	Function	Tags	Prefix
Core	Variable support	remove set	c
Core	Flow control	choose when otherwise forEach forTokens if	c
Core	URL management	import param redirect param url param	c
Core	Miscellaneous	catch out	c

➤ Variable support

```
<c:set var="foo" scope="session" value="..."/>  
// or  
<c:set var="foo">  
...  
</c:set>
```

```
<c:set var="bookId" value="{param.Remove}"/>  
  
<c:remove var="cart" scope="session"/>
```

➤ Flow Control

```
<%  
Iterator i = cart.getItems().iterator();  
while (i.hasNext()) {  
    ShoppingCartItem item = (ShoppingCartItem)i.next();  
    ...  
%>  
<tr>  
<td align="right" bgcolor="#ffffff">  
    ${item.quantity}  
</td>  
...  
<%  
}  
%>
```

```
<%!  
public void jspDestroy() {  
    bookDBAO = null;}  
%>
```


➤ Flow Control

➤ Conditional Tags

```
<c:if test="${!empty param.Add}">
  <c:set var="bid" value="${param.Add}" />
  <jsp:useBean id="bid" type="java.lang.String" />
  <sql:query var="books" dataSource="${applicationScope.bookDS}">
    select * from PUBLIC.books where id = ?
    <sql:param value="${bid}" />
  </sql:query>
  <c:forEach var="bookRow" begin="0" items="${books.rows}">
    <jsp:useBean id="bookRow" type="java.util.Map" />
    <jsp:useBean id="addedBook" class="database.Book" scope="page" />
    ...
    <% cart.add(bid, addedBook); %>
    ...
  </c:forEach>
</c:if>
```

➤ Flow Control

➤ Conditional Tags

```
<c:choose>
  <c:when test="\${customer.category == 'trial'}" >
    ...
  </c:when>
  <c:when test="\${customer.category == 'member'}" >
    ...
  </c:when>
  <c:when test="\${customer.category == 'preferred'}" >
    ...
  </c:when>
  <c:otherwise>
    ...
  </c:otherwise>
</c:choose>
```

```
<c:choose>
  <c:when test="\${count == 0}" >
    No records matched your selection.
  </c:when>
  <c:otherwise>
    \${count} records matched your selection.
  </c:otherwise>
</c:choose>
```

➤ Flow Control

➤ Iterator Tags: forEach, forTokens

- implementari ale java.util.Collection sau ale java.util.Map (perechi key/value)
- array de obiecte sau primitive
- implementari ale java.util.Iterator sau java.util.Enumeration

```
<c:forEach var="item" items="${sessionScope.cart.items}">
  ...
  <tr>
    <td align="right" bgcolor="#ffffff">
      ${item.quantity}
    </td>
  ...
</c:forEach>
```

➤ URL Management

➤ import, redirect, url

```
<acme:transform>  
  <jsp:include page="/exec/employeesList"/>  
</acme:transform/>
```

vs

```
<c:import url="/books.xml" var="xml" />  
<x:parse doc="${xml}" var="booklist" scope="application" />
```

```
<c:url var="url" value="/catalog" >  
  <c:param name="Add" value="${bookId}" />  
</c:url>  
<p><strong><a href="${url}">
```

➤ Miscellaneous

➤ out, catch

```
<c:out value="value"  
  [escapeXml="{true|false}"]  
  [default="defaultValue"] />
```

Character

Character Entity Code

<	<
>	>
&	&
'	'
"	"

Area	Function	Tags	Prefix
XML	Core	out parse set	x
XML	Flow control	choose when if	x
XML	Transformation	transform param	x

➤ Xpath

- **scoped objects:** \$param, \$header, \$cookie, \$initParam, \$pageScope, \$requestScope, \$sessionScope, \$applicationScope

➤ Core

➤ out, parse, set

```
<c:if test="${applicationScope:booklist == null}" >  
  <c:import url="${initParam.booksURL}" var="xml" />  
  <x:parse doc="${xml}" var="booklist" scope="application" />  
</c:if>
```

```
<x:set var="abook"  
  select="$applicationScope.booklist/books/book[@id=$param:bookId]" />  
<h2><x:out select="$abook/title"/></h2>
```

```
<c:set var="price">  
  <x:out select="$abook/price"/>  
</c:set>  
<h4><fmt:message key="ItemPrice"/>:  
  <fmt:formatNumber value="${price}" type="currency"/>
```

vs

```
<x:set var="price" select="string($abook/price)"/>
```

```

<x:forEach var="book" select="$applicationScope:booklist/books/*">
<tr>
    <c:set var="bookId">
        <x:out select="$book/@id"/>
    </c:set>
    <td bgcolor="#ffffaa">
    <c:url var="url" value="/bookdetails" >
        <c:param name="bookId" value="{bookId}" />
        <c:param name="Clear" value="0" />
    </c:url>
    <a href="{url}"><strong><x:out select="$book/title"/>&nbsp;</strong></a>
    </td>
    <td bgcolor="#ffffaa" rowspan="2">
    <c:set var="price">
        <x:out select="$book/price"/>
    </c:set>
    <fmt:formatNumber value="{price}" type="currency"/>&nbsp;</td>
    <td bgcolor="#ffffaa" rowspan=2>
    <c:url var="url" value="/catalog" >
        <c:param name="Add" value="{bookId}" />
    </c:url>
    <p><strong><a href="{url}">&nbsp;<fmt:message key="CartAdd"/>&nbsp;</a>
    </td>
</tr>
<tr>
    <td bgcolor="#ffffff">
    &nbsp;&nbsp;<fmt:message key="By"/> <em>
    <x:out select="$book/firstname"/>&nbsp;
    <x:out select="$book/surname"/></em></td>
</tr>
</x:forEach>

```


➤ Transformation

➤ transform

➤ aplica o transformare XSLT (`xslt`) asupra documentului XML (`doc`)

➤ books.xml

```
<?xml version="1.0" encoding="UTF-8" ?>
<books>
  <book>
    <name>Padam History</name>
    <author>ZARA</author>
    <price>100</price>
  </book>

  <book>
    <name>Great Mistry</name>
    <author>NUHA</author>
    <price>2000</price>
  </book>
</books>
```

➤ style.xml

```
<?xml version = "1.0"?>
<xsl:stylesheet xmlns:xsl = "http://www.w3.org/1999/XSL/Transform" version = "1.0">

<xsl:output method = "html" indent = "yes"/>
  <xsl:template match = "/">
    <html>
      <body>
        <xsl:apply-templates/>
      </body>
    </html>
  </xsl:template>

  <xsl:template match = "books">
    <table border = "1" width = "100%">
      <xsl:for-each select = "book">
        <tr>
          <td>
            <i><xsl:value-of select = "name"/></i>
          </td>

          <td>
            <xsl:value-of select = "author"/>
          </td>

          <td>
            <xsl:value-of select = "price"/>
          </td>
        </tr>
      </xsl:for-each>
    </table>
  </xsl:template>

</xsl:stylesheet>
```

➤ transform.jsp

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

<html>
  <head>
    <title>JSTL x:transform Tags</title>
  </head>

  <body>
    <h3>Books Info:</h3>
    <c:import url="http://localhost:8080/books.xml" var="xmltext" />
    <c:import url = "http://localhost:8080/style.xsl" var="xslt"/>
    <x:transform xml="${xmltext}" xslt="${xslt}"/>
  </body>
</html>
```

➤ Output in browser

Books Info:

<i>Padam History</i>	
ZARA	100
<i>Great Mistry</i>	
NUHA	2000



Area	Function	Tags	Prefix
I18N	Setting Locale	setLocale requestEncoding	fmt
I18N	Messaging	bundle message param setBundle	fmt
I18N	Number and Date Formatting	formatNumber formatDate parseDate parseNumber setTimeZone timeZone	fmt

- Setting Locale: localizare, character encoding
- Messaging: mesaje internationalizate
- Number and Date Formatting: formatari de date sau monede specifice localizarii

```
<jsp:useBean id="now" class="java.util.Date" />
<jsp:setProperty name="now" property="time" value="\${now.time +
432000000}" />
<fmt:message key="ShipDate"/>
<fmt:formatDate value="\${now}" type="date" dateStyle="full"/>.
```

LIBRARIA DE TAGURI SQL

Area	Function	Tags	Prefix
Database	Setting the data source	setDataSource	sql
Database	SQL	query dateParam param transaction update dateParam param	sql

```
<sql:setDataSource dataSource="jdbc/BookDB" />

<c:set var="bid" value="${param.Add}"/>
<sql:query var="books" >
    select * from PUBLIC.books where id = ?
    <sql:param value="${bid}" />
</sql:query>
```

```
<c:set var="sufficientInventory" value="true" />
<sql:transaction>
  <c:forEach var="item" items="${sessionScope.cart.items}">
    <c:set var="book" value="${item.item}" />
    <c:set var="bookId" value="${book.bookId}" />
    <sql:query var="books"
      sql="select * from PUBLIC.books where id = ?" >
      <sql:param value="${bookId}" />
    </sql:query>
    <jsp:useBean id="inventory" class="database.BookInventory" />
    <c:forEach var="bookRow" begin="0" items="${books.rowsByIndex}">
      <jsp:useBean id="bookRow" type="java.lang.Object[]" />
      <jsp:setProperty name="inventory" property="quantity"
        value="${bookRow[7]}" />
      <c:if test="${item.quantity > inventory.quantity}">
        <c:set var="sufficientInventory" value="false" />
        <h3><font color="red" size="+2">
          <fmt:message key="OrderError"/>
          There is insufficient inventory for
          <i>${bookRow[3]}</i>.</font></h3>
        </c:if>
      </c:forEach>
    </c:forEach>
    ...
  </sql:transaction>
```

➤ query Tag Result Interface

```
public interface Result

    public String[] getColumnNames();

    public int getRowCount()

    public Map[] getRows();

    public Object[][] getRowsByIndex();

    public boolean isLimitedByMaxRows();
```

```
<c:forEach var="book" begin="0" items="{books.rows}">
    <h2>${book.title}</h2>
    &nbsp;<fmt:message key="By"/> <em>${book.firstname}
    ${book.surname}</em>&nbsp;&nbsp;&nbsp;
    (${book.year})<br> &nbsp;&nbsp;&nbsp; <br>
    <h4><fmt:message key="Critics"/></h4>
    <blockquote>${book.description}</blockquote>
    <h4><fmt:message key="ItemPrice"/>:
    <fmt:formatNumber value="{book.price}" type="currency"/>
    </h4>
</c:forEach>
```

LIBRARIA DE TAGURI FUNCTIONS

Area	Function	Tags	Prefix
Functions	Collection length	length	fn
Functions	String manipulation	toUpperCase, toLowerCase substring, substringAfter, substringBefore trim replace indexOf, startsWith, endsWith, contains, containsIgnoreCase split, join escapeXml	fn

```
...  
<input type="text" name="username" size="25">  
<p></p>  
<input type="submit" value="Submit">  
<input type="reset" value="Reset">  
</form>  
<c:if test="\${fn:length(param.username) > 0}" >  
  <%@include file="response.jsp" %>  
</c:if>
```


- JSTL
- Core
- forEach
- XML
- transform

RESURSE UTILE

- https://education.oracle.com/pls/web_prod-plq-dad/db_pages.getpage?page_id=653&get_params=p_id:187
- <http://freecomputerbooks.com/The-J2EE-Architects-Handbook.html>
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