syj@kwangju.ac.kr

<jsptag>
…
</jsptag>

JSP

+

<MyTag>

<MyTag>
…

JSP

<MyTag>

…

JSP

JSP

$+$

- - - - -

- - - - - -

- - - - - -

(1) /WEB_INF   ⟶   .tld

    /WEB_INF/lib   ⟶

(2) /WEB_INF/web.xml

(3) <%@ taglib …… prefix="MyTag" %>
    <MyTag>

      ……

    </MyTag>

/WEB-INF/web.xml

✍ **web.xml** <taglib>

```
<taglib>
<taglib-uri>
 http://{tag library                                }/taglibs/{library}
</ taglib-uri>
<taglib-location>/WEB_INF/{                                              }
</taglib-location>
</taglib>
```

✍

```
<taglib>
    <taglib-uri>http://java.sun.com/jstl/core</taglib-uri>
    <taglib-location>/WEB-INF/c.tld</taglib-location>
  </taglib>
```

jsp

- **taglib**

```
<%@ taglib uri="http://{tag library                      }
    /taglibs/{library}"
    prefix="tagPrefix" %>
```

-

```
<%@ taglib uri="http://contactjsp.com/bar-1.0" prefix="bar" %>
```

jsp

- **Tag**   :
  <tagPrefix: ="   " …/>

- **Tag**   :
  <tagPrefix: ="   " …>
       .
  </tagPrefix: >

<bar:Hbar values="7,4,12" fgcolor="#0000FF" width="220"
 labels="Orange, Apple, Pear" bgcolor="#00FF00" />

✎

- —
    - JSP
    -
    - TLD(Tag Library Description)
    - TLD　　　　　　web.xml
- —

    - <%@ taglib url="tagLibraryURI" prefix="tagPrefix%>
- helloTag.jsp

```
 …………
7 <%@ taglib uri="http://honey.kwangju.ac.kr/~syj" prefix="ssu" %>
8 <ssu:hello>  </ssu:hello>

 …………
```

- **HelloTag.java**
  - **<JAKARTA>/classes**

- **TLD**
  - **Http://java.sun.com/dtd/web-jsptaglil**
  - **taglib, tlib-version, jsp-version, short-name, uri, display-name, smail-icon, large-icon, description, validator, validator-class, init-param, param-name, param-value, listener, listener-class, tag, name, tag-class, body-content, variable, attribute, name-given, name-from-attribute, variable-class, declare, scope, required, rtexprvalue, type (p402)**

tlib-version
jsp-version
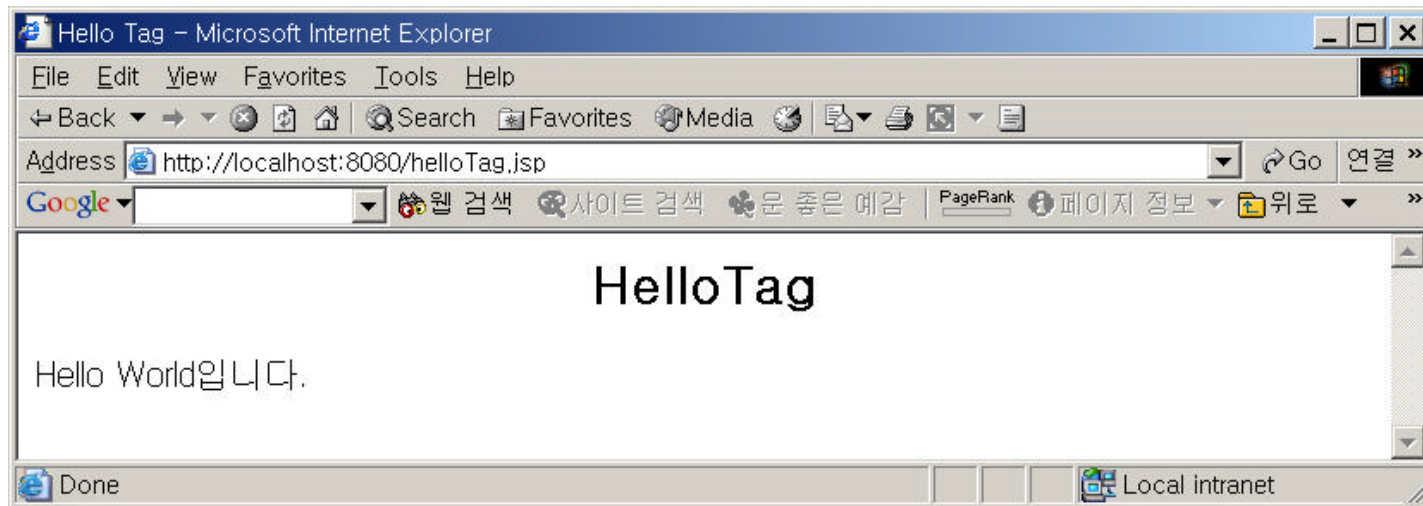short-name
uri
display-name
small-icon
large-icon
description
validator ⊞
listener ⊞
0..∞

taglib ⊟ ⟨...⟩

name
tag-class
tei-class
body-content
display-name
small-icon
large-icon
description
variable ⊞
0..∞
attribute ⊞
0..∞
example

tag ⊟ ⟨...⟩
1..∞
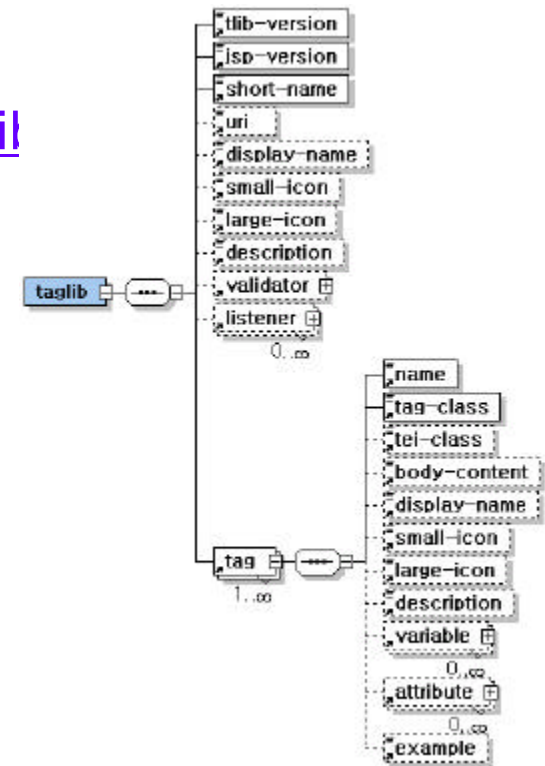
– **tablib.tld**
  - **HelloTag**　　　　　　　　　　　　　　　　**TLD**　　**.**
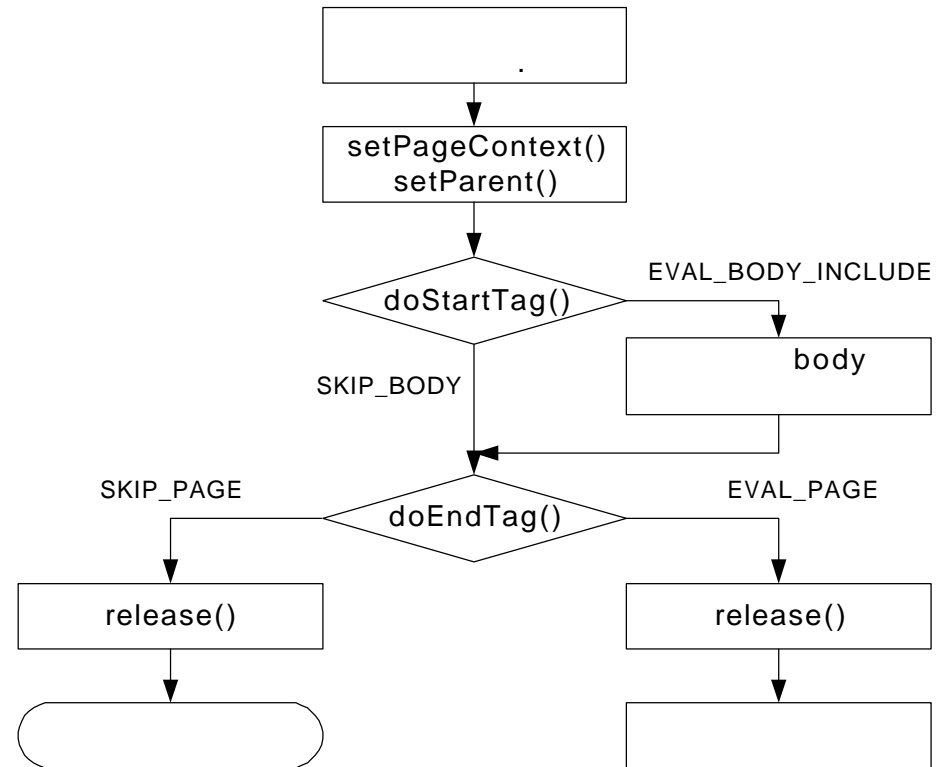– **web.xml**
  - **taglib.tld**　　　　　**/WEB-INF**
    -

✎Tag

- int doEndTag()
- int doStartTag()
- Tag getParent()
- void release()
- void setPageContext (PageContext pc)
- void setParent(Tag t)

- static int EVAL_BODY_INCLUDE
- static int EVLA_PAGE

```
┌─────────────────┐
│        .        │
└────────┬────────┘
         ▼
┌─────────────────┐
│ setPageContext()│
│   setParent()   │
└────────┬────────┘
         ▼
      ◇ doStartTag() ◇ ──EVAL_BODY_INCLUDE──▶ ┌──────┐
         │                                    │ body │
     SKIP_BODY                                └──┬───┘
         ▼                                       │
      ◇ doEndTag() ◇◀───────────────────────────┘
  SKIP_PAGE  │  EVAL_PAGE
      ▼               ▼
 ┌─────────┐    ┌─────────┐
 │release()│    │release()│
 └────┬────┘    └────┬────┘
      ▼              ▼
 (       )      ┌─────────┐
                └─────────┘
```

- **static int SKIP_BODY**
- **static int SKIP_PAGE**

✍BodyTag

–

- **int doAfterBody()**
- **void doInitBody()**
- **void setBodyContent (BodyContent b)**

✍TagSupport

–

```
┌─────────────┐                    EVAL_BODY_TAG
│      .      │─────────────┐
└─────────────┘             │
       │                    ▼
┌─────────────┐      ┌─────────────────┐
│setPageContext()│   │ setBodyContent()│
│ setParent() │      │  setInitBody()  │
└─────────────┘      └─────────────────┘
       │                    │
       ▼                    ▼
  ◇doStartTag()◇      ┌─────────────┐
                      │    body     │◄──┐
   SKIP_BODY          └─────────────┘   │
       │                    │           │
       │                    ▼           │
       │              ◇doAfterBody()◇   │
       │         SKIP_BODY   │  EVAL_BODY_TAG
       ▼◄───────────────────┘
  ◇doEndTag()◇
SKIP_PAGE      EVAL_PAGE
   │               │
   ▼               ▼
┌─────────┐    ┌─────────┐
│release()│    │release()│
└─────────┘    └─────────┘
   │               │
   ▼               ▼
( _____ )     ┌─────────┐
               └─────────┘
```
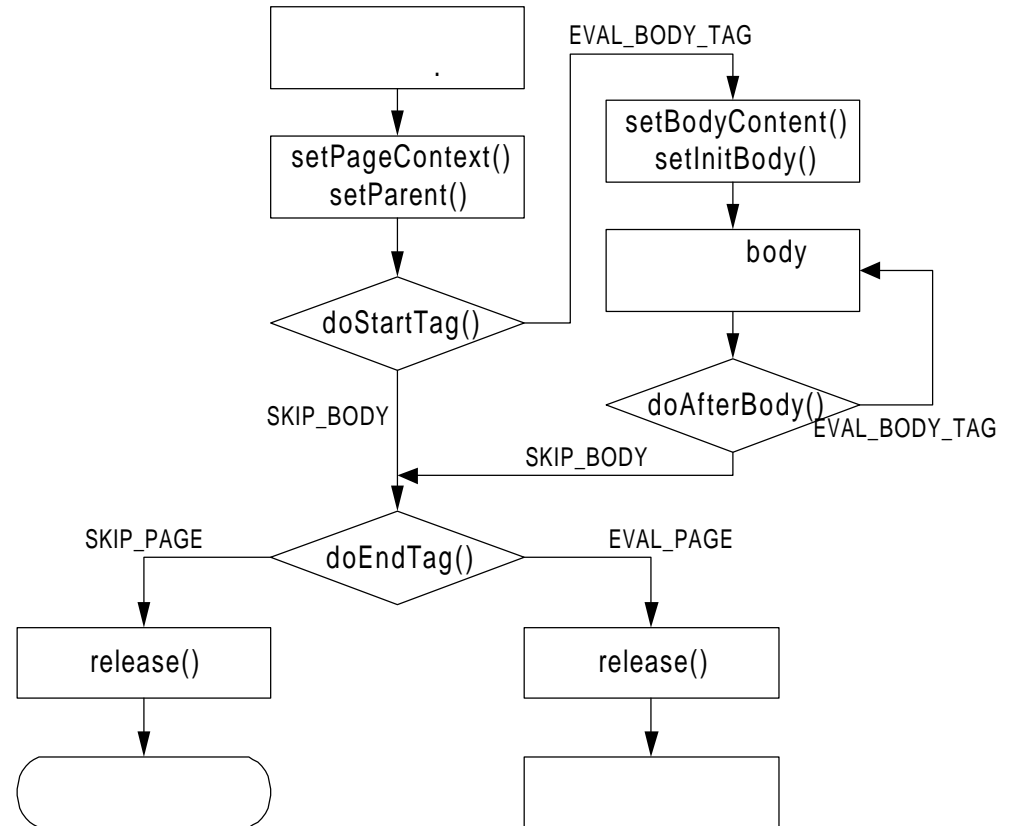
- int doEndTag()
- static Tag findAncestorWithClass(Tag from, Class klass)
- Tag getParent()
- String getTagId()
- Object getValue(String k)

✍BodyTagSupport

–

- int doAfterBody()
- void doInitBody()
- BodyContent getBodyContent()
- JspWriter getPreviousOut()
- void setBodyContent(BodyContent b)

✍BodyContent

-

- void clearBody()
- void flush()
- JspWriter getEnclosingWriter()
- abstract Reader getReader()
- abstract String getString()
- abstract void writeOut(Writer out)

web.xml

```xml
<?xml version="1.0" encoding="ISO-8859-1"?>
<!DOCTYPE web-app PUBLIC "-//Sun Microsystems, Inc.//DTD Web
    Application 2.2//EN"
  "http://java.sun.com/j2ee/dtds/web-app_2_2.dtd">
<web-app>
<taglib>
  <taglib-uri>http://jakarta.apache.org/taglibs/datetime-1.0</taglib-uri>
  <taglib-location>/WEB-INF/datetime.tld</taglib-location>
 </taglib>
<taglib>
  <taglib-uri>http://contactjsp.com/bar-1.0</taglib-uri>
  <taglib-location>/WEB-INF/taglib5.tld</taglib-location>
 </taglib>
 <taglib>
  <taglib-uri>http://contactjsp.com/custom-taglib</taglib-uri>
  <taglib-location>/WEB-INF/contact-taglib.tld</taglib-location>
 </taglib>
</web-app>
```

tagbar.tld

```xml
<?xml version="1.0" encoding="ISO-8859-1" ?>
<!DOCTYPE taglib PUBLIC "-//Sun Microsystems, Inc.//DTD JSP Tag Library
    1.1//EN" "http://java.sun.com/j2ee/dtds/web-jsptaglibrary_1_1.dtd">

<taglib>
<tlibversion>1.2</tlibversion>
<jspversion>1.1</jspversion>
<shortname>Bar</shortname>
<uri>http://coldjava.hypermart.net/servlets/bar</uri>
<info>Bar charts</info>

<tag>
<name>Hbar</name>
<tagclass>com.cj.bar.Hbar</tagclass>
<bodycontent>empty</bodycontent>
<info>Horizontal bar</info>

<attribute>
<name>width</name>
<required>false</required>
<rtexprvalue>true</rtexprvalue>
</attribute>
```

tagbar.tld

```
<attribute>
<name>values</name>
<required>true</required>
<rtexprvalue>true</rtexprvalue>
</attribute>

<attribute>
<name>labels</name>
<required>false</required>
<rtexprvalue>true</rtexprvalue>
</attribute>

</tag>
</taglib>
```

bar.jsp

```
<%@ page contentType="text/html; charset=euc-kr" %>

<%@ taglib uri="http://contactjsp.com/bar-1.0" prefix="bar" %>

<br><bar:Hbar values="7,4,12" fgcolor="#0000FF" width="220"
    labels="Orange, Apple, Pear" bgcolor="#00FF00" />
```

- http://jakarta.apache.org/taglibs/index.html
- http://java.sun.com/webservices/docs/1.0/api/javax/servlet/jsp/package- tree.html

JSTL

- ✎ JSTL
  - http://jakarta.apache.org/builds/jakarta-taglibs/releases/standard/
    - standard- doc.war :
    - standard- examples.war : JSTL
- ✎
  - JSP
    - <%= pageContext.getAttribute("a").getFoo() %>
  - JSTL
    - <c:out value="${a.foo}"/>

JSTL

- +, - , *, %, mod, div

- ==, !=, <, >, <=, eq, ne, lt, gt, le, ge

- &&, ||, !, and, or, not

- Empty

✍

—

- <catch>, <out>, <remove>, <set>

—

- <choose>, <when>, <otherwise>, <forEach>, <forTokens>, <if>

- URL
  - <import>, <param>, <redirect>, <url>
- if.jsp

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

```
6   <c:if test="${2 > 1}">

7      <c:out value="2 > 1"/>

  …………

10 <c:if test="${2 == 1}">

11 <c:out value="2 == 1"/>

  …………
```
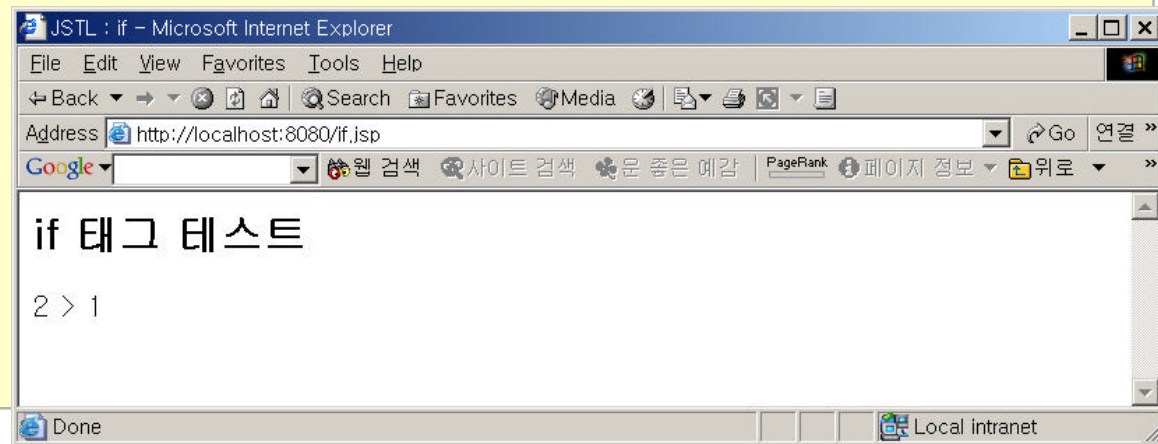
if 태그 테스트

2 > 1

– <c:out>

  •

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

  •

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

- <c:set>
  - <c:set value="value" var="varName" [scope="{page|request|session|application}"] />
- <c:remove>
  - <c:remove var="varName" [scope="{page|request|session|application}"] />
- <c:catch>
  - <c:catch [var="varName"]>nested actions </c:catch>

- \<c:if\>
  -
    - \<c:if test="testCondition" var="varName" [scope="{page|request|session|application}"] /\>
  -
    - \<c:if test="testCondition" [var="varName"] [scope="{page|request|session|application}"]\>
      body content \</c:if\>
- \<c:choose\>, \<c:when\>, \<c:otherwise\>
  - \<c:choose\>
    - \<c:choose\>
      body content (\<when\> and \<otherwise\> subtags)
      \</c:choose\>

- **<c:when>**
  - <c:when test="testCondition">body content </c:when>
- **<c:otherwise>**
  - <c:otherwise>conditional block </c:otherwise>

- **<c:forEach>**
  -
    - <c:forEach [var="varName"] items="collection" [varStatus="varStatusName"] [begin="begin"] [end="end"] [step="step"]>body content </c:forEach>
  -
    - <c:forEach[var="varName"][varStatus="varStatusName"] begin="begin" end="end" [step="step"]>body content </c:forEach>

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

3   <%@ taglib prefix="fmt" uri="http://java.sun.com/jstl/fmt" %>

4   <fmt:requestEncoding value="KSC5601"/>

    …………

8   <c:forEach var="h" items="${header}">

9     <li> <c:out value="${h.key}"/> :

10     <c:out value="${h.value}" />

    …………
```
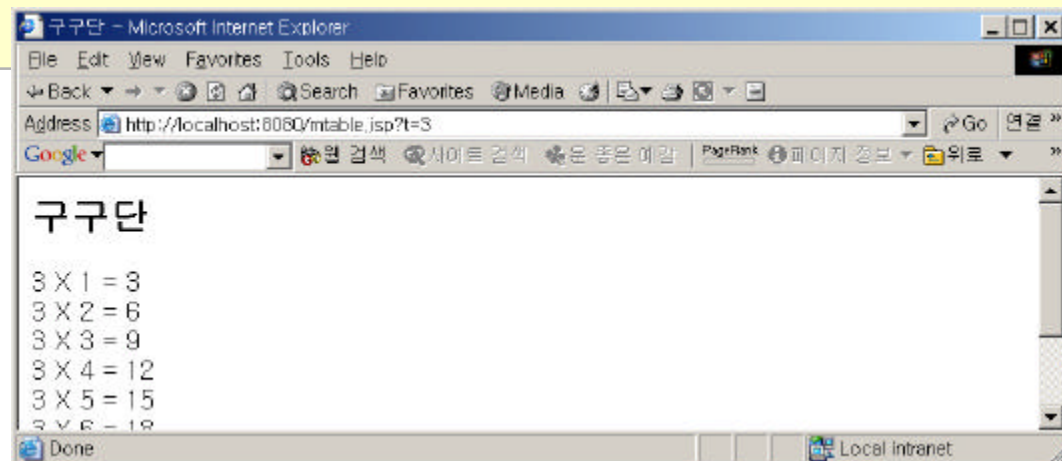

헤더 정보들 - Microsoft Internet Explorer

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Address 🔍 http://localhost:8080/headers.jsp

헤더 정보들

- connection : Keep-Alive
- accept-language : ko
- authorization : Basic aG9uZZox MjM0
- host : localhost:8080
- accept-encoding : gzip, deflate

Done   Local intranet

```
      …………
8    <c:set var="t" value="${param.t}"/>

9    <c:if test="${empty t}">

10    <c:set var="t" value="5"/>

      …………

12  <c:forEach var="a" begin="1" end="9" step="1">

      …………

14    <c:out value="${a * t}"/> <br>

      …………
```


구구단 – Microsoft Internet Explorer

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Address ⓐ http://localhost:8080/mtable.jsp?t=3 ▾ ◈Go 연결 »

Google ▾ [   ] ▾ ◈웹 검색 ◈사이트 검색 ◈윤 좋은 예감 | PageRank ◎페이지 정보 ▾ ◈위로 ▾ »

구구단

3 X 1 = 3
3 X 2 = 6
3 X 3 = 9
3 X 4 = 12
3 X 5 = 15
3 X 6 = 18

Done   Local intranet

- <c:forTokens>
  -      ,   .
    - <c:forTokens items="stringOfTokens"
       delims="delimiters" [var="varName"]
      varStatus="varStatusName"][begin="begin"] [end="end"]
      [step="step"]>body content</c:forEach>

- <c:import>
  - Reader
    - <c:import url="url" [context="context"] [var="varName"]
      [scope="{page|request|session|application}"]
      [charEncoding="charEncoding"]>
      optional body content for <c:param> subtags </c:import>

- Reader
  - <c:import url="url" [context="context"] varReader="varReaderName" [charEncoding="charEncoding"]>body content where varReader is consumed by another action </c:import>
- <c:url>
  -
    - <c:url value="value" [context="context"] [var="varName"] scope="{page|request|session|application}"] />
  -
    - <c:url value="value" [context="context"] var="varName"] [scope="{page|request|session|application}"]> <c:param> subtags </c:url>

- <c:redirect>
  -
    - <c:redirect url="value" [context="context"] />
  -
    - <c:redirect url="value" [context="context"] />
      <c:param> subtags </c:redirect>
- <c:param>
  -
    - <c:param name="name" value="value"/>
  -
    - <c:param name="name">parameter value </c:param>

```
    …………
2  <script language="JavaScript" src="check.js">

    …………

6  if(!isID(form.id)) {
7    alert("ID                    .");
8    return false;

    …………

10  if(!isSame(form.password, form.password2)) {
11    alert("                          .");

    …………

22  return true;

    …………
```
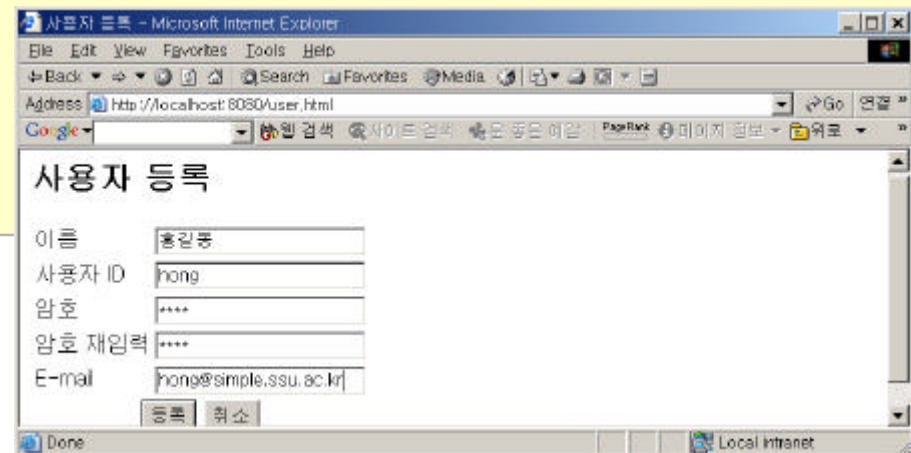
```
............
7  <c:out value="${param.id}"/>
8  <c:out value="${param.password}" />

............
```
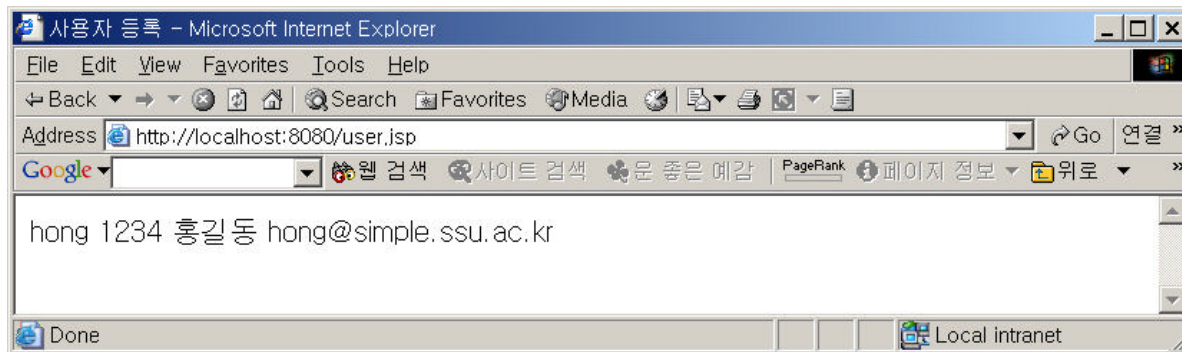

- User.java
  -

```
..........
2  <%@ page import="User" %>
..........
6  <jsp:useBean id="user" class="User"/>
..........
7  <jsp:setProperty name="user" property="*"/>
..........
10 <li><c:out value="${user.id}"/>
..........
```

– user3.html

•

• 3.j...

```
…………
6  <jsp:useBean id="user" class="User"  scope="application"/>
…………
```
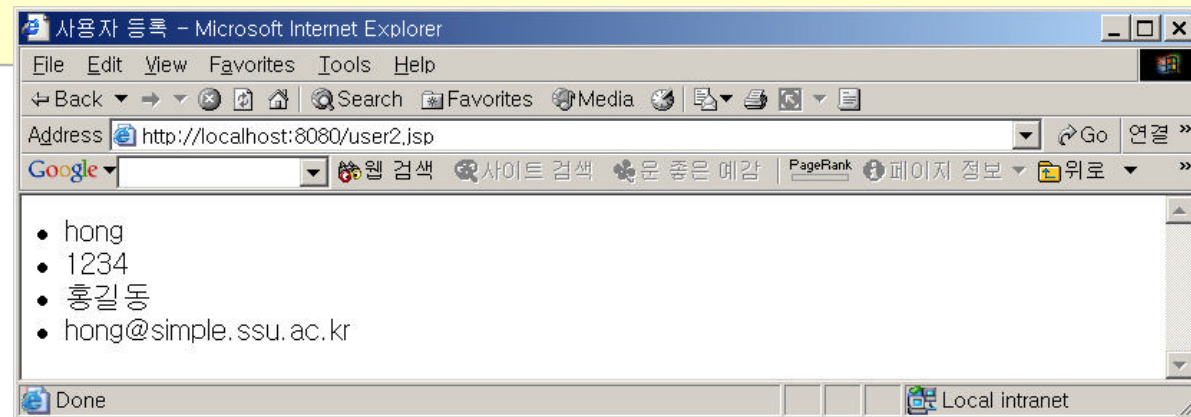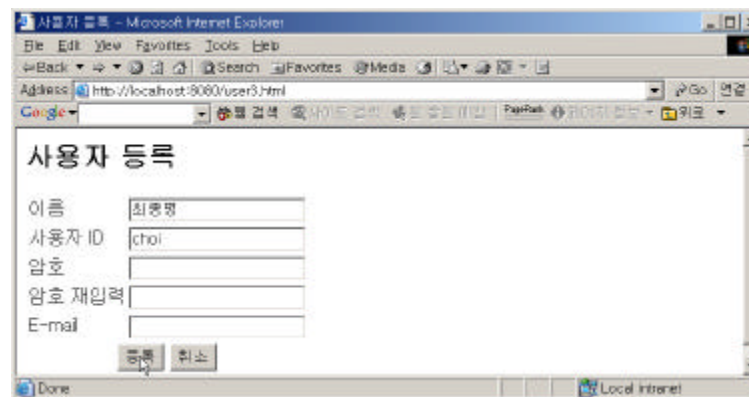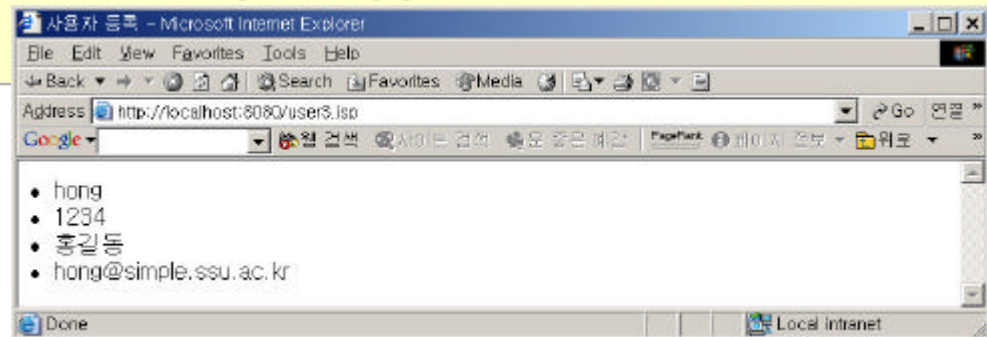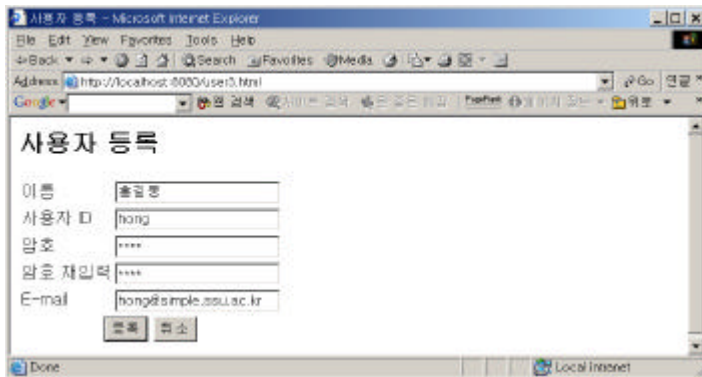
✍I18N

- <fmt:requestEncoding>
  - <fmt:requestEncoding [value="charsetName"] />

✍SQL

- <sql:query>
  -
    - <sql:query sql="sqlQuery" var="varName"
      [scope="{page|request|session|application}"]
      [dataSource="dataSource"] [maxRows="maxRows"]
      [startRow="startRow"] />

-
  - <sql:query sql="sqlQuery" var="varName" [scope="{page|request|session|application}"] [dataSource="dataSource"] [maxRows="maxRows"] [startRow="startRow"]> <sql:param> actions </sql:query>
-        SQL
  - <sql:query var="varName" [scope="{page|request|session|application}"] [dataSource="dataSource"] [maxRows="maxRows"] [startRow="startRow"]>query optional <sql:param> actions </sql:query>
  - <sql:update>
    -

- <sql:update sql="sqlUpdate" [dataSource="dataSource"]
  [var="varName"]
  [scope="{page|request|session|application}"] />

•

- <sql:update sql="sqlUpdate" [dataSource="dataSource"]
  [var="varName"]
  scope="{page|request|session|application}"] > <sql:param>
  actions </sql:update>

•   SQL

- <sql:update [dataSource="dataSource"] [var="varName"]
  [scope="{page|request|session|application}"] >
  update statement optional <sql:param>
  actions </sql:update>

- <sql:transaction>
  - <sql:query>, <sql:update>
    - <sql:transaction [dataSource="dataSource"]
      [isolation=isolationLevel]>
      <sql:query> and <sql:update> statements</sql:transaction>
- <sql:setDataSource>
  - JDBC .
    - <sql:setDataSource {dataSource="dataSource" |
      url="jdbcUrl" [driver="driverClassName"] [user="userName"]
      [password="password"]} [var="varName"]
      [scope="{page|request|session|application}"] />
- <sql:param>

- •
  - <sql:param value="value"/>
- •
  - <sql:param>parameter value </sql:param>
- <sql:dataParam>
  - •
    - <sql:dateParam value="value"
      type="[timestamp|time|date] "/>
- SQL
  - greader2.jsp

```
…………
2   <%@ taglib prefix="c" uri="http://java.sun.com/jstl/core" %>
3   <%@ taglib prefix="sql" uri="http://java.sun.com/jstl/sql" %>
…………
```
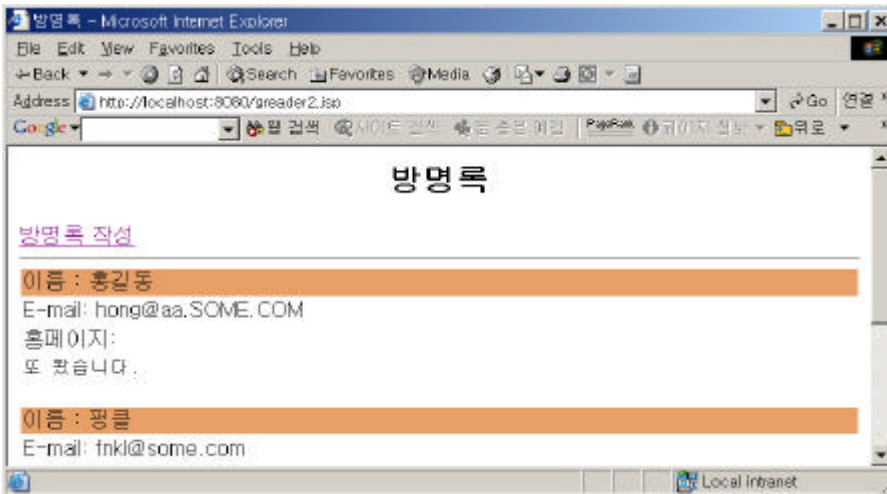
```
5   <sql:setDataSource var="ds"
6   driver="org.gjt.mm.mysql.Driver"
7   url="jdbc:mysql://localhost/gbook?useUnicode=true&
      characterEncoding=KSC5601"/>
   …………
9   <sql:query dataSource="${ds}" var="rs"
10   maxRows="2" startRow="${param.start}">
11   select * from book order by num desc
12 </sql:query>
   …………
20 <c:forEach var="row" items="${rs.rows}">
21 <tr bgcolor="e7a068"><td>      : <c:out value="${row.name}"/>
   …………
29 <c:set var="last" value="${row.num}"/>
   …………
```

···········

35 <c:if test="${last > 1}">

36 <td><a href=greader2.jsp?start=<c:out value="${last}"/>>

···········

- <x:parser>
  -
    - <x:parse xml="XMLDocument" {var="var" [scope="scope"]|varDom="var" [scopeDom="scope"]} [systemId="systemId"] [filter="filter"] />
  -
    - <x:parse {var="var" [scope="scope"]|varDom="var" [scopeDom="scope"]} [systemId="systemId"] [filter="filter"]> XML Document to parse </x:parse>
- <x:out>
  - Xpath   JspWriter   .
    - <x:out select="XPathExpression" [escapeXml="{true|false}"] />

- <x:set>
  - XPath   ,
    - <x:set select="XPathExpression" var="varName" [scope="{page|request|session|application}"] />
- <x:if>
  - select
    - <x:if select="PathExpression" [var="varName"] [scope="{page|request|session|application}"]> body content </x:if>
- <x:choose>, <x:when>, <x:otherwise>
  - <x:choose>
    - <x:choose>body content (<x:when> and <x:otherwise> subtags) </x:choose>

- <x:when>
  - <x:when select="XPathExpression"> body content </x:when>
- <x:otherwise>
  - <x:otherwise> conditional block </x:otherwise>
- <x:forEach>
  - XPath   XPath   .
    - <x:forEach [var="varName"] select="XPathExpression"> body content </x:forEach>
- <x:transform>
  -

- <x:transform xml="XMLDocument" xslt="XSLTStylesheet" [xmlSystemId="XMLSystemId"] [xsltSystemId="XSLTSystemId"] [{var="varName"[scope="scopeName"] |result="resultObject"}]

•

- <x:transform xml="XMLDocument" xslt="XSLTStylesheet" [xmlSystemId="XMLSystemId"] [xsltSystemId="XSLTSystemId"] [{var="varName"[scope="scopeName"] |result="resultObject"}] <x:param> actions </x:transform>

• XML

- <x:transform xslt="XSLTStylesheet" xmlSystemId="XMLSystemId" xsltSystemId="XSLTSystemId" [{var="varName" [scope="scopeName"]|result="resultObject"}] XML Document to parse optional <x:param> actions </x:parse>

- \<x:param\>
  - •
    - \<x:param name="name" value="value"/\>
  - •
    - \<x:param name="name"\> *parameter value* \</x:param\>

  -

  - Hello- xml.jsp

```
 …………
3  <%@ taglib prefix="x" uri="http://java.sun.com/jstl/xml" %>
 …………
9  <c:set var="xml">
10 <greeting>
11             .
 …………
```

12 </greeting>

13 </c:set>

…………

15 <x:parse var="p" xml="${xml}" />

16 <x:out select="$p/greeting"/>

…………