Java EE 7 Web
使用標籤函式庫開發JSP

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課程大綱

1) **標籤函式庫**
   - **自訂標籤函式庫**
   - 標準標籤函式庫 Java Server Pages Standard Tag Library (JSTL)
2) JSP中使用標籤函式庫
3) Soccer 範例

標籤函式庫

- 使用標籤函式庫替代JSP中scripting元素
  - 消除JSP網頁中包含的Java 程式碼
    - JSP網頁裏的Java 程式碼很難閱讀與維護。
  - 標籤函式庫是可重複使用的元件。
    - scripting 程式碼很難重複使用，只能Copy & Paste。
    - 自訂標籤將Java 程式碼封裝在標籤處理器中，只需要在新的JSP 網頁加入自訂標籤即可重複使用。
  - 角色分工更明確
    - 網頁設計人員 → 只使用標籤，不撰寫Java程式碼
      - 不需要深入瞭解Java程式語言，即可完整地開發JSP 網頁。
    - 網路元件開發人員→撰寫Java程式碼

```jsp
<%-- 如果有任何錯誤的話就回報 --%>
<%
  // 從request-scope 中取出errorMsgs
  List errorMsgs = (List) request.getAttribute("errorMsgs");
  if ( (errorMsgs != null) && !errorMsgs.isEmpty() ) {
%>
<p>
<font color='red'>Please correct the following errors:
<ul>
<%
    Iterator items = errorMsgs.iterator();
    while ( items.hasNext() ) {
       String message = (String) items.next();
%>
        <li><%= message %></li>
<%
    } // errorMsgs 的while 迴圈結束
%>
</ul>
</font>
</p>
<%
  } // errorMsgs 的if
%>
```

```jsp
<%-- 如果有任何錯誤的話就回報 --%>


<c:if test="${not empty errorMsgs}">


<p>
<font color='red'>Please correct the following errors:
<ul>



    <c:forEach var="message" items="${errorMsgs}">
      <li>${message}</li>
    </c:forEach>



</ul>
</font>
</p>

</c:if>
```

自訂標籤函式庫Custom Tag Library

- **Custom Tag (Custom Action)**
  - JSP 標準動作元素種類太少, JSP1.1之後允許開發者自訂動作元素
  - 符合XML格式的標籤, 代表特定事先定義的動作

- **自訂標籤函式庫 Custom Tag Library**
  - 將性質相同或功能類似的自訂標籤集合起來
  - 包含多個標籤處理類別 Tag Handler Classes
  - 一個標籤函式庫描述檔 Tag Library Descriptor (TLD)
  - 被容器載入後, 成為網路應用程式中的網路元件

自訂標籤函式庫資源存取

- 載入自訂標籤函式庫後,JSP 網頁可使用函式庫內之標籤處理類別

- 標籤處理類別可存取所有JSP網頁可存取的資源

  - PageContext 物件：代表特定JSP 網頁的物件, 可提供此JSP網頁的資訊

  - 所有scope的屬性值：page、request、session、application

  - JSP 網頁裏所有隱含物件request、response、out、cookie…
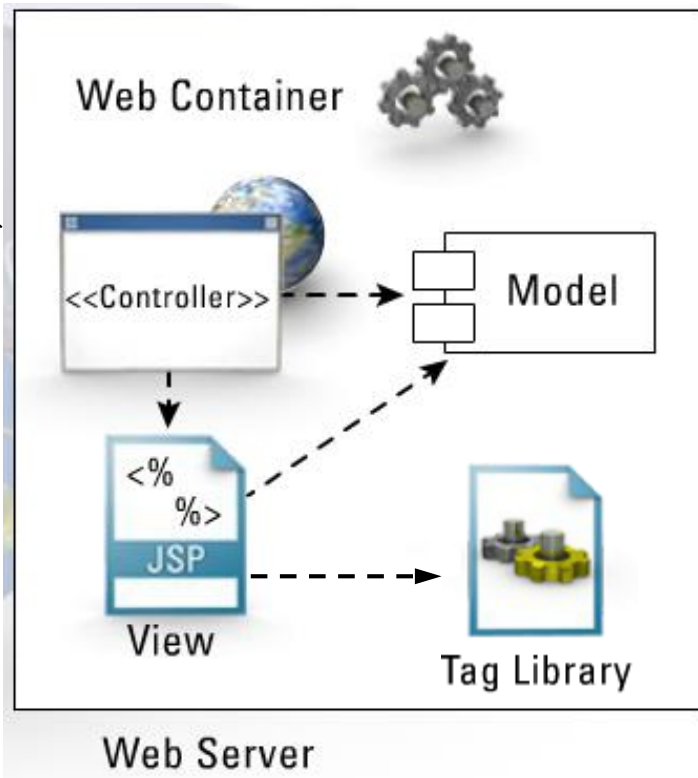
自訂標籤語法規則

- 標準標籤standard tag
  - 包含起始標籤,標籤主體,結束標籤
  - \<prefix:name {attribute={"value"|'value'}}*\>

      body

    \</prefix:name\>
  - 範例

    ```
    <c:forEach var="message" items="${errorMsgs}">
            <li>${message}</li>
    </c:forEach>
    ```

- 空標籤 empty tag
  - 沒有標籤主體body
  - \<prefix:name {attribute={"value"|'value'}}* /\>
  - 範例

    ```
    <c:url value="addLeague.do" />
    ```

自訂標籤語法規則

- 巢狀標籤nested tag
  - 自訂標籤內含其他自訂標籤

  ```
  <tag1>
      <tag2>
      </tag2>
  </tag1>
  ```

  ```
  <c:if test="${not empty errorMsgs}">
      <c:forEach var="message" items="${errorMsgs}">
      <%-- JSP code showing a single error message --%>
      </c:forEach>
  </c:if>
  ```

- 前置詞、標籤名稱和屬性均為大小寫有別Case Sensitive

  <c:forEach> 和 <C:forEach> 不同

  <c:forEach> 和 <c:ForEach> 不同

  <c:forEach items="collection"> 和 <c:forEach ITEMS="collection"> 不同

- 標籤中屬性值通常使用EL表示

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JSP 標準標籤函式庫 (JSTL)

- JavaServerPages Standard Tag Library
  - JCP依據 Custom Tag Library的規範制定通用之標準標籤函式庫

- 五大類函式庫
  - 核心標籤函式庫 (Core Tag Library)
  - XML處理函式庫 (XML Tag Library)
  - I18N格式標籤函式庫 (I18N-capable formatting Tag Library)
  - SQL標籤函式庫 (SQL Tag Library)
  - 功能標籤函式庫 (Functions Tag Library)

Apache Standard Taglib 實作

- https://tomcat.apache.org/taglibs/standard/

常用JSTL標籤

- 核心標籤函式庫(Core Tag Library)

標籤	目的
c:out	執行運算式並將結果輸出到目前的JspWriter
c:set	設定範圍變數或屬性的值
c:remove	移除範圍變數
c:catch	將標籤body 內發生的java.lang.Throwable 捕捉
c:if	當運算式由測試屬性定義為true 時，會執行標籤的body
c:forEach	將物件的集合或是週期內的固定數量一一取出
c:forTokens	將字串分割成一些標記並從中一一取出

常用JSTL標籤

標籤	目的
c:import	匯入URL 資源的內容
c:url	重寫相關的URL
c:redirect	送出HTTP 重新導向到用戶端
c:param	加入參數到請求裏(c:import，c:url 和 c:redirect 使用)
c:choose	提供互相獨立的條件判斷
c:when	提供c:choose 元素的選擇方案
c:otherwise	提供c:choose 元素的最後一個選擇方案

< c：out>

- 功能：將內容輸出至JSPWriter
  - 效果同Expression Tag <%= JavaExpression %>
  - <c:out value = *"欲顯示的值"*

    [escapeXML = "{*true|false*}"]

    [default = *"當Value為null時顯示此值"*] />
  - <c:out value = *"欲顯示的值"*

    [escapeXML = "{*true|false*}"]>

    當Value為null時顯示此值

    </c:out>
  - escapeXml 屬性為ture：字串裏的字元(<)、(>)、(&)、(')
    、(")，會轉成相關的字元實體值。例如(<) 會被轉成(<)。

<c:out value="${param.email}" default="no email provided" />

< c : set >

- 功能：將變數儲存至指定範圍(Scope)中或更改 JavaBean中的屬性
  - set 標籤儲存變數語法
  - <c:set var = "*變數名稱*" value = "*變數值*"
    [scope = "{*page | request | session | application*}"] />
  - <c:set var = "*變數名稱*"
    [scope = "{*page | request | session | application*}"]>
    變數值

  </c:set>

```
<%-- 設定頁面的標頭--%>
<c:set var="pageTitle">Duke's Soccer League: Registration</c:set>
<%-- Generate the HTML response --%>
<html>
<head>
<title>${pageTitle}</title>
</head>
```

< c : set >

- set 標籤更改JavaBean中的屬性
- <c:set target = *"Bean名稱"* property = *"屬性名稱"*
     value = *"屬性值"* />
- <c:set target = *"Bean名稱"* property = *"屬性名稱"* >
     屬性值
  </c:set>

<c:set target="cust" property="email" value="${param.emailAddress}" />

< c : if >

- 功能：邏輯條件判斷
  - body 只會在測試運算式為true 的時候執行
  - <c:if test = *"判斷式"* [var = *"儲存測試結果之變數"*]
      [scope = "{*page | request | session | application*}"] >
      *當測試結果為**true**時之執行內容*

    </c:if>

```
<%-- 如果有任何錯誤的話就回報 --%>
<c:if test="${not empty errorMsgs}">
<p>
<font color='red'>Please correct the following errors:
<ul>
…………………
</ul>
</font>
</p>
</c:if>
```

< c : forEach >

- 功能：逐一讀取指定集合成員或迴圈控制
  - 集合物件可以是Collection、Iterator 、Map 、Enumeration、陣列或逗號分隔的字串。
  - <c:forEach items = "*欲讀取的集合物件*"
    [var = "*暫存集合中取出物件之變數*"]
    [varStatus = "*取出成員之相關訊息*"]
    [begin = "*開始位置*"] [end = "*結束位置*"]
    [step = "*間隔數*"]>
    重複執行之內容
    </c:forEach>

< c : forEach >

```
<%-- 如果有任何錯誤的話就回報 --%>
<c:if test="${not empty errorMsgs}">
<p>
<font color='red'>Please correct the following errors:
<ul>
    <c:forEach var="message" items="${errorMsgs}">
      <li>${message}</li>
    </c:forEach>
</ul>
</font>
</p>
</c:if>
```

< c : forEach >

- 功能：for – loop 迴圈
  - <c:forEach [var = "*暫存集合中取出物件之變數*"]
    [varStatus = "*取出成員之相關訊息*"]
    begin = "*開始位置*" end = "*結束位置*"
    [step = "*間隔數*"]>
    重複執行之內容
    </c:forEach>

```
<c:forEach begin="1" end="10">
    <!-- the repeated HTML code here -->
</c:forEach>
```

< c : url >

- 功能：用來產生Session管理中，URL-Rewriting 連結 (當Cookies關閉時)
  - <c:url value = *"欲執行的URL"*

    [var = *"儲存URL Rewriting結果之變數"*]

    [scope = "{*page | request | session | application*}"] />

```
<form action='<c:url value="enter_player.do" />' method='POST'>
   ....
</form>
```

< c : choose >

- 功能：相互獨立的邏輯條件判斷 (if-else)
    - <c:choose>
        <c:when test = "*判斷式*" >
            當測試結果為 true 時之執行內容
        </c:when>
        <c:otherwise>
            當測試結果為 false 時之執行內容
        </c:othwise>
    </c:choose>

< c : choose >

```
<c:choose>
    <c:when test="${season eq param.season}">
        <option value="${season}"  selected>${season}</option>
    </c:when>
    <c:otherwise>
        <option value="${season}">${season}</option>
    </c:otherwise>
</c:choose>
```

常用JSTL標籤

■ XML 標籤函式庫標籤(XML Tag Library)

標籤	目的
x:parse	剖析XML 文件。
x:out	執行Xpath 運算式並將結果輸出到目前的JspWriter。
x:set	執行Xpath 運算式並將結果儲存到範圍變數。
x:if	如果Xpath 運算式為true，就執行標籤的boby。
x:choose	提供互相獨立的條件判斷。
x:when	提供c:choose 元素的選擇方案。
x:otherwise	提供c:choose 元素的最後一個選擇方案。
x:forEach	執行Xpath 運算式並重複標籤的boby。
x:transform	提供XSLT 樣式表單給XML 檔。
x:param	提供傳輸參數(x:transform元素使用)。

常用JSTL標籤

- format 標籤函式庫標籤標籤(format Tag Library)

標籤	目的
fmt:setLocale	在區域定義變數裏儲存特定位置
fmt:bundle	建立在標籤boby 中使用的i18n 區域化內容
fmt:setBundle	建立i18n 區域化context 並儲存到scope 變數裏，或是區域化context 設定的變數裏
fmt:message	從resource bundle 中找出區域化的訊息
fmt:param	使用fmt:message 元素支援參數的替換
fmt:requestEncoding	設定請求的字元集編碼

常用JSTL標籤

- format 標籤函式庫標籤標籤(format Tag Library)

標籤	目的
fmt:timeZone	定義標籤boby 裏面會被處理時間資訊的時區。
fmt:setTimeZone	儲存特定的時區到scope 變數裏，或是時區定義的變數。
fmt:formatNumber	格式化區域別的數值資料，或自定義格式像是數位、貨幣或百分比。
fmt:parseNumber	剖析數值、貨幣和百分比的字串呈現，他們都格式化為區域別或是自定義格式。
fmt:formatDate	允許日期和時間格式化成區域別或是自定義格式。
fmt:parseDate	剖析日期和時間的字串呈現，他們都格式化為區域別或是自定義格式。

常用JSTL標籤

- 關聯資料庫存取標籤函式庫 (RDBMS actions)

標籤	目的
sql:query	查詢資料庫，儲存結果集到範圍變數裏。
sql:update	執行INSERT，DELETE，UPDATE，或SQL DDL 語句，儲存結果到scope 變數裏。
sql:transaction	建立交易背景給sql:query 和sql:update 元素。
sql:setData Source	導出資料源到scope 變數或資料源定義變數。
sql:param	設定參數標示的值(sql:query 和 sql:update 元素使用)
sql:dateParam	設定日期參數標示的值(sql:query 和 sql:update 元素使用)

常用JSTL標籤

- 功能標籤函式庫 (Function Tag Library)
  - 提供許多String處理的功能

標籤	目的
fn:contains	針對特定字串執行大小寫分別的測試，回傳true 或false
fn:containsIgnoreCase	針對特定字串執行不區分大小寫的測試，回傳true 或false
fn:endsWith	測試字串是否用特定的字尾結束，回傳true 或false
fn:escapeXml	跳脫字元會解釋為XML 樣式
fn:indexOf	回傳特定子字串的第一次出現的位置
fn:join	將陣列元素加入字串
fn:length	回傳集合裏元素數量或字串裏的字元數量
fn:replace	用另一個子字串替換出現的子字串後，回傳字串

常用JSTL標籤

- 功能標籤函式庫 (Function Tag Library)

標籤	目的
fn:split	根據定義符號將字串分割到子字串陣列去
fn:startsWith	測試字串是否用特定前置詞開始，回傳true 或false
fn:substring	回傳字串的子集，利用開始和結束點來定義
fn:substringAfter	回傳特定子字串之後的子字串
fn:substringBefore	回傳特定子字串之前的子字串
fn:toLowerCase	將字串的字元轉換成小寫
fn:toUpperCase	將字串的字元轉換成大寫
fn:trim	將字串尾端的空白都移除

課程大綱

1) 標籤函式庫
2) **JSP中使用標籤函式庫**
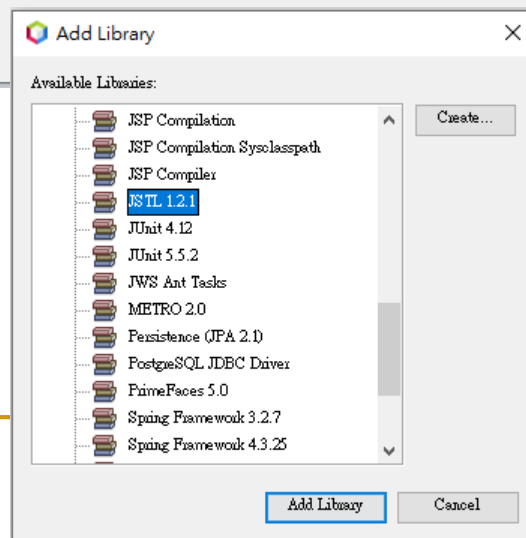3) Soccer 範例

使用標籤函式庫

- 使用步驟
  - 使用前需先部署標籤函式庫
    - 將所需之標籤處理類別包裝成JAR檔案,存放在WEB-INF/lib/ 目錄
    - TLD檔案存放在WEB-INF/ 目錄
    - 若使用JSTL ,只需在Libraries中加入JSTL1.2.1函式庫
  - 網頁設計者在JSP中使用自訂標籤
    - 宣告欲使用的tag library(TLD)
      - taglib Directive tag
      - 使用JSTL不需要TLD檔
    - 依標籤語法使用標籤

NetBeans 中設定 JSTL 函式庫
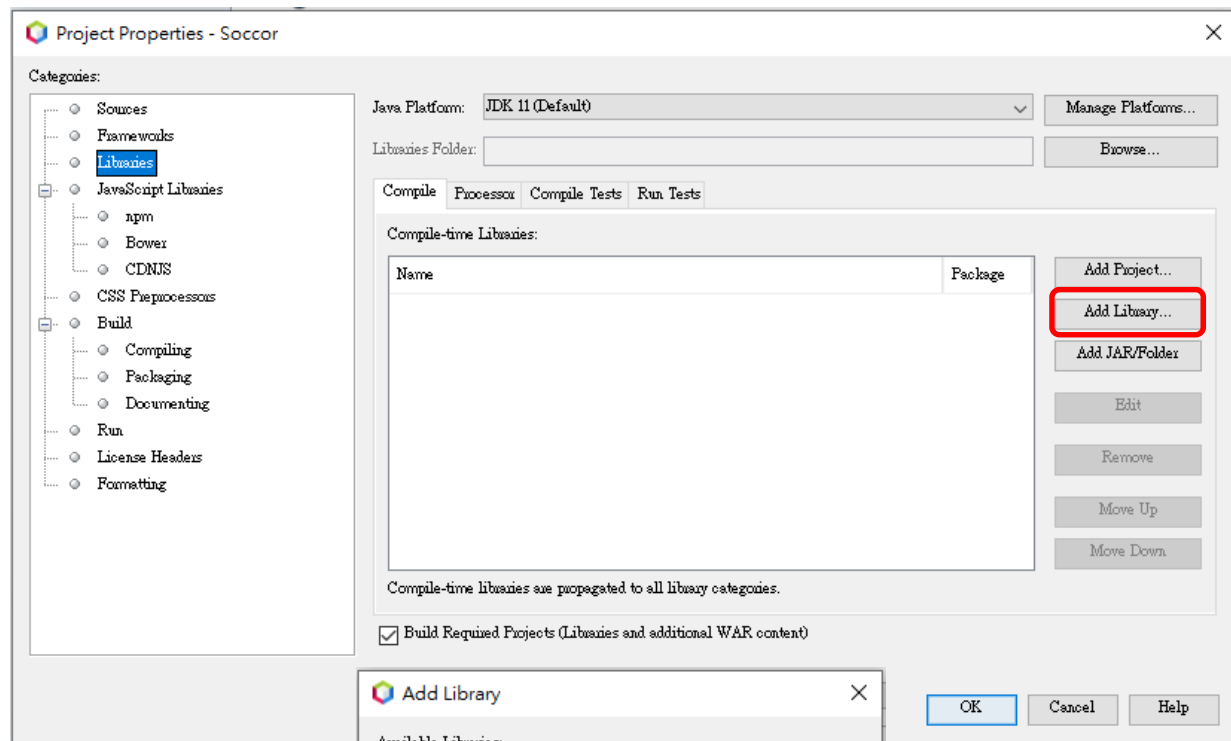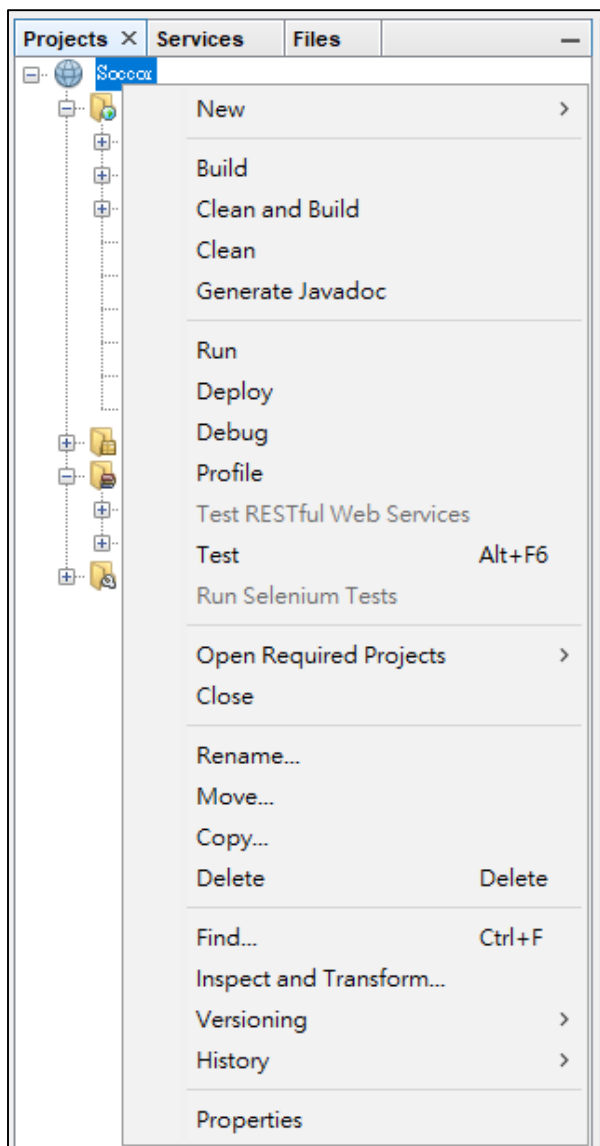
JSP中使用自訂標籤

- 宣告自訂標籤
  - JSP Directive Tag

    `<%@ taglib prefix="`*前置字串*`" uri="`*標籤函式庫 URI*`" %>`

標籤庫	預設URI	前置字串
核心	http://java.sun.com/jsp/jstl/core	c
格式	http://java.sun.com/jsp/jstl/fmt	fmt
XML處理	http://java.sun.com/jsp/jstl/xml	x
資料庫存取	http://java.sun.com/jsp/jstl/sql	sql
函數	http://java.sun.com/jsp/jstl/functions	fn

- 依自訂標籤語法使用
  - 標籤函式庫開發者需提供標籤語法使用文件
  - 自訂標籤名稱,屬性名稱,前置字串皆須區分大小寫

Lab 1

- 修改 ContactInfo 網路應用專案
  - 加入JSTL 函式庫
- 修改 index.jsp
  - 請求參數 custid 輸入0 可查詢所有客戶
- 修改 domain.Customer.java
  - 新增取得所有客戶的靜態方法
    - Collection<Customer> getCustomers() 類別方法
  - 修改客戶測試資料
    - 客戶三種地址資訊都是 optional
      - 將對應索引地址值設為null
- 修改 web.Controller.java 控制器元件
  - 請求參數 custid 為 0 時
    - getCustomers() 取得客戶集合
    - 轉送至 customerList.jsp

Lab 1

- 修改 customerView.jsp
  - 使用JSTL
  - 請求中customer屬性為空時，顯示查詢的客戶不存在
  - 客戶無 OfficeAddress, BillingAddress, DeliveryAddress 屬性時，不顯示該項地址資料
- 新增 customerList.jsp
  - 使用JSTL
  - 請求中customers屬性為空時，顯示無客戶存在
  - 逐一顯示所有客戶資訊
  - 無資料的地址屬性不顯示
- 測試、執行

課程大綱

1) 標籤函式庫
2) JSP中使用標籤函式庫
3) **Soccer 範例**

Soccer 範例 - JSTL1.2.1函式庫
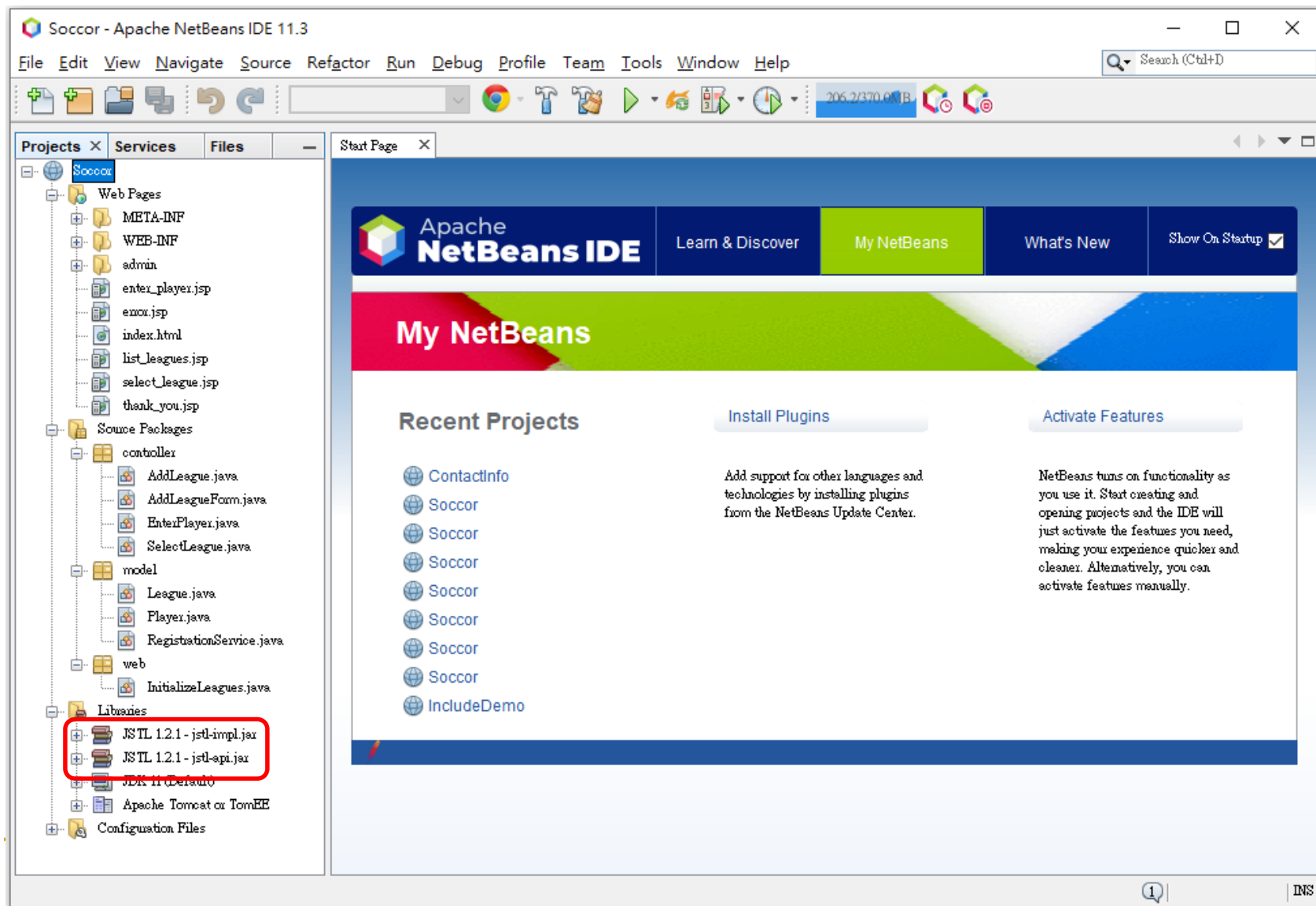
List Leagues Use Case

列出所有可用的聯盟

http://localhost:8080/Soccer/index.html

Index.html

http://localhost:8080/Soccer/list_leagues.jsp

list_leagues.jsp

leaugeList

Player

list_leagues.jsp

```jsp
<!DOCTYPE html>
<%@ page contentType="text/html"%>
<%@ page import="model.*" %>
<%@ page import="java.util.*" %>

<html>
  <head>
    <title>Duke's Soccer League: List Leagues</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center'
                valign='center' height='20'>
      <td><h3>Duke's Soccer League: List Leagues</h3></td>
    </tr>
  </table>
  <p>The set of soccer leagues:</p>
  <ul>
  <%
    List leagueList = (List)(request.getAttribute("leagueList"));
    Iterator items = leagueList.iterator();
    while ( items.hasNext() ) {
      League league = (League) items.next();
  %>
  <li><%= league.getTitle() %></li>
  <%
    }
  %>
  </ul>
  <p>End of list.</p>
  </body>
</html>
```
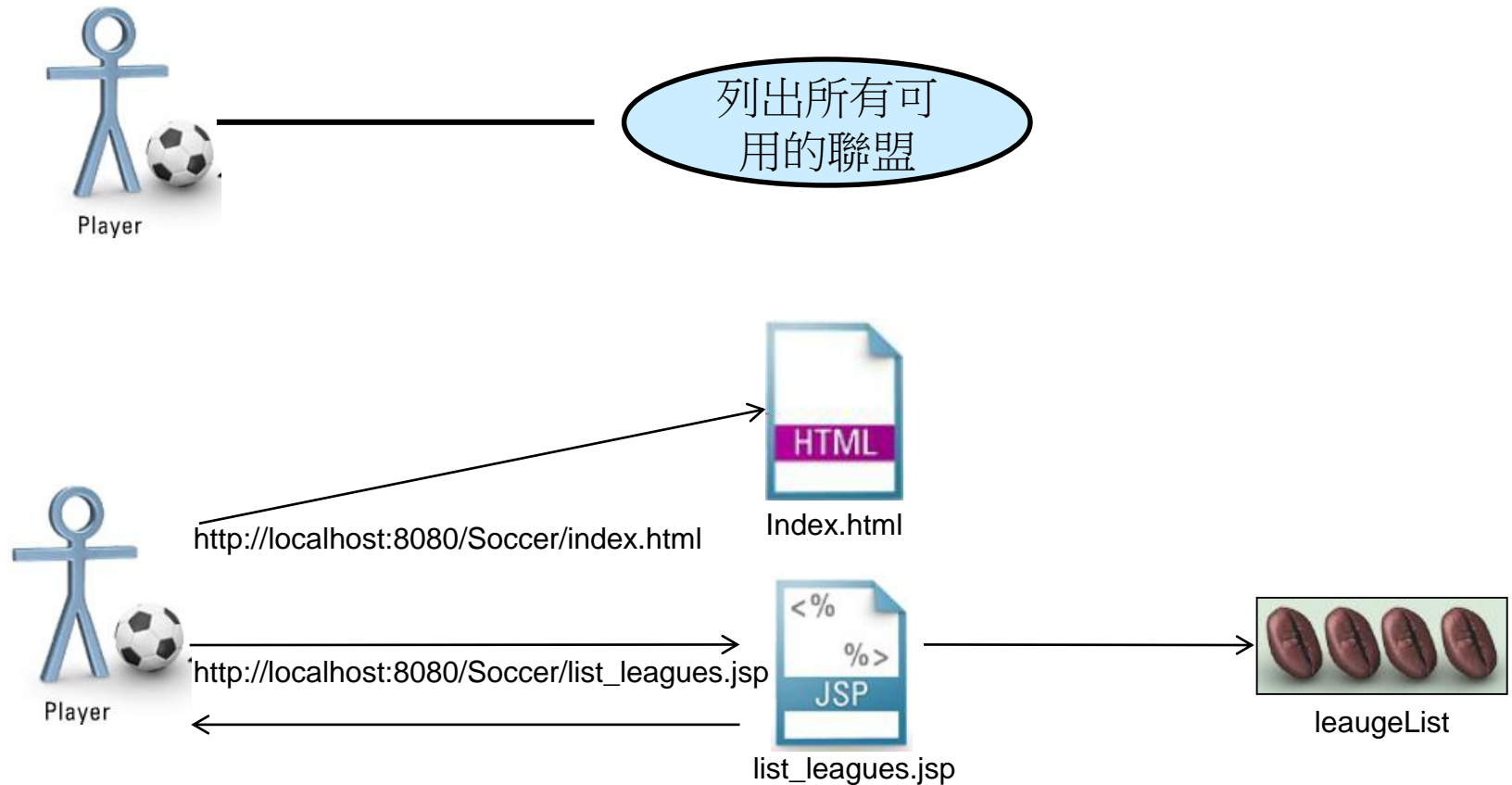
```jsp
<!DOCTYPE html>
<%@ page contentType="text/html"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%-- Set page title --%>
<c:set var="pageTitle">Duke's Soccer League: List Leagues
</c:set>
<html>
  <head>
    <title>  ${pageTitle} </title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center'
                valign='center' height='20'>
      <td><h3> ${pageTitle}           </h3></td>
    </tr>
  </table>
  <p>The set of soccer leagues:</p>
  <ul>
   <c:forEach var="league" items="${leagueList}" >
      <li>${league.title} </li>
   </c:forEach >



  </ul>
  <p>End of list.</p>
  </body>
</html>
```
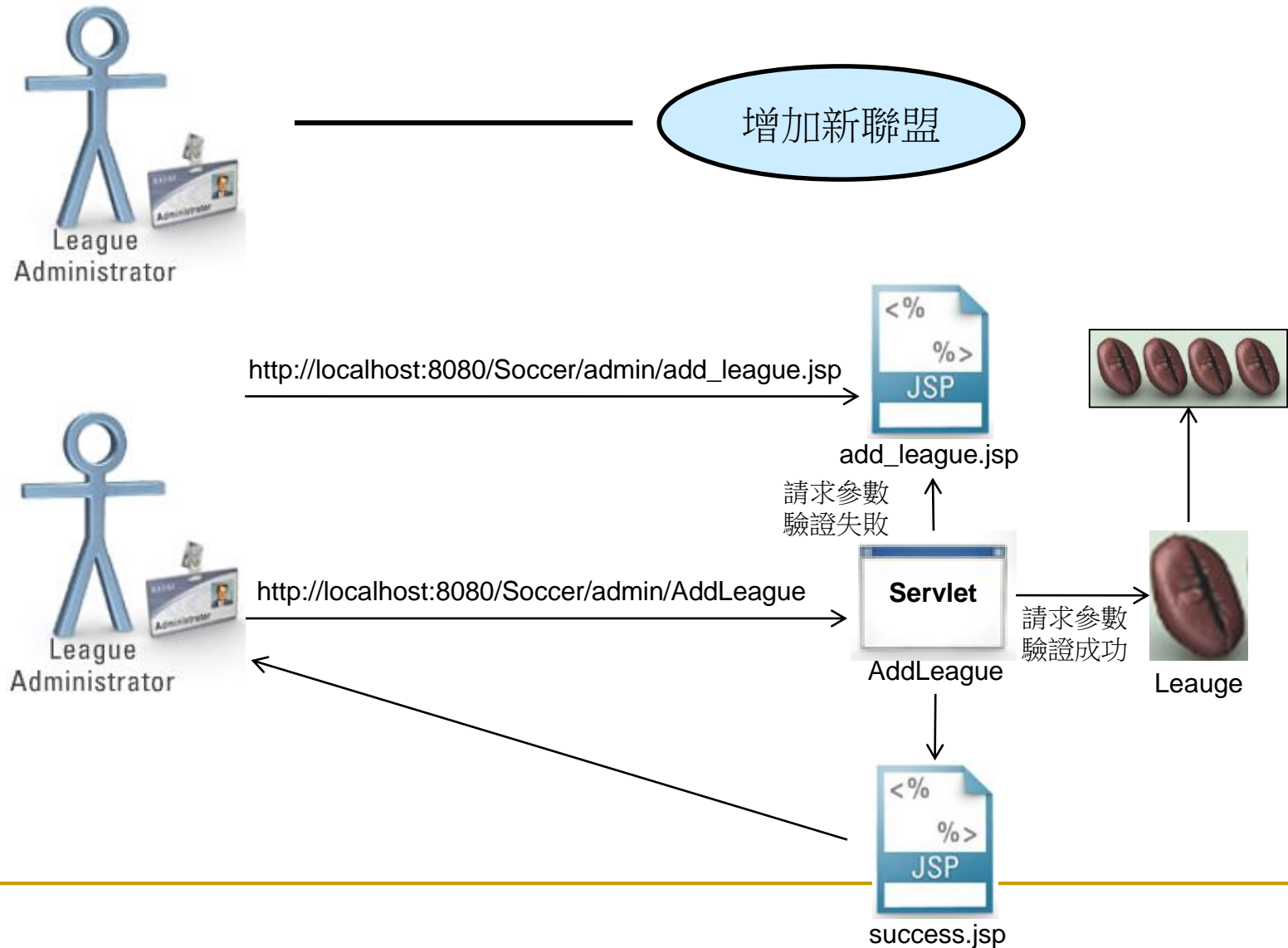
Add League Use Case

修改 index.html
移除AddLeagueForm.java

```html
<html>
  <head>
    <title>Duke's Soccer League: Home</title>
  </head>
  <body>
    <table border='1' cellpadding='5' cellspacing='0' width='400'>
      <tr bgcolor='#CCCCFF' align='center'
          valign='center' height='20'>
        <td><h3>Duke's Soccer League: Home</h3></td>
      </tr>
    </table>
    <p>This is the Home page for Duke's Soccer League. </p>
    <h3>Players</h3>
    <ul>
      <li><a href='list_leagues.jsp'>List all leagues</a></li>
      <li><a href='enter_player.jsp'>Register for a league</a></li>
    </ul>
    <h3>League Administrator</h3>
    <ul>
      <li><a href='admin/add_league.jsp'>Add a new league</a></li>
    </ul>
  </body>
</html>
```

add_league.jsp

```jsp
<%@ page contentType="text/html"%>
<%@ page session="false" %>
<%@ page import="java.util.*" %>

<html>
  <head>
    <title>Duke's Soccer League: Add a New League</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center' valign='center' heigh
      <td><h3>Duke's Soccer League: Add a New League</h3:
    </tr>
  </table>

  <p>This form allows you to create a new soccer league.</p>
  <form action='AddLeague' method='POST'>
    Year: <input type='text' name='year' /> <br/><br/>
    Season: <select name='season'>
<%
    String[] SEASONS = (String[])(application.getAttribute("sea
    for ( int i = 0; i < SEASONS.length; i++ ) {
%>
        <option value='<%= SEASONS[i] %>'> <%= SEASONS[i]
<%
    }
%>
    </select> <br/><br/>
    Title: <input type='text' name='title' /> <br/><br/>
    <input type='Submit' value='Add League' />
  </form>
  </body>
</html>
```

```jsp
<%@ page contentType="text/html"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<c:set var="pageTitle">Duke's Soccer League: Add a New League
</c:set>
<html>
  <head>
    <title>${pageTitle} </title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center' valign='center' height='20'>
      <td><h3> ${pageTitle} </h3></td>
    </tr>
  </table>
  <c:if test="${not empty errorMsgs}">
  <p>
    <font color='red'>Please correct the following errors:
    <ul>
     <c:forEach var="message" items="${errorMsgs}">
        </li> ${message} </li>
     </c:forEach>

    </ul>
    </font>
  </p>
  </c:if >
  <p>This form allows you to create a new soccer league.</p>
  <form action='AddLeague' method='POST'>
    ……..

  </form>
  </body>
</html>
```

add_league.jsp

```jsp
<%@ page contentType="text/html"%>
<%@ page session="false" %>
<%@ page import="java.util.*" %>

<html>
  <head>
    <title>Duke's Soccer League: Add a New League</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='4
    <tr bgcolor='#CCCCFF' align='center' valign='center' h
      <td><h3>Duke's Soccer League: Add a New League
    </tr>
  </table>

  <p>This form allows you to create a new soccer league.
  <form action='AddLeague' method='POST'>
    Year: <input type='text' name='year' /> <br/><br/>
    Season: <select name='season'>
      <option value='UNKNOWN'> --Select-- </option>11
<%
    String[] SEASONS = (String[])(application.getAttribute(
    for ( int i = 0; i < SEASONS.length; i++ ) {
%>
      <option value='<%= SEASONS[i] %>'> <%= SEASON
<%
    }
%>
    </select> <br/><br/>
    Title: <input type='text' name='title' /> <br/><br/>
    <input type='Submit' value='Add League' />
  </form>
  </body>
</html>
```

```jsp
<%-- Generate main body --%>
<p>  This form allows you to create a new soccer league. </p>
<form action='AddLeague' method='POST'>
<%-- Repopulate the year field --%>




Year: <input type='text' name='year' value=' ${param.year} ' />
<br/><br/>
<%-- Repopulate the season drop-down menu --%>
Season: <select name='season'>
    <option value='UNKNOWN'> --Select-- </option>
<c:forEach var="seasonStr" items="${applicationScope.seasonList}" >
    <c:choose>                              Context新增seasonsList 屬性
      <c:when test="${seasonStr eq param.season}">
        <option value="${seasonStr}"  selected>${seasonStr}</option>
      </c:when>
      <c:otherwise>
        <option value="${seasonStr}">${seasonStr}</option>
      </c:otherwise>
    </c:choose>
</c:forEach>
</select>
<br/><br/>
<%-- Repopulate the title field --%>
Title: <input type='text' name='title' value=' ${param.title} ' />
<br/><br/>
<input type='Submit' value='Add League' />
</form>
</body>
</html>
```

AddLeague.java

```java
package controller;
import java.io.*;
………
@WebServlet(name = "AddLeague", urlPatterns = {"/admin/AddLeague"})
public class AddLeague extends HttpServlet {
  protected void processRequest(HttpServletRequest request, HttpServletResponse
                                response) throws ServletException, IOException {
    List errorMsgs = new LinkedList();
    request.setAttribute("errorMsgs", errorMsgs);
    ………
    // Send the ErrorPage view if there were errors
      if ( ! errorMsgs.isEmpty() ) {
        RequestDispatcher view  = request.getRequestDispatcher(  "admin/add_league.jsp"  );
        ………
      }
      ………
      // Send the Success view
      RequestDispatcher view = request.getRequestDispatcher("admin/success.jsp");
      view.forward(request, response);
    } catch (RuntimeException e) {
      errorMsgs.add(e.getMessage());
      RequestDispatcher view = request.getRequestDispatcher(  "admin/add_league.jsp"  );
      view.forward(request, response);
    } // END of try-catch block
  }
}
```

success.jsp

```jsp
<%@ page session="false" %>
<%-- Retrieve the 'league' from the request-scope --%>
<jsp:useBean id="league" scope="request"
                        type="model.League" />

<%-- Generate the HTML response --%>
<html>
<head>
 <title>Duke's Soccer League: Add League Success</title>
</head>
<body bgcolor='white'>
<%-- Generate page heading --%>
<!-- Page Heading -->
<table border='1' width='400'>
<tr bgcolor='#CCCCFF' height='20'>
   <td>
     <h3> Duke's Soccer League: Add League Success</h3>
   </td>
</tr>
</table>
<%-- Generate main body --%>
<p>
Your request to add the <i>
<jsp:getProperty name="league" property="title" />
</i> league was successful.
</p>
</body>
</html>
```
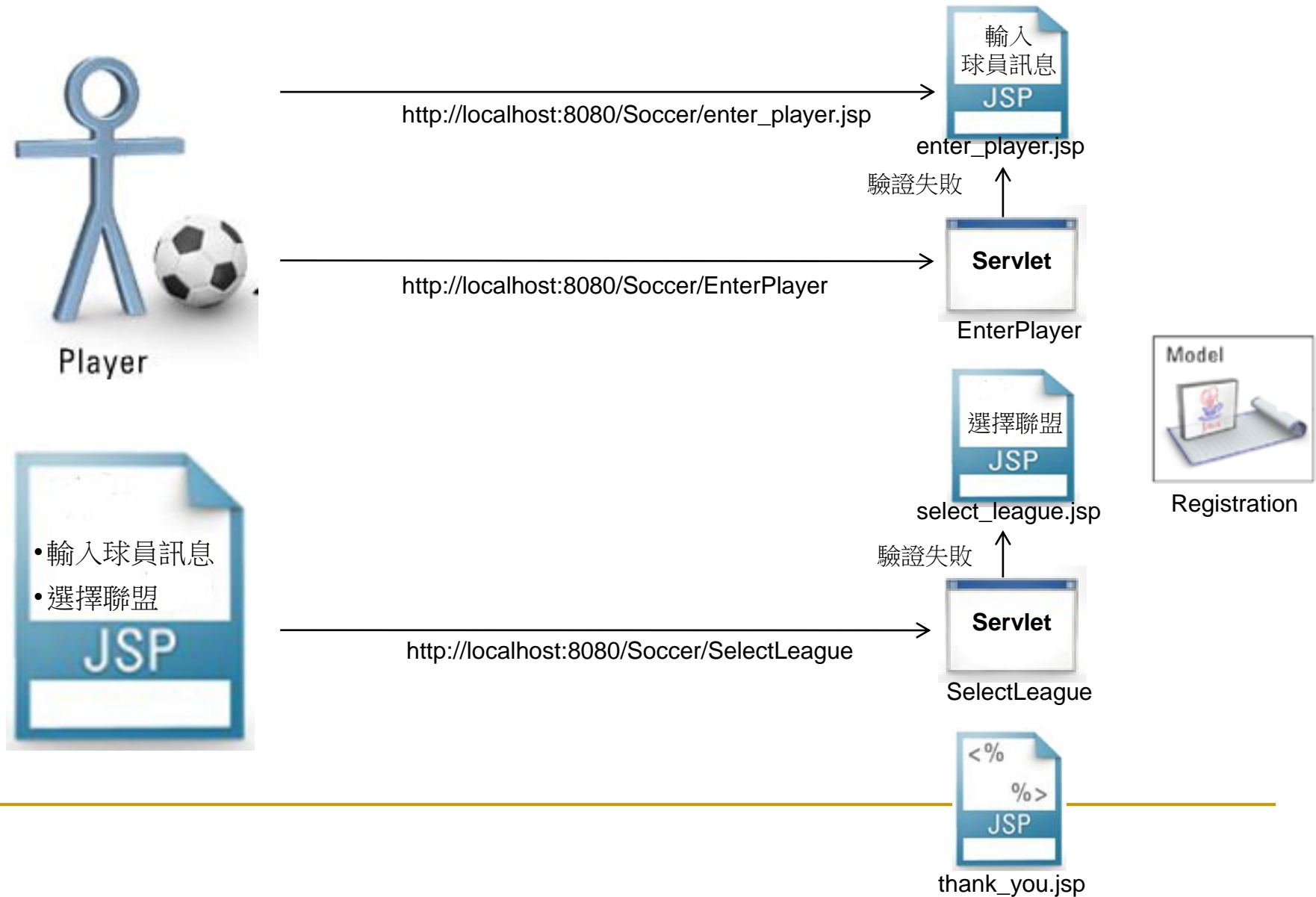
```jsp
<%@ page session="false" %>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<c:set var="pageTitle">Duke's Soccer League: Add League Success
</c:set>

<%-- Generate the HTML response --%>
<html>
<head>
   <title> ${pageTitle} </title>
</head>
<body bgcolor='white'>
<%-- Generate page heading --%>
<!-- Page Heading -->
<table border='1' width='400'>
<tr bgcolor='#CCCCFF' height='20'>
   <td>
      <h3> ${pageTitle}  </h3>
   </td>
</tr>
</table>
<%-- Generate main body --%>
<p>
Your request to add the <i>
    ${league.title}
</i> league was successful.
</p>
</body>
</html>
```

Registration Use Case

http://localhost:8080/Soccer/enter_player.jsp

輸入
球員訊息
JSP
enter_player.jsp

驗證失敗

Servlet
EnterPlayer

http://localhost:8080/Soccer/EnterPlayer

•輸入球員訊息
•選擇聯盟
JSP

選擇聯盟
JSP
select_league.jsp

驗證失敗

Servlet
SelectLeague

http://localhost:8080/Soccer/SelectLeague

Model
Registration

<%
%>
JSP
thank_you.jsp

Player

enter_player.jsp

```jsp
<!DOCTYPE html>
<%@ page contentType="text/html"%>

<html>
  <head>
    <title>Duke's Soccer League: Registration</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center' valign='center' height='20'>
      <td><h3>Duke's Soccer League: Registraion</h3></td>
    </tr>
  </table>
  <table border='1' cellpadding='0' cellspacing='0' width='400'>
    <tr align='center' valign='center' height='20'>
      <td bgcolor='#CCCCFF' ><b>1) Enter Player Info</b></td>
      <td bgcolor='#CCCCCC' ><b>2) Select League</b></td>
    </tr>
  </table><br/>
  <form action='EnterPlayer' method='POST'>
      Name: <input type='text' name='name'/> <br/><br/>
      Address: <input type='text' name='address'/> <br/><br/>
      City: <input type='text' name='city'/> <br/><br/>
      Province: <input type='text' name='province'/> <br/><br/>
      Postal code: <input type='text' name='postalCode'/> <br/><br/>
      <input type='Submit' value='Continue...' />
  </form>
  </body>
</html>
```

```jsp
<!DOCTYPE html>
<%@ page contentType="text/html"%>

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<c:set var="pageTitle">Duke's Soccer League: Registration
</c:set>
<html>
  <head>
    <title> ${pageTitle} </title>
  </head>
  <body bgcolor='white'>
  ………

  <c:if test="${not empty errorMsgs}">
  <p>
    <font color='red'>Please correct the following errors:
    <ul>
      <c:forEach var="message" items="${errorMsgs}">
        </li> ${message} </li>
      </c:forEach>

    </ul>
    </font>
  </p>
  </c:if >

  <form action='EnterPlayer' method='POST'>
    ……….
  </form>
  </body>
</html>
```

enter_player.jsp

```
<!DOCTYPE html>
<%@ page contentType="text/html"%>

<html>
  <head>
    <title>Duke's Soccer League: Registration</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center' valign='center' height='20'>
      <td><h3>Duke's Soccer League: Registraion</h3></td>
    </tr>
  </table>
   <table border='1' cellpadding='0' cellspacing='0' width='400'>
    <tr align='center' valign='center' height='20'>
      <td bgcolor='#CCCCFF' ><b>1) Enter Player Info</b></td>
      <td bgcolor='#CCCCCC' ><b>2) Select League</b></td>
    </tr>
  </table><br/>
  <form action='EnterPlayer' method='POST'>
      Name: <input type='text' name='name'/> <br/><br/>
      Address: <input type='text' name='address'/> <br/><br/>
      City: <input type='text' name='city'/> <br/><br/>
      Province: <input type='text' name='province'/> <br/><br/>
      Postal code: <input type='text' name='postalCode'/> <br/><br/
      <input type='Submit' value='Continue...' />
  </form>
  </body>
</html>
```

```
<%-- Present the form --%>
<form action=' <c:url value="EnterPlayer"/> '> method='POST''>
    Name: <input type='text' name='name'
                value='${param.name}' /> <br/><br/>

    Address: <input type='text' name='address'
           value='${param.address}" /> <br/><br/>

    City: <input type='text' name='city'
                value='${param.city}' /> <br/><br/>

    Province: <input type='text' name='province'
           value='${param.province}" /><br/><br/>

    Postal code: <input type='text' name='postalCode'
        value='${param.postalCode}" /> <br/><br/>

    <input type='Submit' value='Continue...' />
  </form>
  </body>
</html>
```

EnterPlayer.java

```java
package controller;
import java.io.*;
………
@WebServlet(name = "EnterPlayer", urlPatterns = {"/EnterPlayer"})
public class EnterPlayer extends HttpServlet {
  protected void processRequest(HttpServletRequest request, HttpServletResponse
                                response) throws ServletException, IOException {
    List errorMsgs = new LinkedList();
    request.setAttribute("errorMsgs", errorMsgs);
    ………
    // Send back to previous page if there were errors
      if ( ! errorMsgs.isEmpty() ) {
        RequestDispatcher view  = request.getRequestDispatcher(    "enter_player.jsp"   );
        ………
      }
      ………
      // Send the Success page
      RequestDispatcher view = request.getRequestDispatcher("select_league.jsp");
      view.forward(request, response);
    } catch (RuntimeException e) {
      errorMsgs.add(e.getMessage());
      RequestDispatcher view = request.getRequestDispatcher(    "enter_Player.jsp"    );
      view.forward(request, response);
    } // END of try-catch block
  }
}
```

select_league.jsp

```jsp
<!DOCTYPE html>
<%@ page contentType="text/html"%>
<%@ page import= "java.util.*, model.*"%>
<html>
  <head>
    <title>Duke's Soccer League: Registration</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='400'>
    <tr bgcolor='#CCCCFF' align='center' valign='center' height='20'>
      <td><h3>Duke's Soccer League: Registration</h3></td>
    </tr>
  </table>
   <table border='1' cellpadding='0' cellspacing='0' width='400'>
    <tr align='center' valign='center' height='20'>
      <td bgcolor='#CCCCFF' ><b>1) Enter Player Info</b></td>
      <td bgcolor='#CCCCCC' ><b>2) Select League</b></td>
    </tr>
  </table><br/>
  <form action='SelectLeague' method='POST'>
      Year: <input type='text' name='year'/> <br/><br/>
      Season: <select name='season'/>
  <% String[] SEASONS =(String[])application.getAttribute("seasonLi
      for ( int i = 0; i < SEASONS.length; i++ ) {     %>
        <option value='<%= SEASONS[i] %>'> <%= SEASONS[i] %> </
  <% } // END of for loop over seasons array  %>
  <input type='Submit' value='Submit' />
  </form>
  </body>
</html>
```

```jsp
<!DOCTYPE html>
<%@ page contentType="text/html"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
 <c:set var="pageTitle">Duke's Soccer League: Registration
 </c:set>

<html>
  <head>
    <title> ${pageTitle}  </title>
  </head>
  <body bgcolor='white'>
  ………
  <c:if test="${not empty errorMsgs}">
  <p>
    <font color='red'>Please correct the following errors:
    <ul>
      <c:forEach var="message" items="${errorMsgs}">
        </li> ${message} </li>
      </c:forEach>

    </ul>
    </font>
   </p>
   </c:if >


  <form action='SelectLeague' method='POST'>
    ………
  </form>
  </body>
</html>
```

select_league.jsp

```
<!DOCTYPE html>
<%@ page contentType="text/html"%>
<%@ page import= "java.util.*, model.*"%>
<html>
  <head>
    <title>Duke's Soccer League: Registration</title>
  </head>
  <body bgcolor='white'>
  <!-- Page Heading -->
  <table border='1' cellpadding='5' cellspacing='0' width='40
    <tr bgcolor='#CCCCFF' align='center' valign='center' he
      <td><h3>Duke's Soccer League: Registration</h3></t
    </tr>
  </table>
  <table border='1' cellpadding='0' cellspacing='0' width='4
    <tr align='center' valign='center' height='20'>
      <td bgcolor='#CCCCFF' ><b>1) Enter Player Info</b><
      <td bgcolor='#CCCCCC' ><b>2) Select League</b></t
    </tr>
  </table><br/>
  <form action='SelectLeague' method='POST'>
      Year: <input type='text' name='year'/> <br><br>
      Season: <select name='season'/>
  <% String[] SEASONS =(String[])application.getAttribute
      for ( int i = 0; i < SEASONS.length; i++ ) {      %>
         <option value='<%= SEASONS[i] %>'> <%= SEASO
  <% } // END of for loop over seasons array  %>
  <input type='Submit' value='Submit' />
  </form>
  </body>
</html>
```

```
<%-- Present the form --%>
<form action=  '<c:url value="SelectLeague" />'    method='POST'>
<%-- Repopulate the year field --%>
Year: <input type='text' name='year' value=  '${param.year}' />
<br><br>
<%-- Repopulate the season drop-down menu --%>
Season: <select name='season'>
  <c:forEach var="seasonStr" items="${applicationScope.seasonList}" >
    <c:choose>
      <c:when test="${seasonStr eq param.season}">
        <option value="${seasonStr}"  selected>${seasonStr}</option>
      </c:when>
      <c:otherwise>
        <option value="${seasonStr}">${seasonStr}</option>
      </c:otherwise>
    </c:choose>
  </c:forEach>

  </select> <br/><br/>
  <input type='Submit' value='Submit' />
  </form>
  </body>
</html>
```

SelectLeague.java

```java
package controller;
import java.io.*;
………
@WebServlet(name = "SelectLeague", urlPatterns = {"/SelectLeague"})
public class SelectLeague extends HttpServlet {
  protected void processRequest(HttpServletRequest request, HttpServletResponse
                                   response) throws ServletException, IOException {
    List errorMsgs = new LinkedList();
    request.setAttribute("errorMsgs", errorMsgs);
    ………
    // Send back to previous page if there were errors
      if ( ! errorMsgs.isEmpty() ) {
        RequestDispatcher view  = request.getRequestDispatcher(  "select_league.jsp"   );
          ………
      }
      ………
      // Send the Success page
      RequestDispatcher view = request.getRequestDispatcher("thank_you.jsp");
      view.forward(request, response);
    } catch (RuntimeException e) {
      errorMsgs.add(e.getMessage());
      RequestDispatcher view = request.getRequestDispatcher(  "select_league.jsp"   );
      view.forward(request, response);
    } // END of try-catch block
  }
}
```

thank_you.jsp

```jsp
<%@ page session="true" %>
<%-- Retrieve the 'league' and 'player' from the session-scope --%>
<jsp:useBean id="league" scope="session"
                      type="model.League" />
<jsp:useBean id="player" scope="session"
                      type="model.Player" />


<%-- Generate the HTML response --%>
<html>
<head>
   <title>Duke's Soccer League: Registration</title>
</head>
<body bgcolor='white'>
<%-- Generate page heading --%>
<!-- Page Heading -->
<table border='1' width='400'>
<tr bgcolor='#CCCCFF' height='20'>
   <td> <h3>Duke's Soccer League: Registration</h3> </td>
</tr>
</table>
<%-- Present the main body --%>
<p>
Thank you, <jsp:getProperty name="player" property="name" />
for register for the <i>
<jsp:getProperty name="league" property="title" /></i> league.
</p>
</body>
</html>
```

```jsp
<%@ page session="true" %>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<c:set var="pageTitle">Duke's Soccer League: Registration
</c:set>


<%-- Generate the HTML response --%>
<html>
<head>
   <title>${pageTitle} </title>
</head>
<body bgcolor='white'>
<%-- Generate page heading --%>
<!-- Page Heading -->
<table border='1' width='400'>
<tr bgcolor='#CCCCFF' height='20'>
   <td><h3>> ${pageTitle}  </h3></td>
</tr>
</table>
<%-- Present the main body --%>
<p>
Thank you,   ${player.name} ,
for register for the <i>
${league.title} </i> league.
</p>
</body>
</html>
```

Lab 2

- 修改 DVDLibrary 網路應用專案
  - 匯入JSTL1.2.1函式庫
- 編輯 index.jsp
  - <c:url> JSTL 標籤取代URL-Rewriting 連結
- 編輯 list_library.jsp
  - <c:if> <c:set> JSTL 標籤取代JSP Scriptlet session無屬性時的設定
  - EL 取代JSP Expression 標籤顯示DVD 數量
  - <c:if> JSTL 標籤取代JSP Scriptlet 顯示偏好欄位
  - <c:forEach> JSTL 標籤取代JSP Scriptlet 列出所有DVD

Lab 2

- 編輯 add_dvd.jsp
  - `<c:forEach>` JSTL 標籤取代JSP Scriptlet 影片類型選項
- 編輯 error.jsp
  - `<c:forEach>` JSTL 標籤取代JSP Scriptlet 顯示錯誤訊息
- 編輯 set_pref.jsp
  - `<c:url>` JSTL 標籤取代URL-Rewriting 連結
  - `<c:if>` JSTL 標籤取代JSP Scriptlet 顯示當前偏好欄位
- 測試、執行