



UNIVERSITI MALAYSIA TERENGGANU

CSM3023

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 5

SEMESTER II 2023/2024

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Week 5

JSP: JavaBeans & Java Standard Tag Library (JSTL)

Web Programming 2

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Revision History

Revision Date	Previous Revision Date	Summary of Changes	Changes Marked
		First Issue	Mohamad Nor Hassan
		Second Issue	Dr Rabiei Mamat Dr Faizah Aplop Dr Fouad Ts Dr Rosmayati Mohemad Fakhrul Adli Mohd Zaki
21/02/2019		Addition of Revision History, Table of Contents, Formatting Cover Page	Fakhrul Adli Mohd Zaki

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Arahan:

Manual makmal ini adalah untuk kegunaan pelajar-pelajar Pusat Pengajian Informatik dan Matematik Gunaan (PPIMG), Universiti Malaysia Terengganu (UMT) sahaja. Tidak dibenarkan mencetak dan mengedar manual ini tanpa kebenaran rasmi daripada penulis.

Sila ikuti langkah demi langkah sebagaimana yang dinyatakan di dalam manual. Tandakan (✓) setiap langkah yang telah selesai dibuat dan tulis kesimpulan bagi setiap aktiviti yang telah selesai dijalankan.

Instruction:

This laboratory manual is for use by the students of the School of Informatics and Applied Mathematics (PPIMG), Universiti Malaysia Terengganu (UMT) only. It is not permissible to print and distribute this manual without the official authorisation of the author.

Please follow step by step as described in the manual. Tick (✓) each step completed and write the conclusions for each completed activity.

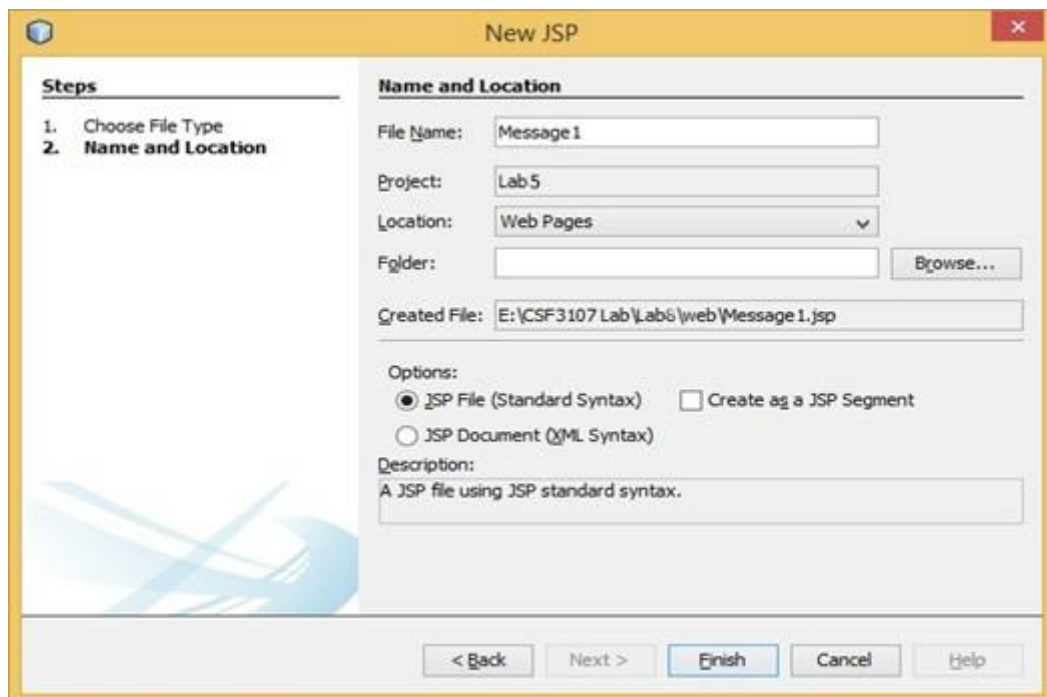
Task 1: Using Scriptlet to Access a Simple JavaBeans

Objective: Use Java Scriptlet to access JavaBeans

Problem Description: Write a JavaBeans that can display message “Welcome to CSF3107 courses....!”.

Estimated time: 20 minutes

1. Go to *Lab5*’s project.
2. Create a new JSP’s file.
3. Type file name as *Message1*.



4. Rename title as *Using JSP Scriptlet*.

5. Rename `<h1>` as *Using JSP Standard Action to call JavaBeans*.

```
9  <html>
10 <head>
11     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
12     <title>Using JSP Scriptlet </title>
13 </head>
14 <body>
15     <h1>Using JSP Scriptlet to call JavaBeans</h1>
16 </body>
17 </html>
```

6. Use JSP page directive to include the information such as content type, page info, language, lab8.com package and use java util API.

```
1  <!--
2      Document      : message1
3      Created on    : 18-Apr-2016, 16:13:08
4      Author       : Mohamad Nor Hassan
5  -->
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <%@page language="java"%>
9  <%@page info="Using JSP Standard Action to call JavaBeans"%>
10 <%@page import="java.util.Date, lab5.com.Message"%>
```

7. Use a Java scriptlet to create an object for *Message* class.

```
20 <%
21     //Create an object..
22     Message objMsg = new Message();
23
24 %>
```

8. Then, assign the value as *"Welcome to CSF3107 course....!"* via setter method *setMsg(String msg)*.

```
24 //Assign value..
25 objMsg.setMsg("Welcome to CSF3107 course....!");
```

9. Use *getMsg()*'s method to display the message at paragraph.

```
27 //Display value...
28 out.println("<p>" + objMsg.getMsg() + "</p>");
```

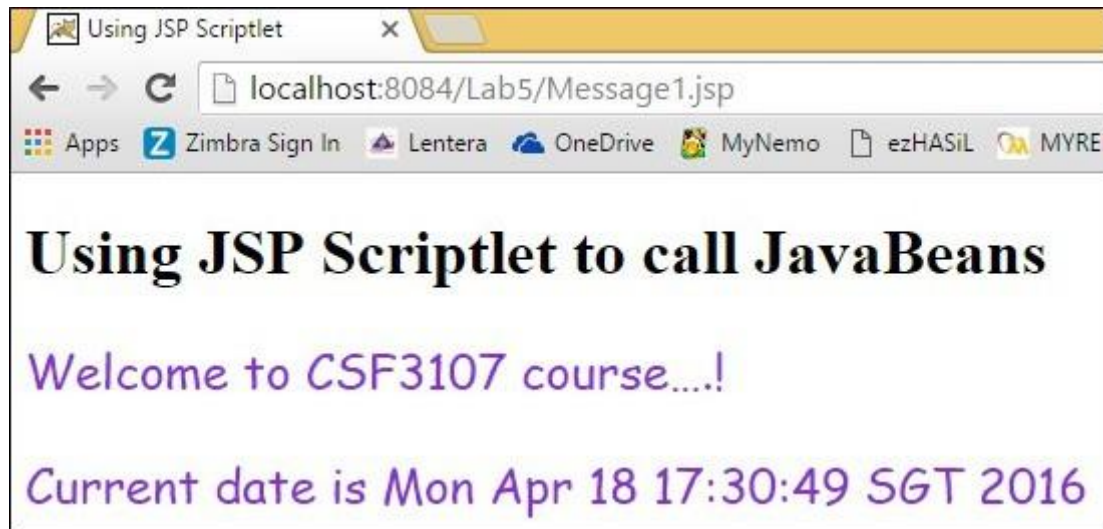

10. Add current date to the next paragraph.

```
30 //Add date..  
31 out.println("<p>Current date is " + new java.util.Date() + "</p>");
```

11. Save *Message1.jsp*

12. Compile and run *Message1.jsp*.

13. You should get the following output.



Reflection

1. What you have learnt from this exercise?

-How to use Java scriptlet to access JavaBeans

2. Explain the differences when calling JavaBeans using JSP Standard Action and Java Scriptlet.

-*JSP Standard Action: more structured approach that promotes separation of concerns*

-*Java Scriptlet: mixing business logic, making the code harder and less reusable*

Code:

Message1.jsp

```

1  <%--
2      Document    : Message1
3      Created on  : May 8, 2024, 2:49:56 PM
4      Author     : S67554 HUSNA ZAHIRA
5  --%>
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <%@page language="java"%>
9  <%@page info="Using JSP Standard Action to call JavaBeans"%>
10 <%@page import="java.util.Date, lab5.com.Message"%>
11 <!DOCTYPE html>
12 <html>
13     <head>
14         <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
15         <title>Using JSP Scriptlet</title>
16     </head>
17     <body>
18         <h1>Using JSP Scriptlet to call JavaBeans</h1>
19
20         <%
21             Message objMsg = new Message();
22             objMsg.setMsg("Welcome to CSF3107 course...!");
23             out.println("<p>" + objMsg.getMsg() + "</p>");
24             out.println("<p>Current date is " + new java.util.Date() + "</p>");
25         %>
26
27     </body>
28 </html>
29

```

html

Message.java

```

1  /-
2  * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to chan
3  * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this temp
4  */
5  package lab5.com;
6
7  /**
8   *
9   * @author USER
10  */
11 public class Message {
12     private String Msg;
13
14     /**
15      * @return the Msg
16      */
17     public String getMsg() {
18         return Msg;
19     }
20
21     /**
22      * @param Msg the Msg to set
23      */
24     public void setMsg(String Msg) {
25         this.Msg = Msg;
26     }
27
28 }
29

```

lab5.com.Message

Msg

Output

Output:

Using JSP Scriptlet to call JavaBeans

Welcome to CSF3107 course...!

Current date is Wed May 08 15:05:03 MYT 2024

Task 2: Problem Solving using JavaBeans

Objective: Use JavaBeans in JavaScriptlet


Problem Description: Create sample web form to register IT's training based on the these fees;
C++ training (values as "1")= RM3000 per pax
Java for beginner (values as "2")= RM3000 per pax
HTML5 (values as "3")= RM2800 per pax
Java EEE (values as "4")= RM5500 per pax
Android Programming (values as "5")= RM3200 per pax
Student = Yes (values as "1") and No (Values as "0")
Student will entitle 10% discount
You must cater all front-end validation.

Estimated time: 60 minutes

1. Choose Project *Lab5*.
2. Create a new JSP's file.



3. Type file name as *registerTraining*.
4. Prepare the following Graphical User Interface (GUI).

A screenshot of a web browser displaying a form titled 'Register IT Training'. The form has a header 'Training Registration' and several input fields: 'IC No' with a placeholder 'E.g.: 911210-05-1234', 'Name' with a placeholder 'Enter your name', 'Type of Training' with a dropdown menu showing 'C++ training', 'No of Pax' with a placeholder 'No of pax', and 'Student' with radio buttons for 'Yes' and 'No'. At the bottom are 'Submit' and 'Cancel' buttons. The footer of the form says '©2016-Mohamad Nor'.

5. Create a *Register* JavaBeans to cater the business requirements and store it into package *lab8.com*.
6. Create a new file name known as *processTraining.jsp*.

7. Attached the *pocessTraining.jsp*'s form to *registerTraining.jsp*.
8. Open *pocessTraining.jsp*'s and use Java Scriptlet to invoke *Register* JavaBeans.
9. Output will appear in web browser.



Reflection

1. What you have learnt from this exercise?
 - Learn on how to use javaBean in scriplet
2. Describe the steps how you construct *Register* JavaBeans?
 - Provide data fields: Provide data fields to generate a form for the registration form
 - Create java class: Create a java class for the javaBean
 - Define variables: Define private variables in the java class
 - Provide setter and getter methods: Provide public setter and getter method to allow other classes to acess the stored data
 - construct JavaBean: Instantiate the javaBean in the jsp file

Code:

registerTraining.jsp

```

1  <!--
2      Document   : registerTraining
3      Created on  : May 8, 2024, 3:25:35 PM
4      Author      : S67554 HUSNA ZAHIRA
5  -->
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <!DOCTYPE html>
9  <html>
10     <head>
11         <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
12         <title>Training Registration Form</title>
13     </head>
14     <style>
15         h1{
16             font-style: italic;
17         }
18
19         label{
20             display: inline-block;
21             margin-right: 10px;
22             width: 150px;
23         }
24     </style>
25     <body>
26         <h1>Register IT Training</h1>
27
28         <form action="processTraining.jsp">
29             <fieldset>
30                 <legend>Training Registration</legend>
31                 <label for="numIC">IC No</label>
32                 <input type="text" id="numIC" name="numIC" placeholder="E.g:911219-05-1234"><br><br>
33                 <label for="name">Name</label>
34                 <input type="text" id="name" name="name" placeholder="Enter your name"><br><br>
35
36                 <label for="training">Type of Training</label>

```

```

28     <form action="processTraining.jsp">
29         <fieldset>
30             <legend>Training Registration</legend>
31             <label for="numIC">IC No</label>
32             <input type="text" id="numIC" name="numIC" placeholder="E.g:911219-05-1234"><br><br>
33             <label for="name">Name</label>
34             <input type="text" id="name" name="name" placeholder="Enter your name"><br><br>
35
36             <label for="training">Type of Training</label>
37             <select id="training" name="training" required>
38                 <option value="1">C++ training</option>
39                 <option value="2">Java for beginner</option>
40                 <option value="3">HTML5</option>
41                 <option value="4">Java EEE</option>
42                 <option value="5">Android Programming</option>
43             </select><br><br>
44
45             <label for="PaxNum">No of Pax</label>
46             <input type="number" id="PaxNum" name="PaxNum" placeholder="No of Pax"><br><br>
47
48             <label>Student</label>
49             <input type="radio" id="Yes" name="Student" value="1">
50             <label for="Yes">Yes</label>
51             <input type="radio" id="No" name="Student" value="0">
52             <label for="No">No</label><br><br>
53
54             <input type="Submit" value="Submit">
55             <input type="reset" value="Cancel">
56         </fieldset>
57
58         <footer>
59             <p>&copy; 2024-HUSNA ZAHIRA</p>
60         </footer>
61     </form>
62 </body>
63 </html>

```

processTraining.jsp

```
1 <!--
2 Document : processTraining
3 Created on : May 8, 2024, 4:08:04 PM
4 Author : S67554 HUSNA ZAHIRA
5 -->
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <!DOCTYPE html>
9 <html>
10 <head>
11 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
12 <title>Training Registration Acknowledgement</title>
13 <style>
14     h1{
15         font-family: sans-serif;
16     }
17 </style>
18 </head>
19 <body>
20 <h1>Training Registration Acknowledgement</h1>
21 <%
22     String numIC = request.getParameter("numIC");
23     String name = request.getParameter("name");
24     String training = request.getParameter("training");
25     String paxNum = request.getParameter("PaxNum");
26     String student = request.getParameter("student");
27
28     String trainingName = "";
29     if(training != null){
30         switch(training){
31             case "1":
32                 trainingName = "C++ training";
33                 break;
34             case "2":
35                 trainingName = "Java for beginner";
36                 break;
37             case "3":
38                 trainingName = "HTML5";
39                 break;
40             case "4":
41                 trainingName = "Java EE";
42                 break;
43             case "5":
44                 trainingName = "Android Programming";
45                 break;
46             default:
47                 trainingName = "Unknown";
48                 break;
49         }
50     }
51
52     int PaxNum = 0;
53     if(paxNum != null && !paxNum.isEmpty()){
54         PaxNum = Integer.parseInt(paxNum);
55     }
56 %>
```

```
21 <%
22     String numIC = request.getParameter("numIC");
23     String name = request.getParameter("name");
24     String training = request.getParameter("training");
25     String paxNum = request.getParameter("PaxNum");
26     String student = request.getParameter("student");
27
28     String trainingName = "";
29     if(training != null){
30         switch(training){
31             case "1":
32                 trainingName = "C++ training";
33                 break;
34             case "2":
35                 trainingName = "Java for beginner";
36                 break;
37             case "3":
38                 trainingName = "HTML5";
39                 break;
40             case "4":
41                 trainingName = "Java EE";
42                 break;
43             case "5":
44                 trainingName = "Android Programming";
45                 break;
46             default:
47                 trainingName = "Unknown";
48                 break;
49         }
50     }
51
52     int PaxNum = 0;
53     if(paxNum != null && !paxNum.isEmpty()){
54         PaxNum = Integer.parseInt(paxNum);
55     }
56 %>
```

```

37         case "3":
38             trainingName = "HTML5";
39             break;
40         case "4":
41             trainingName = "Java EEE";
42             break;
43         case "5":
44             trainingName = "Android Programming";
45             break;
46         default:
47             trainingName = "Unknown";
48             break;
49     }
50 }
51
52 int PaxNum = 0;
53 if(paxNum != null && !paxNum.isEmpty()){
54     PaxNum = Integer.parseInt(paxNum);
55 }
56
57 double amountDue = 0.0;
58 if(student != null && student.equals("1")){
59     amountDue = PaxNum * 100 * 0.8;
60 } else{
61     amountDue = PaxNum * 100;
62 }
63 %>
64
65 <p>IC No: <%= numIC %></p>
66 <p>Name: <%= name %></p>
67 <p>Type of Training: <%= trainingName %></p>
68 <p>No of Pax: <%= PaxNum %></p>
69 <p>Student: <%= (student != null && student.equals("1") ? "Yes" : "No") %></p>
70 <p>Amount Due: RM <%= String.format("%.2f", amountDue) %></p>
71 </body>
72 </html>

```

Output:

Register IT Training

Training Registration

IC No	<input type="text" value="030402110278"/>
Name	<input type="text" value="HUSNA ZAHIRA BT RUZEL"/>
Type of Training	<input type="text" value="Java EEE"/>
No of Pax	<input type="text" value="3"/>
Student	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="button" value="Submit"/> <input type="button" value="Cancel"/>	

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Training Registration Acknowledgement

IC No: 030402110278

Name: HUSNA ZAHIRA BT RUZELI

Type of Training: Java EEE

No of Pax: 3

Student: No

Amount Due: RM 300.00

Task 3: Installing JSTL Taglibs

Objective: Installation of Apache Taglibs

Problem Description: To install JSTL Library

Estimated time: 25 minutes

1. Go to the browser and type URL

<http://tomcat.apache.org/taglibs/index.html>

Apache Taglibs

This project is an open source repository for JSP(tm) Tag Libraries.

In particular, Apache Taglibs hosts the [Apache Standard Taglib](#), an implementation of the JSTL specification. JSTL are implemented, and a 1.2 implementation is in the works.

2. Click on *Apache Standard Taglib*.

Standard Taglib

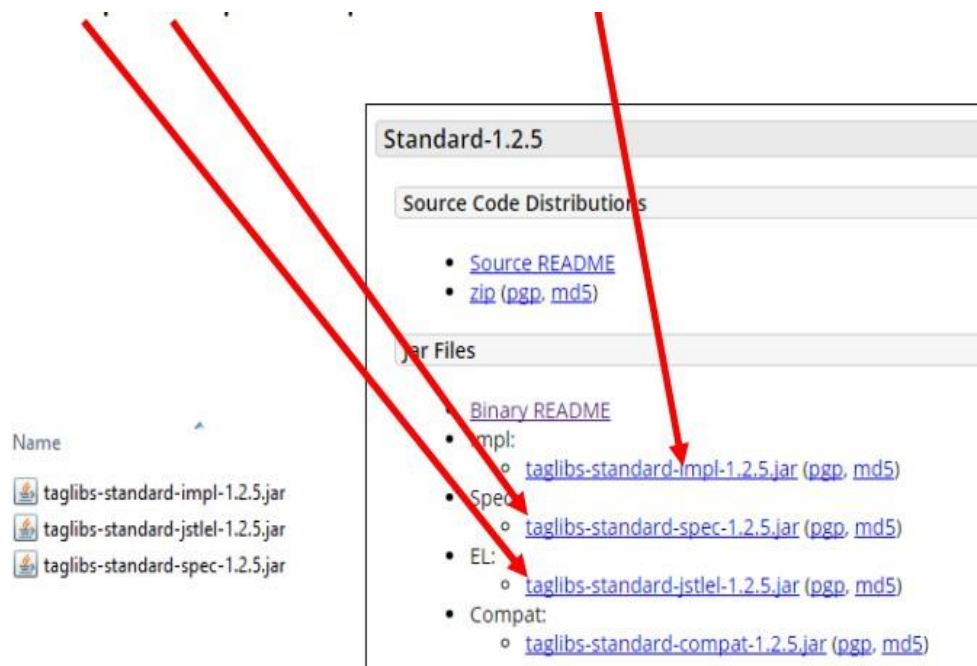
JSP(tm) Standard Tag Library implementations

Apache hosts the Apache Standard Taglib, an implementation of the [JSP Standard Tag Library \(JSTL\)](#) specification. Various versions are available.

Version	JSTL version	Requirements	Getting the Taglib
Standard 1.2.3	JSTL 1.2	Servlet 2.5, JavaServer Pages 2.1	download (javadoc)
Standard 1.1	JSTL 1.1	Servlet 2.4, JavaServer Pages 2.0	download (javadoc)
Standard 1.0	JSTL 1.0	Servlet 2.3, JavaServer Pages 1.2	download (javadoc)

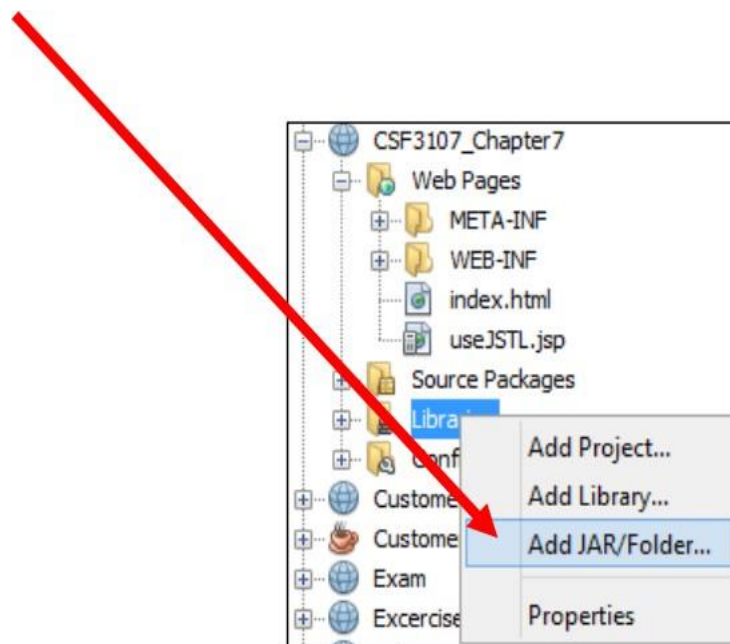
3. Choose Version 1.2 and click download link.
4. Click to jar files for Impl and save the link.

5. Repeat step 3 for Spec and EL.

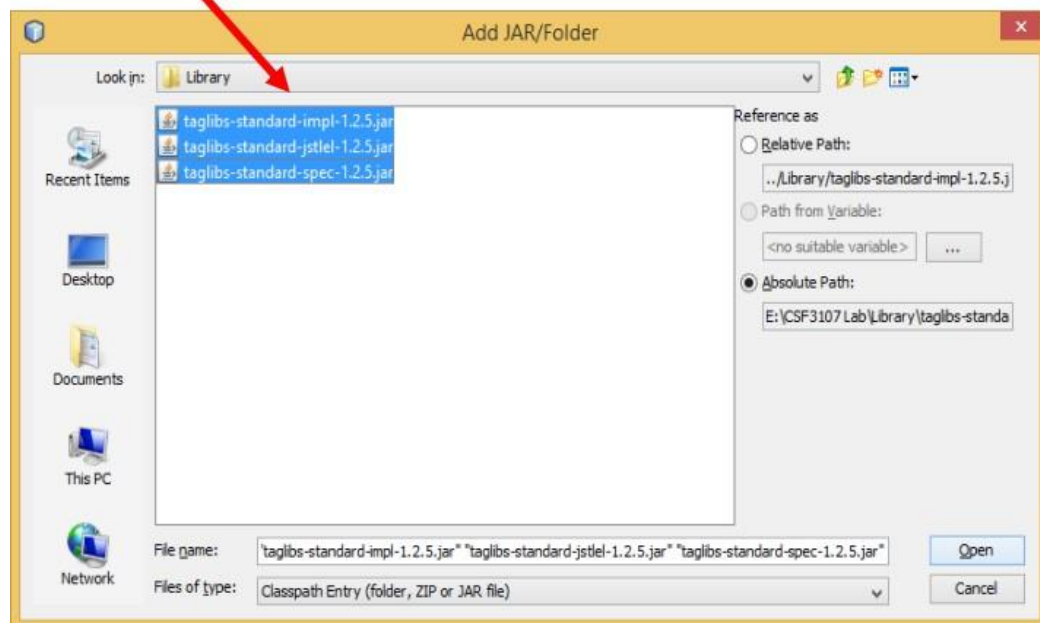


6. Go to your project -> Libraries.

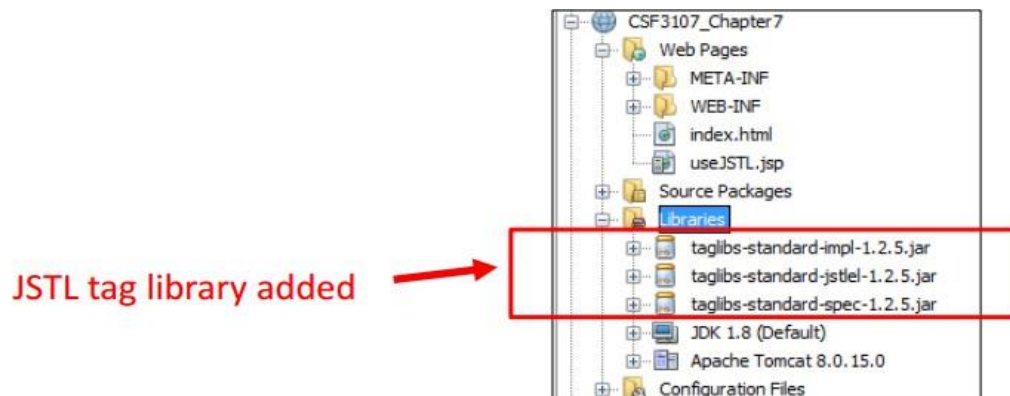
7. Right click your mouse and click to Add JAR/Folder.



8. Choose taglibs-standard-impl-1.2.5.jar, taglibs-standard-jstlel-1.2.5.jar and taglibs-standard-spec-1.2.5.jar and click Open button.



9. You will see all jars files; taglibs-standard-impl-1.2.5.jar, taglibs-standardjstlel-1.2.5.jar and taglibs-standard-spec-1.2.5.jar successfully added in Libraries's folder in NetBeans.



Reflection

What you have learnt from this exercise?
-Add Apache Taglibs into JavaBean

Output:

```
23 <dependency>
24     <groupId>org.apache.taglibs</groupId>
25     <artifactId>taglibs-standard-spec</artifactId>
26     <version>1.2.5</version>
27 </dependency>
28
29 <dependency>
30     <groupId>org.apache.taglibs</groupId>
31     <artifactId>taglibs-standard-impl</artifactId>
32     <version>1.2.5</version>
33 </dependency>
34
35 <dependency>
36     <groupId>org.glassfish.web</groupId>
37     <artifactId>jakarta.servlet.jsp.jstl</artifactId>
38     <version>2.0.0</version>
39     <scope>compile</scope>
40 </dependency>
41 </dependencies>
42
```

Task 4: Using Java Standard Tag Library (JSTL)

Objective: Using JSTL core tags directive to retrieve information from one page and display it in another JSP page and format number, currency.

Problem Description:

1. To set the value “Welcome to CSF3107 - Web Programming courses..!” and display the value using JSTL core.
2. To passing information from one page to another using JSTL core
 - i. Create userRegistration.html to key-in information.
 - ii. Create userHandler.jsp to receive information key-in from userRegistration.html.
3. Using JSTL’s fmt to format number and currency.

Estimated time: 30 minutes

Prerequisite: Must attached JSTL’s library to current Project’s directory (Refer to Chapter 7’s notes).

Task 1 Assign value “ Welcome to CS F3107-Web Programming 2 courses” and display the value inside J SP page

1. Go to project *Lab5*.
2. Create a new JSP’s file as *jstlCore1*.

3. Rename the title as *Using JSTL tag library* and `<h1>` as *Use JSTL's features*.

```
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8" />
    <title>Using JSTL tag library</title>
  </head>
  <body>
    <h1>Use JSTL's features</h1>
  </body>
</html>
```

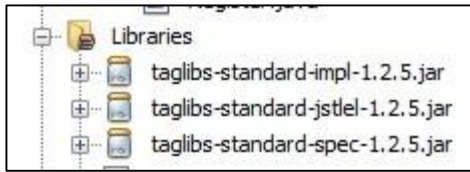
4. Before using JSTL's tag, we need to declare JSTL's library tag using Taglib directive.

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

5. Using JSTL core tag, assign the value "Welcome to CSF3107 - Web Programming courses..!" to specific variable and finally, display the message.

```
<body>
  <h1>Use JSTL's features</h1>
  <c:set var="message" value="Welcome to CSF3107 - Web Programming courses..!" />
  <p> <c:out value="${message}" /> </p>
</body>
```

- Before you compile *jstlCore1.jsp*, please ensure you already attach jar file for JSTL tag library.



- Compile and run *jstlCore1.jsp* page.

- You will get the following output.



Code:

jstlCore1.jsp

```
1 <!--
2     Document    : jstlCore1
3     Created on  : May 14, 2024, 11:18:07 PM
4     Author     : S67554 Husna Zahira
5 -->
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9 <!DOCTYPE html>
10 <html>
11 <head>
12     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
13     <title>Using JSTL tag library</title>
14 </head>
15 <body>
16     <h1>Use JSTL's features</h1>
17     <c:set var="message" value="Welcome to CSF3107 - Web Programming courses..!" />
18     <p> <c:out value="${message}" /> </p>
19 </body>
20 </html>
21
```

Output:

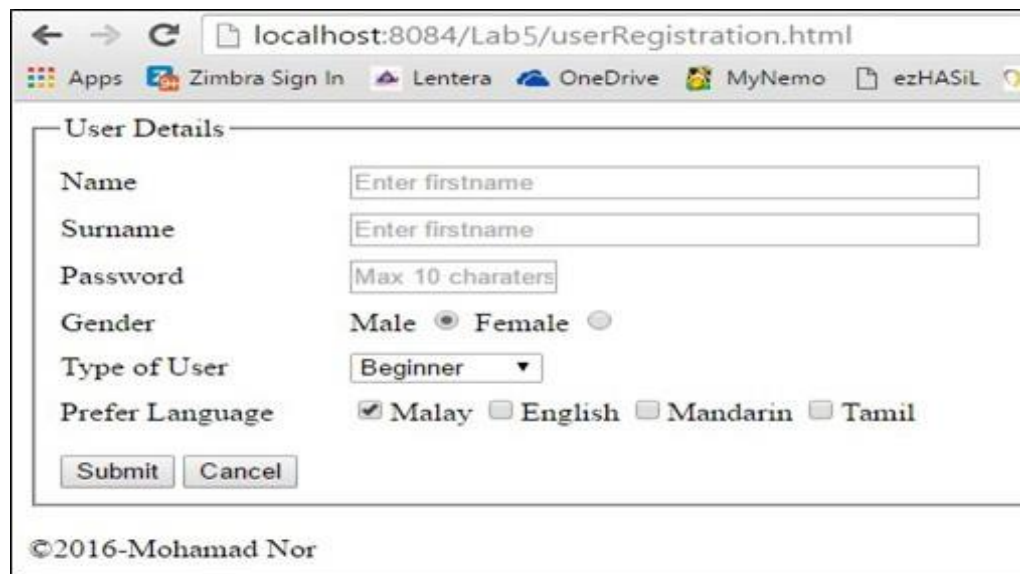
Use JSTL's features

Welcome to CSF3107 - Web Programming courses..!

Task 2-Using JSTL's core to request information from one page and display the information

Step 1

1. Go to Lab8's project.
2. Create HTML's file and rename as userRegistration.
3. Produce the following HTML's form.



The screenshot shows a web browser window with the address bar displaying 'localhost:8084/Lab5/userRegistration.html'. The browser's toolbar includes icons for 'Apps', 'Zimbra Sign In', 'Lentera', 'OneDrive', 'MyNemo', and 'ezHASiL'. The main content area contains a form titled 'User Details' with the following fields and controls:

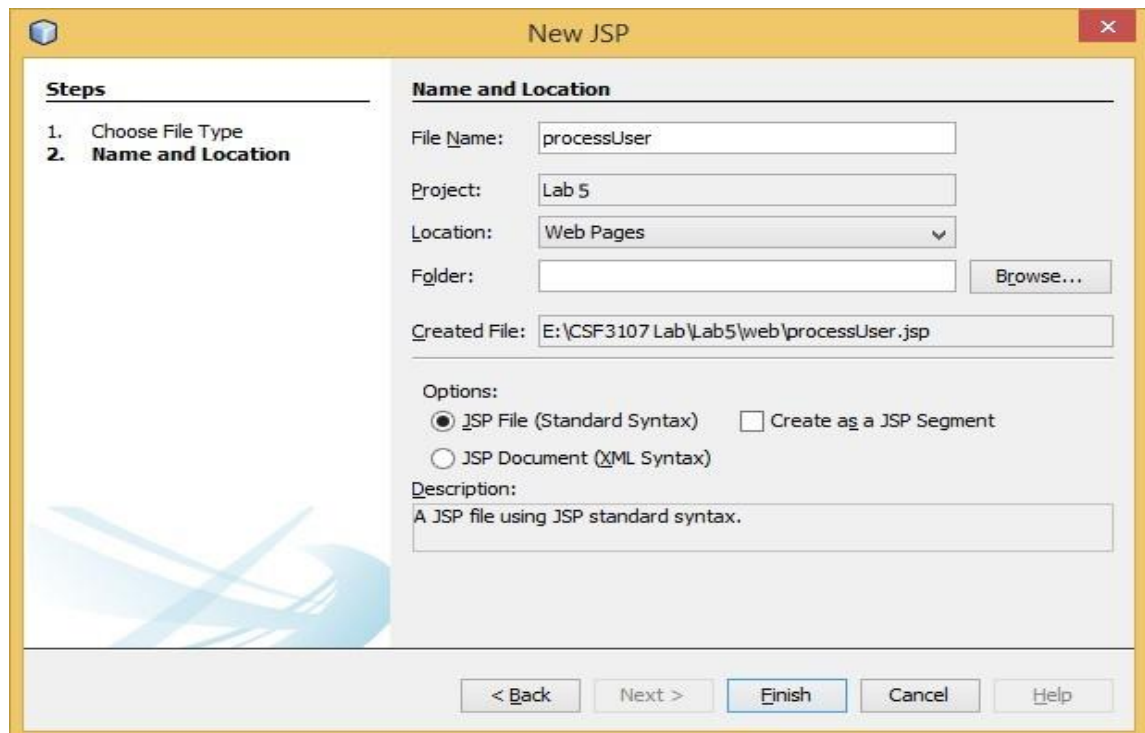
- Name:** A text input field with the placeholder text 'Enter firstname'.
- Surname:** A text input field with the placeholder text 'Enter firstame'.
- Password:** A text input field with the placeholder text 'Max 10 charaters'.
- Gender:** Two radio buttons labeled 'Male' and 'Female', with 'Male' selected.
- Type of User:** A dropdown menu currently showing 'Beginner'.
- Prefer Language:** Four checkboxes labeled 'Malay', 'English', 'Mandarin', and 'Tamil', with 'Malay' checked.
- Buttons:** 'Submit' and 'Cancel' buttons at the bottom of the form.

At the bottom of the browser window, the text '©2016-Mohamad Nor' is visible.

Note: Types of user is *Beginner*, *Intermediate* and *Advanced*

Step 2

1. Create JSP's file and rename as *processUser*.



2. Add JSTL taglib directive into the *processUser.jsp*'s page.
3. Retrieve the information by using *c:param* tag and display the information by using *c:out* tag.
4. Compile *userHandler.jsp* page.
5. Run *userRegistration.html* page and key-in the information.

User Details

Name: Mohamad Nor

Surname: Hassan

Password:

Gender: Male ☒ Female ☐

Type of User: Advanced

Prefer Language: ☒ Malay ☐ English ☐ Mandarin ☐ Tamil

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6. Click *Submit* button.

7. You will get the following output.

localhost:8084/Lab5/processUser.jsp

Apps Zimbra Sign In Lentera OneDrive MyNemo ezHASiL MYREN Cloud Picture Resizer

Retrieve info using c:param & display it using c:out

First Name : Mohamad Nor

Surname : Hassan

Gender : Male

Type of User :

Prefer Language : Malay

Code:

userRegistration.html

```
6 <html>
7 <head>
8 <title>User Registration Form</title>
9 <meta charset="UTF-8">
10 <meta name="viewport" content="width=device-width, initial-scale=1.0">
11 <style>
12 label{
13     display: inline-block;
14     width: 100px;
15     margin-bottom: 0px;
16 }
17 </style>
18 </head>
19 <body>
20
21 <form action="processUser.jsp">
22 <fieldset>
23 <legend>User Details</legend>
24 <label for="name">Name</label>
25 <input type="text" id="name" name="name" placeholder="Enter firstname"><br><br>
26 <label for="surname">Surname</label>
27 <input type="text" id="surname" name="surname" placeholder="Enter surname"><br><br>
28
29 <label for="password">Password</label>
30 <input type="password" id="password" name="password" placeholder="(Max 10 characters)" maxlength="10"><br><br>
31
32 <label>Gender</label>
33 <input type="radio" id="male" name="male" value="1">
34 <label for="male">Male</label>
35 <input type="radio" id="female" name="female" value="0">
36 <label for="female">Female</label><br><br>
37
38 <label for="userType">Type of User</label>
39 <select id="userType" name="userType" required>
40 <option value="1">Beginner</option>
41 <option value="2">Advanced</option>
42 </select>
43 </fieldset>
44 </form>
45 </body>
46 </html>
```

```

32 <label>Gender</label>
33 <input type="radio" id="male" name="male" value="1">
34 <label for="male">Male</label>
35 <input type="radio" id="female" name="female" value="0">
36 <label for="female">Female</label><br><br>
37
38 <label for="userType">Type of User</label>
39 <select id="userType" name="userType" required>
40 <option value="1">Beginner</option>
41 <option value="2">Advanced</option>
42 </select><br><br>
43
44 <label>Prefer Language</label>
45 <input type="checkbox" id="malay" name="language" value="malay">
46 <label for="malay">Malay</label>
47
48 <input type="checkbox" id="english" name="language" value="english">
49 <label for="english">English</label>
50
51 <input type="checkbox" id="mandarin" name="language" value="mandarin">
52 <label for="mandarin">Mandarin</label>
53
54 <input type="checkbox" id="tamil" name="language" value="tamil">
55 <label for="tamil">Tamil</label><br><br>
56
57 <input type="Submit" value="Submit">
58 <input type="reset" value="Cancel">
59 </fieldset>
60
61 <footer>
62 <p>&copy; 2024-HUSNA ZAHIRA</p>
63 </footer>
64 </form>
65 </body>
66 </html>

```

html body form fieldset input

processUser.jsp

```

1 <%--
2 Document : processUser
3 Created on : May 15, 2024, 12:29:23 AM
4 Author : S67554 Husna Zahira
5 --%>
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9 <!DOCTYPE html>
10 <html>
11 <head>
12 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
13 <title>Process User Data</title>
14 </head>
15 <body>
16 <h1>Retrieve info using c:param & display it using c:out</h1>
17 <c:out value="Name: ${param.name}" /><br><br>
18 <c:out value="Surname: ${param.surname}" /><br><br>
19 <c:out value="Gender: ${param.gender == '1' ? 'Male' : 'Female'}" /><br><br>
20 <c:out value="Type of user: ${param.userType == '1' ? 'Beginner' : 'Advanced'}" /><br><br>
21 <c:out value="Prefer Language: " />
22 <c:forEach items="${paramValues.language}" var="language" >
23 <c:out value="${language}" />
24 </c:forEach>
25 </body>
26 </html>

```

userHandler.jsp

```
1 <%--
2     Document    : userHandler
3     Created on  : May 15, 2024, 12:35:40 AM
4     Author     : S67554 Husna Zahira
5 --%>
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <%@taglib uri= "http://java.sun.com/jsp/jstl/core" prefix="c" %>
9 <!DOCTYPE html>
10 <html>
11 <head>
12     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
13     <title>User Registration Form</title>
14 </head>
15 <body>
16     <jsp:useBean id="userHandler" class="com.userHandler.class" scope="session" />
17     <jsp:setProperty name="userHandler" property="*" />
18
19     <c:redirect url="processUser.jsp">
20         <c:param name="name" value="${user.name}" />
21         <c:param name="surname" value="${user.surname}" />
22         <c:param name="gender" value="${user.gender}" />
23         <c:param name="userType" value="${user.userType}" />
24         <c:param name="languages" value="${user.languages}" />
25     </c:redirect>
26 </body>
27 </html>
```

Output:

User Details

Name

Zahira

Surname

Ruzeli

Password

.....

Gender

☐ Male

☒ Female

Type of User

Advanced ▾

Prefer Language

☒ Malay

☐ English

☐ Mandarin

☐ Tamil

Submit

Cancel

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Retrieve info using c:param & display it using c:out

Name: Zahira

Surname: Ruzeli

Gender: Female

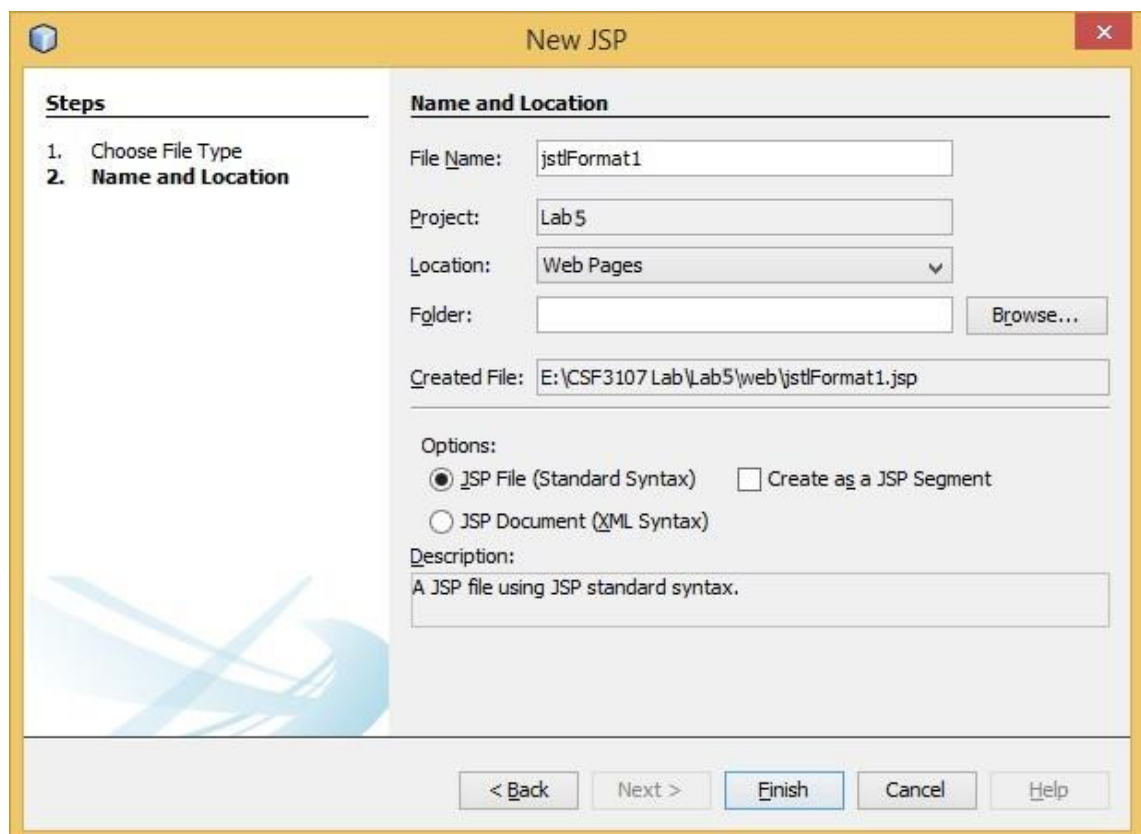
Type of user: Advanced

Prefer Language: malay

Task 3 - Using JSTL's fmt to format number and currency

Step 1

1. Create JSP's file and rename as *jstlFormat1*.



2. Add JSTL taglib directive for JSTL *core* and JSTL *formatting* into the current code.
3. Add the following code in your page.

```
<body>
  <h1>Using JSTL formatting tag for formatting</h1>

  <!-- Assign specific number to variable -->
  <c:set var="total" value="2880.4638"/>
  <p>Number to be formatted is <c:out value="\${total}"/></p>
  <p>Formatting number as currency with currency code : <fmt:formatNumber type="currency" currencyCode="MYR" value="\${total}"/></p>
  <p>Formatting number to the nearest 2 integer digit : <fmt:formatNumber type="number" maxIntegerDigits="2" value="\${total}"/></p>
  <p>Formatting number by grouping : <fmt:formatNumber type="number" groupingUsed="true" value="\${total}"/></p>
</body>
```

4. Continue to do formatting for
 - 3 decimal places
 - percentage
5. Save *jstlFormat1.jsp*
6. Compile and run *jstlFormat1.jsp*.
7. You will get the following output.



← → ↻ localhost:8084/Lab 5/jstlFormat1.jsp

Apps Zimbra Sign In Lentera OneDrive MyNemo ezHASiL MYREN Cloud Pi

Using JSTL formatting tag for formatting

Number to be formatted is 2880.4638

Formatting number as currency with currency code : MYR2,880.46

Formatting number to the nearest 2 integer digit : 80.464

Formatting number by grouping : 2,880.464

Formatting number by 3 decimal places : 2880.464

Formatting number by % : 288,046%

Code:

jstlFormat1

```

1 <!--
2 Document : jstlFormat1
3 Created on : May 15, 2024, 3:26:13 PM
4 Author : S67554 Husna Zahira
5 -->
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c"%>
9 <%@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt"%>
10 <!DOCTYPE html>
11 <html>
12 <head>
13 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
14 <title>jstlFormat1</title>
15 </head>
16 <body>
17 <h1>Using JSTL formatting tag for formatting</h1>
18
19 <c:set var="total" value="2880.4636" />
20 <p>Number to be formatted is <c:out value="${total}" /></p>
21 <p>Formatting number as currency with currency code : <fmt:formatNumber type="currency" currencyCode="MYR" value="${total}" /></p>
22 <p>Formatting number to the nearest 2 integer digit : <fmt:formatNumber type="number" maxIntegerDigits="2" value="${total}" /></p>
23 <p>Formatting number by grouping : <fmt:formatNumber type="number" groupingUsed="true" value="${total}" /></p>
24 <p>Formatting number to 3 decimal places : <fmt:formatNumber type="number" maxFractionDigits="3" value="${total}" /></p>
25 <p>Formatting number by % : <fmt:formatNumber type="percent" value="${total}" /></p>
26 </body>
27 </html>
28

```

Output:

Using JSTL formatting tag for formatting

Number to be formatted is 2880.4636

Formatting number as currency with currency code : MYR2,880.46

Formatting number to the nearest 2 integer digit : 80.464

Formatting number by grouping : 2,880.464

Formatting number to 3 decimal places : 2,880.464

Formatting number by % : 288,046%

Reflection

1. What the purpose of using JSTL's tag library?

-To simplify the development of Java Web by providing a set of tags

2. List **FIVE(5)** categories of JSTL library.

- i. <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
- ii. <%@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
- iii. <%@taglib uri="http://java.sun.com/jsp/jstl/functions" prefix="fn" %>
- iv. <%@taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql" %>
- v. <%@taglib uri="http://java.sun.com/jsp/jstl/xml" prefix="x" %>

Task 5: Using JSP Standard Tag Library

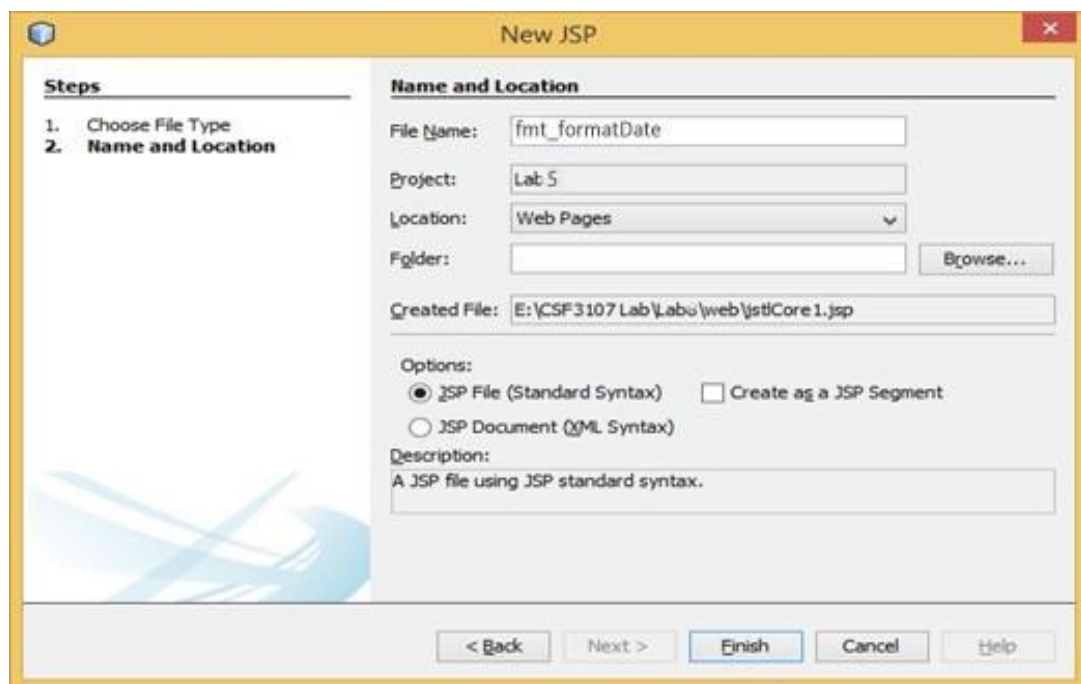
Objective: Using JSTL tags for parsing and formatting the dates.

Problem Description: 1. Using JSTL's `fmt` to format Dates.
2. Using JSTL's `fmt` to parse Dates.

Estimated time: 30 minutes

Task 1 Using JSTL's `fmt` to format Date

1. Go to project *Lab5*.
2. Create a new JSP file as *fmt_formatDate*.



2. Rename the title as *Using JSTL tag library* and `<h2>` as *Use fmt_formatDate features*.

```
<title>fmt:parseDate feature</title>
</head>
<body>
  <h2>fmt:parseDate feature</h2>
  <!-- a Date time string -->
```

4. Before using JSTL's tag, we need to declare JSTL's library tag using Taglib directive.

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

5. Add JSTL Taglib directive for JSTL core and JSTL formatting into the current code.
6. Add the following code in your page.

```
<c:set var="now" value="<%=new java.util.Date() %>" />
<p>
  Time (fmt:formatDate type="time"):
  <strong>
    <fmt:formatDate type="time" value="${now}" />
  </strong>
</p>
<p>
  Date (fmt:formatDate type="date"):
  <strong>
    <fmt:formatDate type="date" value="${now}" />
  </strong>
</p>
<p>
  Date, Time (fmt:formatDate type="both"):
  <strong>
    <fmt:formatDate type="both" value="${now}" />
  </strong>
</p>
<p>
  Date, Time Short (fmt:formatDate type="both" dateStyle="short"):
  <strong>
    <fmt:formatDate type="both" dateStyle="short" timeStyle="short" value="${now}" />
  </strong>
</p>
```

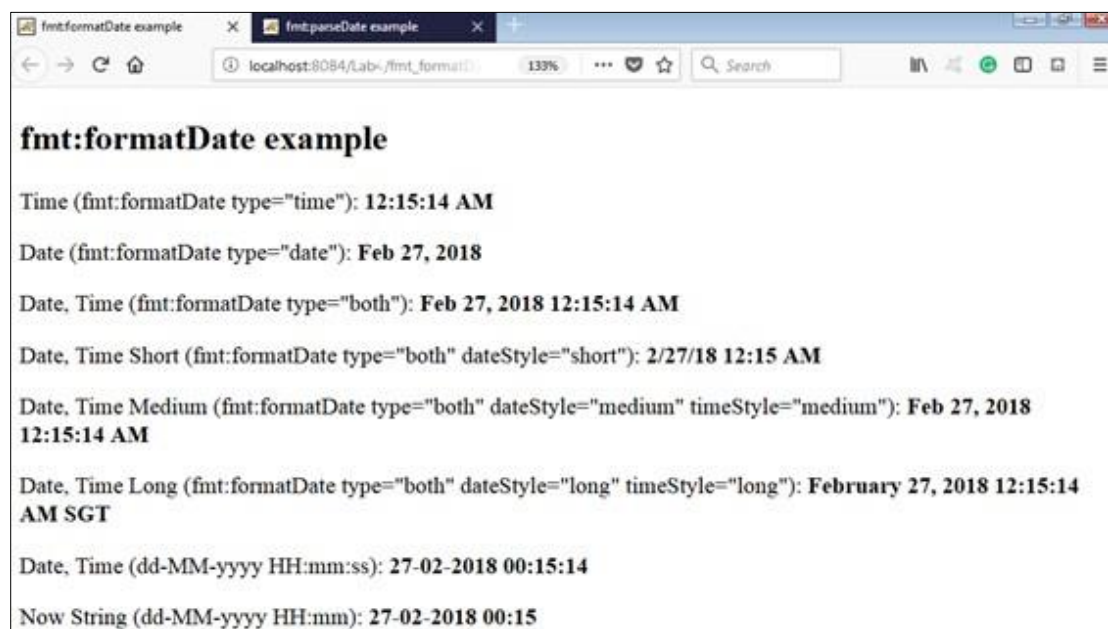
```

<p>
  Date, Time Medium (fmt:formatDate type="both" dateStyle="medium" timeStyle="medium"):
  <strong>
    <fmt:formatDate type="both" dateStyle="medium" timeStyle="medium" value="{now}" />
  </strong>
</p>
<p>
  Date, Time Long (fmt:formatDate type="both" dateStyle="long" timeStyle="long"):
  <strong>
    <fmt:formatDate type="both" dateStyle="long" timeStyle="long" value="{now}" />
  </strong>
</p>
<p>
  Date, Time (dd-MM-yyyy HH:mm:ss):
  <strong>
    <fmt:formatDate pattern="dd-MM-yyyy HH:mm:ss" value="{now}" />
  </strong>
</p>
<!-- Store in variable -->
<fmt:formatDate pattern="dd-MM-yyyy HH:mm" value="{now}" var="nowString"/>
<p>
  Now String (dd-MM-yyyy HH:mm):
  <strong>
    <c:out value="{nowString}" />
  </strong>
</p>

```

7. Compile and run *fmt_formatDate.jsp* page.

8. You will get the following output.



Code:

fmt_formatDate.jsp

```
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9  <%@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
10 <!DOCTYPE html>
11 <html>
12 <head>
13 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
14 <title>Using JSTL tag library</title>
15 </head>
16 <body>
17 <h2>Use fmt_formatDate features</h2>
18
19 <c:set var="now" value="<%=new java.util.Date() %>" />
20
21 <p>
22     Time (fmt:formatDate type="time"):
23     <strong>
24         <fmt:formatDate type="time" value="${now}" />
25     </strong>
26 </p>
27 <p>
28     Date (fmt:formatDate type="date"):
29     <strong>
30         <fmt:formatDate type="date" value="${now}" />
31     </strong>
32 </p>
33 <p>
34     Date, Time (fmt:formatDate type="both"):
35     <strong>
36         <fmt:formatDate type="both" value="${now}" />
37     </strong>
38 </p>
39 <p>
40     Date, Time Short (fmt:formatDate type="both" dateStyle="short"):
41     <strong>
42         <fmt:formatDate type="both" dateStyle="short" timeStyle="short" value="${now}" />
43     </strong>
44 </p>
45 <p>
46     Date, Time Medium (fmt:formatDate type="both" dateStyle="medium" timeStyle="medium"):
47     <strong>
48         <fmt:formatDate type="both" dateStyle="medium" timeStyle="medium" value="${now}" />
49     </strong>
50 </p>
51 <p>
52     Date, Time Long (fmt:formatDate type="both" dateStyle="long" timeStyle="long"):
53     <strong>
54         <fmt:formatDate type="both" dateStyle="long" timeStyle="long" value="${now}" />
55     </strong>
56 </p>
57 <p>
58     Date, Time (dd-MM-yyyy HH:mm:ss):
59     <strong>
60         <fmt:formatDate pattern="dd-MM-yyyy HH:mm:ss" value="${now}" />
61     </strong>
62 </p>
63 <fmt:formatDate pattern="dd-MM-yyyy HH:mm" value="${now}" var="nowString" />
64 <p>
65     Now String (dd-MM-yyyy HH:mm):
66     <strong>
67         <c:out value="${nowString}" />
68     </strong>
69 </p>
70 </body>
71 </html>
```

Output:

Use `fmt_formatDate` features

Time (`fmt:formatDate type="time"`): **4:33:45 PM**

Date (`fmt:formatDate type="date"`): **May 15, 2024**

Date, Time (`fmt:formatDate type="both"`): **May 15, 2024, 4:33:45 PM**

Date, Time Short (`fmt:formatDate type="both" dateStyle="short"`): **5/15/24, 4:33 PM**

Date, Time Medium (`fmt:formatDate type="both" dateStyle="medium" timeStyle="medium"`): **May 15, 2024, 4:33:45 PM**

Date, Time Long (`fmt:formatDate type="both" dateStyle="long" timeStyle="long"`): **May 15, 2024 at 4:33:45 PM MYT**

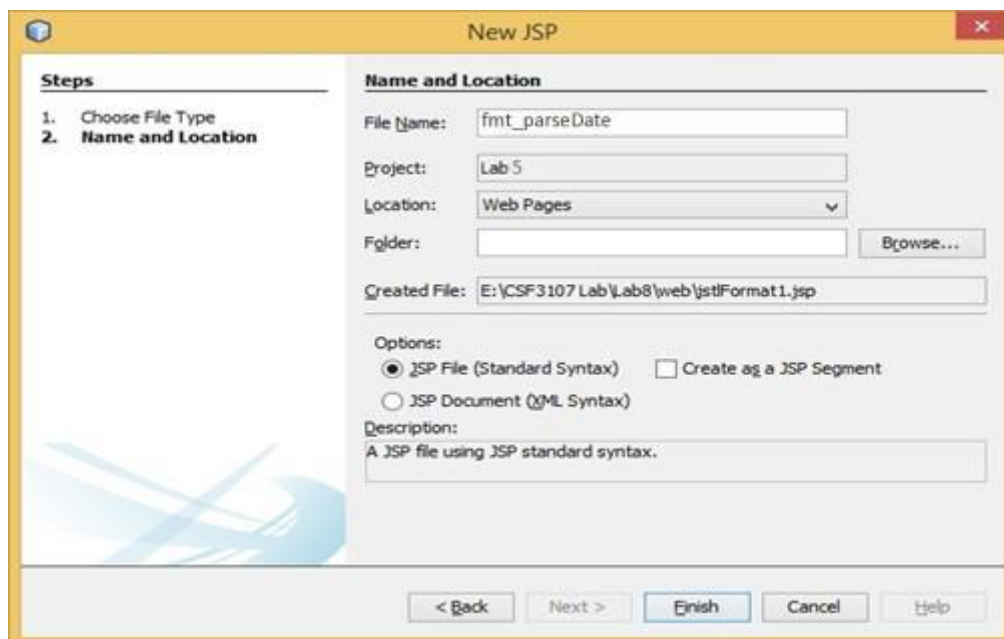
Date, Time (`dd-MM-yyyy HH:mm:ss`): **15-05-2024 16:33:45**

Now String (`dd-MM-yyyy HH:mm`): **15-05-2024 16:33**

Task 2 - Using JSTL's `fmt` to Parse Date

Step 1

1. Create JSP's file and rename as *fmt_parseDate*.



2. Add JSTL taglib directive for JSTL *core* and JSTL *formatting* into the current code.
3. Add the following code in your page.

```

<body>
  <c:set var="dateTimeString" value="17-11-2015 11:49" />
  <h4>
    dateTimeString:
    <c:out value="${dateTimeString}" />
  </h4>

  <!-- Parsing a date time string, and store in a variable type of java
  <fmt:parseDate value="${dateTimeString}"
    type="both" var="parsedDatetime" pattern="dd-MM-yyyy HH:mm" />
  <p>
    The date time after parsing:
    <c:out value="${parsedDatetime}" />
  </p>
  <br/>
  <p>
    Date only (dd/MM/yyyy):
    <fmt:formatDate value="${parsedDatetime}" pattern="dd/MM/yyyy" />
  </p>
</body>

```

5. Save *fmt_parseDate.jsp*
6. Compile and run *fmt_parseDate.jsp*.

7. You will get the following output.



Code:

Fmt_parseDate.jsp

```
1  <!--
2      Document      : fmt_parseDate
3      Created on    : May 15, 2024, 4:39:28 PM
4      Author       : S67554 Husna Zahira
5  -->
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9  <%@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
10 <!DOCTYPE html>
11 <html>
12 <head>
13     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
14     <title>fmt:parseDate example</title>
15 </head>
16 <body>
17     <h2>fmt:parseDate example</h2>
18     <c:set var="dateTimeString" value="17-11-2015 11:49" />
19     <h4>
20         dateTimeString:
21         <c:out value="${dateTimeString}" />
22     </h4>
23
24     <fmt:parseDate value="${dateTimeString}"
25                   type="both" var="parsedDateTime" pattern="dd-MM-yyyy HH:mm" />
26
27     <p>
28         The date time after parsing:
29         <c:out value="${parsedDateTime}" />
30     </p>
31     <br/>
32     <p>
33         Date only (dd/MM/yyyy):
34         <fmt:formatDate value="${parsedDateTime}" pattern="dd/MM/yyyy" />
35     </p>
36 </body>
37 </html>
```

Output:

fmt:parseDate example

dateTimeString: 17-11-2015 11:49

The date time after parsing: Tue Nov 17 11:49:00 MYT 2015

Date only (dd/MM/yyyy): 17/11/2015

Reflection

1. What you have learnt from this exercise?
 - Learn how to use JSTL format to parse date

Exercise

1. Write a JSP's form that asks the user to key-in the radius of circle. The program should calculate the area of circle and the perimeter of circle. Finally, use JSTL library to format your result into 3 decimal places.

Code:

Fmt_formatCircle.jsp

```
1 <!--
2 Document : fmt_formatCircle
3 Created on : May 17, 2024, 1:01:39 AM
4 Author : S67554 Husna Zahira
5 -->
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9 <%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
10 <!DOCTYPE html>
11 <html>
12 <head>
13 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
14 <title>Circle Calculator</title>
15 </head>
16 <body>
17 <h2>Circle Calculator</h2>
18 <form action="fmt_circleCalculator.jsp" mehtod="post">
19 Enter the radius of the circle: <input type="number" name="radius" required>
20 <button type="submit">Calculate</button>
21 </form>
22 </body>
23 </html>
```

Fmt_circleCalculator

```
1 <!--
2 Document : fmt_circleCalculator
3 Created on : May 17, 2024, 1:01:58 AM
4 Author : S67554 Husna Zahira
5 -->
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9 <%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
10 <!DOCTYPE html>
11 <html>
12 <head>
13 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
14 <title>Circle Calculator</title>
15 </head>
16 <body>
17 <h2>Results</h2>
18 <c:set var="pi" value="3.14159" />
19 <c:set var="radius" value="${param.radius}" />
20 <c:set var="area" value="${pi * radius * radius}" />
21 <c:set var="perimeter" value="${2 * pi * radius}" />
22 <p>Area of the circle: <c:out value="${area}" /></p>
23 <p>Perimeter of the circle: <c:out value="${perimeter}" /></p>
24 </body>
25 </html>
```

Output:

Circle Calculator

Enter the radius of the circle:

Results

Area of the circle: 1256.636

Perimeter of the circle: 125.6636

2. Rahim bought 800 shares of stock at a price of RM10.50 per share. He must pay her stock broker a 5 percent commission for the transaction. Write a web based program that calculates and displays the following:
- The amount paid for the stock alone without the commission.
 - The amount of the commission.
 - The total amount paid (for the stock plus the commission).

You should use JavaBeans to implement business logic and JSTL for display purposes.

Code:

stockTransactionForm.jsp

```
1  <!--
2      Document : StockTransactionForm
3      Created on : May 17, 2024, 1:56:45 AM
4      Author : S67554 Husna Zahira
5  -->
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <!DOCTYPE html>
9  <html lang="en">
10 <head>
11     <meta charset="UTF-8">
12     <meta name="viewport" content="width=device-width, initial-scale=1.0">
13     <title>Stock Transaction Form</title>
14 </head>
15 <body>
16     <h2>Stock Transaction Form</h2>
17     <form action="stockTransaction.jsp" method="post">
18         <label for="shares">Number of Shares:</label>
19         <input type="number" id="shares" name="shares" required><br><br>
20
21         <label for="pricePerShare">Price Per Share (RM):</label>
22         <input type="number" id="pricePerShare" name="pricePerShare" step="0.01" required><br><br>
23
24         <label for="commissionRate">Commission Rate (%):</label>
25         <input type="number" id="commissionRate" name="commissionRate" step="0.01" required><br><br>
26
27         <button type="submit">Calculate</button>
28     </form>
29 </body>
30 </html>
```

stockTransaction.jsp

```

1 <%--
2 Document : stockTransaction
3 Created on : May 17, 2024, 1:52:21 AM
4 Author : S67554 Husna Zahira
5 --%>
6
7 <%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8"%>
8 <%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
9 <%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
10 <!DOCTYPE html>
11 <html>
12 <head>
13 <meta charset="UTF-8">
14 <title>Stock Transaction</title>
15 </head>
16 <body>
17 <h2>Stock Transaction</h2>
18
19 <%
20     int shares = Integer.parseInt(request.getParameter("shares"));
21     double pricePerShare = Double.parseDouble(request.getParameter("pricePerShare"));
22     double commissionRate = Double.parseDouble(request.getParameter("commissionRate"));
23
24     double stockAmount = shares * pricePerShare;
25     double commissionAmount = stockAmount * (commissionRate / 100);
26     double totalAmountPaid = stockAmount + commissionAmount;
27 %>
28
29 <p>Amount paid for the stock alone (without commission): RM <fmt:formatNumber value="{stockAmount}" type="currency"/></p>
30 <p>Commission amount: RM <fmt:formatNumber value="{commissionAmount}" type="currency"/></p>
31 <p>Total amount paid (for stock plus commission): RM <fmt:formatNumber value="{totalAmountPaid}" type="currency"/></p>
32 </body>
33 </html>

```

Output:

Stock Transaction Form

Number of Shares:

Price Per Share (RM):

Commission Rate (%):

Stock Transaction

Amount paid for the stock alone (without commission): RM

Commission amount: RM

Total amount paid (for stock plus commission): RM