**UNIVERSITI MALAYSIA TERENGGANU**

**FACULTY OF COMPUTER SCIENCE AND MATHEMATICS**

**CSM3023 – WEB BASED APPLICATION DEVELOPMENT**

**LAB REPORT 5 – JSP : JAVABEANS AND JAVA STANDARD**

**TAG LIBRARY (JSTL)**

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SEMESTER II 2023/2024

# TASK 1 : USING SCRIPLET TO ACCESS A SIMPLE JAVABEANS

Objective :

- Use Java Scriptlet to access JavaBeans

## Message1.jsp

```jsp
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           <style>
17               p {
18                   color : purple;
19               }
20           </style>
21       </head>
22       <body>
23           <h1>Using JSP Scriptlet to call JavaBeans</h1>
24
25           <%
26               //create an object
27               Message objMsg = new Message();
28
29               //Assign value..
30               objMsg.setMsg("Welcome to CSM3023 course....!");
31
32               //Display value...
33               out.println("<p>" + objMsg.getMsg() + "<p>");
34
35               //Add date..
36               out.println("<p>Current date is " + new java.util.Date() + "</p>");
37           %>
38       </body>
39   </html>
```

## Message.java

```java
1    /*
2     * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
3     * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this template
4     */
5    package lab5.com;
6
7    /**
8     *HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
9     */
10   public class Message {
11
12       private String Msg;
13
14       public Message(){
15           this.Msg = Msg;
16       }
17
18       public void setMsg (String Msg) {
19           this.Msg = Msg;
20       }
21
22       public String getMsg(){
23           return Msg;
24       }
25   }
```

The output

# Using JSP Scriptlet to call JavaBeans

Welcome to CSM3023 course....!

Current date is Tue May 14 23:09:47 SGT 2024

**REFLECTION**

1. What you have learnt from this exercise?

- I learnt how use and create JavaBeans.

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

- JSP Standard Action involves XML tags example, <jsp:useBean> handles object creation, and <jsp:setProperty> sets properties. This approach keeps Java code separate from HTML, improving readability and maintainability.
- Java Scriptlet uses <% %> tags to embed Java code directly within the HTML. This provides more flexibility and control over the Java code but can make the page harder to read and maintain if there is a lot of embedded Java code.

**TASK 2: PROBLEM SOLVING USING JAVABEANS**

Objective :

- Use JavaBeans in JavaScriptlet

registerTraining.jsp

```
<%--
    Document    : registerTraining
    Created on  : May 8, 2024, 3:11:06 PM
    Author      : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="lab5.com.Register" %>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Register IT Training</title>
    </head>
    <body>
        <form action="processTraining.jsp">
        <h1>Register IT Training</h1>
    <fieldset>
        <legend>Training Registration</legend>
        <label for="IC No">IC No    </label>
        <input type="text" id="IC No" name="ICNo" placeholder="E.g.: 911210-05-1234"><br><br>

        <label for="Name">Name  </label>
        <input type="text" id="Name" name="Name" placeholder="Enter your name"><br><br>

        <label for="TypeTraining">Type of Training</label>
        <select name="TypeTraining" id="TypeTraining">
            <option value="1">C++ training</option>
            <option value="2">Java for beginner</option>
            <option value="3">HTML5</option>
            <option value="4">Java EEE</option>
            <option value="5">Android Programming</option>
        </select><br><br>

        <label name="NoOfPax">No of Pax</label>
        <input type="text" name="NoOfPax" placeholder="No of pax"><br><br>

        <label for="Student">Student    </label>
            <input type="radio" id="Yes" value="1" name="Student">
                <label for="Yes">Yes</label>
            <input type="radio" id="No" value="0" name="Student">
                <label for="No">No</label><br><br>

        <input type="submit" id="btnSubmit" name="Submit">
        <input type="reset" id="btnCancel" name="Cancel">

    </fieldset>
    </form>
    </body>
</html>
```
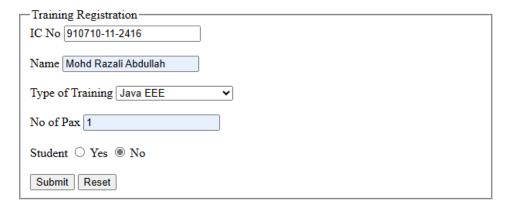
processTraining.jsp

```jsp
<%--
    Document    : processTraining
    Created on : May 8, 2024, 3:58:07 PM
    Author     : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="lab5.com.Register" %>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Process Training</title>
    </head>
    <style>
        p {
            color : blue;
        }
    </style>
    <body>
        <%
        Register reg = new Register();

        // Retrieving form parameters
        String ICNo = request.getParameter("ICNo");
        String name = request.getParameter("Name");
        int typeTraining = Integer.parseInt(request.getParameter("TypeTraining"));
        int noOfPax = Integer.parseInt(request.getParameter("NoOfPax"));
        int student = Integer.parseInt(request.getParameter("Student"));

        // Setting values in the registration object
        reg.setICNo(ICNo);
        reg.setName(name);
        reg.setTypeTraining(typeTraining);
        reg.setStudent(student);

        // Calculate fees based on the selected training type
        int fees = 0;
        String trainingName = "";
        switch (typeTraining) {
            case 1:
                trainingName = "C++ Training";
                fees = 3000;
                break;
            case 2:
                trainingName = "Java for Beginner";
                fees = 3000;
                break;
            case 3:
                trainingName = "HTML5";
                fees = 2800;
                break;
            case 4:
                trainingName = "Java EEE";
                fees = 5500;
                break;
            case 5:
                trainingName = "Android Programming";
                fees = 3200;
                break;
            default:
                trainingName = "Unknown Training";
        }
```

```
64
65          double amount = 0.0;
66          String studentStatus = "";
67          if (student == 1) {
68              amount = fees * 0.9;
69              studentStatus = "Yes";
70          } else {
71              amount = fees;
72              studentStatus = "No";
73          }
74
75          String Amount2Dec = String.format("%.2f", amount);
76
77          out.println("<h1>Training Registration Acknowledgement</h1>");
78          out.println("<p>IC No : " + ICNo + "</p>");
79          out.println("<p>Name : " + name + "</p>");
80          out.println("<p>Type of Training : " + trainingName + "</p>");
81          out.println("<p>Number of Pax : " + noOfPax + " person/s</p>");
82          out.println("<p>Student : " + studentStatus + "</p>");
83          out.println("<p>Amount Due : RM " + Amount2Dec + "</p>");
84
85          %>
86      </body>
87  </html>
```

The output

# Register IT Training

```
┌─Training Registration───────────────────────────────────┐
│ IC No  910710-11-2416                                    │
│                                                          │
│ Name   Mohd Razali Abdullah                              │
│                                                          │
│ Type of Training  Java EEE        ▼                      │
│                                                          │
│ No of Pax  1                                             │
│                                                          │
│ Student  ○ Yes  ◉ No                                     │
│                                                          │
│ Submit   Reset                                           │
└──────────────────────────────────────────────────────────┘
```

# Training Registration Acknowledgement

IC No : 910710-11-2416

Name : Mohd Razali Abdullah

Type of Training : Java EEE

Number of Pax : 1 person/s

Student : No

Amount Due : RM 5500.00

**REFLECTION**

1. What have you learnt from this exercise?

- I learned how to create a form in HTML and process the form data in JSP using JavaBeans.

2. Describe the steps how you construct Register JavaBeans?

- I constructed the Register JavaBean by defining private fields for the data, providing public getter and setter methods, and using it in JSP to handle form submissions. The JSP file retrieves form data, populates the JavaBean and processes the data.

**TASK 3 : INSTALLING JSTL TAGLIBS**

Objective :

- Installation of Apache Taglibs

This dependency that I add in netbeans.

```
29              <!-- https://mvnrepository.com/artifact/org.apache.taglibs/taglibs-standard-impl -->
30      <dependency>
31          <groupId>org.apache.taglibs</groupId>
32          <artifactId>taglibs-standard-impl</artifactId>
33          <version>1.2.5</version>
34          <scope>runtime</scope>
35      </dependency>
36
37              <!-- https://mvnrepository.com/artifact/org.apache.taglibs/taglibs-standard-spec -->
38      <dependency>
39          <groupId>org.apache.taglibs</groupId>
40          <artifactId>taglibs-standard-spec</artifactId>
41          <version>1.2.5</version>
42          <scope>runtime</scope>
43      </dependency>
44
45              <!-- https://mvnrepository.com/artifact/org.apache.taglibs/taglibs-standard-jstlel -->
46      <dependency>
47          <groupId>org.apache.taglibs</groupId>
48          <artifactId>taglibs-standard-jstlel</artifactId>
49          <version>1.2.5</version>
50          <scope>runtime</scope>
51      </dependency>
```

**TASK 4 : USING JAVA STANDARD TAG LUBRARY (JSTL)**

Objective :

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

Task 1

jstlCore1.jsp

```jsp
<%--
    Document    : jstlCore1
    Created on : May 8, 2024, 10:53:04 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar S67604
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html>
<html>
    <head>
        <style>
            p {
                color : purple;
            }
        </style>
        <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>
        <c:set var="message" value="Welcome to CSM3103 - Web Programming courses..!"/>
        <p> <c:out value="${message}"/> </p>
    </body>
</html>
```

The output.

# Use JSTL's features

Welcome to CSM3103 - Web Programming courses..!

Task 2

userRegistration.html

```html
1    <!DOCTYPE html>
2    <!--
3    Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
4    Click nbfs://nbhost/SystemFileSystem/Templates/JSP Servlet/Html.html to edit this template
5    -->
6    <html>
7        <head>
8            <title>TODO supply a title</title>
9            <meta charset="UTF-8">
10           <meta name="viewport" content="width=device-width, initial-scale=1.0">
11       </head>
12       <body>
13
14       <form id="userRegistration" action="processUser.jsp" method="post">
15           <fieldset><legend>User Details</legend>
16           <label for="name">Name</label>
17           <input type="text" id="name" name="name" required><br><br>
18           |
19           <label for="surname">Surname</label>
20           <input type="text" id="surname" name="surname" required><br><br>
21
22           <label for="password">Password</label>
23           <input type="password" id="password" name="password" required><br><br>
24
25           <label for="gender">Gender</label>
26           <input type="radio" id="male" name="gender" value="male">
27           <label for="male">Male</label>
28           <input type="radio" id="female" name="gender" value="female">
29           <label for="female">Female</label><br><br>
```

```html
31           <label for="typeuser">Type of User</label>
32           <select name="typeuser" id="typeuser">
33               <option value="Beginner">Beginner</option>
34               <option value="Intermediate">Intermediate</option>
35               <option value="Advance">Advance</option>
36           </select><br><br>
37
38           <label for="preflang">Preferred Language</label><br>
39           <input type="checkbox" id="malay" name="preflang" value="malay">
40           <label for="malay"> Malay </label>
41           <input type="checkbox" id="english" name="preflang" value="english">
42           <label for="english"> English </label>
43           <input type="checkbox" id="mandarin" name="preflang" value="mandarin">
44           <label for="mandarin"> Mandarin </label>
45           <input type="checkbox" id="tamil" name="preflang" value="tamil">
46           <label for="tamil"> Tamil </label><br><br>
47
48           <input type="submit" id="btnSubmit" value="Submit">
49           <input type="reset" id="btnCancel" value="Cancel">
50           </fieldset>
51       </form>
52   </body>
53   </html>
```

**processUser.jsp**

```jsp
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>JSP Page</title>
14           <style>
15               p {
16                   color : purple;
17               }
18           </style>
19       </head>
20       <body>
21           <c:url var="userInfoUrl" value="userHandler.jsp">
22       <c:param name="name" value="${param.name}" />
23       <c:param name="surname" value="${param.surname}" />
24       <c:param name="password" value="${param.password}" />
25       <c:param name="gender" value="${param.gender}" />
26       <c:param name="typeuser" value="${param.typeuser}" />
27       <c:param name="preflang" value="${param.preflang}" />
28           </c:url>
29
30       <h1>Retrieve info using c:param & display it using c:out</h1>
31       <p>First Name: <c:out value="${param.name}" /></p>
32       <p>Surname: <c:out value="${param.surname}" /></p>
33       <p>Gender: <c:out value="${param.gender}" /></p>
34       <p>Type of User: <c:out value="${param.typeuser}" /></p>
35       <p>Preferred Languages: <c:out value="${param.preflang}" /></p>
36
37       </body>
     </html>
```
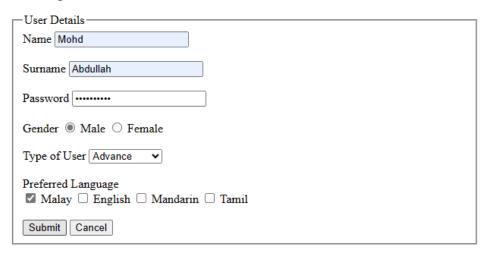
**userHandler.jsp**

```jsp
1    <%--
2        Document    : userHandler
3        Created on : May 14, 2024, 4:11:15 AM
4        Author     : User
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>JSP Page</title>
13       </head>
14       <body>
15           <p>First Name: <%= request.getParameter("name") %></p>
16           <p>Surname: <%= request.getParameter("surname") %></p>
17           <p>Gender: <%= request.getParameter("gender") %></p>
18           <p>Type of User: <%= request.getParameter("typeuser") %></p>
19           <p>Preferred Languages: <%= request.getParameter("preflang") %></p>
20       </body>
21   </html>
```

The output :



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

First Name: Mohd

Surname: Abdullah

Gender: male

Type of User: Advance

Preferred Languages: malay

Task 3

jstlFormat1.jsp

```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>JSP Page</title>
15          <style>
16              p {
17                  color : purple;
18              }
19          </style>
20      </head>
21      <body>
22          <h1>Using JSTL formatting tag for formatting</h1>
23
24          <c:set var="total" value="2880.4638"/>
25          <p>Number to be formatted is <c:out value="${total}"/></p>
26          <p>Formatting number as currency with currency code : <fmt:formatNumber type="currency" currencyCode="MYR" value="${total}"/></p>
27          <p>Formatting number to the nearest 2 digit : <fmt:formatNumber type="number" maxIntegerDigits="2" value="${total}"/></p>
28          <p>Formatting number by grouping : <fmt:formatNumber type="number" groupingUsed="true" value="${total}"/></p>
29
30
31          <p>Formatting number by 3 decimal places : <fmt:formatNumber type="number" maxFractionDigits="3" value="${total}"/></p>
32          <p>Formatting number by % : <fmt:formatNumber type="percent" value="${total}"/></p>
33      </body>
34  </html>
```

The output

# 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 digit : 80.464

Formatting number by grouping : 2,880.464

Formatting number by 3 decimal places : 2,880.464

Formatting number by % : 288,046%

**Reflection**

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

-   From this exercise, I learnt how to simplify and streamline the development of
    JavaServer Pages (JSP) by providing a set of standard, reusable tags for common tasks.

2.  List FIVE(5) categories of JSTL library.
    a.  Core tags
    b.  Formatting tags
    c.  SQL tags
    d.  XML tags
    **e.  Functions tags**

# TASK 5: USING JSP STANDARD TAG LIBRARY.

Objective :

- Using JSTL tags for parsing and formatting the dates

Task 1

Fmt_formatDate.jsp

```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>fmt:parseDate features</title>
15       </head>
16       <body>
17           <h2>fmt:parseDate features</h2>
18
19           <!-- Set the current date using JSTL -->
20       <c:set var="now" value="<%=new java.util.Date()%>" />
21
22       <p>
23           Time (fmt:formatDate type="time") :
24           <strong>
25               <fmt:formatDate type="time" value="${now}" />
26           </strong>
27       </p>
28       <p>
29           Date (fmt:formatDate type="date") :
30           <strong>
31               <fmt:formatDate type="date" value="${now}" />
32           </strong>
33       </p>
34       <p>
35           Date, Time (fmt:formatDate type="both") :
36           <strong>
37               <fmt:formatDate type="both" value="${now}" />
38           </strong>
39       </p>
```

```jsp
40        <p>
41            Date, Time Short (fmt:formatDate type="both" dateStyle="short"):
42            <strong>
43                <fmt:formatDate type="both" dateStyle="short" timeStyle="short" value="${now}" />
44            </strong>
45        </p>
46        <p>
47            Date, Time Medium (fmt:formatDate type="both" dateStyle="medium" timeStyle="medium"):
48            <strong>
49                <fmt:formatDate type="both" dateStyle="medium" timeStyle="medium" value="${now}" />
50            </strong>
51        </p>
52        <p>
53            Date, Time Long (fmt:formatDate type="both" dateStyle="long" timeStyle="long"):
54            <strong>
55                <fmt:formatDate type="both" dateStyle="long" timeStyle="long" value="${now}" />
56            </strong>
57        </p>
58        <p>
59            Date, Time (dd-MM-yyyy HH:mm:ss) :
60            <strong>
61                <fmt:formatDate pattern="dd-MM-yyyy HH:mm:ss" value="${now}" />
62            </strong>
63        </p>
64
65        <fmt:formatDate pattern="dd-MM-yyyy HH:mm" value="${now}" var="nowString" />
66        <p>
          Now String (dd-MM-yyyy HH:mm) :
68            <strong>
69                <c:out value="${nowString}" />
70            </strong>
71        </p>
72    </body>
73 </html>
```

The output.

## fmt:parseDate features

Time (fmt:formatDate type="time") : **1:01:38 AM**

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

Date, Time (fmt:formatDate type="both") : **May 15, 2024, 1:01:38 AM**

Date, Time Short (fmt:formatDate type="both" dateStyle="short"): **5/15/24, 1:01 AM**

Date, Time Medium (fmt:formatDate type="both" dateStyle="medium" timeStyle="medium"): **May 15, 2024, 1:01:38 AM**

Date, Time Long (fmt:formatDate type="both" dateStyle="long" timeStyle="long"): **May 15, 2024 at 1:01:38 AM SGT**

Date, Time (dd-MM-yyyy HH:mm:ss) : **15-05-2024 01:01:38**

Now String (dd-MM-yyyy HH:mm) : **15-05-2024 01:01**

Task 2

Fmt_parseDate.jsp

```
1   <%--
2       Document    : fmt_parseDate
3       Created on : May 14, 2024, 4:58:33 AM
4       Author      : User
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>JSP Page</title>
15      </head>
16      <body>
17          <h2>fmt:parseDate example</h2>
18          <c:set var="dateTimeString" value="17-11-2015 11:49"/>
19          <h4>dateTimeString : <c:out value="${dateTimeString}"/></h4>
20
21          <!-- Parsing a date time string, and store in a variable type of java -->
22          <fmt:parseDate value="${dateTimeString}" type="both" var="passedDateTime" pattern="dd-MM-yyyy HH:mm" />
23          <p>The date time after parsing : <c:out value="${passedDateTime}" /></p>
24          <br/>
25          <p>Date only (dd/MM/yyyy): <fmt:formatDate value="${passedDateTime}" pattern="dd/MM/yyyy"/>
26      </body>
27  </html>
```

The output.

# fmt:parseDate example

dateTimeString : 17-11-2015 11:49

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

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

**Reflection**

1. What you have learnt from this exercise?

   From this task, I learnt how to used JSP Standard Tag Library by using fmt and core.

**EXERCISE**

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.

Circle.jsp

```jsp
<%--
    Document    : circle
    Created on : May 14, 2024, 9:22:15 PM
    Author      : User
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Circle Calculations</title>
    </head>
    <body>
        <fieldset>
            <legend>Circle Calculations</legend>

        <jsp:useBean id="circle" class="lab5.com.CircleBean" scope="request">
            <jsp:setProperty name="circle" property="radius" value="${param.radius}" />
        </jsp:useBean>

        <p>Radius of Circle: <c:out value="${circle.radius}" /> cm</p>
        <p>Area of Circle: <fmt:formatNumber value="${circle.area}" type="number" maxFractionDigits="2" /> cm<sup>2</sup></p>
        <p>Perimeter of Circle: <fmt:formatNumber value="${circle.perimeter}" type="number" maxFractionDigits="2" /> cm</p>
        </fieldset>
    </body>
</html>
```

radiusCircle.jsp

```jsp
<%--
    Document    : RadiusCircle
    Created on : May 14, 2024, 9:40:12 PM
    Author      : User
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Radius Circle</title>
    </head>
    <body>
        <form id="radiusCircle" action="circle.jsp" method="post">
        <fieldset><legend>Radius of Circle </legend>
            <label for="radius"> Enter radius of Circle (in cm)</label>
            <input type="number" id="radius" name="radius" placeholder="in cm"><br><br>

            <input type="submit" id="btnSubmit" value="Submit">
            <input type="reset" id="btnCancel" value="Cancel">
        </fieldset>
        </form>
    </body>
</html>
```

CircleBean.java

```java
12    public class CircleBean {
13
14        private double radius;
15        private double area;
16        private double perimeter;
17
18        public double getRadius() {
19            return radius;
20        }
21
22        public void setRadius(double radius) {
23            this.radius = radius;
24            calculateAreaAndPerimeter();
25        }
26
27        public double getArea() {
28            return area;
29        }
30
31        public double getPerimeter() {
32            return perimeter;
33        }
34
35        private void calculateAreaAndPerimeter() {
36            this.area = Math.PI * radius * radius;
37            this.perimeter = 2 * Math.PI * radius;
38        }
39    }
```

The output.

┌─Radius of Circle───────────────────────────────────────┐
│                                                         │
│  Enter radius of Circle (in cm) [10            ▲▼]      │
│                                                         │
│  [Submit] [Cancel]                                      │
│                                                         │
└─────────────────────────────────────────────────────────┘


┌─Circle Calculations────────────────────────────────────┐
│                                                         │
│  Radius of Circle: 10.0 cm                              │
│                                                         │
│  Area of Circle: 314.16 cm$^2$                          │
│                                                         │
│  Perimeter of Circle: 62.83 cm                          │
│                                                         │
└─────────────────────────────────────────────────────────┘

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.

inputStock.jsp

```jsp
<%--
    Document   : inputStock
    Created on : May 14, 2024, 10:47:45 PM
    Author     : User
--%>

<%@ page contentType="text/html" pageEncoding="UTF-8" %>
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>Stock Purchase Input</title>
</head>
<body>
    <form action="Stock.jsp" method="post">
        <fieldset>
            <legend>Enter Stock Purchase Details</legend>
            <label for="shares">Number of Shares:</label>
            <input type="number" id="shares" name="shares" required><br><br>
            <label for="pricePerShare">Price per Share:</label>
            <input type="number" id="pricePerShare" name="pricePerShare" step="0.01" required><br><br>
            <label for="commissionRate">Commission Rate (as a decimal):</label>
            <input type="number" id="commissionRate" name="commissionRate" step="0.01" value="0.05" required><br><br>
            <input type="submit" value="Calculate">
        </fieldset>
    </form>
</body>
</html>
```

Stock.jsp

```jsp
<%@ page contentType="text/html" pageEncoding="UTF-8" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/fmt" prefix="fmt" %>
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
    <title>Stock Purchase Details</title>
</head>
<body>
    <fieldset>
        <legend>Stock Purchase Details</legend>
        <jsp:useBean id="stock" class="lab5.com.StockBean" scope="request">
            <jsp:setProperty name="stock" property="shares" value="${param.shares}" />
            <jsp:setProperty name="stock" property="pricePerShare" value="${param.pricePerShare}" />
            <jsp:setProperty name="stock" property="commissionRate" value="${param.commissionRate}" />
        </jsp:useBean>

        <p>Amount Paid for Stock Alone: RM <fmt:formatNumber value="${stock.amountPaid}" type="number" maxFractionDigits="2" /></p>
        <p>Commission Amount: RM <fmt:formatNumber value="${stock.commission}" type="number" maxFractionDigits="2" /></p>
        <p>Total Amount Paid: RM <fmt:formatNumber value="${stock.totalAmount}" type="number" maxFractionDigits="2" /></p>
    </fieldset>
</body>
</html>
```

stockBean.java

```java
12    public class StockBean {
13        private int shares;
14        private double pricePerShare;
15        private double commissionRate;
16        private double amountPaid;
17        private double commission;
18        private double totalAmount;
19
20        public int getShares() {
21            return shares;
22        }
23
24        public void setShares(int shares) {
25            this.shares = shares;
26            calculateAmounts();
27        }
28
29        public double getPricePerShare() {
30            return pricePerShare;
31        }
32
33        public void setPricePerShare(double pricePerShare) {
34            this.pricePerShare = pricePerShare;
35            calculateAmounts();
36        }
37
38        public double getCommissionRate() {
39            return commissionRate;
40        }

42        public void setCommissionRate(double commissionRate) {
43            this.commissionRate = commissionRate;
44            calculateAmounts();
45        }
46
47        public double getAmountPaid() {
48            return amountPaid;
49        }
50
51        public double getCommission() {
52            return commission;
53        }
54
55        public double getTotalAmount() {
56            return totalAmount;
57        }
58
59        private void calculateAmounts() {
60            if (shares > 0 && pricePerShare > 0) {
61                amountPaid = shares * pricePerShare;
62                commission = amountPaid * commissionRate;
63                totalAmount = amountPaid + commission;
64            }
65        }
66    }
```

The output

┌─ Enter Stock Purchase Details ──────────────────────────────────┐
│  Number of Shares: [800                    ]                     │
│                                                                  │
│  Price per Share: [10.50                ▲▼]                      │
│                                                                  │
│  Commission Rate (as a decimal): [0.05              ]           │
│                                                                  │
│  [ Calculate ]                                                   │
│                                                                  │
└──────────────────────────────────────────────────────────────────┘

┌─ Stock Purchase Details ────────────────────────────────────────┐
│                                                                  │
│  Amount Paid for Stock Alone: RM 8,400                           │
│                                                                  │
│  Commission Amount: RM 420                                       │
│                                                                  │
│  Total Amount Paid: RM 8,820                                     │
│                                                                  │
└──────────────────────────────────────────────────────────────────┘