



**UNIVERSITI MALAYSIA TERENGGANU**  
**FACULTY OF COMPUTER SCIENCE AND MATHEMATICS**

**CSM3023 – WEB BASED APPLICATION DEVELOPMENT**  
**LAB REPORT 4 – JSP : SCRIPTLET, EXPRESSION & STANDARD ACTIONS**

**PREPARED BY:**  
**HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR**  
**( S67604 )**

**PREPARED FOR:**  
**DR. MOHAMAD NOR BIN HASSAN**

**BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING)**  
**WITH HONOURS**  
**SEMESTER II 2023/2024**

## TASK 1 : USING JSP SCRIPTING

Objective :

- JSP Scriptlet and JSP Expression in application

customer.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>Customer</title>
9 <meta charset="UTF-8">
10 <meta name="viewport" content="width=device-width, initial-scale=1.0">
11 </head>
12 <body>
13 <form action="processCustomer.jsp" method="post">
14 <h1>Use JSP Scriptlet and JSP Expression in application</h1>
15 <h3 style="color: purple;">Customer discount</h3>
16 <label for="CustomerCode">Customer Code</label>
17 <input type="text" id="CustomerCode" name="CustomerCode" placeholder="Key-in customer code"><br>
18 <label for="Quantity">Quantity</label>
19 <input type="number" id="Quantity" name="Quantity" placeholder="key-in quantity"><br>
20 <label for="CustomerType">Customer Type</label>
21 <input type="radio" id="NormalCustomer" name="CustomerType" value="NormalCustomer">
22 <label for="NormalCustomer">Normal Customer</label>
23 <input type="radio" id="PrivilegeCustomer" name="CustomerType" value="PrivilegeCustomer">
24 <label for="PrivilegeCustomer">Privilege Customer</label>
25 <br>
26 <p><input type="submit" id="btnSubmit" value="Submit" />
27 <input type="reset" id="btnCancel" value="Cancel"/>
28 </p>
29 </form>
30 </body>
31 </html>
```

The output

Customer

localhost:8080/Lab4/customer.html

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### Use JSP Scriptlet and JSP Expression in application

#### Customer discount

Customer Code

Quantity

Customer Type ☐ Normal Customer ☒ Privilege Customer

processCustomer.jsp

```
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>Customer</title>
13 </head>
14 <body>
15     <h1>Use JSP Scriptlet and JSP Expression in application</h1>
16     <%
17         final int price = 10;
18
19         //Using JSP Scriptlet...
20         String cust_nol = request.getParameter("CustomerCode");
21         int quantity1 = Integer.parseInt(request.getParameter("Quantity"));
22         String cust_typed = request.getParameter("CustomerType");
23
24         //determine customer..
25         if(cust_typed.equals("1") && quantity1 > 100) {
26             out.print("You're entitle " + "10%"); %> <br> <%
27                 out.print("Total amount is RM " + quantity1 * price * 0.9);
28             } else if (cust_typed.equals("2") && quantity1 > 100) {
29                 out.print("You're entitle " + "25%"); %> <br> <%
30                 out.print("Total amount is RM " + quantity1 * price * 0.75);
31             } else {
32                 out.print("You're not entitle discount..!"); %> <br> <%
33                 out.print("Total amount is RM " + quantity1 * price);
34             }
35     %>
36 </body>
37 </html>
```

The output



## REFLECTION

1. What you have learnt from this exercise?
  - From this exercise I learnt how to use JSP scripting elements like JSP Scriptlet (<%.....%>). JSP Scriptlet allow developers to include Java code blocks within the JSP page.
2. Explain three (3) type of JSP scripting?
  - JSP Expression (<%= some Java expression %>)
    - used to embed Java expressions directly into the HTML content of the JSP page.
  - JSP Scriptlet (<% some Java code 1 to many lines %>)
    - JSP scriptlets allow developers to include Java code blocks within the JSP page.
  - JSP Declaration (<%! Variable or method declaration%>)
    - used to declare variables or methods that can be accessed throughout the JSP page.

## TASK 2: USING JSP (SCRIPTING, DECLARATION AND EXPRESSION)

Objective :

- Use JSP Declaration tag, JSP Scriptlet and JSP Expression in application.

currencyConversion.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>Currency Conversion</title>
9 <meta charset="UTF-8">
10 <meta name="viewport" content="width=device-width, initial-scale=1.0">
11 </head>
12 <body>
13 <form action="processCurrency.jsp" method="post">
14 <h1>Use JSP Declaration tag, JSP Scriptlet and JSP Expression in application</h1>
15
16 <h3 style="color: purple;">Currency Conversion</h3>
17
18 <label for="Amount">Amount (in RM)</label>
19 <input type="text" id="Amount" name="Amount" placeholder="(in RM)"> <br>
20 <label for="currency">Convert to </label>
21 <select id="currency" name="currency">
22 <option value="1">USD</option>
23 <option value="2">Pound Sterling</option>
24 <option value="3">Euro</option>
25 </select>
26 <br>
27 <p><input type="submit" id="btnSubmit" value="Submit" />
28 <input type="reset" id="btnCancel" value="Cancel"/>
29 </p>
30 </form>
31 </body>
32 </html>
```

The output :



localhost:8080/Lab4/currencyConversion.html

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## Use JSP Declaration tag, JSP Scriptlet and JSP Expression in application

### Currency Conversion

Amount (in RM)

Convert to

## processCurrency.jsp

```
1  <%--
2      Document    : processCurrency
3      Created on  : Apr 24, 2024, 4:21:59 PM
4      Author     : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
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>Currency Conversion</title>
13 </head>
14 <body>
15     <h1>Use JSP Declaration tag, JSP Scriptlet and JSP Expression in application</h1>
16
17     <%!
18         // Define constants
19         final double USD = 3.92;
20         final double STG = 5.96;
21         final double EURO = 4.47;
22
23         // Define method to perform currency exchange
24         private double calculateRate(String currency, double amount) {
25             double currencyChange = 0.00f;
26             if (currency.equals("1")) {
27                 currencyChange = (double) (amount * USD);
28             } else if (currency.equals("2")) {
29                 currencyChange = (double) (amount * STG);
30             } else if (currency.equals("3")) {
31                 currencyChange = (double) (amount * EURO);
32             }
33             return currencyChange;
```

```

34     }
35     %>
36
37     <%
38         // Retrieve values from the form
39         String amountInt = request.getParameter("Amount");
40         String currencyStr = request.getParameter("currency");
41         double amount = Double.parseDouble(amountInt);
42         int currency = Integer.parseInt(currencyStr);
43
44         // Calculate currency conversion
45         double currencyChange = calculateRate(currencyStr, amount);
46     %>
47
48     <p style="color: purple;">Amount in Ringgit Malaysia is <%= amount %></p>
49     <p style="color: purple;">Amount in
50
51         <%
52             if (currency == 1) {
53                 out.print("USD");
54             } else if (currency == 2) {
55                 out.print("Pound Sterling");
56             } else if (currency == 3) {
57                 out.print("Euro");
58             }
59         %>
60     is <%= currencyChange %>
61 </p>
62 </body>
</html>

```

The output



## REFLECTION

1. What have you learn from this exercise?
  - From this exercise I learnt how to used JSP scripting elements like JSP Scriptlet (<% ..... %>), JSP Expression (%= ..... %>) and JSP Declaration (<% ! ..... %>). JSP Scriptlet allow developers to include Java code blocks within the JSP page while JSP Declaration used to declare variables or methods that can be accessed throughout the JSP page. The last one is JSP Expression used to embed Java expressions directly into the HTML content of the JSP page.

### TASK 3 : USING JSP STANDARD ACTION (INCLUDE AND PARAM)

Objective :

- Using `<jsp:include>` and `<jsp:param>` to display information on JSP page

jspParameter.jsp

```
1 <%--
2     Document    : jspParameter
3     Created on  : Apr 24, 2024, 10:00:14 PM
4     Author     : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
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>Using JSP Standard Action</title>
13 </head>
14 <body>
15     <h1>Using jsp : include and jsp:param to display information on JSP page</h1>
16
17     <%
18         String sCode = "CSM3023";
19         String sSubject = "Web Programming 2";
20         String sCredit = "3(2+1)";
21     %>
22
23     <jsp:include page="subjectInfo.jsp" flush="true">
24         <jsp:param name="code" value="<%=sCode%"/>
25         <jsp:param name="subject" value="<%=sSubject%"/>
26         <jsp:param name="credit" value="<%=sCredit%"/>
27     </jsp:include>
28 </body>
29 </html>
```

subjectInfo.jsp

```
1 <%--
2     Document    : subjectInfo
3     Created on  : Apr 25, 2024, 1:16:26 AM
4     Author     : Harinatul Muflihun Binti Hasnul Munawar S67604
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>Using JSP standard Action</title>
13 </head>
14 <body>
15     <h1>Calling subjectInfo.jsp page</h1>
16     <p>Code = <%=request.getParameter("code")%></p>
17     <p>Subject = <%=request.getParameter("subject")%></p>
18     <p>Credit = <%=request.getParameter("credit")%></p>
19 </body>
20 </html>
```



The output :

## **Using jsp : include and jsp:param to display information on JSP page**

### **Calling subjectInfo.jsp page**

Code = CSM3023

Subject = Web Programming 2

Credit = 3(2+1)

### **Reflection**

1. What you have learnt from this exercise?
  - From this exercise, I learnt how to used JSP action elements which is JSP Include and JSP param. JSP include (<jsp:include>) used to include the contents of another resource (such as another JSP page or a servlet) in the current JSP page while JSP Param (<jsp:param>) used to pass parameters to other resources (such as another JSP page or a servlet) when including or forwarding requests
2. List TWO (2) other JSP Standard Action Tag.
  - Forward Action (<jsp:forward>)
    - Used to forward the request from the current JSP page to another resource (such as another JSP page or a servlet) for further processing.
  - UseBean Action (<jsp:useBean>)
    - Used to instantiate and access JavaBeans components within the JSP page.

## TASK 4 : USING JSP STANDARD ACTION (FORWARD)

Objective :

- Using `<jsp: forward>` to display user information and object on JSP page

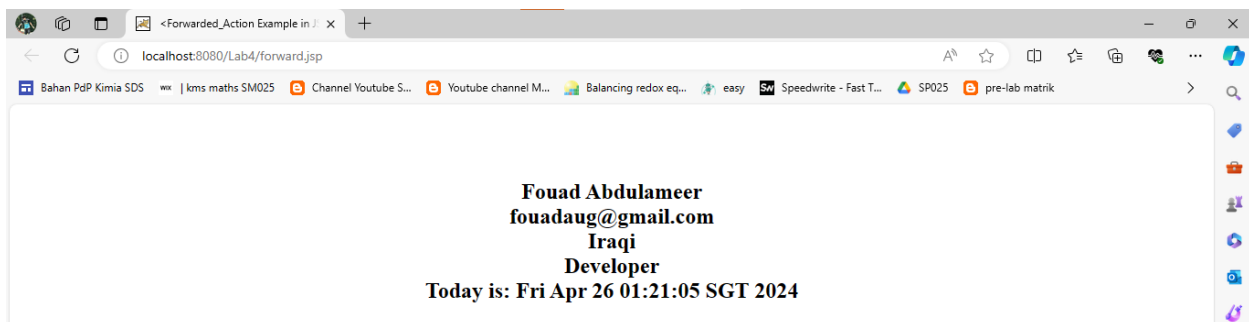
Forward.jsp

```
1  <%--
2      Document      : forward
3      Created on   : Apr 25, 2024, 11:28:35 PM
4      Author      : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
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>Using JSP Standard Action (forward)</title>
13     </head>
14     <body>
15         <h2>Using jsp:forward to display user info.</h2>
16         <jsp:forward page="forwardInfo.jsp">
17             <jsp:param name= "U_Name" value= "Fouad Abdulameer"/>
18             <jsp:param name= "Email" value= "fouadaug@gmail.com"/>
19             <jsp:param name= "Nationality" value= "Iraqi"/>
20             <jsp:param name= "Background" value= "Developer"/>
21         </jsp:forward>
22     </body>
23 </html>
```

## forwardInfo.jsp

```
1  <!--
2      Document    : forwardInfo
3      Created on  : Apr 26, 2024, 12:05:36 AM
4      Author     : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
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>&lt;Forwarded_Action Example in JSP&gt;</title>
13     </head>
14     <body>
15         <% String name = request.getParameter("U_Name"); %>
16         <% String Email = request.getParameter("Email"); %>
17         <% String Nationality = request.getParameter("Nationality"); %>
18         <% String Background = request.getParameter("Background"); %>
19         <% if (name != null) { %>
20             <br><br><br><h2 align="center">
21
22                 <%=name%><br>
23                 <%=Email%><br>
24                 <%=Nationality%><br>
25                 <%=Background%><br>
26
27                 <% out.print("Today is: " + java.util.Calendar.getInstance().getTime()); %>
28
29             </h2></b></br>
30         <%}%>
31     </body>
32 </html>
```

The output :



## Reflection

1. What you have learnt from this exercise?

From this exercise, I learnt how to use JSP action elements which is JSP forward. JSP forward (<jsp:forward>) used to forward the request from the current JSP page to another resource (such as another JSP page or a servlet) for further processing.

2. List TWO(2) More JSP Standard Action Tag.

Fallback (<jsp:fallback>)

- Used to specify the message shown on the browser if applets is not supported by browser.

Plugin (<jsp:plugin>)

- Used to generate appropriate HTML Linkage for downloading the Java Plugin to include applet/JavaBean

## TASK 5: USE JAVA SCRIPTLET TO CONSTRUCT BUSINESS LOGIC

Objective :

- Use Java Scriptlet to perform business logicmainPage.jsp

insuranceQuotation.jsp

```
<!--
Document    : insuranceQuotation
Created on  : Apr 26, 2024, 1:27:57 AM
Author     : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
-->

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Insurance Quotation</title>
</head>
<body>
<h1>Insurance Quotation</h1>
<form action="processInsuramceQuo.jsp" method="post">
<fieldset>
<legend>Insurance Calculation</legend>
<label for="ICNo">ICNo*</label>
<input type="text" id="ICNo" name="ICNo" placeholder="E.g. 821210-05-3478"><br><br>

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

<label for="Market Price">Market Price*</label>
<input type="text" id="price" name="price" placeholder="Price"><br><br>

<label for="CoverageType">Coverage Type</label>
<select id="CoverageType" name="CoverageType">
<option value="1">Third Party</option>
<option value="2">Comprehensive</option>
</select><br><br>

<label for="NCD">No Claims Discount (NCD)</label>
<select id="NCD" name="NCD">
<option value="10">10%</option>
<option value="25">25%</option>
<option value="35">35%</option>
<option value="55">55%</option>
</select><br>
<p>
<input type="submit" value="Submit" id="btnSubmit"/>
<input type="reset" value="Cancel" id="btnCancel"/>
</p>
</form>
</fieldset>
</body>
</html>
```

## processInsuramceQuo.jsp

```
<%--
Document    : processInsuramceQuo
Created on  : Apr 26, 2024, 1:36:25 PM
Author      : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>

<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Insurance Quotation</title>
</head>
<body>
<fieldset>
<legend>Details of Insurance Quotation</legend>
<%!
double total;
double amount;
String price, CoverageType, NCD;
String CoverageTypeString;

%>

<%
price = request.getParameter("price");
CoverageType = request.getParameter("CoverageType");
NCD = request.getParameter("NCD");
amount = Double.parseDouble(price);
CoverageTypeString = "";
total = 0.0;

if (CoverageType.equals("1")) {
    CoverageTypeString = "Third Party";

    if (NCD.equals("10")) {
        total = 0.033 * amount;
    }
    else if (NCD.equals("25")) {
        total = 0.025 * amount;
    }
    else if (NCD.equals("35")) {
        total = 0.018 * amount;
    }
    else if (NCD.equals("55")) {
        total = 0.012 * amount;
    }
}
```

```

48         else if (CoverageType.equals("2")) {
49             CoverageTypeString = "Comprehensive";
50
51             if (NCD.equals("10")) {
52                 total = (0.038)*amount;
53             }
54             else if (NCD.equals("25")) {
55                 total = (0.03)*amount;
56             }
57             else if (NCD.equals("35")) {
58                 total = (0.024)*amount;
59             }
60             else if (NCD.equals("55")) {
61                 total = (0.018)*amount;
62             }
63         }
64     }
65
66     double gst = 0.06*total;
67     double finalTotal = total + gst;
68
69     %>
70     <p style="color:purple">IC No: <%=request.getParameter("ICNo")%></p>
71     <p style="color:purple">Customer Name: <%=request.getParameter("Name")%></p>
72     <p style="color:purple">Market Price: <%=request.getParameter("price")%></p>
73     <p style="color:purple">Coverage Type: <%=request.getParameter("CoverageType")%></p>
74     <p style="color:purple">No Claim Discount (NCD): <%= NCD %></p>
75     <p style="color:purple">Insurance amount : <%= String.format("%.2f", total) %></p>
76     <p style="color:purple">6% GST: <%= String.format("%.2f", gst) %></p>
77     <p style="color:purple">Final Amount (with 6% GST): <%= String.format("%.2f", finalTotal) %></p>
78     </fieldset>
79     </body>
80     </html>

```

The output.

## Insurance Quotation

Insurance Calculation

ICNo\* 870510-11-2167

Name\* Mohd Razali Abdullah

Market Price\* 40000

Coverage Type Comprehensive ▼

No Claims Discount(NCD) 35% ▼

Submit Cancel

#### Details of Insurance Quotation

IC No: 870510-11-2167

Customer Name: Mohd Razali Abdullah

Market Price: 40000

Coverage Type: 2

No Claim Discount (NCD): 35%

Insurance amount : 960.00

6% GST: 57.60

Final Amount (with 6% GST): 1017.60

#### Reflection

1. What you have learnt from this exercise?

From this task, I learnt how to process user input and perform calculations using Java code embedded within JSP scriptlet.

2. List all Java features you used in Java Scriptlet.
  - Variable declaration and initialization (double, String)
  - Parsing input from request parameters (request.getParameter())
  - Conditional statements (if-else statements)
  - Mathematical calculations
  - String formatting (String.format())
  - Data type conversion (Double.parseDouble())



## EXERCISE

Write a simple application to calculate and display a person's body mass index (BMI). The BMI is often used to determine whether a person is overweight or underweight for his or her height. A person's BMI is calculated with the following formula:

$$\text{BMI} = \text{weight} / \text{height}^2$$

where weight is measured in kilogram and height is measured in meter. User should enter his or her weight and height and then display the user's BMI.

The program should also display a message indicating whether the person has optimal weight, is underweight, or is overweight. A person's weight is considered to be optimal if his or her BMI is between 18.5 and 25. If the BMI is less than 18.5, the person is considered to be underweight. If the BMI value is greater than 25, the person is considered to be overweight.

### BMI.jsp

```
1  <%--
2      Document    : BMI
3      Created on  : Apr 27, 2024, 10:46:38 AM
4      Author     : HARINATUL MUFLIHN BINTI HASNUL MUNAWAR S67604
5  --%>
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <!DOCTYPE html>
9  <html>
10 <head>
11     <title>BMI Calculator</title>
12 </head>
13 <body>
14     <fieldset>
15         <legend>Enter Weight and Height</legend>
16         <form action="calculateBMI.jsp" method="post">
17             <label for="weight">Weight (kg):</label>
18             <input type="text" id="weight" name="weight" required placeholder="0.0 kilogram"><br><br>
19
20             <label for="height">Height (m):</label>
21             <input type="text" id="height" name="height" required placeholder="0.0 meter"><br><br>
22
23             <input type="submit" value="Calculate BMI">
24             <input type="reset" value="Cancel">
25         </form>
26     </fieldset>
27 </body>
28 </html>
```

## CalculateBMI.jsp

```
1  <%--
2      Document    : calculateBMI
3      Created on  : Apr 27, 2024, 10:49:21 AM
4      Author     : HARINATUL MUFLIHUN BINTI HASNUL MUNAWAR S67604
5  --%>
6
7  <%@page contentType="text/html" pageEncoding="UTF-8"%>
8  <!DOCTYPE html>
9  <html>
10 <head>
11     <title>BMI Result</title>
12 </head>
13 <body>
14     <fieldset>
15         <legend>BMI Result</legend>
16         <%!
17             double calculateBMI(double weight, double height) {
18                 return weight / (height * height);
19             }
20
21             String determineWeightStatus(double bmi) {
22                 if (bmi < 18.5) {
23                     return "Underweight";
24                 } else if (bmi >= 18.5 && bmi <= 25) {
25                     return "Optimal weight";
26                 } else {
27                     return "Overweight";
28                 }
29             }
30         %>
31
32         <%
33             double weight = Double.parseDouble(request.getParameter("weight"));
34             double height = Double.parseDouble(request.getParameter("height"));
35
36             double bmi = calculateBMI(weight, height);
37
38             String weightStatus = determineWeightStatus(bmi);
39         %>
40
41         <p>Your BMI is: <%= String.format("%.2f", bmi) %></p>
42         <p>Weight status: <%= weightStatus %></p>
43     </fieldset>
44 </body>
45 </html>
```

The output.

Enter Weight and Height

Weight (kg):

50

Height (m):

1.5

Calculate BMI

Cancel

BMI Result

Your BMI is: 22.22

Weight status: Optimal weight