UNIVERSITI MALAYSIA TERENGGANU

CSM 3023 – WEB BASED APPLICATION DEVELOPMENT (K1)

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 2

SEMESTER II 2023/2024

Prepared for:

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(S67614)

ACTIVITY 1

```html
<!DOCTYPE html>
<!--
Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change this license
Click nbfs://nbhost/SystemFileSystem/Templates/JSP_Servlet/Html.html to edit this template
-->
<!DOCTYPE html>
<html>
<head>
    <title>Using JSP Scriptlet</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body>
    <h1>Use JSP Scriptlet and JSP Expression in Application</h1>
    <h2>Customer Discount</h2>

    <form action="processCustomer.jsp" method="post">
        <label for="customercode">Customer Code:</label>
        <input type="number" id="customercode" name="customercode" placeholder="Key-in customer code" required><br><br>

        <label for="quantity">Quantity:</label>
        <input type="number" id="quantity" name="quantity" placeholder="Key-in quantity" required><br><br>

        <label>Customer Type:</label>
        <ul id="custtype" name="custtype" required>
            <input type="radio" id="1" name="custtype" value="1" required><label for="normal">Normal Customer</label>
            <input type="radio" id="2" name="custtype" value="2" required><label for="privilege">Privilege Customer</label>
        </ul>

        <button type="submit">Calculate</button>
        <button type="reset">Clear</button>
    </form>
</body>
</html>
```

```jsp
<%--
    Document    : processCustomer
    Created on  : 27 Apr 2024, 10:59:08?am
    Author      : Iqbal Rauf
--%>

<!DOCTYPE html>
<html>
<head>
    <title>Customer Discount Calculation</title>
</head>
<body>
<%
    final int price = 10;

    String customerCode = request.getParameter("customercode");
    int quantity = Integer.parseInt(request.getParameter("quantity"));
    String customerType = request.getParameter("custtype");

    out.print("<h1>Customer Discount Calculation Result</h1>");

    if (customerType.equals("1") && quantity > 100){
        out.print("<p>You're entitled to a 10% discount</p><br>");
        out.print("<p>Total amount is RM" + quantity * price * 0.9 + "</p>");
    }
    else if (customerType.equals("2") && quantity > 100) {
        out.print("<p>You're entitled to a 25% discount</p><br>");
        out.print("<p>Total amount is RM" + quantity * price * 0.75 + "</p>");
    }
    else {
        out.print("<p>You're not entitled to a discount..!</p><br>");
        out.print("<p>Total amount is RM" + quantity * price + "</p>");
    }
%>
</body>
</html>
```

OUTPUT

Use JSP Scriptlet and JSP Expression in Application

Customer Discount

Customer Code: `123`

Quantity: `2`

Customer Type:

○ Normal Customer ◉ Privilege Customer

`Calculate` `Clear`

Customer Discount Calculation Result

You're not entitled to a discount..!

Total amount is RM20

Reflection

1. What you have learnt from this exercise?
I learned how to use Java code in JSP to create dynamic web pages, handle form submissions, and display results based on user input.

2. Explain three (3) type of JSP scripting?
- Scriptlets: Used to embed Java code directly into the HTML page.
- Expressions: Used to insert the result of a Java expression into the HTML output.
- Declarations: Used to declare variables, methods, or classes accessible throughout the JSP page.

ACTIVITY 2

CODING

```html
<html>
    <head>
        <title>currency</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
        <h1>Use JSP Sciplet and JSP Expression in application</h1>
        <h2>Currency Conversion</h2>

        <form action="processCurrency.jsp" method="post">
            <label for="amount">Amount(RM) :</label>
            <input type="number" id="amount" name="amount" placeholder="RM"required><br><br>

          <label for="convert">Convert to:</label>
                <select id="convert" name="convert" required>
                <option value="1">USD</option>
                <option value="2">Pound Sterling</option>
                <option value="3">Euro</option>

            <button type="submit">Calculate</button>
            <button ty[e="clear">Cancel</button>
            </select><br><br>

            <button type="submit">Calculate</button>
            <button ty[e="clear">Cancel</button>
            <br><br>
        </form>
    </body>
    <footer>
        &copy;2024 Iqbal Rauf
    </footer>
</html>
```

```jsp
<%--
    Document    : processCurrency
    Created on  : 27 Apr 2024, 11:21:55 am
    Author      : Iqbal Rauf
--%>

<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
    <title>Customer Discount Calculation</title>
</head>
<body>
<%
    final int price = 10;

    String customerCode = request.getParameter("customerCode");
    int quantity = Integer.parseInt(request.getParameter("quantity"));
    String customerType = request.getParameter("customerType"); // Corrected parameter name

    out.print("<h1>Customer Discount Calculation Result</h1>");

    if ("privilege".equalsIgnoreCase(customerType) && quantity > 100) {
        out.print("<p>You're entitled to a 25% discount</p><br>");
        out.print("<p>Total amount is RM" + quantity * price * 0.75 + "</p>");
    } else if ("normal".equalsIgnoreCase(customerType) && quantity > 100) {
        out.print("<p>You're entitled to a 10% discount</p><br>");
        out.print("<p>Total amount is RM" + quantity * price * 0.9 + "</p>");
    } else {
        out.print("<p>You're not entitled to a discount..!</p><br>");
        out.print("<p>Total amount is RM" + quantity * price + "</p>");
    }
%>
</body>
</html>
```

OUTPUT

Use JSP Sciplet and JSP Expression in application

Currency Conversion

Amount(RM) : [1234]

Convert to: [Pound Sterling ▾]

[Calculate] [Cancel]

©2024 Iqbal Rauf

Use JSP Scriplet and JSP Expression in application

Amount in Ringgit Malaysia: RM1234

Amount in British Pound: 207.05

©2024 Iqbal Rauf

Reflection

1. What have you learn from this exercise?
create a basic web application using JSP, incorporate JSP scriptlets to handle form submissions and
perform calculations, and format output using JSP expressions.

ACTIVITY 3

CODING

```jsp
<%--
    Document    : jspParameter
    Created on : 27 Apr 2024, 10:48:08 am
    Author      : Iqbal Rauf
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Using JSP Standard Action</title>
    </head>
    <body>
        <h1>Using JSP:include and jsp:param to display information on JSP page</h1>
        <%
            String sCode ="CSF3107";
            String sSubject ="Web Programming 2";
            String sCredit = "3(2+1)";
        %>
        <jsp:include page ="subjectInfo.jsp" flush="true">
            <jsp:param name="code" value="<%=sCode%>"/>
            <jsp:param name="subject" value="<%=sSubject%>"/>
            <jsp:param name="credit" value="<%=sCredit%>"/>
        </jsp:include>
    </body>
</html>
```

```jsp
<%--
    Document    : subjectInfo
    Created on : 27 Apr 2024, 11:09:19 am
    Author      : Iqbal Rauf
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Using JSP Standard Action</title>
    </head>
    <body>
        <h1>Calling subjectInfo.jsp page</h1>
        <P>Code = <%=request.getParameter("code")%></p>
        <P>Subject = <%=request.getParameter("subject")%></p>
        <P>Credit = <%=request.getParameter("credit")%></p>
    </body>
</html>
```

OUTPUT

Using JSP:include and jsp:param to display information on JSP page Calling subjectInfo.jsp page

Code = CSF3107

Subject = Web Programming 2

Credit = 3(2+1)

Reflection:

1. What you have learnt from this exercise?
How to use JSP Standard Actions like <jsp:include> and <jsp:param> to include content from one JSP file into another and pass parameters to it.

2. List TWO (2) other JSP Standard Action Tag.
- **<jsp:forward>**: Used to forward the request from one JSP file to another resource (like another JSP, HTML, or servlet).
- **<jsp:useBean>**: Used to declare and instantiate JavaBeans components within a JSP page.

ACTIVITY 4

CODING

```jsp
<%--
    Document    : fowardInfo
    Created on  : 30 Apr 2024, 2:35:15 am
    Author      : Iqbal Rauf
--%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>&lt;Forwarded_Action Example in JSP&gt;</title>
    </head>
    <body>

        <% String name = request.getParameter("U_Name"); %>
        <% String Email = request.getParameter("Email"); %>
        <% String Nationality = request.getParameter("Nationality"); %>
        <% String Background = request.getParameter("Background"); %>
        <% if (name != null) {%>
        <b><br><br><h2 align="center">

                <%=name%><br>
                <%=Email%><br>
                <%=Nationality%><br>
                <%=Background%><br><br>

                <% out.print("Today is:" + java.util.Calendar.getInstance().getTime());%>
            </h2></b></br>
            <%}%>
    </body>
</html>
```

```jsp
<%--
    Document    : foward
    Created on  : 30 Apr 2024, 2:38:14 am
    Author      : Iqbal Rauf
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Using JSP Standard Action(forward)</title>
    </head>
    <body>
        <h2>Using jsp:forward to display user info.</h2>
        <jsp:forward page="fowardInfo.jsp">
            <jsp:param name= "U_Name" value="Iqbal Rauf"/>
            <jsp:param name= "Email" value="mni050403@gmail.com"/>
            <jsp:param name= "Nationality" value="Malaysia"/>
            <jsp:param name= "Background" value="CEO"/>
        </jsp:forward>
    </body>
</html>
```

OUTPUT

Iqbal Rauf
mni050403@gmail.com
Malaysia
CEO

Today is: Tue Apr 30 02:40:55 MYT 2024

Reflection

1. What you have learnt from this exercise?
How to use the <jsp:forward> JSP Standard Action to forward a request from one JSP file to another while passing parameters.

2. List TWO(2) More JSP Standard Action Tag.
- **<jsp:useBean>**: Instantiates a JavaBean component or retrieves an existing one from the page context or request scope.
- **<jsp:setProperty>**: Sets properties on JavaBeans components instantiated using **<jsp:useBean>**.

ACTIVITY 5

```jsp
<%--
    Document   : InsuranceQuotation
    Created on : 27 Apr 2024, 12:32:42 pm
    Author     : Iqbal Rauf
--%>

<html>
<head>
    <title>Insurance Quotation</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <script>
        function validateForm() {
            let icno = document.getElementById("icno").value;
            let name = document.getElementById("name").value;
            let price = document.getElementById("price").value;

            if(icno === "" || name === "" || price === "") {
                alert("Please fill in all fields");
                return false;
            }
            return true;
        }
    </script>
</head>
<body>
    <h1>Insurance Quotation</h1>

    <form action="processInsuranceQuo.jsp" onsubmit="return validateForm()">
        <fieldset>
            <legend>Insurance Calculation</legend>
            <label for="icno">ICNo :</label>
            <input type="number" id="icno" name="icno"><br><br>
            <label for="name">Name :</label>
            <input type="text" id="name" name="name"><br><br>
            <label for="price">Market Price :</label>
            <input type="number" id="price" name="price"><br><br>
            <label for="cover">Coverage Type:</label>
            <select name="cover" id="cover">
                <option value="1" selected="selected">Comprehensive</option>
                <option value="2">Third-party</option>
            </select><br><br>
            <label for="disc">No claims discount (NCD):</label>
            <select name="disc" id="disc">
                <option value="1" selected="selected">10%</option>
                <option value="2">25%</option>
                <option value="3">35%</option>
                <option value="4">55%</option>
            </select><br><br>
            <button type="submit">Calculate</button>
            <button type="reset">Clear</button>
        </fieldset>
    </form>
</body>
</html>
```

```jsp
<%--
    Document    : processInsuranceQuo
    Created on  : 30 Apr 2024, 2:44:36 am
    Author      : Iqbal Rauf
--%>

<%@ page language="java" contentType="text/html; charset=UTF-8"
    pageEncoding="UTF-8"%>
<%
    String icNo = request.getParameter("icno");
    String customerName = request.getParameter("name");
    double marketPrice = Double.parseDouble(request.getParameter("price"));
    String coverageType = request.getParameter("cover");
    int ncd = Integer.parseInt(request.getParameter("disc"));

    double discount = 0.0;
    switch (ncd) {
        case 1:
            discount = 0.1;
            break;
        case 2:
            discount = 0.25;
            break;
        case 3:
            discount = 0.35;
            break;
        case 4:
            discount = 0.55;
            break;
    }

    double totalAmount = marketPrice * (1 - discount);
    double gst = totalAmount * 0.06;
    double finalAmount = totalAmount + gst;
%>
<html>
<body>
    <h1>Insurance Quotation Result</h1>
    <p>IC No: <%= icNo %></p>
    <p>Customer Name: <%= customerName %></p>
    <p>Market Price: <%= marketPrice %></p>
    <p>Coverage Type: <%= (coverageType.equals("1")) ? "Comprehensive" : "Third-party" %></p>
    <p>No Claim Discount (NCD): <%= (discount * 100) %>%</p>
    <p>Insurance Amount: <%= totalAmount %></p>
    <p>6% GST: <%= gst %></p>
    <p><strong>Final Amount (with 6% GST): <%= finalAmount %></strong></p>
</body>
</html>
```

OUTPUT

Insurance Quotation

Insurance Calculation

ICNo : 030405140341

Name : Iqbal Rauf

Market Price : 1000000

Coverage Type: Third-party

No claims discount(NCD): 55%

[Calculate] [Clear]

Insurance Quotation Result

IC No: 030405140341

Customer Name: Iqbal Rauf

Market Price: 1000000.0

Coverage Type: Third-party

No Claim Discount (NCD): 55.00000000000001%

Insurance Amount: 449999.99999999994

6% GST: 26999.999999999996

Final Amount (with 6% GST): 476999.99999999994

Reflection

1. What you have learnt from this exercise?
How to create a web form for insurance quotation using HTML and JavaScript for client-side validation. How to process form data in a JSP file (processInsuranceQuo.jsp) to calculate insurance amounts based on user input.

2. List all Java features you used in Java Scriptlet.
- Variable declaration and initialization
- Parsing string inputs to numeric values (e.g., **Double.parseDouble()**, **Integer.parseInt()**)
- Control structures (e.g., **switch-case**)

- Arithmetic operations
- Outputting dynamic content using **<%= %>** tags

EXERCISE

CODING

```jsp
<%--
    Document    : bmiCalculator
    Created on : 30 Apr 2024, 2:56:31 am
    Author      : Iqbal Rauf
--%>

<%@ page contentType="text/html;charset=UTF-8" %>
<html>
<head>
    <title>BMI Calculator</title>
</head>
<body>
    <h1>BMI Calculator</h1>
    <form method="post" action="calculateBMI.jsp">
        Enter your weight in kilograms: <input type="text" name="weight"><br>
        Enter your height in meters: <input type="text" name="height"><br>
        <input type="submit" value="Calculate BMI">
    </form>
</body>
</html>
```

```jsp
         Document    : calculateBMI
         Created on : 30 Apr 2024, 2:57:26 am
         Author     : Iqbqal Rauf
    --%>

    <%@ page contentType="text/html;charset=UTF-8" %>
    <%@ page import="java.text.DecimalFormat" %>
    <%@ page import="java.io.PrintWriter" %>

    <%
    double weight = Double.parseDouble(request.getParameter("weight"));
    double height = Double.parseDouble(request.getParameter("height"));
    double bmi = weight / (height * height);

    DecimalFormat df = new DecimalFormat("#.##");
    String bmiFormatted = df.format(bmi);

    String bmiCategory;
    if (bmi < 18.5) {
        bmiCategory = "underweight";
    } else if (bmi >= 18.5 && bmi <= 25) {
        bmiCategory = "optimal weight";
    } else {
        bmiCategory = "overweight";
    }
    %>

    <html>
    <head>
        <title>BMI Result</title>
    </head>
    <body>
        <h1>Your BMI Result</h1>
        <p>Your BMI is: <%= bmiFormatted %></p>
        <p>You are <%= bmiCategory %>.</p>
    </body>
    </html>
```

OUTPUT

BMI Calculator

Enter your weight in kilograms: `70`
Enter your height in meters: `1.7`

[Calculate BMI]

Your BMI Result

Your BMI is: 24.22

You are optimal weight.