CSM3023 – WEB PROGRAMMING 2

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 4 – JSP: Scriptlet, Expression & Standard Actions

SEMESTER II 2023/2024

Prepared for:

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Link Github :

https://github.com/arifhaikal2001/CSM3023-LAB-4.git

Task 1: Using JSP Scripting

Code :

customer.html

```html
<!DOCTYPE html>
<html>
   <head>
      <title>Using JSP Scripting</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 style="color: #B95CF4;">Customer discount</h2>

      <form action="processCustomer.jsp" method="post">
         <label for="customer_code">Customer Code:</label>
         <input type="number" id="customercode" name="customer_code"
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="cust_type" required>
            <input type="radio" id="1" name="cust_type" value="1" required><label
for="normal">Normal Customer</label>
            <input type="radio" id="2" name="cust_type" value="2" required><label
for="privilege">Privilege Customer</label>
         </ul>

         <button type="submit">Submit</button>
         <button type="reset">Cancel</button>
      </form>
       <br><br>
   </body>
   <footer>
      &copy;2024 ARIF HAIKAL
   </footer>
</html>
```

processCustomer.jsp

```jsp
<%--
    Document   : processCustomer
    Created on : 28 Apr 2024, 11:07:18 pm
    Author     : ARIF HAIKAL
--%>

<%@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 Scripting</title>
    </head>
    <body>
        <h1>Use JSP Scriptlet and JSP Expression in application</h1>
        <%
            final int price = 10;

            String customerCode = request.getParameter("customer_code");
            int quantity = Integer.parseInt(request.getParameter("quantity"));
            String customerType = request.getParameter("cust_type");

            if (customerType.equals("1") && quantity > 100){
                out.print("<p>You're entitled to a 10% discount</p>");
                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>");
                out.print("<p>Total amount is RM" + quantity * price * 0.75 + "</p>");
            }
            else {
                out.print("<p>You're not entitled to a discount..!</p>");
                out.print("<p>Total amount is RM" + quantity * price + "</p>");
            }
        %>
        <br><br>
    </body>
    <footer>
        &copy;2024 ARIF HAIKAL
    </footer>
</html>
```
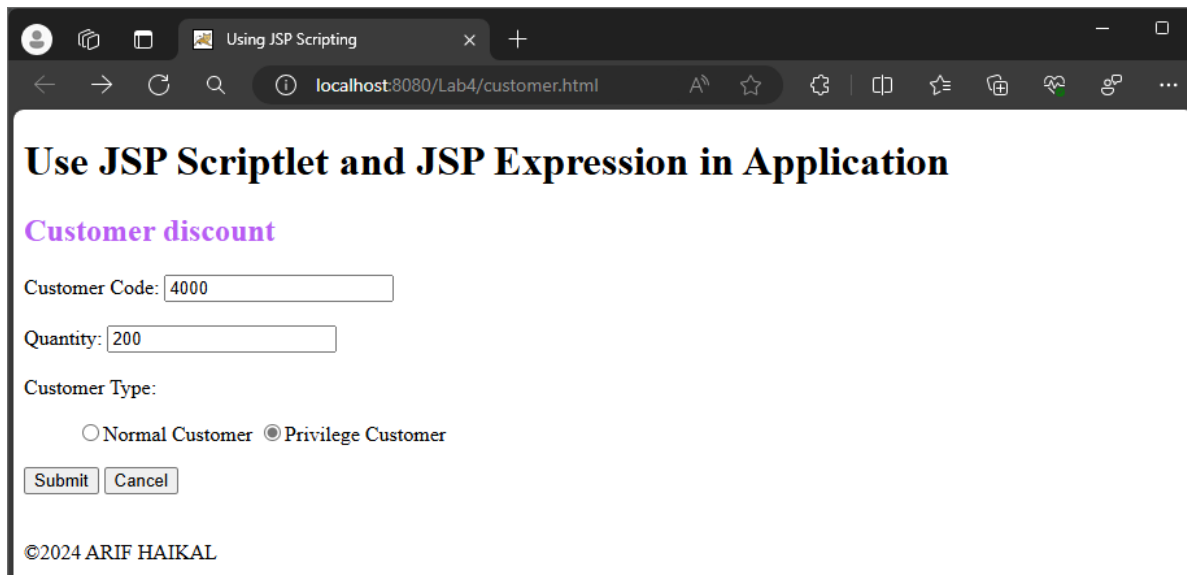
Output :

Reflection

1. What you have learnt from this exercise?

- I learnt about to create dynamic webpage using JSP.

2. Explain three (3) type of JSP scripting?

- Scriptlets
- Declarations
- Expressions

Task 2: Using JSP (Scripting, Declaration and Expression)

Code :

currencyConversion.html

```html
<!DOCTYPE html>
<html>
   <head>
      <title>Currency Conversion</title>
      <meta charset="UTF-8">
      <meta name="viewport" content="width=device-width, initial-scale=1.0">
   </head>
   <body>
      <h1>Use JSP Declaration tag, JSP Scriplet and JSP Expression in application</h1>
       <h2 style="color: #B95CF4;">Currency Conversion</h2>

      <form action="processCurrency.jsp" method="post">
        <label for="amount">Amount(in 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">STG</option>
             <option value="3">Euro</option>

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

         <input type="submit" id="btnSubmit" value="Submit"/>
         <input type="reset" id="btnCancel" value="Cancel"/>
         <br><br>
   </body>
   <footer>
      &copy;2024 ARIF HAIKAL
   </footer>
</html>
```

processCurrency.jsp

```jsp
<%--
    Document   : processCurrency
    Created on : 30 Apr 2024, 2:29:06 am
    Author     : ARIF HAIKAL
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Currency Conversion</title>
    </head>
    <body>
     <%!
        final double USD = 3.92;
        final double STG = 5.96;
        final double EURO = 4.47;

        private double calculateRate(String currency, int amount) {
            double currencyChange = 0.00;

            if (currency.equals("1"))
                currencyChange = (double) (amount / USD);
            else if (currency.equals("2"))
                currencyChange = (double) (amount / STG);
            else if (currency.equals("3"))
                currencyChange = (double) (amount / EURO);

            return currencyChange;
        }
    %>

    <%
        int amount = Integer.parseInt(request.getParameter("amount"));
        String convertTo = request.getParameter("convert");

        double result = calculateRate(convertTo, amount);
    %>

    <h1>Use JSP Scriplet and JSP Expression in application</h1>
    <p style="color: purple;">Amount in Ringgit Malaysia: RM<%= amount %></p>
    <% if (convertTo.equals("1")) { %>
        <p style="color: purple;">Amount in US Dollar: <%= String.format("%.2f", result) %></p>
    <% } else if (convertTo.equals("2")) { %>
        <p style="color: purple;">Amount in British Pound: <%= String.format("%.2f", result) %></p>
    <% } else if (convertTo.equals("3")) { %>
        <p style="color: purple;">Amount in Euro: <%= String.format("%.2f", result) %></p>
    <% } %>

    </body>
```
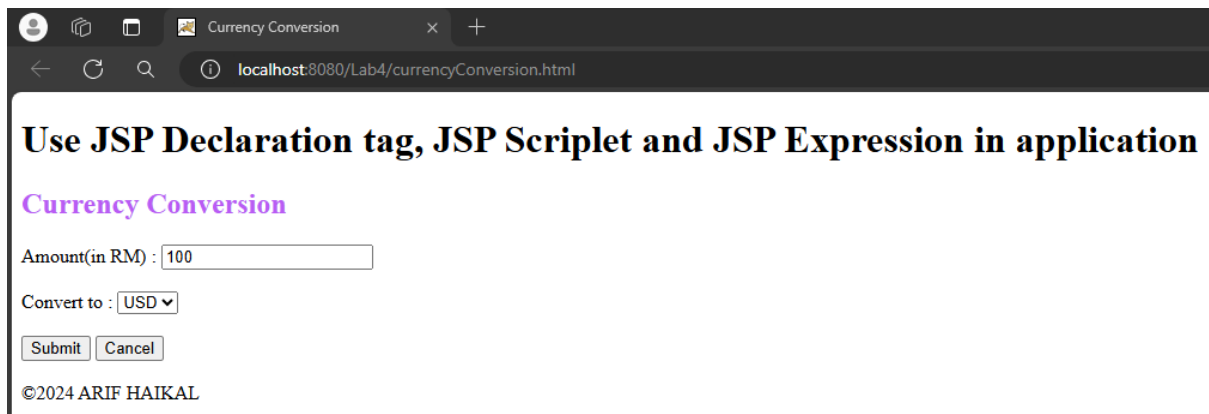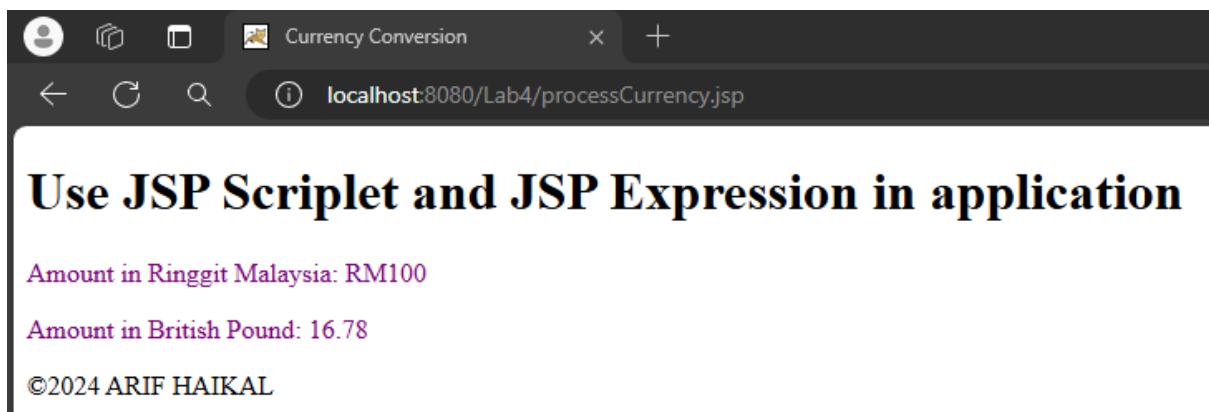
```
    <footer>
        &copy;2024 ARIF HAIKAL
    </footer>
</html>
```

Output :

- In USD

- In British Pound

- In Euro

Use JSP Scriplet and JSP Expression in application

Amount in Ringgit Malaysia: RM100

Amount in Euro: 22.37

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Reflection

1. What have you learn from this exercise?

- Create basic web using JSP including scriplets to handle form submissions and perform calculations.

Task 3: Using JSP Standard Action (Include and Param)

Code :

jspParameter.jsp

```jsp
<%--
    Document   : jspParameter
    Created on : 30 Apr 2024, 3:12:38 am
    Author     : ARIF HAIKAL
--%>

<%@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 = "CSM3223";
            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>
        <br>
    </body>
    <footer>
        &copy;2024 ARIF HAIKAL
    </footer>
</html>
```

subjectInfo.jsp

```
<%--
    Document    : subjectInfo
    Created on : 30 Apr 2024, 3:14:41 am
    Author      : ARIF HAIKAL
--%>

<%@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 Standard Action

localhost:8080/Lab4/jspParameter.jsp

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

Calling subjectInfo.jsp page

Code = CSM3223

Subject = Web Programming 2

Credit = 3(2+1)

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Reflection

1. What you have learnt from this exercise?

- How to use <jsp:include> and <jsp:param> to include content from one JSP file into another and pass parameters.

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

- <jsp:forward>
- <jsp:useBean>

Task 4: Using JSP Standard Action (Forward)

Code :

forward.jsp

```
<%--
   Document   : forward
   Created on : 30 Apr 2024, 3:38:19 am
   Author     : ARIF HAIKAL
--%>

<%@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>
         <style>
         footer {
            text-align: center;
         }
         </style>
   </head>
   <body>
      <h2>Using jsp:forward to display user info.</h2>
      <jsp:forward page="forwardInfo.jsp">
         <jsp:param name="U_Name" value="ARIF HAIKAL"/>
         <jsp:param name="Email" value="S66355@ocean.umt.edu.my"/>
         <jsp:param name="Nationality" value="Malaysia"/>
         <jsp:param name="Background" value="UMT Student"/>
      </jsp:forward>
   </body>
   <footer>
      &copy;2024 ARIF HAIKAL
   </footer>
</html>
```

forwardInfo.jsp

```jsp
<%--
    Document   : forwardInfo
    Created on : 30 Apr 2024, 3:45:13 am
    Author     : ARIF HAIKAL
--%>

<%@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>
        <style>
            footer {
                text-align: center;
            }
        </style>
    </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) {%>
        <br><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>
    <footer>
        &copy;2024 ARIF HAIKAL
    </footer>
</html>
```
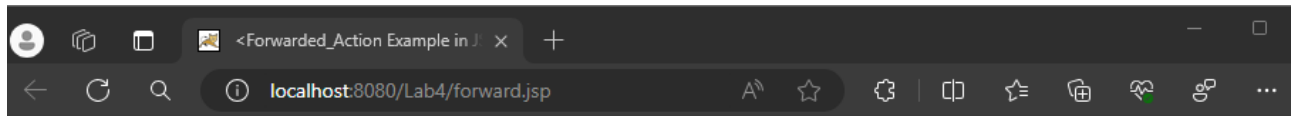
Output :

Reflection

1. What you have learnt from this exercise?

- How to use JSP to forward a request from JSP to the another JSP.

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

- <jsp:useBean>
- <jsp:setProperty>

Task 5: Use Java Scriptlet To Construct Business Logic

Code :

insuranceQuotation.jsp

```jsp
<%--
    Document   : insuranceQuotation
    Created on : 30 Apr 2024, 10:56:26 am
    Author     : ARIF HAIKAL
--%>

<%@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>

        <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">
```

```html
            <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">Submit</button>
          <button type="reset">Cancel</button>
        </fieldset>
        <br>
    </body>
    <footer>
      &copy;2024 ARIF HAIKAL
    </footer>
</html>
```

processInsuranceQuo.jsp

```jsp
<%--
    Document   : processInsuranceQuo
    Created on : 30 Apr 2024, 10:56:42 am
    Author     : ARIF HAIKAL
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>Details Insurance</title>
    </head>
    <body>
        <%
            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;
    %>

    <fieldset>
        <legend><h3>Details of Insurance Quotation</h3></legend>
            <p style="color: #7D0DC3;">IC No: <%= icNo %></p>
            <p style="color: #7D0DC3;">Customer Name: <%= customerName %></p>
            <p style="color: #7D0DC3;">Market Price: <%= marketPrice %></p>
            <p style="color: #7D0DC3;">Coverage Type: <%=
(coverageType.equals("1")) ? "Comprehensive" : "Third-party" %></p>
            <p style="color: #7D0DC3;">No Claim Discount (NCD): <%= (discount * 100)
%>%</p>
            <p style="color: #7D0DC3;">Insurance Amount: <%= totalAmount %></p>
            <p style="color: #7D0DC3;">6% GST: <%= gst %></p>
            <p style="color: #7D0DC3;"><strong>Final Amount (with 6% GST): <%=
finalAmount %></strong></p>

        </<fieldset>
    </body>
</html>
```
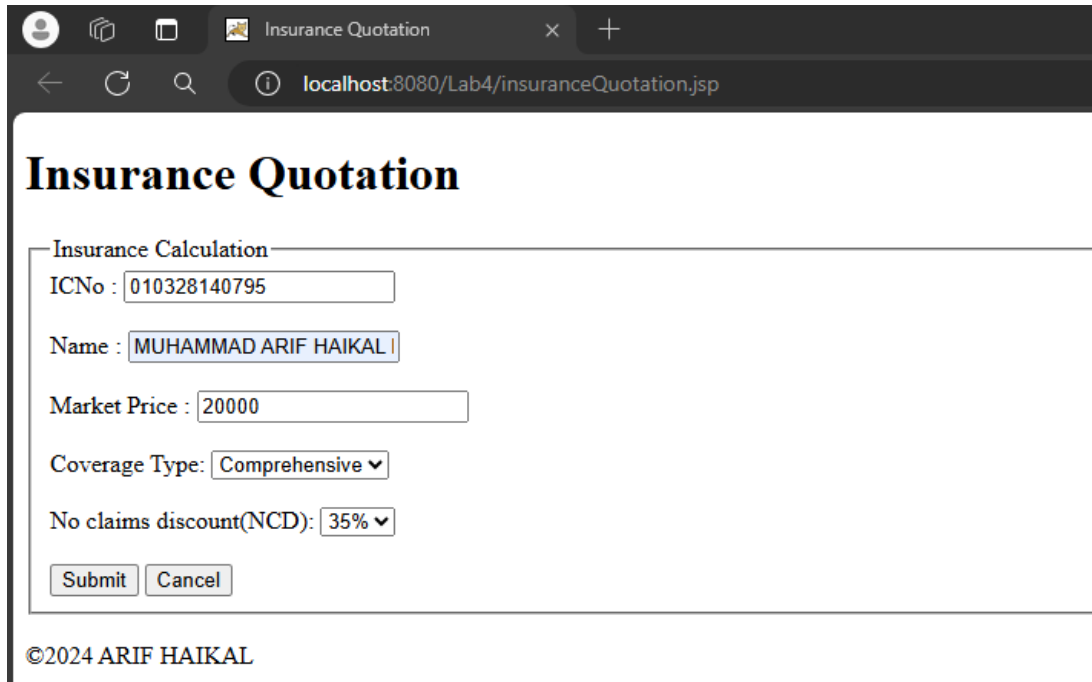
Output :

Insurance Quotation

localhost:8080/Lab4/insuranceQuotation.jsp

Insurance Quotation

┌─Insurance Calculation─────────────────────────────
│ ICNo : 010328140795
│
│ Name : MUHAMMAD ARIF HAIKAL I
│
│ Market Price : 20000
│
│ Coverage Type: Comprehensive ∨
│
│ No claims discount(NCD): 35% ∨
│
│ Submit   Cancel
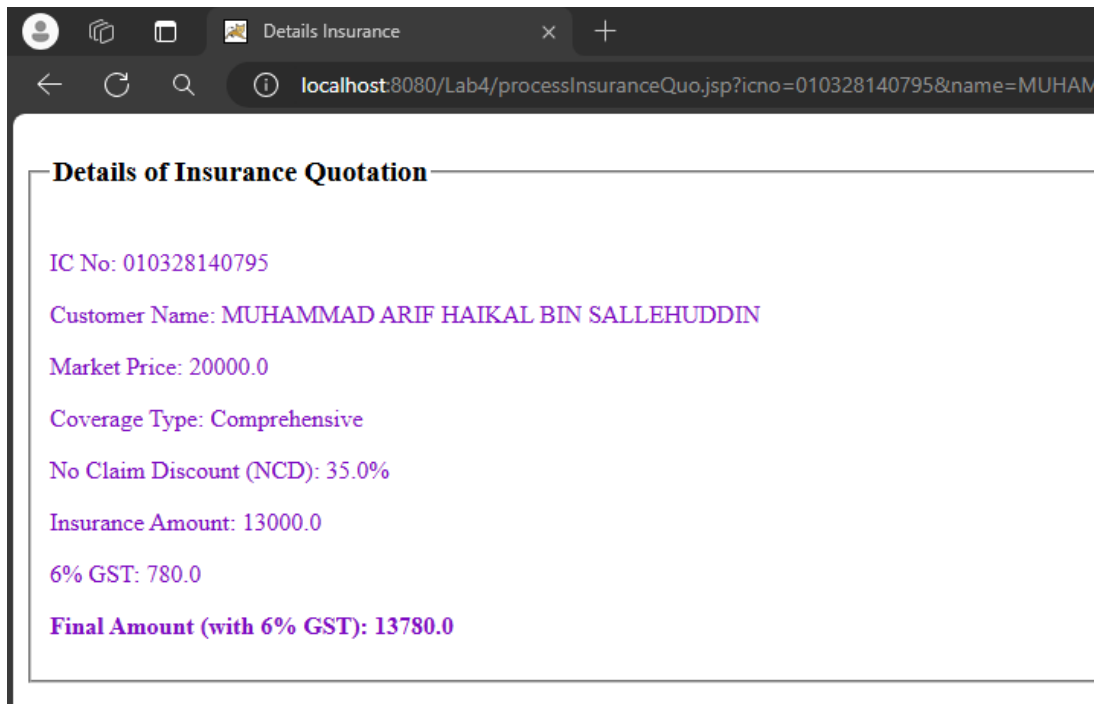
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Details Insurance

localhost:8080/Lab4/processInsuranceQuo.jsp?icno=010328140795&name=MUHAM

┌─Details of Insurance Quotation─────────────────────

IC No: 010328140795

Customer Name: MUHAMMAD ARIF HAIKAL BIN SALLEHUDDIN

Market Price: 20000.0

Coverage Type: Comprehensive

No Claim Discount (NCD): 35.0%

Insurance Amount: 13000.0

6% GST: 780.0

Final Amount (with 6% GST): 13780.0

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

2. List all Java features you used in Java Scriptlet.

- Java expressions
- Declarations
- Scriptlets for dynamic content generation

Exercise

Code :

bmiCalculator.jsp

```jsp
<%--
   Document   : bmiCalculator
   Created on : 30 Apr 2024, 11:30:54 am
   Author     : ARIF HAIKAL
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
   <head>
      <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
      <title>BMI Calculator</title>
   </head>
   <body>
      <h1>BMI Calculator</h1>

      <form method="post" action="bmiCalculated.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>
   <br>
   </body>
   <footer>
      &copy;2024 ARIF HAIKAL
   </footer>
</html>
```

bmiCalculated.jsp

```jsp
<%--
    Document   : bmiCalculated
    Created on : 30 Apr 2024, 11:30:02 am
    Author     : ARIF HAIKAL
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@ page import="java.text.DecimalFormat" %>
<%@ page import="java.io.PrintWriter" %>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>BMI Calculated</title>
    </head>
    <body>
        <h1>BMI Calculated</h1>

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

            double bmi = weight / (height * height);

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

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

        <p>Your BMI is: <%= bmiFormatted %></p>
        <p>You are <%= bmiCategory %>.</p>
    </body>
    <footer>
        &copy;2024 ARIF HAIKAL
    </footer>
</html>
```
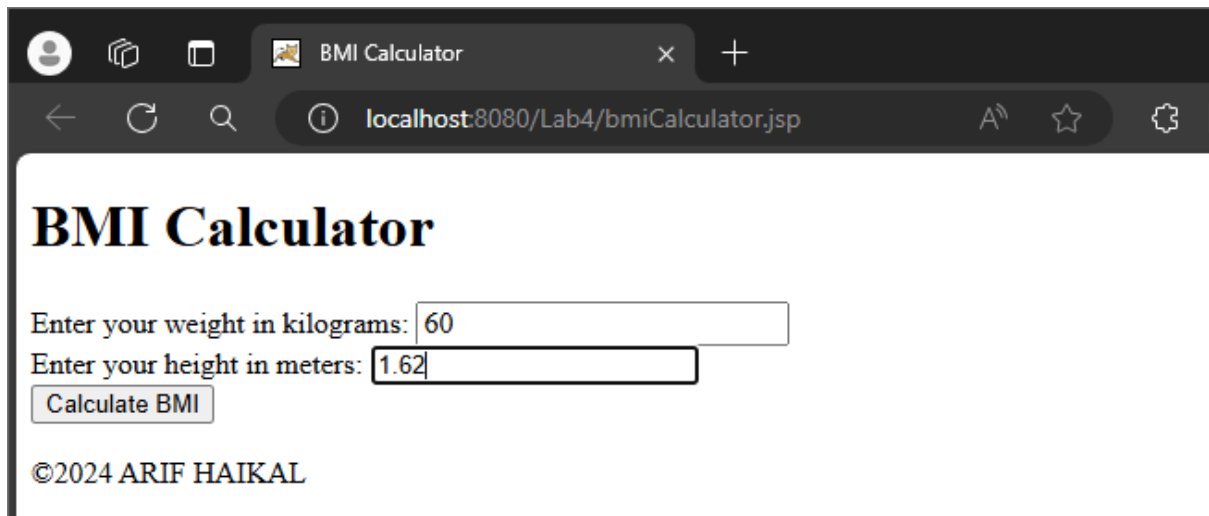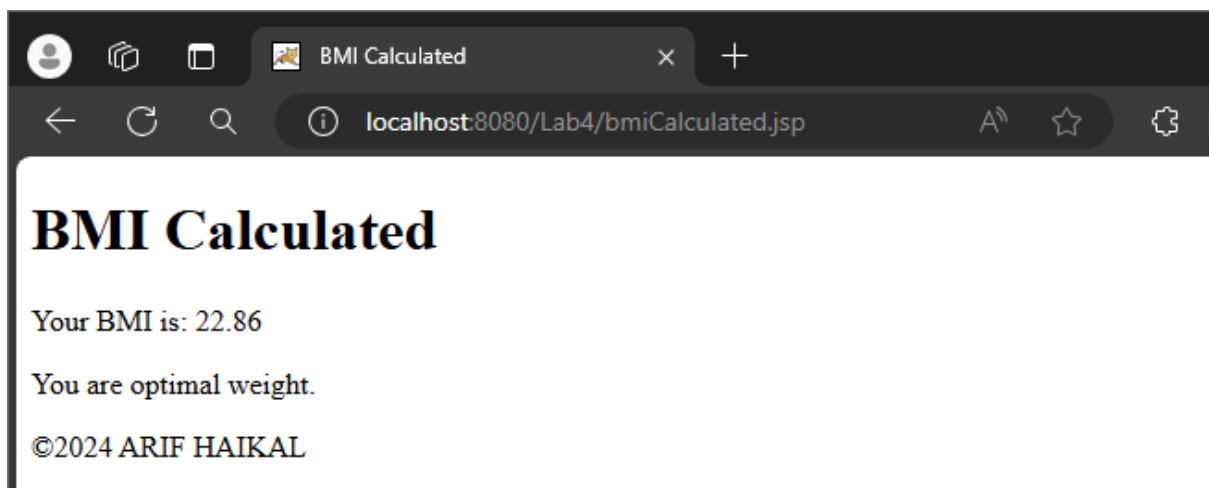
Output :

BMI Calculator

localhost:8080/Lab4/bmiCalculator.jsp

BMI Calculator

Enter your weight in kilograms: 60
Enter your height in meters: 1.62
Calculate BMI

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BMI Calculated

localhost:8080/Lab4/bmiCalculated.jsp

BMI Calculated

Your BMI is: 22.86

You are optimal weight.

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