



Universiti Malaysia Terengganu

Faculty of Computer Sciences and Mathematics

Web Based Application Development

CSM3023

Lab Report 4

Prepared for:

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24th April 2024

Bachelor of Computer Science (Mobile Computing) with Honors

Semester II 2023/2024

Task 1 : Using JSP Scripting

- Objective: JSP Scriptlet and JSP Expression in application.
- Code:
 - customer.html

```
<html>
  <head>
    <title>Task 1</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  </head>
  <body>
    <header>
      <h1>Use JSP Scriptlet and JSP Expression in
Application</h1>
    </header>

    <main>
      <h2>Customer discount</h2>
      <form action="processCustomer.jsp" method="post">
        <table>
          <tr>
            <td><label for="custCode">Customer
Code:</label></td>
            <td><input type="text" name="custCode"
id="custCode" placeholder="Key-in customer code"></td>
          </tr>
          <tr>
            <td><label
for="quantity">Quantity:</label></td>
            <td><input type="number" name="quantity"
id="quantity" placeholder="Key-in quantity"></td>
          </tr>
          <tr>
            <td><label>Customer Type:</label></td>
            <td>
              <input type="radio" name="custType"
id="normal" value="1">
                <label for="normal">Normal
Customer</label>
              <input type="radio" name="custType"
id="privilege" value="2">
                <label for="privilege">Privilege
Customer</label>
            </td>
          </tr>
          <tr>
            <td>
              <button type="reset">Cancel</button>
              <button
type="submit">Submit</button>
            </td>
          </tr>
        </table>
      </form>
    </main>
  </body>
</html>
```

```

                </td>
            </tr>
        </table>
    </form>
</main>

</body>
</html>

```

- processCustomer.jsp

```

<!--
    Document    : processCustomer
    Created on  : 24 Apr 2024, 2:47:00 pm
    Author      : Ahmad Afif Syahmi bin Ahmad Rozali
-->

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>Task 1</title>
    </head>
    <body>
        <h1>Use JSP Scriplet and JSP Expression in
Application</h1>

        <%
            final int PRICE = 10;

            //Using JSP Scriplet..
            String custCode = request.getParameter("custCode");
            int quantity =
Integer.parseInt(request.getParameter("quantity"));
            String custType = request.getParameter("custType");

            //Determine customer..
            if (custType.equals("1") && quantity > 100) {
                out.print("<h2>You are entitle 10%.</h2>");
                out.print("<h2>Total amount is RM " +
String.format("%.2f", quantity * PRICE * 0.9) + "</h2>");
            }
            else if (custType.equals("2") && quantity > 100) {
                out.print("<h2>You are entitle 25%.</h2>");
                out.print("<h2>Total amount is RM " +
String.format("%.2f", quantity * PRICE * 0.75) + "</h2>");
            }
            else {
                out.print("<h2>You are not entitle
discount..!</h2>");
                out.print("<h2>Total amount is RM " +
String.format("%.2f", (double) (quantity * PRICE)) + "</h2>");
            }
        %>

```

```
</body>
</html>
```

- Output:



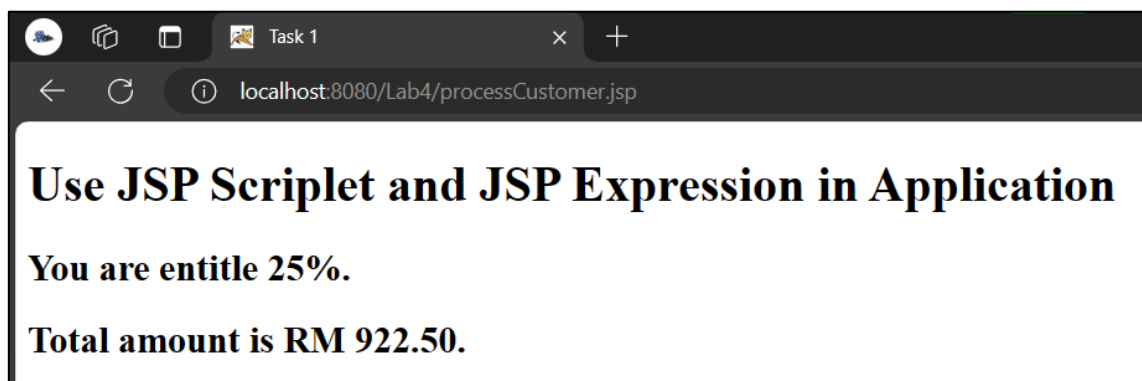
Use JSP Scriptlet and JSP Expression in Application

Customer discount

Customer Code:

Quantity:

Customer Type: ☐ Normal Customer ☒ Privilege Customer



Use JSP Scriptlet and JSP Expression in Application

You are entitle 25%.

Total amount is RM 922.50.



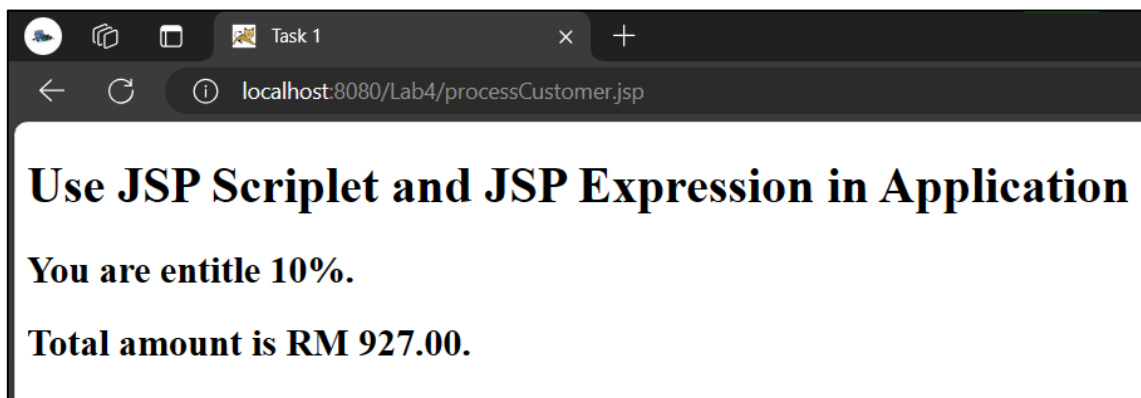
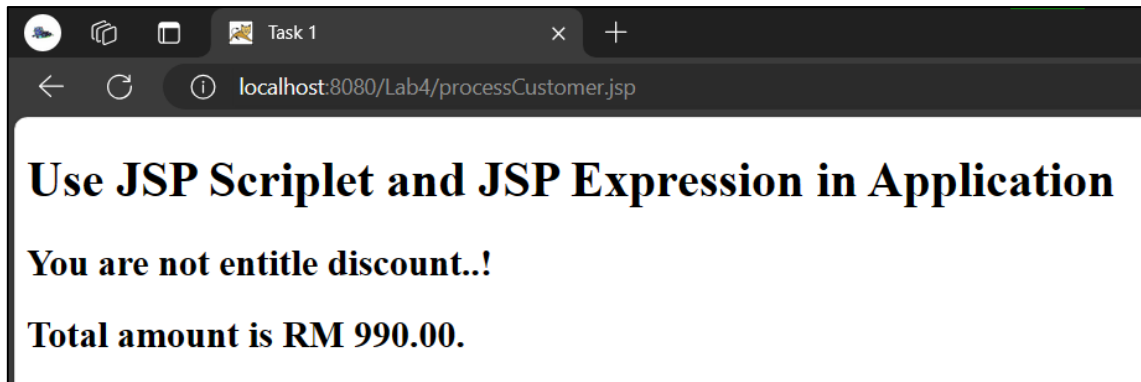
Use JSP Scriptlet and JSP Expression in Application

Customer discount

Customer Code:

Quantity:

Customer Type: ☒ Normal Customer ☐ Privilege Customer



- Reflection:
 - What you have learnt from this exercise?

From this exercise I learnt how to use JSP scriptlets and expressions to process user input from a form and display dynamic content. The form and basic HTML structure reside in customer.html. Business logic for calculating discounts is handled in the processCustomer.jsp. Scriptlets (<% %> blocks) are used to access form data

(request.getParameter) and perform calculations like determining the discount and total amount. Expressions (<%= %>) are used to embed calculated values like the discount and total amount directly within the HTML output.

- Explain three (3) types of JSP scripting?
 - Scriptlets (<% %>): Scriptlets allow to write any valid Java code within the JSP page.
 - Declarations (<%! %>): Declarations are used to define variables or methods that can be accessed throughout the JSP page.
 - Expressions (<%= %>): Expressions evaluate a Java expression and insert the result directly into the generated HTML output.

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

- Objective: Use JSP Declaration tag, JSP Scriptlet and JSP Expression in application.
- Code:
 - currencyConversion.html

```
<html>
  <head>
    <title>Task 2</title>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width,
initial-scale=1.0">
  </head>
  <body>
    <header>
      <h1>Use JSP Declaration Tag, JSP Scriptlet, and JSP
Expression in Application</h1>
    </header>

    <main>
      <h2>Currency Conversion</h2>
      <form action="processCurrency.jsp" onsubmit="return
validateInput()">
        <table>
          <tr>
            <td><label for="amount">Amount (in
RM):</label></td>
            <td><input type="text" name="amount"
id="amount" placeholder="Key-in amount"></td>
          </tr>
          <tr>
            <td><label for="currency">Convert
to:</label></td>
            <td>
              <select name="currency"
id="currency">
                <option value="1">USD</option>
                <option value="2">Pound
Sterling</option>
                <option value="3">Euro</option>
              </select>
            </td>
          </tr>
          <tr>
            <td>
              <button type="reset">Cancel</button>
              <button
type="submit">Submit</button>
            </td>
          </tr>
        </table>
      </form>
    </main>
```

```

        <script>
            function validateInput() {
                var input =
document.getElementById("amount").value;

                // Check if input is a valid number or float
                if(isNaN(input) || input === "" ||
!Number.isFinite(parseFloat(input))) {
                    alert("Invalid input.");
                    return false;
                }
                return true;
            }
        </script>
    </body>
</html>

```

- processCurrency.jsp

```

<!--
    Document    : processCurrency
    Created on  : 24 Apr 2024, 3:26:56 pm
    Author      : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>Task 2</title>
    </head>
    <body>
        <header>
            <h1>Use JSP Declaration Tag, JSP Scriptlet, and JSP
Expression in Application</h1>
        </header>

        <%!
            //Define constant..
            final double USD = 4.75;
            final double STG = 5.94;
            final double EURO = 5.09;

            //Define method to perform currency exchange....
            private double calculateRate(String currency, int
amount) {
                double currencyChange = 0.00f;

                switch (currency) {
                    case "1" :
                        currencyChange = (double) (amount *
USD);
                        break;

```



```

                case "2" :
                    currencyChange = (double) (amount *
STG);
                    break;

                case "3" :
                    currencyChange = (double) (amount *
USD);
                    break;
            }

            return currencyChange; //return the result....
        }
    %>

    <%
        int amount =
Integer.parseInt(request.getParameter("amount"));
        String currency = request.getParameter("currency");
        String strCurrency = "";
        String result = String.format("%.2f",
calculateRate(currency, amount));

        switch (currency) {
            case "1" :
                strCurrency = "USD";
                break;

            case "2" :
                strCurrency = "Pound Sterling";
                break;

            case "3" :
                strCurrency = "Euro";
                break;
        }
    %>
    <h2>Amount in Ringgit Malaysia is RM
    <%=String.format("%.2f", (double) amount)%>.</h2>
    <h2>Amount in <%=strCurrency%> is RM <%=result%>.</h2>

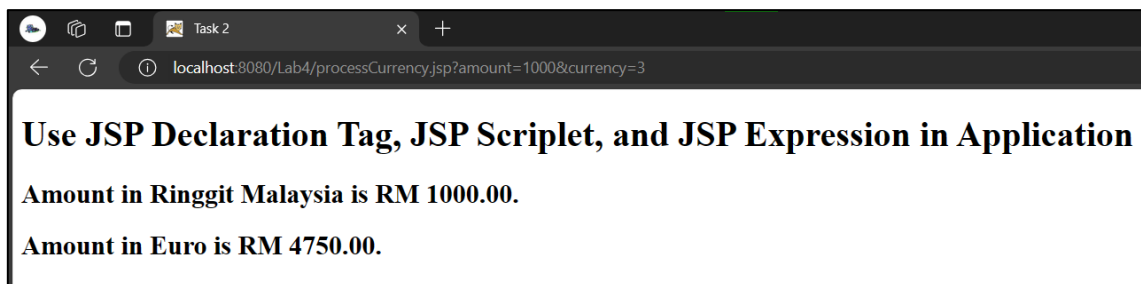
    </body>
</html>

```

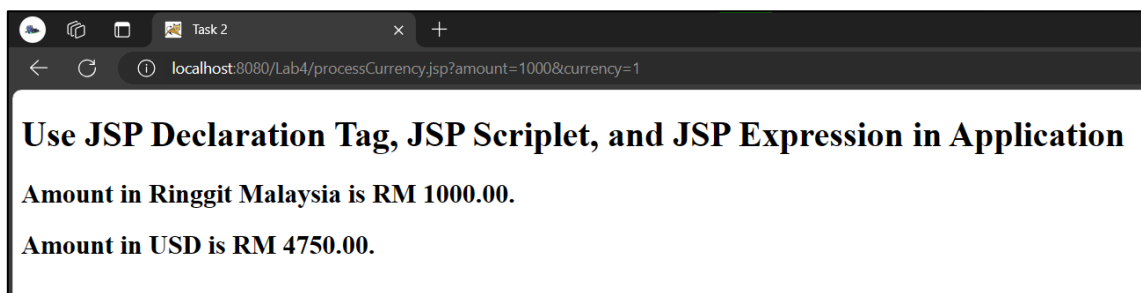
- Output:



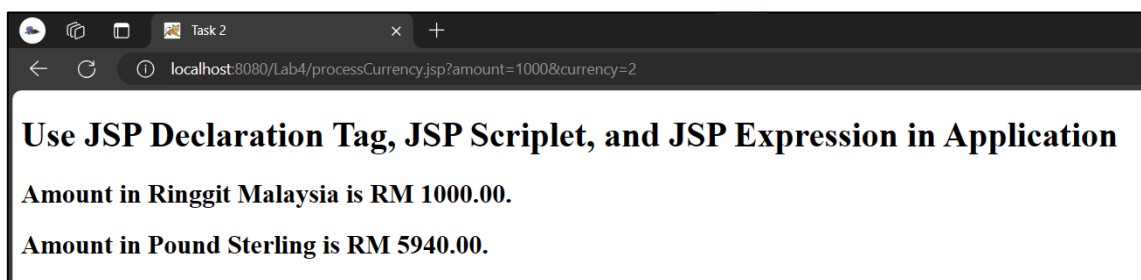
A screenshot of a web browser window titled 'Task 2'. The address bar shows 'localhost:8080/Lab4/currencyConversion.html'. The page content includes a heading 'Use JSP Declaration Tag, JSP Scriptlet, and JSP Expression in Application' followed by a sub-heading 'Currency Conversion'. Below this is a form with a text input for 'Amount (in RM):' containing the value '1000', a dropdown menu for 'Convert to:' set to 'Euro', and two buttons labeled 'Cancel' and 'Submit'.



A screenshot of the same web browser window, but the URL is now 'localhost:8080/Lab4/processCurrency.jsp?amount=1000¤cy=3'. The page displays the heading 'Use JSP Declaration Tag, JSP Scriptlet, and JSP Expression in Application' followed by two lines of text: 'Amount in Ringgit Malaysia is RM 1000.00.' and 'Amount in Euro is RM 4750.00.'



A screenshot of the same web browser window, with the URL 'localhost:8080/Lab4/processCurrency.jsp?amount=1000¤cy=1'. The page displays the heading 'Use JSP Declaration Tag, JSP Scriptlet, and JSP Expression in Application' followed by two lines of text: 'Amount in Ringgit Malaysia is RM 1000.00.' and 'Amount in USD is RM 4750.00.'



A screenshot of the same web browser window, with the URL 'localhost:8080/Lab4/processCurrency.jsp?amount=1000¤cy=2'. The page displays the heading 'Use JSP Declaration Tag, JSP Scriptlet, and JSP Expression in Application' followed by two lines of text: 'Amount in Ringgit Malaysia is RM 1000.00.' and 'Amount in Pound Sterling is RM 5940.00.'

- Reflection:
 - What have you learned from this exercise?

From this exercise I learned how to demonstrate the combined use of JSP Declarations, Scriptlets, and Expressions for currency conversion. The final keyword is used to define constants for exchange rates (USD, STG, EURO) within a declaration block (`<%! %>`). A function `calculateRate` is defined within a scriptlet

block (<%! %>). This function takes the selected currency and amount as arguments and performs the conversion based on a switch statement. Expressions (<%= %>) are used throughout the page to display the original amount in Ringgit Malaysia to access the converted amount returned by the calculateRate function through the result variable to display the converted currency type retrieved from the strCurrency variable. The JSP retrieves form data (amount and currency) using request.getParameter.

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

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

```
<!--
    Document    : jspParameter
    Created on  : 24 Apr 2024, 4:27:37 pm
    Author      : Ahmad Afif Syahmi bin Ahmad Rozali
-->

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>Task 3</title>
    </head>
    <body>
        <h1>Using jsp:include and jsp:param to Display
Information on JSP Page</h1>

        <%
            String sCode = "CSM3023";
            String sSubject = "Web Based Application
Development";
            String sCredit = "3 (2 + 1)";
        %>

        <!-- Call subjectInfo.jsp page & passing course
information to respective parameters -->
        <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>
```

- `subjectInfo.jsp`

```
<!--
    Document    : subjectInfo
    Created on  : 24 Apr 2024, 4:54:56 pm
    Author      : Ahmad Afif Syahmi bin Ahmad Rozali
-->

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

```

<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
    <title>Task 3</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:



- Reflection:
 - What you have learnt from this exercise?

From this exercise I learned how to demonstrate using `jsp:include` and `jsp:param` tags to achieve modularity and reusability in JSP. The course information is displayed within a separate JSP (`subjectInfo.jsp`). The `jsp:param` tag effectively transmits course details (code, subject, credit) as parameters to the included JSP (`subjectInfo.jsp`). Within `subjectInfo.jsp`, the passed parameters can be accessed using `request.getParameter("parameterName")`.

- List TWO (2) other JSP Standard Action Tag.
 - `jsp:forward`: Similar to `jsp:include`, it forwards the request to another JSP but doesn't include the content on the current page. This is useful for redirecting users after form processing or authentication.
 - `jsp:useBean`: This tag simplifies working with JavaBeans in JSP. It allows you to create or locate an existing JavaBean instance and access its properties and methods within the JSP page.

Task 4 : Using JSP Standard Action (Forward)

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

```
<!--
  Document    : forward
  Created on  : 26 Apr 2024, 5:41:46 pm
  Author      : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
    <title>Task 4</title>
  </head>
  <body>
    <h2>Using jsp:forward to display user info.</h2>
    <jsp:forward page="forwardInfo.jsp">
      <jsp:param name="u_name" value="Fouad Abdulameer"/>
      <jsp:param name="email" value="fouadaug@gmail.com"/>
      <jsp:param name="nationality" value="Iraqi"/>
      <jsp:param name="background" value="Developer"/>
    </jsp:forward>
  </body>
</html>
```

- forwardInfo.jsp

```
<!--
  Document    : forwardInfo
  Created on  : 26 Apr 2024, 5:46:40 pm
  Author      : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
    <title>Task 4</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>

```

- Output:



- Reflection:

- What you have learnt from this exercise?

From this exercise I learned how to demonstrate using `jsp:forward` to transfer user information to another JSP for display. The `jsp:forward` tag redirects the request to `forwardInfo.jsp`. `jsp:param` tags are used to transmit user information (name, email, nationality, background) as parameters to `forwardInfo.jsp`. In

forwardInfo.jsp, the forwarded parameters can be retrieved using `request.getParameter("parameterName")` to display the user details.

- List TWO (2) more JSP Standard Action Tag.
 - `jsp:useBean`: This tag simplifies working with JavaBeans in JSP. It allows to create or locate an existing JavaBean instance and access its properties and methods within the JSP page.
 - `jsp:setProperty`: This tag is used in conjunction with `jsp:useBean` to set the properties of a JavaBean within a JSP page. This allows to dynamically modify the state of a JavaBean based on user input or other factors.

Task 5 : Use Java Scriptlet to Construct Business Logic

- Objective: Use Java Scriptlet to perform business logic.
- Code:
 - insuranceQuotation.jsp

```
<!--
    Document    : insuranceQuotation
    Created on  : 26 Apr 2024, 6:04:33 pm
    Author     : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>Task 5</title>
        <style>
            span {
                color: red;
            }
        </style>
    </head>
    <body>
        <h1>Insurance Quotation</h1>
        <form action="processInsuranceQuotation.jsp">
            <fieldset>
                <legend>Insurance Calculation</legend>
                <table>
                    <tr>
                        <td><label for="icNo">IC
No<span>*</span>:</label></td>
                        <td><input type="text" name="icNo"
id="icNo" placeholder="E.g. 821210-05-3478" required></td>
                    </tr>
                    <tr>
                        <td><label
for="name">Name<span>*</span>:</label></td>
                        <td><input type="text" name="name"
id="name" placeholder="E.g. Ali bin Ahmad" required></td>
                    </tr>
                    <tr>
                        <td><label for="marketPrice">Market
Price<span>*</span>:</label></td>
                        <td><input type="number"
name="marketPrice" id="marketPrice" placeholder="E.g. 4000"
required></td>
                    </tr>
                    <tr>
                        <td><label for="coverage">Coverage
Type:</label></td>
```

```
 <select name="coverage" id="coverage">             <option value="1">Third Party</option>             <option value="2">Comprehensive</option>         </select>     </td> </tr> <tr>  <label for="ncd">No Claims Discount (NCD):</label></td>  <select name="ncd" id="ncd">             <option value="1">10%</option>             <option value="2">25%</option>             <option value="3">35%</option>             <option value="4">55%</option>         </select>     </td> </tr> <tr>  <br>         <button type="reset">Cancel</button>         <button type="submit">Submit</button>     </td> </tr> </table> </fieldset> </form> </body> </html> | | | |
```

- processInsuranceQuotation.jsp

```

<!--
    Document    : processInsuranceQuotation
    Created on  : 26 Apr 2024, 6:31:48 pm
    Author      : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>Task 5</title>
        <style>
            body {
                font-family: Arial, Helvetica, sans-serif;
            }

```

```

        legend {
            font-size: 20px;
            font-weight: bold;
        }

        p {
            color: blueviolet;
        }
    </style>
</head>
<body>
    <%
        String icNo = request.getParameter("icNo");
        String name = request.getParameter("name");
        int marketPrice =
Integer.parseInt(request.getParameter("marketPrice"));
        String coverage = request.getParameter("coverage");
        String ncd = request.getParameter("ncd");
        double amount = 0.00f;
        double gst = 0.00f;
        double final_amount = 0.00f;
        String strCoverage = "";
        String strNCD = "";

        switch (coverage) {
            case "1":
                strCoverage = "Third Party";
                switch (ncd) {
                    case "1":
                        strNCD = "10%";
                        amount = 0.033 * marketPrice;
                        break;

                    case "2":
                        strNCD = "25%";
                        amount = 0.025 * marketPrice;
                        break;

                    case "3":
                        strNCD = "35%";
                        amount = 0.018 * marketPrice;
                        break;

                    case "4":
                        strNCD = "55%";
                        amount = 0.012 * marketPrice;
                        break;
                }
                break;

            case "2":
                strCoverage = "Comprehensive";
                switch (ncd) {
                    case "1":
                        strNCD = "10%";
                        amount = 0.038 * marketPrice;
                        break;

                    case "2":

```

```

        strNCD = "25%";
        amount = 0.030 * marketPrice;
        break;

        case "3":
            strNCD = "35%";
            amount = 0.024 * marketPrice;
            break;

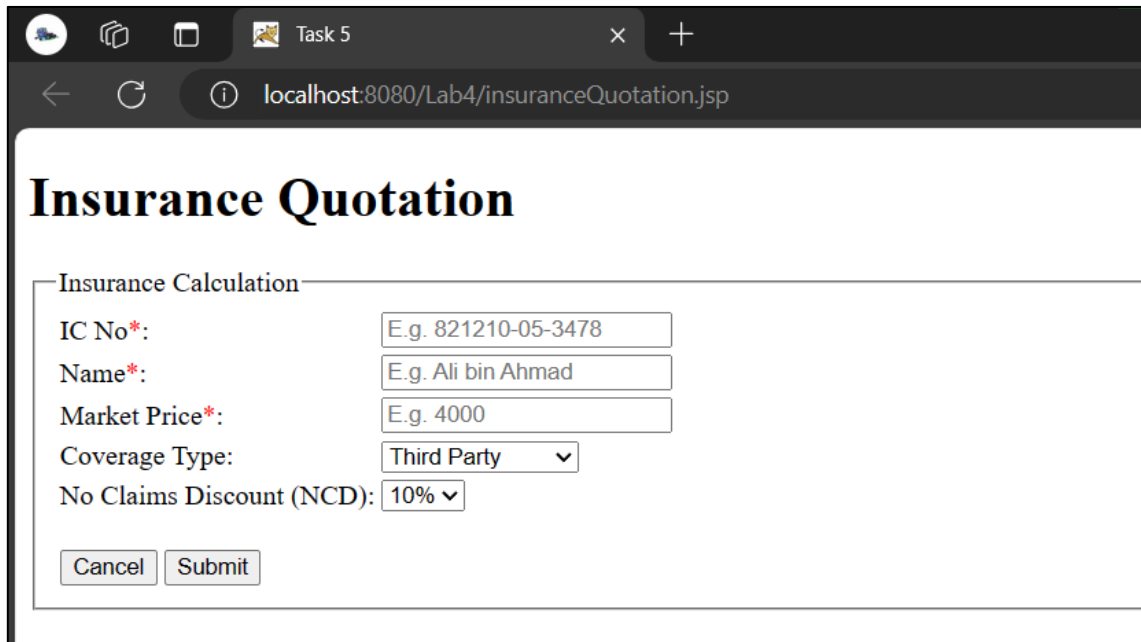
        case "4":
            strNCD = "55%";
            amount = 0.018 * marketPrice;
            break;
    }
    break;
}

gst = 0.06 * amount;
final_amount = amount + gst;
%>

<fieldset>
    <legend>Details of Insurance Quotation</legend>
    <p>IC No: <%= icNo %></p>
    <p>Customer Name: <%= name %></p>
    <p>Market Price: <%= marketPrice %></p>
    <p>Coverage Type: <%= strCoverage %></p>
    <p>No Claim Discount (NCD): <%= strNCD %></p>
    <p>Insurance Amount: <%= String.format("%.2f",
amount) %></p>
    <p>6% GST: <%= String.format("%.2f", gst) %></p>
    <p>Final Amount (with 6% GST): <%=
String.format("%.2f", final_amount) %></p>
</fieldset>
</body>
</html>

```

- Output:



A screenshot of a web browser window titled "Task 5" showing a web page at "localhost:8080/Lab4/insuranceQuotation.jsp". The page has a title "Insurance Quotation" and a section "Insurance Calculation". The form contains five input fields: "IC No*" with placeholder "E.g. 821210-05-3478", "Name*" with placeholder "E.g. Ali bin Ahmad", "Market Price*" with placeholder "E.g. 4000", "Coverage Type" with a dropdown menu showing "Third Party", and "No Claims Discount (NCD)" with a dropdown menu showing "10%". At the bottom of the form are "Cancel" and "Submit" buttons.

Insurance Quotation

Insurance Calculation

IC No*: E.g. 821210-05-3478

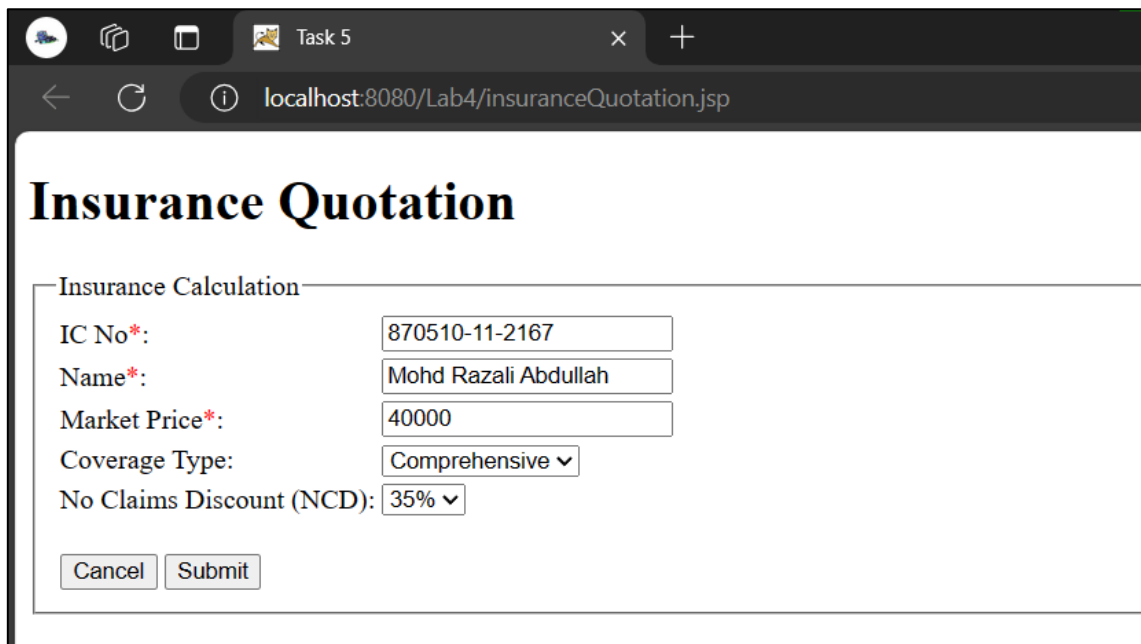
Name*: E.g. Ali bin Ahmad

Market Price*: E.g. 4000

Coverage Type: Third Party ▼

No Claims Discount (NCD): 10% ▼

Cancel Submit



A screenshot of the same web browser window showing the "Insurance Quotation" form after user input. The values in the fields are: "IC No*" is "870510-11-2167", "Name*" is "Mohd Razali Abdullah", "Market Price*" is "40000", "Coverage Type" dropdown is "Comprehensive", and "No Claims Discount (NCD)" dropdown is "35%". The "Cancel" and "Submit" buttons remain at the bottom.

Insurance Quotation

Insurance Calculation

IC No*: 870510-11-2167

Name*: Mohd Razali Abdullah

Market Price*: 40000

Coverage Type: Comprehensive ▼

No Claims Discount (NCD): 35% ▼

Cancel Submit

Details of Insurance Quotation	
IC No:	870510-11-2167
Customer Name:	Mohd Razali Abdullah
Market Price:	40000
Coverage Type:	Comprehensive
No Claim Discount (NCD):	35%
Insurance Amount:	960.00
6% GST:	57.60
Final Amount (with 6% GST):	1017.60

- Reflection:

- What you have learnt from this exercise?

From this exercise I learned how to demonstrate building an insurance quotation form with data processing in JSP Scriptlets. An HTML form collects user information like IC number, name, market price, coverage type, and NCD. The second JSP (processInsuranceQuotation.jsp) retrieves form data using request.getParameter. Scriptlets perform calculations based on user selections. Insurance amount is determined by multiplying the market price with a factor based on coverage and NCD. GST is calculated as 6% of the insurance amount. The final amount is the sum of insurance amount and GST. The calculated values (insurance amount, GST, final amount) are displayed along with the retrieved user information in a formatted table.

- List all Java features you used in Java Scriptlet.
 - Variables: Variables declaration like icNo, name, marketPrice, amount, gst, and final_amount to store user input, calculation results, and final values.
 - Data Types: Data types like String (text), int (integer), and double (floating-point number) are used to represent different kinds of data.

- Operators: Arithmetic operators (+, -, /, *) are used for calculations like determining insurance amount and final amount with GST.
- Conditional Statements: A switch statement is used to calculate the insurance amount based on the selected coverage type and NCD combination.
- Formatting: The `String.format("%.2f", number)` method is used to format numeric values (amount, GST, final amount) to display them with two decimal places.

Exercise

- Objective: Write a simple application to calculate and display a person's body mass index (BMI).
- Code:
 - bmiCalculator.jsp

```
<!--
  Document   : bmiCalculator
  Created on : 26 Apr 2024, 10:12:30 pm
  Author      : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
  <head>
    <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
    <title>Exercise</title>
  </head>
  <body>
    <h1>BMI Calculator</h1>
    <form action="processBMICalculator.jsp" onsubmit="return
validateForm()">
      <table>
        <tr>
          <td><label for="weight">Weight
(kg):</label></td>
          <td><input type="text" name="weight"
id="weight" placeholder="Enter weight"></td>
        </tr>
        <tr>
          <td><label for="height">Height
(cm):</label></td>
          <td><input type="text" name="height"
id="height" placeholder="Enter height"></td>
        </tr>
        <tr>
          <td>
            <br>
            <button type="reset">Clear</button>
            <button type="submit">Submit</button>
          </td>
        </tr>
      </table>
    </form>
    <script>
      function validateForm() {
```

```

        var weight =
document.getElementById("weight").value;
        var height =
document.getElementById("height").value;

        // Check if weight is a positive number
        if (isNaN(weight) || weight <= 0) {
            alert("Please enter a valid weight.");
            return false;
        }

        // Check if height is a positive number
        if (isNaN(height) || height <= 0) {
            alert("Please enter a valid height.");
            return false;
        }

        return true;
    }
</script>
</body>
</html>

```

- processBMICalculator.jsp

```

<!--
    Document    : processBMICalculator
    Created on  : 26 Apr 2024, 10:32:57 pm
    Author      : Ahmad Afif Syahmi bin Ahmad Rozali
--%>

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

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

            double bmi = weight / (Math.pow((height / 100), 2));

            String weightCategory = "";

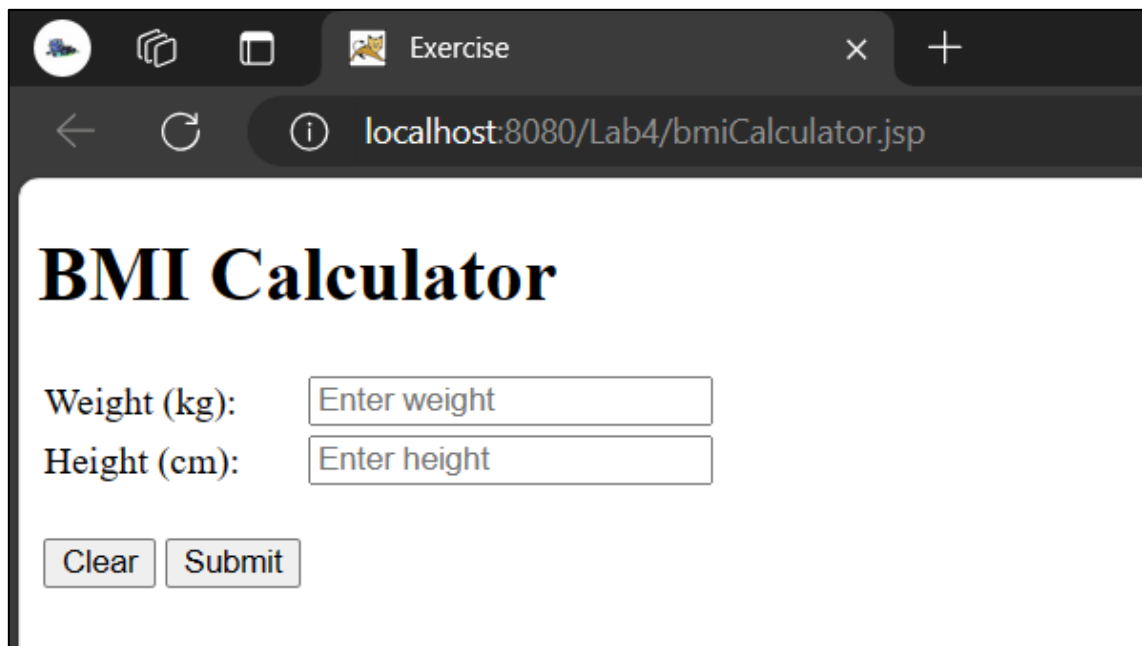
            if (bmi < 18.5)
                weightCategory = "Underweight";
            else if (bmi >= 25)
                weightCategory = "Overweight";

```

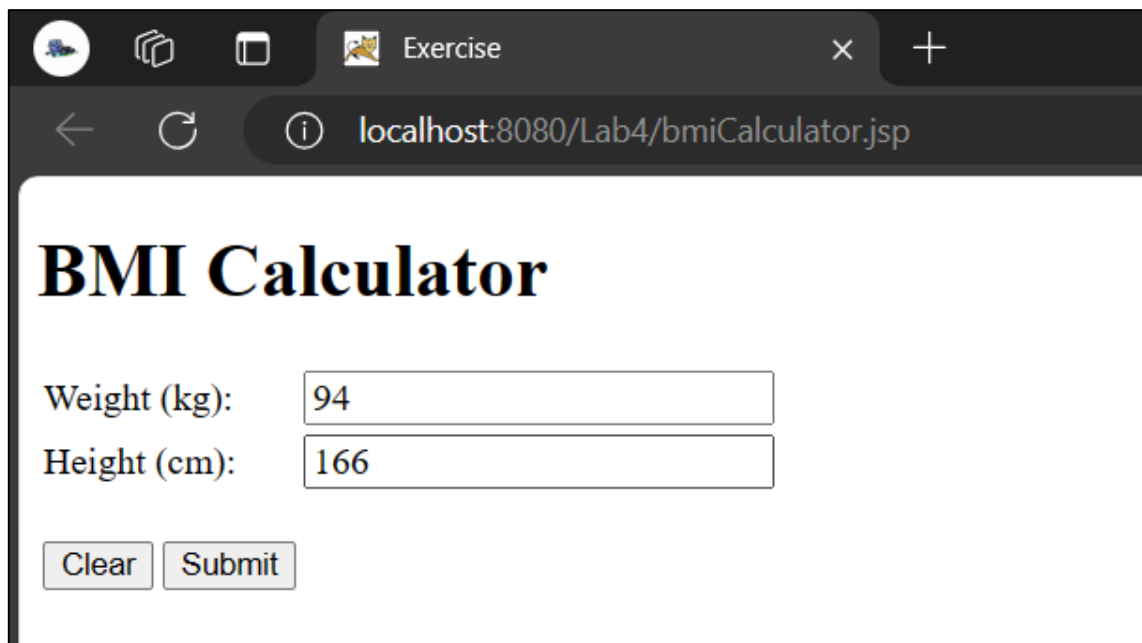
```
        else
            weightCategory = "Optimal";
    %>

    <h2>Your BMI Results</h2>
    <p>Your BMI is: <%= String.format("%.1f", bmi) %></p>
    <p>Your weight category is: <%= weightCategory %></p>
</body>
</html>
```

- Output:



A screenshot of a web browser window. The address bar shows 'localhost:8080/Lab4/bmiCalculator.jsp'. The page title is 'Exercise'. The main heading is 'BMI Calculator'. Below the heading, there are two input fields: 'Weight (kg):' with the placeholder text 'Enter weight' and 'Height (cm):' with the placeholder text 'Enter height'. At the bottom, there are two buttons: 'Clear' and 'Submit'.



A screenshot of a web browser window, identical to the one above. The address bar shows 'localhost:8080/Lab4/bmiCalculator.jsp'. The page title is 'Exercise'. The main heading is 'BMI Calculator'. Below the heading, the 'Weight (kg):' input field now contains the value '94' and the 'Height (cm):' input field now contains the value '166'. The 'Clear' and 'Submit' buttons remain at the bottom.

