UNIVERSITI MALAYSIA TERENGGANU

CSM3023 WEB BASED APPLICATION DEVELOPMENT

BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING) WITH HONORS

LAB 3

SEMESTER II 2023/2024

Prepared for:

SIR MOHD ARIZAL SHAMSIL BIN MAT RIFIN

Prepared by:

MUHAMMAD ZAHIER BIN RAZMI

(S67943)

Task 1: Passing Data from Main JSP's Page to Other JSP's Page

Code:

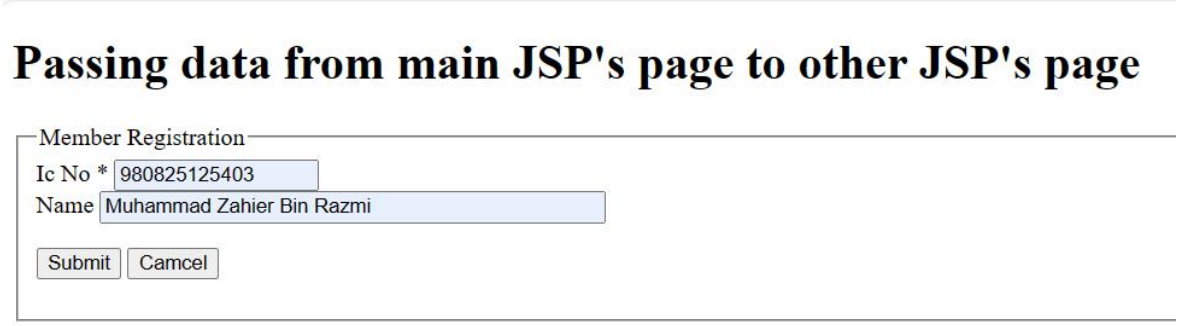
memberRegister.jsp

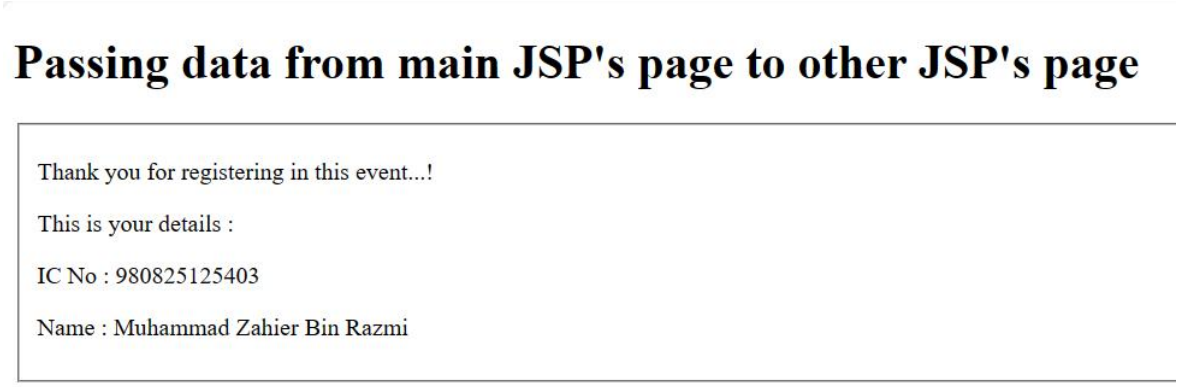
```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Lab 3 - Task 1</title>
    </head>
    <body>
        <h1>Passing data from main JSP's page to other JSP's page</h1>
        <form id="memberFrm" action="memberProcessing.jsp" method="post" onsubmit="return checkICNo()">
            <fieldset>
                <legend>Member Registration</legend>
                <label for="invoiceno">Ic No *</label>
                <input type="text" id="icno" name="my_icno" size="15" placeholder="E.g. 921012101245"><br/>

                <label for="name">Name</label>
                <input type="text" id="name" name="my_name" size="45" placeholder="Key-in your name"><br/>

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

memberProcessing.jsp

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Lab 3 - Task 1</title>
    </head>
    <body>
        <h1>Passing data from main JSP's page to other JSP's page</h1>
        <fieldset>
            <%
                //Define variables...
                String myIC = null;
                String myName = null;

                //Use request.getParameter() method to retrieve data from main's form...
                myIC = request.getParameter("my_icno");
                myName = request.getParameter("my_name");
            %>

            <!-- Display the output... -->
            <p>Thank you for registering in this event...!</p>
            <p>This is your details : </p>
            <p>IC No : <%=myIC%></p>
            <p>Name : <%=myName%></p>
        </fieldset>
    </body>
</html>
```

Output:





Reflections:

1. How do you want to submit specific information from one form to next form?

   Various method can be used to submit specific information from one form to the next form in a web application, for example URL parameters, hidden fields, session attributes and request attributes.

2. What happened if the field name you specify in request.getParameter(“field_name”) in second page is different from the field name you defined in first page?

   If the field name specified in request.getParameter("field_name") in the second page is different from the field name defined in the first page, the getParameter() method will return null because it won't find a parameter with the specified name.

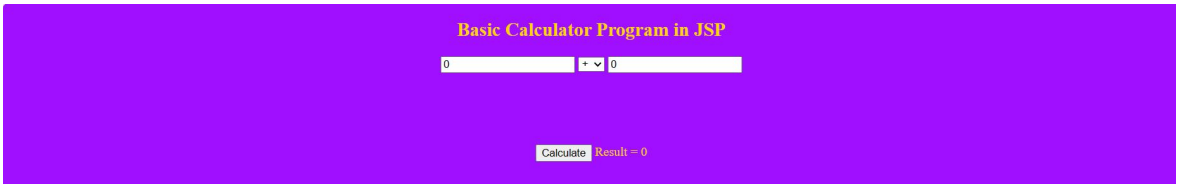
Task 2: Using Mathematics Operations in JSP

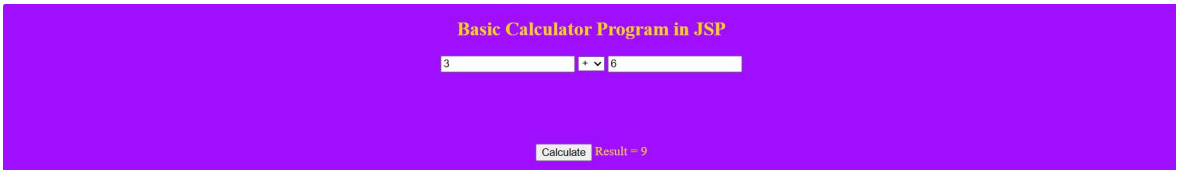
Code:

Calculator

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Lab 3 - Task 2</title>
    </head>
    <body bgcolor="#a00FFF" text="gold">
        <%
            String num1="0", num2="0";
            int result = 0;
            String op = "+";

            char opchar = op.charAt(0);
            if(request.getParameter("op") != null){
            op = request.getParameter("op");
            opchar = op.charAt(0);

            num1 = request.getParameter("operand1");
            num2 = request.getParameter("operand2");

            switch(opchar){
            case '0': result = Integer.parseInt(num1) + Integer.parseInt(num2);
            break;
            case '1': result = Integer.parseInt(num1) - Integer.parseInt(num2);
            break;
            case '2': result = Integer.parseInt(num1) * Integer.parseInt(num2);
            break;
            case '3': result = Integer.parseInt(num1) / Integer.parseInt(num2);
            break;
            case '4': result = Integer.parseInt(num1) % Integer.parseInt(num2);
            break;
            }
            }
        %>

    <center>
        <h2>Basic Calculator Program in JSP</h2>
        <form method="get" name="f1">
            <input type="text" size="20" name="operand1" value="<%= num1 %>"/>

            <select name = op size = 1>
                <option value = "0">+</option>
                <option value = "1">-</option>
                <option value = "2">*</option>
                <option value = "3">/</option>
                <option value = "4">%</option>
            </select>

            <input type="text" size="20" name="operand2" value="<%= num2 %>"/>
            <p><br><br><br><br>
                <input type=submit value=Calculate />

                Result = <%= result + "" %>
        </form>
    </center>

    </body>
</html>
```

Output:


Basic Calculator Program in JSP
0
+
0
Calculate
Result = 0


Basic Calculator Program in JSP
3
+
6
Calculate
Result = 9

Task 4: Perform Calculation of Car Loan

Code:

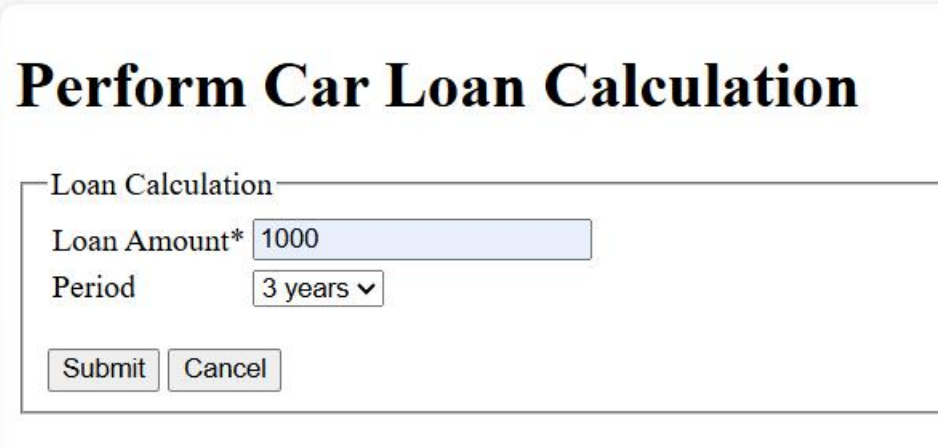
calculateCarLoan.html

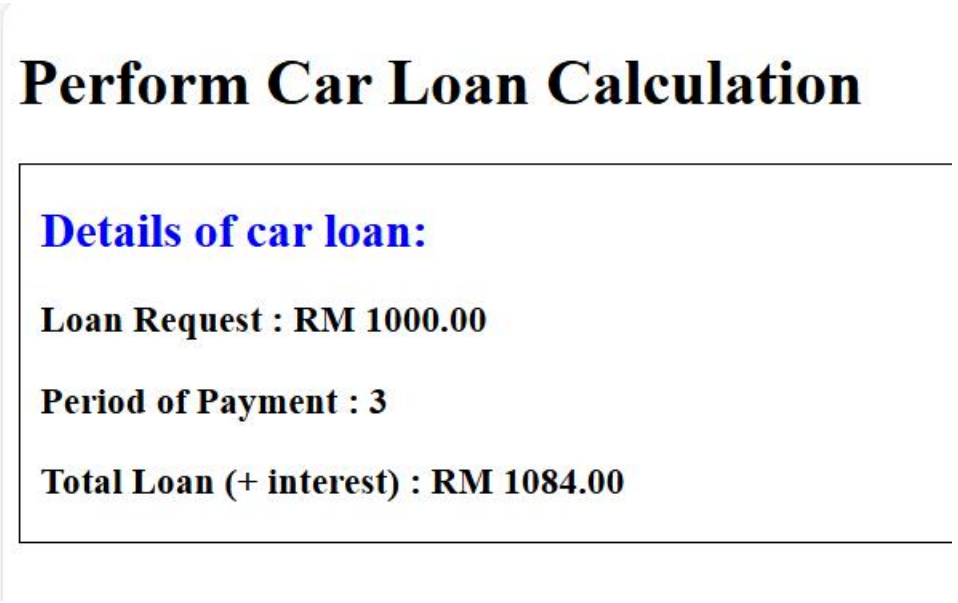
```
<html>
    <head>
        <title>Task 4</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>

        <h1>Perform Car Loan Calculation</h1>
        <form action="processCalculateCarLoan.jsp" method="post">
            <fieldset>
                <legend>Loan Calculation</legend>
                <table>
                    <tr>
                        <td>
                            <label for="loanAmount">Loan Amount*</label>
                        </td>
                        <td>
                            <input type="text" name="loanAmount" id="loanAmount" placeholder="Amount">
                        </td>
                    </tr>
                    <tr>
                        <td>
                            <label for="loanPeriod">Period</label>
                        </td>
                        <td>

                            <label for="loanPeriod">Period</label>
                        </td>
                        <td>
                            <select name="loanPeriod" id="loanPeriod">
                                <option value="3">3 years</option>
                                <option value="4">4 years</option>
                                <option value="5">5 years</option>
                                <option value="7">7 years</option>
                            </select>
                        </td>
                    </tr>
                </table>
                <br>
                <input type="submit" value="Submit" id="btnSubmit">
                <input type="reset" value="Cancel" id="btnCancel">
            </fieldset>
        </form>
    </body>
</html>
```

processCalculateCarLoan.jsp

```jsp
<%@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>
        <style>
            #title {
                color: blue;
            }

            #details {
                border: 1px solid black;
                padding-left: 10px;
            }
        </style>
    </head>
    <body>

        <h1>Perform Car Loan Calculation</h1>

        <%
            int loanAmount = Integer.parseInt(request.getParameter("loanAmount"));
            int loanPeriod = Integer.parseInt(request.getParameter("loanPeriod"));
            double interestRate = 0;

            if (loanPeriod < 5)
                interestRate = 0.028;
            else
                interestRate = 0.045;

            double totalLoan = loanAmount + (interestRate * loanAmount * loanPeriod);

        %>

        <div id="details">
            <h2 id="title">Details of car loan:</h2>
            <h3>Loan Request : RM <%= String.format("%.2f", (double) loanAmount) %></h3>
            <h3>Period of Payment : <%= loanPeriod %></h3>
            <h3>Total Loan (+ interest) : RM <%= String.format("%.2f", totalLoan) %></h3>
        </div>

    </body>
</html>
```

Output:





Reflection

1. How you want to retrieve data from previous page?

To retrieve data from the previous page we can use the request.getParameter ("parameter_name") method in your JSP code. For example, to retrieve the loan amount and loan period selected by the user:

```
int loanAmount =
Integer.parseInt(request.getParameter("loanAmount"));

int loanPeriod =
Integer.parseInt(request.getParameter("loanPeriod"));
```

2. Where the construction of logic occur for calculating Total Loan (+ interest) ?

```
int loanAmount =
Integer.parseInt(request.getParameter("loanAmount"));
int loanPeriod =
Integer.parseInt(request.getParameter("loanPeriod"));
double interestRate = 0;

if (loanPeriod < 5)
      interestRate = 0.028;
else
      interestRate = 0.045;


double totalLoan = loanAmount + (interestRate * loanAmount *
loanPeriod);
```

Task 5: Using JSP Page Directive to Call Java API

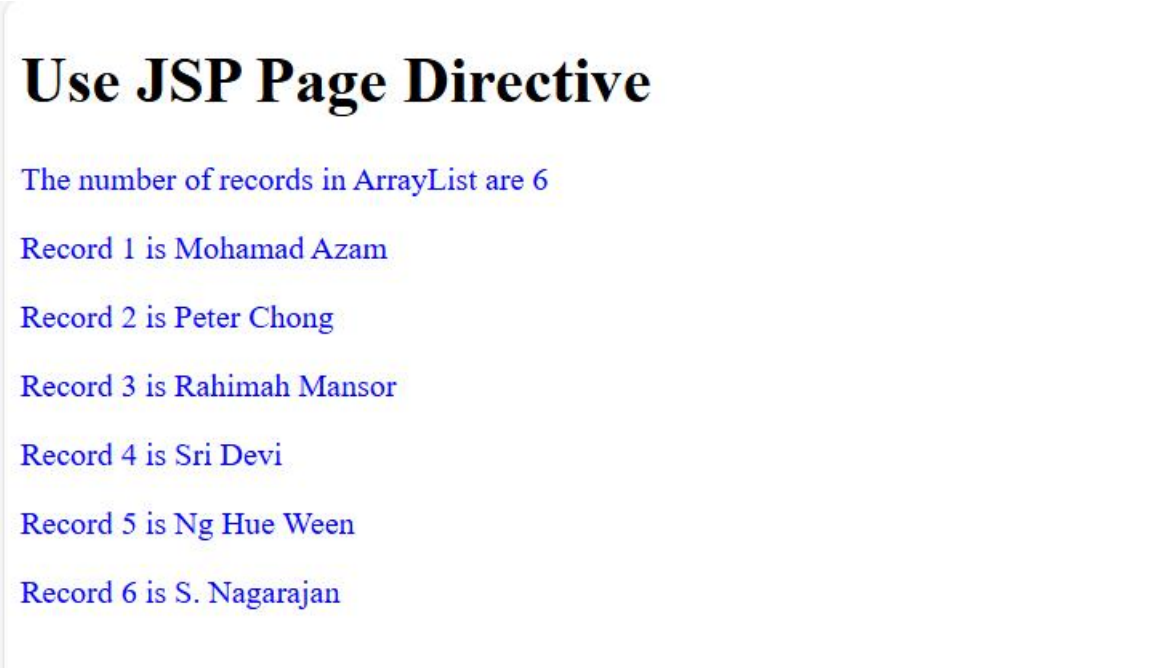
Code:

arrayList.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@page import="java.util.ArrayList"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Task 5</title>
        <style>
            p {
                color: blue;
            }
        </style>
    </head>
    <body>

        <h1>Use JSP Page Directive</h1>
        <%
            ArrayList<String> studentList = new ArrayList<>();

            studentList.add("Mohamad Azam");
            studentList.add("Peter Chong");
            studentList.add("Rahimah Mansor");
            studentList.add("Sri Devi");
            studentList.add("Ng Hue Ween");
            studentList.add("S. Nagarajan");

            out.println("<p>The number of records in ArrayList are " + studentList.size() + "</p>");
```

```
            for (int i = 0; i < studentList.size(); i++) {
                out.println("<p>Record " + (i + 1) + " is " + studentList.get(i) + "</p>");
            }
        %>
    </body>
</html>
```

Output:



Reflection

1. What you have learnt from this exercise?

   From this exercise I have learned how to create and manipulate ArrayList objects in Java as well as how to use JSP scriptlets to interact with them.

2. Write a sample syntax how you want to use java Math object in JSP?

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
    <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
    <title>Math Object Example</title>
</head>
<body>
    <%
        // Using Java Math object in JSP
        double num = 25.5;
        double squareRoot = Math.sqrt(num);
    %>
    <p>The square root of <%= num %> is <%= squareRoot %>.</p>
</body>
</html>
```

3. List and write a sample syntax for THREE (3) of JSP page directive.

   - page - `<%@page import="java.util.*"%>`
   - include - `<%@include file="header.jsp"%>`
   - taglib - `<%@taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>`

Task 6: Use JSP Include directive for JSP Page

Code:

mainPage.jsp

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Task 6</title>
        <style>
            body {
                box-sizing: border-box;
                padding: 0;
                margin: 0;
                font-family: Arial, Helvetica, sans-serif;
            }

            .main {
                width: 50%;
            }

            .main p {
                color: red;
                font-size: large;
            }
        </style>
    </head>
    <body>
        <jsp:include page="headerPage.jsp" flush="true"/>

        <div class="main">
            <h1>Using JSP Include Directive</h1>
            <p>
                Java Server Page (JSP) is a technology for controlling the content or appearance
                of Web pages through the use of servlets, small programs that are specified in
                the Web page and run in the Web server to modify the Web page before it is sent
                to the user who requested it.
            </p>
        </div>

        <jsp:include page="footerPage.jsp" flush="true"/>
    </body>
</html>
```

headerPage.jsp

```jsp
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Task 6 Header Page</title>
        <style>
            body {
                box-sizing: border-box;
                padding: 0;
                margin: 0;
            }

            .header {
                text-align: center;
                background-color: yellow;
                padding: 20px 0px;
            }
        </style>
    </head>
    <body>
        <div class="header">
            <h1>ABC Sdn Bhd</h1>
        </div>
    </body>
</html>
```

footerPage.jsp

```jsp
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Task 6 Footer Page</title>
        <style>
            body {
                box-sizing: border-box;
                padding: 0;
                margin: 0;
            }

            .footer {
                text-align: center;
                background-color: yellow;
                padding: 5px 0px;
            }
        </style>
    </head>
    <body>
        <div class="footer">
            <p>&copy;2024 - Muhammad Zahier Bin Razmi</p>
        </div>
    </body>
</html>
```

Output:

Reflection

1. What you have learnt from this exercise?

> From this exercise I have learned how to use the JSP include directive (<jsp:include>) to include content from other JSP files into a main JSP file. I have also learned how to structure the JSP files to create reusable components such as headers and footers.

2. Write a syntax how you want to include common.html file that located at a directory known as master.

```
<jsp:include page="/master/common.html" />
```

Exercise 1

Code:

```jsp
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Exercise 1</title>
    </head>
    <body>
        <h2>Temperature Converter</h2>
        <form method="post">
            <table>
                <tr>
                    <td><label for="celsius">Enter Temperature in Celsius: </label></td>
                    <td><input type="text" name="celsius" id="celsius"></td>
                </tr>
                <tr>
                    <td colspan="2"><input type="submit" value="Convert" /></td>
                </tr>
            </table>
        </form>

        <%
            if (request.getMethod().equals("POST")) {
                double celsius;
                try {
                    celsius = Double.parseDouble(request.getParameter("celsius"));
                    double fahrenheit = (9.0 / 5.0) * celsius + 32.0;
                    out.println("<p>" + celsius + " Celsius is equal to " + fahrenheit + " Fahrenheit.</p>");
                } catch (NumberFormatException e) {
                    out.println("<p>Please enter a valid temperature.</p>");
                }
            }
        %>
    </body>
</html>
```

Output:

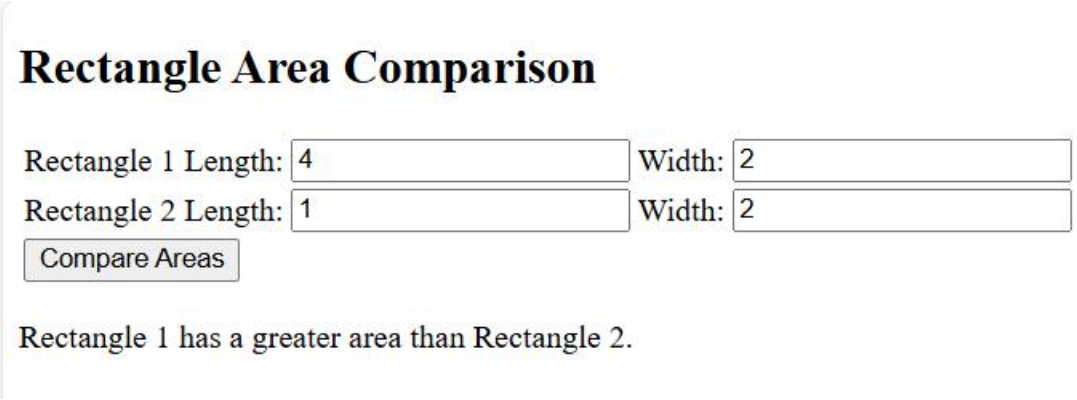
Exercise 2

Code:

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Exercise 2</title>
    </head>
    <body>
        <h2>Rectangle Area Comparison</h2>
        <form method="post">
            <table>
                <tr>
                    <td><label for="length1">Rectangle 1 Length:</label></td>
                    <td><input type="text" name="length1" id="length1"></td>
                    <td><label for="width1">Width:</label></td>
                    <td><input type="text" name="width1" id="width1"></td>
                </tr>
                <tr>
                    <td><label for="length2">Rectangle 2 Length:</label></td>
                    <td><input type="text" name="length2" id="length2"></td>
                    <td><label for="width2">Width:</label></td>
                    <td><input type="text" name="width2" id="width2"></td>
                </tr>
                <tr>
                    <td colspan="2"><input type="submit" value="Compare Areas"></td>
                </tr>
            </table>
        </form>
```

```
        <%
            if (request.getMethod().equals("POST")) {
                double length1 = Double.parseDouble(request.getParameter("length1"));
                double width1 = Double.parseDouble(request.getParameter("width1"));
                double length2 = Double.parseDouble(request.getParameter("length2"));
                double width2 = Double.parseDouble(request.getParameter("width2"));

                double area1 = length1 * width1;
                double area2 = length2 * width2;

                if (area1 > area2) {
                    out.println("<p>Rectangle 1 has a greater area than Rectangle 2.</p>");
                }
                else if (area1 < area2) {
                    out.println("<p>Rectangle 2 has a greater area than Rectangle 1.</p>");
                }
                else {
                    out.println("<p>Both rectangles have the same area.</p>");
                }
            }
        %>
    </body>
</html>
```

Output:


Rectangle Area Comparison
Rectangle 1 Length: 4 Width: 2
Rectangle 2 Length: 1 Width: 2
Compare Areas
Rectangle 1 has a greater area than Rectangle 2.