UNIVERSITI MALAYSIA TERENGGANU

FACULTY OF COMPUTER SCIENCE AND MATHEMATICS

CSM3023 – WEB BASED APPLICATION DEVELOPMENT

LAB REPORT 3 – JSP : SCRIPLET, PAGE DIRECTIVE & INCLUDE DIRECTIVE

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SEMESTER II 2023/2024

TASK 1 : PASSING DATA FROM MAIN JSP's PAGE TO OTHER JSP's PAGE

Objective :

- To demonstrate the use of request.getParameter ("fieldName") for passing input from one JSP'page to another JSP's page

memberRegister.jsp

```jsp
<%--
    Document    : memberRegister
    Created on  : Apr 17, 2024, 2:29:40 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>JSP Page</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()"</form>
        <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="Cancel"/>
            </p>
        </fieldset>
        </form>
    </body>
</html>
```

memberProcessing.jsp

```jsp
<%--
    Document   : memberProcessing
    Created on : Apr 17, 2024, 2:46:01 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>Lab 3 - Task 1</title>
    </head>
    <body>
        <h1>Passing data from main JSP's page to other JSP's page</h1>
        <fieldset>
        <%
            String myIC = null;
            String myName = null;

            myIC = request.getParameter("my_icno");
            myName = request.getParameter("my_name");
        %>

        <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>
```

The output :

Passing data from main JSP's page to other JSP's page

Member Registration
Ic No * 031231050055
Name Harinatul

Submit Cancel

Passing data from main JSP's page to other JSP's page

Thank you for registering in this event..!

This is your details;

IC No : 031231050055

Name : Harinatul

Reflection

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

    -   For submit specific information from one form to next form is
        <form id="memberFrm" action="memberProcessing.jsp" method="post"
        onsubmit="return checkICNo()"></form>
        From above **action="memberProcessing.jsp"** shown the next step.

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?

    -   It will show a value output as 'null'. It is because their can not passed any
        parameter for shown the next step.

TASK 2: USING MATHEMATICS OPERATIONS IN JSP

Objective :

- To demonstrate the use of request.getParameter("Mathematics operations") in JSP's page.

Calculator.jsp

```jsp
<%--
    Document    : Calculator
    Created on  : Apr 17, 2024, 2:53:33 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>JSP Page</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;
```

```jsp
33              case '2' : result = Integer.parseInt(num1) * Integer.parseInt(num2);
34              break;
35              case '3' : result = Integer.parseInt(num1) / Integer.parseInt(num2);
36              break;
37              case '4' : result = Integer.parseInt(num1) % Integer.parseInt(num2);
38              break;
39              }
40              }
41          %>
42
43      <center>
44          <h2>Basic calculator program in JSP</h2>
45          <form method="get" name="f1">
46              <input type="text" size="20" name="operand1" value= <%= num1 %> />
47
48              <select name= op size= 1>
49                  <option value="0">+</option>
50                  <option value="1">-</option>
51                  <option value="2">*</option>
52                  <option value="3">/</option>
53                  <option value="4">%</option>
54              </select>
55
56              <input type="text" size="20" name="operand2" value= <%= num2 %> />
57              <p><br><br><br><br>
58                  <input type = submit value = Calculate />
59
60                  Result = <%= result + "" %>
61          </form>
62      </body>
63  </html>
```

The output :

Reflection

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

   - In this task, I used for pass information to the next.
     <input type="text" name="operand" value="<%= valueToPass %>"/>

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?

   - It will show a value output as 'null'. It is because their cannot passed any parameter for shown the next step and doesn't match any of the parameters sent in the request.

TASK 4 : PERFORM CALCULATION OF CAR LOAN

Objective :

- Passing input to next page for further processing.
-

calculateCarLoan.html

```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
-->
<html>
    <head>
        <title>Car Loan</title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1.0">
    </head>
    <body>
        <h1>Perform Car Loans Calculation</h1>
        <form id="calculate" action="processCalculateCarLoan.jsp" method="post" onsubmit="return checkLoanAmount()">
            <fieldset>
                <legend>Loan Calculation</legend>
                <label for="loanAmount">Loan Amount*</label>
                <input type="text" id="loanAmount" name="loanAmount" size="4" placeholder="Amount"><br/>

                <label for="period">Period</label>
                <select id="period" name="period">
                    <option value="3">3 years</option>
                    <option value="5">4 years</option>
                    <option value="4">5 years</option>
                    <option value="7">7 years</option>
                </select></br>

                <p><input type="submit" id="btnSubmit" value="Submit"/>
                    <input type="reset" id="btnCancel" value="Cancel"/>
                </p>

            </fieldset>
        </form>
    </body>
</html>
```

processCalculateCarLoan.jsp

```jsp
<%--
    Document    : processCalculateCarLoan
    Created on  : Apr 17, 2024, 2:53:33 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>Result Car Loan</title>
</head>
<body>
    <h1>Perform Car Loan Calculation</h1>

    <fieldset>
        <%
            String LoanAmount = request.getParameter("loanAmount");
            String period = request.getParameter("period");

            int loanAmount = Integer.parseInt(LoanAmount);
            int periodINT = Integer.parseInt(period);

            double interestRate = (periodINT < 5) ? 0.028 : 0.045;

            double totalLoan = loanAmount * (1 + interestRate * periodINT);
        %>
        <h2 style="color: blue;">Details of car loans: </h2>
        <p>Loan Request: <%= loanAmount %></p>
        <p>Period Of Payment: <%= periodINT %> years</p>
        <p>Total Loan (+ interest) : <%= totalLoan %></p>
    </fieldset>
</body>
</html>
```

The output :

Perform Car Loans Calculation

Loan Calculation

Loan Amount* 50000

Period 3 years ▼

Submit   Cancel

Perform Car Loan Calculation

Details of car loans:

Loan Request: 50000

Period Of Payment: 3 years

Total Loan (+ interest) : 54200.00000000001

Reflection

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

   - In this task, I used for pass information to the next.
     `<form id="calculate" action="processCalculateCarLoan.jsp" method="post" onsubmit="return checkLoanAmount()">`

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

   - It retrieve the input parameter using 'request.getParameter("loanAmount")' and 'request.getParameter("period")'
   - Then I convert it into integer by using 'Integer.parseInt()'. It is because I want to calculate values.
   - Based on the question given, if the period is less than 5 years, the interest rate is set to 2.8%; otherwise, it's set to 4.5%.
   - Then I used the formula to calculate total loan which is 'totalLoan = loanAmount * (1 + interestRate * periodINT)'.
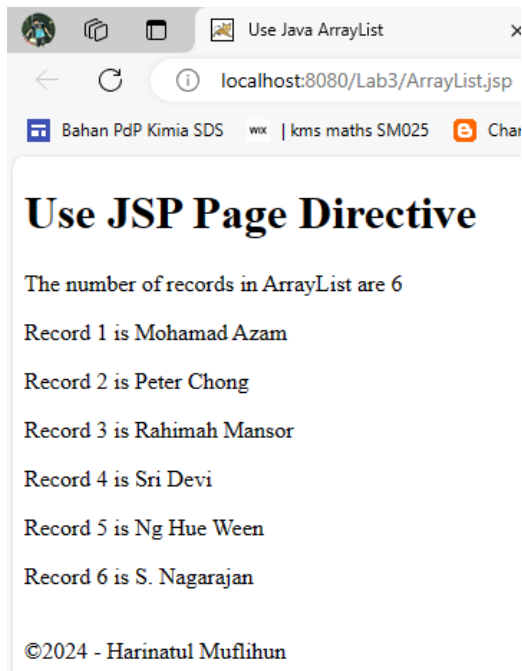
TASK 5 : USING JSP PAGE DIRECTIVE TO CALL JAVA API

Objective :

- Use JSP page directive elements to call certain Java API.

ArrayList.jsp

```jsp
7   <%@page contentType="text/html" pageEncoding="UTF-8"%>
8   <%@page import="java.util.ArrayList"%>
9   <!DOCTYPE html>
10  <html>
11      <head>
12          <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
13          <title>Use Java ArrayList</title>
14      </head>
15      <body>
16          <h1>Use JSP Page Directive</h1>
17          <%
18
19              ArrayList<String> studentList = new ArrayList<String>();
20
21              studentList.add(0, "Mohamad Azam");
22              studentList.add(1, "Peter Chong");
23              studentList.add(2, "Rahimah Mansor");
24              studentList.add(3, "Sri Devi");
25              studentList.add(4, "Ng Hue Ween");
26              studentList.add(5, "S. Nagarajan");
27
28              out.println("<p>The number of records in ArrayList are " + studentList.size() + "</p>");
29
30              for (int i=0; i < studentList.size(); i++ )
31              out.println("<p>Record " + (i+1) + " is " + studentList.get(i) + "</p>");
32          %>
33      </body>
34      <br/>
35      <footer>&copy2024 - Harinatul Muflihun</footer>
36  </html>
```

The output :

Reflection

1. What you have learnt from this exercise?

    - I learn how to declare variables and use Java collections like ArrayList within JSP and how to iterate over elements in an ArrayList and display them dynamically within HTML using JSP scriptlet tags

2. Write a sample syntax how you want to use java Math object in 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>Use Java Math in JSP</title>
  </head>
  <body>
    <%
        double number = 4.5;
        double squareRoot = Math.sqrt(number);
    %>
    <p>The square root of <%= number %> is <%= squareRoot %>.</p>
```

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

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

- Import syntax
  ```
  <%@page import="java.util.ArrayList"%>
  ```

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

- errorPage syntax
  ```
  <%@page errorPage="errorPage.jsp"%>
  ```

TASK 6: USE JSP INCLUDE DIRECTIVE FOR JSP PAGE

Objective :

- Demonstrate the use of JSP Page Include directive.

mainPage.jsp

```jsp
<%--
    Document    : mainPage
    Created on  : Apr 19, 2024, 1:00:47 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Main page</title>
    </head>
    <header>
        <%@include file="headerPage.jsp" %>
    </header>
    <body>
            <h1>Using JSP Include directive</h1>
            <p style="color : red;">Java Server Page (JSP) is a technology for controlling the content <br>
            or appearance of web pages through the use of servlets, small <br>
            programs that are specified in the Web page and run on the Web server <br>
            to modify the Web page before it is sent to the user who requested it.
            </p>

    </body>
    <footer>
        <%@include file="footerPage.jsp" %>
    </footer>
</html>
```
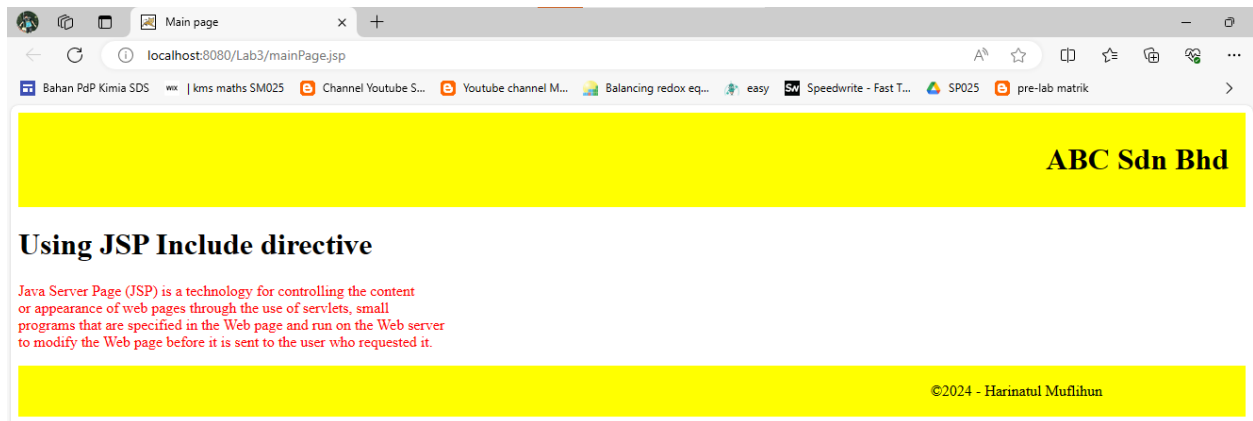
headerPage,jsp

```jsp
<%--
    Document    : headerPage
    Created on  : Apr 19, 2024, 1:05:03 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Header</title>
        <style>
        .header {
            padding: 10px;
            text-align: right;
            background-color: yellow;
        }
        </style>
    </head>
    <body>
        <header>
            <div class="header">
                <h1>ABC Sdn Bhd </h1>
            </div>
        </header>
    </body>
</html>
```

footerPage.jsp

```jsp
<%--
    Document    : footerPage
    Created on  : Apr 19, 2024, 1:06:06 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Footer</title>
        <style>
        .footer {
            padding: 2px;
            text-align: right;
            background-color: yellow;
        }
        .copyright {
            margin-right: 150px;
        }
        </style>
    </head>
    <body>
        <div class="footer">
            <p class="copyright">&copy2024 - Harinatul Muflihun</p>
        </div>
    </body>
</html>
```

The output :

Reflection

1. What you have learnt from this exercise?

   - I'm using <%@include file="filename.jsp" %> directive to include other JSP files into my main page.

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

   - <%@include file="/master/common.html" %>

EXERCISE

1. Write a JSP's page to convert temperatures to Fahrenheit temperatures and via versa. The formula is given as:

$$F = (9/5)C + 32$$

Your program should ask the user to enter a temperature in Celsius, and then display the temperature converted to Fahrenheit.
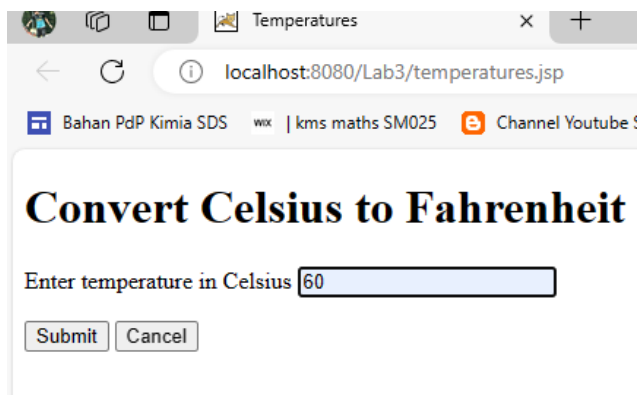
temperatures.jsp

```jsp
<%--
    Document    : temperatures
    Created on  : Apr 19, 2024, 1:47:12 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Temperatures</title>
    </head>
    <body>
        <h1>Convert Celsius to Fahrenheit</h1>
        <form id="calculate" action="processTemperatures.jsp" method="post">

        <label for="celsius">Enter temperature in Celsius</label>
        <input type="text" id="celsius" name="celsius"><br/>

        <p><input type="submit" id="btnSubmit" value="Submit"/>
           <input type="reset" id="btnCancel" value="Cancel"/>
        </p>

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

processTemperatures.jsp

```jsp
<%--
    Document    : processTemperatures
    Created on  : Apr 19, 2024, 2:07:15 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

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

        <%
            String celsius = request.getParameter("celsius");
            int celsiusINT = Integer.parseInt(celsius);

            double fahrenheit = (9/5 * celsiusINT) + 32;
        %>

        <p>Celsius : <%= celsiusINT %> C</p>
        <p>Fahrenheit : <%= fahrenheit %> F</p>
    </body>
</html>
```
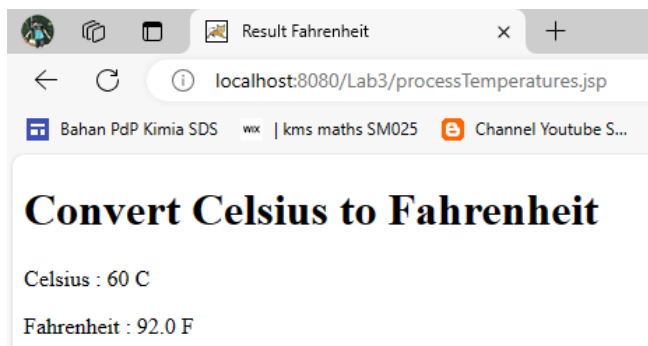
The output :

Temperatures

localhost:8080/Lab3/temperatures.jsp

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Convert Celsius to Fahrenheit

Enter temperature in Celsius 60

Submit   Cancel

Result Fahrenheit

localhost:8080/Lab3/processTemperatures.jsp

Bahan PdP Kimia SDS   wix | kms maths SM025   Channel Youtube S...

Convert Celsius to Fahrenheit

Celsius : 60 C

Fahrenheit : 92.0 F

2. Write a JSP's form that asks for the length and width of two rectangles. The program should tell the user which rectangle has the greater area, or if the areas are the same. [Note: All result must be in 2 decimal places].

rectangles.jsp

```jsp
<%--
    Document    : rectangles
    Created on  : Apr 19, 2024, 2:21:48 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>rectangles</title>
    </head>
    <body>
        <h1>Rectangle Area Comparison</h1>
        <form action="resultRectangle.jsp" method="post">
        <h3>Rectangle 1</h3>
        <label for="rect1Length">Length :</label>
        <input type="text" id="rect1Length" name="rect1Length" placeholder="0.01"><br>
        <label for="rect1Width">Width :</label>
        <input type="text" id="rect1Width" name="rect1Width" placeholder="0.01"><br>

        <h3>Rectangle 2</h3>
        <label for="rect2Length">Length :</label>
        <input type="text" id="rect2Length" name="rect2Length" placeholder="0.01"><br>
        <label for="rect2Width">Width :</label>
        <input type="text" id="rect2Width" name="rect2Width" placeholder="0.01"><br>

        <input type="submit" id="btnSubmit" value="Compare Areas"/>
        </form>
    </body>
</html>
```

resultRectangle.jsp

```jsp
<%--
    Document    : resultRectangle
    Created on  : Apr 19, 2024, 2:34:11 PM
    Author      : Harinatul Muflihun Binti Hasnul Munawar
--%>

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

        <%
            if(request.getMethod().equals("POST")){
                String rect1Length = request.getParameter("rect1Length");
                int rect1LengthINT = Integer.parseInt(rect1Length);

                String rect1Width = request.getParameter("rect1Width");
                int rect1WidthINT = Integer.parseInt(rect1Width);

                double area1 = rect1LengthINT * rect1WidthINT ;

                String rect2Length = request.getParameter("rect2Length");
                int rect2LengthINT = Integer.parseInt(rect2Length);

                String rect2Width = request.getParameter("rect2Width");
                int rect2WidthINT = Integer.parseInt(rect2Width);

                double area2 = rect2LengthINT * rect2WidthINT ;

                out.println("<p>Rectangle 1 Area: " + String.format("%.2f", area1) + "</p>");
                out.println("<p>Rectangle 2 Area: " + String.format("%.2f", area2) + "</p>");

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

    </body>
</html>
```

The output :

Rectangle Area Comparison

Rectangle 1

Length : 20
Width : 20

Rectangle 2

Length : 10
Width : 10

Compare Areas

Rectangle Area Comparison Result

Rectangle 1 Area: 400.00

Rectangle 2 Area: 100.00

Rectangle 1 has a greater area.