



UNIVERSITY MALAYSIA TERENGGANU
FACULTY OF COMPUTER SCIENCE AND MATHEMATICS
WEB BASED APPLICATION DEVELOPMENT

CSM3023 (K1)

Lab Report 1

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[BACHELOR OF COMPUTER SCIENCE (MOBILE COMPUTING)]

SEMESTER II 2023/2024

Task 1: Apache Tomcat and MySQL Installation Using XAMPP

Not using xamp. Apache Tomcat 10 is installed

Task 2: Change the Default Root Password of MySQL Database

The username and password is admin

Task 3: Managing Apache Tomcat

After the installation, when open the Apache NetBeans, I need to start the Server of Apache Tomcat

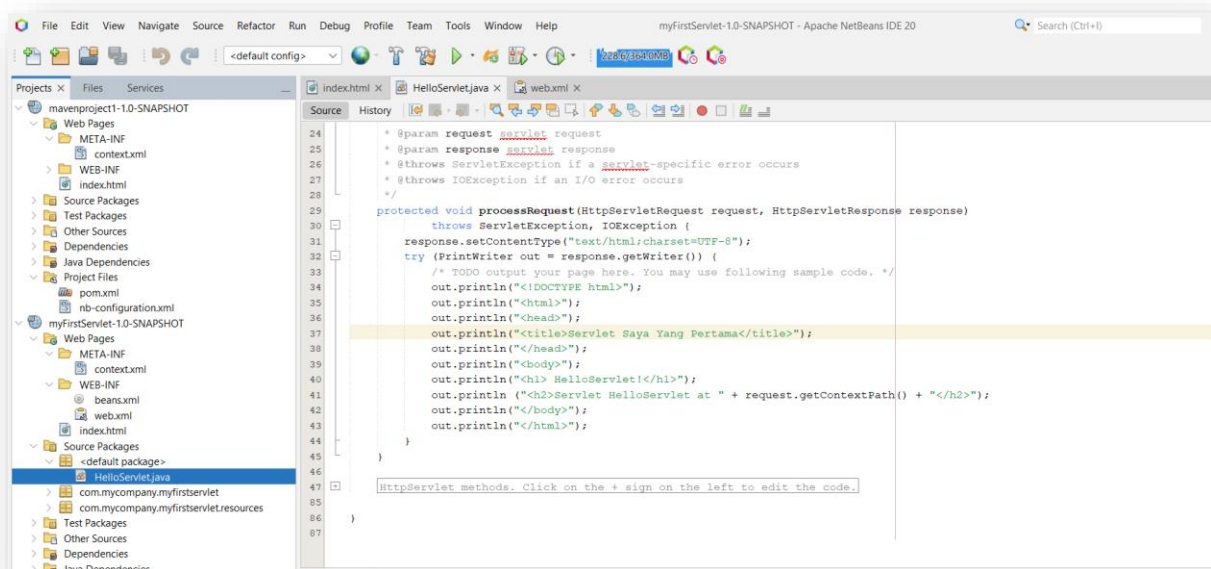
Task 4: NetBeans 12.3 IDE Installation

Already installed Netbeans 20

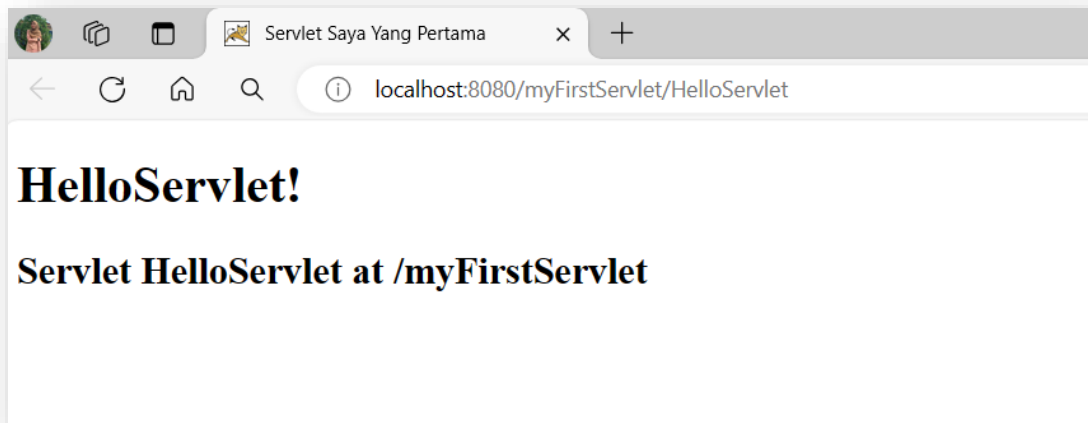
Task 5: Linking NetBeans to Apache Tomcat and Writing a Simple Java Servlet

Explanation:

After made the modification to the existing codes (line 37,40,41)



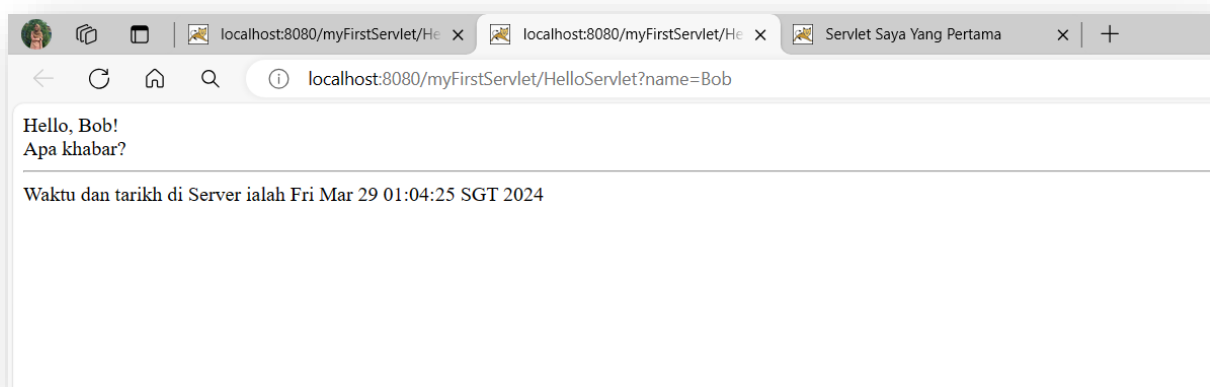
The output after executed HelloWorld.java:



After modification of doGet() method:

```
58     protected void doGet(HttpServletRequest request, HttpServletResponse response)
59         throws ServletException, IOException {
60         response.setContentType("text/html");
61
62         PrintWriter out = response.getWriter();
63
64         String name = request.getParameter("name");
65
66         out.println("<html><body>");
67
68         out.println("Hello, " + name + "!" + "<br>");
69         out.println("Apa khabar?" + "<hr>");
70         out.println("Waktu dan tarikh di Server ialah" + new java.util.Date());
71         out.println("<html></body>");
72     }
```

After executed the program:

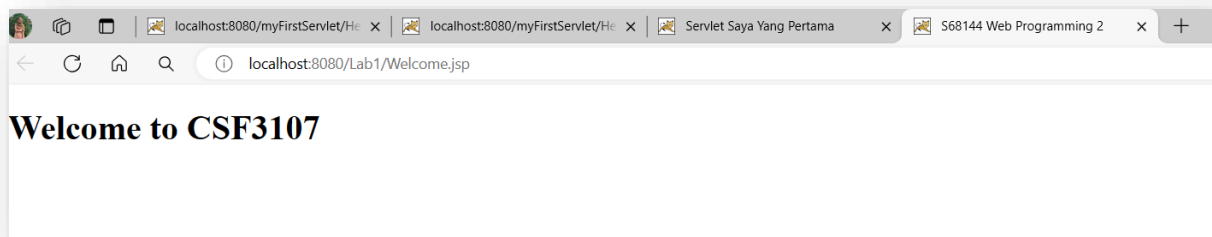


Without enter parameter:



After removed processRequest() method from the body of doGet() method:

Task 6: Writing a Simple JSP Program



Reflection

1. What have you learned from this exercise?

- a) Create java using java with maven
- b) How to create the Servlet File
- C) Next, the servlet named "HelloServlet" implemented by the class of the same name should then handle the request when it comes to the URL pattern "/HelloServlet". After that the servlet Apache Tomcat may direct requests, based on the URL pattern given in the incoming request.

2. Explain the general concept of how the JSP's file work?

During processing, the JSP engine translates the JSP page into a servlet, which is a Java servlet class.

3. Based on your observation of the previous tasks (Task 3 and Task 4), what are the differences you can find between servlet and JSP?

Servlet is a Java class that extends the `jakarta.servlet.http.HttpServlet` class and overrides its `doGet()` or `doPost()` method to handle HTTP requests and generate responses dynamically while JSP allows embedding Java code within HTML markup to generate dynamic web content.

Task 7: Use Java Reference Datatype/Class Wrapper in JSP



Reflection

1. What have you learnt from this exercise?

What have I learnt from this exercise is that `<% response.setIntHeader("Refresh", 5); %>`

Is used to instruct the browser to automatically refresh or reload the current web page after every 5 seconds.

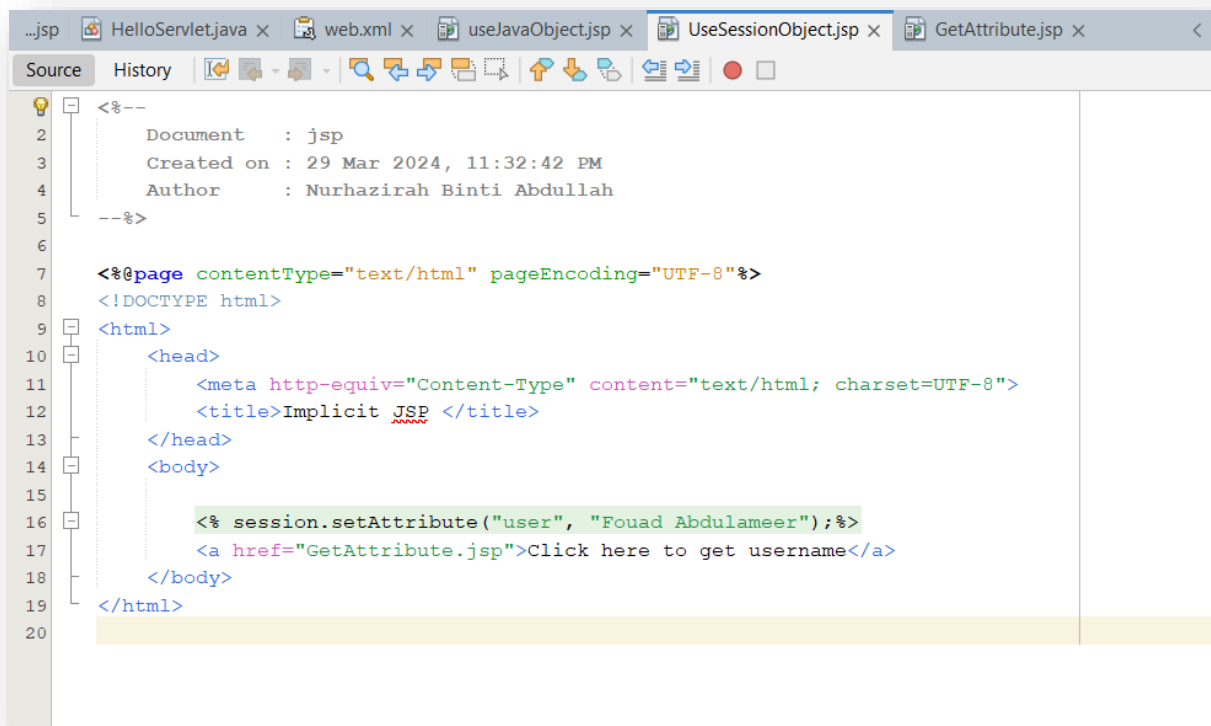
2. What is Java Scriptlet?

To extend the applications hosted by web servers.

3. How to use Java code in your JSP's page?

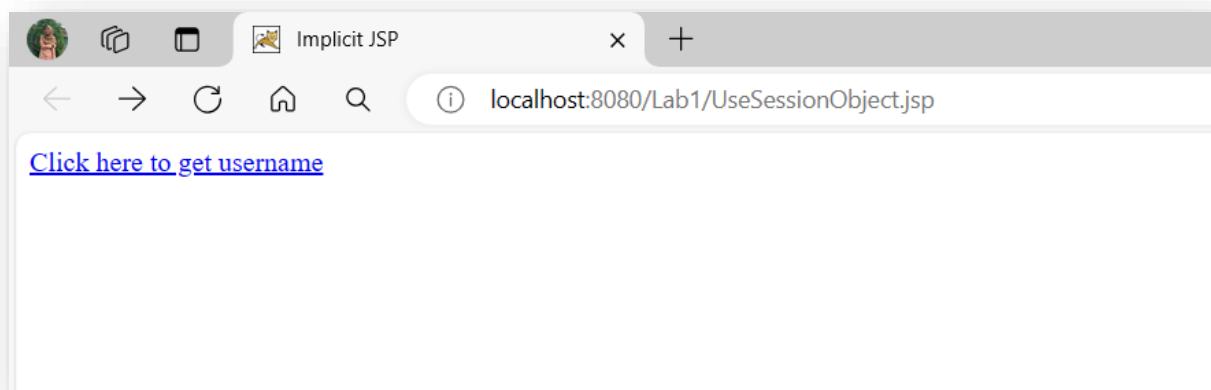
With using these tags `<% %>` that also known as scriptlet. For example use the `%@page import="java.util.*" %` to import packages using the page directive

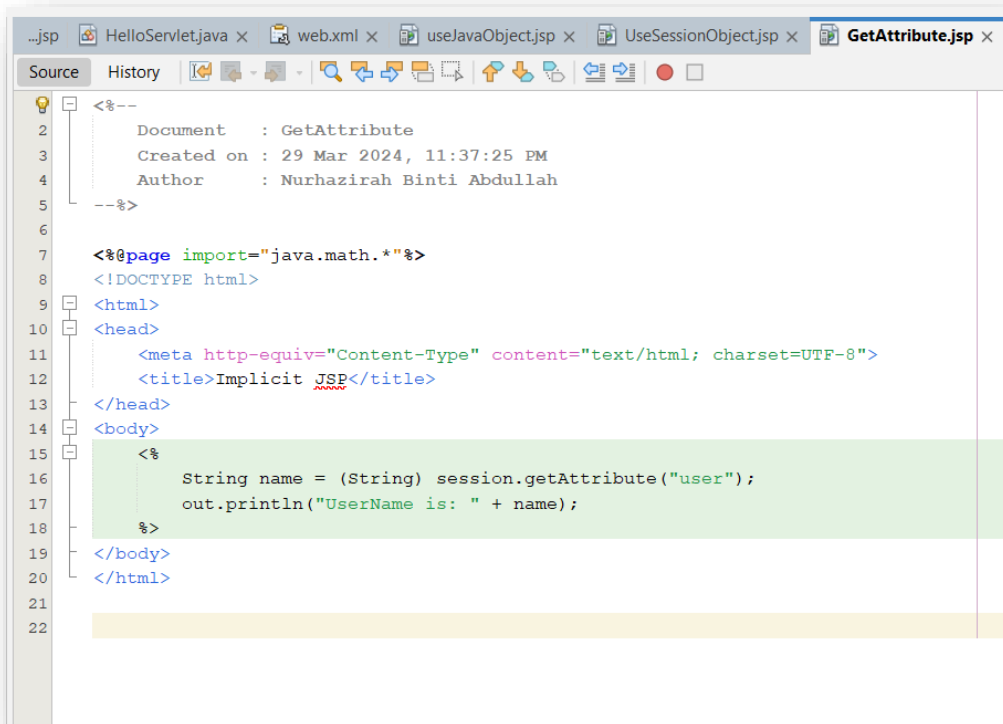
Task 8: Using JSP Implicit object in JSP page



```
1 <!--
2     Document    : jsp
3     Created on  : 29 Mar 2024, 11:32:42 PM
4     Author     : Nurhazirah Binti Abdullah
5 -->
6
7 <%@page contentType="text/html" pageEncoding="UTF-8"%>
8 <!DOCTYPE html>
9 <html>
10 <head>
11     <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
12     <title>Implicit JSP </title>
13 </head>
14 <body>
15
16     <% session.setAttribute("user", "Fouad Abdulameer");%>
17     <a href="GetAttribute.jsp">Click here to get username</a>
18
19 </body>
20 </html>
```

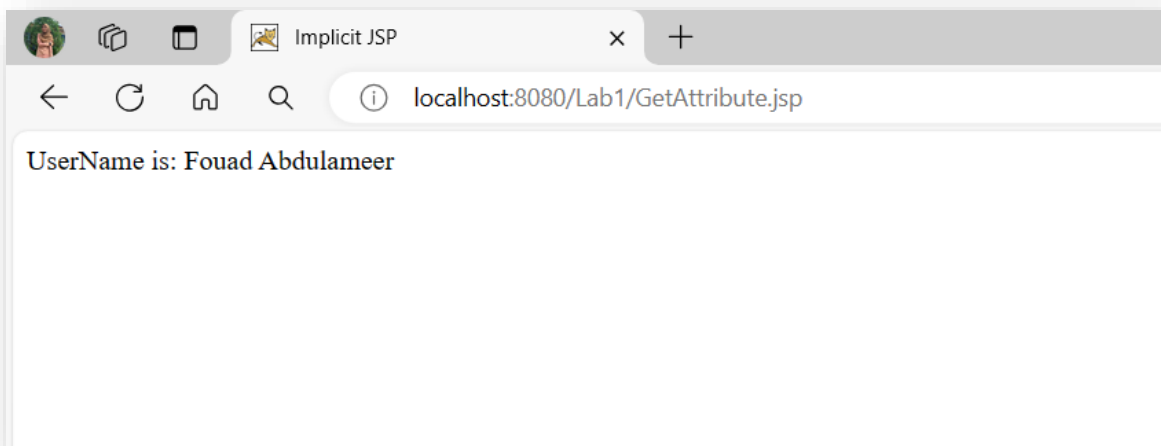
After run the program:



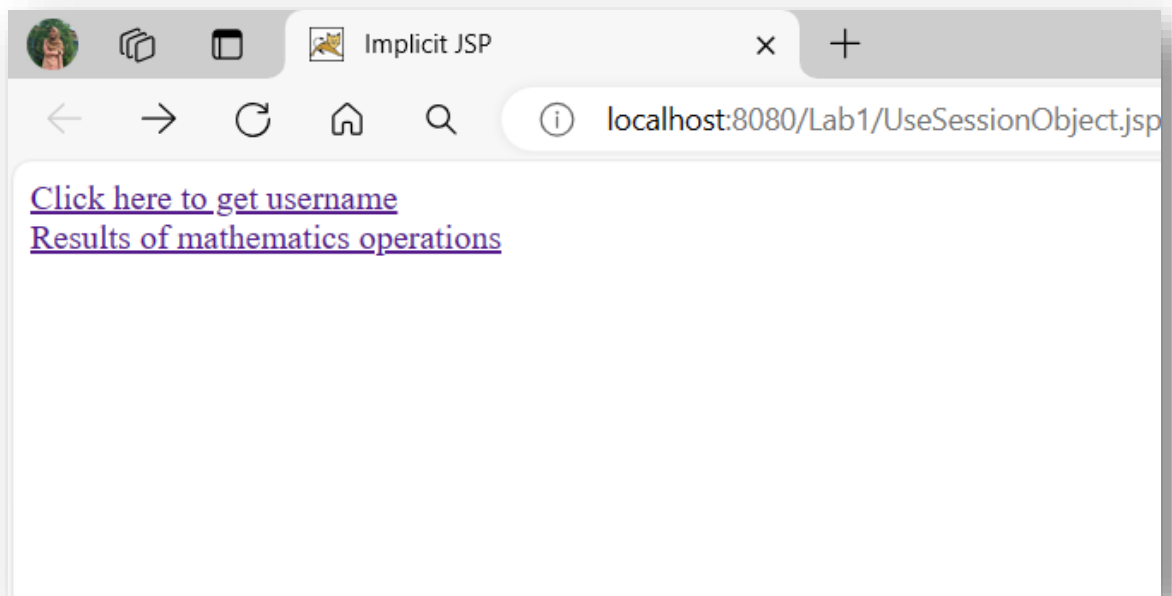


The screenshot shows an IDE with several tabs open: ...jsp, HelloServlet.java, web.xml, useJavaObject.jsp, UseSessionObject.jsp, and GetAttribute.jsp. The 'Source' tab is active, displaying the code for GetAttribute.jsp. The code includes a comment block with document details, an import statement for java.math.*, and an HTML document structure. The main logic is enclosed in a JSP scriptlet that retrieves the 'user' attribute from the session and prints it to the console.

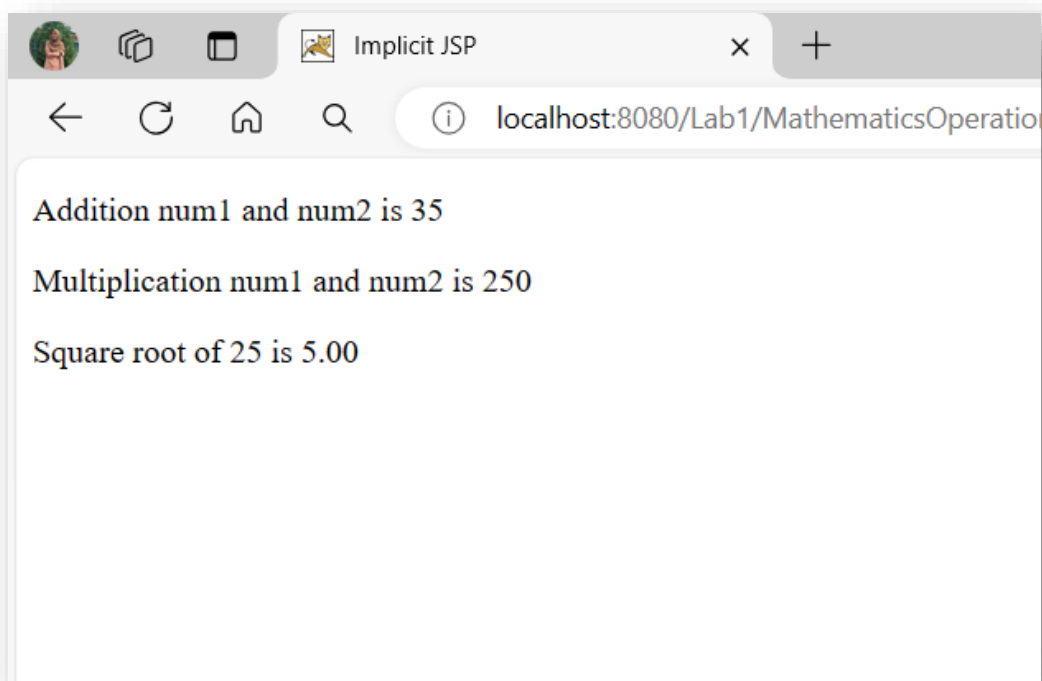
```
1 <!--
2   Document    : GetAttribute
3   Created on  : 29 Mar 2024, 11:37:25 PM
4   Author     : Nurhazirah Binti Abdullah
5 -->
6
7 <%@page import="java.math.*"%>
8 <!DOCTYPE html>
9 <html>
10 <head>
11   <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
12   <title>Implicit JSP</title>
13 </head>
14 <body>
15   <%
16     String name = (String) session.getAttribute("user");
17     out.println("UserName is: " + name);
18   %>
19 </body>
20 </html>
21
22
```



When run the jsp program:



When clicked the Results of mathematics operations link :



Reflection

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

By using `request.getParameter("field_name")`.

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

The method will return 'null' because it won't be able to find a parameter with the specified field name.

Task 9: Populate array values into HTML'S Table

Source code:

```
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>populateArray</title>
    </head>
    <body>
        <h1>Read the array and populate its value into HTML's table</h1>

        <%
            int array[][] = new int [3][3];

            array[0][0] = 2500;
            array[0][1] = 2100;
            array[0][2] = 2200;
            array[1][0] = 2000;
```

```
array[1][1] = 1900;
array[1][2] = 2400;
array[2][0] = 1800;
array[2][1] = 2200;
array[2][2] = 2450;
%>
```

```
<style>
```

```
table, th, td
```

```
{
```

```
border: 2px solid lightgrey;
```

```
border-collapse: collapse;
```

```
}
```

```
th
```

```
{
```

```
background-color: #FFD66F;
```

```
}
```

```
td
```

```
{
```

```
text-align: center;
```

```
background-color: #FFF0CB;
```

```
}
```

```
</style>
```

```
<table style = "width:50%">
```

```
<tr>
```

```
<th>Salesman</th>
```

```
<th>Jan</th>
```

```
<th>Feb</th>
```

```
<th>Mac</th>
```

```
</tr>

<tr>
  <td>Salesman 1</td>
  <td><%= array[0][0] %></td>
  <td><%= array[0][1] %></td>
  <td><%= array[0][2] %></td>
</tr>

<tr>
  <td>Salesman 2</td>
  <td><%= array[1][0] %></td>
  <td><%= array[1][1] %></td>
  <td><%= array[1][2] %></td>
</tr>

<tr>
  <td>Salesman 3</td>
  <td><%= array[2][0] %></td>
  <td><%= array[2][1] %></td>
  <td><%= array[2][2] %></td>
</tr>
</table>

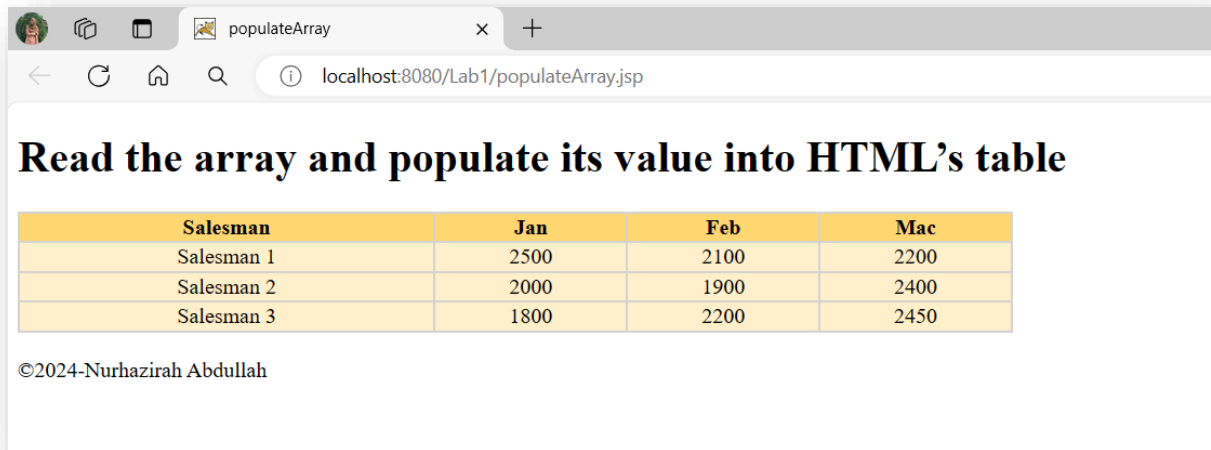
<br>

<footer>&copy;2024-Nurhazirah Abdullah</footer>

</body>

</html>
```

The output:



Reflection

1. Write a sample syntax to declare 2D Java array.

```
int array[][] = new int [3][3];
```

2. Define a sequence of steps on how you accomplish Task 7.

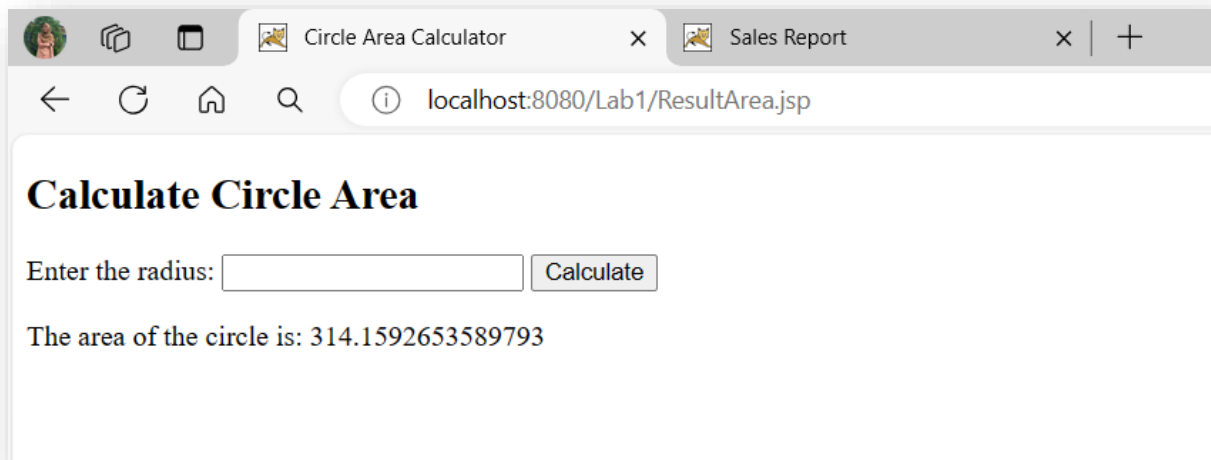
- Create jsp file named useJavaObject.jsp
- Add Java util package for the Date reference because it can display the current date and time after executed the jsp file.
- Create Date object named as 'todayDate' to represent the current date and time.
- Add response.setIntHeader to make the page refresh after every the time interval stated as for this task is 5 seconds.
- Compile and run the useJavaObject.jsp

3. What is the difference between HTML's page and JSP's page?

HTML pages are processed by the web browser on the client-side. While JSP allows developers to combine HTML with Java to create dynamic web applications that can interact with databases, process user input, and perform other server-side tasks.

Exercise

1. After convert into Web-Based application where the user can dynamically key-in radius and submit the request to get the area of a circle. And must ensure to accept only number as a radius as below:

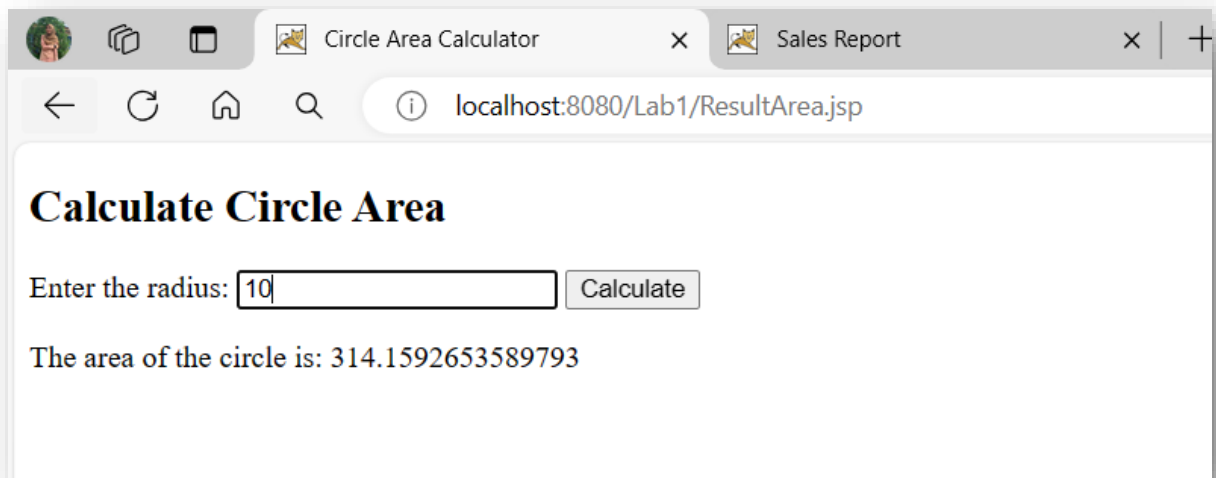


Calculate Circle Area

Enter the radius:

The area of the circle is: 314.1592653589793

Insert value radius is 10, then the area of circle is produced.

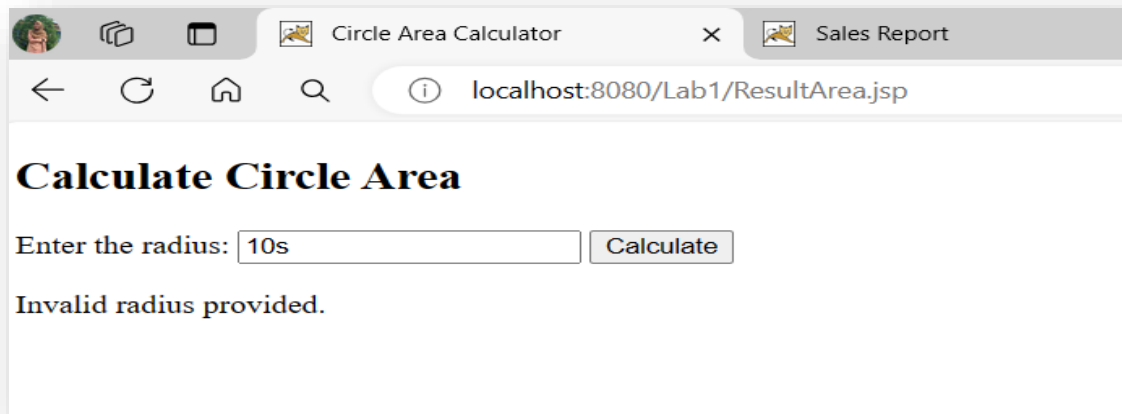


Calculate Circle Area

Enter the radius:

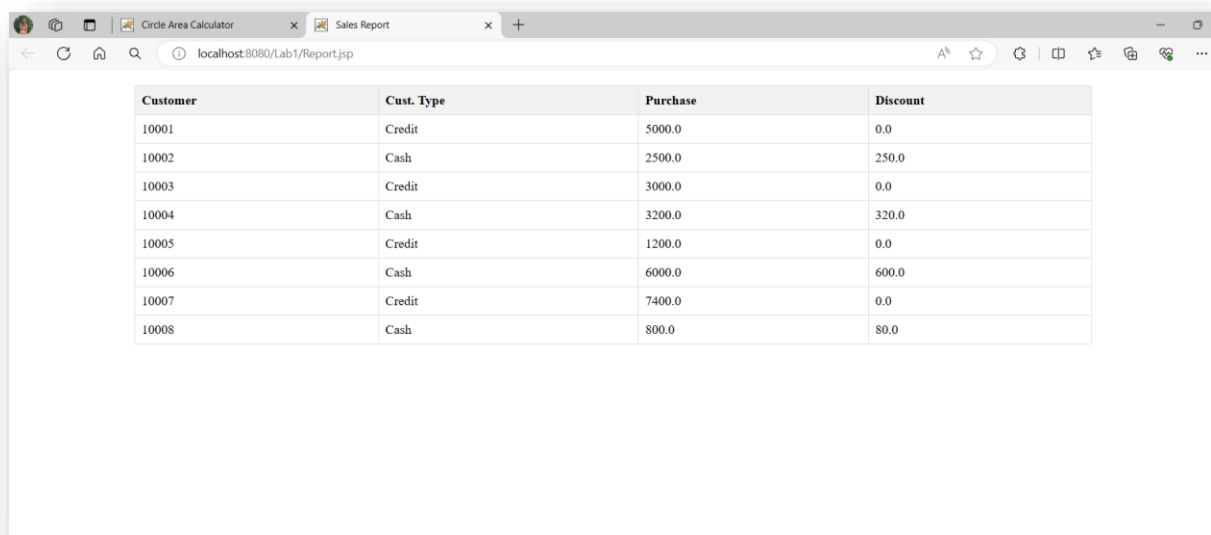
The area of the circle is: 314.1592653589793

When entered the wrong parameter:



The screenshot shows a web browser with two tabs: "Circle Area Calculator" and "Sales Report". The address bar displays "localhost:8080/Lab1/ResultArea.jsp". The page title is "Calculate Circle Area". Below the title, there is a text input field labeled "Enter the radius:" containing the value "10s", and a "Calculate" button. Below the input field, a message states "Invalid radius provided."

1. Upon reading Sales.csv's file, the discount is calculated and populated HTML's table in the JSP's page like below:



The screenshot shows a web browser with two tabs: "Circle Area Calculator" and "Sales Report". The address bar displays "localhost:8080/Lab1/Report.jsp". The page contains a table with the following data:

Customer	Cust. Type	Purchase	Discount
10001	Credit	5000.0	0.0
10002	Cash	2500.0	250.0
10003	Credit	3000.0	0.0
10004	Cash	3200.0	320.0
10005	Credit	1200.0	0.0
10006	Cash	6000.0	600.0
10007	Credit	7400.0	0.0
10008	Cash	800.0	80.0