



**Web based Application Development
(CSM3023)**

Lab Report 1

Programme

Computer Science (Software Engineering)

Prepared by

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Prepared for

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Task 1: Apache Tomcat and MySQL Installation Using XAMPP

Reflection:

What have you learnt from this exercise?

- I learnt how to install apache Tomcat and MySQL using XAMPP

Task 2: Change the Default Root Password of MySQL Database

Reflection:

What have you learned from this exercise?

- I learnt how to change the default root password of MySQL Database

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

HelloServlet.java

```
import java.io.IOException;
import java.io.PrintWriter;
import jakarta.servlet.ServletException;
import jakarta.servlet.http.HttpServlet;
import jakarta.servlet.http.HttpServletRequest;
import jakarta.servlet.http.HttpServletResponse;
import jakarta.annotation.*;

/**
 *
 * @author VivoBook
```

```
*/
```

```
public class HelloServlet extends HttpServlet {
```

```
/**
```

```
 * Processes requests for both HTTP GET and POST
```

```
 * methods.
```

```
 *
```

```
 * @param request servlet request
```

```
 * @param response servlet response
```

```
 * @throws ServletException if a servlet-specific error occurs
```

```
 * @throws IOException if an I/O error occurs
```

```
*/
```

```
protected void processRequest(HttpServletRequest request, HttpServletResponse response)
```

```
    throws ServletException, IOException {
```

```
    response.setContentType("text/html;charset=UTF-8");
```

```
    try (PrintWriter out = response.getWriter()) {
```

```
        /* TODO output your page here. You may use following sample code. */
```

```
        out.println("<!DOCTYPE html>");
```

```
        out.println("<html>");
```

```
        out.println("<head>");
```

```
        out.println("<title>Servlet saya yang pertama</title>");
```

```
        out.println("</head>");
```

```
        out.println("<body>");
```

```
        out.println("<h1>Hello Servlet</h1>");
```

```
        out.println("<h2>Servlet HelloServlet at " + request.getContextPath() + "</h2>");
```

```
        out.println("</body>");
```

```
        out.println("</html>");
```

```
}  
  
}
```

// <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on the left to edit the code.">

```
/**
```

```
 * Handles the HTTP <code>GET</code> method.
```

```
 *
```

```
 * @param request servlet request
```

```
 * @param response servlet response
```

```
 * @throws ServletException if a servlet-specific error occurs
```

```
 * @throws IOException if an I/O error occurs
```

```
 */
```

```
@Override
```

```
protected void doGet(HttpServletRequest request, HttpServletResponse response)
```

```
    throws ServletException, IOException {
```

```
        response.setContentType("text/html");
```

```
        PrintWriter out = response.getWriter();
```

```
        String name = request.getParameter("name");
```

```
        if (name==null)
```

```
            processRequest(request, response);
```

```
        out.println("<html><body>");
```

```

        out.println("Hello, " + name+ "!" + "<br>");

        out.println("Apa Khabar ?" + "<hr>");

        out.println("Waktu dan tarikh di Server ialah" + new java.util.Date());

        out.println("</html></body>");

    }

    /**
     * Handles the HTTP <code>POST</code> method.
     *
     * @param request servlet request
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        processRequest(request, response);
    }

    /**
     * Returns a short description of the servlet.
     *
     * @return a String containing servlet description
     */

```

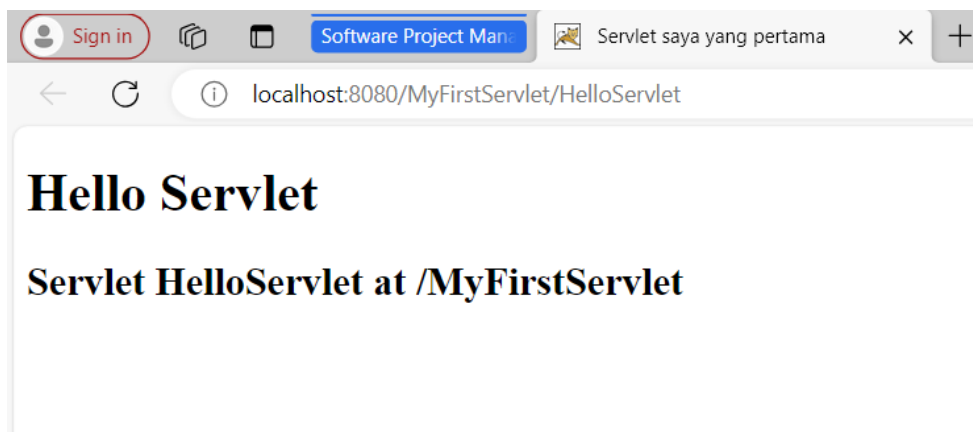
```
@Override

public String getServletInfo() {

    return "Short description";

} // </editor-fold>

}
```



```
@Override

protected void doGet(HttpServletRequest request, HttpServletResponse response)

    throws ServletException, IOException {

    response.setContentType("text/html");

    PrintWriter out = response.getWriter();

    String name = request.getParameter("name");
```

```

out.println("<html><body>");

out.println("Hello, " + name+ "!" + "<br>");

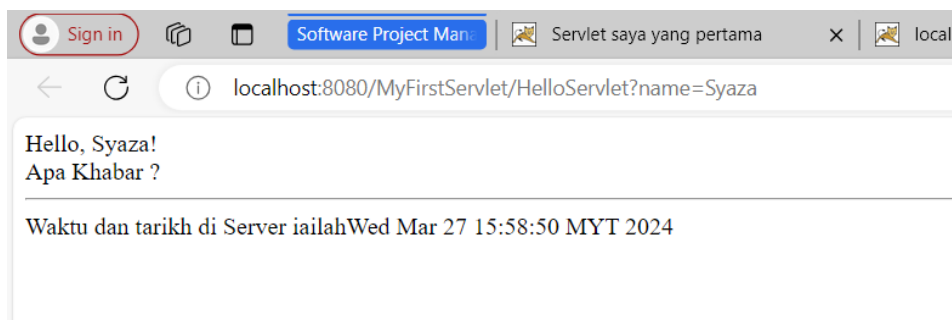
out.println("Apa Khabar ?" + "<hr>");

out.println("Waktu dan tarikh di Server ialah" + new java.util.Date());

out.println("</html></body>");

}

```



@Override

```

protected void doGet(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {

    response.setContentType("text/html");

    PrintWriter out = response.getWriter();

    String name = request.getParameter("name");

```



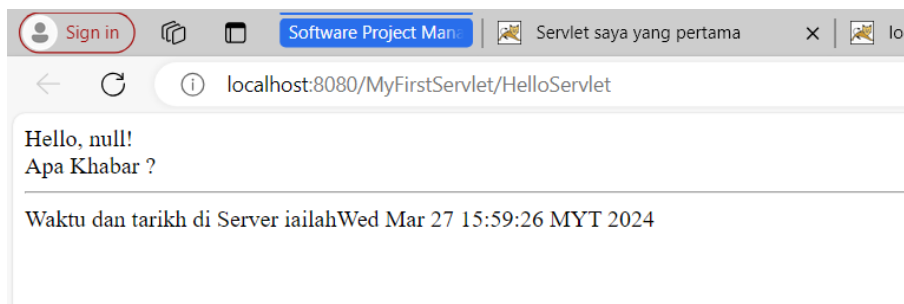
```
if (name==null)

    processRequest(request, response);

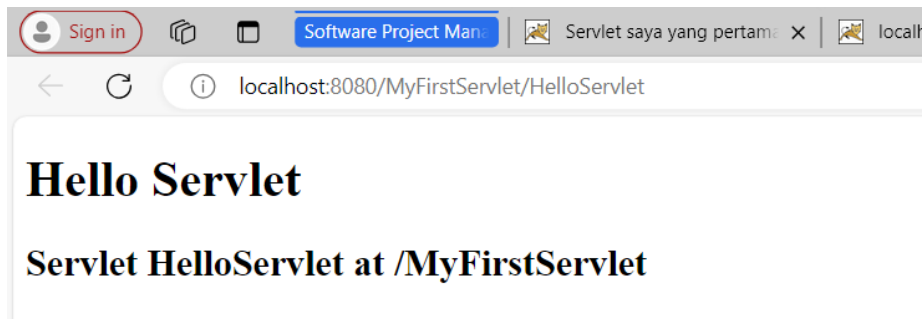

out.println("<html><body>");


out.println("Hello, " +name+ "!" + "<br>");
out.println("Apa Khabar ?" + "<hr>");
out.println("Waktu dan tarikh di Server iailah" + new java.util.Date());
out.println("</html></body>");


}
```



Rerun the file without supplying any parameter:



Task 6: Writing a simple JSP Program

Welcome.jsp

<%--

Document : Welcome

Created on : 27 Mar 2024, 4:06:17 pm

Author : VivoBook

--%>

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

<!DOCTYPE html>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>CSM3023-Web Based Programming</title>

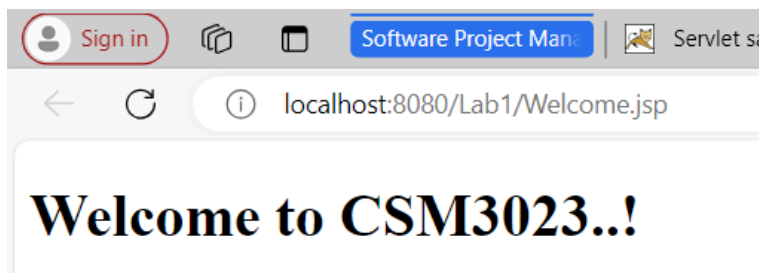
</head>

<body>

<h1>Welcome to CSM3023..! </h1>

</body>

</html>



Reflection:

1. Explain the general concept of how the JSP's file work?
 -
2. Based on your observation of the previous tasks, what are the differences you can find between servlet and JSP?
 - Servlets are Java classes that are responsible for handling requests and generating responses on the server-side while JSP pages are text-based documents that contain a combination of HTML-like markup and Java code embedded within special tags.

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

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

<% @page import="java.util.Date"%> <!-- Add import statement for Date class -->

<!DOCTYPE html>

<html>

    <head>

        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

        <title>Using Java's object</title>

    </head>

    <body>

        <h1>Display Current Date and perform simple Mathematic operations</h1>

        <%

            Date todayDate = new Date();

            out.print("<p>Current date and time is " + todayDate.toString() + "</p>");

        %>

        <%

            //set refresh, autoload time as 5 seconds

            response.setIntHeader("Refresh", 5);
```

```

    %>

</body>

</html>

```



Reflection

1. What is Java Scriptlet?
 - A Java Scriptlet is a block of Java code embedded within a JSP (JavaServer Pages) document. It allows to include Java code directly into JSP pages for server-side processing.
2. How to use Java code in JSP's page?
 - To use Java code in a JSP page, I can embed Java code within Java Scriptlets (<% %>), expressions (<%= %>), and declarations (<%! %>).

Task 8: Using JSP Implicit object in JSP page

AttributelsSet.jsp

```

<%--

    Document : AttributelsSet

    Created on : 30 Mar 2024, 12:29:51 am

    Author : VivoBook

--%>

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

<!DOCTYPE html>

<html>

    <head>

        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

```

```
<title>Implicit JSP</title>

</head>

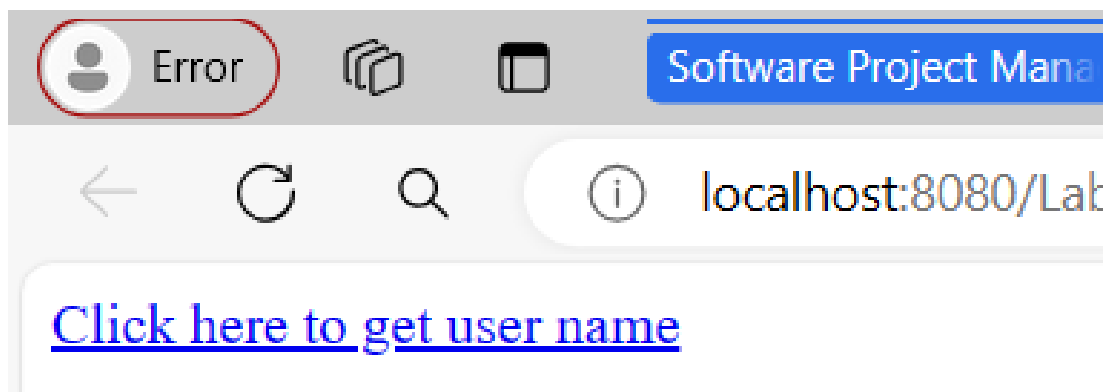
<body>

    <% session.setAttribute("User", "Found Abdulameer"); %>

    <a href="GetAttribute.jsp">Click here to get user name </a>

</body>

</html>
```



GetAttribute.jsp

<%--

Document : GetAttribute

Created on : 30 Mar 2024, 12:35:47 am

Author : VivoBook

--%>

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

<!DOCTYPE html>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>Implicit JSP</title>

</head>

<body>

<%

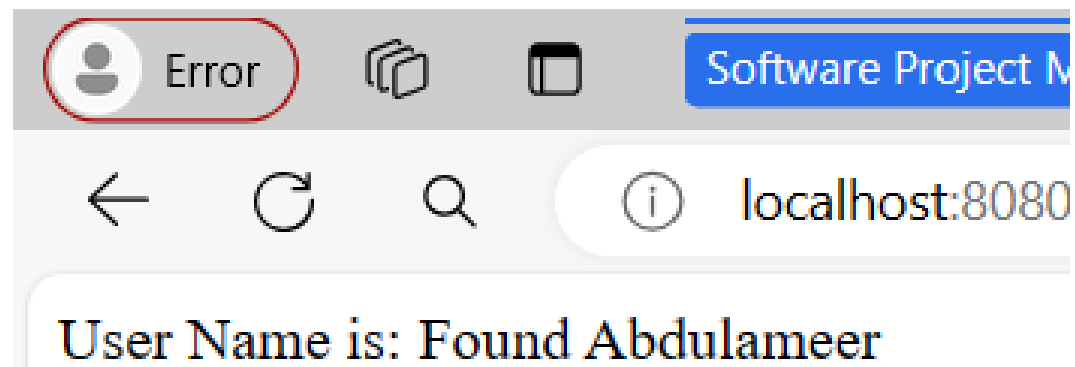
String name = (String) session.getAttribute("User");

out.println("User Name is: " + name);

%>

</body>

</html>



AttributelsSet.jsp

<%--

Document : AttributelsSet

Created on : 30 Mar 2024, 12:29:51 am

Author : VivoBook

--%>

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

<!DOCTYPE html>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>Implicit JSP</title>

</head>

<body>

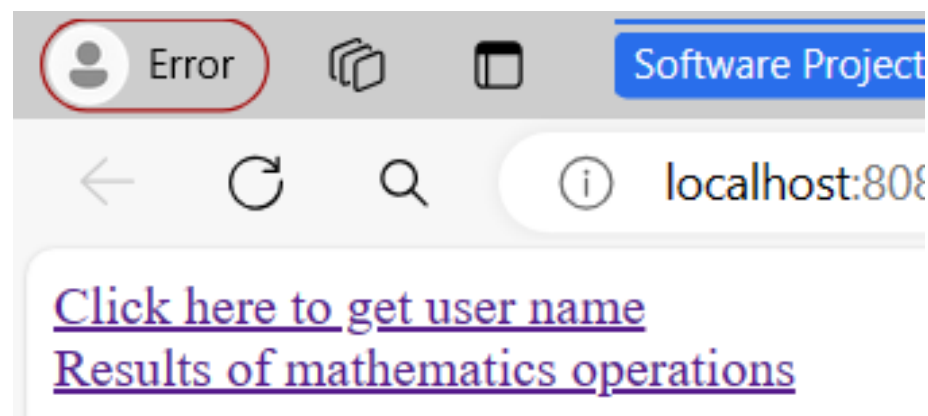
<% session.setAttribute("User", "Found Abdulameer"); %>

Click here to get user name

Results of mathematics operations

</body>

</html>



MathematicsOperation.jsp

<%--

Document : MathematicsOperations

Created on : 30 Mar 2024, 12:46:20 am

Author : VivoBook

--%>

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

<% @page import="java.math.*"%>

<!DOCTYPE html>

<html>

<head>

<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

<title>JSP Page</title>

</head>

<body>

<%

int num1 = 24;

int num2 = 10;

int addition_output;

int multiply_output; // Corrected variable name

double squareroot = 0.00;

java.util.Formatter myFormat = new java.util.Formatter();

addition_output = num1 + num2;

multiply_output = num1 * num2;

```
squareroot = (double)(Math.sqrt(num1)); // Corrected function name

out.print("<p>Addition num1 + num2 is " + addition_output + "</p>");

out.print("<p>Multiplication num1 and num2 is " + multiply_output + "</p>");

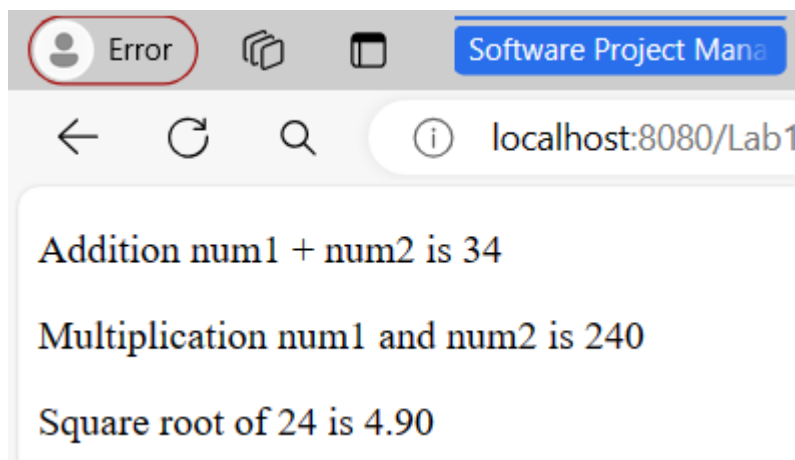
out.print("<p></p>"); // corrected HTML tag

out.print("<p>Square root of " + num1 + " is " + myFormat.format("%.2f", squareroot)
+ "</p>");

%>

</body>

</html>
```



Reflection

1. How do you want to submit specific information from one form to next form?
- I can use POST and GET method.
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?

- 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, I won't get the expected value for that parameter.

Task 9: Populate Array values into HTML's Table

populateArray.jsp

<%--

Document : populateArray

Created on : 30 Mar 2024, 9:00:02 pm

Author : VivoBook

--%>

<% @ page contentType="text/html; charset=UTF-8" %>

<!DOCTYPE html>

<html>

<head>

<title>Sales Data</title>

</head>

<body>

<%

// Define a 2D array to store sales data

int[][] salesData = {

{ 2500, 2100, 2200 }, // Salesman 1

{ 2000, 1900, 2400 }, // Salesman 2

{ 1800, 2200, 2450 } // Salesman 3

};

%>

<h1>Read Java array and populate it into HTML's table</h1>

```

<table border="1">

    <tr>

        <th></th>

        <th>Jan</th>

        <th>Feb</th>

        <th>Mar</th>

    </tr>

    <% for (int i = 0; i < salesData.length; i++) { %>

        <tr>

            <th>Salesman <%= i + 1 %></th>

            <% for (int j = 0; j < salesData[i].length; j++) { %>

                <td><%= salesData[i][j] %></td>

            <% } %>

        </tr>

    <% } %>

</table>

</body>

</html>

```



Reflection

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

```
- int[][] twoDarray = new int[3][4]; // This creates a 3x4 array
- int[][] twoDArray = {
-     {1, 2, 3},
-     {4, 5, 6},
-     {7, 8, 9}
- };
```

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

```
- HTML's page is a static document that contains markup code to define the
  structure and content of a web page while JSP's page is dynamic web page that
  allows JavaScripts within HTML markup to generate dynamic content.
```