

# ENTERPRISE ARCHITECTURE

## Lab Sheet 4 ,5 - Servlet

GAM/IT/2022/F/0096

### **Task 1: Simple Servlet - Display Static Message**

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet(urlPatterns = {"/DisplayMessageServlet"})
public class DisplayMessageServlet extends HttpServlet {
    protected void doGet(HttpServletRequest request, HttpServletResponse
    response)

    throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<html><body>");
        out.println("<h1>Welcome to the Java Servlet Lab!</h1>");
        out.println("</body></html>");
    }
}

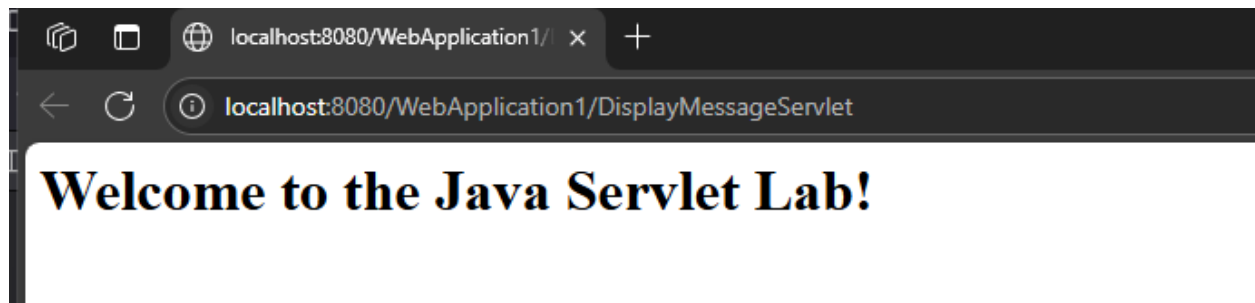
// <editor-fold defaultstate="collapsed" desc="HttpServlet methods. Click on the + sign on the
left to edit the code.">

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

```

        throws ServletException, IOException {
    processRequest(request, response);
}
@Override
protected void doPost(HttpServletRequest request, HttpServletResponse response)
    throws ServletException, IOException {
    processRequest(request, response);
}
@Override
public String getServletInfo() {
    return "Short description";
} // </editor-fold>
}

```



## **Lab Task 2: Get User Input from Form and Display**

Create an HTML form to collect the user's name.

Create a Servlet (GetUserInputServlet) to handle the form submission and display the user's name.

### **HTML Form (index.html):**

```

<!DOCTYPE html>

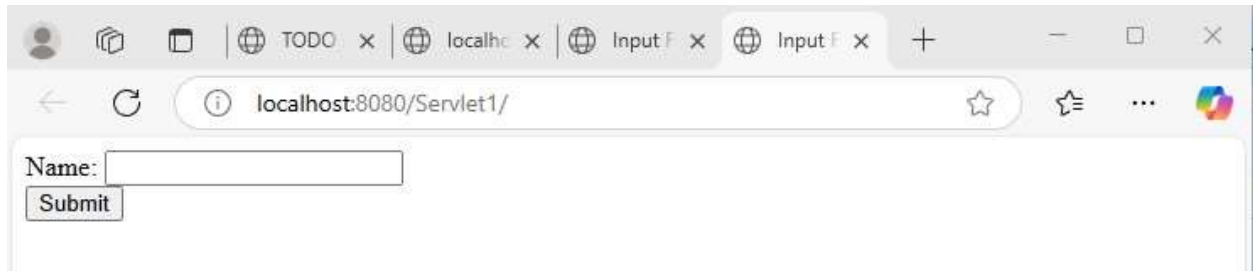
<html>

<head><title>Input Form</title></head>

<body>

```

```
<form action="getUserInput" method="POST">
Name: <input type="text" name="username" required><br>
<input type="submit" value="Submit">
</form>
</body>
</html>
```



#### **Servlet Code (GetUserInputServlet.java):**

```
import java.io.IOException;
import java.io.PrintWriter;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
@WebServlet(urlPatterns = {"/DisplayMessageServlet"})
public class DisplayMessageServlet extends HttpServlet {
    @Override
    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<html><body>");
```

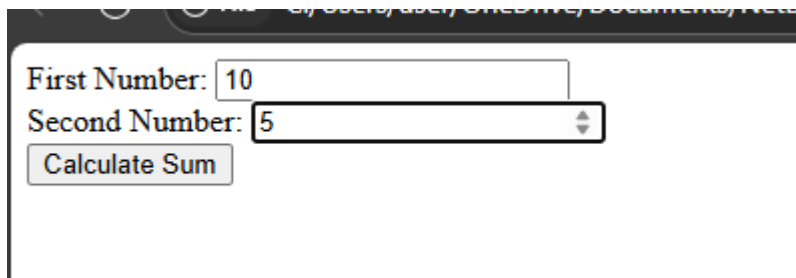
```
out.println("<h1>Welcome to the Java Servlet Lab!</h1>");  
out.println("</body></html>");  
}  
}
```

### **Lab Task 3: Get Multiple Inputs, Perform Calculation, and Display Result**

#### **HTML Form (calculate.html):**

```
<!DOCTYPE html>  
  
<html>  
  
<head><title>Sum Calculator</title></head>  
  
<body>  
  
<form action="calculateSum" method="POST">  
  
First Number: <input type="number" name="num1" required><br>  
Second Number: <input type="number" name="num2" required><br>  
<input type="submit" value="Calculate Sum">  
  
</form>  
  
</body>  
  
</html>
```

Output:



First Number: 10  
Second Number: 5  
Calculate Sum

#### **Servlet Code (CalculateSumServlet.java):**

```
import java.io.IOException;  
  
import java.io.PrintWriter;  
  
import javax.servlet.ServletException;
```

```

import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

@WebServlet(urlPatterns =
{"C:\\Users\\user\\OneDrive\\Documents\\NetBeansProjects\\WebApplication1\\Calculate
SumServlet"})

public class CalculateSumServlet extends HttpServlet {

protected void doPost(HttpServletRequest request, HttpServletResponse
response)

throws ServletException, IOException {

int num1 = Integer.parseInt(request.getParameter("num1"));
int num2 = Integer.parseInt(request.getParameter("num2"));
int sum = num1 + num2;

response.setContentType("text/html");

PrintWriter out = response.getWriter();

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

out.println("<h1>The sum of " + num1 + " and " + num2 + " is: " + sum
+ "</h1>");

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

}

}

```

Output:

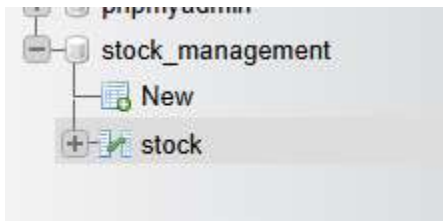


## Lab Task 4: Java Servlet with Database CRUD Operations

### Database Setup (MySQL example):

```
CREATE DATABASE stock_management;  
  
USE stock_management;  
  
CREATE TABLE stock (  
  id INT AUTO_INCREMENT PRIMARY KEY,  
  product_name VARCHAR(255),  
  quantity INT  
);
```

### Output:



### HTML Form (stockForm.html):

```
<!DOCTYPE html>  
  
<html>  
  
  <head><title>Stock Management</title></head>  
  
  <body>  
  
    <h2>Manage Stock</h2>  
  
    <form action="stockAction" method="POST">  
  
      Product Name: <input type="text" name="product_name" required><br>  
  
      Quantity: <input type="number" name="quantity" required><br>  
  
      <input type="submit" name="action" value="Add Product">  
  
      <input type="submit" name="action" value="Update Product">  
  
      <input type="submit" name="action" value="Delete Product">  
  
    </form>  
  
  </body>
```

</html>

Output:

## Manage Stock

Product Name:

Quantity:

### Servlet Code (StockManagementServlet.java):

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

@WebServlet(urlPatterns =
{"C:\\Users\\user\\OneDrive\\Documents\\NetBeansProjects\\WebApplica
tion1/StockManagementServlet"})

public class StockManagementServlet extends HttpServlet {
    private Connection getConnection() throws SQLException {
        String url = "jdbc:mysql://localhost:3306/stock_management";
        String username = "root";
        String password = "root"; // replace with your database password
        return DriverManager.getConnection(url, username, password);
    }

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

```

throws ServletException, IOException {

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

String productName = request.getParameter("product_name");

int quantity = Integer.parseInt(request.getParameter("quantity"));

try (Connection conn = getConnection()) {

switch(action) {

case "Add Product":

try (PreparedStatement stmt = conn.prepareStatement(
"INSERT INTO stock (product_name, quantity)VALUES (?, ?)") {

stmt.setString(1, productName);

stmt.setInt(2, quantity);

stmt.executeUpdate();

response.getWriter().write("<h1>Product AddedSuccessfully</h1>");

}

break;

case "Update Product":

try (PreparedStatement stmt = conn.prepareStatement(
"UPDATE stock SET quantity = ? WHERE product_name= ?") {

stmt.setInt(1, quantity);

stmt.setString(2, productName);

stmt.executeUpdate();

response.getWriter().write("<h1>Product UpdatedSuccessfully</h1>");

}

break;

case "Delete Product":

try (PreparedStatement stmt = conn.prepareStatement(
"DELETE FROM stock WHERE product_name = ?") {

stmt.setString(1, productName);

```



```
stmt.executeUpdate();

response.getWriter().write("<h1>Product DeletedSuccessfully</h1>");
}

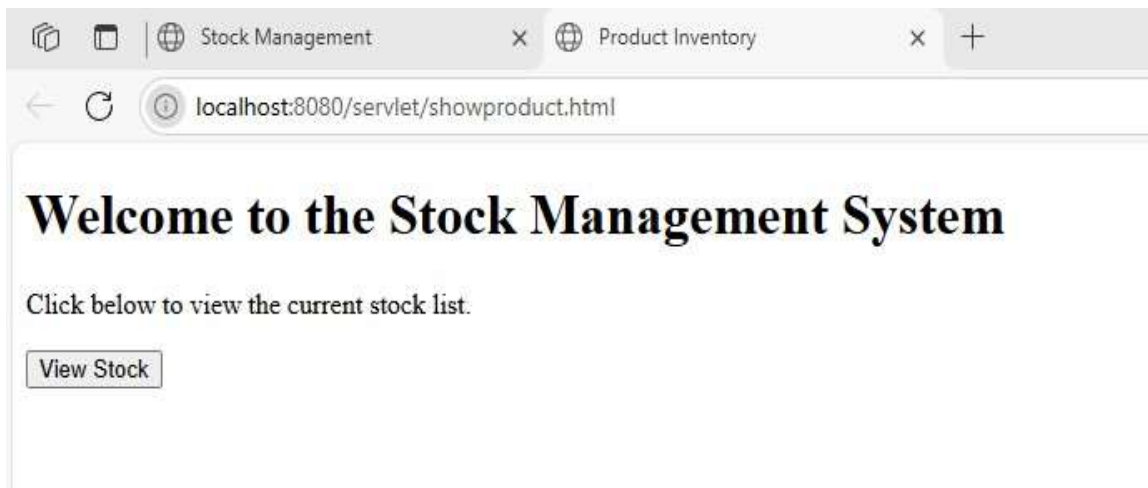
break;

default:

response.getWriter().write("<h1>Invalid Action</h1>");
}

} catch (SQLException e) {
    e.printStackTrace();
    response.getWriter().write("<h1>Database Error: " +
    e.getMessage() + "</h1>");
}
}}
```

### Output:



### **Lab Task 5: Display Data from Database on Another Web Page**

Servlet Code (DisplayProductsServlet.java):

```
import java.io.IOException;
import java.io.PrintWriter;
```

```

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

/**
 *
 * @author user
 */
@WebServlet(urlPatterns = {"/DisplayProductsServlet"})
public class DisplayProductsServlet extends HttpServlet {

    protected void processRequest(HttpServletRequest request, HttpServletResponse
response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        try (Connection conn = getConnection()) {
            Statement stmt = conn.createStatement();
            ResultSet rs = stmt.executeQuery("SELECT * FROM stock");
            out.println("<html><body><h1>Stock List</h1>");
            while (rs.next()) {
                out.println("<p>" + rs.getString("product_name") + ": " +
rs.getInt("quantity") + "</p>");
            }
            out.println("</body></html>");
        } catch (SQLException e) {
            e.printStackTrace();

```

```
out.println("<h1>Database Error</h1>");  
}  
}
```

Output:

