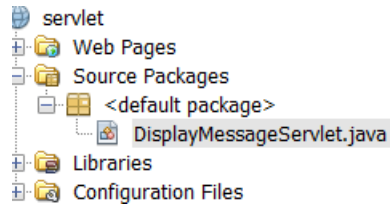


Java Servlet

Lab Task 1: Create a Java Servlet (DisplayMessageServlet) that outputs a static message.



2: Configure the servlet using the `@WebServlet` annotation or the web.xml deployment descriptor.

```
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("/displayMessage")

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>");

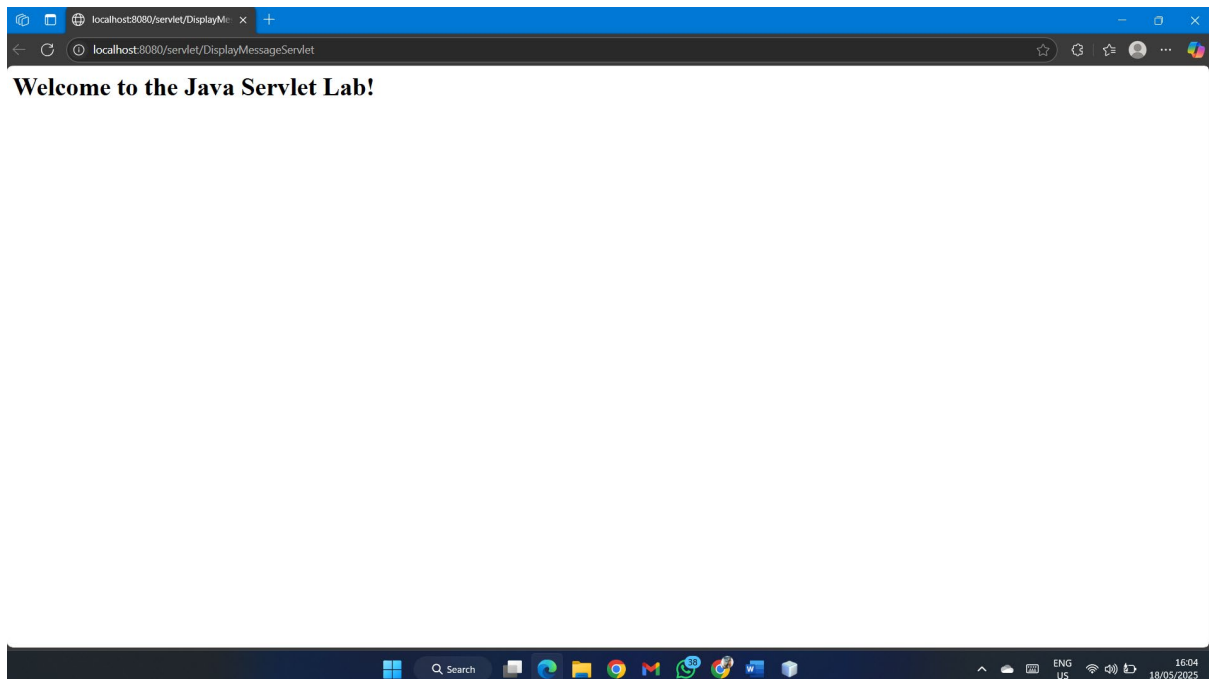
    }

}
```

Deployment Descriptor (web.xml) (if not using annotations):

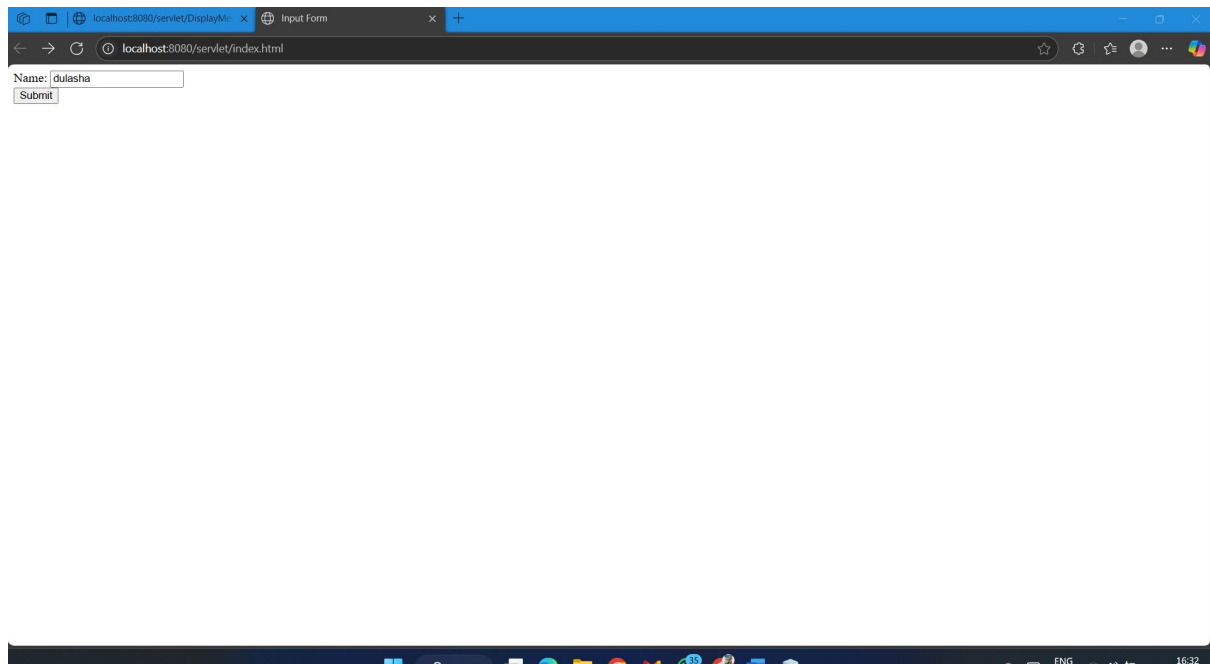
```
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
  version="3.0">
  <servlet>
    <servlet-name>DisplayMessageServlet</servlet-name>  <servlet-
class>com.example.DisplayMessageServlet</servlet-class>  </servlet>

    <servlet-mapping>
      <servlet-name>DisplayMessageServlet</servlet-name>
      <url-pattern>/displayMessage</url-pattern>
    </servlet-mapping>
  </web>
```



Lab Task 2: Get User Input from Form and Display

```
<!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("/getUserInput")

public class GetUserInputServlet extends HttpServlet {

    @Override

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

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

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

```

    PrintWriter out = response.getWriter();

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

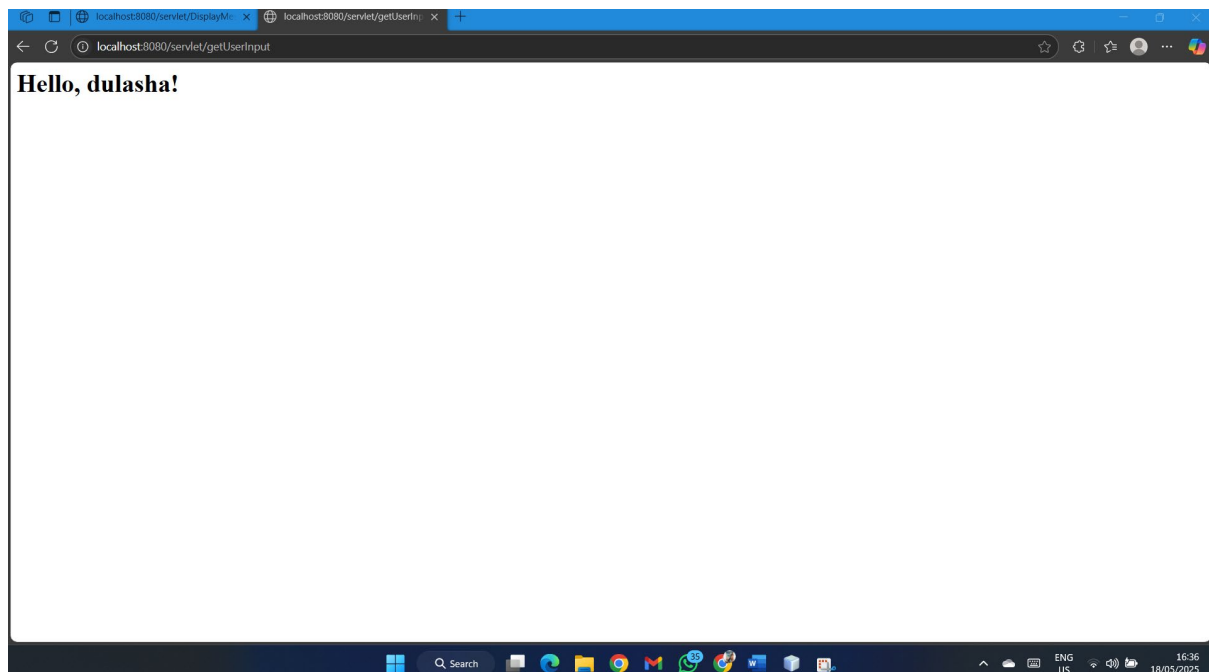
    out.println("<h1>Hello, " + username + "!</h1>");

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

}

}

```



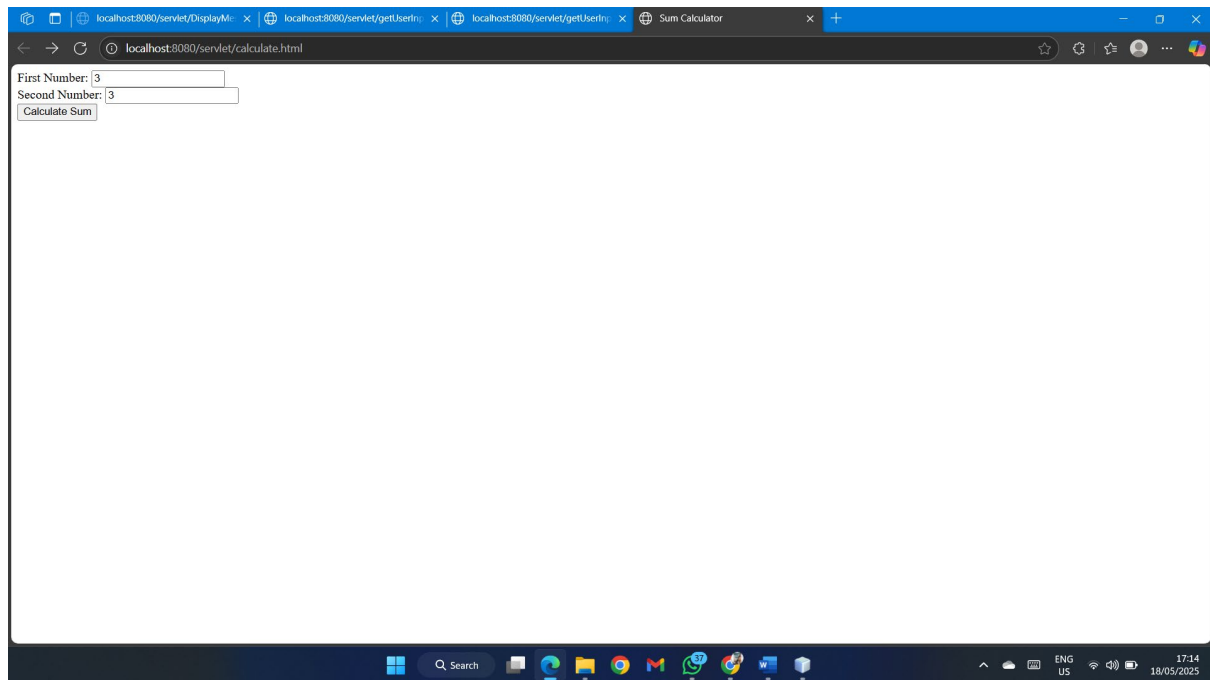
Lab Task 3: Get Multiple Inputs, Perform Calculation, and Display Result

Create an HTML form to take inputs for two numbers.

```

<!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>

```



Create a Servlet (`CalculateSumServlet`) to calculate the sum of the numbers and display the result.

```
package com.example;
```

```
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("/calculateSum")
```

```
public class CalculateSumServlet extends HttpServlet {
```

```
    @Override
```

```
    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();

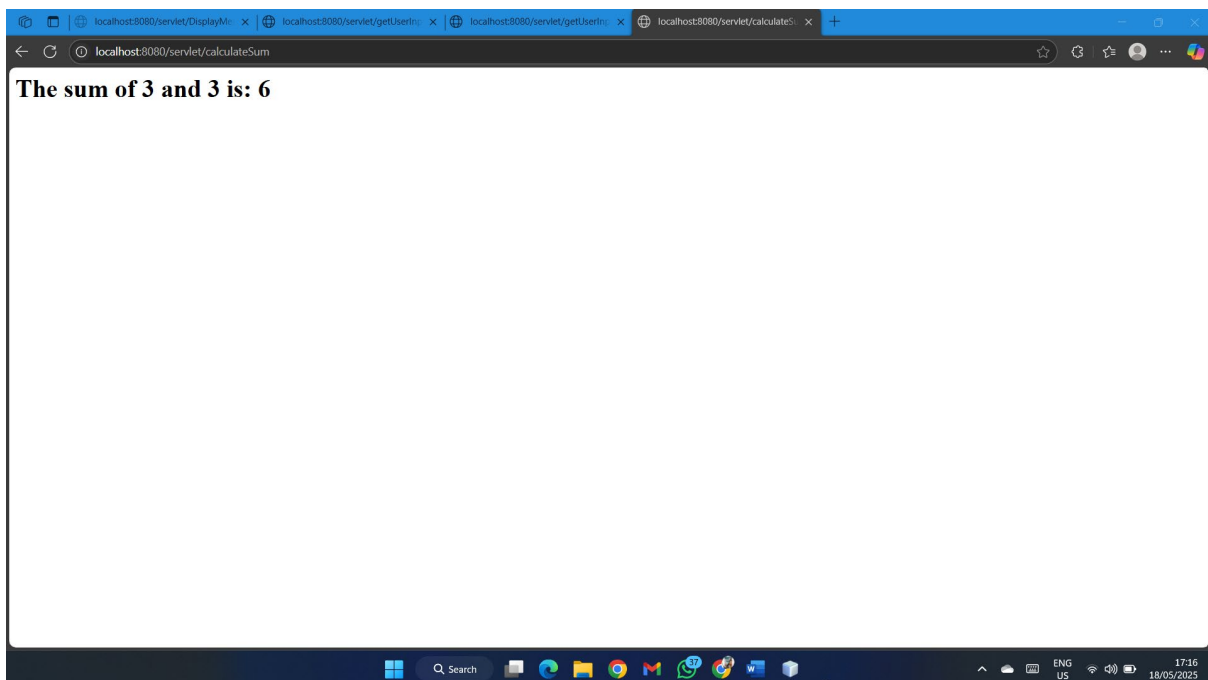
out.println("<html><body>");

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

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

} }

```



Lab Task 4: Java Servlet with Database CRUD Operations

1. **Set up a database** with a table named `stock` (fields: `id`, `product_name`, `quantity`).

```

CREATE DATABASE stock_management;
USE stock_management;

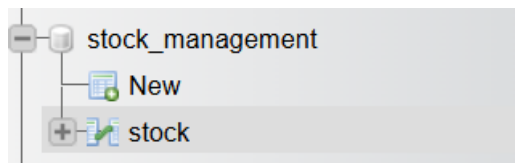
```

```

CREATE TABLE stock (
id INT AUTO_INCREMENT PRIMARY KEY,
product_name VARCHAR(255),
quantity INT

```

);



Server: MySQL 3306 » Database: stock_management » Table: stock									
Browse Structure SQL Search Insert Export Import Privileges Operations Triggers									
#	Name	Type	Collation	Attributes	Null	Default	Comments	Extra	Action
<input type="checkbox"/>	1 id	int			No	None		AUTO_INCREMENT	Change Drop More
<input type="checkbox"/>	2 product_name	varchar(255)	utf8mb4_0900_ai_ci		Yes	NULL			Change Drop More
<input type="checkbox"/>	3 quantity	int			Yes	NULL			Change Drop More
↑ <input type="checkbox"/> Check all With selected: Browse Change Drop Primary Unique Index Spatial Fulltext									

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>
```

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("/stockAction")
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 Added
Successfully</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 Updated
Successfully</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
Deleted Successfully</h1>");
                    }
                    break;
                default:
                    response.getWriter().write("<h1>Invalid Action</h1>"); }
            } catch (SQLException e) {

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

```


Product Added Successfully

[Back to Form](#)