1. **Simple Servlet - Display Static Message**

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.io.PrintWriter;

/\*\*

\*

\* @author User

\*/

@WebServlet(urlPatterns = {"/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>");

}

}

**Web.xml**

<?xml version="1.0" encoding="UTF-8"?>

<!DOCTYPE glassfish-web-app PUBLIC "-//GlassFish.org//DTD GlassFish Application Server 3.1 Servlet 3.0//EN" "http://glassfish.org/dtds/glassfish-web-app\_3\_0-1.dtd">

<glassfish-web-app error-url="">

<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-app>

</glassfish-web-app>

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1. **Get User Input from Form and Display**

**Index.html**

<!DOCTYPE html>

<!DOCTYPE html>

<html>

<head>

<title>Input Form</title>

<style>

body {

font-family: Arial, sans-serif;

background-color: #f0f4f8;

display: flex;

justify-content: center;

align-items: center;

height: 100vh;

}

form {

background-color: #ffffff;

padding: 20px 30px;

border-radius: 10px;

box-shadow: 0 4px 8px rgba(0,0,0,0.1);

}

input[type="text"] {

padding: 10px;

width: 100%;

margin-top: 5px;

margin-bottom: 15px;

border: 1px solid #ccc;

border-radius: 5px;

font-size: 16px;

}

input[type="submit"] {

background-color: #007bff;

color: white;

padding: 10px 20px;

border: none;

border-radius: 5px;

font-size: 16px;

cursor: pointer;

}

input[type="submit"]:hover {

background-color: #0056b3;

}

label {

font-weight: bold;

}

</style>

</head>

<body>

<form action="getUserInput" method="POST">

<label for="username">Name:</label><br>

<input type="text" name="username" id="username" required><br>

<input type="submit" value="Submit">

</form>

</body>

</html>

**GetUserInputServlet**

@WebServlet(urlPatterns = {"/getUserInput"})

public class GetUserInputServlet extends HttpServlet {

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>");

}

}

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1. **Get Multiple Inputs, Perform Calculation, and Display Result**

**Calculate.html**

Top of Form

**Sum Calculator**

Top of Form

**Sum Calculator**

<!DOCTYPE html>

<html>

<head>

<title>Sum Calculator</title>

<style>

body {

font-family: Arial, sans-serif;

background-color: #f7f9fc;

display: flex;

justify-content: center;

align-items: center;

height: 100vh;

}

form {

background-color: #ffffff;

padding: 25px 35px;

border-radius: 10px;

box-shadow: 0 4px 10px rgba(0, 0, 0, 0.1);

width: 300px;

}

h2 {

text-align: center;

margin-bottom: 20px;

color: #333;

}

label {

font-weight: bold;

display: block;

margin-top: 15px;

}

input[type="number"] {

width: 100%;

padding: 10px;

margin-top: 5px;

border: 1px solid #ccc;

border-radius: 5px;

font-size: 16px;

}

input[type="submit"] {

margin-top: 20px;

width: 100%;

padding: 10px;

background-color: #28a745;

color: white;

font-size: 16px;

border: none;

border-radius: 5px;

cursor: pointer;

}

input[type="submit"]:hover {

background-color: #218838;

}

</style>

</head>

<body>

<form action="calculateSum" method="POST">

<h2>Sum Calculator</h2>

<label for="num1">First Number:</label>

<input type="number" name="num1" id="num1" required>

<label for="num2">Second Number:</label>

<input type="number" name="num2" id="num2" required>

<input type="submit" value="Calculate Sum">

</form>

</body>

</html>Bottom of Form

Bottom of Form

Top of Form

Bottom of Form

**CalculateSumServlet**

@WebServlet(urlPatterns = {"/calculateSum"})

public class CalculateSumServlet extends HttpServlet {

@Override

protected void doPost(HttpServletRequest request, HttpServletResponse response)

throws ServletException, IOException {

// Retrieve and parse the input numbers from the request

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

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

// Calculate the sum

int sum = num1 + num2;

// Set response content type

response.setContentType("text/html");

// Generate HTML response

PrintWriter out = response.getWriter();

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

out.println("<html>");

out.println("<head>");

out.println("<title>Sum Result</title>");

out.println("<style>");

out.println("body { font-family: Arial, sans-serif; background-color: #f0f8ff; text-align: center; padding-top: 50px; }");

out.println("h1 { color: #333; }");

out.println("</style>");

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

out.println("<body>");

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

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

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

}

}

A screenshot of a calculator

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A white rectangular object with black text

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1. **Java Servlet with Database CRUD Operations**

**Database Setup**

CREATE DATABASE stock\_management;

USE stock\_management;

CREATE TABLE stock (

id INT AUTO\_INCREMENT PRIMARY KEY,

product\_name VARCHAR(255),

quantity INT

);

**StockForm.html**

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<title>Stock Management</title>

<!-- Bootstrap CSS CDN -->

<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css" rel="stylesheet">

</head>

<body class="bg-light">

<div class="container mt-5">

<div class="card shadow-sm">

<div class="card-header bg-primary text-white">

<h2 class="mb-0">Manage Stock</h2>

</div>

<div class="card-body">

<form action="stockAction" method="POST">

<div class="mb-3">

<label for="product\_name" class="form-label">Product Name:</label>

<input type="text" class="form-control" id="product\_name" name="product\_name" required>

</div>

<div class="mb-3">

<label for="quantity" class="form-label">Quantity:</label>

<input type="number" class="form-control" id="quantity" name="quantity" required>

</div>

<div class="d-flex gap-2">

<button type="submit" name="action" value="Add Product" class="btn btn-success">Add Product</button>

<button type="submit" name="action" value="Update Product" class="btn btn-warning">Update Product</button>

<button type="submit" name="action" value="Delete Product" class="btn btn-danger">Delete Product</button>

</div>

</form>

</div>

</div>

</div>

<!-- Bootstrap JS (Optional) -->

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

**StockManagementServlet**

@WebServlet(urlPatterns = {"/stockAction"})

public class StockManagementServlet extends HttpServlet {

private Connection getConnection() throws SQLException {

try {

Class.forName("com.mysql.cj.jdbc.Driver"); // Load MySQL driver

} catch (ClassNotFoundException e) {

throw new SQLException("MySQL JDBC Driver not found.", e);

}

String url = "jdbc:mysql://localhost:3306/stock\_management?useSSL=false&allowPublicKeyRetrieval=true&serverTimezone=UTC";

String username = "root";

String password = "uthpala"; // Update if you have a MySQL password

return DriverManager.getConnection(url, username, password);

}

@Override

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"));

response.setContentType("text/html");

PrintWriter out = response.getWriter();

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();

out.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();

out.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();

out.write("<h1>❌ Product Deleted Successfully</h1>");

}

break;

default:

out.write("<h1>⚠️ Invalid Action</h1>");

}

} catch (SQLException e) {

e.printStackTrace();

out.write("<h1>❌ Database Error: " + e.getMessage() + "</h1>");

}

}

}

**Add**

**Output**

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Update

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Delete

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1. **Display Data from Database on Another Web Page**

@WebServlet(urlPatterns = {"/DisplayProducts"})

public class DisplayProductsServlet extends HttpServlet {

private Connection getConnection() throws SQLException {

try {

Class.forName("com.mysql.cj.jdbc.Driver"); // Load MySQL JDBC driver

} catch (ClassNotFoundException e) {

throw new SQLException("MySQL JDBC Driver not found.", e);

}

String url = "jdbc:mysql://localhost:3306/stock\_management?useSSL=false&allowPublicKeyRetrieval=true&serverTimezone=UTC";

String username = "root";

String password = "uthpala"; // Use your MySQL password if set

return DriverManager.getConnection(url, username, password);

}

@Override

protected void doGet(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><head><title>Stock List</title></head><body>");

out.println("<h1>📦 Stock List</h1>");

out.println("<ul>");

while (rs.next()) {

out.println("<li>" + rs.getString("product\_name") + ": " + rs.getInt("quantity") + "</li>");

}

out.println("</ul>");

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

} catch (SQLException e) {

e.printStackTrace();

out.println("<h1>❌ Database Error: " + e.getMessage() + "</h1>");

}

}

