

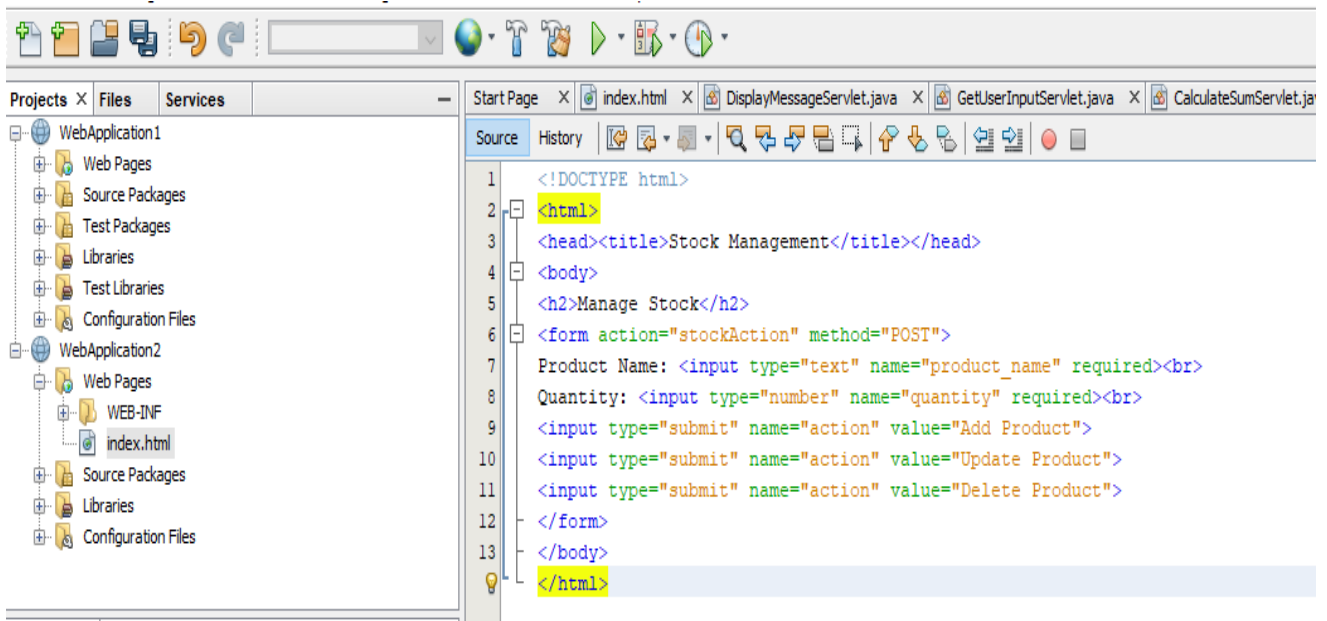
Java Servlet with Database CRUD Operations

Database Setup :

```
1 CREATE DATABASE stock_management;  
2 USE stock_management;  
3 CREATE TABLE stock (  
4 id INT AUTO_INCREMENT PRIMARY KEY,  
5 product_name VARCHAR(255),  
6 quantity INT  
7 );
```

Table	Action	Rows	Type	Collation	Size	Overhead
<input type="checkbox"/> stock	★ Browse Structure Search Insert Empty Drop	0	InnoDB	utf8mb4_general_ci	16.0 KiB	-
1 table	Sum	0	InnoDB	utf8mb4_general_ci	16.0 KiB	0 B

Add stock Form (stockForm.html)



The screenshot shows an IDE with the following components:

- Projects Panel:** Shows a project structure with 'WebApplication1' and 'WebApplication2'. 'WebApplication1' contains 'Web Pages', 'Source Packages', 'Test Packages', 'Libraries', 'Test Libraries', and 'Configuration Files'. 'WebApplication2' contains 'Web Pages', 'WEB-INF' (with 'index.html'), 'Source Packages', 'Libraries', and 'Configuration Files'.
- Source Editor:** Displays the content of 'index.html' in 'WebApplication2'. The code is as follows:

```
1 <!DOCTYPE html>  
2 <html>  
3 <head><title>Stock Management</title></head>  
4 <body>  
5 <h2>Manage Stock</h2>  
6 <form action="stockAction" method="POST">  
7   Product Name: <input type="text" name="product_name" required><br>  
8   Quantity: <input type="number" name="quantity" required><br>  
9   <input type="submit" name="action" value="Add Product">  
10  <input type="submit" name="action" value="Update Product">  
11  <input type="submit" name="action" value="Delete Product">  
12 </form>  
13 </body>  
14 </html>
```

Servlet Code (StockManagementServlet.java):

```
package com.example;

import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;

@WebServlet("/stockAction")
public class StockManagementServlet extends HttpServlet {

    // Initialize driver when servlet loads
    @Override
    public void init() throws ServletException {
        try {
            Class.forName("com.mysql.cj.jdbc.Driver");
        } catch (ClassNotFoundException e) {
            throw new ServletException("MySQL JDBC Driver not found", e);
        }
    }

    private Connection getConnection() throws SQLException {
        String url =
"jdbc:mysql://localhost:3306/stock_management?useSSL=false&serverTimezone=UTC";
        String username = "root";
        String password = "316830059";
        return DriverManager.getConnection(url, username, password);
    }

    protected void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

        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":
```

```

addProduct(conn, productName, quantity, out);
    break;
    case "Update Product":
updateProduct(conn, productName, quantity, out);
    break;
    case "Delete Product":
deleteProduct(conn, productName, out);
    break;
    default:
out.println("<h1>Invalid Action</h1>");
    }
    } catch (SQLException e) {
out.println("<h1>Database Error: " + e.getMessage() + "</h1>");
e.printStackTrace();
    }

out.println("<br><a href='stockForm.html'>Back to Form</a>");
    }

```

```

private void addProduct(Connection conn, String name, int quantity, PrintWriter out)
    throws SQLException {
    String sql = "INSERT INTO stock (product_name, quantity) VALUES (?, ?)";
    try (PreparedStatement stmt = conn.prepareStatement(sql)) {
stmt.setString(1, name);
stmt.setInt(2, quantity);
stmt.executeUpdate();
out.println("<h1>Product Added Successfully</h1>");
    }
}

```

```

private void updateProduct(Connection conn, String name, int quantity, PrintWriter out)
    throws SQLException {
    String sql = "UPDATE stock SET quantity = ? WHERE product_name= ?";
    try (PreparedStatement stmt = conn.prepareStatement(sql)) {
stmt.setInt(1, quantity);
stmt.setString(2, name);
    int rows = stmt.executeUpdate();
    if (rows > 0) {
out.println("<h1>Product Updated Successfully</h1>");
    } else {
out.println("<h1>Product Not Found</h1>");
    }
    }
}

```

```

private void deleteProduct(Connection conn, String name, PrintWriter out)
    throws SQLException {
    String sql = "DELETE FROM stock WHERE product_name= ?";
    try (PreparedStatement stmt = conn.prepareStatement(sql)) {
        stmt.setString(1, name);
        int rows = stmt.executeUpdate();
        if (rows > 0) {
            out.println("<h1>Product Deleted Successfully</h1>");
        } else {
            out.println("<h1>Product Not Found</h1>");
        }
    }
}
}

```

Output

Manage Stock

Product Name:

Quantity:

← ↻ ⓘ localhost:8080/WebApplication2/stockAction

Product Added Successfully

[Back to Form](#)

	id	product_name	quantity
<input type="checkbox"/> <input type="text" value="Edit"/> <input type="text" value="Copy"/> <input type="text" value="Delete"/>	1	Phone	10

Display Data from Database on Another Web Page

Servlet Code (DisplayProductsServlet.java):

```
package com.example;

import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;

@WebServlet("/displayProducts")
public class DisplayProductsServlet extends HttpServlet {
    // Reuse your existing connection method
    private Connection getConnection() throws SQLException {
        String url = "jdbc:mysql://localhost:3306/stock_management?useSSL=false&serverTimezone=UTC";
        String username = "root";
        String password = "316830059";
        return DriverManager.getConnection(url, username, password);
    }

    protected void doGet(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();
        out.println("<!DOCTYPE html>");
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Stock List</title>");
        out.println("<style>");
        out.println("table { border-collapse: collapse; width: 50%; margin: 20px auto; }");
        out.println("th, td { border: 1px solid #ddd; padding: 8px; text-align: left; }");
        out.println("th { background-color: #f2f2f2; }");
        out.println("</style>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h1 style='text-align: center;'>Current Stock List</h1>");

        try (Connection conn = getConnection();
            Statement stmt = conn.createStatement();
            ResultSets = stmt.executeQuery("SELECT * FROM stock")) {
            out.println("<table>");
```

```

out.println("<tr><th>ID</th><th>Product Name</th><th>Quantity</th></tr>");

        while (rs.next()) {
out.println("<tr>");
out.println("<td>" + rs.getInt("id") + "</td>");
out.println("<td>" + rs.getString("product_name") + "</td>");
out.println("<td>" + rs.getInt("quantity") + "</td>");
out.println("</tr>");
        }

out.println("</table>");
    } catch (SQLException e) {
out.println("<h2 style='color: red; text-align: center;'>Error retrieving stock: "
        + e.getMessage() + "</h2>");
e.printStackTrace();    }

out.println("<div style='text-align: center; margin-top: 20px;'>");
out.println("<a href='stockForm.html'>Back to Stock Management</a>");
out.println("</div>");
out.println("</body>");
out.println("</html>");
    }
}

```

Updated stockForm.html

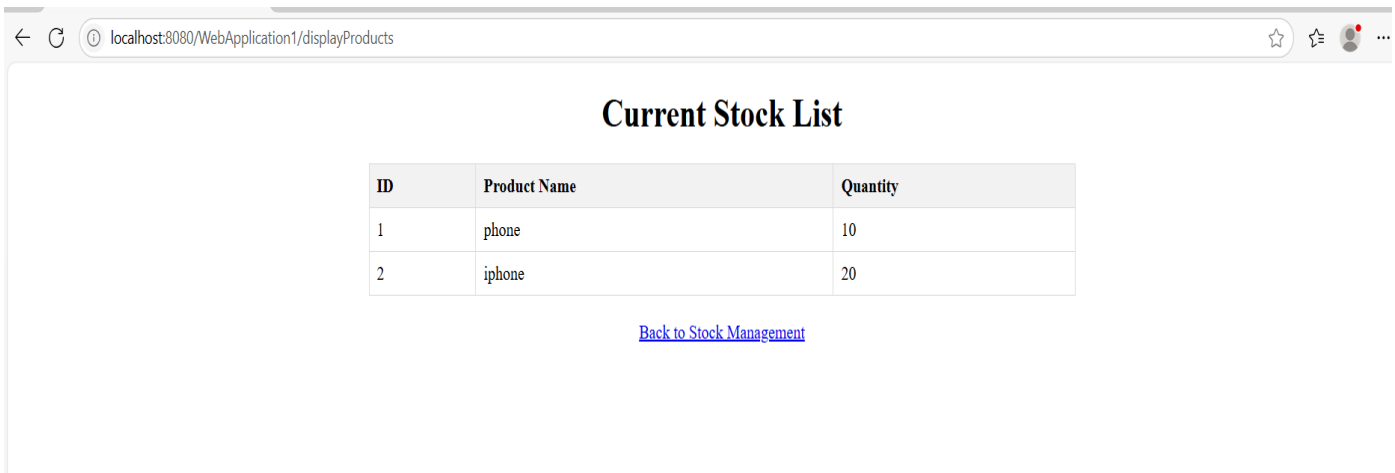
```

<!DOCTYPE html>
<html>
<head><title>Stock Management</title>
<style>  body { font-family: Arial, sans-serif; margin: 20px; }
        form { max-width: 500px; margin: 0 auto; padding: 20px; border: 1px solid #ddd; border-radius:
5px; }
        input[type="text"], input[type="number"] { width: 100%; padding: 8px; margin: 5px 0 15px; }
        input[type="submit"] { padding: 8px 15px; margin-right: 10px; }
.view-link { display: block; text-align: center; margin-top: 20px; }
</style>
</head>
<body><h2 style="text-align: center;"> 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>
<div class="view-link">

```

```
<a href="displayProducts"> View All Products </a>
</div>
</body>
</html>
```

Output



ID	Product Name	Quantity
1	phone	10
2	iphone	20

[Back to Stock Management](#)

Database

☐ Show all | Number of rows: 25 ▾ | Filter rows: | Sort by key: None ▾

Extra options

				id	product_name	quantity
<input type="checkbox"/>	Edit	Copy	Delete	1	phone	10
<input type="checkbox"/>	Edit	Copy	Delete	2	iphone	20

☐ Check all | With selected: Edit Copy Delete Export