Lab Sheet 4

Create a servlet that receives user input from an HTML form and displays it back to the user.

Steps:

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

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

HTML Form (index.html):

```
<html>
<head>
<title>TODO supply a title</title>
<meta charset="UTF-8">
<meta name="viewport" content="width=device-width, initial-scale=1.0">
</head>
<body bgcolor ="#ffbf00">

<div><h1><center>User input</center></h1></div>

<form action="getUserInput12" method="POST">
<table style = "width:70%">
<tr><th><h3> Name </h3></th><th><input type="text" name="un"</tr>
<tr><td colspan="2" align="center"><input type ="submit" value="save"</td></tr>
</form>
</table>
<tr>
<hr>
<h1>Calculate</h1>
<form action="CalculateSumServlet"method="post">
                First Number:<input type="number" name="num1" required><br>
```

Second Number: <input type="number" name="num2" required>

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

</form>

</tr>

</form>

</body>

</html>

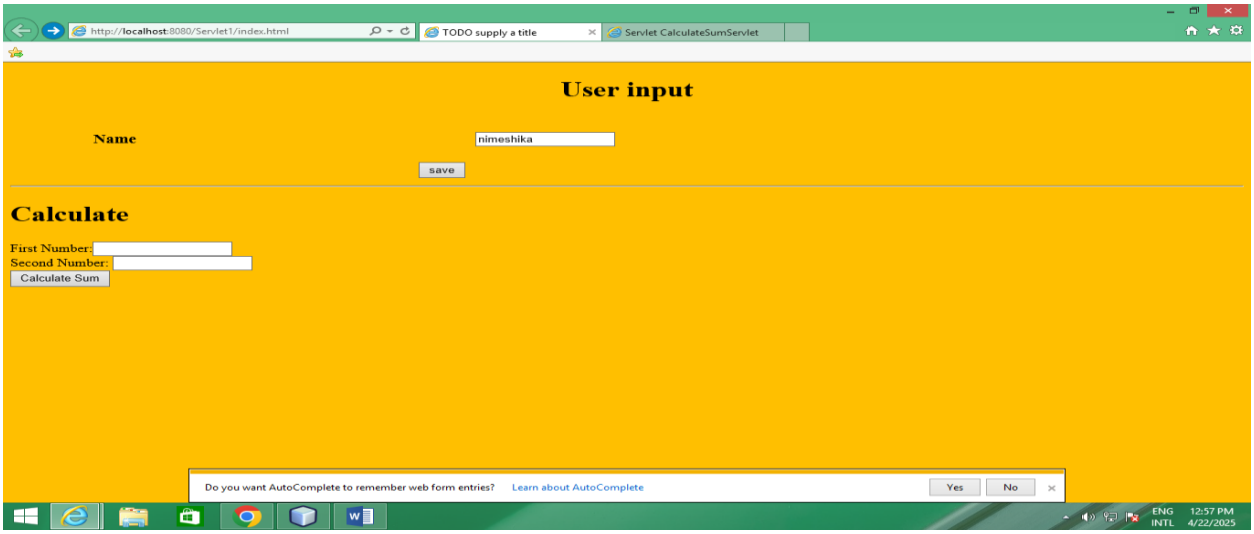
(getUserInput12.java)

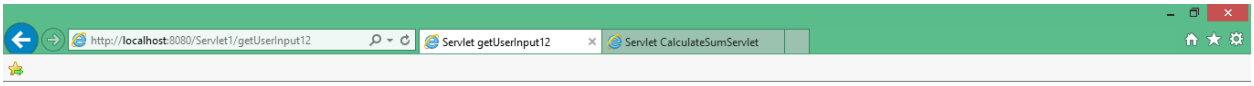
```
importjava.io.IOException;
importjava.io.PrintWriter;
importjavax.servlet.ServletException;
importjavax.servlet.annotation.WebServlet;
importjavax.servlet.http.HttpServlet;
importjavax.servlet.http.HttpServletRequest;
importjavax.servlet.http.HttpServletResponse;

/**
 *
 * @author student
 */
@WebServlet(urlPatterns = {"/getUserInput12"})
public class getUserInput12 extends HttpServlet {

    /**
     * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
     * 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)
throwsServletException, IOException {
        String name = request.getParameter("un");
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 getUserInput12</title>");
out.println("</head>");
out.println("<body>");
out.println("<h1> Input name " + name + "</h1>");
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
```

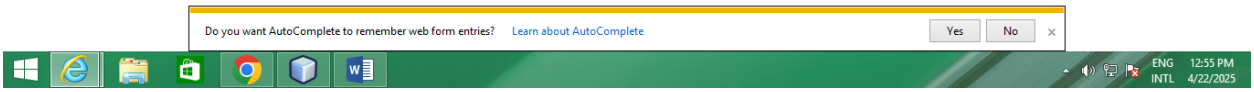
```
     * @param response servlet response
     * @throws ServletException if a servlet-specific error occurs
     * @throws IOException if an I/O error occurs
     */
    @Override
protected void doGet(HttpServletRequest request, HttpServletResponse response)
throwsServletException, IOException {
processRequest(request, response);
    }

    /**
     * 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)
throwsServletException, 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>


}
```





Input name nimeshika



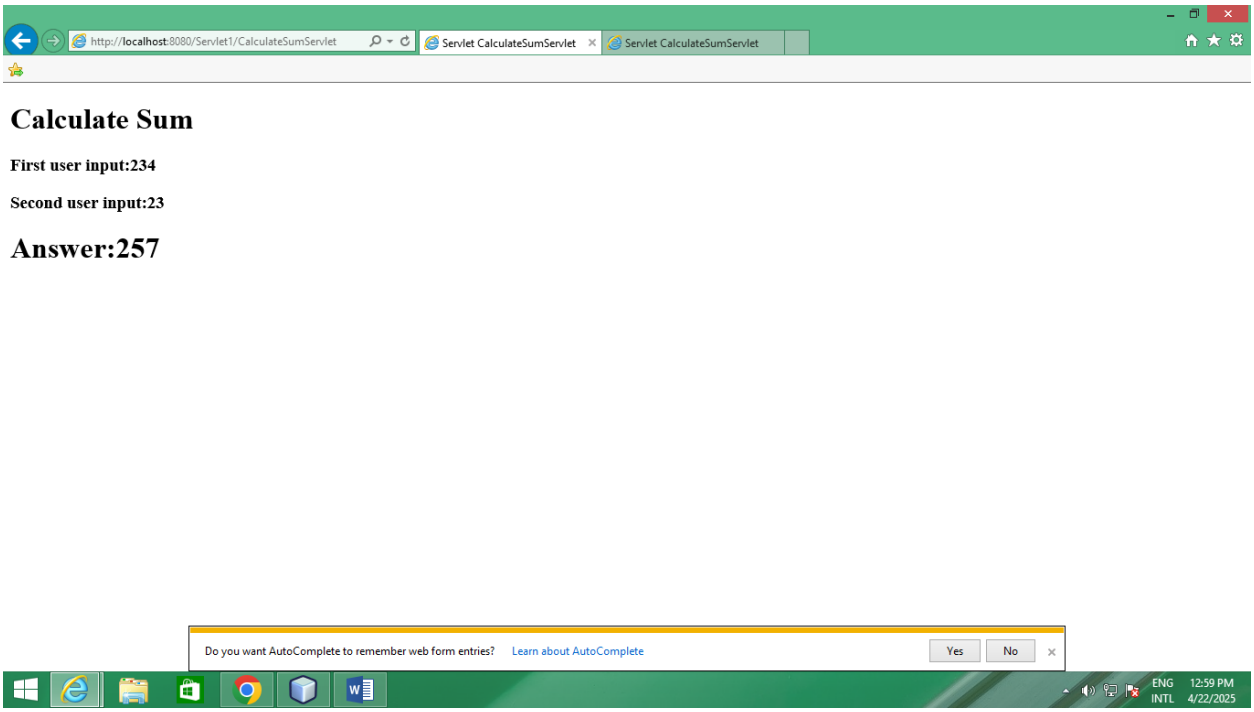

```
importjava.io.IOException;
importjava.io.PrintWriter;
importjavax.servlet.ServletException;
importjavax.servlet.annotation.WebServlet;
importjavax.servlet.http.HttpServlet;
importjavax.servlet.http.HttpServletRequest;
importjavax.servlet.http.HttpServletResponse;

/**
 *
 * @author student
 */
```

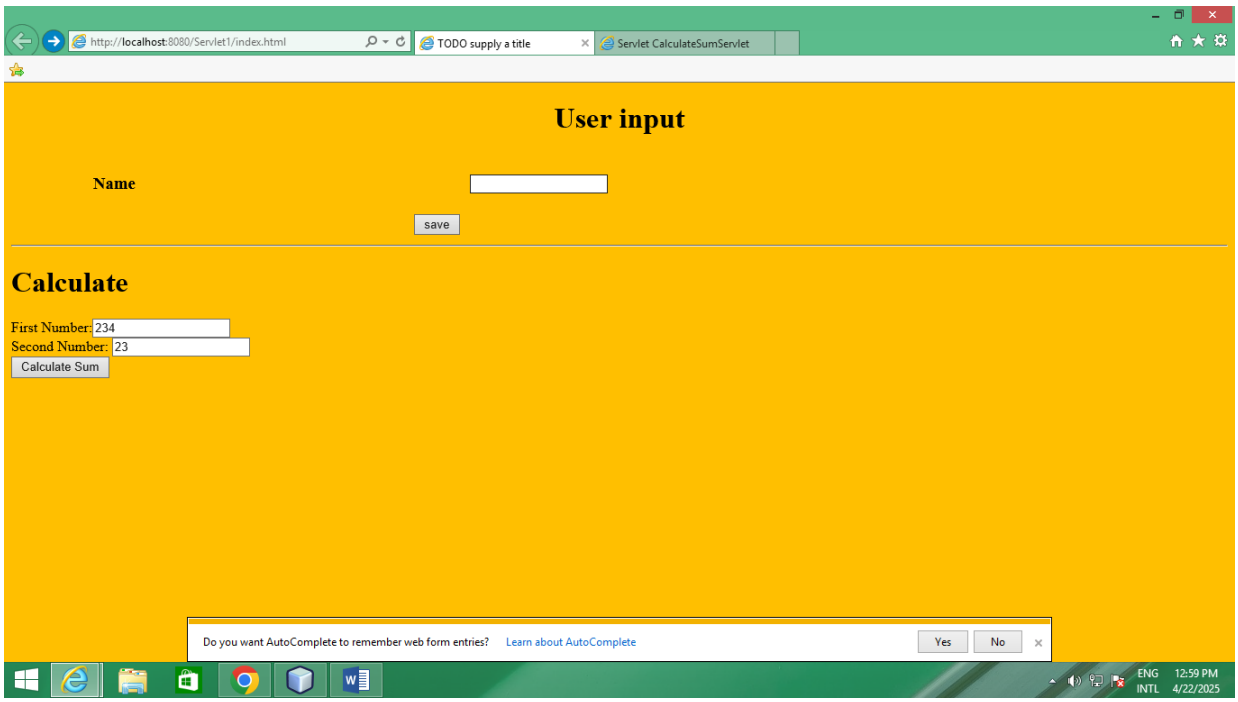
```
@WebServlet(urlPatterns = {"/CalculateSumServlet"})
public class CalculateSumServlet extends HttpServlet {

    /**
     * Processes requests for both HTTP <code>GET</code> and <code>POST</code>
     * 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)
throwsServletException, IOException {
int num1 = Integer.parseInt(request.getParameter("num1"));
int num2 = Integer.parseInt(request.getParameter("num2"));
int sum = num1 + num2;

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 CalculateSumServlet</title>");
out.println("</head>");
out.println("<body>");
out.println("<h1> Calculate Sum</h1>");
```

```
out.println("<h3> First user input:"+num1+"</h1>");
out.println("<h3> Second  user input:"+num2+"</h1>");
out.println("<h1> Answer:"+sum+"</h1>");
        //out.println("<h1>The sum of " + num1 + " and " + num2 + " is: " + sum + "</h1>");
        //out.println("<h1>Servlet CalculateSumServlet at " + request.getContextPath() +
"</h1>");
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)
throwsServletException, IOException {
processRequest(request, response);
   }

   /**
    * 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)
throwsServletException, IOException {
processRequest(request, response);
    }

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

```
public String getServletInfo() {return "Short description";
    }
}
```





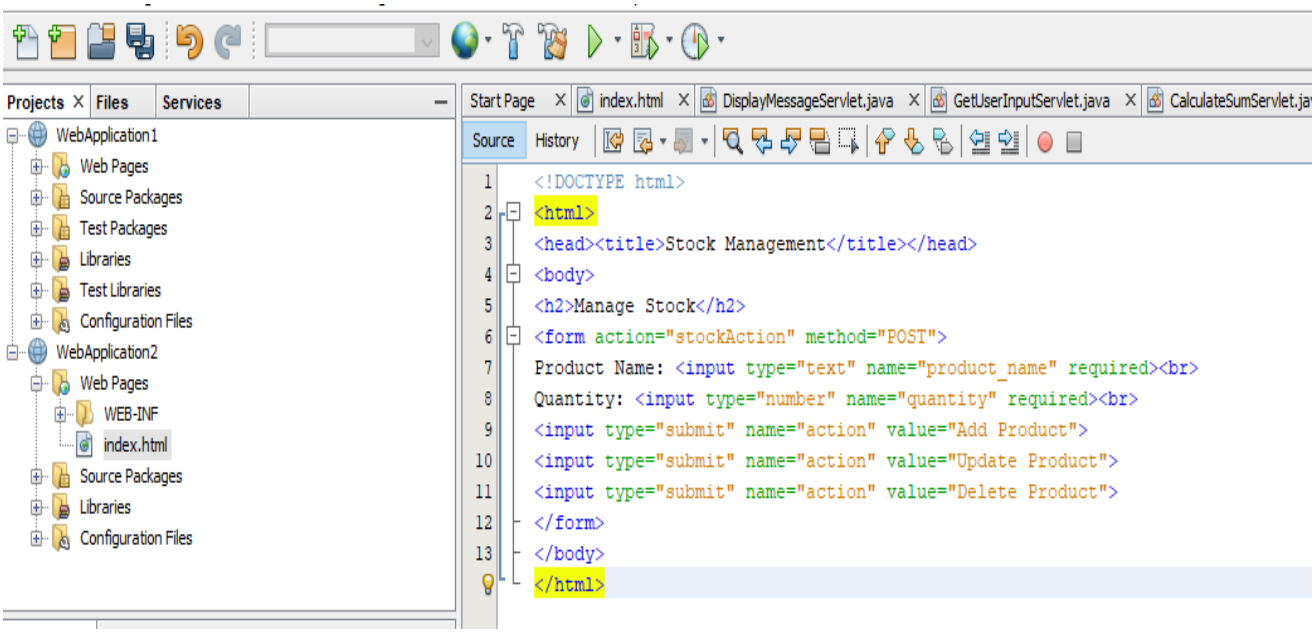
Lab Task 4: Java Servlet with Database CRUD Operations

Database Setup :

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

Table	Action	Rows	Type	Collation	Size	Overhead
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

HTML Form (stockForm.html)



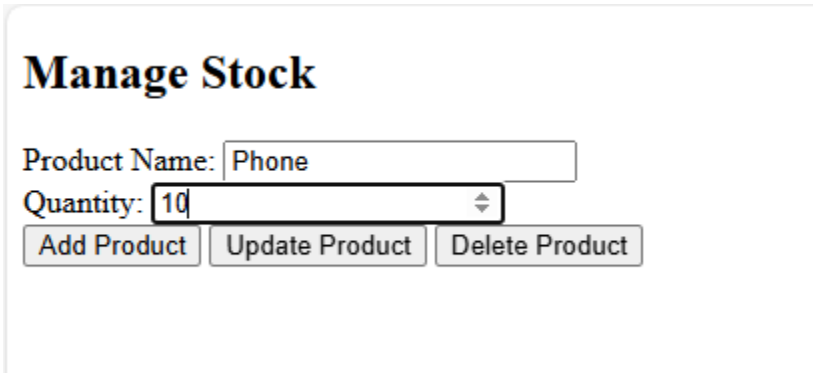
Servlet Code (StockManagementServlet.java):

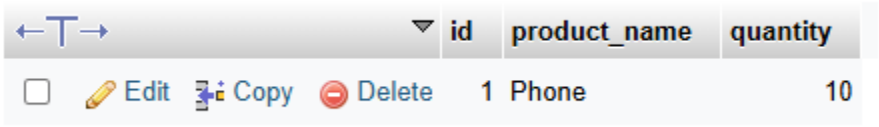
```
package com.example;

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 (PreparedStatementstmt = 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 (PreparedStatementstmt = 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 (PreparedStatementstmt = 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





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

Servlet Code (DisplayProductsServlet.java):

```
package com.example;

import java.io.*;
```

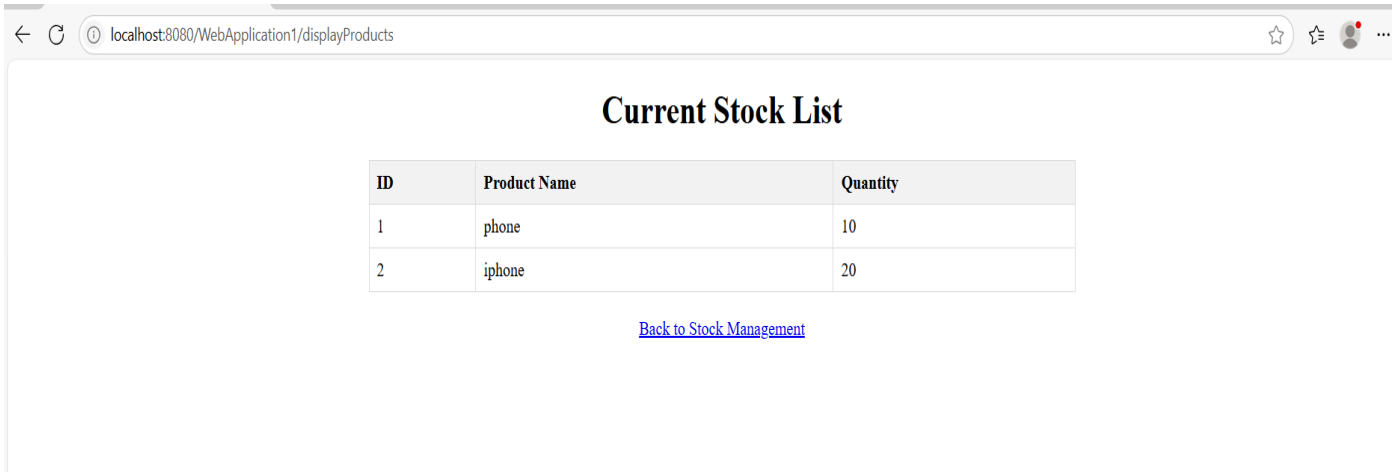
```
import java.sql.*;
import javax.servlet.*;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.*;
@WebServlet("/displayProducts")
public class DisplayProductsServlet extends HttpServlet {
   // Reuse your existing connection method
   private Connection getConnection() throws SQLException {
      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();
ResultSetrs = 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



Database