**Step 1: Project Setup**

1. **Create a new Dynamic Web Project** in your IDE (e.g., Eclipse).
2. **Add the required libraries** (e.g., MySQL Connector JAR) to the project's WEB-INF/lib folder

### Step 2: Home Page (index.jsp)

Create a index.jsp file in the WebContent directory.

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<title>Home Page</title>

</head>

<body>

<h1>Welcome to Bike Registration</h1>

<button onclick="window.location.href='userBikeList'">User</button>

<button onclick="window.location.href='adminLogin.jsp'">Admin</button>

</body>

</html>

### Step 3: Admin Login Page (adminLogin.jsp)

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<title>Admin Login</title>

</head>

<body>

<h2>Admin Login</h2>

<form action=*"AdminLoginServlet"* method=*"post"*>

<label for=*"username"*>Username:</label>

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

<label for=*"password"*>Password:</label>

<input type=*"password"* id=*"password"* name=*"password"* required><br><br>

<input type=*"submit"* value=*"Login"*>

</form>

</body>

</html>

**Step 4: Admin Login Servlet (AdminLoginServlet.java)**

Create a AdminLoginServlet.java servlet.

**package** com.bike;

**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** jakarta.servlet.http.HttpSession;

**import** java.io.IOException;

@WebServlet("/AdminLoginServlet")

/\*\*

\* Servlet implementation class AdminLoginServlet

\*/

**public** **class** AdminLoginServlet **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

/\*\*

\* **@see** HttpServlet#HttpServlet()

\*/

**public** AdminLoginServlet() {

**super**();

}

/\*\*

\* **@see** HttpServlet#doGet(HttpServletRequest, HttpServletResponse)

\*/

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

// **TODO** Auto-generated method stub

response.getWriter().append("Served at: ").append(request.getContextPath());

}

/\*\*

\* **@see** HttpServlet#doPost(HttpServletRequest, HttpServletResponse)

\*/

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

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

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

// Hardcoded for example. Ideally, retrieve from database.

**if** ("admin".equals(username) && "password".equals(password)) {

HttpSession session = request.getSession();

session.setAttribute("admin", "true");

response.sendRedirect("bikeRegistration.jsp");

} **else** {

response.sendRedirect("adminLogin.jsp?error=1");

}

}

}

**Step 5: Bike Registration Page (bikeRegistration.jsp)**

Create a bikeRegistration.jsp file.

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<title>Bike Registration</title>

</head>

<body>

<h2>Bike Registration</h2>

<form action=*"BikeRegistrationServlet"* method=*"post"*>

<label for=*"bikeName"*>Bike Name:</label>

<input type=*"text"* id=*"bikeName"* name=*"bikeName"* required><br><br>

<label for=*"bikeModel"*>Bike Model:</label>

<input type=*"text"* id=*"bikeModel"* name=*"bikeModel"* required><br><br>

<label for=*"bikePrice"*>Bike Price:</label>

<input type=*"text"* id=*"bikePrice"* name=*"bikePrice"* required><br><br>

<input type=*"submit"* value=*"Register"*>

<button type=*"button"* onclick="window.location.href='bikeRegistration.jsp'">Cancel</button>

<button type=*"button"* onclick="window.location.href='BikeListServlet'">Bike List</button>

</form>

</body>

</html>

**Step 6: Bike Registration Servlet (BikeRegistrationServlet.java)**

Create a BikeRegistrationServlet.java servlet.

**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.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.PreparedStatement;

@WebServlet("/BikeRegistrationServlet")

/\*\*

\* Servlet implementation class BikeRegistrationServlet

\*/

**public** **class** BikeRegistrationServlet **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

/\*\*

\* **@see** HttpServlet#HttpServlet()

\*/

**public** BikeRegistrationServlet() {

**super**();

}

/\*\*

\* **@see** HttpServlet#doGet(HttpServletRequest, HttpServletResponse)

\*/

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

response.getWriter().append("Served at: ").append(request.getContextPath());

}

/\*\*

\* **@see** HttpServlet#doPost(HttpServletRequest, HttpServletResponse)

\*/

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

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

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

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

**try** {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/bikedb", "root", "password");

String query = "INSERT INTO bikes (bike\_name, bike\_model, bike\_price) VALUES (?, ?, ?)";

PreparedStatement ps = con.prepareStatement(query);

ps.setString(1, bikeName);

ps.setString(2, bikeModel);

ps.setString(3, bikePrice);

ps.executeUpdate();

ps.close();

con.close();

} **catch** (Exception e) {

e.printStackTrace();

}

response.sendRedirect("bikeRegistration.jsp");

}

}

**Step 7: Bike List Servlet (BikeListServlet.java)**

Create a BikeListServlet.java servlet.

**import** java.io.IOException;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.ResultSet;

**import** java.sql.Statement;

**import** jakarta.servlet.ServletException;

**import** jakarta.servlet.annotation.WebServlet;

**import** jakarta.servlet.http.HttpServlet;

**import** jakarta.servlet.http.HttpServletRequest;

**import** jakarta.servlet.http.HttpServletResponse;

@WebServlet("/BikeListServlet")

/\*\*

\* Servlet implementation class BikeListServlet

\*/

**public** **class** BikeListServlet **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

/\*\*

\* **@see** HttpServlet#HttpServlet()

\*/

**public** BikeListServlet() {

**super**();

}

/\*\*

\* **@see** HttpServlet#doGet(HttpServletRequest, HttpServletResponse)

\*/

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

response.setContentType("text/html");

**try** {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/bikedb", "root", "password");

Statement stmt = con.createStatement();

ResultSet rs = stmt.executeQuery("SELECT \* FROM bikes");

response.getWriter().println("<table border='1'>");

response.getWriter().println("<tr><th>Bike Name</th><th>Bike Model</th><th>Bike Price</th><th>Actions</th></tr>");

**while** (rs.next()) {

**int** id = rs.getInt("id");

response.getWriter().println("<tr>");

response.getWriter().println("<td>" + rs.getString("bike\_name") + "</td>");

response.getWriter().println("<td>" + rs.getString("bike\_model") + "</td>");

response.getWriter().println("<td>" + rs.getString("bike\_price") + "</td>");

response.getWriter().println("<td>");

response.getWriter().println("<a href='EditBikeServlet?id=" + id + "'>Edit</a>");

response.getWriter().println(" | ");

response.getWriter().println("<a href='DeleteBikeServlet?id=" + id + "'>Delete</a>");

response.getWriter().println("</td>");

response.getWriter().println("</tr>");

}

response.getWriter().println("</table>");

response.getWriter().println("<button onclick=\"window.location.href='bikeRegistration.jsp'\">Registration Page</button>");

rs.close();

stmt.close();

con.close();

} **catch** (Exception e) {

e.printStackTrace();

}

}

/\*\*

\* **@see** HttpServlet#doPost(HttpServletRequest, HttpServletResponse)

\*/

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

doGet(request, response);

}

}

**Step 8: Delete Bike Servlet (DeleteBikeServlet.java)**

Create a DeleteBikeServlet.java servlet.

**import** jakarta.servlet.ServletException;

**import** java.io.IOException;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.PreparedStatement;

**import** jakarta.servlet.annotation.WebServlet;

**import** jakarta.servlet.http.HttpServlet;

**import** jakarta.servlet.http.HttpServletRequest;

**import** jakarta.servlet.http.HttpServletResponse;

@WebServlet("/DeleteBikeServlet")

/\*\*

\* Servlet implementation class DeleteBikeServlet

\*/

**public** **class** DeleteBikeServlet **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

/\*\*

\* **@see** HttpServlet#HttpServlet()

\*/

**public** DeleteBikeServlet() {

**super**();

// **TODO** Auto-generated constructor stub

}

/\*\*

\* **@see** HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)

\*/

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

**int** id = Integer.*parseInt*(request.getParameter("id"));

**try** {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/bikedb", "root", "password");

String query = "DELETE FROM bikes WHERE id = ?";

PreparedStatement ps = con.prepareStatement(query);

ps.setInt(1, id);

ps.executeUpdate();

ps.close();

con.close();

} **catch** (Exception e) {

e.printStackTrace();

}

response.sendRedirect("BikeListServlet");

}

/\*\*

\* **@see** HttpServlet#doPost(HttpServletRequest request, HttpServletResponse response)

\*/

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

doGet(request, response);

}

}

**Step 9: Edit Bike Servlet (EditBikeServlet.java)**

**import** java.io.IOException;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.PreparedStatement;

**import** java.sql.ResultSet;

**import** jakarta.servlet.ServletException;

**import** jakarta.servlet.annotation.WebServlet;

**import** jakarta.servlet.http.HttpServlet;

**import** jakarta.servlet.http.HttpServletRequest;

**import** jakarta.servlet.http.HttpServletResponse;

@WebServlet("/EditBikeServlet")

**public** **class** EditBikeServlet **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

/\*\*

\* **@see** HttpServlet#HttpServlet()

\*/

**public** EditBikeServlet() {

**super**();

}

/\*\*

\* **@see** HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)

\*/

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

**int** id = Integer.*parseInt*(request.getParameter("id"));

**try** {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/bikedb", "root", "password");

String query = "SELECT \* FROM bikes WHERE id = ?";

PreparedStatement ps = con.prepareStatement(query);

ps.setInt(1, id);

ResultSet rs = ps.executeQuery();

**if** (rs.next()) {

request.setAttribute("id", id);

request.setAttribute("bikeName", rs.getString("bike\_name"));

request.setAttribute("bikeModel", rs.getString("bike\_model"));

request.setAttribute("bikePrice", rs.getString("bike\_price"));

request.getRequestDispatcher("editBike.jsp").forward(request, response);

} **else** {

response.sendRedirect("BikeListServlet");

}

rs.close();

ps.close();

con.close();

} **catch** (Exception e) {

e.printStackTrace();

response.sendRedirect("BikeListServlet");

}

}

/\*\*

\* **@see** HttpServlet#doPost(HttpServletRequest request, HttpServletResponse response)

\*/

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

**int** id = Integer.*parseInt*(request.getParameter("id"));

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

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

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

**try** {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/bikedb", "root", "password");

String query = "UPDATE bikes SET bike\_name = ?, bike\_model = ?, bike\_price = ? WHERE id = ?";

PreparedStatement ps = con.prepareStatement(query);

ps.setString(1, bikeName);

ps.setString(2, bikeModel);

ps.setString(3, bikePrice);

ps.setInt(4, id);

ps.executeUpdate();

ps.close();

con.close();

} **catch** (Exception e) {

e.printStackTrace();

}

response.sendRedirect("BikeListServlet");

}

}

**Step 10: User Data Display Servlet (UserDataDisplayServlet.java)**

Create a UserDataDisplayServlet.java servlet.

**import** java.io.IOException;

**import** java.sql.Connection;

**import** java.sql.DriverManager;

**import** java.sql.ResultSet;

**import** java.sql.Statement;

**import** jakarta.servlet.ServletException;

**import** jakarta.servlet.annotation.WebServlet;

**import** jakarta.servlet.http.HttpServlet;

**import** jakarta.servlet.http.HttpServletRequest;

**import** jakarta.servlet.http.HttpServletResponse;

@WebServlet("/UserDataDisplayServlet")

**public** **class** UserDataDisplayServlet **extends** HttpServlet {

**private** **static** **final** **long** ***serialVersionUID*** = 1L;

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

response.setContentType("text/html");

**try** {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/bikedb", "root", "password");

Statement stmt = con.createStatement();

ResultSet rs = stmt.executeQuery("SELECT \* FROM bikes");

// Forwarding data to JSP

request.setAttribute("bikeData", rs);

request.getRequestDispatcher("userBikeList.jsp").forward(request, response);

rs.close();

stmt.close();

con.close();

} **catch** (Exception e) {

e.printStackTrace();

}

}

}

**Step 11: User Bike List JSP (userBikeList.jsp)**

Create a userBikeList.jsp file to display the bike data retrieved by the servlet.

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<title>User Bike List</title>

</head>

<body>

<h2>User Bike List</h2>

<table border=*"1"*>

<tr>

<th>Bike Name</th>

<th>Bike Model</th>

<th>Bike Price</th>

</tr>

<c:forEach var=*"row"* items="${bikeData}">

<tr>

<td><c:out value="${row.bike\_name}" /></td>

<td><c:out value="${row.bike\_model}" /></td>

<td><c:out value="${row.bike\_price}" /></td>

</tr>

</c:forEach>

</table>

</body>

</html>

**Step 12: Modify Home Page (index.jsp)**

Modify the home page to include a button for users to view the bike list.

<!DOCTYPE html>

<html>

<head>

<title>Bike Registration</title>

</head>

<body>

<h1>Welcome to Bike Registration</h1>

<button onclick="window.location.href='userBikeList'">View Bike List</button>

<button onclick="window.location.href='adminLogin.jsp'">Admin</button>

</body>

</html>