Java Full Stack Lab Manual - JDBC Experiment

Aim

To demonstrate the usage of JSTL SQL Tags such as <sql:setDataSource>, <sql:query>, <sql:update>, and <sql:param>.

Technologies Used

JSP, JSTL SQL Tag Library, Apache Tomcat, MySQL

Directory Structure

```
JSTLSqlDemo/
|
+- sql-demo.jsp
+- WEB-INF/
   +- web.xml
   +- lib/
      +- jstl.jar
      +- mysql-connector-java-*.jar
```

Required JARs (Place in WEB-INF/lib/)

jakarta.servlet.jsp.jstl-api-*.jar

jakarta.servlet.jsp.jstl-impl-*.jar

mysql-connector-java-*.jar

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sql-demo.jsp

```jsp
<%@ taglib uri="http://java.sun.com/jsp/jstl/sql" prefix="sql" %>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<html>
<head><title>JSTL SQL Tag Demo</title></head>
<body>

<h2>JSTL SQL Tag Example</h2>

<!-- Set Data Source -->
<sql:setDataSource var="ds" driver="com.mysql.cj.jdbc.Driver"
    url="jdbc:mysql://localhost:3306/college"
    user="root"  password="root" />

<!-- Insert Student Record -->
<sql:update dataSource="${ds}">
    INSERT INTO student (rollno, name, address)
    VALUES (101, 'Madhu', 'Hyderabad')
</sql:update>

<!-- Select Student Records -->
<sql:query dataSource="${ds}" var="result">
    SELECT * FROM student
</sql:query>

<!-- Display Student Records -->
<table border="1">
<tr><th>Roll No</th><th>Name</th><th>Address</th></tr>
<c:forEach var="row" items="${result.rows}">
  <tr>
    <td>${row.rollno}</td>
    <td>${row.name}</td>
    <td>${row.address}</td>
  </tr>
</c:forEach>
</table>

</body>
</html>
```

web.xml

```xml
<web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee"
        xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
        xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
        http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd"
        version="3.1">
```

```
    <welcome-file-list>
        <welcome-file>sql-demo.jsp</welcome-file>
    </welcome-file-list>

</web-app>
```

How to Run

1. Set up a MySQL database and create a student table.

2. Download the required JARs and place them in WEB-INF/lib.

3. Deploy the JSTLSqlDemo folder to Tomcat's webapps directory.

4. Visit: http://localhost:8080/JSTLSqlDemo/sql-demo.jsp

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Expected Output

```
Roll No | Name  | Address
------------------------
101     | Madhu | Hyderabad
```

Result

Successfully demonstrated JSTL SQL tags to connect to the database, insert and retrieve data.