

**Viết các thao tác với CSDL, trong đó gồm: add new, delete, edit bảng Account (CRUD) với Model 1 (JSPs only)**

1. Tạo Database .....	2
2. Tạo project maven.....	2
3. Chuẩn bị các Lib (file Project Files > pom.xml).....	4
4. Tạo các file list.jsp, create.jsp, delete.jsp, update.jsp và các package: model, dao, utils	5
5. Tạo model Account trong package model .....	6
6. Tạo DBContext trong package utils.....	6
7. Tạo AccountDAO trong package dao .....	7
8. Xử lý list.jsp .....	11
9. Xử lý delete.jsp .....	14
10. Xử lý create.jsp .....	15
11. Xử lý update.jsp .....	17

## 1. Tạo Database

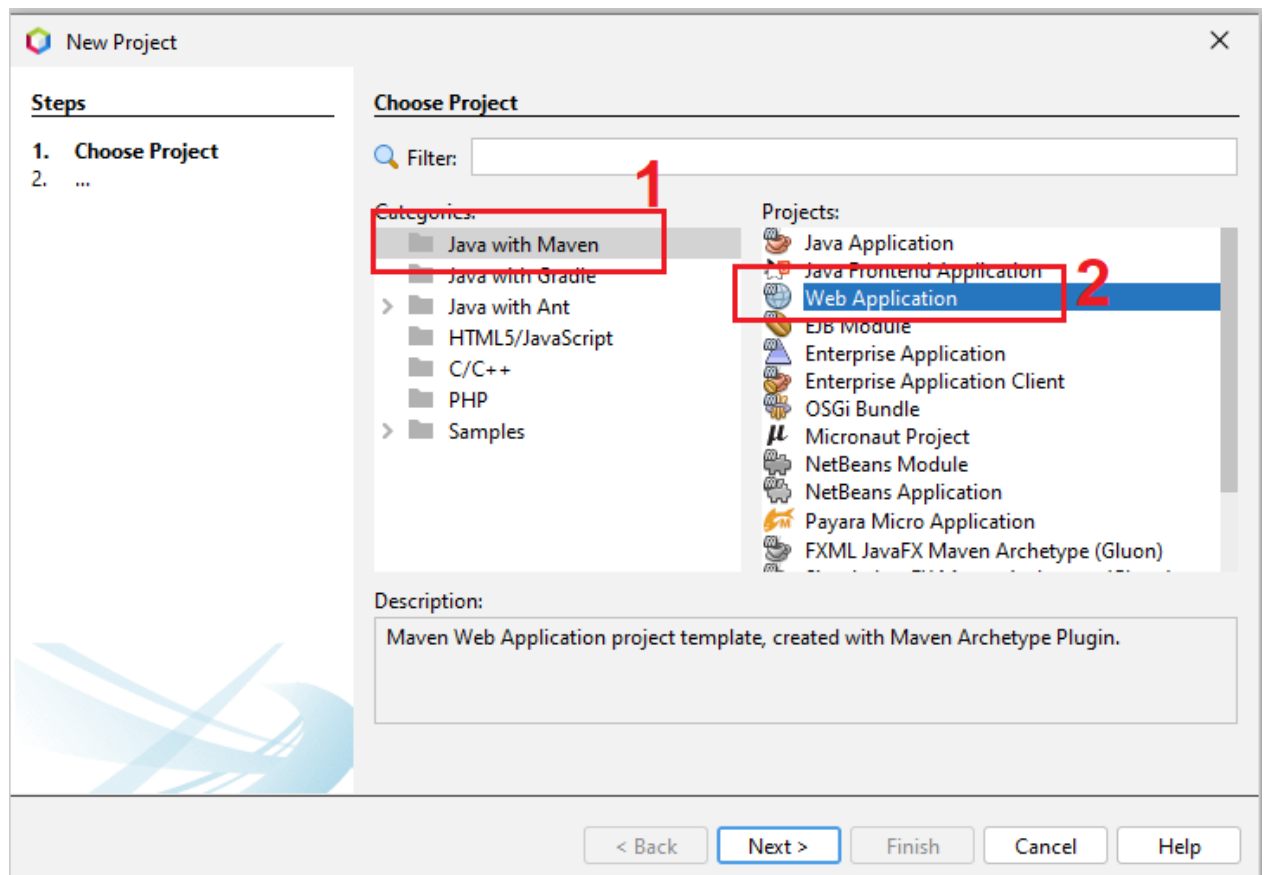
```
CREATE DATABASE PRJ301_MVC1
```

```
USE PRJ301_MVC1
```

```
CREATE TABLE account (  
    id int PRIMARY KEY,  
    username VARCHAR(50),  
    password VARCHAR(255) NOT NULL,  
    fullname VARCHAR(100) NOT NULL  
);
```

```
INSERT INTO account (id, username, password, fullname) VALUES  
(1, 'user1', 'password1', 'John Doe'),  
(2, 'user2', 'password2', 'Jane Smith'),  
(3, 'user3', 'password3', 'Michael Brown'),  
(4, 'user4', 'password4', 'Emily Davis'),  
(5, 'user5', 'password5', 'Chris Wilson'),  
(6, 'user6', 'password6', 'Patricia Johnson'),  
(7, 'user7', 'password7', 'Robert Miller'),  
(8, 'user8', 'password8', 'Linda Taylor'),  
(9, 'user9', 'password9', 'David Anderson'),  
(10, 'user10', 'password10', 'Susan Thomas');
```

## 2. Tạo project maven



New Web Application

**Steps**

1. Choose Project
2. **Name and Location**
3. Settings

**Name and Location**

Project Name:

Project Location:

Project Folder:

Artifact Id:

Group Id:

Version:

Package:  (Optional)

< Back **Next >** Finish Cancel Help

New Web Application

**Steps**

1. Choose Project
2. Name and Location
3. **Settings**

**Settings**

Server:

Java EE Version:

< Back Next > **Finish** Cancel Help

### 3. Chuẩn bị các Lib (file Project Files > pom.xml)

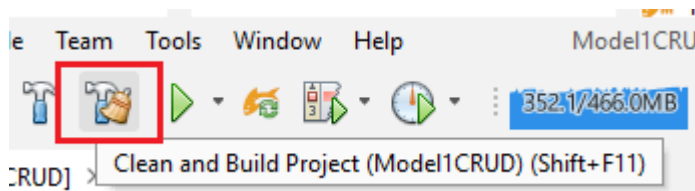
```
<dependency>
  <groupId>com.microsoft.sqlserver</groupId>
  <artifactId>mssql-jdbc</artifactId>
  <version>12.8.0.jre8</version>
</dependency>

<dependency>
  <groupId>jakarta.servlet</groupId>
  <artifactId>jakarta.servlet-api</artifactId>
  <version>5.0.0</version>
  <scope>provided</scope>
</dependency>

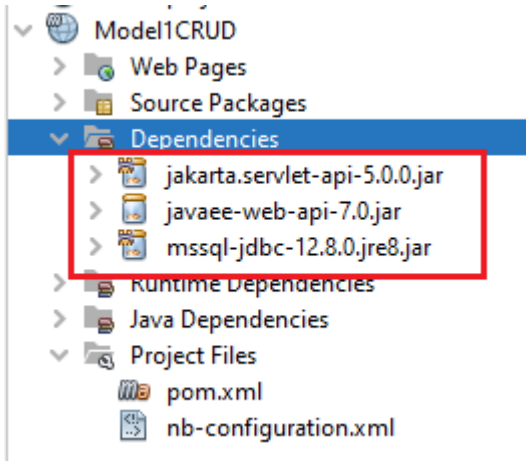
<dependency>
  <groupId>jakarta.servlet.jsp.jstl</groupId>
  <artifactId>jakarta.servlet.jsp.jstl-api</artifactId>
  <version>2.0.0</version>
  <scope>runtime</scope>
</dependency>

<dependency>
  <groupId>org.glassfish.web</groupId>
  <artifactId>jakarta.servlet.jsp.jstl</artifactId>
  <version>2.0.0</version>
  <scope>runtime</scope>
</dependency>
```

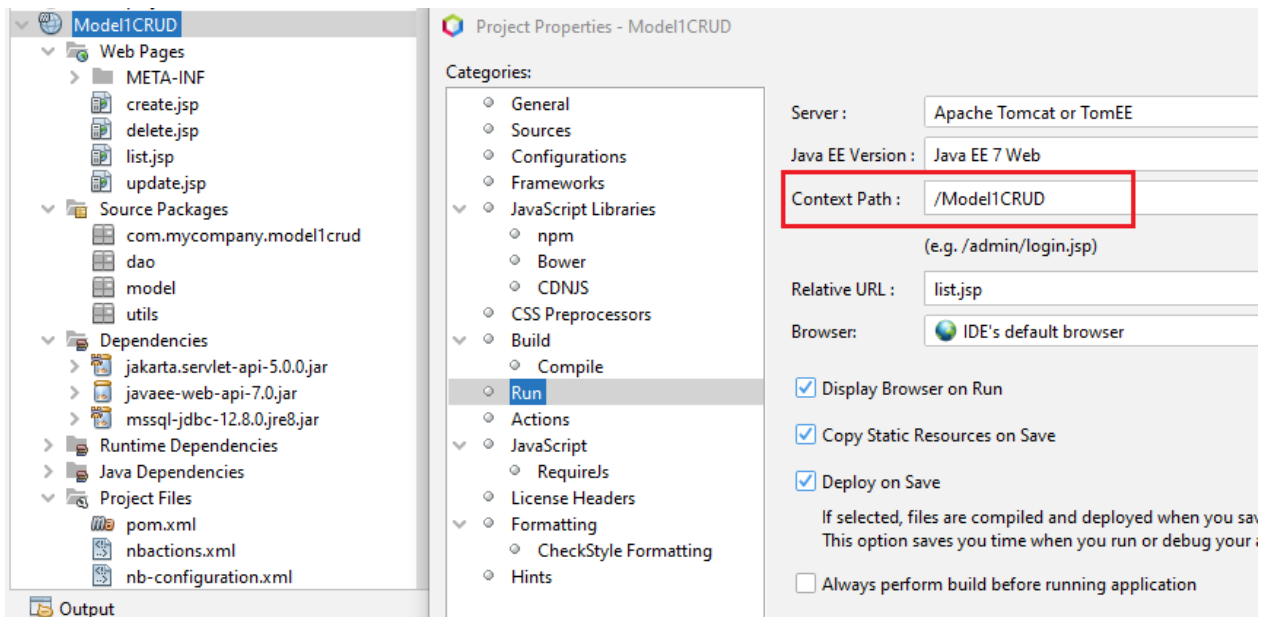
Thực hiện Clean and Build để tải thư viện



Các Dependencies sau khi tải về



#### 4. Tạo các file list.jsp, create.jsp, delete.jsp, update.jsp và các package: model, dao, utils



<http://localhost:9999/Model1CRUD/list.jsp>

<http://localhost:9999/Model1CRUD/create.jsp>

<http://localhost:9999/Model1CRUD/delete.jsp>

<http://localhost:9999/Model1CRUD/update.jsp>

## 5. Tạo model Account trong package model

```
package model;

/**
 *
 * @author Vo Hoang Tu - CE000000
 */
public class Account {
    private int _id;
    private String _username;
    private String _password;
    private String _fullname;

    public Account() {
        this._id = -1;
        this._username = "";
        this._password = "";
        this._fullname = "";
    }

    public static boolean isEmpty(Account account){
        return account.getId() < 0 && account.getUsername().isEmpty();
    }

    public Account(int _id, String _username, String _password, String _fullname)
    {
        this._id = _id;
        this._username = _username;
        this._password = _password;
        this._fullname = _fullname;
    }
}
```

## 6. Tạo DBContext trong package utils

```
package utils;

import java.sql.Connection;
import java.sql.DatabaseMetaData;
import java.sql.DriverManager;
import java.sql.SQLException;
import java.util.logging.Level;
import java.util.logging.Logger;

/**
 *
```

```

/* @author Vo Hoang Tu - CE000000
*/
public class DBContext {

    protected Connection conn = null;

    public DBContext() {
        try {
            Class.forName("com.microsoft.sqlserver.jdbc.SQLServerDriver");
            String dbURL = "jdbc:sqlserver://localhost:1433;"
                + "databaseName=PRJ301_MVC1;"
                + "user=sa;"
                + "password=123456;"
                + "encrypt=true;trustServerCertificate=true;";
            conn = DriverManager.getConnection(dbURL);
            if (conn != null) {
                DatabaseMetaData dm = (DatabaseMetaData) conn.getMetaData();
                System.out.println("Driver name: " + dm.getDriverName());
                System.out.println("Driver version: " + dm.getDriverVersion());
                System.out.println("Product name: " +
dm.getDatabaseProductName());
                System.out.println("Product version: " +
dm.getDatabaseProductVersion());
            }
        } catch (SQLException ex) {
        } catch (ClassNotFoundException ex) {
            Logger.getLogger(DBContext.class.getName()).log(Level.SEVERE, null,
ex);
        }
    }
}

```

## 7. Tạo AccountDAO trong package dao

```

/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to
change this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/Classes/Class.java to edit this
template
 */
package dao;

```

```
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.util.ArrayList;
import java.util.List;
import model.Account;
import utils.DBContext;

/**
 *
 * @author Vo Hoang Tu - CE000000
 */
public class AccountDAO extends DBContext {

    public AccountDAO() {
        super();
    }

    public Account verifyAccount(String username, String password) {
        Account acc = new Account();
        String query = "select * from account where username = ? and password = ?";
        try {
            PreparedStatement ps = conn.prepareStatement(query);
            ps.setString(1, username);
            ps.setString(2, password);
            ResultSet rs = ps.executeQuery();
            if (rs.next()) {
                acc.setId(rs.getInt("id"));
                acc.setUsername(rs.getString("username"));
                acc.setPassword(rs.getString("password"));
                acc.setFullname(rs.getString("fullname"));
            }
        } catch (SQLException e) {
            System.out.println(e);
        }
        return acc;
    }

    public List<Account> getAll() {
        List<Account> accounts = new ArrayList<>();
        String sql = "SELECT id, username, password, fullname FROM account";

        try ( PreparedStatement ps = conn.prepareStatement(sql);  ResultSet rs = ps.executeQuery()) {
```



```
        while (rs.next()) {
            int id = rs.getInt("id");
            String username = rs.getString("username");
            String password = rs.getString("password");
            String fullname = rs.getString("fullname");

            // Tạo đối tượng Account và thêm vào danh sách
            Account account = new Account(id, username, password, fullname);
            accounts.add(account);
        }

    } catch (Exception e) {
        e.printStackTrace();
    }

    return accounts;
}

public Account getAccountById(int id) {
    String sql = "select * from account where id = ?";
    try {
        PreparedStatement st = conn.prepareStatement(sql);
        st.setInt(1, id);

        ResultSet rs = st.executeQuery();
        if (rs.next()) {
            Account c = new Account(rs.getInt("id"),
                                    rs.getString("username"), rs.getString("password"),
rs.getString("fullname"));
            return c;
        }
    } catch (SQLException e) {
        System.out.println(e.getMessage());
    }
    return null;
}

public int delete(int id) {
    String sql = "delete from account where id = ?";
    try {
        PreparedStatement st = conn.prepareStatement(sql);
        st.setInt(1, id);

        int rowsAffected = st.executeUpdate(); // Trả về số hàng bị ảnh hưởng
        if (rowsAffected > 0) {
            return 1; // Xóa thành công
        }
    }
}
```

```
        } else {
            return 0; // Không có hàng nào bị xoá
        }
    } catch (SQLException e) {
        System.out.println(e.getMessage());
        return 0;
    }
}

public int insert(String username, String password, String fullname) {
    String getMaxId = "Select max(id) as maxid from account";
    int nextId;
    try {
        PreparedStatement st = conn.prepareStatement(getMaxId);
        ResultSet rs = st.executeQuery();
        if (rs.next()) {
            nextId = rs.getInt("maxid") + 1;
            System.out.println("id: " + nextId);
            String sql = "insert into Account(id, username,
password,fullname) values(?, ?, ?, ?)";
            try {
                PreparedStatement st1 = conn.prepareStatement(sql);
                st1.setInt(1, nextId);
                st1.setString(2, username);
                st1.setString(3, password);
                st1.setString(4, fullname);

                int rowsAffected = st1.executeUpdate();
                if (rowsAffected > 0) {
                    return 1; // Thêm thành công
                } else {
                    return 0; // Thêm không thành công
                }
            } catch (SQLException e) {
                System.out.println(e.getMessage());
                return 0;
            }
        }
    }
    return 0;
} catch (Exception e) {
    System.out.println(e.getMessage());
    return 0;
}
}
```

```

    public int update(Account acc){
        String sql = "update Account set username = ?, password = ?, fullname = ?
where id = ?";
        try {
            PreparedStatement st = conn.prepareStatement(sql);
            st.setString(1, acc.getUsername());
            st.setString(2, acc.getPassword());
            st.setString(3, acc.getFullname());
            st.setInt(4, acc.getId());

            int rowsAffected = st.executeUpdate();
            if (rowsAffected > 0) {
                return 1; // Xóa thành công
            } else {
                return 0; // Không có hàng nào bị xóa
            }
        } catch (SQLException e) {
            System.out.println(e.getMessage());
            return 0;
        }
    }

    public static void main(String[] args) {
        AccountDAO c = new AccountDAO();
        c.insert("tuvh", "123", "Hoang-Tu Vo");
        List<Account> list = c.getAll();
        System.out.println(list.get(0).getFullname());
    }
}

```

## 8. Xử lý list.jsp

```

<%--
    Document    : list
    Created on   : Dec 16, 2024, 2:54:18 PM
    Author      : Vo Hoang Tu - CE000000
--%>

<%@page import="java.util.List"%>
<%@page import="model.Account"%>

```

```

<%@page import="dao.AccountDAO"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%
    AccountDAO accountDAO = new AccountDAO();
    List<Account> accountList = accountDAO.getAll();
%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <style>
        table {
            border-spacing: 0px; /* Khoảng cách giữa các ô */
            border: 1px solid black;
        }
        td {
            padding: 5px; /* Khoảng cách bên trong ô */
        }
    </style>
    <body>
        <h1>List of Accounts</h1>
        <a href="create.jsp">Add new</a>
        <%
            if (accountList != null && !accountList.isEmpty()) {
        %>
        <table border="1">
            <tbody>
                <tr>
                    <td>ID</td>
                    <td>Username</td>
                    <td>Password</td>
                    <td>Fullname</td>
                    <td>Action</td>
                </tr>
                <%
                    for (Account account : accountList) {
        %>
                <tr>
                    <td><%= account.getId()%></td>
                    <td><%= account.getUsername()%></td>
                    <td><%= account.getPassword()%></td>
                    <td><%= account.getFullname()%></td>
                    <td>
                        <a href="update.jsp?id=<%= account.getId()%>">Edit</a> |

```

```

        <a href="delete.jsp?id=<%= account.getId()%>">Delete</a>
    </td>
</tr>
<%
}
%>
</tbody>
</table>

<%           } else {
%>
<p>There is no data!</p>
<%
}
%>
</body>
</html>

```

← → ↻ ⓘ localhost:9999/Model1CRUD/list.jsp

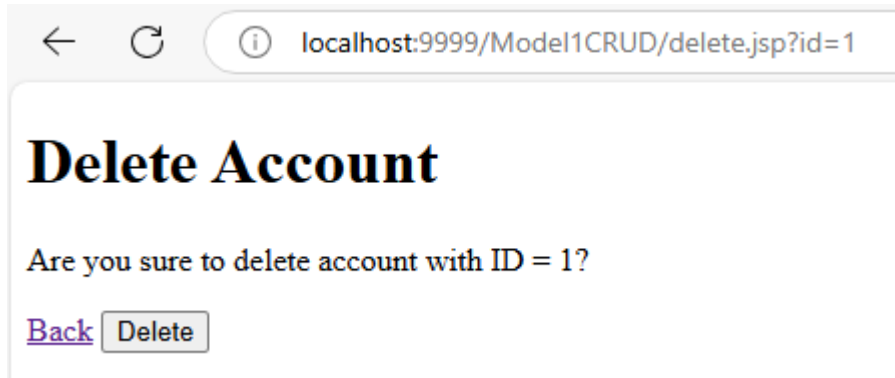
## List of Accounts

[Add new](#)

ID	Username	Password	Fullname	Action
1	user1	password1	John Doe	<a href="#">Edit</a>   <a href="#">Delete</a>
2	user2	password2	Jane Smith	<a href="#">Edit</a>   <a href="#">Delete</a>
3	user3	password3	Michael Brown	<a href="#">Edit</a>   <a href="#">Delete</a>
4	user4	password4	Emily Davis	<a href="#">Edit</a>   <a href="#">Delete</a>
5	user5	password5	Chris Wilson	<a href="#">Edit</a>   <a href="#">Delete</a>
6	user6	password6	Patricia Johnson	<a href="#">Edit</a>   <a href="#">Delete</a>
7	user7	password7	Robert Miller	<a href="#">Edit</a>   <a href="#">Delete</a>
8	user8	password8	Linda Taylor	<a href="#">Edit</a>   <a href="#">Delete</a>
9	user9	password9	David Anderson	<a href="#">Edit</a>   <a href="#">Delete</a>
10	user10	password10	Susan Thomas	<a href="#">Edit</a>   <a href="#">Delete</a>

## 9. Xử lý delete.jsp

<http://localhost:9999/Model1CRUD/delete.jsp?id=1>



```
<%--
    Document      : delete
    Created on    : Dec 16, 2024, 2:55:07 PM
    Author       : Vo Hoang Tu - CE000000
--%>

<%@page import="java.util.List"%>
<%@page import="model.Account"%>
<%@page import="model.Account"%>
<%@page import="dao.AccountDAO"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%
    AccountDAO accountDAO = new AccountDAO();
    String idStr = request.getParameter("id");
    int id = 0;
    Account acc = null;
    try {
        id = Integer.parseInt(idStr);
        acc = accountDAO.getAccountById(id);
    } catch (Exception e) {
        response.sendRedirect("list.jsp");
    }
%>

<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h1>Delete Account</h1>
```

```

<%
    if (request.getMethod().equals("POST")) {
        if (accountDAO.delete(id) == 1) {
            response.sendRedirect("list.jsp");
        } else {
            out.println("<p>Deletion failed with id = " + id + "</p>");
            out.println("<a href=\"list.jsp\">Back</a>");
        }
    } else {
        if (acc != null) {
            %>
            <p>Are you sure to delete account with ID = <%= id %>?
            <form method="POST">
                <a href="list.jsp">Back</a>
                <input type="submit" value="Delete">
            </form>
            <%
                } else {
                    out.println("<p>There is no account with id = " + id +
"</p>");
                }
            }
        %>
    </body>
</html>

```

## 10. Xử lý create.jsp

← ↻ ⓘ localhost:9999/Model1CRUD/create.jsp

# Create Account!

[Back](#)

Username:

Password:

Fullname:

<%--  
Document : create

```

Created on : Dec 16, 2024, 2:55:01 PM
Author    : Vo Hoang Tu - CE000000
--%>

<%@page import="model.Account"%>
<%@page import="dao.AccountDAO"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%
    AccountDAO accountDAO = new AccountDAO();
%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h1>Create Account!</h1>
        <a href="list.jsp">Back</a>
        <%
            if (request.getMethod().equals("POST")) {
                String username = request.getParameter("username");
                String password = request.getParameter("password");
                String fullname = request.getParameter("fullname");
                if (!username.isEmpty() && !password.isEmpty()
&& !fullname.isEmpty()) {
                    if (accountDAO.insert(username, password, fullname) == 1) {
                        response.sendRedirect("list.jsp");
                    } else {
                        out.println("<p>Create failed</p>");
                        out.println("<a href=\"list.jsp\">Back</a>");
                    }
                }
            } else {
                <form method="POST">
                    Username:
                    <input type="text" name="username" required><br/>
                    Password:
                    <input type="text" name="password" required><br/>
                    Fullname:
                    <input type="text" name="fullname" required><br/>
                </div>
                <input type="submit" value="Save" />
            }
        %>
    </body>
</html>

```



```

        <%           }
    %>
</form>
</body>
</html>

```

## 11. Xử lý update.jsp

← ↻ ⓘ localhost:9999/Model1CRUD/update.jsp?id=3

## Edit Account!

[Back](#)

Id:

Username:

Password:

Fullname:

```

<%--
    Document      : update
    Created on    : Dec 16, 2024, 2:55:12 PM
    Author       : Vo Hoang Tu - CE000000
--%>

<%@page import="model.Account"%>
<%@page import="dao.AccountDAO"%>
<%@page import="dao.AccountDAO"%>
<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>
<%
    AccountDAO accountDAO = new AccountDAO();
    String idStr = request.getParameter("id");
    int id = 0;
    Account acc = null;
    try {
        id = Integer.parseInt(idStr);
        acc = accountDAO.getAccountById(id);
    } catch (Exception e) {

```

```

        response.sendRedirect("list.jsp");
    }
%>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <h1>Edit Account!</h1>
        <a href="list.jsp">Back</a>
        <%
            if (request.getMethod().equals("POST")) {
                String username = request.getParameter("username");
                String password = request.getParameter("password");
                String fullname = request.getParameter("fullname");
                if (!username.isEmpty() && !password.isEmpty()
&& !fullname.isEmpty()) {
                    if (accountDAO.update(new Account(id, username, password,
fullname)) == 1) {
                        response.sendRedirect("list.jsp");
                    } else {
                        out.println("<p>Update failed</p>");
                        out.println("<a href=\"list.jsp\">Back</a>");
                    }
                }
            } else {
        %>
        <form method="POST">
            Id:
            <input type="text" readonly name="id" required value="<%=
acc.getId()%>"><br/>
            Username:
            <input type="text" name="username" required value="<%=
acc.getUsername()%>"><br/>
            Password:
            <input type="text" name="password" required value="<%=
acc.getPassword()%>"><br/>
            Fullname:
            <input type="text" name="fullname" required value="<%=
acc.getFullname()%>"><br/>
        </div>
        <input type="submit" value="Save" />
        <%

```

```
    }  
    %>  
</body>  
</html>
```