

实验报告

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|  |  |
| 实验课程： | Javaweb |
| 实验项目： | Student的CRUD |
| 实验类型： | 验证 |
| 实验学时： | 2 |
|  |  |
| 实验地点： |  |
| 实验日期： |  |

实验课程：

# 实验项目：Student的CRUD操作

# 1、实验目的

掌握连接数据库对数据进行增删改查的操作

# 2、实验环境

Idea + tomcat + mysql

# 3、实验内容与步骤

本次实验的具体内容，即实验要验证的问题，以及验证所依据的原理和设计的实验方案；按照实验过程列出实验步骤（涉及编程的，须首先进行算法设计，画出流程图，算法源代码在此处仅仅按功能给出核心代码，完整源代码将工程项目压缩为一个文件作为附件提交，如何不是太长，可以在附录中列印）。

## 3.0 实验原理或方案

前台编写jsp代码，后台通过servlet进行数据的获取，然后使用jdbc对数据库的数据进行增删改查等操作，从而实现对数据信息的控制。

## 3.1 步骤1

编写登录界面

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

<html>

<head>

<title>登录</title>

</head>

<body>

<form action="${pageContext.request.contextPath}/loginServlet" method="post">

账号：<input type="text" name="account"><br>

密码：<input type="password" name="password"><br>

<input type="submit" value="提交"><br>

<!--返回后台信息-->

<div style="color: red; font-size: 25px;">${message}</div>

</form>

</body>

</html>

编写前台信息展示页面

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

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>

<html>

<head>

<title>操作</title>

</head>

<body>

<a href="add.jsp">添加学生</a><br>

<div style="color: red;">${message}</div>

<a href="findStudents">查看所有学生信息</a><br>

<table style="border: 1px solid #cccccc;">

<tr>

<td>姓名</td>

<td>年龄</td>

<td>修改信息</td>

<td>删除</td>

</tr>

<c:forEach items="${list}" var="s">

<tr>

<td>${s.username}</td>

<td>${s.age}</td>

<td><a href="${pageContext.request.contextPath}/update.jsp?id=${s.id}&username=${s.username}&age=${s.age}">修改信息</a></td>

<td><a href="${pageContext.request.contextPath}/deleteById?id=${s.id}">删除</a></td>

</tr>

</c:forEach>

</table>

</body>

</html>

编写修改信息页面

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

<html>

<head>

<title>修改学生信息</title>

</head>

<body>

<form action="${pageContext.request.contextPath}/updateServlet">

<input type="hidden" name="id" value="${param.id}">

姓名：<input type="text" name="username" value="${param.username}">

年龄：<input type="text" name="age" value="${param.age}">

<input type="submit" value="提交">

</form>

<div>${message}</div>

</body>

</html>

编写添加页面

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

<html>

<head>

<title>添加学生</title>

</head>

<body>

<form action="${pageContext.request.contextPath}/addServlet">

姓名：<input type="text" name="username">

年龄：<input type="text" name="age">

<input type="submit" value="提交">

</form>

<div>${message}</div>

</body>

</html>

## 3.2 步骤2

编写JDBC工具类

package com.danger.utils;

import com.alibaba.druid.pool.DruidDataSourceFactory;

import javax.sql.DataSource;

import java.io.\*;

import java.net.URL;

import java.sql.\*;

import java.util.Properties;

/\*\*

\* JDBC工具类

\*/

public class JDBCUtil {

private static String url;

private static String username;

private static String password;

private static String driver;

static {

Properties pro = new Properties();

try {

pro.load(JDBCUtil.class.getClassLoader().getResourceAsStream("mysql.properties"));

url = pro.getProperty("url");

username = pro.getProperty("username");

password = pro.getProperty("password");

driver = pro.getProperty("driver");

//注册驱动

Class.forName(driver);

} catch (ClassNotFoundException e) {

e.printStackTrace();

} catch (FileNotFoundException e) {

e.printStackTrace();

} catch (IOException e) {

e.printStackTrace();

}

}

/\*\*

\* 获取连接

\*

\* @return

\*/

public static Connection getConnection() throws SQLException {

return DriverManager.getConnection(url,username,password);

}

/\*\*

\* 释放资源

\*

\* @param conn

\* @param pst

\*/

public static void close(Connection conn, PreparedStatement pst) {

try {

if (conn != null) {

conn.close();

}

if (pst != null) {

pst.close();

}

} catch (SQLException e) {

e.printStackTrace();

}

}

/\*\*

\* 释放资源

\*

\* @param conn

\* @param pst

\* @param rs

\*/

public static void close(Connection conn, PreparedStatement pst, ResultSet rs) {

try {

if (conn != null) {

conn.close();

}

if (pst != null) {

pst.close();

}

if (rs != null) {

rs.close();

}

} catch (SQLException e) {

e.printStackTrace();

}

}

}

编写数据库配置文件

driver=com.mysql.jdbc.Driver

url=jdbc:mysql://localhost:3306/school

username=root

password=root

编写后台的servlet中的代码

登录

package com.danger.servlet;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import javax.servlet.http.HttpSession;

import java.io.IOException;

@WebServlet("/loginServlet")

public class LoginServlet extends HttpServlet {

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

request.setCharacterEncoding("UTF-8");

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

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

if ("".equals(account) || account == null || "".equals(password) || password == null) {

request.setAttribute("message", "账户或密码错误");

request.getRequestDispatcher("/index.jsp").forward(request, response);

}

if ("admin".equals(account) && "admin".equals(password)) {

//登录成功

request.setAttribute("account", account);

request.getRequestDispatcher("/work.jsp").forward(request, response);

}

}

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

this.doPost(request, response);

}

}

查询所有学生信息

package com.danger.servlet;

import com.danger.domain.Student;

import com.danger.utils.JDBCUtil;

import com.sun.xml.internal.bind.v2.model.core.ID;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.util.ArrayList;

import java.util.List;

@WebServlet("/findStudents")

public class FindStudents extends HttpServlet {

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

String sql = "select \* from student";

try {

Connection conn = JDBCUtil.getConnection();

PreparedStatement pst = conn.prepareStatement(sql);

ResultSet rs = pst.executeQuery();

List<Student> students = new ArrayList<>();

while (rs.next()){

Student student = new Student();

student.setId(rs.getInt("id"));

student.setUsername(rs.getString("username"));

student.setAge(rs.getString("age"));

students.add(student);

}

JDBCUtil.close(conn, pst, rs);

request.setAttribute("list", students);

request.getRequestDispatcher("/work.jsp").forward(request, response);

} catch (SQLException e) {

e.printStackTrace();

}

}

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

this.doPost(request, response);

}

}

添加

package com.danger.servlet;

import com.danger.utils.JDBCUtil;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.SQLException;

/\*\*

\* 添加学生

\*/

@WebServlet("/addServlet")

public class AddServlet extends HttpServlet {

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

request.setCharacterEncoding("UTF-8");

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

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

if (username != "" && username!= null && age != "" && age != null){

try {

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

Connection conn = JDBCUtil.getConnection();

String sql = "insert into student(username, age) values(?, ?)";

PreparedStatement pst = conn.prepareStatement(sql);

pst.setString(1,username);

pst.setString(2,age);

int i = pst.executeUpdate();

if (i>0){

request.setAttribute("message","操作成功");

}else{

request.setAttribute("message","操作失败");

}

//释放资源

JDBCUtil.close(conn, pst);

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

} catch (ClassNotFoundException e) {

e.printStackTrace();

} catch (SQLException e) {

e.printStackTrace();

}

}

}

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

this.doPost(request, response);

}

}

修改

package com.danger.servlet;

import com.danger.utils.JDBCUtil;

import com.sun.xml.internal.bind.v2.model.core.ID;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.sql.PreparedStatement;

import java.sql.SQLException;

@WebServlet("/updateServlet")

public class UpdateServlet extends HttpServlet {

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

request.setCharacterEncoding("UTF-8");

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

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

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

int i = Integer.parseInt(id);

String sql = "update student set username = ?, age = ? where id = ?";

try {

PreparedStatement pst = JDBCUtil.getConnection().prepareStatement(sql);

pst.setString(1,username);

pst.setString(2,age);

pst.setInt(3,i);

int i1 = pst.executeUpdate();

if (i1>0){

request.setAttribute("message","操作成功");

}else{

request.setAttribute("message","操作失败");

}

request.getRequestDispatcher("/findStudents").forward(request, response);

} catch (SQLException e) {

e.printStackTrace();

}

}

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

this.doPost(request, response);

}

}

删除

package com.danger.servlet;

import com.danger.utils.JDBCUtil;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

import java.io.IOException;

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.SQLException;

@WebServlet("/deleteById")

public class DeleteById extends HttpServlet {

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

request.setCharacterEncoding("UTF-8");

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

int i = Integer.parseInt(id);

try {

Connection conn = JDBCUtil.getConnection();

String sql = "delete from student where id = ?";

PreparedStatement pst = conn.prepareStatement(sql);

pst.setInt(1,i);

int i1 = pst.executeUpdate();

if (i1 > 0) {

request.setAttribute("message", "删除成功");

} else {

request.setAttribute("message", "删除失败");

}

JDBCUtil.close(conn, pst);

request.getRequestDispatcher("/findStudents").forward(request, response);

} catch (SQLException e) {

e.printStackTrace();

}

}

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

this.doPost(request, response);

}

}

# 4、实验结果及分析

通过jdbc的正确操作，数据库数据的变化确实在自己的掌控之中。

# 附录

