

题面

作业内容：使用JSP+DAO模式完成所有商品信息的查询功能，即设计searchAll.jsp使得用户访问该页面时，返回所有商品信息

可以参考的表结构与sql语句（建议使用MySQL），如下所示

准备工作

设置intelliIDEA的SQL方言和数据库连接

插入若干演示数据

```
INSERT INTO test.product (name, note, price, amount, pic) VALUES
('Product 1', 'Note for product 1.', 29.99, 100, 'path/to/product1.jpg'),
('Product 2', 'Note for product 2.', 39.99, 150, 'path/to/product2.jpg'),
('Product 3', 'Note for product 3.', 19.99, 80, 'path/to/product3.jpg'),
('Product 4', 'Note for product 4.', 49.99, 200, 'path/to/product4.jpg'),
('Product 5', 'Note for product 5.', 59.99, 120, 'path/to/product5.jpg'),
('Product 6', 'Note for product 6.', 99.99, 60, 'path/to/product6.jpg'),
('Product 7', 'Note for product 7.', 9.99, 230, 'path/to/product7.jpg'),
('Product 8', 'Note for product 8.', 89.99, 90, 'path/to/product8.jpg'),
('Product 9', 'Note for product 9.', 79.99, 110, 'path/to/product9.jpg'),
('Product 10', 'Note for product 10.', 69.99, 70, 'path/to/product10.jpg');
```

tomcat本地服务器设置

功能演示

JDK: 21.0

tomcat: 10.1.6

MySQL: 8.0.19

保证代码能够正常运行。

访问

```
http://localhost:8080/untitled5_war_exploded/emp
```

后立即得到查询页面

完整代码

EmpDAOImpl.java

```
package com.org.dao.impl;

import com.org.dao.IEmpDAO;
import com.org.vo.Emp;

import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.util.ArrayList;
import java.util.List;

public class EmpDAOImpl implements IEmpDAO{
    private Connection conn;
    private PreparedStatement pstmt;

    public EmpDAOImpl(Connection conn) {
        this.conn = conn;
    }
    @Override
    public List<Emp> findAll() throws Exception {
        List<Emp> all = new ArrayList<Emp>();
        String sql = "SELECT pid, name, note, price, amount, pic FROM
product";
        this.pstmt = this.conn.prepareStatement(sql);
        ResultSet rs = this.pstmt.executeQuery();
        while (rs.next()) {
            Emp vo = new Emp();
            vo.setPid(rs.getInt("pid"));
            vo.setName(rs.getString("name"));
            vo.setNote(rs.getString("note"));
            vo.setPrice(rs.getBigDecimal("price"));
            vo.setAmount(rs.getInt("amount"));
            vo.setPic(rs.getString("pic"));
            all.add(vo);
        }
        rs.close();
        this.pstmt.close();
        return all;
    }
}
```

EmpDAOProxy.java

```
package com.org.dao.impl;

import com.org.dao.IEmpDAO;
```

```
import com.org.vo.Emp;

import java.sql.Connection;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import java.util.ArrayList;
import java.util.List;

public class EmpDAOImpl implements IEmpDAO{
    private Connection conn;
    private PreparedStatement pstmt;

    public EmpDAOImpl(Connection conn) {
        this.conn = conn;
    }
    @Override
    public List<Emp> findAll() throws Exception {
        List<Emp> all = new ArrayList<Emp>();
        String sql = "SELECT pid, name, note, price, amount, pic FROM
product";
        this.pstmt = this.conn.prepareStatement(sql);
        ResultSet rs = this.pstmt.executeQuery();
        while (rs.next()) {
            Emp vo = new Emp();
            vo.setPid(rs.getInt("pid"));
            vo.setName(rs.getString("name"));
            vo.setNote(rs.getString("note"));
            vo.setPrice(rs.getBigDecimal("price"));
            vo.setAmount(rs.getInt("amount"));
            vo.setPic(rs.getString("pic"));
            all.add(vo);
        }
        rs.close();
        this.pstmt.close();
        return all;
    }
}
```

IEmpDAO.java

```
package com.org.dao; // 定义在com.org.dao包中

import com.org.vo.Emp;

import java.util.List;

public interface IEmpDAO {

    public List<Emp> findAll() throws Exception;

}
```

DatabaseConnection.java

```
package com.org.dbc;

import java.sql.*;

public class DatabaseConnection {
    private static final String DB_DRIVER="com.mysql.cj.jdbc.Driver";
    private static final String DB_URL="jdbc:mysql://localhost:3306/test?serverTimezone=GMT%2B8";
    private static final String DB_USER="root";
    private static final String DB_PASSWORD="123456";
    private Connection conn=null;
    public DatabaseConnection() throws Exception{
        try{
            Class.forName(DB_DRIVER);

            this.conn=DriverManager.getConnection(DB_URL,DB_USER,DB_PASSWORD);
        }catch(Exception e){
            throw e;
        }
    }
    public Connection getConnection() {
        return this.conn;
    }
    public void close() throws Exception{
        if(this.conn!=null){
            try{
                this.conn.close();
            }catch(Exception e){
                throw e;
            }
        }
    }
}
```

DAOFactory.java

```
package com.org.factory;

import com.org.dao.IEmpDAO;
import com.org.dao.proxy.EmpDAOProxy;

public class DAOFactory {
    public static IEmpDAO getIEmpDAOInstance() throws Exception {
        return new EmpDAOProxy();
    }
}
```

EmpServlet.java

```
package com.org.ser;

import com.org.factory.DAOFactory;
import com.org.vo.Emp;

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

import java.io.IOException;
import java.util.List;

public class EmpServlet extends HttpServlet {
    @Override
    protected void doGet(HttpServletRequest req, HttpServletResponse resp)
        throws ServletException, IOException {
        try {
            List<Emp> list = DAOFactory.getIEmpDAOInstance().findAll();

            req.setAttribute("empList", list);

            req.getRequestDispatcher("/searchALL.jsp").forward(req, resp);
        } catch (Exception e) {
            throw new ServletException("Error retrieving employees", e);
        }
    }

    @Override
    protected void doPost(HttpServletRequest req, HttpServletResponse resp)
        throws ServletException, IOException {
        this.doGet(req, resp);
    }
}
```

Emp.java

```
package com.org.vo;

import java.io.Serializable;
import java.math.BigDecimal;

public class Emp implements Serializable {
    private int pid;
    private String name;
    private String note;
    private BigDecimal price;
}
```

```
private int amount;
private String pic;

// Getters
public int getPid() {
    return pid;
}
public String getName() {
    return name;
}
public String getNote() {
    return note;
}
public BigDecimal getPrice() {
    return price;
}
public int getAmount() {
    return amount;
}
public String getPic() {
    return pic;
}

// Setters
public void setPid(int pid) {
    this.pid = pid;
}
public void setName(String name) {
    this.name = name;
}
public void setNote(String note) {
    this.note = note;
}
public void setPrice(BigDecimal price) {
    this.price = price;
}
public void setAmount(int amount) {
    this.amount = amount;
}
public void setPic(String pic) {
    this.pic = pic;
}
}
```

web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<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_4_0.xsd"
    version="4.0">
```

```

<servlet>
  <servlet-name>EmpServlet</servlet-name>
  <servlet-class>com.org.ser.EmpServlet</servlet-class>
</servlet>
<servlet-mapping>
  <servlet-name>EmpServlet</servlet-name>
  <url-pattern>/emp</url-pattern> <!-- You can change '/emp' to any
URL pattern you prefer -->
</servlet-mapping>
</web-app>

```

searchALL.jsp

```

<%@ page contentType="text/html; charset=UTF-8" language="java" %>
<%@ page import="java.util.List" %>
<%@ page import="com.org.vo.Emp" %>
<%@ page import="com.org.factory.DAOFactory" %>
<%@ page import="com.org.ser.EmpServlet" %>
<html>
<head>
  <title>All Products | 21377330 黄圣翔</title>
</head>
<body>
<h2>All Products Information</h2>
<table border="1">
  <tr>
    <th>ID</th>
    <th>Name</th>
    <th>Description</th>
    <th>Price</th>
    <th>Amount</th>
    <th>Picture</th>
  </tr>
  <%
    try {
      List<Emp> list = DAOFactory.getIEmpDAOInstance().findAll();

      for (Emp emp : list) {
        out.println("<tr>");
        out.println("<td>" + emp.getPid() + "</td>");
        out.println("<td>" + emp.getName() + "</td>");
        out.println("<td>" + emp.getNote() + "</td>");
        out.println("<td>" + emp.getPrice() + "</td>");
        out.println("<td>" + emp.getAmount() + "</td>");
        out.println("<td>" + emp.getPic() + "</td>");
        out.println("</tr>");
      }
    } catch (Exception e) {
      e.printStackTrace();
    }
  %>
</table>

```

```
</body>
</html>
```