假设有“教师”、“学生”、“课程”三个实体，教师的基本信息包括：工号、姓名、职称、工资，课程的基本信息包括：课程号、课程名、学分数，学生的基本信息包括：学号、姓名、性别、年龄。系统必须满足以下要求：

1. 一门课程只能有一个教师任课，一个教师可以上多门课程；**(课程和老师是多对一关系)**
2. 一个学生可以选修多门课程，一门课程可以由多个学生来选修，记录不同学生选修不同课程的成绩；**(学生和课程是多对多关系)**
3. 设置一个**管理员**，用于**维护**（添加、删除和修改等基本任务）学生基本信息、教师基本信息和教师所授课程等工作，此外，**管理员添加学生时，为其设置初始密码**；当学生选修了某门课程，**课程成绩由管理员录入**；
4. **学生可以利用学号和密码登录系统**，登陆系统后，可以进行**选课、修改密码和个人基本信息、查询自己的选课及总学分**等操作；
5. 能够统计**不同职称的教师的数量**、**不同职称的教师的平均工资**，可以统计**每门课程的平均成绩、最高分、最低分，统计每个学生选修课程的总学分**；

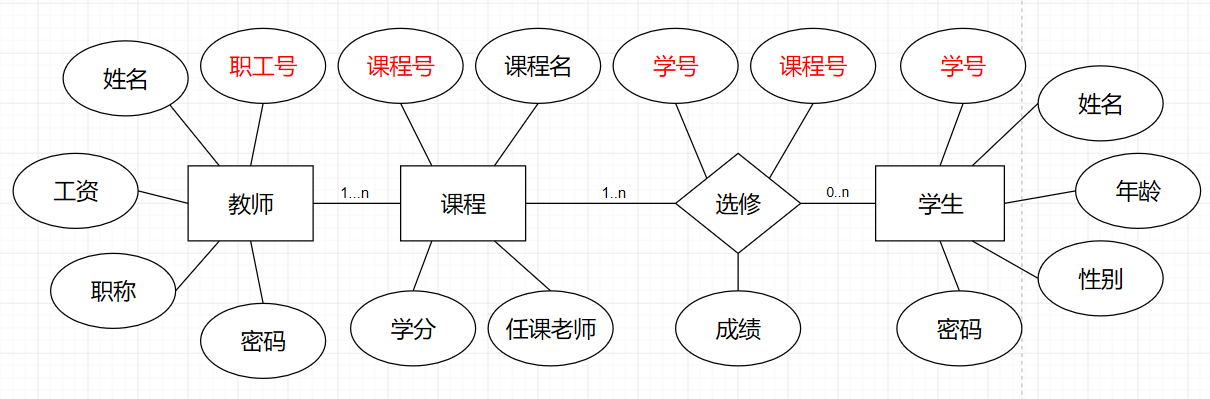
设计的界面如下：

**管理员子界面：学生基本信息、学生选课及其成绩信息、教师基本信息、教师所授课程、统计**

**学生子界面：添加选课、修改个人基本信息(含密码)、查询选课及总学分**

根据上述描述，解答下列问题：

1. 设计并画出E-R图，要求标注连通词（即联系类型）；



1. 将E-R图转化为关系模型，并指出各关系的主码和外码；

**教师(工号，姓名，职称，工资，密码)**

**主码：工号**

**课程(课程号，课程名，学分数，任课老师)**

**主码：课程号；外码：任课老师(教师工号)**

**选修(学号，课程号，成绩)**

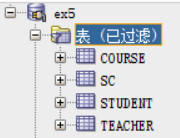
**主码：学号，课程号；外码：学号(学生学号)，课程号(课程课程号)**

**学生(学号，姓名，性别，年龄，密码)**

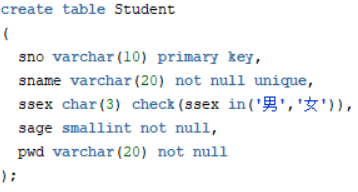
**主码：学号**

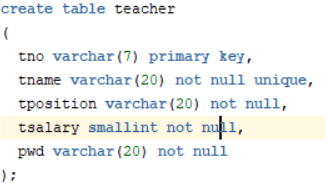
**管理员默认账号为：201717100,密码为：oracle**

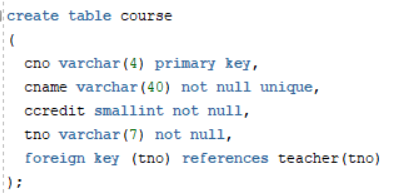
1. 在MySql、SQL Server、Oracle中选择一个数据库管理系统，并设计数据库的物理结构；

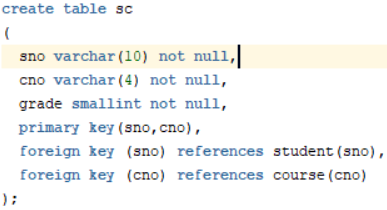


定义表结构：









初始数据：

**insert into student(sname,ssex,sno, sage, pwd) values('小鼠','男','201717101',20,'123456');**

**insert into student(sname,ssex,sno, sage, pwd) values('老牛','女','201717102',19,'123456');**

**insert into student(sname,ssex,sno, sage, pwd) values('霸虎','女','201717103',18,'123456');**

**insert into student(sname,ssex,sno, sage, pwd) values('萌兔','男','201717104',19,'123456');**

**insert into student(sname,ssex,sno, sage, pwd) values('白龙','男','201717105',19,'123456');**

**select \*from student;**

**insert into teacher(tno,tname, tposition, tsalary, pwd) values('t001','张一','教授',30000,'123456');**

**insert into teacher(tno,tname, tposition, tsalary, pwd) values('t002','李二','副教授',35000,'123456');**

**insert into teacher(tno,tname, tposition, tsalary, pwd) values('t003','老三','教授',45000,'123456');**

**insert into teacher(tno,tname, tposition, tsalary, pwd) values('t004','小四','副教授',38000,'123456');**

**insert into teacher(tno,tname, tposition, tsalary, pwd) values('t005','王五','副教授',42000,'123456');**

**insert into teacher(tno,tname, tposition, tsalary, pwd) values('t006','林六','教授',60000,'123456');**

**select \*from teacher;**

**insert into course values('6','数据处理',2,'t001');**

**insert into course values('2','数学',2,'t002');**

**insert into course values('7','PASCAL语言',4,'t003');**

**insert into course values('5','数据结构',4,'t002');**

**insert into course values('1','数据库',4,'t003');**

**insert into course values('3','信息系统',4,'t004');**

**insert into course values('4','操作系统',3,'t005');**

**select \*from course;**

**insert into sc values('201717101','1',92);**

**insert into sc values('201717101','2',85);**

**insert into sc values('201717101','3',88);**

**insert into sc values('201717102','2',90);**

**insert into sc values('201717102','3',80);**

**select \*from sc;**

**commit;**

1. 选择一门熟悉的面向对象程序设计语言，完成系统开发。

**1.登录界面：**

package UI;

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class login\_UI extends JFrame implements ActionListener{

public static void main(String args[]) {

login\_UI test = new login\_UI();

test.init();

}

void init() {

this.setTitle("用户登录");;

this.setLayout(new GridLayout(4,1));

this.setSize(350,250);

jp\_white = new JPanel();

jp\_user = new JPanel();

jp\_password = new JPanel();

this.add(jp\_white);

JLabel user = new JLabel("账 号：");

edit\_user = new JTextField(15);

jp\_user.add(user);

jp\_user.add(edit\_user);

this.add(jp\_user);

JLabel password = new JLabel("密 码：");

edit\_password = new JTextField(15);

jp\_password.add(password);

jp\_password.add(edit\_password);

this.add(jp\_password);

jp\_button = new JPanel();

button1 = new JButton("学生登陆");

button1.addActionListener(this);

button2 = new JButton("管理员登陆");

button2.addActionListener(this);

// button2.setActionCommand("管理员登陆");

jp\_button.add(button1);

jp\_button.add(button2);

this.add(jp\_button);

this.setVisible(true);

((JFrame) this).setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

String user = edit\_user.getText();

String password = edit\_password.getText();

if(e.getSource()==button2) { //管理员登录

if(user.equals("201717100")&&password.equals("oracle")) {

//界面跳转

this.dispose();//释放一部分资源

new Manager\_UI();

}

else { //弹出错误提醒

JOptionPane.showMessageDialog(null, "账号/密码不存在 或 不匹配", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else { //学生登陆

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

Connection connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

String sql = "select pwd from student where sno=?";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, user);

ResultSet res = statement.executeQuery();

String result=null;

while(res.next()) result = res.getString("pwd");

if(result.equals(password)) {

this.dispose();//释放一部分资源

new Student\_UI(user,password);

}

else JOptionPane.showMessageDialog(null, "账号/密码不存在 或 不匹配", "错误警告", JOptionPane.ERROR\_MESSAGE);

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "系统异常 或 账号/密码不存在、不匹配", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

}

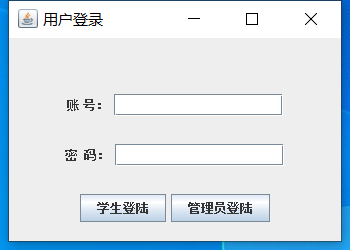
//控件定义

JPanel jp\_white,jp\_user,jp\_password,jp\_button;

JTextField edit\_user,edit\_password;

JButton button1,button2;

}



**2.管理员界面：**

package UI;

import java.awt.\*;

import java.awt.event.\*;

import javax.swing.\*;

import UI.ManagerUI.BasicStudent\_UI;

import UI.ManagerUI.BasicTeacher\_UI;

import UI.ManagerUI.Stu\_Course\_UI;

import UI.ManagerUI.Tch\_Course\_UI;

import UI.ManagerUI.Total\_Statistics\_UI;

public class Manager\_UI extends JFrame implements ActionListener{

public Manager\_UI(){

setTitle("管理员系统");;

JMenuBar mb = new JMenuBar();

setJMenuBar(mb);

m1 = new JMenu("人员信息");

m2 = new JMenuItem("统计");

m2.addActionListener(this);

m11 = new JMenu("学生信息");

m111 = new JMenuItem("学生基本信息");

m111.addActionListener(this);

m112 = new JMenuItem("选课及其成绩信息");

m112.addActionListener(this);

m11.add(m111);m11.add(m112);

m12 = new JMenu("教师信息");

m121 = new JMenuItem("教师基本信息");

m121.addActionListener(this);

m122 = new JMenuItem("教师所授课程");

m122.addActionListener(this);

m12.add(m121);m12.add(m122);

m1.add(m11);m1.add(m12);

mb.add(m1);mb.add(m2);

pack();

setSize(500,300);

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

if(e.getSource()==m111) { //学生基本信息

this.dispose();//释放一部分资源

new BasicStudent\_UI();

}

else if(e.getSource()==m112) { //学生选课及成绩

this.dispose();//释放一部分资源

new Stu\_Course\_UI();

}

else if(e.getSource()==m121) { //教师基本信息

this.dispose();//释放一部分资源

new BasicTeacher\_UI();

}

else if(e.getSource()==m122) { //教师所授课程

this.dispose();//释放一部分资源

new Tch\_Course\_UI();

}

else { //统计

this.dispose();//释放一部分资源

new Total\_Statistics\_UI();

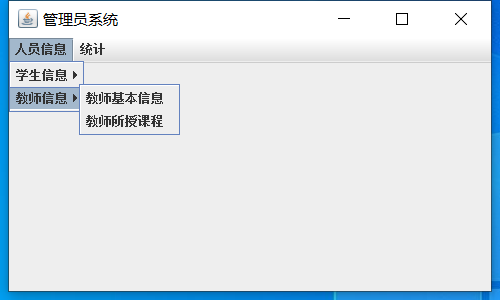
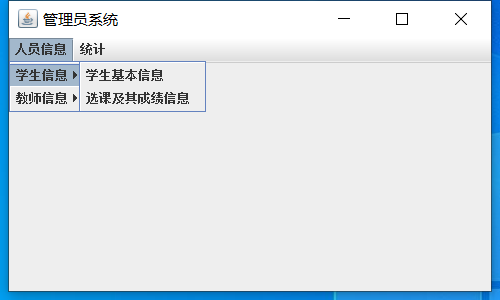
}

}

JMenu m1,m11,m12;

JMenuItem m2,m111,m112,m121,m122;

}



**3.学生基本信息(管理员子界面)：**

package UI.ManagerUI;

import javax.swing.\*;

import UI.Manager\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class BasicStudent\_UI extends JFrame implements ActionListener{

public BasicStudent\_UI() {

this.setTitle("学生基本信息");

setLayout(new GridLayout(7,1));

setSize(375,500);

JPanel jp\_sno,jp\_sname,jp\_ssex,jp\_sage,jp\_spassword,jp\_button;

jp\_sno = new JPanel();

jp\_sname = new JPanel();

jp\_ssex = new JPanel();

jp\_sage = new JPanel();

jp\_spassword = new JPanel();

JLabel sno = new JLabel("学号：");

edit\_sno = new JTextField(15);

jp\_sno.add(sno);

jp\_sno.add(edit\_sno);

add(jp\_sno);

JLabel sname = new JLabel("姓名：");

edit\_sname = new JTextField(15);

jp\_sname.add(sname);

jp\_sname.add(edit\_sname);

add(jp\_sname);

JLabel ssex = new JLabel("性别：");

edit\_ssex = new JTextField(15);

jp\_ssex.add(ssex);

jp\_ssex.add(edit\_ssex);

add(jp\_ssex);

JLabel sage = new JLabel("年龄：");

edit\_sage = new JTextField(15);

jp\_sage.add(sage);

jp\_sage.add(edit\_sage);

add(jp\_sage);

JLabel spassword = new JLabel("密码：");

edit\_spassword = new JTextField(15);

jp\_spassword.add(spassword);

jp\_spassword.add(edit\_spassword);

add(jp\_spassword);

jp\_button = new JPanel();

button = new JButton("返回");

button.addActionListener(this);

button1 = new JButton("添加学生");

button1.addActionListener(this);

button2 = new JButton("查询学生");

button2.addActionListener(this);

button3 = new JButton("修改学生");

button3.addActionListener(this);

jp\_button.add(button);

jp\_button.add(button1);

jp\_button.add(button2);

jp\_button.add(button3);

// Dimension preferredSize = new Dimension(50,30);

// jp\_button.setPreferredSize(preferredSize);

add(jp\_button);

JLabel pin = new JLabel("<html><body>查询学生：输入学号，点击按钮。<br>"

+ "修改学生：必须输入学号，其他修改项对应修改，点击按钮。");

add(pin);

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

if(e.getSource()==button1) { //添加学生

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

PreparedStatement statement = null;

try {

statement = connection.prepareStatement(sql);

statement.setString(1, edit\_sno.getText());

statement.setString(2, edit\_sname.getText());

statement.setString(3, edit\_ssex.getText());

statement.setInt(4, Integer.parseInt(edit\_sage.getText()));

statement.setString(5,edit\_spassword.getText());

statement.executeUpdate();

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "添加失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

edit\_sno.setText("");edit\_sname.setText("");edit\_ssex.setText("");edit\_sage.setText("");edit\_spassword.setText("");

JOptionPane.showMessageDialog(null, "添加成功!");

}

else if(e.getSource()==button2) { //查询学生

if(edit\_sno.getText()!=""){//如果学号不为空

try {

String sql = "select sname,ssex,sage,pwd from student where sno=?";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_sno.getText());

ResultSet res = statement.executeQuery();

while (res.next()) { // 循环输出结果集

//这里可以根据字段名称得到该记录的字段值

edit\_sname.setText(res.getString("sname"));

edit\_ssex.setText(res.getString("ssex"));

edit\_sage.setText(String.valueOf(res.getInt("sage")));

edit\_spassword.setText(res.getString("pwd"));

JOptionPane.showMessageDialog(null, "查询成功!");

}

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "查询失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //学号为空

JOptionPane.showMessageDialog(null, "学号为空!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else if(e.getSource()==button3){ //修改学生

if(edit\_sno.getText()!=""){//如果学号不为空

try {

String sql = "update student set sname=?,ssex=?,sage=?,pwd=? where sno=?";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_sname.getText());

statement.setString(2, edit\_ssex.getText());

statement.setString(3, edit\_sage.getText());

statement.setString(4, edit\_spassword.getText());

statement.setString(5, edit\_sno.getText());

statement.executeQuery();

JOptionPane.showMessageDialog(null, "修改成功!");

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "修改失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //学号为空

JOptionPane.showMessageDialog(null, "学号为空!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else { //返回

this.dispose();//释放一部分资源

new Manager\_UI();

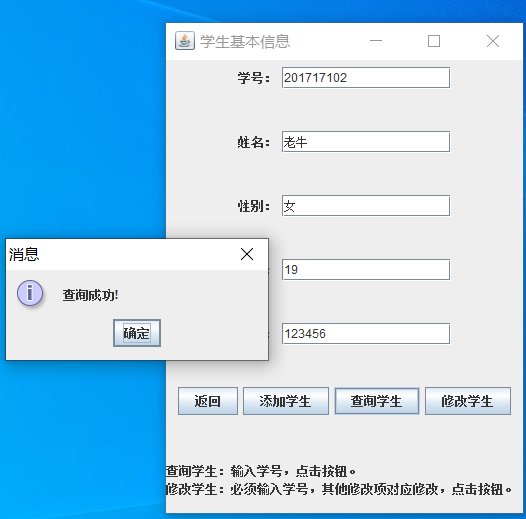
}

}

JTextField edit\_sno,edit\_sname,edit\_ssex,edit\_sage,edit\_spassword;

JButton button,button1,button2,button3;

}



**4.学生选课及其成绩信息(管理员子界面)：**

package UI.ManagerUI;

import javax.swing.\*;

import javax.swing.border.Border;

import UI.Manager\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Stu\_Course\_UI extends JFrame implements ActionListener{

public Stu\_Course\_UI() {

this.setTitle("学生选课及其成绩信息");

setLayout(new GridLayout(7,1));

setSize(1300,600);

bt\_back = new JButton("返回");

bt\_back.addActionListener(this);

bt\_clear = new JButton("清空");

bt\_clear.addActionListener(this);

JLabel sno = new JLabel("请输入查询学号：");

edit\_sno = new JTextField(15);

bt\_search = new JButton("查询");

bt\_search.addActionListener(this);

jp\_sno = new JPanel();

jp\_sno.add(bt\_back);

jp\_sno.add(bt\_clear);

jp\_sno.add(sno);

jp\_sno.add(edit\_sno);

jp\_sno.add(bt\_search);

bt\_correct = new JButton("修改成绩");

bt\_correct.addActionListener(this);

jp\_sno.add(bt\_correct);

add(jp\_sno);

revalidate();

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

if(e.getSource()==bt\_search) { //查询

if(edit\_sno.getText()!=""){//如果查询学号不为空

try {

String sql = "select sname,cname,ccredit,tname,grade from student,course,teacher,sc "

+ "where student.sno=? and sc.sno=student.sno and sc.cno=course.cno and course.tno=teacher.tno";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_sno.getText());

ResultSet res = statement.executeQuery();

while (res.next()) { // 循环输出结果集

jp\_item= new JPanel();

jp\_sname = new JPanel();

jp\_cname = new JPanel();

jp\_ccredit = new JPanel();

jp\_tname = new JPanel();

jp\_grade = new JPanel();

JLabel sname = new JLabel("学生：");

edit\_sname = new JTextField(15);

edit\_sname.setEditable(false);

jp\_sname.add(sname);

jp\_sname.add(edit\_sname);

jp\_item.add(jp\_sname);

JLabel cname = new JLabel("课程：");

edit\_cname = new JTextField(15);

edit\_cname.setEditable(false);

jp\_cname.add(cname);

jp\_cname.add(edit\_cname);

jp\_item.add(jp\_cname);

JLabel ccredit = new JLabel("学分数：");

edit\_ccredit = new JTextField(15);

edit\_ccredit.setEditable(false);

jp\_ccredit.add(ccredit);

jp\_ccredit.add(edit\_ccredit);

jp\_item.add(jp\_ccredit);

JLabel tname = new JLabel("老师：");

edit\_tname = new JTextField(15);

edit\_tname.setEditable(false);

jp\_tname.add(tname);

jp\_tname.add(edit\_tname);

jp\_item.add(jp\_tname);

JLabel grade = new JLabel("成绩：");

edit\_grade = new JTextField(15);

edit\_grade.setEditable(false);

jp\_grade.add(grade);

jp\_grade.add(edit\_grade);

jp\_item.add(jp\_grade);

//这里可以根据字段名称得到该记录的字段值

edit\_sname.setText(res.getString("sname"));

edit\_cname.setText(res.getString("cname"));

edit\_ccredit.setText(String.valueOf(res.getInt("ccredit")));

edit\_tname.setText(res.getString("tname"));

edit\_grade.setText(String.valueOf(res.getInt("grade")));

add(jp\_item); //动态添加条目

}

validate(); //更新窗口

JOptionPane.showMessageDialog(null, "查询成功!");

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "查询失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //查询学号为空

JOptionPane.showMessageDialog(null, "学号为空!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else if(e.getSource()==bt\_correct){ //修改成绩

this.dispose();//释放一部分资源

new SM\_CorrectGrade\_UI();

}

else if(e.getSource()==bt\_back){ //返回

this.dispose();//释放一部分资源

new Manager\_UI();

}

else { //清空

this.dispose();//释放一部分资源

new Stu\_Course\_UI();

}

}

JPanel jp\_item;

JPanel jp\_sno,jp\_sname,jp\_cname,jp\_ccredit,jp\_tname,jp\_grade;

JButton bt\_back,bt\_search,bt\_correct,bt\_clear;

JTextField edit\_sno,edit\_sname,edit\_cname,edit\_ccredit,edit\_tname,edit\_grade;

}



**5.修改成绩界面(含在学生选课及其成绩信息界面——管理员子界面)：**

package UI.ManagerUI;

import java.awt.GridLayout;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import javax.swing.JButton;

import javax.swing.JFrame;

import javax.swing.JLabel;

import javax.swing.JOptionPane;

import javax.swing.JPanel;

import javax.swing.JTextField;

public class SM\_CorrectGrade\_UI extends JFrame implements ActionListener{

SM\_CorrectGrade\_UI(){

this.setTitle("修改成绩");

setLayout(new GridLayout());

setSize(150,50);

jp = new JPanel();

jp\_cname = new JPanel();

jp\_grade = new JPanel();

jp\_sname = new JPanel();

bt\_back = new JButton("返回");

bt\_back.addActionListener(this);

jp.add(bt\_back);

JLabel sname = new JLabel("学生名：");

edit\_sname = new JTextField(15);

jp\_sname.add(sname);

jp\_sname.add(edit\_sname);

jp.add(jp\_sname);

JLabel cname = new JLabel("课程名：");

edit\_cname = new JTextField(15);

jp\_cname.add(cname);

jp\_cname.add(edit\_cname);

jp.add(jp\_cname);

JLabel grade = new JLabel("修改成绩：");

edit\_grade = new JTextField(15);

jp\_grade.add(grade);

jp\_grade.add(edit\_grade);

jp.add(jp\_grade);

bt\_ok = new JButton("确认");

bt\_ok.addActionListener(this);

jp.add(bt\_ok);

add(jp);

pack();

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

if(e.getSource()==bt\_ok) {

try {

String sql = "update sc set grade=? where cno=(select cno from course where cname=?) and sno=(select sno from student where sname=?)";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_grade.getText());

statement.setString(2, edit\_cname.getText());

statement.setString(3, edit\_sname.getText());

statement.executeQuery();

JOptionPane.showMessageDialog(null, "修改成绩成功!");

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "修改成绩失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //返回

this.dispose();//释放一部分资源

new Stu\_Course\_UI();

}

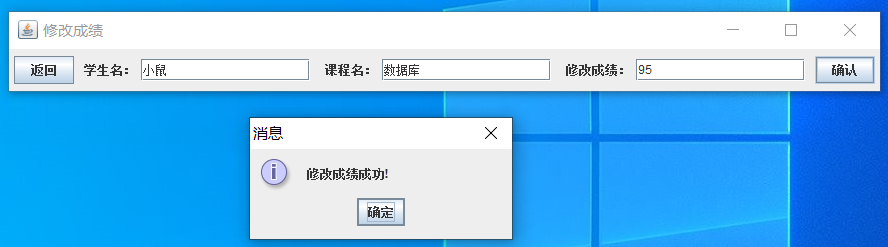
}

JPanel jp,jp\_cname,jp\_grade,jp\_sname;

JTextField edit\_sname,edit\_cname,edit\_grade;

JButton bt\_ok,bt\_back;

}



**6.教师基本信息(管理员子界面)：**

package UI.ManagerUI;

import javax.swing.\*;

import UI.Manager\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class BasicTeacher\_UI extends JFrame implements ActionListener{

public BasicTeacher\_UI() {

this.setTitle("教师基本信息");

setLayout(new GridLayout(7,1));

setSize(385,500);

JPanel jp\_tno,jp\_tname,jp\_tpos,jp\_tsal,jp\_tpassword,jp\_button;

jp\_tno = new JPanel();

jp\_tname = new JPanel();

jp\_tpos = new JPanel();

jp\_tsal = new JPanel();

jp\_tpassword = new JPanel();

JLabel tno = new JLabel("职工号：");

edit\_tno = new JTextField(15);

jp\_tno.add(tno);

jp\_tno.add(edit\_tno);

add(jp\_tno);

JLabel tname = new JLabel("姓名：");

edit\_tname = new JTextField(15);

jp\_tname.add(tname);

jp\_tname.add(edit\_tname);

add(jp\_tname);

JLabel tpos = new JLabel("职称：");

edit\_tpos = new JTextField(15);

jp\_tpos.add(tpos);

jp\_tpos.add(edit\_tpos);

add(jp\_tpos);

JLabel tsal = new JLabel("工资：");

edit\_tsal = new JTextField(15);

jp\_tsal.add(tsal);

jp\_tsal.add(edit\_tsal);

add(jp\_tsal);

JLabel tpassword = new JLabel("密码：");

edit\_tpassword = new JTextField(15);

jp\_tpassword.add(tpassword);

jp\_tpassword.add(edit\_tpassword);

add(jp\_tpassword);

jp\_button = new JPanel();

button = new JButton("返回");

button.addActionListener(this);

button1 = new JButton("添加教师");

button1.addActionListener(this);

button2 = new JButton("查询教师");

button2.addActionListener(this);

button3 = new JButton("修改教师");

button3.addActionListener(this);

jp\_button.add(button);

jp\_button.add(button1);

jp\_button.add(button2);

jp\_button.add(button3);

// Dimension preferredSize = new Dimension(50,30);

// jp\_button.setPreferredSize(preferredSize);

add(jp\_button);

JLabel pin = new JLabel("<html><body>查询教师：输入职工号，点击按钮。<br>"

+ "修改教师：必须输入职工号，其他修改项对应修改，点击按钮。");

add(pin);

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

if(e.getSource()==button1) { //添加教师

String sql = "insert into teacher values(?,?,?,?,?)";

PreparedStatement statement = null;

try {

statement = connection.prepareStatement(sql);

statement.setString(1, edit\_tno.getText());

statement.setString(2, edit\_tname.getText());

statement.setString(3, edit\_tpos.getText());

statement.setInt(4, Integer.parseInt(edit\_tsal.getText()));

statement.setString(5,edit\_tpassword.getText());

statement.executeUpdate();

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "添加失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

edit\_tno.setText("");edit\_tname.setText("");edit\_tpos.setText("");edit\_tsal.setText("");edit\_tpassword.setText("");

JOptionPane.showMessageDialog(null, "添加成功!");

}

else if(e.getSource()==button2) { //查询教师

if(edit\_tno.getText()!=""){//如果职工号不为空

try {

String sql = "select tname,tposition,tsalary,pwd from teacher where tno=?";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_tno.getText());

ResultSet res = statement.executeQuery();

while (res.next()) { // 循环输出结果集

//这里可以根据字段名称得到该记录的字段值

edit\_tname.setText(res.getString("tname"));

edit\_tpos.setText(res.getString("tposition"));

edit\_tsal.setText(String.valueOf(res.getInt("tsalary")));

edit\_tpassword.setText(res.getString("pwd"));

JOptionPane.showMessageDialog(null, "查询成功!");

}

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "查询失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //职工号为空

JOptionPane.showMessageDialog(null, "职工号为空!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else if(e.getSource()==button3){ //修改学生

if(edit\_tno.getText()!=""){//如果学号不为空

try {

String sql = "update teacher set tname=?,tposition=?,tsalary=?,pwd=? where tno=?";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_tname.getText());

statement.setString(2, edit\_tpos.getText());

statement.setString(3, edit\_tsal.getText());

statement.setString(4, edit\_tpassword.getText());

statement.setString(5, edit\_tno.getText());

statement.executeQuery();

JOptionPane.showMessageDialog(null, "修改成功!");

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "修改失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //学号为空

JOptionPane.showMessageDialog(null, "职工号为空!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else { //返回

this.dispose();//释放一部分资源

new Manager\_UI();

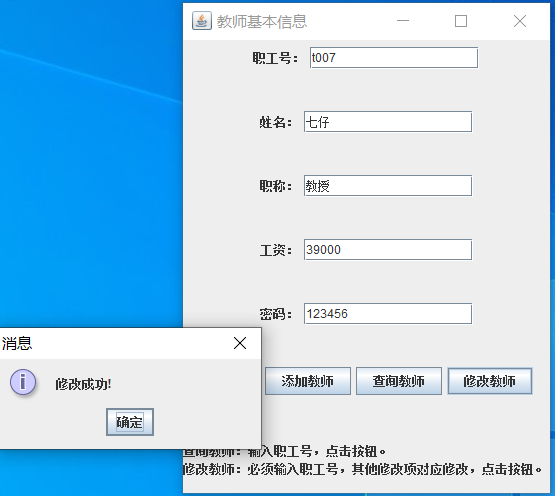
}

}

JTextField edit\_tno,edit\_tname,edit\_tpos,edit\_tsal,edit\_tpassword;

JButton button,button1,button2,button3;

}



**7.教师所授课程信息(管理员子界面)：**

package UI.ManagerUI;

import javax.swing.\*;

import javax.swing.border.Border;

import UI.Manager\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Tch\_Course\_UI extends JFrame implements ActionListener{

public Tch\_Course\_UI() {

this.setTitle("教师所授课程信息");

setLayout(new GridLayout(7,1));

setSize(1300,600);

bt\_back = new JButton("返回");

bt\_back.addActionListener(this);

bt\_clear = new JButton("清空");

bt\_clear.addActionListener(this);

JLabel tno = new JLabel("请输入查询职工号：");

edit\_tno = new JTextField(15);

bt\_search = new JButton("查询");

bt\_search.addActionListener(this);

jp\_tno = new JPanel();

jp\_tno.add(bt\_back);

jp\_tno.add(bt\_clear);

jp\_tno.add(tno);

jp\_tno.add(edit\_tno);

jp\_tno.add(bt\_search);

add(jp\_tno);

revalidate();

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

if(e.getSource()==bt\_search) { //查询

if(edit\_tno.getText()!=""){//如果查询职工号不为空

try {

String sql = "select tname,cno,cname,ccredit from course,teacher where teacher.tno=? and course.tno=teacher.tno";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, edit\_tno.getText());

ResultSet res = statement.executeQuery();

while (res.next()) { // 循环输出结果集

jp\_item= new JPanel();

jp\_tname = new JPanel();

jp\_cno = new JPanel();

jp\_cname = new JPanel();

jp\_ccredit = new JPanel();

JLabel tname = new JLabel("教师：");

edit\_tname = new JTextField(15);

edit\_tname.setEditable(false);

jp\_tname.add(tname);

jp\_tname.add(edit\_tname);

jp\_item.add(jp\_tname);

JLabel cno = new JLabel("课程号：");

edit\_cno = new JTextField(15);

edit\_cno.setEditable(false);

jp\_cno.add(cno);

jp\_cno.add(edit\_cno);

jp\_item.add(jp\_cno);

JLabel cname = new JLabel("课程名：");

edit\_cname = new JTextField(15);

edit\_cname.setEditable(false);

jp\_cname.add(cname);

jp\_cname.add(edit\_cname);

jp\_item.add(jp\_cname);

JLabel ccredit = new JLabel("学分数：");

edit\_ccredit = new JTextField(15);

edit\_ccredit.setEditable(false);

jp\_ccredit.add(ccredit);

jp\_ccredit.add(edit\_ccredit);

jp\_item.add(jp\_ccredit);

//这里可以根据字段名称得到该记录的字段值

edit\_tname.setText(res.getString("tname"));

edit\_cno.setText(res.getString("cno"));

edit\_cname.setText(res.getString("cname"));

edit\_ccredit.setText(String.valueOf(res.getInt("ccredit")));

add(jp\_item); //动态添加条目

}

validate(); //更新窗口

JOptionPane.showMessageDialog(null, "查询成功!");

} catch (Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "查询失败!", "错误警告",JOptionPane.ERROR\_MESSAGE);

}

}

else { //查询职工号为空

JOptionPane.showMessageDialog(null, "职工号为空!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else if(e.getSource()==bt\_back){ //返回

this.dispose();//释放一部分资源

new Manager\_UI();

}

else { //清空

this.dispose();//释放一部分资源

new Tch\_Course\_UI();

}

}

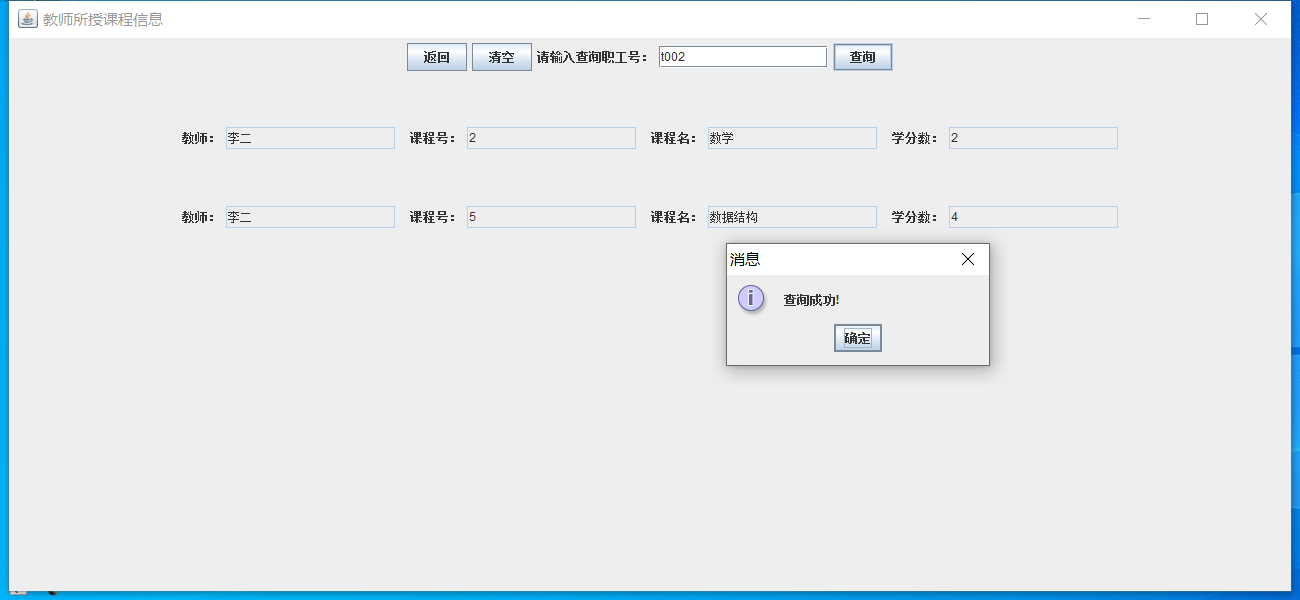
JPanel jp\_item;

JPanel jp\_tno,jp\_tname,jp\_cno,jp\_cname,jp\_ccredit;

JButton bt\_back,bt\_search,bt\_clear;

JTextField edit\_tno,edit\_tname,edit\_cno,edit\_cname,edit\_ccredit;

}



**8.总体统计信息(管理员子界面)：**

package UI.ManagerUI;

import javax.naming.spi.DirStateFactory.Result;

import javax.swing.\*;

import UI.Manager\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Total\_Statistics\_UI extends JFrame implements ActionListener{

public Total\_Statistics\_UI() {

this.setTitle("总体统计信息");

setLayout(new BorderLayout());

jp1 = new JPanel();//装下拉框

jp2 = new JPanel();//装相应统计内容

String s[] = {"不同职称的教师的数量","不同职称的教师的平均工资","每门课程成绩统计","学生选修课程的总学分"};

cb=new JComboBox(s);

cb.addActionListener(this);

JLabel jl\_list = new JLabel("统计量：");

jp1.add(jl\_list);

jp1.add(cb);

add(jp1,BorderLayout.NORTH);

add(jp2,BorderLayout.CENTER);

JPanel jp\_button = new JPanel();

button = new JButton("返回");

button.setSize(new Dimension(50,20));

button.addActionListener(this);

jp\_button.add(button);

jp\_button.setSize(new Dimension(100,40));

add(jp\_button,BorderLayout.SOUTH);

pack();

setSize(600,600);

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

if(e.getSource()==button) { //返回

this.dispose();//释放一部分资源

new Manager\_UI();

}

else if(e.getSource()==cb){

if(cb.getSelectedItem()=="不同职称的教师的数量") {

jp2.removeAll();//把组件全部移除

jp2.repaint();//重新绘制

String sql = "select tposition,count(\*) num from teacher group by tposition";

PreparedStatement statement = null;

try {

statement = connection.prepareStatement(sql);

ResultSet res = statement.executeQuery();

while(res.next()) {

JPanel jp = new JPanel();

JLabel tpos = new JLabel("职称：");

edit\_tpos = new JTextField(10);

edit\_tpos.setEditable(false);

JLabel tpos\_num = new JLabel("人数：");

edit\_tpos\_num = new JTextField(5);

edit\_tpos\_num.setEditable(false);

jp.add(tpos);

jp.add(edit\_tpos);

jp.add(tpos\_num);

jp.add(edit\_tpos\_num);

edit\_tpos.setText(res.getString("tposition"));

edit\_tpos\_num.setText(Integer.toString(res.getInt("num")));

jp2.add(jp);

}

validate(); //更新窗口

} catch (Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "统计异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else if(cb.getSelectedItem()=="不同职称的教师的平均工资"){

jp2.removeAll();

jp2.repaint();

String sql = "select tposition,avg(tsalary) tsalary from teacher group by tposition";

PreparedStatement statement = null;

try {

statement = connection.prepareStatement(sql);

ResultSet res = statement.executeQuery();

while(res.next()) {

JPanel jp = new JPanel();

JLabel tpos = new JLabel("职称：");

edit\_tpos = new JTextField(10);

edit\_tpos.setEditable(false);

JLabel tsal = new JLabel("平均工资：");

edit\_tsal = new JTextField(5);

edit\_tsal.setEditable(false);

jp.add(tpos);

jp.add(edit\_tpos);

jp.add(tsal);

jp.add(edit\_tsal);

edit\_tpos.setText(res.getString("tposition"));

edit\_tsal.setText(Integer.toString(res.getInt("tsalary")));

jp2.add(jp);

}

validate(); //更新窗口

} catch (Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "统计异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else if(cb.getSelectedItem()=="每门课程成绩统计") {

jp2.removeAll();

jp2.repaint();

String sql = "select cname,avg(grade) avg,max(grade) max,min(grade) min from course,sc "

+ "where course.cno=sc.cno group by course.cname";

PreparedStatement statement = null;

try {

statement = connection.prepareStatement(sql);

ResultSet res = statement.executeQuery();

while(res.next()) {

JPanel jp = new JPanel();

JLabel cname = new JLabel("课程名：");

edit\_cname = new JTextField(10);

edit\_cname.setEditable(false);

JLabel avg = new JLabel("平均成绩：");

edit\_avg = new JTextField(5);

edit\_avg.setEditable(false);

JLabel max = new JLabel("最高成绩：");

edit\_max = new JTextField(5);

edit\_max.setEditable(false);

JLabel min = new JLabel("最低成绩：");

edit\_min = new JTextField(5);

edit\_min.setEditable(false);

jp.add(cname);

jp.add(edit\_cname);

jp.add(avg);

jp.add(edit\_avg);

jp.add(max);

jp.add(edit\_max);

jp.add(min);

jp.add(edit\_min);

edit\_cname.setText(res.getString("cname"));

edit\_avg.setText(Double.toString(res.getDouble("avg")));

edit\_max.setText(Double.toString(res.getDouble("max")));

edit\_min.setText(Double.toString(res.getDouble("min")));

jp2.add(jp);

}

validate(); //更新窗口

} catch (Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "统计异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else { //学生选修课程的总学分

jp2.removeAll();

jp2.repaint();

String sql = "select sname,sum(ccredit) sum from student,sc,course where student.sno=sc.sno and sc.cno=course.cno group by sname";

PreparedStatement statement = null;

try {

statement = connection.prepareStatement(sql);

ResultSet res = statement.executeQuery();

while(res.next()) {

JPanel jp = new JPanel();

JLabel sname = new JLabel("学生名：");

edit\_sname = new JTextField(10);

edit\_sname.setEditable(false);

JLabel sum = new JLabel("总学分：");

edit\_sum = new JTextField(5);

edit\_sum.setEditable(false);

jp.add(sname);

jp.add(edit\_sname);

jp.add(sum);

jp.add(edit\_sum);

edit\_sname.setText(res.getString("sname"));

edit\_sum.setText(Integer.toString(res.getInt("sum")));

jp2.add(jp);

}

validate(); //更新窗口

} catch (Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "统计异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

}

}

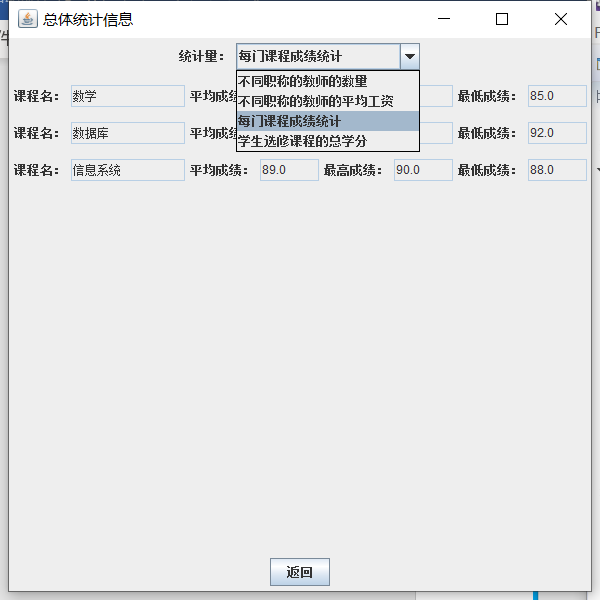
JPanel jp1,jp2;

JComboBox cb;

JTextField edit\_tpos,edit\_tpos\_num,edit\_tsal,edit\_cname,edit\_avg,edit\_max,edit\_min,edit\_sname,edit\_sum;

JButton button;

}



———————————————————————————————————————————

**9.学生界面：(以其中一名学生登录为例)**

package UI;

import java.awt.\*;

import java.awt.event.\*;

import javax.swing.\*;

import UI.StudentUI.Stu\_addCourse\_UI;

//import UI.StudentUI.Stu\_addCourse\_UI;

import UI.StudentUI.Stu\_infor\_UI;

import UI.StudentUI.Stu\_searchCourse\_UI;

public class Student\_UI extends JFrame implements ActionListener{

public Student\_UI(String user,String pwd){

this.user = user;

this.pwd = pwd;

setTitle("学生系统");;

JMenuBar mb = new JMenuBar();

setJMenuBar(mb);

m1 = new JMenuItem("添加选课");

m1.addActionListener(this);

m2 = new JMenuItem("修改个人基本信息");

m2.addActionListener(this);

m3 = new JMenuItem("查询选课及总学分");

m3.addActionListener(this);

mb.add(m1);

mb.add(m2);

mb.add(m3);

pack();

setSize(500,300);

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

if(e.getSource()==m1) { //添加选课

this.dispose();

new Stu\_addCourse\_UI(user, pwd);

}

else if(e.getSource()==m2) { //修改个人基本信息

this.dispose();

new Stu\_infor\_UI(user, pwd);

}

else { //查询选课及总学分

this.dispose();

new Stu\_searchCourse\_UI(user, pwd);

}

}

JMenuItem m1,m2,m3;

String user,pwd;

}



**10.添加选课界面(学生子界面)：**

package UI.StudentUI;

import javax.swing.\*;

import javax.swing.border.Border;

import UI.Manager\_UI;

import UI.Student\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Stu\_addCourse\_UI extends JFrame implements ActionListener{

public Stu\_addCourse\_UI(String user,String pwd) {

this.user = user;

this.pwd = pwd;

this.setTitle("添加并展示未选课信息");

setSize(1300,600);

connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

bt\_back = new JButton("返回");

bt\_back.addActionListener(this);

JLabel n\_cno = new JLabel("请输入要添加的课程号：");

edit\_n\_cno = new JTextField(15);

bt\_add = new JButton("添加");

bt\_add.addActionListener(this);

jp\_top = new JPanel();

jp\_top.add(bt\_back);

jp\_top.add(n\_cno);

jp\_top.add(edit\_n\_cno);

jp\_top.add(bt\_add);

add(jp\_top,BorderLayout.NORTH);

Show();

revalidate();

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

if(e.getSource()==bt\_back) { //返回

this.dispose();

new Student\_UI(user, pwd);

}

else { //添加

if(edit\_n\_cno.getText()!="") { //课程号不为空

jp\_box.removeAll();

repaint();

try {

String sql = "insert into sc values(?,?,?)";

statement = connection.prepareStatement(sql);

statement.setString(1,user);

statement.setString(2,edit\_n\_cno.getText());

statement.setInt(3,-1);//刚添加的课程 还没有成绩

statement.executeUpdate();

JOptionPane.showMessageDialog(null, "已成功添加选课!");

}catch(Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "系统异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

Show();

validate(); //更新窗口

}

}

}

void Show() {

jp\_box = new JPanel();

try {

String sql = "select cno,cname,ccredit,teacher.tno,tname from course,teacher where cno not in(select sc.cno from course,sc where sc.sno=? and sc.cno=course.cno) and course.tno=teacher.tno";

statement = connection.prepareStatement(sql);

statement.setString(1,user);

ResultSet res = statement.executeQuery();

while (res.next()) { // 循环输出结果集

JPanel jp\_Item = new JPanel();

JPanel jp\_cno = new JPanel();

JPanel jp\_cname = new JPanel();

JPanel jp\_ccredit = new JPanel();

JPanel jp\_tno = new JPanel();

JPanel jp\_tname = new JPanel();

JLabel cno = new JLabel("课程号：");

edit\_cno = new JTextField(15);

edit\_cno.setEditable(false);

jp\_cno.add(cno);

jp\_cno.add(edit\_cno);

jp\_Item.add(jp\_cno);

JLabel cname = new JLabel("课程名：");

edit\_cname = new JTextField(15);

jp\_cname.add(cname);

jp\_cname.add(edit\_cname);

add(jp\_cname);

jp\_Item.add(jp\_cname);

JLabel ccredit = new JLabel("学分：");

edit\_ccredit = new JTextField(15);

jp\_ccredit.add(ccredit);

jp\_ccredit.add(edit\_ccredit);

add(jp\_ccredit);

jp\_Item.add(jp\_ccredit);

JLabel tno = new JLabel("教师号：");

edit\_tno = new JTextField(15);

jp\_tno.add(tno);

jp\_tno.add(edit\_tno);

add(jp\_tno);

jp\_Item.add(jp\_tno);

JLabel tname = new JLabel("教师名：");

edit\_tname = new JTextField(15);

jp\_tname.add(tname);

jp\_tname.add(edit\_tname);

add(jp\_tname);

jp\_Item.add(jp\_tname);

//这里可以根据字段名称得到该记录的字段值

edit\_cno.setText(res.getString("cno"));

edit\_cname.setText(res.getString("cname"));

edit\_ccredit.setText(String.valueOf(res.getInt("ccredit")));

edit\_tno.setText(res.getString("tno"));

edit\_tname.setText(res.getString("tname"));

jp\_box.add(jp\_Item);

}

}catch(Exception e) {

JOptionPane.showMessageDialog(null, "系统异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

add(jp\_box,BorderLayout.CENTER);

}

JPanel jp\_top,jp\_box;

JButton bt\_back,bt\_add;

JTextField edit\_cno,edit\_n\_cno,edit\_cname,edit\_ccredit,edit\_tno,edit\_tname;

String user,pwd;

Connection connection;

PreparedStatement statement;

}



**11.修改个人基本信息(学生子界面)：**

package UI.StudentUI;

import javax.swing.\*;

import UI.Manager\_UI;

import UI.Student\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Stu\_infor\_UI extends JFrame implements ActionListener{

public Stu\_infor\_UI(String user,String pwd) {

this.user = user;

this.pwd = pwd;

this.setTitle("修改密码及个人基本信息");

setLayout(new GridLayout(7,1));

setSize(375,500);

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

JPanel jp\_sno,jp\_sname,jp\_ssex,jp\_sage,jp\_spassword,jp\_button;

jp\_sno = new JPanel();

jp\_sname = new JPanel();

jp\_ssex = new JPanel();

jp\_sage = new JPanel();

jp\_spassword = new JPanel();

JLabel sno = new JLabel("学号：");

edit\_sno = new JTextField(15);

edit\_sno.setEditable(false);

jp\_sno.add(sno);

jp\_sno.add(edit\_sno);

add(jp\_sno);

JLabel sname = new JLabel("姓名：");

edit\_sname = new JTextField(15);

jp\_sname.add(sname);

jp\_sname.add(edit\_sname);

add(jp\_sname);

JLabel ssex = new JLabel("性别：");

edit\_ssex = new JTextField(15);

jp\_ssex.add(ssex);

jp\_ssex.add(edit\_ssex);

add(jp\_ssex);

JLabel sage = new JLabel("年龄：");

edit\_sage = new JTextField(15);

jp\_sage.add(sage);

jp\_sage.add(edit\_sage);

add(jp\_sage);

JLabel spassword = new JLabel("密码：");

edit\_spassword = new JTextField(15);

jp\_spassword.add(spassword);

jp\_spassword.add(edit\_spassword);

add(jp\_spassword);

jp\_button = new JPanel();

bt\_back = new JButton("返回");

bt\_back.addActionListener(this);

jp\_button.add(bt\_back);

bt\_correct = new JButton("修改");

bt\_correct.addActionListener(this);

jp\_button.add(bt\_correct);

Dimension preferredSize = new Dimension(50,30);

jp\_button.setPreferredSize(preferredSize);

String sql = "select sno,sname,ssex,sage,pwd from student where sno=?"; //先把学生信息显示出来

statement = null;

try {

statement = connection.prepareStatement(sql);

statement.setString(1, user);

ResultSet res = statement.executeQuery();

while(res.next()) {

edit\_sno.setText(res.getString("sno"));

edit\_sname.setText(res.getString("sname"));

edit\_ssex.setText(res.getString("ssex"));

edit\_sage.setText(Integer.toString(res.getInt("sage")));

edit\_spassword.setText(res.getString("pwd"));

}

} catch (Exception e1) {

System.out.print(e1.toString());

JOptionPane.showMessageDialog(null, "系统异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

add(jp\_button);

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

if(e.getSource()==bt\_correct) { //修改

String sql = "update student set sname=?,ssex=?,sage=?,pwd=? where sno=?";

statement = null;

try {

statement = connection.prepareStatement(sql);

statement.setString(1, edit\_sname.getText());

statement.setString(2, edit\_ssex.getText());

statement.setInt(3, Integer.parseInt(edit\_sage.getText()));

statement.setString(4,edit\_spassword.getText());

statement.setString(5, user);

statement.executeUpdate();

JOptionPane.showMessageDialog(null, "已完成修改!");

} catch (Exception e1) {

JOptionPane.showMessageDialog(null, "修改失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

}

else { //返回

this.dispose();

new Student\_UI(user, pwd);

}

}

JTextField edit\_sno,edit\_sname,edit\_ssex,edit\_sage,edit\_spassword;

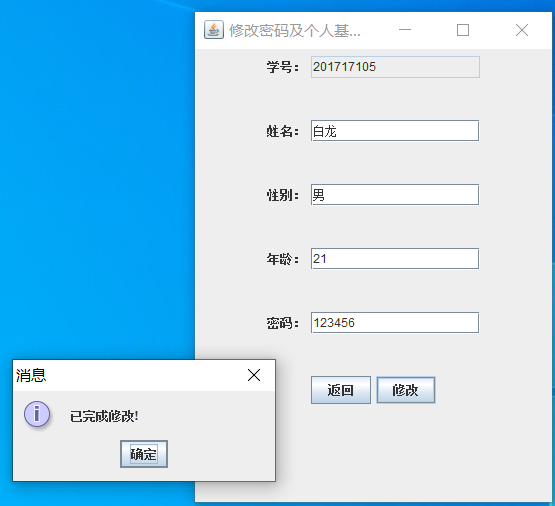
JButton bt\_back,bt\_correct;

String user,pwd;

Connection connection;

PreparedStatement statement;

}



**12.已选课程及学分查看(学生子界面)：**

package UI.StudentUI;

import javax.swing.\*;

import javax.swing.border.Border;

import UI.Manager\_UI;

import UI.Student\_UI;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;

public class Stu\_searchCourse\_UI extends JFrame implements ActionListener{

public Stu\_searchCourse\_UI(String user,String pwd) {

this.user = user;

this.pwd = pwd;

this.setTitle("已选课程及学分查看");

setLayout(new BorderLayout());

setSize(1500,600);

Connection connection = null;

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

connection = DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

} catch (Exception e1) {

System.out.print("数据库连接失败！");

JOptionPane.showMessageDialog(null, "数据库连接失败!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

bt\_back = new JButton("返回");

bt\_back.addActionListener(this);

jp\_button = new JPanel();

jp\_button.add(bt\_back);

add(jp\_button,BorderLayout.NORTH);

jp\_box = new JPanel();

try {

String sql = "select student.sno,sname,cname,ccredit,tname,grade from student,course,teacher,sc "

+ "where student.sno=? and sc.sno=student.sno and sc.cno=course.cno and course.tno=teacher.tno";

PreparedStatement statement = connection.prepareStatement(sql);

statement.setString(1, user);

ResultSet res = statement.executeQuery();

while (res.next()) { // 循环输出结果集

JPanel jp\_item= new JPanel();

JPanel jp\_sno= new JPanel();

JPanel jp\_sname = new JPanel();

JPanel jp\_cname = new JPanel();

JPanel jp\_ccredit = new JPanel();

JPanel jp\_tname = new JPanel();

JPanel jp\_grade = new JPanel();

JLabel sno = new JLabel("学号：");

edit\_sno = new JTextField(15);

edit\_sno.setEditable(false);

jp\_sno.add(sno);

jp\_sno.add(edit\_sno);

jp\_item.add(jp\_sno);

JLabel sname = new JLabel("姓名：");

edit\_sname = new JTextField(15);

edit\_sname.setEditable(false);

jp\_sname.add(sname);

jp\_sname.add(edit\_sname);

jp\_item.add(jp\_sname);

JLabel cname = new JLabel("课程：");

edit\_cname = new JTextField(15);

edit\_cname.setEditable(false);

jp\_cname.add(cname);

jp\_cname.add(edit\_cname);

jp\_item.add(jp\_cname);

JLabel ccredit = new JLabel("学分数：");

edit\_ccredit = new JTextField(15);

edit\_ccredit.setEditable(false);

jp\_ccredit.add(ccredit);

jp\_ccredit.add(edit\_ccredit);

jp\_item.add(jp\_ccredit);

JLabel tname = new JLabel("老师：");

edit\_tname = new JTextField(15);

edit\_tname.setEditable(false);

jp\_tname.add(tname);

jp\_tname.add(edit\_tname);

jp\_item.add(jp\_tname);

JLabel grade = new JLabel("成绩：");

edit\_grade = new JTextField(15);

edit\_grade.setEditable(false);

jp\_grade.add(grade);

jp\_grade.add(edit\_grade);

jp\_item.add(jp\_grade);

//这里可以根据字段名称得到该记录的字段值

edit\_sno.setText(res.getString("sno"));

edit\_sname.setText(res.getString("sname"));

edit\_cname.setText(res.getString("cname"));

edit\_ccredit.setText(String.valueOf(res.getInt("ccredit")));

edit\_tname.setText(res.getString("tname"));

edit\_grade.setText(String.valueOf(res.getInt("grade")));

jp\_box.add(jp\_item);

validate(); //更新窗口

}

}catch(Exception e) {

JOptionPane.showMessageDialog(null, "系统异常!", "错误警告", JOptionPane.ERROR\_MESSAGE);

}

add(jp\_box,BorderLayout.CENTER);

revalidate();

setVisible(true);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

}

public void actionPerformed(ActionEvent e) {

if(e.getSource()==bt\_back) { //返回

this.dispose();

new Student\_UI(user, pwd);

}

}

JPanel jp\_button,jp\_box;

JButton bt\_back;

JTextField edit\_sno,edit\_sname,edit\_cname,edit\_ccredit,edit\_tname,edit\_grade;

String user,pwd;

}



### 总结

1. 遇到的问题：Java连接Oracle的时候，已成功连入数据库。但无法将数据库中的数据读入。原因：oracle没有commit。解决办法：重新登录数据库，或者手动commit。
2. Java连接数据库步骤，下次可直接用这个模板。

try {

Class.forName("oracle.jdbc.driver.OracleDriver");

Connection connection =

DriverManager.getConnection("jdbc:oracle:thin:@localhost:1521:ex","ex5","ex5");

Statement statement = connection.createStatement();

ResultSet res = statement.executeQuery

("select sno,sname,ssex,sage,pwd from student");

while (res.next()) { // 循环输出结果集

String sno = res.getString("sno"); //这里可以根据字段名称得到该记录的字段的值

String sname = res.getString("sname");

String ssex = res.getString("ssex");

String sage = res.getString("sage");

String spassword = res.getString("pwd");

System.out.print(sno+" "+sname+" "+ssex+" "+sage+" "+spassword);

}

} catch (Exception e1) {

// TODO Auto-generated catch block

e1.printStackTrace();

}

1. 遇到的问题：界面跳转的时候，用dispose来释放当前界面的资源。但是无法释放。原因：本身建立类就是JFrame的类，而在初始化的时候，又再次new了一个JFrame()，导致重复多余！解决办法：初始化不要再new，直接用this(当前的Frame)
2. 遇到的问题：无效的输入数据。原因：查询基本信息的时候，由于只在编辑框填写主码，而导致int类型的数据编辑框是null，而string为null的字符串转化成int出现问题。解决办法：为null时，不进行转化。
3. 当查询学生选课信息的时候，动态添加组件，但窗口无法更新，只能通过鼠标拖拽进行更新。

解决办法：validate(); //更新窗口

1. 利用下拉框选择时，要把上一次的panel清空，需要用到removeall()，但是会发现，使用后，只是后面的内容把前面的覆盖。还需要使用到repaint()重新绘制。
2. 用java去操作oracle 的sql语句时，不能带分号。否则会出现：java.sql.SQLSyntaxErrorException: ORA-00911: 无效字符。
3. 在用监听器的时候，一个类可以只有一个监听器。利用getSource()来判断调用者是谁，从而相应的调用函数体，而用getSource的控件必须要定义为类变量，而不能在函数里面的临时变量。