课程设计说明文档

学生选课管理系统的设计与实现

学校：华南理工大学广州汽车学院

系别：计算机工程系

专业班级：信息与计算科学

姓名：

学号：

一、课程设计目的

通过这次的设计，主要是做出一个小型的管理系统，来加强对 JAVA 所学知识的巩固和融会贯通，可以说是对一个学期所学知识的一个小结，加深对 JAVA 数据库的理解。

二、需求分析

功能需求分析：

该系统具备管理学生信息、课程信息、选课信息的功能：用户通过输入账号和密码进下该系统后，可以进行一些基础维护（学生信息维护、课程信息维护、选课信息维护）。全部都可以进行增加、修改、删除、模糊查询。

三、数据项：

1 表 admin（用户表）

Field	Type	Null	Key	Comment
Username	char(10)	——	PRI	用户名
password	char(10)	——	——	密码
Name	Char(10)	——	——	用户昵称

2 表 S（学生信息表）

Field	Type	Null	Key	Comment
Sno	nvarchar(50)	——	PRI	学号
Sname	nvarchar(50)	——	——	姓名
Sx	nvarchar(50)	——	——	系别

3 表 C（课程信息表）

Field	Type	Null	Key	Comment
Cno	nvarchar(50)	——	PRI	课号
Cname	nvarchar(50)	——	——	课名

4 表 SC（学生信息表）

Field	Type	Null	Key	Comment
Cno	nvarchar(50)	——	PRI	课号
Sno	nvarchar(50)	——	PRI	学号
C	nvarchar(50)	——	——	成绩

四、系统功能描述

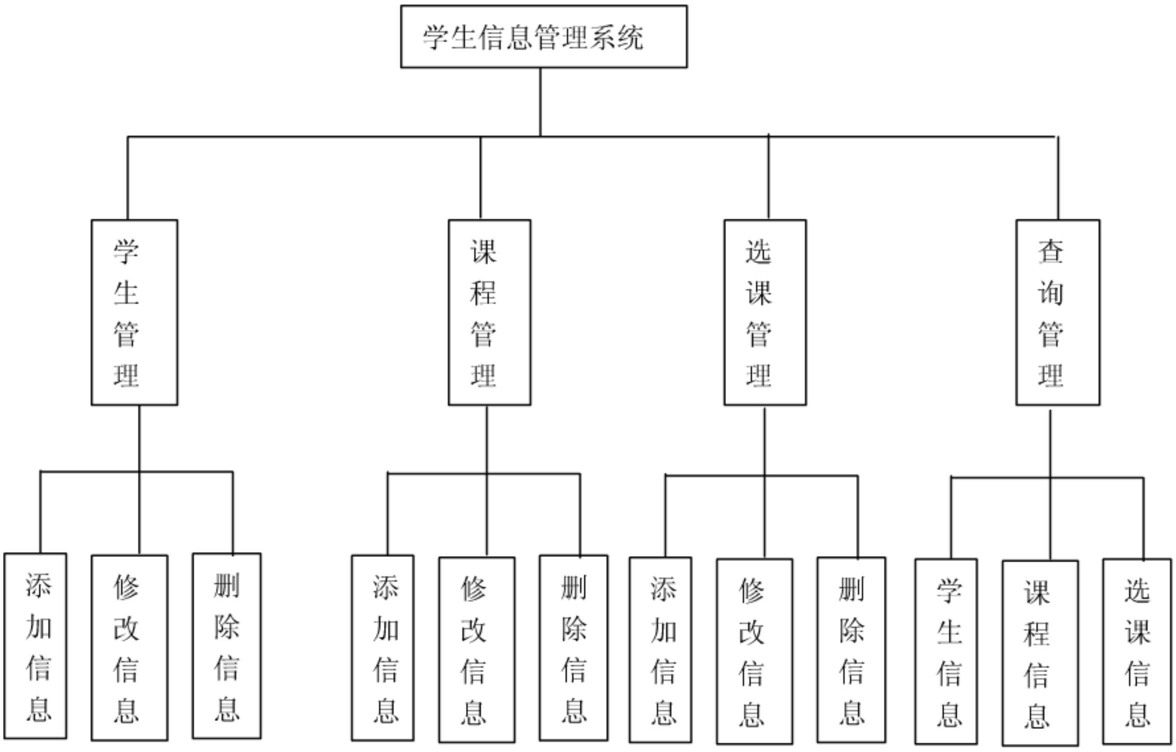
该小型系统主要是用于管理学生及课程的基本信息，主要功能包括四方面的：

1.管理学生信息，其中包括添加，删除，修改等操作。

2.管理课程信息，其中包括添加，删除，修改等操作。

3.管理选课信息，其中包括添加，删除，修改等操作。

4.查询信息，其中包括查询学生信息，查询课程信息，查询选课信息等操作。



五、代码分析

连接数据库方法：

这是 java 连接数据库的驱动，有关数据库的操作都要用到他。

```
public static Connection CONN(){
 String driverName =
"com.microsoft.sqlserver.jdbc.SQLServerDriver";   //加载JDBC驱动
 String dbURL = "jdbc:sqlserver://localhost:1433;
 DatabaseName=student"; //连接服务器和数据库test，此处student是数据库名
 String userName = "sa";   //默认用户名
 String userPwd = "mima";   //密码
 Connection dbConn=null;
 try {
 Class.forName(driverName);
 dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
  System.out.println("Connection Successful!");
 //如果连接成功 控制台输出Connection Successful!
  } catch (Exception e) {
  e.printStackTrace();}
  return dbConn;}
```

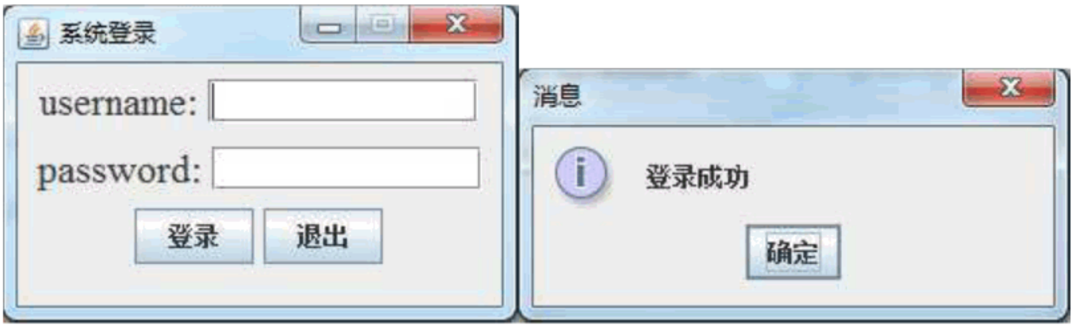
用户登录界面 user.java：

登录时，凡是账号密码未填写、输入错误账号密码都会提出错误提示框。在填写好账号密码后，会读取数据库里 admin 表，并查询其输入是否存在，若无误，则登录到用户界面。

```
public class User extends JFrame{
     private JLabel use,password;
     private JTextField k1;//用户名输入框
     private JPasswordField k2;//密码输入框
     private JButton b1,b2;
//登录窗口
public User(JFrame f){
    super("系统登录");
    Container c=getContentPane();
    c.setLayout(new FlowLayout());
    use=new JLabel("username:");
    use.setFont(new Font("Serif",Font.PLAIN,20));
    password=new JLabel("password:");
    password.setFont(new Font("Serif",Font.PLAIN,20));
    k1=new JTextField(12);
    k2=new JPasswordField(12);
    b1=new JButton("登录");
    b2=new JButton("退出");
//  设置登录方法
```

```
    BHandler b=new BHandler();
    EXIT d=new EXIT();
    b1.addActionListener(b);
    b2.addActionListener(d);
        //添加控件
    c.add(use);
    c.add(k1);
    c.add(password);
    c.add(k2);
    c.add(b1);
    c.add(b2);
    setBounds(600,300,250,150);
    setVisible(true);
    setResizable(false);
    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);}
//主函数
public static void main(String[] args) {
    User f1=new User(new JFrame());}
```

效果图：



登录成功

用户界面：Menu.java

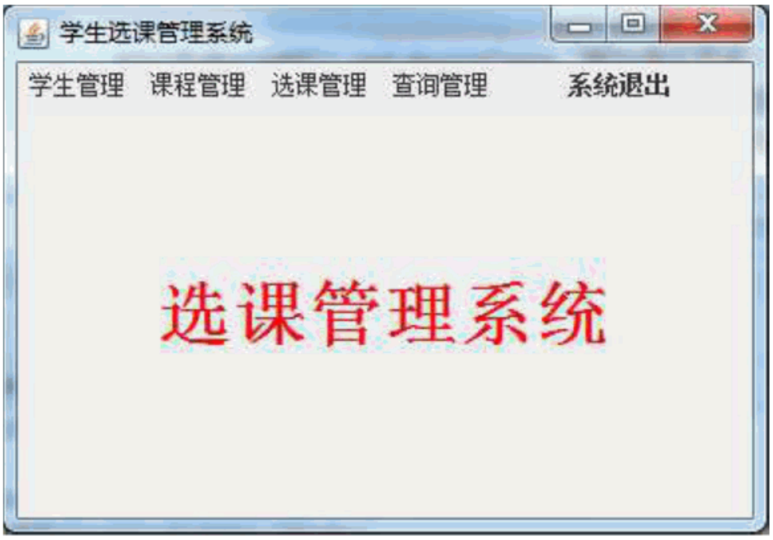
用户界面能菜单栏有4个一级菜单，学生管理、课程管理、选课管理都能添加、修改、删除数据，分别操作数据库里的S表（学生），C表(课程)，SC表（选课）。查询管理则可进行三个表的查询。

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
public class Menu extends JFrame implements ActionListener{
    Addstu 增加学生界面;
    Updatastu 修改学生界面;
    Delstu 删除学生界面;
    AddC 增加课程界面;
    DelC 删除课程界面;
    UpdateC 修改课程界面;
    AddSC 增加选课界面;
    DelSC 删除选课界面;
    UpdateSC 修改选课界面;
```

```
Selstu 学生查询界面;
JPanel pCenter;
CardLayout card=null;
JLabel label=null;
JMenuBar mb=new JMenuBar();//菜单栏
JMenu m1=new JMenu("学生管理");
JMenuItem add1=new JMenuItem("add1    ");
JMenuItem updata1=new JMenuItem("updata1    ");
JMenuItem delete1=new JMenuItem("delete1    ");
JMenu m2=new JMenu("课程管理");
JMenuItem add2=new JMenuItem("add2    ");
JMenuItem updata2=new JMenuItem("updata2    ");
JMenuItem delete2=new JMenuItem("delete2    ");
JMenu m3=new JMenu("选课管理");
JMenuItem add3=new JMenuItem("add3    ");
JMenuItem updata3=new JMenuItem("updata3    ");
JMenuItem delete3=new JMenuItem("delete3    ");
JMenu m4=new JMenu("查询管理");
JMenuItem 学生查询=new JMenuItem("查询信息    ");
JMenuItem m5=new JMenuItem("系统退出");
Font t=new Font ("sanerif",Font.PLAIN,12);
public Menu (){
    this.setTitle("学生选课管理系统");
    try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
    catch(Exception e){System.err.println("不能设置外观:    "+e);}
    //组合菜单
    addMenu1();
    addMenu2();
    addMenu3();
    addMenu4();
    addJMenuBar();
    setJMenuBar(mb);
    label=new JLabel("选课管理系统",JLabel.CENTER);
    label.setFont(new Font("宋体",Font.BOLD,36));
    label.setHorizontalTextPosition(SwingConstants.CENTER);
    label.setForeground(Color.red);
    //点击事件
    add1.addActionListener(this);
    updata1.addActionListener(this);
    delete1.addActionListener(this);
    m5.addActionListener(this);
    add2.addActionListener(this);
    delete2.addActionListener(this);
    updata2.addActionListener(this);
```

```
        add3.addActionListener(this);
        delete3.addActionListener(this);
        updata3.addActionListener(this);
        学生查询.addActionListener(this);
        card=new CardLayout();
        pCenter=new JPanel();
        pCenter.setLayout(card);
        增加学生界面=new Addstu();
        修改学生界面=new Updatastu();
        删除学生界面=new Delstu();
        增加课程界面=new AddC();
        删除课程界面=new DelC();
        修改课程界面=new UpdateC();
        增加选课界面=new AddSC();
        删除选课界面=new DelSC();
        修改选课界面=new UpdateSC();
        学生查询界面=new Selstu();
        pCenter.add("欢迎界面",label);
        pCenter.add("增加学生界面",增加学生界面);
        pCenter.add("修改学生界面",修改学生界面);
        pCenter.add("删除学生界面",删除学生界面);
        pCenter.add("增加课程界面",增加课程界面);
        pCenter.add("删除课程界面",删除课程界面);
        pCenter.add("修改课程界面",修改课程界面);
        pCenter.add("增加选课界面",增加选课界面);
        pCenter.add("删除选课界面",删除选课界面);
        pCenter.add("修改选课界面",修改选课界面);
        pCenter.add("学生查询界面"，学生查询界面);
        add(pCenter,BorderLayout.CENTER);
        validate();
        setVisible(true);
        setBounds(400,150,400,280);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        addWindowListener(new WindowAdapter(){//关闭程序时的操作
            public void windowClosing(WindowEvent e){System.exit(0);} });
        validate();}
    private void addJMenuBar() {
        mb.add(m1);mb.add(m2);mb.add(m3);mb.add(m4);mb.add(m5);}
    private void addMenu4() {
        m4.add(学生查询);m4.setFont(t);}
    private void addMenu3() {
        m3.add(add3);m3.add(updata3);m3.add(delete3);m3.setFont(t);  }
    private void addMenu2() {//将菜单加入到菜单栏中
        m2.add(add2);m2.add(updata2);m2.add(delete2);m2.setFont(t); }
    private void addMenu1() {
        m1.add(add1);m1.add(updata1);m1.add(delete1);m1.setFont(t); }
    public void actionPerformed(ActionEvent e){
        Object obj=e.getSource();
        if(obj==m5){System.exit(0);}
        else{if(obj==add1){card.show(pCenter,"增加学生界面");}
        else{if(obj==updata1){ card.show(pCenter,"修改学生界面");}
        else{if(obj==delete1){ card.show(pCenter, "删除学生界面");}
        else{if(obj==add2){ card.show(pCenter, "增加课程界面");}
        else{if(obj==delete2){ card.show(pCenter, "删除课程界面");}
        else{if(obj==updata2){ card.show(pCenter, "修改课程界面");}
        else{if(obj==add3){ card.show(pCenter, "增加选课界面");}
        else{if(obj==delete3){ card.show(pCenter, "删除选课界面");}
        else{if(obj==updata3){ card.show(pCenter, "修改选课界面");}
        else{if(obj==学生查询){ card.show(pCenter, "学生查询界面");
        }}}}}}}}}}}
    public static void main(String[] args) {new Menu();}}
```

效果图：



添加界面:AddC.java/AddSC.java/Addstu.java

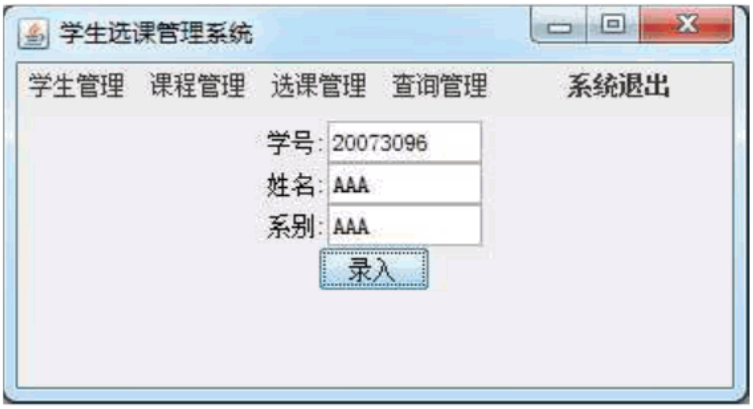
添加数据时，若遇到必须信息未填写、不能重复的信息在数据库中已存在，都会提示无法添加及其错误原因。

```
import java.awt.*;
import javax.swing.*;
import java.sql.*;
import java.awt.event.*;

public class AddC extends JPanel implements ActionListener{
    JTextField 课号,课名;
    JButton 录入;

public AddC(){
    try
{UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());
}catch(Exception e){System.err.println("不能设置外观:   "+e);}
    课号=new JTextField(12);
    课名=new JTextField(12);
    录入=new JButton("录入");
    录入.addActionListener(this);
    Box box1=Box.createHorizontalBox();//横放box
    Box box2=Box.createHorizontalBox();
    Box box3=Box.createHorizontalBox();
    Box box4=Box.createHorizontalBox();
    box1.add(new JLabel("课号:"));
    box1.add(课号);
    box2.add(new JLabel("课名:"));
    box2.add(课名);
    box4.add(录入);
    Box boxH=Box.createVerticalBox();//竖放box
    boxH.add(box1);
    boxH.add(box2);
    boxH.add(box3);
    boxH.add(box4);
    boxH.add(Box.createVerticalGlue());
    JPanel messPanel=new JPanel();
    messPanel.add(boxH);
    setLayout(new BorderLayout());
    add(messPanel,BorderLayout.CENTER);
    validate();}
```

效果图:



学号: 20073096

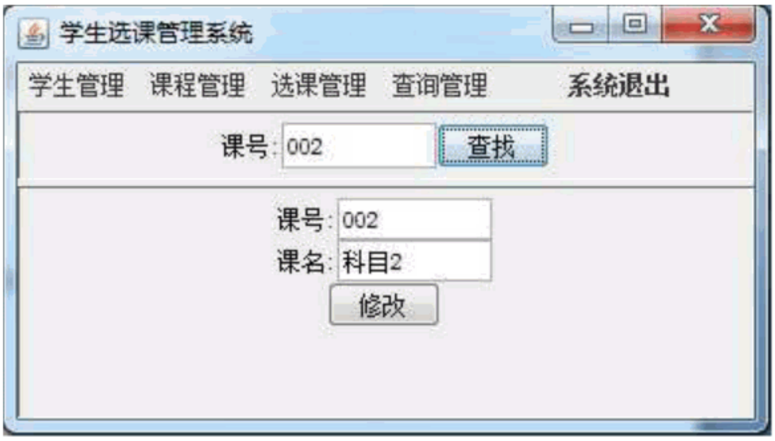
姓名: AAA

系别: AAA

添加界面:UpdateC.java/UpdateSC.java /Updatestu.java

先查找你想要修改的项目，若修改的信息包括号码（学号、课号），则会进行查询，如果修改后的号码已存在，以及修改后必须的信息变成空都会提示无法修改和其错误原因。此外，若修改C表或则S表，会连同SC表中对应的信息一起修改。

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;
public class UpdateC extends JPanel implements ActionListener{
    String save=null;
    JTextField 课号1,课号,课名;
    JButton 修改,查找;
public UpdateC(){
    try
{UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());
}catch(Exception e){System.err.println("不能设置外观:   "+e);}
    课号1=new JTextField(12);
    课号=new JTextField(12);
    课名=new JTextField(12);
    修改=new JButton("修改");
    查找=new JButton("查找");
    Box box1=Box.createHorizontalBox();//横放box
    Box box2=Box.createHorizontalBox();
    Box box3=Box.createHorizontalBox();
    Box box4=Box.createHorizontalBox();
    Box box5=Box.createHorizontalBox();
    box1.add(new JLabel("课号:",JLabel.CENTER));
    box1.add(课号);
    box2.add(new JLabel("课名:",JLabel.CENTER));
    box2.add(课名);
    box3.add(修改);
    box5.add(new JLabel("课号:",JLabel.CENTER));
    box5.add(课号1);
    box5.add(查找);
    修改.addActionListener(this);
    查找.addActionListener(this);
    Box boxH=Box.createVerticalBox();//竖放box
    boxH.add(box1);
    boxH.add(box2);
    boxH.add(box3);
    boxH.add(box4);
    boxH.add(Box.createVerticalGlue());
    JPanel picPanel=new JPanel();
    JPanel messPanel=new JPanel();
    messPanel.add(box5);
    picPanel.add(boxH);
    setLayout(new BorderLayout());
    JSplitPane splitV=new
JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分割
    add(splitV,BorderLayout.CENTER);
    validate();}
```



课号: 002

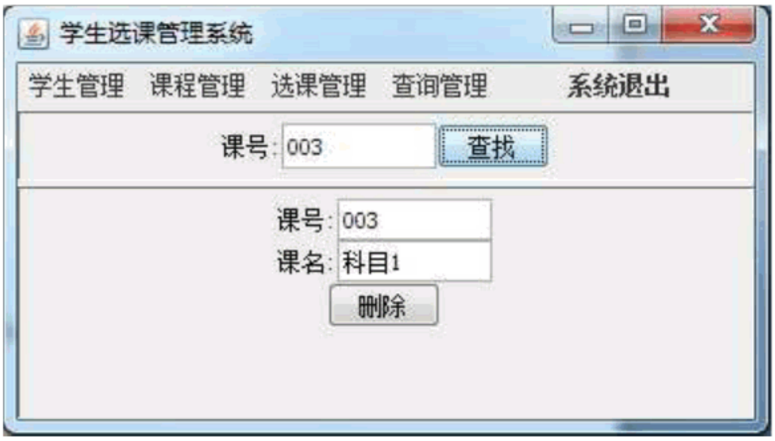
课号: 002

课名: 科目2

删除界面:DelC.java/DelSC.java /Deltu.java

先查找你想要删除的项目，然后删除，此外，若删除C表或则S表的内容，会连同SC表中对应的信息一起修改。

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;
public class DelC extends JPanel implements ActionListener{
    String save=null;
    JTextField 课号1,课号,课名;
    JButton 删除,查找;
    public DelC(){
    try
{UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());
}catch(Exception e){System.err.println("不能设置外观:   "+e);}
    课号1=new JTextField(12);
    课号=new JTextField(12);
    课名=new JTextField(12);
    删除=new JButton("删除");
    查找=new JButton("查找");
    Box box1=Box.createHorizontalBox();//横放box
    Box box2=Box.createHorizontalBox();
    Box box3=Box.createHorizontalBox();
    Box box4=Box.createHorizontalBox();
    Box box5=Box.createHorizontalBox();
    box1.add(new JLabel("课号:",JLabel.CENTER));
    box1.add(课号);
    box2.add(new JLabel("课名:",JLabel.CENTER));
    box2.add(课名);
    box4.add(删除);
    box5.add(new JLabel("课号:",JLabel.CENTER));
    box5.add(课号1);
    box5.add(查找);
    Box boxH=Box.createVerticalBox();//竖放box
    boxH.add(box1);
    boxH.add(box2);
    boxH.add(box3);
    boxH.add(box4);
    boxH.add(Box.createVerticalGlue());
    删除.addActionListener(this);
    查找.addActionListener(this);
    JPanel picPanel=new JPanel();
    JPanel messPanel=new JPanel();
    messPanel.add(box5);
    picPanel.add(boxH);
    setLayout(new BorderLayout());
    JSplitPane splitV=new
JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分割
    add(splitV,BorderLayout.CENTER);
    validate();}
```



课号: 003

课号: 003

课名: 科目1

查询界面:Selsto.java

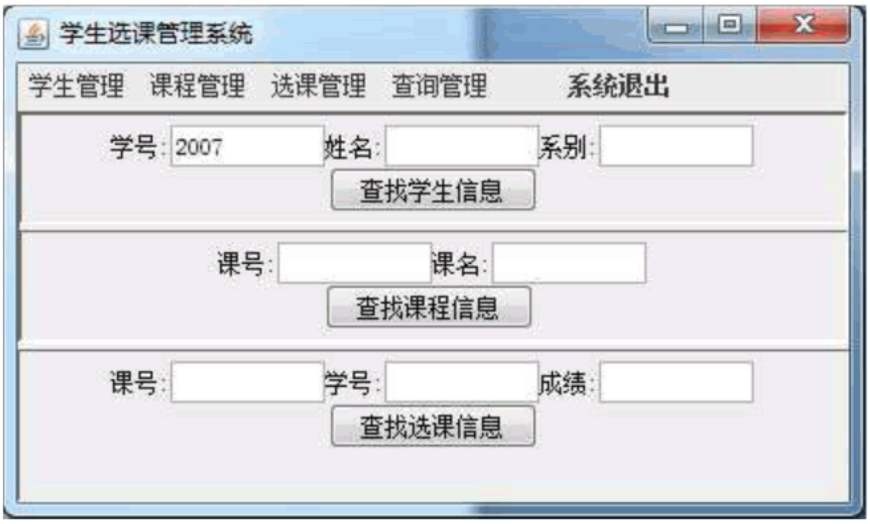
可以以任意条件模糊查找相关的表。

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;
public class Selstu extends JPanel implements ActionListener{
    JTextField 学号,姓名,系别;
    JButton 查找;
    JTextField 课号,课名;
    JButton 查找1;
    JTextField 课号1,学号1,成绩;
    JButton 查找2;
    public Selstu (){
        学号=new JTextField(12);
```

```
姓名=new JTextField(12);
系别=new JTextField(12);
课号=new JTextField(12);
课名=new JTextField(12);
课号1=new JTextField(12);
学号1=new JTextField(12);
成绩=new JTextField(12);
查找=new JButton("查找学生信息");
查找1=new JButton("查找课程信息");
查找2=new JButton("查找选课信息");
Box box1=Box.createHorizontalBox();//横放box
Box box2=Box.createHorizontalBox();
Box box4=Box.createHorizontalBox();
Box box5=Box.createHorizontalBox();
Box box6=Box.createHorizontalBox();
Box box7=Box.createHorizontalBox();
box1.add(new JLabel("学号:",JLabel.CENTER));
box1.add(学号);
box1.add(new JLabel("姓名:",JLabel.CENTER));
box1.add(姓名);
box1.add(new JLabel("系别:",JLabel.CENTER));
box1.add(系别);
box2.add(查找);
box4.add(new JLabel("课号:",JLabel.CENTER));
box4.add(课号);
box4.add(new JLabel("课名:",JLabel.CENTER));
box4.add(课名);
box6.add(查找1);
box5.add(new JLabel("课号:",JLabel.CENTER));
box5.add(课号1);
box5.add(new JLabel("学号:",JLabel.CENTER));
box5.add(学号1);
box5.add(new JLabel("成绩:",JLabel.CENTER));
box5.add(成绩);
box7.add(查找2);
Box boxH1=Box.createVerticalBox();//竖放box
boxH1.add(box1);
boxH1.add(box2);
boxH1.add(Box.createVerticalGlue());
Box boxH2=Box.createVerticalBox();//竖放box
boxH2.add(box4);
boxH2.add(box6);
boxH2.add(Box.createVerticalGlue());
Box boxH3=Box.createVerticalBox();//竖放box
```

```
       boxH3.add(box5);
       boxH3.add(box7);
       boxH3.add(Box.createVerticalGlue());
       查找.addActionListener(this);
       查找1.addActionListener(this);
       查找2.addActionListener(this);
       JPanel messPanel=new JPanel();
       JPanel picPanel=new JPanel();
       JPanel threePanel=new JPanel();
       messPanel.add(boxH1);
       picPanel.add(boxH2);
       threePanel.add(boxH3);
       setLayout(new BorderLayout());
       JSplitPane splitV=new
JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分割
       add(splitV,BorderLayout.CENTER);
       JSplitPane splitV1=new
JSplitPane(JSplitPane.VERTICAL_SPLIT,splitV,threePanel);//分割
       add(splitV1,BorderLayout.CENTER);
       validate();}
```

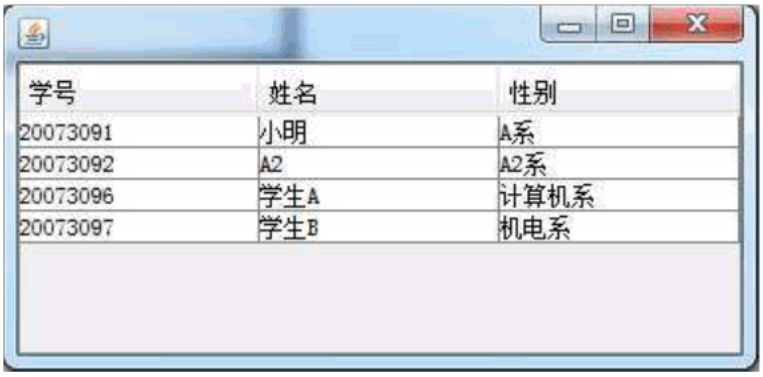
效果图:



学号: 2007 姓名: 系别:

课号: 课名:

课号: 学号: 成绩:



学号	姓名	性别
20073091	小明	A系
20073092	A2	A2系
20073096	学生A	计算机系
20073097	学生B	机电系

五、课程设计学习心得

通过本次课程设计，成功的完成了这个小型简单的系统的设计，在整个设计过程中我对JAVA使用和它强大的作用有了一个更深刻的认识，尽管这个系统很简单，但是它让我综合运用了这个学期所学的JAVA的很多内容，在此基础上，对JAVA的基础知识得到了更好的巩固。

其实，在制作的过程中我也学到很多思想：首先，要学会统筹全局，合理规划，例如在制作整个框架的时候提前就要做全面考虑，要把整个结构图画出来，并且要对数据库表里的东西做全面规划。同时在编写程序的时候也要想好先实现什么功能，再实现什么功能，这样做出来的东西才有条理性，更容易实现和理解。其次，要细心仔细。Java程序虽然容易理解，但在写的过程中一不留心就会出现错误。当然出错是在所难免的，与性质有关的错误可以经过思考讨论后进行改正，但如果粗心大意，出现输入上的错误就很难发现和修改，会耽误很多时间。

我认为最大的收获是提高了自己的动手能力。在平时的上机中大多数是根据书上的思想和布局来写程序的。这次的课程设计要自己思考自己写，考虑的东西比平时上机考虑的要多的多。在整个设计过程中写代码不是最难的，最难的是构思和布局。这次课程设计也是一次很好的实践活动，让我们体会到了java的神奇作用。

下面是java的源代码，总共有15个类。分别是AddC.java，AddSC.java，Addstu.java，Delstu.java，DelC.java，DelSC.java，Menu.java，SelC.java，SelSC.java，Selstu.java，Student.java，Updatastu.java，UpdateC.java，UpdateSC.java，User.java。

因为本人太懒，所以一些类名的错误没有修改，也没有优化系统，总之还算是能运行的，数据库用的是sql2005，如果用别的数据库就要改驱动，具体自己上网百度吧。如果自己有空，优化一下还是很好滴……

AddC.jaba：

```
import java.awt.*;
import javax.swing.*;
import java.sql.*;
import java.awt.event.*;

public class AddC extends JPanel implements ActionListener{
    JTextField  课号,课名;
    JButton  录入;

public AddC(){
    try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
    catch(Exception e){System.err.println("不能设置外观:     "+e);}

    课号=new JTextField(12);
    课名=new JTextField(12);
    录入=new JButton("录入");
    录入.addActionListener(this);

    Box box1=Box.createHorizontalBox();//横放box
    Box box2=Box.createHorizontalBox();
    Box box3=Box.createHorizontalBox();
    Box box4=Box.createHorizontalBox();
    box1.add(new JLabel("课号:"));
    box1.add(课号);
    box2.add(new JLabel("课名:"));
    box2.add(课名);
    box4.add(录入);
    Box boxH=Box.createVerticalBox();//竖放box
    boxH.add(box1);
    boxH.add(box2);
    boxH.add(box3);
    boxH.add(box4);
    boxH.add(Box.createVerticalGlue());
    JPanel messPanel=new JPanel();
    messPanel.add(boxH);
    setLayout(new BorderLayout());
    add(messPanel,BorderLayout.CENTER);
    validate();
}
public void actionPerformed(ActionEvent c){
    Object obj=c.getSource();
    if(obj==录入){
        if(课号.getText().equals("")||课名.getText().equals("")){
            JOptionPane.showMessageDialog(this,"学生信息请填满再录入！" );
        }
        Statement stmt=null;
        ResultSet rs=null,rs1=null;
        String sql,sql1;
            sql1="select * from C where Cno='"+课号.getText()+"'";
            sql="insert into C values('"+课号.getText()+"','"+课名.getText()+"')";
       try{
           Connection dbConn1=CONN();

    stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,Resu
ltSet.CONCUR_READ_ONLY);
            rs1=stmt.executeQuery(sql1);
            if(rs1.next()){JOptionPane.showMessageDialog(this,"该课号以存在，无法添加
");}
            else{
            stmt.executeUpdate(sql);
            JOptionPane.showMessageDialog(this,"添加成功");
            }
            rs1.close();

            stmt.close();
       }
       catch(SQLException e){
           System.out.print("SQL Exception occur.Message is:"+e.getMessage());
           }
    }
}

//连接数据库方法
public static Connection CONN(){
       String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载JDBC驱
动
       String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连接服
```

```
务器和数据库test
        String userName = "sa";     //默认用户名
        String userPwd = "huangjiwei";     //密码
        Connection dbConn=null;

        try {
        Class.forName(driverName);
        dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
        System.out.println("Connection Successful!");     //如果连接成功 控制台输出
Connection Successful!
        } catch (Exception e) {
        e.printStackTrace();
        }
        return dbConn;
}

}
```

AddSC.java：

```
import java.awt.*;

import javax.swing.*;

import java.sql.*;
import java.util.*;
import javax.swing.filechooser.*;
import java.io.*;
import java.awt.event.*;

public class AddSC extends JPanel implements ActionListener{
    JTextField 课号,学号,成绩;
    JButton 录入;

public AddSC(){
    try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
    catch(Exception e){System.err.println("不能设置外观:     "+e);}

    课号=new JTextField(12);
    学号=new JTextField(12);
    成绩=new JTextField(12);
    录入=new JButton("录入");
    录入.addActionListener(this);

    Box box1=Box.createHorizontalBox();//横放box
    Box box2=Box.createHorizontalBox();
    Box box3=Box.createHorizontalBox();
    Box box4=Box.createHorizontalBox();
    box1.add(new JLabel("课号:"));
    box1.add(课号);
    box2.add(new JLabel("学号:"));
    box2.add(学号);
    box3.add(new JLabel("成绩:"));
    box3.add(成绩);
    box4.add(录入);
    Box boxH=Box.createVerticalBox();//竖放box
    boxH.add(box1);
    boxH.add(box2);
    boxH.add(box3);
    boxH.add(box4);
    boxH.add(Box.createVerticalGlue());
    JPanel messPanel=new JPanel();
    messPanel.add(boxH);
    setLayout(new BorderLayout());
    add(messPanel,BorderLayout.CENTER);
    validate();
}
public void actionPerformed(ActionEvent c){
    Object obj=c.getSource();
    if(obj==录入){
        if(课号.getText().equals("")||学号.getText().equals("")){
            JOptionPane.showMessageDialog(this,"填写课号与学号才能录入！ " );
        }
        else
        {
        Statement stmt=null;
        ResultSet rs=null,rs1=null,rsC=null,rsS=null;
        String sql,sql1,sqlS,sqlC;
            sqlC="select * from C where Cno='"+课号.getText()+"'";
            sqlS="select * from S where Sno='"+学号.getText()+"'";
            sql1="select * from SC where Cno='"+课号.getText()+"' and Sno='"+学
号.getText()+"'";
            sql="insert into SC values('"+课号.getText()+"','"+学号.getText()+"','"+成
绩.getText()+"')";
      try{
          Connection dbConn1=CONN();
    stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,Resu
ltSet.CONCUR_READ_ONLY);
            rsC=stmt.executeQuery(sqlC);
            if(rsC.next()){
                rsS=stmt.executeQuery(sqlS);
                if(rsS.next()){
            rs1=stmt.executeQuery(sql1);
            if(rs1.next()){JOptionPane.showMessageDialog(this,"该学生以选该课程号，无法
添加");}
            else{
            stmt.executeUpdate(sql);
            JOptionPane.showMessageDialog(this,"添加成功");
            }
            rs1.close();
            }
                else{JOptionPane.showMessageDialog(this,"该学生不存在，无法添加");}
                rsS.close();
            }
            else{JOptionPane.showMessageDialog(this,"该课程不存在，无法添加");}
            rsC.close();
            stmt.close();
       }
       catch(SQLException e){
           System.out.print("SQL Exception occur.Message is:"+e.getMessage());
           }
       }
    }
}

//连接数据库方法
public static Connection CONN(){
       String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载JDBC驱
动
       String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连接服
务器和数据库test
       String userName = "sa";    //默认用户名
       String userPwd = "huangjiwei";    //密码
       Connection dbConn=null;

       try {
       Class.forName(driverName);
       dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
       System.out.println("Connection Successful!");    //如果连接成功 控制台输出
```

```
Connection Successful!
            } catch (Exception e) {
            e.printStackTrace();
            }
            return dbConn;
}
}
```

Addstu.jaba：

```
import java.awt.*;
import javax.swing.*;
import java.sql.*;
import java.awt.event.*;


public    class Addstu extends JPanel implements ActionListener{
                                JTextField  学号,姓名,系别;
                                JButton  录入;

public Addstu(){
                                try
{UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
                                catch(Exception e){System.err.println("不能设置外观:      "+e);}

                                学号=new JTextField(12);
                                姓名=new JTextField(12);
                                系别=new JTextField(12);
                                录入=new JButton("录入");
                                录入.addActionListener(this);

                                Box box1=Box.createHorizontalBox();//横放 box
                                Box box2=Box.createHorizontalBox();
                                Box box3=Box.createHorizontalBox();
                                Box box4=Box.createHorizontalBox();
                                box1.add(new JLabel("学号:"/*,JLabel.CENTER*/));
                                box1.add(学号);
                                box2.add(new JLabel("姓名:"/*,JLabel.CENTER*/));
                                box2.add(姓名);
                                box3.add(new JLabel("系别:"/*,JLabel.CENTER*/));
```

```
        box3.add(系别);
        box4.add(录入);
        Box boxH=Box.createVerticalBox();//竖放 box
        boxH.add(box1);
        boxH.add(box2);
        boxH.add(box3);
        boxH.add(box4);
        boxH.add(Box.createVerticalGlue());
        JPanel messPanel=new JPanel();
        messPanel.add(boxH);
        setLayout(new BorderLayout());
        add(messPanel,BorderLayout.CENTER);
        validate();
        }
public void actionPerformed(ActionEvent c){
        Object obj=c.getSource();
        if(obj==录入){
            if(学号.getText().equals("")||姓名.getText().equals("")||系别.getText().equals("")){
                JOptionPane.showMessageDialog(this,"学生信息请填满再录入！" );
            }
            Statement stmt=null;
            ResultSet rs1=null;
            String sql,sql1;
                sql1="select * from S where Sno='"+学号.getText()+"'";
                sql="insert into S values('"+学号.getText()+"','"+姓名.getText()+"','"+系别.getText()+"')";
            try{
              Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,ResultSet.CONCUR_READ_ONLY);
                rs1=stmt.executeQuery(sql1);
                if(rs1.next()){JOptionPane.showMessageDialog(this,"该学号以存在，无法添加");}
                else{
                stmt.executeUpdate(sql);
                JOptionPane.showMessageDialog(this,"添加成功");
                }
                rs1.close();
                stmt.close();
            }
            catch(SQLException e){
```

```
                                        System.out.print("SQL Exception occur.Message
is:"+e.getMessage());
                                        }
                               }
}

//连接数据库方法
public static Connection CONN(){
                                    String driverName =
"com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载 JDBC 驱动
                                    String dbURL = "jdbc:sqlserver://localhost:1433;
DatabaseName=student";    //连接服务器和数据库 test
                                    String userName = "sa";    //默认用户名
                                    String userPwd = "huangjiwei";    //密码
                                    Connection dbConn=null;

                                    try {
                                    Class.forName(driverName);
                                    dbConn = DriverManager.getConnection(dbURL, userName,
userPwd);
                                    System.out.println("Connection Successful!");    //如果连接
成功 控制台输出 Connection Successful!
                                    } catch (Exception e) {
                                    e.printStackTrace();
                                    }
                                    return dbConn;
}

}
```

DelC.java:

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;
public class DelC extends JPanel implements ActionListener{
                                String save=null;
                                JTextField 课号 1,课号,课名;
                                JButton 删除,查找;

public DelC(){
                                try
{UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
```

```
                        catch(Exception e){System.err.println("不能设置外观:     "+e);}

                        课号 1=new JTextField(12);
                        课号=new JTextField(12);
                        课名=new JTextField(12);
                        删除=new JButton("删除");
                        查找=new JButton("查找");

                        Box box1=Box.createHorizontalBox();//横放 box
                        Box box2=Box.createHorizontalBox();
                        Box box3=Box.createHorizontalBox();
                        Box box4=Box.createHorizontalBox();
                        Box box5=Box.createHorizontalBox();
                        box1.add(new JLabel("课号:",JLabel.CENTER));
                        box1.add(课号);
                        box2.add(new JLabel("课名:",JLabel.CENTER));
                        box2.add(课名);
                        box4.add(删除);
                        box5.add(new JLabel("课号:",JLabel.CENTER));
                        box5.add(课号 1);
                        box5.add(查找);
                        Box boxH=Box.createVerticalBox();//竖放 box
                        boxH.add(box1);
                        boxH.add(box2);
                        boxH.add(box3);
                        boxH.add(box4);
                        boxH.add(Box.createVerticalGlue());

                        删除.addActionListener(this);
    查找.addActionListener(this);

                        JPanel picPanel=new JPanel();
                        JPanel messPanel=new JPanel();
                        messPanel.add(box5);
                        picPanel.add(boxH);
                        setLayout(new BorderLayout());
                        JSplitPane                                    splitV=new
JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分割
                        add(splitV,BorderLayout.CENTER);
                        validate();

}
public void actionPerformed(ActionEvent e){
                        Object obj=e.getSource();
```

```
                  Statement stmt=null;
                  ResultSet rs=null,rs1=null;
   String sql=null,sql1=null,sqlSC=null;
                  if(obj==查找){if(课号
1.getText().equals(""))JOptionPane.showMessageDialog(this,"请填写查询的课号！ " );
                  else{
                     sql1="select * from C where Cno='"+课号 1.getText()+"'";
                     try{
                     Connection dbConn1=CONN();

                  stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCR
OLL_INSENSITIVE,ResultSet.CONCUR_READ_ONLY);
                    rs1=stmt.executeQuery(sql1);
                     if(rs1.next()){课号.setText(rs1.getString("Cno").trim());
                                课
名.setText(rs1.getString("Cname").trim());
                                save=课号 1.getText().trim();
                     }
                     else{JOptionPane.showMessageDialog(this,"没有这个课号
的课程" );}
                     stmt.close();
                     rs1.close();
                     }catch(SQLException e1){
                         System.out.print("SQL Exception occur.Message
is:"+e1.getMessage());
                      }
                     }
                  }
                  else{
                    if(obj==删
除){if(save==null)JOptionPane.showMessageDialog(this,"还没查找需要修改的课程" );
                    else{sql="delete from C where Cno='"+save+"'";
                    sqlSC="delete from SC where Cno='"+save+"'";
                    try{
                       Connection dbConn1=CONN();

                  stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCR
OLL_INSENSITIVE,ResultSet.CONCUR_READ_ONLY);
                       stmt.executeUpdate(sql);
                       stmt.executeUpdate(sqlSC);
                       save=null;
                       JOptionPane.showMessageDialog(this,"删除完成" );
                       课号.setText("");
         课名.setText("");
```

```
                            stmt.close();
                            }catch(SQLException e1){
                                    System.out.print("SQL Exception occur.Message
is:"+e1.getMessage());
                                }
                        }
                        }
}
}

//                      连接数据库方法
                      public static Connection CONN(){
                            String              driverName              =
"com.microsoft.sqlserver.jdbc.SQLServerDriver";   //加载 JDBC 驱动
                            String    dbURL    =    "jdbc:sqlserver://localhost:1433;
DatabaseName=student";   //连接服务器和数据库 test
                            String userName = "sa";   //默认用户名
                            String userPwd = "huangjiwei";   //密码
                            Connection dbConn=null;

                            try {
                            Class.forName(driverName);
                            dbConn     =     DriverManager.getConnection(dbURL,
userName, userPwd);
                            System.out.println("Connection Successful!");   //如果连
接成功 控制台输出 Connection Successful!
                            } catch (Exception e) {
                            e.printStackTrace();
                            }
                            return dbConn;
                      }
}
```

DelSC.java:

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;

public class DelSC extends JPanel implements ActionListener{
    String saveC=null;
    String saveS=null;
    JTextField 课号1,学号1,学号,课号,成绩;
    JButton 删除,查找;

public DelSC(){
    try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
    catch(Exception e){System.err.println("不能设置外观:     "+e);}

    学号1=new JTextField(12);
    课号1=new JTextField(12);
    课号=new JTextField(12);
    学号=new JTextField(12);
    成绩=new JTextField(12);
    删除=new JButton("删除");
    查找=new JButton("查找");

    Box box1=Box.createHorizontalBox();//横放box
    Box box2=Box.createHorizontalBox();
    Box box3=Box.createHorizontalBox();
    Box box4=Box.createHorizontalBox();
    Box box5=Box.createHorizontalBox();
    box1.add(new JLabel("课号:",JLabel.CENTER));
    box1.add(课号);
    box2.add(new JLabel("学号:",JLabel.CENTER));
    box2.add(学号);
    box3.add(new JLabel("成绩:",JLabel.CENTER));
    box3.add(成绩);
    box4.add(删除);
    box5.add(new JLabel("课号:",JLabel.CENTER));
    box5.add(课号1);
    box5.add(new JLabel("学号:",JLabel.CENTER));
    box5.add(学号1);
    box5.add(查找);
    Box boxH=Box.createVerticalBox();//竖放box
    boxH.add(box1);
    boxH.add(box2);
    boxH.add(box3);
    boxH.add(box4);
    boxH.add(Box.createVerticalGlue());

    删除.addActionListener(this);
    查找.addActionListener(this);

    JPanel picPanel=new JPanel();
```

```
        JPanel messPanel=new JPanel();
        messPanel.add(box5);
        picPanel.add(boxH);
        setLayout(new BorderLayout());
        JSplitPane splitV=new JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分
割
        add(splitV,BorderLayout.CENTER);
        validate();

}
public void actionPerformed(ActionEvent e){
        Object obj=e.getSource();
        Statement stmt=null;
        ResultSet rs=null,rs1=null;
        String sql=null,sql1=null;

        if(obj==查找){if(课号1.getText().equals("")||学号
1.getText().equals(""))JOptionPane.showMessageDialog(this,"请填写完成查询的信息！" );
        else{

                sql1="select * from SC where Cno='"+课号1.getText()+"' and Sno='"+学号
1.getText()+"'";
                try{
                Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,Resu
ltSet.CONCUR_READ_ONLY);
                rs1=stmt.executeQuery(sql1);
                if(rs1.next()){课号.setText(rs1.getString("Cno").trim());
                               学号.setText(rs1.getString("Sno").trim());
                               成绩.setText(rs1.getString("C").trim());
                               saveC=课号1.getText().trim();
                               saveS=学号1.getText().trim();
                }
                else{JOptionPane.showMessageDialog(this,"没有这个课号的学生" );}
                stmt.close();
                rs1.close();
                }catch(SQLException e1){
                        System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                    }
                }
        }
        else{
                if(obj==删除){if(saveC==null||saveS==null)JOptionPane.showMessageDialog(this,"还
没查找需要修改的学生/课程" );
            else{sql="delete from SC where Cno='"+saveC+"' and Sno='"+saveS+"'";
            try{
                  Connection dbConn1=CONN();

      stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,Resu
ltSet.CONCUR_READ_ONLY);
                  stmt.executeUpdate(sql);
                  saveC=null;
                  saveS=null;
                  JOptionPane.showMessageDialog(this,"删除完成" );
                  课号.setText("");
                  学号.setText("");
                  成绩.setText("");
                  stmt.close();
                  }catch(SQLException e1){
                             System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                       }
            }
            }
}
}

//    连接数据库方法
      public static Connection CONN(){
                String  driverName  =  "com.microsoft.sqlserver.jdbc.SQLServerDriver";      //加载
JDBC 驱动
                String  dbURL  =  "jdbc:sqlserver://localhost:1433;  DatabaseName=student";      //连
接服务器和数据库 test
                String userName = "sa";      //默认用户名
                String userPwd = "huangjiwei";      //密码
                Connection dbConn=null;

                try {
                Class.forName(driverName);
                dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
                System.out.println("Connection  Successful!");      //如果连接成功  控制台输出
Connection Successful!
                } catch (Exception e) {
                e.printStackTrace();
                }
                return dbConn;
      }
}
```

Delstu.java:

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;


public class Delstu extends JPanel implements ActionListener{
String save=null;
JTextField  学号1,学号,姓名,系别;
JButton  删除,查找;

public Delstu(){
try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
catch(Exception e){System.err.println("不能设置外观:     "+e);}

学号1=new JTextField(12);
学号=new JTextField(12);
姓名=new JTextField(12);
系别=new JTextField(12);
删除=new JButton("删除");
查找=new JButton("查找");

Box box1=Box.createHorizontalBox();//横放 box
Box box2=Box.createHorizontalBox();
Box box3=Box.createHorizontalBox();
Box box4=Box.createHorizontalBox();
Box box5=Box.createHorizontalBox();
box1.add(new JLabel("学号:",JLabel.CENTER));
box1.add(学号);
box2.add(new JLabel("姓名:",JLabel.CENTER));
box2.add(姓名);
box3.add(new JLabel("系别:",JLabel.CENTER));
box3.add(系别);
box4.add(删除);
box5.add(new JLabel("学号:",JLabel.CENTER));
box5.add(学号1);
box5.add(查找);
Box boxH=Box.createVerticalBox();//竖放 box
boxH.add(box1);
boxH.add(box2);
boxH.add(box3);
boxH.add(box4);
boxH.add(Box.createVerticalGlue());

删除.addActionListener(this);
    查找.addActionListener(this);

JPanel picPanel=new JPanel();
JPanel messPanel=new JPanel();
messPanel.add(box5);
picPanel.add(boxH);
setLayout(new BorderLayout());
JSplitPane splitV=new JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分割
add(splitV,BorderLayout.CENTER);
validate();
}
public void actionPerformed(ActionEvent e){
Object obj=e.getSource();
Statement stmt=null;
ResultSet rs=null,rs1=null;
    String sql=null,sql1=null,sqlSC=null;

if(obj==查找){if(学号 1.getText().equals(""))JOptionPane.showMessageDialog(this,"请填写查询
的学号！" );
else{
    sql1="select * from S where Sno='"+学号 1.getText()+"'";
    try{
    Connection dbConn1=CONN();
stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,ResultSet.
CONCUR_READ_ONLY);
rs1=stmt.executeQuery(sql1);
    if(rs1.next()){学号.setText(rs1.getString("Sno").trim());
                   姓名.setText(rs1.getString("Sname").trim());
                   系别.setText(rs1.getString("Sx").trim());
                   save=学号 1.getText().trim();
    }
    else{JOptionPane.showMessageDialog(this,"没有这个学号的学生" );}
    stmt.close();
    rs1.close();
    }catch(SQLException e1){
   System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
   }
    }
}
```

```
else{
if(obj==删除){if(save==null)JOptionPane.showMessageDialog(this,"还没查找需要修改的学生
" );
else{sql="delete from S where Sno='"+save+"'";
     sqlSC="delete from SC where Sno='"+save+"'";
try{
    Connection dbConn1=CONN();
stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,ResultSet.
CONCUR_READ_ONLY);
stmt.executeUpdate(sql);
stmt.executeUpdate(sqlSC);
save=null;
JOptionPane.showMessageDialog(this,"删除完成" );
学号.setText("");
            姓名.setText("");
            系别.setText("");

stmt.close();
    }catch(SQLException e1){
   System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
   }
}
}
}
}

//连接数据库方法
public static Connection CONN(){
   String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";   //加载 JDBC 驱动
   String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";   //连接服务器
和数据库 test
   String userName = "sa";   //默认用户名
   String userPwd = "huangjiwei";   //密码
   Connection dbConn=null;

   try {
   Class.forName(driverName);
   dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
   System.out.println("Connection Successful!");   //如果连接成功 控制台输出 Connection
Successful!
   } catch (Exception e) {
   e.printStackTrace();
   }
   return dbConn;
```

```
}
}
```

Menu.java:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class Menu extends JFrame implements ActionListener{
Addstu 增加学生界面;
Updatastu 修改学生界面;
Delstu 删除学生界面;
AddC 增加课程界面;
DelC 删除课程界面;
UpdateC 修改课程界面;
AddSC 增加选课界面;
DelSC 删除选课界面;
UpdateSC 修改选课界面;
Selstu 学生查询界面;
JPanel pCenter;
CardLayout card=null;
JLabel label=null;
JMenuBar mb=new JMenuBar();//菜单栏
JMenu m1=new JMenu("学生管理");
JMenuItem add1=new JMenuItem("add1      ");
JMenuItem updata1=new JMenuItem("updata1      ");
JMenuItem delete1=new JMenuItem("delete1      ");
JMenu m2=new JMenu("课程管理");
JMenuItem add2=new JMenuItem("add2      ");
JMenuItem updata2=new JMenuItem("updata2      ");
JMenuItem delete2=new JMenuItem("delete2      ");
JMenu m3=new JMenu("选课管理");
JMenuItem add3=new JMenuItem("add3      ");
JMenuItem updata3=new JMenuItem("updata3      ");
JMenuItem delete3=new JMenuItem("delete3      ");
JMenu m4=new JMenu("查询管理");
JMenuItem 学生查询=new JMenuItem("查询信息      ");
JMenuItem m5=new JMenuItem("系统退出");
Font t=new Font ("sanerif",Font.PLAIN,12);
public Menu (){
this.setTitle("学生选课管理系统");
try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
catch(Exception e){System.err.println("不能设置外观:      "+e);}
```

```
//组合菜单
addMenu1();
addMenu2();
addMenu3();
addMenu4();
addJMenuBar();
setJMenuBar(mb);

label=new JLabel("选课管理系统",JLabel.CENTER);
label.setFont(new Font("宋体",Font.BOLD,36));
label.setHorizontalTextPosition(SwingConstants.CENTER);
label.setForeground(Color.red);
//点击事件
add1.addActionListener(this);
updata1.addActionListener(this);
delete1.addActionListener(this);
m5.addActionListener(this);
add2.addActionListener(this);
delete2.addActionListener(this);
updata2.addActionListener(this);
add3.addActionListener(this);
delete3.addActionListener(this);
updata3.addActionListener(this);
学生查询.addActionListener(this);

card=new CardLayout();
pCenter=new JPanel();
pCenter.setLayout(card);

增加学生界面=new Addstu();
修改学生界面=new Updatastu();
删除学生界面=new Delstu();
增加课程界面=new AddC();
删除课程界面=new DelC();
修改课程界面=new UpdateC();
增加选课界面=new AddSC();
删除选课界面=new DelSC();
修改选课界面=new UpdateSC();
学生查询界面=new Selstu();

    pCenter.add("欢迎界面",label);
pCenter.add("增加学生界面",增加学生界面);
pCenter.add("修改学生界面",修改学生界面);
pCenter.add("删除学生界面",删除学生界面);
pCenter.add("增加课程界面",增加课程界面);
pCenter.add("删除课程界面",删除课程界面);
pCenter.add("修改课程界面",修改课程界面);
pCenter.add("增加选课界面",增加选课界面);
pCenter.add("删除选课界面",删除选课界面);
pCenter.add("修改选课界面",修改选课界面);
pCenter.add("学生查询界面"，学生查询界面);

add(pCenter,BorderLayout.CENTER);
validate();
setVisible(true);
setBounds(400,150,600,380);
setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    addWindowListener(new WindowAdapter(){//关闭程序时的操作
public void windowClosing(WindowEvent e){System.exit(0);}
});
validate();
}

private void addJMenuBar() {
mb.add(m1);mb.add(m2);mb.add(m3);mb.add(m4);mb.add(m5);
}
private void addMenu4() {
m4.add(学生查询);
     m4.setFont(t);
}
private void addMenu3() {
m3.add(add3);
m3.add(updata3);
m3.add(delete3);
m3.setFont(t);
}
private void addMenu2() {//将菜单加入到菜单栏中
m2.add(add2);
m2.add(updata2);
m2.add(delete2);
m2.setFont(t);
}
private void addMenu1() {
m1.add(add1);
m1.add(updata1);
m1.add(delete1);
m1.setFont(t);//字体
}
```

```
public void actionPerformed(ActionEvent e){
Object obj=e.getSource();
if(obj==m5){System.exit(0);}
else{if(obj==add1){
card.show(pCenter,"增加学生界面");
}
else{if(obj==updata1){
card.show(pCenter,"修改学生界面");
}
else{if(obj==delete1){
card.show(pCenter, "删除学生界面");
}
else{if(obj==add2){
card.show(pCenter, "增加课程界面");
}
else{if(obj==delete2){
card.show(pCenter, "删除课程界面");
}
else{if(obj==updata2){
card.show(pCenter, "修改课程界面");
}
else{if(obj==add3){
card.show(pCenter, "增加选课界面");
}
else{if(obj==delete3){
card.show(pCenter, "删除选课界面");
}
else{if(obj==updata3){
card.show(pCenter, "修改选课界面");
}
else{if(obj==学生查询){
card.show(pCenter, "学生查询界面");
}}
}}}}}}}}}
public static void main(String[] args) {
new Menu();
}
```

SelC.java:

```
import java.sql.*;
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

import java.util.*;

public class SelC extends JFrame {
Vector rowData, columnNames;
Statement stmt=null;
        String sql=null;
JTable jt = null;
JScrollPane jsp = null;
PreparedStatement ps=null;
ResultSet rs=null;
public SelC(String sql1){
columnNames = new Vector();
// 设置列名
columnNames.add("课号");
columnNames.add("课名");

rowData=new Vector();
sql=sql1;
try{
        Connection dbConn1=CONN();
stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,ResultSet.
CONCUR_READ_ONLY);
rs=stmt.executeQuery(sql);

while(rs.next()){
Vector hang = new Vector();
hang.add(rs.getString("Cno"));System.out.print(rs.getString("Cno"));
hang.add(rs.getString("Cname"));System.out.print(rs.getString("Cname"));
rowData.add(hang);}
jt=new JTable(rowData,columnNames);
jsp=new JScrollPane(jt);
this.add(jsp);
this.setSize(400,300);
this.setVisible(true);
}catch(SQLException e1){
      System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
      }
 }

//连接数据库方法
public static Connection CONN(){
    String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载 JDBC 驱动
    String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连接服务器和数据库 test
    String userName = "sa";    //默认用户名
    String userPwd = "huangjiwei";    //密码
    Connection dbConn=null;

    try {
    Class.forName(driverName);
    dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
    System.out.println("Connection Successful!");    //如果连接成功 控制台输出 Connection Successful!
    } catch (Exception e) {
    e.printStackTrace();
    }
    return dbConn;
}
}
```

SelSC.java:

```
import java.sql.*;
import javax.swing.*;

import java.util.*;

public class SelSC extends JFrame {
        Vector rowData, columnNames;
        Statement stmt=null;
     String sql=null;
        JTable jt = null;
        JScrollPane jsp = null;
        PreparedStatement ps=null;
        ResultSet rs=null;
        public SelSC(String sql1){
         columnNames = new Vector();
         // 设置列名
         columnNames.add("课号");
         columnNames.add("课名");
         columnNames.add("学号");
         columnNames.add("姓名");
         columnNames.add("成绩");

         rowData=new Vector();
         sql=sql1;
         try{
             Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
             rs=stmt.executeQuery(sql);

             while(rs.next()){
                 Vector hang = new Vector();
                 hang.add(rs.getString("Cno"));System.out.print(rs.getString("Cno"));
                 hang.add(rs.getString("Cname"));System.out.print(rs.getString("Cname"));
                 hang.add(rs.getString("Sno"));System.out.print(rs.getString("Sno"));
                 hang.add(rs.getString("Sname"));System.out.print(rs.getString("Sname"));
                 hang.add(rs.getString("C"));System.out.println(rs.getString("C"));
                 rowData.add(hang);}
                 jt=new JTable(rowData,columnNames);
                 jsp=new JScrollPane(jt);
        this.add(jsp);
        this.setSize(400,300);
        this.setVisible(true);
         }catch(SQLException e1){
                    System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                 }
         }

//      连接数据库方法
        public static Connection CONN(){
            String  driverName  =  "com.microsoft.sqlserver.jdbc.SQLServerDriver";     //加载
JDBC 驱动
            String  dbURL  =  "jdbc:sqlserver://localhost:1433;  DatabaseName=student";     //连
接服务器和数据库 test
            String userName = "sa";     //默认用户名
            String userPwd = "huangjiwei";     //密码
            Connection dbConn=null;

            try {
            Class.forName(driverName);
            dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
            System.out.println("Connection  Successful!");     //如果连接成功  控制台输出
Connection Successful!
```

```
      } catch (Exception e) {
      e.printStackTrace();
      }
      return dbConn;
    }
}
```

Selstu.java:

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;
public class Selstu extends JPanel implements ActionListener{
    JTextField 学号,姓名,系别;
    JButton 查找;
    JTextField 课号,课名;
    JButton 查找1;
    JTextField 课号1,学号1,成绩;
    JButton 查找2;

    public Selstu (){
     学号=new JTextField(12);
     姓名=new JTextField(12);
     系别=new JTextField(12);
     课号=new JTextField(12);
     课名=new JTextField(12);
     课号1=new JTextField(12);
     学号1=new JTextField(12);
     成绩=new JTextField(12);
     查找=new JButton("查找学生信息");
     查找1=new JButton("查找课程信息");
     查找2=new JButton("查找选课信息");


     Box box1=Box.createHorizontalBox();//横放 box
     Box box2=Box.createHorizontalBox();
     Box box4=Box.createHorizontalBox();
     Box box5=Box.createHorizontalBox();
     Box box6=Box.createHorizontalBox();
     Box box7=Box.createHorizontalBox();
     box1.add(new JLabel("学号:",JLabel.CENTER));
     box1.add(学号);
```

```
box1.add(new JLabel("姓名:",JLabel.CENTER));
box1.add(姓名);
box1.add(new JLabel("系别:",JLabel.CENTER));
box1.add(系别);
box2.add(查找);

box4.add(new JLabel("课号:",JLabel.CENTER));
box4.add(课号);
box4.add(new JLabel("课名:",JLabel.CENTER));
box4.add(课名);
box6.add(查找1);

box5.add(new JLabel("课号:",JLabel.CENTER));
box5.add(课号1);
box5.add(new JLabel("学号:",JLabel.CENTER));
box5.add(学号1);
box5.add(new JLabel("成绩:",JLabel.CENTER));
box5.add(成绩);
box7.add(查找2);

Box boxH1=Box.createVerticalBox();//竖放 box
boxH1.add(box1);
boxH1.add(box2);
boxH1.add(Box.createVerticalGlue());
Box boxH2=Box.createVerticalBox();//竖放 box
boxH2.add(box4);
boxH2.add(box6);
boxH2.add(Box.createVerticalGlue());
Box boxH3=Box.createVerticalBox();//竖放 box
boxH3.add(box5);
boxH3.add(box7);
boxH3.add(Box.createVerticalGlue());

查找.addActionListener(this);
查找1.addActionListener(this);
查找2.addActionListener(this);

JPanel messPanel=new JPanel();
JPanel picPanel=new JPanel();
JPanel threePanel=new JPanel();
messPanel.add(boxH1);
picPanel.add(boxH2);
threePanel.add(boxH3);
setLayout(new BorderLayout());
```

```
        JSplitPane splitV=new
JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//分割
        add(splitV,BorderLayout.CENTER);
        JSplitPane splitV1=new JSplitPane(JSplitPane.VERTICAL_SPLIT,splitV,threePanel);//
分割
        add(splitV1,BorderLayout.CENTER);
        validate();


       }

       public void actionPerformed(ActionEvent c){
        Object obj=c.getSource();
        Statement stmt=null;
        ResultSet rs=null;
        int row=0;
        int i=0;
           String sql=null;
           Students K;
           SelC K1;
           SelSC K2;
        if(obj==查找){
            if(学号.getText().equals("")&&姓名.getText().equals("")&&系
别.getText().equals("")){
                sql="select * from S ";System.out.print("000");//000
            }
            else{
                if(学号.getText().equals("")){
                    if(姓名.getText().equals("")){
                        sql="select * from S where Sx like'%"+系
别.getText()+"%'";System.out.print("001");}
                    else{if(系别.getText().equals("")){sql="select * from S where Sname
like'%"+姓名.getText()+"%'";System.out.print("010");}
                         else{sql="select * from S where Sname like'%"+姓
名.getText()+"%'and Sx like'%"+系别.getText()+"%'";System.out.print("011");}}}
                else{if(姓名.getText().equals("")){
                          if(系别.getText().equals("")){sql="select * from S where Sno
like'%"+学号.getText()+"%'";System.out.print("100");}
                          else{sql="select * from S where Sno like'%"+学号.getText()+"%'
and Sx like'%"+系别.getText()+"%'";System.out.print("101");}}
                     else{if(系别.getText().equals("")){sql="select * from S where Sno
like'%"+学号.getText()+"%' and Sname like'%"+姓名.getText()+"%'";System.out.print("110");}
                           else{sql="select * from S where Sno like'%"+学
号.getText()+"%' and Sname like'%"+姓名.getText()+"%' and Sx like'%"+系
```

```
别.getText()+"%'";System.out.print("111");}}}
        }
            K=new Students(sql);
         }
        else{if(obj==查找1){
            if(课号.getText().equals("")&&课名.getText().equals("")){
                sql="select * from C ";System.out.print("00");//00
            }
            else{
                if(课号.getText().equals("")){sql="select * from C where Cname like'%"+课
名.getText()+"%'";System.out.print("01");}
                else{if(系别.getText().equals("")){sql="select * from C where Cno like'%"+
课号.getText()+"%'";System.out.print("10");}
                     else{sql="select * from C where  Cno like'%"+课号.getText()+"%' and
Cname like'%"+姓名.getText()+"%'";System.out.print("11");}
            }
            }
             K1=new SelC(sql);}
        else{if(obj==查找2){
            if( 课 号 1.getText().equals("")&& 学 号 1.getText().equals("")&& 成
绩.getText().equals("")){
                sql="select SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S where
C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("000");//000
            }
            else{
                if(课号1.getText().equals("")){
                    if(学号1.getText().equals("")){
                        sql="select SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S where C
like'%"+成绩.getText()+"%' and C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("001");}
                    else{if( 成 绩 .getText().equals("")){sql="select
SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S where SC.Sno like'%"+学号1.getText()+"%' and
C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("010");}
                         else{sql="select SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S
where SC.Sno like'%"+ 学 号 1.getText()+"%'and C like'%"+ 成 绩 .getText()+"%' and
C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("011");}}}
                else{if(学号1.getText().equals("")){
                          if( 成 绩 .getText().equals("")){sql="select
SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S where SC.Cno like'%"+课号1.getText()+"%' and
C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("100");}
                          else{sql="select SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S
where SC.Cno like'%"+ 课 号 1.getText()+"%' and C like'%"+ 成 绩 .getText()+"%' and
C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("101");}}
                     else{if( 成 绩 .getText().equals("")){sql="select
SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S where  SC.Cno like'%"+课号1.getText()+"%'
and SC.Sno like'%"+学号1.getText()+"%' and C.Cno=SC.Cno and
S.Sno=SC.Sno";System.out.print("110");}
                              else{sql="select SC.Cno,Cname,SC.Sno,Sname,C from SC,C,S
where  SC.Cno like'%"+课号1.getText()+"%' and SC.Sno like'%"+学号1.getText()+"%' and C
like'%"+成绩.getText()+"%' and C.Cno=SC.Cno and S.Sno=SC.Sno";System.out.print("111");}}}
             }
             K2=new SelSC(sql);
             }
         }
         }
         }

//        连接数据库方法
        public static Connection CONN(){
            String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载
JDBC 驱动
            String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连
接服务器和数据库 test
            String userName = "sa";    //默认用户名
            String userPwd = "huangjiwei";    //密码
            Connection dbConn=null;

            try {
            Class.forName(driverName);
            dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
            System.out.println("Connection Successful!");    //如果连接成功 控制台输出
Connection Successful!
            } catch (Exception e) {
            e.printStackTrace();
            }
            return dbConn;
        }
}
```

Student.java:

```
import java.sql.*;
import javax.swing.*;
import java.util.*;

public class Students extends JFrame {
        Vector rowData, columnNames;
        Statement stmt=null;
```

```
    String sql=null;
       JTable jt = null;
       JScrollPane jsp = null;
       PreparedStatement ps=null;
       ResultSet rs=null;
       public Students(String sql1){
        columnNames = new Vector();
        // 设置列名
        columnNames.add("学号");
        columnNames.add("姓名");
        columnNames.add("性别");

        rowData=new Vector();
        sql=sql1;
        try{
            Connection dbConn1=CONN();

       stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,ResultSet.CONCUR_READ_ONLY);
            rs=stmt.executeQuery(sql);

            while(rs.next()){
                Vector hang = new Vector();
                hang.add(rs.getString("Sno"));System.out.print(rs.getString("Sno"));
                hang.add(rs.getString("Sname"));System.out.print(rs.getString("Sname"));
                hang.add(rs.getString("Sx"));System.out.println(rs.getString("Sx"));
                        rowData.add(hang);}
                jt=new JTable(rowData,columnNames);
                jsp=new JScrollPane(jt);
       this.add(jsp);
       this.setSize(400,300);
       this.setVisible(true);
        }catch(SQLException e1){
                   System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
               }
        }

//     连接数据库方法
       public static Connection CONN(){
           String  driverName  =  "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载JDBC 驱动
           String  dbURL  =  "jdbc:sqlserver://localhost:1433;  DatabaseName=student";    //连接服务器和数据库 test
           String userName = "sa";    //默认用户名
```

```
            String userPwd = "huangjiwei";     //密码
            Connection dbConn=null;

            try {
            Class.forName(driverName);
            dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
            System.out.println("Connection  Successful!");     //如果连接成功 控制台输出
Connection Successful!
            } catch (Exception e) {
            e.printStackTrace();
            }
            return dbConn;
        }
}
```

Updatastu.java:

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;

public class Updatastu extends JPanel implements ActionListener{
        String save=null;
        JTextField 学号 1,学号,姓名,系别;
        JButton 修改,查找;

public Updatastu(){
        try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
        catch(Exception e){System.err.println("不能设置外观:     "+e);}

        学号 1=new JTextField(12);
        学号=new JTextField(12);
        姓名=new JTextField(12);
        系别=new JTextField(12);
        修改=new JButton("修改");
        查找=new JButton("查找");

        Box box1=Box.createHorizontalBox();//横放 box
        Box box2=Box.createHorizontalBox();
        Box box3=Box.createHorizontalBox();
        Box box4=Box.createHorizontalBox();
        Box box5=Box.createHorizontalBox();
        box1.add(new JLabel("学号:",JLabel.CENTER));
        box1.add(学号);
        box2.add(new JLabel("姓名:",JLabel.CENTER));
        box2.add(姓名);
        box3.add(new JLabel("系别:",JLabel.CENTER));
        box3.add(系别);
        box4.add(修改);
        box5.add(new JLabel("学号:",JLabel.CENTER));
        box5.add(学号 1);
        box5.add(查找);

        修改.addActionListener(this);
    查找.addActionListener(this);

        Box boxH=Box.createVerticalBox();//竖放 box
        boxH.add(box1);
        boxH.add(box2);
        boxH.add(box3);
        boxH.add(box4);
        boxH.add(Box.createVerticalGlue());
        JPanel picPanel=new JPanel();
        JPanel messPanel=new JPanel();
        messPanel.add(box5);
        picPanel.add(boxH);
        setLayout(new BorderLayout());
        JSplitPane splitV=new JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//
分割
        add(splitV,BorderLayout.CENTER);
        validate();
}

public void actionPerformed(ActionEvent e){
        Object obj=e.getSource();
        Statement stmt=null;
        ResultSet rs=null,rs1=null;
    String sql=null,sql1=null,sqlSC;

        if(obj==查找){if(学号 1.getText().equals(""))JOptionPane.showMessageDialog(this,"请
填写查询的学号！" );
        else{

            sql1="select * from S where Sno='"+学号 1.getText()+"'";
            try{
            Connection dbConn1=CONN();
        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
         rs1=stmt.executeQuery(sql1);
            if(rs1.next()){学号.setText(rs1.getString("Sno").trim());
                            姓名.setText(rs1.getString("Sname").trim());
                            系别.setText(rs1.getString("Sx").trim());
                            save=学号 1.getText();
            }
            else{JOptionPane.showMessageDialog(this,"没有这个学号的学生" );}
            stmt.close();
            rs1.close();
            }catch(SQLException e1){
                System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
            }
            }
        }
        else{
        if(obj==修改){if(save==null){JOptionPane.showMessageDialog(this,"还没查找需要修
改的学生" );}
        else{
         if(学号.getText().equals("")||姓名.getText().equals("")||系别.getText().equals("")){
             JOptionPane.showMessageDialog(this,"学生信息填满才能修改！" );
         }
         else{sql="update S set Sno='"+学号.getText()+"',Sname='"+姓名.getText()+"',Sx='"+系
别.getText()+"'"+"where Sno='"+save+"'";
         if(save.trim().equals(学号.getText().trim())){
         try{
             Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
             stmt.executeUpdate(sql);
             save=null;
             JOptionPane.showMessageDialog(this,"修改完成" );
             学号.setText("");
             姓名.setText("");
             系别.setText("");
             stmt.close();
             }catch(SQLException e1){
                    System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                }
        }
         else{sql1="select * from S where Sno='"+学号.getText()+"'";
        try{
            Connection dbConn1=CONN();

       stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
            rs1=stmt.executeQuery(sql1);
            if(rs1.next()){      JOptionPane.showMessageDialog(this,"已存在此学号学生" );
            }
            else{
                sqlSC="update SC set Sno='"+学号.getText()+"' where Sno='"+save+"'";
                stmt.executeUpdate(sql);
                stmt.executeUpdate(sqlSC);
                save=null;
            JOptionPane.showMessageDialog(null,"修改完成" );
            学号.setText("");
            姓名.setText("");
            系别.setText("");}
            stmt.close();
            rs1.close();
            }catch(SQLException e1){
                    System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                }

        }

       }}}}
}

//连接数据库方法
public static Connection CONN(){
          String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载
JDBC 驱动
          String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连接
服务器和数据库 test
          String userName = "sa";    //默认用户名
          String userPwd = "huangjiwei";    //密码
          Connection dbConn=null;

          try {
          Class.forName(driverName);
          dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
          System.out.println("Connection Successful!");    //如果连接成功 控制台输出
Connection Successful!
          } catch (Exception e) {
                e.printStackTrace();
                }
                return dbConn;
}
}
```

UpdateC.java

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;
import javax.swing.*;

public class UpdateC extends JPanel implements ActionListener{
        String save=null;
        JTextField 课号 1,课号,课名;
        JButton 修改,查找;

public UpdateC(){
        try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
        catch(Exception e){System.err.println("不能设置外观:     "+e);}

        课号 1=new JTextField(12);
        课号=new JTextField(12);
        课名=new JTextField(12);
        修改=new JButton("修改");
        查找=new JButton("查找");

        Box box1=Box.createHorizontalBox();//横放 box
        Box box2=Box.createHorizontalBox();
        Box box3=Box.createHorizontalBox();
        Box box4=Box.createHorizontalBox();
        Box box5=Box.createHorizontalBox();
        box1.add(new JLabel("课号:",JLabel.CENTER));
        box1.add(课号);
        box2.add(new JLabel("课名:",JLabel.CENTER));
        box2.add(课名);
        box3.add(修改);
        box5.add(new JLabel("课号:",JLabel.CENTER));
        box5.add(课号 1);
        box5.add(查找);

        修改.addActionListener(this);
     查找.addActionListener(this);
```

```
        Box boxH=Box.createVerticalBox();//竖放 box
        boxH.add(box1);
        boxH.add(box2);
        boxH.add(box3);
        boxH.add(box4);
        boxH.add(Box.createVerticalGlue());
        JPanel picPanel=new JPanel();
        JPanel messPanel=new JPanel();
        messPanel.add(box5);
        picPanel.add(boxH);
        setLayout(new BorderLayout());
        JSplitPane splitV=new JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//
分割
        add(splitV,BorderLayout.CENTER);
        validate();
}

public void actionPerformed(ActionEvent e){
        Object obj=e.getSource();
        Statement stmt=null;
        ResultSet rs=null,rs1=null;
    String sql=null,sql1=null,sqlSC=null;

        if(obj==查找){if(课号 1.getText().equals(""))JOptionPane.showMessageDialog(this,"请
填写查询的课号！ " );
        else{
            sql1="select * from C where Cno='"+课号 1.getText()+"'";
            try{
            Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
         rs1=stmt.executeQuery(sql1);
            if(rs1.next()){课号.setText(rs1.getString("Cno").trim());
                            课名.setText(rs1.getString("Cname").trim());
                            save=课号 1.getText();
            }
            else{JOptionPane.showMessageDialog(this,"没有这个课号的课程" );}
            stmt.close();
            rs1.close();
            }catch(SQLException e1){
                System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
            }
```

```
                }
            }
            else{
            if(obj==修改){if(save==null){JOptionPane.showMessageDialog(this,"还没查找需要修
改的课程");}
            else{
              if(课号.getText().equals("")||课名.getText().equals("")){
                    JOptionPane.showMessageDialog(this,"课程信息填满才能修改！");
              }
              else{sql="update C set Cno='"+课号.getText()+"',Cname='"+课名.getText()+"' where
Cno='"+save+"'";
              if(save.trim().equals(课号.getText().trim())){
              try{
                    Connection dbConn1=CONN();

            stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
                    stmt.executeUpdate(sql);
                    save=null;
                    JOptionPane.showMessageDialog(this,"修改完成");
                    课号.setText("");
                    课名.setText("");
                    stmt.close();
                    }catch(SQLException e1){
                            System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                          }
            }
              else{sql1="select * from C where Cno='"+课号.getText()+"'";
              try{
                    Connection dbConn1=CONN();

            stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
                    rs1=stmt.executeQuery(sql1);
                    if(rs1.next()){         JOptionPane.showMessageDialog(this,"已存在此课号课程");
                    }
                    else{sqlSC="update SC set Sno='"+课号.getText()+"' where Cno='"+save+"'";
                    stmt.executeUpdate(sql);
                    stmt.executeUpdate(sqlSC);
                          save=null;
                    JOptionPane.showMessageDialog(null,"修改完成");
                    课号.setText("");
                    课名.setText("");}
                    stmt.close();
                rs1.close();
                }catch(SQLException e1){
                        System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                    }
          }
        }}}}
}



//连接数据库方法
public static Connection CONN(){
            String  driverName  =  "com.microsoft.sqlserver.jdbc.SQLServerDriver";       //加载 JDBC 驱动
            String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";     //连接服务器和数据库 test
            String userName = "sa";     //默认用户名
            String userPwd = "huangjiwei";     //密码
            Connection dbConn=null;

            try {
            Class.forName(driverName);
            dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
            System.out.println("Connection   Successful!");     //如果连接成功 控制台输出 Connection Successful!
            } catch (Exception e) {
            e.printStackTrace();
            }
            return dbConn;
}
}
```

UpdateSC.java:

```
import java.awt.*;
import java.awt.event.*;
import java.sql.*;

import javax.swing.*;
public class UpdateSC extends JPanel implements ActionListener{
        String saveC=null;
        String saveS=null;
        JTextField  课号 1,学号 1,学号,课号,成绩;
        JButton 修改,查找;

    public UpdateSC(){
        try {UIManager.setLookAndFeel(UIManager.getSystemLookAndFeelClassName());}
        catch(Exception e){System.err.println("不能设置外观:     "+e);}

        学号1=new JTextField(12);
        课号1=new JTextField(12);
        课号=new JTextField(12);
        学号=new JTextField(12);
        成绩=new JTextField(12);
        修改=new JButton("修改");
        查找=new JButton("查找");

        Box box1=Box.createHorizontalBox();//横放box
        Box box2=Box.createHorizontalBox();
        Box box3=Box.createHorizontalBox();
        Box box4=Box.createHorizontalBox();
        Box box5=Box.createHorizontalBox();
        box1.add(new JLabel("课号:",JLabel.CENTER));
        box1.add(课号);
        box2.add(new JLabel("学号:",JLabel.CENTER));
        box2.add(学号);
        box3.add(new JLabel("成绩:",JLabel.CENTER));
        box3.add(成绩);
        box4.add(修改);
        box5.add(new JLabel("课号:",JLabel.CENTER));
        box5.add(课号1);
        box5.add(new JLabel("学号:",JLabel.CENTER));
        box5.add(学号1);
        box5.add(查找);
        Box boxH=Box.createVerticalBox();//竖放box
        boxH.add(box1);
        boxH.add(box2);
        boxH.add(box3);
        boxH.add(box4);
        boxH.add(Box.createVerticalGlue());

        修改.addActionListener(this);
      查找.addActionListener(this);

        JPanel picPanel=new JPanel();
        JPanel messPanel=new JPanel();
        messPanel.add(box5);
        picPanel.add(boxH);
        setLayout(new BorderLayout());
        JSplitPane splitV=new JSplitPane(JSplitPane.VERTICAL_SPLIT,messPanel,picPanel);//
分割
        add(splitV,BorderLayout.CENTER);
        validate();
}
public void actionPerformed(ActionEvent e){
        Object obj=e.getSource();
        Statement stmt=null;
        ResultSet rs=null,rs1=null,rsC=null,rsS=null;
        String sql,sql1,sqlS,sqlC;

        if(obj==查找){if(课号1.getText().equals("")||学号
1.getText().equals(""))JOptionPane.showMessageDialog(this,"请填写完成查询的信息！" );
        else{
            sql1="select * from SC where Cno='"+课号1.getText()+"' and Sno='"+学号
1.getText()+"'";
            try{
            Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
         rs1=stmt.executeQuery(sql1);
            if(rs1.next()){课号.setText(rs1.getString("Cno").trim());
                            学号.setText(rs1.getString("Sno").trim());
                            成绩.setText(rs1.getString("C").trim());
                            saveC=课号1.getText().trim();
                            saveS=学号1.getText().trim();
            }
            else{JOptionPane.showMessageDialog(this,"没有这个课号的学生" );}
            stmt.close();
            rs1.close();
            }catch(SQLException e1){
                System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
            }
            }
        }

        else{
         if(obj==修改){if(saveC==null||saveS==null)JOptionPane.showMessageDialog(this,"还
没查找需要修改的学生/课程" );
         else{
             if(课号.getText().equals("")||学号.getText().equals("")){
                JOptionPane.showMessageDialog(this,"课程信息填满才能修改！" );
            }
        else{
             sqlC="select * from C where Cno='"+课号.getText()+"'";
            sqlS="select * from S where Sno='"+学号.getText()+"'";
            sql1="select  *  from  SC  where  Cno='"+ 课 号 .getText()+"'  and  Sno='"+ 学
号.getText()+"'";
            sql="update  SC  set  Cno='"+课号.getText()+"',Sno='"+学号.getText()+"',C='"+成
绩.getText()+"' where Cno='"+saveC+"' and Sno='"+saveS+"'";
    try{
            Connection dbConn1=CONN();

        stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
        rsC=stmt.executeQuery(sqlC);
        if(rsC.next()){
            rsS=stmt.executeQuery(sqlS);
            if(rsS.next()){
            if(课号.getText().trim().equals(saveC)&& 学号.getText().trim().equals(saveS)){
            stmt.executeUpdate(sql);
            JOptionPane.showMessageDialog(this,"添加成功");
            saveC=null;
            saveS=null;
                }
            else{rs1=stmt.executeQuery(sql1);
            if(rs1.next()){JOptionPane.showMessageDialog(this,"学生与课程号以存在，无法
修改");}
            else{
                stmt.executeUpdate(sql);
                JOptionPane.showMessageDialog(this,"添加成功");
                saveC=null;
                saveS=null;
            }
            rs1.close();
            }
        }
            else{JOptionPane.showMessageDialog(this,"该学生不存在，无法修改");}
            rsS.close();
        }
        else{JOptionPane.showMessageDialog(this,"该课程不存在，无法修改");}
        rsC.close();
        stmt.close();
    }
    catch(SQLException e1){
```

```
                System.out.print("SQL Exception occur.Message is:"+e1.getMessage());
                }
            }
            }
}
}
}

//          连接数据库方法
            public static Connection CONN(){
                String driverName = "com.microsoft.sqlserver.jdbc.SQLServerDriver";    //加载
JDBC 驱动
                String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连
接服务器和数据库 test
                String userName = "sa";    //默认用户名
                String userPwd = "huangjiwei";    //密码
                Connection dbConn=null;

                try {
                Class.forName(driverName);
                dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
                System.out.println("Connection Successful!");    //如果连接成功 控制台输出
Connection Successful!
                } catch (Exception e) {
                e.printStackTrace();
                }
                return dbConn;
            }
}
```

User.java:

```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;
import java.sql.*;


public class User extends JFrame{
private JLabel use,password;
private JTextField k1;//用户名输入框
private JPasswordField k2;//密码输入框
private JButton b1,b2;
```

```
//登录窗口
public User(JFrame f){
        super("系统登录");
        Container c=getContentPane();
        c.setLayout(new FlowLayout());
        use=new JLabel("username:");
        use.setFont(new Font("Serif",Font.PLAIN,20));
        password=new JLabel("password:");
        password.setFont(new Font("Serif",Font.PLAIN,20));
        k1=new JTextField(12);
        k2=new JPasswordField(12);
        b1=new JButton("登录");
        b2=new JButton("退出");

        //      设置登录方法
        BHandler b=new BHandler();
        EXIT d=new EXIT();
        b1.addActionListener(b);
        b2.addActionListener(d);

         //添加控件
        c.add(use);
        c.add(k1);
        c.add(password);
        c.add(k2);
        c.add(b1);
        c.add(b2);

        setBounds(600,300,250,150);
        setVisible(true);
        setResizable(false);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
}
//主函数
public static void main(String[] args) {
        User f1=new User(new JFrame());
        }
//登录按钮方法
private class BHandler implements ActionListener{
         public void actionPerformed(ActionEvent event){
              if(k1.getText().equals("")||k2.getText().equals("")){
                   JOptionPane.showMessageDialog(User.this,"用户名密码不能为空！" );
              }
```

```
            else{
                Statement stmt=null;
                ResultSet rs=null;
                String sql;
                sql="select * from admin where username='"+k1.getText()+"'";
               try{
                    Connection dbConn1=CONN();

       stmt=(Statement)dbConn1.createStatement(ResultSet.TYPE_SCROLL_INSENSITIVE,R
esultSet.CONCUR_READ_ONLY);
                     rs=stmt.executeQuery(sql);
                     if(rs.next()){
                         String xm=rs.getString("password");

       if(k2.getText().equals(xm.trim())){JOptionPane.showMessageDialog(User.this," 登 录 成
功");
                         dispose();
                             new Menu();//管理窗口

                             }
                         else{JOptionPane.showMessageDialog(User.this,"密码错误");}
                     }
                     else{JOptionPane.showMessageDialog(User.this,"用户名错误");}
                     rs.close();
                     stmt.close();
               }
               catch(SQLException e){
                    JOptionPane.showMessageDialog(User.this,"SQL                Exception
occur.Message is:"+e.getMessage());
                    }
            }
       }
       }
//退出方法结束
private class EXIT implements ActionListener{
       public void actionPerformed(ActionEvent even){
        System.exit(0);
       }
}

//连接数据库方法
public static Connection CONN(){
          String  driverName  =  "com.microsoft.sqlserver.jdbc.SQLServerDriver";     //加载
JDBC 驱动
```

```
        String dbURL = "jdbc:sqlserver://localhost:1433; DatabaseName=student";    //连接
服务器和数据库 test
        String userName = "sa";    //默认用户名
        String userPwd = "huangjiwei";    //密码
        Connection dbConn=null;
        try {
        Class.forName(driverName);
        dbConn = DriverManager.getConnection(dbURL, userName, userPwd);
        System.out.println("Connection Successful!");    //如果连接成功 控制台输出
Connection Successful!
        } catch (Exception e) {
        e.printStackTrace();
        }
        return dbConn;
}
}//父类结束
```