Chapter 5

**Chap5\_18**

**题目要求：**利用多线程（4个或以上）实现火车订票程序，利用同步使各线程余票正确

**程序代码：**

**package** chap5\_18;

**public** **class** Mainclass {

**public** **static** **void** main(String[] args) {

Station station1=**new** Station("Station1");

Station station2=**new** Station("Station2");

Station station3=**new** Station("Station3");

Station station4=**new** Station("Station4");

station1.start();

station2.start();

station3.start();

station4.start();

}

}

**package** chap5\_18;

**public** **class** Station **extends** Thread {

**public** Station(String name) {

**super**(name);

}

**static** **int** *tick* = 20;

**static** Object *ob* = "a";//值是任意的

**public** **void** run() {

**while** (*tick* > 0) {

**synchronized** (*ob*) {// 这个很重要，必须使用一个锁，

// 进去的人会把钥匙拿在手上，出来后才把钥匙拿让出来

**if** (*tick* > 0) {

System.***out***.println(getName() + " sells No. " + *tick* + " ticket");

*tick*--;

} **else** {

System.***out***.println("Selling out all tickets");

}

}

**try** {

*sleep*(1000);

} **catch** (InterruptedException e) {

e.printStackTrace();

}

}

}

}

**程序流程：**

·创建一个站台类Station，继承Thread，重写run方法

·在run方法里面执行售票操作

·售票要使用同步锁

·创建主方法调用类

**程序运行结果**：(由于输出过多，仅展示部分)

Station2 sells No. 20 ticket

Station4 sells No. 19 ticket

Station3 sells No. 18 ticket

Station1 sells No. 17 ticket

Station4 sells No. 16 ticket

Station3 sells No. 15 ticket

Station2 sells No. 14 ticket

Station1 sells No. 13 ticket

Station2 sells No. 12 ticket

Station3 sells No. 11 ticket

Station4 sells No. 10 ticket

Station1 sells No. 9 ticket

Station3 sells No. 8 ticket

Station4 sells No. 7 ticket

Station2 sells No. 6 ticket

Station1 sells No. 5 ticket

Station2 sells No. 4 ticket

Station4 sells No. 3 ticket

Station3 sells No. 2 ticket

Station1 sells No. 1 ticket

**Chapter 8**

**Chap8\_5**

**题目要求：**绘制静态图形

**程序代码：**

**package** chap8\_5;

**import** java.awt.\*;

**import** java.awt.geom.\*;

**import** javax.swing.\*;

**public** **class** Draw {

**public** **static** **void** main (String [] args){

JFrame window = **new** DrawFrame();

window.setTitle("Draw the picture");

window.setDefaultCloseOperation(JFrame.***EXIT\_ON\_CLOSE***);

window.setBounds(100,100,600,400);

window.setVisible(**true**);

}

}

**class** DrawFrame **extends** JFrame{

**public** DrawFrame(){

add(**new** DrawComponent());

pack();

}

}

**class** DrawComponent **extends** JComponent{

**private** **static** **final** **int** ***DEAFULT\_WIDTH*** = 400;

**private** **static** **final** **int** ***DEFAULT\_HEIGHT*** = 400;

**public** **void** paintComponent(Graphics g){

Graphics2D g2 = (Graphics2D)g;

**double** leftx = 100;

**double** topy = 100;

**double** width = 200;

**double** height = 150;

Rectangle2D rect = **new** Rectangle2D.Double(leftx,topy ,width,height);

g2.draw(rect);

**double** centerx = rect.getCenterX();

**double** centery = rect.getCenterY();

**double** radius = 150;

Ellipse2D circle = **new** Ellipse2D.Double();

circle.setFrameFromCenter(centerx, centery,centerx+radius,centery+radius);

g2.draw(circle);

}

}

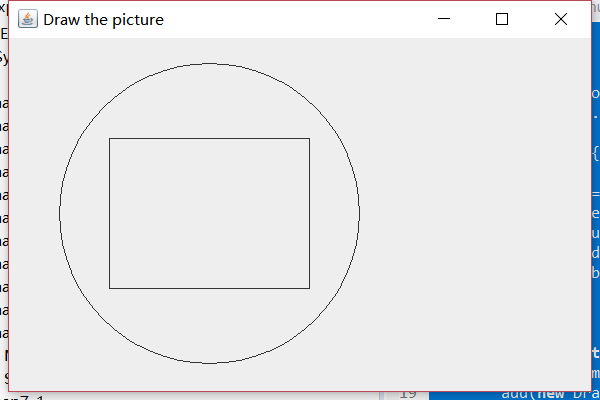
**程序流程：**

·创建窗口类

·创建图形类

·绘制图像

**程序输出结果：**



**Chap8\_12**

**题目要求：**利用双缓存，令动画不闪烁

**程序代码：**

/\*

\* 覆盖update方法

\*/

public void update(Graphics g){

ImageBuffer = createImage(this.getWidth(), this.getHeight());

GraImage = ImageBuffer.getGraphics(); paint(GraImage);

GraImage.dispose();

g.drawImage(ImageBuffer, 0, 0, this);

}

**程序流程：**

·截取上述过程，覆盖update(Graphics)函数

·在内存中创建一个与窗口大小相同的图形，并获得该图形的图形上下文

·再将图片的图形上下文作为参数调用paint(Graphics)函数

·再在update(Graphics)函数调用drawImage函数将创建的图形直接画在窗口上。

**程序运行结果：**

**无**

**Chap8\_14**

**题目要求：**用鼠标绘制图形

**程序代码：**

**package** chap8\_14;

**import** java.awt.BorderLayout;

**import** java.awt.Graphics;

**import** java.awt.event.MouseAdapter;

**import** java.awt.event.MouseEvent;

**import** java.awt.event.MouseMotionAdapter;

**import** javax.swing.JFrame;

**import** javax.swing.JPanel;

@SuppressWarnings("serial")

**public** **class** DrawPanel **extends** JFrame{

**private** **static** **int** *m*;

**private** **static** **int**[][] *x* = **new** **int**[10][25];

**private** **static** **int**[][] *y* = **new** **int**[10][25];

**private** **static** **int**[] *n* = **new** **int**[25];

**public** DrawPanel(){

**this**.setBounds(100, 200, 300, 300);

**this**.setLayout(**new** BorderLayout());

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

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

DrawPanel t = **new** DrawPanel();

JPanel jp = **new** JPanel(){

**public** **void** paint(Graphics g){

g.clearRect(0, 0, **this**.getWidth(), **this**.getHeight());

**for**(**int** i = 0;i<=*m*;i++){

**for**(**int** j = 1;j<=*n*[i];j++){

g.drawLine(*x*[i][j], *y*[i][j], *x*[i][j+1], *y*[i][j+1]);

}

}

}

};

jp.addMouseListener(**new** MouseAdapter(){

@Override

**public** **void** mouseClicked(MouseEvent e) {

// **TODO** Auto-generated method stub

*n*[*m*]++;

*x*[*m*][*n*[*m*]] = e.getX();

*y*[*m*][*n*[*m*]] = e.getY();

*x*[*m*][*n*[*m*]+1] = *x*[*m*][*n*[*m*]];

*y*[*m*][*n*[*m*]+1] = *y*[*m*][*n*[*m*]];

**if**((*x*[*m*][*n*[*m*]]-*x*[*m*][1])\*(*x*[*m*][*n*[*m*]]-*x*[*m*][1])+(*y*[*m*][*n*[*m*]]-*y*[*m*][1])\*(*y*[*m*][*n*[*m*]]-*y*[*m*][1])<=16&&*n*[*m*]>1){

*x*[*m*][*n*[*m*]] = *x*[*m*][1];

*y*[*m*][*n*[*m*]] = *y*[*m*][1];

*m*++;

}

jp.repaint();

}

});

jp.addMouseMotionListener(**new** MouseMotionAdapter(){

@Override

**public** **void** mouseMoved(MouseEvent e) {

// **TODO** Auto-generated method stub

*x*[*m*][*n*[*m*]+1] = e.getX();

*y*[*m*][*n*[*m*]+1] = e.getY();

jp.repaint();

}

});

t.getContentPane().add(jp, BorderLayout.***CENTER***);

t.setVisible(**true**);

}

}

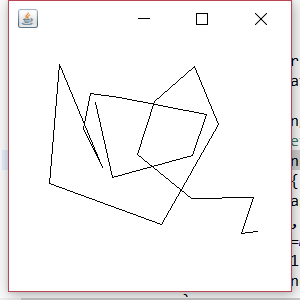
**程序流程：**

·实现左键按下，随着鼠标拖动出现直线

·再次单击左键，直线绘制结束

·不断连线构成图形

**程序运行结果：**



**Chapter 9**

**Chap9\_13**

**题目要求：**利用布局实现登录界面

**程序代码：**

**package chap9\_12;**

**import javax.swing.\*;**

**import java.awt.\*; //导入必要的包**

**public class Login extends JFrame{**

**JTextField jTextField;**

**JPasswordField jPasswordField;**

**JLabel jLabel1,jLabel2;**

**JPanel jp1,jp2,jp3;**

**JButton jb1,jb2;**

**public Login(){**

**jTextField = new JTextField(12);**

**jPasswordField = new JPasswordField(13);**

**jLabel1 = new JLabel("Username");**

**jLabel2 = new JLabel("Password");**

**jb1 = new JButton("Enter");**

**jb2 = new JButton("Cancel");**

**jp1 = new JPanel();**

**jp2 = new JPanel();**

**jp3 = new JPanel();**

**this.setLayout(new GridLayout(3,1));**

**jp1.add(jLabel1);**

**jp1.add(jTextField);**

**jp2.add(jLabel2);**

**jp2.add(jPasswordField);**

**jp3.add(jb1);**

**jp3.add(jb2);**

**this.add(jp1);**

**this.add(jp2);**

**this.add(jp3);**

**this.setSize(300, 200);**

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

**this.setVisible(true);**

**this.setTitle("Log In");**

**}**

**public static void main(String[] args){**

**new Login();**

**}**

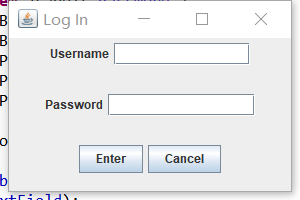
**}**

**程序流程：**

·定义文本框组件

·在面板上添加按钮

**程序输出结果：**



**Chap9\_14**

**题目要求：**JTable 表格行增删

**程序代码：**

**package** chap9\_14;

**import** java.awt.BorderLayout;

**import** java.awt.event.ActionEvent;

**import** java.awt.event.ActionListener;

**import** java.awt.event.MouseAdapter;

**import** java.awt.event.MouseEvent;

**import** javax.swing.JButton;

**import** javax.swing.JFrame;

**import** javax.swing.JLabel;

**import** javax.swing.JPanel;

**import** javax.swing.JScrollPane;

**import** javax.swing.JTable;

**import** javax.swing.JTextField;

**import** javax.swing.ListSelectionModel;

**import** javax.swing.table.DefaultTableModel;

**public** **class** JTableDefaultTableModelTest **extends** JFrame{

**private** DefaultTableModel tableModel;

**private** JTable table;

**private** JTextField aTextField;

**private** JTextField bTextField;

**public** JTableDefaultTableModelTest()

{

**super**();

setTitle("Table");

setBounds(100,100,500,400);

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

String[] columnNames = {"A","B"};

String [][]tableVales={{"A1","B1"},{"A2","B2"},{"A3","B3"},{"A4","B4"},{"A5","B5"}};

tableModel = **new** DefaultTableModel(tableVales,columnNames);

table = **new** JTable(tableModel);

JScrollPane scrollPane = **new** JScrollPane(table);

getContentPane().add(scrollPane,BorderLayout.***CENTER***);

table.setSelectionMode(ListSelectionModel.***SINGLE\_SELECTION***);

table.addMouseListener(**new** MouseAdapter(){

**public** **void** mouseClicked(MouseEvent e){

**int** selectedRow = table.getSelectedRow();

Object oa = tableModel.getValueAt(selectedRow, 0);

Object ob = tableModel.getValueAt(selectedRow, 1);

aTextField.setText(oa.toString());

bTextField.setText(ob.toString());

}

});

scrollPane.setViewportView(table);

**final** JPanel panel = **new** JPanel();

getContentPane().add(panel,BorderLayout.***SOUTH***);

panel.add(**new** JLabel("A: "));

aTextField = **new** JTextField("A4",10);

panel.add(aTextField);

panel.add(**new** JLabel("B: "));

bTextField = **new** JTextField("B4",10);

panel.add(bTextField);

**final** JButton addButton = **new** JButton("Add");

addButton.addActionListener(**new** ActionListener(){

**public** **void** actionPerformed(ActionEvent e){

String []rowValues = {aTextField.getText(),bTextField.getText()};

tableModel.addRow(rowValues);

**int** rowCount = table.getRowCount() +1;

aTextField.setText("A"+rowCount);

bTextField.setText("B"+rowCount);

}

});

panel.add(addButton);

**final** JButton updateButton = **new** JButton("Edit");

updateButton.addActionListener(**new** ActionListener(){

**public** **void** actionPerformed(ActionEvent e){

**int** selectedRow = table.getSelectedRow();

**if**(selectedRow!= -1)

{

tableModel.setValueAt(aTextField.getText(), selectedRow, 0);

tableModel.setValueAt(bTextField.getText(), selectedRow, 1);

//table.setValueAt(arg0, arg1, arg2)

}

}

});

panel.add(updateButton);

**final** JButton delButton = **new** JButton("Delete");

delButton.addActionListener(**new** ActionListener(){

**public** **void** actionPerformed(ActionEvent e){

**int** selectedRow = table.getSelectedRow();

**if**(selectedRow!=-1)

{

tableModel.removeRow(selectedRow);

}

}

});

panel.add(delButton);

}

/\*\*

\* **@param** args

\*/

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

JTableDefaultTableModelTest jTableDefaultTableModelTest = **new** JTableDefaultTableModelTest();

jTableDefaultTableModelTest.setVisible(**true**);

}

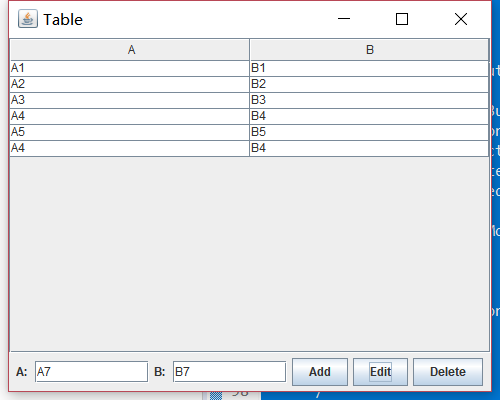
}

**程序流程：**

·创建表格对象

·实现增删功能

**程序运行结果：**



**Chap8\_14**

**题目要求：**用鼠标绘制图形

**程序代码：**

**package** chap8\_14;

**import** java.awt.BorderLayout;

**import** java.awt.Graphics;

**import** java.awt.event.MouseAdapter;

**import** java.awt.event.MouseEvent;

**import** java.awt.event.MouseMotionAdapter;

**import** javax.swing.JFrame;

**import** javax.swing.JPanel;

@SuppressWarnings("serial")

**public** **class** DrawPanel **extends** JFrame{

**private** **static** **int** *m*;

**private** **static** **int**[][] *x* = **new** **int**[10][25];

**private** **static** **int**[][] *y* = **new** **int**[10][25];

**private** **static** **int**[] *n* = **new** **int**[25];

**public** DrawPanel(){

**this**.setBounds(100, 200, 300, 300);

**this**.setLayout(**new** BorderLayout());

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

}

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

DrawPanel t = **new** DrawPanel();

JPanel jp = **new** JPanel(){

**public** **void** paint(Graphics g){

g.clearRect(0, 0, **this**.getWidth(), **this**.getHeight());

**for**(**int** i = 0;i<=*m*;i++){

**for**(**int** j = 1;j<=*n*[i];j++){

g.drawLine(*x*[i][j], *y*[i][j], *x*[i][j+1], *y*[i][j+1]);

}

}

}

};

jp.addMouseListener(**new** MouseAdapter(){

@Override

**public** **void** mouseClicked(MouseEvent e) {

// **TODO** Auto-generated method stub

*n*[*m*]++;

*x*[*m*][*n*[*m*]] = e.getX();

*y*[*m*][*n*[*m*]] = e.getY();

*x*[*m*][*n*[*m*]+1] = *x*[*m*][*n*[*m*]];

*y*[*m*][*n*[*m*]+1] = *y*[*m*][*n*[*m*]];

**if**((*x*[*m*][*n*[*m*]]-*x*[*m*][1])\*(*x*[*m*][*n*[*m*]]-*x*[*m*][1])+(*y*[*m*][*n*[*m*]]-*y*[*m*][1])\*(*y*[*m*][*n*[*m*]]-*y*[*m*][1])<=16&&*n*[*m*]>1){

*x*[*m*][*n*[*m*]] = *x*[*m*][1];

*y*[*m*][*n*[*m*]] = *y*[*m*][1];

*m*++;

}

jp.repaint();

}

});

jp.addMouseMotionListener(**new** MouseMotionAdapter(){

@Override

**public** **void** mouseMoved(MouseEvent e) {

// **TODO** Auto-generated method stub

*x*[*m*][*n*[*m*]+1] = e.getX();

*y*[*m*][*n*[*m*]+1] = e.getY();

jp.repaint();

}

});

t.getContentPane().add(jp, BorderLayout.***CENTER***);

t.setVisible(**true**);

}

}

**程序流程：**

·实现左键按下，随着鼠标拖动出现直线

·再次单击左键，直线绘制结束

·不断连线构成图形

**程序运行结果：**

