บทที่ 7 การใช้ GUI และ Action Listenner

การทดลองที่ 7-1

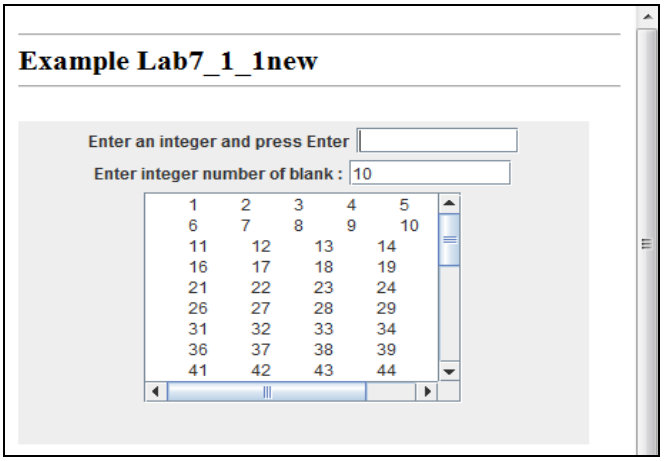
```
/* Lab7_1new.java */

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

public class Lab7_1new  extends JApplet {
   JLabel numberLabel;
   JTextField numberField;
   JTextArea resultArea;

   public void init() {
      // obtain content pane and set its layout to FlowLayout
      Container container = getContentPane();
      container.setLayout( new FlowLayout() );
      // create numberLabel and attach it to content pane
      numberLabel = new JLabel( "Enter an integer and press Enter" );
      container.add( numberLabel );

      // create numberField and attach it to content pane
      numberField = new JTextField( 10 );
      container.add( numberField );

      // register this applet as numberField's ActionListener
      numberField.addActionListener(
         new ActionListener() {
            public void actionPerformed( ActionEvent event )
            {
               int number;
               String blank5 = "     ";
               number = Integer.parseInt( numberField.getText() );
               // clear value in TextArea
               resultArea.setText("");
               // add data in textarea
               for (int n = 1 ; n <= number ; n++) {
                  resultArea.append( blank5 + Integer.toString(n) );
                  if (n % 5 == 0) resultArea.append("\n");
               }
               // clear value in numberField
               numberField.setText("");
            } // end method actionPerformed
         }
      );

      // create display
      resultArea = new JTextArea( 10,20 );
      resultArea.setEditable( false );
      container.add( resultArea );
   }
}
```

ไฟล์ Lab7_1new.html

```
<HTML>
<HEAD>
   <TITLE>Example 7_1 </TITLE>
</HEAD>
<BODY>
<H3><HR WIDTH="100%">Example Lab7_1new <HR WIDTH="100%"></H3>
<P>
<APPLET  code="Lab7_1new.class" width=400 height=400></APPLET>
</P>
<HR WIDTH="100%">
</BODY>
</HTML>
```

ผลลัพธ์

ให้นักศึกษาแก้ไขโดยการเพิ่ม JTextField ในการรับค่าสำหรับการกำหนดช่องว่าง และส่วนการแสดงผลของ JTextArea ให้ควบคุมด้วย JScrollPaneโดยเมื่อมีข้อมูลเกินก็จะแสดง scroll bar ขึ้นมาดังรูป



การทดลองที่ 7-2

```
/*  Lab7_2new.java */

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

public class Lab7_2new extends JApplet implements ActionListener {
   JLabel salaryLabel, taxLabel, resultLabel;
   JTextField salaryField, taxField,resultField;
   JButton btnCalculate;

   public void init()
   {
      // obtain content pane and set its layout to FlowLayout
      Container container = getContentPane();
      container.setLayout( new FlowLayout() );

      // create numberLabel and attach it to content pane
      salaryLabel = new JLabel( "Enter salary employee : " );
      container.add( salaryLabel );
      salaryField = new JTextField( 10 );
      container.add( salaryField );
      taxLabel = new JLabel(    "   Result Tax of salary : " );
      container.add( taxLabel );
      taxField = new JTextField( 10 );
      taxField.setEditable( false );
      container.add( taxField );
      resultLabel = new JLabel( "      Result Net Salary : " );
      container.add( resultLabel );
      resultField = new JTextField( 10 );
      resultField.setEditable( false );
      container.add( resultField );

      btnCalculate = new JButton(" Calculate  ");
      btnCalculate.addActionListener( this);
      container.add( btnCalculate );
   }

   public void actionPerformed( ActionEvent event )
   {
      double salary = Double.parseDouble( salaryField.getText() ) ;
      double tax, netSalary, taxRate;

      if (salary < 20000) taxRate = 0.02;
      else if (salary < 50000) taxRate = 0.05;
      else if (salary < 100000) taxRate = 0.07;
      else if (salary < 500000) taxRate = 0.10;
      else taxRate = 0.15;
      tax = salary * taxRate;
      netSalary = salary - tax;
      taxField.setText( Double.toString( tax) ) ;
      resultField.setText( Double.toString( netSalary ) );
   } // end method actionPerformed
}
```

ไฟล์ Lab7_2new.html

```
<HTML>
<HEAD>
   <TITLE>Example 7_2 </TITLE>
</HEAD>
<BODY>
<H3><HR WIDTH="100%">Example Lab7_2new <HR WIDTH="100%"></H3>
<P>
<APPLET code="Lab7_2new.class" width=300 height=400></APPLET>
</P>
<HR WIDTH="100%">
</BODY>
</HTML>
```

ผลลัพธ์

ให้นักศึกษาปรับแก้ไขส่วนการคำนวณภาษี ให้เป็นการเรียกใช้ method ชื่อ getTax แทน โดยรับค่าเงินเดือนและส่งคืนค่าภาษีกลับที่ชื่อ method โดยการทำงานยังถูกต้องเหมือนเดิม

การทดลองที่ 7-3

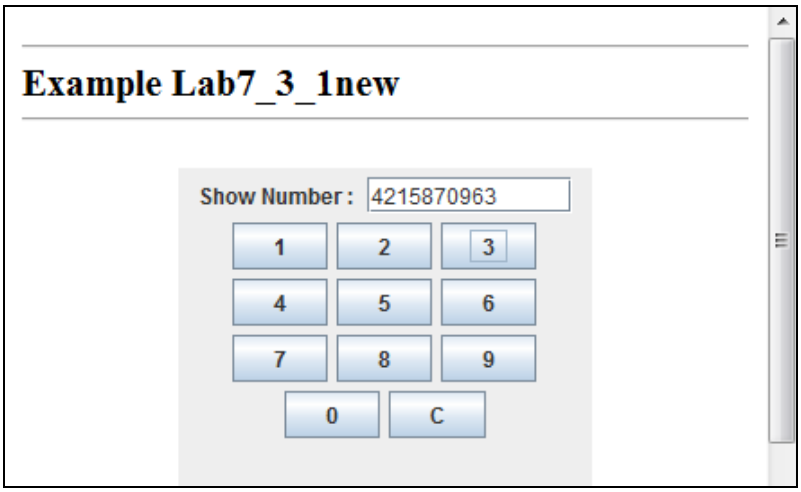
```
/* Lab7_3.java */

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

public class Lab7_3new extends JApplet implements ActionListener
{
     JLabel numberLabel;
     JTextField numberField;
     JButton btn1, btn2, btn3;

    public void init() {
        // obtain content pane and set its layout to FlowLayout
        Container container = getContentPane();
        container.setLayout( new FlowLayout() );

          // create numberLabel and attach it to content pane
          numberLabel = new JLabel( "Show Number : " );
          container.add( numberLabel );
          numberField = new JTextField( 10 );
          //numberField.setEditable( false );
          container.add( numberField );

          btn1 = new JButton("  1  ");
          btn1.addActionListener( this);
          container.add( btn1 );
          btn2 = new JButton("  2  ");
          btn2.addActionListener( this);
          container.add( btn2 );
          btn3 = new JButton("  3  ");
          btn3.addActionListener( this);
          container.add( btn3 );
     }

     public void actionPerformed( ActionEvent event )
     {
          String str = numberField.getText();

          if (event.getSource() == btn1) {
               str += "1";
               numberField.setText( str );
          }
          else if (event.getSource() == btn2) {
               str += "2";
               numberField.setText( str );
          }
          else if (event.getSource() == btn3) {
               str += "3";
               numberField.setText( str );
          }
     } // end method actionPerformed
 }
```

ไฟล์ Lab7_3new.html

```
<HTML>
<HEAD>
   <TITLE>Example 7_3 </TITLE>
</HEAD>
<BODY>
<H3><HR WIDTH="100%">Example Lab7_3new <HR WIDTH="100%"></H3>
<P>
<APPLET code="Lab7_3new.class" width=250 height=200></APPLET>
</P>
<HR WIDTH="100%">
</BODY>
</HTML>
```

ผลลัพธ์

ให้นักศึกษาปรับหน้าจอให้มีรายละเอียดตามภาพด้านล่าง โดยให้ทุกปุ่มสามารถคลิกและเพิ่มข้อความใน TextField ได้



การทดลองที่ 7-4

```
/* Lab7_4.java */
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class Lab7_4 extends JApplet implements ActionListener {
   JLabel textLabel, xLabel, yLabel;
   JTextField textField, xField, yField;
   JButton btn;
   int X = 0, Y = 0;
   String  str="";

    public void init() {
        // obtain content pane and set its layout to FlowLayout
        Container container = getContentPane();
        container.setLayout( new FlowLayout() );

      // create textLabel and textField attach it to content pane
      textLabel = new JLabel( "Enter Text : " );
      container.add( textLabel );
      textField = new JTextField( 10 );
      container.add( textField );

      // create xLabel and xField attach it to content pane
      xLabel = new JLabel( "Position X : " );
      container.add( xLabel );
      xField = new JTextField( 10 );
      container.add( xField );

      // create yLabel and yField attach it to content pane
      yLabel = new JLabel( "Position Y : " );
      container.add( yLabel );
      yField = new JTextField( 10 );
      container.add( yField );

      btn = new JButton("  SHOW  ");
      btn.addActionListener( this);
      container.add( btn );
   }

   public void actionPerformed( ActionEvent event )
   {
      str = textField.getText();
      X = Integer.parseInt( xField.getText() );
      Y = Integer.parseInt( yField.getText() );
      repaint();   // for call paint()
   } // end method actionPerformed

   public void paint(Graphics g)
   {
      super.paint(g);
      g.drawString( str, X, Y );
   }
}
```

ผลลัพธ์

การทดลองที่ 7-5

```
/* Lab7_5.java */

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

public class Lab7_5 extends JApplet implements ActionListener {
   JLabel idLabel, nameLabel, scoreLabel;
   JTextField idField, nameField, scoreField, statusField;
   JButton addBtn, minBtn, maxBtn, avgBtn;
   JTextArea showData;

   String  [] id, name = new String[20];
   double score[] = new double[20];

    public void init() {
        // obtain content pane and set its layout to FlowLayout
        Container container = getContentPane();
        container.setLayout( new FlowLayout() );

      // create idLabel and idField attach it to content pane
      idLabel = new JLabel( "        Enter Student Id : " );
      container.add( idLabel );
      idField = new JTextField( 15 );
      container.add( idField );

      // create nameLabel and nameField attach it to content pane
      nameLabel = new JLabel( "Enter Student Name : " );
      container.add( nameLabel );
      nameField = new JTextField( 15 );
```

```
      container.add( nameField );

      // create scoreLabel and scoreField attach it to content pane
      scoreLabel = new JLabel( "Enter Student Score : " );
      container.add( scoreLabel );
      scoreField = new JTextField( 15 );
      container.add( scoreField );
      // create buton attach it to content pane
      addBtn = new JButton("Add");
      addBtn.addActionListener( this);
      container.add( addBtn );
      String blank = "";
      for(int n = 1 ; n <= 80 ; n++) blank += "  ";
      container.add( new JLabel( blank ) );
      // create jtextarea attach it to content pane
      showData =  new JTextArea( 10, 26  );
      container.add( showData );
      container.add( new JLabel( blank ) );
      // create buton attach it to content pane
      minBtn = new JButton("Minimum");
      addBtn.addActionListener( this);
      container.add( minBtn );
      // create buton attach it to content pane
      maxBtn = new JButton("Maximum");
      maxBtn.addActionListener( this);
      container.add( maxBtn );
      // create buton attach it to content pane
      avgBtn = new JButton("Average");
      avgBtn.addActionListener( this);
      container.add( avgBtn );
      // create field attach it to content pane
      statusField = new JTextField( 26 );
      container.add( statusField );
   }

   public void actionPerformed( ActionEvent event )
   {
      if (event.getSource() == addBtn)
      {
         addData();
      }
      else if (event.getSource() == minBtn)
      {
         minData();
      }
      else if (event.getSource() == maxBtn)
      {
         maxData();
      }
      else if (event.getSource() == avgBtn)
      {
         averageData();
      }
   } // end method actionPerformed
```

```
   public void paint(Graphics g)
   {
      super.paint(g);
      g.drawRect( 5, 3, 320, 110  );
      g.drawRect( 5, 120, 320, 195  );
   }

   public void addData()
   {
   }

   public void minData()
   {
   }

   public void maxData()
   {
   }

   public void averageData()
   {
   }
}
```

ผลลัพธ์