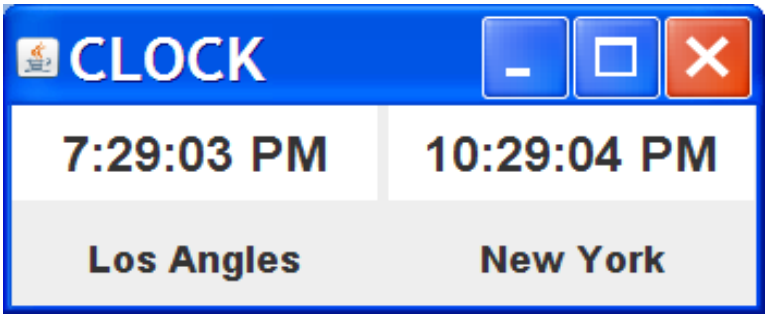
LAB Solution

Tuesday 8/19/2008

Design and implement a program that contains two digital clocks, one that displays local time (Los Angeles time) and on that show New York time as below.

1) without the NetBeans GUI tool
2) with the NetBeans GUI tool tool.



1) without the NetBeans GUI tool

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

public class DigitalClock extends JLabel implements ActionListener {
        private DateFormat df = DateFormat.getTimeInstance();

        public DigitalClock(){
                // Design and implement GUI
                ....

                // Create a timer object and start it
                ....
        }

        public DigitalClock(String zone){
                this();
                df.setTimeZone(TimeZone.getTimeZone(zone));
```

```
        }

        public void actionPerformed(ActionEvent e){
                setText(df.format (new Date()));
        }
}

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

public class ClockDemo extends JFrame{
        private DigitalClock c1 = new DigitalClock("America/Los_Angeles");
        private DigitalClock c2 = new DigitalClock("America/New_York");

        public ClockDemo(){
                super("CLOCK");
                Container c = getContentPane();
                JLabel l1 = new JLabel("Los Angles", JLabel.CENTER);
                JLabel l2 = new JLabel("New York", JLabel.CENTER);
                l1.setFont(new Font("SansSerif", Font.BOLD, 18));
                l2.setFont(new Font("SansSerif", Font.BOLD, 18));
                c.setLayout(new GridLayout(2,2,5,5));
                c.add(c1);      c.add(c2);      c.add(l1);      c.add(l2);
                setSize(350,150);
                setVisible(true);
                setDefaultCloseOperation(EXIT_ON_CLOSE);
        }
        public static void main(String[] args){
                ClockDemo cd = new ClockDemo();
        }
}
```

2) with the NetBeans GUI tool

```
/*
 * DigitalClockUI.java
 *
 * Created on August 16, 2008, 10:19 AM
 */

package my.DigitalClock;

import java.awt.*;
```

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

/**
 *
 * @author  Taehyung
 */
public class DigitalClockUI extends javax.swing.JFrame {

    /** Creates new form DigitalClockUI */
    public DigitalClockUI() {
        super("Digital Clock");
        initComponents();
    }

    DigitalClock c1 = new DigitalClock("America/Los_Angeles");
    DigitalClock c2 = new DigitalClock("America/New_York");


    /** This method is called from within the constructor to
     * initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is
     * always regenerated by the Form Editor.
     */
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();


setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setBackground(new java.awt.Color(255, 255, 255));
        jLabel1.setFont(new java.awt.Font("Dialog", 1, 24));
        jLabel1.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jLabel1.setOpaque(true);

        jLabel2.setBackground(new java.awt.Color(255, 255, 255));
        jLabel2.setFont(new java.awt.Font("Dialog", 1, 24));
```

```
        jLabel2.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jLabel2.setOpaque(true);

        jLabel3.setFont(new java.awt.Font("Dialog", 1, 24));
        jLabel3.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jLabel3.setText("Los Angeles");

        jLabel4.setFont(new java.awt.Font("Dialog", 1, 24));
        jLabel4.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jLabel4.setText("New York");

        javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(38, 38, 38)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEAD
ING, false)
                    .addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jLabel1, javax.swing.GroupLayout.DEFAULT_SIZE,
150, Short.MAX_VALUE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEAD
ING, false)
                    .addComponent(jLabel4, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE,
150, Short.MAX_VALUE))
                .addContainerGap(52, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(

layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(34, 34, 34)
```

```
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASE
LINE)
                .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE,
50, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE,
50, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(37, 37, 37)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASE
LINE)
                .addComponent(jLabel4)
                .addComponent(jLabel3))
            .addContainerGap(40, Short.MAX_VALUE))
        );

        pack();
    }// </editor-fold>

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new DigitalClockUI().setVisible(true);
            }
        });
    }

     private class DigitalClock implements ActionListener{
        private DateFormat df = DateFormat.getTimeInstance();
        private String zone;

        public DigitalClock(){
            javax.swing.Timer timer = new javax.swing.Timer(1000, this);
            timer.start();
        }

        public DigitalClock(String zone){
            this();
            this.zone = zone;
            df.setTimeZone(TimeZone.getTimeZone(zone));
        }
```

```
        public void actionPerformed(ActionEvent e){
            if (zone.equals("America/Los_Angeles"))
                jLabel1.setText(df.format(new Date ()));
            else if (zone.equals("America/New_York"))
                jLabel2.setText(df.format(new Date ()));
        }
    }

    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    // End of variables declaration

}
```