```java
import java.awt.BorderLayout;

import javax.swing.JFrame;


public class Main {

        /**
         * @param args
         */
        public static void main(String[] args) {
                Thermo t = new Thermo(10);
                Slide s = new Slide(t);
                Text txt = new Text(t);
                JFrame f = new JFrame("thermo ");
                f.setLayout(new BorderLayout());
                f.add(s, BorderLayout.EAST);
                f.add(txt, BorderLayout.WEST);
                f.pack();
                f.setVisible(true);


        }

}
```

```java
import java.awt.BorderLayout;
import java.util.Observable;
import java.util.Observer;

import javax.swing.JPanel;
import javax.swing.JSlider;
import javax.swing.event.ChangeEvent;
import javax.swing.event.ChangeListener;


public class Slide extends JPanel implements Observer {
        private static final long serialVersionUID = 8477466688641926299L;

        private JSlider slider;
        Thermo thermo;

        public Slide(Thermo t){
                super(new BorderLayout());
                this.thermo = t;
                this.thermo.addObserver(this);

                slider = new JSlider(-70,70);
                slider.setValue(0);
                slider.setOrientation(JSlider.VERTICAL);
                slider.setMajorTickSpacing(10);
                slider.setMinorTickSpacing(1);
                slider.setPaintLabels(true);
                slider.setPaintTicks(true);
                //slider.setPaintTrack(true);
                this.add(slider);
                this.setVisible(true);
                slider.addChangeListener(new ChangeListener() {
                        @Override
                        public void stateChanged(ChangeEvent e) {
                                thermo.setTemp_Celsius(slider.getValue());
                        }
                });
        }

        @Override
        public void update(Observable o, Object arg) {
                System.out.println("update\n   ");
                int thermoTemp = ((Thermo)o).getTemp_Celsius();
                if(slider.getValue() != thermoTemp)
                        slider.setValue(thermoTemp);
        }

}
```

```java
import java.awt.BorderLayout;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
import java.util.Observable;
import java.util.Observer;

import javax.swing.JPanel;
import javax.swing.JTextField;


public class Text extends JPanel implements Observer {
        private static final long serialVersionUID = -548707599384083762L;

        private JTextField field;

        private Thermo thermo;

        public Text(final Thermo t){
                super(new BorderLayout());
                this.thermo = t;
                this.thermo.addObserver(this);
                field = new JTextField(thermo.getTemp_Celsius());
                field.addActionListener(new ActionListener() {

                        @Override
                        public void actionPerformed(ActionEvent e) {
                                Integer thermoTemp = new Integer(t.getTemp_Celsi
us());

                                Integer fieldTemp = Integer.parseInt(field.getTe
xt());

                                if(!fieldTemp.equals(thermoTemp.toString()))
                                        t.setTemp_Celsius(fieldTemp);

                        }
                });
                this.add(field);

        }


        @Override
        public void update(Observable o, Object arg) {
                System.out.println("update txt\n      ");
                Integer thermoTemp = new Integer(((Thermo)o).getTemp_Celsius());
                if(!field.getText().equals(thermoTemp.toString()))
                        field.setText(thermoTemp.toString());

        }

}
```

```java
import java.util.Observable;


public class Thermo extends Observable{

        private int temp_Celsius = 0;

        public Thermo(int temp){
                this.setTemp_Celsius(temp);
        }

        public void setTemp_Celsius(int temp_Celsius) {
                this.temp_Celsius = temp_Celsius;
                System.out.println("temp mod at     " + temp_Celsius + "\n ");
                this.setChanged();
                this.notifyObservers();
        }

        public int getTemp_Celsius() {
                return temp_Celsius;
        }

}
```