

# Lab 10

# AWT methods Example1

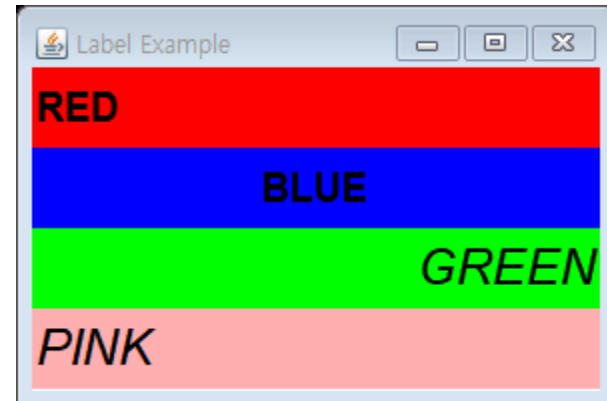
```
import java.awt.*;

public class LabelEx extends Frame {
    Label la1;
    Label la2;
    Label la3;
    Label la4;
    Font f1;
    Font f2;

    LabelEx() {
        super("Label Example");
        f1 = new Font("굴림체", Font.BOLD, 20);
        f2 = new Font("바탕체", Font.ITALIC, 25);
        la1 = new Label("RED");
        la2 = new Label("BLUE", Label.CENTER);
        la3 = new Label("GREEN", Label.RIGHT);
        la4 = new Label("PINK");
        setLayout(new GridLayout(4, 1));
        la1.setFont(f1);
        la2.setFont(f1);
        la3.setFont(f2);
        la4.setFont(f2);
        add(la1);
        add(la2);
        add(la3);
        add(la4);
        la1.setBackground(Color.red);
        la2.setBackground(Color.blue);
        la3.setBackground(Color.green);
        la4.setBackground(Color.pink);
        setSize(300, 200);
        setVisible(true);
    }

    public static void main(String[] ar) {
        LabelEx ls = new LabelEx();
    }
}
```

## Result



# AWT methods Example2

```
import java.awt.*;
import java.util.*;
import java.awt.List;

class Reg_Form extends Frame{
    private Label lb = new Label("Registered User List");
    private List li = new List(5, false);
    private Button bt = new Button("Join");

    private Label lb1 = new Label("Membership Form");
    private Label lb2 = new Label("Name : ", Label.RIGHT);
    private Label lb3 = new Label("Resident registration number: ", Label.RIGHT);
    private Label lb4 = new Label("Date of Birth : ", Label.RIGHT);
    private Label lb5 = new Label();
    private Label lb6 = new Label("Address : ", Label.RIGHT);

    private Button bt1 = new Button("Register");
    private Button bt2 = new Button("Clear");
    private Button bt3 = new Button("Exit");

    private TextField tf = new TextField();
    private TextField tf1 = new TextField(6);
    private Label lb7 = new Label("-", Label.CENTER);
    private TextField tf2 = new TextField(6);
    private Choice ch = new Choice();
    private Label lb8 = new Label("Year");
    private Choice ch1 = new Choice();
    private Label lb9 = new Label("Month");
    private Choice ch2 = new Choice();
    private Label lb10 = new Label("Date");
    private TextField tf3 = new TextField();

    public Reg_Form(String str){
        super(str);
        this.setLayout(new BorderLayout(5, 5));
        this.init();
        this.pack();
        this.setVisible(true);
    }
}
```

```

public void init(){
    //West
    Panel p = new Panel();
    p.setLayout(new BorderLayout());
    p.add("North", lb);
    p.add("Center", li);
    p.add("South", bt);
    this.add("West", p);
    //Center
    Panel p1 = new Panel();
    p1.setLayout(new BorderLayout());
    p1.add("North", lb1);
    Panel p2 = new Panel();
    p2.setLayout(new GridLayout(5, 1));
    p2.add(lb2);
    p2.add(lb3);
    p2.add(lb4);
    p2.add(lb5);
    p2.add(lb6);
    p1.add("West", p2);
    Panel p3 = new Panel();
    p3.setLayout(new FlowLayout(FlowLayout.RIGHT));
    p3.add(bt1);
    p3.add(bt2);
    p3.add(bt3);
    p1.add("South", p3);
    Panel p4 = new Panel();
    p4.setLayout(new GridLayout(5, 1));
    p4.add(tf);
    Panel p5 = new Panel();
    p5.setLayout(new BorderLayout());
    p5.add("West", tf1);
    p5.add("Center", lb7);
    p5.add("East", tf2);
    p4.add(p5);

```

```

Panel p6 = new Panel();
p6.setLayout(new BorderLayout());
p6.add("Center", ch);
p6.add("East", lb8);
p4.add(p6);
Panel p7 = new Panel();
p7.setLayout(new GridLayout(1, 2));
Panel p8 = new Panel();
p8.setLayout(new BorderLayout());
p8.add("Center", ch1);
p8.add("East", lb9);
p7.add(p8);
Panel p9 = new Panel();
p9.setLayout(new BorderLayout());
p9.add("Center", ch2);
p9.add("East", lb10);
p7.add(p9);
p4.add(p7);
p4.add(tf3);
p1.add("Center", p4);
this.add("Center", p1);
this.initData();
}

```

```

public void initData(){

    li.add("Heungmin Son");
    li.add("Jieun Lee");

    for(int i = 1; i <= 12; i++){
        ch1.add(i + "");
    }
    for(int i = 1; i <= 31; i++){
        ch2.add(i + "");
    }
    Calendar ca = Calendar.getInstance();
    int year = ca.get(Calendar.YEAR);
    for(int i = year; i >= 1900; i--){
        ch.add(i + "");
    }
}

```

```

}

public class Example2{
    public static void main(String[] ar){
        Reg_Form es = new Reg_Form("Registration Form");
    }
}

```

# Result

Registration Form

Registered User List    Membership Form

Heungmin Son  
Jieun Lee

Join

Name :

Resident registration number:  -

Date of Birth :  Year  
 Month  Date

Address :

Register   Clear   Exit

# AWT methods Example1\_Modify (WindowListener & ActionListener)

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

import static java.lang.Thread.sleep;

public class LabelEx extends Frame {
    Label la1;
    Label la2;
    Label la3;
    Label la4;
    Font f1;
    Font f2;
    Button b1;
    int count = 0;

    class MyListener implements ActionListener {
        public void actionPerformed(ActionEvent e) {

            if(e.getSource() == b1) {
                switch(count%4) {
                    case 0:
                        la1.setAlignment((la1.setAlignment()+1)%3);
                        break;
                    case 1:
                        la2.setAlignment((la2.setAlignment()+1)%3);
                        break;
                    case 2:
                        la3.setAlignment((la3.setAlignment()+1)%3);
                        break;
                    case 3:
                        la4.setAlignment((la4.setAlignment()+1)%3);
                        break;
                    default:
                        break;
                }
                b1.setLabel("Press_"+(++count));
            }
        }
    }
}
```

```
class WinEvent implements WindowListener{
    //윈도우가 활성화 될때
    public void windowActivated(WindowEvent e){
        la1.setBackground(Color.red);
    }
    //윈도우가 닫힌 다음에 호출
    public void windowClosed(WindowEvent e){

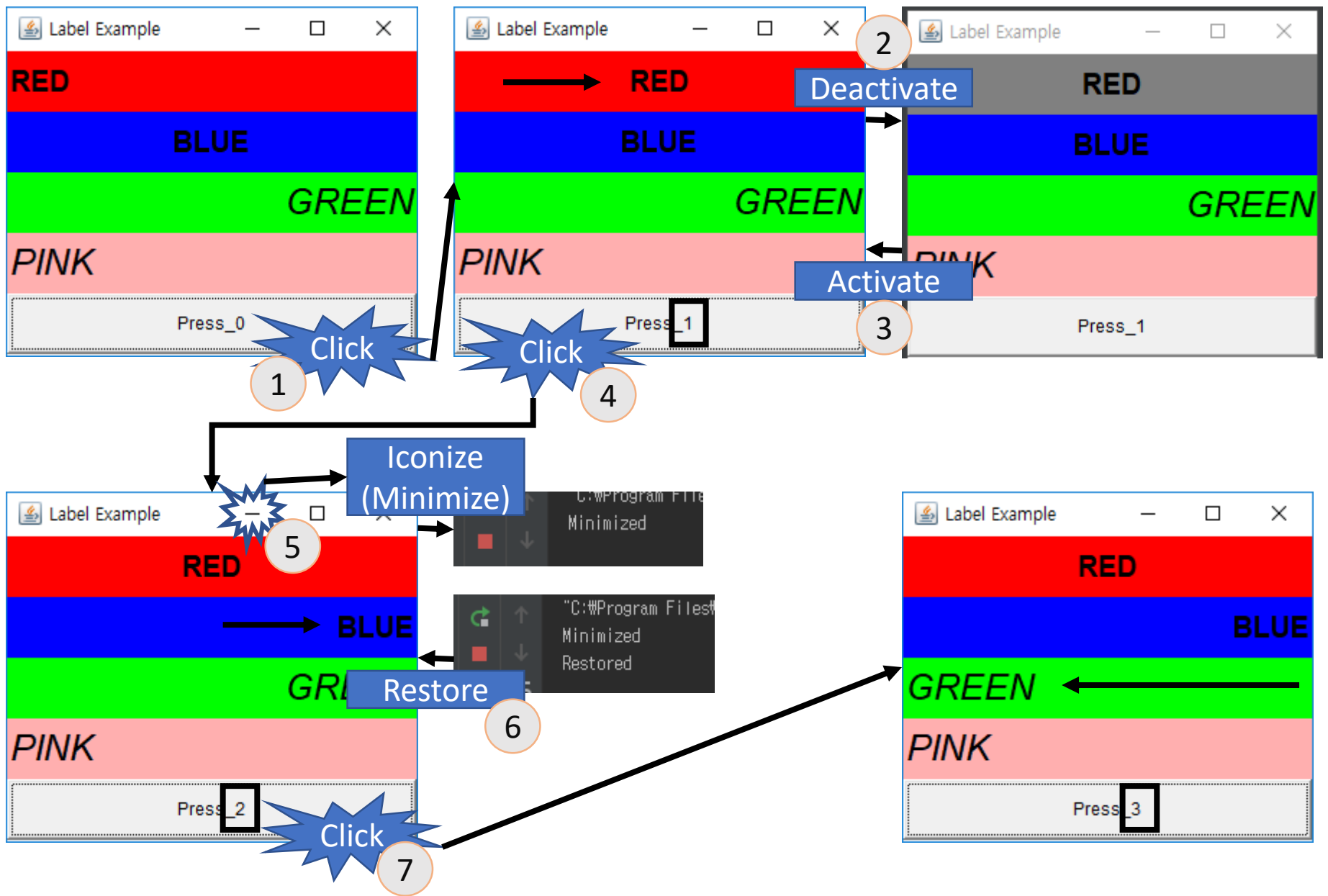
    }
    //윈도우가 닫히려고 할때 (X 버튼 누를때)
    public void windowClosing(WindowEvent e){
        System.exit(0); // X를 누르면 종료된다.
    }
    //윈도우가 비활성화 될때
    public void windowDeactivated(WindowEvent e){
        la1.setBackground(Color.GRAY);
    }
    //윈도우가 정상화 되었을때
    public void windowDeiconified(WindowEvent e){
        System.out.println("Restored");
    }
    //윈도우가 아이콘화 되었을때
    public void windowIconified(WindowEvent e){
        System.out.println("Minimized");
    }
    //윈도우가 화면에 처음 나타날때
    public void windowOpened(WindowEvent e){
        la4.setBackground(Color.red);
        try {
            sleep(350);
        } catch (InterruptedException e1) {
            e1.printStackTrace();
        }
        la4.setBackground(Color.pink);
        try {
            sleep(350);
        } catch (InterruptedException e1) {
            e1.printStackTrace();
        }
        la4.setBackground(Color.red);
        try {
            sleep(350);
        } catch (InterruptedException e1) {
            e1.printStackTrace();
        }
        la4.setBackground(Color.pink);
    }
}
```

# AWT methods Example1\_Modify (WindowListener & ActionListener)

```
LabelEx() {  
    super("Label Example");  
  
    this.addWindowListener(new WinEvent()); // 윈도우 이벤트 등록  
    MyListener buttonlisten = new MyListener(); //for ButtonAction  
  
    f1 = new Font("굴림체", Font.BOLD, 20);  
    f2 = new Font("바탕체", Font.ITALIC, 25);  
    la1 = new Label("RED");  
    la2 = new Label("BLUE", Label.CENTER);  
    la3 = new Label("GREEN", Label.RIGHT);  
    la4 = new Label("PINK");  
    b1 = new Button("Press_"+count);  
    b1.addActionListener(buttonlisten);  
  
    setLayout(new GridLayout(5, 1));  
    la1.setFont(f1);  
    la2.setFont(f1);  
    la3.setFont(f2);  
    la4.setFont(f2);  
    add(la1);  
    add(la2);  
    add(la3);  
    add(la4);  
    add(b1);  
    la1.setBackground(Color.red);  
    la2.setBackground(Color.blue);  
    la3.setBackground(Color.green);  
    la4.setBackground(Color.pink);  
    setSize(300, 250);  
    setVisible(true);  
}  
  
public static void main(String[] args) {  
    LabelEx is = new LabelEx();  
}  
}
```

## Result







```
if(e.getSource() == b1) {  
    switch(count%4) {  
        case 0:  
            la1.setAlignment((la1.setAlignment()+1)%3);  
            break;
```

## 1. Click Button

- Red goes to the center & Button number changed

## 2. Deactivate the window

- Color red changes to gray

## 3. Reactivate the window

- Color gray changes back to red

## 4. Click Button

- Blue goes to the right & Button number changed

## 5. Iconize (Minimize) the window

- System.out.println("Minimized")

## 6. Restore the window

- System.out.println("Restored")

## 7. Click Button

- Green goes to the left & Button number changed

.getAlignment()  
Return value:  
0 (left) 1 (center) 2 (right)