

## Mouse Listener

```
package Listener;
import java.awt.Frame;
import java.awt.Label;
import java.awt.TextArea;
import java.awt.event.MouseEvent;
import java.awt.event.MouseListener;
public class Mouse implements MouseListener { TextArea s;
public Mouse()
{
    Frame d=new Frame("kkkk");
    s=new TextArea("");
    d.add(s);
    s.addMouseListener(this);
    d.setSize(190, 190);
d.show();
}

public void mousePressed(MouseEvent e) { System.out.println("MousePressed");
    int a=e.getX();
    int b=e.getY();
    System.out.println("X="+a+"Y="+b);
}

public void mouseReleased(MouseEvent e) { System.out.println("MouseReleased");
    }

public void mouseEntered(MouseEvent e) { System.out.println("MouseEntered");
}

public void mouseExited(MouseEvent e) { System.out.println("MouseExited");
}

public void mouseClicked(MouseEvent e) { System.out.println("MouseClicked");
}
}
```

```

public static void main(String arg[])
{
    Mouse a=new Mouse();
}
}

```

## Mouse Motion Listener

```

package Listener;
import java.awt.event.MouseEvent;
import java.awt.event.MouseMotionListener;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.JTextArea;
public class MouseMotionEventDemo extends JPanel implements MouseMotionListener {
    MouseMotionEventDemo()
    {
        JTextArea a=new JTextArea();
        a.addMouseMotionListener(this);
        JFrame b=new JFrame();
        b.add(a);
        b.setVisible(true);
    }
    public void mouseMoved(MouseEvent e) {
        System.out.println("Mouse is Moving");
    }
    public void mouseDragged(MouseEvent e) {
        System.out.println("MouseDragged");
    }
}
public static void main(String arg[])

```

```

{
    MouseMotionEventDemo a=new MouseMotionEventDemo();
}
}

```

```

KEY LISTENER package Listener;
import java.awt.event.KeyEvent;
import java.awt.event.KeyListener;
import javax.swing.JFrame;
import javax.swing.JTextField;
public class KeyEventDemo implements KeyListener
{
    public KeyEventDemo()
    {
        JFrame s=new JFrame("hai");
        JTextField typingArea = new JTextField(20);
        typingArea.addKeyListener(this);
        s.add(typingArea);
        s.setVisible(true);
    }

    public void keyTyped(KeyEvent e) { System.out.println("KeyTyped");
}

/** Handle the key-pressed event from the text field. */ public void keyPressed(KeyEvent e) {
    System.out.println("KeyPressed");
}

/** Handle the key-released event from the text field. */ public void keyReleased(KeyEvent e) {
    System.out.println("Keyreleased");
}

public static void main(String g[])
{

```

```

        KeyEventDemo a=new KeyEventDemo();
    }

}

```

```

ITEM LISTENER package Listener;
import java.awt.event.ItemEvent;
import java.awt.event.ItemListener;
import java.awt.event.KeyEvent;
import java.awt.event.KeyListener;
import javax.swing.JButton;
import javax.swing.JCheckBox;
import javax.swing.JFrame;
import javax.swing.JTextField;
public class itemlistener implements ItemListener
{
    public itemlistener()
    {
        JFrame s=new JFrame("hai");
        JCheckBox a=new JCheckBox("Ok");
        a.addItemListener(this);
        s.add(a);
        s.setVisible(true);
    }
    public static void main(String g[])
    {
        itemlistener l=new itemlistener();
    }
    public void itemStateChanged(ItemEvent arg0) {
        System.out.println("State changed");
    }
}

```

### **Window Listener**

```

package Listener;

```

```

import java.awt.event.MouseEvent;
import java.awt.event.MouseMotionListener;
import java.awt.event.WindowEvent;
import java.awt.event.WindowListener;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.JTextArea;
public class window extends JPanel implements WindowListener { window()
{
    JFrame b=new JFrame();
    b.addWindowListener(this);
    b.setVisible(true);
}

public static void main(String arg[])
{
    window a=new window();
}

public void windowActivated(WindowEvent arg0) {
    System.out.println("Window activated");
}

public void windowClosed(WindowEvent arg0) {
    // TODO Auto-generated method stub System.out.println("Window closed");
}

public void windowClosing(WindowEvent arg0) {
    // TODO Auto-generated method stub System.out.println("Window closing");
}

public void windowDeactivated(WindowEvent arg0) {
    // TODO Auto-generated method stub
    System.out.println("Window deactivated");
}

```

```

}

public void windowDeiconified(WindowEvent arg0) {
    // TODO Auto-generated method stub System.out.println("Window deiconified");
}

public void windowIconified(WindowEvent arg0) {
    // TODO Auto-generated method stub System.out.println("Window Iconified");
}

public void windowOpened(WindowEvent arg0) {
    // TODO Auto-generated method stub System.out.println("Window opened");
}}

```

## **WINDOW FOCUS LISTENER**

```

package Listener;
import java.awt.event.MouseEvent;
import java.awt.event.MouseMotionListener;
import java.awt.event.WindowEvent;
import java.awt.event.WindowFocusListener;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.JTextArea;
public class window1 extends JPanel implements WindowFocusListener { window1()
{
    JFrame b=new JFrame();
    b.addWindowFocusListener(this);
    b.setVisible(true);
}

public static void main(String arg[])
{
    window1 b=new window1();
}

```

```

}

public void windowGainedFocus(WindowEvent e) {
    // TODO Auto-generated method stub System.out.println("Window gained");
}

public void windowLostFocus(WindowEvent e) {
    // TODO Auto-generated method stub System.out.println("Windowlostfocus");
}}

```

## WindowStateListener

```

package Listener;
import java.awt.event.MouseEvent;
import java.awt.event.MouseMotionListener;
import java.awt.event.WindowEvent;
import java.awt.event.WindowStateListener;
import javax.swing.JFrame;
import javax.swing.JPanel;
import javax.swing.JTextArea;
public class window2 extends JPanel implements WindowStateListener { window2()
{
    JFrame b=new JFrame();
    b.addWindowStateListener(this);
    b.setVisible(true);
}

public static void main(String arg[])
{
    window2 b=new window2();
}

public void windowStateChanged(WindowEvent e) {
    // TODO Auto-generated method stub

```

```
        System.out.println("State Changed");
    }}
}}
```

## **ACTION LISTENER**

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

public class A extends JFrame implements ActionListener {
    Scientific() {
        JPanel buttonpanel = new JPanel();
        JButton b1 = new JButton("Hai");
        buttonpanel.add(b1);
        b1.addActionListener(this);
    }

    public void actionPerformed(ActionEvent e) {
        System.out.println("Hai button");
    }

    public static void main(String args[]) {
        A f = new A();
        f.setTitle("ActionListener");
        f.setSize(500,500);
        f.setVisible(true);
    }
}}
```



## Java adapter classes

Java adapter classes provide the default implementation of listener interfaces. If you inherit the adapter class, you will not be forced to provide the implementation of all the methods of listener interfaces. So it saves code.

The adapter classes are found in `java.awt.event`, `java.awt.dnd` and `javax.swing.event` packages.

Adapter class	Listener interface
WindowAdapter	WindowListener
KeyAdapter	KeyListener
MouseAdapter	MouseListener
MouseMotionAdapter	MouseMotionListener
FocusAdapter	FocusListener
ComponentAdapter	ComponentListener
ContainerAdapter	ContainerListener
HierarchyBoundsAdapter	HierarchyBoundsListener

### Java WindowAdapter Example

```
import java.awt.*;
import java.awt.event.*;
public class AdapterExample{
    Frame f;
    AdapterExample(){
        f=new Frame("Window Adapter");
        f.addWindowListener(new WindowAdapter(){
            public void windowClosing(WindowEvent e) { f.dispose();
```

```

        }

    });

    f.setSize(400,400);
    f.setLayout(null);
    f.setVisible(true);

}

public static void main(String[] args) { new AdapterExample();
} }

```

### Java MouseAdapter Example

```

import java.awt.*;
import java.awt.event.*;
public class MouseAdapterExample extends MouseAdapter{
    Frame f;
    MouseAdapterExample(){
        f=new Frame("Mouse Adapter");
        f.addMouseListener(this);
        f.setSize(300,300);
        f.setLayout(null);
        f.setVisible(true);
    }
    public void mouseClicked(MouseEvent e) {
        Graphics g=f.getGraphics();
        g.setColor(Color.BLUE);
        g.fillOval(e.getX(),e.getY(),30,30);
    }
    public static void main(String[] args) {
        new MouseAdapterExample();
    } }

```

### Java MouseMotionAdapter Example

```

import java.awt.*;

```

```

import java.awt.event.*;
public class MouseMotionAdapterExample extends MouseMotionAdapter {
    Frame f;
    MouseMotionAdapterExample() {
        f=new Frame("Mouse Motion Adapter");
        f.addMouseMotionListener(this);
        f.setSize(300,300);
        f.setLayout(null);
        f.setVisible(true);
    }
    public void mouseDragged(MouseEvent e) {
        Graphics g=f.getGraphics();
        g.setColor(Color.ORANGE);
        g.fillOval(e.getX(),e.getY(),20,20);
    }
    public static void main(String[] args) {
        new MouseMotionAdapterExample();
    }
}

```

### Java KeyAdapter Example

```

import java.awt.*;
import java.awt.event.*;
public class KeyAdapterExample extends KeyAdapter {
    Label l;
    TextArea area;
    Frame f;
    KeyAdapterExample() {
        f=new Frame("Key Adapter");
        l=new Label();
        l.setBounds(20,50,200,20);
        area=new TextArea();
        area.setBounds(20,80,300, 300);
        area.addKeyListener(this);
        f.add(l); f.add(area);
        f.setSize(400,400);
    }
}

```

```
f.setLayout(null);
f.setVisible(true);
}
public void keyReleased(KeyEvent e) {
    String text=area.getText();
    String words[]=text.split("\\s");
    l.setText("Words: "+words.length+" Characters: "+text.length()); }
public static void main(String[] args) {
    new KeyAdapterExample();
} }
```