




The Abstract Window Toolkit

Ali Akbar N
Assistant Professor
GEC Thrissur



AWT

- Java's first GUI framework
- Contains numerous classes and methods that allow to create windows and simple controls.
- To create and manage windows
- manage fonts
- output text
- utilize graphics
- AWT controls

Window Fundamentals




- Class Hierarchy
 - Component
 - Container
 - Panel
 - Window
 - Frame
- In addition to the applet, the type of AWT-based window you will most often create is derived from Frame.
- will be used to create child windows within applets, and top-level or child windows for stand-alone applications.

Frame methods

- The `setSize()` to set the dimensions of the window.
- The `getSize()` to obtain the current size of a window.
- The `setVisible()` to make the window visible.
- The `setTitle()` to change the title in a frame window

Creating a Frame Window



- Create a subclass of Frame.
 - Override any of the standard applet methods, such as `init()`, `start()`, and `stop()`, to show or hide the frame as needed.
 - Implement the `windowClosing()` method of the `WindowListener` interface, calling `setVisible(false)` when the window is closed.
- 

Sample program

// Create a child frame window from within an applet.

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

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

```
import java.applet.*;
```

// Create a subclass of Frame.

```
class SampleFrame extends Frame {
```

```
    SampleFrame(String title) {
```

```
        super(title);
```

// create an object to handle window events

```
        MyWindowAdapter adapter = new
```

```
        MyWindowAdapter(this);
```

// register it to receive those events

```
        addWindowListener(adapter);
```

```
    }
```

```
    public void paint(Graphics g) {
```

```
        g.drawString("This is in frame window", 10, 40);
```

```
    }
```

```
    class MyWindowAdapter extends  
        WindowAdapter {
```

```
        SampleFrame sampleFrame;
```

```
        public MyWindowAdapter(SampleFrame  
            sampleFrame) {
```

```
            this.sampleFrame = sampleFrame;
```

```
        }
```

```
        public void windowClosing(WindowEvent we) {
```

```
            sampleFrame.setVisible(false);
```

```
        }
```

```
    }
```

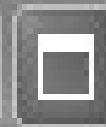
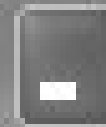

Sample program

```
// Create frame window.  
public class AppletFrame  
extends Applet {  
    Frame f;  
    public void init() {  
        f = new SampleFrame("A  
Frame Window");  
        f.setSize(250, 250);  
        f.setVisible(true);  
    }  
}
```

```
public void start() {  
    f.setVisible(true);  
}  
public void stop() {  
    f.setVisible(false);  
}  
public void paint(Graphics g) {  
    g.drawString("This is in applet  
window", 10, 20);  
}  
}
```



Applet Viewer: AppletFrame



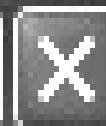
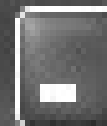
Applet

This is in applet window

Applet started.



A Frame Window



This is in frame window

AWT-based application.

```
// Create an AWT-based application.
import java.awt.*;
import java.awt.event.*;
import java.applet.*;
// Create a frame window.
public class AppWindow extends Frame {
    String keymsg = "This is a test.";
    String mousemsg = "";
    int mouseX=30, mouseY=30;
    public AppWindow() {
        addKeyListener(new MyKeyAdapter(this));
        addMouseListener(new
            MyMouseAdapter(this));
        addWindowListener(new
            MyWindowAdapter());
    }
}
```

```
public void paint(Graphics g) {
    g.drawString(keymsg, 10, 40);
    g.drawString(mousemsg, mouseX,
        mouseY);
}
// Create the window.
public static void main(String args[]) {
    AppWindow appwin = new AppWindow();
    appwin.setSize(new Dimension(300, 200));
    appwin.setTitle("An AWT-Based
        Application");
    appwin.setVisible(true);
}
}
```


Cont..

```
class MyKeyAdapter extends KeyAdapter {
    AppWindow appWindow;

    public MyKeyAdapter(AppWindow
    appWindow) {
        this.appWindow = appWindow;
    }

    public void keyTyped(KeyEvent ke) {
        appWindow.keymsg += ke.getKeyChar();
        appWindow.repaint();
    };
}
```

```
class MyMouseAdapter extends
    MouseAdapter {
    AppWindow appWindow;

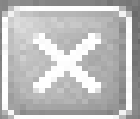
    public MyMouseAdapter(AppWindow
    appWindow) {
        this.appWindow = appWindow;
    }
}
```

```
public void mousePressed(MouseEvent
me) {
    appWindow.mouseX = me.getX();
    appWindow.mouseY = me.getY();
    appWindow.mousemsg = "Mouse Down
    at " + appWindow.mouseX +
    ", " + appWindow.mouseY;
    appWindow.repaint();
}
}
```

```
class MyWindowAdapter extends
    WindowAdapter {
    public void
    windowClosing(WindowEvent we) {
        System.exit(0);
    }
}
```




An AWT-Based Application



This is a test.

Mouse Down at 81, 97



Tomorrow....

- Write a program to create a window that responds to mouse events. The main applet window should also respond to mouse events.
- The following events are to be handled.
 - MouseClicked
 - Entered,Exited a window
 - Pressed,Released
 - Dragged, moved



This work is licensed under
a Creative Commons Attribution-ShareAlike 3.0 Unported License.
It makes use of the works of
Kelly Loves Whales and Nick Merritt.