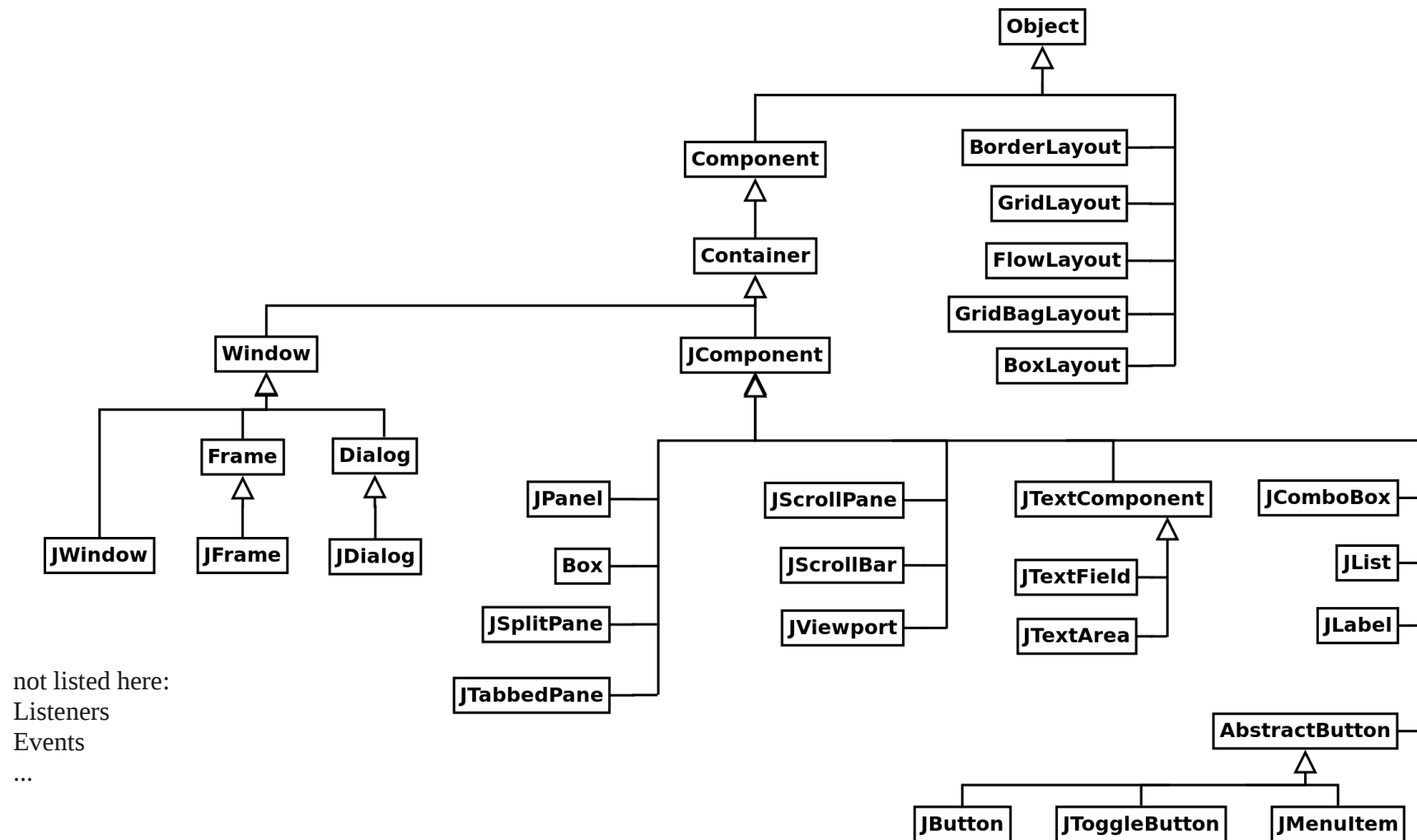


Introduction to Swing: Summary



java.awt.* (Abstract Windowing Toolkit): initial library, look and feel can vary between platforms

javax.swing.* (extension of AWT), identical look and feel on all platforms

JSomeClassName means the class is a javax.swing concrete class

Steps:

1. Create and configure components:

```
JButton qButton= new JButton("Quit");
qButton.setFont(new Font("sansserif", Font.BOLD, 18));
```

2. Add components to container, create hierarchy:

e.g. add them to a JFrame, JDialog, JPanel

```
JPanel buttonPanel= new JPanel();
buttonPanel.add(qButton);
```

3. Layout

using a class implementing the interface LayoutManager

4. Add event handlers:

e.g. quitButton.addActionListener(new EndingListener());

Adding a JPanel to a JFrame:

```
public class MyWindow extends JFrame {
    public MyWindow() {
        ...

        //Method 1:
        this.add(myButtonPanel, BorderLayout.CENTER);

        //Method 2:
        this.setContentPane(myButtonPanel);

        //Method 3:
        this.getContentPane().add(
            buttonPanel, BorderLayout.CENTER);
    }
}
```

Listeners & Events

```
class EndingListener implements ActionListener {
    public void actionPerformed(ActionEvent e) {
        System.exit(0);
    }
}

...
EndingListener listenToButton = new EndingListener();
qButton.addActionListener(listenToButton);
...
```

Behavior on closing:

```
myWindow.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
```

Text Fields:

JTextField: One line of text

JTextArea: Several lines of text

JScrollPane

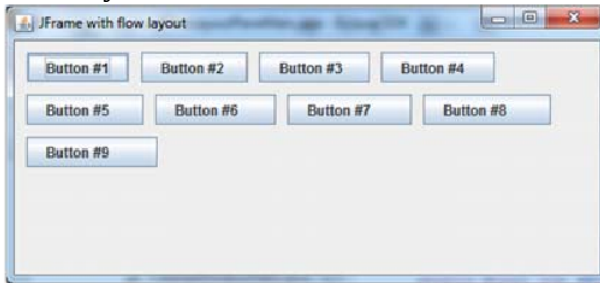
```
memoDisplay = new JTextArea(LINES, CHAR_PER_LINE);
memoDisplay.setBackground(Color.WHITE);
JScrollPane scrolledText = new JScrollPane(memoDisplay);

scrolledText.setHorizontalScrollBarPolicy(
    JScrollPane.HORIZONTAL_SCROLLBAR_ALWAYS);
scrolledText.setVerticalScrollBarPolicy(
    JScrollPane.VERTICAL_SCROLLBAR_ALWAYS);

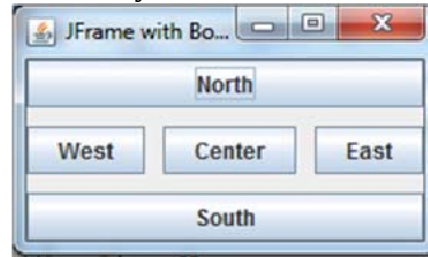
textPanel.add(scrolledText);
this.add(textPanel, BorderLayout.CENTER);
```

Layouts:

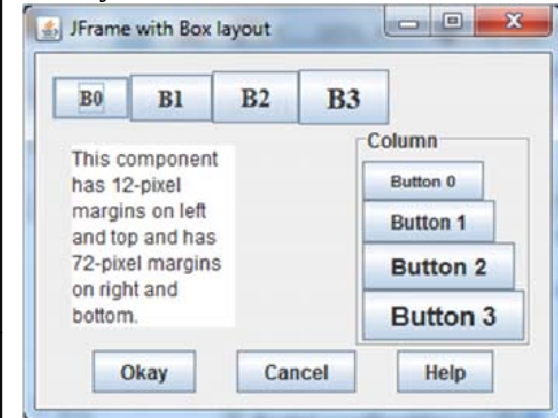
FlowLayout:



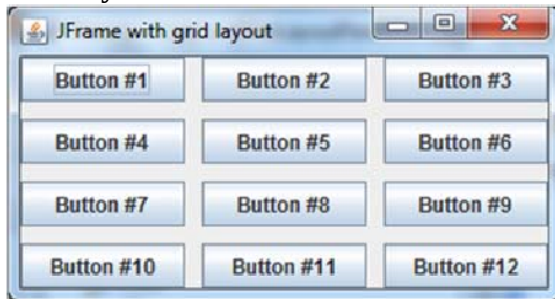
BorderLayout:



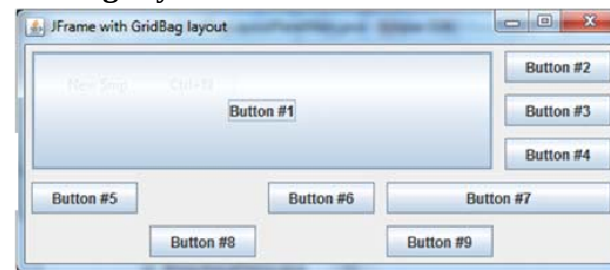
BoxLayout:



GridLayout:



GridBagLayout:

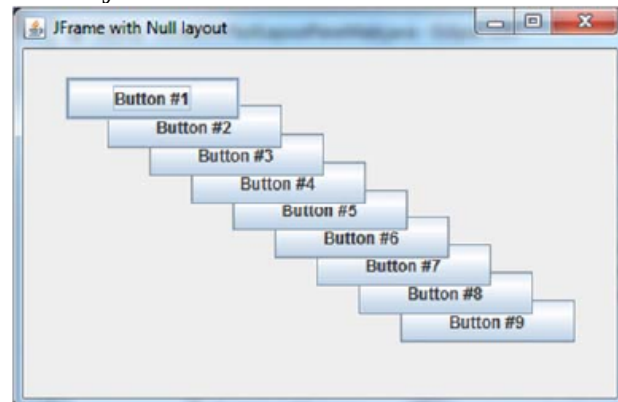


use GridBagConstraints

Use methods such as:

```
Box bb = Box.createHorizontalBox();
bb.add(Box.createHorizontalGlue());
bb.add(new JButton("Okay"));
bb.add(Box.createHorizontalGlue());
bb.add(new JButton("No"));
bb.add(Box.createHorizontalStrut(8));
```

Null Layout:



```
class NullLayoutP extends JPanel {
    NullLayoutP() {
        this.setLayout(null);
        for(int i = 1; i <= 9; i++) {
            JButton b = new JButton("Button #" + i);
            b.setBounds(i*30, i*20, 125, 30);
            this.add(b);
        }

        public Dimension getPreferredSize(){
            return new Dimension(425, 250);
        }
    }
}
```