

## Section 20: Swing

### 1) Swing

- a) can use like awt
- b) additional and higher level functions (ex. Table class)
- c) advanced programmer can create new components
- d) **Note – in place of paint: public void paintComponent(Graphics g)**

### Some components of swing:

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

### 3) layout managers: same as in AWT, use Container class

```
// example: in init()
Container c = getContentPane();
c.setLayout(new FlowLayout());
```

### 4) swing button: JButton

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JButton b1;
b1 = new JButton("message");
c.add(b1);
b1.addActionListener(this);
```

### 5) image on button:

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JButton b2;
Icon anIcon = new ImageIcon("file.jpg"); // jpg 20x20 pixels
b2 = new JButton("message", anIcon);
```

### 6) swing tool tip:

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JButton b1;
b1 = new JButton("message");
c.add(b1);
b1.setToolTipText("message");
b1.addActionListener(this);
```

### 7) swing dialog box:

```
// just display a message
JOptionPane.showMessageDialog(null, "message");
```

```

// yes / no / cancel button examples
int choice = JOptionPane.showConfirmationDialog(null,
"Question?");
if (choice == JOptionPane.NO_OPTION)
    // stuff
else if (choice == JOptionPane.YES_OPTION)
    // stuff
else if (choice == JOptionPane.CANCEL_OPTION)
    // stuff
else if (choice == JOptionPane.CLOSED_OPTION)
    // stuff

// enter string or cancel dialog box
String s = JOptionPane.showInputDialog(null, "prompt");
if (s == null)
    // cancelled
else
    // process s

```

**8) swing label:**

```

Container c = getContentPane();
c.setLayout(new FlowLayout());
private JLabel label1;
label1 = new JLabel("label");
c.add(label1);

```

**9) swing check box:**

```

Container c = getContentPane();
c.setLayout(new FlowLayout());
private JCheckBox cb;
cb = new Jcheckbox("cb name");
c.add(cb);
cb.addItemListener(this);

public void itemStateChanged(ItemEvent e) {
    if (e.getSource() == cb)
        // actions
}

```

**10) swing radio button:**

```

Container c = getContentPane();
c.setLayout(new FlowLayout());
private ButtonGroup rbs;
private JRadioButton b1, b2;

b1 = new JRadioButton("message1", false);
c.add(b1);
b1.addItemListener(this);

b2 = new JRadioButton("message2", false);
c.add(b2);
b2.addItemListener(this);

```

```
rbs = new ButtonGroup();
rbs.add(b1);
rbs.add(b2);

public void actionPerformed(ActionEvent e) {
    if (e.getSource() == b1)
        // stuff
    if (e.getSource() == b2)
        // stuff
}
```

**11) swing combo box: drop down list**

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JComboBox combo;

combo = new JComboBox();
combo.addItem("item 1");
combo.addItem("item 2");
    :
combo.addItem("item n");
combo.addActionListener(this);
c.add(combo);

public void actionPerformed(ActionEvent e) {
    if (e.getSource() == combo) {
        int n = combo.getSelectedIndex();
        // stuff
    }
}
```

**12) swing list:**

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JList aList;
private DefaultListModel lm;
private JTextField textField;

lm = new DefaultListModel();
lm.addElement("item 1");
lm.addElement("item 2");
    :
lm.addElement("item n");

aList = new JList(listModel);
aList.setSelectionMode(ListSelectionModel.SINGLE_SELECTION);
c.add(aList);
aList.addListSelectionListener(this);

public void valueChanged(ListSelectionEvent e) {
    if (e.getSource() == aList) {
        int i = aList.getSelectedIndex();
    }
}
```

**13) swing text field:**

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JTextField tf;

tf = new JTextField(15);
tf.setText("prompt");
c.add(tf);
tf.addActionListener(this);

public void actionPerformed(ActionEvent e) {
    if (e.getSource() == tf) {
        String s = tf.getText();
        // stuff
    }
}
```

**14) swing slider:**

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JSlider sl;

sl = new JSlider(JSlider.HORIZONTAL, 0, 10, 5);
//sl = new JSlider(JSlider.VERTICAL, 0, 10, 5);
sl.setMajorTickSpacing(10);
sl.addChangeListener(this);
sl.setMinorTickSpacing(1);
sl.setPaintTicks(true);
sl.setPaintLabels(true);
c.add(sl);

public void stateChanged(ChangeEvent e) {
    if (e.getSource() == sl) {
        int i = sl.getValue();
    }
}
```

**15) swing text area:**

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
private JTextArea ta;

ta = new JTextArea("A JTextArea");
ta.setLineWrap(true);
JScrollPane asp = new JScrollPane(ta);
c.add(asp);
```

**16) swing file chooser:**

```
JFileChooser fc = new JFileChooser();
```

```
int i = fileChooser.showOpenDialog(this)
if (i == JFileChooser.CANCEL_OPTION)
    // stuff
else
    String s = fileChooser.getSelectedFile();
```

**17) swing menu:**

```
Container c = getContentPane();
c.setLayout(new FlowLayout());
JMenuBar mb;
JMenu fileMenu, editMenu;
JMenuItem openItem, saveItem, copyItem, pasteItem;

setJMenuBar(mb);

fileMenu = new JMenuItem("Open");
fileMenu.add(openItem);
openItem.addActionListener(this);

fileMenu = new JMenuItem("Save");
fileMenu.add(saveItem);
saveItem.addActionListener(this);

editMenu = new JMenuItem("Open");
editMenu.add(copyItem);
copyItem.addActionListener(this);

editMenu = new JMenuItem("Open");
editMenu.add(pasteItem);
pasteItem.addActionListener(this);

wholeMenuBar.add(fileMenu);
wholeMenuBar.add(saveMenu);

public void actionPerformed(ActionEvent e) {
    if (e.getSource() == openItem) {
        // stuff
    }
    if ...
}
```

**18) JTree: hierachical view of data**

**19) JTable: displaying and manipulating tabular data**