

```
public boolean action(Event e, object obj) {
```

```
    if (e.target instanceof button)
```

```
        label.setText("clicked obj");
```

```
    }  
    action false;
```

APPLICATION: Graphics

many methods

DEMONSTRATION - xv

LECTURE - 16

CheckboxGroup

```
CheckboxGroup cbg = new CheckboxGroup();
```

```
checkbox c1 = new checkbox("c1", cbg, false);
```

LABEL

```
Label l1 = new Label("first Label");
```

```
l1.setBounds(50, 100, 100, 50);
```

TextField

```
TextField t1 = new TextField(" ");
```

```
t1.setBounds();
```

→ It can be selected, type, change it

TextArea

```
TextArea area = new TextArea(" ");
```

```
area.setBounds();
```

List

```
List l1 = new List(5);
```

```
l1.add();
```

```
l2.add();
```

choice

```
choice c = new choice();
```

```
c.add();
```


SCROLLBAR

Scrollbar h = new Scrollbar (Scrollbar.HORIZONTAL, 0, 20, 0, 100);
V = new Scrollbar (Scrollbar.VERTICAL, 0, 20, 0, 100);

ADDITION

- after adding all labels, textfield, button
- ActionListener (this):



for every clicks.

actionPerformed (ActionEvent e) {



AWT PROGRAMING - III
LECTURE 42

CONCEPTS OF EVENTS

What is an event?

Life to an interface.

FOREGROUND EVENT: By user
BACKGROUND EVENT: System

Event src

Description

Button, List, MenuItem,
checkbox,
choice, list

action event
item event

Scrollbar

Adjustment even
TextEvent

TextField

Component gain/lose
mouse focus.

Focus event

Key

Key event

Mouse

MouseEvent

Src generates an EVENT + it goes to LISTENERS

a listener is watchful to
receive an event.



⇒ java.awt.event.

abstract superclass InputEvent for all components
of input event.

EVENT HANDLING CLASSES

ACTION EVENT

super p.c.s.

ActionEvent (src, int, string)

ActionEvent (Object src, int type, string cmd, int modifiers)

ActionEvent (, long when, int modifiers)

src → obj

command string on cmd.

modifier key ⇒ alt, ctrl, meta, shift.

when ⇒ when event occurred.

EVENT HANDLING MECHANISM:

1. REGISTER:

add <TypeListener> (<TypeListener D>)

The src to receive notification about specific type of events.

2. IMPLEMENT

Listener method to process & receive the notification.

1. user interacts a src & event is generated.

→ obj of concern event class is created automatically & info about & src, event get populated within

2. Event obj forwarded to method of registered listener class

→ method is now executed & actions.

SWING PROGRAMMING - I

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JFC → Java Foundation Class

It is on top of AWT API & entirely written in JAVA.

Swing is better lightweight than AWT.

javax.swing.

JButton, JtextField, JRadioButton, JMenu, JTextArea, Jcheckbox, JMenu.

AWT VS SWING

Platform
- dependant

Platform
- Independent

Heavyweight

Lightweight

No Pluggable look & feel

Pluggable look & feel.

Less Component

Tables, Lists, ScrollPane, ColorChooser, etc.

No Model View Controller

MVC ✓

* JComponent is a subclass of Component

TWO WAYS TO CREATE A FRAME

1. By creating obj of JFrame class (assoc)
2. Extending JFrame (Inheritance)

→ JFrame a = new JFrame();
→ Constructor
→ extend it.

JButton

JButton (Icon i)

b. addActionListener (new ActionListener () {
Public Void actionPerformed (ActionEvent e) {

}
});

.setText();

JPasswordField

for password

JRadioButton

to select only one button ⇒ button group.

ButtonGroup bg = new ButtonGroup();

bg.add(b1);

bg.add(b2);

JComboBox

~ List

Similar to choice.

takes input from user.

→ object[] items
→ Vector<?> items

JTable

JTable (object[] rows, object[] columns)
data head.

JOptionPane

→ message box
→ alert box

* JScrollbar ~ Scrollbar of component class

* JMenuBar, JMenuItem

JMenu, JMenuItem

~ item is added. JMenu

* JProgressBar
small p

SWING PROGRAMMING - II

LECTURE - 44

JSeparator

It separates item

JProgressBar

display progress of task.

JProgressBar()

JTree

displays how things are stored

JTree → child → node.

class ⇒ default MutableTreeNodes.

JColorChooser

- It is in colorchooser package.
- chooses multiple colour in grid

JTabbedPane

Switch between a group of component by clicking on a tab.

→ JTabbedPane()

JSlider

Slider to move & get the chosen value.

JSpinner

- * Can inc ↑ or dec ↓ but also
- change input by typing.
- * we can decide rate of increment.

JFileChooser

- * dialog window
- * user can select file from system.

JToggleButton

- It can go from 1 state to another
- Similar to that of switch ON ≥ OFF

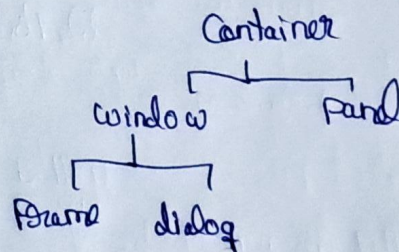
JToolBar

- This is similar to menu bar.

JViewport

- supports both logical & pixel based scrolling.
- JViewport():

JAVA SWING CONTAINER



JPanel

- Simplest container class.
- It provide space where an application can attach any other component.
- It doesn't have title bar.

JFrame

- works like the main window where labels, buttons, textfields can added to create a GUI.

JDBC-I

LECTURE-50

MYSQL.

1. JDBC Driver

- attach java program + binary program, application.

2. JDBC URL

3. JDBC Driver

- simple - is type of error on SQL
- It can do from 12/10 to 12/10
- It can do from 12/10 to 12/10