**Introduction to Swing**

**Swing** is a part of **Java Foundation Classes (JFC)** that helps create **Graphical User Interfaces (GUIs)** in Java. It provides **lightweight, platform-independent, and rich UI components** like buttons, text fields, labels, tables, and more. Swing is built on **AWT (Abstract Window Toolkit)** but offers more advanced and flexible components. Swing perform fast compare with AWT.

**AWT** - Heavyweight (depends on OS components)

**Swing** - Lightweight (does not depend on OS components)

This program creates a **simple GUI** with a **JLabel, JTextField, JCheckBox, JRadioButton, and JButton**.

**import** javax.swing.\*;

**import** java.awt.event.\*;

**public** **class** SwingExample {

**public** **static** **void** main(String[] args) {

// Create JFrame (window)

JFrame frame = **new** JFrame("Swing Example");

frame.setSize(400, 300);

frame.setLayout(**null**);

// JLabel

JLabel label = **new** JLabel("Enter Name:");

label.setBounds(50, 30, 100, 30);

// JTextField

JTextField textField = **new** JTextField();

textField.setBounds(150, 30, 150, 30);

// JCheckBox

JCheckBox checkBox = **new** JCheckBox("I agree");

checkBox.setBounds(50, 70, 100, 30);

// JRadioButton

JRadioButton male = **new** JRadioButton("Male");

JRadioButton female = **new** JRadioButton("Female");

male.setBounds(50, 110, 80, 30);

female.setBounds(140, 110, 80, 30);

// ButtonGroup (to group radio buttons)

ButtonGroup group = **new** ButtonGroup();

group.add(male);

group.add(female);

// JButton

JButton button = **new** JButton("Submit");

button.setBounds(50, 160, 100, 30);

// ActionListener for button click

button.addActionListener(**new** ActionListener() {

**public** **void** actionPerformed(ActionEvent e) {

String name = textField.getText();

String gender = male.isSelected() ? "Male" : "Female";

**boolean** agreed = checkBox.isSelected();

JOptionPane.*showMessageDialog*(frame, "Name: " + name + "\nGender: " + gender + "\nAgreed: " + agreed);

}

});

// Add components to frame

frame.add(label);

frame.add(textField);

frame.add(checkBox);

frame.add(male);

frame.add(female);

frame.add(button);

// Make the frame visible

frame.setVisible(**true**);

}

}