

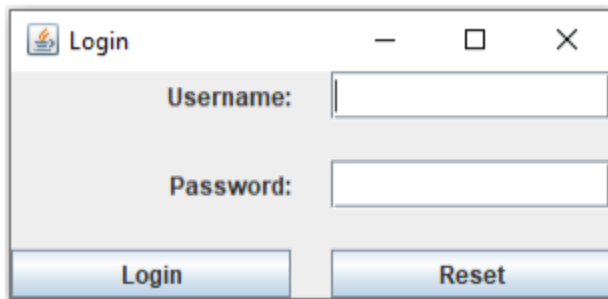
**Dr. D.Y. Patil Unitech Society's**  
**Dr. D.Y. Patil Arts, Commerce and Science College Pimpri, Pune-18**  
**Department of Computer Science**  
**Academic Year: 2025-2026**  
**Practical Assignment – 4**

**Class:- T.Y.B.C.A.(Science)**

**Subject:- Programming in JAVA**

**Date:-01/08/2025**

**1. Write a java program to design a following GUI. Use appropriate Layout and Components.**



```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class LoginForm extends JFrame {

    private Container c;
    private JLabel lblUser;
    private JTextField txtUser;
    private JLabel lblPass;
    private JPasswordField txtPass;
    private JButton btnLogin;
    private JButton btnReset;

    public LoginForm() {

        setTitle("Login");
```

```
setBounds(300, 90, 400, 200);  
setDefaultCloseOperation(EXIT_ON_CLOSE);  
setResizable(false);
```

```
c = getContentPane();  
c.setLayout(null);
```

```
lblUser = new JLabel("Username:");  
lblUser.setFont(new Font("Arial", Font.PLAIN, 14));  
lblUser.setBounds(50, 30, 100, 30);  
c.add(lblUser);
```

```
txtUser = new JTextField();  
txtUser.setFont(new Font("Arial", Font.PLAIN, 14));  
txtUser.setBounds(150, 30, 150, 30);  
c.add(txtUser);
```

```
lblPass = new JLabel("Password:");  
lblPass.setFont(new Font("Arial", Font.PLAIN, 14));  
lblPass.setBounds(50, 70, 100, 30);  
c.add(lblPass);
```

```
txtPass = new JPasswordField();  
txtPass.setFont(new Font("Arial", Font.PLAIN, 14));  
txtPass.setBounds(150, 70, 150, 30);  
c.add(txtPass);
```

```
btnLogin = new JButton("Login");  
btnLogin.setFont(new Font("Arial", Font.PLAIN, 14));  
btnLogin.setBounds(70, 120, 100, 30);
```

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

```
btnReset = new JButton("Reset");
```

```

    btnReset.setFont(new Font("Arial", Font.PLAIN, 14));
    btnReset.setBounds(200, 120, 100, 30);

    c.add(btnReset);

    setVisible(true);
}

```

```

public static void main(String[] args) {
    new LoginForm();
}
}

```

**2. Write a java program to design a following GUI. Use appropriate Layout and Components.**

**Vaccination Details**

Name:

<b>Dose</b>	<b>Vaccine</b>
<input type="checkbox"/> 1 <sup>st</sup> Dose	<input type="radio"/> Covishield
<input type="checkbox"/> 2 <sup>nd</sup> Dose	<input type="radio"/> Covaxin
	<input type="radio"/> Sputnik V

Name : \_\_\_\_\_ 1<sup>st</sup> Dose: \_\_\_\_\_ 2<sup>nd</sup> Dose: \_\_\_\_\_

Vaccine: \_\_\_\_\_

```

import javax.swing.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class VForm extends JFrame{

```

```
JTextField tName;
JCheckBox cDose1, cDose2;
JRadioButton rCovishield, rCovaxin, rSputnik;
JButton bSubmit;
JTextArea taOutput;

public VForm() {

    setTitle("Vaccination Details");
    setSize(500, 400);
    setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    setLayout(null);

    JLabel lName = new JLabel("Name:");
    lName.setBounds(50, 30, 100, 30);
    add(lName);

    tName = new JTextField();
    tName.setBounds(150, 30, 200, 30);
    add(tName);

    JLabel lDose = new JLabel("Dose:");
    lDose.setBounds(50, 80, 100, 30);
    add(lDose);

    cDose1 = new JCheckBox("1st Dose");
    cDose1.setBounds(150, 80, 100, 30);
    add(cDose1);

    cDose2 = new JCheckBox("2nd Dose");
    cDose2.setBounds(250, 80, 100, 30);
    add(cDose2);

    JLabel lVaccine = new JLabel("Vaccine:");
    lVaccine.setBounds(50, 130, 100, 30);
    add(lVaccine);
```

```

rCovishield = new JRadioButton("Covishield");
rCovishield.setBounds(150, 130, 100, 30);
add(rCovishield);

rCovaxin = new JRadioButton("Covaxin");
rCovaxin.setBounds(250, 130, 100, 30);
add(rCovaxin);

rSputnik = new JRadioButton("Sputnik V");
rSputnik.setBounds(350, 130, 100, 30);
add(rSputnik);

ButtonGroup bg = new ButtonGroup();
bg.add(rCovishield);
bg.add(rCovaxin);
bg.add(rSputnik);

bSubmit = new JButton("Submit");
bSubmit.setBounds(150, 180, 100, 30);

add(bSubmit);

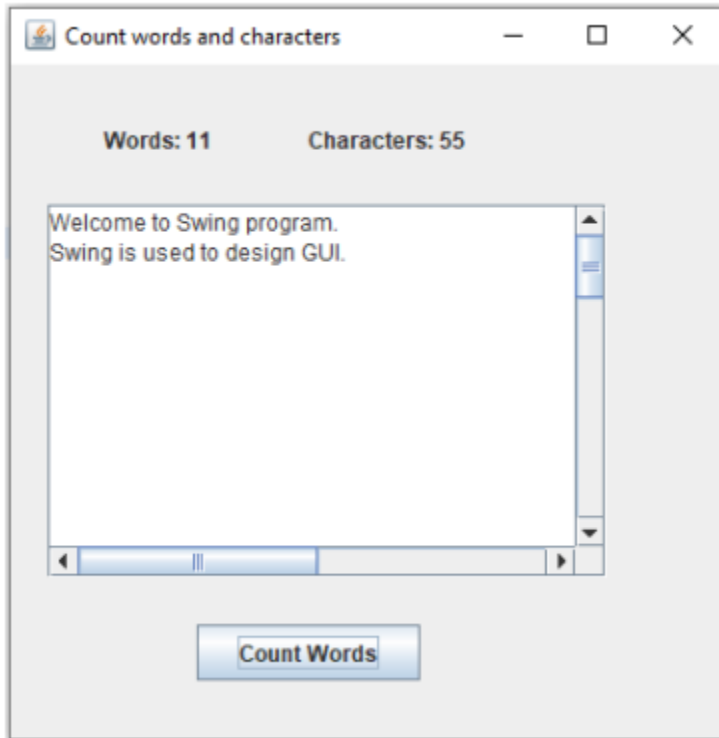
taOutput = new JTextArea();
taOutput.setBounds(50, 230, 400, 100);
taOutput.setEditable(false);
add(taOutput);

setVisible(true);
}

public static void main(String[] args) {
    new VForm();
}
}

```

**3. Write a program to design following GUI using JTextArea. Write a code to display number of words and characters of text in JLabel. Use JScrollPane to get scrollbars for JTextArea.**



```
import javax.swing.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class WordCharCount extends JFrame implements ActionListener{

    JTextArea ta;
    JLabel lWordCount, lCharCount;
    JButton bCount;

    public WordCharCount() {

        setTitle("Count words and characters");
        setSize(400, 300);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLayout(null);

        lWordCount = new JLabel("Words: 0");
```

```
IWordCount.setBounds(50, 20, 100, 30);  
add(IWordCount);
```

```
lCharCount = new JLabel("Characters: 0");  
lCharCount.setBounds(200, 20, 150, 30);  
add(lCharCount);
```

```
ta = new JTextArea();  
JScrollPane sp = new JScrollPane(ta);  
sp.setBounds(50, 60, 300, 120);  
add(sp);
```

```
bCount = new JButton("Count Words");  
bCount.setBounds(140, 200, 120, 30);  
bCount.addActionListener(this);  
add(bCount);
```

```
setVisible(true);  
}
```

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

```
    String text = ta.getText();
```

```
    int charCount = text.length();
```

```
    String[] words = text.trim().split("\\s+");
```

```
    int wordCount = (text.trim().isEmpty()) ? 0 : words.length;
```

```
    IWordCount.setText("Words: " + wordCount);
```

```
    lCharCount.setText("Characters: " + charCount);
```

```
}
```

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

```
    new WordCharCount();
```

```
}
```

```
}
```

**4. Write a Program to design following GUI by using swing component JComboBox. On click of show button display the selected language on JLabel.**



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

public class ComboBoxExample {
    public static void main(String[] args) {

        JFrame f = new JFrame("ComboBox Example");

        JLabel label = new JLabel("Programming language Selected: ");
        label.setBounds(50, 50, 300, 20);

        String[] languages = { "C", "C++", "C#", "Java", "PHP" };
        JComboBox<String> comboBox = new JComboBox<>(languages);
        comboBox.setBounds(50, 100, 90, 20);

        JButton showButton = new JButton("Show");
        showButton.setBounds(150, 100, 90, 20);

        showButton.addActionListener(new ActionListener() {
            public void actionPerformed(ActionEvent e) {
```



```

        String selectedLang = (String) comboBox.getSelectedItemAt();

        label.setText("Programming language Selected: " + selectedLang);
    }
});

f.add(label);
f.add(comboBox);
f.add(showButton);

f.setSize(400, 200);
f.setLayout(null);
f.setVisible(true);
f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
}
}

```

5. Write a java program to create the following GUI using Swing components.



```

import javax.swing.*;
import java.awt.*;

public class CalculatorGUI {
    public static void main(String[] args) {

        JFrame f = new JFrame("Calculator");

        JTextField display = new JTextField();
        display.setBounds(30, 30, 240, 30);
        display.setHorizontalAlignment(JTextField.RIGHT);

        JPanel panel = new JPanel();
        panel.setBounds(30, 80, 240, 200);
        panel.setLayout(new GridLayout(4, 4, 10, 10));

        String[] buttonLabels = {
            "7", "8", "9", "/",
            "4", "5", "6", "*",
            "1", "2", "3", "-",
            "0", ".", "=", "+"
        };
        JButton[] buttons = new JButton[16];
        for (int i = 0; i < 16; i++) {
            buttons[i] = new JButton(buttonLabels[i]);
            panel.add(buttons[i]);
        }
        JButton clearButton = new JButton("Clear");
        clearButton.setBounds(30, 300, 240, 40);
        f.add(display);
        f.add(panel);
        f.add(clearButton);
        f.setSize(320, 400);
        f.setLayout(null);
        f.setVisible(true);
        f.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
    }
}

```

**6. Implement event handling for SET A 1. Verify username and password in 3 attempts. Display dialog box "Login successful" on success or display "Username or Password is incorrect". After 3 attempts display "Login Failed". On reset button clear the fields of text box.**

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class LoginForm1 extends JFrame implements ActionListener {

    private JTextField userField;
    private JPasswordField passField;
    private JButton loginBtn, resetBtn;

    private final String user = "admin";
    private final String pass = "123";
    public LoginForm1() {
        setTitle("Login");
        setLayout(new GridLayout(3, 2));

        JLabel userLabel = new JLabel("Username:");
        userField = new JTextField(15);
        JLabel passLabel = new JLabel("Password:");
        passField = new JPasswordField(15);

        loginBtn = new JButton("Login");
        resetBtn = new JButton("Reset");

        loginBtn.addActionListener(this);
        resetBtn.addActionListener(this);

        add(userLabel);
        add(userField);
        add(passLabel);
        add(passField);
```

```

        add(loginBtn);
        add(resetBtn);

        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setSize(300, 150);
        setVisible(true);
    }

    public void actionPerformed(ActionEvent e) {

        if (e.getSource() == loginBtn) {
            String username = userField.getText();
            String password = String.valueOf(passField.getPassword());

            if (username.equals(user) && password.equals(pass)) {
                JOptionPane.showMessageDialog(this, "Login Successful");
            } else {

                JOptionPane.showMessageDialog(this, "Login Failed");

            }
        }

        if (e.getSource() == resetBtn) {
            userField.setText("");
            passField.setText("");
        }
    }

    public static void main(String[] args) {

        new LoginForm1();
    }
}

```

**7. Implement event handling for SET A 2. Display selected Name, Vaccine. If 1st Dose is taken then write Yes otherwise write No.**

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;

public class VaccinationForm1 extends JFrame implements ActionListener {

    private JTextField nameField;
    private JCheckBox firstDoseCheckBox, secondDoseCheckBox;
    private JRadioButton covishieldRadio, covaxinRadio, sputnikRadio;
    private JButton submitButton;
    private JTextArea resultArea;

    public VaccinationForm1() {
        setTitle("Vaccination Details");
        setLayout(new GridLayout(6, 2));

        JLabel nameLabel = new JLabel("Name:");
        nameField = new JTextField(15);

        firstDoseCheckBox = new JCheckBox("1st Dose");
        secondDoseCheckBox = new JCheckBox("2nd Dose");

        covishieldRadio = new JRadioButton("Covishield");
        covaxinRadio = new JRadioButton("Covaxin");
        sputnikRadio = new JRadioButton("Sputnik V");

        ButtonGroup vaccineGroup = new ButtonGroup();
        vaccineGroup.add(covishieldRadio);
        vaccineGroup.add(covaxinRadio);
        vaccineGroup.add(sputnikRadio);
```

```
submitButton = new JButton("Submit");
submitButton.addActionListener(this);
```

```
resultArea = new JTextArea(3, 30);
resultArea.setEditable(false);
```

```
add(nameLabel);
add(nameField);
add(firstDoseCheckBox);
add(secondDoseCheckBox);
add(covishieldRadio);
add(covaxinRadio);
add(sputnikRadio);
add(submitButton);
add(new JLabel(""));
add(resultArea);
```

```
setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
setSize(400, 300);
setVisible(true);
}
```

```
public void actionPerformed(ActionEvent e) {
    if (e.getSource() == submitButton) {
        String name = nameField.getText();
        String vaccine = "";
        String firstDose = firstDoseCheckBox.isSelected() ? "Yes" : "No";
        String secondDose = secondDoseCheckBox.isSelected() ? "Yes" : "No";

        if (covishieldRadio.isSelected()) {
            vaccine = "Covishield";
        } else if (covaxinRadio.isSelected()) {
            vaccine = "Covaxin";
        } else if (sputnikRadio.isSelected()) {
            vaccine = "Sputnik V";
        }
    }
}
```

```

    }

    resultArea.setText("Name: " + name + "\n" +
        "1st Dose: " + firstDose + "\n" +
        "2nd Dose: " + secondDose + "\n" +
        "Vaccine: " + vaccine);
    }
}

public static void main(String[] args) {
    new VaccinationForm1();
}
}

```

### 8. Write a program to implement `MouseListener`.

```

import javax.swing.*.*;
import java.awt.*.*;
import java.awt.event.*;

public class MouseListenerExample extends JFrame implements MouseListener {

    private JPanel panel;
    private JLabel label;

    public MouseListenerExample() {

        setTitle("MouseListener Example");
        setSize(400, 300);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

        panel = new JPanel();
        label = new JLabel("Perform mouse actions on the panel");

        panel.addMouseListener(this);

        panel.add(label);
    }
}

```

```

        add(panel);

        setVisible(true);
    }

    public void mouseClicked(MouseEvent e) {
        label.setText("Mouse Clicked at X: " + e.getX() + " Y: " + e.getY());
    }

    public void mousePressed(MouseEvent e) {
        label.setText("Mouse Pressed at X: " + e.getX() + " Y: " + e.getY());
    }

    public void mouseReleased(MouseEvent e) {
        label.setText("Mouse Released at X: " + e.getX() + " Y: " + e.getY());
    }

    public void mouseEntered(MouseEvent e) {
        label.setText("Mouse Entered the Panel");
    }

    public void mouseExited(MouseEvent e) {
        label.setText("Mouse Exited the Panel");
    }

    public static void main(String[] args) {
        new MouseListenerExample();
    }
}

```

### 9. Write a program to implement **KeyListener**.

```

import javax.swing.*;
import java.awt.event.*;

public class KeyListenerExample extends JFrame implements KeyListener {

    private JTextArea textArea;
    private JLabel label;

    public KeyListenerExample() {
        setTitle("KeyListener Example");
        setSize(400, 300);
    }
}

```



```
setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);

    textArea = new JTextArea();
    label = new JLabel("Type something...");

    textArea.addKeyListener(this);

    add(textArea, "Center");
    add(label, "South");

    setVisible(true);
}

public void keyTyped(KeyEvent e) {
    label.setText("Key Typed: " + e.getKeyChar());
}

public void keyPressed(KeyEvent e) {
    label.setText("Key Pressed: " + KeyEvent.getKeyText(e.getKeyCode()));
}

public void keyReleased(KeyEvent e) {
    label.setText("Key Released: " + KeyEvent.getKeyText(e.getKeyCode()));
}

public static void main(String[] args) {
    new KeyListenerExample();
}
}
```