**Practical No. 1**

**Aim**: Design User Login application using swing components

**Theory:**

The provided Java program is a simple Swing-based GUI application that simulates a user login form.

**JFrame:** UserLoginForm class extends JFrame, which is the top-level container for the application window.The JFrame is used to organize and display the various Swing components.

**Layout Management**: The layout is set to GridLayout(4, 2, 10, 10), organizing components in a grid with 4 rows and 2 columns, with 10 pixels of horizontal and vertical spacing.

**Swing Components:**

**JLabel**: Used for displaying text labels. Two labels are created for "Username" and "Password."

**JTextField:** Allows the user to input text. Used for entering the username.

**JPasswordField:** Similar to JTextField but is specifically designed for password input. Characters are masked for security.

**JButton:** Represents a clickable button. The "Login" button triggers the authentication process.

**JLabel (statusLabel):** Used to display the status of the login attempt (e.g., success or failure).

**ActionListener:** An anonymous inner class is used to implement the ActionListener interface for the "Login" button.

The actionPerformed method is invoked when the button is clicked, triggering the performLogin method.

**performLogin Method:** Retrieves the username and password entered by the user.

Performs a simple validation check (hardcoded credentials) and updates the status label accordingly.

Clears the password field for security reasons after each login attempt.

**Main Method:** The main method serves as the entry point for the program.

An instance of UserLoginForm is created, which initializes the GUI and makes it visible.

**Closing the Application:** The setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE) method is used to exit the application when the close button is clicked.

**Source Code:**

import javax.swing.\*;

import java.awt.\*;

import java.awt.event.ActionEvent;

import java.awt.event.ActionListener;

public class UserLoginForm extends JFrame {

private JTextField usernameField;

private JPasswordField passwordField;

private JLabel statusLabel;

public UserLoginForm() {

setLayout(new GridLayout(4, 2, 10, 10));

JLabel usernameLabel = new JLabel("Username:");

JLabel passwordLabel = new JLabel("Password:");

usernameField = new JTextField();

passwordField = new JPasswordField();

JButton loginButton = new JButton("Login");

statusLabel = new JLabel();

add(usernameLabel);

add(usernameField);

add(passwordLabel);

add(passwordField);

add(new JLabel());

add(loginButton);

add(statusLabel);

loginButton.addActionListener(new ActionListener() {

public void actionPerformed(ActionEvent e) {

performLogin();

}

});

setTitle("User Login Form");

setSize(300, 150);

setDefaultCloseOperation(JFrame.EXIT\_ON\_CLOSE);

setLocationRelativeTo(null);

setVisible(true);

}

private void performLogin() {

String username = usernameField.getText();

char[] passwordChars = passwordField.getPassword();

String password = new String(passwordChars);

if (username.equals("gauri") && password.equals("ckt")) {

statusLabel.setText("Login successful!");

} else {

statusLabel.setText("Login failed. Please try again.");

}

passwordField.setText("");

}

public static void main(String[] args) {

new UserLoginForm();

}

}

**Output:**

C:\Users\gauri\Documents>javac UserLoginForm.java

C:\Users\gauri\Documents>java UserLoginForm



