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ASSIGNMENT 05

1. Write a program to create a simple calculator with basic +, -, /, * using java swing elements.

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

public class SwingCalculator extends JFrame implements ActionListener {
    private String s1, s2, s3, s4, s5;
    private int c, n;
    private JTextField t1;
    private JButton l1, l2, l3, l4, l5, l6, l7, l8, l9, l10, l11, l12, l13, l14,
l15, l16, l21, l22, l23, l24;
    private Font f;
    private Color c1, c2;

    public SwingCalculator() {
        setSize(510, 510);
        setTitle("CALCULATOR");
        setVisible(true);
        setLayout(null);
        f = new Font("Times New Roman", Font.BOLD, 15);
        setFont(f);
        c1 = new Color(27, 52, 82);
        c2 = new Color(252, 161, 3);

        JPanel outer = new JPanel();
        outer.setLayout(null);
        outer.setBounds(80, 80, 328, 355);
        outer.setBackground(Color.GRAY);
        t1 = new JTextField("0");
        t1.setBackground(c1);
        t1.setForeground(Color.WHITE);
        t1.setBounds(22, 20, 285, 55);

        JPanel p = new JPanel(new GridLayout(5, 4, 5, 5));
        p.setBounds(22, 80, 290, 260);
        p.setBackground(Color.GRAY);
        l21 = new JButton("C");

        l21.setBackground(c2);
        l21.setForeground(Color.WHITE);
        l21.addActionListener(this);
```

```
        l23 = new JButton("DEL");
        l23.setBackground(c2);
        l23.setForeground(Color.WHITE);
        l23.addActionListener(this);
        l22 = new JButton("Sqrt");
        l22.setBackground(Color.BLACK);
        l22.setForeground(Color.WHITE);
        l22.addActionListener(this);

        l15 = new JButton("/");
        l15.setBackground(Color.BLACK);
        l15.setForeground(Color.WHITE);
        l15.addActionListener(this);

        l1 = new JButton("1");
        l1.addActionListener(this);
        l2 = new JButton("2");
        l2.addActionListener(this);
        l3 = new JButton("3");
        l3.addActionListener(this);
        l10 = new JButton("*");
        l10.setBackground(Color.BLACK);
        l10.setForeground(Color.WHITE);
        l10.addActionListener(this);
        l4 = new JButton("4");
        l4.addActionListener(this);
        l5 = new JButton("5");
        l5.addActionListener(this);
        l6 = new JButton("6");
        l6.addActionListener(this);
        l11 = new JButton("+");
        l11.setBackground(Color.BLACK);
        l11.setForeground(Color.WHITE);

        l11.addActionListener(this);
        l7 = new JButton("7");
        l7.addActionListener(this);
        l8 = new JButton("8");
        l8.addActionListener(this);
        l9 = new JButton("9");
        l9.addActionListener(this);
        l12 = new JButton("-");
        l12.setBackground(Color.BLACK);
        l12.setForeground(Color.WHITE);
        l12.addActionListener(this);
        l13 = new JButton("00");
        l13.addActionListener(this);
        l14 = new JButton("0");
        l14.setBackground(Color.BLACK);
```

```
        l14.setForeground(Color.WHITE);
        l14.addActionListener(this);

        l24 = new JButton("%");
        l24.setBackground(Color.BLACK);
        l24.setForeground(Color.WHITE);
        l24.addActionListener(this);
        l16 = new JButton("=");
        l16.setBackground(c2);
        l16.setForeground(Color.WHITE);
        l16.addActionListener(this);
    add(outer);
outer.add(t1); outer.add(p); p.add(l23); p.add(l21);
p.add(l22); p.add(l15); p.add(l1); p.add(l2);
p.add(l3); p.add(l10);
p.add(l4); p.add(l5); p.add(l6); p.add(l11); p.add(l7); p.add(l8);
p.add(l9); p.add(l12);
p.add(l13); p.add(l14); p.add(l24);
p.add(l16);
}
public void actionPerformed(ActionEvent e) {

if(e.getActionCommand()=="1")
{
s3=t1.getText();
s4="1";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l2)
{
s3=t1.getText();
s4="2";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l13)
{
s3=t1.getText();
s4="00";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l14)
{
s3=t1.getText();
s4="0";
s5=s3+s4;
t1.setText(s5);
}
```

```
if(e.getSource()==l3)
{
s3=t1.getText();
s4="3";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l4)
{
s3=t1.getText();
s4="4";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l5)
{

s3=t1.getText();
s4="5";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l6)
{
s3=t1.getText();
s4="6";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l7)
{
s3=t1.getText();
s4="7";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l8)
{
s3=t1.getText();
s4="8";
s5=s3+s4;
t1.setText(s5);
}
if(e.getSource()==l9)
{
s3=t1.getText();
s4="9";
s5=s3+s4;
t1.setText(s5);
}
```

```
if(e.getSource()==l10)
{
s1=t1.getText();
t1.setText("");
c=3;
}
if(e.getSource()==l11)
{
s1=t1.getText();
t1.setText("");
c=1;
}

if(e.getSource()==l12)
{
s1=t1.getText();
t1.setText("");
c=2;
}
if(e.getSource()==l23)
{
s1=t1.getText();
s1=s1.substring(0,(s1.length()-1));
t1.setText(s1);
}
if(e.getSource()==l21)
{
t1.setText(" ");
}
if(e.getSource()==l24)
{
s1=t1.getText();
t1.setText("");
c=5;
}
if(e.getSource()==l15)
{
s1=t1.getText();
t1.setText("");
c=4;
}
if(e.getSource()==l22)
{
s1=t1.getText();
t1.setText("");
c=6;
}
if(e.getSource()==l16)
{
s2=t1.getText();
```

```
 if(c==1)
 {
 n = Integer.parseInt(s1)+Integer.parseInt(s2);
 t1.setText(String.valueOf(n));
 }
 else
 if(c==2)
 {

 n = Integer.parseInt(s1)-Integer.parseInt(s2);
 t1.setText(String.valueOf(n));
 }
 else
 if(c==3)
 {
 n = Integer.parseInt(s1)*Integer.parseInt(s2);
 t1.setText(String.valueOf(n));
 }
 if(c==4)
 {
 try
 {
 if((Integer.parseInt(s2))!=0)
{
 n = Integer.parseInt(s1)/Integer.parseInt(s2);
 t1.setText(String.valueOf(n));
 }
else
 t1.setText("infinite");
 }
 catch(Exception i){}
 }
 if(c==5)
 {
 n = Integer.parseInt(s1)%Integer.parseInt(s2);
 t1.setText(String.valueOf(n));
 }
 if(c==6)
 {
 Double d=Double.parseDouble(s1);
 Double res=Math.sqrt(d);
 t1.setText(String.valueOf(res));
 }
 }
}
 public static void main(String[] args) {
 SwingCalculator b=new SwingCalculator();
 }
}
```

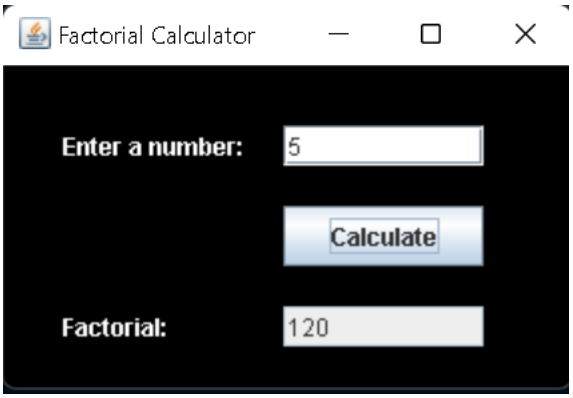
OUTPUT :

2. Write a java program using swing to display number and factorial of that number.

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

public class CalculateFact extends JFrame {
    private JLabel inputnum, reslabel;
    private JTextField yournum, result;
    private JButton calculatebtn;

    public CalculateFact() {
        setTitle("Factorial Calculator");
        setSize(300, 200);
        setLocationRelativeTo(null);
        setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        setLayout(null);
         getContentPane().setBackground(Color.BLACK); // set background color as black
        inputnum = new JLabel("Enter a number:");
        inputnum.setBounds(30, 30, 100, 20);
        inputnum.setForeground(Color.WHITE);
        add(inputnum);

        yournum = new JTextField();
        yournum.setBounds(140, 30, 100, 20);
        add(yournum);

        calculatebtn = new JButton("Calculate");
        calculatebtn.setBounds(140, 70, 100, 30);
        add(calculatebtn);
        calculatebtn.addActionListener(e -> {
            int number = Integer.parseInt(yournum.getText());
            long factorial = 1;
            for (int i = 1; i <= number; i++) {
                factorial *= i;
            }
            result.setText(Long.toString(factorial));
        });

        reslabel = new JLabel("Factorial:");
       reslabel.setForeground(Color.WHITE);
        reslabel.setBounds(30, 120, 100, 20);
        add(reslabel);

        result = new JTextField();
        result.setBounds(140, 120, 100, 20);
        result.setEditable(false);
        add(result);

        setVisible(true);
    }
```

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

OUTPUT :



3. Write a program to create a registration form for student admission.

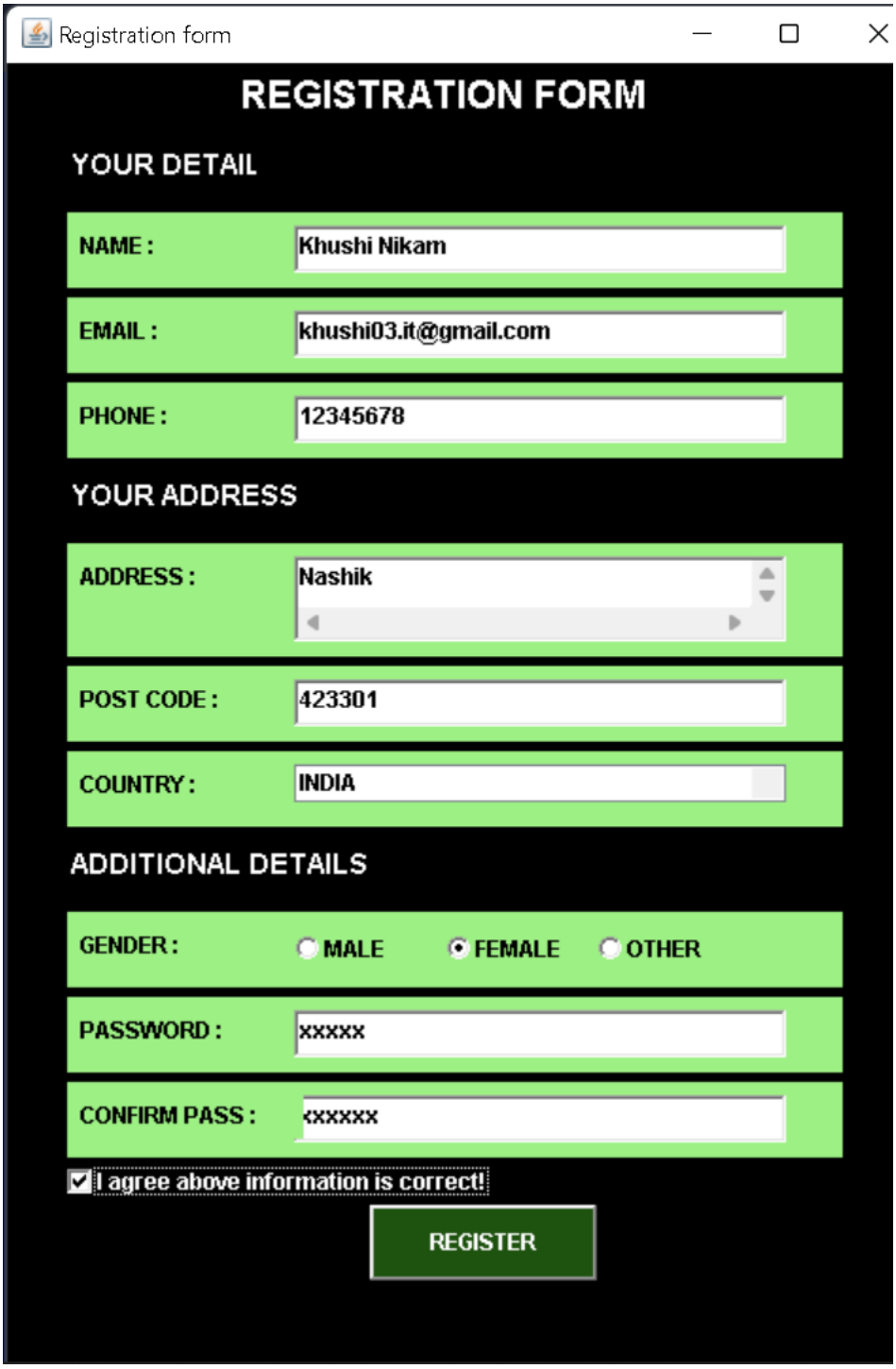
```
import java.awt.*;
import java.awt.event.*;
import javax.swing.*;

public class RegistrationForm extends Frame implements ActionListener {
 Label l1,l2,l3,l4,l5,l6,l7,l8,l9,l10,l11,l12,l13;
 TextField tf1,tf2,tf3,tf4,tf5,tf6;
 TextArea t1;
 Panel p1,p2,p3,p4,p5,p6,p7,p8,p9,p10;
 Button b1;
 List l;
 CheckboxGroup cg1;
 Checkbox c1,c2,c3,c4;
 Font f1,f2,f3;
 Color cc1,cc2;
public RegistrationForm()
{
 setSize(500,2000);
 setVisible(true);
 setTitle("Registration form");
 setLayout(null);
 f1=new Font("MS Reference Sans Serif",Font.BOLD,20);
 f3=new Font("Verdana",Font.BOLD,15);
 f2=new Font("Times New Roman",Font.BOLD,12);
 cc1=new Color(157,240,132);
 cc2=new Color(30,82,15);
```

```
setFont(f2);
setBackground(Color.BLACK);
setForeground(Color.WHITE);
l1=new Label("REGISTRATION FORM");
l1.setBounds(130,28,290,40);
l1.setFont(f1);
l2=new Label("YOUR DETAILS");
l2.setBounds(40,70,100,30);
l2.setFont(f3);
p1=new Panel();
p1.setLayout(null);
p1.setBounds(40,110,410,40);
p1.setBackground(cc1);
p1.setForeground(Color.BLACK);
l5=new Label("NAME : ");
l5.setBounds(5,5,100,25);
tf1=new TextField();
tf1.setBounds(120,7,260,25);
p2=new Panel();
p2.setLayout(null);
p2.setBounds(40,155,410,40);
p2.setBackground(cc1);
p2.setForeground(Color.BLACK);
l6=new Label("EMAIL : ");
l6.setBounds(5,5,100,25);
tf2=new TextField();
tf2.setBounds(120,7,260,25);
p3=new Panel();
p3.setLayout(null);
p3.setBounds(40,200,410,40);
p3.setBackground(cc1);
p3.setForeground(Color.BLACK);
l7=new Label("PHONE : ");
l7.setBounds(5,5,100,25);
tf3=new TextField();
tf3.setBounds(120,7,260,25);
l3=new Label("YOUR ADDRESS");
l3.setFont(f3);
l3.setBounds(40,245,150,30);
p4=new Panel();
p4.setLayout(null);
p4.setBounds(40,285,410,60);
p4.setBackground(cc1);
p4.setForeground(Color.BLACK);
l8=new Label("ADDRESS : ");
l8.setBounds(5,5,100,25);
t1=new TextArea();
t1.setBounds(120,7,260,45);
p5=new Panel();
p5.setLayout(null);
p5.setBounds(40,350,410,40);
p5.setBackground(cc1);
p5.setForeground(Color.BLACK);
l9=new Label("POST CODE : ");
l9.setBounds(5,5,100,25);
tf4=new TextField();
```

```
tf4.setBounds(120,7,260,25);
p6=new Panel();
p6.setLayout(null);
p6.setBounds(40,395,410,40);
p6.setBackground(cc1);
p6.setForeground(Color.BLACK);
l10=new Label("COUNTRY : ");
l10.setBounds(5,5,100,25);
l=new List();
l.setBounds(120,7,260,20);
l.add("INDIA");
l.add("JAPAN");
l.add("CHINA");
l.add("USA");
l.add("UK");
l4=new Label("ADDITIONAL DETAILS ");
l4.setFont(f3);
l4.setBounds(40,440,240,30);
p7=new Panel();
p7.setLayout(null);
p7.setBounds(40,480,410,40);
p7.setBackground(cc1);
p7.setForeground(Color.BLACK);
l11=new Label("GENDER :");
l11.setBounds(5,5,100,25);
cg1 =new CheckboxGroup();
c1=new Checkbox("MALE",cg1,true);
c1.setBounds(120,7,80,25);
c2=new Checkbox("FEMALE",cg1,true);
c2.setBounds(200,7,80,25);
c3=new Checkbox("OTHER",cg1,true);
c3.setBounds(280,7,90,25);

p8=new Panel();
p8.setLayout(null);
p8.setBounds(40,525,410,40);
p8.setBackground(cc1);
p8.setForeground(Color.BLACK);
l12=new Label("PASSWORD : ");
l12.setBounds(5,5,100,25);
tf5=new TextField();
tf5.setBounds(120,7,260,25);
p9=new Panel();
p9.setLayout(null);
p9.setBounds(40,570,410,40);
p9.setBackground(cc1);
p9.setForeground(Color.BLACK);
l13=new Label("CONFIRM PASS : ");
l13.setBounds(5,5,120,25);
tf6=new TextField();
tf6.setBounds(120,7,260,25);
c4=new Checkbox("I agree above information is correct!");
c4.setBounds(40,615,300,15);
b1=new Button("REGISTER");
b1.setBounds(200,635,120,40);
b1.setForeground(Color.WHITE);
```

```
b1.setBackground(cc2);
add(l1);add(l2);
add(p1); p1.add(l5);p1.add(tf1);add(p2);
p2.add(l6);
p2.add(tf2);
add(p3);
p3.add(l7);
p3.add(tf3);
add(l3);
add(p4);
p4.add(l8);
p4.add(t1);
add(p5);
p5.add(l9);
p5.add(tf4);
add(p6);
p6.add(l10);
p6.add(l);
p6.add(l);
add(l4);
add(p7);
p7.add(l11);
p7.add(c1);
p7.add(c2);
p7.add(c3);
add(p8);
p8.add(l12);
p8.add(tf5);
add(p9);
p9.add(l13);
p9.add(tf6);
add(c4);
add(b1);
b1.addActionListener(this);
   }

   public void actionPerformed(ActionEvent e) {
       if (e.getSource() == b1) { // if the button is clicked
           // show a dialog box using JOptionPane
           JOptionPane.showMessageDialog(this, "Registration successful!");
       }}
public static void main(String[] args) {
new RegistrationForm();
}}
```

OUTPUT :


Registration form
REGISTRATION FORM
YOUR DETAIL
NAME :
Khushi Nikam
EMAIL :
khushi03.it@gmail.com
PHONE :
12345678
YOUR ADDRESS
ADDRESS :
Nashik
POST CODE :
423301
COUNTRY :
INDIA
ADDITIONAL DETAILS
GENDER :
MALE
FEMALE
OTHER
PASSWORD :
xxxxx
CONFIRM PASS :
xxxxx
I agree above information is correct!
REGISTER

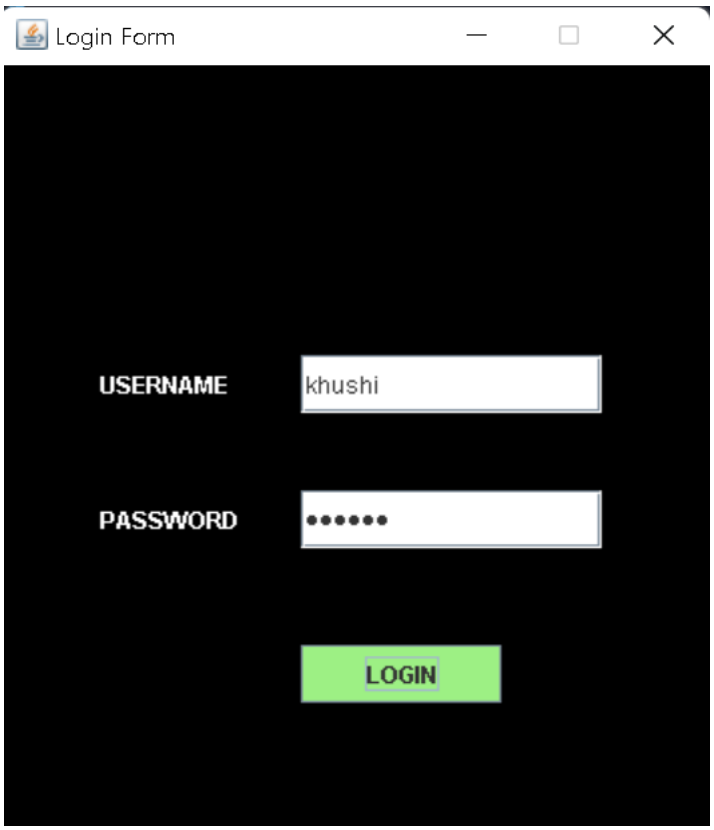

Registration form
REGISTRATION FORM
YOUR DETAIL
NAME :
Khushi Nikam
EMAIL :
khushi03.it@gmail.com
PHONE :
12345678
YOUR ADDRESS
ADDRESS :
Nashik
POST CODE :
COUNTRY :
Message
Registration successful!
OK
ADDITIONAL DETAILS
GENDER :
MALE
FEMALE
OTHER
PASSWORD :
xxxxx
CONFIRM PASS :
xxxxxx
I agree above information is correct!
REGISTER

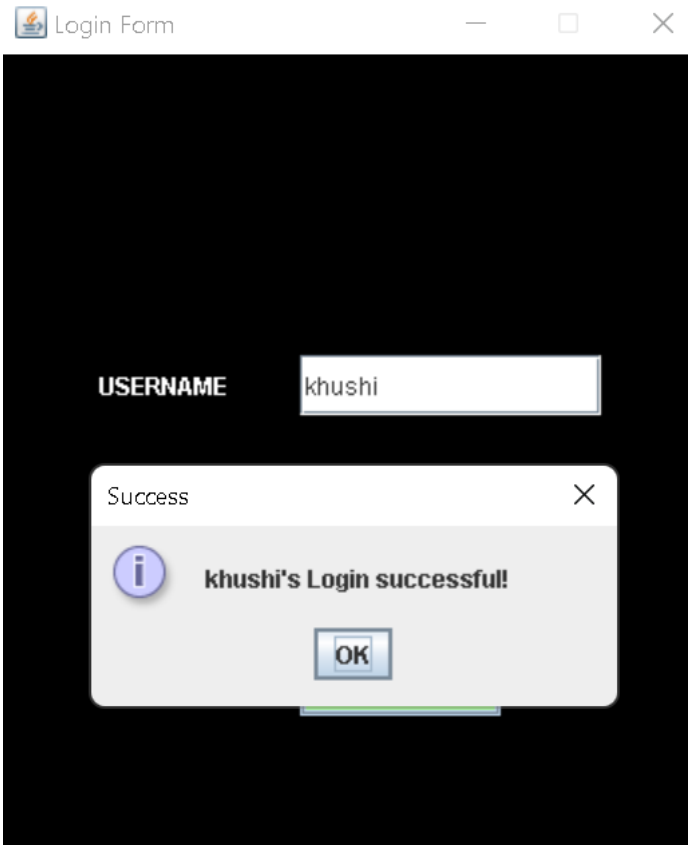
4. Write a program to create a login form for a website using Swing components.

```
import javax.swing.*;
import java.awt.*;
import java.awt.event.ActionEvent;
import java.awt.event.ActionListener;
class LoginFrame extends JFrame implements ActionListener {

    Container container=getContentPane();
    JLabel userLabel=new JLabel("USERNAME");
    JLabel passwordLabel=new JLabel("PASSWORD");
    JTextField userTextField=new JTextField();
    JPasswordField passwordField=new JPasswordField();
    JButton loginButton=new JButton("LOGIN");


    LoginFrame()
    {
        setLayoutManager();
        setLocationAndSize();
        addComponentsToContainer();

    }
   public void setLayoutManager()
   {
       container.setLayout(null);
   }
   public void setLocationAndSize()

   {
       //Setting location and Size of each components using setBounds() method.
       Color cc1=new Color(157,240,132);
       userLabel.setBounds(50,150,100,30);
       userLabel.setForeground(Color.WHITE);
       passwordLabel.setBounds(50,220,100,30);
        passwordLabel.setForeground(Color.WHITE);
       userTextField.setBounds(150,150,150,30);
       passwordField.setBounds(150,220,150,30);
       loginButton.setBounds(150,300,100,30);
         loginButton.setBackground(cc1);
        getContentPane().setBackground(Color.BLACK);
      loginButton.addActionListener(this);


   }
```

```
   public void addComponentsToContainer()
   {
       container.add(userLabel);
       container.add(passwordLabel);
       container.add(userTextField);
       container.add(passwordField);
       container.add(loginButton);
    }

    public void actionPerformed(ActionEvent e) {
        String username =  userTextField.getText();
        String password = new String(passwordField.getPassword());

        JOptionPane.showMessageDialog(this,username +"'s Login successful!",
"Success", JOptionPane.INFORMATION_MESSAGE);
    }

}

public class LoginForm {
    public static void main(String[] a){
        LoginFrame frame=new LoginFrame();
        frame.setTitle("Login Form");
        frame.setVisible(true);
        frame.setBounds(10,10,370,600);
        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
        frame.setResizable(false);

    }

}
```

OUTPUT :


Login Form
USERNAME
khushi
PASSWORD
LOGIN


Login Form
USERNAME
khushi
Success
khushi's Login successful!
OK