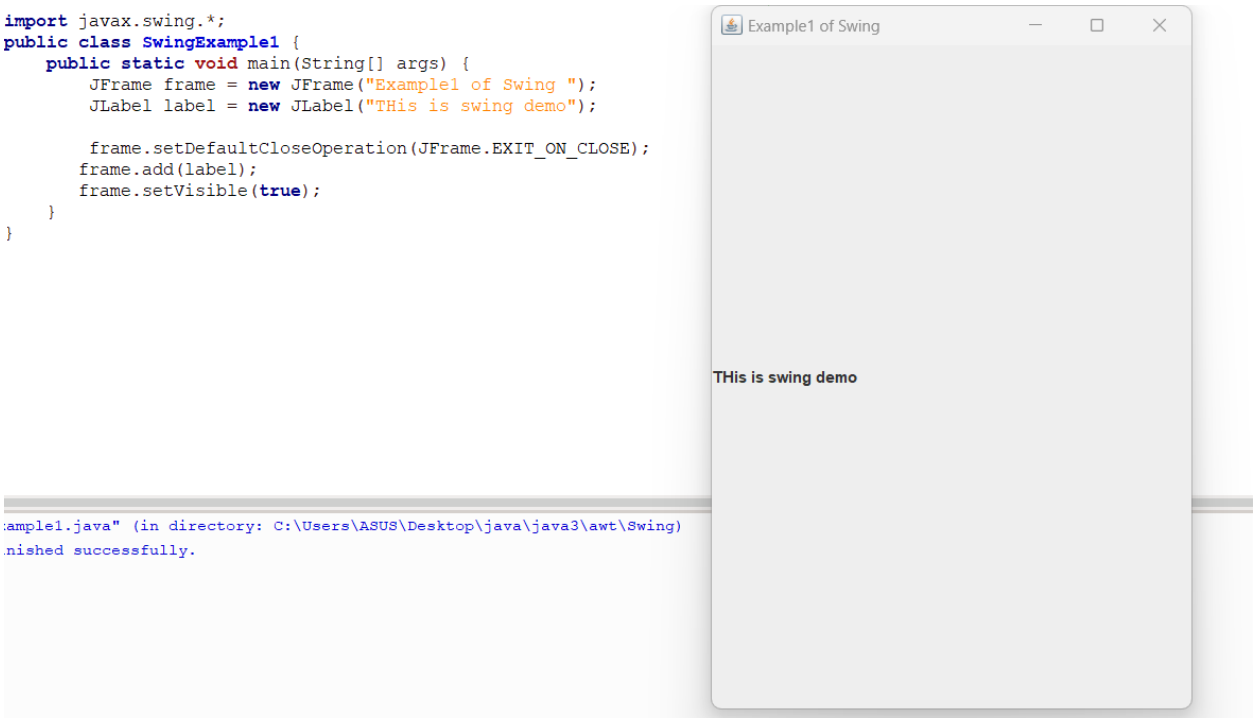
Swing:

- Swing refers to the set of GUI components which provides the framework for creating user interfaces in Java applications.
- It allows more flexibility, platform independent features than older AWT.

Simple Example of Swing:

```
import javax.swing.*;
public class SwingExample1 {
    public static void main(String[] args) {
        JFrame frame = new JFrame("Example1 of Swing ");
        JLabel label = new JLabel("THis is swing demo");

        frame.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
       frame.add(label);
       frame.setVisible(true);
    }
}
```



The classes of Swing API are as follows:

- **JWindow:** The JWindow class of Swing inherits the Window class directly. The JWindow class uses 'BorderLayout' as the default layout.
- **JPanel:** JPanel is a descendent of JComponent class and is on similar lines to AWT class Panel and has 'FlowLayout' as the default layout.

- **JFrame:** JFrame descends from the Frame class. The components added to the Frame are called contents of the Frame.
- **JLabel:** JLabel class is a subclass of the JComponent. It is used to create text labels in the application.
- **JButton:** The push-button functionality in Swing is provided by JButton. We can associate a string, an icon, or both with the JButton object.
- **JTextField:** JTextField class provides a text field in which we can edit a single line of text.

1.JFrame:

- A JFrame is a main window in Swing application.
- It provides the basic container for other swing components.
- A Frame window can contain a title, a border, and also menus, text fields, buttons, and other components.
- It is defined in class javax.swing.JFrame. JFrame class inherits the java.awt.Frame class.

Ways to create JFrame Window Object:

Method1:By extending JFrame Class:

- It allows to create a new class to construct a Frame.
- This class inherits from JFrame class of javax.swing package.

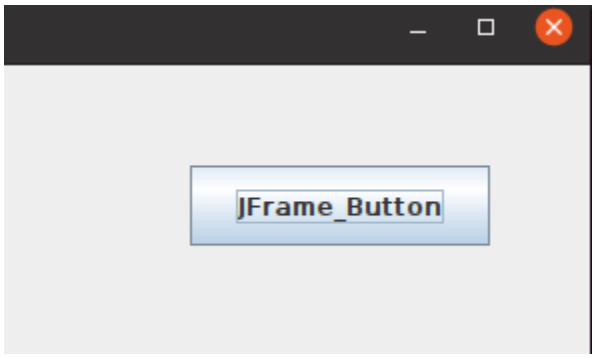
Program 4 :

```
import javax.swing.*;
```

```
class Example1 extends JFrame{

    JFrame f;

    Example1(){

        JButton b=new JButton("JFrame_Button");//create button object

        b.setBounds(100,50,150, 40);



        add(b);//add button on frame

        setSize(300,200);

        setLayout(null);

        setVisible(true);

    }

}

public class FrameDemo {

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

```
    new Example1();
```

Output:

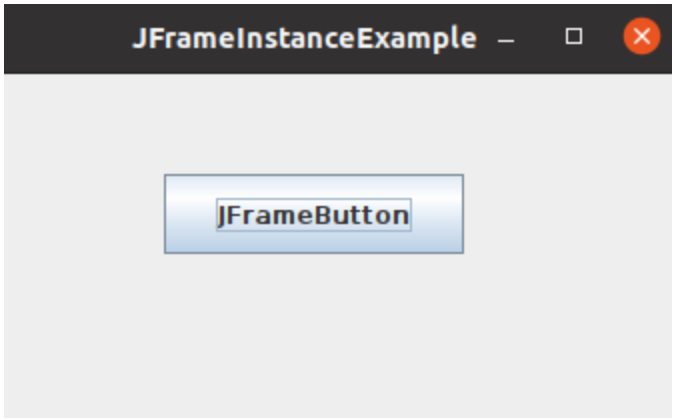


Method 2: By Instantiating The JFrame Class

```
import javax.swing.*;

public class FrameDemo1 {



  public static void main(String[] args) {

    JFrame f=new JFrame("JFrameInstanceExample");//create a JFrame object



    JButton b=new JButton("JFrameButton");//create instance of JButton
```

```
        b.setBounds(200,150,100, 50);




        f.add(b);//add button in JFrame




        f.setSize(250,250);

        f.setLayout(null);

        f.setVisible(true);

    }

}
```

Output:



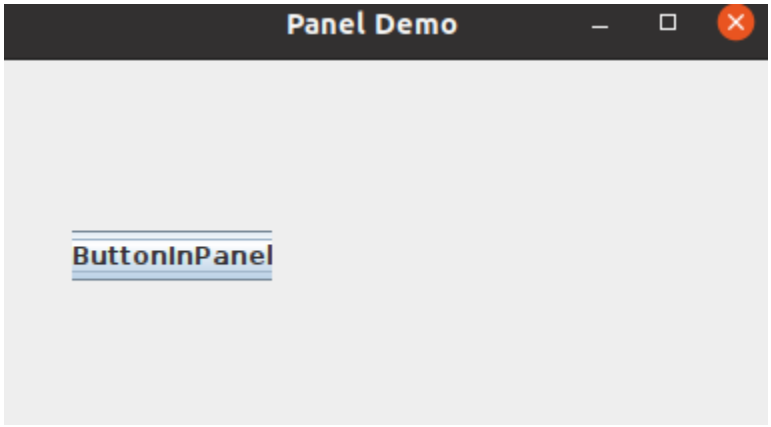
JPanel in Java:

- It is a component that is contained inside a frame window an allows to organize the components .
- A frame can have more than one panel components.
- To implement panel component, we have JPanel class.
- It has default layout as FlowLayout.

Program :

```
import javax.swing.*;
class Example2 {
   Example2(){
      JFrame frame = new JFrame("Panel Demo"); //create a frame
      JPanel panel = new JPanel(); //Create JPanel Object
      panel.setBounds(50,80,100,100); //set dimensions for Panel
      JButton b = new JButton("ButtonInPanel"); //create JButton object
      b.setBounds(60,50,80,40);
      panel.add(b);   //add button to the panel
      frame.add(panel);   //add panel to frame
      frame.setSize(400,400);
      frame.setLayout(null);
      frame.setVisible(true);
```

```
    }

}
public class PanelDemo {
    public static void main(String[] args) {
      new Example2();
    }
}
```



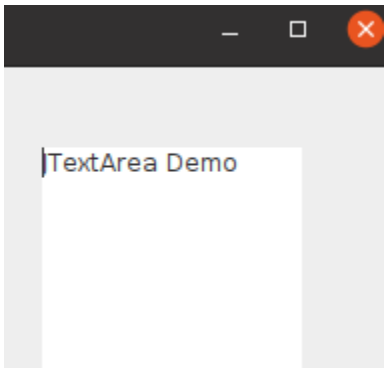
JTextArea in Java:

- It is the class which defines text area.It indicates an editable text field.
- It inherits JTextComponent class

Constructors: **JTextArea(), JTextArea (String s),JTextArea (int row, int column),JTextArea (String s, int row, int column)**

```
import javax.swing.*;
class Example3 {
    Example3(){
        JFrame frame= new JFrame();
        JTextArea t_area=new JTextArea("JTextArea Demo");   //create object of JTextArea
        t_area.setBounds(20,40, 130,120);  //set its dimensions
        frame.add(t_area);      //add it to the frame
        frame.setSize(200,200);
        frame.setLayout(null);
        frame.setVisible(true);
    }

}
```

```
public class JTextAreaDemo {
    public static void main(String[] args) {
      new Example3();
    }
}
```

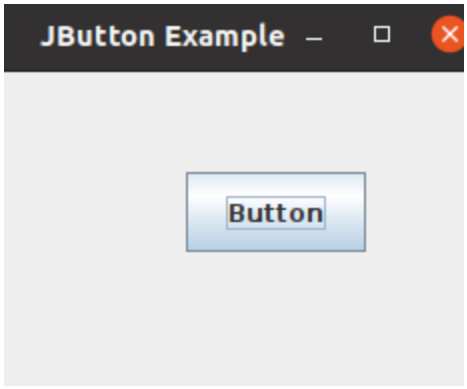


JButton in Java:

- It is used to create a push button with a name or a label on it.
- The class that creates a labeled button is JButton.

```
import javax.swing.*;

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

 JFrame frame=new JFrame("JButton Example"); //create JFrame object
        JButton button=new JButton("Button");        //Create a JButton object
        button.setBounds(100,50,90,40); //set dimensions for button
   frame.add(button);                                  //add button to the frame
        frame.setSize(250,200);
        frame.setLayout(null);
        frame.setVisible(true);
    }
}
```

Output:



JComboBox in Java:

- JCombobox class allows us to display the list of choices from which a user can select an option.
- The selected choice is at the top.

```
import javax.swing.*;
class ComboBoxExample {
    JFrame frame;
    ComboBoxExample(){
        frame=new JFrame("ComboBox Example");
        //create a string array
        String country[]={"Nepal","India","Japan","Maldives","Germany"};
        //create a combobox object with given string array
        JComboBox countries=new JComboBox(country);
        countries.setBounds(50, 50,90,20);
        frame.add(countries);       //add it to the frame
        frame.setLayout(null);
        frame.setSize(200,300);
        frame.setVisible(true);
    }
}
public class Main {
    public static void main(String arg[]) {
       new ComboBoxExample();
    }
}
```

```
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a uses unchecked or unsafe operations.
e with -Xlint:unchecked for details.
nished successfully.
```