JButton

JButton class is used to create a **push button control**, which can generate an **ActionEvent** when it is clicked. In order to handle a button click event, **ActionListener** interface should be implemented. JButton is a component which extends JComponent class and it can be added to the container.

Constructors of JButton class:

1. **JButton() :** This constructor creates a button with no text on it.
   Example
   ```
   JButton b=new JButton();
   ```

2. **JButton(String text):** This constructor creates a button with a text on it.
   Example
   ```
   JButton b=new JButton("Click Here");
   ```

3. **JButton(Icon image):** This constructor creates a button with an icon on it.
   Example
   ```
   ImageIcon icon = new ImageIcon("C:\picture\flower.jpg");
   JButton b=new JButton(icon);
   ```
   OR
   ```
   JButton b=new JButton(new ImageIcon("C:\picture\flower.jpg"));
   ```

4. **JButton(String text, Icon image) :** This constructor creates a button with a text and an icon on it.
   Example
   ```
   ImageIcon icon = new ImageIcon("C:\picture\flower.jpg");
   JButton b=new JButton("Click Here",icon);
   ```

Methods of JButton class:

- **setText(String text) :** This method is used to sets a String message on the JButton.
  Example:
  ```
  JButton b=new JButton();
  b.setText("Click Here");
  ```
- **String getText() :** This method is used to gets a String message of JButton.
  Example
  ```
  JButton b1=new JButton();
  b.setText("Click Here");

  String str = b1.getText();
  JButton b2=new JButton();
  ```

```
b2.setText(b1);
```

- **setBackground(Color c):** This method is used to sets a font type to the JButton.
  Example:
  ```
  b.setBackground(Color.blue)
  ```

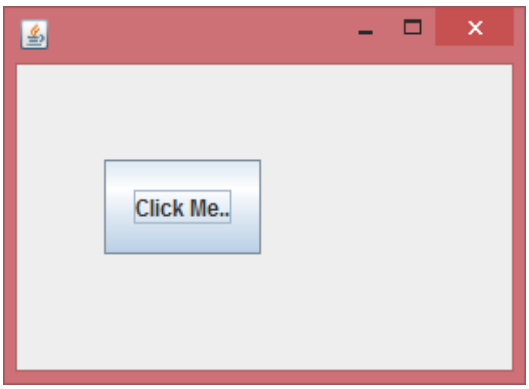
- **setForeground(Color c):** This method is used to sets a foreground color, i.e. color of text in JButton.
  Example:
  ```
  b.setForeground(Color.RED);
  ```

- **setFont(Font f):** This method is used to sets a font type to the JTextField
  Example:
  ```
  Font fnt=new Font("Serif", Font.BOLD, 10)
  b.setFont(fnt);
  ```

- **setIcon(Icon *icon*) :** This method is used to sets an icon or image over the JButton.
- **Icon getIcon() :** This method is used to sets an icon or image over the JButton.
- **setHorizontalTextPosition(int textPosition) :** This method is used to sets the button message on the LEFT/RIGHT of its icon or image.
- **setVerticalTextPosition(int textPosition) :** This method is used to sets the button message on the TOP/BOTTOM of its icon or image.

Example

```
import javax.swing.*;
public class JButtonEx
{
   public static void main(String[] args)
   {
      JFrame f=new JFrame();
      JButton b=new JButton("Click Me..");
      b.setBounds(50,50,90, 50);
      f.add(b);
      f.setSize(300,200);
      f.setLayout(null);
      f.setVisible(true);
   }
}
```



Java ActionListener Interface

The Java ActionListener is notified whenever you click on the button or menu item. It is notified against ActionEvent. The ActionListener interface is found in java.awt.event package. It has only one method: actionPerformed().

actionPerformed() method

The actionPerformed() method is invoked automatically whenever you click on the registered component.

```
public abstract void actionPerformed(ActionEvent e);
```

How to write ActionListener

The common approach is to implement the ActionListener. If you implement the ActionListener class, you need to follow 3 steps:

1) Implement the ActionListener interface in the class:

```
public class ButtonEx implements ActionListener
```

2) Register the component with the Listener:

```
component.addActionListener(instanceOfListenerclass);
```

3) Override the actionPerformed() method:

```
public void actionPerformed(ActionEvent e)
{
        //Write the code here
}
```

Java JButton Example with ActionListener

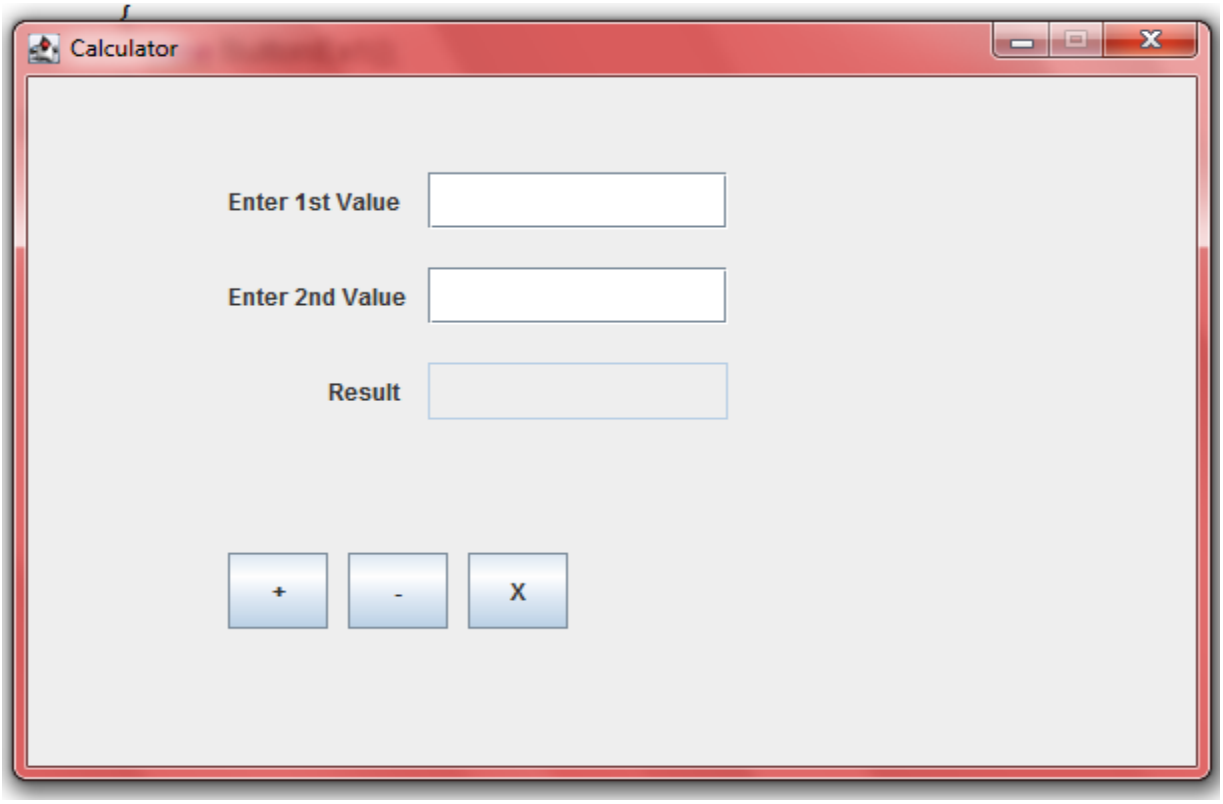
```
import java.awt.event.*;
import java.awt.*;

import javax.swing.*;

public class ButtonEx
{
	public static void main(String[] args)
	{
		JFrame f= new JFrame("Calculator");

		Font font=new Font("Arial Black",Font.BOLD,14);

		JButton b=new JButton("Clike Here");
		b.setBounds(150, 200, 120, 40);
		b.setBackground(Color.blue);
		b.setOpaque(true);
		b.setForeground(Color.yellow);
		b.setFont(font);

		JTextField t=new JTextField();
		t.setBounds(50,110,350,50);

	    b.addActionListener(new ActionListener()
	    {
	       public void actionPerformed(ActionEvent e)
	       {
		Font font1=new Font("Arial Black",Font.BOLD,24);
		t.setText("Welcome to Java Swing");
		   t.setBackground(Color.green);
		   t.setOpaque(true);
		   t.setForeground(Color.blue);
		   t.setFont(font1);
	       }
	    });


		f.add(b);
		f.add(t);
```

```
            f.setResizable(false);
            f.setSize(600,500);
            f.setLayout(null);
            f.setVisible(true);
        }
}
```

Java JTextField Example with ActionListener

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

public class ButtonEx implements ActionListener
{
        JTextField tf1, tf2, tf3;
        JLabel l1, l2, l3;
        JButton b1, b2, b3;
        ButtonEx()
        {
           JFrame f= new JFrame("Calculator");
           l1=new JLabel("Enter 1st Value");
           l1.setBounds(100,50,150,30);
           tf1=new JTextField();
           tf1.setBounds(250,50,150,30);

           l2=new JLabel("Enter 2nd Value");
           l2.setBounds(100,100,150,30);
           tf2=new JTextField();
           tf2.setBounds(250,100,150,30);


           l3=new JLabel("Result");
           l3.setBounds(150,150,150,30);
           tf3=new JTextField();
           tf3.setBounds(200,150,150,30);
           tf3.setEditable(false);


           b1=new JButton("+");
           b1.setBounds(100,250,50,40);

           b2=new JButton("-");
           b2.setBounds(160,250,50,40);

           b3=new JButton("x");
           b3.setBounds(220,250,50,40);

           b1.addActionListener(this);
           b2.addActionListener(this);
```

```
        b3.addActionListener(this);

        f.add(l1);
        f.add(l2);
        f.add(l3);
        f.add(tf1);
        f.add(tf2);
        f.add(tf3);
        f.add(b1);
        f.add(b2);
        f.add(b3);

        f.setSize(600,400);
        f.setLayout(null);
        f.setVisible(true);
        f.setResizable(false);
        f.setLocation(200, 200);
    }
    public void actionPerformed(ActionEvent e)
    {
         int a= Integer.parseInt (tf1.getText());
        int b=Integer.parseInt(tf2.getText());
        int c=0;
        if(e.getSource()==b1)
        {
              c=a+b;
        }
        else if(e.getSource()==b2)
        {
              c=a-b;
        }
        else if(e.getSource()==b3)
        {
              c=a*b;
        }
        String result=String.valueOf(c);  “30”
        tf3.setText(result);
    }
    public static void main(String args[])
    {
          new ButtonEx();
    }
}
```


Calculator
Enter 1st Value
Enter 2nd Value
Result
+
-
X