

Interface Gráfica

Emerson C. Lima

Programação Java

Objetivos dessa lição

Conteúdo

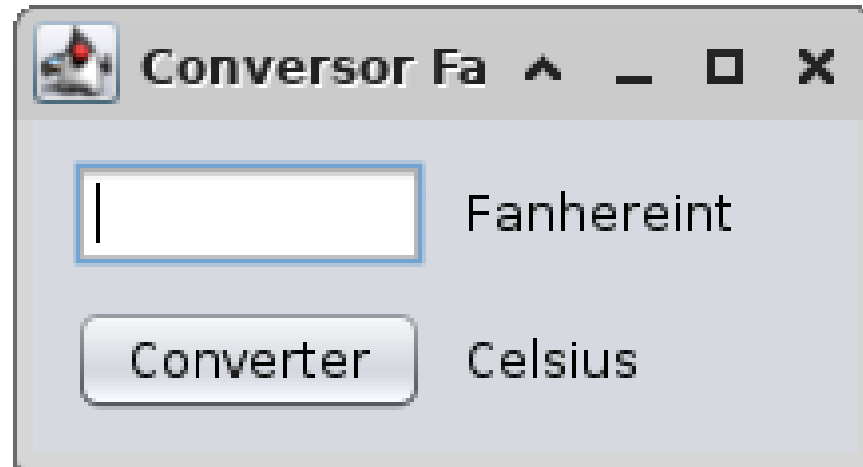
Introdução

- Java Foundation Classes
 - Componentes Swing
 - Suporte plugável a Look-and-Feel
 - Accessibility API
 - Java 2D API
 - Internationalization

Quais pacotes do swing devo utilizar?

- javax.accessibility javax.swing.plaf javax.swing.text
- javax.swing javax.swing.plaf.basic javax.swing.text.html
- javax.swing.border javax.swing.plaf.metal
 javax.swing.text.html.parser
- javax.swing.colorchooser javax.swing.plaf.multi
 javax.swing.text.rtf
- javax.swing.event javax.swing.plaf.synth javax.swing.tree
- javax.swing.filechooser javax.swing.table
 javax.swing.undo

O conversor de temperatura



The image shows a small, simple graphical user interface window. The title bar at the top is light gray and contains a small icon of a thermometer on the left, followed by the text 'Conversor Fa'. To the right of the text are standard window control buttons: a maximize button (represented by a small upward-pointing triangle), a minimize button (represented by a short horizontal line), a maximize button (represented by a small square), and a close button (represented by an 'X').

The main area of the window has a light gray background. It contains a text input field with a blue border and a vertical cursor inside. To the right of the input field is the text 'Fahrenheit'. Below the input field is a button with a light gray gradient and rounded corners, containing the text 'Converter'. To the right of the button is the text 'Celsius'.

O conversor de temperatura

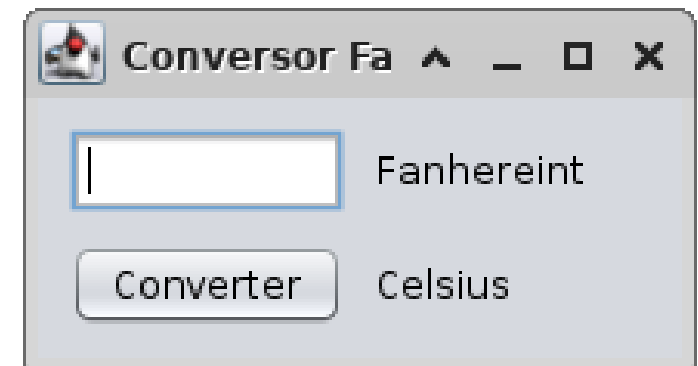
- Desenvolveremos a aplicação em dois estágios:
 - Criação e posicionamento dos componentes Swing
 - Lógica da aplicação

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;  
2  
3 public class ConversorTemperatura {  
4  
5 }
```

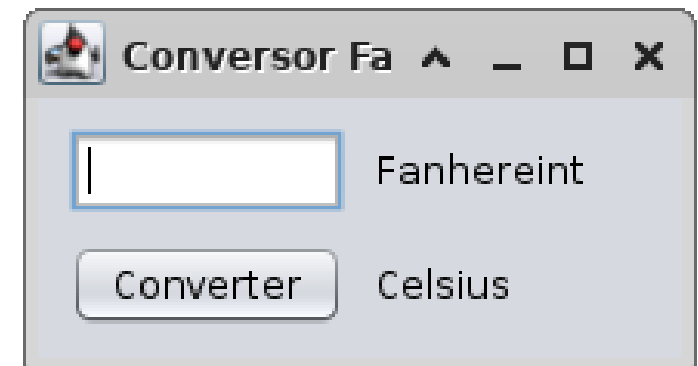

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;  
2  
3 import javax.swing.JFrame ;  
4  
5 public class ConversorTemperatura {  
6  
7     private JFrame frmJanela ;  
8  
9 }
```



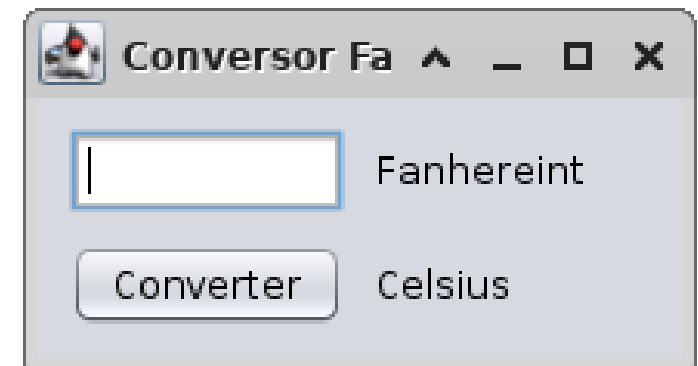
Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JTextField ;
5
6 public class ConversorTemperatura {
7
8     private JFrame frmJanela ;
9     private JTextField txtFahrenheit ;
10
11 }
```



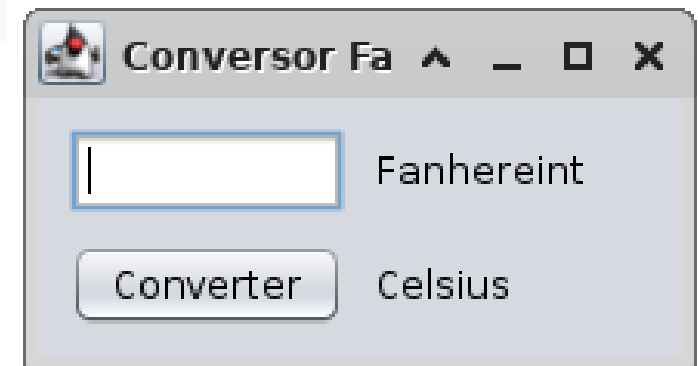
Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;  
2  
3 import javax.swing.JFrame ;  
4 import javax.swing.JTextField ;  
5 import javax.swing.JLabel ;  
6  
7 public class ConversorTemperatura {  
8  
9     private JFrame frmJanela ;  
10    private JTextField txtFahrenheit ;  
11    private JLabel lblFahrenheit ;  
12  
13 }
```



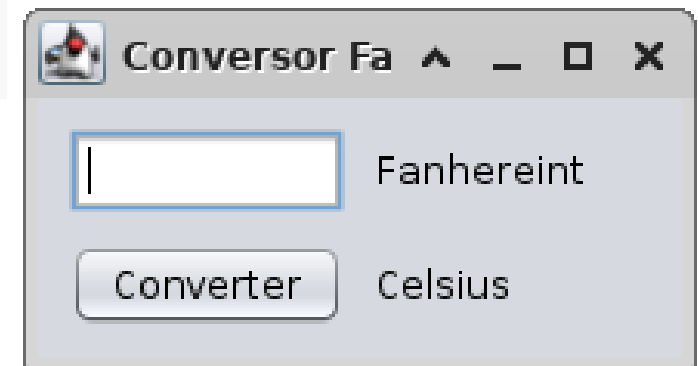
Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JTextField ;
5 import javax.swing.JLabel ;
6 import javax.swing.JButton ;
7
8 public class ConversorTemperatura {
9
10     private JFrame frmJanela ;
11     private JTextField txtFahrenheit ;
12     private JLabel lblFahrenheit ;
13     private JButton btnConverter ;
14
15 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JTextField ;
5 import javax.swing.JLabel ;
6 import javax.swing.JButton ;
7
8 public class ConversorTemperatura {
9
10     private JFrame frmJanela ;
11     private JTextField txtFahrenheit ;
12     private JLabel lblFahrenheit ;
13     private JButton btnConverter ;
14     private JLabel lblCelsius ;
15
16 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JTextField ;
5 import javax.swing.JLabel ;
6 import javax.swing.JButton ;
7
8 public class ConversorTemperatura {
9
10     private JFrame frmJanela ;
11     private JTextField txtFahrenheit ;
12     private JLabel lblFahrenheit ;
13     private JButton btnConverter ;
14     private JLabel lblCelsius ;
15
16     public void exibir() {
17         frmJanela.setVisible(true) ;
18     }
19 }
```

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 public class Principal {
4
5     public static void main(String[] args) {
6         ConversorTemperatura ct = new ConversorTemperatura ();
7         ct.exibir();
8     }
9
10 }
```

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 //...
5
6 public class ConversorTemperatura {
7
8     private JFrame frmJanela ;
9     //..
10
11     public ConversorTemperatura () {
12         frmJanela = new JFrame();
13         frmJanela.setTitle("Conversor Fanhereint -> Celsius" );
14         frmJanela.setDefaultCloseOperation (JFrame.EXIT_ON_CLOSE );
15         frmJanela.setSize (250, 250);
16         frmJanela.setLocationRelativeTo (null);
17     }
18     //...
19 }
```


Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 //...
5
6 public class ConversorTemperatura {
7
8     private JFrame frmJanela;
9     //...
10
11     public ConversorTemperatura() {
12         frmJanela = new JFrame("Conversor Fanher");
13         frmJanela.setTitle("Conversor de Fahrenheit -> Celsius");
14         frmJanela.setDefaultCloseOperation(JFrame.EXIT_ON_CLOSE);
15         frmJanela.setSize(250, 250);
16         frmJanela.setLocationRelativeTo(null);
17     }
18     //...
19 }
```

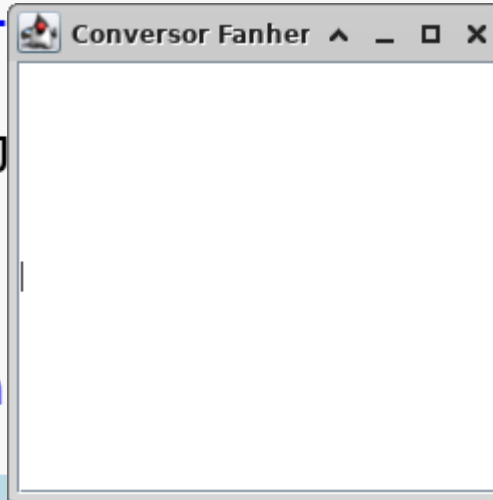


Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JTextField ;
4 //...
5
6 public class ConversorTemperatura {
7
8     private JFrame frmJanela ;
9     private JTextField txtFahrenheit ;
10    //..
11
12    public ConversorTemperatura () {
13        //...
14        txtFahrenheit = new JTextField() ;
15        frmJanela.add(txtFahrenheit) ;
16        //...
17    }
18    //...
19 }
```

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JTextField ;
4 //...
5
6 public class ConversorT
7
8     private JFrame frmJ
9     private JTextField
10    //..
11
12    public ConversorTem
13        //...
14    txtFanhhereit = new JTextField();
15    frmJanela.add(txtFanhhereit);
16    //...
17 }
18 //...
19 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JTextField ;
4 import javax.swing.JLabel ;
5 //...
6
7 public class ConversorTemperatura {
8
9     private JFrame frmJanela ;
10    private JTextField txtFahrenheit ;
11    private JLabel lblFahrenheit ;
12    //...
13
14    public ConversorTemperatura () {
15        //...
16        txtFahrenheit = new JTextField () ;
17        frmJanela.add (txtFahrenheit) ;
18
19        lblFahrenheit = new JLabel () ;
20        lblFahrenheit.setText ("Fahrenheit") ;
21        frmJanela.add (lblFahrenheit) ;
22        //...
23    }
24    //...
25 }
```

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JTextField ;
4 import javax.swing.JLabel ;
5 //...
6
7 public class ConversorTemperatura {
8
9     private JFrame frmJanela;
10    private JTextField txtFanhereint;
11    private JLabel lblFanhereint;
12    //...
13
14    public ConversorTemperatura() {
15        //...
16        txtFanhereint = new JTextField();
17        frmJanela.add(txtFanhereint);
18
19        lblFanhereint = new JLabel();
20        lblFanhereint.setText("Fanhereint");
21        frmJanela.add(lblFanhereint);
22        //...
23    }
24    //...
25 }
```




Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import java.awt.FlowLayout ;
4
5 public class ConversorTemperatura {
6
7     private JFrame frmJanela;
8     //..
9
10    public ConversorTemperatura () {
11        frmJanela = new JFrame();
12        frmJanela.setTitle("Conversor Fanhereit -> Celsius" );
13        frmJanela.setDefaultCloseOperation (JFrame.EXIT_ON_CLOSE );
14        frmJanela.setSize(250, 250);
15        frmJanela.setLocationRelativeTo (null);
16        frmJanela.setLayout (new FlowLayout());
17
18        txtFanhereint = new JTextField();
19        //...
20    }
21    //...
22 }
```

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import java.awt.FlowLayout ;
4
5 public class ConversorTemperatura {
6
7     private JFrame frmJanela;
8     //..
9
10    public ConversorTem
11        frmJanela = new
12        frmJanela.setTi
13        frmJanela.setDe
14        frmJanela.setSi
15        frmJanela.setLo
16        frmJanela.setLa
17
18        txtFanhereint = new JTextField();
19        //...
20    }
21    //...
22 }
```



The image shows a Java Swing window titled "Conversor Fanher" with a single text input field labeled "Fanhereint". The window is overlaid on a code editor showing the Java code for the "ConversorTemperatura" class. The code defines a class with a private JFrame, a text field, and methods for setting the window's title, default close operation, size, location, and layout. The text field is created and added to the window's layout.

Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JTextField ;
4
5 public class ConversorTemperatura {
6
7     private JTextField txtFanhereint ;
8     //...
9
10    public ConversorTemperatura () {
11        //...
12        txtFanhereint = new JTextField() ;
13        txtFanhereint.setColumns(5) ;
14        //...
15    }
16    //...
17 }
```

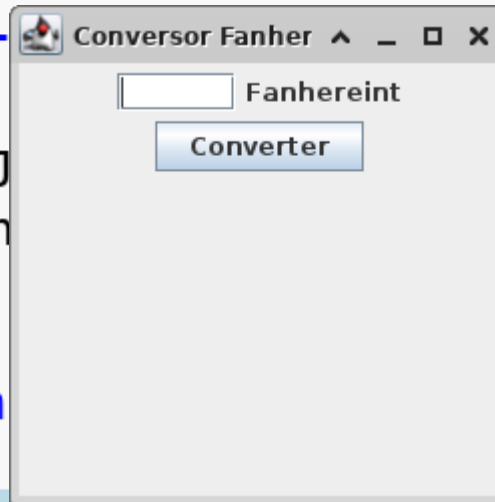


Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JButton ;
5 //...
6
7 public class ConversorTemperatura {
8
9     private JFrame frmJanela ;
10    private JButton btnConverter ;
11    //...
12
13    public ConversorTemperatura () {
14        //...
15        btnConverter = new JButton() ;
16        btnConverter.setText("Converter") ;
17        frmJanela.add(btnConverter) ;
18        //...
19    }
20    //...
21 }
```

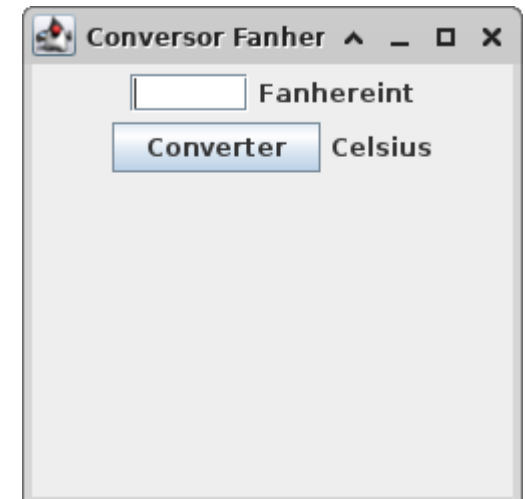
Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JButton ;
5 //...
6
7 public class ConversorTem
8
9     private JFrame frmJ
10    private JButton btn
11    //...
12
13    public ConversorTem
14        //...
15        btnConverter = new JButton();
16        btnConverter.setText("Converter");
17        frmJanela.add(btnConverter);
18        //...
19    }
20    //...
21 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import javax.swing.JLabel ;
5 //...
6
7 public class ConversorTemperatura {
8
9     private JFrame frmJanela ;
10    private JLabel lblCelsius ;
11    //...
12
13    public ConversorTemperatura () {
14        //...
15        lblCelsius = new JLabel() ;
16        lblCelsius.setText("Celsius") ;
17        frmJanela.add(lblCelsius) ;
18        //...
19    }
20    //...
21 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 import java.awt.GridLayout ;
5 //...
6
7 public class ConversorTemperatura {
8
9     private JFrame frmJanela ;
10    //...
11
12    public ConversorTemperatura () {
13        //...
14        frmJanela.setLayout (new GridLayout (2, 2));
15        //...
16    }
17    //...
18 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JFrame ;
4 //...
5
6 public class ConversorTemperatura {
7
8     private JFrame frmJanela ;
9     //...
10
11     public ConversorTemperatura () {
12         frmJanela = new JFrame() ;
13         //frmJanela.setSize(250, 250);
14         //...
15
16         frmJanela.pack();
17     }
18     //...
19 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import java.awt.GridLayout ;
4 //...
5 public class ConversorTemperatura {
6     //...
7     public ConversorTemperatura () {
8         //...
9         GridLayout l = new GridLayout (2, 2);
10        l.setHgap (10);
11        frmJanela.setLayout (l);
12        //...
13    }
14    //...
15 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import java.awt.GridLayout ;
4 //...
5 public class ConversorTemperatura {
6     //...
7     public ConversorTemperatura () {
8         //...
9         GridLayout l = new GridLayout (2, 2);
10        l.setHgap (10);
11        l.setVgap (10);
12        frmJanela.setLayout (l);
13        //...
14    }
15    //...
16 }
```



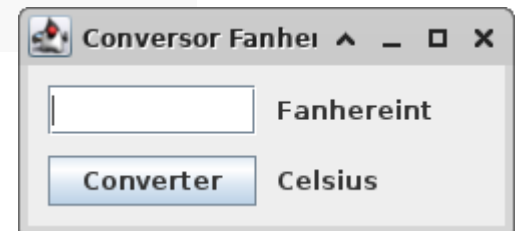
Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JPanel ;
4 //...
5 public class ConversorTemperatura {
6     //...
7     public ConversorTemperatura () {
8         //...
9         frmJanela.setLocationRelativeTo (null);
10        JPanel p = new JPanel();
11        frmJanela.setContentPane (p);
12        //...
13    }
14    //...
15 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JPanel ;
4 import javax.swing.border.EmptyBorder ;
5 //...
6 public class ConversorTemperatura {
7     //...
8     public ConversorTemperatura () {
9         //...
10        frmJanela.setLocationRelativeTo (null);
11        JPanel p = new JPanel();
12        p.setBorder(new EmptyBorder(10, 10, 10, 10));
13        frmJanela.setContentPane (p);
14        //...
15    }
16    //...
17 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JOptionPane ;
4 import javax.swing.UIManager ;
5
6 public class Principal {
7
8     public static void main(String[] args) {
9         try {
10             UIManager.setLookAndFeel (
11                 "com.sun.java.swing.plaf.gtk.GTKLookAndFeel"
12             );
13         } catch (Exception e) {
14             JOptionPane.showMessageDialog (
15                 null,
16                 e.getClass() + "\n" + e.getMessage(),
17                 "Ops!",
18                 JOptionPane.ERROR_MESSAGE
19             );
20         }
21         ConversorTemperatura ct = new ConversorTempe
22         ct.exibir();
23     }
24
25 }
```



Criação e posicionamento dos componentes Swing

```
1 package faeterj.prj ;
2
3 import javax.swing.JOptionPane ;
4 import javax.swing.UIManager ;
5
6 public class Principal {
7
8     public static void main(String[] args) {
9         try {
10             UIManager.setLookAndFeel (
11                 "javax.swing.plaf.nimbus.NimbusLookAndFeel"
12             );
13         } catch (Exception e) {
14             JOptionPane.showMessageDialog (
15                 null,
16                 e.getClass() + "\n" + e.getMessage(),
17                 "Ops!",
18                 JOptionPane.ERROR_MESSAGE
19             );
20         }
21         ConversorTemperatura ct = new ConversorTemperatura();
22         ct.exibir();
23     }
24 }
25 }
```

