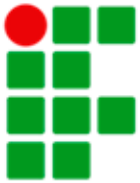


INSTITUTO FEDERAL
DE EDUCAÇÃO, CIÊNCIA E TECNOLOGIA
Bahia

Linguagem de Programação II

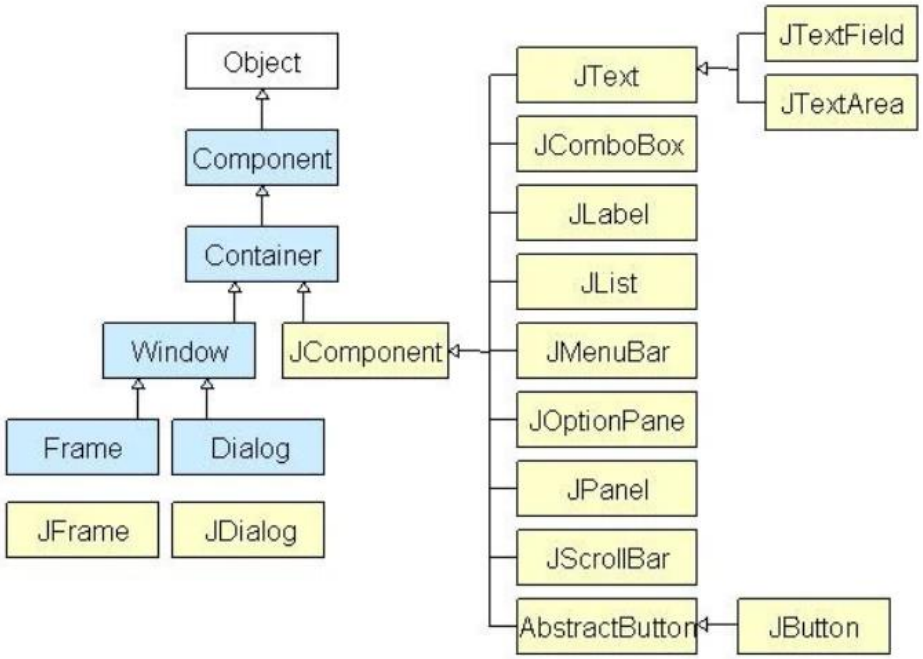
Introdução às Interfaces Gráficas de Usuário (GUI) em Java: Pacote Swing (JFrame, JPanel, JLabel, JTextField, JPasswordField e JButton)

Roteiro

- Introdução às Interfaces Gráficas de Usuário (GUI) em Java (Swing):
  - Introdução;
  - Componentes;
  - JFrame (Janela);
  - Netbeans e Swing
  - JButton (Botão)
  - JLabel (Rótulo ou Etiquetas);
  - JTextField (Campo de Texto);
  - JPasswordField (Campo de Senha);

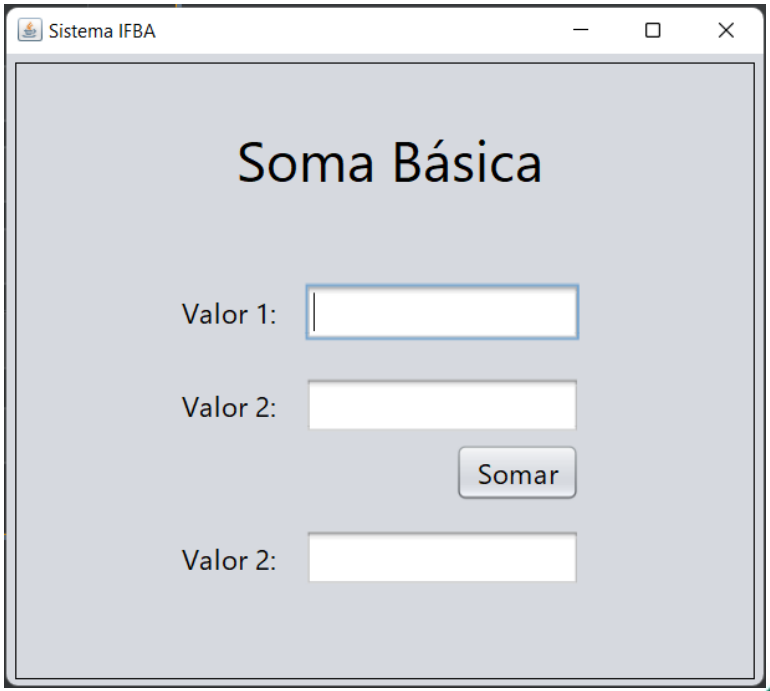
Java Swing - Introdução

- **Java Swing** é um conjunto classes disponíveis no Java para o desenvolvimento de interfaces gráficas.



Java Swing - Introdução

- Na **Interface Gráfica** é necessário definir quais **componentes** (**objetos**) serão utilizados e a **disposição** que **eles** terão na **janela** (**objeto**).

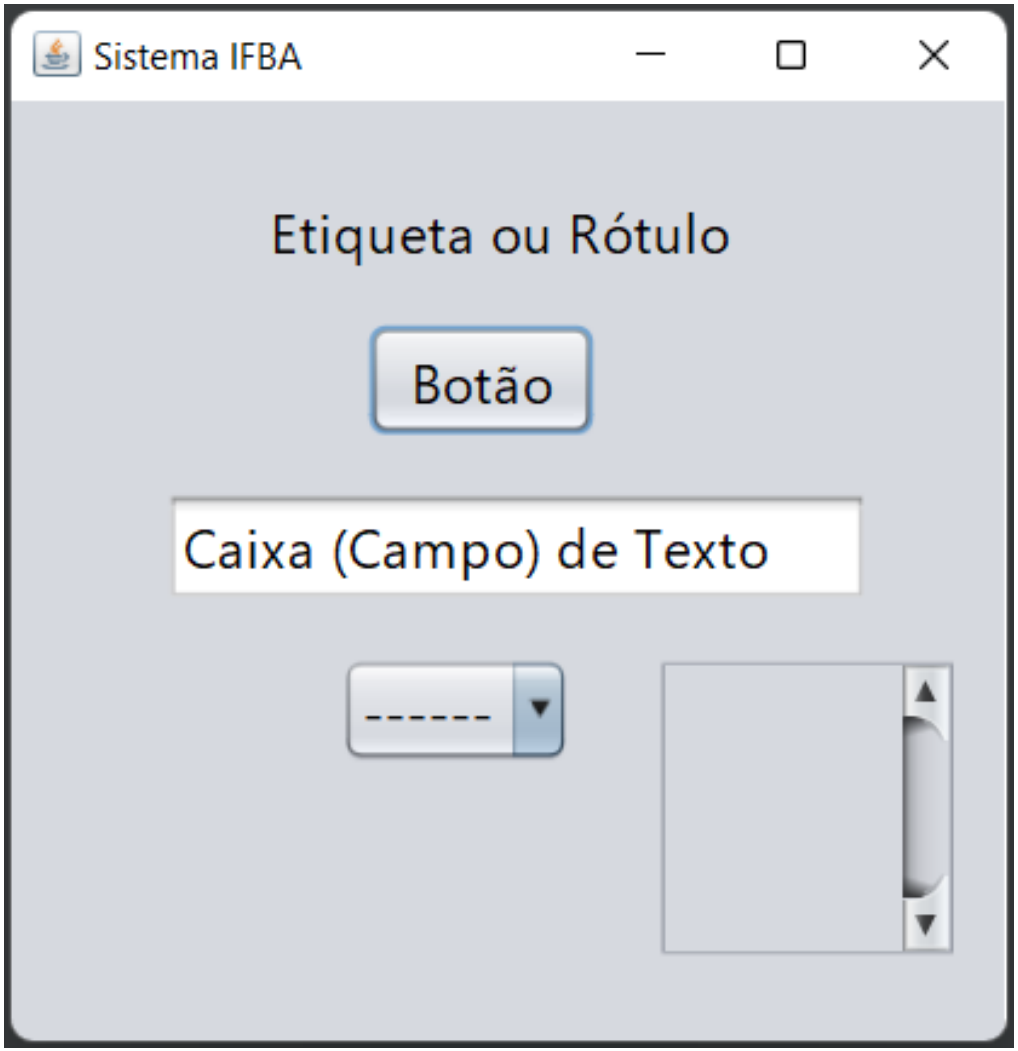


Java Swing – Componentes

- Um **componente** da **Interface Gráfica** é um **objeto visual** (**Java**) que possibilita realizar a **interação com o programa** por meio do **mouse** e do **teclado**.

- Ex.: **etiquetas**, **botões**, **caixas de texto**, **painéis de rolagem**, **menus**, **objetos de múltipla escolha**, entre outros.

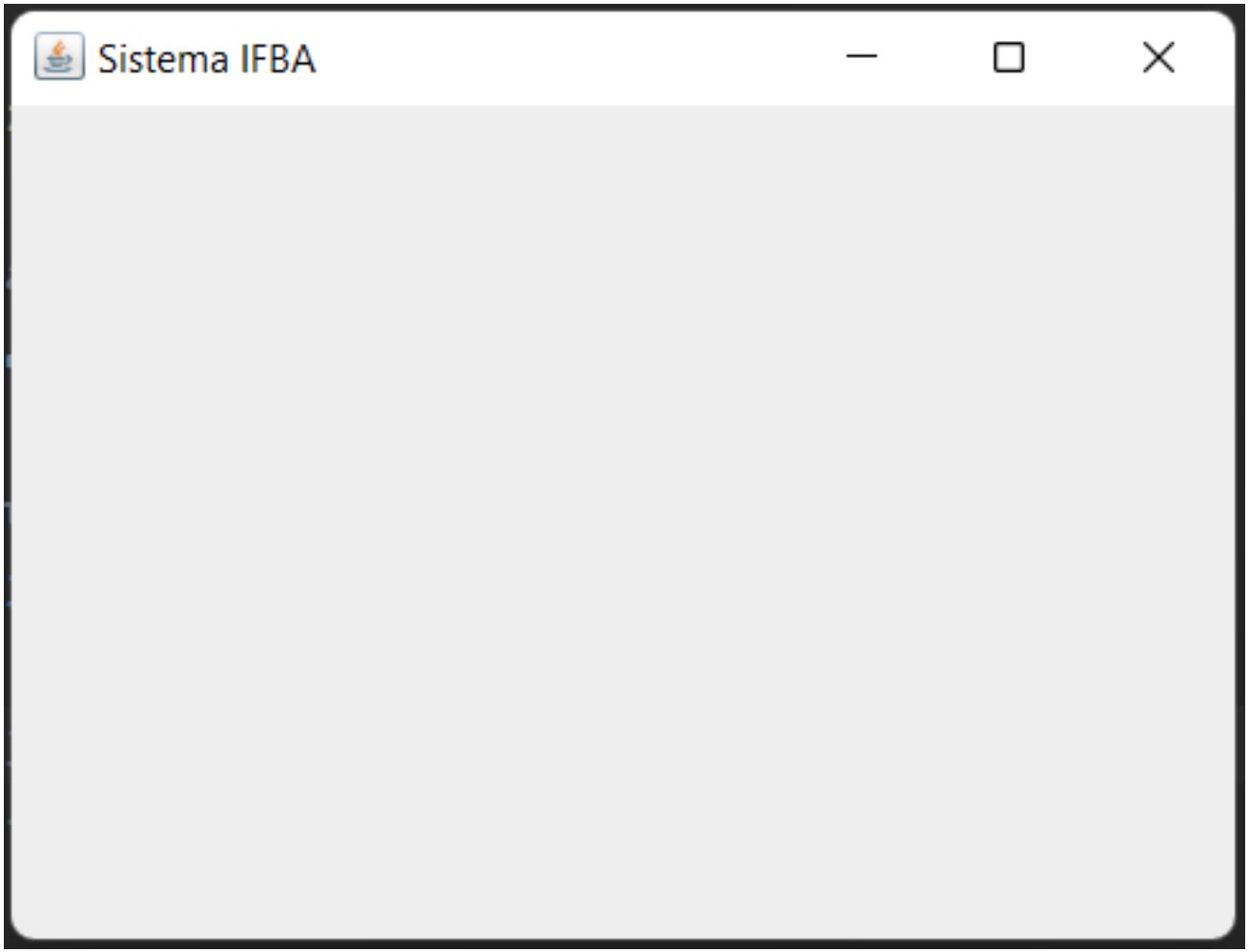
Java Swing – Componentes



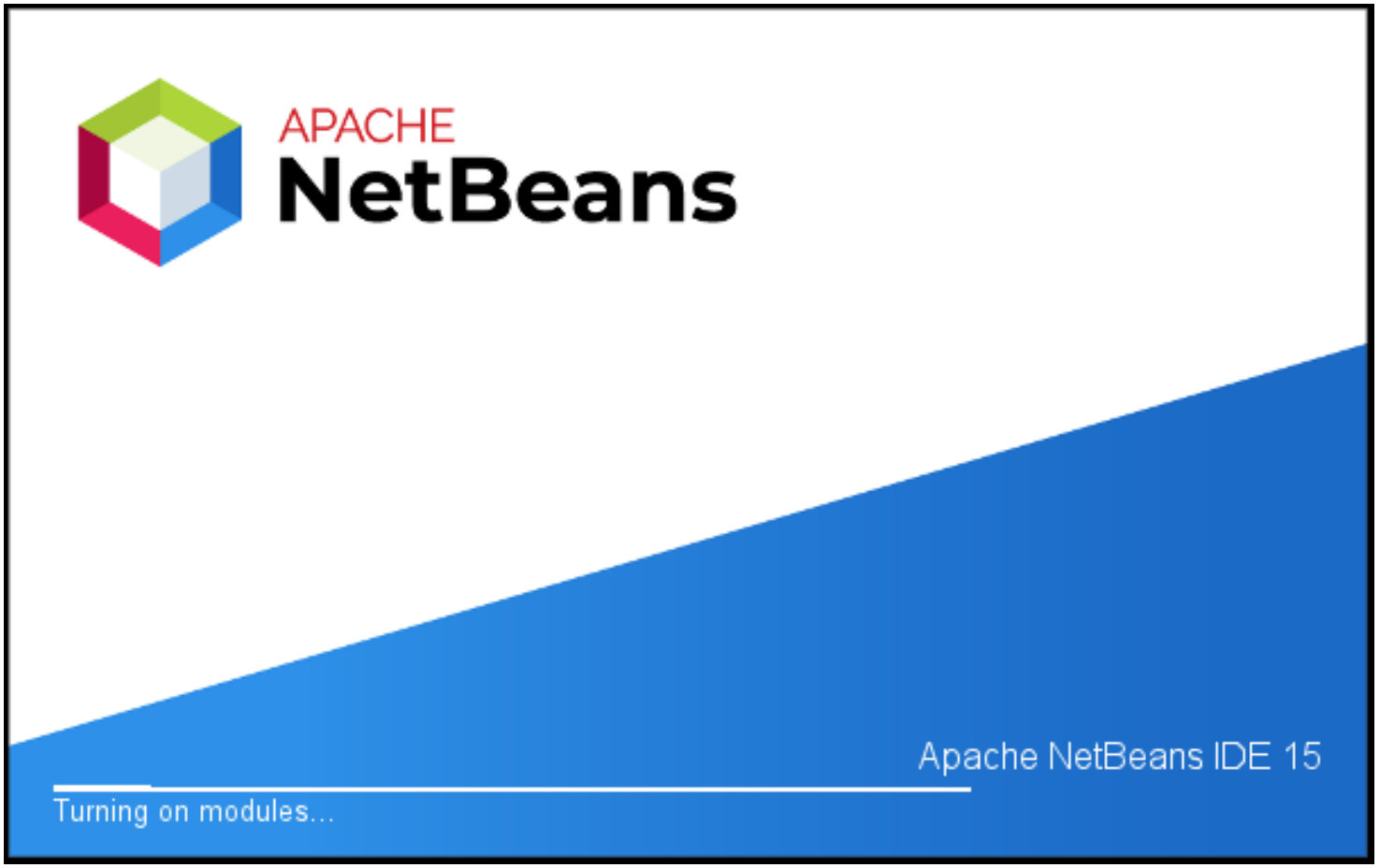
Java Swing – JFrame

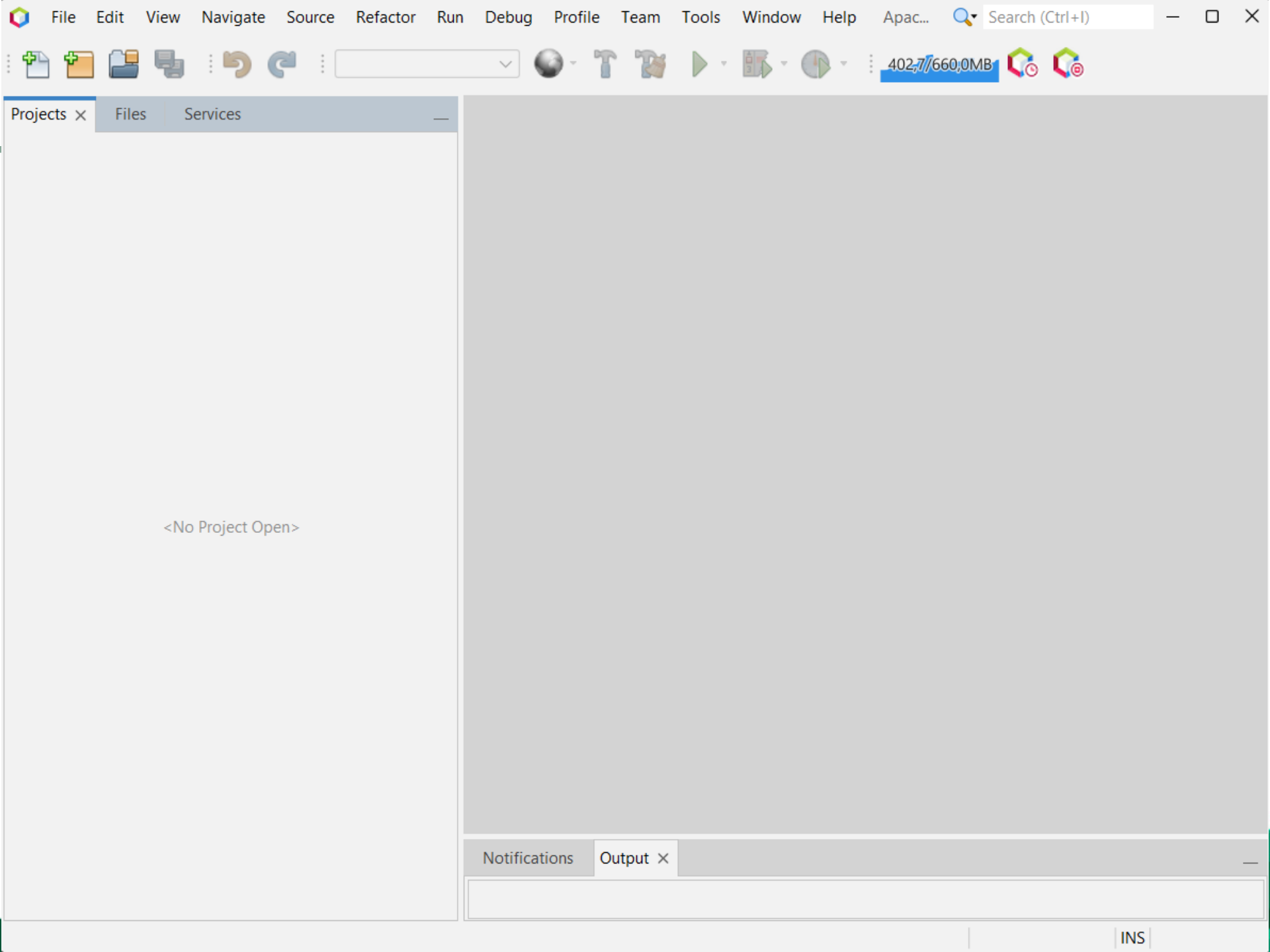
- Para criar **Janelas** utilizaremos à classe **JFrame** disponível no pacote **swing**, a qual gera uma **janela** com **barra de título**, **bordas** e eventualmente outros **componentes visuais**.

Java Swing – JFrame



Netbeans: IDE




File
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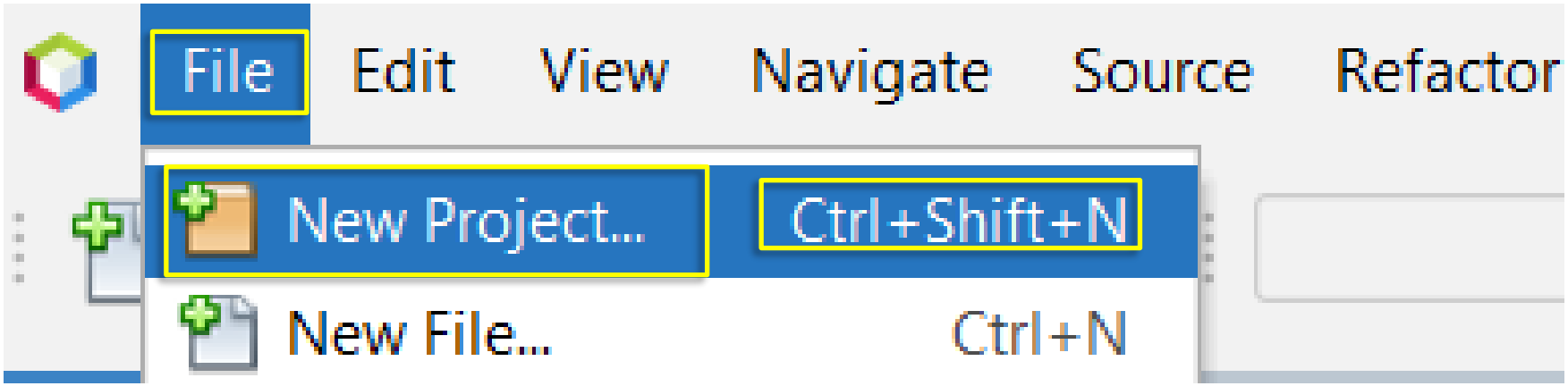
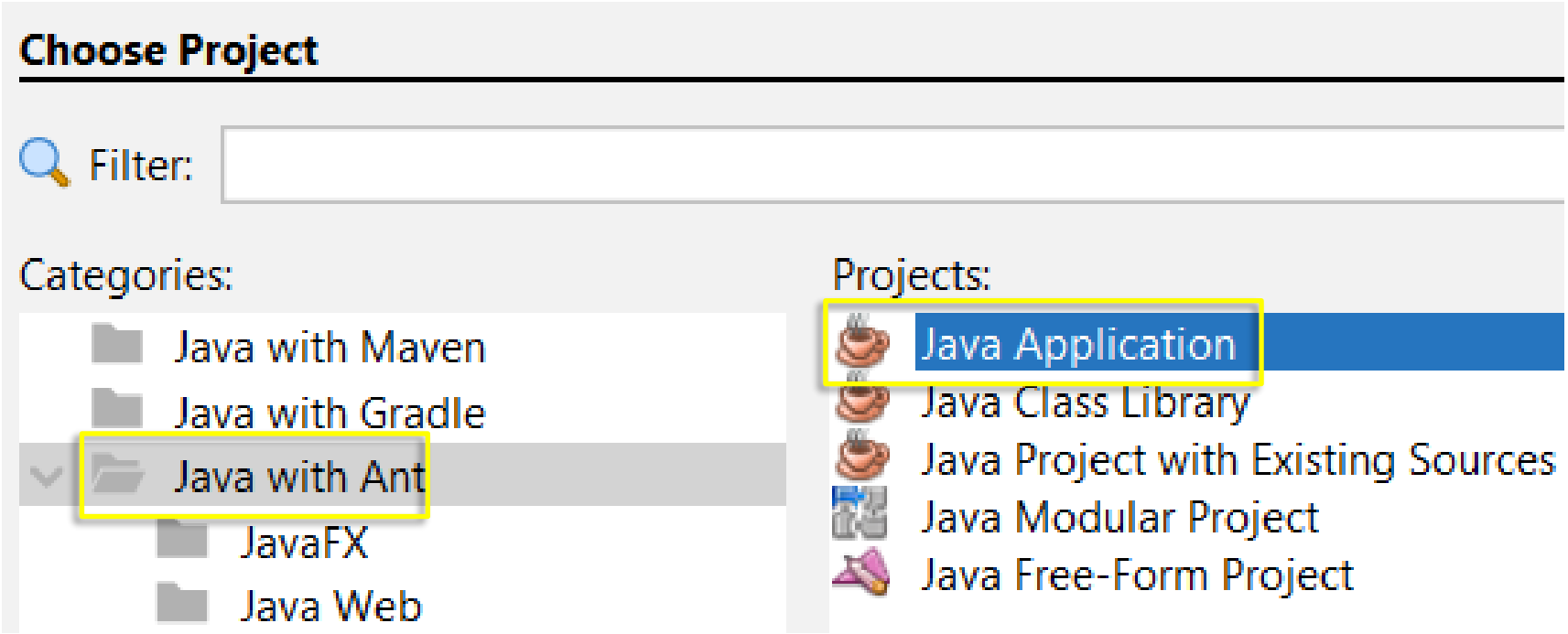
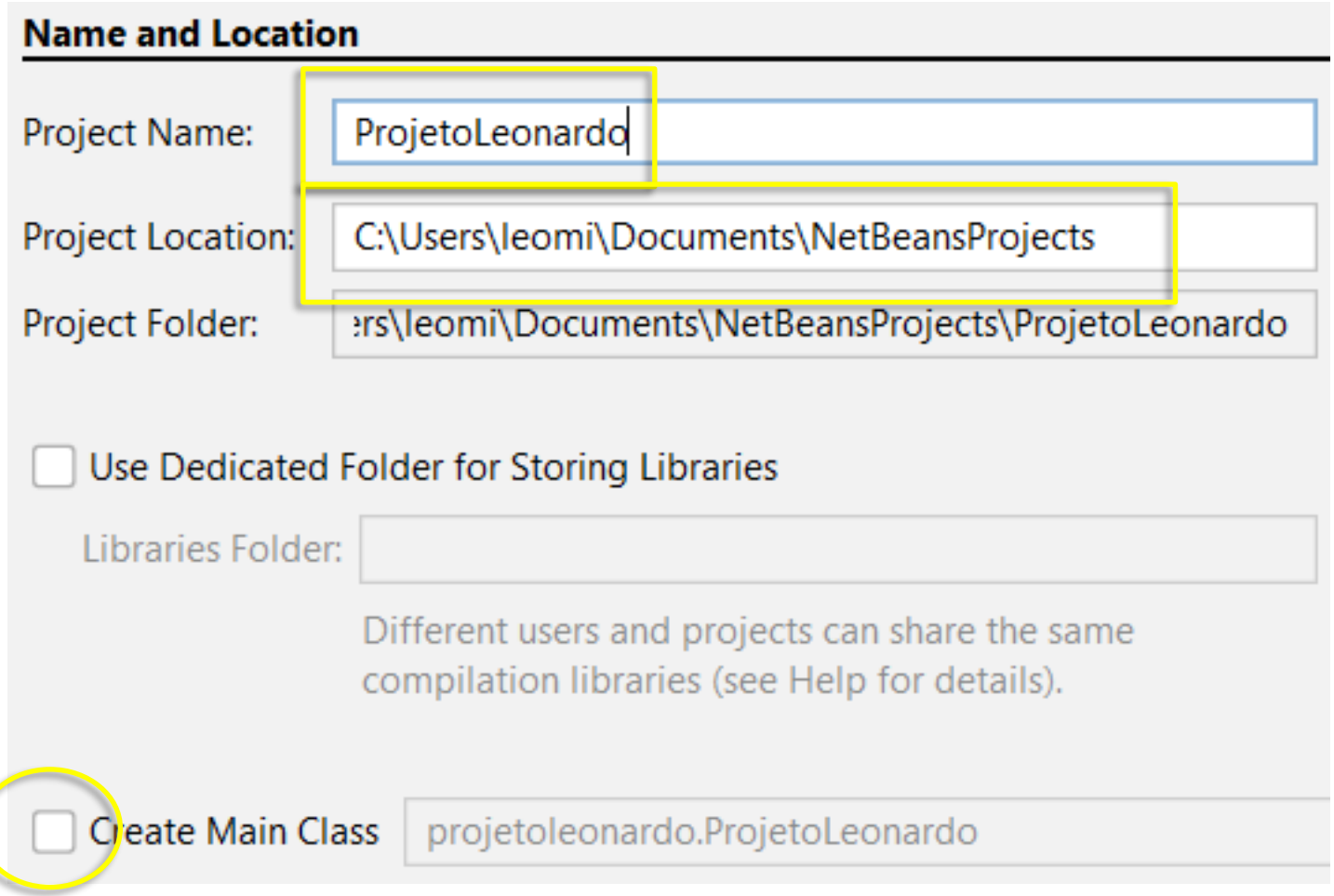
Netbeans: Novo Projeto



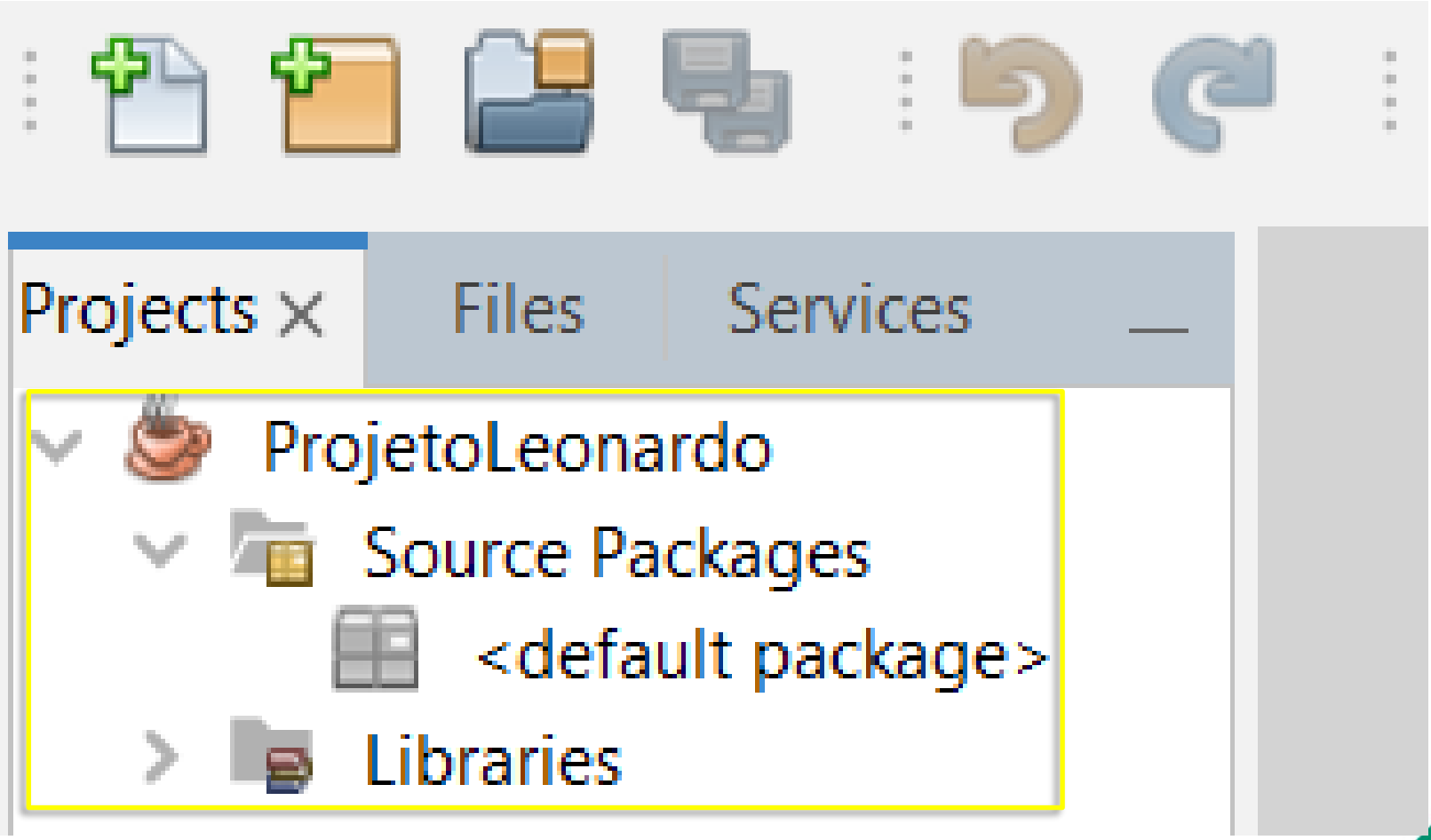
Netbeans: Novo Projeto



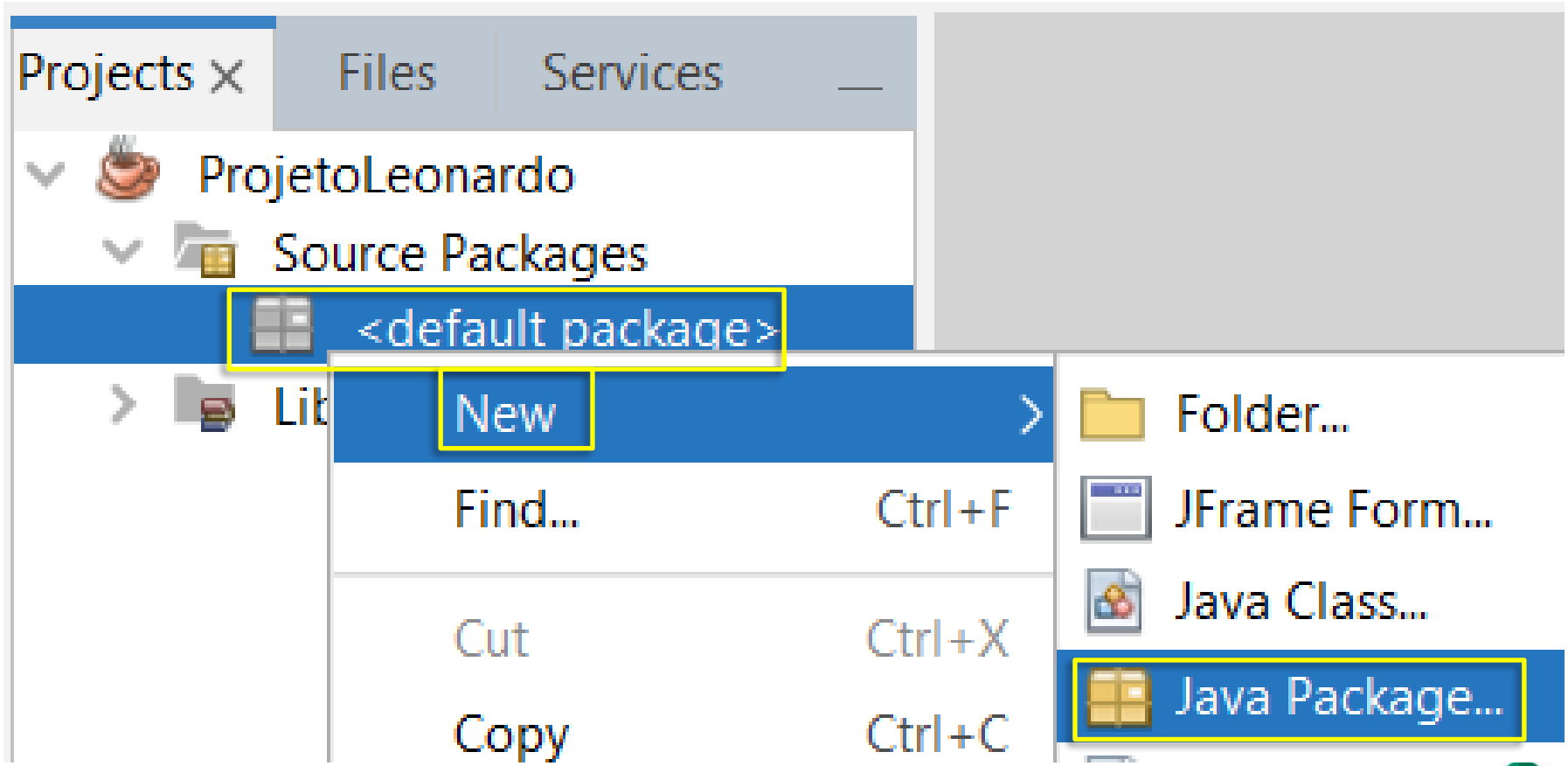
Netbeans: Novo Projeto



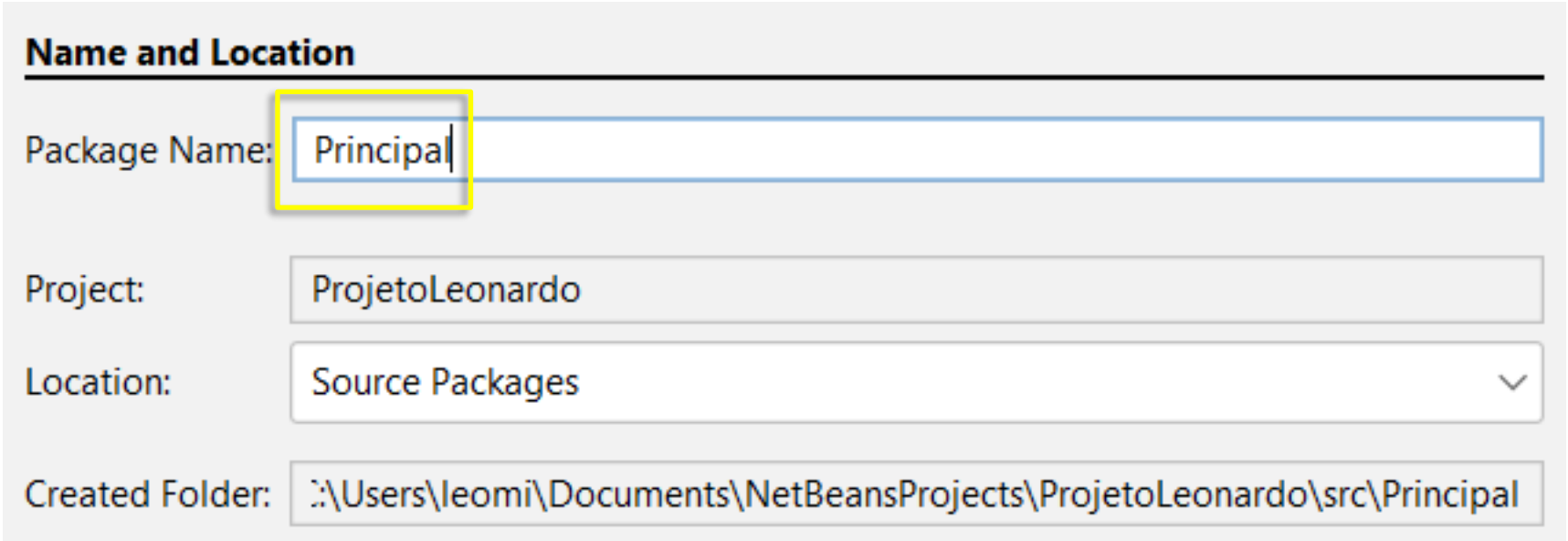
Netbeans: Novo Projeto



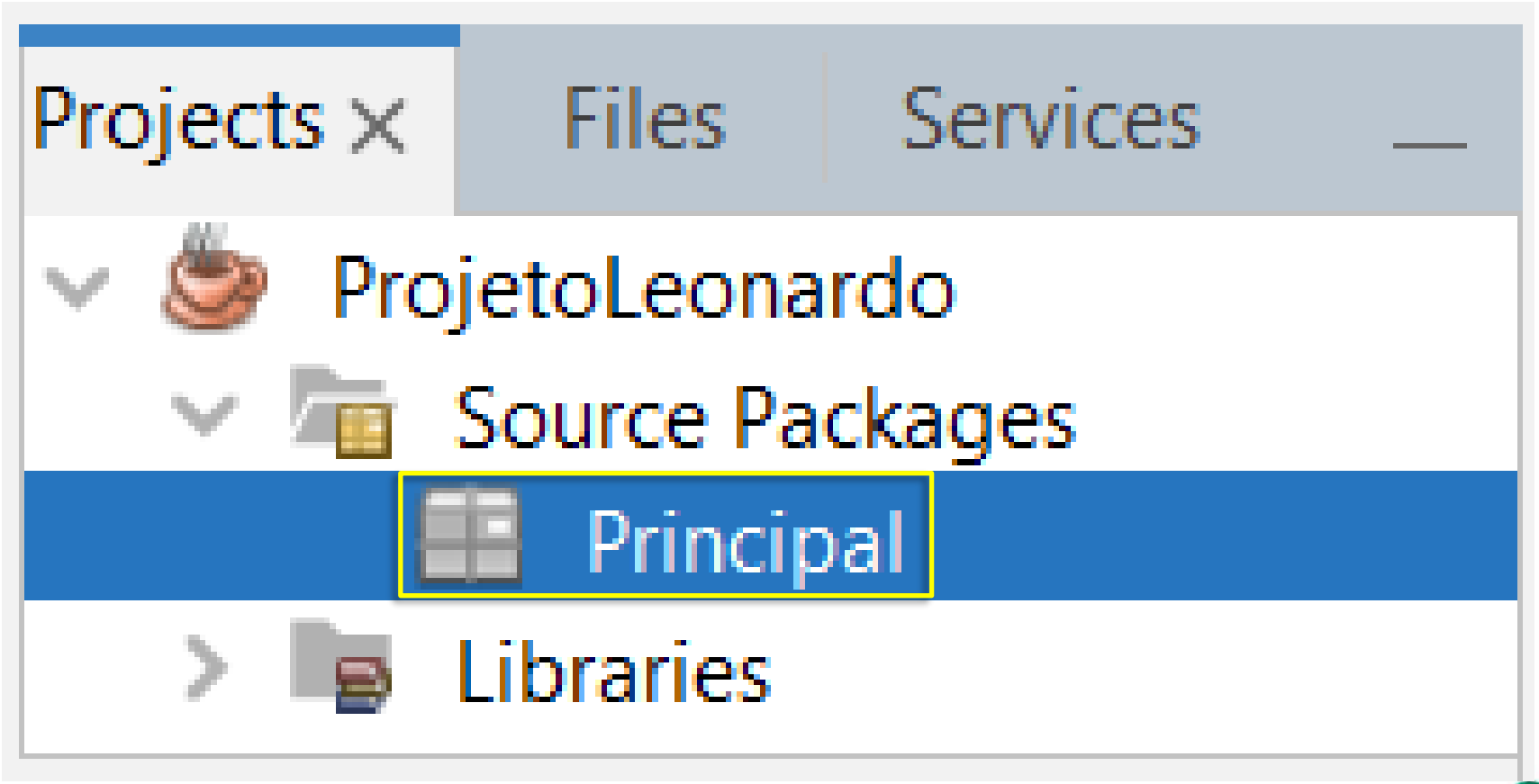
Netbeans: Novo Pacote



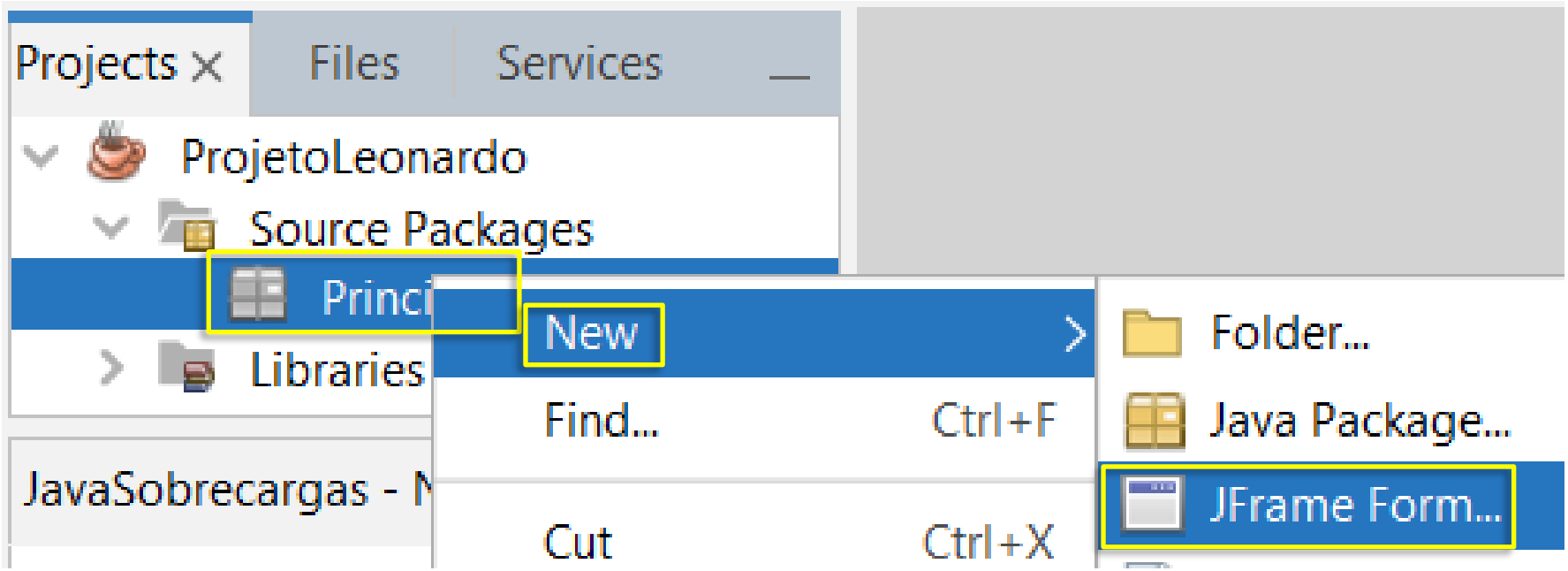
Netbeans: Novo Pacote



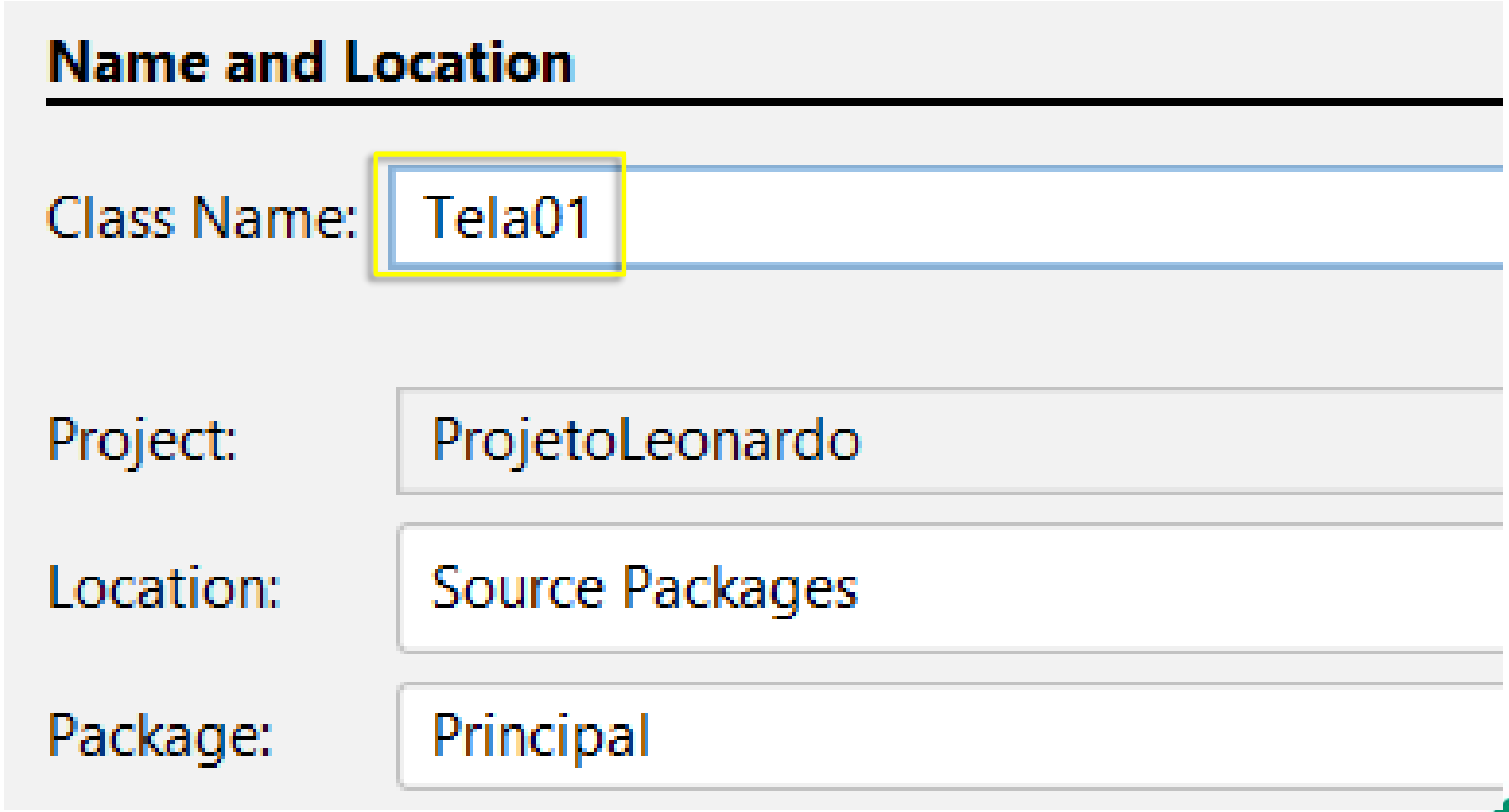
Netbeans: Novo Pacote



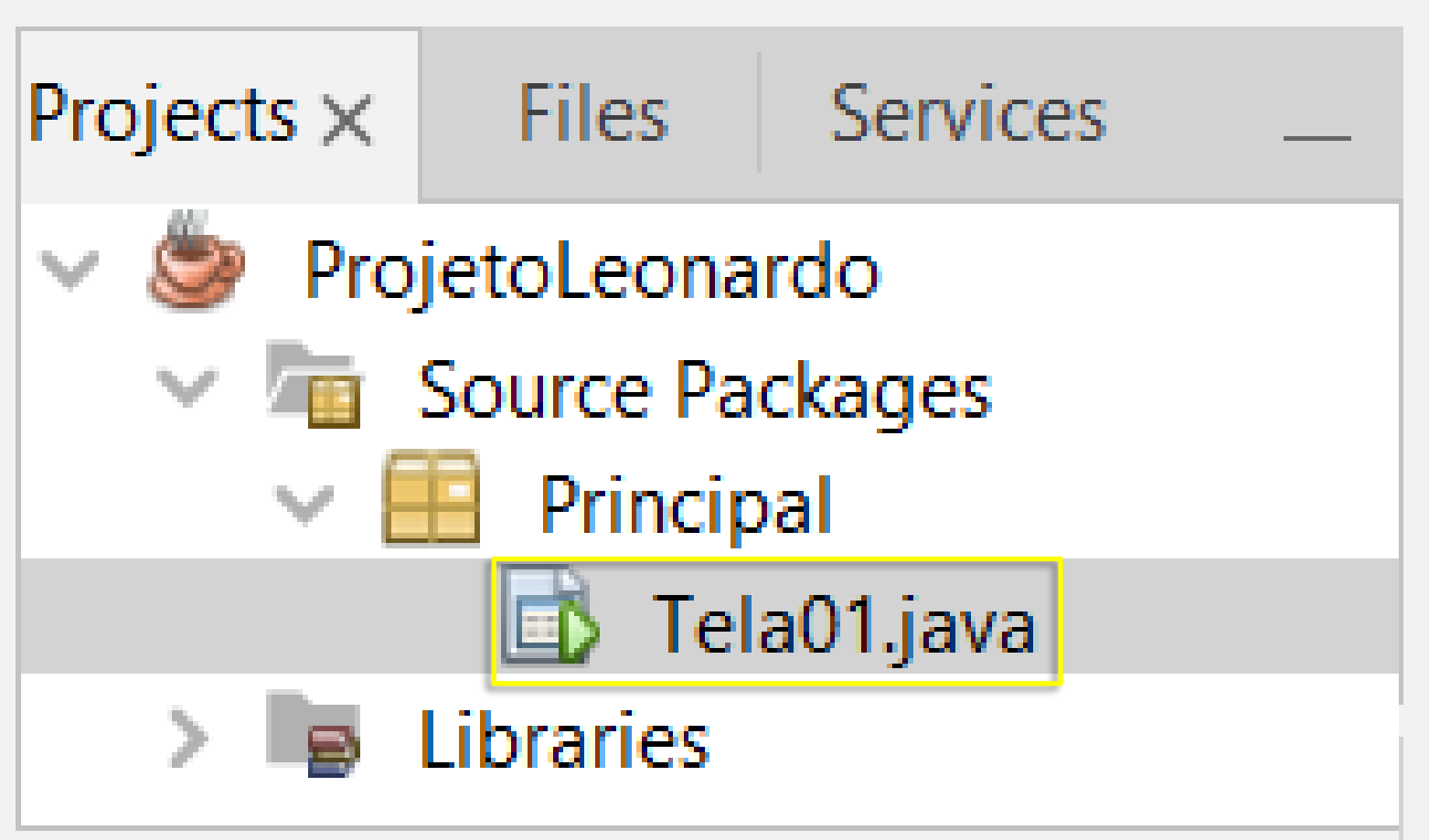
Netbeans: Nova Janela (JFrame)

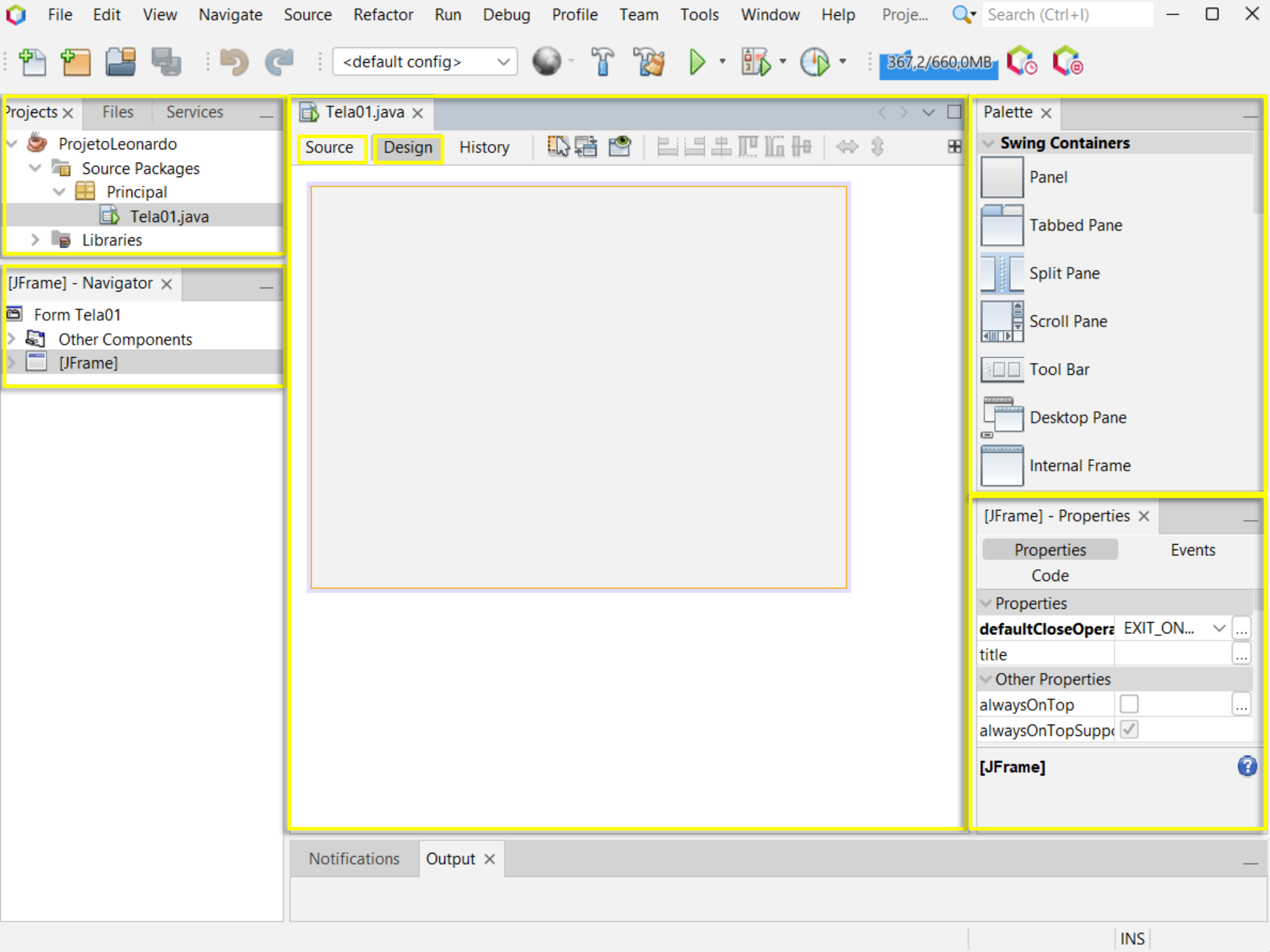


Netbeans: Nova Janela (Jframe)



Netbeans: Nova Janela (JFrame)

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Tela01.java
Libraries
[JFrame] - Navigator
Form Tela01
Other Components
[JFrame]
Tela01.java
Source
Design
History
Palette
Swing Containers
Panel
Tabbed Pane
Split Pane
Scroll Pane
Tool Bar
Desktop Pane
Internal Frame
[JFrame] - Properties
Properties
Events
Code
Properties
defaultCloseOpera
EXIT_ON...
title
Other Properties
alwaysOnTop
alwaysOnTopSuppo
[JFrame]
Notifications
Output
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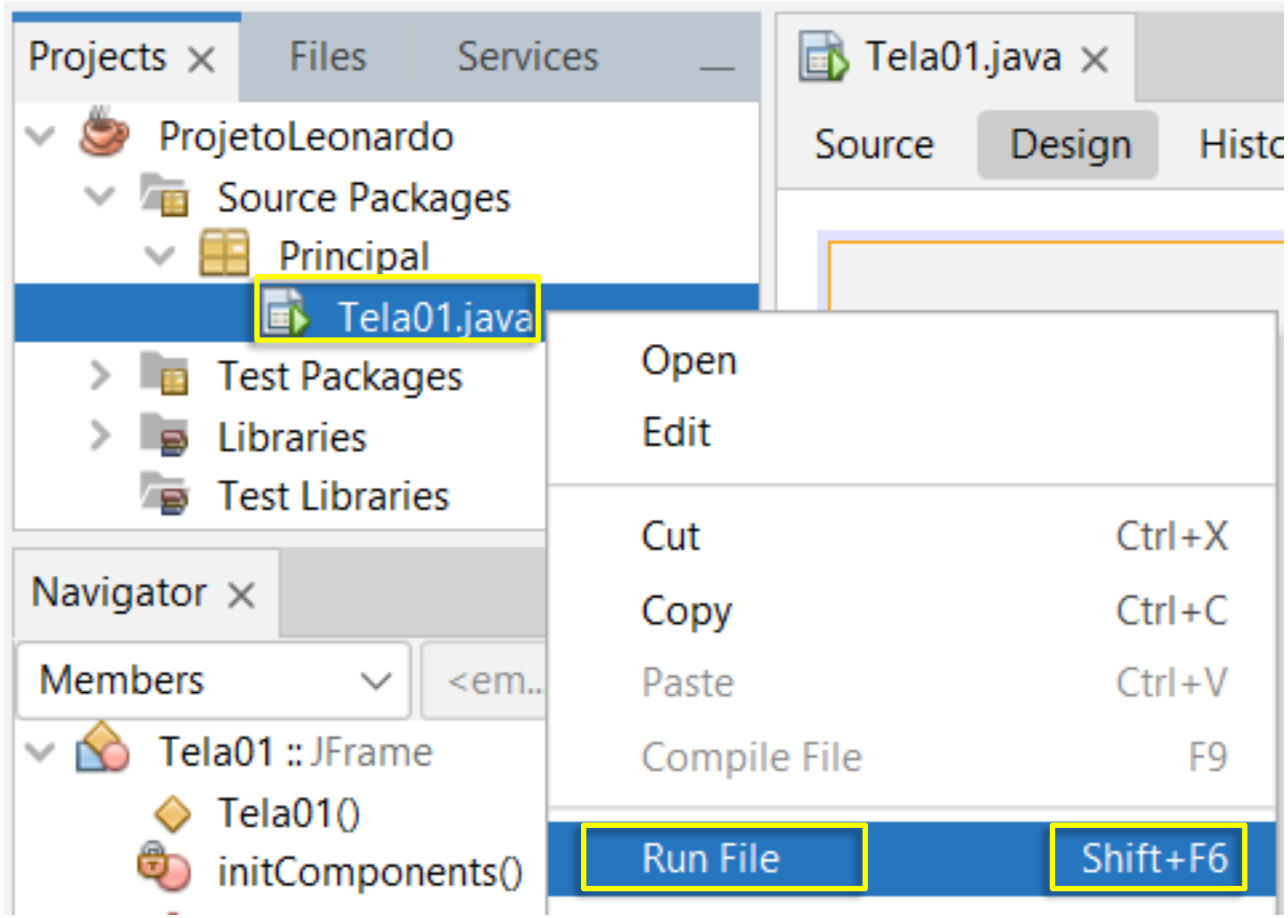
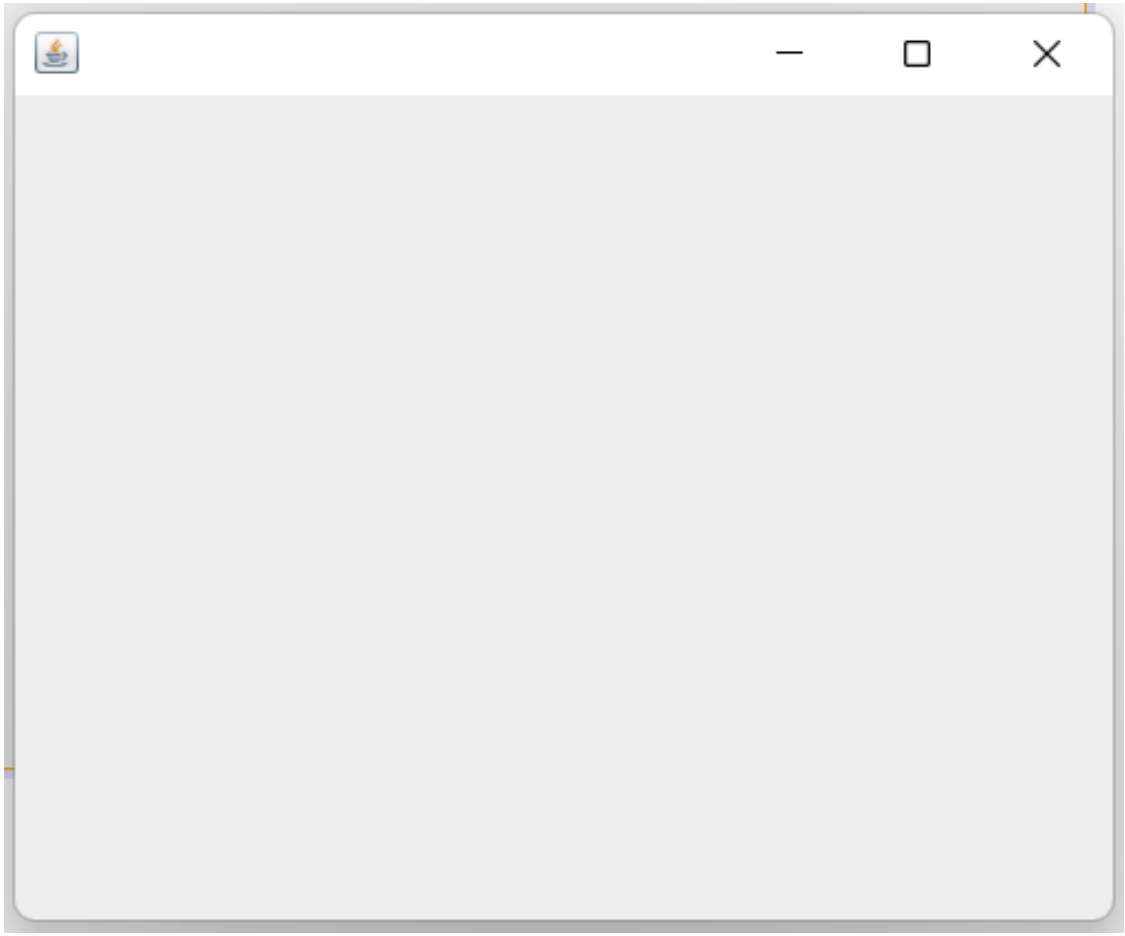
Netbeans: Executando Janela (JFrame)



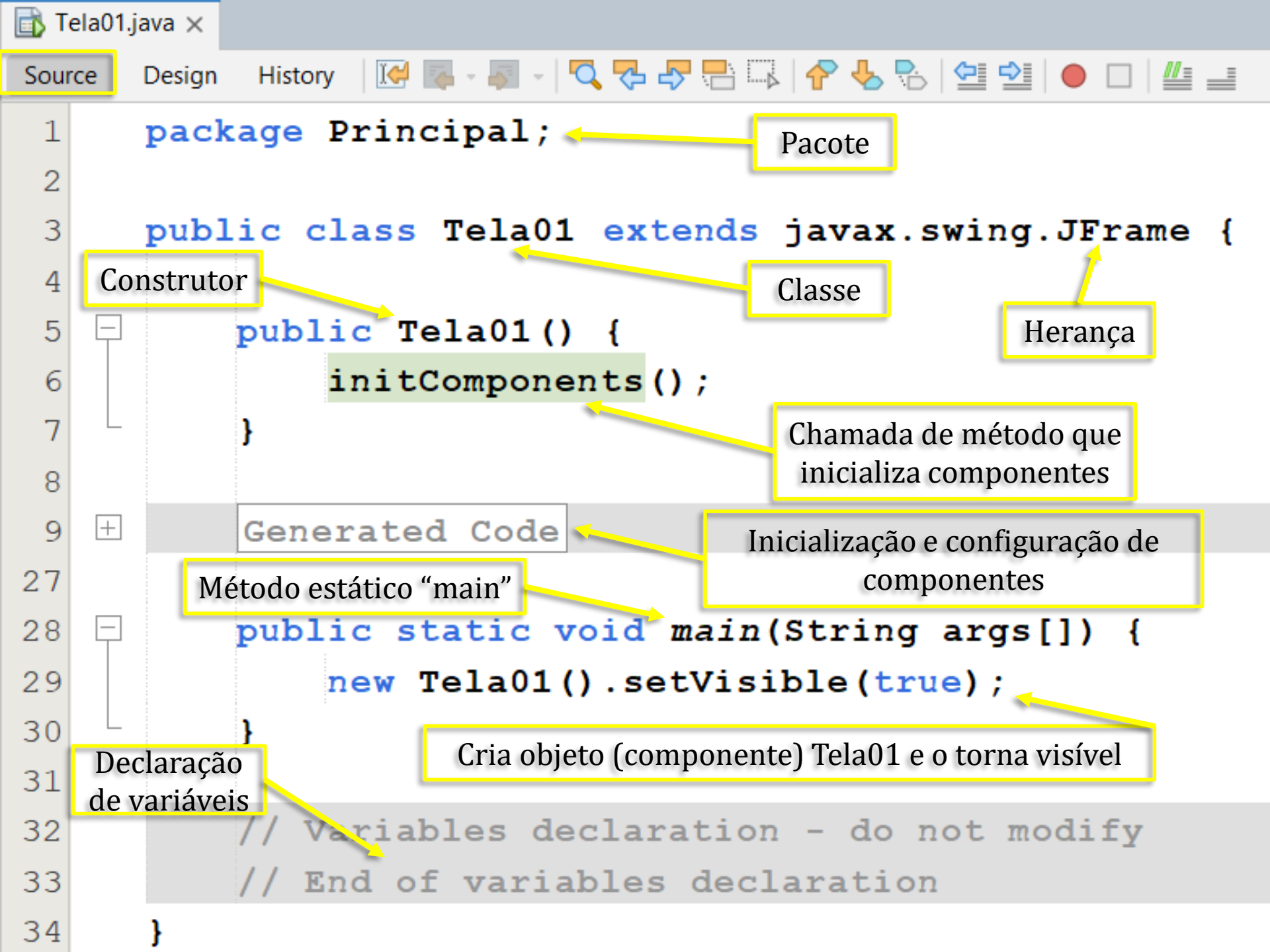
Netbeans: Executando Janela (JFrame)



Tela01.java

Source | Design | History

```
1  package Principal;
2
3  public class Tela01 extends javax.swing.JFrame {
4
5      public Tela01() {
6          initComponents();
7      }
8
9      Generated Code
27
28     public static void main(String args[]) {
29         new Tela01().setVisible(true);
30     }
31
32     // Variables declaration - do not modify
33     // End of variables declaration
34 }
```


Tela01.java
Source
Design
History
1 package Principal;
3 public class Tela01 extends javax.swing.JFrame {
4 public Tela01() {
6 initComponents();
7 }
9 Generated Code
27 public static void main(String args[]) {
29 new Tela01().setVisible(true);
30 }
32 // Variables declaration - do not modify
33 // End of variables declaration
34 }
Pacote
Classe
Herança
Construtor
Chamada de método que inicializa componentes
Inicialização e configuração de componentes
Método estático "main"
Cria objeto (componente) Tela01 e o torna visível
Declaração de variáveis

```
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGap(0, 400, Short.MAX_VALUE)
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGap(0, 300, Short.MAX_VALUE)
    );

    pack();
}// </editor-fold>
```

```
// <editor-fold defaultstate="collapsed" desc="Generated Code">
private void initComponents() {
    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
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    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGap(0, 300, Short.MAX_VALUE)
    );

    pack();
}// </editor-fold>
```

Método

Comportamento do ícone (botão) de fechar o JFrame

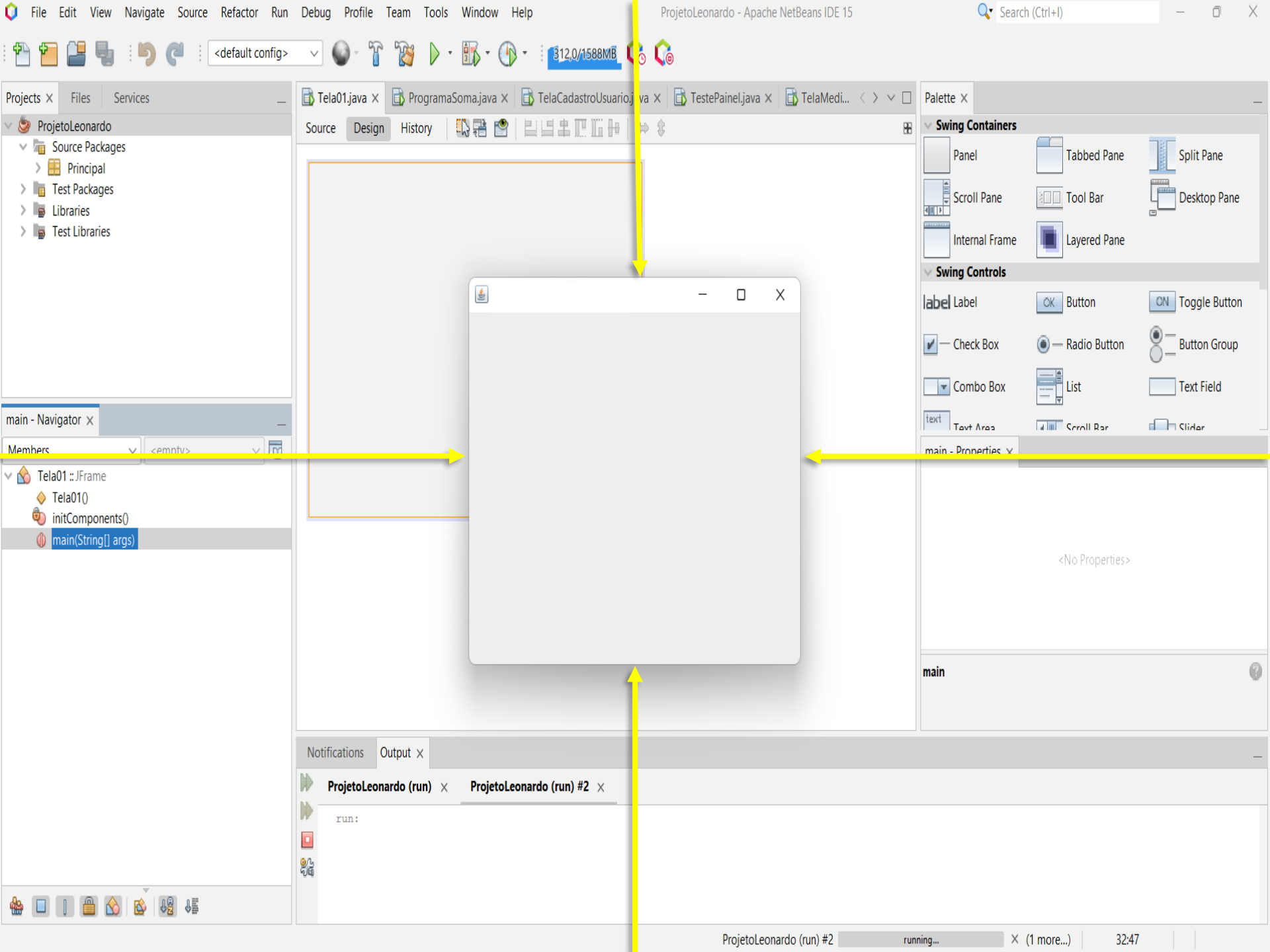
Layout Manager do JFrame ajusta o tamanho da tela (Frame) com base em seus componentes internos

Configurações de Layout do JFrame

Netbeans: Centralizar JFrame

```
public Tela01() {
        initComponents();

        this.setLocationRelativeTo(null);
}
```


File Edit View Navigate Source Refactor Run Debug Profile Team Tools Window Help
ProjetoLeonardo - Apache NetBeans IDE 15
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Tela01.java
ProgramaSoma.java
TelaCadastroUsuario.java
TestePainel.java
TelaMedi...
Source
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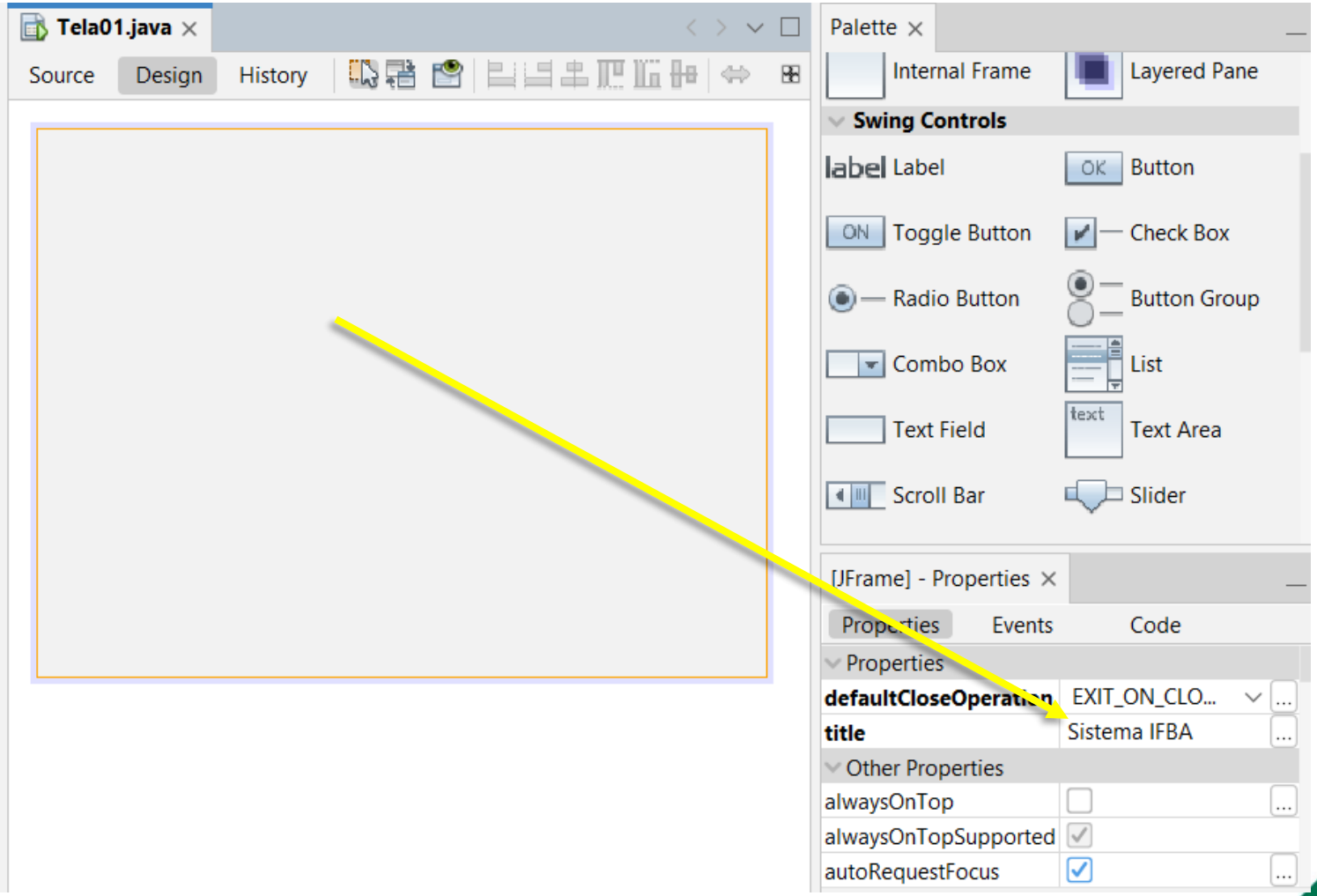
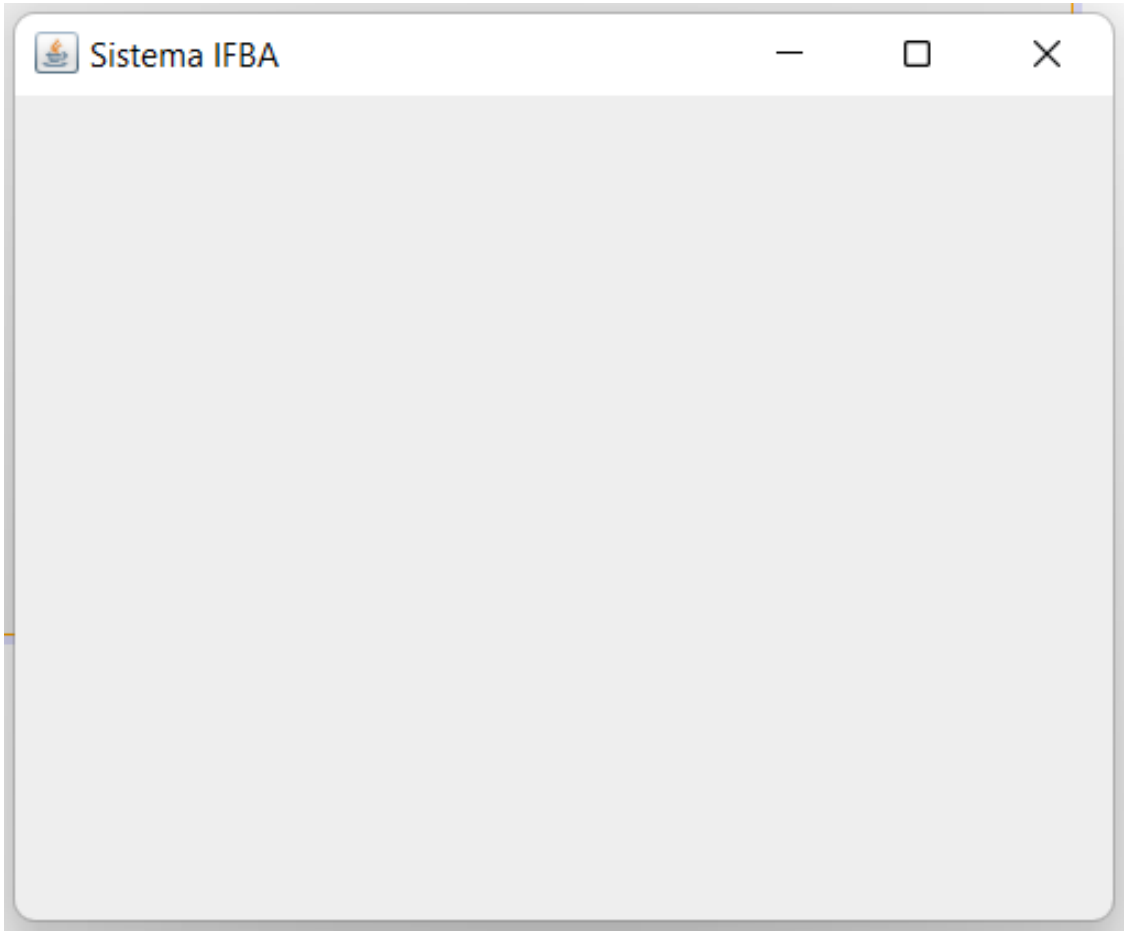
Panel
Tabbed Pane
Split Pane
Scroll Pane
Tool Bar
Desktop Pane
Internal Frame
Layered Pane
Swing Controls
Label
Button
Toggle Button
Check Box
Radio Button
Button Group
Combo Box
List
Text Field
main - Navigator
Members
Tela01 :: JFrame
Tela01()
initComponents()
main(String[] args)
main - Properties
<No Properties>
main
Notifications
Output
ProjetoLeonardo (run)
ProjetoLeonardo (run) #2
run:
ProjetoLeonardo (run) #2
running...
(1 more...)
32:47

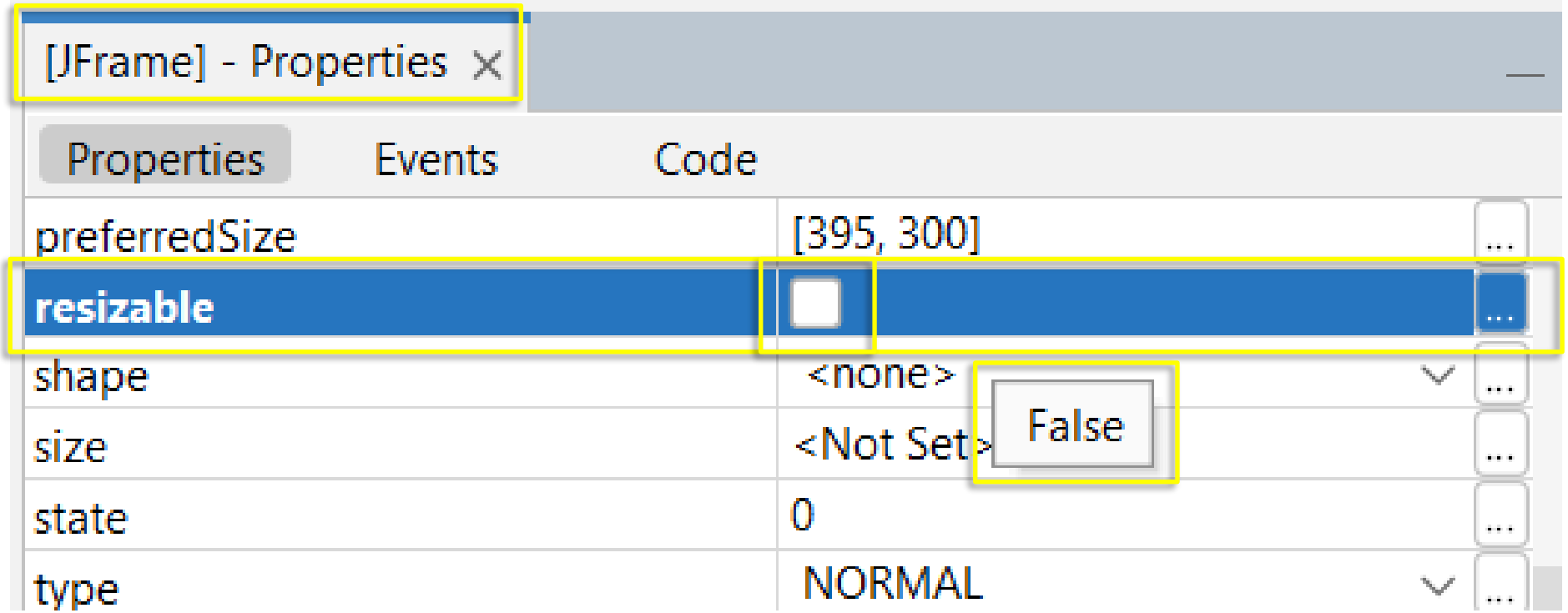
Netbeans: Título da Janela (JFrame)



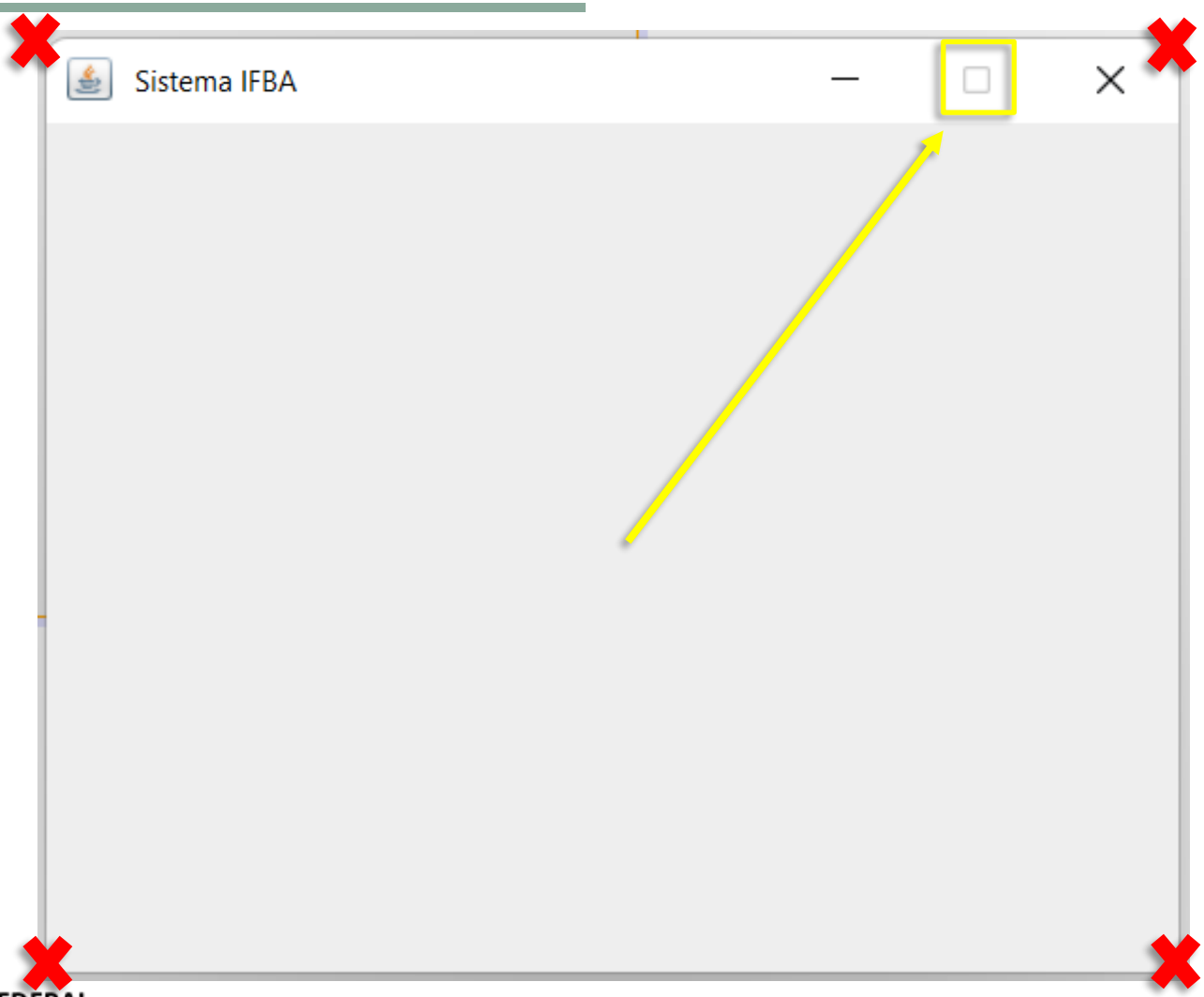
Netbeans: Título da Janela (JFrame)



Netbeans: Desabilitar Redimencionar



Netbeans: Desabilitar Redimencionar

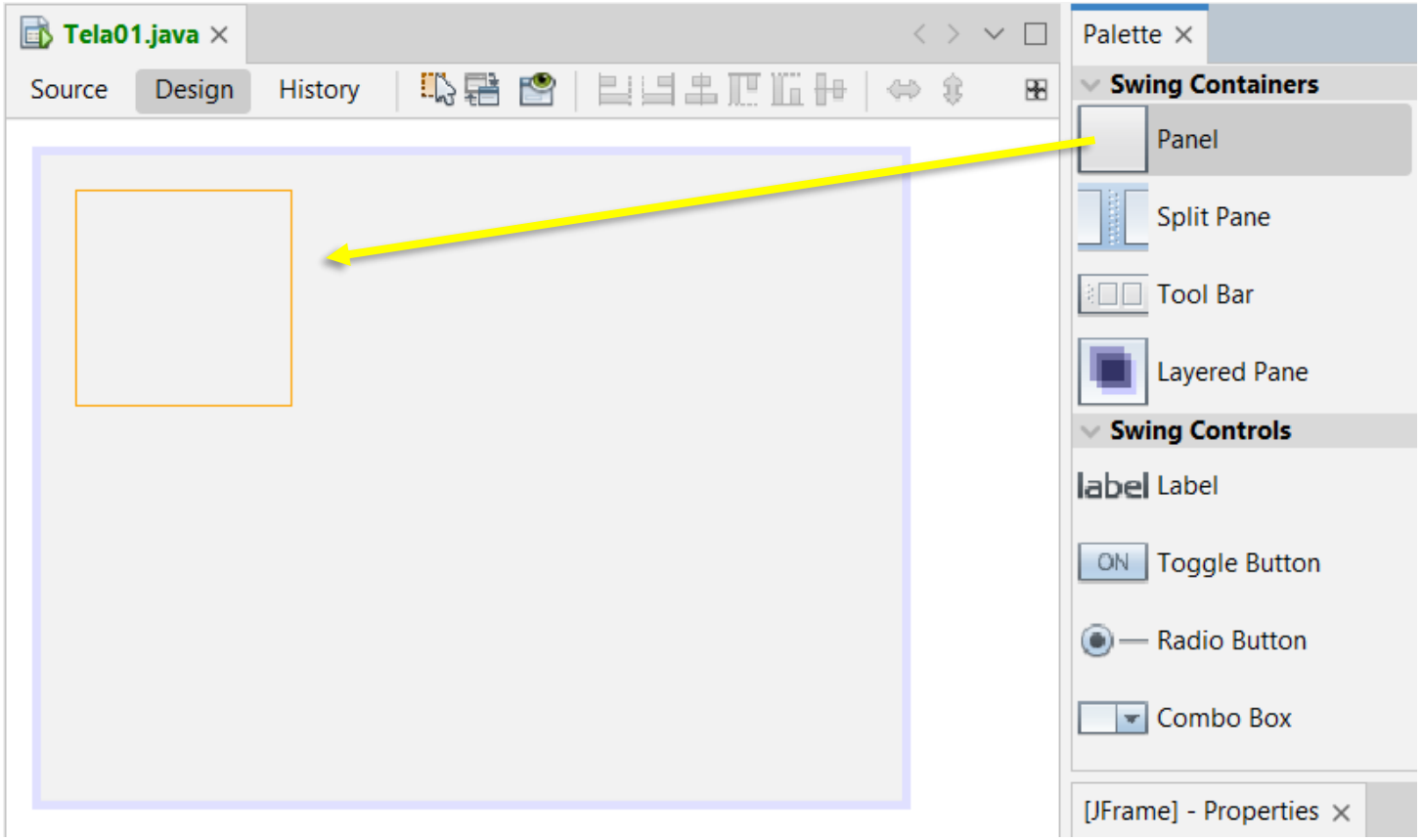


Java Swing – JPanel

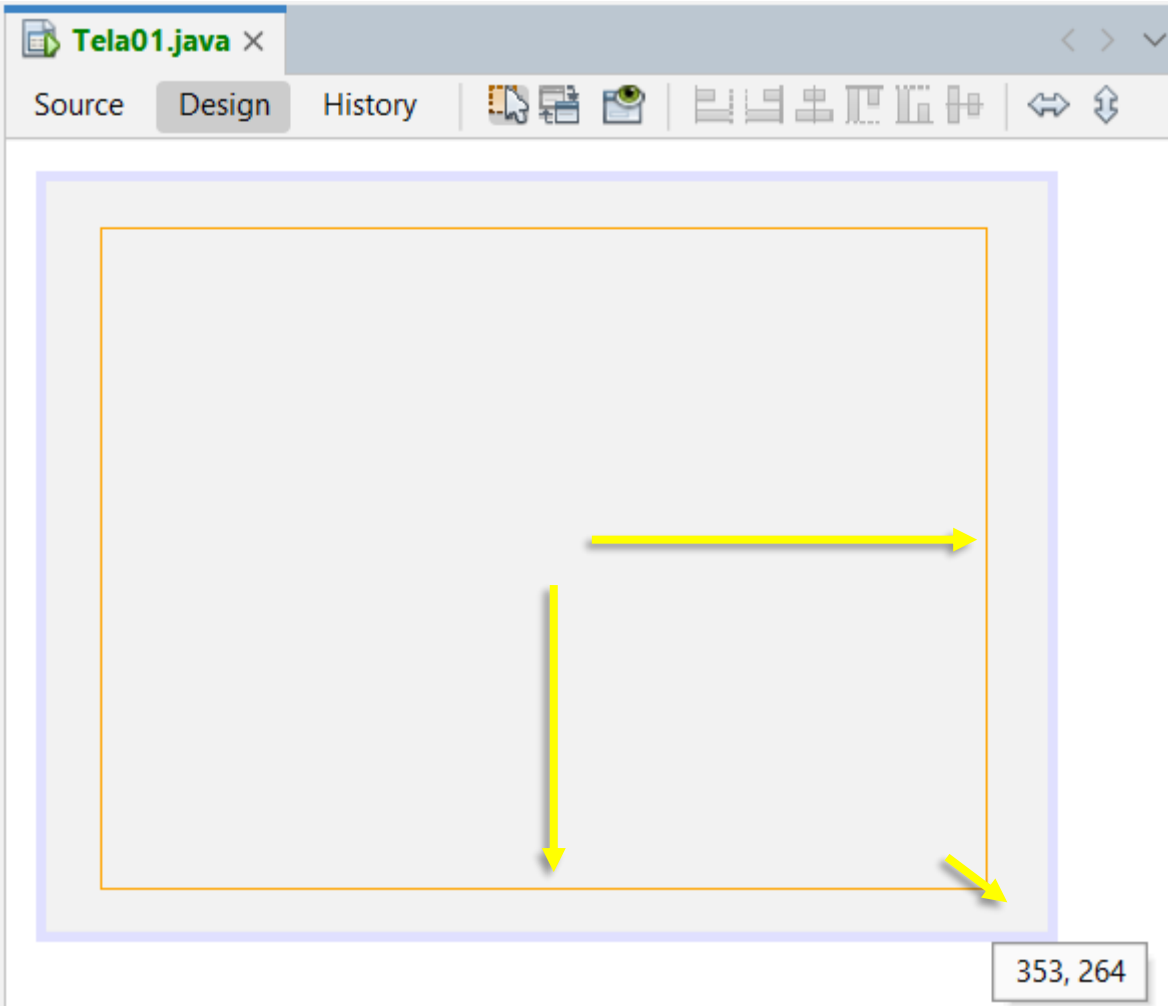
- O **JPanel** é um **contêiner flexível** no Java Swing, utilizado para **agrupar** e **organizar componentes** em interfaces gráficas.

- Ele **oferece opções** de **personalização**, como **layout** e **cor de fundo**, permitindo criar **interfaces atraentes** e **adaptáveis**.

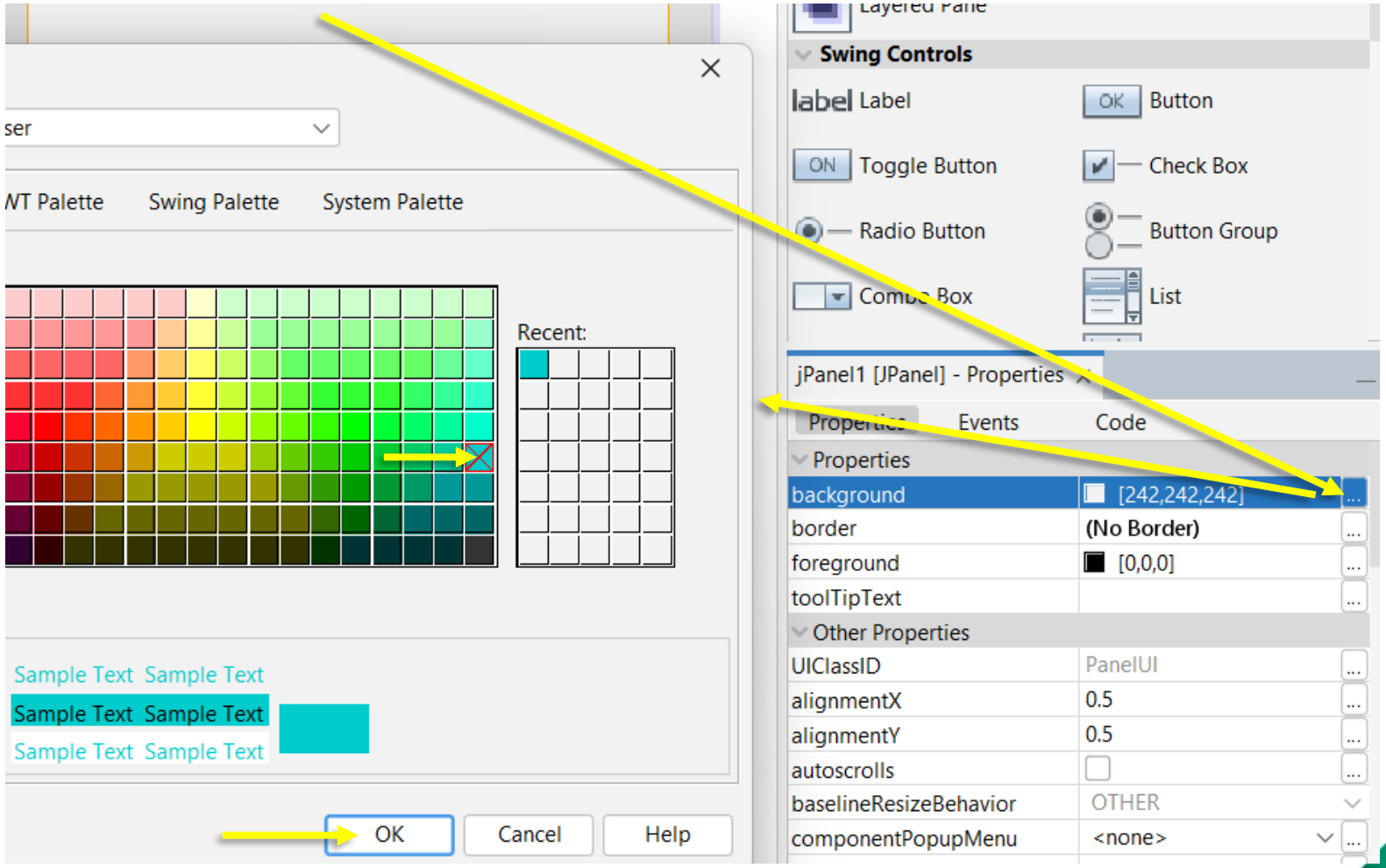
Java Swing – JPanel - Adicionar



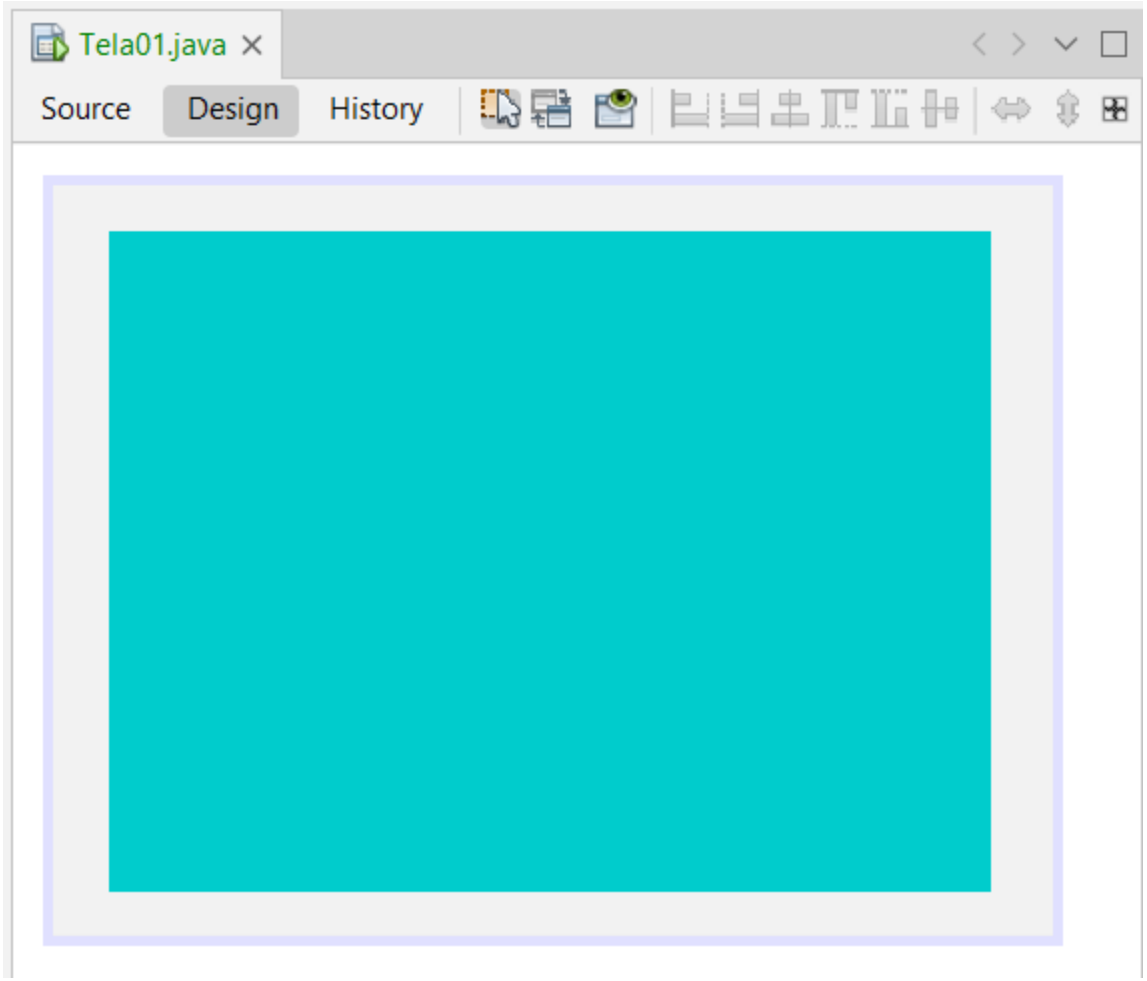
Java Swing – JPanel - Redimencionar



Java Swing – JPanel – Mudar Cor Fundo



Java Swing – JPanel – Mudar Cor Fundo

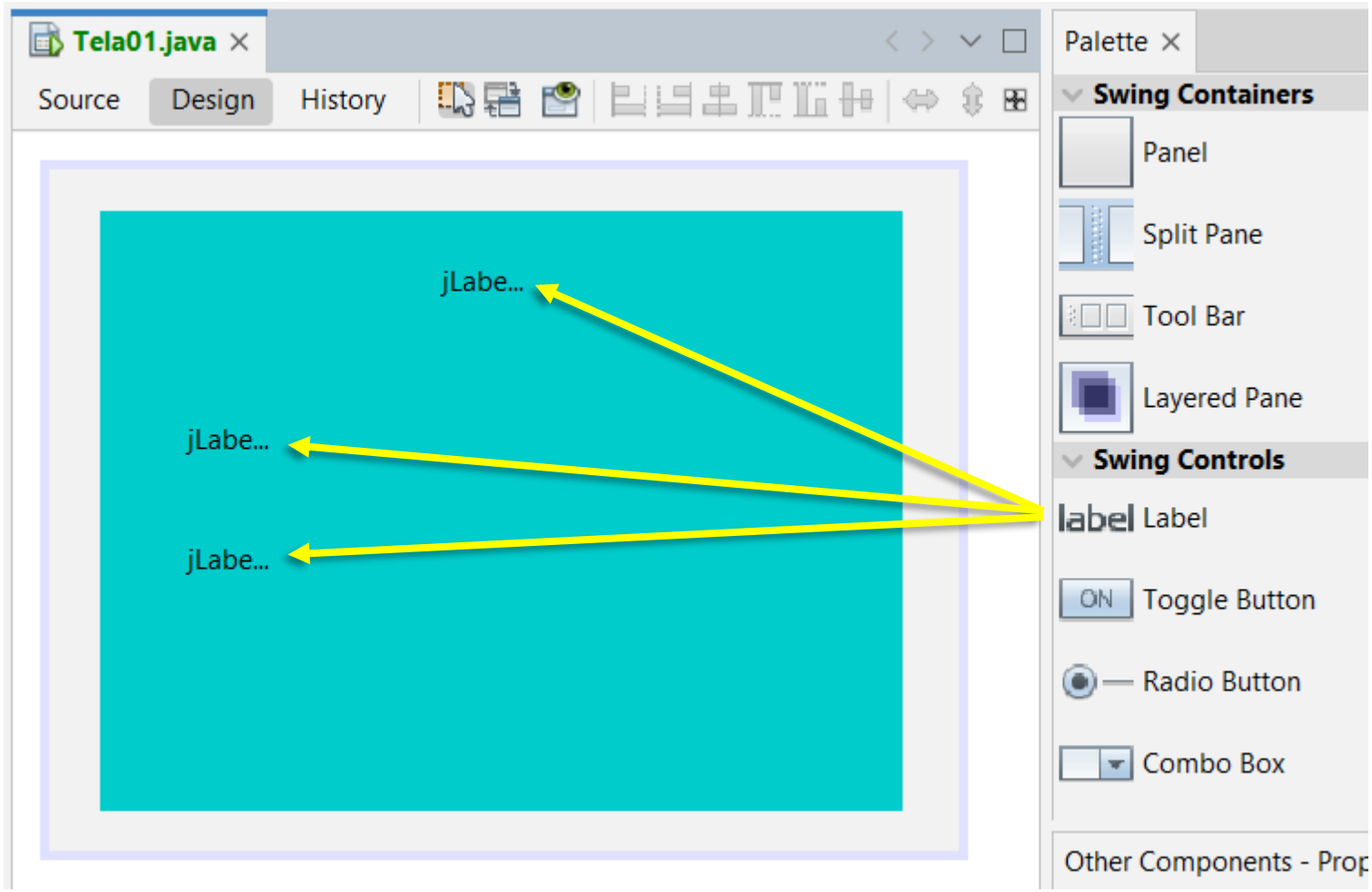


Java Swing – JLabel

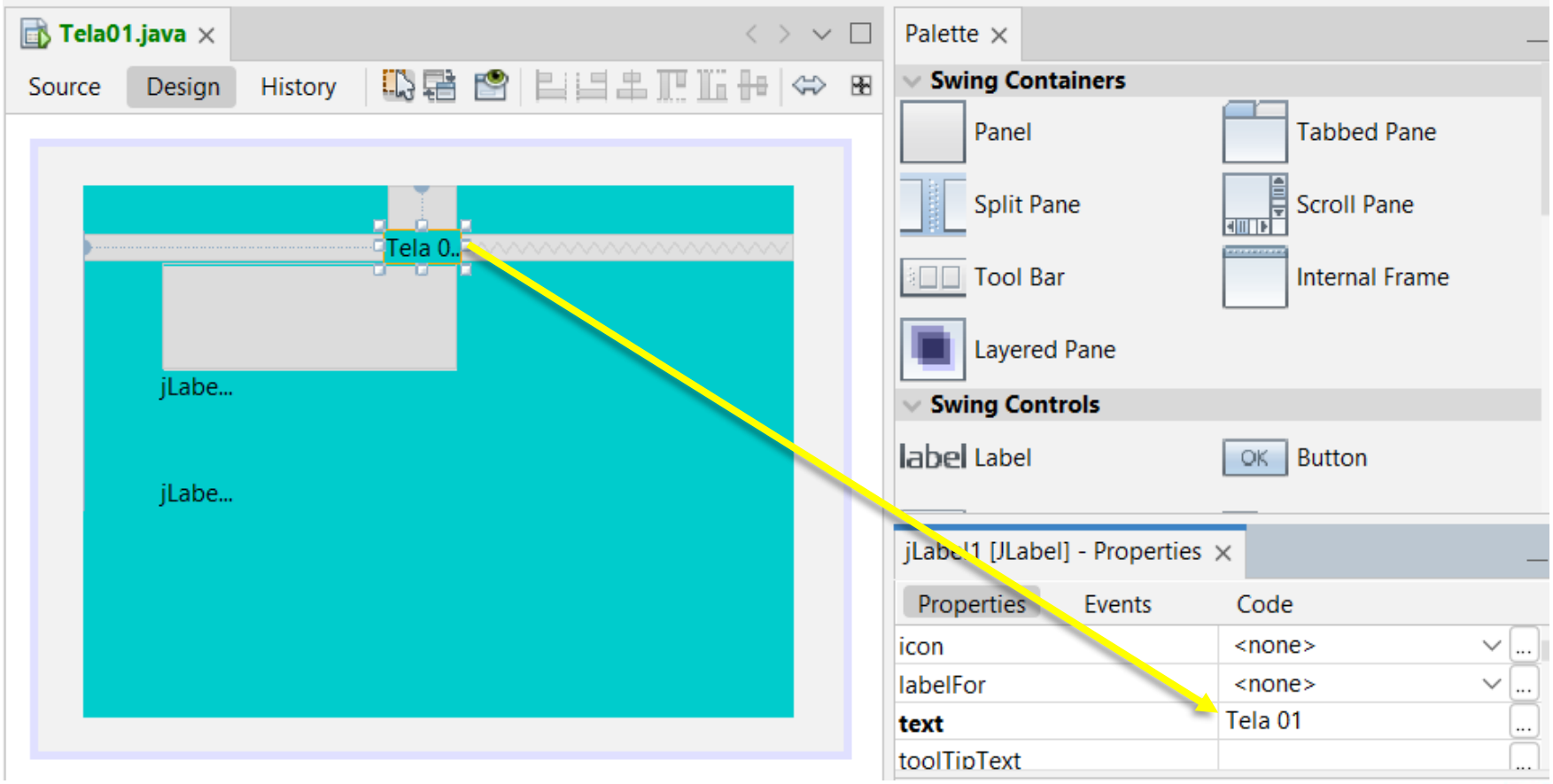
- A classe **JLabel** permite **definir um texto** que **pode ser adicionado** a um **outro componente** (**frame, painel etc.**).

- **Podem ser definidas** várias **propriedades** para **esse texto**, tais como **alinhamento**, **tipo de letra**, **tamanho**, **cor** etc.

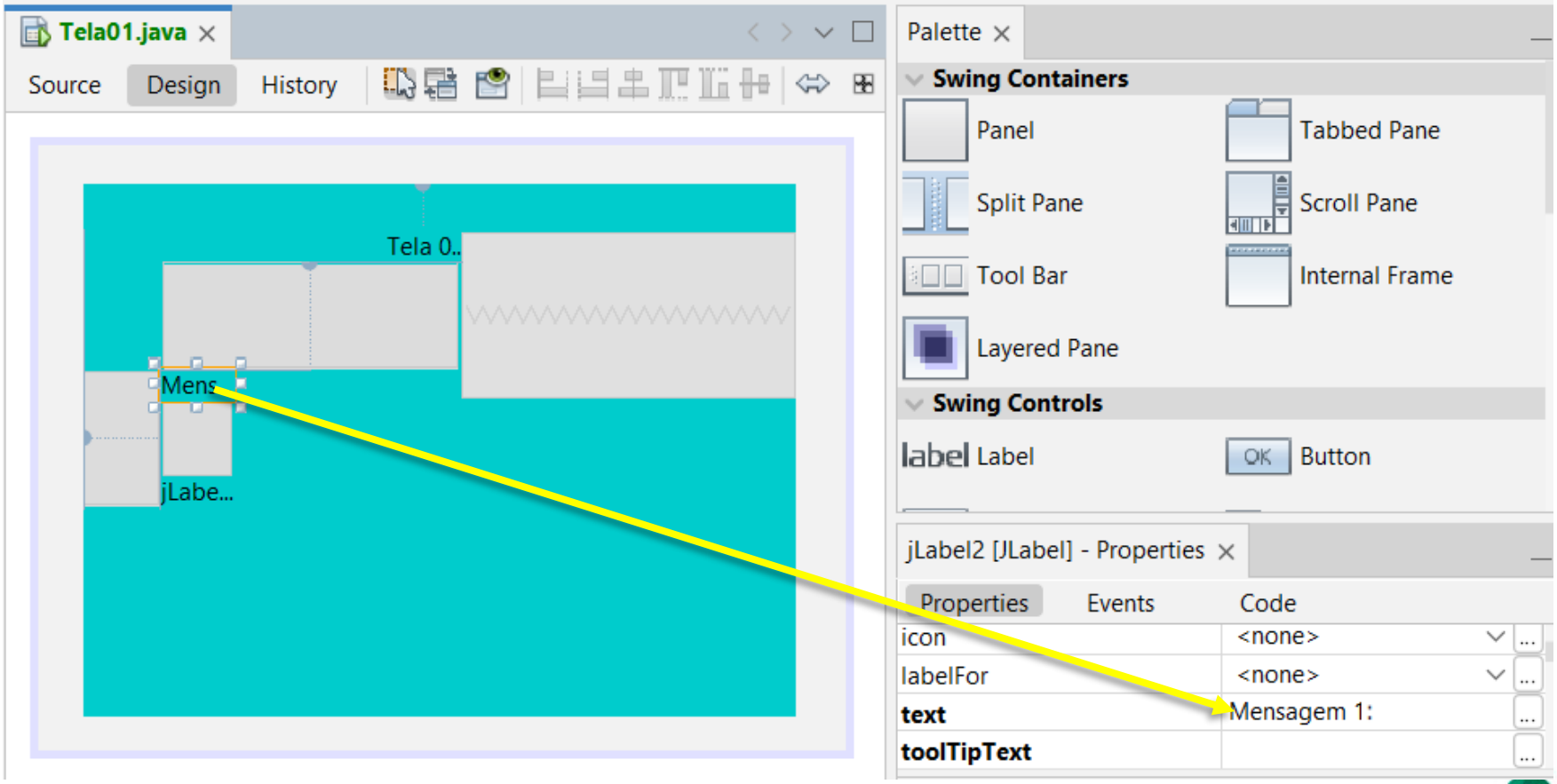
Java Swing – JLabel – Adicionar



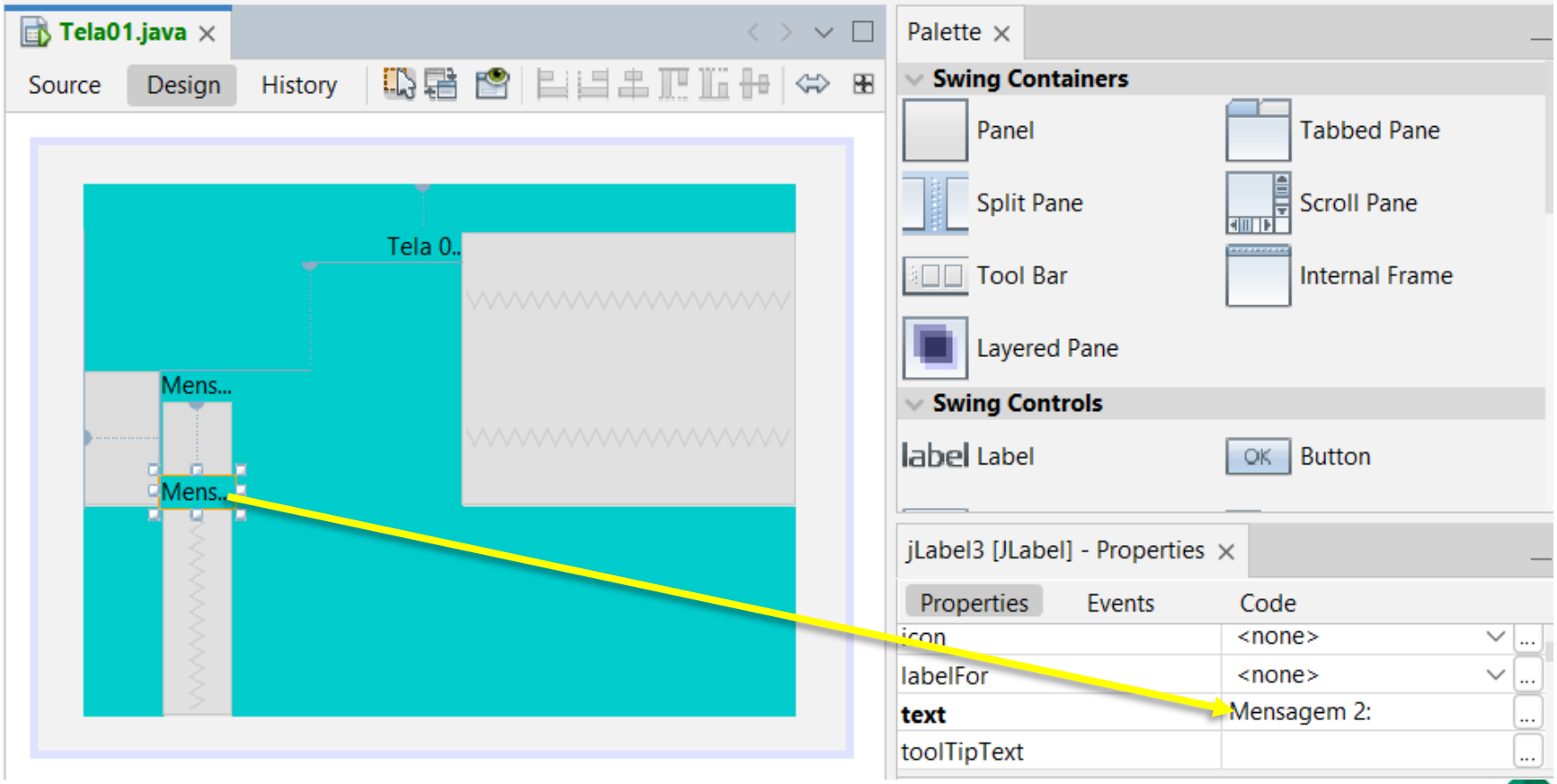
Java Swing – JLabel – Editar Texto



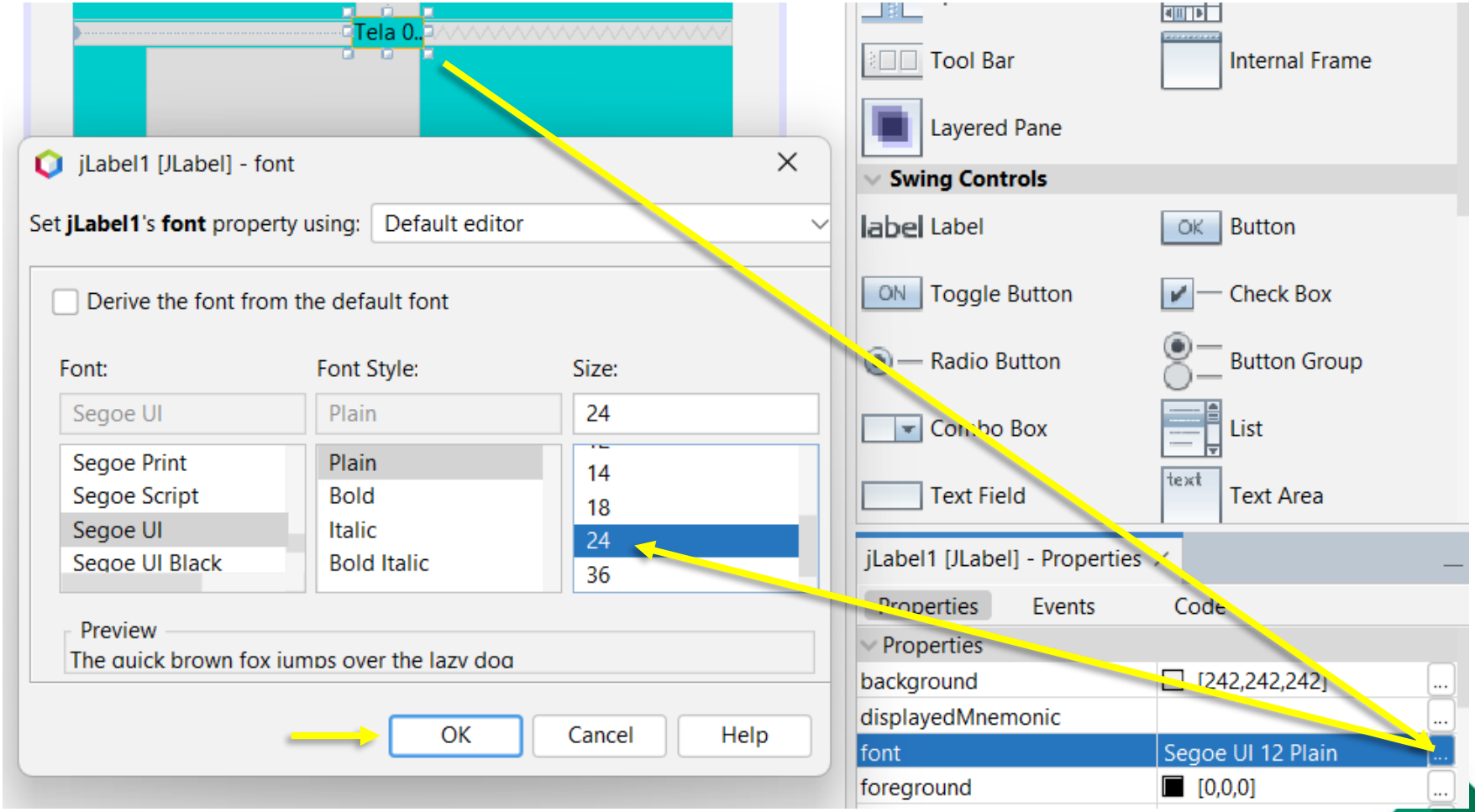
Java Swing – JLabel – Editar Texto



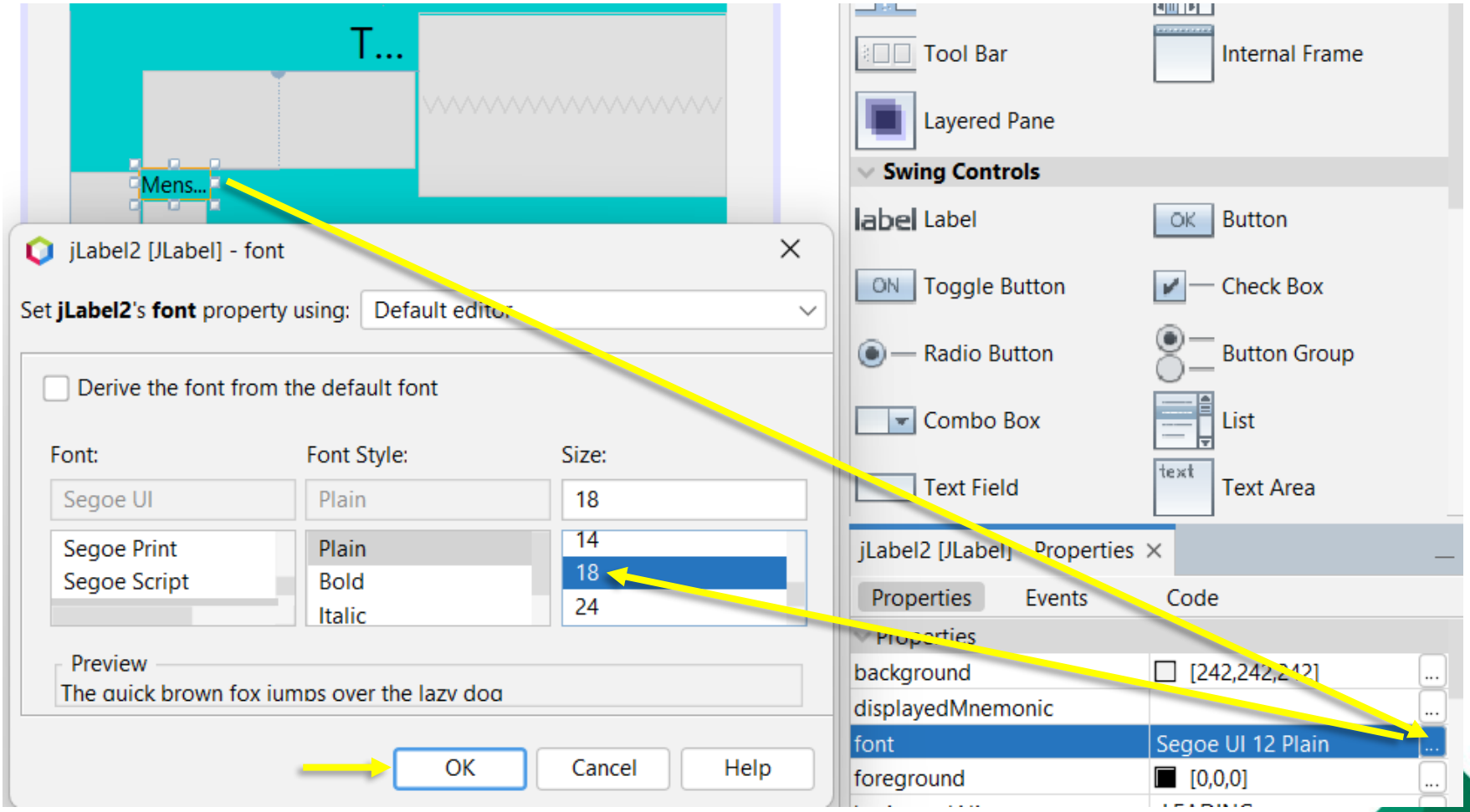
Java Swing – JLabel – Editar Texto



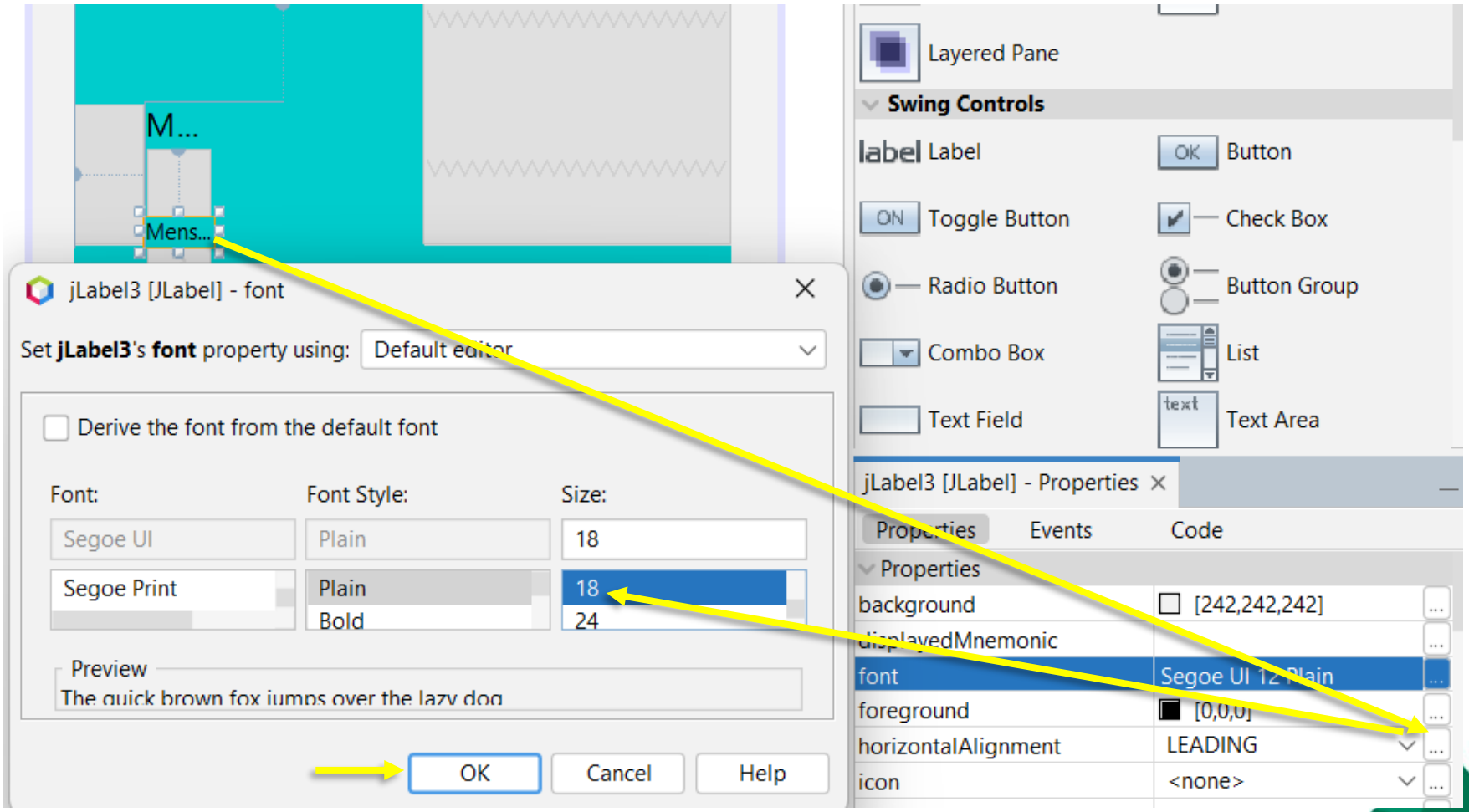
Java Swing – JLabel – Aumentar Fonte



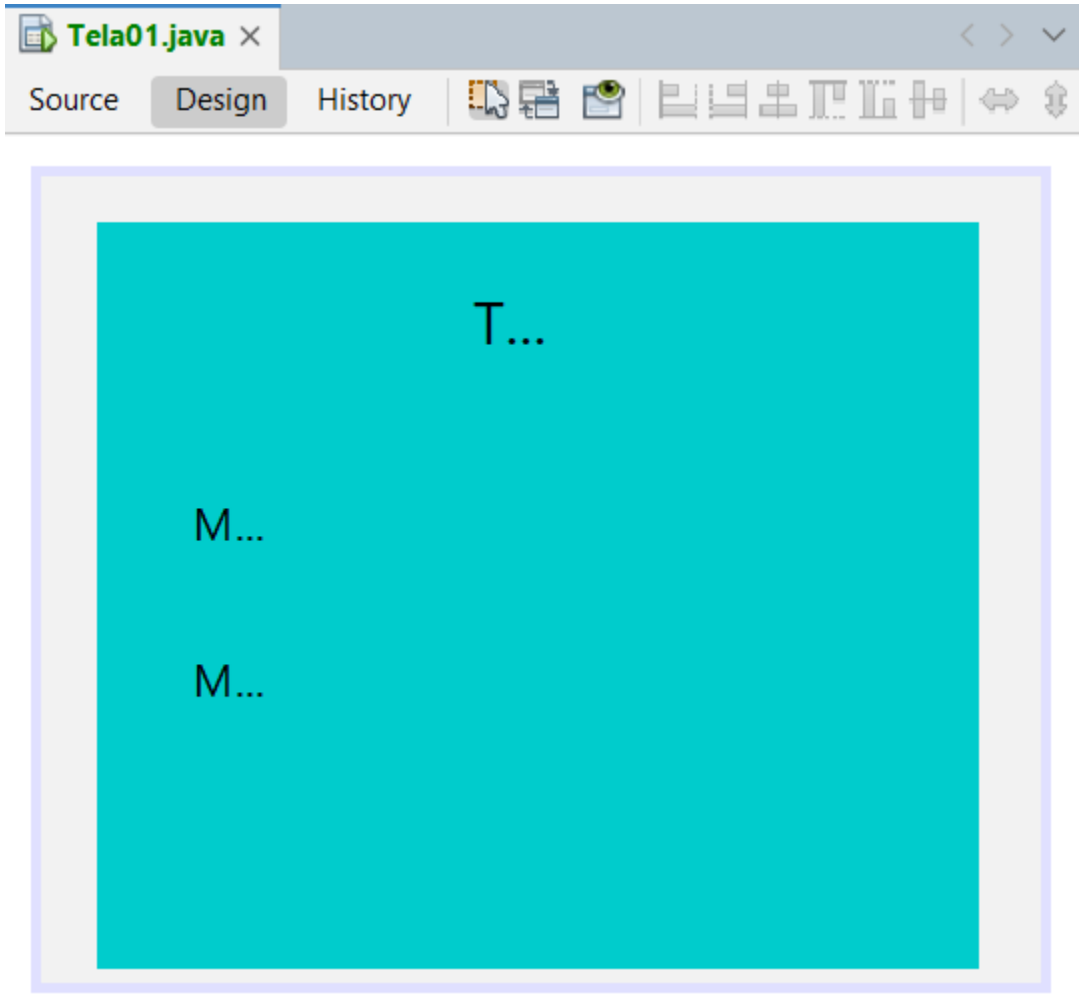
Java Swing – JLabel – Aumentar Fonte



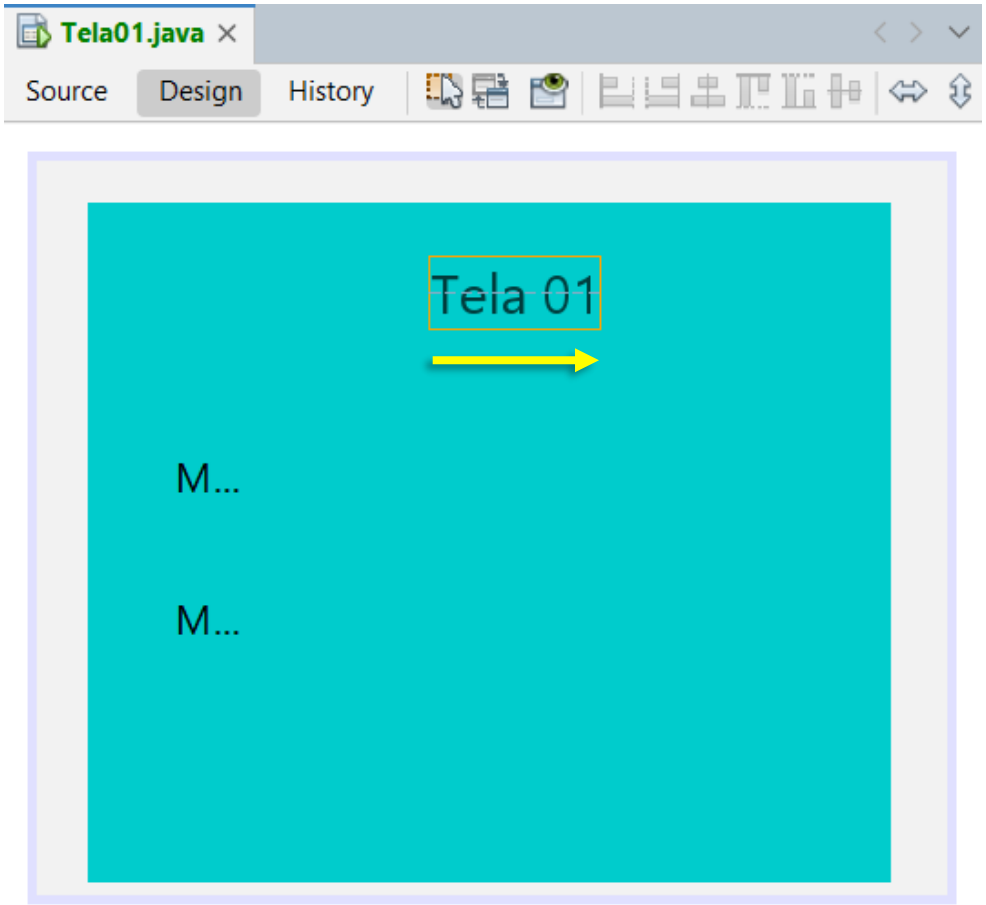
Java Swing – JLabel – Aumentar Fonte



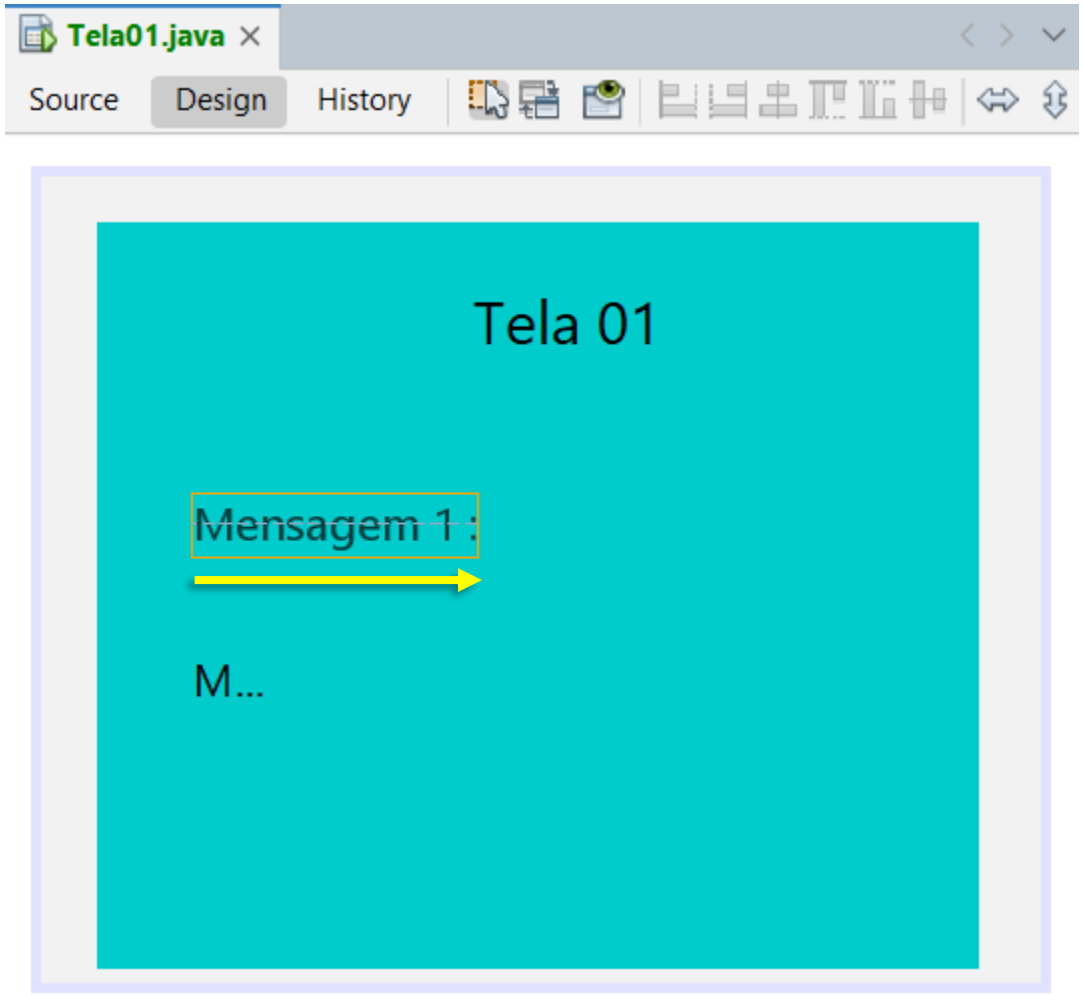
Java Swing – JLabel – Aumentar Fonte



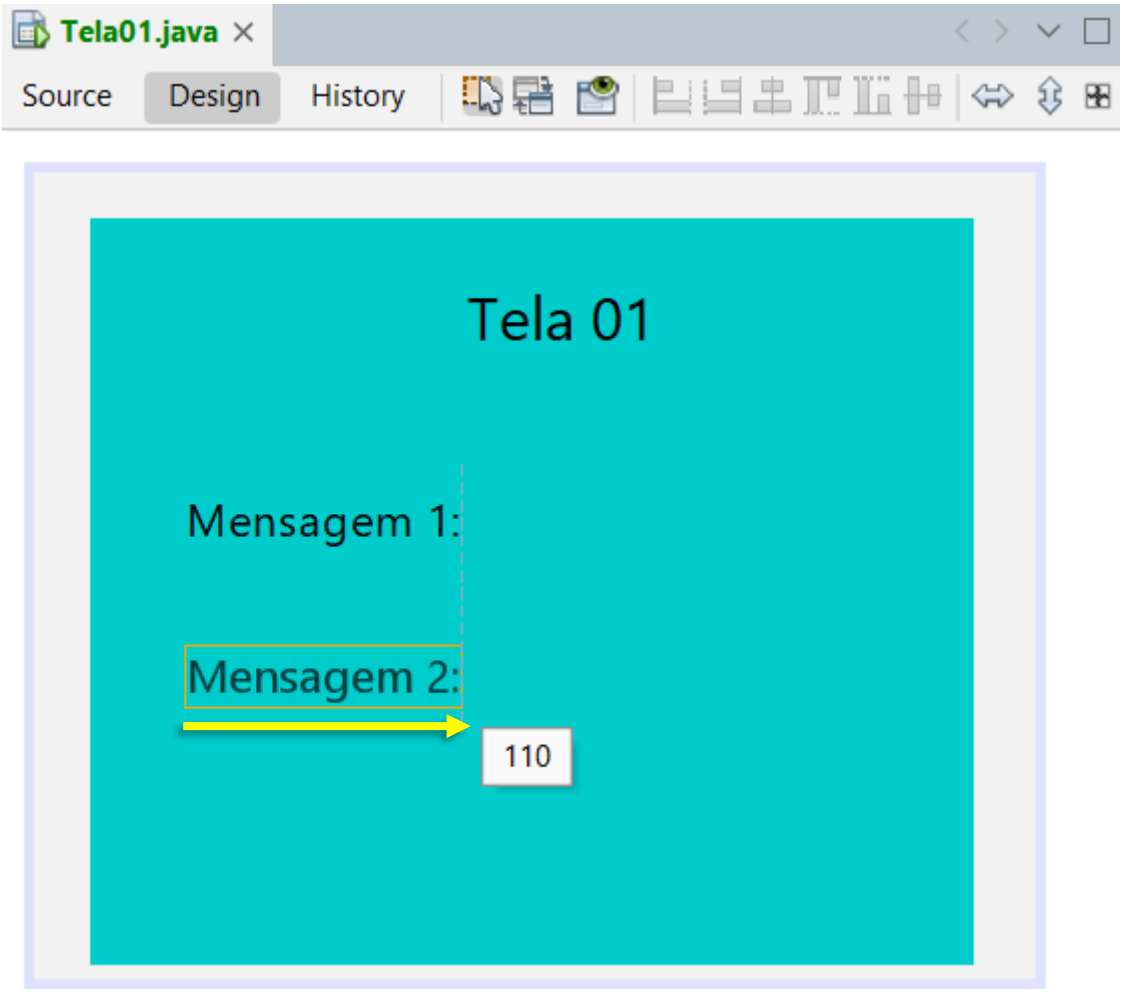
Java Swing – JLabel – Redimensionar



Java Swing – JLabel – Redimensionar



Java Swing – JLabel – Redimensionar

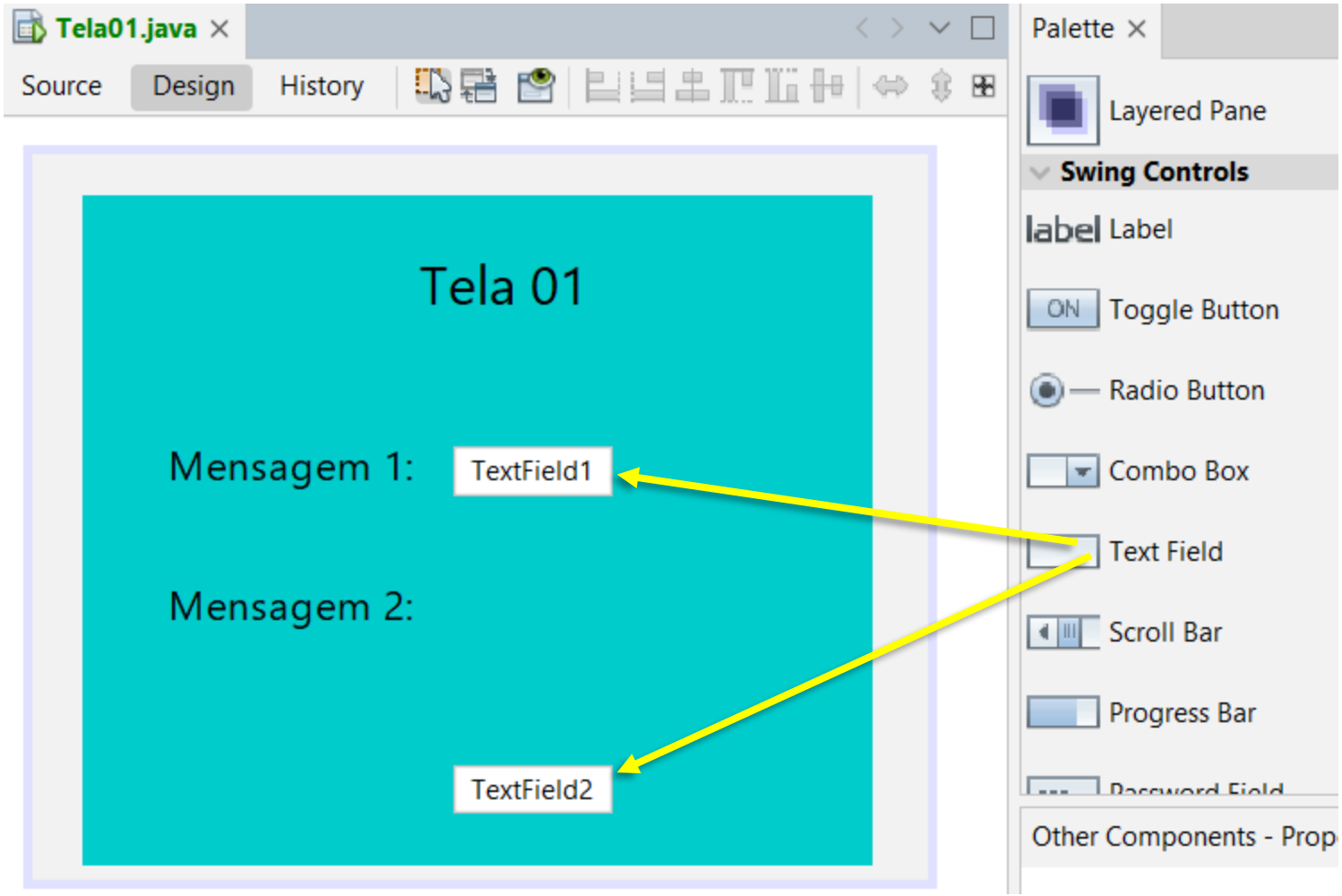


Java Swing – JTextField

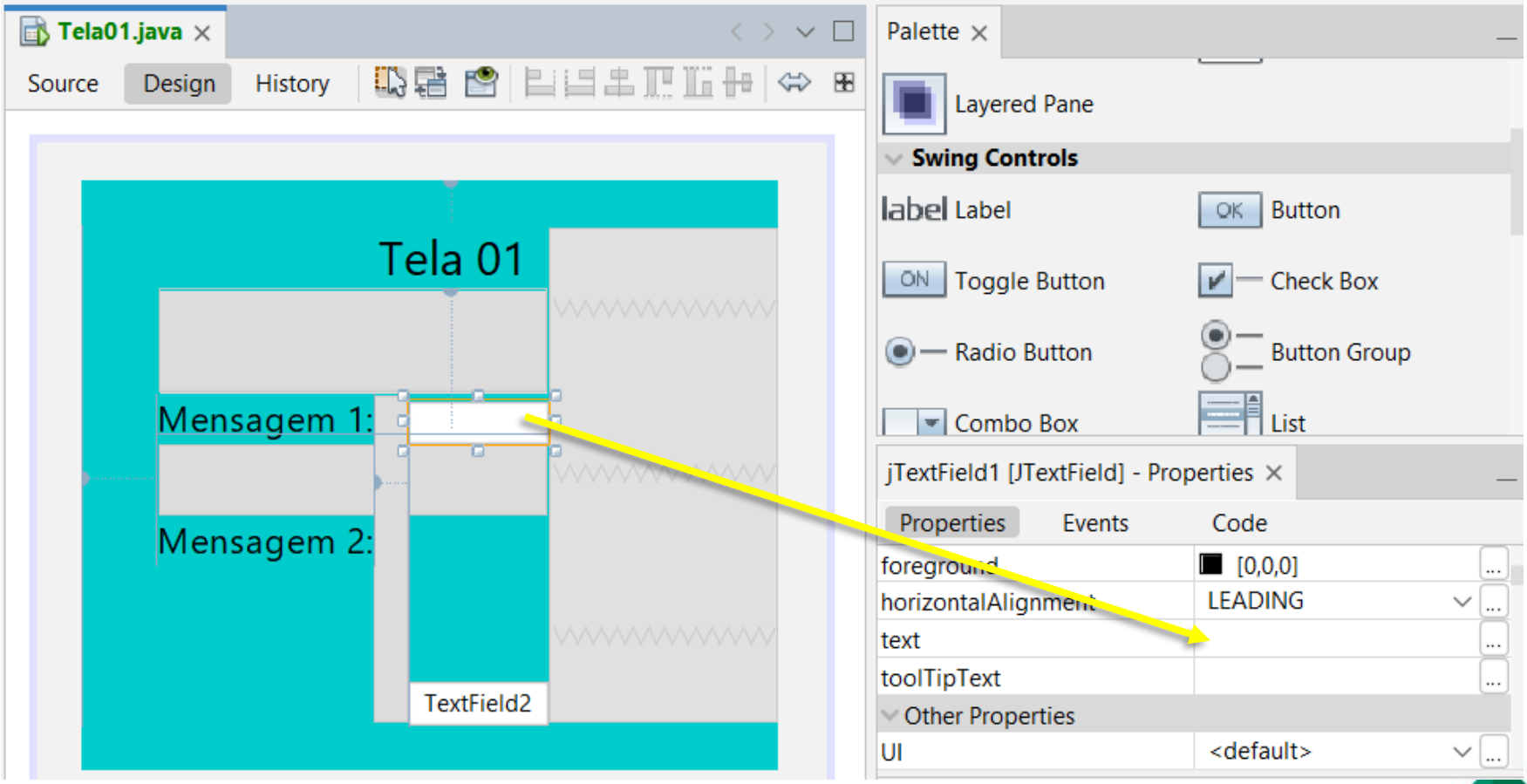
- A classe **JTextField** permite criar uma **caixa de texto gráfica** na qual o usuário pode **digitar dados**.

- Existem **diversas propriedades** cujos **conteúdos podem ser modificados**.

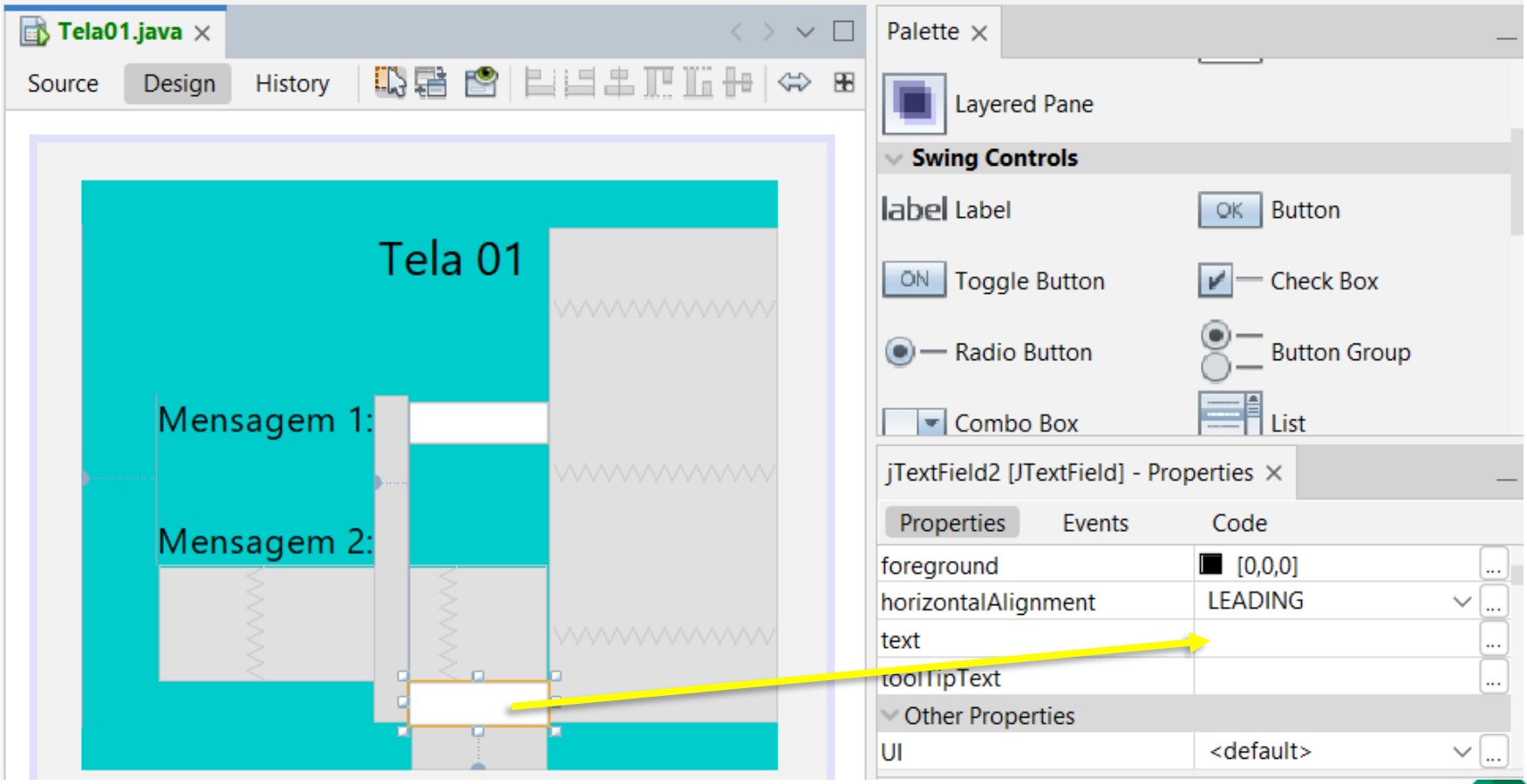
Java Swing – JTextField – Adicionar



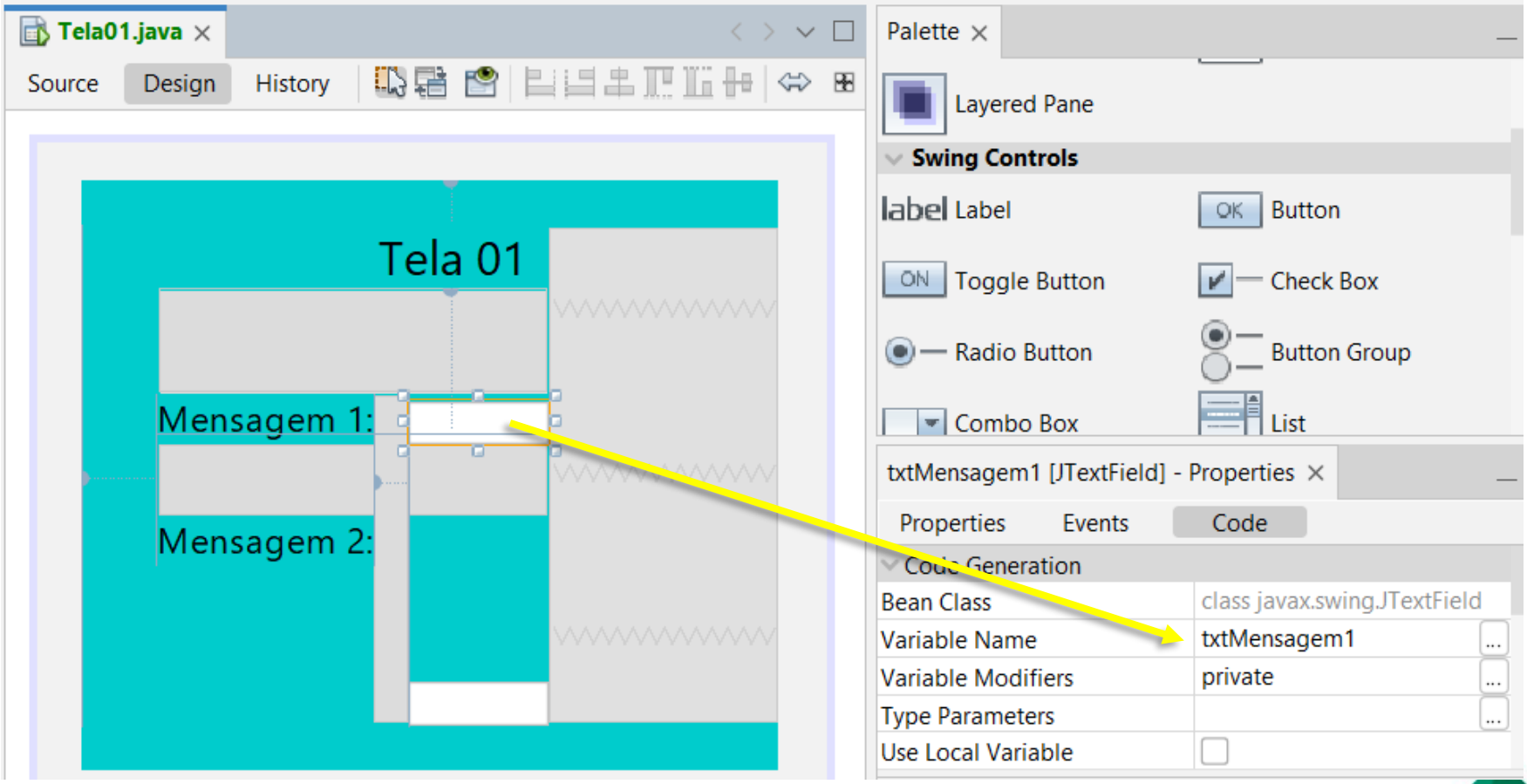
Java Swing – JTextField – Editar Texto



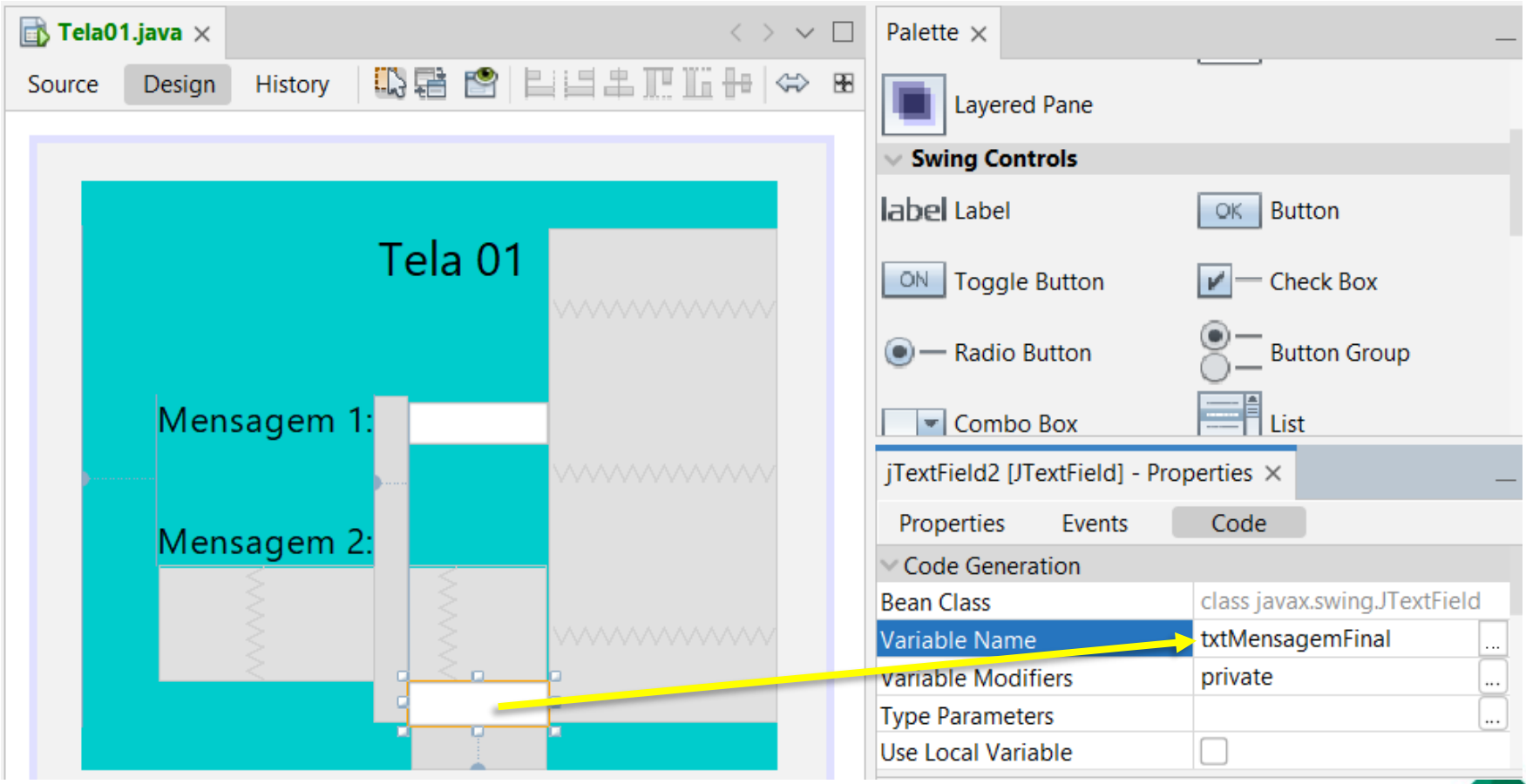
Java Swing – JTextField – Editar Texto



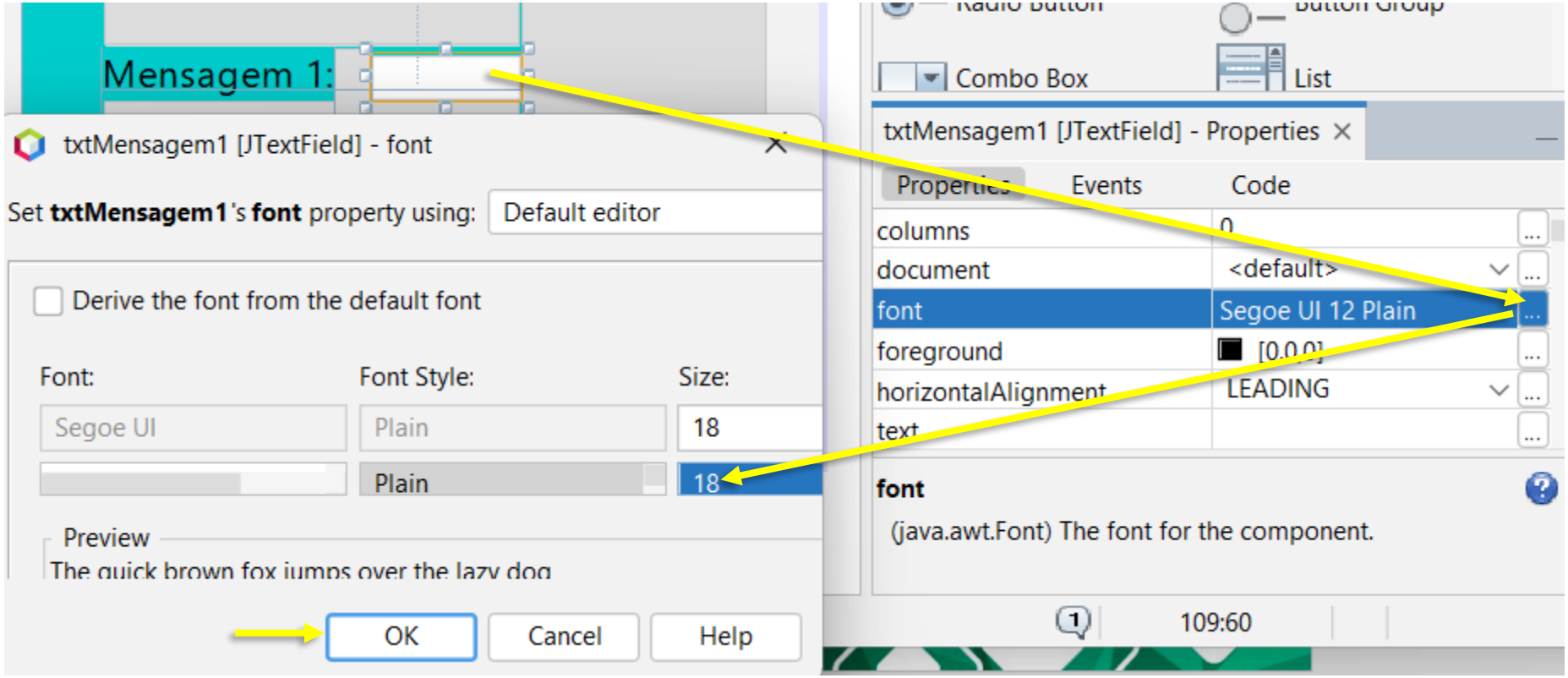
Java Swing – JTextField – Renomear Var.



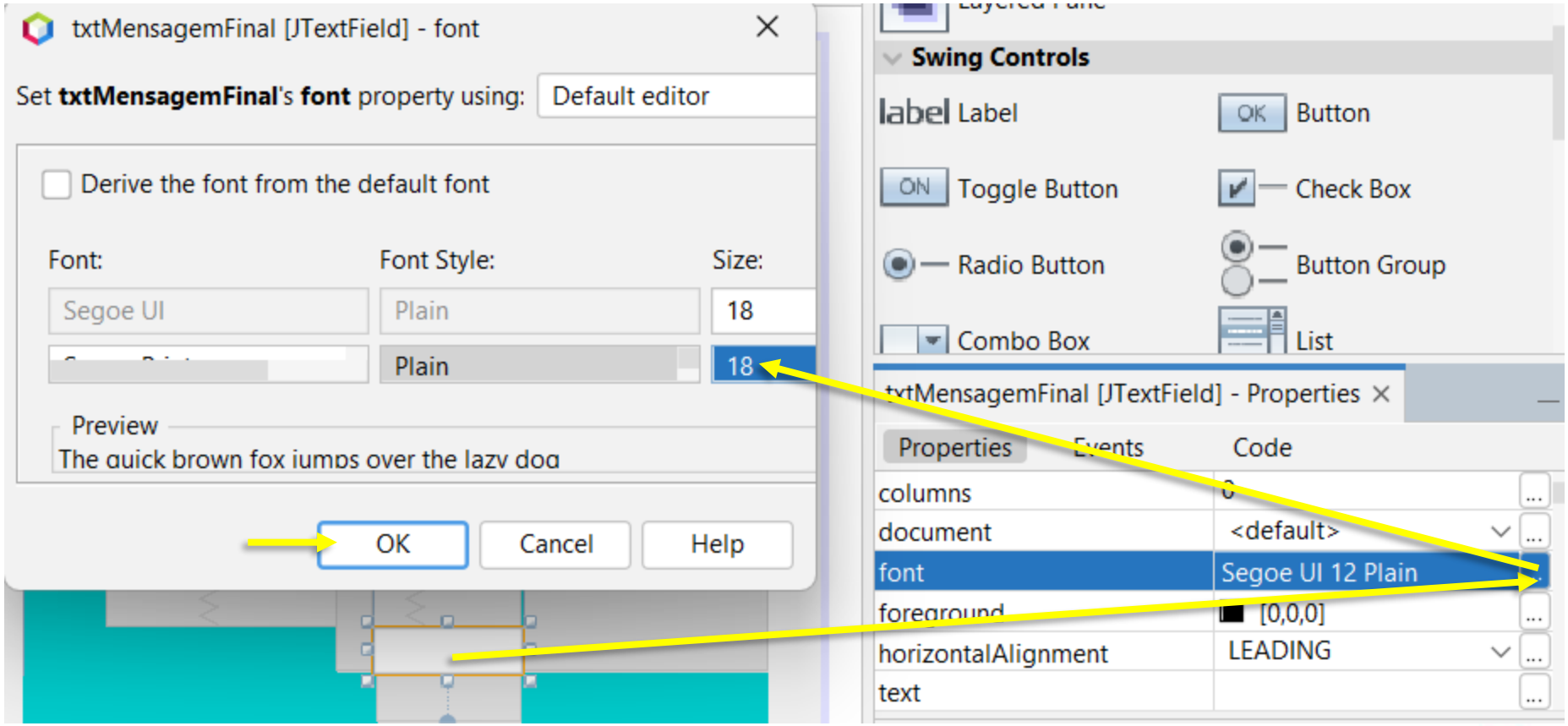
Java Swing – JTextField – Renomear Var.



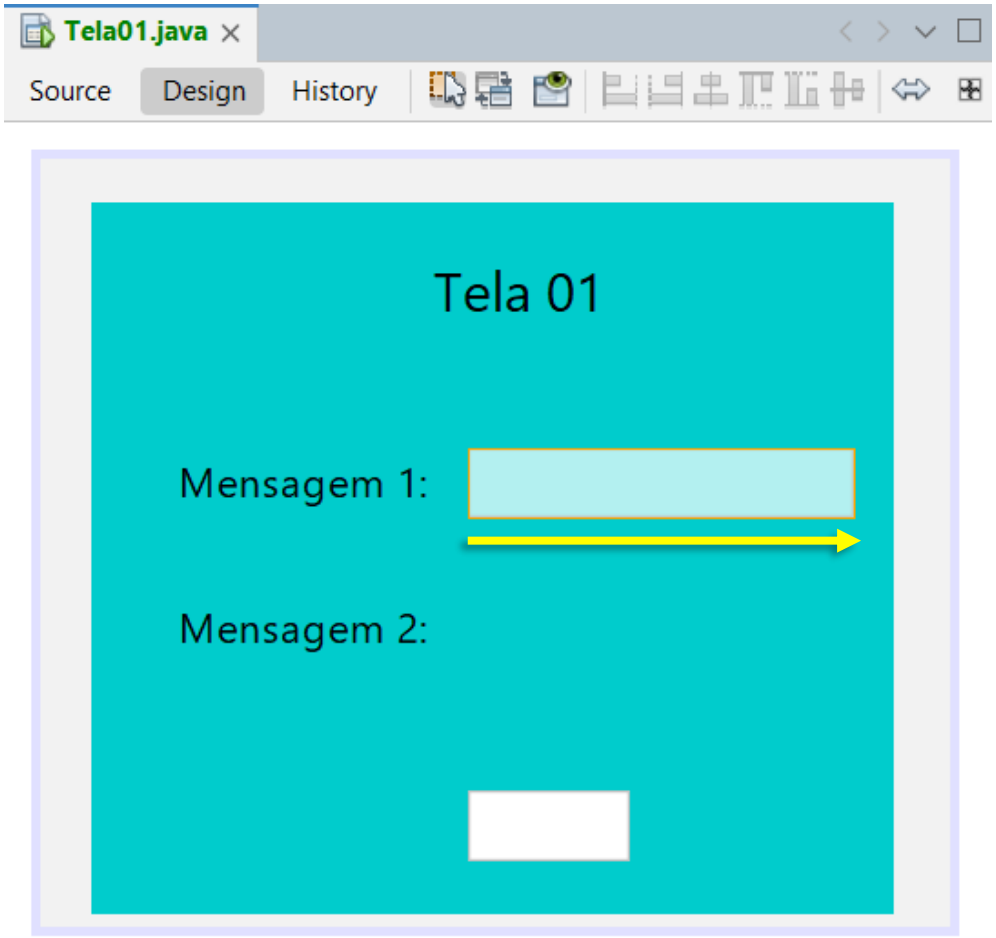
Java Swing – JTextField – Aument. Fonte



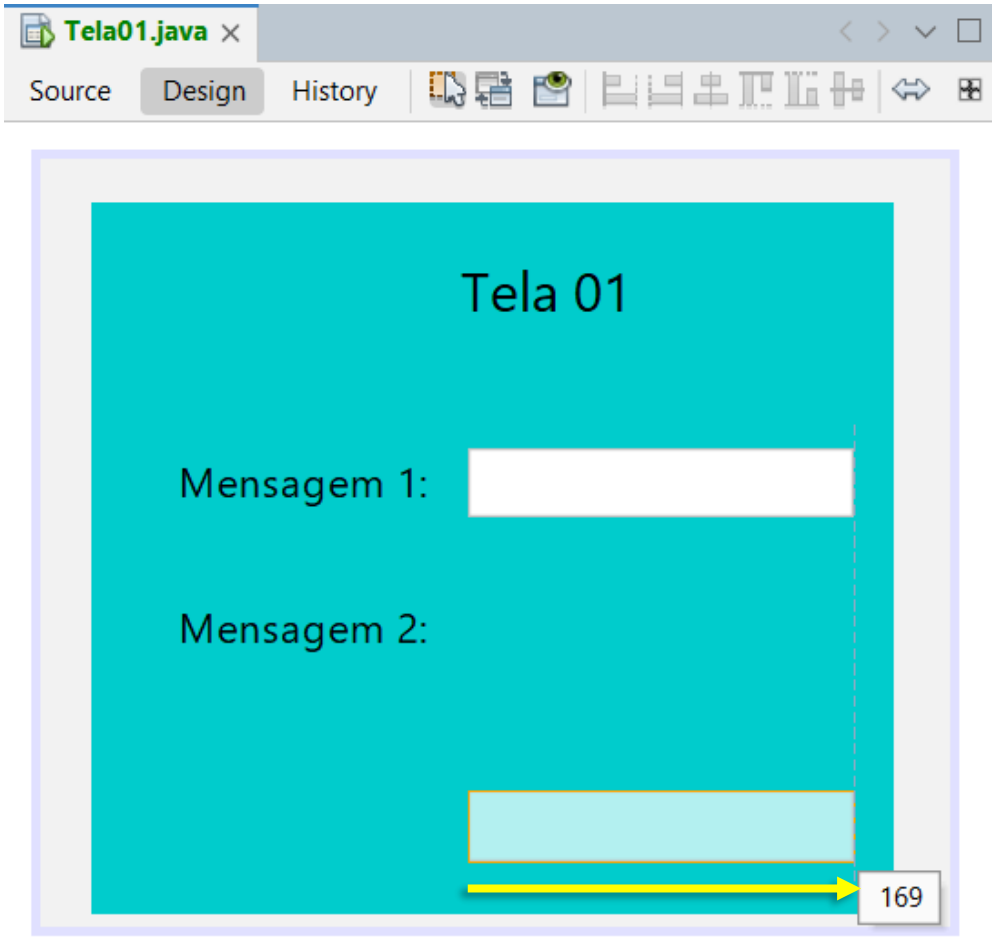
Java Swing – JTextField – Aument. Fonte



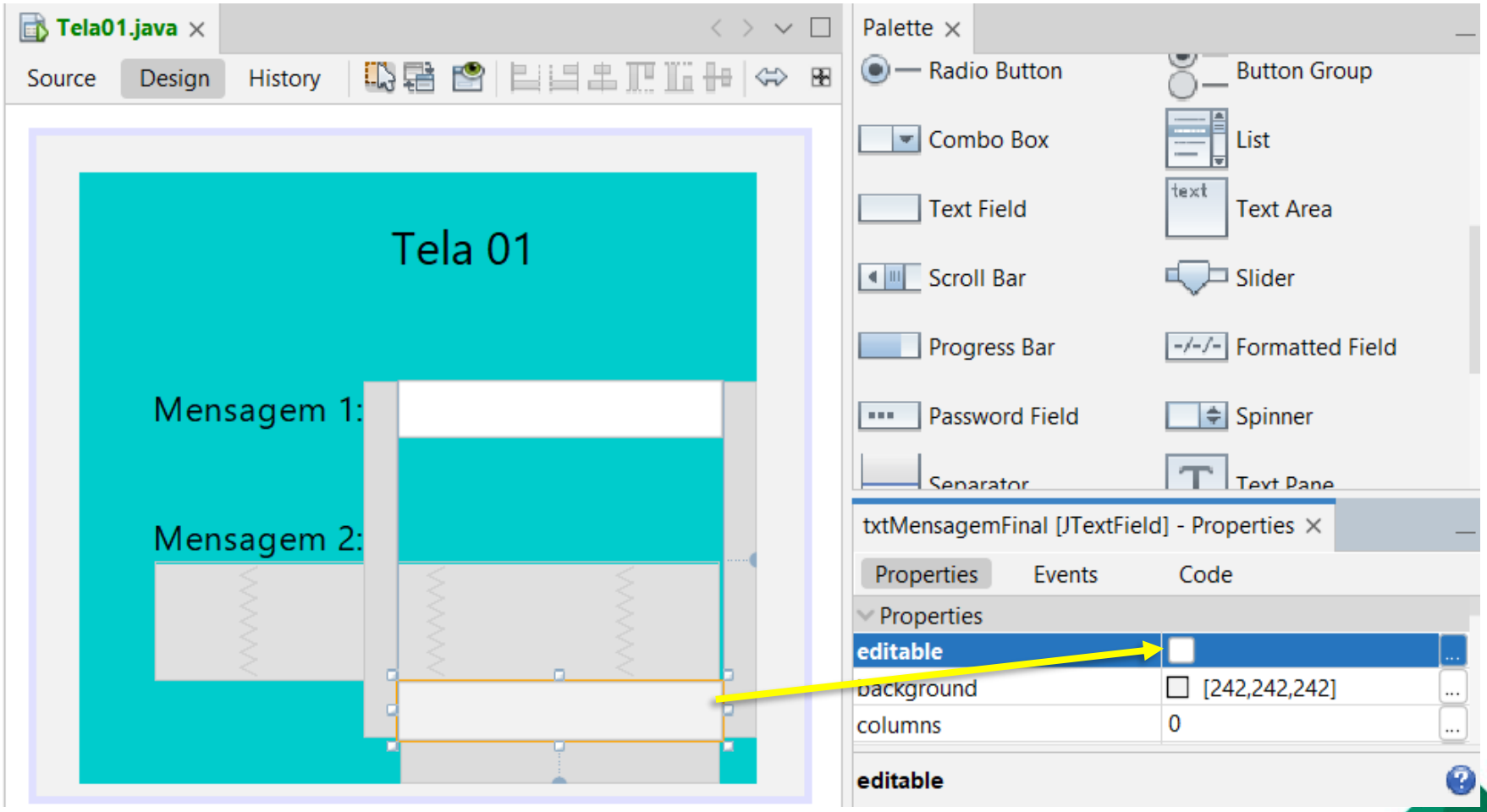
Java Swing – JTextField – Redimens.



Java Swing – JTextField – Redimens.



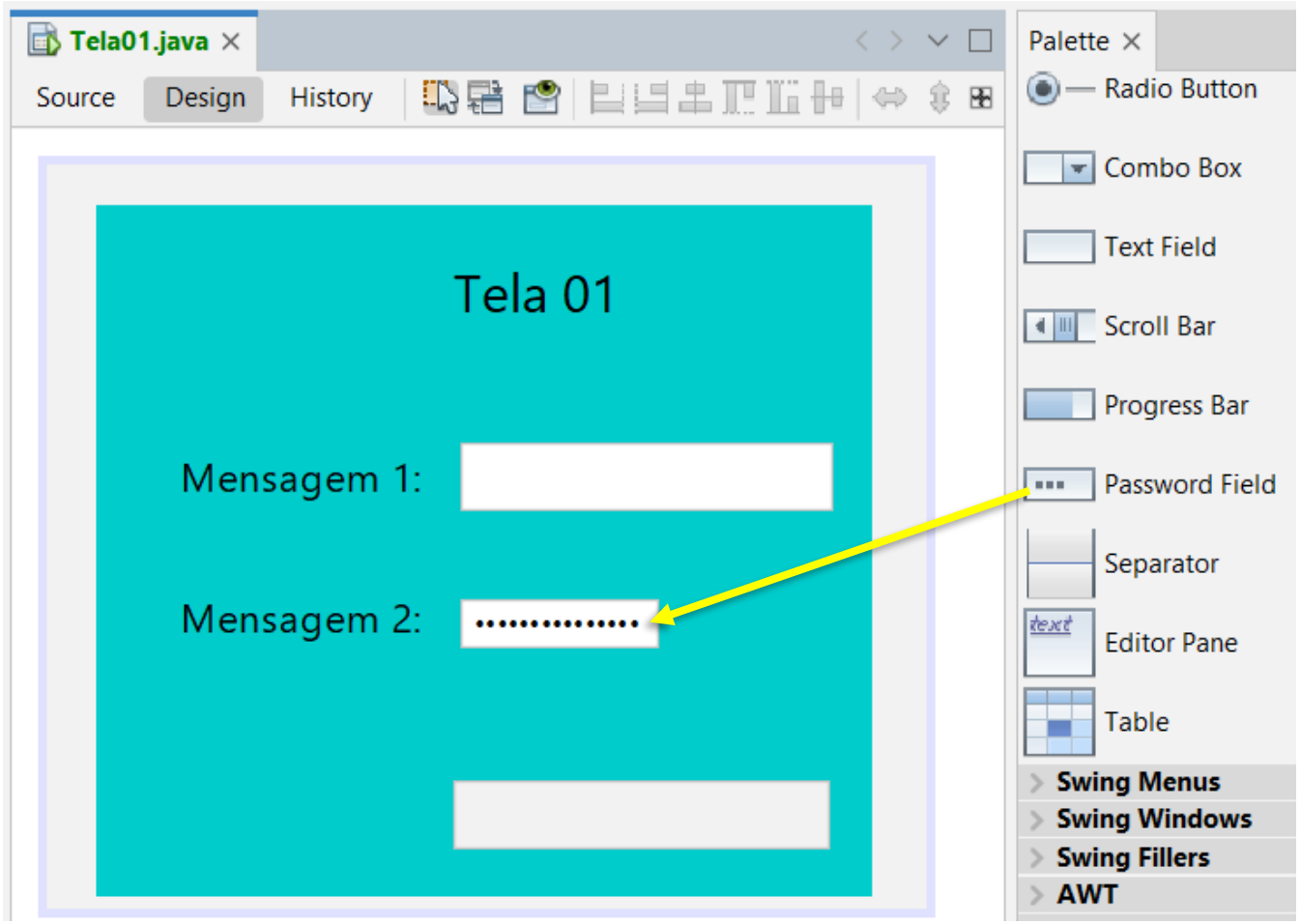
Java Swing – JTextField – Não Editável



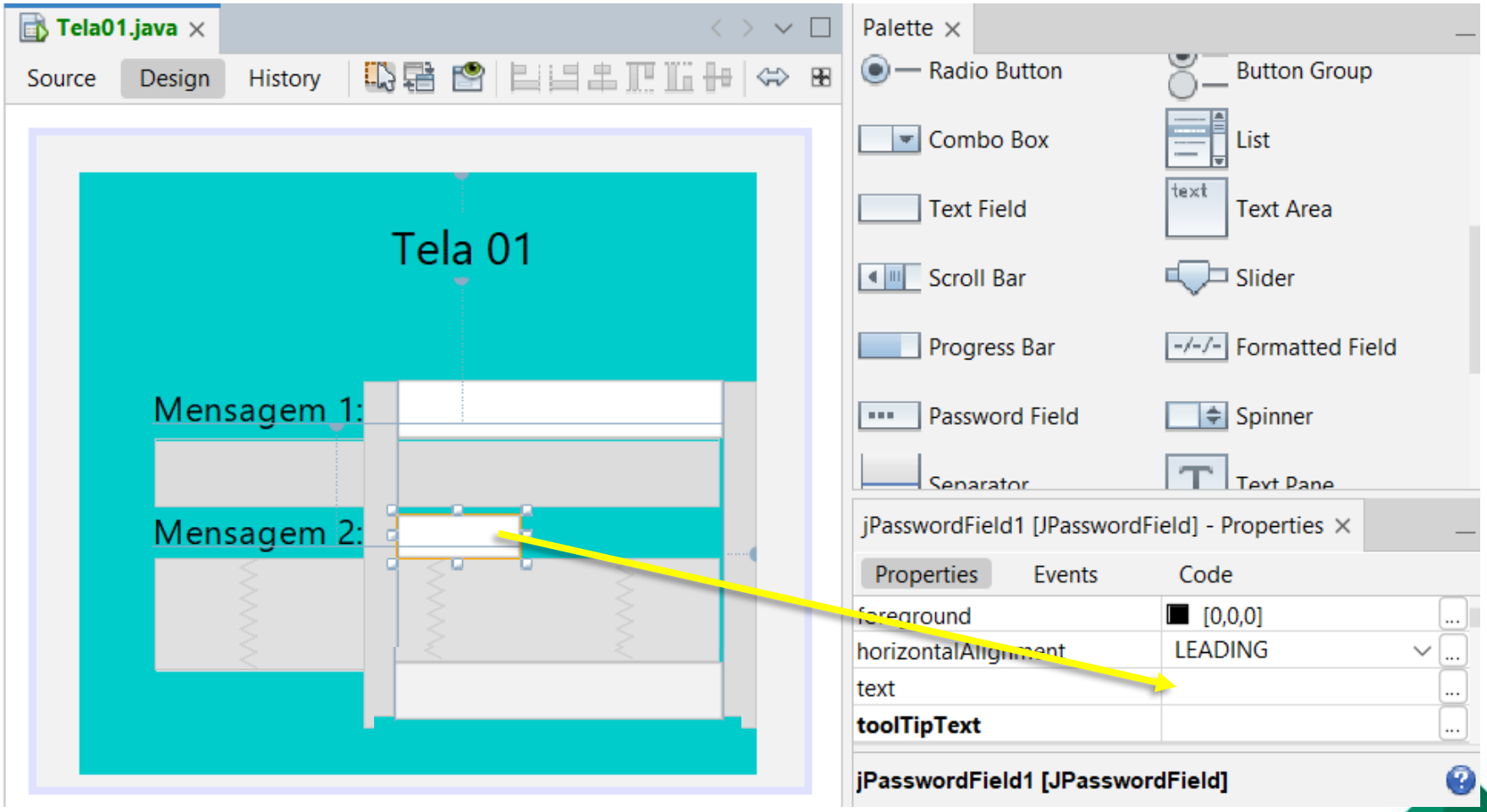
Java Swing – JPasswordField

- A classe **JPasswordField** permite criar uma **caixa de texto gráfica** na qual o usuário pode **digitar dados**, porém eles são substituídos (visualmente) por outro caractere (*).

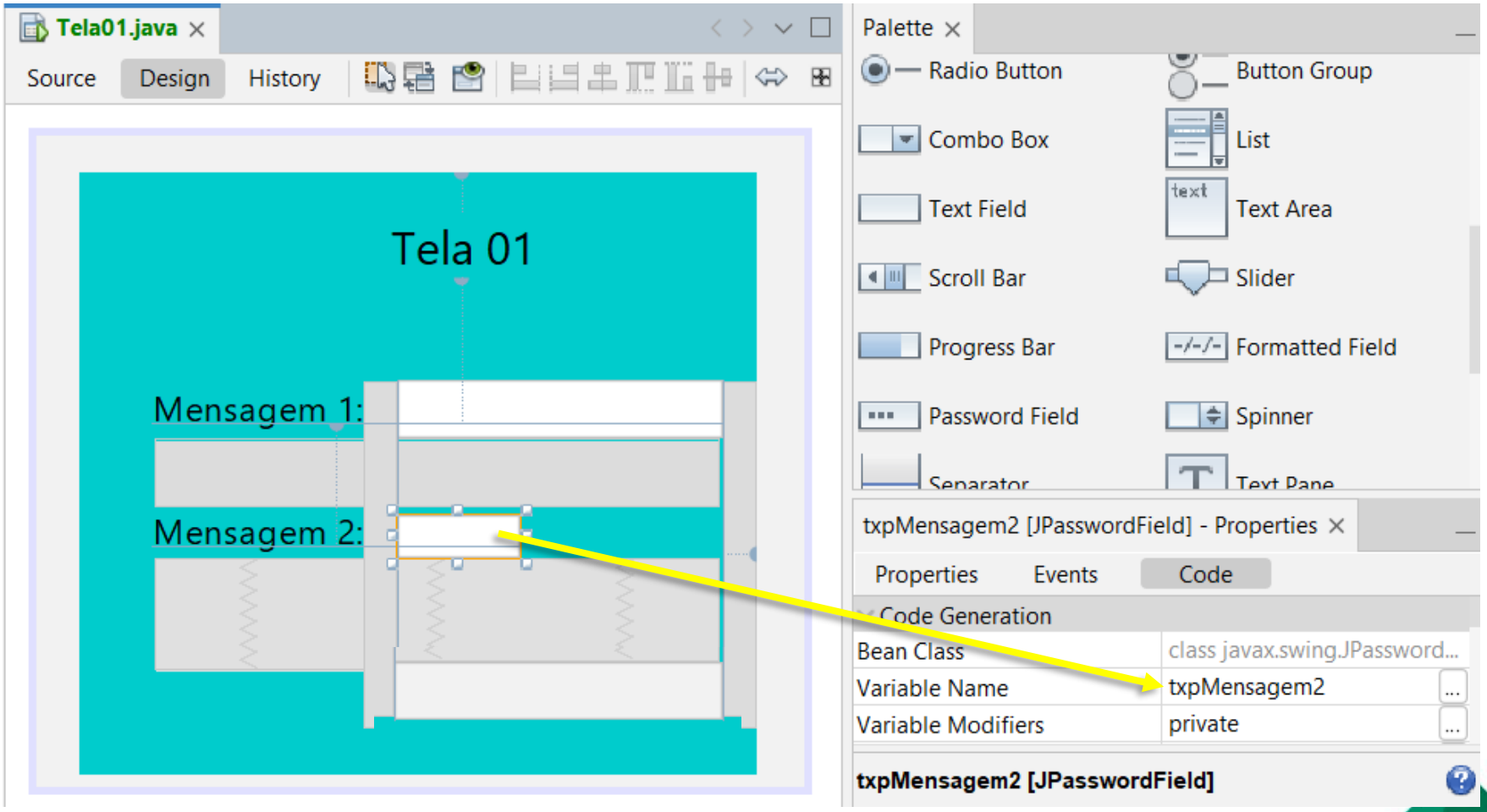
Java Swing – JPasswordField – Adic.



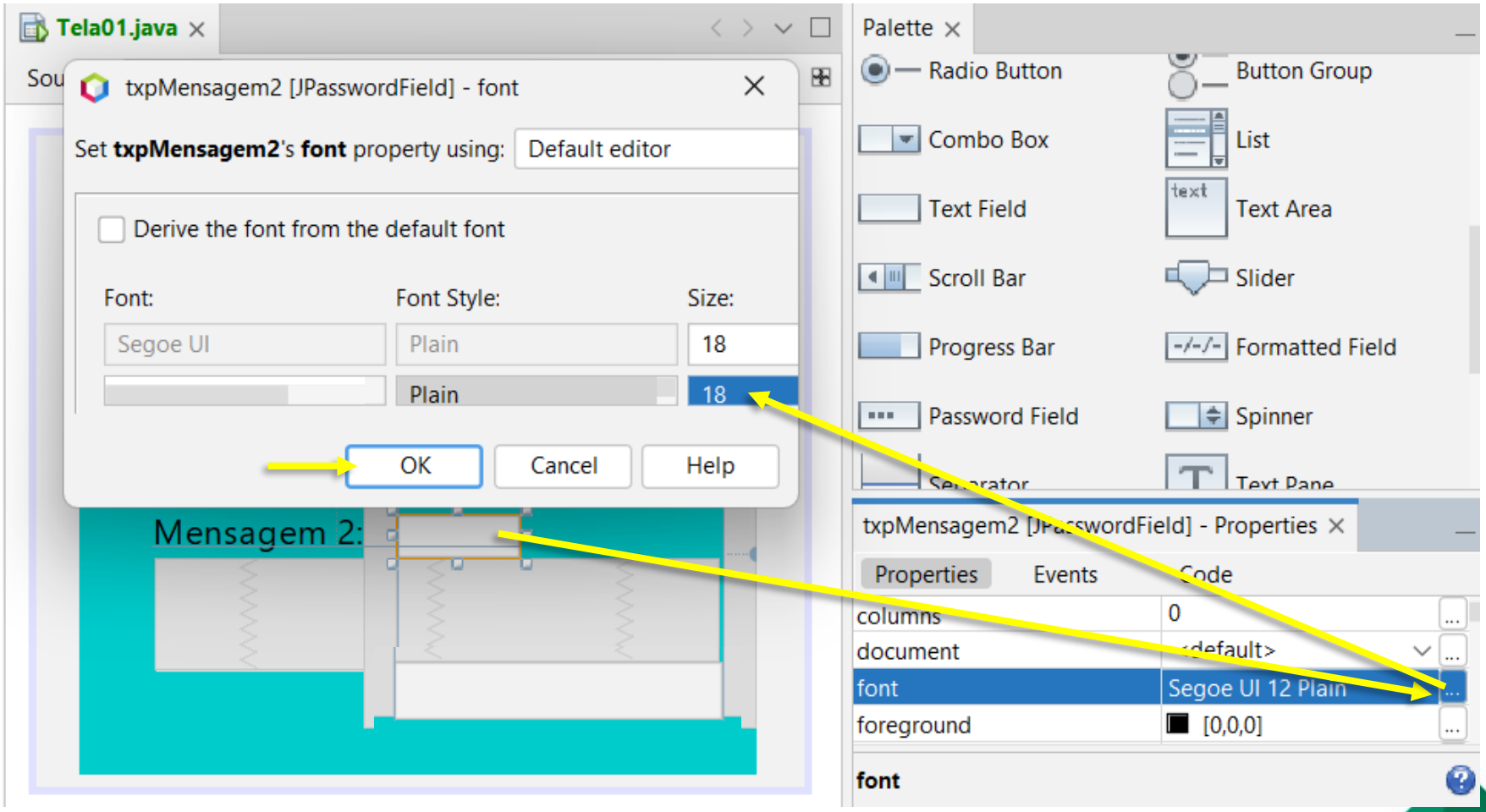
Java Swing – JPasswordField – Editar T.



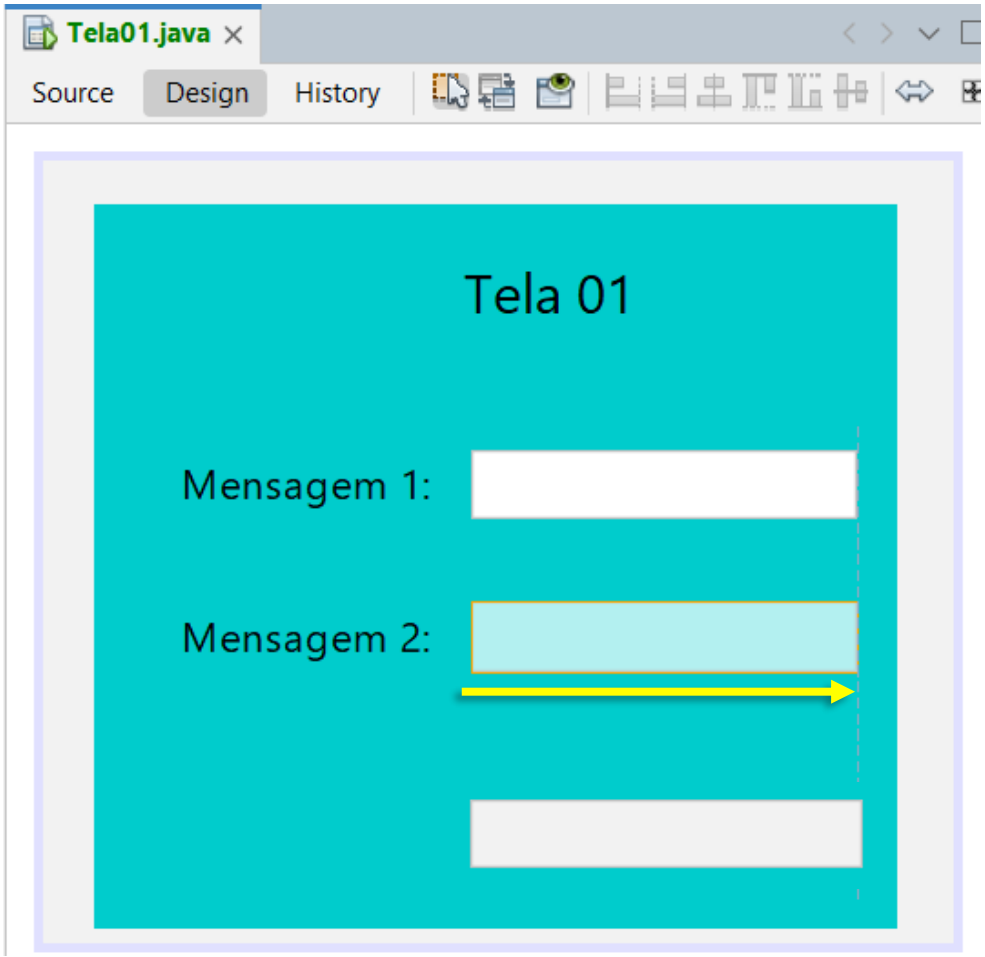
Java Swing – JPasswordField – Ren. Var.



Java Swing – JPasswordField – Aum. F.



Java Swing – JPasswordField – Redimen.

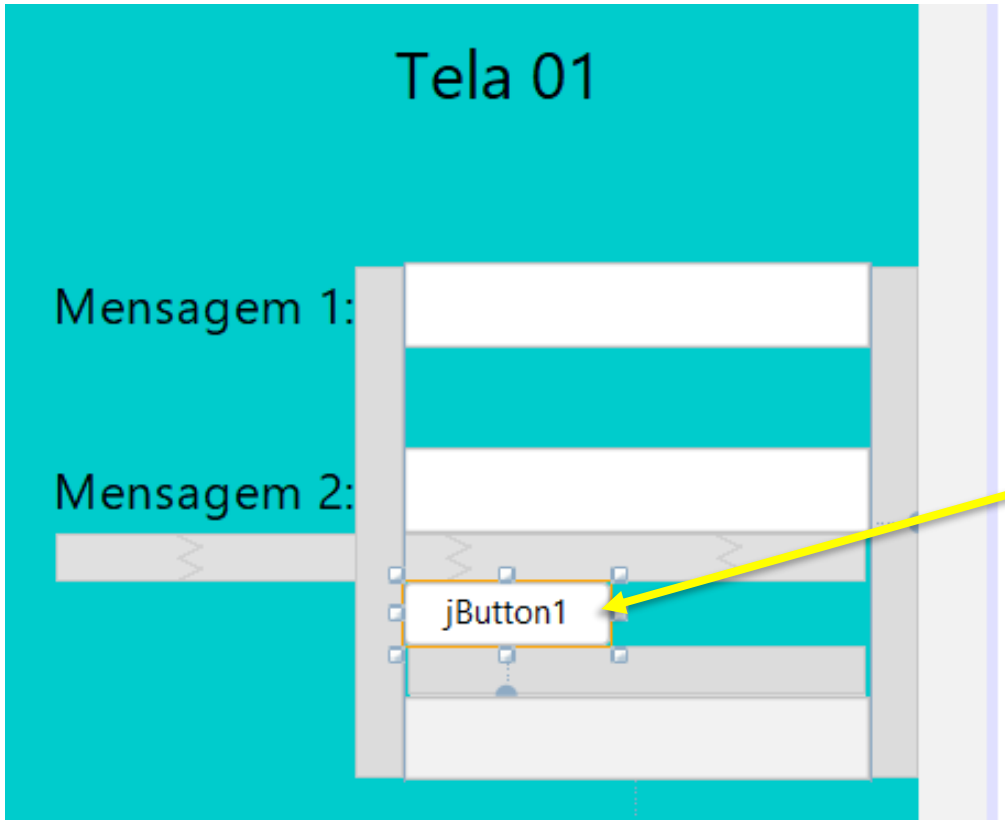


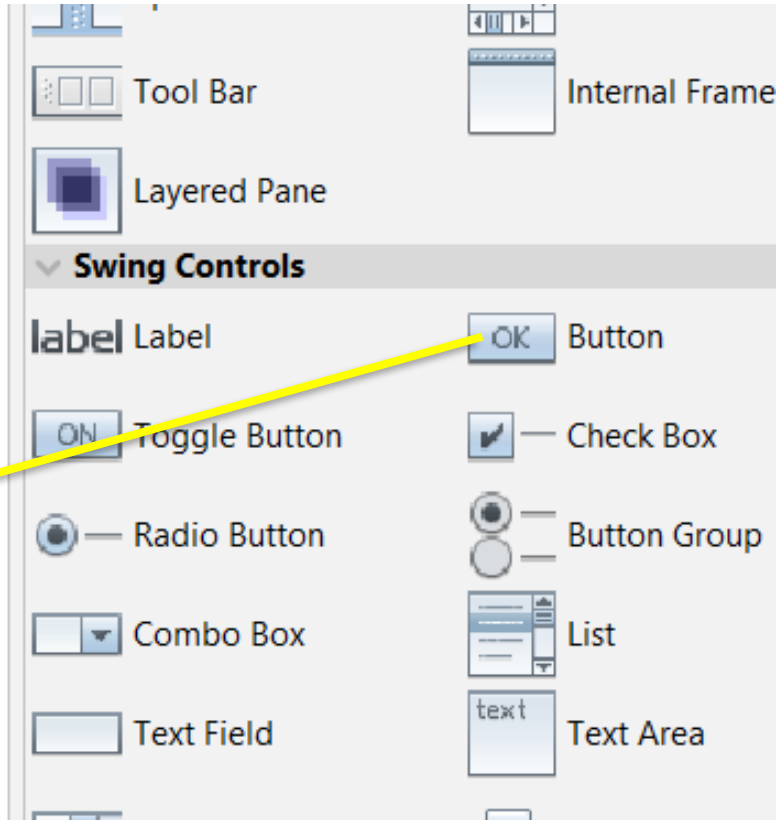
Java Swing – JButton

- A classe **JButton** permite **definir botões gráficos** que **pode ser adicionados** a um **outro componente** (**frame, painel etc.**).

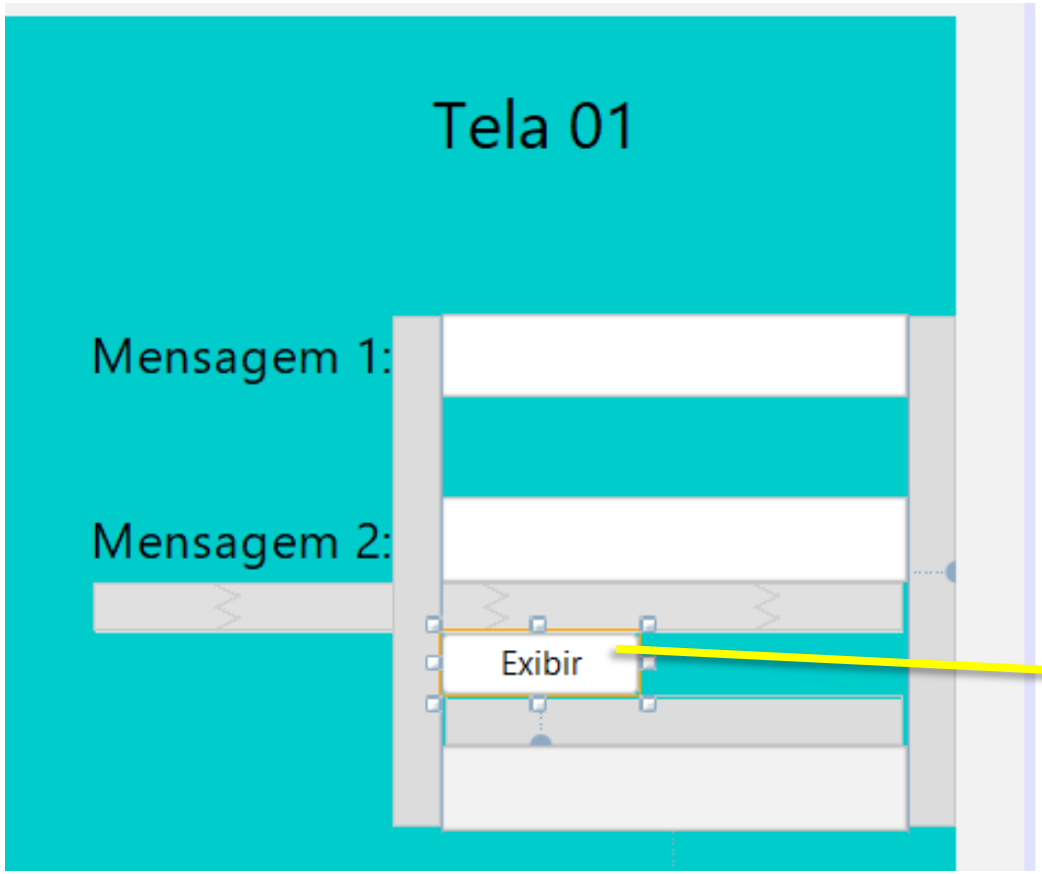
- Um **botão** pode **ser criado** com apenas um **texto e/ou com ícones** para tornar o ambiente mais intuitivo.

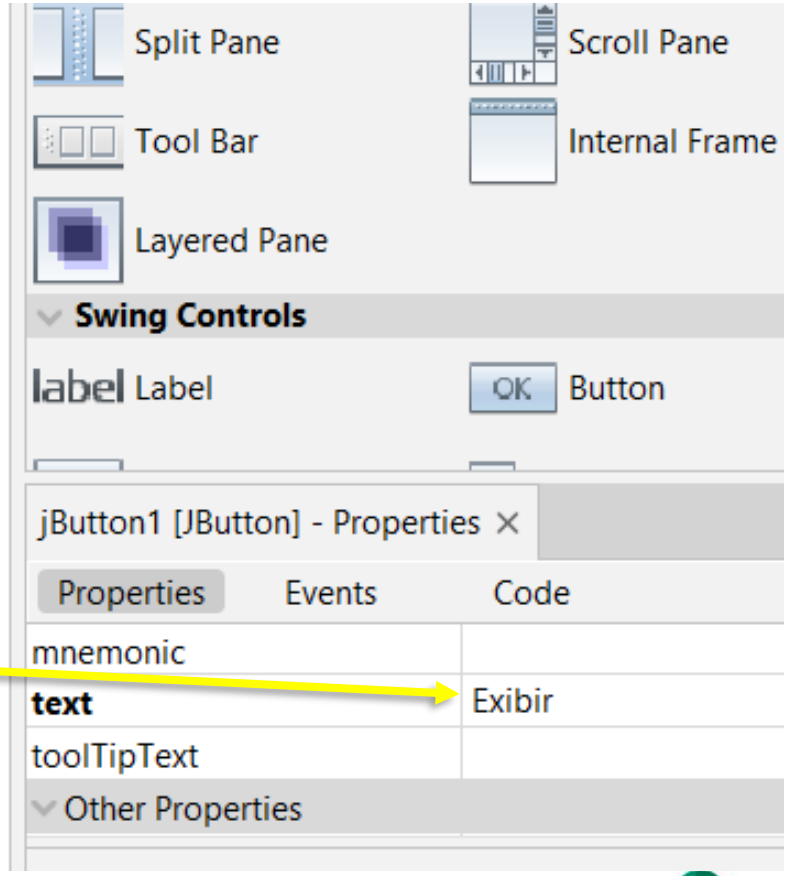
Java Swing – JButton – Adicionar



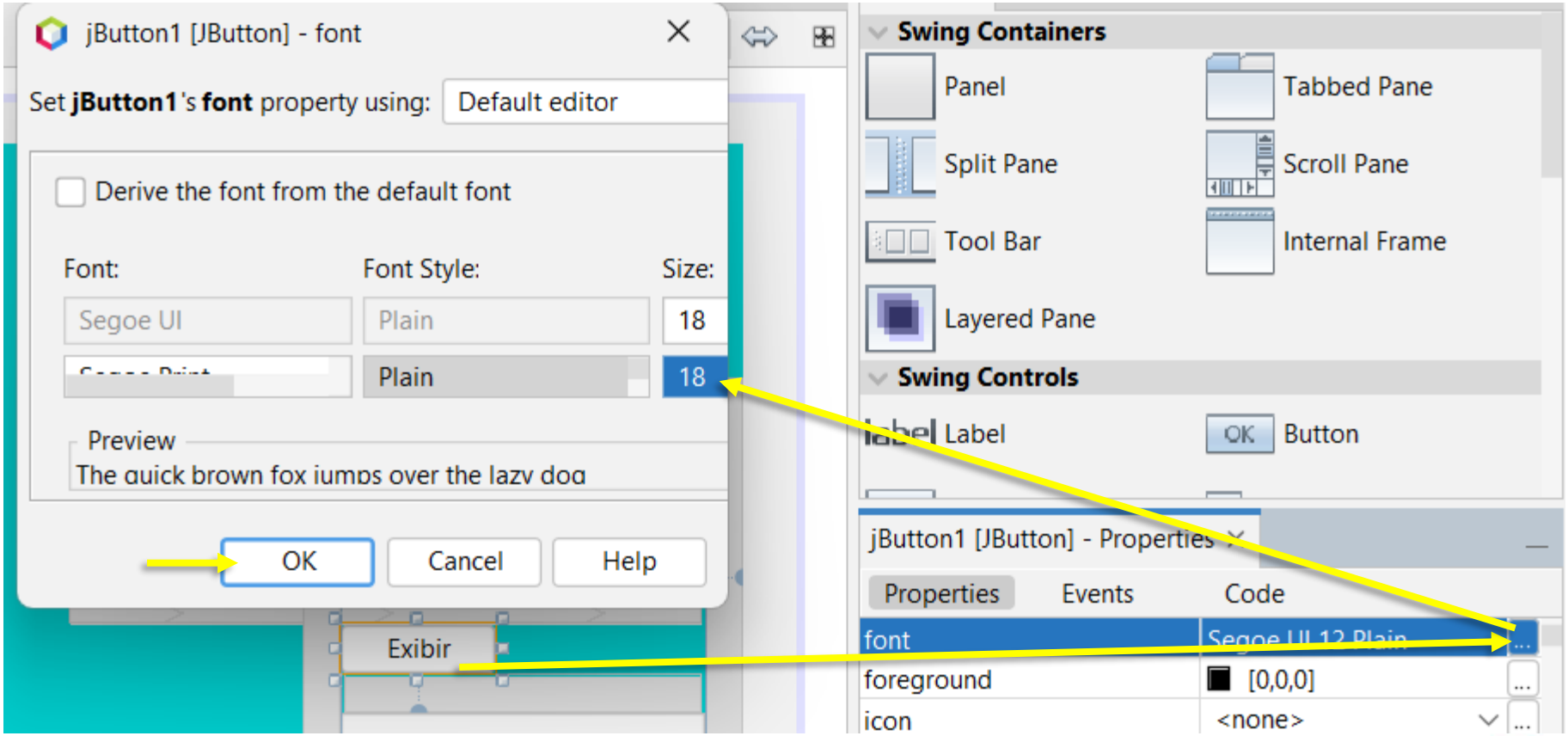


Java Swing – JButton – Editar Texto

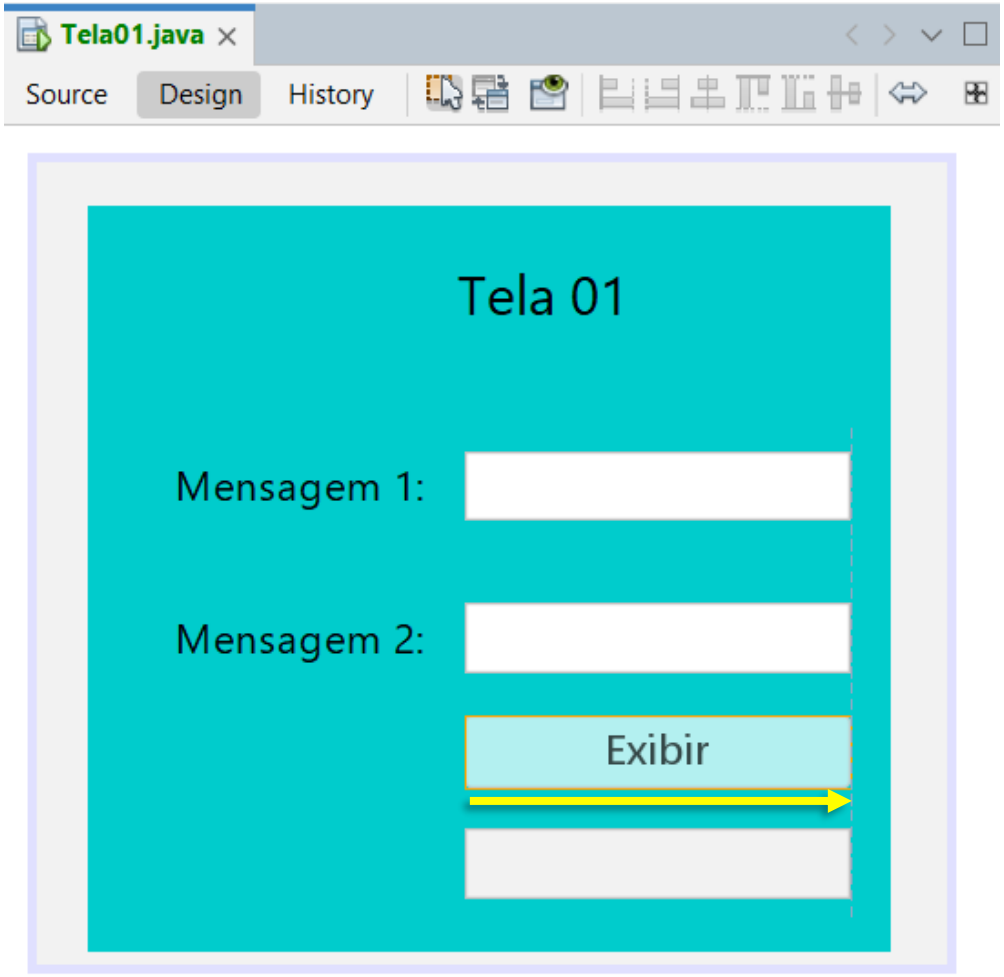




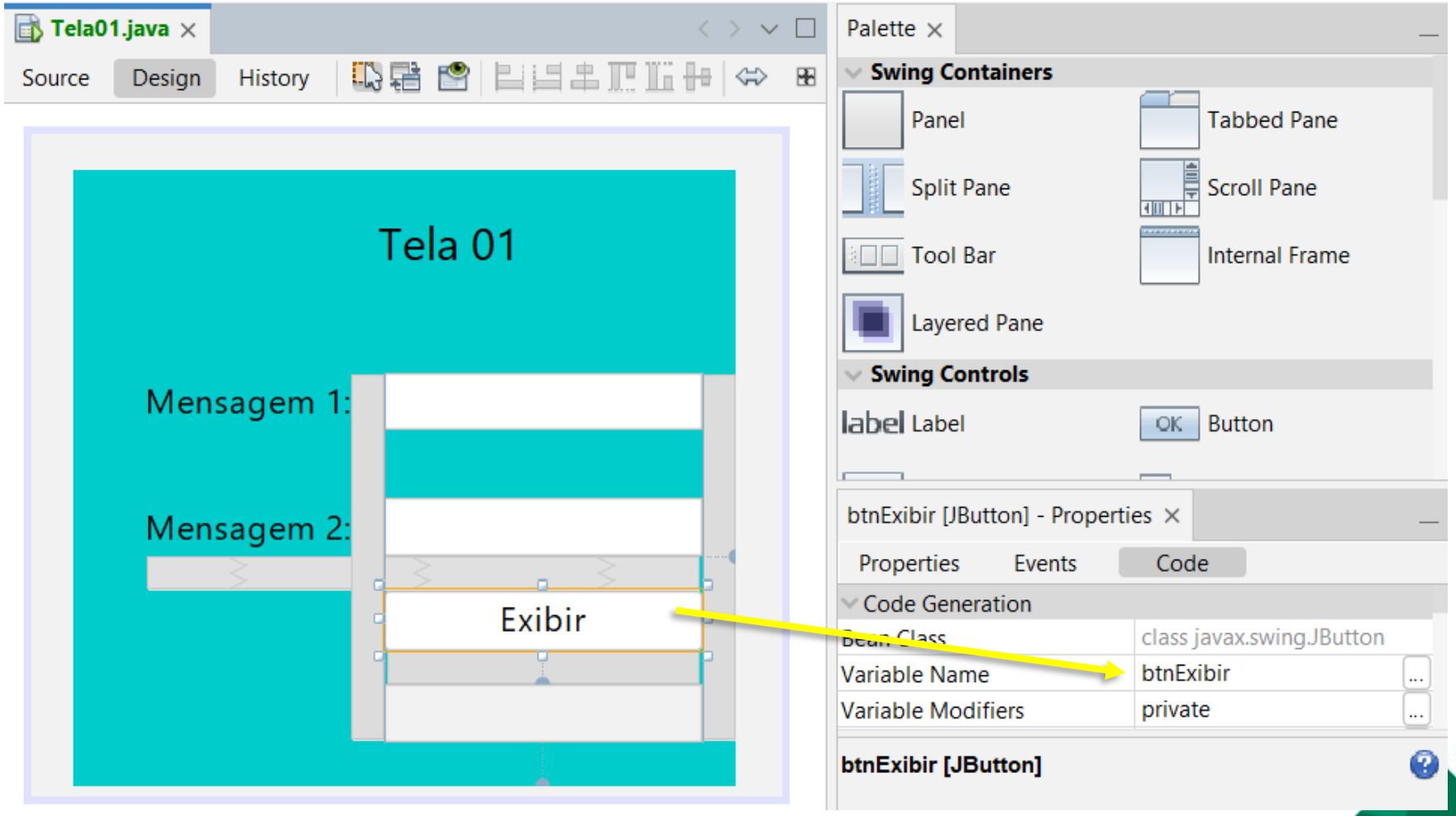
Java Swing – JButton – Aumentar Fonte



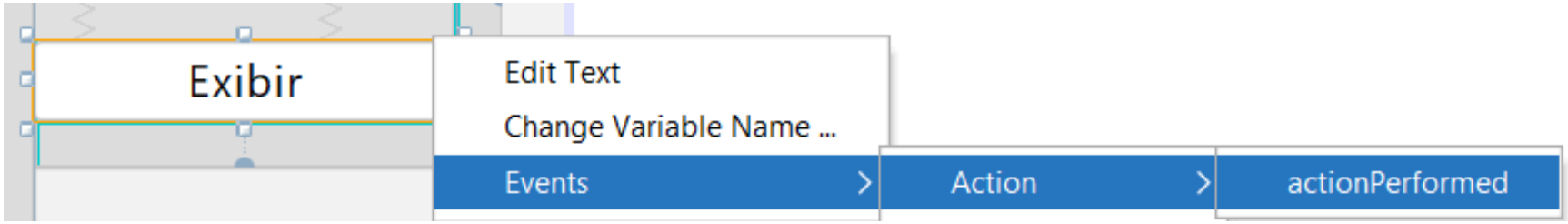
Java Swing – JButton – Redimensionar



Java Swing – JButton – Renomear Var.



Java Swing – JButton – Adicionar Ação



Java Swing – JButton – Adicionar Ação

```
private void btnExibirActionPerformed(java.awt.event.ActionEvent evt) {



}
```

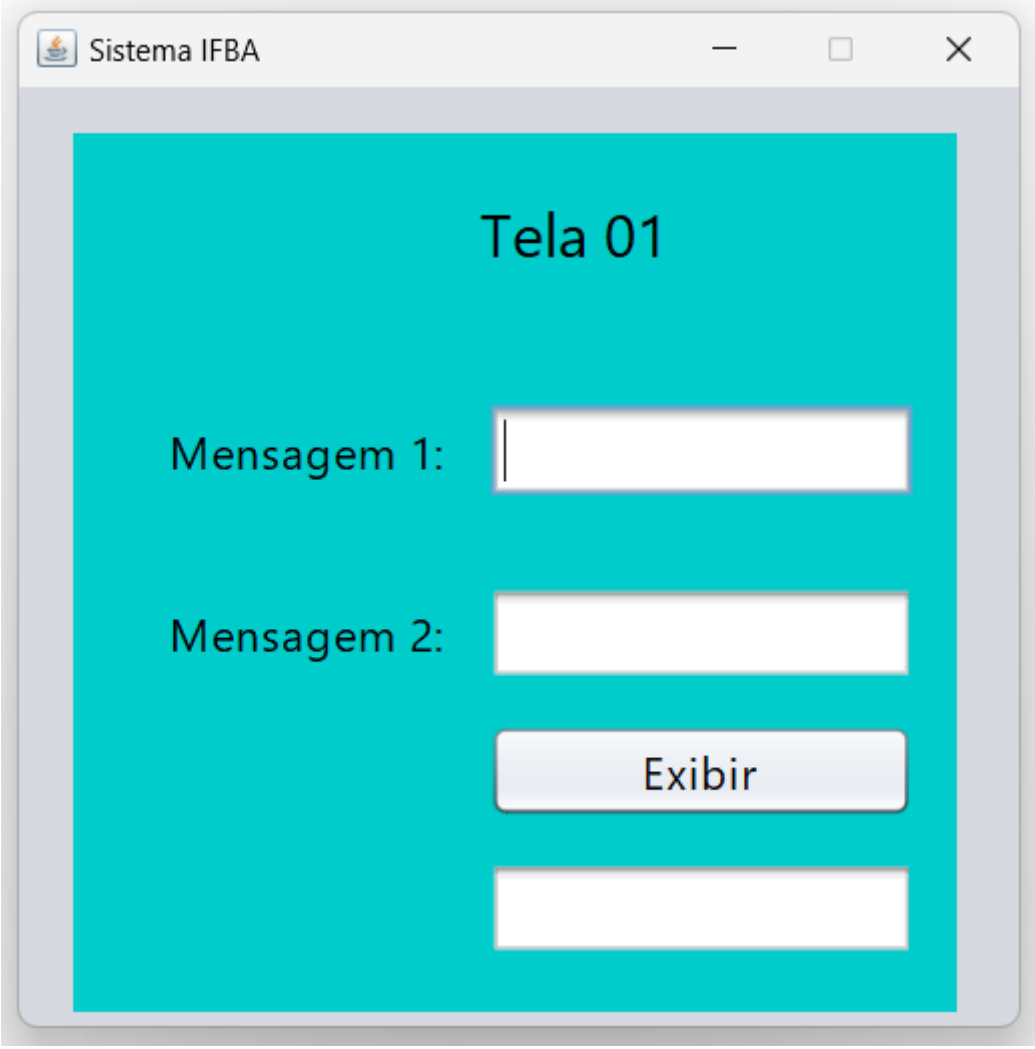
Java Swing – JButton – Adicionar Ação

```
import javax.swing.JOptionPane;
```

Java Swing – JButton – Adicionar Ação

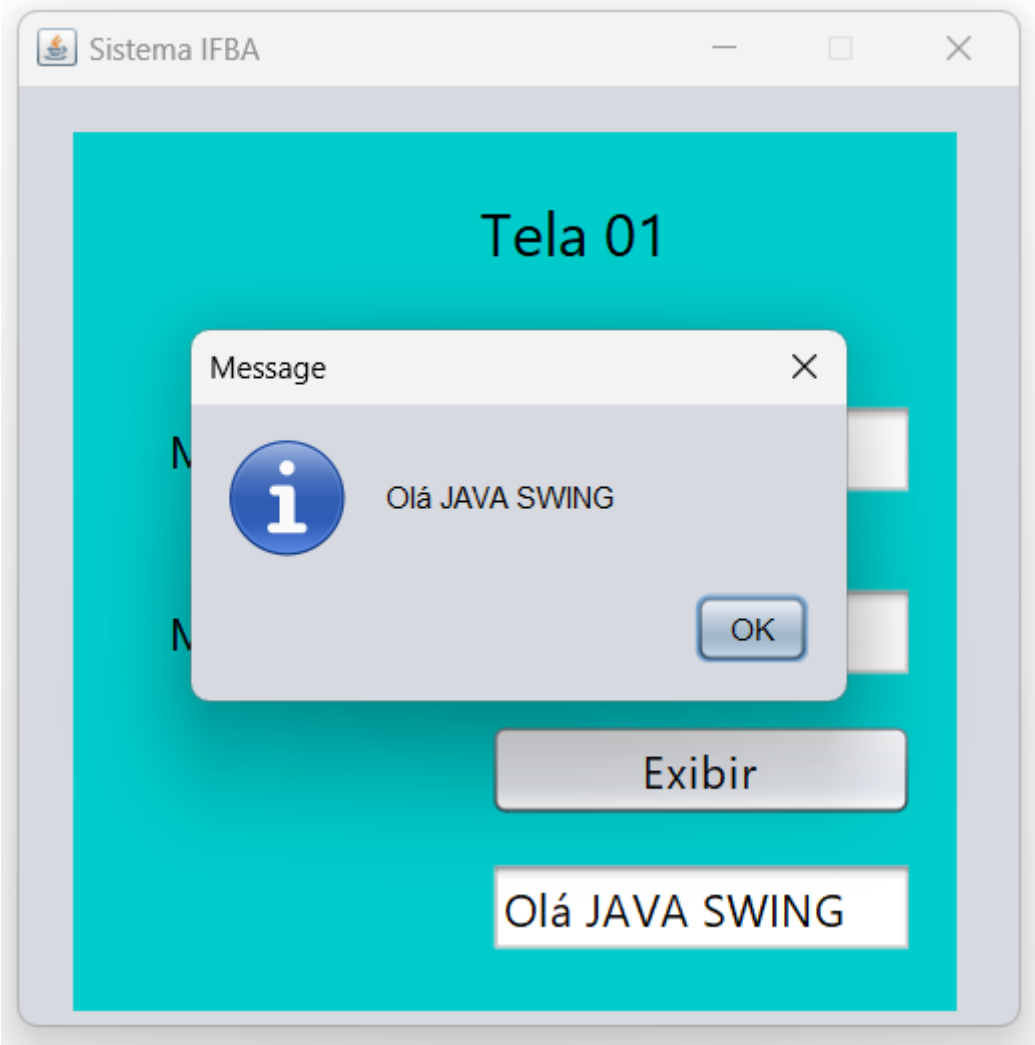
```
private void btnExibirActionPerformed(java.awt.event.ActionEvent evt) {

    String mensagem1 = txtMensagem1.getText();
    String mensagem2 = String.valueOf(txpMensagem2.getPassword());

    String mensagemFinal = mensagem1 + " " + mensagem2;

    txtMensagemFinal.setText(mensagemFinal);

    JOptionPane.showMessageDialog(this, mensagemFinal);

}
```

Java Swing – JButton – Execução

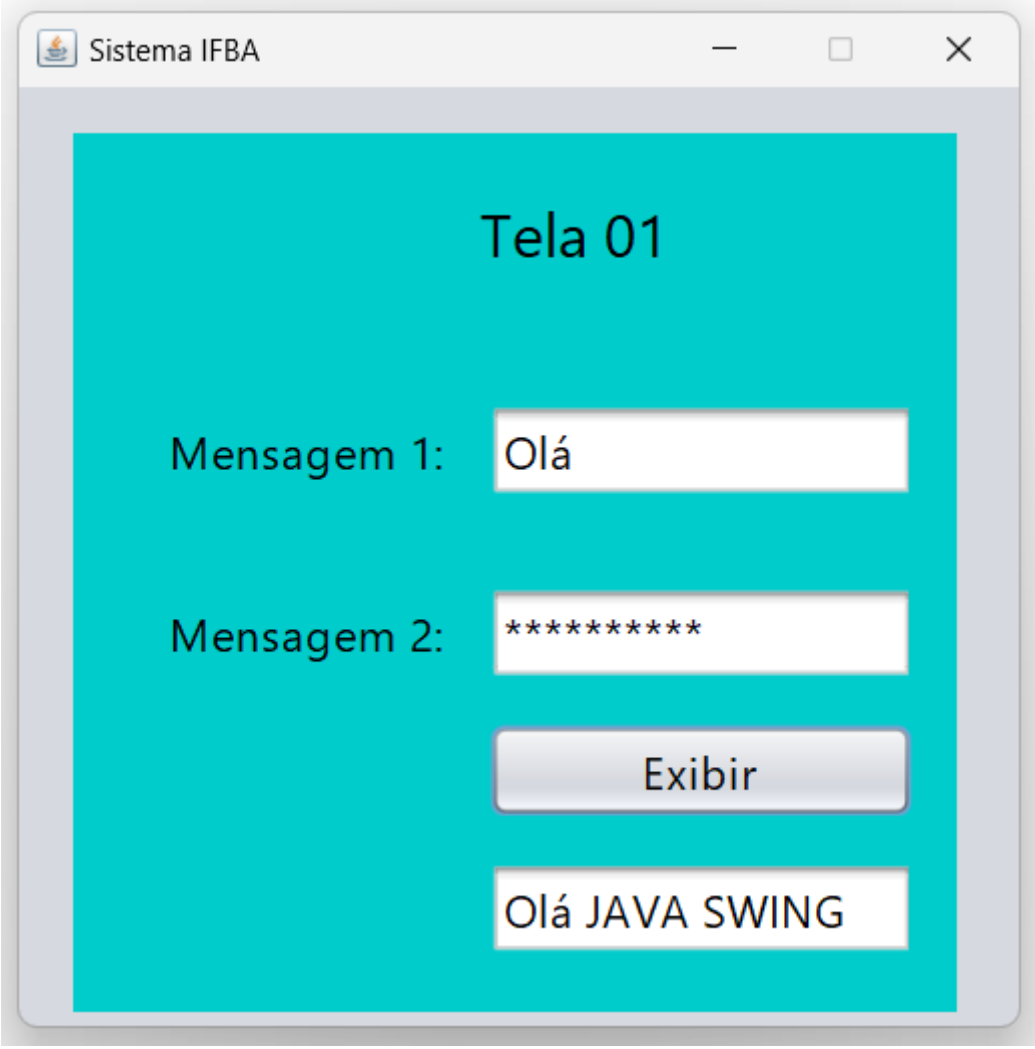


Java Swing – JButton – Execução

Java Swing – JButton – Execução



Java Swing – JButton – Execução

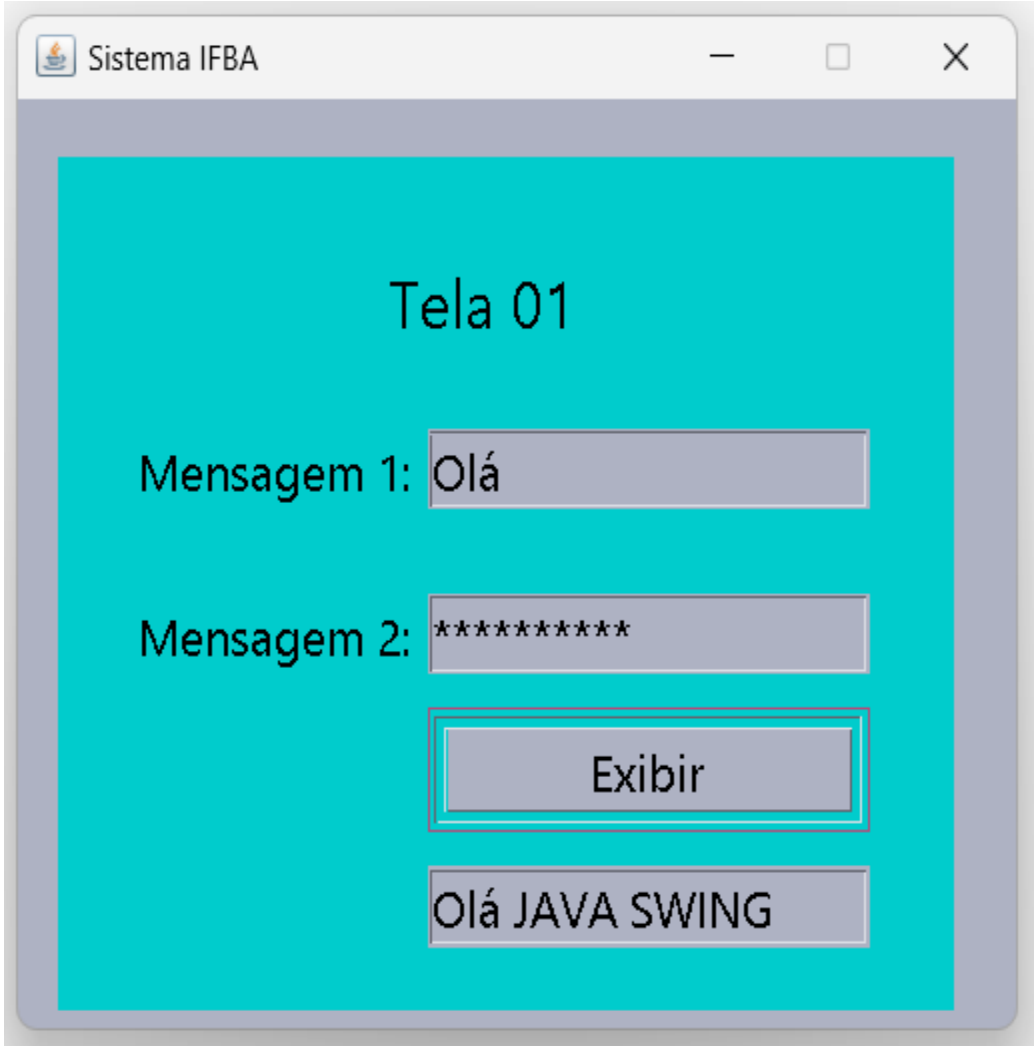


Java Swing – Troca de Tema (Aparência)

```
if ("Nimbus".equals(info.getName())) {
    javax.swing.UIManager.setLookAndFeel(info.getClassName());
    break;
}
```

```
if ("CDE/Motif".equals(info.getName())) {
    javax.swing.UIManager.setLookAndFeel(info.getClassName());
    break;
}
```

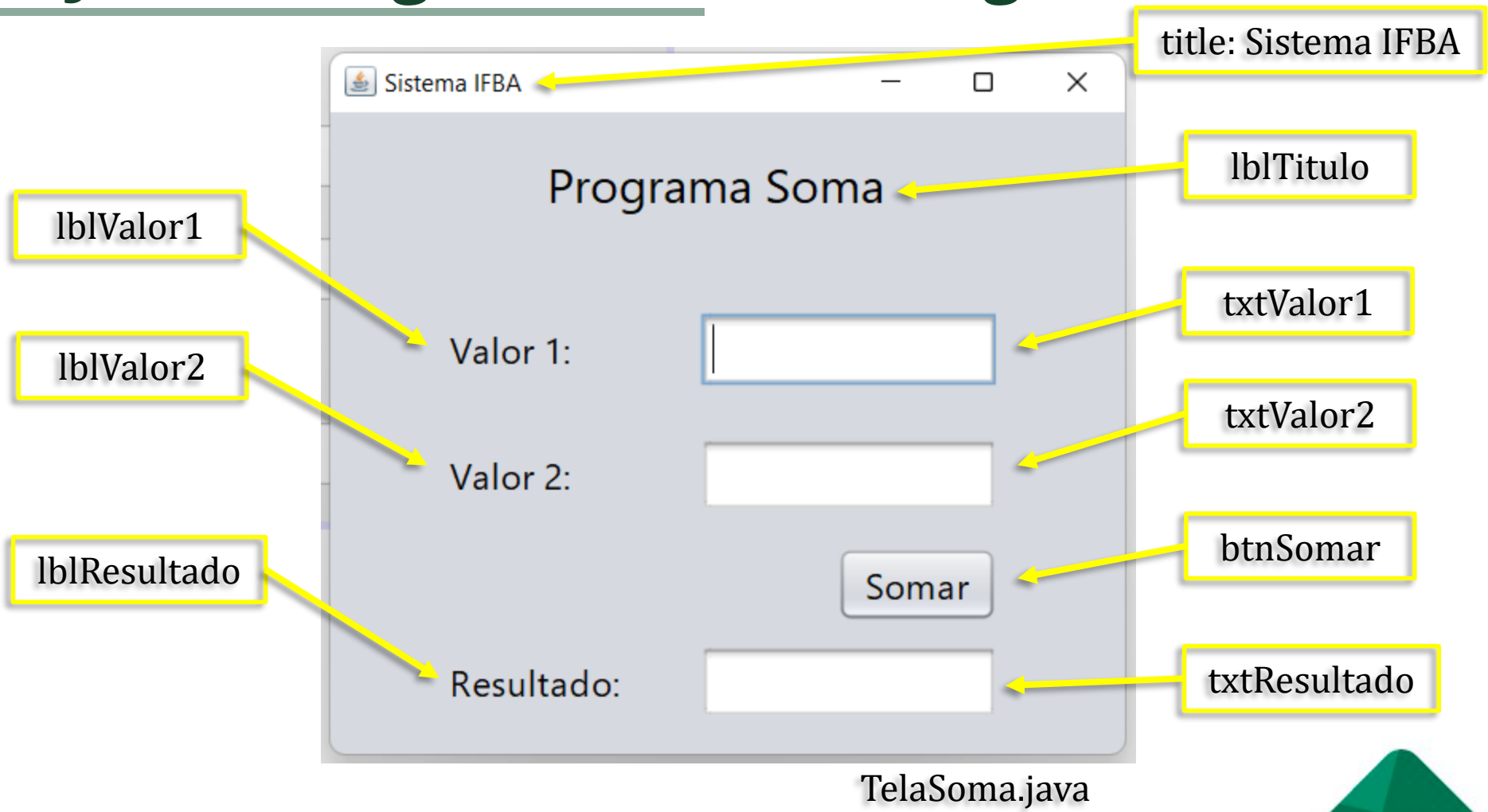
Java Swing – Troca de Tema (Aparência)



Java Swing – Lista de Tema (Aparência)

1. Nimbus
2. Metal
3. CDE/Motif (também conhecido como Motif)
4. Windows
5. Windows Classic
6. GTK (disponível apenas em sistemas Linux)
7. Aqua (disponível apenas em sistemas macOS)
8. Synth
9. Mac
10. Mac OS X
11. Ocean
12. Plastic
13. System

Java Swing – Exercício – Prog. Soma



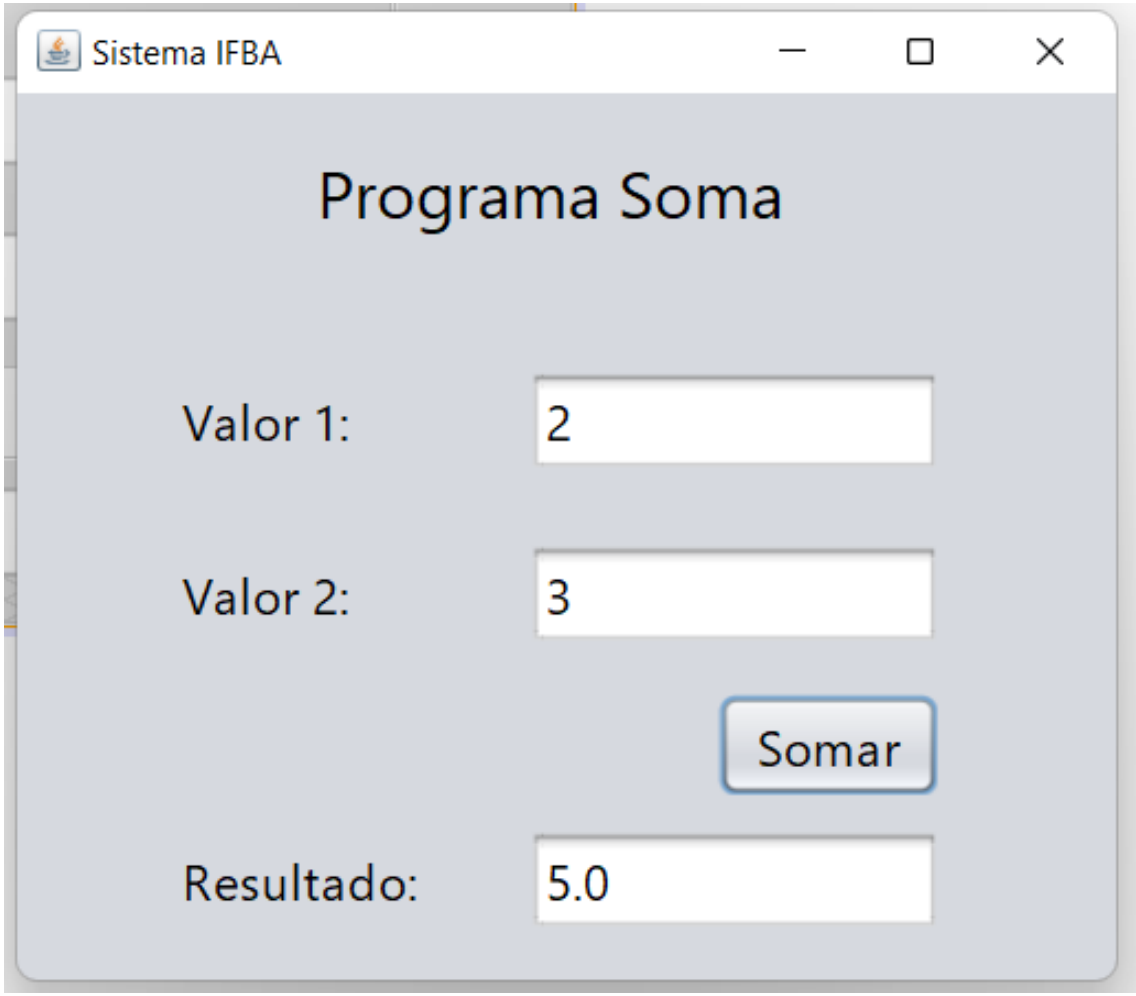
TelaSoma.java

Java Swing – Exercício – Prog. Soma

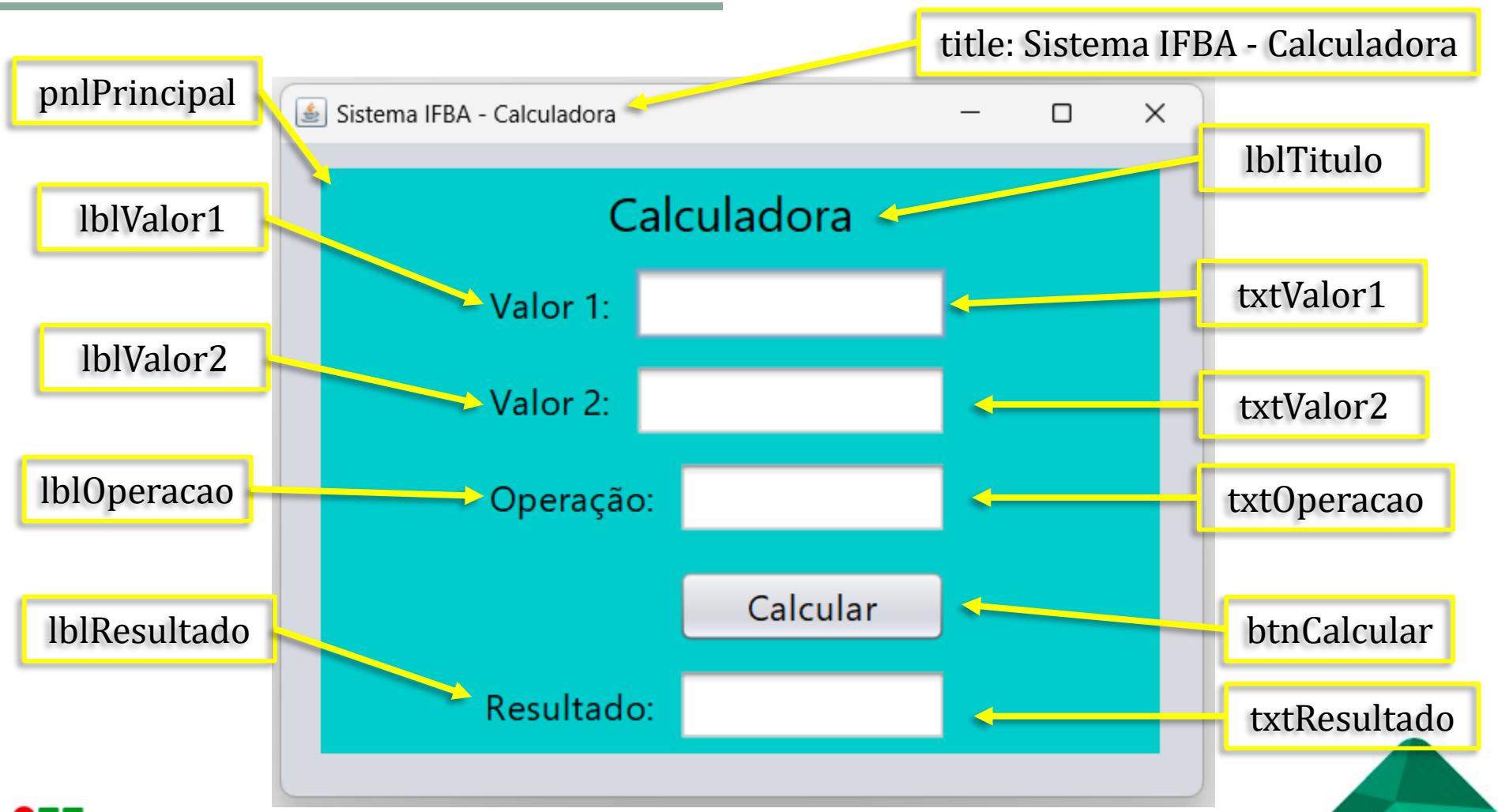
```
private void btnSomarActionPerformed(java.awt.event.ActionEvent evt) {

    double valor1 = Double.parseDouble(txtValor1.getText());

    double valor2 = Double.parseDouble(txtValor2.getText());

    double resultado = valor1 + valor2;

    String strResultado = String.valueOf(resultado);

    txtResultado.setText(strResultado);
}
```

Java Swing – Exercício – Prog. Soma

Execução



Java Swing – Exercício – Prog. Calc.



TelaCalculadora

Java Swing – Exercício – Prog. Calc.

Qual é o código executado ao acionar o botão “Calcular”?

Java Swing – Exercício – Prog. Calc.

Leia valor1 como um número decimal do campo de texto txtValor1.

Leia valor2 como um número decimal do campo de texto txtValor2.

Leia operacao como uma string do campo de texto txtOperacao.

Declare resultado como um número decimal e inicialize com 0.0.

Se operacao for igual a "+":

atribua a resultado a soma de valor1 e valor2.

Senão, se operacao for igual a "-":

atribua a resultado a diferença entre valor1 e valor2.

Senão, se operacao for igual a "*":

atribua a resultado o produto de valor1 e valor2.

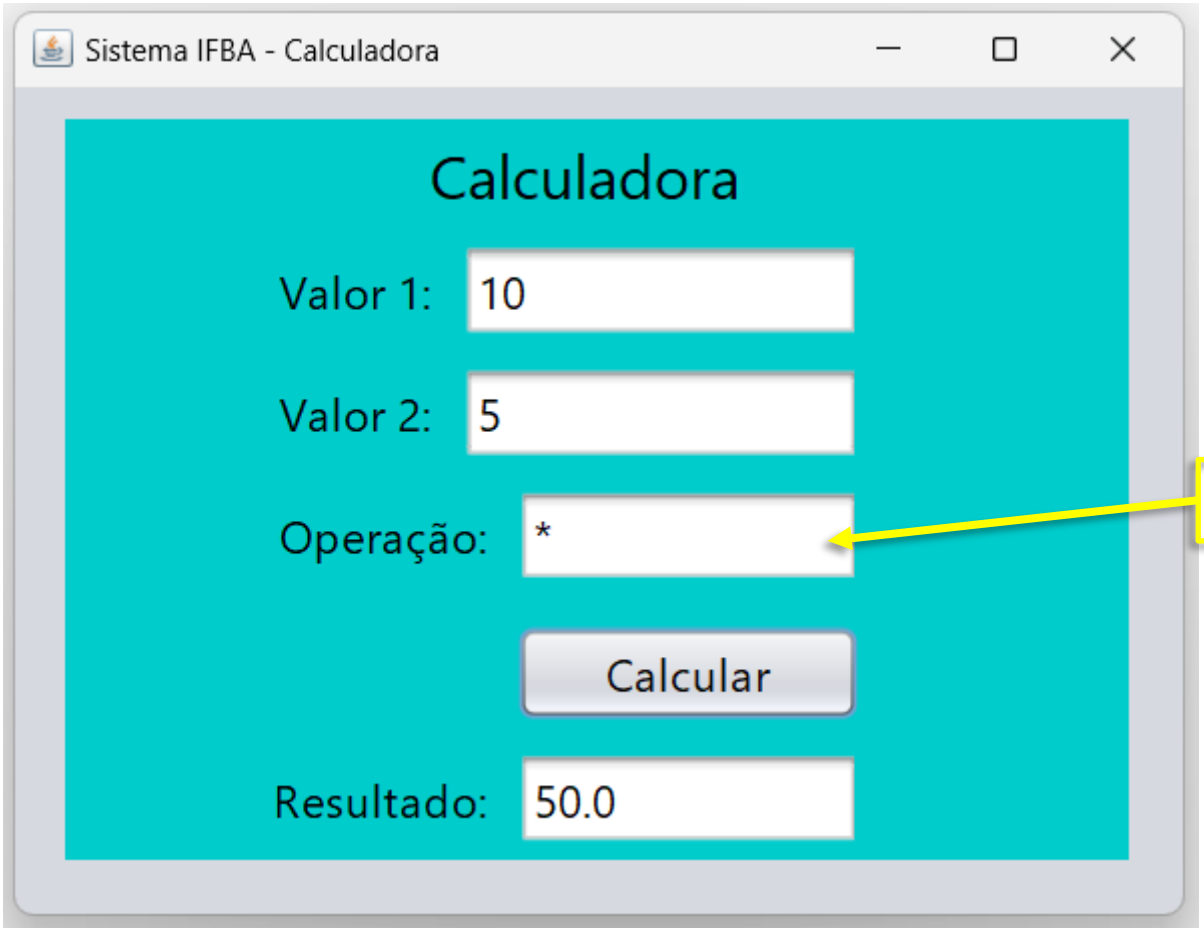
Senão, se operacao for igual a "/":

atribua a resultado a divisão de valor1 por valor2.

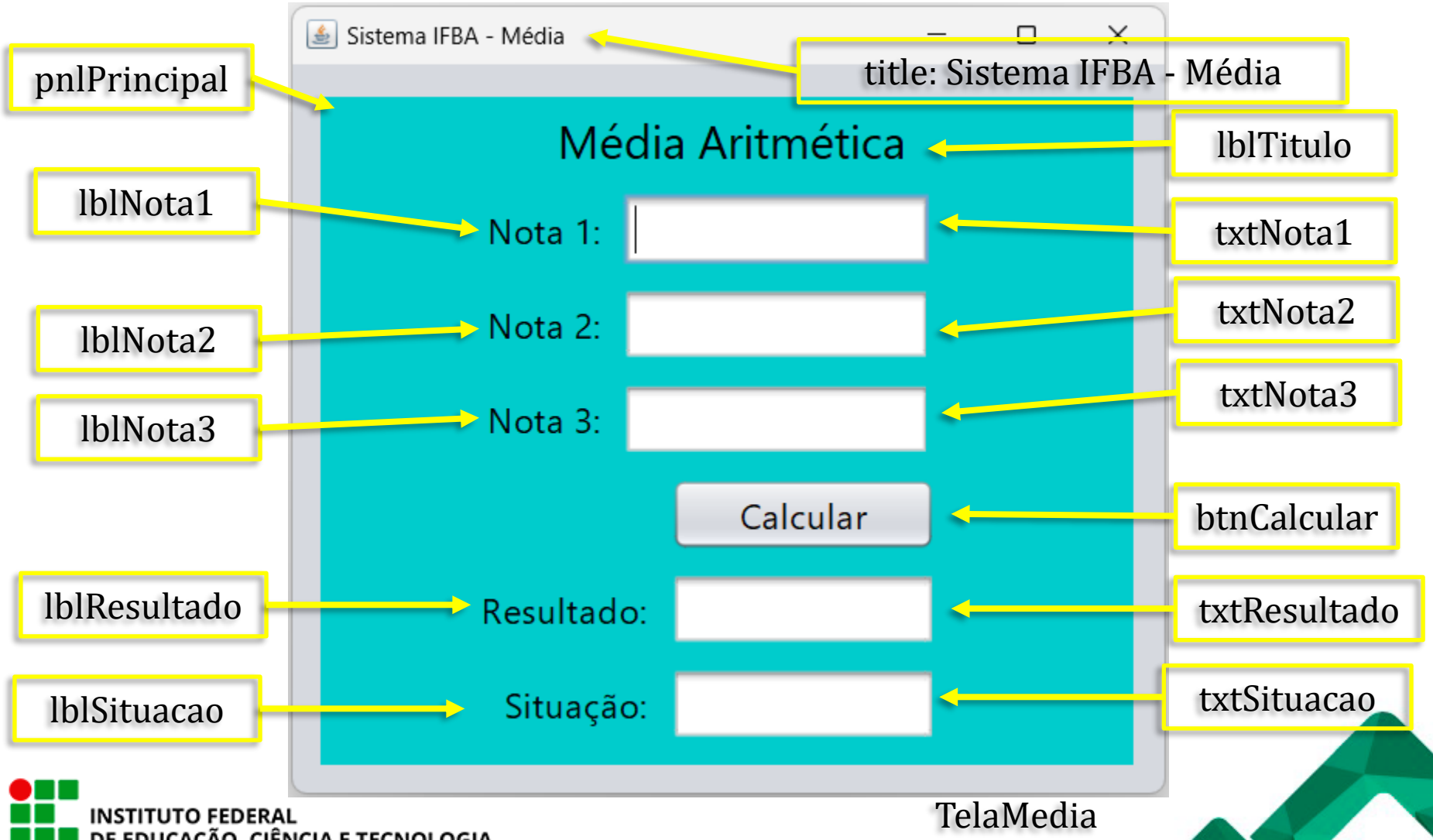
Converta resultado para uma string e atribua ao campo de texto txtResultado.

Java Swing – Exercício – Prog. Calc.

Execução



Java Swing – Exercício – Prog. Média



TelaMedia

Java Swing – Exercício – Prog. Média

Qual é o código executado ao acionar o botão “Calcular”?

Java Swing – Exercício – Prog. Média

Leia nota1 como um número decimal do campo de texto txtNota1.

Leia nota2 como um número decimal do campo de texto txtNota2.

Leia nota3 como um número decimal do campo de texto txtNota3.

Calcule a média como a soma de nota1, nota2 e nota3 dividido por 3.

Declare situacao como uma string.

Se a média for maior ou igual a 6.0:

atribua "Aprovação" a situacao.

Senão:

atribua "Recuperação" a situacao.

Arredonde a média para duas casas decimais.

Converta a média para uma string e atribua ao campo de texto txtResultado.

Atribua a situacao ao campo de texto txtSituacao.

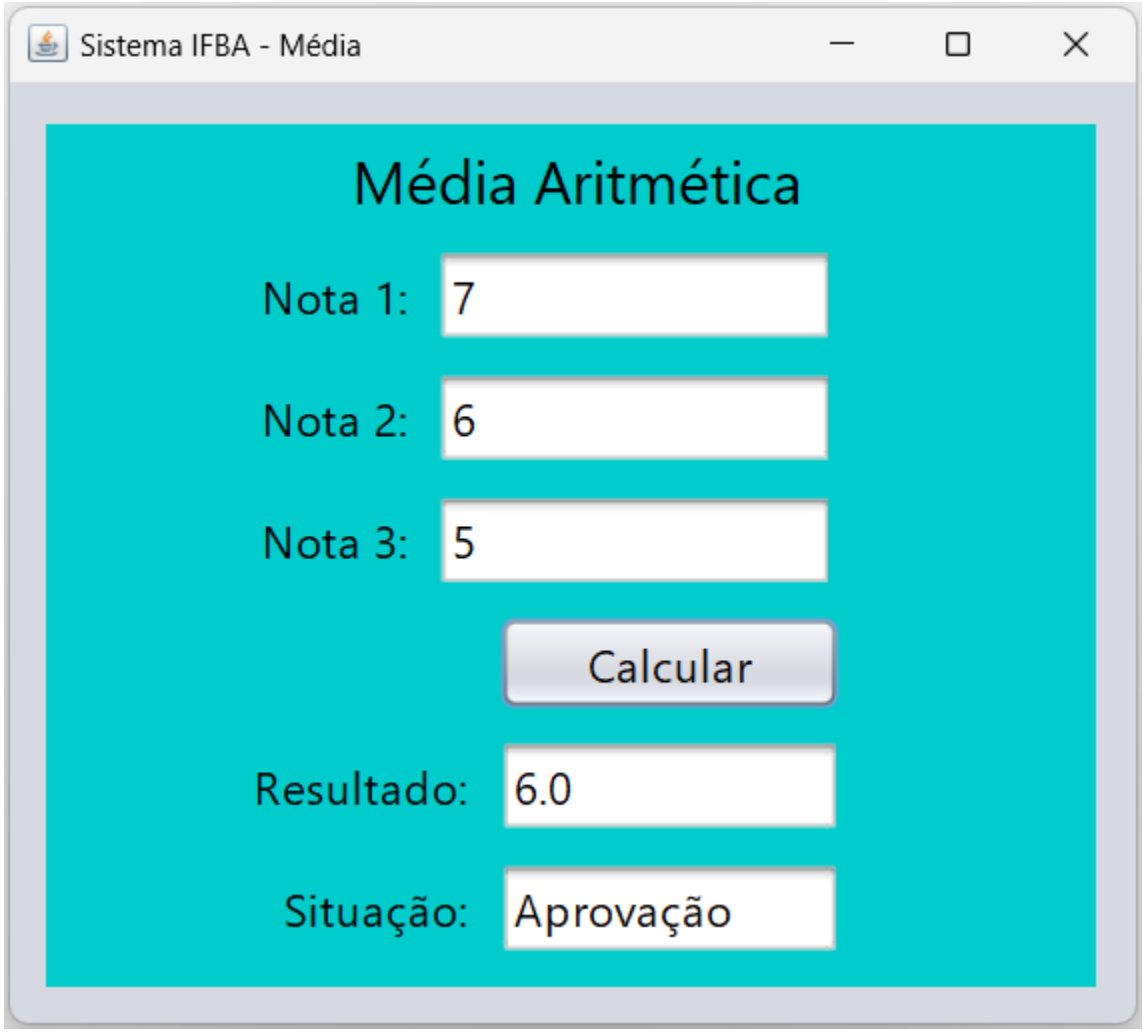
Java Swing – Exercício – Prog. Média

Arredondar o valor da variável “media” do tipo double para duas casas decimais:

```
media = Math.floor(media * 100) / 100;
```

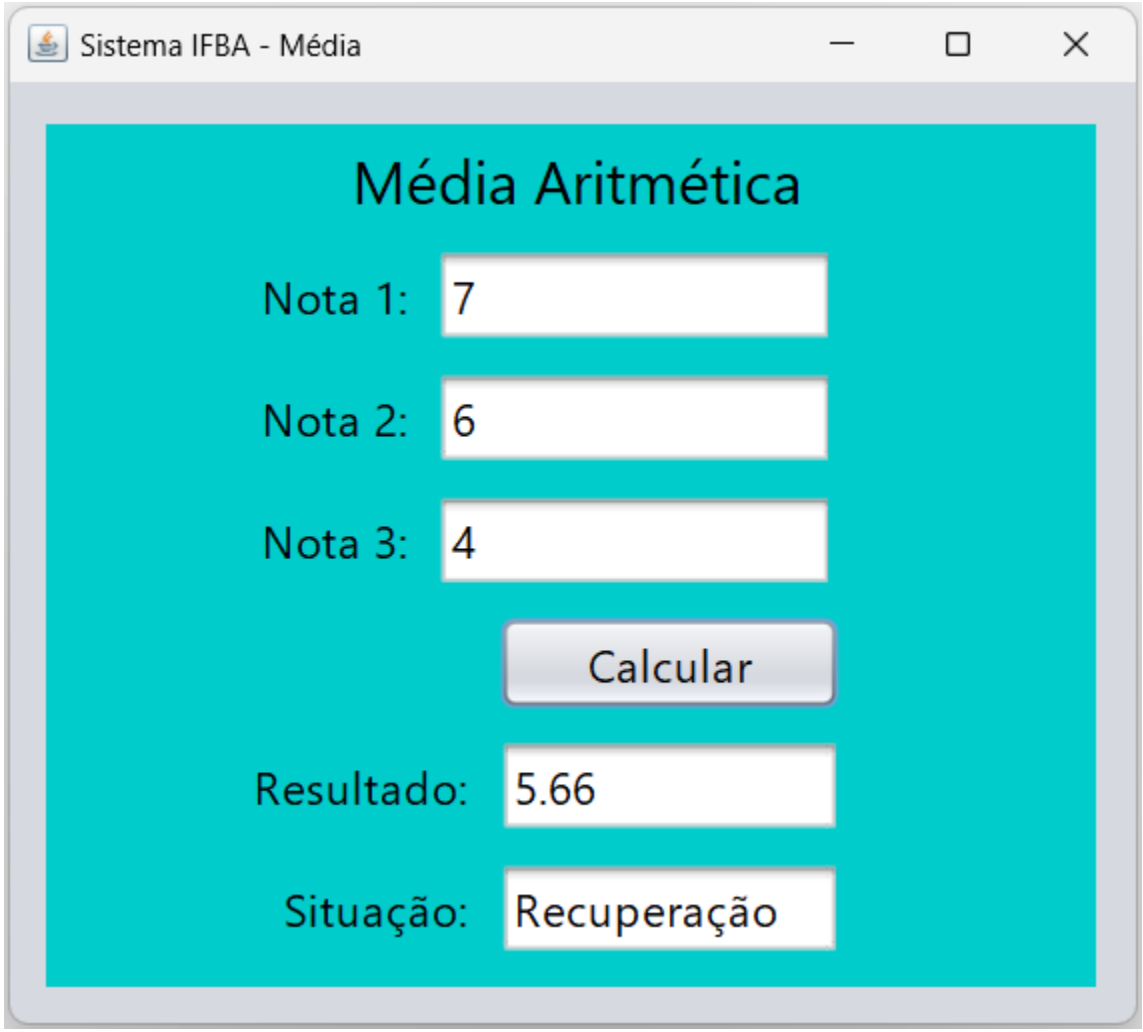
Java Swing – Exercício – Prog. Média

Execução

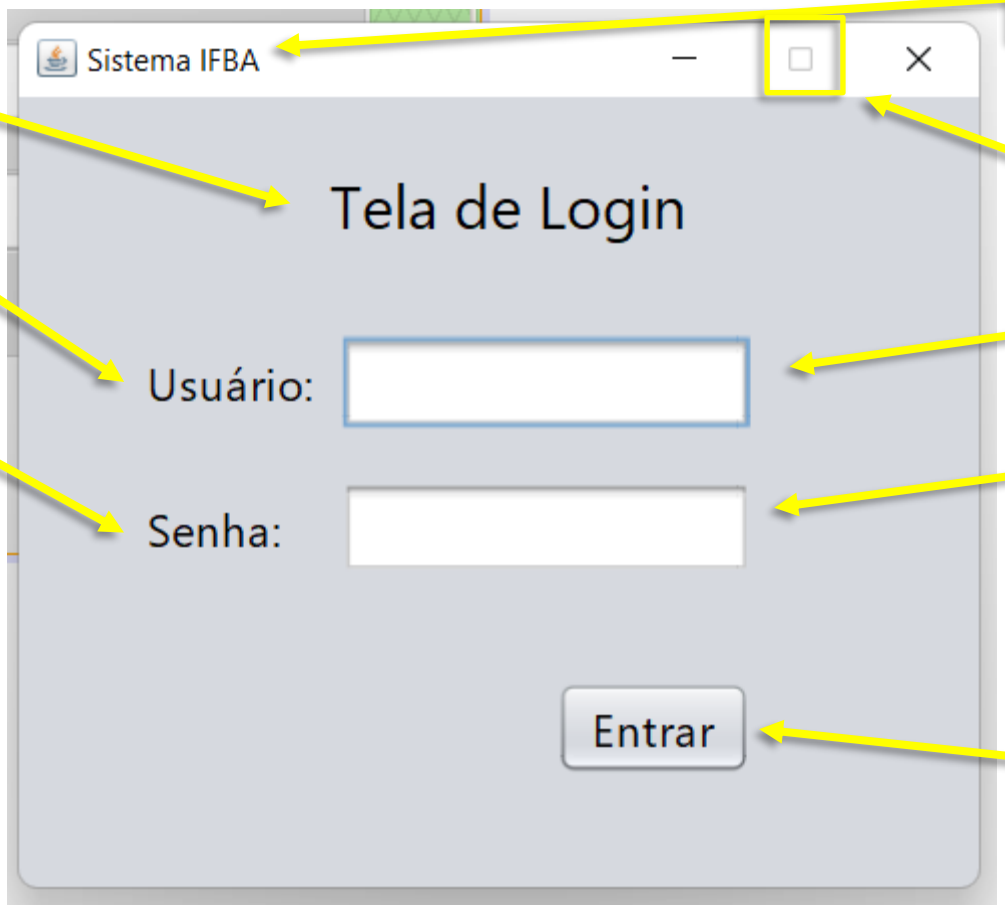


Java Swing – Exercício – Prog. Média

Execução



Java Swing – Exercício – Prog. Login



title: Sistema IFBA

lblTitulo

resizable : false

lblUsuario

txtUsuario

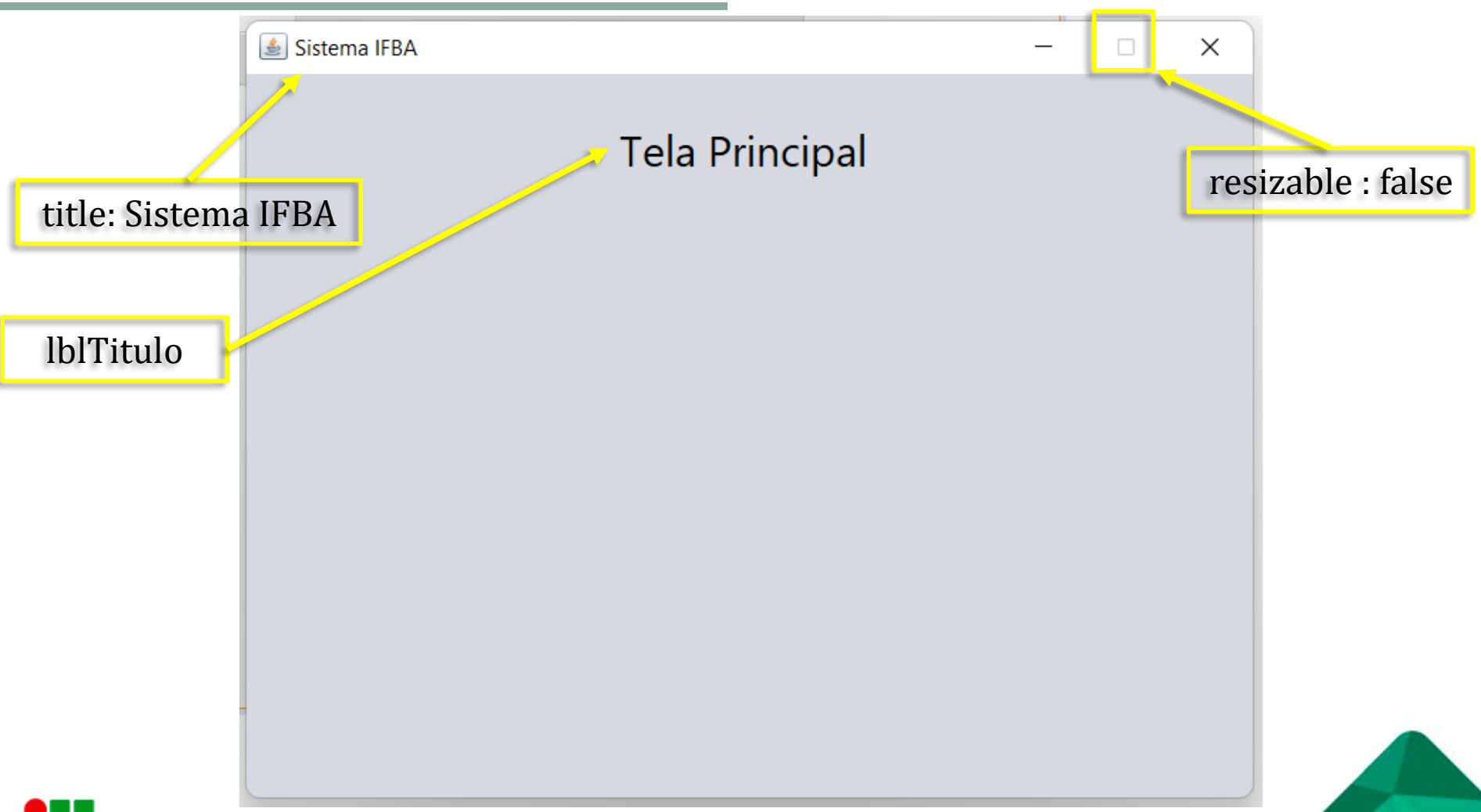
lblSenha

txtSenha

btnEntrar

TelaDeLogin

Java Swing – Exercício – Prog. Principal



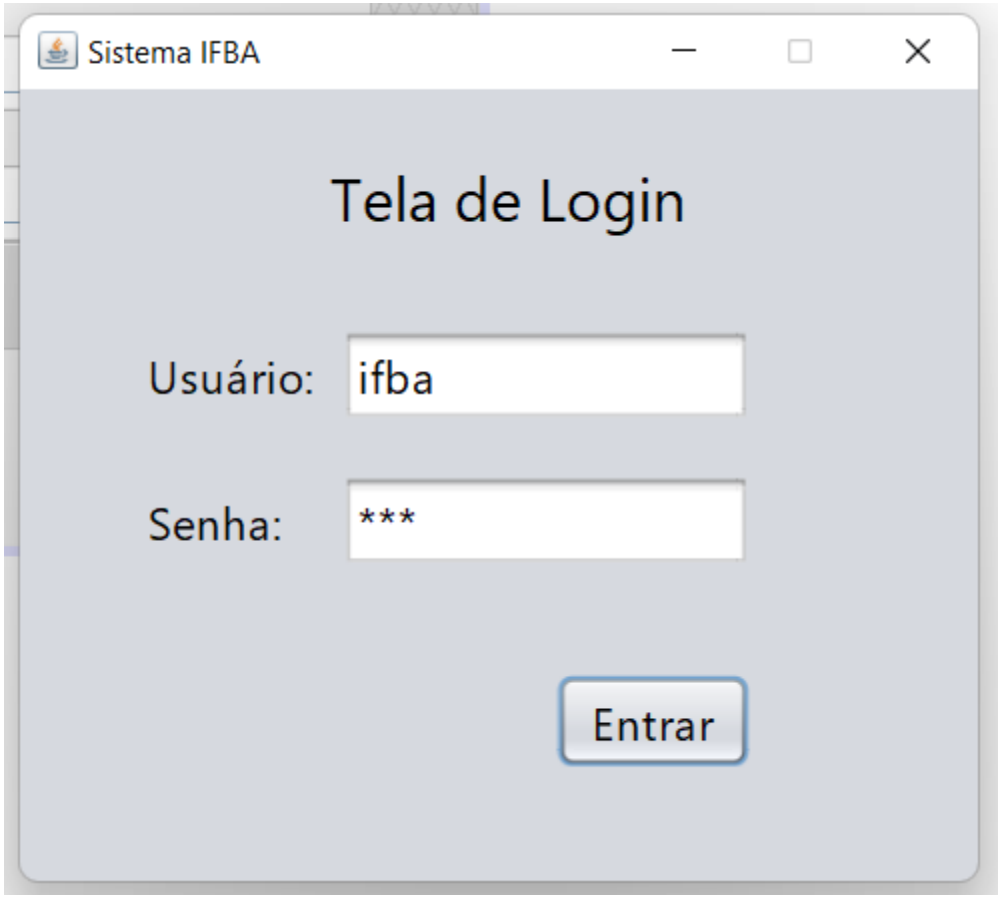
TelaPrincipal

Java Swing – Exercício – Prog. Login

```
private void btnEntrarActionPerformed(java.awt.event.ActionEvent evt) {

    String usuario = txtUsuario.getText();

    String senha = String.valueOf(txpSenha.getPassword());

    if(usuario.equals("ifba") && senha.equals("1234"))
    {
        new TelaPrincipal().setVisible(true);

        this.dispose();
    }
    else
    {
        JOptionPane.showMessageDialog(this, "Acesso negado!");
    }
}
```

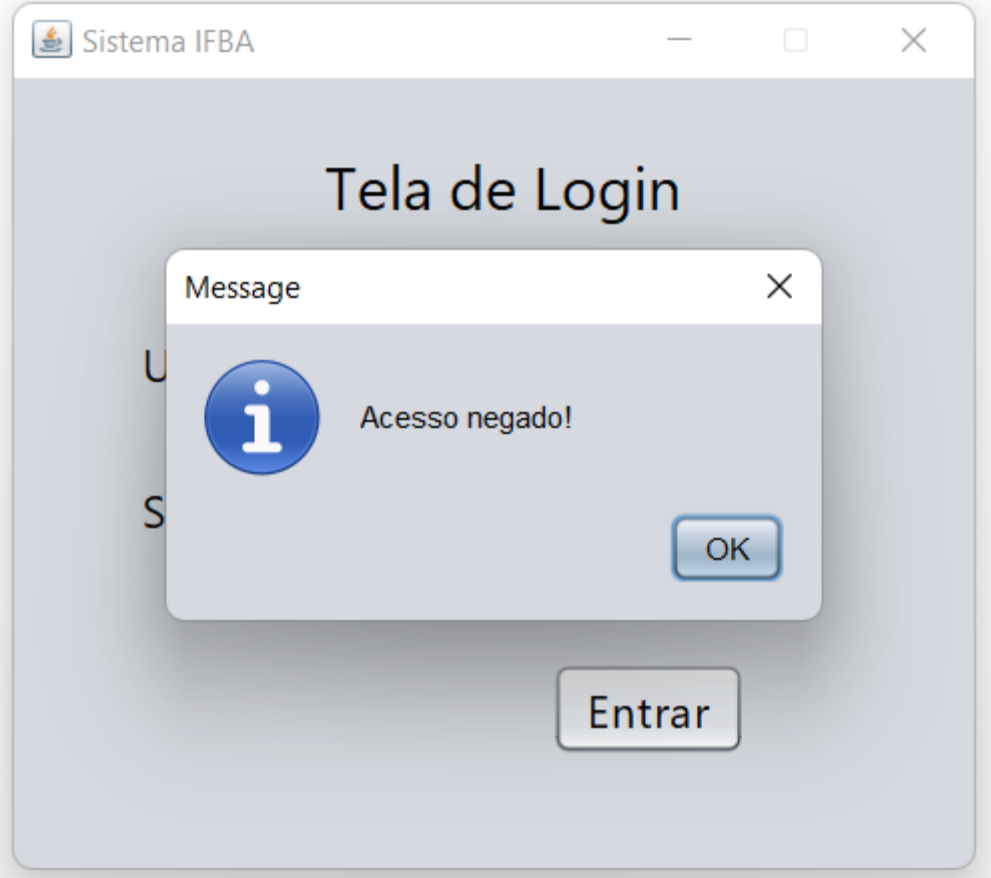
Java Swing – Exercício – Prog. Login

Execução



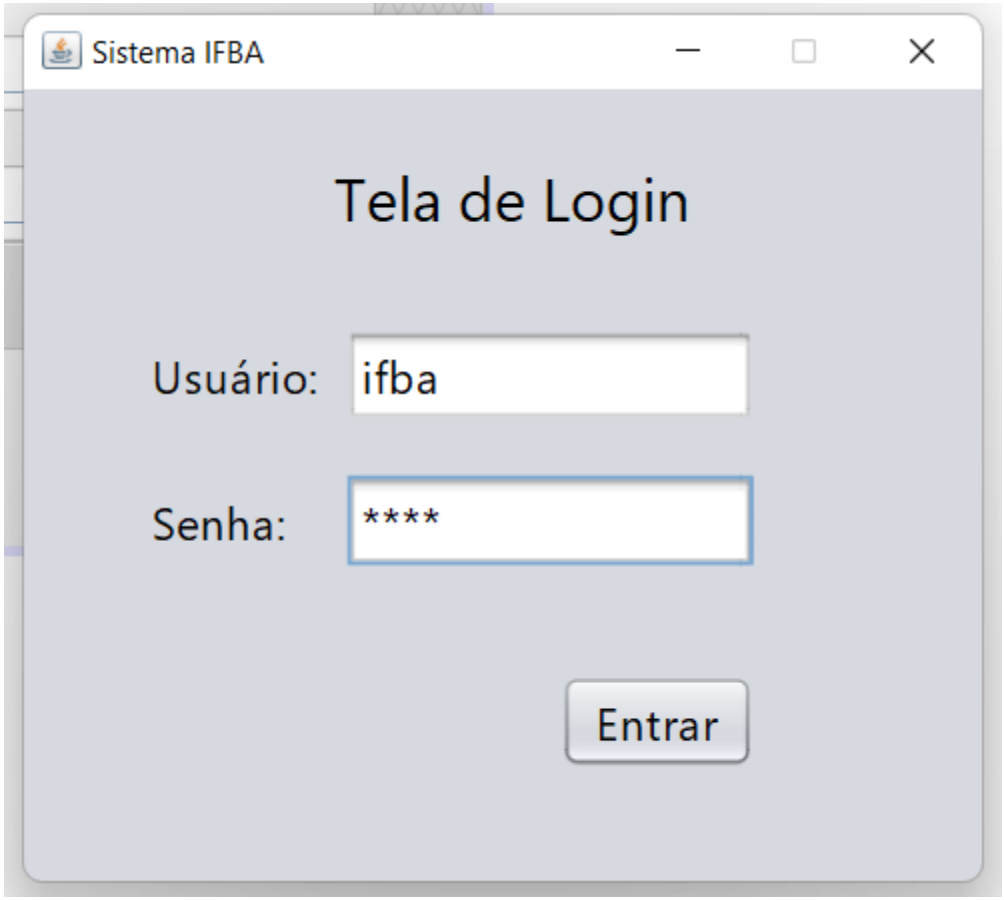
Java Swing – Exercício – Prog. Login

Execução



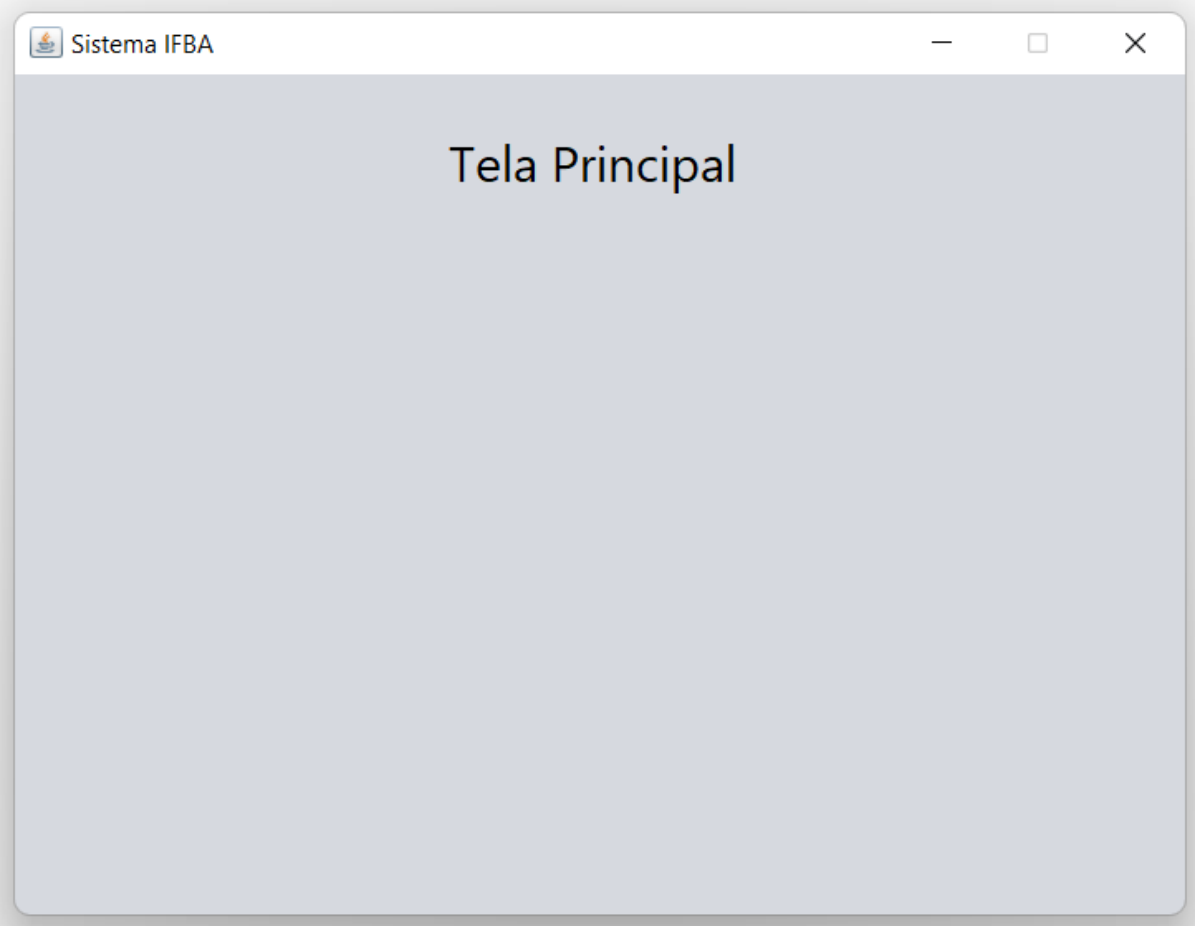
Java Swing – Exercício – Prog. Login

Execução



Java Swing – Exercício – Prog. Login

Execução



Referências

- Junior, Peter Jandl. Java Guia do Programador - 4ª Edição. Novatec Editora.

- SÉRGIO FURGERI. Java Ensino Didático: Desenvolvimento e Implementação de Aplicações. Editora Érica.

- https://www.youtube.com/playlist?list=PLwQkYMetu0OYFOU71txhtvSYTVUCHjJYD

- https://www.youtube.com/playlist?list=PLWd_VnthxxLfeEUK08gB7G3316OS5xIT3

Obrigado!

- Canais de Comunicação;
- Horário de Atendimento.