

Programação Orientada a Objetos

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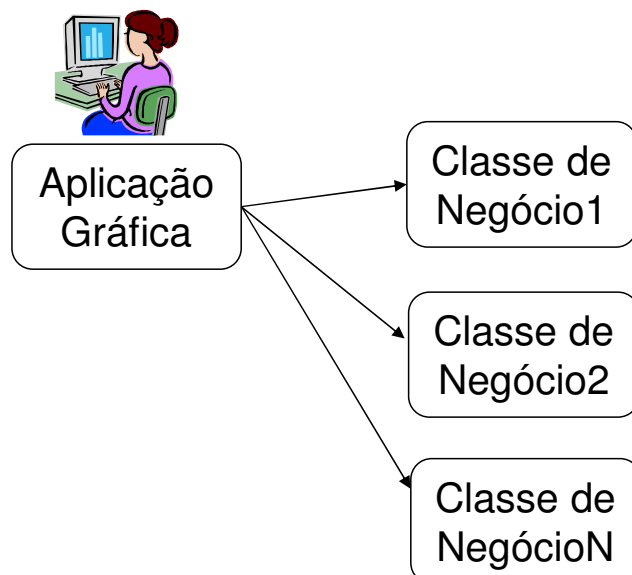
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Aplicação gráfica (parte2)

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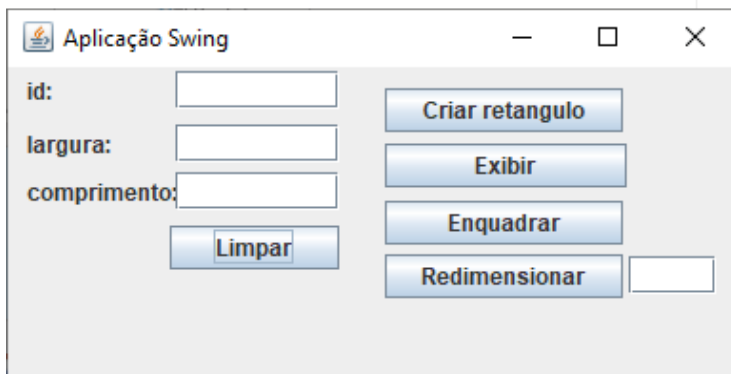
Arquitetura em duas camadas

- A aplicação gráfica interage com o usuário
- A classe de negócio não !



Exemplo 1

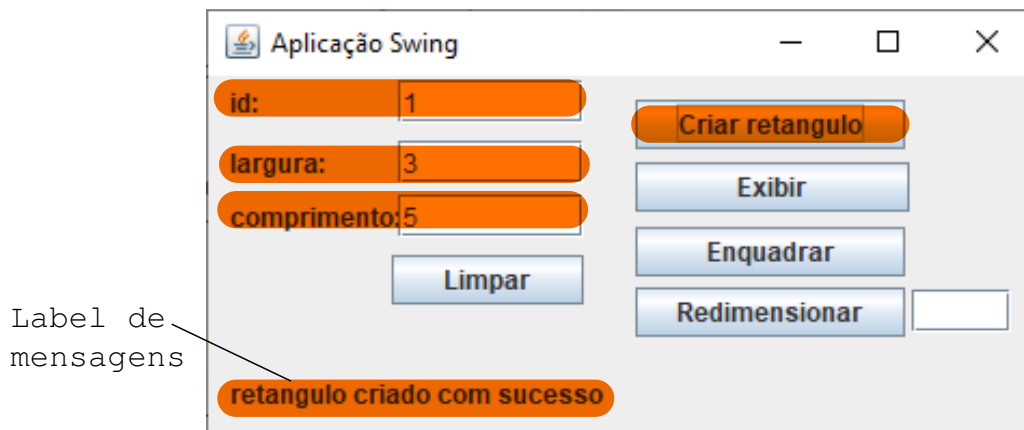
Aplicação Gráfica x Retângulo



```
public class AplicacaoGrafica {  
    private JFrame frame;  
    private JLabel label;  
    private JLabel label_1;  
    private JLabel label_2;  
    private JLabel label_3;  
    private JTextField textField;  
    private JTextField textField_1;  
    private JTextField textField_2;  
    private JTextField textField_3;  
    private JButton button;  
    private JButton button_1;  
    private JButton button_2;  
    private JButton button_3;  
    private JButton button_4;  
    private Retangulo r;
```

O atributo **r** tem visibilidade global e pode ser usado em qualquer lugar da aplicação

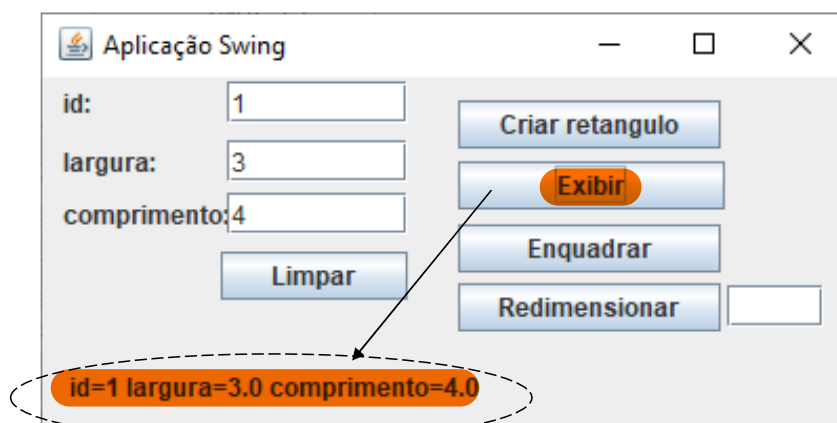
Criar objeto



```
button = new JButton("Criar retângulo");
button.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent arg0) {
        if(textField.getText().isEmpty() || textField_1.getText().isEmpty() || textField_2.getText().isEmpty()) {
            label_2.setText("campo vazio");
            return;
        }
        int id = Integer.parseInt(textField.getText());
        double larg = Double.parseDouble(textField_1.getText());
        double comp = Double.parseDouble(textField_2.getText());
        r = new Retangulo(id, larg, comp);
        label_2.setText("retângulo criado com sucesso");
    }
}
```

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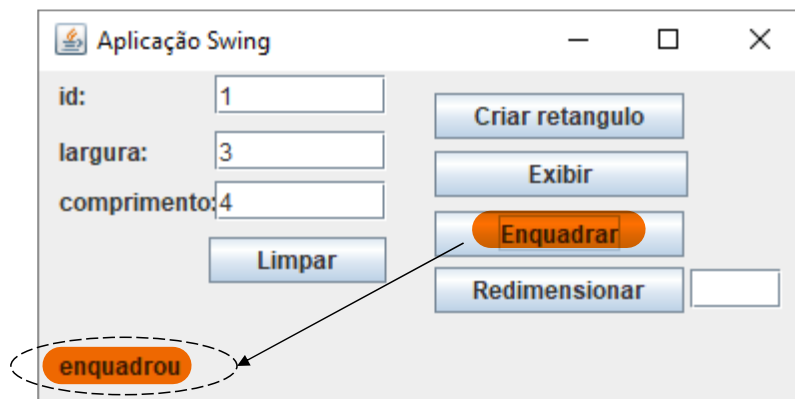
Exibir objeto



```
button_1 = new JButton("Exibir");
button_1.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e) {
        if(r==null)
            label_2.setText("crie um retângulo");
        else
            label_2.setText(r.toString());
    }
});
```

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Enquadrar

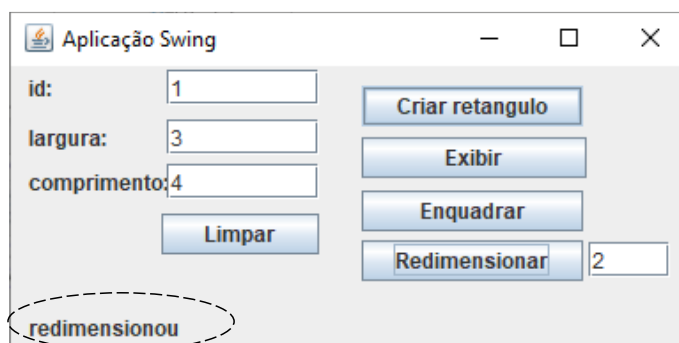


```
button_3 = new JButton("Enquadrar");
button_3.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e) {
        if(r==null)
            label_2.setText("crie um retângulo");
        else {
            r.enquadrar();
            label_2.setText("enquadrrou");
        }
    }
});
```

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Redimensionar



```
button_4 = new JButton("Redimensionar");
button_4.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e) {
        if(textField_3.getText().isEmpty() ) {
            label_2.setText("campo vazio");
            return;
        }
        double fator = Double.parseDouble(textField_3.getText());
        if(r==null)
            label_2.setText("crie um retângulo");
        else {
            r.redimensionar(fator);
            label_2.setText("redimensionou");
        }
    }
});
```



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Exibir objeto

Aplicação Swing

id: 1

largura: 3

comprimento: 4

Limpar

Criar retangulo

Exibir

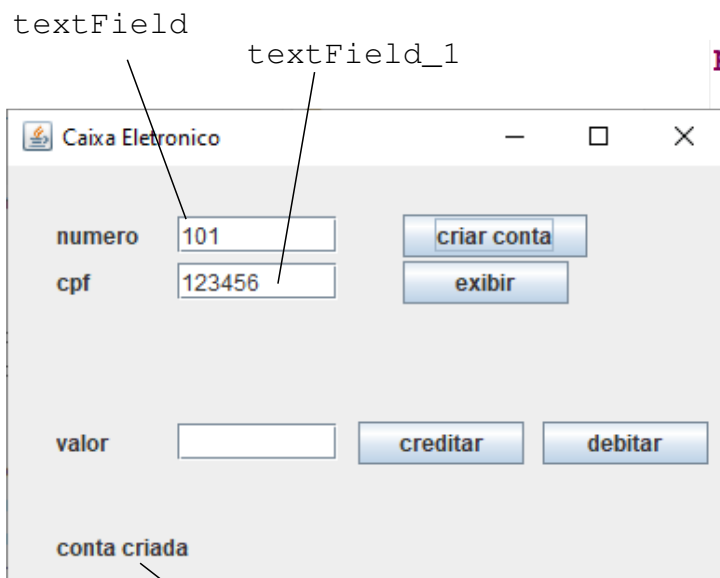
Enquadrar

Redimensionar 2

id=1 largura=7.0 comprimento=7.0

Exemplo 2

Aplicação Gráfica x Conta



Label de mensagens

```
public class AplicacaoGrafica {  
    private JFrame frame;  
    private JTextField textField;  
    private JTextField textField_1;  
    private JTextField textField_2;  
    private JLabel label;  
    private JLabel label_1;  
    private JLabel label_2;  
    private JLabel label_3;  
    private JButton button;  
    private JButton button_1;  
    private JButton button_2;  
    private JButton button_3;
```

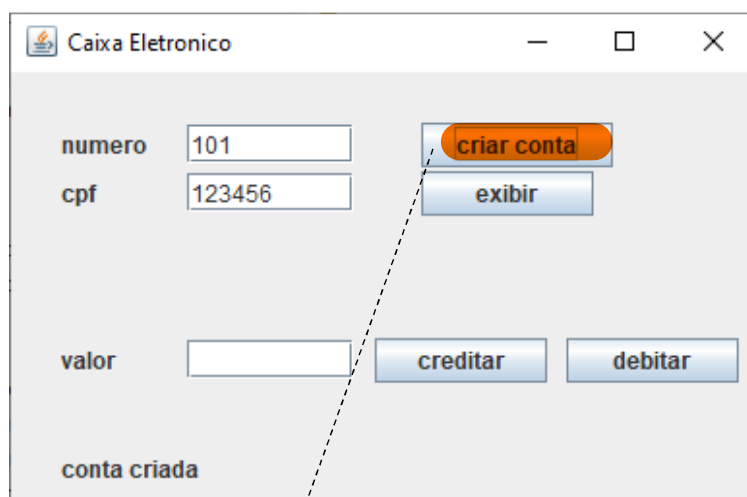
```
    private Conta conta;
```

O atributo **conta** tem visibilidade global e pode ser usado em qualquer lugar da aplicação

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Criar objeto



```
String num = textField.getText();  
String cpf = textField_1.getText();  
conta = new Conta(num, cpf);  
label_3.setText("conta criada ");
```

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Creditar

The screenshot shows a Java Swing window titled 'Caixa Eletronico'. It contains three text input fields: 'numero' with the value '101', 'cpf' with '123456', and 'valor' with '100'. To the right of the 'numero' and 'cpf' fields are two buttons: 'criar conta' and 'exibir'. Below the 'valor' field are two buttons: 'creditar' and 'debitar'. The 'creditar' button is highlighted with an orange background. A dashed arrow points from the 'creditar' button to the code block below. At the bottom of the window, a label displays the text 'credito efetuado com sucesso'.

```
double valor = Double.parseDouble(textField_2.getText());  
conta.creditar(valor);  
label_3.setText("credito efetuado com sucesso");
```

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Debitar

The screenshot shows the same 'Caixa Eletronico' window. The 'numero' field is '101', 'cpf' is '123456', and 'valor' is '150'. The 'debitar' button is highlighted with an orange background. A dashed arrow points from the 'debitar' button to the code block below. The label at the bottom of the window displays the text 'quantia incorreta para debitar: 150.0'.

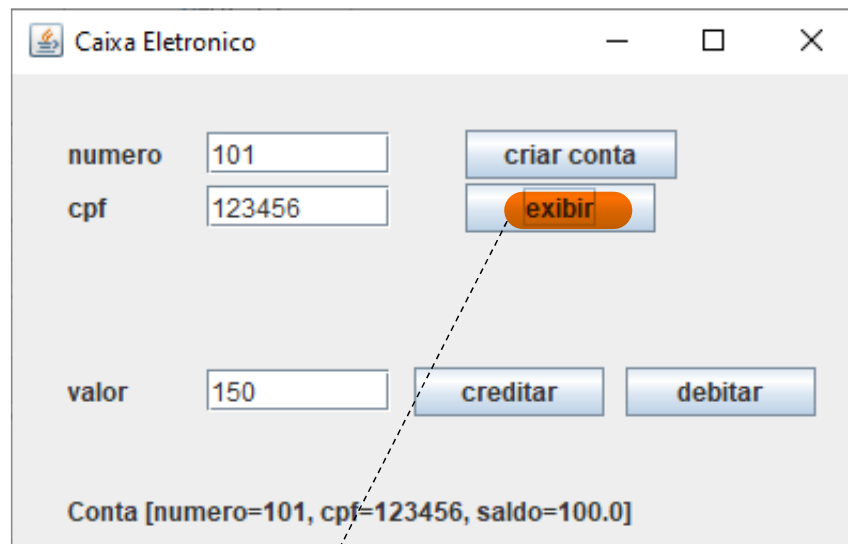
```
double valor = Double.parseDouble(textField_2.getText());  
try {  
    conta.debitar(valor);  
    label_3.setText("debito efetuado com sucesso");  
} catch (Exception e1) {  
    label_3.setText(e1.getMessage());  
}
```

Tratamento de
exceção

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Exibir objeto



Caixa Eletronico

numero 101

cpf 123456

valor 150

criar conta

exibir

creditar

debitar

Conta [numero=101, cpf=123456, saldo=100.0]

```
public void actionPerformed(ActionEvent e) {  
    if(conta==null)  
        label_3.setText("conta inexistente");  
    else  
        label_3.setText(conta.toString());  
}
```

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