

Programação Orientada a Objetos

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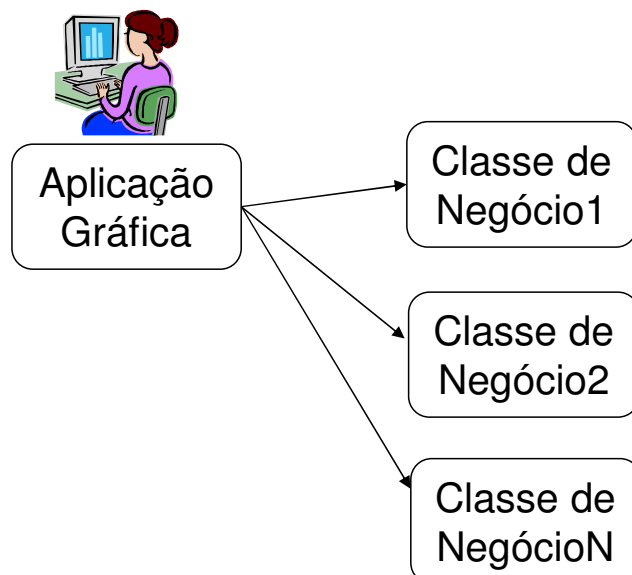
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Aplicação gráfica (parte2)

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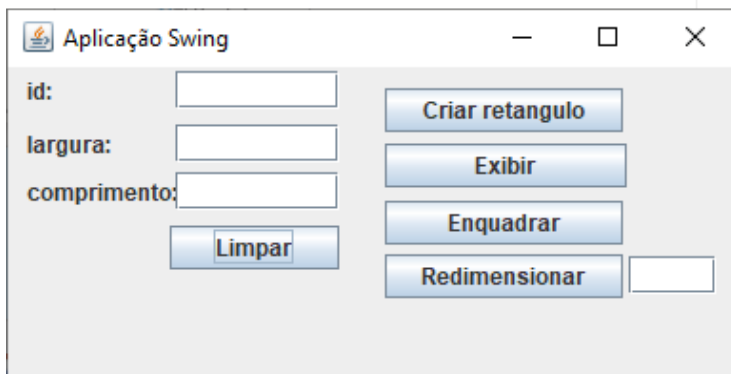
Arquitetura em duas camadas

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



Exemplo 1

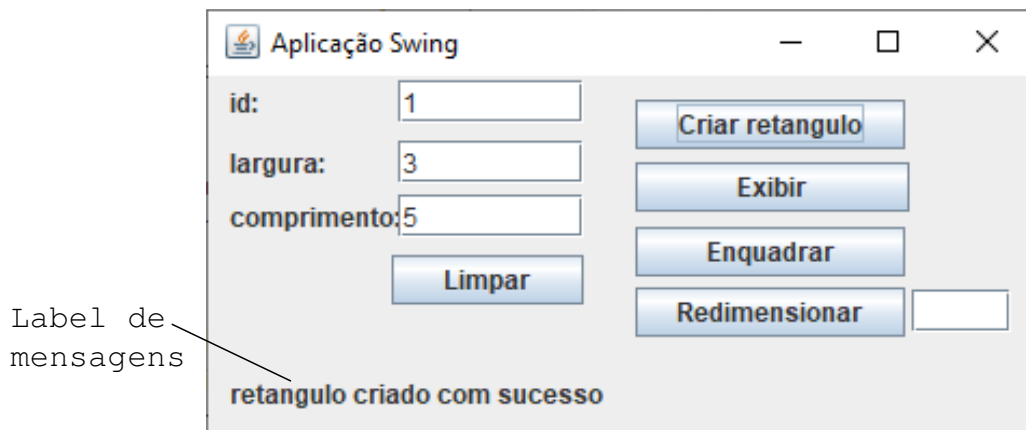
Aplicação Gráfica x Retângulo



```
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

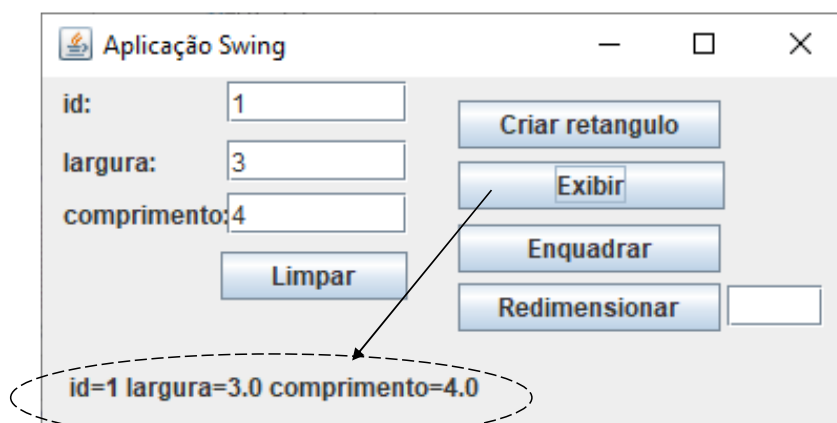
Criar objeto



```
button = new JButton("Criar retangulo");
button.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent arg0) {
        if(textField.getText().isEmpty() || textField_1.getText().isE
        || 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("retangulo criado com sucesso");
    }
}
```

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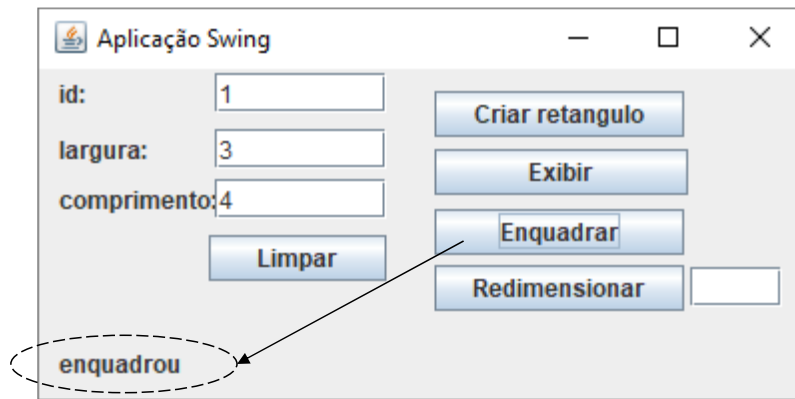
Exibir objeto



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

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Enquadrar

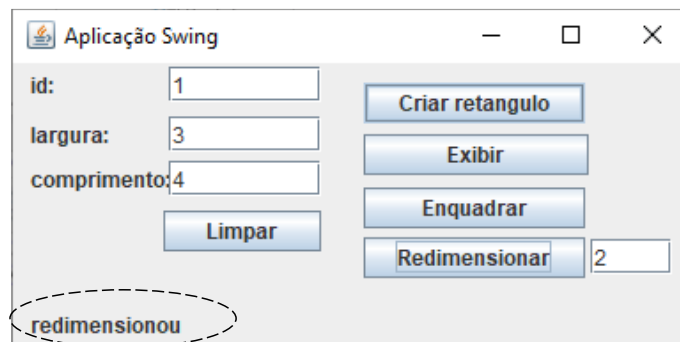


```
button_3 = new JButton("Enquadrar");
button_3.addActionListener(new ActionListener() {
    public void actionPerformed(ActionEvent e) {
        if(r==null)
            label_2.setText("crie um retangulo");
        else {
            r.enquadrar();
            label_2.setText("enquadrrou");
     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

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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 retangulo");
        else {
            r.redimensionar(fator);
            label_2.setText("redimensionou");
        }
    }
});
```

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Exibir objeto

Aplicação Swing

id: 1

largura: 3

comprimento: 4

Limpar

Criar retângulo

Exibir

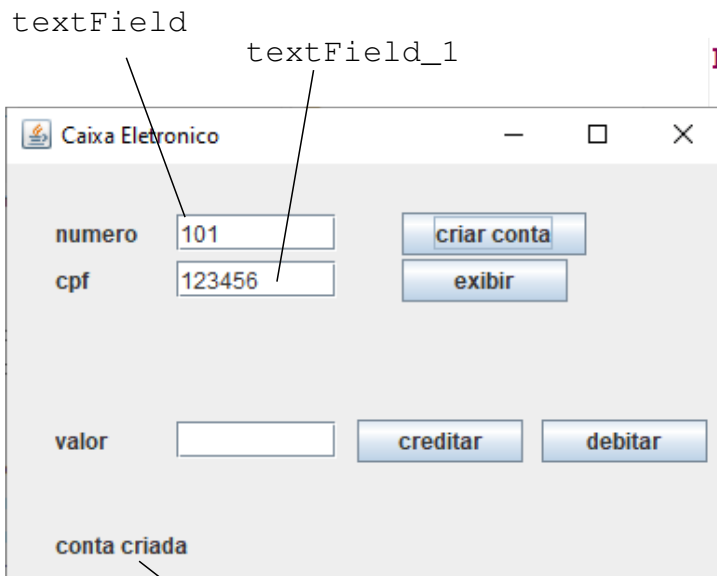
Enquadrar

Redimensionar 2

id=1 largura=7.0 comprimento=7.0

Exemplo 2

Aplicação Gráfica x Conta



Label de mensagens

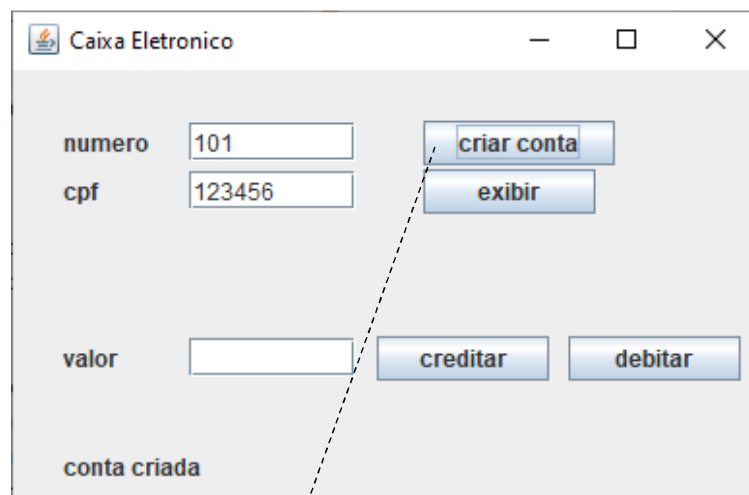
```
public class AplicacaoGrafica {  
    private JFrame frame;  
    private JTextField textField;  
    private JTextField textField_1;  
    private JTextField textField_2;  
    private JLabel label;  
    private JLabel label_1;  
    private JLabel label_2;  
    private JLabel label_3;  
    private 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 first two fields are buttons labeled "criar conta" and "exibir". Below the "valor" field are two buttons, "creditar" and "debitar". The "creditar" button is highlighted with a dashed arrow pointing to the code below. At the bottom of the window, a label displays the message "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" and "cpf" fields remain "101" and "123456". The "valor" field now contains "150". The "debitar" button is highlighted with a dashed arrow pointing to the code below. The label at the bottom now displays the error message "quantia incorreta para debitar: 150.0".

⇒

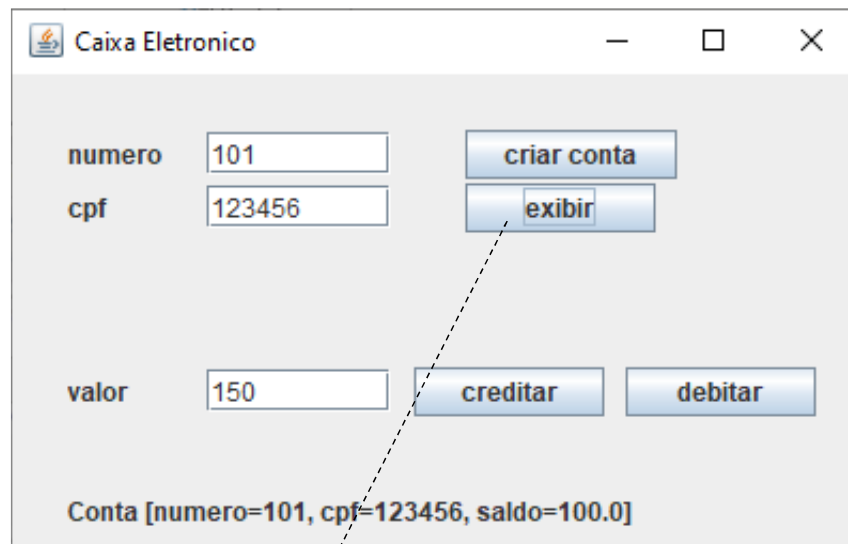
```
double valor = Double.parseDouble(textField_2.getText());  
try {  
    conta.debitar(valor);  
    label_3.setText("debito efetuado com sucesso");  
} catch (Exception e1) {  
    label_3.setText(e1.getMessage());  
}
```

Tratamento de
exceção

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Exibir objeto



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

