

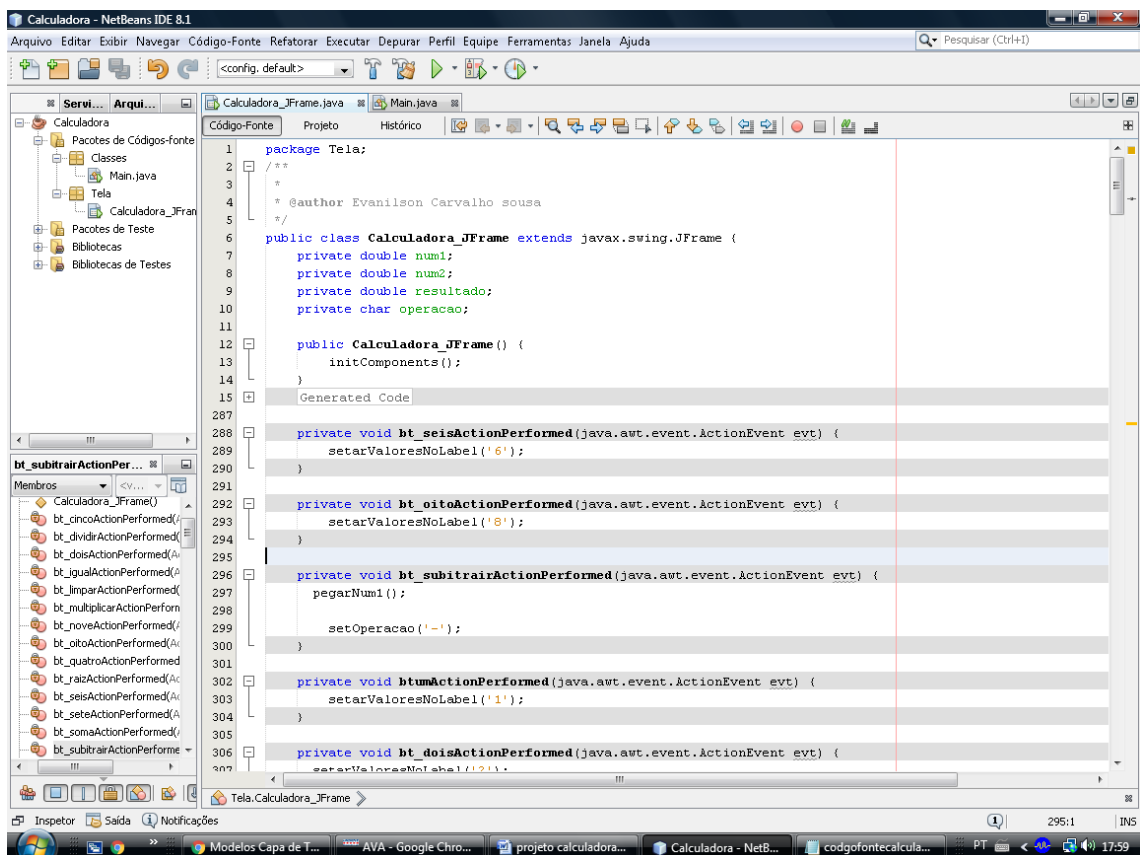
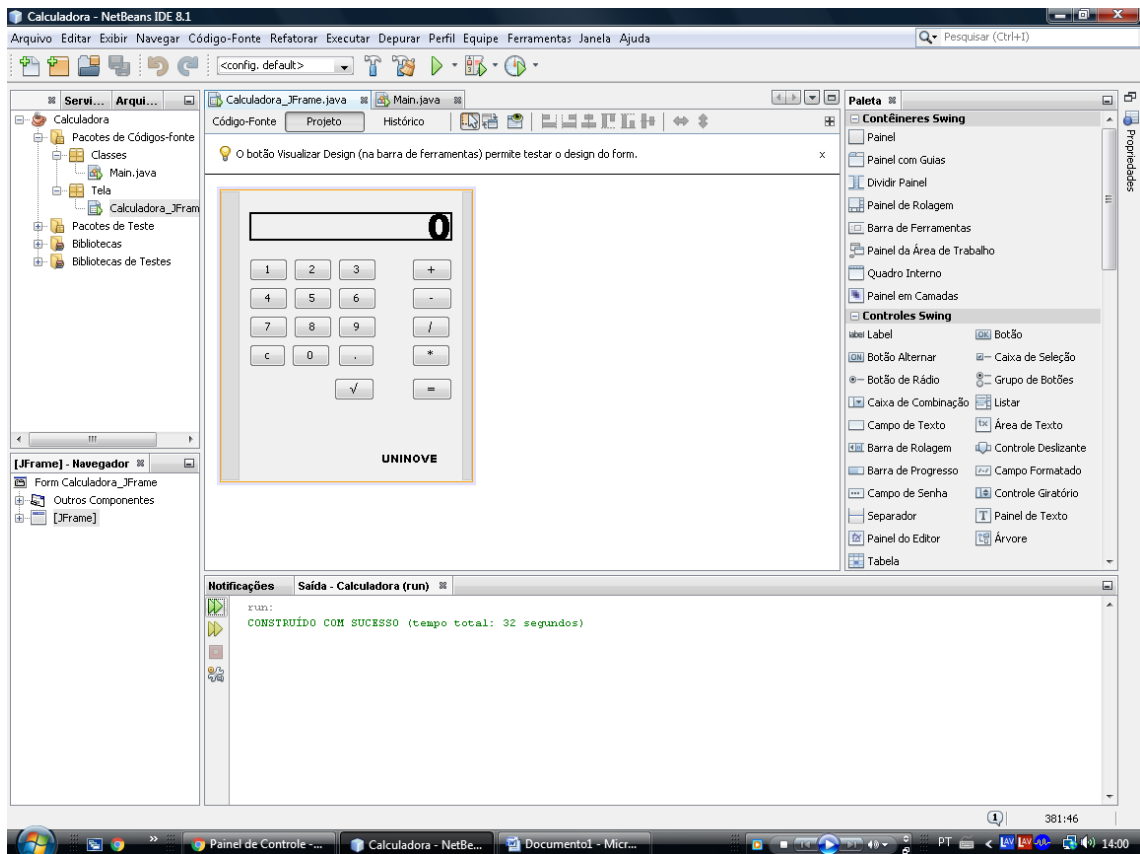
Programação Orientada a Objeto (POO)

Professor: Thiago G. Traue

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```

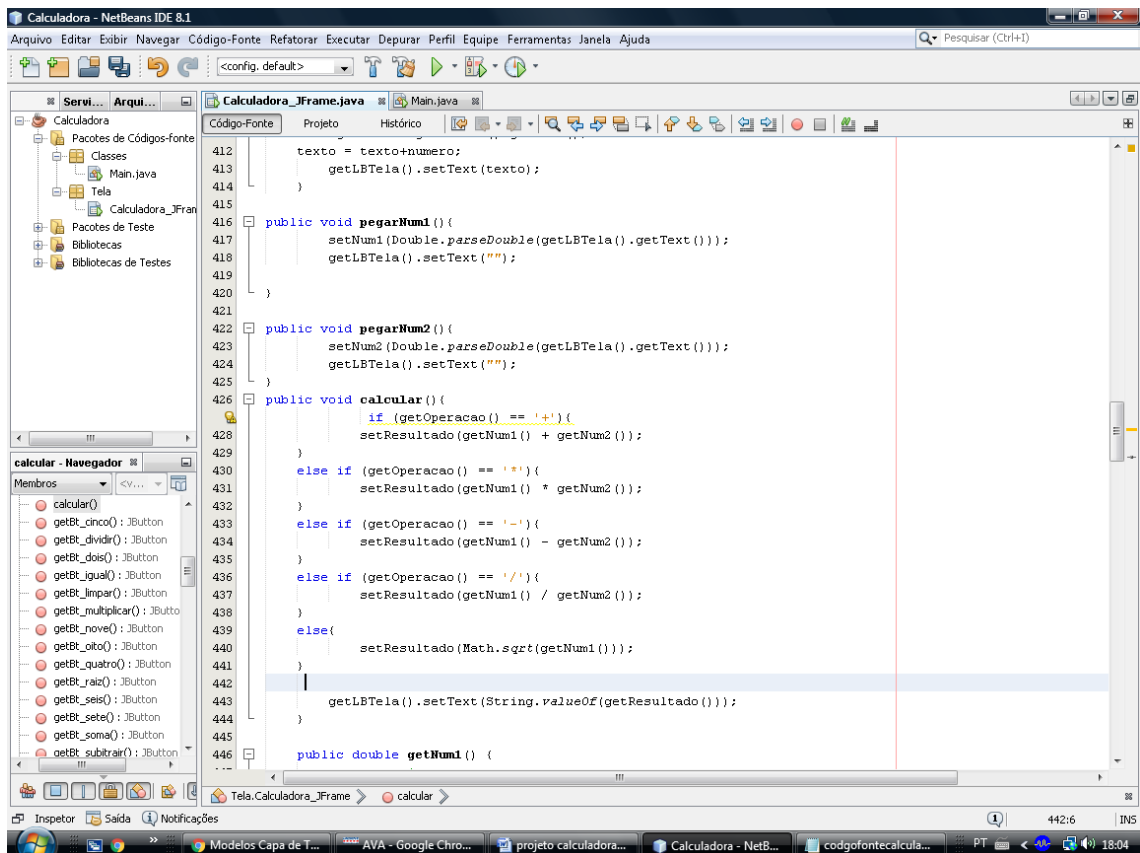
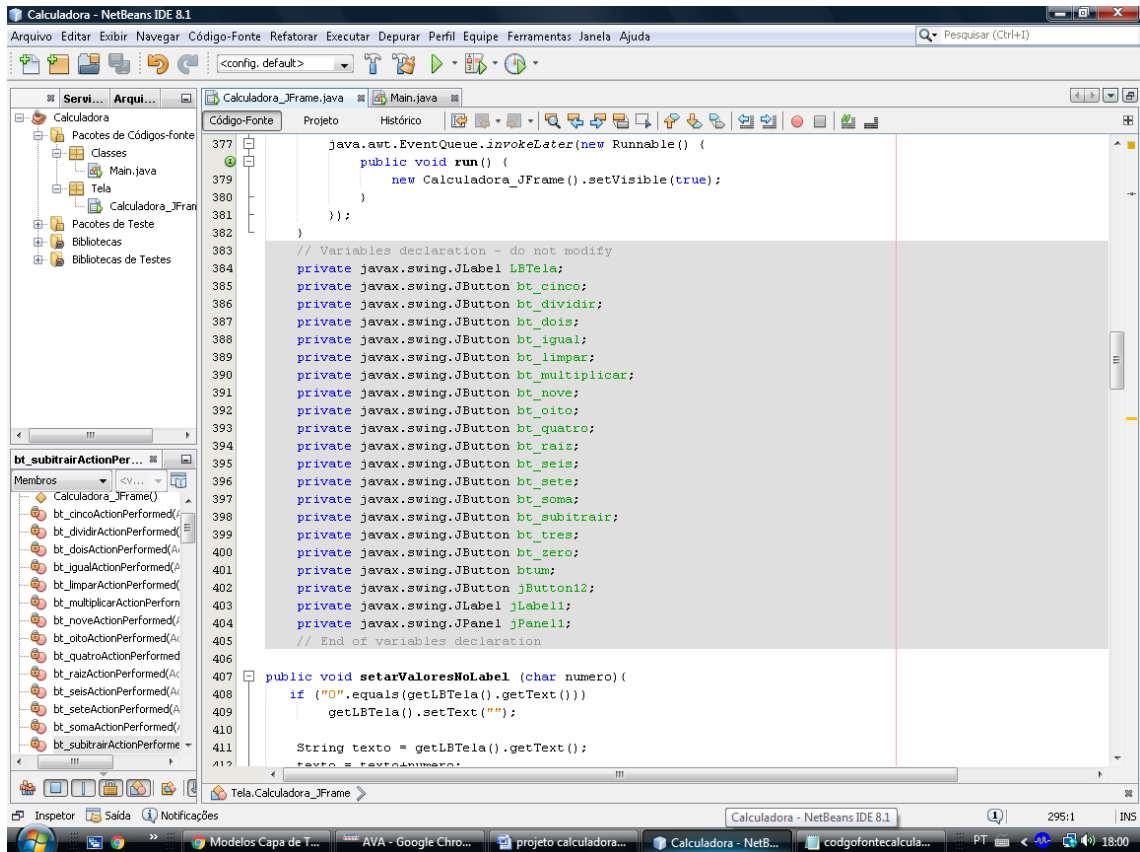
307     setarValoresNoLabel('2');
308 }
309
310 private void bt_tresActionPerformed(java.awt.event.ActionEvent evt) {
311     setarValoresNoLabel('3');
312 }
313
314 private void bt_quatroActionPerformed(java.awt.event.ActionEvent evt) {
315     setarValoresNoLabel('4');
316 }
317
318 private void bt_cincoActionPerformed(java.awt.event.ActionEvent evt) {
319     setarValoresNoLabel('5');
320 }
321
322 private void bt_seisActionPerformed(java.awt.event.ActionEvent evt) {
323     setarValoresNoLabel('6');
324 }
325
326 private void bt_noveActionPerformed(java.awt.event.ActionEvent evt) {
327     setarValoresNoLabel('9');
328 }
329
330 private void bt_limparActionPerformed(java.awt.event.ActionEvent evt) {
331     setNum1(0);
332     setNum2(0);
333     setResultado(0);
334     getLTela().setText("0");
335 }
336
337 private void bt_zeroActionPerformed(java.awt.event.ActionEvent evt) {
338     setarValoresNoLabel('0');
339 }
340
341 private void jButton12ActionPerformed(java.awt.event.ActionEvent evt) {
342     setarValoresNoLabel('1');
343 }

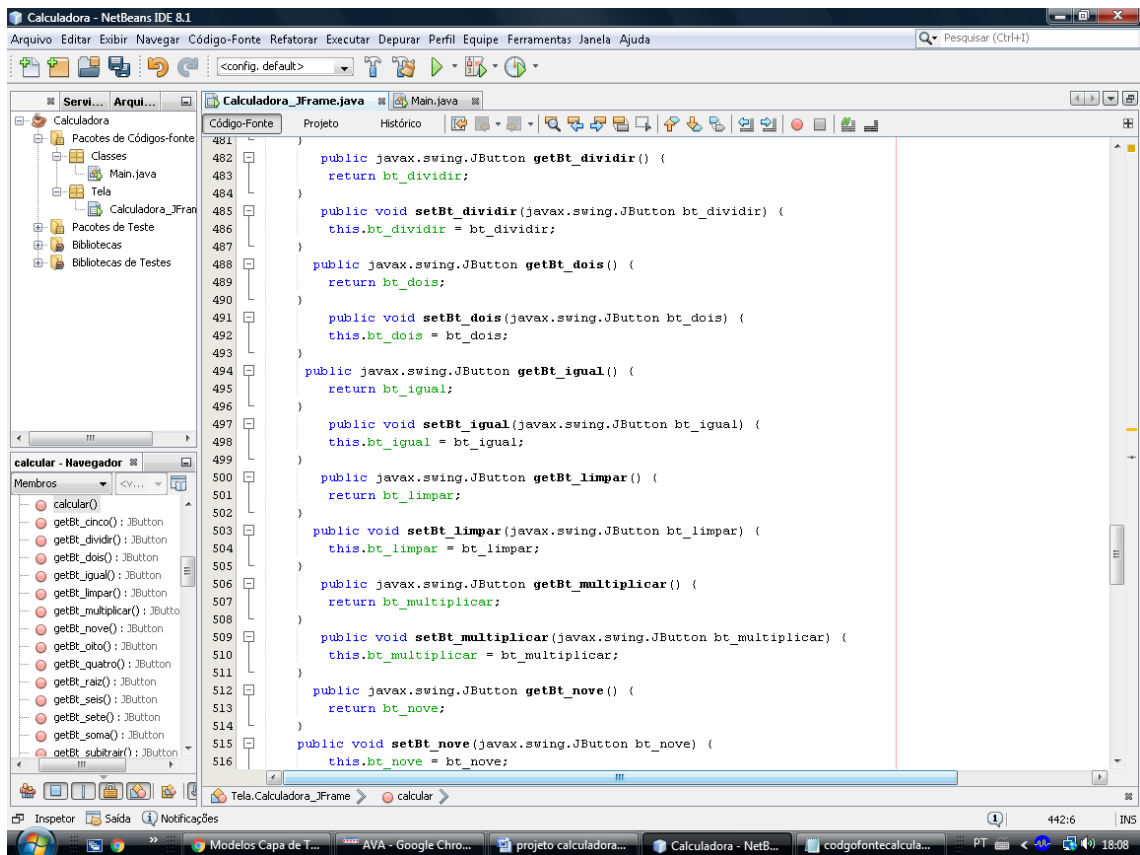
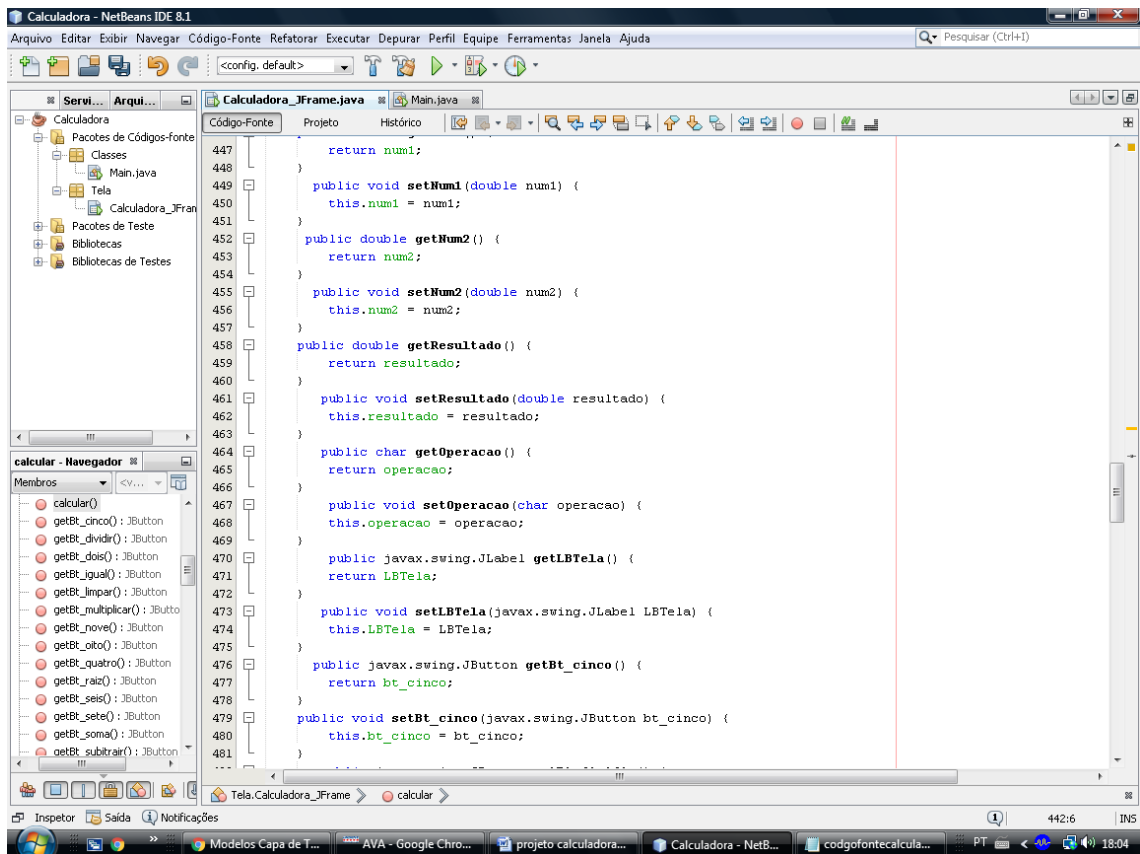
```

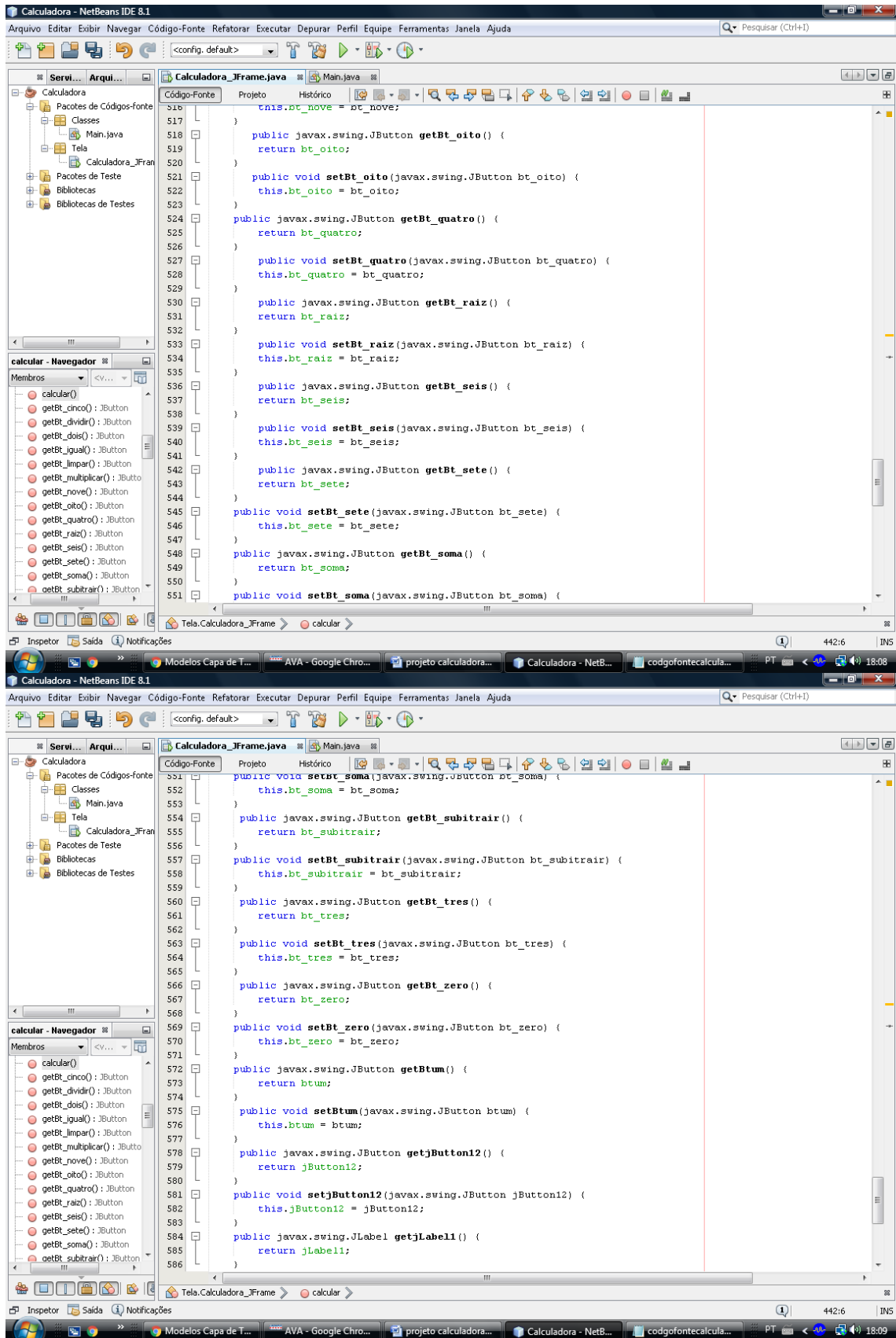
```

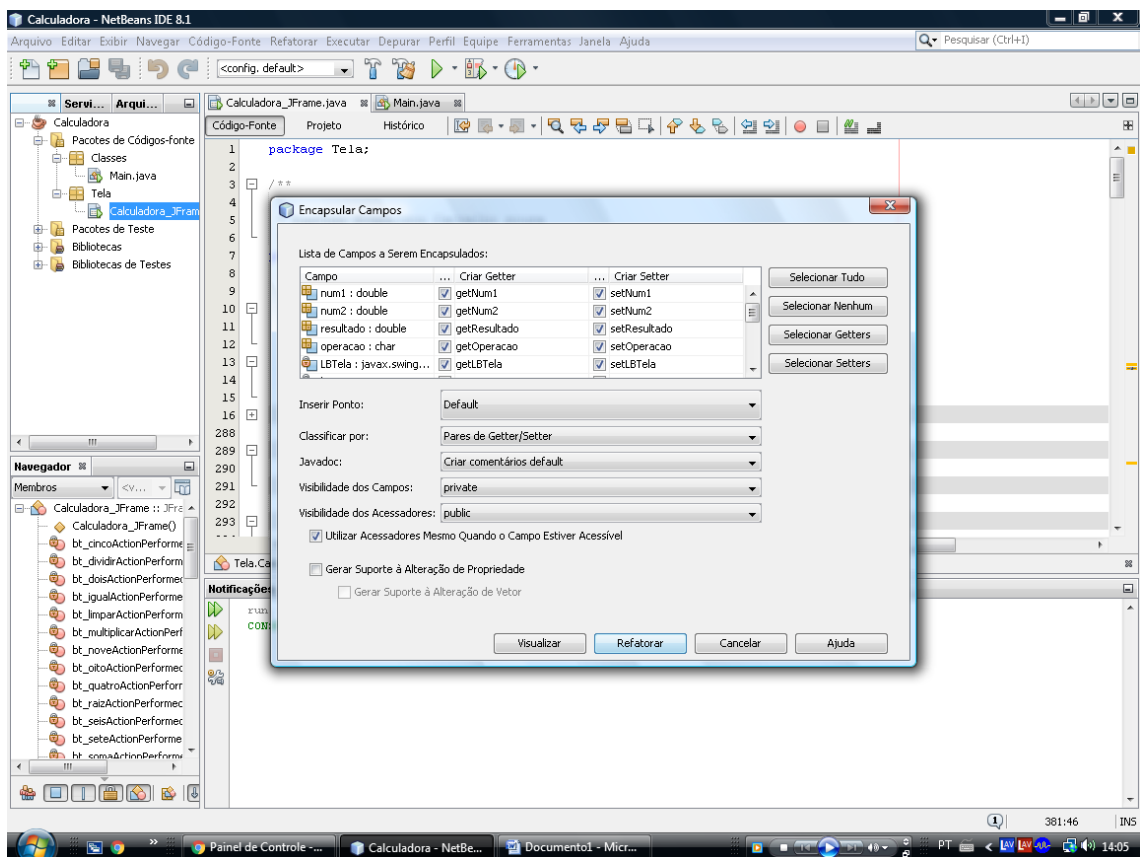
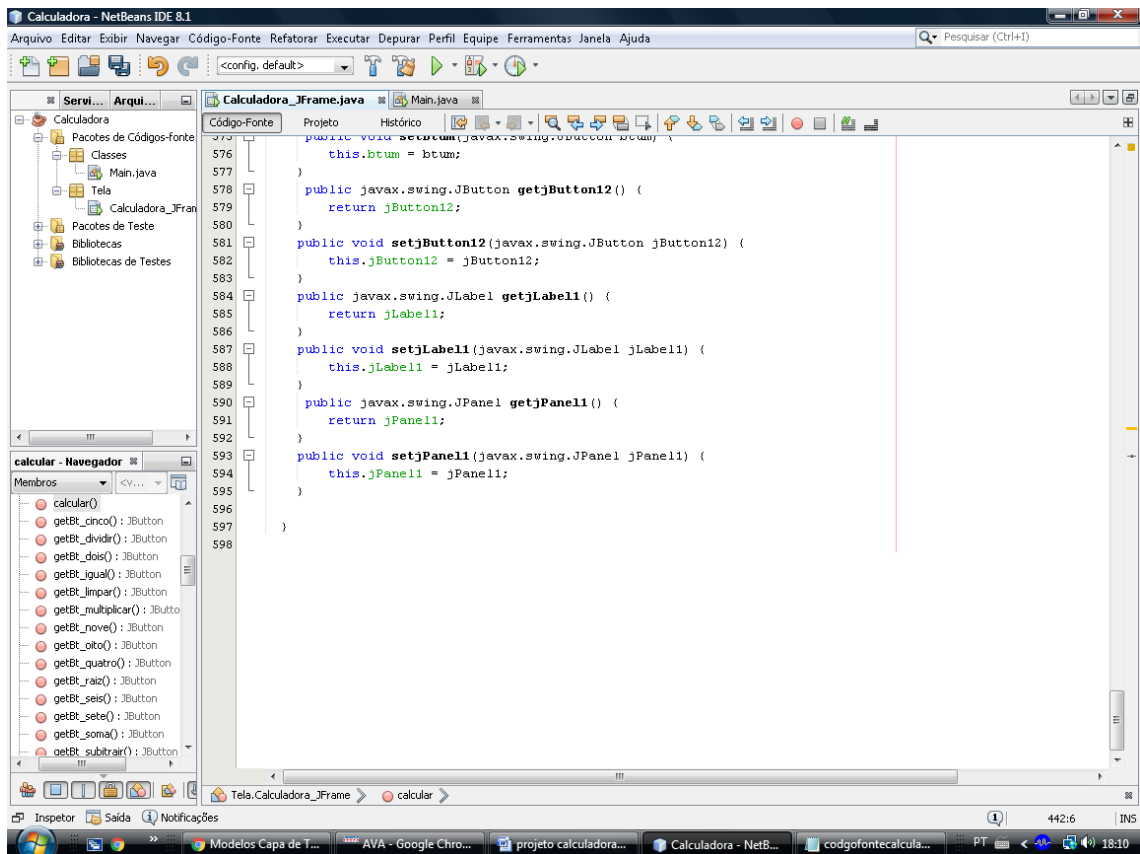
342     setarValoresNoLabel('1');
343 }
344
345 private void bt_raizActionPerformed(java.awt.event.ActionEvent evt) {
346     pegarNum1();
347     setOperacao('^');
348     calcular();
349 }
350
351
352 private void bt_somaActionPerformed(java.awt.event.ActionEvent evt) {
353     pegarNum1();
354     setOperacao('+');
355 }
356
357 private void bt_dividirActionPerformed(java.awt.event.ActionEvent evt) {
358     pegarNum1();
359     setOperacao('/');
360 }
361
362 private void bt_multiplicarActionPerformed(java.awt.event.ActionEvent evt) {
363     pegarNum1();
364     setOperacao('*');
365 }
366
367 private void bt_igualActionPerformed(java.awt.event.ActionEvent evt) {
368     pegarNum2();
369     calcular();
370 }
371
372 public static void main(String args[]) {
373     java.awt.EventQueue.invokeLater(new Runnable() {
374         public void run() {
375             new Calculadora_JFrame().setVisible(true);
376         }
377     });

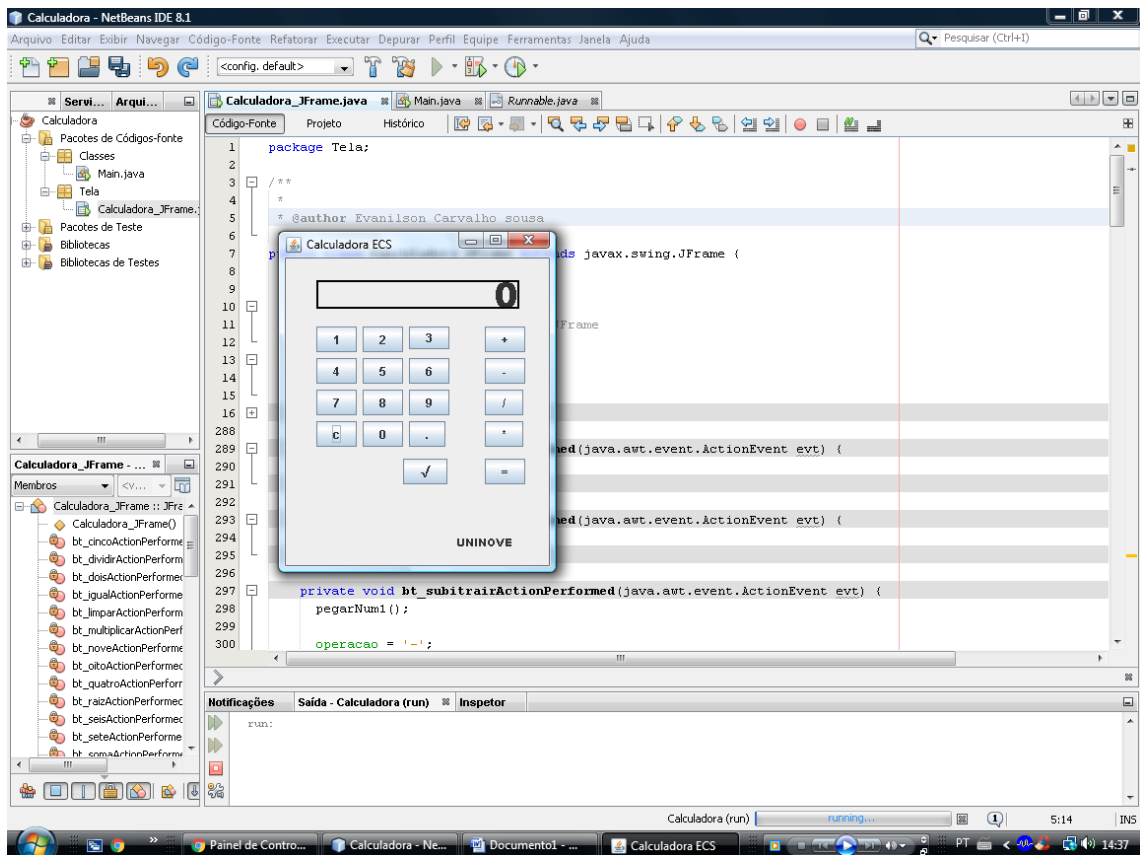
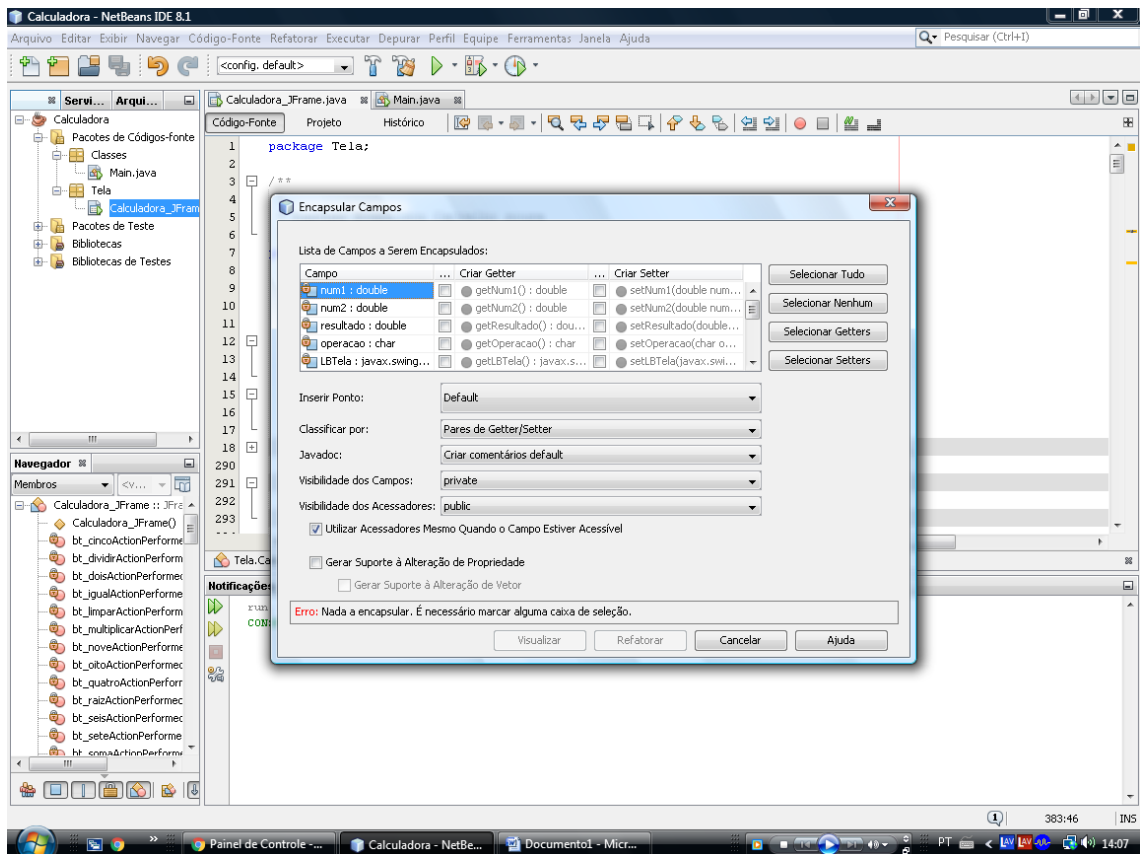
```

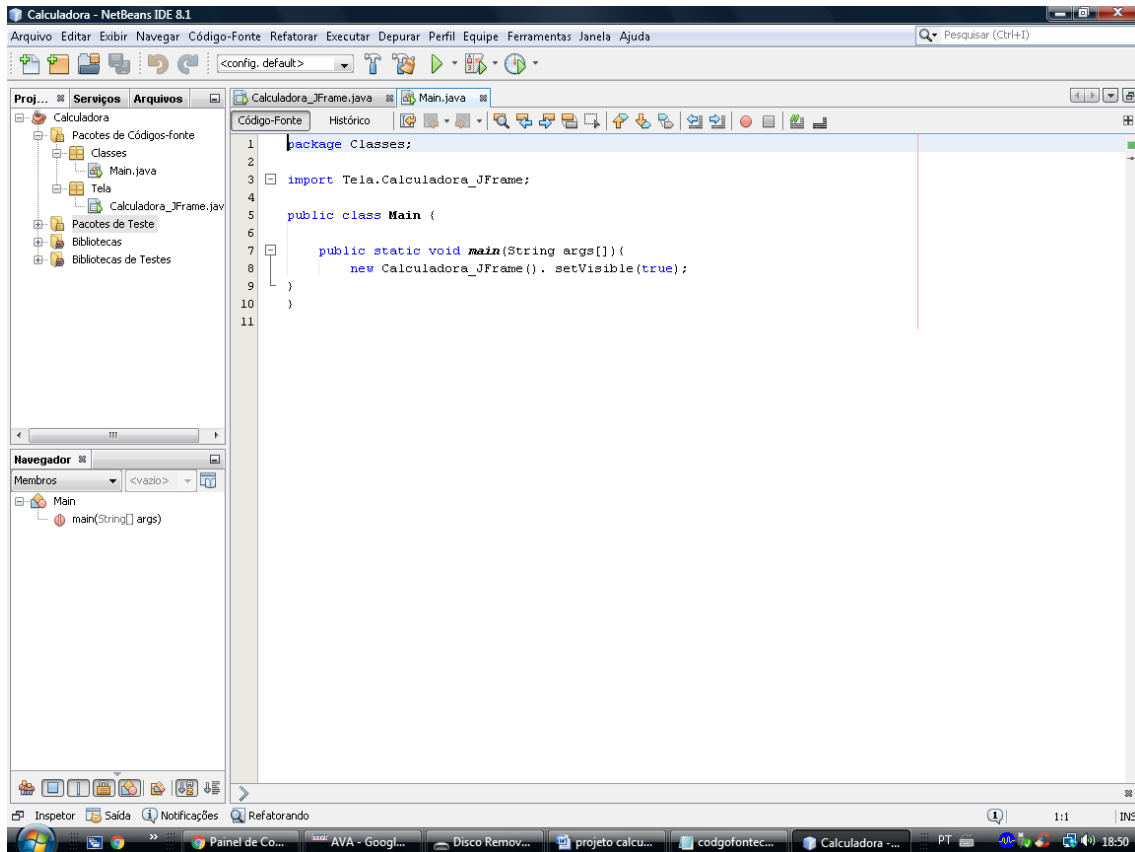












Código da Calculadora

```
package Tela;
```

```
/**
```

```
*
```

```
* @author Evanilson Carvalho sousa
```

```
*/
```

```
public class Calculadora_JFrame extends javax.swing.JFrame {
```

```
    private double num1;
```

```
    private double num2;
```

```
    private double resultado;
```

```
    private char operacao;
```

```
    public Calculadora_JFrame() {
```

```
initComponents();  
}  
  
// <editor-fold defaultstate="collapsed" desc="Generated Code">  
  
private void initComponents() {  
  
    jPanel1 = new javax.swing.JPanel();  
    LBTela = new javax.swing.JLabel();  
    btum = new javax.swing.JButton();  
    bt_dois = new javax.swing.JButton();  
    bt_tres = new javax.swing.JButton();  
    bt_quatro = new javax.swing.JButton();  
    bt_cinco = new javax.swing.JButton();  
    bt_seis = new javax.swing.JButton();  
    bt_sete = new javax.swing.JButton();  
    bt_oito = new javax.swing.JButton();  
    bt_nove = new javax.swing.JButton();  
    bt_limpar = new javax.swing.JButton();  
    bt_zero = new javax.swing.JButton();  
    jButton12 = new javax.swing.JButton();  
    bt_soma = new javax.swing.JButton();  
    bt_subtrair = new javax.swing.JButton();  
    bt_dividir = new javax.swing.JButton();  
    bt_multiplicar = new javax.swing.JButton();  
    bt_igual = new javax.swing.JButton();  
    bt_raiz = new javax.swing.JButton();  
    jLabel1 = new javax.swing.JLabel();  
}
```

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```
setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

setTitle("Calculadora ECS");

LBTela.setFont(new java.awt.Font("Tahoma", 1, 36)); // NOI18N
LBTela.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
LBTela.setText("0");

LBTela.setBorder(javax.swing.BorderFactory.createLineBorder(new
java.awt.Color(0, 0, 0), 2));

btum.setText("1");
btum.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btumActionPerformed(evt);
    }
});

bt_dois.setText("2");
bt_dois.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        bt_doisActionPerformed(evt);
    }
});

bt_tres.setText("3");
bt_tres.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        bt_tresActionPerformed(evt);
    }
});
```

```
    }  
});  
  
bt_quatro.setText("4");  
bt_quatro.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_quatroActionPerformed(evt);  
    }  
});
```

```
bt_cinco.setText("5");  
bt_cinco.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_cincoActionPerformed(evt);  
    }  
});
```

```
bt_seis.setText("6");  
bt_seis.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_seisActionPerformed(evt);  
    }  
});
```

```
bt_sete.setText("7");  
bt_sete.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {
```

```
        bt_seteActionPerformed(evt);  
    }  
});
```

```
bt_oito.setText("8");  
bt_oito.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_oitoActionPerformed(evt);  
    }  
});
```

```
bt_nove.setText("9");  
bt_nove.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_noveActionPerformed(evt);  
    }  
});
```

```
bt_limpar.setText("c");  
bt_limpar.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_limparActionPerformed(evt);  
    }  
});
```

```
bt_zero.setText("0");  
bt_zero.addActionListener(new java.awt.event.ActionListener() {
```

```
public void actionPerformed(java.awt.event.ActionEvent evt) {  
    bt_zeroActionPerformed(evt);  
}  
});
```

```
jButton12.setText(".");  
jButton12.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        jButton12ActionPerformed(evt);  
    }  
});
```

```
bt_soma.setText("+");  
bt_soma.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_somaActionPerformed(evt);  
    }  
});
```

```
bt_subtrair.setText("-");  
bt_subtrair.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_subtrairActionPerformed(evt);  
    }  
});
```

```
bt_dividir.setText("/");
```

```
bt_dividir.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_dividirActionPerformed(evt);  
    }  
});
```

```
bt_multiplicar.setText("*");  
bt_multiplicar.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_multiplicarActionPerformed(evt);  
    }  
});
```

```
bt_igual.setText("=");  
bt_igual.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_igualActionPerformed(evt);  
    }  
});
```

```
bt_raiz.setText("√");  
bt_raiz.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        bt_raizActionPerformed(evt);  
    }  
});
```

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```
jLabel1.setFont(new java.awt.Font("Arial Black", 0, 11)); // NOI18N
```

```
jLabel1.setText("UNINOVE");
```

```
    javax.swing.GroupLayout jPanel1Layout = new
    javax.swing.GroupLayout(jPanel1);
```

```
jPanel1.setLayout(jPanel1Layout);
```

jPanel1Layout.setHorizontalGroup(

`jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)`

```
.addGroup(jPanel1Layout.createSequentialGroup())
```

```
.addContainerGap()
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
```

```
.addGroup(jPanel1Layout.createSequentialGroup())
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
```

```
.addGroup(jPanel1Layout.createSequentialGroup())
```

```
.addComponent(btum)
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
.addComponent(bt_dois)
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
        .addComponent(bt_tres,
javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
```

```
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())
```

```
.addGap(0, 0, Short.MAX_VALUE)
```


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```
.addComponent(bt_raiz)

.addGap(2, 2, 2))

.addGroup(jPanel1Layout.createSequentialGroup())

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING))

.addGroup(jPanel1Layout.createSequentialGroup())

.addComponent(bt_quatro)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(bt_cinco)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(bt_seis))

.addGroup(jPanel1Layout.createSequentialGroup())

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING))

.addGroup(jPanel1Layout.createSequentialGroup())

.addComponent(bt_sete)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(bt_oito))

.addGroup(jPanel1Layout.createSequentialGroup())

.addComponent(bt_limpar)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addComponent(bt_zero)))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
```

```
    .addComponent(jButton12)
```

```
    .addComponent(bt_nove))))
```

```
    .addGap(0, 0, Short.MAX_VALUE)))
```

```
    .addGap(36, 36, 36)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
```

```
    .addComponent(bt_subtrair,  
        javax.swing.GroupLayout.PREFERRED_SIZE, 41,  
        javax.swing.GroupLayout.PREFERRED_SIZE)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
```

```
    .addComponent(bt_dividir,  
        javax.swing.GroupLayout.Alignment.LEADING,  
        javax.swing.GroupLayout.DEFAULT_SIZE,  
        javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
```

```
    .addComponent(bt_multiplicar,  
        javax.swing.GroupLayout.Alignment.LEADING,  
        javax.swing.GroupLayout.DEFAULT_SIZE,  
        javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
```

```
    .addComponent(bt_igual)
```

```
    .addComponent(bt_soma)))
```

```
    .addComponent(LBTela, javax.swing.GroupLayout.PREFERRED_SIZE,  
        206, javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
    .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,  
        Short.MAX_VALUE))
```

```
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,  
        jPanel1Layout.createSequentialGroup())
```

```
    .addGap(0, 0, Short.MAX_VALUE)
```

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```
.addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 82,
javax.swing.GroupLayout.PREFERRED_SIZE))

);

jPanel1Layout.setVerticalGroup(

jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

.addGroup(jPanel1Layout.createSequentialGroup())

.addGap(22, 22, 22)

.addComponent(LBTela, javax.swing.GroupLayout.PREFERRED_SIZE, 29,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addGap(18, 18, 18)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.L
EADING)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.B
ASELINE)

.addComponent(btum)

.addComponent(bt_dois)

.addComponent(bt_soma))

.addComponent(bt_tres, javax.swing.GroupLayout.PREFERRED_SIZE,
23, javax.swing.GroupLayout.PREFERRED_SIZE))

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.B
ASELINE)

.addComponent(bt_quatro)

.addComponent(bt_cinco)

.addComponent(bt_seis)

.addComponent(bt_subtrair))
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
```

```
    .addComponent(bt_sete)
```

```
    .addComponent(bt_oito)
```

```
    .addComponent(bt_nove)
```

```
    .addComponent(bt_dividir))
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
```

```
    .addComponent(bt_multiplicar)
```

```
    .addComponent(bt_limpar)
```

```
    .addComponent(bt_zero)
```

```
    .addComponent(jButton12))
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
```

```
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
```

```
    .addComponent(bt_igual)
```

```
    .addComponent(bt_raiz))
```

```
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 35,  
Short.MAX_VALUE)
```

```
    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 47,  
javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
);
```

```
        javax.swing.GroupLayout layout = new
javax.swing.GroupLayout(getContentPane());

        getContentPane().setLayout(layout);

        layout.setHorizontalGroup(

            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

                .addGroup(layout.createSequentialGroup()

                    .addGap(19, 19, 19)

                    .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

                    .addContainerGap())

                );

        layout.setVerticalGroup(

            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

                .addGroup(layout.createSequentialGroup()

                    .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

                    );

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

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

    setarValoresNoLabel('6');

}
```

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

    setarValoresNoLabel('8');

}
```

```
private void bt_subtrairActionPerformed(java.awt.event.ActionEvent evt) {  
    pegarNum1();  
  
    setOperacao('-');  
}
```

```
private void btumActionPerformed(java.awt.event.ActionEvent evt) {  
    setarValoresNoLabel('1');  
}
```

```
private void bt_doisActionPerformed(java.awt.event.ActionEvent evt) {  
    setarValoresNoLabel('2');  
}
```

```
private void bt_tresActionPerformed(java.awt.event.ActionEvent evt) {  
    setarValoresNoLabel('3');  
}
```

```
private void bt_quatroActionPerformed(java.awt.event.ActionEvent evt) {  
    setarValoresNoLabel('4');  
}
```

```
private void bt_cincoActionPerformed(java.awt.event.ActionEvent evt) {  
    setarValoresNoLabel('5');  
}
```

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

```
        setarValoresNoLabel('7');
    }

    private void bt_noveActionPerformed(java.awt.event.ActionEvent evt) {
        setarValoresNoLabel('9');
    }

    private void bt_limparActionPerformed(java.awt.event.ActionEvent evt) {
        setNum1(0);
        setNum2(0);
        setResultado(0);
        getLBTela().setText("");
    }

    private void bt_zeroActionPerformed(java.awt.event.ActionEvent evt) {
        setarValoresNoLabel('0');
    }

    private void jButton12ActionPerformed(java.awt.event.ActionEvent evt) {
        setarValoresNoLabel('.');
    }

    private void bt_raizActionPerformed(java.awt.event.ActionEvent evt) {
        pegarNum1();

        setOperacao('^');
        calcular();
    }
```

```
}
```

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

```
    pegarNum1();
```

```
    setOperacao('+');
```

```
}
```

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

```
    pegarNum1();
```

```
    setOperacao('/');
```

```
}
```

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

```
    pegarNum1();
```

```
    setOperacao('*');
```

```
}
```

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

```
    pegarNum2();
```

```
    calcular();
```

```
}
```

```
public static void main(String args[]) {
```



```
java.awt.EventQueue.invokeLater(new Runnable() {  
    public void run() {  
        new Calculadora_JFrame().setVisible(true);  
    }  
});  
  
}  
  
// Variables declaration - do not modify  
  
private javax.swing.JLabel LBTela;  
private javax.swing.JButton bt_cinco;  
private javax.swing.JButton bt_dividir;  
private javax.swing.JButton bt_dois;  
private javax.swing.JButton bt_igual;  
private javax.swing.JButton bt_limpar;  
private javax.swing.JButton bt_multiplicar;  
private javax.swing.JButton bt_nove;  
private javax.swing.JButton bt_oito;  
private javax.swing.JButton bt_quatro;  
private javax.swing.JButton bt_raiz;  
private javax.swing.JButton bt_seis;  
private javax.swing.JButton bt_sete;  
private javax.swing.JButton bt_soma;  
private javax.swing.JButton bt_subtrair;  
private javax.swing.JButton bt_tres;  
private javax.swing.JButton bt_zero;  
private javax.swing.JButton btum;  
private javax.swing.JButton jButton12;  
private javax.swing.JLabel jLabel1;
```

```
private javax.swing.JPanel jPanel1;

// End of variables declaration


public void setarValoresNoLabel (char numero){

    if ("0".equals(getLBTela().getText()))

        getLBTela().setText("");

    String texto = getLBTela().getText();

    texto = texto+numero;

    getLBTela().setText(texto);

}


public void pegarNum1(){

    setNum1(Double.parseDouble(getLBTela().getText()));

    getLBTela().setText("");

}


public void pegarNum2(){

    setNum2(Double.parseDouble(getLBTela().getText()));

    getLBTela().setText("");

}


public void calcular(){

    if (getOperacao() == '+'){

        setResultado(getNum1() + getNum2());

    }

    else if (getOperacao() == '*'){
```

```
        setResultado(getNum1() * getNum2());
    }
    else if (getOperacao() == '-') {
        setResultado(getNum1() - getNum2());
    }
    else if (getOperacao() == '/') {
        setResultado(getNum1() / getNum2());
    }
    else {
        setResultado(Math.sqrt(getNum1()));
    }

    getLBTela().setText(String.valueOf(getResultado()));
}

public double getNum1() {
    return num1;
}

public void setNum1(double num1) {
    this.num1 = num1;
}

public double getNum2() {
    return num2;
}

public void setNum2(double num2) {
    this.num2 = num2;
}
```

```
public double getResultado() {  
    return resultado;  
}  
  
public void setResultado(double resultado) {  
    this.resultado = resultado;  
}  
  
public char getOperacao() {  
    return operacao;  
}  
  
public void setOperacao(char operacao) {  
    this.operacao = operacao;  
}  
  
public javax.swing.JLabel getLBTela() {  
    return LBTela;  
}  
  
public void setLBTela(javax.swing.JLabel LBTela) {  
    this.LBTela = LBTela;  
}  
  
public javax.swing.JButton getBt_cinco() {  
    return bt_cinco;  
}  
  
public void setBt_cinco(javax.swing.JButton bt_cinco) {  
    this.bt_cinco = bt_cinco;  
}  
  
public javax.swing.JButton getBt_dividir() {  
    return bt_dividir;  
}
```

```
public void setBt_dividir(javax.swing.JButton bt_dividir) {  
    this.bt_dividir = bt_dividir;  
}  
  
public javax.swing.JButton getBt_dois() {  
    return bt_dois;  
}  
  
public void setBt_dois(javax.swing.JButton bt_dois) {  
    this.bt_dois = bt_dois;  
}  
  
public javax.swing.JButton getBt_igual() {  
    return bt_igual;  
}  
  
public void setBt_igual(javax.swing.JButton bt_igual) {  
    this.bt_igual = bt_igual;  
}  
  
public javax.swing.JButton getBt_limpar() {  
    return bt_limpar;  
}  
  
public void setBt_limpar(javax.swing.JButton bt_limpar) {  
    this.bt_limpar = bt_limpar;  
}  
  
public javax.swing.JButton getBt_multiplicar() {  
    return bt_multiplicar;  
}  
  
public void setBt_multiplicar(javax.swing.JButton bt_multiplicar) {  
    this.bt_multiplicar = bt_multiplicar;  
}
```

```
public javax.swing.JButton getBt_nove() {  
    return bt_nove;  
}  
  
public void setBt_nove(javax.swing.JButton bt_nove) {  
    this.bt_nove = bt_nove;  
}  
  
public javax.swing.JButton getBt_oito() {  
    return bt_oito;  
}  
  
public void setBt_oito(javax.swing.JButton bt_oito) {  
    this.bt_oito = bt_oito;  
}  
  
public javax.swing.JButton getBt_quatro() {  
    return bt_quatro;  
}  
  
public void setBt_quatro(javax.swing.JButton bt_quatro) {  
    this.bt_quatro = bt_quatro;  
}  
  
public javax.swing.JButton getBt_raiz() {  
    return bt_raiz;  
}  
  
public void setBt_raiz(javax.swing.JButton bt_raiz) {  
    this.bt_raiz = bt_raiz;  
}  
  
public javax.swing.JButton getBt_seis() {  
    return bt_seis;  
}
```

```
public void setBt_seis(javax.swing.JButton bt_seis) {  
    this.bt_seis = bt_seis;  
}  
  
public javax.swing.JButton getBt_sete() {  
    return bt_sete;  
}  
  
public void setBt_sete(javax.swing.JButton bt_sete) {  
    this.bt_sete = bt_sete;  
}  
  
public javax.swing.JButton getBt_soma() {  
    return bt_soma;  
}  
  
public void setBt_soma(javax.swing.JButton bt_soma) {  
    this.bt_soma = bt_soma;  
}  
  
public javax.swing.JButton getBt_subitrair() {  
    return bt_subitrair;  
}  
  
public void setBt_subitrair(javax.swing.JButton bt_subitrair) {  
    this.bt_subitrair = bt_subitrair;  
}  
  
public javax.swing.JButton getBt_tres() {  
    return bt_tres;  
}  
  
public void setBt_tres(javax.swing.JButton bt_tres) {  
    this.bt_tres = bt_tres;  
}
```

```
public javax.swing.JButton getBt_zero() {  
    return bt_zero;  
}  
  
public void setBt_zero(javax.swing.JButton bt_zero) {  
    this.bt_zero = bt_zero;  
}  
  
public javax.swing.JButton getBtum() {  
    return btum;  
}  
  
public void setBtum(javax.swing.JButton btum) {  
    this.btum = btum;  
}  
  
public javax.swing.JButton getjButton12() {  
    return jButton12;  
}  
  
public void setjButton12(javax.swing.JButton jButton12) {  
    this.jButton12 = jButton12;  
}  
  
public javax.swing.JLabel getjLabel1() {  
    return jLabel1;  
}  
  
public void setjLabel1(javax.swing.JLabel jLabel1) {  
    this.jLabel1 = jLabel1;  
}  
  
public javax.swing.JPanel getjPanel1() {  
    return jPanel1;  
}
```



```
public void setjPanel1(javax.swing.JPanel jPanel1) {  
    this.jPanel1 = jPanel1;  
}  
}
```