



UAEM

Universidad Autónoma  
del Estado de México



UNIDAD ACADÉMICA PROFESIONAL TIANGUISTENCO

---

INGENIERÍA EN SOFTWARE

PROGRAMACIÓN PARALELA

DOCUMENTACION CALCULADORA

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## Objetivo:

Desarrollar una calculadora en cualquier lenguaje de programación, el cual haga el proceso de las cuatro operaciones básicas (suma, resta, multiplicación y división) al mismo tiempo.

## Requerimientos

### Funcionales.

- Suma de dos números
- Resta de dos números
- Multiplicación de dos números
- División de dos números

### No funcionales.

- Verificar que la división se pueda realizar.
- No se pueden hacer operaciones con símbolos, letras.

## Requerimientos

- Suma de dos números: Al ingresar un número más el signo “+” más otro número el resultado de la operación tendrá que ser la suma de los dos números.
- Resta de dos números: Al ingresar un número más el signo “-” más otro número el resultado de la operación tendrá que ser la resta de los dos números.
- Multiplicación de dos números: Al ingresar un número más el signo “\*” más otro número el resultado de la operación tendrá que ser la multiplicación de los dos números.
- División de dos números: Al ingresar un número más el signo “/” más otro número el resultado de la operación tendrá que ser la división de los dos números.

- Verificar que la división se pueda realizar: el usuario tendrá que seleccionar un número más un signo más otro número, si el número que selecciono fue 0, la división no se podrá realizar.
- No se pueden hacer operaciones con símbolos, letras: la calculadora no acepta caracteres especiales, más que números.

INTERFAZ.



CODIGO.

```
/*  
 * To change this license header, choose License Headers in Project Properties.  
 * To change this template file, choose Tools | Templates  
 * and open the template in the editor.  
 */
```

```
package Calculadora;
```

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

```
/**  
 * @author yamile  
 */
```

```
public class Calculadora extends javax.swing.JFrame
```

```
{
```

```
    public Calculadora() {  
        initComponents();  
    }
```

```
    String cadena="";  
    double memoria1;  
    double memoria2;  
    double resultado;  
    String operacion="";
```

```
    boolean banderaPunto=false;  
    boolean banderaMas=false;  
    boolean banderaMenos=false;
```

```
boolean banderaPor=false;
```

```
boolean banderaEntre=false;
```

```
boolean banderaIgual=false;
```

```
boolean banderaOperacionS=false;
```

```
/**
```

```
 * This method is called from within the constructor to initialize the form.
```

```
 * WARNING: Do NOT modify this code. The content of this method is always
```

```
 * regenerated by the Form Editor.
```

```
 */
```

```
@SuppressWarnings("unchecked")
```

```
// <editor-fold defaultstate="collapsed" desc="Generated Code">
```

```
private void initComponents() {
```

```
    jtxPantalla = new javax.swing.JTextField();
```

```
    btnUno = new javax.swing.JButton();
```

```
    btnDos = new javax.swing.JButton();
```

```
    btnTres = new javax.swing.JButton();
```

```
    btnCuatro = new javax.swing.JButton();
```

```
    btnCinco = new javax.swing.JButton();
```

```
    btnSeis = new javax.swing.JButton();
```

```
    btnSiete = new javax.swing.JButton();
```

```
    btnOcho = new javax.swing.JButton();
```

```
    btnNueve = new javax.swing.JButton();
```

```
    btnPunto = new javax.swing.JButton();
```

```
    btnIgual = new javax.swing.JButton();
```

```
    btnCero = new javax.swing.JButton();
```

```
btnEntre = new javax.swing.JButton();

btnPor = new javax.swing.JButton();

btnMenos = new javax.swing.JButton();

btnMas = new javax.swing.JButton();


setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);


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

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

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

btnCuatro.setText("4");
```

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

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

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

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

```
btnOcho.setText("8");  
btnOcho.addActionListener(new java.awt.event.ActionListener() {
```

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

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

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

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

```
btnCero.setText("0");  
btnCero.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {
```



```
        btnCeroActionPerformed(evt);  
    }  
});
```

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

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

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

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

```

    }
});

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(38, 38, 38)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jtxPantalla, javax.swing.GroupLayout.PREFERRED_SIZE, 166,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGroup(layout.createSequentialGroup()
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                        .addGroup(layout.createSequentialGroup()
                            .addComponent(btnCero)
                            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                            .addComponent(btnPunto)
                            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                            .addComponent(btnIgual))
                        .addGroup(layout.createSequentialGroup()
                            .addComponent(btnSiete)
                            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                            .addComponent(btnOcho)
                            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                            .addComponent(btnNueve)))
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                        .addComponent(btnNueve)
                        .addComponent(btnOcho)
                        .addComponent(btnSiete)
                        .addComponent(btnIgual)
                        .addComponent(btnPunto)
                        .addComponent(btnCero)))
                .addGap(38, 38, 38))
            .addGap(38, 38, 38)
        )
    );

```

```

        .addGroup(layout.createSequentialGroup())
        .addComponent(btnCuatro)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(btnCinco)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(btnSeis))
    .addGroup(layout.createSequentialGroup())
    .addComponent(btnUno)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(btnDos)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(btnTres))))
    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)

        .addGroup(layout.createSequentialGroup())
        .addGap(9, 9, 9)
        .addComponent(btnMas))

        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup())
        .addGap(12, 12, 12)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(btnEntre)
        .addComponent(btnPor)
        .addComponent(btnMenos, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))))
    .addContainerGap(40, Short.MAX_VALUE))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

```

```
.addGroup(layout.createSequentialGroup())

    .addGap(20, 20, 20)

    .addComponent(jtxPantalla, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

    .addGap(18, 18, 18)

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

        .addGroup(layout.createSequentialGroup())

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                .addComponent(btnUno)

                .addComponent(btnDos)

                .addComponent(btnTres))

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

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                .addComponent(btnCuatro)

                .addComponent(btnCinco)

                .addComponent(btnSeis))

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

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                .addComponent(btnSiete)

                .addComponent(btnOcho)

                .addComponent(btnNueve)

                .addComponent(btnEntre))

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

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)

                .addComponent(btnCero)

                .addComponent(btnPunto)))

        .addGroup(layout.createSequentialGroup())
```

```

        .addComponent(btnMas)

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

        .addComponent(btnMenos)

        .addGap(44, 44, 44)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(btnPor)
        .addComponent(btnIgual))))
        .addContainerGap(33, Short.MAX_VALUE))
);

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

```

```

private void btnUnoActionPerformed(java.awt.event.ActionEvent evt) {
    cadena+="1";
    jtxPantalla.setText(cadena);
}

```

```

private void btnDosActionPerformed(java.awt.event.ActionEvent evt) {
    cadena+="2";
    jtxPantalla.setText(cadena);
}

```

```

private void btnTresActionPerformed(java.awt.event.ActionEvent evt) {
    cadena+="3";
    jtxPantalla.setText(cadena);
}

```

```
private void btnCuatroActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="4";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnCincoActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="5";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnSeisActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="6";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnSieteActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="7";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnOchoActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="8";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnNueveActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="9";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnCeroActionPerformed(java.awt.event.ActionEvent evt) {  
    cadena+="0";  
    jtxPantalla.setText(cadena);  
}
```

```
private void btnPuntoActionPerformed(java.awt.event.ActionEvent evt) {  
    if (banderaPunto==false)  
    {  
        cadena+=".";   
        jtxPantalla.setText(cadena);  
  
    }  
    banderaPunto=true;  
}
```

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

```
    if(banderaOperacionS==false)  
    {  
        if ( cadena.length(>0)  
        {  
            if (banderaMas==true &&banderaIgual==true)  
            {  
                memoria1=resultado;  
            }else  
            {  
                memoria1=Double.parseDouble(cadena);  
            }  
        }  
    }
```

```

        cadena="";
        jtxPantalla.setText("");
        operacion="+";
        banderaOperacionS=true;

    }else
    {
        JOptionPane.showMessageDialog(this, "Primero inserta un numero");
    }
}
}

```

```

private void btnMenosActionPerformed(java.awt.event.ActionEvent evt) {
    if(banderaOperacionS==false)
    {
        if (banderaMenos==false && cadena.length()>0)
        {
            if (banderalgual==true)
            {
                memoria1=resultado;
            }else
            {
                memoria1=Double.parseDouble(cadena);
            }
        }
        cadena="";
        jtxPantalla.setText("");
        operacion="-";
    }
}

```



```
        banderaOperacionS=true;

    }else
    {
        JOptionPane.showMessageDialog(this, "Primero inserta un numero");
    }
}
}
```

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

```
    if(flagOperacionS==false)
    {
        if (flagEntre==false && cadena.length()>0)
        {
            if (flagIgual==true)
            {
                memoria1=resultado;
            }else
            {
                memoria1=Double.parseDouble(cadena);
            }
            cadena="";
            jtxPantalla.setText("");
            operacion="/";
            banderaOperacionS=true;

        }else
        {
```

```

        JOptionPane.showMessageDialog(this, "Primero inserta un numero");
    }
}

```

```

private void btnPorActionPerformed(java.awt.event.ActionEvent evt) {

```

```

    if(banderaOperacionS==false)
    {
        if (banderaPor==false && cadena.length(>0)
        {

            memoria1=Double.parseDouble(cadena);
            cadena="";
            jtxPantalla.setText("");
            operacion="*";
            banderaOperacionS=true;

        }else
        {
            JOptionPane.showMessageDialog(this, "Primero inserta un numero");
        }
    }
}

```

```

private void btnIgualActionPerformed(java.awt.event.ActionEvent evt) {

```

```

    Operaciones op= new Operaciones(0,0);

```

```

    if (banderaOperacionS==true)

```

```

{
    if (cadena.length()>0)
    {
        memoria2=Double.parseDouble(cadena);
        switch(operacion)
        {
            case "+":
                resultado=op.operSuma(memoria1, memoria2);
                jtxPantalla.setText(String.valueOf(resultado));
                banderaMas=false;
                break;
            case "-":
                resultado=op.operResta(memoria1, memoria2);
                jtxPantalla.setText(String.valueOf(resultado));
                banderaMenos=false;
                break;
            case "*":
                resultado=op.operMult(memoria1, memoria2);
                jtxPantalla.setText(String.valueOf(resultado));
                banderaPor=false;
                break;
            case "/":
                if (memoria2 != 0)
                {
                    resultado=op.operSuma(memoria1, memoria2);

                }else
                {
                    JOptionPane.showMessageDialog(this, "Error,no se puede dividir entre 0");
                }
            }
        }
    }
}

```

```
        jtxPantalla.setText(String.valueOf(""));
    }
    jtxPantalla.setText(String.valueOf(resultado));
    banderaEntre=false;
    break;
}
```

```
cadena="";
banderalgual=true;
banderaOperacionS=false;
memoria1=0;
memoria2=0;
```

```
}else
{
    JOptionPane.showMessageDialog(this, "Inserta un numero");
}
```

```
}else
{
    JOptionPane.showMessageDialog(this, "No se ha realizado una operacion");
}
```

```
}
```

```
/**
```

```
* @param args the command line arguments
```

```

*/
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
    * For details see http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */
    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());
                break;
            }
        }
    } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(Calculadora.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);

        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(Calculadora.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);

        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(Calculadora.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);

        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(Calculadora.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);

    }
}

```

```
//</editor-fold>
```

```
/* Create and display the form */
```

```
java.awt.EventQueue.invokeLater(new Runnable() {  
    public void run() {  
        new Calculadora().setVisible(true);  
    }  
});  
}
```

```
// Variables declaration - do not modify
```

```
private javax.swing.JButton btnCero;  
private javax.swing.JButton btnCinco;  
private javax.swing.JButton btnCuatro;  
private javax.swing.JButton btnDos;  
private javax.swing.JButton btnEntre;  
private javax.swing.JButton btnIgual;  
private javax.swing.JButton btnMas;  
private javax.swing.JButton btnMenos;  
private javax.swing.JButton btnNueve;  
private javax.swing.JButton btnOcho;  
private javax.swing.JButton btnPor;  
private javax.swing.JButton btnPunto;  
private javax.swing.JButton btnSeis;  
private javax.swing.JButton btnSiete;  
private javax.swing.JButton btnTres;  
private javax.swing.JButton btnUno;  
private javax.swing.JTextField jtxPantalla;
```

```
// End of variables declaration
```

```
}
```

CODIGO CLASE OPERACIONES.

```
package Calculadora;
```

```
/**
```

```
*
```

```
* @author yamile
```

```
*/
```

```
public class Operaciones
```

```
{
```

```
    private double x;
```

```
    private double y;
```

```
    public Operaciones(double x, double y) {
```

```
        this.x = x;
```

```
        this.y = y;
```

```
    }
```

```
    public double getX() {
```

```
        return x;
```

```
    }
```

```
    public void setX(double x) {
```

```
        this.x = x;
```

```
    }
```

```
    public double getY() {
```

```
        return y;
```

```
}
```

```
public void setY(double y) {
```

```
    this.y = y;
```

```
}
```

```
public double operSuma(double x, double y)
```

```
{
```

```
    return x+y;
```

```
}
```

```
public double operResta(double x, double y)
```

```
{
```

```
    return x-y;
```

```
}
```

```
public double operMult(double x, double y)
```

```
{
```

```
    return x*y;
```

```
}
```

```
public double operDiv(double x, double y)
```

```
{
```

```
    return x/y;
```

```
}
```



