

### **Actividad 3**

**Asignatura**  
**Programación orientada a Objetos**

**Estudiante**  
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**4**

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## PARTE 1:

### Capítulo 3

#### Ejercicio 18:

##### Clase Trabajo\_Empleado:

```
package logical;

/**
 *
 * @author julil
 */
public class Trabajo_Empleado {
    //Atributos
    int codigo_Empleado;
    String nombre_Empleado;
    double horas_trabajadas_Empleado, valor_hora_empleado,
    porcentaje_retencion_empleado;
    //Constructor
    Trabajo_Empleado(int a, String b, double c, double d, double e)
    {
        this.codigo_Empleado = a;
        this.nombre_Empleado = b;
        this.horas_trabajadas_Empleado = c;
        this.valor_hora_empleado = d;
        this.porcentaje_retencion_empleado = e;
    }
    //Metodos
    double salario_bruto()
    {
        return valor_hora_empleado*horas_trabajadas_Empleado;
    }
    double salario_netto()
    {
        double salario = salario_bruto()*(1-(porcentaje_retencion_empleado/100));
        return salario;
    }
}
```

##### GUI:

```
package logical;
```

```
/**
 *
```

```

* @author julil
*/
public class GUI extends javax.swing.JFrame {

    /**
     * Creates new form GUI
     */
    public GUI() {
        initComponents();
    }

    /**
     * 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() {

        jPanel1 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        textPorcentajeRetencion = new javax.swing.JTextField();
        textCodigo = new javax.swing.JTextField();
        textNombre = new javax.swing.JTextField();
        TextHorasMes = new javax.swing.JTextField();
        textValorHoraTrabajo = new javax.swing.JTextField();
        buttonSalarioBruto = new javax.swing.JButton();
        buttonSalarioNeto = new javax.swing.JButton();
        textCodigo1 = new javax.swing.JTextField();
        textNombre1 = new javax.swing.JTextField();
        textResultadoBruto = new javax.swing.JTextField();
        textCodigo2 = new javax.swing.JTextField();
        buttonBorrar = new javax.swing.JButton();
        textNombre2 = new javax.swing.JTextField();
        textResultadoNeto = new javax.swing.JTextField();
        jLabel6 = new javax.swing.JLabel();
        jLabel7 = new javax.swing.JLabel();
        jLabel8 = new javax.swing.JLabel();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setText("Codigo del empleado");

```

```

jLabel2.setText("Nombre del empleado");

jLabel3.setText("Horas trabajadas al mes");

jLabel4.setText("Valor por hora de Trabajo");

jLabel5.setText("Porcentaje de retencion en la fuente");

textCodigo.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        textCodigoActionPerformed(evt);
    }
});

buttonSalarioBruto.setText("Calcular Salario Bruto");
buttonSalarioBruto.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonSalarioBrutoActionPerformed(evt);
    }
});

buttonSalarioNeto.setText("Calcular Salario Neto");
buttonSalarioNeto.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonSalarioNetoActionPerformed(evt);
    }
});

buttonBorrar.setText("Borrar");
buttonBorrar.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonBorrarActionPerformed(evt);
    }
});

jLabel6.setText("Codigo");

jLabel7.setText("Nombre");

jLabel8.setText("Resultado");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(29, 29, 29)

```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    G)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addComponent(jLabel5)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(textPorcentajeRetencion,
javax.swing.GroupLayout.PREFERRED_SIZE, 98,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(0, 0, Short.MAX_VALUE))
        .addGroup(jPanel1Layout.createSequentialGroup()

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

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    G, false)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addComponent(jLabel2)
                .addGap(25, 25, 25))
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addComponent(jLabel1)
                .addGap(30, 30, 30)))

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    G, false)
        .addComponent(textNombre,
javax.swing.GroupLayout.DEFAULT_SIZE, 98, Short.MAX_VALUE)
        .addComponent(textCodigo))

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    G)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(20, 20, 20)
            .addComponent(jLabel3)
            .addGap(18, 18, 18)
            .addComponent(TextHorasMes,
javax.swing.GroupLayout.PREFERRED_SIZE, 98,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(18, 18, 18)
            .addComponent(jLabel4)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(textValorHoraTrabajo,
javax.swing.GroupLayout.PREFERRED_SIZE, 98,
javax.swing.GroupLayout.PREFERRED_SIZE))))

```

```

        .addGroup(javax.swing.GroupLayout.Alignment.LEADING,
jPanel1Layout.createSequentialGroup())
        .addGap(60, 60, 60)

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

        .addGroup(jPanel1Layout.createSequentialGroup())

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

        .addComponent(textNombre1,
javax.swing.GroupLayout.Alignment.TRAILING)
        .addComponent(textResultadoBruto,
javax.swing.GroupLayout.Alignment.TRAILING)
        .addComponent(textCodigo1))
        .addGap(65, 65, 65)

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

        .addComponent(jLabel8)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
G)

        .addComponent(jLabel6)
        .addComponent(jLabel7)))
        .addGap(58, 58, 58)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
G, false)

        .addComponent(textCodigo2)
        .addComponent(textNombre2)
        .addComponent(textResultadoNeto,
javax.swing.GroupLayout.DEFAULT_SIZE, 140, Short.MAX_VALUE)))
        .addGroup(jPanel1Layout.createSequentialGroup())
        .addComponent(buttonSalarioBruto)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
        .addComponent(buttonSalarioNeto))))
        .addGap(167, 315, Short.MAX_VALUE)))
.addGroup(jPanel1Layout.createSequentialGroup())
        .addGap(279, 279, 279)
        .addComponent(buttonBorrar)
        .addGap(0, 0, Short.MAX_VALUE))
);
jPanel1Layout.setVerticalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup())

```

```

        .addGap(27, 27, 27)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel1)
    .addComponent(jLabel3)
    .addComponent(textCodigo, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(TextHorasMes,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(23, 23, 23)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel2)
    .addComponent(jLabel4)
    .addComponent(textNombre, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textValorHoraTrabajo,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(18, 18, 18)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel5)
    .addComponent(textPorcentajeRetencion,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(18, 18, 18)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(buttonSalarioBruto)
    .addComponent(buttonSalarioNeto))

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

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(textCodigo1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textCodigo2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel6))
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
12, Short.MAX_VALUE)

```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(textNombre1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textNombre2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel7))

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

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(textResultadoBruto,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textResultadoNeto,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel8))
    .addGap(18, 18, 18)
    .addComponent(buttonBorrar)
    .addGap(29, 29, 29))
);

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    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)
        .addContainerGap())
    );
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    );

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

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

    // TODO add your handling code here:
}

```



```

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

//Definicion de variables
int codigo;
String nombre;
double horas_trabajadas,valor_hora;
double porcentaje_retencion;
//Leemos valores por la bandeja de texto
codigo = Integer.parseInt(textCodigo.getText());
nombre = textNombre.getText();
horas_trabajadas = Integer.parseInt(TextHorasMes.getText());
valor_hora = Integer.parseInt(textValorHoraTrabajo.getText());
porcentaje_retencion = Integer.parseInt(textPorcentajeRetencion.getText());
//Creamos un objeto para el calculo de los valores
Trabajo_Empleado empleado = new Trabajo_Empleado(codigo, nombre,
horas_trabajadas, valor_hora, porcentaje_retencion);
//Mostramos elementos por las diferetes bandejas de texto
textCodigo1.setText(String.valueOf(empleado.codigo_Empleado));
textNombre1.setText(empleado.nombre_Empleado);
textResultadoBruto.setText(String.valueOf(empleado.salario_bruto()));
}

```

```

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

//Definicion de variables
int codigo;
String nombre;
double horas_trabajadas,valor_hora;
double porcentaje_retencion;
//Leemos valores por la bandeja de texto
codigo = Integer.parseInt(textCodigo.getText());
nombre = textNombre.getText();
horas_trabajadas = Integer.parseInt(TextHorasMes.getText());
valor_hora = Integer.parseInt(textValorHoraTrabajo.getText());
porcentaje_retencion = Integer.parseInt(textPorcentajeRetencion.getText());
//Creamos un objeto para el calculo de los valores
Trabajo_Empleado empleado = new Trabajo_Empleado(codigo, nombre,
horas_trabajadas, valor_hora, porcentaje_retencion);
//Mostramos elementos por las diferetes bandejas de texto
textCodigo2.setText(String.valueOf(empleado.codigo_Empleado));
textNombre2.setText(empleado.nombre_Empleado);
textResultadoNeto.setText(String.valueOf(empleado.salario_neto()));
}

```

```

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

textCodigo1.setText("");
textNombre1.setText("");

```

```

textResultadoNeto.setText("");
textCodigo2.setText("");
textNombre2.setText("");
textResultadoBruto.setText("");
}

```

```

// Variables declaration - do not modify
private javax.swing.JTextField TextHorasMes;
private javax.swing.JButton buttonBorrar;
private javax.swing.JButton buttonSalarioBruto;
private javax.swing.JButton buttonSalarioNeto;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JPanel jPanel1;
private javax.swing.JTextField textCodigo;
private javax.swing.JTextField textCodigo1;
private javax.swing.JTextField textCodigo2;
private javax.swing.JTextField textNombre;
private javax.swing.JTextField textNombre1;
private javax.swing.JTextField textNombre2;
private javax.swing.JTextField textPorcentajeRetencion;
private javax.swing.JTextField textResultadoBruto;
private javax.swing.JTextField textResultadoNeto;
private javax.swing.JTextField textValorHoraTrabajo;
// End of variables declaration
}

```

### **Main():**

```

package logical;

/**
 *
 * @author julil
 */
public class Cap3_Ejercicio18_GUI {

    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
    }
}

```

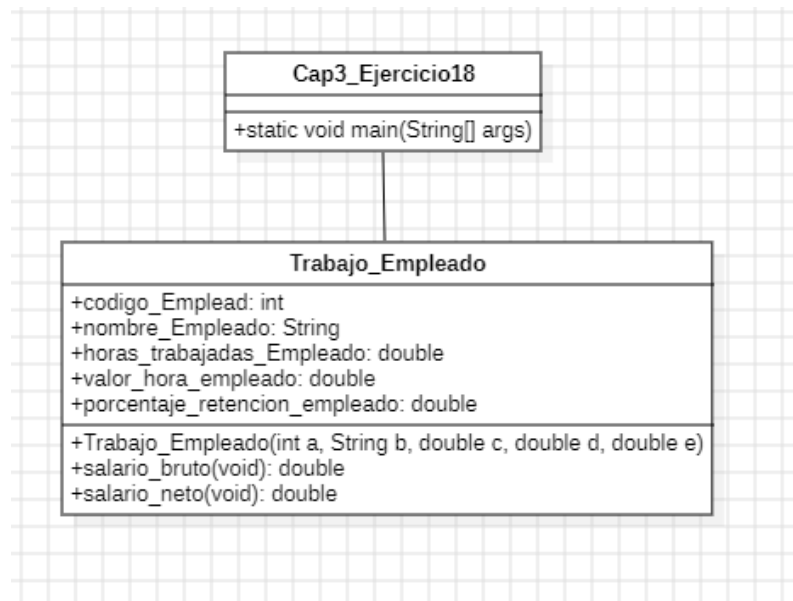
```

        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }
}

```

URL: [https://github.com/juloperag/POO/tree/main/Actividad%203/Cap3\\_Ejercicio18\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/Cap3_Ejercicio18_GUI)

UML:



## Ejercicio 19:

### Class TrianguloEquilatero:

```
package logical;
```

```
/**
```

```
*
```

```
* @author julil
```

```
*/
```

```
public class TrianguloEquilatero {
```

```
    //Atributos
```

```
    double edge;
```

```
    private double area;
```

```
    private double perimeter;
```

```
    private double height;
```

```
    //Definicion de metodos
```

```
    public TrianguloEquilatero(){
```

```
    }
```

```

    public TrianguloEquilatero(double edge) {
        this.edge = edge;
    }

    //Definicion de Metodos
    //Calculo del perimetro del triangulo
    public double perimetroTrian(){
        perimeter = 3*edge;
        return perimeter;
    }

    //Calculo de la altura del triangulo
    public double alturaTrian(){
        height= (Math.sqrt(3)/2)*edge;
        return height;
    }

    //Calculo de el area del Triangulo
    public double areaTrian(){
        area=((Math.sqrt(3)/2)*edge*edge)/2;
        return area;
    }
}

```

### GUI:

```
package logical;
```

```

/**
 *
 * @author julil
 */

```

```
import java.text.DecimalFormat;
```

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

```

    /**
     * Creates new form GUI
     */
    public GUI() {
        initComponents();
    }

```

```

    /**
     * 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() {

    jPanel1 = new javax.swing.JPanel();
    jLabel2 = new javax.swing.JLabel();
    buttonAltura = new javax.swing.JButton();
    buttonArea = new javax.swing.JButton();
    buttonPerimetro = new javax.swing.JButton();
    textAltura = new javax.swing.JTextField();
    textArea = new javax.swing.JTextField();
    textPerimetro = new javax.swing.JTextField();
    textLado = new javax.swing.JTextField();
    buttonBorrar = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel2.setText("Valor del lado ");

    buttonAltura.setText("Altura");
    buttonAltura.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            buttonAlturaActionPerformed(evt);
        }
    });

    buttonArea.setText("Area");
    buttonArea.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            buttonAreaActionPerformed(evt);
        }
    });

    buttonPerimetro.setText("Perimetro");
    buttonPerimetro.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            buttonPerimetroActionPerformed(evt);
        }
    });

    buttonBorrar.setText("Borrar");
    buttonBorrar.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            buttonBorrarActionPerformed(evt);
        }
    });

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

```

jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup())

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
G)
.addGroup(jPanel1Layout.createSequentialGroup())
.addGap(174, 247, Short.MAX_VALUE)
.addComponent(textLado, javax.swing.GroupLayout.PREFERRED_SIZE,
100, javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(jPanel1Layout.createSequentialGroup())
.addGap(0, 0, Short.MAX_VALUE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
G)
.addComponent(textAltura,
javax.swing.GroupLayout.PREFERRED_SIZE, 100,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
G, false)
.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())
.addComponent(buttonArea)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
.addComponent(textArea,
javax.swing.GroupLayout.PREFERRED_SIZE, 100,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addComponent(jLabel2)
.addGroup(jPanel1Layout.createSequentialGroup())
.addComponent(buttonPerimetro)
.addGap(18, 18, 18)
.addComponent(textPerimetro,
javax.swing.GroupLayout.PREFERRED_SIZE, 100,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addComponent(buttonAltura))))))
.addContainerGap(152, Short.MAX_VALUE))
.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())
.addGap(0, 0, Short.MAX_VALUE)
.addComponent(buttonBorrar)
.addGap(168, 168, 168))
);

```

```

jPanel1Layout.setVerticalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup()
.addGap(10, 10, 10)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(jLabel2)
.addComponent(textLado, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
.addGap(18, 18, 18)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(textPerimetro,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(buttonPerimetro))
.addGap(16, 16, 16)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(buttonAltura)
.addComponent(textAltura, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))

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

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(textArea, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(buttonArea))
.addGap(18, 18, 18)
.addComponent(buttonBorrar)
.addContainerGap(112, Short.MAX_VALUE))
);

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
);
layout.setVerticalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)

```

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

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

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

```
//Leemos valores por la bandeja de texto  
int edge = Integer.parseInt(textLado.getText());  
//Creamos el objeto  
TrianguloEquilatero triangulo = new TrianguloEquilatero(edge);  
//Mostramos el elemento por la bandeja respectiva de texto  
textPerimetro.setText(String.valueOf(triangulo.perimetroTrian()));  
}
```

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

```
//Creacion de clase para mostrar dos cifras decimas  
DecimalFormat df = new DecimalFormat("#.##");  
//Leemos valores por la bandeja de texto  
int edge = Integer.parseInt(textLado.getText());  
//Creamos el objeto  
TrianguloEquilatero triangulo = new TrianguloEquilatero(edge);  
//Mostramos el elemento por la bandeja respectiva de texto  
textArea.setText(df.format(triangulo.areaTrian()));  
}
```

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

```
//Creacion de clase para mostrar dos cifras decimas  
DecimalFormat df = new DecimalFormat("#.##");  
//Leemos valores por la bandeja de texto  
int edge = Integer.parseInt(textLado.getText());  
//Creamos el objeto  
TrianguloEquilatero triangulo = new TrianguloEquilatero(edge);  
//Mostramos el elemento por la bandeja respectiva de texto  
textAltura.setText(df.format(triangulo.alturaTrian()));  
}
```

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

```
textAltura.setText("");  
textArea.setText("");  
textPerimetro.setText("");  
}
```



```

// Variables declaration - do not modify
private javax.swing.JButton buttonAltura;
private javax.swing.JButton buttonArea;
private javax.swing.JButton buttonBorrar;
private javax.swing.JButton buttonPerimetro;
private javax.swing.JLabel jLabel2;
private javax.swing.JPanel jPanel1;
private javax.swing.JTextField textAltura;
private javax.swing.JTextField textArea;
private javax.swing.JTextField textLado;
private javax.swing.JTextField textPerimetro;
// End of variables declaration
}

```

### Main():

```
package logical;
```

```

/**
 *
 * @author julil
 */

```

```

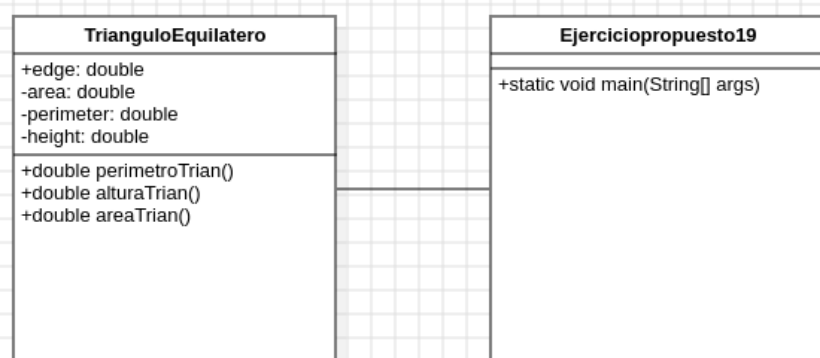
public class Cap3_Ejercicio19_GUI {

    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }
}

```

URL: [https://github.com/juloperag/POO/tree/main/Actividad%203/Cap3\\_Ejercicio19\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/Cap3_Ejercicio19_GUI)

### UML:



## Capítulo 4

### Ejercicio 7:

#### Clase Par\_Valores:

```
package logical;
```

```
/**
```

```
 *
```

```
 * @author julil
```

```
 */
```

```
public class Par_valores {
```

```
    //Atributos
```

```
    double esf_A;
```

```
    double esf_B;
```

```
    //Construtor
```

```
    Par_valores(double a,double b)
```

```
    {
```

```
        this.esf_A = a;
```

```
        this.esf_B = b;
```

```
    }
```

```
    //Metodos
```

```
    int mayor()
```

```
    {
```

```
        //Crear variable
```

```
        int value = 0;
```

```
        //Comparacion
```

```
        if(esf_A>esf_B)
```

```
        {
```

```
            value = 0;
```

```
        }
```

```
        else if(esf_A==esf_B)
```

```
        {
```

```
            value = 1;
```

```
        }
```

```
        else
```

```
        {
```

```
            value = 2;
```

```
        }
```

```
        return value;
```

```
    }
```

```
}
```

## GUI:

```
package logical;
```

```
/**
```

```
*
```

```
* @author julil
```

```
*/
```

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

```
    /**
```

```
    * Creates new form GUI
```

```
    */
```

```
    public GUI() {
```

```
        initComponents();
```

```
    }
```

```
    /**
```

```
    * 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() {
```

```
        jPanel1 = new javax.swing.JPanel();
```

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

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

```
        jLabel1 = new javax.swing.JLabel();
```

```
        jLabel2 = new javax.swing.JLabel();
```

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

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

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

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

```
        buttonLimpiar.setText("Limpiar");
```

```
        buttonLimpiar.addActionListener(new java.awt.event.ActionListener() {
```

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

```
                buttonLimpiarActionPerformed(evt);
```

```
            }
```

```
        });
```

```
        buttonComparar.setText("Comparar");
```

```
        buttonComparar.addActionListener(new java.awt.event.ActionListener() {
```

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

```
                buttonCompararActionPerformed(evt);
```

```
            }
```

```

});

jLabel1.setText("Num A");

jLabel2.setText("Num B");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(74, 74, 74)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(jLabel2)
    .addComponent(jLabel1))

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(36, 36, 36)
        .addComponent(buttonLimpiar)
        .addGap(18, 18, 18)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addComponent(textNumA,
javax.swing.GroupLayout.DEFAULT_SIZE, 82, Short.MAX_VALUE)
        .addComponent(textNumB))

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(18, 18, 18)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 36,
Short.MAX_VALUE)
        .addComponent(textComparar,
javax.swing.GroupLayout.PREFERRED_SIZE, 143,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(29, 29, 29)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(61, 61, 61)
            .addComponent(buttonComparar)
            .addGap(Short.MAX_VALUE))))))

```

```

);
jPanel1Layout.setVerticalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup()
.addGap(25, 25, 25)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(textNumA, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
.addComponent(buttonComparar)
.addComponent(jLabel1))
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(jPanel1Layout.createSequentialGroup()
.addGap(14, 14, 14)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
.addComponent(jLabel2)
.addComponent(textNumB,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)))
.addComponent(textComparar,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGap(31, 31, 31)
.addComponent(buttonLimpiar)
.addContainerGap(156, Short.MAX_VALUE))
);

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addComponent(jPanel1, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
);
layout.setVerticalGroup(
layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addComponent(jPanel1, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
);

```

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

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

```
    //Leemos los valores por las bandejas de textos  
    int A = Integer.parseInt(textNumA.getText());  
    int B = Integer.parseInt(textNumB.getText());  
    //Creamos el objeto  
    Par_valores par = new Par_valores(A, B);  
    //Mostramos el elemento por la bandeja respectiva de texto  
    String indicador;  
    switch(par.mayor())  
    {  
        case 0: { indicador = "A es mayor que B"; break;}  
        case 1: { indicador = "A es igual que B"; break;}  
        case 2: { indicador = "A es menor que B"; break;}  
        default: { throw new AssertionError(); }  
    }  
    textComparar.setText(indicador);  
}
```

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

```
    textComparar.setText("");  
    textNumA.setText("");  
    textNumB.setText("");  
}
```

```
    // Variables declaration - do not modify  
    private javax.swing.JButton buttonComparar;  
    private javax.swing.JButton buttonLimpiar;  
    private javax.swing.JLabel jLabel1;  
    private javax.swing.JLabel jLabel2;  
    private javax.swing.JPanel jPanel1;  
    private javax.swing.JTextField textComparar;  
    private javax.swing.JTextField textNumA;  
    private javax.swing.JTextField textNumB;  
    // End of variables declaration
```

```
}
```

**main():**

```
package logical;
```

```
/**
```

```
 *
```

```
 * @author julil
```

```

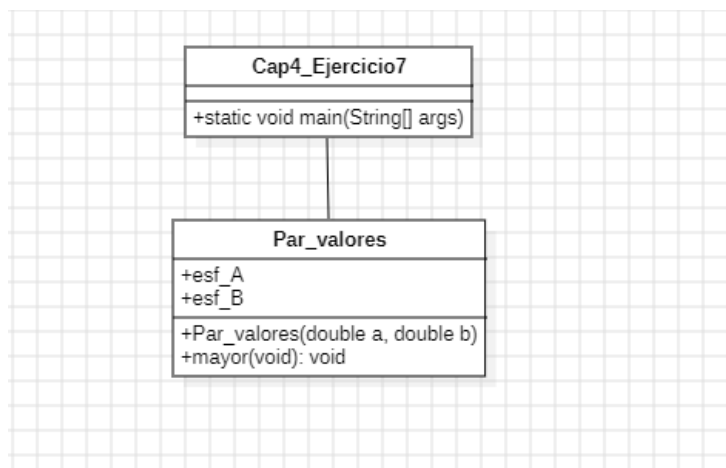
*/
public class Cap4_Ejercicio7_GUI {

    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }
}

```

URL: [https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4\\_Ejercicio7\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4_Ejercicio7_GUI)

**UML:**



**Ejercicio 10:**

**Clase Estudiante:**

package logical;

```
public class Estudiante {
```

```

    //Definimos deatributo
    //Definimos los atributos socioeconomicos del Estudiante;
    //Numero de inscripcion
    int ni;
    String nom;
    double pat;
    int est;
    private double pagMat;

```

```

//Definicion del constructor
public Estudiante(){
}
public Estudiante(int ni, String nombre, double patrimonio, int estrato_social) {
this.ni = ni;
this.nom = nombre;
this.pat = patrimonio;
this.est = estrato_social;
}

//Definimos los metodos
//Metodo del calculo de la matricula
public double calcMat() {
//Valor minimo de matricula
pagMat=50000;
//Excedente dependiente del estado socioeconomico
if(pat>2000000 & est>3){
pagMat += pat*0.03; //mas 3% del patrimonio
}
return pagMat;
}
}

```

## GUI:

```

package logical;

/**
 *
 * @author julil
 */
public class GUI extends javax.swing.JFrame {

    /**
     * Creates new form GUI
     */
    public GUI() {
        initComponents();
    }

    /**
     * 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() {

```



```

jPanel1 = new javax.swing.JPanel();
jScrollPane1 = new javax.swing.JScrollPane();
textareaMatricula = new javax.swing.JTextArea();
textNIT = new javax.swing.JTextField();
jLabel1 = new javax.swing.JLabel();
jLabel2 = new javax.swing.JLabel();
textNombre = new javax.swing.JTextField();
jLabel3 = new javax.swing.JLabel();
textPatrimonio = new javax.swing.JTextField();
jLabel4 = new javax.swing.JLabel();
textESocial = new javax.swing.JTextField();
buttonCalcular = new javax.swing.JButton();
buttonBorrar = new javax.swing.JButton();
jLabel5 = new javax.swing.JLabel();
jLabel6 = new javax.swing.JLabel();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

textareaMatricula.setColumns(20);
textareaMatricula.setRows(5);
jScrollPane1.setViewportView(textareaMatricula);

textNIT.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        textNITActionPerformed(evt);
    }
});

jLabel1.setText("NIT");

jLabel2.setText("Nombre");

jLabel3.setText("Patrimonio");

jLabel4.setText("Estrato Social");

textESocial.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        textESocialActionPerformed(evt);
    }
});

buttonCalcular.setText("Calcular");
buttonCalcular.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonCalcularActionPerformed(evt);
    }
}

```

```

});

buttonBorrar.setText("Borrar");
buttonBorrar.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonBorrarActionPerformed(evt);
    }
});

jLabel5.setText("Informacion Matricula");

jLabel6.setText("Matricula Estudiante");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
            .addGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
        .addComponent(jLabel5)
        .addGap(159, 159, 159))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
            .addComponent(buttonCalcular)
            .addGap(181, 181, 181))))
    .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(jLabel6)
    .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(jPanel1Layout.createSequentialGroup()
        .addGap(41, 41, 41)
        .addComponent(jLabel1)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGap(30, 30, 30)
            .addComponent(jLabel2)))
        .addGap(25, 25, 25)

```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
    .addComponent(textNombre,
javax.swing.GroupLayout.DEFAULT_SIZE, 81, Short.MAX_VALUE)
    .addComponent(textNIT))
.addGap(18, 18, 18)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jLabel3)
    .addComponent(jLabel4))))
.addGap(24, 24, 24)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
    .addComponent(textPatrimonio,
javax.swing.GroupLayout.PREFERRED_SIZE, 83,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textESocial, javax.swing.GroupLayout.PREFERRED_SIZE,
83, javax.swing.GroupLayout.PREFERRED_SIZE))
.addContainerGap(63, Short.MAX_VALUE))
.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
    .addGap(0, 0, Short.MAX_VALUE)
    .addComponent(buttonBorrar)
    .addGap(180, 180, 180))
.addGroup(jPanel1Layout.createSequentialGroup()
    .addGap(99, 99, 99)
    .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
251, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGap(0, 0, Short.MAX_VALUE))
);
jPanel1Layout.setVerticalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
    .addContainerGap()
    .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE, 16,
javax.swing.GroupLayout.PREFERRED_SIZE)

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

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel1)
    .addComponent(textNIT, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addComponent(jLabel3)
        .addComponent(textPatrimonio,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(20, 20, 20)

    .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(textNombre, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel2)
    .addComponent(jLabel4)
    .addComponent(textESocial, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(18, 18, 18)
    .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(buttonCalcular)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGap(18, 18, 18)
    .addComponent(buttonBorrar)
    .addContainerGap(36, Short.MAX_VALUE))
    );

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addComponent(jPanel1, javax.swing.GroupLayout.Alignment.TRAILING,
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.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
            .addContainerGap())
    );

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

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

    // TODO add your handling code here:

```

```

    }

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

        //Leemos los valores por las bandejas de textos
        int nit = Integer.parseInt(textNIT.getText());
        String nom = textNombre.getText();
        int pat = Integer.parseInt(textPatrimonio.getText());
        int eSocial = Integer.parseInt(textESocial.getText());
        //Creamos el objeto
        Estudiante estudiante_1 = new Estudiante(nit,nom,pat,eSocial);
        //Mostramos el resultado por la bandeja respectiva de texto
        String mensaje = "NIT: " + estudiante_1.ni + '\n' + "Nombre: " + estudiante_1.nom +
        '\n' + "Matricula: " + estudiante_1.calcMat() + " $ \n";
        textareaMatricula.setText(mensaje);
    }

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

        // TODO add your handling code here:
    }

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

        textareaMatricula.setText("");
    }

    // Variables declaration - do not modify
    private javax.swing.JButton buttonBorrar;
    private javax.swing.JButton buttonCalcular;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JTextField textESocial;
    private javax.swing.JTextField textNIT;
    private javax.swing.JTextField textNombre;
    private javax.swing.JTextField textPatrimonio;
    private javax.swing.JTextArea textareaMatricula;
    // End of variables declaration
}

```

## Main():

```
package logical;

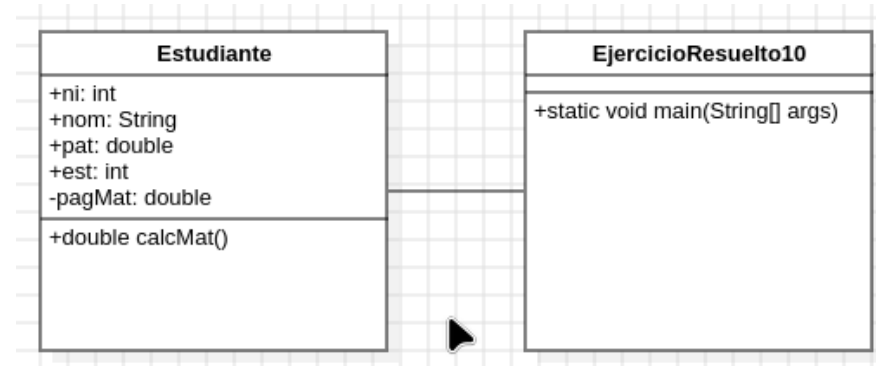
/**
 *
 * @author julil
 */
public class Cap4_Ejercicio10_GUI {

    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }

}
```

URL: [https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4\\_Ejercicio10\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4_Ejercicio10_GUI)

## UML:



## Ejercicio 22:

### Clase Trabajador:

```
package logical;

public class Trabajador {

    //Definimos los atributos de la clase
    public String nombreEmpleado;
    public float salBasicoph;
    public float horasMensuales;
```

```

    public float salarioMensual;

    //Definimos el contrutor
    public Trabajador() {
    }
    public Trabajador(String nombreEmpleado, float salBasicoph, float horasMensuales)
{
    this.nombreEmpleado = nombreEmpleado;
    this.salBasicoph = salBasicoph;
    this.horasMensuales = horasMensuales;
    salarioMensual = salBasicoph * horasMensuales;
}

    //Definimos los Metodos de la clase
    public int condTrabajador (){
    //Vairable auxiliar
    int value = 0;
    //Condicion de salario
    if (salarioMensual > 450000){

        value = 0;
    }else{

        value = 1;
    }
    return value;
    }
}

```

### GUI:

```

package logical;

/**
 *
 * @author julil
 */
public class GUI extends javax.swing.JFrame {

    /**
     * Creates new form GUI
     */
    public GUI() {
        initComponents();
    }

    /**
     * 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() {

    jPanel1 = new javax.swing.JPanel();
    jScrollPane1 = new javax.swing.JScrollPane();
    textareaMatricula = new javax.swing.JTextArea();
    textSBPH = new javax.swing.JTextField();
    jLabel1 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    textNombre = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    textNHTM = new javax.swing.JTextField();
    buttonInfo = new javax.swing.JButton();
    buttonBorrar = new javax.swing.JButton();
    jLabel5 = new javax.swing.JLabel();
    jLabel6 = new javax.swing.JLabel();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    textareaMatricula.setColumns(20);
    textareaMatricula.setRows(5);
    jScrollPane1.setViewportView(textareaMatricula);

    textSBPH.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            textSBPHActionPerformed(evt);
        }
    });

    jLabel1.setText("Salario Basico por Hora:");

    jLabel2.setText("Nombre:");

    jLabel3.setText("Numero de horas Trabajadas al mes:");

    buttonInfo.setText("Mostrar Informacion");
    buttonInfo.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            buttonInfoActionPerformed(evt);
        }
    });

    buttonBorrar.setText("Borrar");
    buttonBorrar.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {

```



```

        buttonBorrarActionPerformed(evt);
    }
});

jLabel5.setText("Informacion");

jLabel6.setText("Informacion Empleado");

javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
jPanel1.setLayout(jPanel1Layout);
jPanel1Layout.setHorizontalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
            .addGap(22, 22, 22)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(jLabel1)
            .addComponent(jLabel2)
            .addComponent(jLabel3))
            .addGap(47, 47, 47)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(textNombre, javax.swing.GroupLayout.DEFAULT_SIZE, 115,
Short.MAX_VALUE)
            .addComponent(textSBPH)
            .addComponent(textNHTM))
            .addGap(58, 58, 58))
        .addGroup(jPanel1Layout.createSequentialGroup()

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(154, 154, 154)
                        .addComponent(jLabel6))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(177, 177, 177)
                        .addComponent(jLabel5))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(138, 138, 138)
                        .addComponent(buttonInfo))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(174, 174, 174)
                        .addComponent(buttonBorrar))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addGap(74, 74, 74)

```

```

        .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
276, javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
    );
    jPanel1Layout.setVerticalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
            .addContainerGap()
            .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE, 16,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(12, 12, 12)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELI
NE)
            .addComponent(jLabel2)
            .addComponent(textNombre, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(18, 18, 18)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELI
NE)
            .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 16,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(textSBPH, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(18, 18, 18)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELI
NE)
            .addComponent(jLabel3)
            .addComponent(textNHTM, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(12, 12, 12)
            .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(buttonInfo)
            .addGap(12, 12, 12)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
86, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addComponent(buttonBorrar)
            .addContainerGap(16, Short.MAX_VALUE))
    );

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

```

```

        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
                    javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jPanel1, javax.swing.GroupLayout.Alignment.TRAILING,
                    javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
                    Short.MAX_VALUE)
        );

```

```

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

```

```

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

```

```

    // TODO add your handling code here:
}

```

```

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

```

```

    //Leemos los valores por las bandejas de textos
    String nom = textNombre.getText();
    int SBPH = Integer.parseInt(textSBPH.getText());
    int NHTM = Integer.parseInt(textNHTM.getText());
    //Creamos el objeto
    Trabajador empleado_1 = new Trabajador(nom, SBPH, NHTM);
    //Mostramos el resultado por la bandeja respectiva de texto
    String mensaje;
    switch(empleado_1.condTrabajador()){
    case 0:
    {
        mensaje = "Nombre: " + empleado_1.nombreEmpleado + '\n' + "Salario
Mensual: " + empleado_1.salarioMensual + " $ \n";
        break;
    }
    case 1:
    {
        mensaje = "Nombre: " + empleado_1.nombreEmpleado + '\n';
        break;
    }
    default: { throw new AssertionError(); }
    }
    textareaMatricula.setText(mensaje);
}

```

```

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

    textareaMatricula.setText("");
}

// Variables declaration - do not modify
private javax.swing.JButton buttonBorrar;
private javax.swing.JButton buttonInfo;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JPanel jPanel1;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JTextField textNHTM;
private javax.swing.JTextField textNombre;
private javax.swing.JTextField textSBPH;
private javax.swing.JTextArea textareaMatricula;
// End of variables declaration
}

```

### **Main():**

```

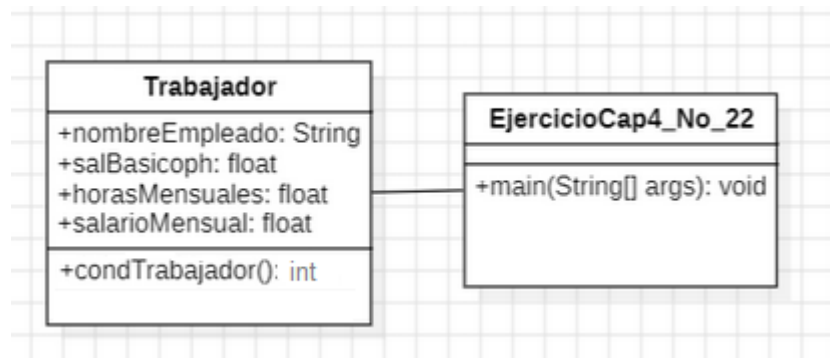
package logical;

/**
 *
 * @author julil
 */
public class Cap4_Ejercicio22_GUI {
    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }
}

```

**URL:** [https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4\\_Ejercicio22\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4_Ejercicio22_GUI)

**UML:**



### Ejercicio 23:

#### Clase Ecuacion2Grado:

```
package logical;

/**
 *
 * @author julil
 */
public class Ecuacion2Grado {
    //Definimos los Atributos
    //los coeficiente de la ecuacion de segundo grado
    /*Ax2+Bx+C=0*/
    private double A;
    private double B;
    private double C;
    //Definimos variables para almacenar los resultados de una ecuacion cuadratica
    public double realPart1;
    public double imgPart1;
    public double realPart2;
    public double imgPart2;

    //Definimos el constructor
    public Ecuacion2Grado(){
    }
    public Ecuacion2Grado(double a, double b, double c) {
        this.A=a;
        this.B=b;
        this.C=c;
    }

    //Definicion de metodos
    /**definimos un metodo para la solucion de la ecuacion
```

```

    * que imprima las soluciones
    */
    int solucionEcuacion(){
        //Definimos una variable para saber si la solucion tiene parte imaginaria
        double imgDet=Math.pow(B, 2)-4*A*C;
        //Definimos variable para un booleano de si la solucion es imaginaria o no
        int value;
        //Evaluamos si tiene parte imaginaria
        if(imgDet<0){
            realPart1=-B/(2*A);
            imgPart1=Math.sqrt(Math.abs(imgDet))/(2*A);
            realPart2=realPart1;
            imgPart2=imgPart1;
            //Definimos valor
            value = 0;

        }
        //Si no tiene parte imaginaria
        else{
            realPart1=(-B+Math.sqrt(imgDet))/(2*A);
            realPart2=(-B-Math.sqrt(imgDet))/(2*A);
            //Definimos valor
            value = 1;
        }

        return value;
    }
}

```

## GUI:

```

package logical;

/**
 *
 * @author julil
 */

import java.text.DecimalFormat;

public class GUI extends javax.swing.JFrame {

    /**
     * Creates new form GUI
     */
    public GUI() {

```

```

initComponents();
}

/**
 * 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() {

    jPanel1 = new javax.swing.JPanel();
    jScrollPane1 = new javax.swing.JScrollPane();
    textareaSoluciones = new javax.swing.JTextArea();
    textB = new javax.swing.JTextField();
    jLabel1 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    textA = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    textC = new javax.swing.JTextField();
    buttonSolucion = new javax.swing.JButton();
    buttonBorrar = new javax.swing.JButton();
    jLabel5 = new javax.swing.JLabel();
    jLabel6 = new javax.swing.JLabel();
    jLabel4 = new javax.swing.JLabel();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    textareaSoluciones.setColumns(20);
    textareaSoluciones.setRows(5);
    jScrollPane1.setViewportView(textareaSoluciones);

    textB.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            textBActionPerformed(evt);
        }
    });

    jLabel1.setText("B:");

    jLabel2.setText("A:");

    jLabel3.setText("C:");

    buttonSolucion.setText("Solucionar Ecuacion");
    buttonSolucion.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {

```

```

        buttonSolucionActionPerformed(evt);
    }
});

buttonBorrar.setText("Borrar");
buttonBorrar.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonBorrarActionPerformed(evt);
    }
});

jLabel5.setText("Soluciones");

jLabel6.setText("Soluciones de una Ecuacion Grado dos");

jLabel4.setText("Ax2+Bx+C = 0");

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()
                    .addGap(108, 108, 108)
                    .addComponent(buttonSolucion))
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addGap(82, 82, 82)
                    .addComponent(jLabel6))
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addGap(20, 20, 20)
                    .addComponent(jLabel5)))
            .addContainerGap(74, Short.MAX_VALUE))
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addComponent(jLabel4)
            .addGap(18, 18, 18)
            .addComponent(textA, javax.swing.GroupLayout.PREFERRED_SIZE,
200, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap(74, Short.MAX_VALUE))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanel1Layout.createSequentialGroup()
            .addGap(0, 9, Short.MAX_VALUE)
            .addComponent(jLabel1)
            .addContainerGap())
    );
jPanel1Layout.setVerticalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addContainerGap()
            .addComponent(buttonBorrar)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(buttonSolucion)
            .addGap(10, 10, 10)
            .addComponent(jLabel5)
            .addGap(10, 10, 10)
            .addComponent(jLabel6)
            .addGap(10, 10, 10)
            .addComponent(jLabel4)
            .addGap(10, 10, 10)
            .addComponent(textA, javax.swing.GroupLayout.PREFERRED_SIZE,
200, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(10, 10, 10)
            .addComponent(jLabel1)
            .addContainerGap(10, Short.MAX_VALUE))
    );

```



```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addComponent(jLabel5)
    .addComponent(textB, javax.swing.GroupLayout.PREFERRED_SIZE,
75, javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(18, 18, 18)
    .addComponent(jLabel3)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
    .addComponent(textC, javax.swing.GroupLayout.PREFERRED_SIZE,
73, javax.swing.GroupLayout.PREFERRED_SIZE)))
    .addGroup(jPanel1Layout.createSequentialGroup())
    .addGap(149, 149, 149)
    .addComponent(buttonBorrar))
    .addGroup(jPanel1Layout.createSequentialGroup())
    .addGap(38, 38, 38)
    .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
285, javax.swing.GroupLayout.PREFERRED_SIZE)))
    .addContainerGap(28, Short.MAX_VALUE))
);
jPanel1Layout.setVerticalGroup(
jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())
    .addGap(13, 13, 13)
    .addComponent(jLabel6, javax.swing.GroupLayout.PREFERRED_SIZE, 16,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(jLabel4)

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

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(textA, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textB, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(textC, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel3)
    .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 16,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(jLabel2))
    .addGap(18, 18, 18)
    .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 25,
javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(buttonSolucion)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
86, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(18, 18, 18)
        .addComponent(buttonBorrar)
        .addContainerGap(67, Short.MAX_VALUE))
    );

```

```

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(jPanel1, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addComponent(jPanel1, javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
    );

```

```

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

```

```

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

```

```

    textareaSoluciones.setText("");
}

```

```

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

```

```

    //Creacion de clase para mostrar dos cifras decimas
    DecimalFormat df = new DecimalFormat("#.##");
    //Leemos los valores por las bandejas de textos
    int A = Integer.parseInt(textA.getText());
    int B = Integer.parseInt(textB.getText());
    int C = Integer.parseInt(textC.getText());
    //Creamos el objeto
    Ecuacion2Grado ecuacion_parametros = new Ecuacion2Grado(A,B,C);
    //Mostramos el resultado por la bandeja respectiva de texto
    String mensaje;
    switch(ecuacion_parametros.solucionEcuacion()){
    case 0:
        { mensaje = "Primera solucion: " + df.format(ecuacion_parametros.realPart1) + " + "
+ df.format(ecuacion_parametros.imgPart1) + " i\n";

```

```

                mensaje = mensaje + "Segunda solucion: " +
df.format(ecuacion_parametros.realPart2) + " + " +
df.format(ecuacion_parametros.imgPart2) + " \n";
            break;
        }
        case 1:
        {
            mensaje = "Primera solucion: " + df.format(ecuacion_parametros.realPart1)+
" \n";
            mensaje = mensaje + "Segunda solucion: " +
df.format(ecuacion_parametros.realPart2)+ " \n";
            break;
        }
        default: { throw new AssertionError(); }
    }
    textareaSoluciones.setText(mensaje);
}

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

    // TODO add your handling code here:
}

// Variables declaration - do not modify
private javax.swing.JButton buttonBorrar;
private javax.swing.JButton buttonSolucion;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JPanel jPanel1;
private javax.swing.JScrollPane jScrollPane1;
private javax.swing.JTextField textA;
private javax.swing.JTextField textB;
private javax.swing.JTextField textC;
private javax.swing.JTextArea textareaSoluciones;
// End of variables declaration
}

```

### **Main():**

```
package logical;
```

```
/**
 *
```

```

* @author julil
*/
public class Cap4_Ejercicio23_GUI {

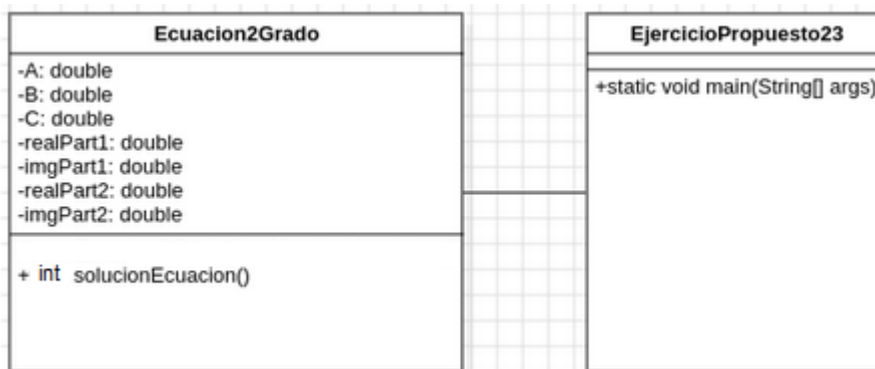
    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }

}

```

**URL:** [https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4\\_Ejercicio23\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/Cap4_Ejercicio23_GUI)

**UML:**



## PARTE 2:

### Clase Circulo:

```
package logical;
```

```

/**
 *
 * @author julil
 */
public class Circulo {
    //Definimos el atributo radio
    int radio;
    //Costruccion para la clase circulo
    public Circulo() {

```

```

    }
    public Circulo(int radio) {
        this.radio = radio;
    }
    //Aqui definimos los metodos de la clase, los cuales son:
    // Calculo del Area
    public double calcularArea()
    {
        return Math.PI*Math.pow(radio,2);
    }
    //Calculo del Perimetro
    public double calcularPerimetro()
    {
        return 2*Math.PI*radio;
    }
}

```

### Clase Cuadrado:

```

package logical;

/**
 *
 * @author julil
 */
public class Cuadrado {
    //Definimos el atributo lado del cuadrado
    int lado;
    //Costruccion para la clase cuadrado
    public Cuadrado(int lado)
    {
        this.lado = lado;
    }
    //Aqui definimos los metodos de la clase, los cuales son:
    // Calculo del Area
    public double calcularArea()
    {
        return lado*lado;
    }
    //Calculo del perimetro
    public double calcularPerimetro()
    {
        return (4*lado);
    }
}

```

### **Clase Rectangulo:**

```
package logical;

/**
 *
 * @author julil
 */

public class Rectangulo {
    //Definimos los atributos base y altura del rectangulo
    int base;
    int altura;
    //Costruccion para la clase rectangulo
    public Rectangulo(int base, int altura)
    {
        this.base = base;
        this.altura = altura;
    }
    //Aqui definimos los metodos de la clase, los cuales son:
    //Calculo del Area
    public double calcularArea()
    {
        return base * altura;
    }
    //Calculo perimetro
    public double calcularPerimetro()
    {
        return (2 * base) + (2 * altura);
    }
}
```

### **Clase TrianguloRectangulo:**

```
package logical;

/**
 *
 * @author julil
 */

public class TrianguloRectangulo {
    //Definimos los atributos base y altura del TrianguloRectangulo
    int base;
    int altura;
    //Costruccion para la clase TrianguloRectangulo
    public TrianguloRectangulo(int base, int altura)
    {
        this.base = base;
    }
}
```

```

    this.altura = altura;
}
//Aqui definimos los metodos de la clase, los cuales son:
// Calculo del Area
public double calcularArea()
{
    return (base * altura / 2);
}
//Calculo del perimetro
public double calcularPerimetro()
{
    return (base + altura + calcularHipotenusa());
}
//Hipotenusa de un triangulo
double calcularHipotenusa()
{
    return Math.pow(base*base + altura*altura, 0.5);
}
//Metodo para determinar si es un triangulo equilatero, escaleno o isosceles
public int determinarTipoTriangulo()
{
    //Definimos variable para indicar el valor
    int value = 0;
    //Comparacion
    if ((base == altura) && (base == calcularHipotenusa()) && (altura
    == calcularHipotenusa())){
        value = 0; /* Todos sus
        lados son iguales */
    }
    else if ((base != altura) && (base != calcularHipotenusa()) &&
    (altura != calcularHipotenusa())){
        value = 1; /* Todos sus
        lados son diferentes */
    }
    else{
        value = 2; /* De otra
        manera, es isósceles */
    }

    return value;
}
}

```

## GUI:

```
package logical;
```

```

/**
 *
 * @author julil
 */

import java.text.DecimalFormat;

public class GUI extends javax.swing.JFrame {

    /**
     * Creates new form GUI
     */
    public GUI() {
        initComponents();
    }

    /**
     * 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() {

        jPanel1 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        textRCirculo = new javax.swing.JTextField();
        buttonBCirculo = new javax.swing.JButton();
        buttonCCirculo = new javax.swing.JButton();
        textPCirculo = new javax.swing.JTextField();
        textACirculo = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        textLCuadrado = new javax.swing.JTextField();
        buttonCCuadrado = new javax.swing.JButton();
        textPCuadrado = new javax.swing.JTextField();
        jLabel7 = new javax.swing.JLabel();
        jLabel8 = new javax.swing.JLabel();
        textACuadrado = new javax.swing.JTextField();
        buttonBCuadrado = new javax.swing.JButton();
        jLabel9 = new javax.swing.JLabel();
        jLabel10 = new javax.swing.JLabel();
        textBRectangulo = new javax.swing.JTextField();
        buttonCReactangulo = new javax.swing.JButton();
    }
}

```



```

textPRectangulo = new javax.swing.JTextField();
jLabel11 = new javax.swing.JLabel();
jLabel12 = new javax.swing.JLabel();
textARectangulo = new javax.swing.JTextField();
buttonBoRectangulo = new javax.swing.JButton();
jLabel13 = new javax.swing.JLabel();
textAltRectangulo = new javax.swing.JTextField();
jLabel14 = new javax.swing.JLabel();
textBTriangulo = new javax.swing.JTextField();
jLabel15 = new javax.swing.JLabel();
textAltTriangulo = new javax.swing.JTextField();
jLabel16 = new javax.swing.JLabel();
buttonCTriangulo = new javax.swing.JButton();
jLabel17 = new javax.swing.JLabel();
textPTriangulo = new javax.swing.JTextField();
jLabel18 = new javax.swing.JLabel();
textATriangulo = new javax.swing.JTextField();
buttonBoTriangulo = new javax.swing.JButton();
textTipoTriangulo = new javax.swing.JTextField();
jLabel19 = new javax.swing.JLabel();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("Circulo");

jLabel2.setText("Radio:");

textRCirculo.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        textRCirculoActionPerformed(evt);
    }
});

buttonBCirculo.setText("Borrar");
buttonBCirculo.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonBCirculoActionPerformed(evt);
    }
});

buttonCCirculo.setText("Calcular");
buttonCCirculo.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonCCirculoActionPerformed(evt);
    }
});

jLabel3.setText("Perimetro:");

```

```
jLabel4.setText("Area:");

jLabel5.setText("Cuadrado");

jLabel6.setText("Lado:");

textLCuadrado.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        textLCuadradoActionPerformed(evt);
    }
});

buttonCCuadrado.setText("Calcular");
buttonCCuadrado.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonCCuadradoActionPerformed(evt);
    }
});

jLabel7.setText("Perimetro:");

jLabel8.setText("Area:");

buttonBCuadrado.setText("Borrar");
buttonBCuadrado.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        buttonBCuadradoActionPerformed(evt);
    }
});

jLabel9.setText("Rectangulo");

jLabel10.setText("Base:");

textBRectangulo.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        textBRectanguloActionPerformed(evt);
    }
});

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

```
jLabel11.setText("Perimetro:");
```

```
jLabel12.setText("Area:");
```

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

```
jLabel13.setText("Altura:");
```

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

```
jLabel14.setText("Base:");
```

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

```
jLabel15.setText("Altura:");
```

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

```
jLabel16.setText("Triangulo");
```

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

```
jLabel17.setText("Perimetro:");
```

```
jLabel18.setText("Area:");
```

```
buttonBoTriangulo.setText("Borrar");  
buttonBoTriangulo.addActionListener(new java.awt.event.ActionListener() {  
    public void actionPerformed(java.awt.event.ActionEvent evt) {  
        buttonBoTrianguloActionPerformed(evt);  
    }  
});  
  
jLabel19.setText("Tipo:");  
  
javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);  
jPanel1.setLayout(jPanel1Layout);  
jPanel1Layout.setHorizontalGroup(  
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
        .addGroup(jPanel1Layout.createSequentialGroup()  
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
            .addComponent(buttonBCirculo)  
            .addComponent(textRCirculo)  
            .addComponent(textPCirculo)  
            .addComponent(textACirculo))  
        .addGroup(jPanel1Layout.createSequentialGroup().addGap(80, 80, 80).addComponent(JScrollPane)))  
    );  
  
.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
    .addGroup(jPanel1Layout.createSequentialGroup()  
        .addContainerGap()  
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)  
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,  
                jPanel1Layout.createSequentialGroup()  
                    .addComponent(jLabel3)  
                    .addPreferredGap(LayoutStyle.ComponentPlacement.RELATED)  
                    .addGap(82, 82, 82))  
                :null  
            )  
        .addGroup(jPanel1Layout.createSequentialGroup()  
            .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
                .add(ComponentSpecimenForm.class.getName(), false)  
                .add(ComponentCircuitosForm.class.getName(), true))  
            .addGap(76, 76, 76))  
    ).addGroup(jPanel1Layout.createSequentialGroup()  
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
            .add(ComponentSpecimenForm.class.getName())  
            .add(ComponentCircuitosForm.class.getName()))  
        .addGap(17, 17, 17))  
    );
```

```
.addComponent(jLabel6)
.addComponent(jLabel7)
.addComponent(jLabel8))
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

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

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

    .addComponent(jLabel5)
    .addComponent(buttonBCuadrado)
    .addGroup(jPanel1Layout.createSequentialGroup())
    .addGap(10, 10, 10)
    .addComponent(jLabel16))
    .addComponent(textLCuadrado)
    .addComponent(textPCuadrado)
    .addComponent(textACuadrado)))
.addGroup(jPanel1Layout.createSequentialGroup())
.addGap(129, 129, 129)
.addComponent(jLabel14)
.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(textBTriangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, 76,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addGap(35, 35, 35)
.addComponent(jLabel15)))

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

    .addGroup(jPanel1Layout.createSequentialGroup())
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

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

    .addGroup(jPanel1Layout.createSequentialGroup())

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

    .addGroup(jPanel1Layout.createSequentialGroup())
        .addComponent(jLabel12)
        .addGap(43, 43, 43))
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup())
        .addComponent(jLabel11)
        .addGap(18, 18, 18)))
```

```

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
    .addComponent(buttonBoRectangulo)
    .addComponent(buttonCReactangulo,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
    .addComponent(textPRectangulo)
    .addComponent(textARectangulo)))
.addGroup(jPanel1Layout.createSequentialGroup())
.addComponent(jLabel10)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
.addComponent(textBRectangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, 70,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(jLabel13)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
.addComponent(textAltRectangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, 74,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(jPanel1Layout.createSequentialGroup())
.addGap(81, 81, 81)
.addComponent(jLabel9)))
.addContainerGap(20, Short.MAX_VALUE))
.addGroup(jPanel1Layout.createSequentialGroup())
.addGap(18, 18, 18)
.addComponent(textAltTriangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, 75,
javax.swing.GroupLayout.PREFERRED_SIZE)
.addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))))
.addGroup(jPanel1Layout.createSequentialGroup())
.addGap(35, 35, 35)
.addComponent(jLabel17)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
    .addGroup(jPanel1Layout.createSequentialGroup())
    .addGap(127, 127, 127)
    .addComponent(buttonBoTriangulo))
    .addGroup(jPanel1Layout.createSequentialGroup())

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

```

```

        .addComponent(textPTriangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, 76,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
        .addComponent(jLabel18)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
        .addComponent(buttonCTriangulo,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE)
        .addComponent(textATriangulo))
        .addGap(19, 19, 19)
        .addComponent(jLabel19)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(textTpoTriangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, 159,
javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
    );
    jPanel1Layout.setVerticalGroup(
    jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addComponent(jLabel1)
                    .addGap(18, 18, 18))
                .addGroup(jPanel1Layout.createSequentialGroup()
                    .addComponent(jLabel2)
                    .addComponent(textRCirculo,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel6)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(buttonCCirculo)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED))
            .addContainerGap())
        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jLabel1)
            .addComponent(jLabel2)
            .addComponent(textRCirculo)
            .addComponent(jLabel6)
            .addComponent(buttonCCirculo))
    );

```

```

        .addComponent(textPCirculo,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel3))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(textACirculo,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel4))

        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
        .addComponent(buttonBCirculo))
        .addGroup(jPanel1Layout.createSequentialGroup()

        .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
        .addGroup(jPanel1Layout.createSequentialGroup()
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addComponent(textLCuadrado,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)

                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(buttonCCuadrado))
            .addGroup(javax.swing.GroupLayout.Alignment.LEADING,
jPanel1Layout.createSequentialGroup()

                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel9)
                .addComponent(jLabel5))
                .addGap(18, 18, 18)

                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel10)
                .addComponent(textBRectangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(jLabel13)
                .addComponent(textAltRectangulo,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))

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

```



```

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

    .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(textPCuadrado,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel7)
        .addComponent(jLabel11)
        .addComponent(textPRectangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

    .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(textACuadrado,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel8)
        .addComponent(jLabel12)
        .addComponent(textARectangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE))

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

    .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(buttonBCuadrado)
        .addComponent(buttonBoRectangulo))))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
35, Short.MAX_VALUE)
        .addComponent(jLabel16, javax.swing.GroupLayout.PREFERRED_SIZE, 16,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addGap(18, 18, 18)

    .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel14)
        .addComponent(textBTriangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel15)
        .addComponent(textAltTriangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(12, 12, 12)

```

```

        .addComponent(buttonCTriangulo)
        .addGap(15, 15, 15)

    .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(textATriangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel18)
        .addComponent(textPTriangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel17)
        .addComponent(jLabel19)
        .addComponent(textTipoTriangulo,
            javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
            javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(9, 9, 9)
        .addComponent(buttonBoTriangulo)
        .addGap(19, 19, 19))
    );

    javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
    getContentPane().setLayout(layout);
    layout.setHorizontalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addContainerGap())
        .addGroup(layout.createSequentialGroup()
            .addComponent(jPanel1, javax.swing.GroupLayout.PREFERRED_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(0, 0, Short.MAX_VALUE))
    );

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

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

    // TODO add your handling code here:
}

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

    // TODO add your handling code here:
}

```

```

}

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

// TODO add your handling code here:
}

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

// TODO add your handling code here:
}

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

// TODO add your handling code here:
}

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

// TODO add your handling code here:
}

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

//Creacion de clase para mostrar dos cifras decimas
DecimalFormat df = new DecimalFormat("#.##");
//Leemos los valores por las bandejas de textos
int radio = Integer.parseInt(textRCirculo.getText());
//Creamos el objeto
Circulo circulo_1 = new Circulo(radio);
//Mostramos el resultado por la bandeja respectiva de texto
textACirculo.setText(df.format(circulo_1.calcularArea()));
textPCirculo.setText(df.format(circulo_1.calcularPerimetro()));
}

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

textACirculo.setText("");
textPCirculo.setText("");
}

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

//Creacion de clase para mostrar dos cifras decimas
DecimalFormat df = new DecimalFormat("#.##");
//Leemos los valores por las bandejas de textos
int lado = Integer.parseInt(textLCuadrado.getText());
//Creamos el objeto

```

```
Cuadrado cuadrado_1 = new Cuadrado(lado);
//Mostramos el resultado por la bandeja respectiva de texto
textACuadrado.setText(df.format(cuadrado_1.calcularArea()));
textPCuadrado.setText(df.format(cuadrado_1.calcularPerimetro()));
}
```

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

textACuadrado.setText("");
textPCuadrado.setText("");
}
```

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

//Creacion de clase para mostrar dos cifras decimas
DecimalFormat df = new DecimalFormat("#.##");
//Leemos los valores por las bandejas de textos
int base = Integer.parseInt(textBRectangulo.getText());
int altura = Integer.parseInt(textAltRectangulo.getText());
//Creamos el objeto
Rectangulo Rectangulo_1 = new Rectangulo(base, altura);
//Mostramos el resultado por la bandeja respectiva de texto
textARectangulo.setText(df.format(Rectangulo_1.calcularArea()));
textPRectangulo.setText(df.format(Rectangulo_1.calcularPerimetro()));
}
```

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

textARectangulo.setText("");
textPRectangulo.setText("");
}
```

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

//Creacion de clase para mostrar dos cifras decimas
DecimalFormat df = new DecimalFormat("#.##");
//Leemos los valores por las bandejas de textos
int base = Integer.parseInt(textBTriangulo.getText());
int altura = Integer.parseInt(textAltTriangulo.getText());
//Creamos el objeto
TrianguloRectangulo Triangulo_1 = new TrianguloRectangulo(base, altura);
//Mostramos el resultado por la bandeja respectiva de texto
textATriangulo.setText(df.format(Triangulo_1.calcularArea()));
textPTriangulo.setText(df.format(Triangulo_1.calcularPerimetro()));
String mensaje;
switch(Triangulo_1.determinarTipoTriangulo()){
case 0:
{ mensaje = "Es un triángulo equilátero";
```

```

        break;
    }
    case 1:
    {
        mensaje = "Es un triángulo escaleno";
        break;
    }
    case 2:
    {
        mensaje = "Es un triángulo isósceles";
        break;
    }
    default: { throw new AssertionError(); }
    }
    textTipoTriangulo.setText(mensaje);
}

```

```

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

```

```

    textATriangulo.setText("");
    textPTriangulo.setText("");
    textTipoTriangulo.setText("");
}

```

```

// Variables declaration - do not modify
private javax.swing.JButton buttonBCirculo;
private javax.swing.JButton buttonBCuadrado;
private javax.swing.JButton buttonBoRectangulo;
private javax.swing.JButton buttonBoTriangulo;
private javax.swing.JButton buttonCCirculo;
private javax.swing.JButton buttonCCuadrado;
private javax.swing.JButton buttonCReactangulo;
private javax.swing.JButton buttonCTriangulo;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel10;
private javax.swing.JLabel jLabel11;
private javax.swing.JLabel jLabel12;
private javax.swing.JLabel jLabel13;
private javax.swing.JLabel jLabel14;
private javax.swing.JLabel jLabel15;
private javax.swing.JLabel jLabel16;
private javax.swing.JLabel jLabel17;
private javax.swing.JLabel jLabel18;
private javax.swing.JLabel jLabel19;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;

```

```

private javax.swing.JLabel jLabel4;
private javax.swing.JLabel jLabel5;
private javax.swing.JLabel jLabel6;
private javax.swing.JLabel jLabel7;
private javax.swing.JLabel jLabel8;
private javax.swing.JLabel jLabel9;
private javax.swing.JPanel jPanel1;
private javax.swing.JTextField textACirculo;
private javax.swing.JTextField textACuadrado;
private javax.swing.JTextField textARectangulo;
private javax.swing.JTextField textATriangulo;
private javax.swing.JTextField textAltRectangulo;
private javax.swing.JTextField textAltTriangulo;
private javax.swing.JTextField textBRectangulo;
private javax.swing.JTextField textBTriangulo;
private javax.swing.JTextField textLCuadrado;
private javax.swing.JTextField textPCirculo;
private javax.swing.JTextField textPCuadrado;
private javax.swing.JTextField textPRectangulo;
private javax.swing.JTextField textPTriangulo;
private javax.swing.JTextField textRCirculo;
private javax.swing.JTextField textTipoTriangulo;
// End of variables declaration
}

```

### **Main():**

```

package logical;

/**
 *
 * @author julil
 */
public class PruebaFiguras_GUI {

    public static void main(String[] args) {
        //Creamos la intencia de la interfaz grafica
        GUI InterfazUsuario = new GUI();
        //Mostramos la ventana de la GUI
        InterfazUsuario.setVisible(true);
        InterfazUsuario.setLocationRelativeTo(null);
    }

}

```

**URL:** [https://github.com/juloperag/POO/tree/main/Actividad%203/PruebaFiguras\\_GUI](https://github.com/juloperag/POO/tree/main/Actividad%203/PruebaFiguras_GUI)

## UML:

