

Actividad 3

Programación Orientada a Objetos

Grupo 4

Estudiante

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Ejercicio 18 del capítulo 3 con GUI

Clase empleado

```
package clases;
```

```
public class Empleado {
```

```
    private String codigo_empleado;  
    public String nombre;  
    private double horas_trabajadas=0, valor_hora;  
    public double porcentaje_rtffe;
```

```
    public Empleado(String nombre, double porcentaje_rtffe) {  
        this.nombre = nombre;  
        this.porcentaje_rtffe = porcentaje_rtffe;  
    }
```

```
    public Empleado(String codigo, String nombre, double horas_trabajadas, double  
valor_hora, double porcentaje_rtffe) {  
        this.codigo_empleado = codigo_empleado;  
        this.nombre = nombre;  
        this.horas_trabajadas = horas_trabajadas;  
        if (valor_hora >= 4833) {  
            this.valor_hora = valor_hora;  
        }  
        else {  
            this.valor_hora = 4833;  
        }  
        this.porcentaje_rtffe = porcentaje_rtffe;  
    }
```

```
    public String getCodigoEmpleado() {  
        return this.codigo_empleado;  
    }
```

```
    public void setCodigoEmpleado(String codigo) {  
        // Se podrían agregar condiciones para establecer un código  
        // por eso hice esta variable privada  
        this.codigo_empleado = codigo;  
    }
```

```
    public double getHorasTrabajadas() {  
        return this.horas_trabajadas;  
    }
```

```
    public void addHorasTrabajadas(double horas) {
```

```
        this.horas_trabajadas += Math.abs(horas);
    }

    public void resetHorasTrabajadas() {
        this.horas_trabajadas = 0;
    }

    public double getValorHora() {
        return this.valor_hora;
    }

    public void setValorHora(double valor) {
        if (valor >= 4833) {
            this.valor_hora = valor;
        }
        else {
            this.valor_hora = 4833;
            System.out.println("El valor mínimo de la hora trabajada en Colombia es 4833");
        }
    }

    public double salarioBruto() {
        return (this.valor_hora*this.horas_trabajadas);
    }

    public double rtfte() {
        return (this.salarioBruto()*(this.porcentaje_rtfte/100));
    }

    public double salarioNeto() {
        return (this.salarioBruto() - this.rtfte());
    }
}
```

Clase principal

```
import interfaz.*;

public class Ejercicio18cap3gui {

    public static void main(String[] args) {

        VentanaPrincipal ventana = new VentanaPrincipal();
        ventana.setVisible(true);

    }
}
```

Clase de interfaz gráfica

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
 this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GuiForms/JFrame.java to edit this
 template
 */
package interfaz;

import clases.*;

/**
 *
 * @author jmcada
 */
public class VentanaPrincipal extends javax.swing.JFrame {

    /**
     * Creates new form VentanaPrincipal
     */
    public VentanaPrincipal() {
        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">//GEN-BEGIN:initComponents
private void initComponents() {

    jLabel4 = new javax.swing.JLabel();
    txt_salario_netto = new javax.swing.JTextField();
    jLabel5 = new javax.swing.JLabel();
    txt_salario_brutto = new javax.swing.JTextField();
    jLabel6 = new javax.swing.JLabel();
    btn_calcular_salario = new javax.swing.JButton();
    txt_codigo_empleado = new javax.swing.JTextField();
    btn_limpiar_formulario = new javax.swing.JButton();
    txt_nombre = new javax.swing.JTextField();
    btn_salir = new javax.swing.JButton();
    txt_horas_trabajadas = new javax.swing.JTextField();
    txt_valor_hora = new javax.swing.JTextField();
    txt_porcentaje_rtfe = new javax.swing.JTextField();
    jLabel1 = new javax.swing.JLabel();
    jLabel7 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    jLabel8 = new javax.swing.JLabel();
    jLabel3 = new javax.swing.JLabel();
    jLabel9 = new javax.swing.JLabel();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel4.setText("INFORMACIÓN DEL EMPLEADO");

    jLabel5.setText("Valor de la hora trabajada");

    jLabel6.setText("Porcentaje de retención en la fuente");

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

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

    btn_limpiar_formulario.setText("Limpiar formulario");
    btn_limpiar_formulario.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {

```

```

        btn_limpiar_formularioActionPerformed(evt);
    }
});

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

btn_salir.setText("Salir");
btn_salir.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_salirActionPerformed(evt);
    }
});

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

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

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

jLabel1.setText("Código");

jLabel7.setText("SALARIO");

jLabel2.setText("Nombres");

jLabel8.setText("Bruto");

jLabel3.setText("Número de horas trabajadas al mes");

jLabel9.setText("Neto");

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

```

```
getContentPane().setLayout(layout);  
layout.setHorizontalGroup(  
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
        .addGroup(layout.createSequentialGroup()  
  
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
            .addGroup(layout.createSequentialGroup()  
                .addGap(196, 196, 196)  
                .addComponent(jLabel4))  
            .addGroup(layout.createSequentialGroup()  
                .addGap(269, 269, 269)  
                .addComponent(jLabel7))  
            .addGroup(layout.createSequentialGroup()  
                .addGap(48, 48, 48)  
  
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)  
            .addGroup(layout.createSequentialGroup()  
                .addComponent(jLabel3)  
                .addGap(18, 18, 18)  
                .addComponent(txt_horas_trabajadas))  
            .addGroup(layout.createSequentialGroup()  
                .addComponent(jLabel2)  
                .addGap(18, 18, 18)  
                .addComponent(txt_nombre))  
            .addGroup(layout.createSequentialGroup()  
                .addComponent(jLabel1)  
                .addGap(18, 18, 18)  
                .addComponent(txt_codigo_empleado,  
javax.swing.GroupLayout.PREFERRED_SIZE, 438,  
javax.swing.GroupLayout.PREFERRED_SIZE))  
            .addGroup(layout.createSequentialGroup()  
                .addComponent(jLabel5)  
                .addGap(18, 18, 18)  
                .addComponent(txt_valor_hora))  
            .addGroup(layout.createSequentialGroup()  
                .addComponent(jLabel6)  
                .addGap(18, 18, 18)  
                .addComponent(txt_porcentaje_rtffe))  
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING),  
                layout.createSequentialGroup()  
  
.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)  
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)  
                .add(layout.createSequentialGroup()  
                    .addComponent(btn_calcular_salario)  
                    .addGap(66, 66, 66)  
                    .addComponent(btn_limpiar_formulario)  
                    .addGap(0, 0, Short.MAX_VALUE)))
```

```

        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel8)
            .addGap(18, 18, 18)
            .addComponent(txt_salario_bruto,
                javax.swing.GroupLayout.PREFERRED_SIZE, 128,
                javax.swing.GroupLayout.PREFERRED_SIZE)

            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
                javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addComponent(jLabel9)))
        .addGap(18, 18, 18)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(txt_salario_neto,
                javax.swing.GroupLayout.Alignment.TRAILING,
                javax.swing.GroupLayout.PREFERRED_SIZE, 128,
                javax.swing.GroupLayout.PREFERRED_SIZE)
            .addComponent(btn_salir,
                javax.swing.GroupLayout.Alignment.TRAILING))))))
        .addContainerGap(67, Short.MAX_VALUE))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(32, 32, 32)
            .addComponent(jLabel4)
            .addGap(35, 35, 35)

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel1)
                .addComponent(txt_codigo_empleado,
                    javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
                    javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabel2)
                .addComponent(txt_nombre, javax.swing.GroupLayout.PREFERRED_SIZE,
                    javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)

            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel3)
                .addComponent(txt_horas_trabajadas,
                    javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
                    javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)

```



```

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

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel6)
    .addComponent(txt_porcentaje_rtfe,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(37, 37, 37)
    .addComponent(jLabel7)
    .addGap(18, 18, 18)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel8)
    .addComponent(jLabel9)
    .addComponent(txt_salario_neto,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addComponent(txt_salario_bruto,
javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 53,
Short.MAX_VALUE)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(btn_calcular_salario)
    .addComponent(btn_limpiar_formulario)
    .addComponent(btn_salir))
    .addGap(40, 40, 40))
);

pack();
}

// </editor-fold> //GEN-END: initComponents

private void btn_calcular_salarioActionPerformed(java.awt.event.ActionEvent evt)
{
//GEN-FIRST:event_btn_calcular_salarioActionPerformed
Empleado empleado = new
Empleado(txt_codigo_empleado.getText(), txt_nombre.getText(), Double.parseDouble(txt_hor
as_trabajadas.getText()), Double.parseDouble(txt_valor_hora.getText()), Double.parseDouble
(txt_porcentaje_rtfe.getText()));
txt_salario_bruto.setText(String.valueOf(empleado.salarioBruto()));
txt_salario_neto.setText(String.valueOf(empleado.salarioNeto()));
}
//GEN-LAST:event_btn_calcular_salarioActionPerformed

```

```

    private void txt_codigo_empleadoActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_txt_codigo_empleadoActionPerformed
        // TODO add your handling code here:
        //GEN-LAST:event_txt_codigo_empleadoActionPerformed
    }

    private void btn_limpiar_formularioActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_btn_limpiar_formularioActionPerformed
        txt_codigo_empleado.setText("");
        txt_nombre.setText("");
        txt_horas_trabajadas.setText("");
        txt_valor_hora.setText("");
        txt_porcentaje_rtfe.setText("");
        txt_salario_bruto.setText("");
        txt_salario_neto.setText("");
        //GEN-LAST:event_btn_limpiar_formularioActionPerformed
    }

    private void txt_nombreActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_txt_nombreActionPerformed
        // TODO add your handling code here:
        //GEN-LAST:event_txt_nombreActionPerformed
    }

    private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_btn_salirActionPerformed
        dispose();
        //GEN-LAST:event_btn_salirActionPerformed
    }

    private void txt_horas_trabajadasActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_txt_horas_trabajadasActionPerformed
        // TODO add your handling code here:
        //GEN-LAST:event_txt_horas_trabajadasActionPerformed
    }

    private void txt_valor_horaActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_txt_valor_horaActionPerformed
        // TODO add your handling code here:
        //GEN-LAST:event_txt_valor_horaActionPerformed
    }

    private void txt_porcentaje_rtfeActionPerformed(java.awt.event.ActionEvent evt)
    {
        //GEN-FIRST:event_txt_porcentaje_rtfeActionPerformed
        // TODO add your handling code here:
        //GEN-LAST:event_txt_porcentaje_rtfeActionPerformed
    }

    /**
     * @param args the command line arguments
     */
    public static void main(String args[]) {
        /* Set the Nimbus look and feel */
        //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">

```

```
/* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and feel.
```

```
 * For details see
```

```
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
```

```
 */
```

```
try {
    for (javax.swing.UIManager.LookAndFeelInfo info :
        javax.swing.UIManager.getInstalledLookAndFeels()) {
        if ("Nimbus".equals(info.getName())) {
            javax.swing.UIManager.setLookAndFeel(info.getClassName());
            break;
        }
    }
} catch (ClassNotFoundException ex) {
```

```
java.util.logging.Logger.getLogger(VentanaPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (InstantiationException ex) {
```

```
java.util.logging.Logger.getLogger(VentanaPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (IllegalAccessException ex) {
```

```
java.util.logging.Logger.getLogger(VentanaPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {
```

```
java.util.logging.Logger.getLogger(VentanaPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
    }
}
//</editor-fold>
```

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

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

```
// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JButton btn_calcular_salario;
private javax.swing.JButton btn_limpiar_formulario;
private javax.swing.JButton btn_salir;
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.JLabel jLabel9;
private javax.swing.JTextField txt_codigo_empleado;
private javax.swing.JTextField txt_horas_trabajadas;
private javax.swing.JTextField txt_nombre;
private javax.swing.JTextField txt_porcentaje_rtfe;
private javax.swing.JTextField txt_salario_bruto;
private javax.swing.JTextField txt_salario_netto;
private javax.swing.JTextField txt_valor_hora;
// End of variables declaration//GEN-END:variables
}

```

Interfaz de usuario

INFORMACIÓN DEL EMPLEADO

Código

Nombres

Número de horas trabajadas al mes

Valor de la hora trabajada \$

Porcentaje de retención en la fuente %

SALARIO

Bruto

Neto

Calcular salario

Limpiar formulario

Salir

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio18cap3gui

Ejercicio 19 del capítulo 3

Código clase TrianguloEquilatero

```
package clases;

import java.util.Scanner;

public class TrianguloEquilatero {

    public double lado;

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

    public TrianguloEquilatero() {
    }

    public double perimetro() {
        return (lado*3);
    }

    public double altura() {
        return Math.sqrt(Math.pow(lado, 2)*Math.pow((lado/2), 2));
    }

    public double area() {
        return (this.lado * this.altura())/2;
    }

}
```

Código clase principal

```
import interfaz.*;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }

}
```

Código clase de interfaz gráfica

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
 this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this
 template
 */
package interfaz;

/**
 *
 * @author jmcada
 */

import classes.*;

public class MainWindow extends javax.swing.JFrame {

    /**
     * Creates new form MainWindow
     */

    public TrianguloEquilatero triangulo;

    public MainWindow() {
        initComponents();

        triangulo = new TrianguloEquilatero();
    }

    /**
     * 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() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        txt_lado = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
    }
}
```

```

txt_perimetro = new javax.swing.JTextField();
jLabel5 = new javax.swing.JLabel();
txt_altura = new javax.swing.JTextField();
jLabel6 = new javax.swing.JLabel();
txt_area = new javax.swing.JTextField();
btn_calcular = new javax.swing.JButton();
btn_salir = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("TRIANGULO EQUILATERO");

jLabel2.setText("Lado:");

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

jLabel3.setText("INFORMACIÓN DEL TRIÁNGULO");

jLabel4.setText("Perímetro:");

jLabel5.setText("Altura:");

jLabel6.setText("Area:");

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

btn_salir.setText("Salir");
btn_salir.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_salirActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
                layout.createSequentialGroup()

```

```

        .addContainerGap(57, Short.MAX_VALUE)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
            .addComponent(jLabel1)
            .addGap(51, 51, 51))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
            .addComponent(jLabel3)
            .addGap(37, 37, 37))))
    .addGroup(layout.createSequentialGroup()
        .addGap(31, 31, 31)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addComponent(btn_calcular)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
            .addComponent(btn_salir))
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel6)
            .addGap(18, 18, 18)
            .addComponent(txt_area))
        .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
            .addComponent(jLabel5)
            .addGap(18, 18, 18)
            .addComponent(txt_altura))
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel4)
            .addGap(18, 18, 18)
            .addComponent(txt_perimetro))
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel2)
            .addGap(18, 18, 18)
            .addComponent(txt_lado)))
        .addGap(37, 37, 37))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(17, 17, 17)
            .addComponent(jLabel1)
            .addGap(18, 18, 18)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel2)

```



```

        .addComponent(txt_lado, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(37, 37, 37)
        .addComponent(jLabel3)
        .addGap(18, 18, 18)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel4)
        .addComponent(txt_perimetro, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel5)
        .addComponent(txt_altura, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel6)
        .addComponent(txt_area, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 31,
Short.MAX_VALUE)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(btn_calcular)
        .addComponent(btn_salir))
        .addContainerGap()
    );

    pack();
} // </editor-fold> // GEN-END: initComponents

private void txt_ladoActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_txt_ladoActionPerformed
    this.triangulo.lado = Double.parseDouble(txt_lado.getText());
    txt_perimetro.setText(String.valueOf(this.triangulo.perimetro()));
    txt_altura.setText(String.valueOf(this.triangulo.altura()));
    txt_area.setText(String.valueOf(this.triangulo.area()));
} // GEN-LAST: event_txt_ladoActionPerformed

private void btn_calcularActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_calcularActionPerformed
    this.triangulo.lado = Double.parseDouble(txt_lado.getText());
    txt_perimetro.setText(String.valueOf(this.triangulo.perimetro()));
    txt_altura.setText(String.valueOf(this.triangulo.altura()));
    txt_area.setText(String.valueOf(this.triangulo.area()));
}

```

```

} //GEN-LAST:event_btn_calcularActionPerformed

private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
{ //GEN-FIRST:event_btn_salirActionPerformed
    dispose();
} //GEN-LAST:event_btn_salirActionPerformed

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

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    }
}
//</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {

```

```

        new MainWindow().setVisible(true);
    }
});
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JButton btn_calcular;
private javax.swing.JButton btn_salir;
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.JTextField txt_altura;
private javax.swing.JTextField txt_area;
private javax.swing.JTextField txt_lado;
private javax.swing.JTextField txt_perimetro;
// End of variables declaration//GEN-END:variables
}

```

Interfaz gráfica

TRIANGULO EQUILATERO

Lado:

INFORMACIÓN DEL TRIÁNGULO

Perímetro:

Altura:

Area:

Calcular Salir

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio19cap3gui

Ejercicio 7 del capítulo 4

Clase principal

```
import interfaz.*;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }
}
```

Clase de la interfaz gráfica

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
 this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this
 template
 */
package interfaz;

/**
 *
 * @author jmcada
 */
public class MainWindow extends javax.swing.JFrame {

    /**
     * Creates new form MainWindow
     */
    public MainWindow() {
        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">//GEN-BEGIN:initComponents
private void initComponents() {

    jLabel1 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    jTextField1 = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    jTextField2 = new javax.swing.JTextField();
    indicator = new javax.swing.JLabel();
    jButton1 = new javax.swing.JButton();
    jButton2 = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel1.setText("MAYOR DE DOS NÚMEROS");

    jLabel2.setText("A");

    jTextField1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jTextField1ActionPerformed(evt);
        }
    });

    jLabel3.setText("B");

    jTextField2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jTextField2ActionPerformed(evt);
        }
    });

    indicator.setText("</>");

    jButton1.setText("Calcular");
    jButton1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton1ActionPerformed(evt);
        }
    });

    jButton2.setText("Salir");
    jButton2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            jButton2ActionPerformed(evt);
        }
    });
}

```

[illegible]

```

        .addComponent(jLabel2)
        .addComponent(jTextField1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel3)
        .addComponent(jTextField2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(indicator))
        .addGap(34, 34, 34)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jButton1)
        .addComponent(jButton2))
        .addContainerGap(30, Short.MAX_VALUE))
    );

```

```

    pack();
} // </editor-fold> // GEN-END: initComponents

```

```

private void jTextField1ActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST:event_jTextField1ActionPerformed
    // TODO add your handling code here:
} // GEN-LAST:event_jTextField1ActionPerformed

```

```

private void jTextField2ActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST:event_jTextField2ActionPerformed
    // TODO add your handling code here:
} // GEN-LAST:event_jTextField2ActionPerformed

```

```

private void jButton1ActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST:event_jButton1ActionPerformed
    double a, b;
    try {
        a = Double.parseDouble(txt_a.getText());
        b = Double.parseDouble(txt_b.getText());
        if (a > b) {
            indicator.setText(">");
        }
        else if (a == b) {
            indicator.setText("=");
        }
        else {
            indicator.setText("<");
        }
    }
    catch (Exception e) {
        indicator.setText("</>");
    }
} // GEN-LAST:event_jButton1ActionPerformed

```

```

private void jButton2ActionPerformed(java.awt.event.ActionEvent evt)
{
    //GEN-FIRST:event_jButton2ActionPerformed
        dispose();
    //GEN-LAST:event_jButton2ActionPerformed

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

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        } catch (InstantiationException ex) {

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        }
    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new MainWindow().setVisible(true);
        }
    });
}

```



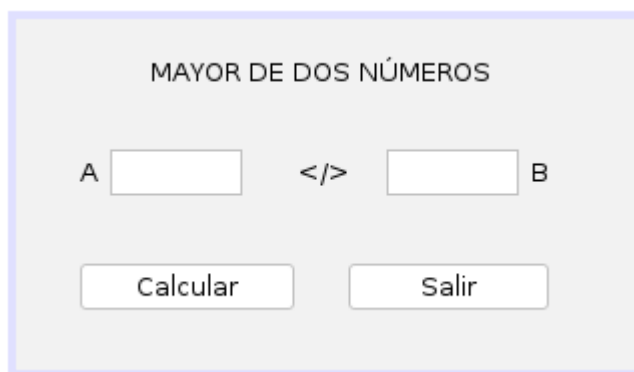
```

    }
    });
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JLabel indicator;
private javax.swing.JButton jButton1;
private javax.swing.JButton jButton2;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JTextField jTextField1;
private javax.swing.JTextField jTextField2;
// End of variables declaration//GEN-END:variables
}

```

Interfaz gráfica



The image shows a Java Swing window with a light gray background and a thin blue border. At the top, the title 'MAYOR DE DOS NÚMEROS' is centered. Below the title, there are two text input fields. The first field is preceded by the letter 'A' and the second by the letter 'B'. Between the two fields is a '</>' symbol. At the bottom of the window, there are two buttons: 'Calcular' on the left and 'Salir' on the right.

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio7cap4gui

Ejercicio 10 del capítulo 4

Clase principal

```
import interfaz.*;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }
}
```

Clase Estudiante

```
package clases;

public class Estudiante {

    public String num_inscripcion, nombre;
    public double patrimonio;
    public int estrato;

    public Estudiante(String num_inscripcion, String nombre, double patrimonio, int estrato)
    {
        this.num_inscripcion = num_inscripcion;
        this.nombre = nombre;
        this.patrimonio = patrimonio;
        this.estrato = estrato;
    }

    public double matricula() {
        double pagmat = 50000;
        if ((patrimonio > 2000000) && (estrato > 3)) {
            pagmat = pagmat + (0.03*patrimonio);
        }
        return pagmat;
    }
}
```

Clase de la interfaz gráfica

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
 this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GuiForms/JFrame.java to edit this
 template
 */
package interfaz;

/**
 *
 * @author jmcada
 */

import classes.*;

public class MainWindow extends javax.swing.JFrame {

    /**
     * Creates new form MainWindow
     */
    public MainWindow() {
        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">
    //GEN-BEGIN: initComponents
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        txt_num_inscripcion = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        txt_nombre = new javax.swing.JTextField();
        jLabel4 = new javax.swing.JLabel();
        txt_patrimonio = new javax.swing.JTextField();
        jLabel5 = new javax.swing.JLabel();
        txt_estrato = new javax.swing.JTextField();
        jLabel6 = new javax.swing.JLabel();
        txt_matricula = new javax.swing.JTextField();
    }
}
```

```

btn_calcular = new javax.swing.JButton();
btn_salir = new javax.swing.JButton();

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("DATOS DEL ESTUDIANTE");

jLabel2.setText("Número de inscripción:");

jLabel3.setText("Nombre:");

jLabel4.setText("Patrimonio:");

jLabel5.setText("Estrato social:");

jLabel6.setText("Matrícula:");

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

btn_salir.setText("Salir");
btn_salir.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_salirActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addContainerGap()
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addComponent(jLabel1)
                .addComponent(jLabel2)
                .addComponent(jLabel3)
                .addComponent(jLabel4)
                .addComponent(jLabel5)
                .addComponent(jLabel6)
            )
            .addGap(196, 196, 196)
            .addComponent(btn_calcular)
            .addComponent(btn_salir)
        )
);

```

```

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(btn_salir))
.addGroup(layout.createSequentialGroup()
    .addComponent(jLabel3)
    .addGap(18, 18, 18)
    .addComponent(txt_nombre))
.addGroup(layout.createSequentialGroup()
    .addComponent(jLabel2)
    .addGap(18, 18, 18)
    .addComponent(txt_num_inscripcion,
javax.swing.GroupLayout.PREFERRED_SIZE, 321,
javax.swing.GroupLayout.PREFERRED_SIZE))
.addGroup(layout.createSequentialGroup()
    .addComponent(jLabel4)
    .addGap(18, 18, 18)
    .addComponent(txt_patrimonio))
.addGroup(layout.createSequentialGroup()
    .addComponent(jLabel5)
    .addGap(18, 18, 18)
    .addComponent(txt_estrato))
.addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
    .addComponent(jLabel6)
    .addGap(18, 18, 18)
    .addComponent(txt_matricula))))
.addContainerGap(43, Short.MAX_VALUE))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
        .addGap(17, 17, 17)
        .addComponent(jLabel1)
        .addGap(18, 18, 18)

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

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel3)
    .addComponent(txt_nombre, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGap(18, 18, 18)

```

```

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jLabel4)
            .addComponent(txt_patrimonio, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(18, 18, 18)

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

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jLabel6)
            .addComponent(txt_matricula, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(47, 47, 47)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(btn_calcular)
            .addComponent(btn_salir))
            .addContainerGap(46, Short.MAX_VALUE))
    );

    pack();
} // </editor-fold> // GEN-END: initComponents

private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_salirActionPerformed
    dispose();
} // GEN-LAST: event_btn_salirActionPerformed

private void btn_calcularActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_calcularActionPerformed
    Estudiante myEstudiante = new Estudiante(txt_num_inscripcion.getText(),
txt_nombre.getText(), Double.parseDouble(txt_patrimonio.getText()),
Integer.parseInt(txt_estrato.getText()));
    txt_matricula.setText(String.valueOf(myEstudiante.matricula()));
} // GEN-LAST: event_btn_calcularActionPerformed

/**
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    // <editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">

```

```

        /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and
feel.
        * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
        */
        try {
            for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
                if ("Nimbus".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
        }
    }
    //</editor-fold>

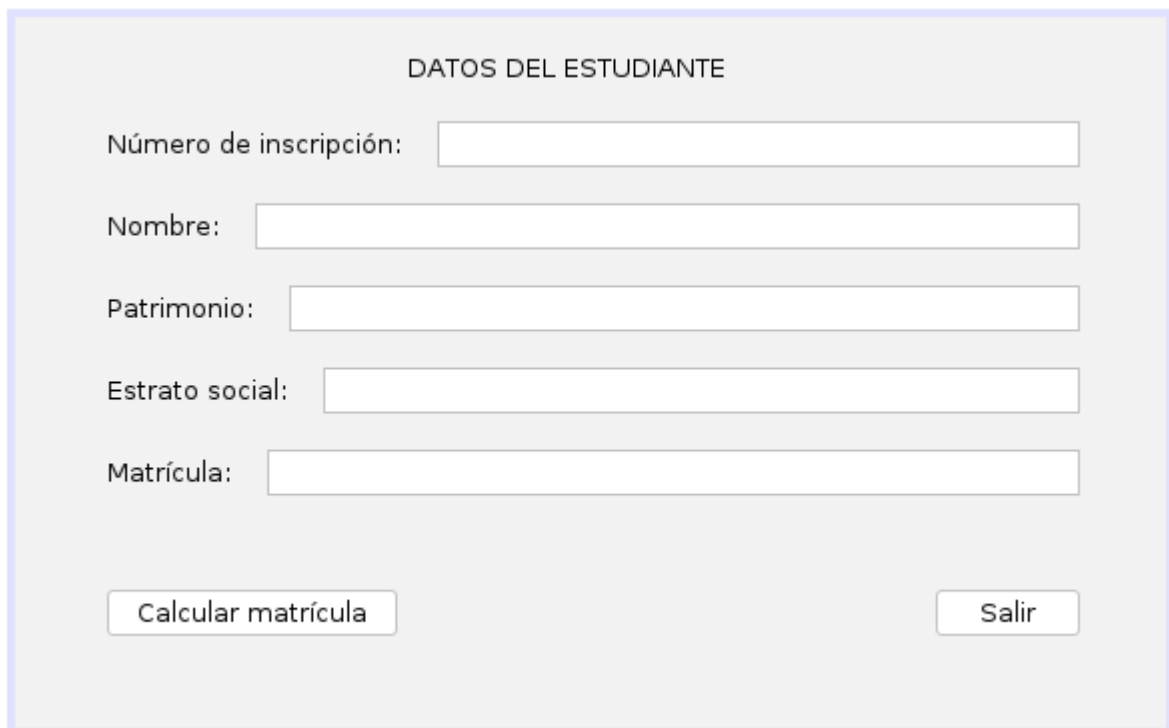
    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new MainWindow().setVisible(true);
        }
    });
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JButton btn_calcular;
private javax.swing.JButton btn_salir;
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.JTextField txt_estrato;  
private javax.swing.JTextField txt_matricula;  
private javax.swing.JTextField txt_nombre;  
private javax.swing.JTextField txt_num_inscripcion;  
private javax.swing.JTextField txt_patrimonio;  
// End of variables declaration//GEN-END:variables  
}
```

Interfaz gráfica



DATOS DEL ESTUDIANTE

Número de inscripción:

Nombre:

Patrimonio:

Estrato social:

Matrícula:

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio10cap4gui

Ejercicio 22 del capítulo 4

Clase principal

```
import interfaz.*;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }
}
```

Clase Empleado

```
package clases;

public class Empleado {

    public String name;
    public double hour_value, num_hours;

    public Empleado(String name, double hour_value, double num_hours) {
        this.name = name;
        this.hour_value = hour_value;
        this.num_hours = num_hours;
    }

    public double salary() {
        return hour_value * num_hours;
    }

}
```

Clase de la interfaz gráfica

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GuiForms/JFrame.java to edit this
template
 */
package interfaz;

/**
 *
 * @author jmcada
 */

import classes.*;

public class MainWindow extends javax.swing.JFrame {

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

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        txt_nombre = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        txt_valor_hora = new javax.swing.JTextField();
        jLabel4 = new javax.swing.JLabel();
        txt_horas = new javax.swing.JTextField();
        jLabel5 = new javax.swing.JLabel();
        txt_salario = new javax.swing.JTextField();
        btn_calcular = new javax.swing.JButton();
        btn_salir = new javax.swing.JButton();
    }
}
```

```

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel1.setText("DATOS DEL EMPLEADO");

jLabel2.setText("Nombre:");

jLabel3.setText("Salario por hora:");

jLabel4.setText("Número de horas:");

jLabel5.setText("Salario:");

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

btn_salir.setText("Salir");
btn_salir.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_salirActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .add(jLabel1)
                .add(jLabel2)
                .add(jLabel3)
                .add(jLabel4)
                .add(jLabel5)
            )
            .add(btn_calcular)
            .add(btn_salir)
        )
);

```

```

        .addComponent(jLabel3)
        .addGap(18, 18, 18)
        .addComponent(txt_valor_hora))
    .addGroup(layout.createSequentialGroup())
        .addComponent(jLabel2)
        .addGap(18, 18, 18)
        .addComponent(txt_nombre,
javax.swing.GroupLayout.PREFERRED_SIZE, 257,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGroup(layout.createSequentialGroup())
        .addComponent(jLabel4)
        .addGap(18, 18, 18)
        .addComponent(txt_horas))
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
        .addComponent(jLabel5)
        .addGap(18, 18, 18)
        .addComponent(txt_salario))))
    .addContainerGap(33, Short.MAX_VALUE))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(25, 25, 25)
            .addComponent(jLabel1)
            .addGap(24, 24, 24)

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

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jLabel3)
            .addComponent(txt_valor_hora, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(18, 18, 18)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jLabel4)
            .addComponent(txt_horas, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
            .addGap(18, 18, 18)

        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
            .addComponent(jLabel5)

```

```

        .addComponent(txt_salario, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 42,
Short.MAX_VALUE)

```

```

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(btn_calcular)
        .addComponent(btn_salir))
        .addGap(23, 23, 23))
);

```

```

pack();
} // </editor-fold> // GEN-END: initComponents

```

```

private void btn_calcularActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_calcularActionPerformed
    Empleado myEmployee = new Empleado(txt_nombre.getText(),
Double.parseDouble(txt_valor_hora.getText()), Double.parseDouble(txt_horas.getText()));
    if (myEmployee.salary() > 450000) {
        txt_salario.setText(String.valueOf(myEmployee.salary()));
    }
    else {
        javax.swing.JOptionPane.showMessageDialog(null, "El salario del empleado es
menor o igual a 450000");
    }
} // GEN-LAST: event_btn_calcularActionPerformed

```

```

private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_salirActionPerformed
    dispose();
} // GEN-LAST: event_btn_salirActionPerformed

```

```

/**
 * @param args the command line arguments
 */
public static void main(String args[]) {
    /* Set the Nimbus look and feel */
    //<editor-fold defaultstate="collapsed" desc=" Look and feel setting code (optional) ">
    /* If Nimbus (introduced in Java SE 6) is not available, stay with the default look and
feel.

```

```

    * For details see
http://download.oracle.com/javase/tutorial/uiswing/lookandfeel/plaf.html
    */

```

```

    try {
        for (javax.swing.UIManager.LookAndFeelInfo info :
javax.swing.UIManager.getInstalledLookAndFeels()) {
            if ("Nimbus".equals(info.getName())) {
                javax.swing.UIManager.setLookAndFeel(info.getClassName());

```

```

        break;
    }
}
} catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    }
}
//</editor-fold>

/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new MainWindow().setVisible(true);
    }
});
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JButton btn_calcular;
private javax.swing.JButton btn_salir;
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.JTextField txt_horas;
private javax.swing.JTextField txt_nombre;
private javax.swing.JTextField txt_salario;
private javax.swing.JTextField txt_valor_hora;
// End of variables declaration//GEN-END:variables
}

```

Interfaz gráfica

DATOS DEL EMPLEADO

Nombre:

Salario por hora:

Número de horas:

Salario:

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio22cap4gui

Ejercicio 23 del capítulo 4

Clase principal

```
import interfaz.*;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }
}
```

Clase Ecuacion

```
package clases;

import javax.swing.JOptionPane;

public class Ecuacion {

    public double a, b, c;

    public Ecuacion(double a, double b, double c) {
        this.a = a;
        this.b = b;
        this.c = c;
    }

    public double[] result() {
        double discriminant = Math.pow(b, 2)-(4*a*c);
        if (discriminant < 0) {
            JOptionPane.showMessageDialog(null, "Esta ecuación no tiene solución en los reales");
            double[] array = {0, 0};
            return array;
        }
        else {
            double[] array = {(-(this.b)+Math.sqrt(discriminant))/(2*this.a),
(-(this.b)-Math.sqrt(discriminant))/(2*this.a)};
            return array;
        }
    }
}
```



```
}  
  
}
```

Clase de la interfaz gráfica

```
/*  
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change  
this license  
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this  
template  
 */  
package interfaz;  
  
/**  
 *  
 * @author jmcada  
 */  
  
import classes.*;  
  
public class MainWindow extends javax.swing.JFrame {  
  
    /**  
     * Creates new form MainWindow  
     */  
    public MainWindow() {  
        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"> //GEN-BEGIN: initComponents  
    private void initComponents() {  
  
        jLabel1 = new javax.swing.JLabel();  
        jLabel2 = new javax.swing.JLabel();  
        txt_a = new javax.swing.JTextField();  
        txt_b = new javax.swing.JTextField();  
        jLabel3 = new javax.swing.JLabel();  
        txt_c = new javax.swing.JTextField();  

```

```

jLabel4 = new javax.swing.JLabel();
btn_calcular = new javax.swing.JButton();
btn_salir = new javax.swing.JButton();
jLabel5 = new javax.swing.JLabel();
txt_ans_1 = new javax.swing.JTextField();
jLabel6 = new javax.swing.JLabel();
jLabel7 = new javax.swing.JLabel();
txt_ans_2 = new javax.swing.JTextField();

jLabel1.setText("ECUACIÓN DE SEGUNDO GRADO");

setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

jLabel2.setText("x^2 + ");

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

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

jLabel3.setText("x + ");

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

jLabel4.setText("SOLUCIONES");

btn_calcular.setText("Caclular");
btn_calcular.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_calcularActionPerformed(evt);
    }
});

btn_salir.setText("Salir");
btn_salir.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_salirActionPerformed(evt);
    }
});

```

```

    }
});

jLabel5.setText("ECUACIÓN DE SEGUNDO GRADO");

txt_ans_1.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        txt_ans_1ActionPerformed(evt);
    }
});

jLabel6.setText("x = ");

jLabel7.setText("o      x = ");

txt_ans_2.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        txt_ans_2ActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(59, 59, 59)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .addGroup(layout.createSequentialGroup()
                    .addGap(95, 95, 95)
                    .addComponent(jLabel4)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                        .addGroup(layout.createSequentialGroup()
                            .addGap(36, 36, 36)
                            .addComponent(jLabel2)
                        )
                    )
                )
            )
        )
);

```

```

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(txt_b,
javax.swing.GroupLayout.PREFERRED_SIZE, 36,
javax.swing.GroupLayout.PREFERRED_SIZE)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(jLabel3)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(txt_c,
javax.swing.GroupLayout.PREFERRED_SIZE, 36,
javax.swing.GroupLayout.PREFERRED_SIZE))
    .addGroup(layout.createSequentialGroup())
    .addComponent(txt_ans_1,
javax.swing.GroupLayout.PREFERRED_SIZE, 36,
javax.swing.GroupLayout.PREFERRED_SIZE)
    .addGap(70, 70, 70)
    .addComponent(jLabel7)

.addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
    .addComponent(txt_ans_2,
javax.swing.GroupLayout.PREFERRED_SIZE, 36,
javax.swing.GroupLayout.PREFERRED_SIZE))))))
    .addContainerGap(75, Short.MAX_VALUE))
    .addGroup(layout.createSequentialGroup())
    .addComponent(btn_calcular)
    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
    .addComponent(btn_salir)
    .addGap(67, 67, 67))))

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
layout.createSequentialGroup()
    .addContainerGap(104, Short.MAX_VALUE)
    .addComponent(jLabel5)
    .addGap(84, 84, 84)))
);
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
    .addGroup(layout.createSequentialGroup()
    .addGap(93, 93, 93)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
    .addComponent(jLabel2)
    .addComponent(txt_a, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)

```

```

        .addComponent(txt_b, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel3)
        .addComponent(txt_c, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(42, 42, 42)
        .addComponent(jLabel4)
        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 26,
Short.MAX_VALUE)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(jLabel6)
        .addComponent(txt_ans_1, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel7)
        .addComponent(txt_ans_2, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        .addGap(48, 48, 48)

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
        .addComponent(btn_calcular)
        .addComponent(btn_salir))
        .addGap(27, 27, 27))

    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(30, 30, 30)
            .addComponent(jLabel5)
            .addContainerGap(275, Short.MAX_VALUE)))
    );

    pack();
} // </editor-fold> // GEN-END: initComponents

private void txt_aActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST:event_txt_aActionPerformed
    // TODO add your handling code here:
} // GEN-LAST:event_txt_aActionPerformed

private void txt_bActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST:event_txt_bActionPerformed
    // TODO add your handling code here:
} // GEN-LAST:event_txt_bActionPerformed

private void txt_cActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST:event_txt_cActionPerformed
    // TODO add your handling code here:
} // GEN-LAST:event_txt_cActionPerformed

```

```

private void btn_calcularActionPerformed(java.awt.event.ActionEvent evt)
{
GEN-FIRST:event_btn_calcularActionPerformed
    Ecuacion myEcuacion = new Ecuacion(Double.parseDouble(txt_a.getText()),
    Double.parseDouble(txt_b.getText()), Double.parseDouble(txt_c.getText()));
    double result[] = myEcuacion.result();
    txt_ans_1.setText(String.valueOf(result[0]));
    txt_ans_2.setText(String.valueOf(result[1]));
}
GEN-LAST:event_btn_calcularActionPerformed

private void txt_ans_1ActionPerformed(java.awt.event.ActionEvent evt)
{
GEN-FIRST:event_txt_ans_1ActionPerformed
    // TODO add your handling code here:
}
GEN-LAST:event_txt_ans_1ActionPerformed

private void txt_ans_2ActionPerformed(java.awt.event.ActionEvent evt)
{
GEN-FIRST:event_txt_ans_2ActionPerformed
    // TODO add your handling code here:
}
GEN-LAST:event_txt_ans_2ActionPerformed

private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
{
GEN-FIRST:event_btn_salirActionPerformed
    dispose();
}
GEN-LAST:event_btn_salirActionPerformed

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

```

```

        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    }
//</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new MainWindow().setVisible(true);
        }
    });
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JButton btn_calcular;
private javax.swing.JButton btn_salir;
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.JTextField txt_a;
private javax.swing.JTextField txt_ans_1;
private javax.swing.JTextField txt_ans_2;
private javax.swing.JTextField txt_b;
private javax.swing.JTextField txt_c;
// End of variables declaration//GEN-END:variables
}

```

Interfaz gráfica

The image shows a graphical user interface for solving a quadratic equation. It has a light gray background with a thin blue border. At the top, the text "ECUACIÓN DE SEGUNDO GRADO" is centered. Below it, the equation form $\square x^2 + \square x + \square$ is displayed, where the squares represent input fields. Underneath the equation, the word "SOLUCIONES" is centered. Below that, the solutions are shown as $x = \square$ followed by "o" and $x = \square$, with the squares being input fields. At the bottom, there are two buttons: "Caclular" (note the typo) on the left and "Salir" on the right.

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio23cap4

Ejercicio 40 del capítulo 5

Clase principal

```
import interfaz.*;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }
}
```

Clase Operations

```
package clases;

public class Operations {

    public double[] values;

    public static double round(double value, int places) {
        if (places < 0) throw new IllegalArgumentException();

        long factor = (long) Math.pow(10, places);
        value = value * factor;
        long tmp = Math.round(value);
        return (double) tmp / factor;
    }

    public Operations(double[] values) {
        this.values = values;
    }

    public double[] squaredRoot() {
        double[] ans = new double[this.values.length];
        for (int i=0; i<this.values.length; i++) {
            ans[i] = Math.sqrt(this.values[i]);
        }
        return ans;
    }
}
```

```

public double[] square() {
    double[] ans = new double[this.values.length];
    for (int i=0; i<this.values.length; i++) {
        ans[i] = Math.pow(this.values[i], 2);
    }
    return ans;
}

public double[] cube() {
    double[] ans = new double[this.values.length];
    for (int i=0; i<this.values.length; i++) {
        ans[i] = Math.pow(this.values[i], 3);
    }
    return ans;
}

public String getOperationString() {
    double[] squared_roots = this.squaredRoot();
    double[] squares = this.square();
    double[] cubes = this.cube();

    String ans = "";
    for (int i=0; i<this.values.length; i++) {
        ans += "Para: "+String.valueOf(round(this.values[i], 2))+"\n";
        ans += String.valueOf(round(this.values[i], 2))+"**(1/2) = "
        "+String.valueOf(round(squared_roots[i], 2))+"\n"+String.valueOf(round(this.values[i],
        2))+"**2 = "+String.valueOf(round(squares[i], 2))+"\n"+String.valueOf(round(this.values[i],
        2))+"**3 = "+String.valueOf(round(cubes[i], 2))+"\n\n";
    }

    return ans;
}
}

```

Clase de la interfaz gráfica

```
/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
 this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GUIForms/JFrame.java to edit this
 template
 */
package interfaz;

import classes.*;
import java.util.ArrayList;

public class MainWindow extends javax.swing.JFrame {

    /**
     * Creates new form MainWindow
     */
    public MainWindow() {
        initComponents();
        txt_output.setEditable(false);
    }

    /**
     * This method is called from within the constructor to initialize the form.
     * WARNING: Do NOT modify this code. The content of this method is always
     * regenerated by the Form Editor.
     */
    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated
Code">//GEN-BEGIN: initComponents
    private void initComponents() {

        jScrollPane1 = new javax.swing.JScrollPane();
        txt_input = new javax.swing.JTextArea();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        btn_calcular = new javax.swing.JButton();
        jScrollPane2 = new javax.swing.JScrollPane();
        txt_output = new javax.swing.JTextArea();
        jLabel4 = new javax.swing.JLabel();
        btn_salir = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        setSize(new java.awt.Dimension(200, 500));
```

```
txt_input.setColumns(20);
txt_input.setRows(5);
jScrollPane1.setViewportView(txt_input);

jLabel1.setText("RAIZ DE N NÚMEROS");

jLabel2.setText("Ingrese números en este campo");

jLabel3.setText("separados por un salto de línea");

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

txt_output.setColumns(20);
txt_output.setRows(5);
jScrollPane2.setViewportView(txt_output);

jLabel4.setText("RESULTADO");

btn_salir.setText("Salir");
btn_salir.addActionListener(new java.awt.event.ActionListener() {
    public void actionPerformed(java.awt.event.ActionEvent evt) {
        btn_salirActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                .add(jScrollPane2, javax.swing.GroupLayout.PREFERRED_SIZE,
                    javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .add(jLabel1)
                .add(jLabel4)
                .add(btn_calcular)
                .add(btn_salir)
                .add(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
                    javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            )
            .addContainerGap(60, 60, 60)
        )
        .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
            .add(layout.createSequentialGroup()
                .add(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .add(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE,
                        javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .add(jLabel1)
                    .add(jLabel4)
                    .add(btn_calcular)
                    .add(btn_salir)
                    .add(jScrollPane2, javax.swing.GroupLayout.PREFERRED_SIZE,
                        javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                )
                .addContainerGap(60, 60, 60)
            )
        )
);
```

```

        .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 232,
javax.swing.GroupLayout.PREFERRED_SIZE)
        .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 232,
javax.swing.GroupLayout.PREFERRED_SIZE)))
        .addContainerGap(57, Short.MAX_VALUE))
    );
    layout.setVerticalGroup(
        layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(22, 22, 22)
            .addComponent(jLabel1)
            .addGap(35, 35, 35)
            .addComponent(jLabel2)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jLabel3)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
            .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 138,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addComponent(btn_calcular)
            .addGap(26, 26, 26)
            .addComponent(jLabel4)
            .addGap(29, 29, 29)
            .addComponent(jScrollPane2, javax.swing.GroupLayout.PREFERRED_SIZE, 138,
javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addComponent(btn_salir)
            .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE,
Short.MAX_VALUE))
        );

    pack();
} // </editor-fold> // GEN-END: initComponents

```

```

private void btn_calcularActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_calcularActionPerformed
    String[] txt_input_values = txt_input.getText().split("\n");
    double[] values = new double[txt_input_values.length];
    for (int i=0; i<txt_input_values.length; i++) {
        values[i] = Double.parseDouble(txt_input_values[i]);
    }
    Operations myOperations = new Operations(values);
    String computed_operations = myOperations.getOperationString();

    txt_output.setText(computed_operations);
} // GEN-LAST: event_btn_calcularActionPerformed

```

```

private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
{
    //GEN-FIRST:event_btn_salirActionPerformed
        dispose();
    //GEN-LAST:event_btn_salirActionPerformed

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

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        } catch (InstantiationException ex) {

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        } catch (IllegalAccessException ex) {

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

            java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
            SEVERE, null, ex);
        }
    }
    //</editor-fold>

    /* Create and display the form */
    java.awt.EventQueue.invokeLater(new Runnable() {
        public void run() {
            new MainWindow().setVisible(true);
        }
    }

```

```
    });  
}
```

```
// Variables declaration - do not modify//GEN-BEGIN:variables  
private javax.swing.JButton btn_calcular;  
private javax.swing.JButton btn_salir;  
private javax.swing.JLabel jLabel1;  
private javax.swing.JLabel jLabel2;  
private javax.swing.JLabel jLabel3;  
private javax.swing.JLabel jLabel4;  
private javax.swing.JScrollPane jScrollPane1;  
private javax.swing.JScrollPane jScrollPane2;  
private javax.swing.JTextArea txt_input;  
private javax.swing.JTextArea txt_output;  
// End of variables declaration//GEN-END:variables  
}
```

Interfaz gráfica

RAIZ DE N NÚMEROS

Ingrese números en este campo
separados por un salto de línea

Calcular

RESULTADO

Salir

The image shows a graphical user interface (GUI) for a program. It has a light gray background with a thin blue border. At the top, the text "RAIZ DE N NÚMEROS" is displayed. Below it, a prompt "Ingrese números en este campo separados por un salto de línea" is shown. A large, empty white rectangular box is provided for input. Below the input box is a button labeled "Calcular". Further down, the text "RESULTADO" is displayed. Below this is another large, empty white rectangular box for the output. At the bottom of the interface is a button labeled "Salir".

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio40cap5gui

Ejercicio 41 del capítulo 5

Clase principal

```
import interfaz.MainWindow;

public class Main {

    public static void main(String[] args) {

        MainWindow window = new MainWindow();
        window.setVisible(true);

    }
}
```

Clase NumberSeries

```
package clases;

import java.util.Arrays;

public class NumberSeries {

    public double[] values;

    public NumberSeries(double[] values) {
        this.values = values;
    }

    public double[] getOrderedSeries() {
        double[] ans = Arrays.copyOf(this.values, this.values.length);

        for (int i=0; i<(ans.length-1); i++) {
            for (int j=0; j<ans.length; j++) {
                if (ans[j] > ans[j+1]) {
                    double aux = ans[j];
                    ans[j] = ans[j+1];
                    ans[j+1] = aux;
                }
            }
        }

        return ans;
    }
}
```

```

public void orderSeries() {
    for (int i=0; i<this.values.length; i++) {
        for (int j=0; j<(this.values.length-1); j++) {
            if (this.values[j] > this.values[j+1]) {
                double aux = this.values[j];
                this.values[j] = this.values[j+1];
                this.values[j+1] = aux;
            }
        }
    }
}

public String getCsvString() {
    String ans = "";

    for (int i=0; i<this.values.length; i++) {
        ans += String.valueOf(this.values[i])+" ";
    }
    ans = ans.substring(0, ans.length()-1);

    return ans;
}
}

```

Clase de la interfaz gráfica

```

/*
 * Click nbfs://nbhost/SystemFileSystem/Templates/Licenses/license-default.txt to change
this license
 * Click nbfs://nbhost/SystemFileSystem/Templates/GuiForms/JFrame.java to edit this
template
 */
package interfaz;

import clases.NumberSeries;

public class MainWindow extends javax.swing.JFrame {

    /**
     * Creates new form MainWindow
     */
    public MainWindow() {
        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">//GEN-BEGIN:initComponents
private void initComponents() {

    jLabel1 = new javax.swing.JLabel();
    jLabel2 = new javax.swing.JLabel();
    txt_values = new javax.swing.JTextField();
    jLabel3 = new javax.swing.JLabel();
    txt_mayor = new javax.swing.JTextField();
    btn_ordenar = new javax.swing.JButton();
    btn_salir = new javax.swing.JButton();

    setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

    jLabel1.setText("MAYOR ELEMENTO");

    jLabel2.setText("Ingresa una serie de números separados por comas");

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

    jLabel3.setText("Mayor:");

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

    btn_ordenar.setText("Ordenar");
    btn_ordenar.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            btn_ordenarActionPerformed(evt);
        }
    });

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

```

```

        btn_salirActionPerformed(evt);
    }
});

javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
getContentPane().setLayout(layout);
layout.setHorizontalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addComponent(jLabel2, javax.swing.GroupLayout.DEFAULT_SIZE,
                Short.MAX_VALUE)
            .addComponent(jLabel1)
            .addComponent(txt_values)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
                layout.createSequentialGroup()
                    .addComponent(btn_ordenar)
                    .addGap(18, 18, 18)
                    .addComponent(btn_salir)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
                        javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jLabel3)
                    .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                    .addComponent(txt_mayor, javax.swing.GroupLayout.PREFERRED_SIZE,
                        javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)))
            .addGap(38, Short.MAX_VALUE))
        );
layout.setVerticalGroup(
    layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
        .addGroup(layout.createSequentialGroup()
            .addGap(31, 31, 31)
            .addComponent(jLabel1)
            .addGap(30, 30, 30)
            .addComponent(jLabel2)
            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
            .addComponent(txt_values, javax.swing.GroupLayout.PREFERRED_SIZE,
                javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
            .addGap(18, 18, 18)
            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                .addComponent(jLabel3)
                .addComponent(txt_mayor, javax.swing.GroupLayout.PREFERRED_SIZE,
                    javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addComponent(btn_ordenar)
                .addComponent(btn_salir))
            .addGap(47, Short.MAX_VALUE))
        );

```

```

);

pack();
} // </editor-fold> // GEN-END: initComponents

private void txt_valuesActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_txt_valuesActionPerformed
    // TODO add your handling code here:
} // GEN-LAST: event_txt_valuesActionPerformed

private void txt_mayorActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_txt_mayorActionPerformed
    // TODO add your handling code here:
} // GEN-LAST: event_txt_mayorActionPerformed

private void btn_ordenarActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_ordenarActionPerformed
    String[] input = txt_values.getText().split(",");
    double[] values = new double[input.length];
    for (int i=0; i<input.length; i++) {
        values[i] = Double.parseDouble(input[i]);
    }

    NumberSeries series = new NumberSeries(values);
    series.orderSeries();
    txt_values.setText(series.getCsvString());
    txt_mayor.setText(String.valueOf(series.values[series.values.length-1]));
} // GEN-LAST: event_btn_ordenarActionPerformed

private void btn_salirActionPerformed(java.awt.event.ActionEvent evt)
{ // GEN-FIRST: event_btn_salirActionPerformed
    dispose();
} // GEN-LAST: event_btn_salirActionPerformed

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

```

```

        if ("Nimbus".equals(info.getName())) {
            javax.swing.UIManager.setLookAndFeel(info.getClassName());
            break;
        }
    }
} catch (ClassNotFoundException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    } catch (javax.swing.UnsupportedLookAndFeelException ex) {

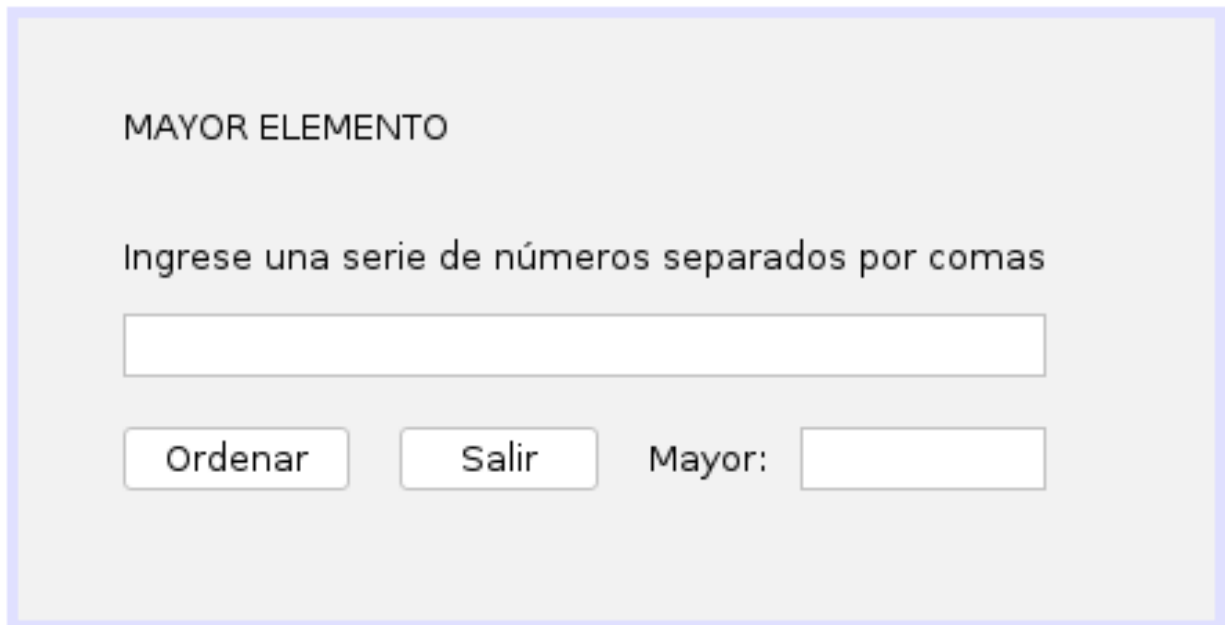
java.util.logging.Logger.getLogger(MainWindow.class.getName()).log(java.util.logging.Level.
SEVERE, null, ex);
    }
}
//</editor-fold>

/* Create and display the form */
java.awt.EventQueue.invokeLater(new Runnable() {
    public void run() {
        new MainWindow().setVisible(true);
    }
});
}

// Variables declaration - do not modify//GEN-BEGIN:variables
private javax.swing.JButton btn_ordenar;
private javax.swing.JButton btn_salir;
private javax.swing.JLabel jLabel1;
private javax.swing.JLabel jLabel2;
private javax.swing.JLabel jLabel3;
private javax.swing.JTextField txt_mayor;
private javax.swing.JTextField txt_values;
// End of variables declaration//GEN-END:variables
}

```

Interfaz gráfica



The image shows a graphical user interface (GUI) for a program titled "MAYOR ELEMENTO". The interface is enclosed in a light gray box with a thin blue border. At the top, the title "MAYOR ELEMENTO" is displayed. Below the title, there is a text prompt: "Ingrese una serie de números separados por comas". Underneath this prompt is a single-line text input field. At the bottom of the interface, there are two buttons: "Ordenar" and "Salir". To the right of these buttons, the text "Mayor:" is followed by another single-line text input field, presumably to display the result.

Código en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3/ejercicio41cap5gui

Código completo de todos los ejercicios en github:

https://github.com/jmcada2503/ejercicios_poo/tree/master/actividad3