Trabajo Grupal 3

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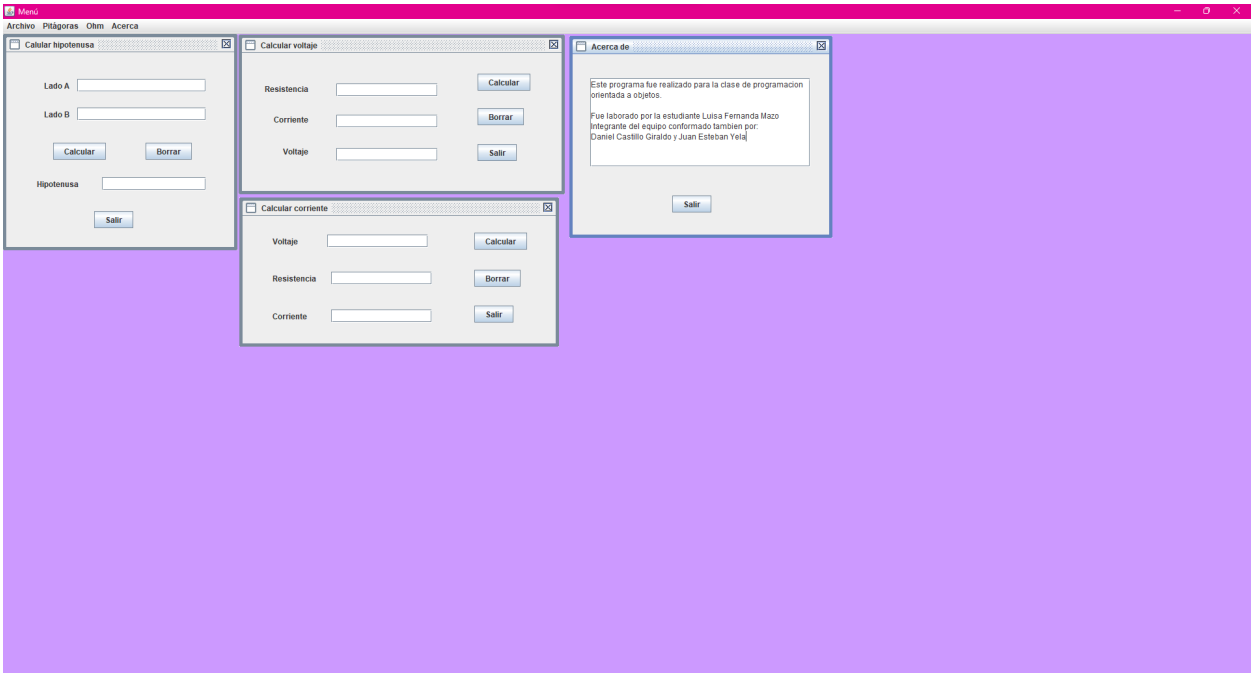
https://bit.ly/Grupal3POO

Tabla de Contenidos

Ejercicio 1

https://github.com/danielcgiraldo/POO_Grupal/tree/main/Trabajo_3/Ejercicio1

Interfaz Gráfica



Código

Corriente

```
package menu_trabajo5;

public class Corriente {

    public static double calcularcorriente(double voltaje, double resistencia){

        double corriente = voltaje/resistencia;
        return corriente;

    }

}
```

FrmAcercade

```
package menu_trabajo5;

public class FrmAcercade extends javax.swing.JInternalFrame {

    public FrmAcercade() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    private void initComponents() {
```

```
        jScrollPane1 = new javax.swing.JScrollPane();
        jTextArea1 = new javax.swing.JTextArea();
        jButton1 = new javax.swing.JButton();

        setTitle(" Acerca de");

        jTextArea1.setColumns(20);
        jTextArea1.setRows(5);
        jTextArea1.setText("Este programa fue realizado para la clase de programacion \norientada a objetos.\n\nFue laborado por la estudia
        jScrollPane1.setViewportView(jTextArea1);

        jButton1.setText("Salir");
        jButton1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton1ActionPerformed(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(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGap(27, 27, 27)
                        .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 338, javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addGap(153, 153, 153)
                        .addComponent(jButton1)))
                .addContainerGap(29, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(37, 37, 37)
                .addComponent(jScrollPane1, javax.swing.GroupLayout.PREFERRED_SIZE, 136, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 44, Short.MAX_VALUE)
                .addComponent(jButton1)
                .addGap(34, 34, 34))
        );

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

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.dispose();
    }


    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JScrollPane jScrollPane1;
    private javax.swing.JTextArea jTextArea1;
    // End of variables declaration
}
```

FrmCorriente

```
package menu_trabajo5;

public class FrmCorriente extends javax.swing.JInternalFrame {

    public FrmCorriente() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();
        jButton3 = new javax.swing.JButton();
```

```
        txtVoltaje = new javax.swing.JTextField();
        txtResistencia = new javax.swing.JTextField();
        txtCorriente = new javax.swing.JTextField();

        setTitle(" Calcular corriente");

        jLabel1.setText("Voltaje");

        jLabel2.setText("Resistencia");

        jLabel3.setText("Corriente");

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

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

        jButton3.setText("Salir");
        jButton3.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton3ActionPerformed(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(46, 46, 46)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel3)
                            .addComponent(jLabel2))
                        .addGap(23, 23, 23)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addComponent(txtResistencia, javax.swing.GroupLayout.DEFAULT_SIZE, 155, Short.MAX_VALUE)
                            .addComponent(txtCorriente)))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel1)
                        .addGap(45, 45, 45)
                        .addComponent(txtVoltaje, javax.swing.GroupLayout.PREFERRED_SIZE, 155, javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 65, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jButton1)
                    .addComponent(jButton2)
                    .addComponent(jButton3))
                .addGap(44, 44, 44))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(26, 26, 26)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(jButton1)
                    .addComponent(txtVoltaje, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.Gro
                .addGap(31, 31, 31)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jButton2)
                    .addComponent(txtResistencia, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing
                .addGap(29, 29, 29)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                        .addComponent(jLabel3)
                        .addComponent(txtCorriente, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swi
                    .addComponent(jButton3))
                .addContainerGap(32, Short.MAX_VALUE))
        );
```

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

    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.dispose();
    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        double voltaje, resistencia, corriente;
        voltaje=0;
        resistencia=0;
        corriente=0;
        txtCorriente.setText("");
        txtResistencia.setText("");
        txtVoltaje.setText("");
    }

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        double voltaje, resistencia, corriente;
        voltaje = Double.parseDouble(txtVoltaje.getText());
        resistencia = Double.parseDouble(txtResistencia.getText());
        corriente = Corriente.calcularcorriente(voltaje, resistencia);
        txtCorriente.setText(String.valueOf(corriente));
    }


    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton3;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JTextField txtCorriente;
    private javax.swing.JTextField txtResistencia;
    private javax.swing.JTextField txtVoltaje;
    // End of variables declaration
}
```

FrmPitagoras

```
package menu_trabajo5;

public class FrmPitagoras extends javax.swing.JInternalFrame {

    public FrmPitagoras() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    private void initComponents() {

        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        txtLadoA = new javax.swing.JTextField();
        txtLadoB = new javax.swing.JTextField();
        jLabel4 = new javax.swing.JLabel();
        txtHipotenusa = new javax.swing.JTextField();
        btnCalcular = new javax.swing.JButton();
        btnBorrar = new javax.swing.JButton();
        btnSalir = new javax.swing.JButton();

        setTitle(" Calular hipotenusa");

        jLabel1.setText("Lado A");

        jLabel2.setText("Lado B");

        jLabel4.setText("Hipotenusa");

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

```
            }
        });

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

        btnSalir.setText("Salir");
        btnSalir.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                btnSalirActionPerformed(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(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGap(58, 58, 58)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                            .addComponent(jLabel2)
                            .addComponent(jLabel1))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addComponent(txtLadoA, javax.swing.GroupLayout.DEFAULT_SIZE, 198, Short.MAX_VALUE)
                            .addComponent(txtLadoB)))
                    .addGroup(layout.createSequentialGroup()
                        .addGap(72, 72, 72)
                        .addComponent(btnCalcular)
                        .addGap(61, 61, 61)
                        .addComponent(btnBorrar))
                    .addGroup(layout.createSequentialGroup()
                        .addGap(47, 47, 47)
                        .addComponent(jLabel4)
                        .addGap(36, 36, 36)
                        .addComponent(txtHipotenusa)))
                .addGap(43, 43, 43))
            .addGroup(layout.createSequentialGroup()
                .addGap(135, 135, 135)
                .addComponent(btnSalir)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(41, 41, 41)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(txtLadoA, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.Group
                .addGap(24, 24, 24)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(txtLadoB, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.Group
                .addGap(34, 34, 34)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(btnCalcular)
                    .addComponent(btnBorrar))
                .addGap(27, 27, 27)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel4)
                    .addComponent(txtHipotenusa, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 32, Short.MAX_VALUE)
                .addComponent(btnSalir)
                .addGap(29, 29, 29))
        );

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

    private void btnSalirActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.dispose();
    }

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

```
        // TODO add your handling code here:
        double hipotenusa, ladoA, ladoB;
        hipotenusa=0;
        ladoA=0;
        ladoB=0;
        txtHipotenusa.setText("");
        txtLadoA.setText("");
        txtLadoB.setText("");
    }

    private void btnCalcularActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        double hipotenusa, ladoA, ladoB;
        ladoA = Double.parseDouble(txtLadoA.getText());
        ladoB = Double.parseDouble(txtLadoB.getText());
        hipotenusa = Pitagoras.calularhipotenusa(ladoA, ladoB);
        txtHipotenusa.setText(String.valueOf(hipotenusa));
    }


    // Variables declaration - do not modify
    private javax.swing.JButton btnBorrar;
    private javax.swing.JButton btnCalcular;
    private javax.swing.JButton btnSalir;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JTextField txtHipotenusa;
    private javax.swing.JTextField txtLadoA;
    private javax.swing.JTextField txtLadoB;
    // End of variables declaration
}
```

FrmPrincipal

```
package menu_trabajo5;

public class FrmPrincipal extends javax.swing.JFrame {

    public FrmPrincipal() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    private void initComponents() {

        dp = new javax.swing.JDesktopPane();
        jMenuBar1 = new javax.swing.JMenuBar();
        jMenu1 = new javax.swing.JMenu();
        jMenuItem1 = new javax.swing.JMenuItem();
        jMenu2 = new javax.swing.JMenu();
        jMenuItem2 = new javax.swing.JMenuItem();
        jMenu3 = new javax.swing.JMenu();
        jMenuItem3 = new javax.swing.JMenuItem();
        jMenuItem4 = new javax.swing.JMenuItem();
        jMenu4 = new javax.swing.JMenu();
        jMenuItem5 = new javax.swing.JMenuItem();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        setTitle(" Menú");

        dp.setBackground(new java.awt.Color(204, 153, 255));

        javax.swing.GroupLayout dpLayout = new javax.swing.GroupLayout(dp);
        dp.setLayout(dpLayout);
        dpLayout.setHorizontalGroup(
            dpLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGap(0, 416, Short.MAX_VALUE)
        );
        dpLayout.setVerticalGroup(
            dpLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGap(0, 291, Short.MAX_VALUE)
        );

        jMenu1.setText("Archivo");

        jMenuItem1.setText("Salir");
```

```
        jMenuItem1.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jMenuItem1ActionPerformed(evt);
            }
        });
        jMenu1.add(jMenuItem1);

        jMenuBar1.add(jMenu1);

        jMenu2.setText("Pitágoras");

        jMenuItem2.setText("Calculadora hipotenusa");
        jMenuItem2.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jMenuItem2ActionPerformed(evt);
            }
        });
        jMenu2.add(jMenuItem2);

        jMenuBar1.add(jMenu2);

        jMenu3.setText("Ohm");

        jMenuItem3.setText("Calcular voltaje");
        jMenuItem3.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jMenuItem3ActionPerformed(evt);
            }
        });
        jMenu3.add(jMenuItem3);

        jMenuItem4.setText("Calcular corriente");
        jMenuItem4.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jMenuItem4ActionPerformed(evt);
            }
        });
        jMenu3.add(jMenuItem4);

        jMenuBar1.add(jMenu3);

        jMenu4.setText("Acerca");

        jMenuItem5.setText("Acerca de ");
        jMenuItem5.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jMenuItem5ActionPerformed(evt);
            }
        });
        jMenu4.add(jMenuItem5);

        jMenuBar1.add(jMenu4);

        setJMenuBar(jMenuBar1);

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

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

    private void jMenuItem1ActionPerformed(java.awt.event.ActionEvent evt) {

        this.dispose();
    }

    private void jMenuItem2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        FrmPitagoras pitagoras = new FrmPitagoras();
        dp.add(pitagoras);
        pitagoras.setClosable(true);
        pitagoras.setVisible(true);
```

```
    }

    private void jMenuItem3ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        FrmVoltaje voltaje = new FrmVoltaje();
        dp.add(voltaje);
        voltaje.setClosable(true);
        voltaje.setVisible(true);
    }

    private void jMenuItem4ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        FrmCorriente corriente = new FrmCorriente();
        dp.add(corriente);
        corriente.setClosable(true);
        corriente.setVisible(true);
    }

    private void jMenuItem5ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        FrmAcercade Acercade = new FrmAcercade();
        dp.add(Acercade);
        Acercade.setClosable(true);
        Acercade.setVisible(true);
    }

    /**
     * @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(FrmPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(FrmPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(FrmPrincipal.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(FrmPrincipal.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 FrmPrincipal().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JDesktopPane dp;
    private javax.swing.JMenu jMenu1;
    private javax.swing.JMenu jMenu2;
    private javax.swing.JMenu jMenu3;
    private javax.swing.JMenu jMenu4;
    private javax.swing.JMenuBar jMenuBar1;
    private javax.swing.JMenuItem jMenuItem1;
    private javax.swing.JMenuItem jMenuItem2;
    private javax.swing.JMenuItem jMenuItem3;
    private javax.swing.JMenuItem jMenuItem4;
    private javax.swing.JMenuItem jMenuItem5;
    // End of variables declaration
}
```

FrmVoltaje

```
package menu_trabajo5;


public class FrmVoltaje extends javax.swing.JInternalFrame {

    public FrmVoltaje() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    private void initComponents() {

        jTextField4 = new javax.swing.JTextField();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        txtResistencia = new javax.swing.JTextField();
        txtCorriente = new javax.swing.JTextField();
        jLabel3 = new javax.swing.JLabel();
        txtVoltaje = new javax.swing.JTextField();
        jButton1 = new javax.swing.JButton();
        jButton2 = new javax.swing.JButton();
        jButton3 = new javax.swing.JButton();

        jTextField4.setText("jTextField4");

        setTitle(" Calcular voltaje");

        jLabel1.setText("Resistencia");

        jLabel2.setText("Corriente");

        jLabel3.setText("Voltaje");

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

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

        jButton3.setText("Salir");
        jButton3.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jButton3ActionPerformed(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(35, 35, 35)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel1)
                    .addComponent(jLabel2)
                    .addComponent(jLabel3))
                .addGap(43, 43, 43)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addComponent(txtVoltaje, javax.swing.GroupLayout.DEFAULT_SIZE, 156, Short.MAX_VALUE)
                    .addComponent(txtCorriente, javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(txtResistencia))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 61, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jButton1)
                    .addComponent(jButton2)
                    .addComponent(jButton3))
                .addGap(48, 48, 48))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
```

```
                .addGap(32, 32, 32)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jButton1)
                        .addGap(27, 27, 27)
                        .addComponent(jButton2)
                        .addGap(29, 29, 29)
                        .addComponent(jButton3))
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addGroup(layout.createSequentialGroup()
                                .addComponent(jLabel1)
                                .addGap(31, 31, 31)
                                .addComponent(jLabel2))
                            .addGroup(layout.createSequentialGroup()
                                .addComponent(txtResistencia, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE,
                                .addGap(28, 28, 28)
                                .addComponent(txtCorriente, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, j
                        .addGap(28, 28, 28)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel3)
                            .addGroup(layout.createSequentialGroup()
                                .addGap(3, 3, 3)
                                .addComponent(txtVoltaje, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, jav
                .addContainerGap(46, Short.MAX_VALUE))
        );

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

    private void jButton3ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        this.dispose();

    }

    private void jButton2ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        double voltaje, resistencia, corriente;
        voltaje=0;
        resistencia=0;
        corriente=0;
        txtCorriente.setText("");
        txtResistencia.setText("");
        txtVoltaje.setText("");
    }

    private void jButton1ActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
        double voltaje, resistencia ,corriente;
        resistencia = Double.parseDouble(txtResistencia.getText());
        corriente = Double.parseDouble(txtCorriente.getText());
        voltaje = Voltaje.calcularvoltaje(resistencia, corriente);
        txtVoltaje.setText(String.valueOf(voltaje));

    }


    // Variables declaration - do not modify
    private javax.swing.JButton jButton1;
    private javax.swing.JButton jButton2;
    private javax.swing.JButton jButton3;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JTextField jTextField4;
    private javax.swing.JTextField txtCorriente;
    private javax.swing.JTextField txtResistencia;
    private javax.swing.JTextField txtVoltaje;
    // End of variables declaration
}
```

Menu_Trabajo5

```
package menu_trabajo5;

import javax.swing.JFrame;
```

```
public class Menu_Trabajo5 {

    public static void main(String[] args) {
        FrmPrincipal Principal = new FrmPrincipal();
        Principal.setExtendedState(JFrame.MAXIMIZED_BOTH);
        Principal.setVisible(true);

    }

}
```

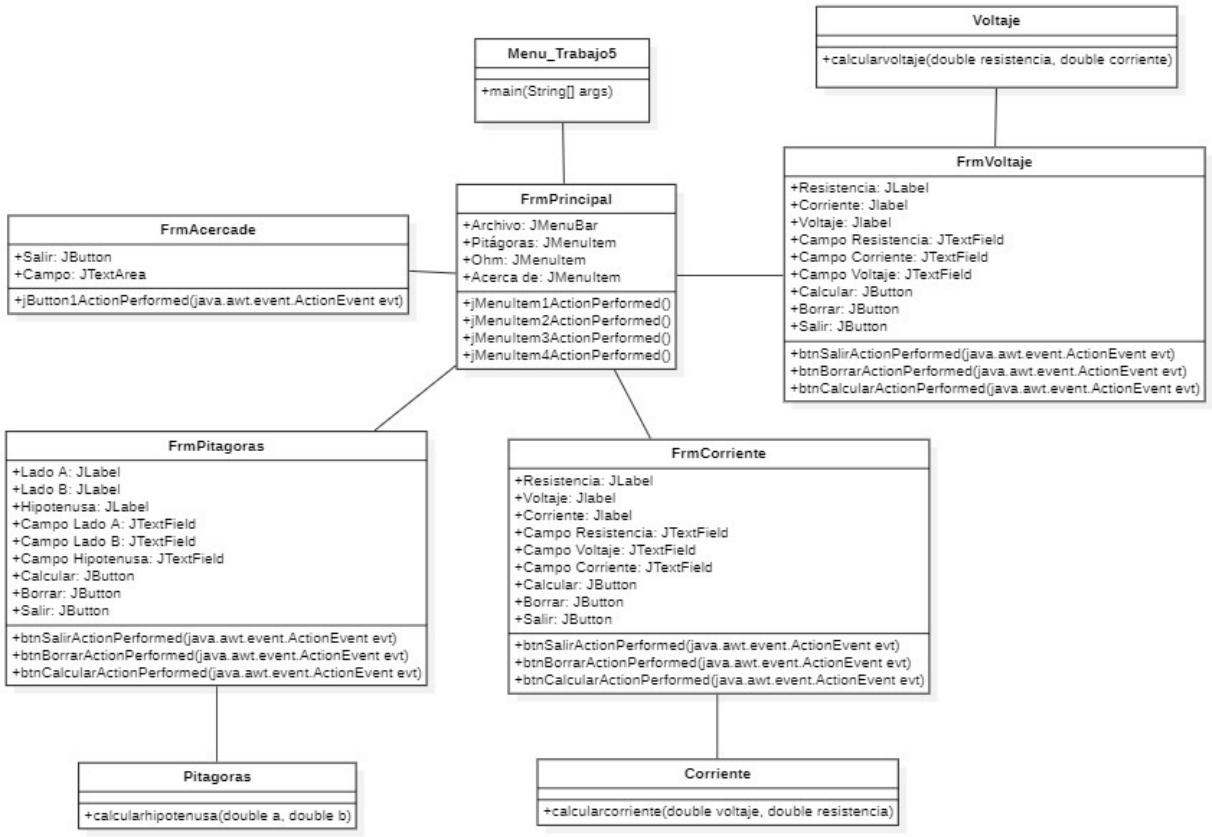
Pitagoras

```
package menu_trabajo5;

public class Pitagoras {

    public static double calularhipotenusa(double a, double b){

        double hipotenusa = Math.sqrt(Math.pow(a, 2)+ Math.pow(b,2));
        return hipotenusa;

    }

}
```

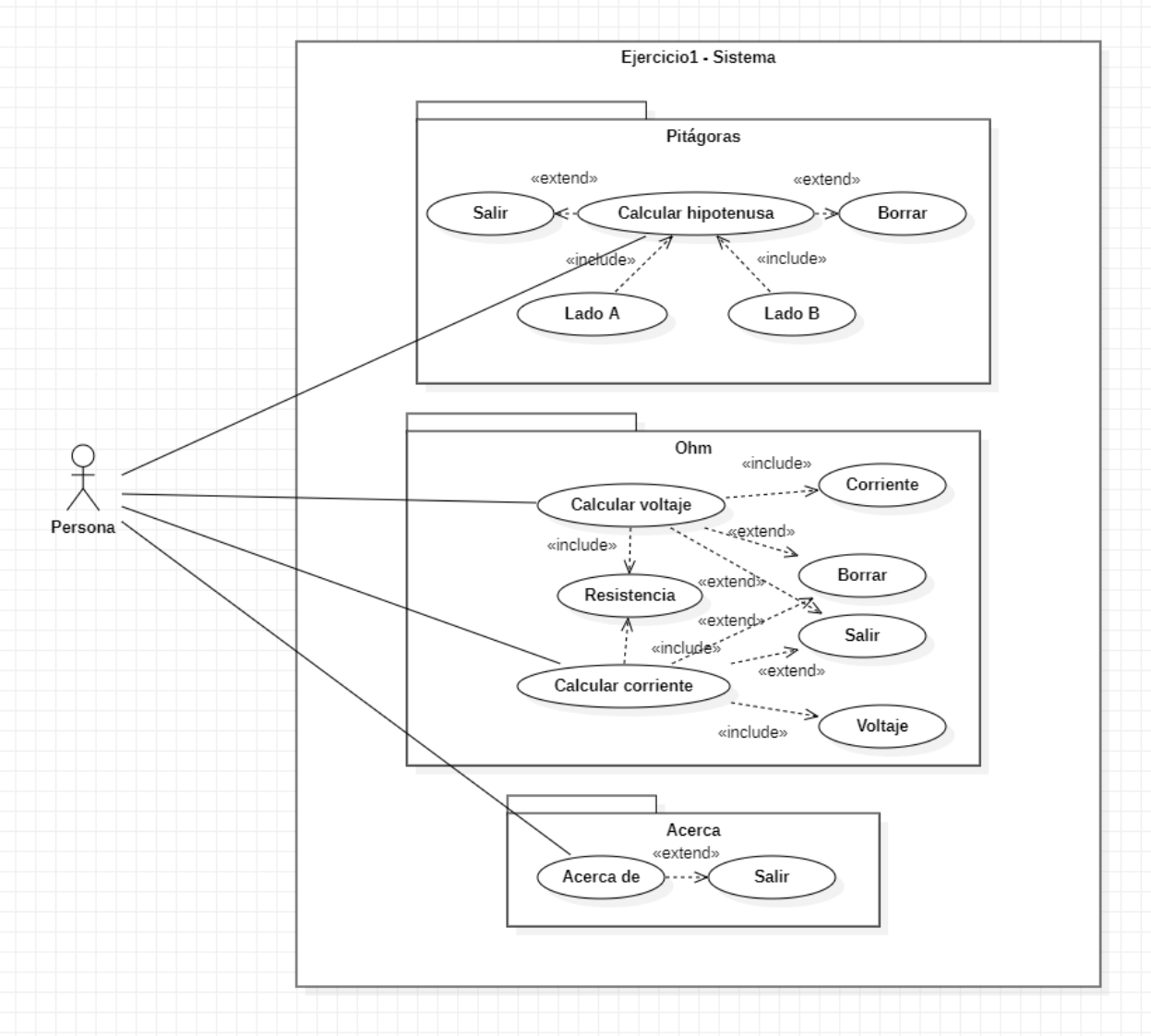
Voltaje

```
package menu_trabajo5;

public class Voltaje {

    public static double calcularvoltaje(double resistencia, double corriente){
        double voltaje = resistencia*corriente;
        return voltaje;
    }
}
```

Diagrama de Clases


Menu_Trabajo5
+main(String[] args)
Voltaje
+calcularvoltaje(double resistencia, double corriente)
FrmVoltaje
+Resistencia: JLabel
+Corriente: Jlabel
+Voltaje: Jlabel
+Campo Resistencia: JTextField
+Campo Corriente: JTextField
+Campo Voltaje: JTextField
+Calcular: JButton
+Borrar: JButton
+Salir: JButton
+btnSalirActionPerformed(java.awt.event.ActionEvent evt)
+btnBorrarActionPerformed(java.awt.event.ActionEvent evt)
+btnCalcularActionPerformed(java.awt.event.ActionEvent evt)
FrmPrincipal
+Archivo: JMenuBar
+Pitágoras: JMenuItem
+Ohm: JMenuItem
+Acerca de: JMenuItem
+jMenuItem1ActionPerformed()
+jMenuItem2ActionPerformed()
+jMenuItem3ActionPerformed()
+jMenuItem4ActionPerformed()
FrmAcercade
+Salir: JButton
+Campo: JTextArea
+jButton1ActionPerformed(java.awt.event.ActionEvent evt)
FrmPitagoras
+Lado A: JLabel
+Lado B: JLabel
+Hipotenusa: JLabel
+Campo Lado A: JTextField
+Campo Lado B: JTextField
+Campo Hipotenusa: JTextField
+Calcular: JButton
+Borrar: JButton
+Salir: JButton
+btnSalirActionPerformed(java.awt.event.ActionEvent evt)
+btnBorrarActionPerformed(java.awt.event.ActionEvent evt)
+btnCalcularActionPerformed(java.awt.event.ActionEvent evt)
FrmCorriente
+Resistencia: JLabel
+Voltaje: Jlabel
+Corriente: Jlabel
+Campo Resistencia: JTextField
+Campo Voltaje: JTextField
+Campo Corriente: JTextField
+Calcular: JButton
+Borrar: JButton
+Salir: JButton
+btnSalirActionPerformed(java.awt.event.ActionEvent evt)
+btnBorrarActionPerformed(java.awt.event.ActionEvent evt)
+btnCalcularActionPerformed(java.awt.event.ActionEvent evt)
Pitagoras
+calcularhipotenusa(double a, double b)
Corriente
+calcularcorriente(double voltaje, double resistencia)

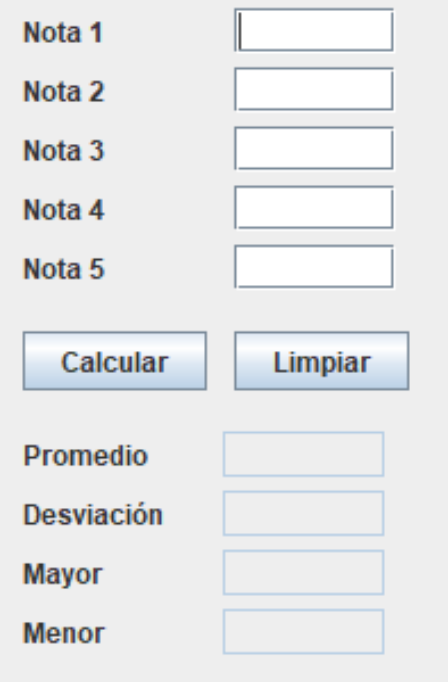
Casos de Uso



Ejercicio 2

https://github.com/danielcgiraldo/POO_Grupal/tree/main/Trabajo_3/Ejercicio2

Interfaz Gráfica



Código

Notas

```
package com.mycompany.notas;

public class Notas {

    public static void main(String[] args) {
        VentanaPrincipal interfaz = new VentanaPrincipal();
        interfaz.setVisible(true);
    }
    double[] listaNotas;
    public Notas() {
        listaNotas = new double[5];
    }

    double calcularPromedio() {

        double suma = 0;

        for(int i=1; i < listaNotas.length; i++) {
            suma = suma + listaNotas[i];
        }

        return (suma / listaNotas.length);
    }

    double calcularDesviación() {
        double promedio = calcularPromedio();
        double suma = 0;
        for(int i=0; i < listaNotas.length; i++) {

            suma += Math.pow(listaNotas[i] - promedio, 2 );
        }
        return Math.sqrt (suma/listaNotas.length );
    }

    double numeroMenor() {
        double menor = listaNotas[0];
        for(int i=0; i < listaNotas.length; i++) {
            if (listaNotas[i] < menor) {

                menor = listaNotas[i];
```

```
            }
        }
        return menor;
    }

    double numeroMayor() {
        double mayor = listaNotas[0];
        for(int i=0; i < listaNotas.length; i++) {
            if (listaNotas[i] > mayor) {

                mayor = listaNotas[i];
            }
        }
        return mayor;
    }
}
```

VentanaPrincipal

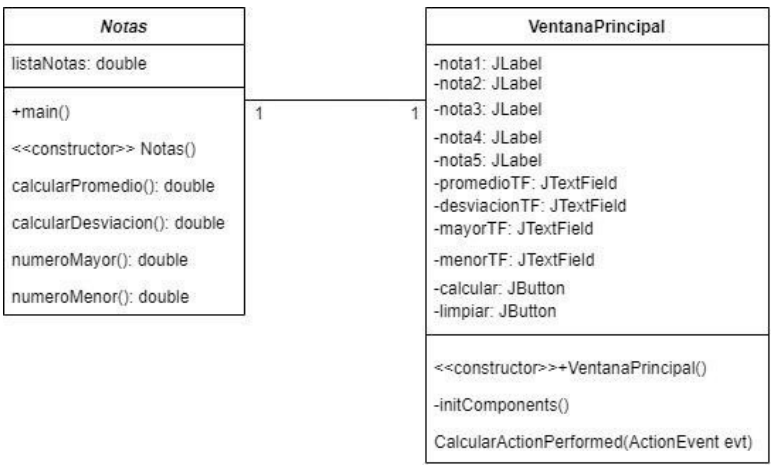
```
package com.mycompany.notas;

public class VentanaPrincipal extends javax.swing.JFrame {


    public VentanaPrincipal() {
        initComponents();
        setTitle("Notas");
        setLocationRelativeTo(null);

    }


    @SuppressWarnings("unchecked")
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {

        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();
        jLabel6 = new javax.swing.JLabel();
        jLabel7 = new javax.swing.JLabel();
        jLabel8 = new javax.swing.JLabel();
        jLabel9 = new javax.swing.JLabel();
        nota1TF = new javax.swing.JTextField();
        nota2TF = new javax.swing.JTextField();
        nota3TF = new javax.swing.JTextField();
        nota4TF = new javax.swing.JTextField();
        nota5TF = new javax.swing.JTextField();
        promedioTF = new javax.swing.JTextField();
        desviacionTF = new javax.swing.JTextField();
        mayorTF = new javax.swing.JTextField();
        menorTF = new javax.swing.JTextField();
        Calcular = new javax.swing.JButton();
        Limpiar = new javax.swing.JButton();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);

        jLabel1.setText("Nota 1");

        jLabel2.setText("Nota 2");

        jLabel3.setText("Nota 3");

        jLabel4.setText("Nota 4");

        jLabel5.setText("Nota 5");

        jLabel6.setText("Promedio");

        jLabel7.setText("Desviación");

        jLabel8.setText("Mayor");

        jLabel9.setText("Menor");
```

```
        nota1TF.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                nota1TFActionPerformed(evt);
            }
        });

        promedioTF.setEditable(false);

        desviacionTF.setEditable(false);

        mayorTF.setEditable(false);

        menorTF.setEditable(false);

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

        Limpiar.setText("Limpiar");
        Limpiar.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                LimpiarActionPerformed(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)
                    .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING, false)
                        .addGroup(javax.swing.GroupLayout.Alignment.LEADING, layout.createSequentialGroup()
                            .addComponent(jLabel9, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE, Shor
                            .addComponent(menorTF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGroup(javax.swing.GroupLayout.Alignment.LEADING, layout.createSequentialGroup()
                            .addComponent(jLabel8, javax.swing.GroupLayout.PREFERRED_SIZE, 42, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, javax.swing.GroupLayout.DEFAULT_SIZE, Shor
                            .addComponent(mayorTF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGroup(javax.swing.GroupLayout.Alignment.LEADING, layout.createSequentialGroup()
                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                                .addComponent(jLabel6)
                                .addComponent(jLabel7))
                            .addGap(26, 26, 26)
                            .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                                .addComponent(desviacionTF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_S
                                .addComponent(promedioTF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZ
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(Calcular)
                            .addComponent(jLabel3, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel1, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel2, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel4, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jLabel5, javax.swing.GroupLayout.PREFERRED_SIZE, 37, javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(nota3TF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(nota1TF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(nota2TF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(nota4TF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(nota5TF, javax.swing.GroupLayout.PREFERRED_SIZE, 71, javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(Limpiar))))
                .addContainerGap(22, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(11, 11, 11)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(nota1TF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(nota2TF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
```

```
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(nota3TF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel4)
                    .addComponent(nota4TF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel5)
                    .addComponent(nota5TF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(Calcular)
                    .addComponent(Limpiar))
                .addGap(18, 18, 18)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel6)
                    .addComponent(promedioTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.Gro
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel7)
                    .addComponent(desviacionTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.G
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel8)
                    .addComponent(mayorTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel9)
                    .addComponent(menorTF, javax.swing.GroupLayout.PREFERRED_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupL
                .addContainerGap(18, Short.MAX_VALUE))
        );

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

    private void nota1TFActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
    }

    private void CalcularActionPerformed(java.awt.event.ActionEvent evt) {
        Notas notas = new Notas();
        notas.listaNotas[0] = Double.parseDouble(nota1TF.getText());
        notas.listaNotas[1] = Double.parseDouble(nota2TF.getText());
        notas.listaNotas[2] = Double.parseDouble(nota3TF.getText());
        notas.listaNotas[3] = Double.parseDouble(nota4TF.getText());
        notas.listaNotas[4] = Double.parseDouble(nota5TF.getText());

        promedioTF.setText(String.valueOf(String.format("%.2f",notas.calcularPromedio())));
        desviacionTF.setText(String.valueOf(String.format("%.2f",notas.calcularDesviación())));
        mayorTF.setText(String.valueOf(notas.numeroMayor()));
        menorTF.setText(String.valueOf(notas.numeroMenor()));

    }

    private void LimpiarActionPerformed(java.awt.event.ActionEvent evt) {
        nota1TF.setText("");
        nota2TF.setText("");
        nota3TF.setText("");
        nota4TF.setText("");
        nota5TF.setText("");
        promedioTF.setText("");
        desviacionTF.setText("");
        mayorTF.setText("");
        menorTF.setText("");

    }

    /**
     * @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
    private javax.swing.JButton Calcular;
    private javax.swing.JButton Limpiar;
    private javax.swing.JTextField desviacionTF;
    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 mayorTF;
    private javax.swing.JTextField menorTF;
    private javax.swing.JTextField nota1TF;
    private javax.swing.JTextField nota2TF;
    private javax.swing.JTextField nota3TF;
    private javax.swing.JTextField nota4TF;
    private javax.swing.JTextField nota5TF;
    private javax.swing.JTextField promedioTF;
    // End of variables declaration
}
```

Diagrama de Clases

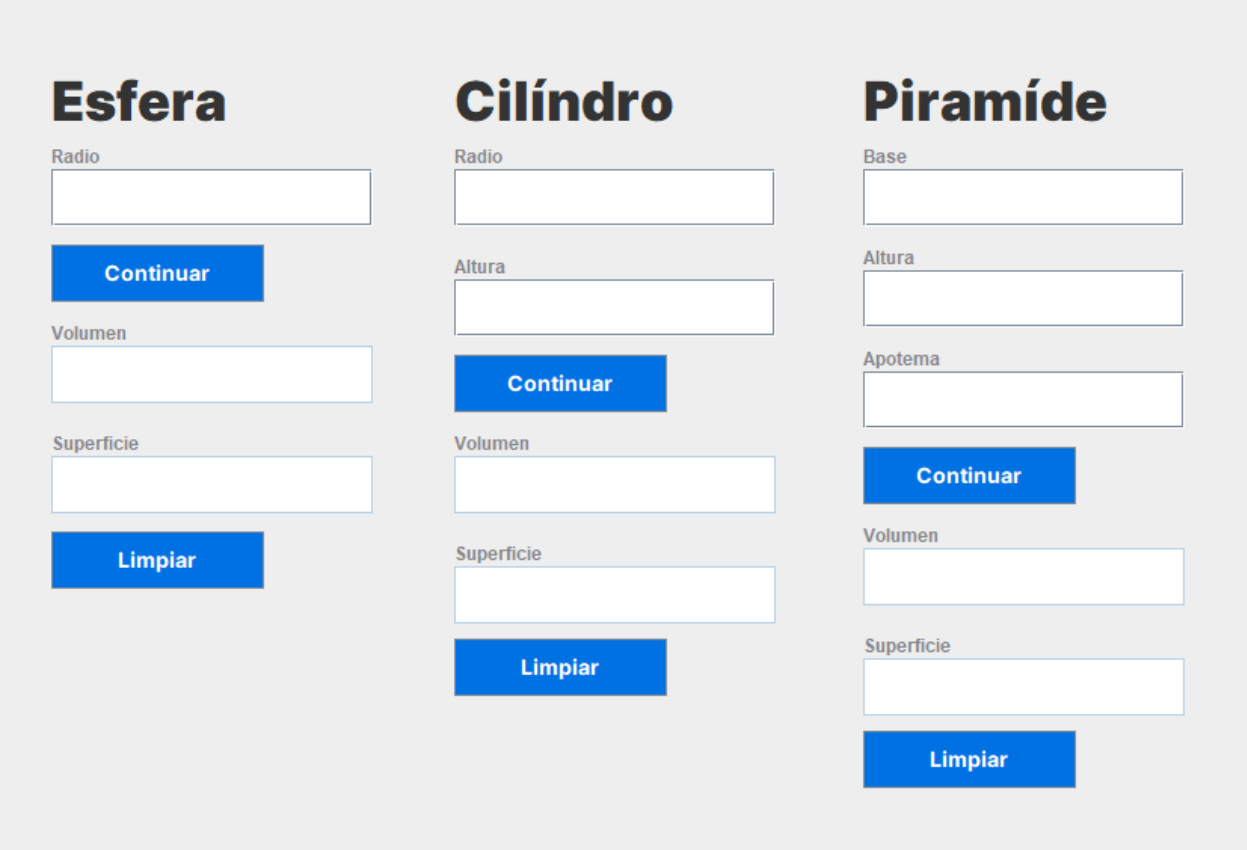


Casos de Uso

Ejercicio 3

https://github.com/danielcgiraldo/POO_Grupal/tree/main/Trabajo_3/Ejercicio3

Interfaz Gráfica



Código

UI

```
package poo.Ejercicio3;

import figuras.Cilindro;
import figuras.Esfera;
import figuras.Piramide;

public class UI extends javax.swing.JFrame {

    public UI() {
        initComponents();
    }

    @SuppressWarnings("unchecked")
    private void initComponents() {

        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        esferaRadio = new javax.swing.JTextField();
        jLabel6 = new javax.swing.JLabel();
        jLabel7 = new javax.swing.JLabel();
```

```
        cilindroRadio = new javax.swing.JTextField();
        jLabel9 = new javax.swing.JLabel();
        piramideBase = new javax.swing.JTextField();
        jLabel10 = new javax.swing.JLabel();
        cilindroAltura = new javax.swing.JTextField();
        jLabel11 = new javax.swing.JLabel();
        piramideAltura = new javax.swing.JTextField();
        cilindroBtn = new javax.swing.JButton();
        esferaBtn = new javax.swing.JButton();
        piramideBtn = new javax.swing.JButton();
        jLabel12 = new javax.swing.JLabel();
        esferaSuperficie = new javax.swing.JTextField();
        jLabel13 = new javax.swing.JLabel();
        esferaVolumen = new javax.swing.JTextField();
        jLabel14 = new javax.swing.JLabel();
        cilindroSuperficie = new javax.swing.JTextField();
        jLabel15 = new javax.swing.JLabel();
        cilindroVolumen = new javax.swing.JTextField();
        esferaBtn1 = new javax.swing.JButton();
        cilindroBtn1 = new javax.swing.JButton();
        piramideApotema = new javax.swing.JTextField();
        jLabel22 = new javax.swing.JLabel();
        piramideBtn2 = new javax.swing.JButton();
        jLabel23 = new javax.swing.JLabel();
        piramideSuperficie = new javax.swing.JTextField();
        jLabel24 = new javax.swing.JLabel();
        piramideVolumen = new javax.swing.JTextField();

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        setResizable(false);

        jLabel2.setFont(new java.awt.Font("Inter Black", 0, 36)); // NOI18N
        jLabel2.setText("Esfera");

        jLabel3.setFont(new java.awt.Font("Inter Black", 0, 36)); // NOI18N
        jLabel3.setText("Cilíndro");

        jLabel5.setFont(new java.awt.Font("Inter Black", 0, 36)); // NOI18N
        jLabel5.setText("Piramíde");

        esferaRadio.setForeground(new java.awt.Color(134, 134, 139));

        jLabel6.setForeground(new java.awt.Color(134, 134, 139));
        jLabel6.setText("Radio");

        jLabel7.setForeground(new java.awt.Color(134, 134, 139));
        jLabel7.setText("Radio");

        cilindroRadio.setForeground(new java.awt.Color(134, 134, 139));

        jLabel9.setForeground(new java.awt.Color(134, 134, 139));
        jLabel9.setText("Base");

        piramideBase.setForeground(new java.awt.Color(134, 134, 139));

        jLabel10.setForeground(new java.awt.Color(134, 134, 139));
        jLabel10.setText("Altura");

        cilindroAltura.setForeground(new java.awt.Color(134, 134, 139));

        jLabel11.setForeground(new java.awt.Color(134, 134, 139));
        jLabel11.setText("Altura");

        piramideAltura.setForeground(new java.awt.Color(134, 134, 139));

        cilindroBtn.setBackground(new java.awt.Color(0, 113, 227));
        cilindroBtn.setFont(new java.awt.Font("Inter", 1, 14)); // NOI18N
        cilindroBtn.setForeground(new java.awt.Color(255, 255, 255));
        cilindroBtn.setText("Continuar");
        cilindroBtn.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                cilindroBtnActionPerformed(evt);
            }
        });

        esferaBtn.setBackground(new java.awt.Color(0, 113, 227));
        esferaBtn.setFont(new java.awt.Font("Inter", 1, 14)); // NOI18N
        esferaBtn.setForeground(new java.awt.Color(255, 255, 255));
        esferaBtn.setText("Continuar");
        esferaBtn.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
```

```
            esferaBtnActionPerformed(evt);
        }
    });

    piramideBtn.setBackground(new java.awt.Color(0, 113, 227));
    piramideBtn.setFont(new java.awt.Font("Inter", 1, 14)); // NOI18N
    piramideBtn.setForeground(new java.awt.Color(255, 255, 255));
    piramideBtn.setText("Continuar");
    piramideBtn.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            piramideBtnActionPerformed(evt);
        }
    });

    jLabel12.setForeground(new java.awt.Color(134, 134, 139));
    jLabel12.setText("Superficie");

    esferaSuperficie.setForeground(new java.awt.Color(134, 134, 139));
    esferaSuperficie.setEnabled(false);

    jLabel13.setForeground(new java.awt.Color(134, 134, 139));
    jLabel13.setText("Volumen");

    esferaVolumen.setForeground(new java.awt.Color(134, 134, 139));
    esferaVolumen.setEnabled(false);

    jLabel14.setForeground(new java.awt.Color(134, 134, 139));
    jLabel14.setText("Superficie");

    cilindroSuperficie.setForeground(new java.awt.Color(134, 134, 139));
    cilindroSuperficie.setEnabled(false);

    jLabel15.setForeground(new java.awt.Color(134, 134, 139));
    jLabel15.setText("Volumen");

    cilindroVolumen.setForeground(new java.awt.Color(134, 134, 139));
    cilindroVolumen.setEnabled(false);

    esferaBtn1.setBackground(new java.awt.Color(0, 113, 227));
    esferaBtn1.setFont(new java.awt.Font("Inter", 1, 14)); // NOI18N
    esferaBtn1.setForeground(new java.awt.Color(255, 255, 255));
    esferaBtn1.setText("Limpiar");
    esferaBtn1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            esferaBtn1ActionPerformed(evt);
        }
    });

    cilindroBtn1.setBackground(new java.awt.Color(0, 113, 227));
    cilindroBtn1.setFont(new java.awt.Font("Inter", 1, 14)); // NOI18N
    cilindroBtn1.setForeground(new java.awt.Color(255, 255, 255));
    cilindroBtn1.setText("Limpiar");
    cilindroBtn1.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            cilindroBtn1ActionPerformed(evt);
        }
    });

    piramideApotema.setForeground(new java.awt.Color(134, 134, 139));

    jLabel22.setForeground(new java.awt.Color(134, 134, 139));
    jLabel22.setText("Apotema");

    piramideBtn2.setBackground(new java.awt.Color(0, 113, 227));
    piramideBtn2.setFont(new java.awt.Font("Inter", 1, 14)); // NOI18N
    piramideBtn2.setForeground(new java.awt.Color(255, 255, 255));
    piramideBtn2.setText("Limpiar");
    piramideBtn2.addActionListener(new java.awt.event.ActionListener() {
        public void actionPerformed(java.awt.event.ActionEvent evt) {
            piramideBtn2ActionPerformed(evt);
        }
    });

    jLabel23.setForeground(new java.awt.Color(134, 134, 139));
    jLabel23.setText("Superficie");

    piramideSuperficie.setForeground(new java.awt.Color(134, 134, 139));
    piramideSuperficie.setEnabled(false);

    jLabel24.setForeground(new java.awt.Color(134, 134, 139));
    jLabel24.setText("Volumen");
```

```
        piramideVolumen.setForeground(new java.awt.Color(134, 134, 139));
        piramideVolumen.setEnabled(false);

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addGap(45, 45, 45)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel6)
                    .addComponent(esferaRadio, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel2)
                    .addComponent(esferaBtn, javax.swing.GroupLayout.PREFERRED_SIZE, 141, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel13)
                    .addComponent(esferaVolumen, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel12)
                    .addComponent(esferaSuperficie, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(esferaBtn1, javax.swing.GroupLayout.PREFERRED_SIZE, 141, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(54, 54, 54)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(cilindroBtn1, javax.swing.GroupLayout.PREFERRED_SIZE, 141, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel7)
                    .addComponent(cilindroRadio, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel3)
                    .addComponent(jLabel10)
                    .addComponent(cilindroAltura, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(cilindroBtn, javax.swing.GroupLayout.PREFERRED_SIZE, 141, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel15)
                    .addComponent(cilindroVolumen, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel14)
                    .addComponent(cilindroSuperficie, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(58, 58, 58)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(piramideBtn, javax.swing.GroupLayout.PREFERRED_SIZE, 141, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel9)
                    .addComponent(piramideBase, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel5)
                    .addComponent(jLabel11)
                    .addComponent(piramideAltura, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel22)
                    .addComponent(piramideApotema, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(piramideBtn2, javax.swing.GroupLayout.PREFERRED_SIZE, 141, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel24)
                    .addComponent(piramideVolumen, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLabel23)
                    .addComponent(piramideSuperficie, javax.swing.GroupLayout.PREFERRED_SIZE, 213, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(52, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(53, 53, 53)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel5)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLabel9)
                        .addGap(1, 1, 1)
                        .addComponent(piramideBase, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(12, 12, 12)
                        .addComponent(jLabel11)
                        .addGap(1, 1, 1)
                        .addComponent(piramideAltura, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel22, javax.swing.GroupLayout.PREFERRED_SIZE, 16, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(1, 1, 1)
                        .addComponent(piramideApotema, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(piramideBtn, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel24)
                        .addGap(1, 1, 1)
                        .addComponent(piramideVolumen, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jLabel23)
                        .addGap(1, 1, 1)
                        .addComponent(piramideSuperficie, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZ
                        .addGap(10, 10, 10)
                        .addComponent(piramideBtn2, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel2)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLabel6)
                        .addGap(1, 1, 1)
                        .addComponent(esferaRadio, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(esferaBtn, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(12, 12, 12)
                        .addComponent(jLabel13)
                        .addGap(1, 1, 1)
                        .addComponent(esferaVolumen, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jLabel12)
                        .addGap(1, 1, 1)
                        .addComponent(esferaSuperficie, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(esferaBtn1, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel3)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLabel7)
                        .addGap(1, 1, 1)
                        .addComponent(cilindroRadio, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jLabel10)
                        .addGap(1, 1, 1)
                        .addComponent(cilindroAltura, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(cilindroBtn, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel15)
                        .addGap(1, 1, 1)
                        .addComponent(cilindroVolumen, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jLabel14)
                        .addGap(1, 1, 1)
                        .addComponent(cilindroSuperficie, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZ
                        .addGap(10, 10, 10)
                        .addComponent(cilindroBtn1, javax.swing.GroupLayout.PREFERRED_SIZE, 38, javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addContainerGap(48, Short.MAX_VALUE))
        );

        pack();
    }

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

        Esfera miesfera = new Esfera();
        miesfera.radio = Double.parseDouble(esferaRadio.getText());
        esferaVolumen.setText(String.valueOf(miesfera.volumen()));
        esferaSuperficie.setText(String.valueOf(miesfera.superficie()));

    }

    private void esferaBtn1ActionPerformed(java.awt.event.ActionEvent evt) {
        esferaVolumen.setText("");
        esferaSuperficie.setText("");
        esferaRadio.setText("");
    }

    private void cilindroBtnActionPerformed(java.awt.event.ActionEvent evt) {
        Cilindro micilindro = new Cilindro();
        micilindro.altura = Double.parseDouble(cilindroAltura.getText());
        micilindro.radio = Double.parseDouble(cilindroRadio.getText());
        cilindroVolumen.setText(String.valueOf(micilindro.volumen()));
        cilindroSuperficie.setText(String.valueOf(micilindro.superficie()));
    }

    private void cilindroBtn1ActionPerformed(java.awt.event.ActionEvent evt) {
        cilindroSuperficie.setText("");
        cilindroVolumen.setText("");
        cilindroAltura.setText("");
        cilindroRadio.setText("");
    }

    private void piramideBtnActionPerformed(java.awt.event.ActionEvent evt) {
        Piramide mipiramide = new Piramide();
        mipiramide.altura = Double.parseDouble(piramideAltura.getText());
        mipiramide.base = Double.parseDouble(piramideBase.getText());
        mipiramide.apotema = Double.parseDouble(piramideApotema.getText());
```

```
        piramideVolumen.setText(String.valueOf(mipiramide.volumen()));
        piramideSuperficie.setText(String.valueOf(mipiramide.superficie()));
    }

    private void piramideBtn2ActionPerformed(java.awt.event.ActionEvent evt) {
        piramideAltura.setText("");
        piramideBase.setText("");
        piramideApotema.setText("");
        piramideVolumen.setText("");
        piramideSuperficie.setText("");
    }

    public static void main(String args[]) {
        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(UI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (InstantiationException ex) {
            java.util.logging.Logger.getLogger(UI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (IllegalAccessException ex) {
            java.util.logging.Logger.getLogger(UI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
            java.util.logging.Logger.getLogger(UI.class.getName()).log(java.util.logging.Level.SEVERE, null, ex);
        }
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new UI().setVisible(true);
            }
        });
    }

    private javax.swing.JTextField cilindroAltura;
    private javax.swing.JButton cilindroBtn;
    private javax.swing.JButton cilindroBtn1;
    private javax.swing.JTextField cilindroRadio;
    private javax.swing.JTextField cilindroSuperficie;
    private javax.swing.JTextField cilindroVolumen;
    private javax.swing.JButton esferaBtn;
    private javax.swing.JButton esferaBtn1;
    private javax.swing.JTextField esferaRadio;
    private javax.swing.JTextField esferaSuperficie;
    private javax.swing.JTextField esferaVolumen;
    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 jLabel2;
    private javax.swing.JLabel jLabel22;
    private javax.swing.JLabel jLabel23;
    private javax.swing.JLabel jLabel24;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
    private javax.swing.JLabel jLabel7;
    private javax.swing.JLabel jLabel9;
    private javax.swing.JTextField piramideAltura;
    private javax.swing.JTextField piramideApotema;
    private javax.swing.JTextField piramideBase;
    private javax.swing.JButton piramideBtn;
    private javax.swing.JButton piramideBtn2;
    private javax.swing.JTextField piramideSuperficie;
    private javax.swing.JTextField piramideVolumen;
}
```

Ejercicio3

```
package poo.Ejercicio3;

public class Ejercicio3 {
```

```
    public static void main(String[] args) {
        UI ventana = new UI();
        ventana.setVisible(true);
    }
}
```

Figuras

```
package figuras;

public class Figuras {
    public double volumen;
    public double superficie;
}
```

Piramide

```
package figuras;

public class Piramide extends Figuras {
    public double base, altura, apotema;
    public double volumen(){
        return (Math.pow(base, 2.0) * altura) / 3.0;
    }

    public double superficie(){
        return Math.pow(base, 2.0) + 2.0 * base * apotema;
    }
}
```

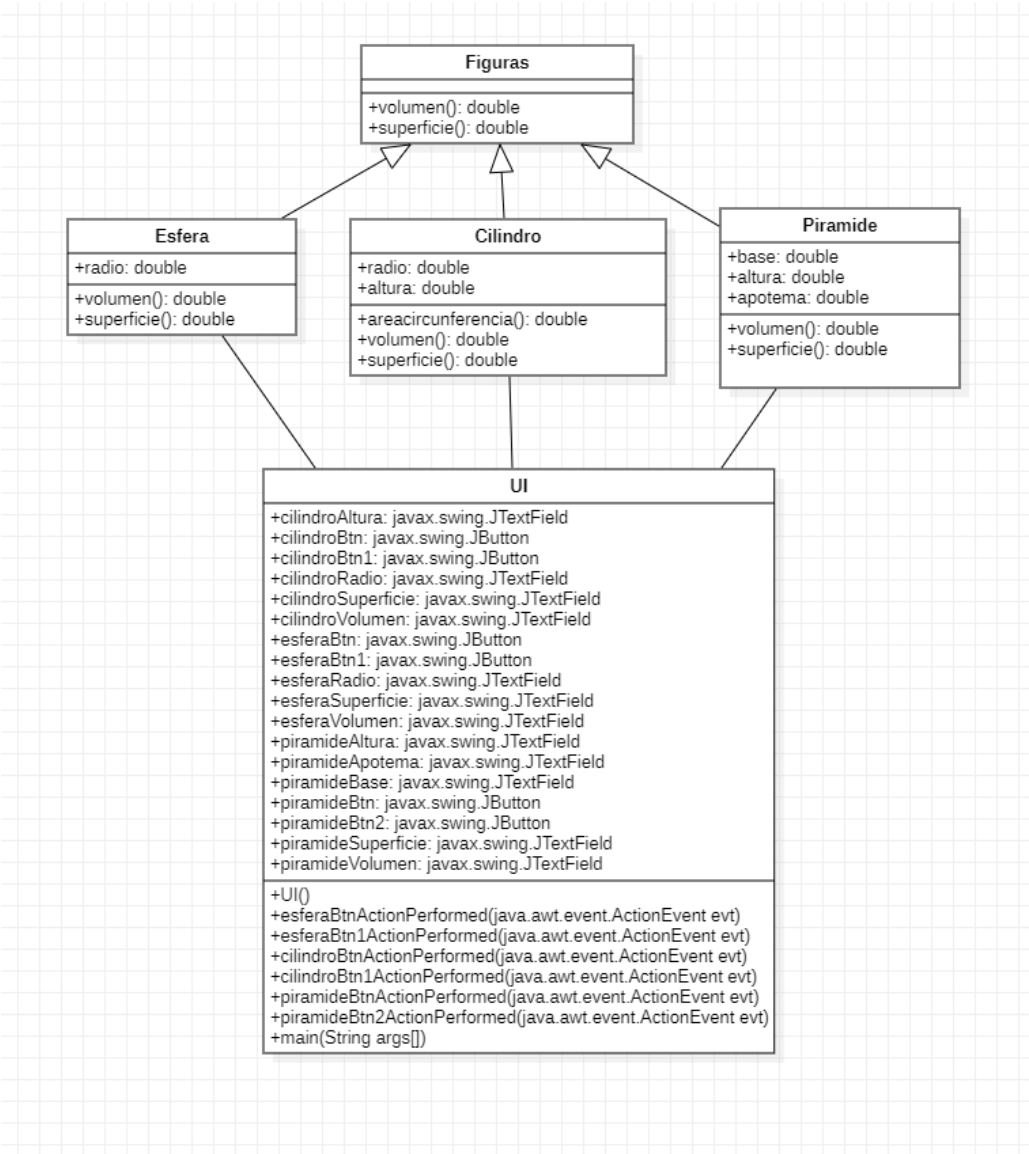
Esfera

```
package figuras;

public class Esfera extends Figuras {
    public double radio;
    public double volumen(){
        return (4.0 / 3.0) * Math.PI * Math.pow(radio, 3.0);
    }

    public double superficie(){
        return 4.0 * Math.PI * Math.pow(radio, 2.0);
    }
}
```

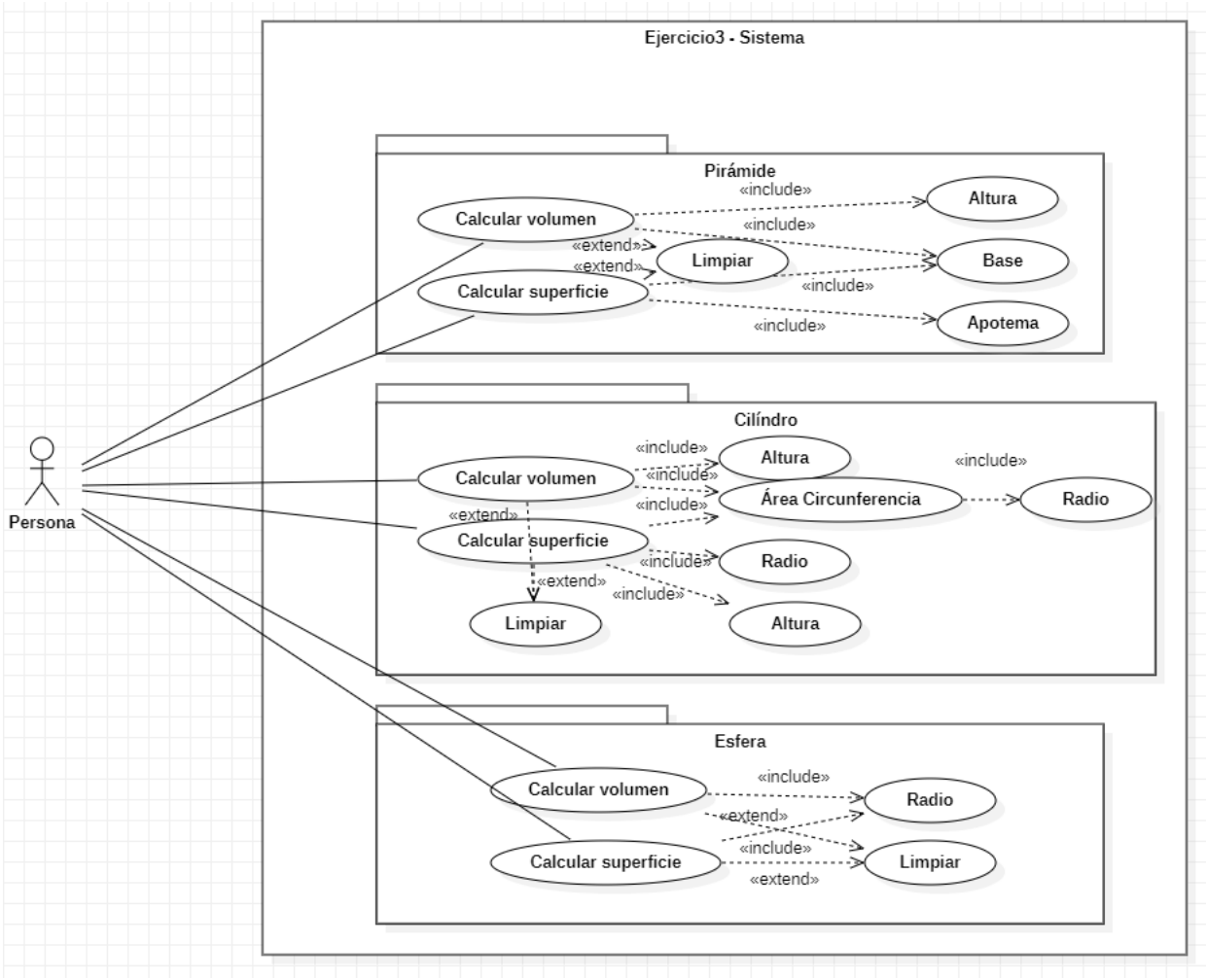
Cilindro

```
package figuras;

public class Cilindro extends Figuras {
    public double radio, altura;

    private double areacircunferencia() {
        return Math.PI * Math.pow(radio, 2.0);
    }

    public double volumen(){
        return areacircunferencia() * altura;
    }

    public double superficie(){
        return 2.0 * Math.PI * radio * altura + 2.0 * areacircunferencia();
    }
}
```

Diagrama de Clases



Casos de Uso


Ejercicio3 - Sistema
Pirámide
Calcular volumen
Calcular superficie
Limpiar
Altura
Base
Apotema
«include»
«extend»
Cilíndro
Calcular volumen
Calcular superficie
Limpiar
Altura
Área Circunferencia
Radio
Altura
Esfera
Calcular volumen
Calcular superficie
Radio
Limpiar
Persona