TECNOLOGICO NACIONAL DE MEXICO

Instituto Tecnológico de la Laguna

Ingeniería en Sistemas Computacionales

TOPICOS AVANZADOS DE PROGRAMACION

PERIODO: Ago - Dic / 2020 GRUPO: “B” 17 – 18 Hrs

PRACTICA No. U2P03

Aplicación PrismasApp usando Beans propios

ALUMNO:

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Torreón, Coah. A 27 de Noviembre de 2020

Ejercicio

Se requiere diseñar e implementar como JavaBeans 3 diferentes prismas: Cilindro, Prisma Rectangular y Prisma Triangular.

Los beans debe ser del tipo visible es decir deben tener una interfaz visual de usuario. Cada bean debe contar con propiedades editables en tiempo de diseño que permitan especificar las dimensiones que lo definen tales como radio, altura, largo y ancho de la base, etc. dependiendo del tipo de prisma. Además de una propiedad que permita cambiar la imagen del prisma.

En su implementación el bean debe encapsular un objeto de la clase base del prisma, por ejemplo: el bean JCilindro debe componerse de un objeto de la clase Cilindro que previamente ya se ha desarrollado.

Cada bean debe proporcionar métodos para conocer el área de su base, área lateral, área total y volumen.

Incorporar al bean un menú contextual que proporcione una opción EDITAR VALORES que presente un diálogo donde se puedan capturar las dimensiones del prisma y una segunda opción llamada ACERCA DE…, esta función debe mostrar un mensaje de dialogo con el nombre del bean, versión y los nombres del autor.

Los beans deben ser capaces de disparar un evento al completar la captura de datos en el dialogo EDITAR VALORES, dicho evento debe enviar como información los valores antiguos y los nuevos valores a sus listeners.

Se debe usar la característica del BeanInfo para que las propiedades del bean aparezcan en primer lugar en la paleta de propiedades, cada propiedad debe desplegar una leyenda legible en el nombre de la propiedad y su correspondiente descripción. Además, el bean debe contar con un icono representativo en la paleta de componentes de NetBeans.

Adicional a los 3 beans para los prismas se solicita diseñar e implementar un bean Acerca De que pueda ser reutilizado en posteriores proyectos. El bean Acerca De debe permitir personalizar en tiempo de diseño mediante la paleta de propiedades todas las leyendas del dialogo acerca de, asi como los dos logos incluidos. Este bean no genera eventos.

Todos los componentes que se incluyan en el código del bean **deben tener un nombre de variable adecuado no el nombre de default.**

Los beans debe incluirse en la librería del curso en el package **mx.edu.itl.beans** y empacarse en un archivo JAR.

Posteriormente ya que se tengan listos los beans de los 3 prismas se deberá crear una nueva versión basada en la aplicación PrismasApp en la cual se reutilizarán los 3 beans diseñados. El Frame principal de **PrismasBeansFrame** debe ser listener de los eventos que generan los prismas, de tal manera que si uno captura los valores del prisma por medio del dialogo que trae incorporado el bean el Frame recibirá el evento y deberá mostrar dichos valores en el formulario para leer los datos del prisma. De igual forma si los datos del prisma se capturan a través del formulario del Frame estos nuevos valores se deben reflejar en el bean. En la siguiente pagina se anexa un esquema que ilustra esta funcionalidad.

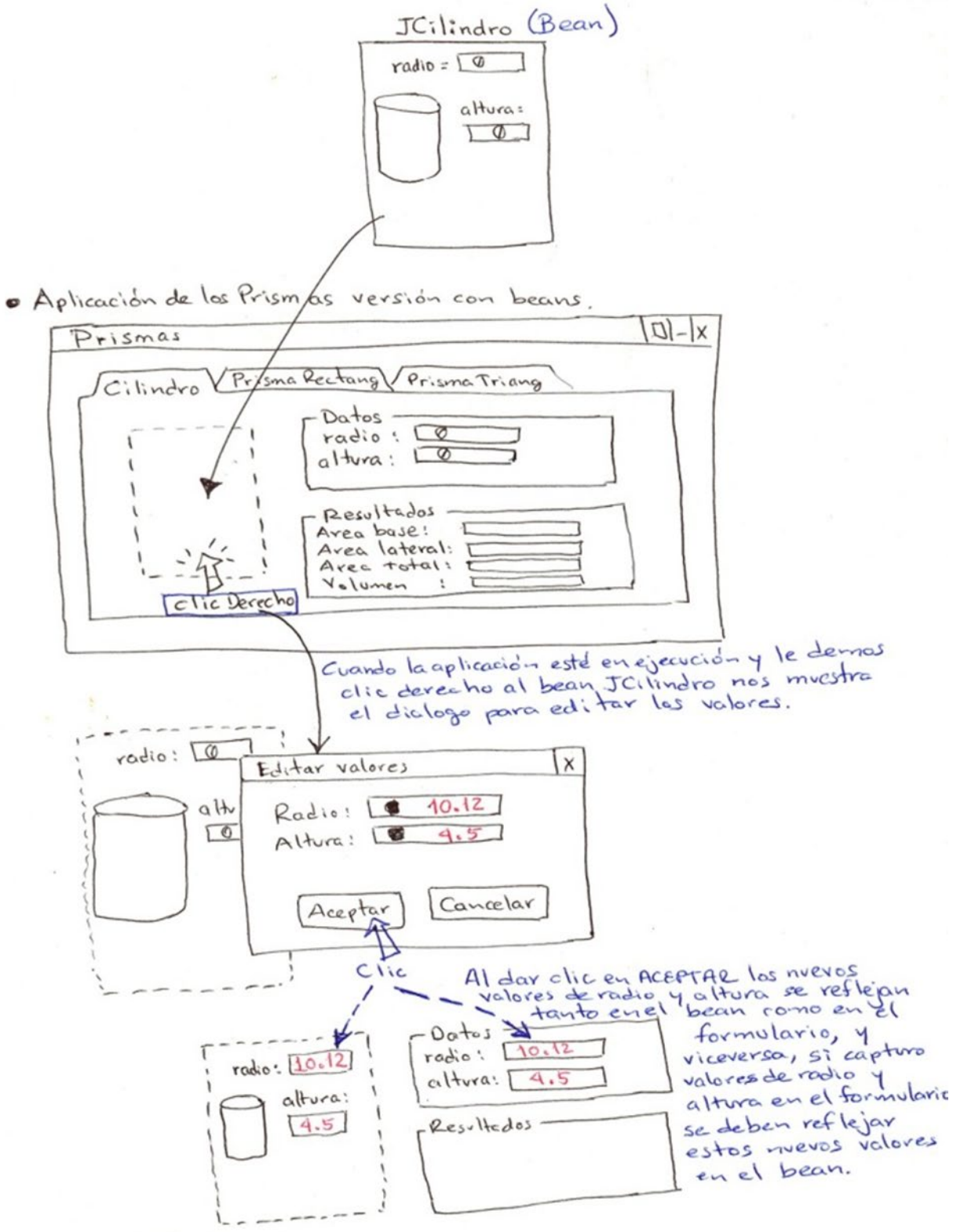
La opción `Archivo -> Acerca de` debe hacer uso del bean Acerca De.

En la sección de ANALISIS describir cómo será diseñado cada bean, es decir, cuál será el componente visual base del bean, qué otros componentes lo integrarán y qué propiedades tendrá cada uno.

En la sección de DISEÑO va el diagrama de clases UML de cada bean.

En la sección de CODIGO va el código de todas las clases JAVA con la calidad establecida.

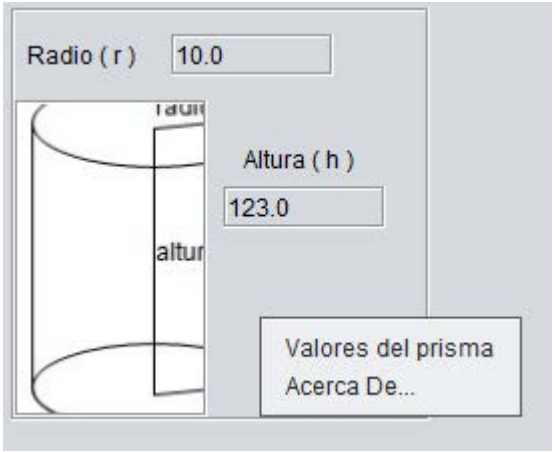
En la sección de PRUEBA DE EJECUCION incluir una captura de la paleta de componentes de NetBeans donde se aprecien los iconos de los 4 beans diseñados (JCilindro, JPrismaRectangular, JPrismaTriangular, y AcercaDeBean). Incluir capturas de pantallas de la paleta de propiedades de cada bean donde se aprecien las propiedades que definen las dimensiones del prisma. Incluir capturas de pantallas de la aplicación PrismasBeansApp en ejecución.

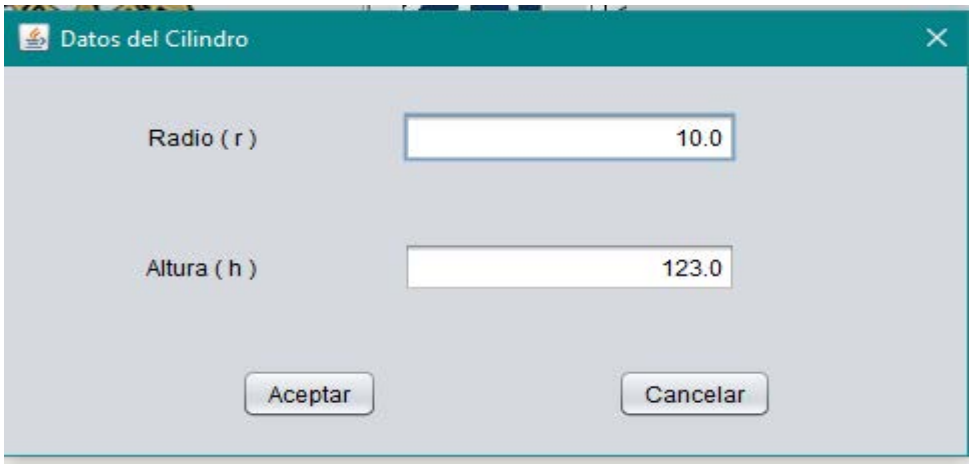

JCilindro (Bean)
radio =
altura:
• Aplicación de los Prismas versión con beans.
Prismas
Cilindro
Prisma Rectang
Prisma Triang
Datos
radio :
altura :
Resultados
Area base:
Area lateral:
Area total:
Volumen :
Clic Derecho
Cuando la aplicación esté en ejecución y le demos clic derecho al bean JCilindro nos muestra el diálogo para editar los valores.
radio:
Editar valores
Radio: 10.12
Altura: 4.5
Aceptar
Cancelar
Clic
Al dar clic en ACEPTAR los nuevos valores de radio y altura se reflejan tanto en el bean como en el formulario, y viceversa, si capturo valores de radio y altura en el formulario se deben reflejar estos nuevos valores en el bean.
radio: 10.12
altura: 4.5
Datos
radio: 10.12
altura: 4.5
Resultados

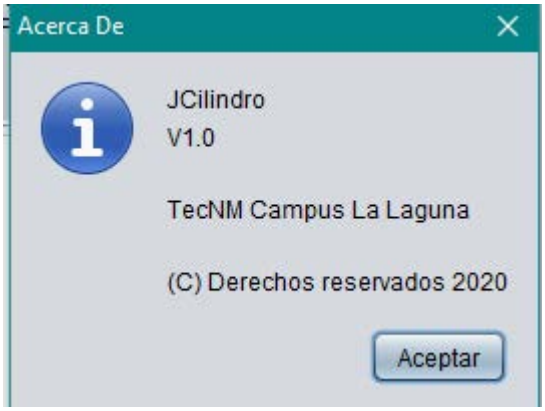
Análisis

AcercaDeBean:

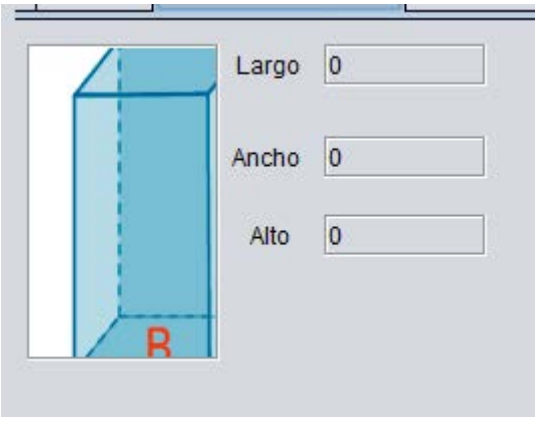
JCilindro:



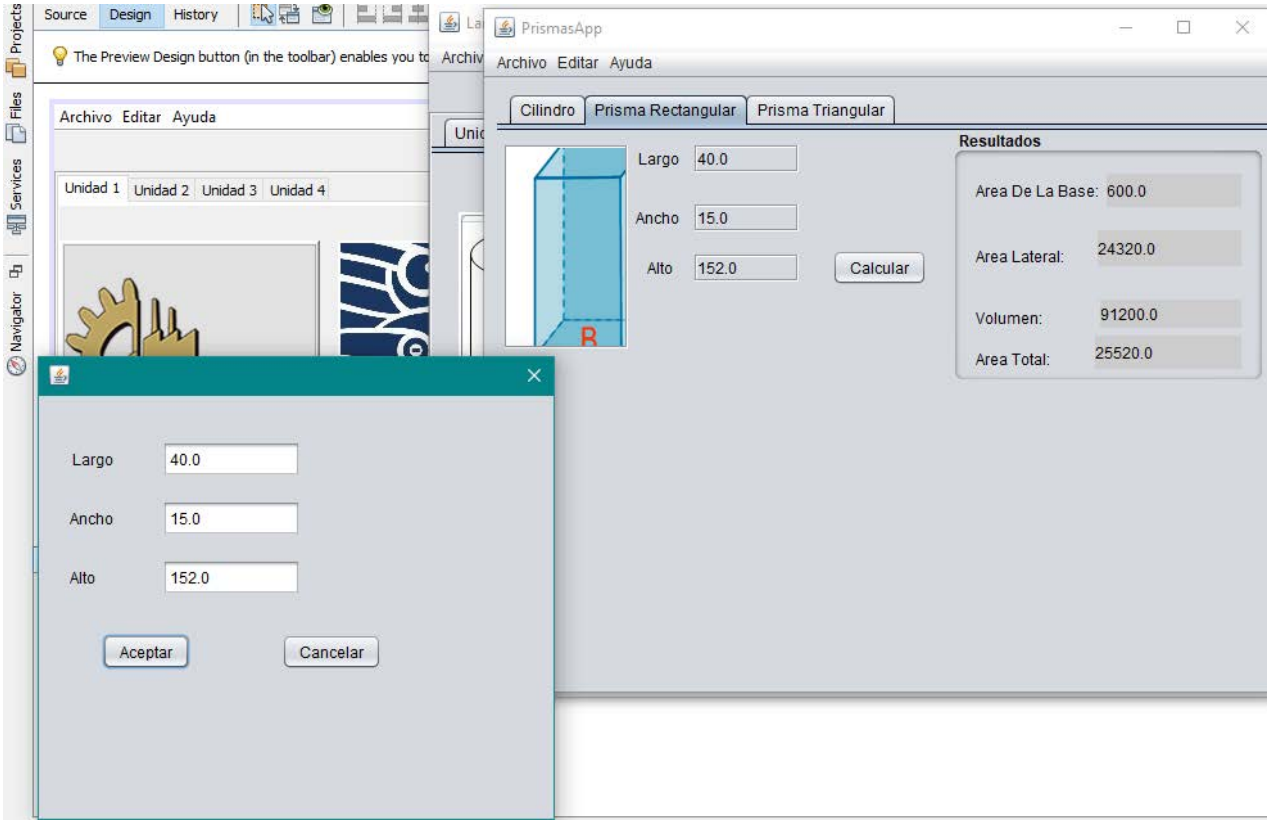




JPrismaTriangular:

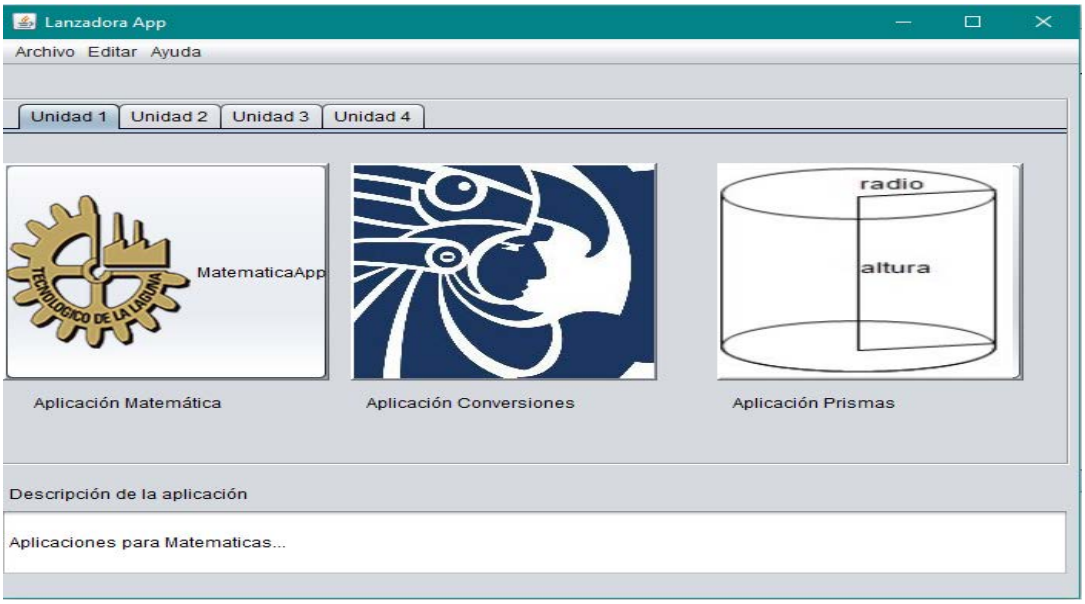


JPrismaRectangular:

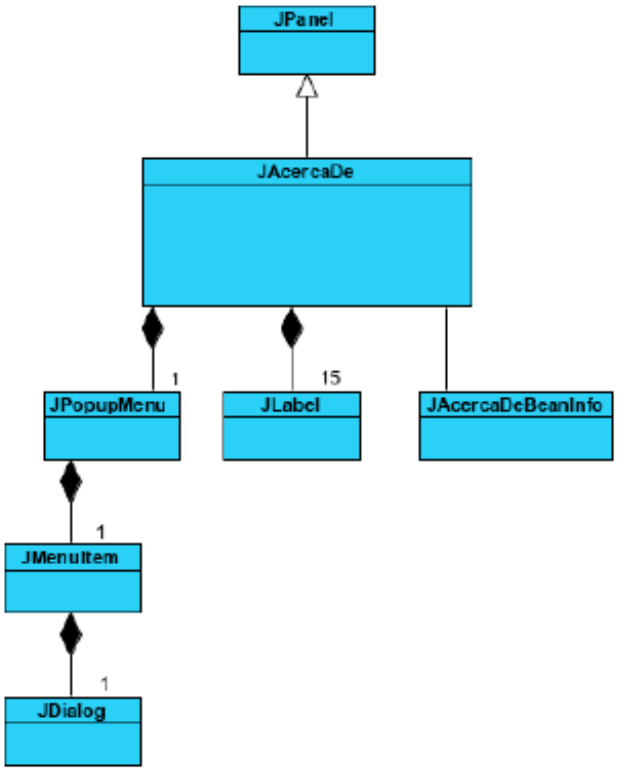


Diseño

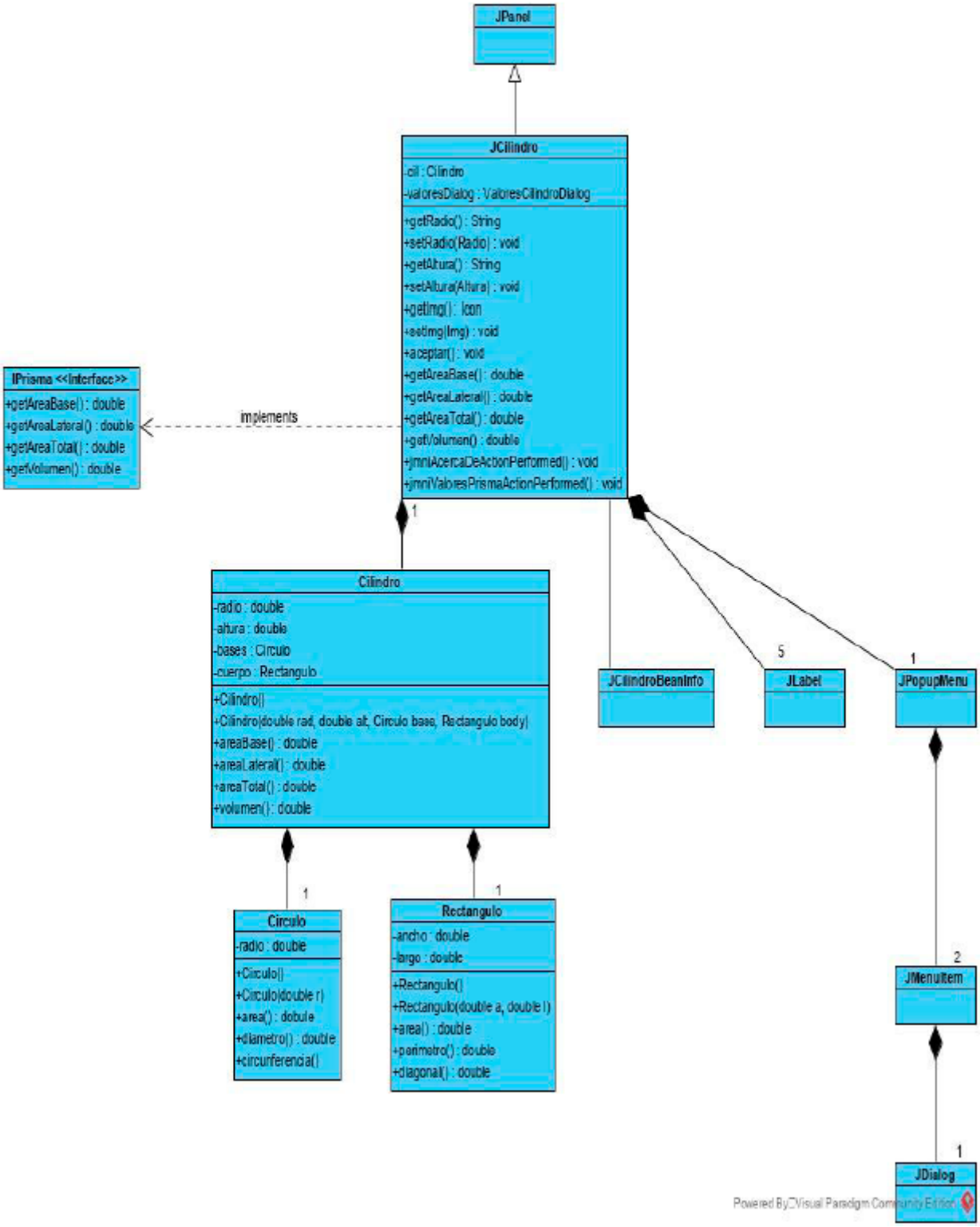
Diseño de IU:



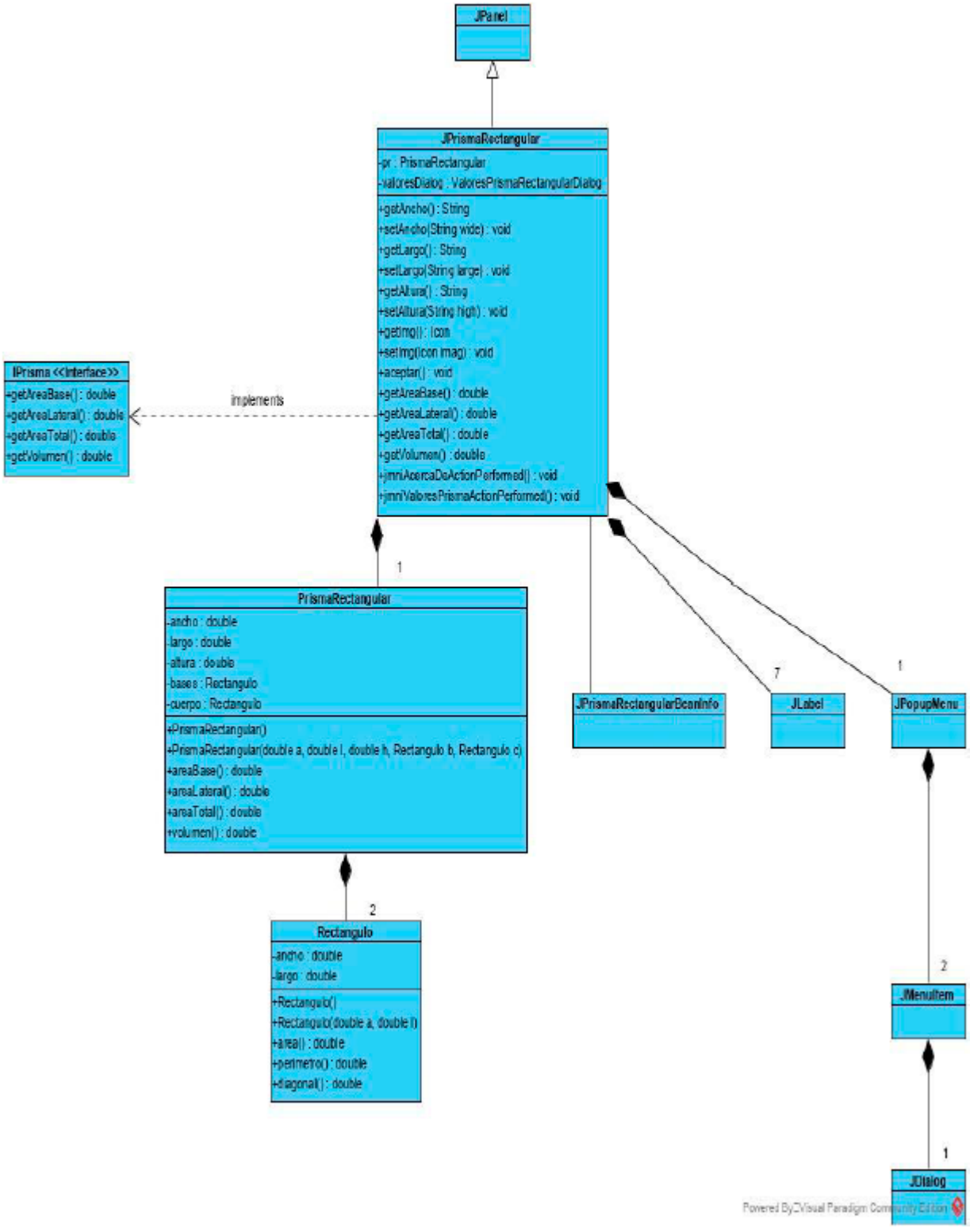
Diseño de Clases:

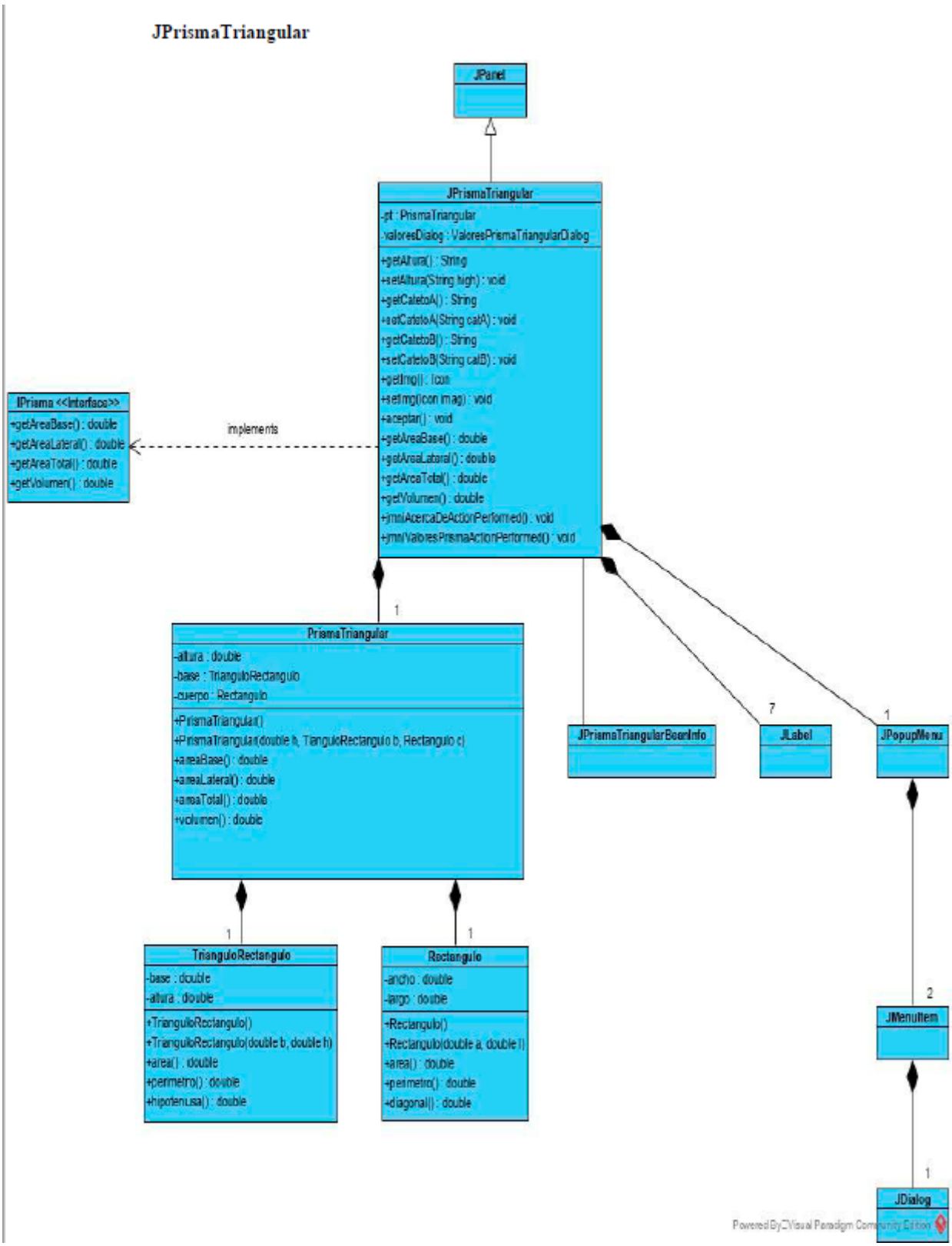


JCilindro


JPanel
JCilindro
-cil : Cilindro
-valoresDialog : ValoresCilindroDialog
+getRadio() : String
+setRadio(Radio) : void
+getAltura() : String
+setAltura(Altura) : void
+getImg() : Icon
+setImg(Img) : void
+aceptar() : void
+getAreaBase() : double
+getAreaLateral() : double
+getAreaTotal() : double
+getVolumen() : double
+jmniAcercaDeActionPerformed() : void
+jmniValoresPrismaActionPerformed() : void
IPrisma <<Interface>>
+getAreaBase() : double
+getAreaLateral() : double
+getAreaTotal() : double
+getVolumen() : double
implements
1
Cilindro
-radio : double
-altura : double
-bases : Circulo
-cuerpo : Rectangulo
+Cilindro()
+Cilindro(double rad, double alt, Circulo base, Rectangulo body)
+areaBase() : double
+areaLateral() : double
+areaTotal() : double
+volumen() : double
JCilindroBeanInfo
5
JLabel
1
JPopupMenu
1
Circulo
-radio : double
+Circulo()
+Circulo(double r)
+area() : double
+diametro() : double
+circunferencia()
1
Rectangulo
-ancho : double
-largo : double
+Rectangulo()
+Rectangulo(double a, double l)
+area() : double
+perimetro() : double
+diagonal() : double
2
JMenuItem
1
JDialog
Powered By Visual Paradigm Community Edition

JPrismaRectangular




JPrismaTriangular
JPanel
JPrismaTriangular
-pt : PrismaTriangular
-valoresDialog : ValoresPrismaTriangularDialog
+getAltura() : String
+setAltura(String high) : void
+getCatetoA() : String
+setCatetoA(String catA) : void
+getCatetoB() : String
+setCatetoB(String catB) : void
+getImg() : Icon
+setImg(Icon imag) : void
+aceptar() : void
+getAreaBase() : double
+getAreaLateral() : double
+getAreaTotal() : double
+getVolumen() : double
+jmiAcercaDeActionPerformed() : void
+jmiValoresPrismaActionPerformed() : void
IPrisma <<Interface>>
+getAreaBase() : double
+getAreaLateral() : double
+getAreaTotal() : double
+getVolumen() : double
implements
1
PrismaTriangular
-altura : double
-base : TrianguloRectangulo
-cuerpo : Rectangulo
+PrismaTriangular()
+PrismaTriangular(double h, TrianguloRectangulo b, Rectangulo c)
+areaBase() : double
+areaLateral() : double
+areaTotal() : double
+volumen() : double
7
1
JPrismaTriangularBeanInfo
JLabel
JPopupMenu
1
1
TrianguloRectangulo
-base : double
-altura : double
+TrianguloRectangulo()
+TrianguloRectangulo(double b, double h)
+area() : double
+perimetro() : double
+hipotenusa() : double
1
Rectangulo
-ancho : double
-largo : double
+Rectangulo()
+Rectangulo(double a, double l)
+area() : double
+perimetro() : double
+diagonal() : double
2
JMenuItem
1
JDialog
Powered By Visual Paradigm Community Edition

Código

PrismasBeansFrame.java

```
/*-------------------------------------------------------------------------------------------
:*                         TECNOLOGICO NACIONAL DE MEXICO
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*          Interfaz Visual para realizar el calculo de las Prismas
:*
:*  Archivo     : PrismasBeansFrame.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 15/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Aplicacion visual usando Java Swing que presenta una IU
:*                donde se calcula el area, perimetro y volumen, de las
:*                siguientes Prismas a travez de un Java Bean:
:*                1. Rectangular
:*                2. Triangular
:*                3. Cilindro
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=============================================================================================
:*  15/Oct/2020 Félix Mtz :*         Se agrego el Prologo
:*  20/Oct/2020 Félix Mtz       :*
                                     Se agrego la condición para limpiar cierto
                                     panel o forma donde el usuario este interactuando
:*-------------------------------------------------------------------------------------------*/
package app.prismasbeans;

import app.prismas.*;
import java.text.DecimalFormat;
import javax.swing.JOptionPane;
import mx.tecnm.itl.beans.DatosModificadosEvent;
import mx.tecnm.itl.beans.DatosModificadosListener;
import mx.tecnm.itl.extras.AcercaDeDialog;
import mx.tecnm.itl.prismas.Cilindro;
import mx.tecnm.itl.prismas.PrismaRectangular;
import mx.tecnm.itl.prismas.PrismaTriangular;
import mx.tecnm.itl.util.Imagenes;

/**
 *
 * @author FélixMtz
 */
public class PrismasBeansFrame extends javax.swing.JFrame implements DatosModificadosListener {

    /**
     * Creates new form FigurasFrame
     */
    public PrismasBeansFrame () {
        initComponents ();

//Registrar como Listener de los eventos de JCilindro
        jbeanCilindro.addDatosModificadosListener ( this );
//Registrar como Listener de los eventos de JPrismaT
        jbeanPrismaT.addDatosModificadosListener ( this );
//Registrar como Listener de los eventos de JPrismaR
        jbeanPrismaR.addDatosModificadosListener ( this );
    }

    @SuppressWarnings ( "unchecked" )
    // <editor-fold defaultstate="collapsed" desc="Generated Code">
    private void initComponents() {
        bindingGroup = new org.jdesktop.beansbinding.BindingGroup();

        jTabbedPane1 = new javax.swing.JTabbedPane();
        jPanCilindro = new javax.swing.JPanel();
        jbtnCalcularCilindro = new javax.swing.JButton();
```

```
        jPanel4 = new javax.swing.JPanel();
        jLabel4 = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        jLabel7 = new javax.swing.JLabel();
        jLabel8 = new javax.swing.JLabel();
        jlblAreaBaseCilindro = new javax.swing.JLabel();
        jlblAreaLateralCilindro = new javax.swing.JLabel();
        jlblAreaTotalCilindro = new javax.swing.JLabel();
        jlblVolumenCilindro = new javax.swing.JLabel();
        jbeanCilindro = new mx.tecnm.itl.beans.JCilindro();
        jPanel1 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jtxfRadio = new javax.swing.JTextField();
        jtxfAltura = new javax.swing.JTextField();
        jPanPT = new javax.swing.JPanel();
        jbtnCalcularPrismaTrian = new javax.swing.JButton();
        jPanel5 = new javax.swing.JPanel();
        jLabel12 = new javax.swing.JLabel();
        jLabel13 = new javax.swing.JLabel();
        jLabel14 = new javax.swing.JLabel();
        jLabel15 = new javax.swing.JLabel();
        jlblAreaBasePT = new javax.swing.JLabel();
        jlblAreaLateralPT = new javax.swing.JLabel();
        jlblAreaTotalPT = new javax.swing.JLabel();
        jlblVolumenPT = new javax.swing.JLabel();
        jbeanPrismaT = new mx.tecnm.itl.beans.JPrismaTriangular();
        jPanel2 = new javax.swing.JPanel();
        jLabel3 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        jLabel9 = new javax.swing.JLabel();
        jtxfAltPrismaT = new javax.swing.JTextField();
        jtxfAltBase = new javax.swing.JTextField();
        jtxfBase = new javax.swing.JTextField();
        jPanPR = new javax.swing.JPanel();
        jbtnCalcularPR = new javax.swing.JButton();
        jPanel6 = new javax.swing.JPanel();
        jLabel18 = new javax.swing.JLabel();
        jLabel19 = new javax.swing.JLabel();
        jLabel20 = new javax.swing.JLabel();
        jLabel21 = new javax.swing.JLabel();
        jlblAreaBasePR = new javax.swing.JLabel();
        jlblAreaLateralPR = new javax.swing.JLabel();
        jlblAreaTotalPR = new javax.swing.JLabel();
        jlblVolumenPR = new javax.swing.JLabel();
        jbeanPrismaR = new mx.tecnm.itl.beans.JPrismaRectangular();
        jPanel3 = new javax.swing.JPanel();
        jLabel10 = new javax.swing.JLabel();
        jLabel11 = new javax.swing.JLabel();
        jLabel16 = new javax.swing.JLabel();
        jtxfAltPrismaR = new javax.swing.JTextField();
        jtxfAncho = new javax.swing.JTextField();
        jtxfLargo = new javax.swing.JTextField();
        jMenuBar1 = new javax.swing.JMenuBar();
        jMenu1 = new javax.swing.JMenu();
        jmniArchivoSalir = new javax.swing.JMenuItem();
        jMenu2 = new javax.swing.JMenu();
        jmniEdicionLimpiar = new javax.swing.JMenuItem();
        jMenu3 = new javax.swing.JMenu();
        jmniAyudaAcercaDe = new javax.swing.JMenuItem();

        setDefaultCloseOperation(javax.swing.WindowConstants.DISPOSE_ON_CLOSE);
        setTitle("PrismasBeansApp");

        jTabbedPane1.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N

        jbtnCalcularCilindro.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jbtnCalcularCilindro.setText("Calcular");
        jbtnCalcularCilindro.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jbtnCalcularCilindroActionPerformed(evt);
            }
        });
```

```
        jPanel4.setBorder(javax.swing.BorderFactory.createTitledBorder(null,                    "Resultados",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,     javax.swing.border.TitledBorder.DEFAULT_POSITION,
new java.awt.Font("Microsoft JhengHei UI", 3, 12))); // NOI18N

        jLabel4.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel4.setText("Area de la Base: ");

        jLabel6.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel6.setText("Area Lateral: ");

        jLabel7.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel7.setText("Area Total:");

        jLabel8.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel8.setText("Volumen: ");

        jlblAreaBaseCilindro.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaBaseCilindro.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaBaseCilindro.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaBaseCilindro.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAreaLateralCilindro.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaLateralCilindro.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaLateralCilindro.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaLateralCilindro.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAreaTotalCilindro.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaTotalCilindro.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaTotalCilindro.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaTotalCilindro.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblVolumenCilindro.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblVolumenCilindro.setForeground(new java.awt.Color(0, 0, 204));
        jlblVolumenCilindro.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblVolumenCilindro.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        javax.swing.GroupLayout jPanel4Layout = new javax.swing.GroupLayout(jPanel4);
        jPanel4.setLayout(jPanel4Layout);
        jPanel4Layout.setHorizontalGroup(
            jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel4Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel4Layout.createSequentialGroup()
                        .addComponent(jLabel8)
                        .addGap(45, 45, 45)
                        .addComponent(jlblVolumenCilindro,    javax.swing.GroupLayout.DEFAULT_SIZE,    119,
Short.MAX_VALUE))
                    .addGroup(jPanel4Layout.createSequentialGroup()
                        .addComponent(jLabel7)
                        .addGap(40, 40, 40)
                        .addComponent(jlblAreaTotalCilindro,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel4Layout.createSequentialGroup()

.addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel4)
                            .addComponent(jLabel6))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jlblAreaLateralCilindro,     javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                            .addComponent(jlblAreaBaseCilindro,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))
                .addContainerGap())
        );
        jPanel4Layout.setVerticalGroup(
            jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel4Layout.createSequentialGroup()
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel4, javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jlblAreaBaseCilindro,          javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 24, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel6)
                    .addComponent(jlblAreaLateralCilindro,    javax.swing.GroupLayout.PREFERRED_SIZE,    24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel7)
                    .addComponent(jlblAreaTotalCilindro,     javax.swing.GroupLayout.PREFERRED_SIZE,     24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel8)
                    .addComponent(jlblVolumenCilindro,      javax.swing.GroupLayout.PREFERRED_SIZE,      24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap())
        );

        jPanel1.setBorder(javax.swing.BorderFactory.createTitledBorder(null,                        "Datos",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,     javax.swing.border.TitledBorder.DEFAULT_POSITION,
new java.awt.Font("Microsoft JhengHei UI", 3, 12))); // NOI18N

        jLabel1.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel1.setText("Radio (r): ");

        jLabel2.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel2.setText("Altura (h): ");

        jtxfRadio.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        org.jdesktop.beansbinding.Binding                                binding                                =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE,      jbeanCilindro,      org.jdesktop.beansbinding.ELProperty.create("${radio}"),      jtxfRadio,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        jtxfAltura.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding                                                                                             =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE,     jbeanCilindro,     org.jdesktop.beansbinding.ELProperty.create("${altura}"),     jtxfAltura,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel1)
                    .addComponent(jLabel2))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jtxfAltura)
                    .addComponent(jtxfRadio,          javax.swing.GroupLayout.PREFERRED_SIZE,          121,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap())
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(jtxfRadio,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jtxfAltura,                         javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
```

```
        );

        javax.swing.GroupLayout jPanCilindroLayout = new javax.swing.GroupLayout(jPanCilindro);
        jPanCilindro.setLayout(jPanCilindroLayout);
        jPanCilindroLayout.setHorizontalGroup(
            jPanCilindroLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanCilindroLayout.createSequentialGroup()
                .addGap(23, 23, 23)
                .addComponent(jbeanCilindro,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 26, Short.MAX_VALUE)
                .addComponent(jbtnCalcularCilindro)
                .addGap(27, 27, 27)
                .addGroup(jPanCilindroLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jPanel1,                              javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jPanel4,                              javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addContainerGap())
        );
        jPanCilindroLayout.setVerticalGroup(
            jPanCilindroLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanCilindroLayout.createSequentialGroup()
                .addGroup(jPanCilindroLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanCilindroLayout.createSequentialGroup()
                        .addContainerGap()
                        .addComponent(jPanel1,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jPanel4,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(jPanCilindroLayout.createSequentialGroup()
                        .addGap(41, 41, 41)

.addGroup(jPanCilindroLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                            .addComponent(jbtnCalcularCilindro)
                            .addComponent(jbeanCilindro,                javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))))
                .addContainerGap(23, Short.MAX_VALUE))
        );

        jTabbedPane1.addTab("Cilindro", jPanCilindro);

        jbtnCalcularPrismaTrian.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jbtnCalcularPrismaTrian.setText("Calcular");
        jbtnCalcularPrismaTrian.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jbtnCalcularPrismaTrianActionPerformed(evt);
            }
        });

        jPanel5.setBorder(javax.swing.BorderFactory.createTitledBorder(null,                    "Resultados",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,     javax.swing.border.TitledBorder.DEFAULT_POSITION,
new java.awt.Font("Microsoft JhengHei UI", 3, 12))); // NOI18N

        jLabel12.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel12.setText("Area de la Base: ");

        jLabel13.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel13.setText("Area Lateral: ");

        jLabel14.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel14.setText("Area Total:");

        jLabel15.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel15.setText("Volumen: ");

        jlblAreaBasePT.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaBasePT.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaBasePT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaBasePT.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAreaLateralPT.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaLateralPT.setForeground(new java.awt.Color(0, 0, 204));
```

```
        jlblAreaLateralPT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaLateralPT.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAreaTotalPT.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaTotalPT.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaTotalPT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaTotalPT.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblVolumenPT.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblVolumenPT.setForeground(new java.awt.Color(0, 0, 204));
        jlblVolumenPT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblVolumenPT.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        javax.swing.GroupLayout jPanel5Layout = new javax.swing.GroupLayout(jPanel5);
        jPanel5.setLayout(jPanel5Layout);
        jPanel5Layout.setHorizontalGroup(
            jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel5Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addComponent(jLabel15)
                        .addGap(45, 45, 45)
                        .addComponent(jlblVolumenPT,       javax.swing.GroupLayout.DEFAULT_SIZE,       127,
Short.MAX_VALUE))
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addComponent(jLabel14)
                        .addGap(40, 40, 40)
                        .addComponent(jlblAreaTotalPT,                javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel5Layout.createSequentialGroup()

.addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel12)
                            .addComponent(jLabel13))

.addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addGroup(jPanel5Layout.createSequentialGroup()
                                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                                .addComponent(jlblAreaBasePT,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                            .addGroup(jPanel5Layout.createSequentialGroup()
                                .addGap(8, 8, 8)
                                .addComponent(jlblAreaLateralPT,       javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))))
                .addContainerGap())
        );
        jPanel5Layout.setVerticalGroup(
            jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel5Layout.createSequentialGroup()
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel12, javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jlblAreaBasePT,               javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 24, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel13)
                    .addComponent(jlblAreaLateralPT,       javax.swing.GroupLayout.PREFERRED_SIZE,       24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel14)
                    .addComponent(jlblAreaTotalPT,        javax.swing.GroupLayout.PREFERRED_SIZE,        24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel15)
                    .addComponent(jlblVolumenPT,         javax.swing.GroupLayout.PREFERRED_SIZE,         24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );

        jPanel2.setBorder(javax.swing.BorderFactory.createTitledBorder(null,                        "Datos",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,     javax.swing.border.TitledBorder.DEFAULT_POSITION,
new java.awt.Font("Microsoft JhengHei UI", 3, 12))); // NOI18N
```

```
        jLabel3.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel3.setText("Altura Prisma: ");

        jLabel5.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel5.setText("Altura Base: ");

        jLabel9.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel9.setText("Base: ");

        jtxfAltPrismaT.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE, jbeanPrismaT, org.jdesktop.beansbinding.ELProperty.create("${alturaPrisma}"), jtxfAltPrismaT,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        jtxfAltBase.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE, jbeanPrismaT, org.jdesktop.beansbinding.ELProperty.create("${alturaBase}"), jtxfAltBase,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        jtxfBase.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE, jbeanPrismaT, org.jdesktop.beansbinding.ELProperty.create("${base}"), jtxfBase,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        javax.swing.GroupLayout jPanel2Layout = new javax.swing.GroupLayout(jPanel2);
        jPanel2.setLayout(jPanel2Layout);
        jPanel2Layout.setHorizontalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel3)
                    .addComponent(jLabel5)
                    .addComponent(jLabel9))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 24, Short.MAX_VALUE)
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jtxfAltPrismaT)
                    .addComponent(jtxfAltBase)
                    .addComponent(jtxfBase, javax.swing.GroupLayout.PREFERRED_SIZE, 121,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap())
        );
        jPanel2Layout.setVerticalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(jtxfAltPrismaT, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel5)
                    .addComponent(jtxfAltBase, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel9)
                    .addComponent(jtxfBase, javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout jPanPTLayout = new javax.swing.GroupLayout(jPanPT);
        jPanPT.setLayout(jPanPTLayout);
```

```
        jPanPTLayout.setHorizontalGroup(
            jPanPTLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanPTLayout.createSequentialGroup()
                .addGap(24, 24, 24)
                .addComponent(jbeanPrismaT,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addGap(6, 6, 6)
                .addGroup(jPanPTLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jPanel2,                           javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGroup(jPanPTLayout.createSequentialGroup()
                        .addComponent(jbtnCalcularPrismaTrian)
                        .addGap(18, 18, 18)
                        .addComponent(jPanel5,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        jPanPTLayout.setVerticalGroup(
            jPanPTLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanPTLayout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanPTLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanPTLayout.createSequentialGroup()
                        .addComponent(jPanel2,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jPanel5,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(jPanPTLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                        .addComponent(jbtnCalcularPrismaTrian)
                        .addComponent(jbeanPrismaT,                  javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addContainerGap(15, Short.MAX_VALUE))
        );

        jTabbedPane1.addTab("Prisma Triangular", jPanPT);

        jbtnCalcularPR.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jbtnCalcularPR.setText("Calcular");
        jbtnCalcularPR.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jbtnCalcularPRActionPerformed(evt);
            }
        });

        jPanel6.setBorder(javax.swing.BorderFactory.createTitledBorder(null,                    "Resultados",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,     javax.swing.border.TitledBorder.DEFAULT_POSITION,
new java.awt.Font("Microsoft JhengHei UI", 3, 12))); // NOI18N

        jLabel18.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel18.setText("Area de la Base: ");

        jLabel19.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel19.setText("Area Lateral: ");

        jLabel20.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel20.setText("Area Total:");

        jLabel21.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel21.setText("Volumen: ");

        jlblAreaBasePR.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaBasePR.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaBasePR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaBasePR.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAreaLateralPR.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaLateralPR.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaLateralPR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaLateralPR.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAreaTotalPR.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblAreaTotalPR.setForeground(new java.awt.Color(0, 0, 204));
        jlblAreaTotalPR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAreaTotalPR.setBorder(javax.swing.BorderFactory.createEtchedBorder());
```

```
        jlblVolumenPR.setFont(new java.awt.Font("Microsoft JhengHei UI", 1, 14)); // NOI18N
        jlblVolumenPR.setForeground(new java.awt.Color(0, 0, 204));
        jlblVolumenPR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblVolumenPR.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        javax.swing.GroupLayout jPanel6Layout = new javax.swing.GroupLayout(jPanel6);
        jPanel6.setLayout(jPanel6Layout);
        jPanel6Layout.setHorizontalGroup(
            jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel6Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel6Layout.createSequentialGroup()
                        .addComponent(jLabel21)
                        .addGap(45, 45, 45)
                        .addComponent(jlblVolumenPR,       javax.swing.GroupLayout.DEFAULT_SIZE,       119,
Short.MAX_VALUE))
                    .addGroup(jPanel6Layout.createSequentialGroup()
                        .addComponent(jLabel20)
                        .addGap(40, 40, 40)
                        .addComponent(jlblAreaTotalPR,                 javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel6Layout.createSequentialGroup()

.addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel18)
                            .addComponent(jLabel19))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)

.addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jlblAreaLateralPR,           javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                            .addComponent(jlblAreaBasePR,              javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))))
                .addContainerGap())
        );
        jPanel6Layout.setVerticalGroup(
            jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel6Layout.createSequentialGroup()
                .addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel18, javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jlblAreaBasePR,                javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.PREFERRED_SIZE, 24, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel19)
                    .addComponent(jlblAreaLateralPR,       javax.swing.GroupLayout.PREFERRED_SIZE,       24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel20)
                    .addComponent(jlblAreaTotalPR,        javax.swing.GroupLayout.PREFERRED_SIZE,        24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel6Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel21)
                    .addComponent(jlblVolumenPR,         javax.swing.GroupLayout.PREFERRED_SIZE,         24,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(0, 3, Short.MAX_VALUE))
        );

        jPanel3.setBorder(javax.swing.BorderFactory.createTitledBorder(null,                       "Datos",
javax.swing.border.TitledBorder.DEFAULT_JUSTIFICATION,     javax.swing.border.TitledBorder.DEFAULT_POSITION,
new java.awt.Font("Microsoft JhengHei UI", 3, 12))); // NOI18N

        jLabel10.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel10.setText("Altura Prisma: ");

        jLabel11.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel11.setText("Ancho:");

        jLabel16.setFont(new java.awt.Font("Microsoft JhengHei UI", 3, 12)); // NOI18N
        jLabel16.setText("Largo: ");
```

```
        jtxfAltPrismaR.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding                                                                                  =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE,    jbeanPrismaR,    org.jdesktop.beansbinding.ELProperty.create("${altura}"),    jtxfAltPrismaR,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        jtxfAncho.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding                                                                                  =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE,      jbeanPrismaR,      org.jdesktop.beansbinding.ELProperty.create("${ancho}"),      jtxfAncho,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        jtxfLargo.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        binding                                                                                  =
org.jdesktop.beansbinding.Bindings.createAutoBinding(org.jdesktop.beansbinding.AutoBinding.UpdateStrategy.R
EAD_WRITE,      jbeanPrismaR,      org.jdesktop.beansbinding.ELProperty.create("${largo}"),      jtxfLargo,
org.jdesktop.beansbinding.BeanProperty.create("text"));
        bindingGroup.addBinding(binding);

        javax.swing.GroupLayout jPanel3Layout = new javax.swing.GroupLayout(jPanel3);
        jPanel3.setLayout(jPanel3Layout);
        jPanel3Layout.setHorizontalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel3Layout.createSequentialGroup()

.addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel16)
                            .addComponent(jLabel11))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)

.addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                            .addComponent(jtxfLargo,      javax.swing.GroupLayout.PREFERRED_SIZE,      121,
javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jtxfAncho,      javax.swing.GroupLayout.PREFERRED_SIZE,      121,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                    .addGroup(jPanel3Layout.createSequentialGroup()
                        .addComponent(jLabel10)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jtxfAltPrismaR,      javax.swing.GroupLayout.PREFERRED_SIZE,      121,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(0, 0, Short.MAX_VALUE)))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        jPanel3Layout.setVerticalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel10)
                    .addComponent(jtxfAltPrismaR,                   javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel11)
                    .addComponent(jtxfAncho,                        javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel16)
                    .addComponent(jtxfLargo,                        javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout jPanPRLayout = new javax.swing.GroupLayout(jPanPR);
        jPanPR.setLayout(jPanPRLayout);
        jPanPRLayout.setHorizontalGroup(
```

```
            jPanPRLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanPRLayout.createSequentialGroup()
                .addGap(24, 24, 24)
                .addComponent(jbeanPrismaR,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jbtnCalcularPR)
                .addGap(18, 18, 18)
                .addGroup(jPanPRLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jPanel3, javax.swing.GroupLayout.PREFERRED_SIZE, 0, Short.MAX_VALUE)
                    .addComponent(jPanel6,                           javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(20, Short.MAX_VALUE))
        );
        jPanPRLayout.setVerticalGroup(
            jPanPRLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanPRLayout.createSequentialGroup()
                .addGroup(jPanPRLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanPRLayout.createSequentialGroup()
                        .addContainerGap()
                        .addComponent(jPanel3,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jPanel6,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(jPanPRLayout.createSequentialGroup()
                        .addGap(23, 23, 23)

.addGroup(jPanPRLayout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                            .addComponent(jbtnCalcularPR)
                            .addComponent(jbeanPrismaR,              javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );

        jTabbedPane1.addTab("Prisma Rectangular", jPanPR);

        jMenu1.setText("Archivo");

        jmniArchivoSalir.setText("Salir");
        jmniArchivoSalir.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniArchivoSalirActionPerformed(evt);
            }
        });
        jMenu1.add(jmniArchivoSalir);

        jMenuBar1.add(jMenu1);

        jMenu2.setText("Edicion");

        jmniEdicionLimpiar.setText("Limpiar");
        jmniEdicionLimpiar.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniEdicionLimpiarActionPerformed(evt);
            }
        });
        jMenu2.add(jmniEdicionLimpiar);

        jMenuBar1.add(jMenu2);

        jMenu3.setText("Ayuda");

        jmniAyudaAcercaDe.setText("Acerca de...");
        jmniAyudaAcercaDe.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniAyudaAcercaDeActionPerformed(evt);
            }
        });
        jMenu3.add(jmniAyudaAcercaDe);

        jMenuBar1.add(jMenu3);

        setJMenuBar(jMenuBar1);
```

```
        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addComponent(jTabbedPane1)
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addComponent(jTabbedPane1)
                .addGap(0, 0, 0))
        );

        bindingGroup.bind();

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

    private void jmniArchivoSalirActionPerformed(java.awt.event.ActionEvent evt) {
        this.dispose();
        //System.exit(0);
    }

    private void jbtnCalcularCilindroActionPerformed(java.awt.event.ActionEvent evt) {
    try
    {
        DecimalFormat formato           = new DecimalFormat ( "#.####" );

        jlblAreaBaseCilindro.setText    ( formato.format ( jbeanCilindro.areaBase     () ) );
        jlblAreaLateralCilindro.setText ( formato.format ( jbeanCilindro.areaLateral () ) );
        jlblAreaTotalCilindro.setText   ( formato.format ( jbeanCilindro.areaTotal    () ) );
        jlblVolumenCilindro.setText     ( formato.format ( jbeanCilindro.volumen      () ) );
    }
    catch (NumberFormatException ne)
    {
        JOptionPane.showMessageDialog(null, "Ingrese Datos Validos");
    }

    }

    private void jbtnCalcularPrismaTrianActionPerformed(java.awt.event.ActionEvent evt) {
    try
    {
       DecimalFormat formato     = new DecimalFormat ( "#.####" );

       jlblAreaBasePT.setText    ( formato.format ( jbeanPrismaT.areaBase    () ) );
       jlblAreaLateralPT.setText ( formato.format ( jbeanPrismaT.areaLateral () ) );
       jlblAreaTotalPT.setText   ( formato.format ( jbeanPrismaT.areaTotal   () ) );
       jlblVolumenPT.setText     ( formato.format ( jbeanPrismaT.volumen     () ) );
    }
    catch ( NumberFormatException ne )
    {
        JOptionPane.showMessageDialog ( null, "Ingrese Datos Validos" );
    }

    }

    private void jbtnCalcularPRActionPerformed(java.awt.event.ActionEvent evt) {
    try
    {
        DecimalFormat formato     = new DecimalFormat ( "#.####" );

        jlblAreaBasePR.setText    ( formato.format ( jbeanPrismaR.areaBase    () ) );
        jlblAreaLateralPR.setText ( formato.format ( jbeanPrismaR.areaLateral () ) );
        jlblAreaTotalPR.setText   ( formato.format ( jbeanPrismaR.areaTotal   () ) );
        jlblVolumenPR.setText     ( formato.format ( jbeanPrismaR.volumen     () ) );

    } catch ( NumberFormatException ne)
    {
        JOptionPane.showMessageDialog ( null, "Ingrese Datos Validos" );
    }

    }
```

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

        switch ( jTabbedPane1.getSelectedIndex() ) {

            case 0:
                jbeanCilindro.setRadio          ( 0.0 );
                jbeanCilindro.setAltura         ( 0.0 );
                jlblAreaBaseCilindro.setText    ( "" );
                jlblAreaLateralCilindro.setText ( "" );
                jlblAreaTotalCilindro.setText   ( "" );
                jlblVolumenCilindro.setText     ( "" );
                jtxfRadio.setText               ( "0.0" );
                jtxfAltura.setText              ( "0.0" );
                break;

            case 1:
                jbeanPrismaT.setAlturaPrisma ( 0.0 );
                jbeanPrismaT.setAlturaBase   ( 0.0 );
                jbeanPrismaT.setBase         ( 0.0 );
                jlblAreaBasePT.setText       ( "" );
                jlblAreaLateralPT.setText    ( "" );
                jlblAreaTotalPT.setText      ( "" );
                jlblVolumenPT.setText        ( "" );
                jtxfAltPrismaT.setText       ( "0.0" );
                jtxfAltBase.setText          ( "0.0" );
                jtxfBase.setText             ( "0.0" );
                break;

            case 2:
                jbeanPrismaR.setAltura    ( 0.0 );
                jbeanPrismaR.setAncho     ( 0.0 );
                jbeanPrismaR.setLargo     ( 0.0 );
                jlblAreaBasePR.setText    ( "" );
                jlblAreaLateralPR.setText ( "" );
                jlblAreaTotalPR.setText   ( "" );
                jlblVolumenPR.setText     ( "" );
                jtxfAltPrismaR.setText    ( "0.0" );
                jtxfAncho.setText         ( "0.0" );
                jtxfLargo.setText         ( "0.0" );
                break;

            default:
                break;

        }
    }

    private void jmniAyudaAcercaDeActionPerformed(java.awt.event.ActionEvent evt) {
        AcercaDeDialogBean d = new AcercaDeDialogBean ( this, true );
        d.setVisible ( true );
    }
//-----------------------------------------------------------------------------
    public static void ejecutar ()
    {
                /* 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 ("Motif".equals(info.getName())) {
                    javax.swing.UIManager.setLookAndFeel(info.getClassName());
                    break;
                }
            }
        } catch (ClassNotFoundException ex) {

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

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

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

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

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new PrismasBeansFrame().setVisible(true);
            }
        });
    }
//-----------------------------------------------------------------------------
    public static void main(String args[]) {
        ejecutar ();
    }

    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel10;
    private javax.swing.JLabel jLabel11;
    private javax.swing.JLabel jLabel12;
    private javax.swing.JLabel jLabel13;
    private javax.swing.JLabel jLabel14;
    private javax.swing.JLabel jLabel15;
    private javax.swing.JLabel jLabel16;
    private javax.swing.JLabel jLabel18;
    private javax.swing.JLabel jLabel19;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel20;
    private javax.swing.JLabel jLabel21;
    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.JMenu jMenu1;
    private javax.swing.JMenu jMenu2;
    private javax.swing.JMenu jMenu3;
    private javax.swing.JMenuBar jMenuBar1;
    private javax.swing.JPanel jPanCilindro;
    private javax.swing.JPanel jPanPR;
    private javax.swing.JPanel jPanPT;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JPanel jPanel2;
    private javax.swing.JPanel jPanel3;
    private javax.swing.JPanel jPanel4;
    private javax.swing.JPanel jPanel5;
    private javax.swing.JPanel jPanel6;
```

```
    private javax.swing.JTabbedPane jTabbedPane1;
    private mx.tecnm.itl.beans.JCilindro jbeanCilindro;
    private mx.tecnm.itl.beans.JPrismaRectangular jbeanPrismaR;
    private mx.tecnm.itl.beans.JPrismaTriangular jbeanPrismaT;
    private javax.swing.JButton jbtnCalcularCilindro;
    private javax.swing.JButton jbtnCalcularPR;
    private javax.swing.JButton jbtnCalcularPrismaTrian;
    private javax.swing.JLabel jlblAreaBaseCilindro;
    private javax.swing.JLabel jlblAreaBasePR;
    private javax.swing.JLabel jlblAreaBasePT;
    private javax.swing.JLabel jlblAreaLateralCilindro;
    private javax.swing.JLabel jlblAreaLateralPR;
    private javax.swing.JLabel jlblAreaLateralPT;
    private javax.swing.JLabel jlblAreaTotalCilindro;
    private javax.swing.JLabel jlblAreaTotalPR;
    private javax.swing.JLabel jlblAreaTotalPT;
    private javax.swing.JLabel jlblVolumenCilindro;
    private javax.swing.JLabel jlblVolumenPR;
    private javax.swing.JLabel jlblVolumenPT;
    private javax.swing.JMenuItem jmniArchivoSalir;
    private javax.swing.JMenuItem jmniAyudaAcercaDe;
    private javax.swing.JMenuItem jmniEdicionLimpiar;
    private javax.swing.JTextField jtxfAltBase;
    private javax.swing.JTextField jtxfAltPrismaR;
    private javax.swing.JTextField jtxfAltPrismaT;
    private javax.swing.JTextField jtxfAltura;
    private javax.swing.JTextField jtxfAncho;
    private javax.swing.JTextField jtxfBase;
    private javax.swing.JTextField jtxfLargo;
    private javax.swing.JTextField jtxfRadio;
    private org.jdesktop.beansbinding.BindingGroup bindingGroup;
    // End of variables declaration

    @Override
    public void datosModificadosPrisma ( DatosModificadosEvent ev ) {
        switch ( jTabbedPane1.getSelectedIndex() ) {

            case 0:
                jtxfRadio.setText      ( "" + ev.getNvoRadio  () );
                jtxfAltura.setText     ( "" + ev.getNvoAltura () );
                break;

            case 1:
                jtxfAltPrismaT.setText ( "" + ev.getNvoAltPrismaT () );
                jtxfAltBase.setText    ( "" + ev.getNvoAltBase    () );
                jtxfBase.setText       ( "" + ev.getNvoBase       () );
                break;

            case 2:
                jtxfAltPrismaR.setText ( "" + ev.getNvoAltPrismaR () );
                jtxfAncho.setText      ( "" + ev.getNvoAncho      () );
                jtxfLargo.setText      ( "" + ev.getNvoLargo      () );
                break;

            default:
                break;
    }
   }
}
```

JCilindro.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                     SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*               Interfaz Visual para implementar como un JAVA BEAN
:*
:*  Archivo     : JCilindro.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Aplicacion visual usando Java Swing la cual se utilizara como JAVA BEAN
:*                para que el desarrollador pueda modificar los campos en tiempo de diseño
:*                y asi poder tener un BEAN de un Cilindro para poderlo implementar desde
:*                el palette como cualquier componente mas.
:*
:*                Datos los cuales se podran modificar:
.*
:*                1. Radio del Cilindro
:*                2. Altura del Cilindro
:*  Ultima modif:
:*  Fecha       Modificó
Motivo :*=======================================================================================
=====  :*  24/Nov/2020 Félix Mtz       Se agrego el
Prologo :*---------------------------------------------------------------------------------------
------*/ package mx.tecnm.itl.beans;

import java.util.ArrayList;
import javax.swing.Icon;
import javax.swing.JOptionPane;
import mx.tecnm.itl.prismas.Cilindro;
import mx.tecnm.itl.prismas.IPrisma;
import mx.tecnm.itl.util.Imagenes;

public class JCilindro extends javax.swing.JPanel implements IPrisma {
    //Composicion del bean
    private Cilindro modelo; //modelo = objeto de la clase cilindro
    private DatosCilindroDialog dcd;
    private ArrayList<DatosModificadosListener> datosModifListeners = new ArrayList<> ();


    public JCilindro   () {
        initComponents ();
        modelo = new Cilindro();

//creamos el dialogo para capturar los datos del prisma
        dcd = new DatosCilindroDialog ( this, true );

//Ajustamos el tamaño de la iamgen del prisma
        Icon icon = jlblImagenPrisma.getIcon ();
        icon = Imagenes.escalarImagen( icon,
                                       96,
                                       150 );
        jlblImagenPrisma.setIcon( icon );
    }

    public JCilindro ( double radio, double altura )
    {
        this (); //invocamos al constructor de default
        modelo = new Cilindro ( radio, altura );
    }

    public void addDatosModificadosListener ( DatosModificadosListener listener )
    {
       datosModifListeners.add ( listener );
    }

    public void removeDatosModificadosListener ( DatosModificadosListener listener )
```

```
    {
       datosModifListeners.remove ( listener );
    }

    public void fireDatosModificadosEvent ( DatosModificadosEvent ev )
    {
        for ( DatosModificadosListener listener : datosModifListeners )
        {
           listener.datosModificadosPrisma ( ev );
        }
    }

    /**
     * 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() {

        jPopupMenu1 = new javax.swing.JPopupMenu();
        jmniValoresPrisma = new javax.swing.JMenuItem();
        jmniAcercaDe = new javax.swing.JMenuItem();
        jlblImagenPrisma = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jlblRadio = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jlblAltura = new javax.swing.JLabel();

        jmniValoresPrisma.setText("Valores del Prisma...");
        jmniValoresPrisma.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniValoresPrismaActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniValoresPrisma);

        jmniAcercaDe.setText("Acerca De...");
        jmniAcercaDe.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniAcercaDeActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniAcercaDe);

        setToolTipText("Pulse click derecho para acceder a mas opciones");
        setComponentPopupMenu(jPopupMenu1);
        setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT_CURSOR));

        jlblImagenPrisma.setIcon(new
javax.swing.ImageIcon(getClass().getResource("/graficos/cilindro.jpg"))); // NOI18N

        jLabel2.setText("Radio (r): ");

        jlblRadio.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblRadio.setText("0");
        jlblRadio.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jLabel4.setText("Altura (h):");

        jlblAltura.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAltura.setText("0");
        jlblAltura.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(this);
        this.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.createSequentialGroup()
                        .addComponent(jLabel2)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
```

```
                        .addComponent(jlblRadio,         javax.swing.GroupLayout.PREFERRED_SIZE,         68,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(0, 0, Short.MAX_VALUE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jlblImagenPrisma,     javax.swing.GroupLayout.PREFERRED_SIZE,     96,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addGroup(layout.createSequentialGroup()
                                .addComponent(jLabel4)
                                .addGap(0, 0, Short.MAX_VALUE))
                            .addComponent(jlblAltura,                javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(6, 6, 6)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jlblRadio))
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addGap(45, 45, 45)
                        .addComponent(jLabel4)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAltura)
                        .addContainerGap(87, Short.MAX_VALUE))
                    .addGroup(layout.createSequentialGroup()
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jlblImagenPrisma,     javax.swing.GroupLayout.PREFERRED_SIZE,     0,
Short.MAX_VALUE)
                        .addContainerGap()))))
        );
    }// </editor-fold>

    private void jmniValoresPrismaActionPerformed(java.awt.event.ActionEvent evt) {
        dcd.setLocationRelativeTo ( null );
        dcd.setVisible ( true );
    }

    private void jmniAcercaDeActionPerformed(java.awt.event.ActionEvent evt) {
        JOptionPane.showMessageDialog ( null,
                                        "JCilindro \n"  +
                                        "\t\t v1.0 \n\n"     +
                                        "Tecnologico Nacional de Mexico campus La Laguna \n\n" +
                                        "(C) Derechos Reservados 2020",
                                        "Acerca De",
                                        JOptionPane.INFORMATION_MESSAGE);
    }


    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JPopupMenu jPopupMenu1;
    private javax.swing.JLabel jlblAltura;
    private javax.swing.JLabel jlblImagenPrisma;
    private javax.swing.JLabel jlblRadio;
    private javax.swing.JMenuItem jmniAcercaDe;
    private javax.swing.JMenuItem jmniValoresPrisma;
    // End of variables declaration
//---------------------------------------------------------------------------
    @Override
    public double areaBase () {
        return modelo.areaBase ();
    }
//---------------------------------------------------------------------------
    @Override
    public double areaLateral () {
       return modelo.areaLaterial ();
    }
//---------------------------------------------------------------------------
    @Override
    public double areaTotal () {
```

```
        return modelo.areaTotal ();
    }
//-------------------------------------------------------------------------------
    @Override
    public double volumen () {
        return modelo.volumen ();
    }
//-------------------------------------------------------------------------------
    public double getRadio ()
    {
        return modelo.getRadio ();
    }
//-------------------------------------------------------------------------------
    public void setRadio ( double radio )
    {
        modelo.setRadio ( radio );
        jlblRadio.setText( "" + radio );
    }
//-------------------------------------------------------------------------------
    public double getAltura ()
    {
        return modelo.getAltura ();
    }
//-------------------------------------------------------------------------------
    public void setAltura ( double altura )
    {
        modelo.setAltura( altura );
        jlblAltura.setText( "" + altura );
    }
//-------------------------------------------------------------------------------
    public Icon getImagenPrisma ()
    {
        return jlblImagenPrisma.getIcon ();
    }
//-------------------------------------------------------------------------------
    public void setImagenPrisma ( Icon imagen )
    {
        imagen = Imagenes.escalarImagen( imagen, 96, 150);
        jlblImagenPrisma.setIcon( imagen );
    }
//-------------------------------------------------------------------------------
}
```

JPrismaRectangular.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                     SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*               Interfaz Visual para implementar como un JAVA BEAN
:*
:*  Archivo     : JPrismaRectangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Aplicacion visual usando Java Swing la cual se utilizara como JAVA BEAN
:*                para que el desarrollador pueda modificar los campos en tiempo de diseño
:*                y asi poder tener un BEAN de un Prisma Rectangular para poderlo implementar
:*                desde el palette como cualquier componente mas.
:*
:*                Datos los cuales se podran modificar:
.*
:*                1. Altura del Prisma
:*                2. Largo de la Base
:*                3. Ancho de la Base
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  24/Nov/2020 Félix Mtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.beans;

import java.util.ArrayList;
import javax.swing.Icon;
import javax.swing.JOptionPane;
import mx.tecnm.itl.prismas.IPrisma;
import mx.tecnm.itl.prismas.PrismaRectangular;
import mx.tecnm.itl.util.Imagenes;

/**
 *
 * @author FélixMtz
 */
public class JPrismaRectangular extends javax.swing.JPanel implements IPrisma {

        //composicion del bean
    private PrismaRectangular modelo; //modelo = objeto de la clase prisma triangular
    private DatosPrismaRDialog dprd;
    private ArrayList<DatosModificadosListener> datosModifListeners = new ArrayList<> ();

    public JPrismaRectangular() {
        initComponents();
            modelo = new PrismaRectangular();

//creamos el dialogo para capturar los datos del prisma
        dprd = new DatosPrismaRDialog ( this, true );

//Ajustamos el tamaño de la imagen del prisma
        Icon icon = jlblImagenPrismaR.getIcon ();
        icon = Imagenes.escalarImagen( icon,
                                       96,
                                       150 );
        jlblImagenPrismaR.setIcon( icon );
    }

    public JPrismaRectangular ( double alturaP, double ancho, double largo )
    {
        this (); //invocamos al constructor de default
        modelo = new PrismaRectangular ( alturaP, ancho, largo );
    }

    public void addDatosModificadosListener ( DatosModificadosListener listener )
```

```
    {
       datosModifListeners.add ( listener );
    }

    public void removeDatosModificadosListener ( DatosModificadosListener listener )
    {
       datosModifListeners.remove ( listener );
    }

    public void fireDatosModificadosEvent ( DatosModificadosEvent ev )
    {
        for ( DatosModificadosListener listener : datosModifListeners )
        {
           listener.datosModificadosPrisma ( ev );
        }
    }

    /**
     * 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() {

        jPopupMenu1 = new javax.swing.JPopupMenu();
        jmniValoresPrismaR = new javax.swing.JMenuItem();
        jmniAcercaDeR = new javax.swing.JMenuItem();
        jlblImagenPrismaR = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jlblAlturaPrismaR = new javax.swing.JLabel();
        jlblLargoR = new javax.swing.JLabel();
        jlblAnchoR = new javax.swing.JLabel();

        jmniValoresPrismaR.setText("Valores Prisma Rectangular...");
        jmniValoresPrismaR.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniValoresPrismaRActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniValoresPrismaR);

        jmniAcercaDeR.setText("Acerca De...");
        jmniAcercaDeR.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniAcercaDeRActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniAcercaDeR);

        setToolTipText("Pulse click derecho para acceder a mas opciones");
        setComponentPopupMenu(jPopupMenu1);
        setMaximumSize(new java.awt.Dimension(201, 242));
        setMinimumSize(new java.awt.Dimension(201, 242));
        setPreferredSize(new java.awt.Dimension(201, 242));

        jlblImagenPrismaR.setIcon(new
javax.swing.ImageIcon(getClass().getResource("/graficos/prismaR.jpg"))); // NOI18N

jlblImagenPrismaR.setBorder(javax.swing.BorderFactory.createBevelBorder(javax.swing.border.BevelBorder.RAIS
ED));

        jLabel2.setText("Altura Prisma: ");

        jLabel3.setText("Ancho: ");

        jLabel4.setText("Largo: ");

        jlblAlturaPrismaR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAlturaPrismaR.setText("0");
        jlblAlturaPrismaR.setBorder(javax.swing.BorderFactory.createEtchedBorder());
```

```
        jlblLargoR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblLargoR.setText("0");
        jlblLargoR.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jlblAnchoR.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAnchoR.setText("0");
        jlblAnchoR.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(this);
        this.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.createSequentialGroup()
                        .addComponent(jLabel2)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAlturaPrismaR,     javax.swing.GroupLayout.PREFERRED_SIZE,     68,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jlblImagenPrismaR,     javax.swing.GroupLayout.PREFERRED_SIZE,     96,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel4)
                            .addComponent(jlblLargoR,      javax.swing.GroupLayout.PREFERRED_SIZE,      68,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel3)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAnchoR,         javax.swing.GroupLayout.PREFERRED_SIZE,         68,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addContainerGap(19, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jlblAlturaPrismaR))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jlblImagenPrismaR,    javax.swing.GroupLayout.PREFERRED_SIZE,    150,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED))
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                        .addComponent(jLabel4)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblLargoR)
                        .addGap(32, 32, 32)))
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(jlblAnchoR))
                .addContainerGap(16, Short.MAX_VALUE))
        );
    }// </editor-fold>

    private void jmniAcercaDeRActionPerformed(java.awt.event.ActionEvent evt) {
        JOptionPane.showMessageDialog ( null,
                                        "JPrismaRectangular \n"  +
                                        "\t\t v1.0 \n\n"     +
                                        "Tecnologico Nacional de Mexico campus La Laguna \n\n" +
                                        "(C) Derechos Reservados 2020",
                                        "Acerca De",
                                        JOptionPane.INFORMATION_MESSAGE);
    }

    private void jmniValoresPrismaRActionPerformed(java.awt.event.ActionEvent evt) {
        dprd.setLocationRelativeTo ( null );
        dprd.setVisible ( true );
    }
```

```
    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JPopupMenu jPopupMenu1;
    private javax.swing.JLabel jlblAlturaPrismaR;
    private javax.swing.JLabel jlblAnchoR;
    private javax.swing.JLabel jlblImagenPrismaR;
    private javax.swing.JLabel jlblLargoR;
    private javax.swing.JMenuItem jmniAcercaDeR;
    private javax.swing.JMenuItem jmniValoresPrismaR;
    // End of variables declaration
//---------------------------------------------------------------------------
    @Override
    public double areaBase () {
        return modelo.areaBase ();
    }
//---------------------------------------------------------------------------
    @Override
    public double areaLateral () {
        return modelo.areaLaterial ();
    }
//---------------------------------------------------------------------------
    @Override
    public double areaTotal () {
        return modelo.areaTotal ();
    }
//---------------------------------------------------------------------------
    @Override
    public double volumen () {
        return modelo.volumen ();
    }
//---------------------------------------------------------------------------
    public double getAncho () {
        return modelo.getAncho ();
    }
//---------------------------------------------------------------------------
    public void setAncho ( double ancho ) {
        modelo.setAncho ( ancho );
        jlblAnchoR.setText ( "" + ancho );
    }
//---------------------------------------------------------------------------
    public double getLargo () {
        return modelo.getLargo ();
    }
//---------------------------------------------------------------------------
    public void setLargo ( double largo ) {
        modelo.setLargo ( largo );
        jlblLargoR.setText ( "" + largo );
    }
//---------------------------------------------------------------------------
    public double getAltura () {
        return modelo.getAltura ();
    }
//---------------------------------------------------------------------------
    public void setAltura ( double altura ) {
        modelo.setAltura ( altura );
        jlblAlturaPrismaR.setText ( "" + altura );
    }
//---------------------------------------------------------------------------
    public Icon getImagenPrisma ()
    {
        return jlblImagenPrismaR.getIcon ();
    }
//---------------------------------------------------------------------------
    public void setImagenPrisma ( Icon imagen )
    {
        imagen = Imagenes.escalarImagen( imagen, 96, 150);
        jlblImagenPrismaR.setIcon( imagen );
    }
//---------------------------------------------------------------------------
}
```

JPrismaTriangular.java

```
/*-------------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                     SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*              Interfaz Visual para implementar como un JAVA BEAN
:*
:*  Archivo     : JPrismaTriangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Aplicacion visual usando Java Swing la cual se utilizara como JAVA BEAN
:*                para que el desarrollador pueda modificar los campos en tiempo de diseño
:*                y asi poder tener un BEAN de un Prisma Triangular para poderlo implementar
:*                desde el palette como cualquier componente mas.
:*
:*                Datos los cuales se podran modificar:
.*
:*                1. Altura del Prisma
:*                2. Altura de la Base
:*                3. Base
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*===========================================================================================
:*  24/Nov/2020 Félix Mtz       Se agrego el
Prologo :*-------------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.beans;

import java.util.ArrayList;
import javax.swing.Icon;
import javax.swing.JOptionPane;
import mx.tecnm.itl.prismas.Cilindro;
import mx.tecnm.itl.prismas.IPrisma;
import mx.tecnm.itl.prismas.PrismaTriangular;
import mx.tecnm.itl.util.Imagenes;

/**
 *
 * @author The Survivor
 */
public class JPrismaTriangular extends javax.swing.JPanel implements IPrisma {

        //composicion del bean
    private PrismaTriangular modelo; //modelo = objeto de la clase prisma triangular
    private DatosPrismaTDialog dptd;
    private ArrayList<DatosModificadosListener> datosModifListeners = new ArrayList<> ();

    public JPrismaTriangular() {
        initComponents();
        modelo = new PrismaTriangular();

//creamos el dialogo para capturar los datos del prisma
        dptd = new DatosPrismaTDialog ( this, true );

//Ajustamos el tamaño de la imagen del prisma
        Icon icon = jlblImagenPrismaT.getIcon ();
        icon = Imagenes.escalarImagen( icon,
                                       96,
                                       150 );
        jlblImagenPrismaT.setIcon( icon );
    }

    public JPrismaTriangular ( double alturaP, double alturaB, double base )
    {
        this (); //invocamos al constructor de default
        modelo = new PrismaTriangular ( alturaP, alturaB, base );
    }
```

```
    public void addDatosModificadosListener ( DatosModificadosListener listener )
    {
       datosModifListeners.add ( listener );
    }

    public void removeDatosModificadosListener ( DatosModificadosListener listener )
    {
       datosModifListeners.remove ( listener );
    }

    public void fireDatosModificadosEvent ( DatosModificadosEvent ev )
    {
        for ( DatosModificadosListener listener : datosModifListeners )
        {
           listener.datosModificadosPrisma ( ev );
        }
    }

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

        jPopupMenu1 = new javax.swing.JPopupMenu();
        jmniValoresPrismaT = new javax.swing.JMenuItem();
        jmniAcercaDeT = new javax.swing.JMenuItem();
        jlblImagenPrismaT = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jlblAlturaPrismaT = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jlblBaseT = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        jlblAlturaBaseT = new javax.swing.JLabel();

        jmniValoresPrismaT.setText("Valores Prisma Triangular...");
        jmniValoresPrismaT.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniValoresPrismaTActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniValoresPrismaT);

        jmniAcercaDeT.setText("Acerca De...");
        jmniAcercaDeT.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniAcercaDeTActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniAcercaDeT);

        setToolTipText("Pulse click derecho para acceder a mas opciones");
        setComponentPopupMenu(jPopupMenu1);
        setMaximumSize(new java.awt.Dimension(218, 261));

        jlblImagenPrismaT.setIcon(new
javax.swing.ImageIcon(getClass().getResource("/graficos/prismaT.jpg"))); // NOI18N

jlblImagenPrismaT.setBorder(javax.swing.BorderFactory.createBevelBorder(javax.swing.border.BevelBorder.RAIS
ED));
        jlblImagenPrismaT.setMaximumSize(new java.awt.Dimension(183, 218));
        jlblImagenPrismaT.setMinimumSize(new java.awt.Dimension(183, 218));
        jlblImagenPrismaT.setPreferredSize(new java.awt.Dimension(183, 218));

        jLabel2.setText("Altura Prisma:");

        jlblAlturaPrismaT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAlturaPrismaT.setText("0");
        jlblAlturaPrismaT.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        jLabel4.setText("Base: ");

        jlblBaseT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblBaseT.setText("0");
        jlblBaseT.setBorder(javax.swing.BorderFactory.createEtchedBorder());
```

```
        jLabel6.setText("Altura Base:");

        jlblAlturaBaseT.setHorizontalAlignment(javax.swing.SwingConstants.RIGHT);
        jlblAlturaBaseT.setText("0");
        jlblAlturaBaseT.setBorder(javax.swing.BorderFactory.createEtchedBorder());

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(this);
        this.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.createSequentialGroup()
                        .addComponent(jlblImagenPrismaT,     javax.swing.GroupLayout.PREFERRED_SIZE,     96,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                            .addComponent(jLabel6,                    javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                            .addComponent(jlblAlturaBaseT,    javax.swing.GroupLayout.PREFERRED_SIZE,    69,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel2)
                        .addGap(18, 18, 18)
                        .addComponent(jlblAlturaPrismaT,     javax.swing.GroupLayout.PREFERRED_SIZE,     68,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel4)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jlblBaseT,         javax.swing.GroupLayout.PREFERRED_SIZE,         68,
javax.swing.GroupLayout.PREFERRED_SIZE)))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(16, 16, 16)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jlblAlturaPrismaT))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jlblImagenPrismaT,      javax.swing.GroupLayout.PREFERRED_SIZE,      150,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                        .addComponent(jLabel6)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAlturaBaseT)
                        .addGap(24, 24, 24)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel4)
                    .addComponent(jlblBaseT))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
    }// </editor-fold>

    private void jmniAcercaDeTActionPerformed(java.awt.event.ActionEvent evt) {
        JOptionPane.showMessageDialog ( null,
                                        "JPrismaTriangular \n"  +
                                        "\t\t v1.0 \n\n"     +
                                        "Tecnologico Nacional de Mexico campus La Laguna \n\n" +
                                        "(C) Derechos Reservados 2020",
                                        "Acerca De",
                                        JOptionPane.INFORMATION_MESSAGE);
    }

    private void jmniValoresPrismaTActionPerformed(java.awt.event.ActionEvent evt) {
        dptd.setLocationRelativeTo ( null );
        dptd.setVisible ( true );
    }
```

```
    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel6;
    private javax.swing.JPopupMenu jPopupMenu1;
    private javax.swing.JLabel jlblAlturaBaseT;
    private javax.swing.JLabel jlblAlturaPrismaT;
    private javax.swing.JLabel jlblBaseT;
    private javax.swing.JLabel jlblImagenPrismaT;
    private javax.swing.JMenuItem jmniAcercaDeT;
    private javax.swing.JMenuItem jmniValoresPrismaT;
    // End of variables declaration
//-------------------------------------------------------------------------------
    @Override
    public double areaBase () {
        return modelo.areaBase ();
    }
//-------------------------------------------------------------------------------
    @Override
    public double areaLateral () {
        return modelo.areaLaterial ();
    }
//-------------------------------------------------------------------------------
    @Override
    public double areaTotal () {
        return modelo.areaTotal ();
    }
//-------------------------------------------------------------------------------
    @Override
    public double volumen () {
        return modelo.volumen ();
    }
//-------------------------------------------------------------------------------
    public double getBase () {
        return modelo.getBase ();
    }
//-------------------------------------------------------------------------------
    public void setBase ( double base ) {
        modelo.setBase ( base );
        jlblBaseT.setText( "" + base );
    }
//-------------------------------------------------------------------------------
    public double getAlturaBase () {
        return modelo.getAlturaBase ();
    }
//-------------------------------------------------------------------------------
    public void setAlturaBase ( double alturaBase ) {
        modelo.setAlturaBase ( alturaBase );
        jlblAlturaBaseT.setText ( "" + alturaBase );
    }
//-------------------------------------------------------------------------------
    public double getAlturaPrisma () {
        return modelo.getAlturaPrisma ();
    }
//-------------------------------------------------------------------------------
    public void setAlturaPrisma ( double alturaPrisma ) {
        modelo.setAlturaPrisma ( alturaPrisma );
        jlblAlturaPrismaT.setText ( "" + alturaPrisma );
    }
//-------------------------------------------------------------------------------
    public Icon getImagenPrismaT ()
    {
        return jlblImagenPrismaT.getIcon ();
    }
//-------------------------------------------------------------------------------
    public void setImagenPrismaT ( Icon imagen )
    {
        imagen = Imagenes.escalarImagen( imagen, 118, 222);
        jlblImagenPrismaT.setIcon( imagen );
    }
//-------------------------------------------------------------------------------
}
```

JAcercaDeBean.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*         Interfaz Visual para mostrar los datos de la aplicación y del desarrollador
:*
:*  Archivo     : AcercaDe.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Aplicacion visual usando Java Swing la cual se utilizara como JAVA BEAN
:*                para que el desarrollador pueda modificar los campos en tiempo de diseño
:*                y asi poder tener un acerca de... correspondiente a su aplicación
:*
:*                Datos los cuales se podran modificar:
.*
:*                1. En este caso los datos del alumno
:*                2. Nombre de la aplicación y la versión
:*                3. Logotipos de la Institución a la cual pertenece el alumno ( desarrollador )
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  24/Nov/2020 Félix Mtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.beans;

import javax.swing.Icon;
import javax.swing.JOptionPane;
import mx.tecnm.itl.util.Imagenes;

/**
 *
 * @author FélixMtz
 */
public class JAcercaDe extends javax.swing.JPanel {

    /**
     * Creates new form JAcercaDe
     */
    public JAcercaDe() {
        initComponents();

//---------------poner el icono del tecNM en jlabel-----------------------------
        jlblLogo1.setIcon (
                Imagenes.escalarImagen (
                        jlblLogo1.getIcon (),
                        135,
                        135 ) );
//------------------poner el icono del ITL en jlabel----------------------------
        jlblLogo2.setIcon (
                Imagenes.escalarImagen (
                        jlblLogo2.getIcon (),
                        135,
                        135 ) );
    }

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

        jPopupMenu1 = new javax.swing.JPopupMenu();
        jmniAcercaDeBean = new javax.swing.JMenuItem();
        jlblLogo1 = new javax.swing.JLabel();
        jlblUniversidad = new javax.swing.JLabel();
        jlblInstitucion = new javax.swing.JLabel();
        jlblCarrera = new javax.swing.JLabel();
        jlblMateria = new javax.swing.JLabel();
```

```
        jlblLeyendaDesarrolladoPor = new javax.swing.JLabel();
        jlblLogo2 = new javax.swing.JLabel();
        jlblAutor1 = new javax.swing.JLabel();
        jlblLeyendaAlPie = new javax.swing.JLabel();
        jlblAplicacion = new javax.swing.JLabel();
        jlblAutor2 = new javax.swing.JLabel();
        jlblAutor3 = new javax.swing.JLabel();
        jlblAutor4 = new javax.swing.JLabel();

        jmniAcercaDeBean.setText("Acerca de...");
        jmniAcercaDeBean.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jmniAcercaDeBeanActionPerformed(evt);
            }
        });
        jPopupMenu1.add(jmniAcercaDeBean);

        setComponentPopupMenu(jPopupMenu1);
        setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT_CURSOR));

        jlblLogo1.setIcon(new    javax.swing.ImageIcon(getClass().getResource("/graficos/logo_tecnm.jpg")));
// NOI18N

jlblLogo1.setBorder(javax.swing.BorderFactory.createBevelBorder(javax.swing.border.BevelBorder.RAISED));

        jlblUniversidad.setFont(new java.awt.Font("Dialog", 1, 18)); // NOI18N
        jlblUniversidad.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblUniversidad.setText("TECNOLÓGICO NACIONAL DE MÉXICO");

        jlblInstitucion.setFont(new java.awt.Font("Dialog", 1, 14)); // NOI18N
        jlblInstitucion.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblInstitucion.setText("INSTITUTO TECNOLÓGICO DE LA LAGUNA");

        jlblCarrera.setFont(new java.awt.Font("Dialog", 0, 12)); // NOI18N
        jlblCarrera.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblCarrera.setText("INGENIERIA EN SISTEMAS COMPUTACIONALES");

        jlblMateria.setFont(new java.awt.Font("Dialog", 0, 12)); // NOI18N
        jlblMateria.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblMateria.setText("TÓPICOS AVANZADOS DE PROGRAMACIÓN");

        jlblLeyendaDesarrolladoPor.setText("Desarrollado por:");

        jlblLogo2.setIcon(new  javax.swing.ImageIcon(getClass().getResource("/graficos/logo_itl.jpg")));  //
NOI18N

jlblLogo2.setBorder(javax.swing.BorderFactory.createBevelBorder(javax.swing.border.BevelBorder.RAISED));

        jlblAutor1.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblAutor1.setText("[Autor 1]");

        jlblLeyendaAlPie.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblLeyendaAlPie.setText("(C) Derechos Reservados 2020. Prohibida la reproducción parcial o total
de este programa.");

        jlblAplicacion.setFont(new java.awt.Font("Dialog", 1, 16)); // NOI18N
        jlblAplicacion.setForeground(new java.awt.Color(0, 0, 204));
        jlblAplicacion.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblAplicacion.setText("[Nombre de App y Version]");

        jlblAutor2.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblAutor2.setText("[Autor 2]");

        jlblAutor3.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblAutor3.setText("[Autor 3]");

        jlblAutor4.setHorizontalAlignment(javax.swing.SwingConstants.CENTER);
        jlblAutor4.setText("[Autor 4]");

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(this);
        this.setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
```

```
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addComponent(jlblLogo1,          javax.swing.GroupLayout.PREFERRED_SIZE,          135,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jlblLogo2,          javax.swing.GroupLayout.PREFERRED_SIZE,          135,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jlblInstitucion,                    javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblCarrera,                        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblMateria,                        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblAplicacion,                     javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblAutor1,                         javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblAutor2,                         javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblAutor3,                   javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblAutor4,                   javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblLeyendaDesarrolladoPor,   javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addComponent(jlblUniversidad,                    javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
            .addComponent(jlblLeyendaAlPie,                     javax.swing.GroupLayout.Alignment.TRAILING,
javax.swing.GroupLayout.DEFAULT_SIZE, 539, Short.MAX_VALUE)
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jlblLogo1,        javax.swing.GroupLayout.PREFERRED_SIZE,        135,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jlblLogo2,        javax.swing.GroupLayout.PREFERRED_SIZE,        135,
javax.swing.GroupLayout.PREFERRED_SIZE))
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jlblUniversidad)
                        .addGap(9, 9, 9)
                        .addComponent(jlblInstitucion)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblCarrera)
                        .addGap(18, 18, 18)
                        .addComponent(jlblMateria)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jlblAplicacion)
                        .addGap(18, 18, 18)
                        .addComponent(jlblLeyendaDesarrolladoPor)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jlblAutor1)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAutor2)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAutor3)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jlblAutor4)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 18, Short.MAX_VALUE)
                .addComponent(jlblLeyendaAlPie)
                .addContainerGap())
        );
    }// </editor-fold>

    private void jmniAcercaDeBeanActionPerformed(java.awt.event.ActionEvent evt) {
        JOptionPane.showMessageDialog(this,
                                      "JAcercaDe \n" +
                                      "v1.0 \n\n" +
                                      "TecNM campus La Laguna 2020",
                                      "Acerca de",
                                      JOptionPane.INFORMATION_MESSAGE
        );
```

```
    }


    // Variables declaration - do not modify
    private javax.swing.JPopupMenu jPopupMenu1;
    private javax.swing.JLabel jlblAplicacion;
    private javax.swing.JLabel jlblAutor1;
    private javax.swing.JLabel jlblAutor2;
    private javax.swing.JLabel jlblAutor3;
    private javax.swing.JLabel jlblAutor4;
    private javax.swing.JLabel jlblCarrera;
    private javax.swing.JLabel jlblInstitucion;
    private javax.swing.JLabel jlblLeyendaAlPie;
    private javax.swing.JLabel jlblLeyendaDesarrolladoPor;
    private javax.swing.JLabel jlblLogo1;
    private javax.swing.JLabel jlblLogo2;
    private javax.swing.JLabel jlblMateria;
    private javax.swing.JLabel jlblUniversidad;
    private javax.swing.JMenuItem jmniAcercaDeBean;
    // End of variables declaration

//------------------------------universidad--------------------------------------
    public String getUniversidad ()
    {
        return jlblUniversidad.getText ();
    }

    public void setUniversidad ( String universidad )
    {
        jlblUniversidad.setText ( universidad );
    }
//-----------------------------------campus-------------------------------------
    public String getInstitucion ()
    {
        return jlblInstitucion.getText ();
    }

    public void setInstitucion ( String institucion )
    {
        jlblInstitucion.setText ( institucion );
    }
//-----------------------------------carrera------------------------------------
    public String getCarrera()
    {
        return jlblCarrera.getText ();
    }

    public void setCarrera( String carrera )
    {
        jlblCarrera.setText ( carrera );
    }
//-----------------------------------materia------------------------------------
    public String getMateria ()
    {
        return jlblMateria.getText ();
    }

    public void setMateria ( String materia )
    {
        jlblMateria.setText ( materia );
    }
//-----------------------------------aplicacion---------------------------------
    public String getNombreApp ()
    {
        return jlblAplicacion.getText ();
    }

    public void setNombreApp ( String aplicacion )
    {
        jlblAplicacion.setText ( aplicacion );
    }
//------------------------------datos desarrollador 1---------------------------
    public String getAutor1 ()
    {
        return jlblAutor1.getText ();
```

```
    }

    public void setAutor1 ( String autor )
    {
        jlblAutor1.setText ( autor );
    }
//------------------------------datos desarrollador 2--------------------------
    public String getAutor2 ()
    {
        return jlblAutor2.getText ();
    }

    public void setAutor2 ( String autor )
    {
        jlblAutor2.setText ( autor );
    }
//------------------------------datos desarrollador 3--------------------------
    public String getAutor3 ()
    {
        return jlblAutor3.getText ();
    }

    public void setAutor3 ( String autor )
    {
        jlblAutor3.setText ( autor );
    }
//------------------------------datos desarrollador 4--------------------------
    public String getAutor4 ()
    {
        return jlblAutor4.getText ();
    }

    public void setAutor4 ( String autor )
    {
        jlblAutor4.setText ( autor );
    }
//-----------------------------------copyright----------------------------------
    public String getLeyendaAlPie ()
    {
        return jlblLeyendaAlPie.getText ();
    }

    public void setLeyendaAlPie ( String autor )
    {
        jlblLeyendaAlPie.setText ( autor );
    }
//---------------------------------desarrollado---------------------------------
    public String getDesarrolladoPor ()
    {
        return jlblLeyendaDesarrolladoPor.getText ();
    }

    public void setDesarrolladoPor ( String autor )
    {
        jlblLeyendaDesarrolladoPor.setText ( autor );
    }
//---------------------------Obtener el Icono Superior-------------------------
    public Icon getLogo1 ()
    {
        return jlblLogo1.getIcon ();
    }

    public void setLogo1 ( Icon icon )
    {
        jlblLogo1.setIcon ( Imagenes.escalarImagen(icon, 135, 135) );
    }
//---------------------------Obtener el Icono Inferior-------------------------
    public Icon getLogo2 ()
    {
        return jlblLogo2.getIcon ();
    }

    public void setLogo2 ( Icon icon )
    {
        jlblLogo2.setIcon ( Imagenes.escalarImagen(icon, 135, 135) );    }}
```

DatosCilindroDialog.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                     SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*              Interfaz Visual para ingresa datos al jbeanCilindro
:*
:*  Archivo     : DatosCilindroDialog.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Ventana emergente la cual es capaz de interactuar con las propiedades
:*                del jbeanCilindro para despues realizar los calculos correspondientes.
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  24/Nov/2020 Félix Mtz            Se agrego el Prologo
:*-----------------------------------------------------------------------------------------*/
package mx.tecnm.itl.beans;

import java.awt.Frame;
import javax.swing.JOptionPane;

/**
 *
 * @author FélixMtz
 */
public class DatosCilindroDialog extends javax.swing.JDialog {

    private JCilindro parent;

    public DatosCilindroDialog ( JCilindro parent, boolean modal ) {
        super ( new Frame (), modal );
        initComponents();

        //conservamos la referencia a la vista
        this.parent = parent;
    }

    /**
     * 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();
        jtxfRadio = new javax.swing.JTextField();
        jbtnAceptar = new javax.swing.JButton();
        jbtnCancelar = new javax.swing.JButton();
        jtxfAltura = new javax.swing.JTextField();

        setTitle("Datos del Cilindro");
        addWindowListener(new java.awt.event.WindowAdapter() {
            public void windowActivated(java.awt.event.WindowEvent evt) {
                formWindowActivated(evt);
            }
        });

        jLabel1.setText("Radio (r): ");

        jLabel2.setText("Altura (h): ");

        jtxfRadio.setHorizontalAlignment(javax.swing.JTextField.RIGHT);
```

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

        jbtnCancelar.setText("Cancelar");
        jbtnCancelar.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jbtnCancelarActionPerformed(evt);
            }
        });

        jtxfAltura.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        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()
                .addComponent(jbtnAceptar)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 159, Short.MAX_VALUE)
                .addComponent(jbtnCancelar)
                .addContainerGap())
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLabel1)
                    .addComponent(jLabel2))
                .addGap(27, 27, 27)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addComponent(jtxfAltura, javax.swing.GroupLayout.DEFAULT_SIZE, 211, Short.MAX_VALUE)
                    .addComponent(jtxfRadio))
                .addGap(23, 23, 23))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(29, 29, 29)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(jtxfRadio,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(40, 40, 40)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jtxfAltura,                         javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 28, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jbtnCancelar)
                    .addComponent(jbtnAceptar))
                .addContainerGap())
        );

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

    private void jbtnCancelarActionPerformed(java.awt.event.ActionEvent evt) {
        this.setVisible ( false );
    }

    private void jbtnAceptarActionPerformed(java.awt.event.ActionEvent evt) {
        double radio, altura;

    //convertimos a numerico el valor del radio

        try{
            radio = Double.parseDouble  ( jtxfRadio.getText () );
        }
        catch ( NumberFormatException ex )
        {
```

```
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico para el radio",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfRadio.requestFocus ();
            return;
        }

        //convertimos a numerico el valor de la altura
        try{
            altura = Double.parseDouble  ( jtxfAltura.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico para el radio",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfRadio.requestFocus ();
            return;
        }
//Creamos el EventObject que servira para disparar el evento datosModificados
        DatosModificadosEvent ev = new DatosModificadosEvent (
            parent.getRadio (), parent.getAltura (), radio, altura );

//Establecer el radio y la altura capturados en la vista y el modelo
        parent.setRadio ( radio );
        parent.setAltura ( altura );
        setVisible ( false );

//Disparamos el evento Datos Modificados
        parent.fireDatosModificadosEvent ( ev );
    }

    private void formWindowActivated(java.awt.event.WindowEvent evt) {
 //iniciamos los valores de los TextField´s desde la vista
        jtxfRadio.setText  ( "" + parent.getRadio  () );
        jtxfAltura.setText ( "" + parent.getAltura () );
    }
//
//    /**
//     * @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(DatosCilindroDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (InstantiationException ex) {
//
java.util.logging.Logger.getLogger(DatosCilindroDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (IllegalAccessException ex) {
//
java.util.logging.Logger.getLogger(DatosCilindroDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
//
java.util.logging.Logger.getLogger(DatosCilindroDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        }
//        //</editor-fold>
```

```
//
//        /* Create and display the dialog */
//        java.awt.EventQueue.invokeLater(new Runnable() {
//            public void run() {
//                DatosCilindroDialog dialog = new DatosCilindroDialog(new javax.swing.JFrame(), true);
//                dialog.addWindowListener(new java.awt.event.WindowAdapter() {
//                    @Override
//                    public void windowClosing(java.awt.event.WindowEvent e) {
//                        System.exit(0);
//                    }
//                });
//                dialog.setVisible(true);
//            }
//        });
//    }

    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JButton jbtnAceptar;
    private javax.swing.JButton jbtnCancelar;
    private javax.swing.JTextField jtxfAltura;
    private javax.swing.JTextField jtxfRadio;
    // End of variables declaration
}
```

DatosPrismaTDialog.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*          Interfaz Visual para ingresa datos al jbeanPrismaTriangular
:*
:*  Archivo     : DatosPrismaTDialog.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Ventana emergente la cual es capaz de interactuar con las propiedades
:*                del jbeanPrismaTriangular para despues realizar los calculos correspondientes.
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  24/Nov/2020 Félix Mtz            Se agrego el Prologo
:*-----------------------------------------------------------------------------------------*/
package mx.tecnm.itl.beans;

import java.awt.Frame;
import javax.swing.JOptionPane;

/**
 *
 * @author The Survivor
 */
public class DatosPrismaTDialog extends javax.swing.JDialog {

     private JPrismaTriangular parent;

    public DatosPrismaTDialog ( JPrismaTriangular parent, boolean modal) {
        super ( new Frame (), modal);
        initComponents();

        //conservamos la referencia a la vista
        this.parent = parent;
    }

    @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();
        jbtnAceptar = new javax.swing.JButton();
        jbtnCancelar = new javax.swing.JButton();
        jtxfAlturaPrismaT = new javax.swing.JTextField();
        jtxfAlturaBaseT = new javax.swing.JTextField();
        jtxfBaseT = new javax.swing.JTextField();

        setDefaultCloseOperation(javax.swing.WindowConstants.DISPOSE_ON_CLOSE);
        setTitle("Datos del Prisma Triangular");
        addWindowListener(new java.awt.event.WindowAdapter() {
            public void windowActivated(java.awt.event.WindowEvent evt) {
                formWindowActivated(evt);
            }
        });

        jLabel1.setText("Altura Prisma :");

        jLabel2.setText("Altura Base :");

        jLabel3.setText("Base :");

        jbtnAceptar.setText("Aceptar");
        jbtnAceptar.addActionListener(new java.awt.event.ActionListener() {
```

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

        jbtnCancelar.setText("Cancelar");
        jbtnCancelar.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jbtnCancelarActionPerformed(evt);
            }
        });

        jtxfAlturaPrismaT.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        jtxfAlturaBaseT.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        jtxfBaseT.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        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.createSequentialGroup()
                        .addComponent(jbtnAceptar)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(jbtnCancelar))
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel1)
                            .addComponent(jLabel2)
                            .addComponent(jLabel3))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jtxfBaseT,      javax.swing.GroupLayout.PREFERRED_SIZE,      205,
javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jtxfAlturaBaseT,   javax.swing.GroupLayout.PREFERRED_SIZE,   205,
javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jtxfAlturaPrismaT,  javax.swing.GroupLayout.PREFERRED_SIZE,  205,
javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGap(0, 22, Short.MAX_VALUE)))
                .addContainerGap())
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(jtxfAlturaPrismaT,                javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(22, 22, 22)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jtxfAlturaBaseT,                  javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(25, 25, 25)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(jtxfBaseT,                        javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 18, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jbtnAceptar)
                    .addComponent(jbtnCancelar))
                .addContainerGap())
        );

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

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

```
        this.setVisible ( false );
    }

    private void jbtnAceptarActionPerformed(java.awt.event.ActionEvent evt) {
    double alturaP, alturaB, base;

    //convertimos a numerico el valor de la Altura del Prisma Triangular

        try{
            alturaP = Double.parseDouble  ( jtxfAlturaPrismaT.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico para la Altura del Prisma
Triangular",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfAlturaPrismaT.requestFocus ();
            return;
        }

        //convertimos a numerico el valor de la altura de la Base
        try{
            alturaB = Double.parseDouble  ( jtxfAlturaBaseT.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico para la Altura de la Base",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfAlturaBaseT.requestFocus ();
            return;
        }

        //convertimos a numerico el valor de la Base
        try{
            base = Double.parseDouble  ( jtxfBaseT.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico de la Base",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfBaseT.requestFocus ();
            return;
        }

//Creamos el EventObject que servira para disparar el evento datosModificados
        DatosModificadosEvent ev = new DatosModificadosEvent (
            parent.getBase (), parent.getAlturaBase (), parent.getAlturaPrisma(),
                 base,                alturaB,               alturaP );

//Establecer el radio y la altura capturados en la vista y el modelo
        parent.setBase         ( base    );
        parent.setAlturaBase   ( alturaB );
        parent.setAlturaPrisma ( alturaP );
        setVisible             ( false );

//Disparamos el evento Datos Modificados
        parent.fireDatosModificadosEvent ( ev );
    }

    private void formWindowActivated(java.awt.event.WindowEvent evt) {
     //iniciamos los valores de los TextField´s desde la vista
        jtxfAlturaPrismaT.setText  ( "" + parent.getAlturaPrisma () );
        jtxfAlturaBaseT.setText    ( "" + parent.getAlturaBase   () );
        jtxfBaseT.setText          ( "" + parent.getBase         () );
    }
//
//    /**
//     * @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(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (InstantiationException ex) {
//
java.util.logging.Logger.getLogger(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (IllegalAccessException ex) {
//
java.util.logging.Logger.getLogger(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
//
java.util.logging.Logger.getLogger(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        }
//        //</editor-fold>
//        //</editor-fold>
//
//        /* Create and display the dialog */
//        java.awt.EventQueue.invokeLater(new Runnable() {
//            public void run() {
//                DatosPrismaTDialog dialog = new DatosPrismaTDialog(new javax.swing.JFrame(), true);
//                dialog.addWindowListener(new java.awt.event.WindowAdapter() {
//                    @Override
//                    public void windowClosing(java.awt.event.WindowEvent e) {
//                        System.exit(0);
//                    }
//                });
//                dialog.setVisible(true);
//            }
//        });
//    }

    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JButton jbtnAceptar;
    private javax.swing.JButton jbtnCancelar;
    private javax.swing.JTextField jtxfAlturaBaseT;
    private javax.swing.JTextField jtxfAlturaPrismaT;
    private javax.swing.JTextField jtxfBaseT;
    // End of variables declaration
}
```

DatosPrismaRectangular.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*          Interfaz Visual para ingresa datos al jbeanPrismaRectangular
:*
:*  Archivo     : DatosPrismaRDialog.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 24/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Ventana emergente la cual es capaz de interactuar con las propiedades
:*                del jbeanPrismaRectangular para despues realizar los calculos correspondientes.
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  24/Nov/2020 Félix Mtz            Se agrego el Prologo
:*-----------------------------------------------------------------------------------------*/
package mx.tecnm.itl.beans;

import java.awt.Frame;
import javax.swing.JOptionPane;

/**
 *
 * @author FélixMtz
 */
public class DatosPrismaRectangular extends
javax.swing.JDialog {
     private JPrismaRectangular parent;

    public DatosPrismaRDialog ( JPrismaRectangular parent, boolean modal) {
        super ( new Frame (), modal);
        initComponents();

        //conservamos la referencia a la vista
        this.parent = parent;
    }

    @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();
        jbtnAceptar = new javax.swing.JButton();
        jbtnCancelar = new javax.swing.JButton();
        jtxfAlturaPrismaR = new javax.swing.JTextField();
        jtxfAnchoR = new javax.swing.JTextField();
        jtxfLargoR = new javax.swing.JTextField();

        setDefaultCloseOperation(javax.swing.WindowConstants.DISPOSE_ON_CLOSE);
        setTitle("Datos del Prisma Rectangular");
        addWindowListener(new java.awt.event.WindowAdapter() {
            public void windowActivated(java.awt.event.WindowEvent evt) {
                formWindowActivated(evt);
            }
        });

        jLabel1.setText("Altura Prisma :");

        jLabel2.setText("Ancho :");

        jLabel3.setText("Largo: ");

        jbtnAceptar.setText("Aceptar");
        jbtnAceptar.addActionListener(new java.awt.event.ActionListener() {
```

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

        jbtnCancelar.setText("Cancelar");
        jbtnCancelar.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jbtnCancelarActionPerformed(evt);
            }
        });

        jtxfAlturaPrismaR.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        jtxfAnchoR.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        jtxfLargoR.setHorizontalAlignment(javax.swing.JTextField.RIGHT);

        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.createSequentialGroup()
                        .addComponent(jbtnAceptar)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(jbtnCancelar))
                    .addGroup(layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel1)
                            .addComponent(jLabel2)
                            .addComponent(jLabel3))
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jtxfLargoR,      javax.swing.GroupLayout.PREFERRED_SIZE,      205,
javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jtxfAnchoR,      javax.swing.GroupLayout.PREFERRED_SIZE,      205,
javax.swing.GroupLayout.PREFERRED_SIZE)
                            .addComponent(jtxfAlturaPrismaR,  javax.swing.GroupLayout.PREFERRED_SIZE,  205,
javax.swing.GroupLayout.PREFERRED_SIZE))
                        .addGap(0, 22, Short.MAX_VALUE)))
                .addContainerGap())
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(jtxfAlturaPrismaR,                javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(22, 22, 22)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jtxfAnchoR,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(25, 25, 25)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel3)
                    .addComponent(jtxfLargoR,                       javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 18, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jbtnAceptar)
                    .addComponent(jbtnCancelar))
                .addContainerGap())
        );

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

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

```
        this.setVisible ( false );
    }

    private void jbtnAceptarActionPerformed(java.awt.event.ActionEvent evt) {
    double alturaP, ancho, largo;

    //convertimos a numerico el valor de la Altura del Prisma Triangular

        try{
            alturaP = Double.parseDouble  ( jtxfAlturaPrismaR.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico para la Altura del Prisma
Rectangular",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfAlturaPrismaR.requestFocus ();
            return;
        }

        //convertimos a numerico el valor de la altura de la Base
        try{
            ancho = Double.parseDouble  ( jtxfAnchoR.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico para el Ancho de la Base",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfAnchoR.requestFocus ();
            return;
        }

        //convertimos a numerico el valor de la Base
        try{
            largo = Double.parseDouble  ( jtxfLargoR.getText () );
        }
        catch ( NumberFormatException ex )
        {
            JOptionPane.showMessageDialog ( this,
                                            "Debe capturar un valor numerico de largo de la Base",
                                            "Error",
                                            JOptionPane.ERROR_MESSAGE );
            jtxfLargoR.requestFocus ();
            return;
        }

//Creamos el EventObject que servira para disparar el evento datosModificados
        DatosModificadosEvent ev = new DatosModificadosEvent (
            parent.getAltura (), parent.getAncho(), parent.getLargo(),
                 alturaP,             ancho,            largo,       0.0 );

//Establecer el radio y la altura capturados en la vista y el modelo
        parent.setAltura ( alturaP );
        parent.setAncho  ( ancho );
        parent.setLargo  ( largo );
        setVisible ( false );

//Disparamos el evento Datos Modificados
        parent.fireDatosModificadosEvent ( ev );
    }

    private void formWindowActivated(java.awt.event.WindowEvent evt) {
     //iniciamos los valores de los TextField´s desde la vista
        jtxfAlturaPrismaR.setText ( "" + parent.getAltura () );
        jtxfAnchoR.setText        ( "" + parent.getAncho  () );
        jtxfLargoR.setText        ( "" + parent.getLargo  () );
    }
//
//    /**
//     * @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(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (InstantiationException ex) {
//
java.util.logging.Logger.getLogger(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (IllegalAccessException ex) {
//
java.util.logging.Logger.getLogger(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        } catch (javax.swing.UnsupportedLookAndFeelException ex) {
//
java.util.logging.Logger.getLogger(DatosPrismaTDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
//        }
//        //</editor-fold>
//        //</editor-fold>
//
//        /* Create and display the dialog */
//        java.awt.EventQueue.invokeLater(new Runnable() {
//            public void run() {
//                DatosPrismaTDialog dialog = new DatosPrismaTDialog(new javax.swing.JFrame(), true);
//                dialog.addWindowListener(new java.awt.event.WindowAdapter() {
//                    @Override
//                    public void windowClosing(java.awt.event.WindowEvent e) {
//                        System.exit(0);
//                    }
//                });
//                dialog.setVisible(true);
//            }
//        });
//    }

    // Variables declaration - do not modify
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JButton jbtnAceptar;
    private javax.swing.JButton jbtnCancelar;
    private javax.swing.JTextField jtxfAlturaPrismaR;
    private javax.swing.JTextField jtxfAnchoR;
    private javax.swing.JTextField jtxfLargoR;
    // End of variables declaration
}
```

DatosModificadosListener.java

```
/*-------------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*          Interfaz que implementa un metodo de tipo Evento
:*
:*  Archivo     : DatosModificadosListener.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 26/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Interfaz abstracta que contiene cierto metodo para hacer una
:*                conexion entre ActionListeners
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*===========================================================================================
:*  26/Nov/2020 Félix Mtz            Se agrego el Prologo
:*-------------------------------------------------------------------------------------------*/
package mx.tecnm.itl.beans;

public interface DatosModificadosListener {
    public void datosModificadosPrisma ( DatosModificadosEvent ev );
}
```

IPrisma.java

```
/*-------------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*          Interfaz que implementa metodos basicos de un Prisma
:*
:*  Archivo     : IPrisma.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 26/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Interfaz abstracta que contiene ciertos metodos para hacer el
:*                calculo de ciertas propiedades de un primas, por ejemplo:
:*
:*                1. Area de la Base
:*                2. Area Lateral
:*                3. Area Total
:*                4. Volumen
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*===========================================================================================
:*  26/Nov/2020 Félix Mtz       Se agrego el
Prologo :*-------------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.prismas;

public interface IPrisma {
  public double areaBase    ();
  public double areaLateral ();
  public double areaTotal   ();
  public double volumen     ();

}
```

DatosModificadosEvent.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*        Clase que interactúa con las Propiedades de los Prismas Beans
:*
:*  Archivo     : DatosModificadosEvent.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 26/Nov/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Clase encargada de modificar en el tiempo de ejecucion
:*                 los atributos de los siguentes Java Beans
:*                1. JCilindro
:*                2. JPrismaTriangular
:*                3. JPrismaRectangular
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  26/Nov/2020 FélixMtz       Se agrego el
Prologo :*----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.beans;

public class DatosModificadosEvent {
   //atributos del cilindro
    private double antRadio;
    private double antAltura;
    private double nvoAltura;
    private double nvoRadio;

    //atributos del prisma triangular
    private double antBase;
    private double antAltBase;
    private double antAltPrismaT;
    private double nvoBase;
    private double nvoAltBase;
    private double nvoAltPrismaT;

    //atributos del prisma rectangular
    private double antAncho;
    private double antLargo;
    private double antAltPrismaR;
    private double nvoAncho;
    private double nvoLargo;
    private double nvoAltPrismaR;
    private double aux;

    //constructor del cilindro
    public DatosModificadosEvent(double antRadio, double antAltura,
                                 double nvoRadio, double nvoAltura) {
        this.antRadio = antRadio;
        this.antAltura = antAltura;
        this.nvoAltura = nvoAltura;
        this.nvoRadio = nvoRadio;
    }

    //constructor del prisma triangular
    public DatosModificadosEvent ( double antBase, double antAltBase, double antAltPrismaT,
                                   double nvoBase, double nvoAltBase, double nvoAltPrismaT ) {
        this.antBase = antBase;
        this.antAltBase = antAltBase;
        this.antAltPrismaT = antAltPrismaT;
        this.nvoBase = nvoBase;
        this.nvoAltBase = nvoAltBase;
        this.nvoAltPrismaT = nvoAltPrismaT;
    }

    //constructor del prisma rectangular
```

```
    public DatosModificadosEvent ( double antAltPrismaR, double antAncho, double antLargo,
                                   double nvoAltPrismaR, double nvoAncho, double nvoLargo,
                                   double aux ) {
        this.antAncho = antAncho;
        this.antLargo = antLargo;
        this.antAltPrismaR = antAltPrismaR;
        this.nvoAncho = nvoAncho;
        this.nvoLargo = nvoLargo;
        this.nvoAltPrismaR = nvoAltPrismaR;
        this.aux = aux;
    }

//=============================================================================
//metodos getter y setter del cilindro
    public double getAntRadio() {
        return antRadio;
    }
//-----------------------------------------------------------------------------
    public void setAntRadio ( double antRadio ) {
        this.antRadio = antRadio;
    }
//-----------------------------------------------------------------------------
    public double getAntAltura () {
        return antAltura;
    }
//-----------------------------------------------------------------------------
    public void setAntAltura ( double antAltura ) {
        this.antAltura = antAltura;
    }
//-----------------------------------------------------------------------------
    public double getNvoAltura () {
        return nvoAltura;
    }
//-----------------------------------------------------------------------------
    public void setNvoAltura ( double nvoAltura ) {
        this.nvoAltura = nvoAltura;
    }
//-----------------------------------------------------------------------------
    public double getNvoRadio () {
        return nvoRadio;
    }
//-----------------------------------------------------------------------------
    public void setNvoRadio ( double nvoRadio ) {
        this.nvoRadio = nvoRadio;
    }
//=============================================================================
//metodos getter y setter del prisma triangular
    public double getAntBase () {
        return antBase;
    }
//-----------------------------------------------------------------------------
    public void setAntBase ( double antBase ) {
        this.antBase = antBase;
    }
//-----------------------------------------------------------------------------
    public double getAntAltBase () {
        return antAltBase;
    }
//-----------------------------------------------------------------------------
    public void setAntAltBase ( double antAltBase ) {
        this.antAltBase = antAltBase;
    }
//-----------------------------------------------------------------------------
    public double getAntAltPrismaT () {
        return antAltPrismaT;
    }
//-----------------------------------------------------------------------------
    public void setAntAltPrismaT ( double antAltPrismaT ) {
        this.antAltPrismaT = antAltPrismaT;
    }
//-----------------------------------------------------------------------------
    public double getNvoBase () {
        return nvoBase;
    }
//-----------------------------------------------------------------------------
```

```
    public void setNvoBase ( double nvoBase ) {
        this.nvoBase = nvoBase;
    }
//-------------------------------------------------------------------------------
    public double getNvoAltBase () {
        return nvoAltBase;
    }
//-------------------------------------------------------------------------------
    public void setNvoAltBase ( double nvoAltBase ) {
        this.nvoAltBase = nvoAltBase;
    }
//-------------------------------------------------------------------------------
    public double getNvoAltPrismaT () {
        return nvoAltPrismaT;
    }
//-------------------------------------------------------------------------------
    public void setNvoAltPrismaT ( double nvoAltPrismaT ) {
        this.nvoAltPrismaT = nvoAltPrismaT;
    }
//===============================================================================
//metodos getter y setter del prisma rectangular
    public double getAntAncho () {
        return antAncho;
    }
//-------------------------------------------------------------------------------
    public void setAntAncho ( double antAncho ) {
        this.antAncho = antAncho;
    }
//-------------------------------------------------------------------------------
    public double getAntLargo () {
        return antLargo;
    }
//-------------------------------------------------------------------------------
    public void setAntLargo ( double antLargo ) {
        this.antLargo = antLargo;
    }
//-------------------------------------------------------------------------------
    public double getAntAltPrismaR () {
        return antAltPrismaR;
    }
//-------------------------------------------------------------------------------
    public void setAntAltPrismaR ( double antAltPrismaR ) {
        this.antAltPrismaR = antAltPrismaR;
    }
//-------------------------------------------------------------------------------
    public double getNvoAncho () {
        return nvoAncho;
    }
//-------------------------------------------------------------------------------
    public void setNvoAncho ( double nvoAncho ) {
        this.nvoAncho = nvoAncho;
    }
//-------------------------------------------------------------------------------
    public double getNvoLargo () {
        return nvoLargo;
    }
//-------------------------------------------------------------------------------
    public void setNvoLargo ( double nvoLargo ) {
        this.nvoLargo = nvoLargo;
    }
//-------------------------------------------------------------------------------
    public double getNvoAltPrismaR () {
        return nvoAltPrismaR;
    }
//-------------------------------------------------------------------------------
    public void setNvoAltPrismaR ( double nvoAltPrismaR ) {
        this.nvoAltPrismaR = nvoAltPrismaR;
    }
//-------------------------------------------------------------------------------
}
```

Cilindro.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*          Clase que modela un prisma regularen forma de Cilindro
:*
:*  Archivo     : Cilindro.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 14/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripción : Clase que permite definir un Cilindro a partir de:
:*                  a. Radio de la Base
:*                  b. Altura del Cilindro
:*                 y permite calcular las siguientes caracteristicas del prisma:
:*                  1. Area de la Base
:*                  2. Area Lateral
:*                  3. Area Total
:*                  4. Volumen
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  14/Oct/2020 Félix Mtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.prismas;
import mx.tecnm.itl.figuras.Circulo;
import mx.tecnm.itl.figuras.Rectangulo;

public class Cilindro extends Prisma {
//---------------------------Atributos de la Clase-----------------------------
        private double radio;
       private double altura;
//-------------------------Composicion del cilindro-----------------------------
        private Circulo    baseInferior;
        private Circulo    baseSuperior;
        private Rectangulo cuerpo;
//------------------------------------------------------------------------------
       public Cilindro () {
            radio = 0;
            altura = 0;
            crearPrisma ();
       }
//------------------------------------------------------------------------------
       public Cilindro ( double radio, double altura ) {
              this.radio  = radio;
               this.altura = altura;
               crearPrisma ();
       }
//------------------------------------------------------------------------------
        public void crearPrisma ()
        {
            baseInferior = new Circulo ( radio );
            baseSuperior = new Circulo ( radio );
            cuerpo       = new Rectangulo ( baseInferior.circunferencia (), altura );
        }
//------------------------------------------------------------------------------
        @Override
       public double areaBase () {
            return baseInferior.area ();
       }
//------------------------------------------------------------------------------
        @Override
       public double areaLaterial () {
            return cuerpo.area ();
       }
//------------------------------------------------------------------------------
        @Override
       public double areaTotal () {
            return baseSuperior.area () + baseInferior.area () + areaLaterial ();
```

```
        }
//---------------------------------------------------------------------------
        @Override
        public double volumen () {
            return areaBase () * altura;
        }
//---------------------------------------------------------------------------
        public double getRadio () {
            return radio;
        }
//---------------------------------------------------------------------------
        public void setRadio ( double radio ) {
            this.radio = radio;
            crearPrisma ();
        }
//---------------------------------------------------------------------------
        public double getAltura () {
           return altura;
        }
//---------------------------------------------------------------------------
        public void setAltura ( double altura ) {
            this.altura = altura;
            crearPrisma ();
        }
//---------------------------------------------------------------------------
        @Override
        public String toString() {
            return "Cilindro de radio = " + radio + ", altura = " + altura;
        }
//---------------------------------------------------------------------------
}
```

PrismaRectangular.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*           Clase que modela un prisma regular con base Rectangular
:*
:*  Archivo     : PrismaRectangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 15/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Clase que permite definir un Prisma Rectangular a partir de:
:*                  a. Ancho de la base
:*                  b. Largo de la base
:*                  c. Altura del Prisma
:*                 y permite calcular las siguientes caracteristicas del prisma:
:*                  1. Area de la Base
:*                  2. Area Lateral
:*                  3. Area Total
:*                  4. Volumen
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  15/Oct/2020 FélixMtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.prismas;
import mx.tecnm.itl.figuras.Rectangulo;

public class PrismaRectangular extends Prisma {
//-------------------------Atributos de la Clase--------------------------------
        private double ancho;
       private double largo;
       private double altura;
//--------------------Composicion del Prisma Rectangular------------------------
        private Rectangulo baseSuperior;
        private Rectangulo baseInferior;
        private Rectangulo caraLateral1;
        private Rectangulo caraLateral2;
//-----------------------------------------------------------------------------
       public PrismaRectangular () {
            ancho  = 0;
            largo  = 0;
            altura = 0;
            crearPrisma ();
       }
//-----------------------------------------------------------------------------
       public PrismaRectangular ( double ancho, double largo, double altura ) {
            this.ancho = ancho;
            this.largo = largo;
            this.altura = altura;
            crearPrisma ();
       }
//-----------------------------------------------------------------------------
        public void crearPrisma ()
        {
            baseInferior = new Rectangulo ( ancho, largo  );
            baseSuperior = new Rectangulo ( ancho, largo  );
            caraLateral1 = new Rectangulo ( ancho, altura );
            caraLateral2 = new Rectangulo ( largo, altura );
        }
//-----------------------------------------------------------------------------
        @Override
       public double areaBase () {
            return baseInferior.area ();
       }
//-----------------------------------------------------------------------------
        @Override
       public double areaLaterial () {
            return 2 * ( caraLateral1.area () + caraLateral2.area () );
```

```
        }
//-------------------------------------------------------------------------------
        @Override
        public double areaTotal () {
            return baseInferior.area () + baseSuperior.area () + areaLaterial ();
        }
//-------------------------------------------------------------------------------
        @Override
        public double volumen () {
             return baseInferior.area () * altura;
        }
//-------------------------------------------------------------------------------
        public double getAncho () {
             return ancho;
        }
//-------------------------------------------------------------------------------
        public void setAncho ( double ancho ) {
             this.ancho = ancho;
             crearPrisma ();
        }
//-------------------------------------------------------------------------------
        public double getLargo () {
             return largo;
        }
//-------------------------------------------------------------------------------
        public void setLargo ( double largo ) {
             this.largo = largo;
             crearPrisma ();
        }
//-------------------------------------------------------------------------------
        public double getAltura () {
             return altura;
        }
//-------------------------------------------------------------------------------
        public void setAltura ( double altura ) {
             this.altura = altura;
             crearPrisma ();
        }
//-------------------------------------------------------------------------------
        @Override
        public String toString () {
             return "Prisma Rectangular de anchoBase = " + ancho +
                    ", largoBase = " + largo + ", altura = " + altura;
        }
//-------------------------------------------------------------------------------
}
```

PrismaTriangular.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*       Clase que modela un prisma regular con base en forma de Triangulo Rectangulo
:*
:*  Archivo     : PrismaTriangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 15/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Clase que permite definir un Prisma Triangular a partir de:
:*                  a. Ancho de la base
:*                  b. Largo de la base
:*                  c. Altura del Prisma
:*                 y permite calcular las siguientes caracteristicas del prisma:
:*                  1. Area de la Base
:*                  2. Area Lateral
:*                  3. Area Total
:*                  4. Volumen
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  15/Oct/2020 FélixMtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.prismas;
import mx.tecnm.itl.figuras.TrianguloRec;
import mx.tecnm.itl.figuras.Rectangulo;

public class PrismaTriangular extends Prisma {
//-------------------------Atributos de la Clase--------------------------------
       private double base;
       private double alturaBase;
       private double alturaPrisma;
//---------------------Composicion del Prisma Triangular-------------------------
       private TrianguloRec baseSuperior;
       private TrianguloRec baseInferior;
        private Rectangulo caraLateral1;
        private Rectangulo caraLateral2;
        private Rectangulo caraLateral3;
//-------------------------------------------------------------------------------
       public PrismaTriangular () {
            base         = 0;
            alturaBase   = 0;
            alturaPrisma = 0;
            crearPrisma ();
       }
//-------------------------------------------------------------------------------
        public PrismaTriangular ( double base, double altBase, double altPrisma ) {
            this.base         = base;
            this.alturaBase   = altBase;
            this.alturaPrisma = altPrisma;
            crearPrisma();
       }
//-------------------------------------------------------------------------------
        public void crearPrisma ()
        {
            baseSuperior = new TrianguloRec ( base,        alturaBase );
            baseInferior = new TrianguloRec ( base,        alturaBase );
            caraLateral1 = new Rectangulo   ( base,        alturaPrisma );
            caraLateral2 = new Rectangulo   ( alturaBase,  alturaPrisma );
            caraLateral3 = new Rectangulo   ( baseInferior.hipotenusa (), alturaPrisma );
        }
//-------------------------------------------------------------------------------
        @Override
       public double areaBase () {
            return baseInferior.area ();
       }
//-------------------------------------------------------------------------------
```

```
        @Override
        public double areaLaterial () {
            return caraLateral1.area () + caraLateral2.area () + caraLateral3.area ();
        }
//-------------------------------------------------------------------------------
        @Override
        public double areaTotal () {
            return baseInferior.area () + baseSuperior.area () + areaLaterial ();
        }
//-------------------------------------------------------------------------------
        @Override
        public double volumen () {
            return baseInferior.area () + areaLaterial ();
        }
//-------------------------------------------------------------------------------
        public double getBase () {
            return base;
        }
//-------------------------------------------------------------------------------
        public void setBase ( double base ) {
            this.base = base;
            crearPrisma ();
        }
//-------------------------------------------------------------------------------
        public double getAlturaBase () {
            return alturaBase;
        }
//-------------------------------------------------------------------------------
        public void setAlturaBase ( double alturaBase ) {
            this.alturaBase = alturaBase;
            crearPrisma();
        }
//-------------------------------------------------------------------------------
        public double getAlturaPrisma () {
            return alturaPrisma;
        }
//-------------------------------------------------------------------------------
        public void setAlturaPrisma ( double alturaPrisma ) {
            this.alturaPrisma = alturaPrisma;
            crearPrisma ();
        }
//-------------------------------------------------------------------------------
        @Override
        public String toString() {
            return "Prisma Triangular: base = " + base +
                   ", alturaBase = " + alturaBase +
                   ", alturaPrisma = " + alturaPrisma;
        }
//-------------------------------------------------------------------------------
}
```

Circulo.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*                  Clase que contiene las Formulas de un Circulo
:*
:*  Archivo     : Circulo.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 20/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci□n : Clase que contiene funciones matematicas para calcular
:*                1. Diametro
:*                2. Circunferencia
:*                3. Perimetro
:*                4. Area
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  20/Oct/2020 Félix Mtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.figuras;

public class Circulo extends Figura {
//-------------------------Atributos de la Clase--------------------------------
       private double radio;
//------------------------------------------------------------------------------
       public Circulo () {
            radio = 0;
       }
//------------------------------------------------------------------------------
       public Circulo ( double r ) {
            radio = r;
       }
//------------------------------------------------------------------------------
       public double diametro () {
            return 2 * radio;
       }
//------------------------------------------------------------------------------
       public double circunferencia () {
            return Math.PI * diametro ();
       }
//------------------------------------------------------------------------------
        @Override
       public String toString () {
            return "Circulo de radio " + radio;
       }
//------------------------------------------------------------------------------
       public double getRadio () {
            return radio;
       }
//------------------------------------------------------------------------------
       public void setRadio ( double radio ) {
            this.radio = radio;
       }
//------------------------------------------------------------------------------
    @Override
        public double perimetro () {
            return circunferencia ();
        }
//------------------------------------------------------------------------------
    @Override
    public double area() {
        return Math.PI * Math.pow ( radio, 2 );
    }
//------------------------------------------------------------------------------
}
```

Rectangulo.java

```
/*-----------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                     SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*           Clase que contiene las Formulas para modelar un Circulo
:*
:*  Archivo     : Rectangulo.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 20/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Clase que contiene funciones matematicas para calcular
:*                1. Diagonal
:*                2. Perimetro
:*                3. Area
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*=========================================================================================
:*  20/Oct/2020 FélixMtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------
------*/ package mx.tecnm.itl.figuras;

public class Rectangulo extends Figura {
//-------------------------Atributos de la Clase---------------------------------
    private double ancho;
    private double largo;
//-------------------------------------------------------------------------------
    public Rectangulo () {
        ancho = 0;
        largo = 0;
    }
//-------------------------------------------------------------------------------
    public Rectangulo ( double ancho, double largo ) {
        this.ancho = ancho;
        this.largo = largo;
    }
//-------------------------------------------------------------------------------
    public double diagonal () {
        return Math.sqrt ( Math.pow( ancho, 2 ) + Math.pow ( largo, 2 ) );
    }
//-------------------------------------------------------------------------------
    @Override
    public double perimetro () {
        return 2 * largo + 2 * ancho;
    }
//-------------------------------------------------------------------------------
    @Override
    public double area () {
        return ancho * largo;
    }
//-------------------------------------------------------------------------------
    public double getAncho () {
        return ancho;
    }
//-------------------------------------------------------------------------------
    public void setAncho ( double ancho ) {
        this.ancho = ancho;
    }
//-------------------------------------------------------------------------------
    public double getLargo () {
        return largo;
    }
//-------------------------------------------------------------------------------
    public void setLargo ( double largo ) {
        this.largo = largo;
    }
//-------------------------------------------------------------------------------
    @Override
    public String toString () {
        return "Rectangulo de ancho = " + ancho + ", largo = " + largo;
```

```
    }
//---------------------------------------------------------------------------
}
```

Triangulo Rectangulo.java

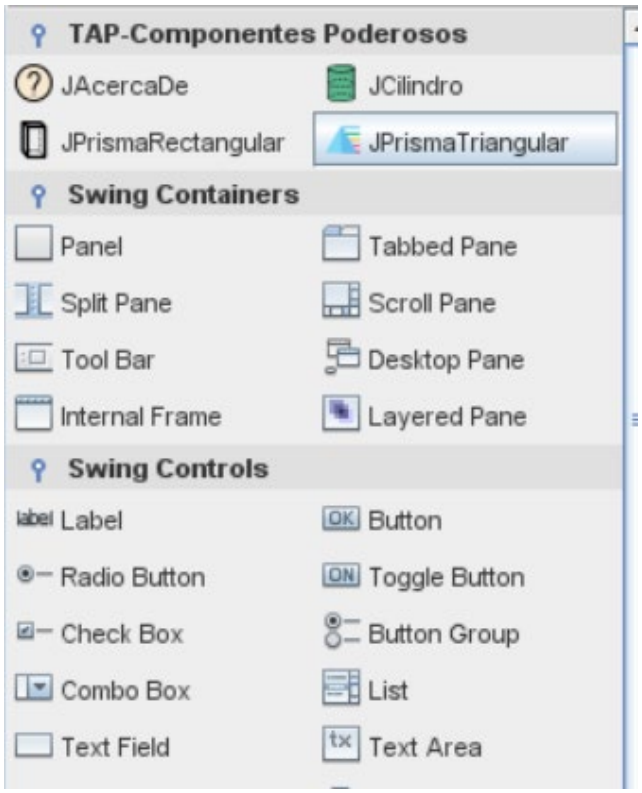
```
/*-----------------------------------------------------------------------------------------------
:*                          TECNOLOGICO NACIONAL DE MEXICO
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: AGO-DIC/2020    HORA: 17-18 HRS
:*
:*      Clase que contiene las Formulas para modelar un Triangulo Rectangulo
:*
:*  Archivo     : TrianguloRec.java
:*  Autor       : Félix Gerardo Martínez Hinojo     17130800
:*  Fecha       : 20/Oct/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci�n : Clase que contiene funciones matematicas para calcular
:*                1. Hipotenusa
:*                2. Perimetro
:*                3. Area
:*  Ultima modif:
:*  Fecha       Modificó             Motivo
:*===============================================================================================
:*  20/Oct/2020 FélixMtz       Se agrego el
Prologo :*-----------------------------------------------------------------------------------------
-------*/ package mx.tecnm.itl.figuras;

public class TrianguloRec extends Figura {
//-------------------------Atributos de la Clase--------------------------------
       private double base;
       private double altura;
//---------------------------------------------------------------------------
       public TrianguloRec () {
            base = 0;
            altura = 0;
       }
//---------------------------------------------------------------------------
       public TrianguloRec ( double base, double altura ) {
            this.base = base;
            this.altura = altura;
       }
//---------------------------------------------------------------------------
       public double hipotenusa () {
            return Math.sqrt ( Math.pow( base, 2 ) + Math.pow ( altura, 2 ) );
       }
//---------------------------------------------------------------------------
        @Override
        public double perimetro () {
            return base + altura + hipotenusa ();
        }
//---------------------------------------------------------------------------
        @Override
        public double area () {
            return base * altura / 2;
        }
//---------------------------------------------------------------------------
        public double getBase () {
            return base;
        }
//---------------------------------------------------------------------------
        public void setBase ( double base ) {
            this.base = base;
        }
//---------------------------------------------------------------------------
        public double getAltura () {
            return altura;
        }
//---------------------------------------------------------------------------
        public void setAltura ( double altura ) {
```

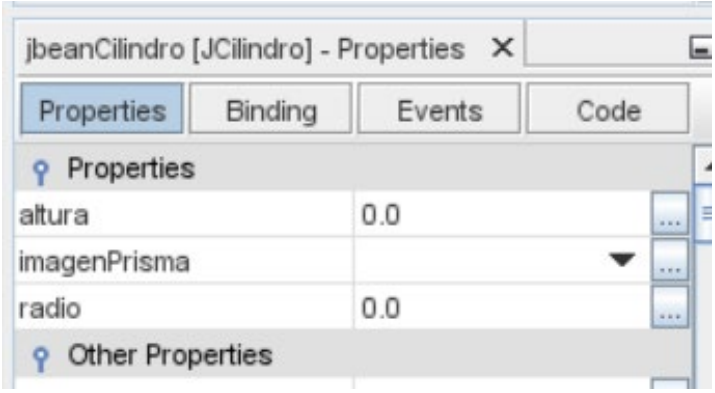
```
            this.altura = altura;
        }
//-------------------------------------------------------------------------------
        @Override
        public String toString () {
            return "Triangulo Rectangulo de Base = " + base + ", altura = " + altura;
        }
//-------------------------------------------------------------------------------
}
```

Prueba de Ejecución

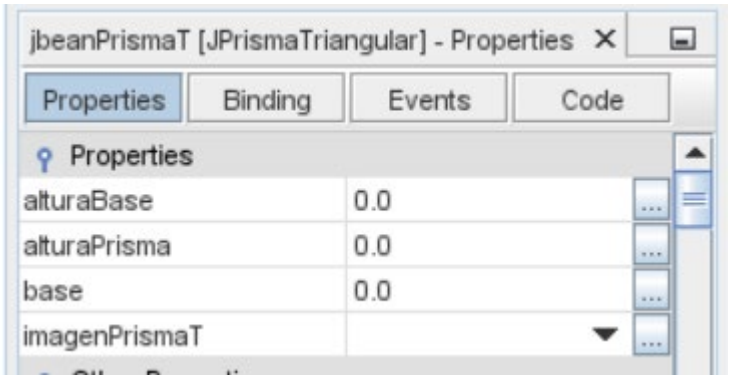
Beans de las Prismas generados y agregados al Palette de Componentes.



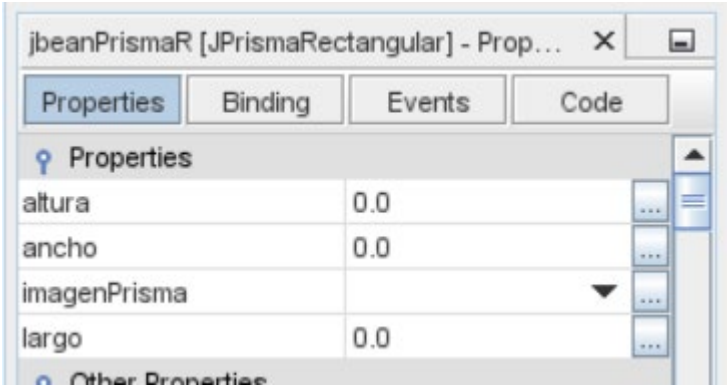
Propiedades del Bean JCilindro las cuales se pueden modificar en Tiempo de Diseño.



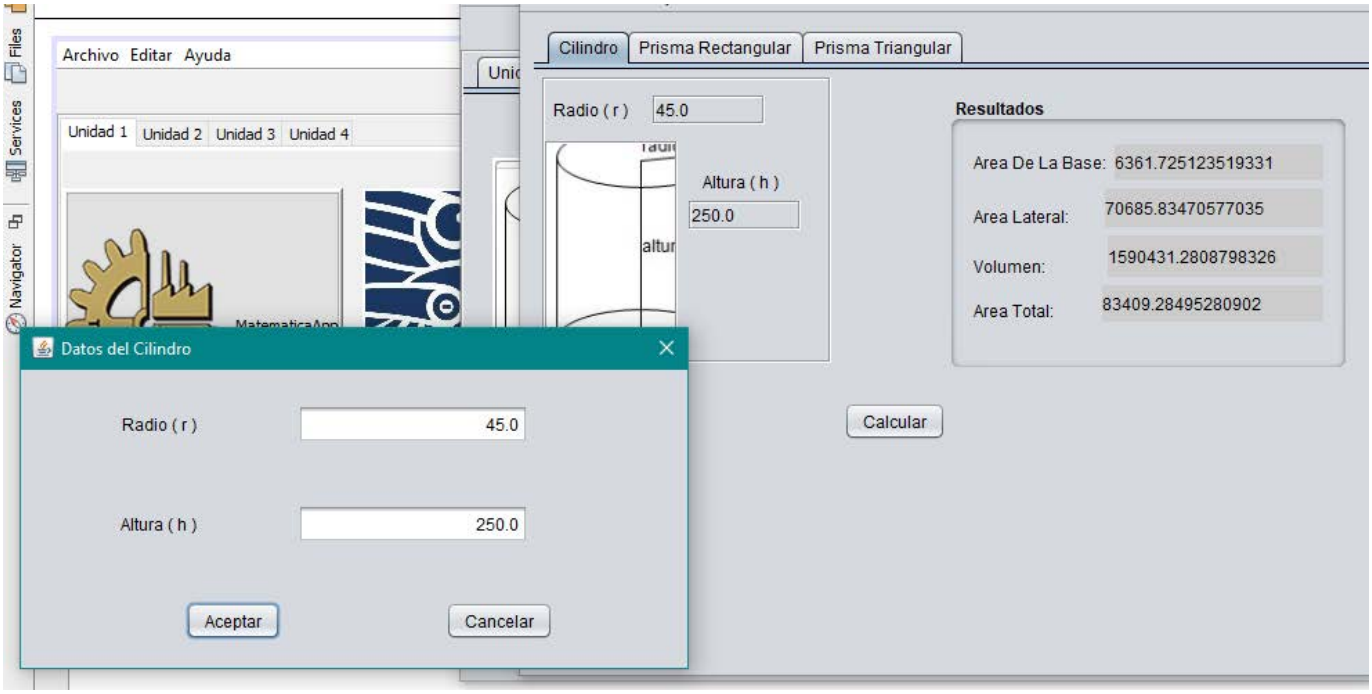
Propiedades del Bean JPrismaTriangular las cuales se pueden modificar en Tiempo de Diseño.



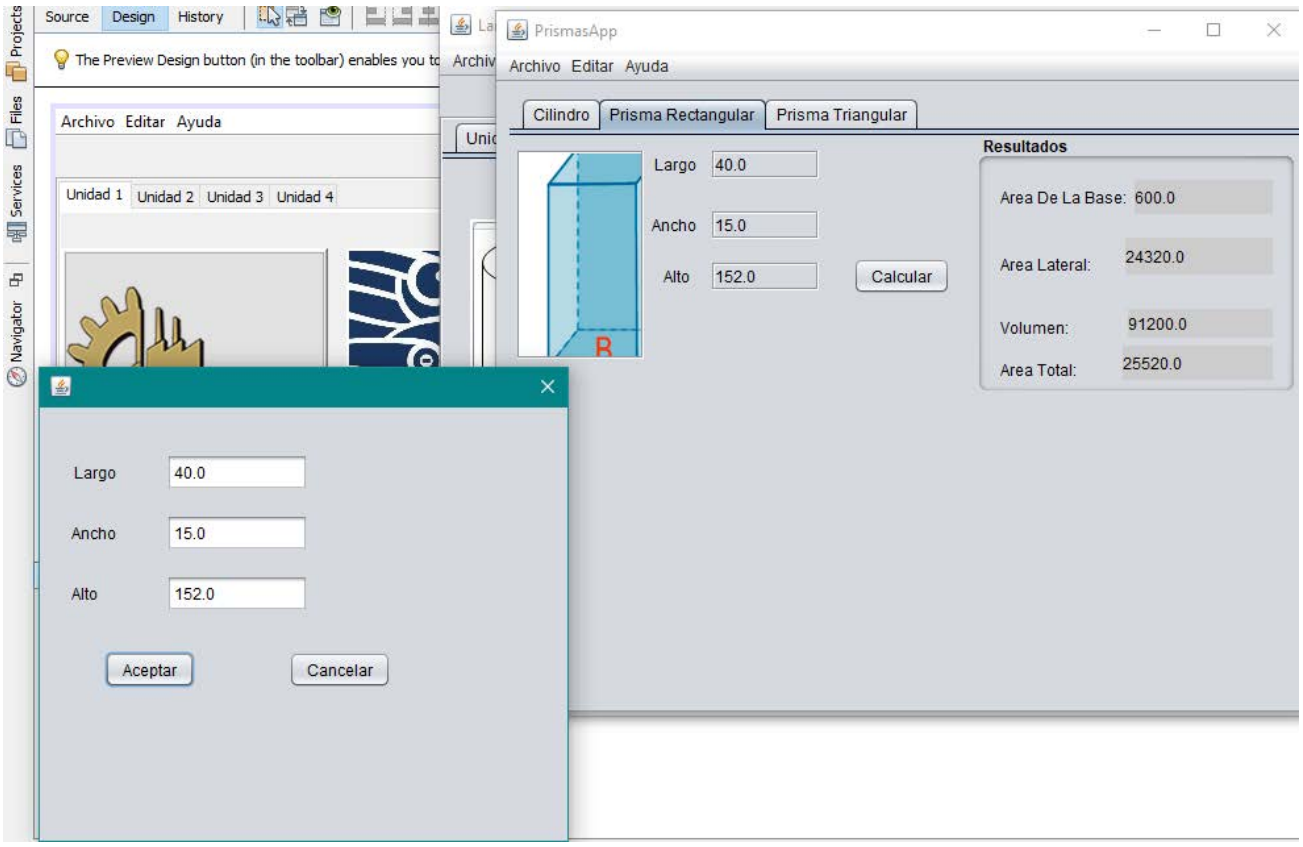
Propiedades del Bean JPrismaRectangular las cuales se pueden modificar en Tiempo de Diseño.



Implementación del JAVA BEAN JCilindro



Implementación del JAVA BEAN JPrismaRectangular



Aquí se muestra el JAcercaDeBean el cual proporciona la opción de poder modificar los datos del desarrollador en Tiempo de Diseño para después mostrarlos en Tiempo de Ejecución.

-oOo-