TECNOLOGICO NACIONAL DE MEXICO

Instituto Tecnológico de la Laguna

Ingeniería en Sistemas Computacionales

TOPICOS AVANZADOS DE PROGRAMACION

PERIODO: Ene - Jun / 2020 GRUPO: “B” 17 – 18 Hrs

PRACTICA No. U1P3

Composicion de Objetos--Prismas

ALUMNO:

17130800 Félix Gerardo Martínez Hinojo

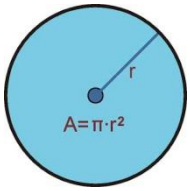
PROFESOR:

Ing. Luis Fernando Gil Vázquez

Torreón, Coah. A 23 de Febrero de 2020

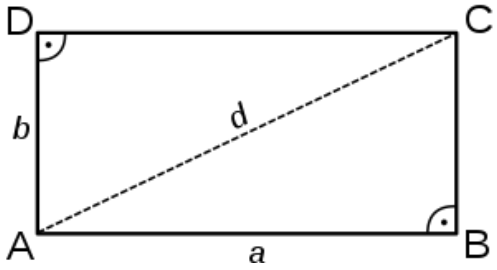
Ejercicio 1

Diseñar una clase Java que modele un **círculo** caracterizado por su radio y que proporcione información de su diámetro, área y circunferencia. La clase debe proporcionar el constructor de default (sin argumentos) y un constructor que reciba el valor del radio. Los métodos de la clase deben ser métodos de instancia, es decir no serán estáticos.



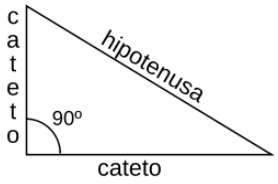
Ejercicio 2

Similar a la clase anterior diseñar una clase Java que modele un **rectangulo** caracterizado por las medidas del largo (a) y ancho (b) y que proporcione métodos que calculen el área, perímetro y la diagonal (d) del mismo.



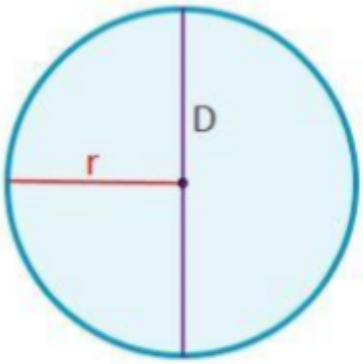
Ejercicio 3

Diseñar una clase Java que modele un **triangulo rectángulo** caracterizado por su base y altura y que proporcione métodos que calculen el área, perímetro e hipotenusa del mismo.

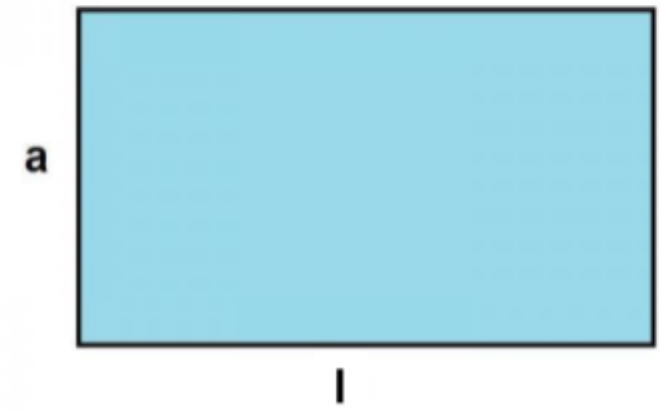


Análisis

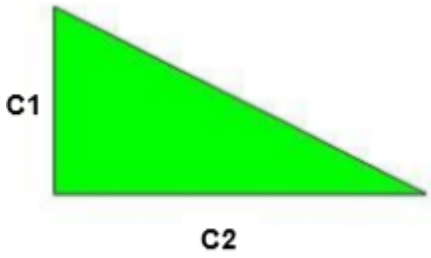
Para el diseño de la solución se usará las formulas de cada figura geométrica, se tomaran valores como largo,ancho,altura,catetos,base,radio.



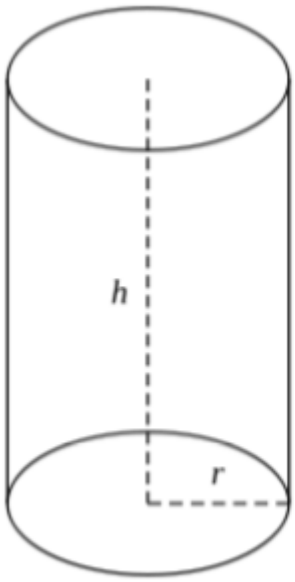
Circulo
Diametro = 2r
Circunferencia = $\pi(2r) = \pi$*Diametro
Area = $\pi(r^2)$



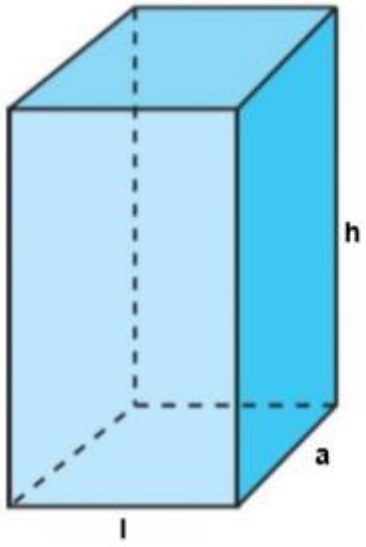
Rectangulo
Perimetro = 2l + 2a
Diagonal = $\sqrt{a^2 + a^2}$
Area = l*a



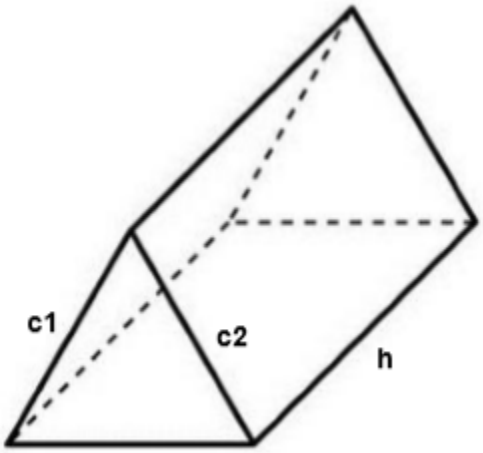
Triangulo Rectangulo
Hipotenusa = $\sqrt{c1^2 + c2^2}$
Perimetro = c1 + c2 + Hipotenusa
Area = (c2*c1)/2



Cilindro
Area = areaBase = π* r²
AreaLateral = h * CircunferenciaBase
AreaTotal = areaBaseInf + areaBaseSup + areaLateral
Volumen = areaBase * h

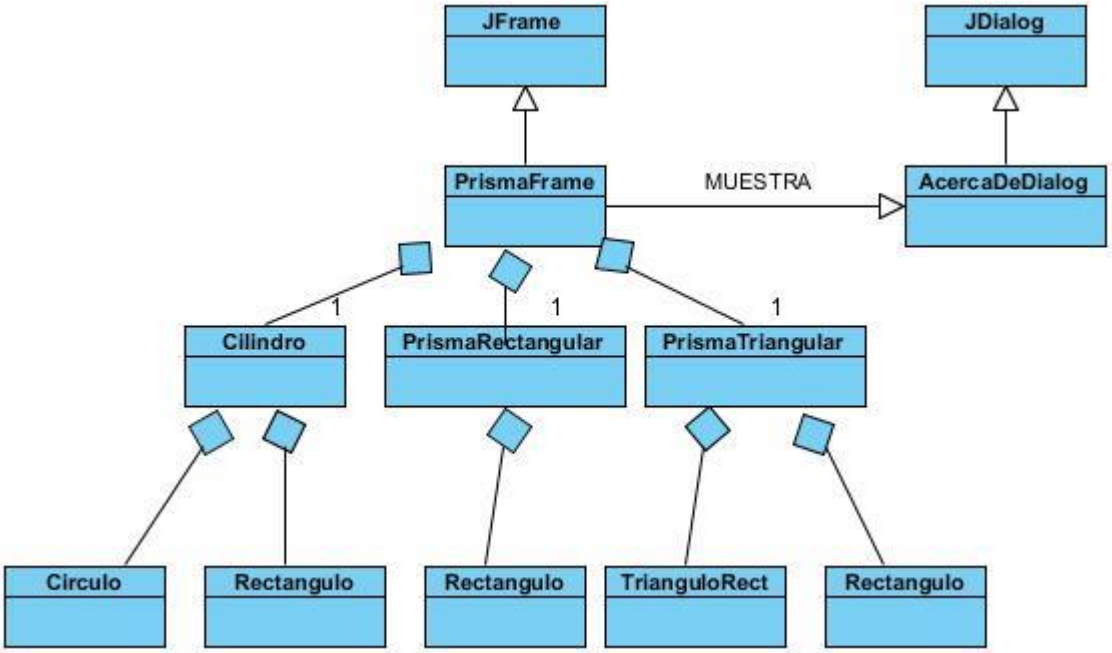


Prisma Rectangular
Area = areaBase = l * a
AreaLateral = h * (4*l)
AreaTotal = (areaBase * 2) + areaLateral
Volumen = areaBase * h



Prisma Triangular
Area = areaBase = (c2*c1)/2
AreaLateral = h * (c2+c1+Hipotenusa)
AreaTotal = (areaBase * 2) + areaLateral
Volumen = areaBase * h

Diseño



Código

AcercaDeDialog.java

```
/*-----------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                   SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                            JDialog para el boton acerca de
:*
:*  Archivo     : AcercaDeDialog.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.0
```

```
:*  Descripcion : Este dialog sirve para ser mostrado despues de dar click en el apartado acerca de del
frame
:*
:*  Ultima modif:
:*  Fecha       Modific?            Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz           Agregar prologo.
:*-----------------------------------------------------------------------------------------*/
package Prismas;

import javax.swing.Icon;

public class AcercaDeDialog extends javax.swing.JDialog {

    public AcercaDeDialog(java.awt.Frame parent, boolean modal) {
        super(parent, modal);
        initComponents();

        Icon      TecnologicoMexico      =            Imagenes.escalarImagen(this.jLab_TecMexico.getIcon(),
this.jLab_TecMexico.getWidth(), this.jLab_TecMexico.getHeight());
        this.jLab_TecMexico.setIcon(TecnologicoMexico);
    }

    /**
     * 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();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        jLabel7 = new javax.swing.JLabel();
        jLabel8 = new javax.swing.JLabel();
        jBut_Cerrar = new javax.swing.JButton();
        jLab_TecMexico = new javax.swing.JLabel();
        jLab_TecLaguna = new javax.swing.JLabel();
        jLabel10 = new javax.swing.JLabel();

        setDefaultCloseOperation(javax.swing.WindowConstants.DISPOSE_ON_CLOSE);
        setTitle("Acerca de");

        jLabel1.setText("TECNOLOGICO NACIONAL DE MEXICO");

        jLabel2.setText("Instituto Tecnologico De La Laguna");

        jLabel3.setText("Ingenieria en Sistemas Computacionales");

        jLabel4.setText("PrismasApp");

        jLabel5.setText("v 1.0");

        jLabel6.setText("Desarrollado por:");

        jLabel7.setText("Félix Gerardo Martínez Hinojo 8713377385");

        jLabel8.setText("(C) Derechos Reservados 2020");

        jBut_Cerrar.setText("Cerrar");
        jBut_Cerrar.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jBut_CerrarActionPerformed(evt);
            }
        });

        jLab_TecMexico.setIcon(new  javax.swing.ImageIcon(getClass().getResource("/Imagenes/Tecnologico  De
Mexico.jpg"))); // NOI18N
        jLab_TecMexico.setText("Logo TM");

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

```
        jLab_TecLaguna.setIcon(new              javax.swing.ImageIcon(getClass().getResource("/Imagenes/ITL
Chica.png"))); // NOI18N

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

        jLabel10.setText("TOPICOS AVANZADOS DE PROGRAMACION");

        javax.swing.GroupLayout layout = new javax.swing.GroupLayout(getContentPane());
        getContentPane().setLayout(layout);
        layout.setHorizontalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                .addGap(23, 23, 23)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_TecMexico,        javax.swing.GroupLayout.PREFERRED_SIZE,        140,
javax.swing.GroupLayout.PREFERRED_SIZE)
                    .addComponent(jLab_TecLaguna,        javax.swing.GroupLayout.PREFERRED_SIZE,        140,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addGroup(layout.createSequentialGroup()
                                .addGap(10, 10, 10)
                                .addComponent(jLabel5))
                            .addComponent(jLabel4))
                        .addGap(84, 84, 84))
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel1)

.addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                                .addComponent(jLabel3)
                                .addGroup(layout.createSequentialGroup()
                                    .addComponent(jLabel2)
                                    .addGap(18, 18, 18))))
                        .addGap(19, 19, 19))
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                        .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel6)
                            .addComponent(jLabel10)
                            .addComponent(jLabel7)
                            .addGroup(layout.createSequentialGroup()
                                .addGap(22, 22, 22)
                                .addComponent(jLabel8)))
                        .addContainerGap())
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, layout.createSequentialGroup()
                        .addComponent(jBut_Cerrar)
                        .addContainerGap())))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel1)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLabel2)
                        .addGap(1, 1, 1)
                        .addComponent(jLabel3)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel10)
                        .addGap(3, 3, 3)
                        .addComponent(jLabel4)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel5))
                    .addComponent(jLab_TecMexico,        javax.swing.GroupLayout.PREFERRED_SIZE,        108,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(27, 27, 27)
                .addGroup(layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING, false)
                    .addGroup(layout.createSequentialGroup()
                        .addComponent(jLabel6)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.UNRELATED)
                        .addComponent(jLabel7)
                        .addGap(18, 18, 18)
```

```
                        .addComponent(jLabel8)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addComponent(jBut_Cerrar))
                    .addComponent(jLab_TecLaguna))
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );

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

    private void jBut_CerrarActionPerformed(java.awt.event.ActionEvent evt) {
        dispose();
    }

    /**
     * @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(AcercaDeDialog.class.getName()).log(java.util.logging.Level.SEVERE,
null, ex);
        } catch (InstantiationException ex) {

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

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

java.util.logging.Logger.getLogger(AcercaDeDialog.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() {
                AcercaDeDialog dialog = new AcercaDeDialog(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.JButton jBut_Cerrar;
    private javax.swing.JLabel jLab_TecLaguna;
    private javax.swing.JLabel jLab_TecMexico;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel10;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel3;
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
```

```
    private javax.swing.JLabel jLabel7;
    private javax.swing.JLabel jLabel8;
    // End of variables declaration
}
```

Cilindro.java

```
/*-----------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                   SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                                Clase Cilindro
:*
:*  Archivo     : Cilindro.java
:*  Autor       : Felix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripcion : Esta clase cilindro sirve para calcular el area de sus diferentes lados y volumen
:*
:*  Ultima modif:
:*  Fecha       Modific?             Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz           Agregar prologo.
:*----------------------------------------------------------------------------------------*/
package Prismas;

    //-------------------------------------------------------------------------

public class Cilindro {
    private double radio;
    private double altura;
    private Circulo baseInf;
    private Circulo baseSup;
    private Rectangulo cuerpo;

    //-------------------------------------------------------------------------

    public Cilindro(){
        radio = 0;
        altura = 0;
        baseInf = new Circulo();
        baseSup = new Circulo();
        cuerpo = new Rectangulo();
    }

    //-------------------------------------------------------------------------

    public Cilindro(double radio, double altura){
        this.altura = altura;
        this.radio = radio;
        baseInf = new Circulo(radio);
        baseSup = new Circulo(radio);
        cuerpo = new Rectangulo( baseInf.circunferencia(), altura);
    }

    //-------------------------------------------------------------------------

    public double areaBase(){
        return baseInf.area();
    }

    //-------------------------------------------------------------------------

    public double areaLateral(){
        return cuerpo.area();
    }

    //-------------------------------------------------------------------------

    public double areaTotal(){
        return (baseInf.area()+baseSup.area()+cuerpo.area());
    }

    //-------------------------------------------------------------------------
```

```
    public double volumen(){
        return baseInf.area() * altura;
    }

    //---------------------------------------------------------------------------

    public String toString(){
        return "Cilindro De Radio= "+radio+"altura = "+altura;
    }

    //---------------------------------------------------------------------------

    public double getRadio() {
        return radio;
    }

    //---------------------------------------------------------------------------

    public void setRadio(double radio) {
        this.radio = radio;
        baseInf.setRadio(radio);
        baseSup.setRadio(radio);
        cuerpo.setA(baseInf.circunferencia());
    }

    //---------------------------------------------------------------------------

    public double getAltura() {
        return altura;
    }

    //---------------------------------------------------------------------------

    public void setAltura(double altura) {
        this.altura = altura;
        cuerpo.setL(altura);
    }
}
```

Circulo.java

```
/*-----------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*              Clase que contiene metodos y propiedades de un circulo.
:*
:*  Archivo     : Circulo.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : La clase Circulo tiene solo un atributo que es el radio y
:*                extiende de la clase abstracta Figura, tiene 4 metodos para
:*                calcular el diametro,circunferencia,area,perimetro.
:*  Ultima modif:
:*  Fecha       Modific�             Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*-----------------------------------------------------------------------------------------*/
package Prismas;


public class Circulo{
    private double radio;

//---------------------------------------------------------------------------

    public Circulo(){
        radio = 0.0;
    }

//---------------------------------------------------------------------------
```

```
    public Circulo(double radio){
        this.radio = radio;
    }

//---------------------------------------------------------------------------

    public double diametro(){
        return radio*2;
    }

//---------------------------------------------------------------------------

    public double circunferencia(){
        return Math.PI*diametro();
    }

//---------------------------------------------------------------------------

    public double area() {
        return Math.PI*Math.pow(radio, 2);
    }

//---------------------------------------------------------------------------

    public double perimetro() {
        return circunferencia();
    }

//---------------------------------------------------------------------------

    public double getRadio() {
        return radio;
    }

//---------------------------------------------------------------------------

    public void setRadio(double radio) {
        this.radio = radio;
    }
}
```

Imagenes.java

```
/*-----------------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*          Clase con metodo que permite ajustar el ancho y alto de una imagen
:*
:*
:*  Archivo     : Imagenes.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.0
:*  Descripci?n : El metodo estatico escalarImagen () es el más adecuado de usar para
:*                ajustar el ancho y alto de la imagen de un objeto Icon.
:*                El metodo recibe 3 argumentos: el objeto Icon y el ancho y alto al que
:*                se desea ajustar. El metodo devuelve un objeto Icon con la imagen ya
:*                redimensionada.
:*
:*  Ultima modif:
:*  Fecha       Modific?             Motivo
:*===============================================================================================
:*  18/OCT/2020  FélixMtz           Agregar prologo.
:*-----------------------------------------------------------------------------------------------*/

package Prismas;


import java.awt.Graphics2D;
import java.awt.Image;
import java.awt.RenderingHints;
```

```
import java.awt.image.BufferedImage;
import javax.swing.Icon;
import javax.swing.ImageIcon;

public class Imagenes {

    //-------------------------------------------------------------------------------------------------------
-------

    public static Image getScaledImage ( Image srcImg, int w, int h )  {
        BufferedImage resizedImg = new BufferedImage(w, h, BufferedImage.TYPE_INT_RGB);
        Graphics2D g2 = resizedImg.createGraphics();
        g2.setRenderingHint(RenderingHints.KEY_INTERPOLATION, RenderingHints.VALUE_INTERPOLATION_BILINEAR);
        g2.drawImage(srcImg, 0, 0, w, h, null);
        g2.dispose();
        return resizedImg;
    }

    //-------------------------------------------------------------------------------------------------------
-------

    public static Icon escalarImagen  ( Icon srcImg, int w, int h ) {
        Image img =  ( (ImageIcon) srcImg ).getImage ();
        img = getScaledImage ( img, w, h );
        return new ImageIcon ( img );
    }

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

PrismaRectangular.java

```
/*-----------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                          Clase que contiene metodos.
:*
:*  Archivo     : PrismaRectangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : La clase PrismaRectangular contiene sus atributos y los metodos
:*                para calcular su areabase,arealateral,areatotal,volumen.
:*  Ultima modif:
:*  Fecha       Modific�             Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz            Agregar prólogo.
:*-----------------------------------------------------------------------------------------*/
package Prismas;


public class PrismaRectangular{
    private double largo;
    private double ancho;
    private double altura;

//-------------------------------------------------------------------------

    public PrismaRectangular(){
        largo = 0.0;
        ancho = 0.0;
        altura = 0.0;
    }

//-------------------------------------------------------------------------

    public PrismaRectangular(double largo, double ancho, double altura){
        this.largo = largo;
        this.ancho = ancho;
        this.altura = altura;
    }

//-------------------------------------------------------------------------
```

```
    public double areaBase() {
        return (largo*ancho);
    }

//---------------------------------------------------------------------------

    public double areaLateral() {
        return altura*(4*largo);
    }

//---------------------------------------------------------------------------

    public double areaTotal() {
        return (areaBase()*2)+areaLateral();
    }

//---------------------------------------------------------------------------

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

//---------------------------------------------------------------------------

    public double getLargo() {
        return largo;
    }

//---------------------------------------------------------------------------

    public void setLargo(double largo) {
        this.largo = largo;
    }

//---------------------------------------------------------------------------

    public double getAncho() {
        return ancho;
    }

//---------------------------------------------------------------------------

    public void setAncho(double ancho) {
        this.ancho = ancho;
    }

//---------------------------------------------------------------------------

    public double getAltura() {
        return altura;
    }

//---------------------------------------------------------------------------

    public void setAltura(double altura) {
        this.altura = altura;
    }
}
```

PrismaTriangular.java

```
/*-----------------------------------------------------------------------------------------
:*                      INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                    INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                      TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                   SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                         Clase que contiene metodos.
:*
:*  Archivo     : PrismaTriangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : La clase PrismaTriangular contiene sus atributos y los metodos
:*                para calcular su areabase,arealateral,areatotal,volumen.
:*  Ultima modif:
```

```
:*  Fecha       Modific&#65533;             Motivo
:*=============================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*---------------------------------------------------------------------------------------------*/
package Prismas;

import Prismas.TrianguloRect;


public class PrismaTriangular{
    private double c1;
    private double c2;
    private double altura;
    private TrianguloRect bas;
//-------------------------------------------------------------------------------
    public PrismaTriangular(){
        c1=0.0;
        c2=0.0;
        altura=0.0;
        bas = new TrianguloRect();
    }
//-------------------------------------------------------------------------------
    public PrismaTriangular(double c1,double c2,double altura){
        this.c1=c1;
        this.c2=c2;
        this.altura=altura;
        bas = new TrianguloRect(c1,c2);
    }
//-------------------------------------------------------------------------------

    public double areaBase() {
        return bas.area();
    }
//-------------------------------------------------------------------------------

    public double areaLateral() {
        return altura*bas.perimetro();
    }
//-------------------------------------------------------------------------------

    public double areaTotal() {
        return 2*areaBase()+areaLateral();
    }
//-------------------------------------------------------------------------------

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

//-------------------------------------------------------------------------------

    public double getC1() {
        return c1;
    }

//-------------------------------------------------------------------------------

    public void setC1(double c1) {
        this.c1 = c1;
    }

//-------------------------------------------------------------------------------

    public double getC2() {
        return c2;
    }

//-------------------------------------------------------------------------------

    public void setC2(double c2) {
        this.c2 = c2;
    }

//-------------------------------------------------------------------------------

    public double getAltura() {
        return altura;
    }
```

```
//--------------------------------------------------------------------------

    public void setAltura(double altura) {
        this.altura = altura;
    }

//--------------------------------------------------------------------------

    public TrianguloRect getBas() {
        return bas;
    }

//--------------------------------------------------------------------------

    public void setBas(TrianguloRect bas) {
        this.bas = bas;
    }
}
```

PrismasFrame.java

```
/*-----------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                   SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                                Frame De Los Primas
:*
:*  Archivo     : PrismaRectangular.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : Frame Para Mandar A Llamar Los Metodos
:*
:*  Ultima modif:
:*  Fecha       Modific�             Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*-----------------------------------------------------------------------------------------*/
package Prismas;

import javax.swing.Icon;
import javax.swing.ImageIcon;
import javax.swing.JOptionPane;


public class PrismasFrame extends javax.swing.JFrame {

    private AcercaDeDialog acercaDeDialog;

    PrismaTriangular tri;
    Prismas.PrismaRectangular rec = new PrismaRectangular();
    Prismas.Cilindro cil = new Cilindro();

    public PrismasFrame() {
        initComponents();
        //Ajustar El Tamaño De Las Imagenes
        Icon      iconCilindro      =             Imagenes.escalarImagen(this.jlblImagenCilindro.getIcon(),
this.jlblImagenCilindro.getWidth(), this.jlblImagenCilindro.getHeight());
        Icon     iconRectangular     =          Imagenes.escalarImagen(this.jlblImagenRectangular.getIcon(),
this.jlblImagenRectangular.getWidth(), this.jlblImagenRectangular.getHeight());
        Icon     iconTriangular     =           Imagenes.escalarImagen(this.jlblImagenTriangular.getIcon(),
this.jlblImagenTriangular.getWidth(), this.jlblImagenTriangular.getHeight());

        this.jlblImagenCilindro.setIcon(iconCilindro);
        this.jlblImagenRectangular.setIcon(iconRectangular);
        this.jlblImagenTriangular.setIcon(iconTriangular);
    }

    /**
```

```
     * 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() {

        jMenuItem1 = new javax.swing.JMenuItem();
        jTabbedPane1 = new javax.swing.JTabbedPane();
        jPanel1 = new javax.swing.JPanel();
        jPanel4 = new javax.swing.JPanel();
        jLabel1 = new javax.swing.JLabel();
        jLabel2 = new javax.swing.JLabel();
        jTF_RadioCilindro = new javax.swing.JTextField();
        jTF_AlturaCilindro = new javax.swing.JTextField();
        jBut_CalcularCilindro = new javax.swing.JButton();
        jlblImagenCilindro = new javax.swing.JLabel();
        jPanel5 = new javax.swing.JPanel();
        jLabel3 = new javax.swing.JLabel();
        jLabel4 = new javax.swing.JLabel();
        jLabel5 = new javax.swing.JLabel();
        jLabel6 = new javax.swing.JLabel();
        jLab_AreaBaseCilindro = new javax.swing.JLabel();
        jLab_AreaLateralCilindro = new javax.swing.JLabel();
        jLab_VolumenCilindro = new javax.swing.JLabel();
        jLab_AreaTotalCilindro = new javax.swing.JLabel();
        jPanel2 = new javax.swing.JPanel();
        jlblImagenRectangular = new javax.swing.JLabel();
        jPanel7 = new javax.swing.JPanel();
        jLabel9 = new javax.swing.JLabel();
        jLabel10 = new javax.swing.JLabel();
        jTF_LargoRectangulo = new javax.swing.JTextField();
        jTF_AnchoRectangulo = new javax.swing.JTextField();
        jBut_CalcularRectangular = new javax.swing.JButton();
        jLabel15 = new javax.swing.JLabel();
        jTF_AlturaRectangulo = new javax.swing.JTextField();
        jPanel8 = new javax.swing.JPanel();
        jLabel11 = new javax.swing.JLabel();
        jLabel12 = new javax.swing.JLabel();
        jLabel13 = new javax.swing.JLabel();
        jLabel14 = new javax.swing.JLabel();
        jLab_AreaBaseRectangulo = new javax.swing.JLabel();
        jLab_AreaLateralRectangulo = new javax.swing.JLabel();
        jLab_VolumenRectangulo = new javax.swing.JLabel();
        jLab_AreaTotalRectangulo = new javax.swing.JLabel();
        jPanel3 = new javax.swing.JPanel();
        jlblImagenTriangular = new javax.swing.JLabel();
        jPanel9 = new javax.swing.JPanel();
        jLabel16 = new javax.swing.JLabel();
        jLabel17 = new javax.swing.JLabel();
        jTF_Cara2Triangulo = new javax.swing.JTextField();
        jTF_AlturaTriangulo = new javax.swing.JTextField();
        jBut_CalcularTriangulo = new javax.swing.JButton();
        jLabel23 = new javax.swing.JLabel();
        jTF_Cara1Triangulo = new javax.swing.JTextField();
        jPanel10 = new javax.swing.JPanel();
        jLabel19 = new javax.swing.JLabel();
        jLabel20 = new javax.swing.JLabel();
        jLabel21 = new javax.swing.JLabel();
        jLabel22 = new javax.swing.JLabel();
        jLab_AreaBaseTriangulo = new javax.swing.JLabel();
        jLab_AreaLateralTriangulo = new javax.swing.JLabel();
        jLab_VolumenTriangulo = new javax.swing.JLabel();
        jLab_AreaTotalTriangulo = new javax.swing.JLabel();
        jMenuBar1 = new javax.swing.JMenuBar();
        jMenu1 = new javax.swing.JMenu();
        jMI_Salir = new javax.swing.JMenuItem();
        jMenu2 = new javax.swing.JMenu();
        jMI_Limpiar = new javax.swing.JMenuItem();
        jMenu3 = new javax.swing.JMenu();
        jMI_AcercaDe = new javax.swing.JMenuItem();

        jMenuItem1.setText("jMenuItem1");

        setDefaultCloseOperation(javax.swing.WindowConstants.EXIT_ON_CLOSE);
        setTitle("PrismasApp");
```

```
        jPanel4.setBorder(javax.swing.BorderFactory.createTitledBorder("Datos"));
        jPanel4.setToolTipText("");

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

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

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

        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(jLabel1)
                        .addGap(36, 36, 36)
                        .addComponent(jTF_RadioCilindro))
                    .addGroup(jPanel4Layout.createSequentialGroup()
                        .addComponent(jLabel2)
                        .addGap(35, 35, 35)
                        .addComponent(jTF_AlturaCilindro)))
                .addContainerGap())
            .addGroup(jPanel4Layout.createSequentialGroup()
                .addGap(154, 154, 154)
                .addComponent(jBut_CalcularCilindro)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
        );
        jPanel4Layout.setVerticalGroup(
            jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel4Layout.createSequentialGroup()
                .addGap(49, 49, 49)
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel1)
                    .addComponent(jTF_RadioCilindro,                javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(jPanel4Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel2)
                    .addComponent(jTF_AlturaCilindro,               javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addComponent(jBut_CalcularCilindro)
                .addContainerGap(62, Short.MAX_VALUE))
        );

        jlblImagenCilindro.setIcon(new
javax.swing.ImageIcon(getClass().getResource("/Imagenes/Cilindro.PNG"))); // NOI18N

        jPanel5.setBorder(javax.swing.BorderFactory.createTitledBorder("Resultados"));

        jLabel3.setText("Area De La Base:");

        jLabel4.setText("Area Lateral:");

        jLabel5.setText("Area Total:");

        jLabel6.setText("Volumen:");

        jLab_AreaBaseCilindro.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaBaseCilindro.setOpaque(true);

        jLab_AreaLateralCilindro.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaLateralCilindro.setOpaque(true);

        jLab_VolumenCilindro.setBackground(new java.awt.Color(204, 204, 204));
        jLab_VolumenCilindro.setOpaque(true);

        jLab_AreaTotalCilindro.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaTotalCilindro.setOpaque(true);
```

```
        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(jLabel3)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLab_AreaBaseCilindro,    javax.swing.GroupLayout.DEFAULT_SIZE,    323,
Short.MAX_VALUE))
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addComponent(jLabel4)
                        .addGap(26, 26, 26)
                        .addComponent(jLab_AreaLateralCilindro,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addComponent(jLabel6)
                        .addGap(45, 45, 45)
                        .addComponent(jLab_VolumenCilindro,            javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addComponent(jLabel5)
                        .addGap(35, 35, 35)
                        .addComponent(jLab_AreaTotalCilindro,          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()
                .addContainerGap()
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jLabel3, javax.swing.GroupLayout.DEFAULT_SIZE, 26, Short.MAX_VALUE)
                    .addComponent(jLab_AreaBaseCilindro,               javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_AreaLateralCilindro,    javax.swing.GroupLayout.DEFAULT_SIZE,    26,
Short.MAX_VALUE)
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addGap(0, 12, Short.MAX_VALUE)
                        .addComponent(jLabel4)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_VolumenCilindro,      javax.swing.GroupLayout.DEFAULT_SIZE,      28,
Short.MAX_VALUE)
                    .addGroup(jPanel5Layout.createSequentialGroup()
                        .addGap(0, 14, Short.MAX_VALUE)
                        .addComponent(jLabel6)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel5Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel5)
                    .addComponent(jLab_AreaTotalCilindro,    javax.swing.GroupLayout.PREFERRED_SIZE,    26,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(25, Short.MAX_VALUE))
        );

        javax.swing.GroupLayout jPanel1Layout = new javax.swing.GroupLayout(jPanel1);
        jPanel1.setLayout(jPanel1Layout);
        jPanel1Layout.setHorizontalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(javax.swing.GroupLayout.Alignment.TRAILING, jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addComponent(jlblImagenCilindro,                      javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED, 29, Short.MAX_VALUE)
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel1Layout.createSequentialGroup()
                        .addComponent(jPanel4,                         javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addContainerGap())
                    .addComponent(jPanel5,                           javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)))
```

```
        );
        jPanel1Layout.setVerticalGroup(
            jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel1Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel1Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addComponent(jlblImagenCilindro,    javax.swing.GroupLayout.PREFERRED_SIZE,    251,
javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(0, 0, Short.MAX_VALUE))
                    .addGroup(jPanel1Layout.createSequentialGroup()
                        .addComponent(jPanel4,                          javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(18, 18, 18)
                        .addComponent(jPanel5,                           javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
                .addContainerGap())
        );

        jTabbedPane1.addTab("Cilindro", jPanel1);

        jlblImagenRectangular.setIcon(new
javax.swing.ImageIcon(getClass().getResource("/Imagenes/PrismaRectangular.jpg"))); // NOI18N

        jPanel7.setBorder(javax.swing.BorderFactory.createTitledBorder("Datos"));
        jPanel7.setToolTipText("");

        jLabel9.setText("Largo(l): ");

        jLabel10.setText("Ancho(a):");

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

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

        javax.swing.GroupLayout jPanel7Layout = new javax.swing.GroupLayout(jPanel7);
        jPanel7.setLayout(jPanel7Layout);
        jPanel7Layout.setHorizontalGroup(
            jPanel7Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel7Layout.createSequentialGroup()
                .addGap(154, 154, 154)
                .addComponent(jBut_CalcularRectangular)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
            .addGroup(jPanel7Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel7Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel7Layout.createSequentialGroup()
                        .addComponent(jLabel9)
                        .addGap(36, 36, 36)
                        .addComponent(jTF_LargoRectangulo))
                    .addGroup(jPanel7Layout.createSequentialGroup()
                        .addComponent(jLabel10)
                        .addGap(35, 35, 35)
                        .addComponent(jTF_AnchoRectangulo))
                    .addGroup(jPanel7Layout.createSequentialGroup()
                        .addComponent(jLabel15)
                        .addGap(35, 35, 35)
                        .addComponent(jTF_AlturaRectangulo)))
                .addContainerGap())
        );
        jPanel7Layout.setVerticalGroup(
            jPanel7Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel7Layout.createSequentialGroup()
                .addGap(37, 37, 37)
                .addGroup(jPanel7Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel9)
                    .addComponent(jTF_LargoRectangulo,              javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(jPanel7Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel10)
                    .addComponent(jTF_AnchoRectangulo,              javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
```

```
                .addGap(18, 18, 18)
                .addGroup(jPanel7Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel15)
                    .addComponent(jTF_AlturaRectangulo,             javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addComponent(jBut_CalcularRectangular)
                .addContainerGap(48, Short.MAX_VALUE))
        );

        jPanel8.setBorder(javax.swing.BorderFactory.createTitledBorder("Resultados"));

        jLabel11.setText("Area De La Base:");

        jLabel12.setText("Area Lateral:");

        jLabel13.setText("Area Total:");

        jLabel14.setText("Volumen:");

        jLab_AreaBaseRectangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaBaseRectangulo.setOpaque(true);

        jLab_AreaLateralRectangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaLateralRectangulo.setOpaque(true);

        jLab_VolumenRectangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_VolumenRectangulo.setOpaque(true);

        jLab_AreaTotalRectangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaTotalRectangulo.setOpaque(true);

        javax.swing.GroupLayout jPanel8Layout = new javax.swing.GroupLayout(jPanel8);
        jPanel8.setLayout(jPanel8Layout);
        jPanel8Layout.setHorizontalGroup(
            jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel8Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel8Layout.createSequentialGroup()
                        .addComponent(jLabel11)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLab_AreaBaseRectangulo,  javax.swing.GroupLayout.DEFAULT_SIZE,  323,
Short.MAX_VALUE))
                    .addGroup(jPanel8Layout.createSequentialGroup()
                        .addComponent(jLabel12)
                        .addGap(26, 26, 26)
                        .addComponent(jLab_AreaLateralRectangulo,     javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel8Layout.createSequentialGroup()
                        .addComponent(jLabel14)
                        .addGap(45, 45, 45)
                        .addComponent(jLab_VolumenRectangulo,         javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel8Layout.createSequentialGroup()
                        .addComponent(jLabel13)
                        .addGap(35, 35, 35)
                        .addComponent(jLab_AreaTotalRectangulo,       javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
                .addContainerGap())
        );
        jPanel8Layout.setVerticalGroup(
            jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel8Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jLabel11, javax.swing.GroupLayout.DEFAULT_SIZE, 26, Short.MAX_VALUE)
                    .addComponent(jLab_AreaBaseRectangulo,            javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_AreaLateralRectangulo,   javax.swing.GroupLayout.DEFAULT_SIZE,   26,
Short.MAX_VALUE)
                    .addGroup(jPanel8Layout.createSequentialGroup()
                        .addGap(0, 12, Short.MAX_VALUE)
                        .addComponent(jLabel12)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
```

```
                .addGroup(jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_VolumenRectangulo,     javax.swing.GroupLayout.DEFAULT_SIZE,     28,
Short.MAX_VALUE)
                    .addGroup(jPanel8Layout.createSequentialGroup()
                        .addGap(0, 14, Short.MAX_VALUE)
                        .addComponent(jLabel14)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel8Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel13)
                    .addComponent(jLab_AreaTotalRectangulo,   javax.swing.GroupLayout.PREFERRED_SIZE,   26,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(25, Short.MAX_VALUE))
        );

        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()
                .addComponent(jlblImagenRectangular,      javax.swing.GroupLayout.PREFERRED_SIZE,      147,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel2Layout.createSequentialGroup()
                        .addComponent(jPanel7,                          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                        .addContainerGap())
                    .addGroup(javax.swing.GroupLayout.Alignment.TRAILING,
jPanel2Layout.createSequentialGroup()
                        .addGap(0, 0, Short.MAX_VALUE)
                        .addComponent(jPanel8,                      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))))
        );
        jPanel2Layout.setVerticalGroup(
            jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel2Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel2Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel2Layout.createSequentialGroup()
                        .addComponent(jPanel7,                      javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jPanel8,                          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addComponent(jlblImagenRectangular,    javax.swing.GroupLayout.PREFERRED_SIZE,    256,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(23, 23, 23))
        );

        jTabbedPane1.addTab("Prisma Rectangular", jPanel2);

        jlblImagenTriangular.setIcon(new
javax.swing.ImageIcon(getClass().getResource("/Imagenes/PrismaTriangular.jpg"))); // NOI18N

        jPanel9.setBorder(javax.swing.BorderFactory.createTitledBorder("Datos"));
        jPanel9.setToolTipText("");

        jLabel16.setText("Cateto 2(c2): ");

        jLabel17.setText("Altura(h):");

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

        jLabel23.setText("Cateto 1(c1): ");

        jTF_Cara1Triangulo.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jTF_Cara1TrianguloActionPerformed(evt);
            }
        });

        javax.swing.GroupLayout jPanel9Layout = new javax.swing.GroupLayout(jPanel9);
```

```
        jPanel9.setLayout(jPanel9Layout);
        jPanel9Layout.setHorizontalGroup(
            jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel9Layout.createSequentialGroup()
                .addGap(154, 154, 154)
                .addComponent(jBut_CalcularTriangulo)
                .addContainerGap(javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
            .addGroup(jPanel9Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel9Layout.createSequentialGroup()

.addGroup(jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jLabel17)
                            .addComponent(jLabel16))
                        .addGap(24, 24, 24)

.addGroup(jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                            .addComponent(jTF_Cara2Triangulo)
                            .addComponent(jTF_AlturaTriangulo)))
                    .addGroup(jPanel9Layout.createSequentialGroup()
                        .addComponent(jLabel23)
                        .addGap(24, 24, 24)
                        .addComponent(jTF_Cara1Triangulo)))
                .addContainerGap())
        );
        jPanel9Layout.setVerticalGroup(
            jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel9Layout.createSequentialGroup()
                .addGap(25, 25, 25)
                .addGroup(jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel23)
                    .addComponent(jTF_Cara1Triangulo,               javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel16)
                    .addComponent(jTF_Cara2Triangulo,               javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addGroup(jPanel9Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.BASELINE)
                    .addComponent(jLabel17)
                    .addComponent(jTF_AlturaTriangulo,              javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(18, 18, 18)
                .addComponent(jBut_CalcularTriangulo)
                .addContainerGap(48, Short.MAX_VALUE))
        );

        jPanel10.setBorder(javax.swing.BorderFactory.createTitledBorder("Resultados"));

        jLabel19.setText("Area De La Base:");

        jLabel20.setText("Area Lateral:");

        jLabel21.setText("Area Total:");

        jLabel22.setText("Volumen:");

        jLab_AreaBaseTriangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaBaseTriangulo.setOpaque(true);

        jLab_AreaLateralTriangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaLateralTriangulo.setOpaque(true);

        jLab_VolumenTriangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_VolumenTriangulo.setOpaque(true);

        jLab_AreaTotalTriangulo.setBackground(new java.awt.Color(204, 204, 204));
        jLab_AreaTotalTriangulo.setOpaque(true);

        javax.swing.GroupLayout jPanel10Layout = new javax.swing.GroupLayout(jPanel10);
        jPanel10.setLayout(jPanel10Layout);
        jPanel10Layout.setHorizontalGroup(
            jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel10Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
```

```
                    .addGroup(jPanel10Layout.createSequentialGroup()
                        .addComponent(jLabel19)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jLab_AreaBaseTriangulo,   javax.swing.GroupLayout.DEFAULT_SIZE,   323,
Short.MAX_VALUE))
                    .addGroup(jPanel10Layout.createSequentialGroup()
                        .addComponent(jLabel20)
                        .addGap(26, 26, 26)
                        .addComponent(jLab_AreaLateralTriangulo,      javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel10Layout.createSequentialGroup()
                        .addComponent(jLabel22)
                        .addGap(45, 45, 45)
                        .addComponent(jLab_VolumenTriangulo,          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addGroup(jPanel10Layout.createSequentialGroup()
                        .addComponent(jLabel21)
                        .addGap(35, 35, 35)
                        .addComponent(jLab_AreaTotalTriangulo,        javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)))
                .addContainerGap())
        );
        jPanel10Layout.setVerticalGroup(
            jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel10Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING,
false)
                    .addComponent(jLabel19, javax.swing.GroupLayout.DEFAULT_SIZE, 26, Short.MAX_VALUE)
                    .addComponent(jLab_AreaBaseTriangulo,             javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_AreaLateralTriangulo,    javax.swing.GroupLayout.DEFAULT_SIZE,    26,
Short.MAX_VALUE)
                    .addGroup(jPanel10Layout.createSequentialGroup()
                        .addGap(0, 12, Short.MAX_VALUE)
                        .addComponent(jLabel20)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jLab_VolumenTriangulo,      javax.swing.GroupLayout.DEFAULT_SIZE,      28,
Short.MAX_VALUE)
                    .addGroup(jPanel10Layout.createSequentialGroup()
                        .addGap(0, 14, Short.MAX_VALUE)
                        .addComponent(jLabel22)))
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel10Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.TRAILING)
                    .addComponent(jLabel21)
                    .addComponent(jLab_AreaTotalTriangulo,    javax.swing.GroupLayout.PREFERRED_SIZE,    26,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addContainerGap(25, Short.MAX_VALUE))
        );

        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()
                .addComponent(jlblImagenTriangular,       javax.swing.GroupLayout.PREFERRED_SIZE,       147,
javax.swing.GroupLayout.PREFERRED_SIZE)
                .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                .addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addComponent(jPanel9,                            javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE)
                    .addGroup(jPanel3Layout.createSequentialGroup()
                        .addComponent(jPanel10,                     javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addGap(0, 0, Short.MAX_VALUE)))
                .addContainerGap())
        );
        jPanel3Layout.setVerticalGroup(
            jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(jPanel3Layout.createSequentialGroup()
                .addContainerGap()
                .addGroup(jPanel3Layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
                    .addGroup(jPanel3Layout.createSequentialGroup()
```

```
                        .addComponent(jPanel9,                        javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE)
                        .addPreferredGap(javax.swing.LayoutStyle.ComponentPlacement.RELATED)
                        .addComponent(jPanel10,                          javax.swing.GroupLayout.DEFAULT_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, Short.MAX_VALUE))
                    .addComponent(jlblImagenTriangular,     javax.swing.GroupLayout.PREFERRED_SIZE,     256,
javax.swing.GroupLayout.PREFERRED_SIZE))
                .addGap(23, 23, 23))
        );

        jTabbedPane1.addTab("Prisma Triangular", jPanel3);

        jMenu1.setText("Archivo");

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

        jMenuBar1.add(jMenu1);

        jMenu2.setText("Editar");

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

        jMenuBar1.add(jMenu2);

        jMenu3.setText("Ayuda");

        jMI_AcercaDe.setText("Acerca De");
        jMI_AcercaDe.addActionListener(new java.awt.event.ActionListener() {
            public void actionPerformed(java.awt.event.ActionEvent evt) {
                jMI_AcercaDeActionPerformed(evt);
            }
        });
        jMenu3.add(jMI_AcercaDe);

        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)
            .addGroup(layout.createSequentialGroup()
                .addGap(10, 10, 10)
                .addComponent(jTabbedPane1,                        javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        );
        layout.setVerticalGroup(
            layout.createParallelGroup(javax.swing.GroupLayout.Alignment.LEADING)
            .addGroup(layout.createSequentialGroup()
                .addGap(11, 11, 11)
                .addComponent(jTabbedPane1,                        javax.swing.GroupLayout.PREFERRED_SIZE,
javax.swing.GroupLayout.DEFAULT_SIZE, javax.swing.GroupLayout.PREFERRED_SIZE))
        );

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

//--------------------------------------------------------------------------

    private void jMI_LimpiarActionPerformed(java.awt.event.ActionEvent evt) {
            //Cilindro
            this.jTF_AlturaCilindro.setText("");
            this.jTF_RadioCilindro.setText("");
            this.jLab_AreaBaseCilindro.setText("");
```

```
            this.jLab_AreaLateralCilindro.setText("");
            this.jLab_AreaTotalCilindro.setText("");
            this.jLab_VolumenCilindro.setText("");

            //Prisma Rectangular
            this.jTF_AlturaRectangulo.setText("");
            this.jTF_LargoRectangulo.setText("");
            this.jTF_AnchoRectangulo.setText("");
            this.jLab_AreaBaseRectangulo.setText("");
            this.jLab_AreaLateralRectangulo.setText("");
            this.jLab_AreaTotalRectangulo.setText("");
            this.jLab_VolumenRectangulo.setText("");

            //Prismas Triangular
            this.jTF_Cara1Triangulo.setText("");
            this.jTF_Cara2Triangulo.setText("");
            this.jTF_AlturaTriangulo.setText("");
            this.jLab_AreaBaseTriangulo.setText("");
            this.jLab_AreaLateralTriangulo.setText("");
            this.jLab_AreaTotalTriangulo.setText("");
            this.jLab_VolumenTriangulo.setText("");
    }

//-------------------------------------------------------------------------------

    private void jBut_CalcularCilindroActionPerformed(java.awt.event.ActionEvent evt) {
        cil.setAltura(Double.parseDouble(this.jTF_AlturaCilindro.getText()));
        cil.setRadio(Double.parseDouble(this.jTF_RadioCilindro.getText()));
        jLab_AreaBaseCilindro.setText(cil.areaBase()+"");
        this.jLab_AreaLateralCilindro.setText(cil.areaLateral()+"");
        this.jLab_VolumenCilindro.setText(cil.volumen()+"");
        this.jLab_AreaTotalCilindro.setText(cil.areaTotal()+"");
    }

//-------------------------------------------------------------------------------

    private void jBut_CalcularRectangularActionPerformed(java.awt.event.ActionEvent evt) {
        rec.setAltura(Double.parseDouble(this.jTF_AlturaRectangulo.getText()));
        rec.setAncho(Double.parseDouble(this.jTF_AnchoRectangulo.getText()));
        rec.setLargo(Double.parseDouble(this.jTF_LargoRectangulo.getText()));

        this.jLab_AreaBaseRectangulo.setText(rec.areaBase()+"");
        this.jLab_AreaLateralRectangulo.setText(rec.areaLateral()+"");
        this.jLab_VolumenRectangulo.setText(rec.volumen()+"");
        this.jLab_AreaTotalRectangulo.setText(rec.areaTotal()+"");
    }

//-------------------------------------------------------------------------------

    private void jBut_CalcularTrianguloActionPerformed(java.awt.event.ActionEvent evt) {
        Double c1 = Double.parseDouble(this.jTF_Cara1Triangulo.getText());
        Double c2 = Double.parseDouble(this.jTF_Cara2Triangulo.getText());
        Double Altura = Double.parseDouble(this.jTF_AlturaTriangulo.getText());
        tri = new PrismaTriangular(c1,c2,Altura);

        this.jLab_AreaBaseTriangulo.setText(tri.areaBase()+"");
        this.jLab_AreaLateralTriangulo.setText(tri.areaLateral()+"");
        this.jLab_VolumenTriangulo.setText(tri.volumen()+"");
        this.jLab_AreaTotalTriangulo.setText(tri.areaTotal()+"");
    }

//-------------------------------------------------------------------------------

    private void jMI_AcercaDeActionPerformed(java.awt.event.ActionEvent evt) {
        acercaDeDialog = new AcercaDeDialog(this, false);
        acercaDeDialog.setVisible(true);
    }

//-------------------------------------------------------------------------------

    private void jMI_SalirActionPerformed(java.awt.event.ActionEvent evt) {
        dispose();
    }

//-------------------------------------------------------------------------------

    private void jTF_Cara1TrianguloActionPerformed(java.awt.event.ActionEvent evt) {
        // TODO add your handling code here:
```

```
    }

    /**
     * @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(PrismasFrame.class.getName()).log(java.util.logging.Level.SEVERE,   null,
ex);
        } catch (InstantiationException ex) {

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

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

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

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

    // Variables declaration - do not modify
    private javax.swing.JButton jBut_CalcularCilindro;
    private javax.swing.JButton jBut_CalcularRectangular;
    private javax.swing.JButton jBut_CalcularTriangulo;
    private javax.swing.JLabel jLab_AreaBaseCilindro;
    private javax.swing.JLabel jLab_AreaBaseRectangulo;
    private javax.swing.JLabel jLab_AreaBaseTriangulo;
    private javax.swing.JLabel jLab_AreaLateralCilindro;
    private javax.swing.JLabel jLab_AreaLateralRectangulo;
    private javax.swing.JLabel jLab_AreaLateralTriangulo;
    private javax.swing.JLabel jLab_AreaTotalCilindro;
    private javax.swing.JLabel jLab_AreaTotalRectangulo;
    private javax.swing.JLabel jLab_AreaTotalTriangulo;
    private javax.swing.JLabel jLab_VolumenCilindro;
    private javax.swing.JLabel jLab_VolumenRectangulo;
    private javax.swing.JLabel jLab_VolumenTriangulo;
    private javax.swing.JLabel jLabel1;
    private javax.swing.JLabel jLabel10;
    private javax.swing.JLabel jLabel11;
    private javax.swing.JLabel jLabel12;
    private javax.swing.JLabel jLabel13;
    private javax.swing.JLabel jLabel14;
    private javax.swing.JLabel jLabel15;
    private javax.swing.JLabel jLabel16;
    private javax.swing.JLabel jLabel17;
    private javax.swing.JLabel jLabel19;
    private javax.swing.JLabel jLabel2;
    private javax.swing.JLabel jLabel20;
    private javax.swing.JLabel jLabel21;
    private javax.swing.JLabel jLabel22;
    private javax.swing.JLabel jLabel23;
    private javax.swing.JLabel jLabel3;
```

```
    private javax.swing.JLabel jLabel4;
    private javax.swing.JLabel jLabel5;
    private javax.swing.JLabel jLabel6;
    private javax.swing.JLabel jLabel9;
    private javax.swing.JMenuItem jMI_AcercaDe;
    private javax.swing.JMenuItem jMI_Limpiar;
    private javax.swing.JMenuItem jMI_Salir;
    private javax.swing.JMenu jMenu1;
    private javax.swing.JMenu jMenu2;
    private javax.swing.JMenu jMenu3;
    private javax.swing.JMenuBar jMenuBar1;
    private javax.swing.JMenuItem jMenuItem1;
    private javax.swing.JPanel jPanel1;
    private javax.swing.JPanel jPanel10;
    private javax.swing.JPanel jPanel2;
    private javax.swing.JPanel jPanel3;
    private javax.swing.JPanel jPanel4;
    private javax.swing.JPanel jPanel5;
    private javax.swing.JPanel jPanel7;
    private javax.swing.JPanel jPanel8;
    private javax.swing.JPanel jPanel9;
    private javax.swing.JTextField jTF_AlturaCilindro;
    private javax.swing.JTextField jTF_AlturaRectangulo;
    private javax.swing.JTextField jTF_AlturaTriangulo;
    private javax.swing.JTextField jTF_AnchoRectangulo;
    private javax.swing.JTextField jTF_Cara1Triangulo;
    private javax.swing.JTextField jTF_Cara2Triangulo;
    private javax.swing.JTextField jTF_LargoRectangulo;
    private javax.swing.JTextField jTF_RadioCilindro;
    private javax.swing.JTabbedPane jTabbedPane1;
    private javax.swing.JLabel jlblImagenCilindro;
    private javax.swing.JLabel jlblImagenRectangular;
    private javax.swing.JLabel jlblImagenTriangular;
    // End of variables declaration
}
```

Rectangulo.java

```
/*-----------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*             Clase que contiene metodos y atributos de un rectangulo.
:*
:*  Archivo     : Rectangulo.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci□n : La clase Rectangulo tiene dos atributos altura y largo de tipo
:*                double y tiene tres metodos para calcular la diagonal,
:*                perimetro y sua area.
:*  Ultima modif:
:*  Fecha       Modific□             Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*----------------------------------------------------------------------------------------*/
package Prismas;

public class Rectangulo{
    private double a;
    private double l;
//---------------------------------------------------------------------------
    public Rectangulo(){
        a = 0.0;
        l = 0.0;
    }
//---------------------------------------------------------------------------
    public Rectangulo(double a, double l){
        this.a = a;
        this.l = l;
    }
//---------------------------------------------------------------------------
    public double diagonal(){
        return Math.sqrt((Math.pow(l, 2)+Math.pow(a, 2)));
    }
```

```
//---------------------------------------------------------------------------
    public double perimetro(){
        return 2*l+2*a;
    }
//---------------------------------------------------------------------------
    public double area(){
        return l*a;
    }
//---------------------------------------------------------------------------
    public double getA() {
        return a;
    }
//---------------------------------------------------------------------------
    public void setA(double a) {
        this.a = a;
    }
//---------------------------------------------------------------------------
    public double getL() {
        return l;
    }
//---------------------------------------------------------------------------
    public void setL(double l) {
        this.l = l;
    }
}
```

TrianguloRect.java

```
/*-----------------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                   SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*           Clase que contiene metodos y atributos del triangulo rectangulo.
:*
:*  Archivo     : TrianguloRect.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : La clase TrianguloRect tiene dos atributos cateto 1 y cateto 2
:*                de tipo double y tiene tres metodos para calcular la hipotenusa,
:*                perimetro y sua area.
:*  Ultima modif:
:*  Fecha       Modific�             Motivo
:*===============================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*----------------------------------------------------------------------------------------------*/
package Prismas;


public class TrianguloRect{
    private double c1;
    private double c2;
//---------------------------------------------------------------------------
     public TrianguloRect(){
        c1 = 0.0;
        c2 = 0.0;
    }
//---------------------------------------------------------------------------
    public TrianguloRect(double c1, double c2){
        this.c1 = c1;
        this.c2 = c2;
    }
//---------------------------------------------------------------------------
    public double hipotenusa(){
        return Math.sqrt((Math.pow(c1, 2)+Math.pow(c2, 2)));
    }
//---------------------------------------------------------------------------
    public double perimetro(){
        return c1+c2+hipotenusa();
    }
//---------------------------------------------------------------------------
    public double area(){
        return c1*c2/2;
    }
}
```

U1PrismasApp.java

```
/*-------------------------------------------------------------------------------------------
:*                       INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                     INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                       TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                    SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                       Pantalla De Carga De La Aplicacion
:*
:*  Archivo     : TrianguloRect.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : JFrame destinado para la pantalla de carga.
:*  Ultima modif:
:*  Fecha       Modific�             Motivo
:*=========================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*-----------------------------------------------------------------------------------------*/
package Prismas;

import java.awt.Color;
import java.util.logging.Level;
import java.util.logging.Logger;

public class U1PrismasApp extends javax.swing.JFrame {
private int auxiliar=0;
private boolean realizado = false;
hilo ejecutar = new hilo();


    public U1PrismasApp() {
        initComponents();
        U1PrismasApp.this.getRootPane().setOpaque(false);
        U1PrismasApp.this.getContentPane ().setBackground (new Color (0, 0, 0, 0));
        U1PrismasApp.this.setBackground (new Color (0, 0, 0, 0));

        this.setResizable(false);
        this.setLocationRelativeTo(this);
    }

    /**
     * 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() {

        Fondo = new javax.swing.JLabel();
        mensaje = new javax.swing.JLabel();
        Barra = new javax.swing.JProgressBar();

        setDefaultCloseOperation(javax.swing.WindowConstants.DO_NOTHING_ON_CLOSE);
        setAlwaysOnTop(true);
        setCursor(new java.awt.Cursor(java.awt.Cursor.DEFAULT_CURSOR));
        setUndecorated(true);
        addWindowListener(new java.awt.event.WindowAdapter() {
            public void windowActivated(java.awt.event.WindowEvent evt) {
                formWindowActivated(evt);
            }
        });
        getContentPane().setLayout(new org.netbeans.lib.awtextra.AbsoluteLayout());

        Fondo.setIcon(new javax.swing.ImageIcon(getClass().getResource("/Imagenes/ITL.png"))); // NOI18N
        getContentPane().add(Fondo, new org.netbeans.lib.awtextra.AbsoluteConstraints(0, 0, 533, -1));

        mensaje.setFont(new java.awt.Font("Tahoma", 1, 24)); // NOI18N
        mensaje.setText("Texto");
        getContentPane().add(mensaje, new org.netbeans.lib.awtextra.AbsoluteConstraints(20, 570, -1, -1));
        getContentPane().add(Barra, new org.netbeans.lib.awtextra.AbsoluteConstraints(20, 610, 490, 30));

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

```
    private void formWindowActivated(java.awt.event.WindowEvent evt) {
        // TODO add your handling code here:
        if(realizado == false){
            realizado = true;
            Barra.setMaximum(49);
            Barra.setMinimum(0);
            Barra.setStringPainted(true);
            ejecutar.start();
        }
    }

    /**
     * @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(U1PrismasApp.class.getName()).log(java.util.logging.Level.SEVERE,   null,
ex);
        } catch (InstantiationException ex) {

java.util.logging.Logger.getLogger(U1PrismasApp.class.getName()).log(java.util.logging.Level.SEVERE,   null,
ex);
        } catch (IllegalAccessException ex) {

java.util.logging.Logger.getLogger(U1PrismasApp.class.getName()).log(java.util.logging.Level.SEVERE,   null,
ex);
        } catch (javax.swing.UnsupportedLookAndFeelException ex) {

java.util.logging.Logger.getLogger(U1PrismasApp.class.getName()).log(java.util.logging.Level.SEVERE,   null,
ex);
        }
        //</editor-fold>
        //</editor-fold>

        /* Create and display the form */
        java.awt.EventQueue.invokeLater(new Runnable() {
            public void run() {
                new U1PrismasApp().setVisible(true);
            }
        });
    }

    // Variables declaration - do not modify
    private javax.swing.JProgressBar Barra;
    private javax.swing.JLabel Fondo;
    private javax.swing.JLabel mensaje;
    // End of variables declaration
    private class hilo extends Thread{
         @Override
    public void run(){
        try {while(true){
            auxiliar++;
            Barra.setValue(auxiliar);
            repaint();
            switch(auxiliar){
                case 3:
                    mensaje.setText("Cargando programa...");
                    break;
                case 20:
                    mensaje.setText("Leyendo preferencias");
                    break;
                case 50:
```

```
                    mensaje.setText("Carga finalizada");
                    PrismasFrame objeto = new PrismasFrame();
                    objeto.setVisible(true);
                    objeto.setLocationRelativeTo(U1PrismasApp.this);
                    U1PrismasApp.this.dispose();
                    break;
                }
                Thread.sleep(100);}
            } catch (InterruptedException ex) {
                Logger.getLogger(U1PrismasApp.class.getName()).log(Level.SEVERE, null, ex);
            }
        }
        }
}
```

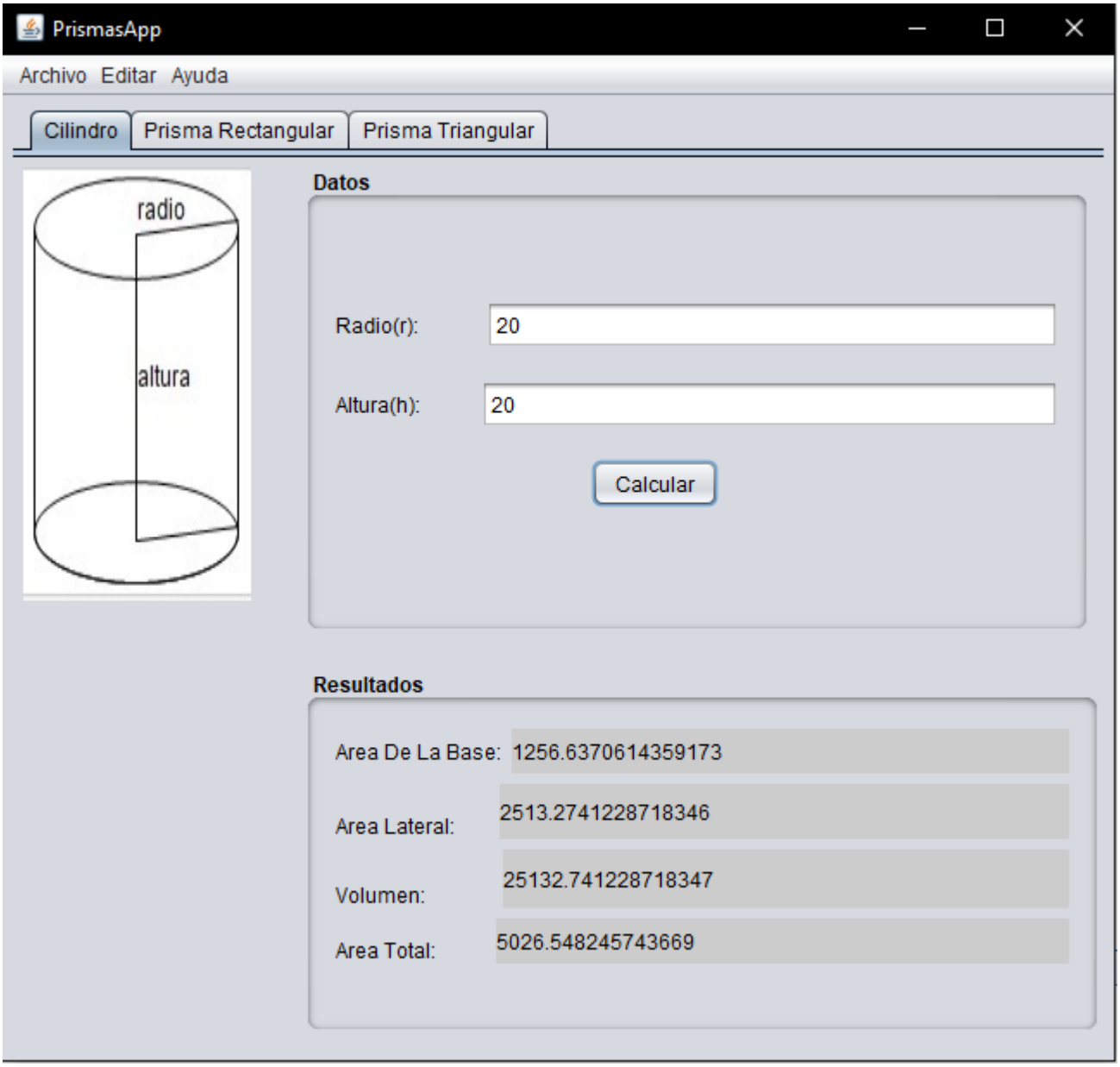
PrismasTest.java

```
/*-------------------------------------------------------------------------------------------
:*                        INSTITUTO TECNOLOGICO DE LA LAGUNA
:*                      INGENIERIA EN SISTEMAS COMPUTACIONALES
:*                        TOPICOS AVANZADOS DE PROGRAMACION "B"
:*
:*                     SEMESTRE: ENE-JUN/2020    HORA: 17-18 HRS
:*
:*                Test para probar los metodos de las diferentes clase
:*
:*  Archivo     : TrianguloRect.java
:*  Autor       : Félix Gerardo Martínez Hinojo 17130800
:*  Fecha       : 18/OCT/2020
:*  Compilador  : JAVA J2SE v1.8.2
:*  Descripci�n : Test para verificar el correcto funcionamiento del programa
:*  Ultima modif:
:*  Fecha       Modific�             Motivo
:*===========================================================================================
:*  18/OCT/2020 FélixMtz            Agregar Prólogo.
:*-------------------------------------------------------------------------------------------*/
package Prismas;
import org.junit.After;
import org.junit.AfterClass;
import org.junit.Before;
import org.junit.BeforeClass;
import org.junit.Test;
import static org.junit.Assert.*;


public class PrismasTest {

    public PrismasTest() {
    }

    @BeforeClass
    public static void setUpClass() {
    }

    @AfterClass
    public static void tearDownClass() {
    }

    @Before
    public void setUp() {
    }

    @After
    public void tearDown() {
    }

    //-------------------------------------------------------------------------

    @Test
    public void cilindroTest(){
        Cilindro c = new Cilindro();
        assertEquals( "Cilindro Area de Base ", 0.0, c.areaBase(), 0.1 );
        assertEquals( "Cilindro Area Lateral ", 0.0, c.areaLateral(), 0.1 );
        assertEquals( "Cilindro Area Total ", 0.0, c.areaTotal(), 0.1 );
        assertEquals( "Cilindro Volumen ", 0.0, c.volumen(), 0.1 );

        c = new Cilindro( 5.1, 12.82);
```

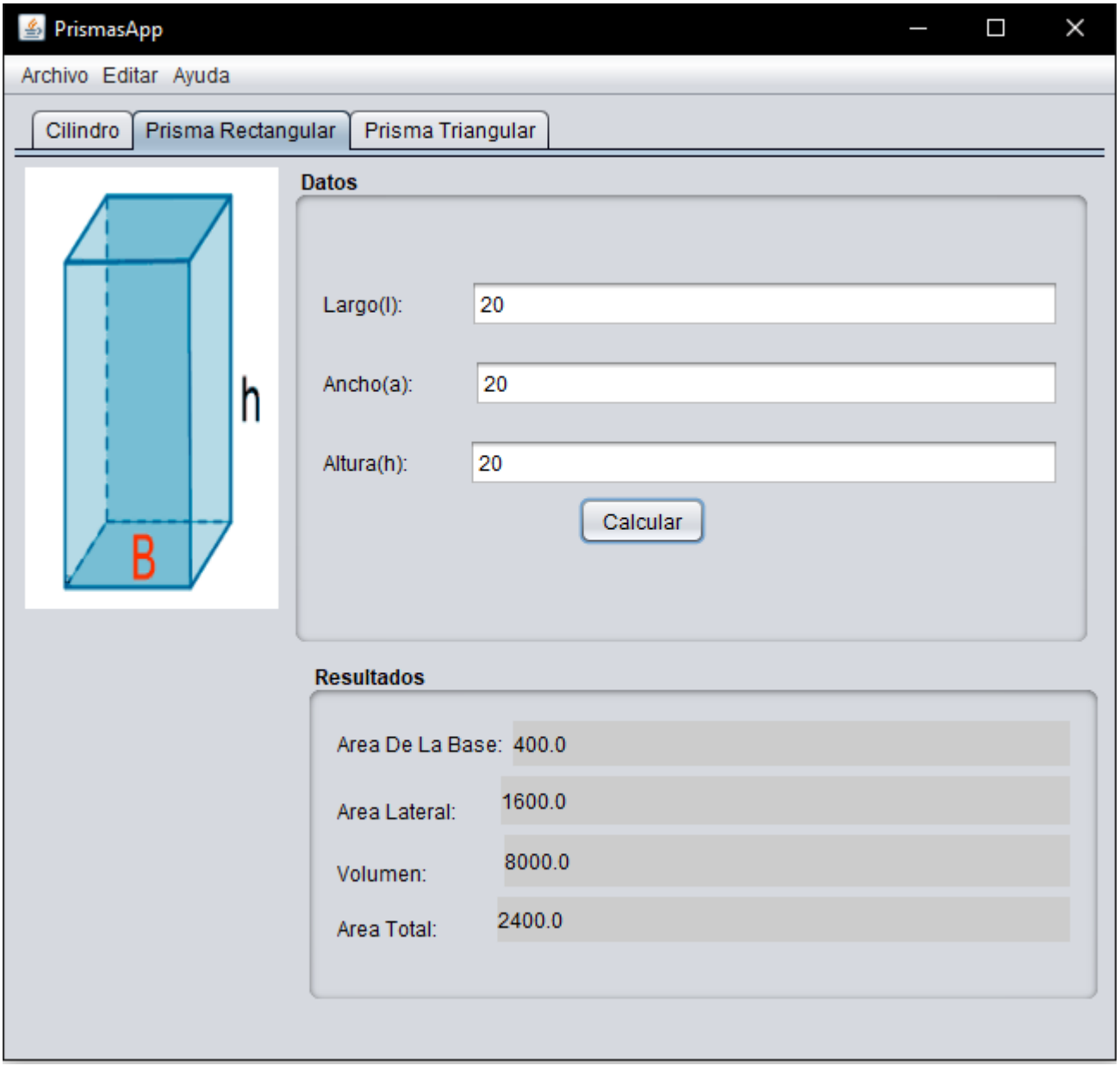
```
        assertEquals( "Cilindro Area de Base ", 81.7128, c.areaBase(), 0.0001 );
        assertEquals( "Cilindro Area Lateral ", 410.8072, c.areaLateral(), 0.0001 );
        assertEquals( "Cilindro Area Total ", 574.2328, c.areaTotal(), 0.0001 );
        assertEquals( "Cilindro Volumen ", 1047.5584, c.volumen(), 0.0001 );

        //Prueba estableciendo las dimesiones con los metodos setter
        c = new Cilindro();
        c.setRadio(5.1);
        c.setAltura(12.82);
        assertEquals( "Cilindro Area de Base ", 81.7128, c.areaBase(), 0.0001 );
        assertEquals( "Cilindro Area Lateral ", 410.8072, c.areaLateral(), 0.0001 );
        assertEquals( "Cilindro Area Total ", 574.2328, c.areaTotal(), 0.0001 );
        assertEquals( "Cilindro Volumen ", 1047.5584, c.volumen(), 0.0001 );
    }

    //-------------------------------------------------------------------------

    @Test
    public void PrismaRectangularTest(){
        PrismaRectangular PR = new PrismaRectangular();
        assertEquals( "Prisma Rectangular Area de Base ", 0.0, PR.areaBase(), 0.1 );
        assertEquals( "Prisma Rectangular Area Lateral ", 0.0, PR.areaLateral(), 0.1 );
        assertEquals( "Prisma Rectangular Area Total ", 0.0, PR.areaTotal(), 0.1 );
        assertEquals( "Prisma Rectangular Volumen ", 0.0, PR.volumen(), 0.1 );

        PR = new PrismaRectangular( 20, 20, 20);
        assertEquals( "Prisma Rectangular Area de Base ", 400, PR.areaBase(), 0.0001 );
        assertEquals( "Prisma Rectangular Lateral ", 1600, PR.areaLateral(), 0.0001 );
        assertEquals( "Prisma Rectangular Area Total ", 2400, PR.areaTotal(), 0.0001 );
        assertEquals( "Prisma Rectangular Volumen ", 8000, PR.volumen(), 0.0001 );

        //Prueba estableciendo las dimesiones con los metodos setter
        PR = new PrismaRectangular();
        PR.setAltura(20);
        PR.setAncho(20);
        PR.setLargo(20);
        assertEquals( "Prisma Rectangular Area de Base ", 400, PR.areaBase(), 0.0001 );
        assertEquals( "Prisma Rectangular Lateral ", 1600, PR.areaLateral(), 0.0001 );
        assertEquals( "Prisma Rectangular Area Total ", 2400, PR.areaTotal(), 0.0001 );
        assertEquals( "Prisma Rectangular Volumen ", 8000, PR.volumen(), 0.0001 );
    }

    //-------------------------------------------------------------------------

    @Test
    public void PrismaTriangularTest(){
        PrismaTriangular PT = new PrismaTriangular();
        assertEquals( "Prisma Triangular Area de Base ", 0.0, PT.areaBase(), 0.1 );
        assertEquals( "Prisma Triangular Area Lateral ", 0.0, PT.areaLateral(), 0.1 );
        assertEquals( "Prisma Triangular Area Total ", 0.0, PT.areaTotal(), 0.1 );
        assertEquals( "Prisma Triangular Volumen ", 0.0, PT.volumen(), 0.1 );

        PT = new PrismaTriangular( 20, 20, 20);
        assertEquals( "Prisma Triangular Area de Base ", 200, PT.areaBase(), 0.0001 );
        assertEquals( "Prisma Triangular Lateral ", 1365.6854, PT.areaLateral(), 0.0001 );
        assertEquals( "Prisma Triangular Area Total ", 1765.6854, PT.areaTotal(), 0.0001 );
        assertEquals( "Prisma Triangular Volumen ", 4000, PT.volumen(), 0.0001 );

        //Prueba estableciendo las dimesiones con los metodos setter
        PT = new PrismaTriangular();
        PT.setAltura(20);
        PT.setC1(20);
        PT.setC2(20);
        PT.setBas(new TrianguloRect(20,20));
        assertEquals( "Prisma Triangular Area de Base ", 200, PT.areaBase(), 0.0001 );
        assertEquals( "Prisma Triangular Lateral ", 1365.6854, PT.areaLateral(), 0.0001 );
        assertEquals( "Prisma Triangular Area Total ", 1765.6854, PT.areaTotal(), 0.0001 );
        assertEquals( "Prisma Triangular Volumen ", 4000, PT.volumen(), 0.0001 );
    }
}
```

Prueba de Ejecución
Pantalla De Carga

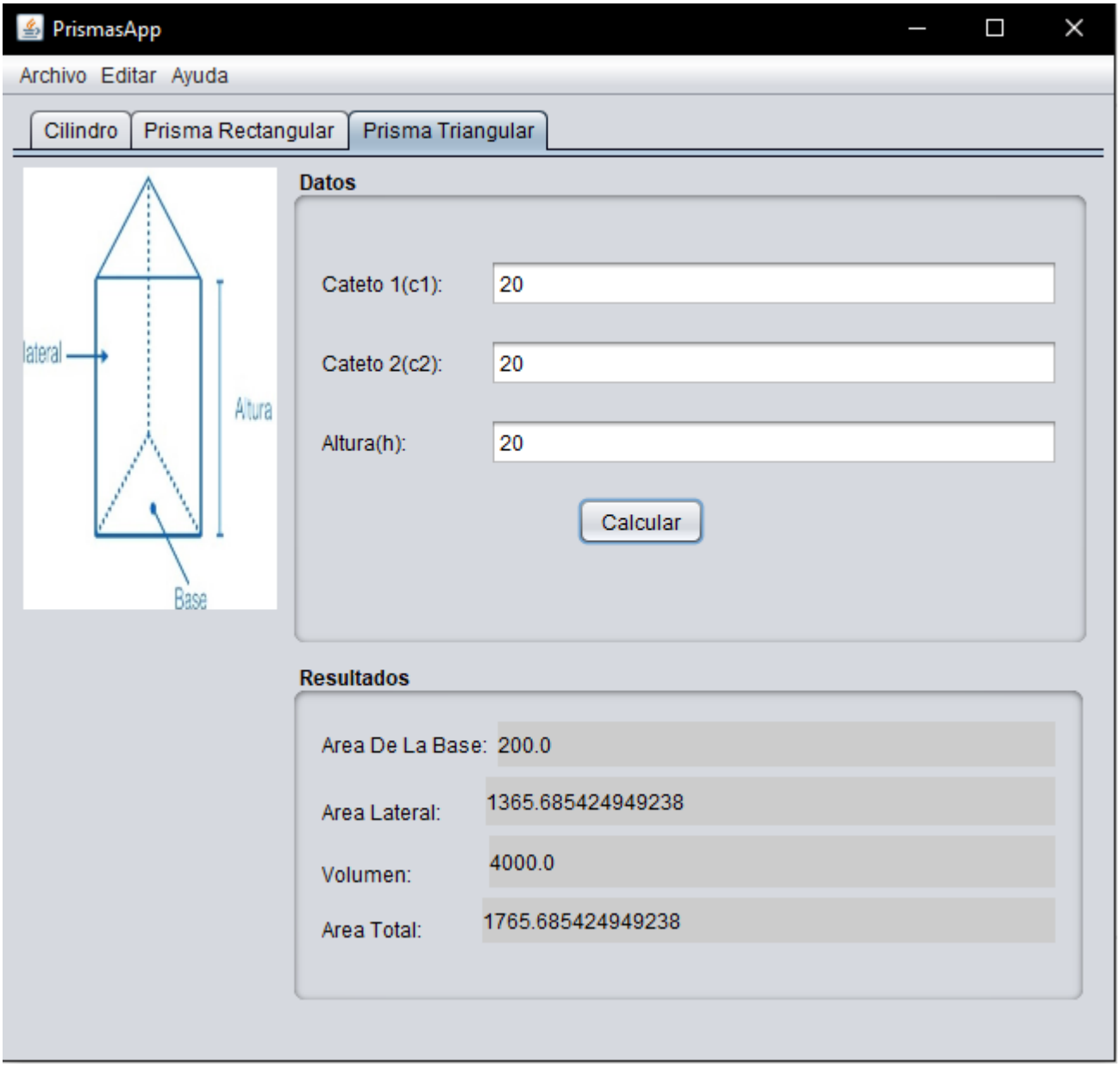
Métodos Del Cilindro En Ejecución



Métodos Del Prisma Rectangular En Ejecución



Métodos Del Prisma Triangular En Ejecución


PrismasApp
Archivo Editar Ayuda
Cilindro
Prisma Rectangular
Prisma Triangular
lateral
Altura
Base
Datos
Cateto 1(c1):
20
Cateto 2(c2):
20
Altura(h):
20
Calcular
Resultados
Area De La Base:
200.0
Area Lateral:
1365.685424949238
Volumen:
4000.0
Area Total:
1765.685424949238

Acerca De


Acerca de
TECNOLOGICO NACIONAL DE MEXICO
Instituto Tecnologico De La Laguna
Ingenieria en Sistemas Computacionales
TOPICOS AVANZADOS DE PROGRAMACION
PrismasApp
v 1.0
Desarrollado por:
Félix Gerardo Martínez Hinojo 8713377385
(C) Derechos Reservados 2020
Cerrar