



Propiedades, Constructores y Herencia en C#

Usando la Programación Orientada A Objetos (propiedades, constructores y herencia) crear un sistema que calcule el área de un círculo, el volumen de un cilindro y volumen de una esfera, los datos (radio y altura) serán dados por el usuario.



Código fuente:

Form1.cs

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Windows.Forms;

namespace PRACTICACIRCULOS
{
    public partial class Form1 : Form
    {
        string a, b;

        public Form1()
        {
            InitializeComponent();
        }

        private void button1_Click(object sender, EventArgs e)
        {
            a = textBox1.Text;
            b = textBox2.Text;

            Circulo cir = new Circulo();
```



```
Cilindro cili = new Cilindro();
Esfera esf = new Esfera();
}

private void button2_Click(object sender, EventArgs e)
{

    Circulo cir = new Circulo();
    Cilindro cili = new Cilindro();
    Esfera esf = new Esfera();

    Circulo.Radio = Convert.ToDouble(a);
    cili.Altura = Convert.ToDouble(b);

    textBox3.Text = Convert.ToString(cir.calcularArea());
    textBox4.Text = Convert.ToString(cili.calcularVolumen());
    textBox5.Text = Convert.ToString(esf.calculaVolumen());
}

private void Form1_Load(object sender, EventArgs e)
{

}

private void textBox3_TextChanged(object sender, EventArgs e)
{

}

private void textBox4_TextChanged(object sender, EventArgs e)
{

}

private void textBox5_TextChanged(object sender, EventArgs e)
{

}

private void textBox2_TextChanged(object sender, EventArgs e)
{

}
```



```
private void textBox1_TextChanged(object sender, EventArgs e)
{
    }
}
```

Circulo.cs

```
using System;

using System.Collections.Generic;

using System.Linq;

using System.Text;
```

```
namespace PRACTICACIRCULOS
{
    class Circulo
    {
        protected double pi = 3.1416;

        protected static double radio;

        protected double area;

        public static double Radio
        {
            set { radio = value; }

            get { return radio; }
        }
    }
}
```



```
        public double calcularArea()
        {

            area = pi * radio * radio;

            return area;
        }
    }
}
```

Cilindro.cs

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;

namespace PRACTICACIRCULOS
{
    class Cilindro:Circulo
    {
        protected static double altura;

        public double Altura
        {
            set { altura = value; }
            get { return altura; }
        }

        public double calcularVolumen()
        {
            return pi * radio * radio * altura;
        }
    }
}
```



```
    }  
  }  
}
```

Esfera.cs

```
using System;  
using System.Collections.Generic;  
using System.Linq;  
using System.Text;  
  
namespace PRACTICACIRCULOS  
{  
    class Esfera:Cilindro  
    {  
  
        public double calculaVolumen()  
        {  
            return (4 * pi * radio * radio * radio)/3;  
        }  
    }  
}
```



Salida en Pantalla

The screenshot shows a Windows application window titled "Área Y Volumen". The window has a light green background. At the top, there is a yellow rectangular area containing two input fields: "Radio =" with the value "2" and "Altura =" with the value "4". To the right of these fields is a button labeled "Ingresar Datos". Below this yellow area is a large rectangular area with a light pink background. Inside this area are three 3D models: a blue circle on the left, a green cylinder in the center, and a purple circle on the right. Below each model is a label and a text box showing the result. Under the blue circle is the label "Área" and the value "12,5664". Under the green cylinder is the label "Volumen" and the value "50,2656". Under the purple circle is the label "Volumen" and the value "33,5104". At the bottom center of the window is a yellow rectangular area containing a button labeled "Calcular".

Input	Output
Radio = 2	Área = 12,5664
Altura = 4	Volumen = 50,2656
	Volumen = 33,5104