

# **UNIVERSIDAD NACIONAL DE CAJAMARCA**

**“FACULTAD DE INGENIERÍA”**

**“ESCUELA ACADÉMICO PROFESIONAL DE INGENIERÍA DE SISTEMAS”**



**TEMA:**

Ejercicios Propuestos

**CURSO:**

Programación Aplicada

**DOCENTE:**

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**PRESENTADO POR:**

- Caruajulca Tiglla, Alex Eli

**CAJAMARCA-PERÚ**

**2024**

## Ejercicio 01

```
<Grid>
    <Image HorizontalAlignment="Left" Height="200" Margin="96,121,0,0"
VerticalAlignment="Top" Width="200" Source="/Rtriangle.svg.png"/>
    <Label Content="c" HorizontalAlignment="Left"
Margin="378,103,0,0" VerticalAlignment="Top" Width="80"/>
    <Label Content="Ángulo B|A =" HorizontalAlignment="Left"
Margin="378,193,0,0" VerticalAlignment="Top" Width="124"/>
    <Label Content="Lado a|b =" HorizontalAlignment="Left"
Margin="378,149,0,0" VerticalAlignment="Top" Width="110"/>
    <TextBox x:Name="hipo" HorizontalAlignment="Left" Margin="459,103,0,0"
TextWrapping="Wrap" VerticalAlignment="Top" Width="75"
RenderTransformOrigin="0.45,-0.687" Height="33"/>
    <TextBox x:Name="ax" HorizontalAlignment="Left" Margin="459,149,0,0"
TextWrapping="Wrap" VerticalAlignment="Top" Width="75"
RenderTransformOrigin="0.45,-0.687" Height="33"/>
    <TextBox x:Name="tethax" HorizontalAlignment="Left" Margin="460,193,0,0"
TextWrapping="Wrap" VerticalAlignment="Top" Width="75"
RenderTransformOrigin="0.45,-0.687" Height="32"/>
    <TextBox x:Name="resultado" HorizontalAlignment="Left"
Margin="460,310,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="75"
RenderTransformOrigin="0.45,-0.687" Height="32"/>
    <Button Content="Calcular" HorizontalAlignment="Left"
Margin="563,197,0,0" VerticalAlignment="Top" Click="Button_Click"/>
    <Button Content="Calcular" HorizontalAlignment="Left"
Margin="563,155,0,0" VerticalAlignment="Top" Click="Button_Click2"/>
    <Label Content="Resultado:" HorizontalAlignment="Left"
Margin="464,265,0,0" VerticalAlignment="Top"/>
</Grid>
```

```
public partial class ATriangulo : Window
{
    public ATriangulo()
    {
        InitializeComponent();
    }

    private void Button_Click(object sender, RoutedEventArgs e)
    {
        double h = double.Parse(hipo.Text.ToString());

        double theta = double.Parse(tethax.Text.ToString());

        double angulo = theta * Math.PI / 180;

        double x = h * Math.Sin(angulo);

        resultado.Text = x.ToString();
    }

    private void Button_Click2(object sender, RoutedEventArgs e)
    {
        double h = double.Parse(hipo.Text.ToString());
```

```

        double a = double.Parse(ax.Text.ToString());

        double x = Math.Sqrt(h * h - a * a);

        resultado.Text = x.ToString();
    }
}

```

## Ejercicio 02

```

<Grid>
    <Image HorizontalAlignment="Left" Height="200" Margin="96,121,0,0"
VerticalAlignment="Top" Width="200" Source="/triangle.svg.png"/>
    <TextBox x:Name="ladoA" HorizontalAlignment="Left" Margin="400,183,0,0"
TextWrapping="Wrap" VerticalAlignment="Top" Width="80" Height="34"/>
    <Label Content="LADO 1" HorizontalAlignment="Left" Margin="415,140,0,0"
VerticalAlignment="Top"/>
    <TextBox x:Name="ladoB" HorizontalAlignment="Left" Margin="505,183,0,0"
TextWrapping="Wrap" VerticalAlignment="Top" Width="80" Height="34"/>
    <Label Content="LADO 2" HorizontalAlignment="Left" Margin="520,140,0,0"
VerticalAlignment="Top"/>
    <TextBox x:Name="anguloGrados" HorizontalAlignment="Left"
Margin="607,183,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="80"
Height="34"/>
    <Label Content="ÁNGULO" HorizontalAlignment="Left" Margin="618,140,0,0"
VerticalAlignment="Top"/>
    <TextBox x:Name="resultado" HorizontalAlignment="Left"
Margin="465,346,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="120"
Height="28"/>
    <Button Content="Calcular" HorizontalAlignment="Left"
Margin="485,270,0,0" VerticalAlignment="Top" Height="35" Width="80"
Click="Button_Click"/>
    <Image HorizontalAlignment="Left" Height="100" Margin="102,183,0,0"
VerticalAlignment="Top" Width="100"/>
</Grid>

```

```

public partial class Btriangulo : Window
{
    public Btriangulo()
    {
        InitializeComponent();
    }

    private void Button_Click(object sender, RoutedEventArgs e)
    {
        double A = double.Parse(ladoA.Text.ToString());

        double B = double.Parse(ladoB.Text.ToString());

        double angulo = double.Parse(anguloGrados.Text.ToString());

        double anguloRadianes = angulo * Math.PI / 180;

        double area = 0.5 * A * B * Math.Sin(anguloRadianes);

        resultado.Text = area.ToString();
    }
}

```

```

    }
}

```

### Ejercicio 03

```

<Grid>
    <TextBlock HorizontalAlignment="Left" Margin="120,142,0,0"
    TextWrapping="Wrap" Text="Ingresa la clave" VerticalAlignment="Top"/>
    <TextBox x:Name="txtClave" HorizontalAlignment="Left"
    Margin="101,199,0,0" TextWrapping="Wrap" VerticalAlignment="Top"
    Width="120"/>
    <Button Content="Encripta" HorizontalAlignment="Left"
    Margin="294,116,0,0" VerticalAlignment="Top" Click="Button_Click"/>
    <TextBlock HorizontalAlignment="Left" Margin="451,88,0,0"
    TextWrapping="Wrap" Text="Clave Encriptada" VerticalAlignment="Top"/>
    <TextBlock x:Name="txtClaveEncriptada" HorizontalAlignment="Left"
    Margin="451,120,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="105"
    Background="#FFE2DFDF"/>
    <Button Content="Desencripta" HorizontalAlignment="Left"
    Margin="294,251,0,0" VerticalAlignment="Top" Click="Button_Click2"/>
    <TextBlock x:Name="txtClaveDesencriptada" HorizontalAlignment="Left"
    Margin="451,253,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="105"
    Background="#FFE2DFDF"/>
    <TextBlock HorizontalAlignment="Left" Margin="451,217,0,0"
    TextWrapping="Wrap" Text="Clave Desencriptada" VerticalAlignment="Top"/>
</Grid>

```

```

public partial class Encriptar : Window
{
    public Encriptar()
    {
        InitializeComponent();
    }

    private void Button_Click(object sender, RoutedEventArgs e)
    {
        string clave = txtClave.Text;
        string claveEncriptada = Encripta(clave);
        txtClaveEncriptada.Text = claveEncriptada;
    }

    private string Encripta(string clave)
    {
        clave = clave.ToUpper();

        clave = clave.Replace("a", "+").Replace("Q", "*").Replace("E", "?");

        int desplazamiento = 3;

        string claveEncriptada = "";

        foreach (char c in clave)
        {
            if (char.IsLetter(c))
            {

```

```

        int codigoAscii = (int)c;

        codigoAscii += desplazamiento;
        if (codigoAscii > 'Z')
        {
            codigoAscii -= 26;
        }

        claveEncriptada += (char)codigoAscii;
    }
    else
    {
        claveEncriptada += c;
    }
}

return claveEncriptada;
}

private void Button_Click2(object sender, RoutedEventArgs e)
{
    string clave = txtClave.Text;
    string claveEncriptada = Desencripta(clave);
    txtClaveDesencriptada.Text = claveEncriptada;
}

private string Desencripta(string claveEncriptada)
{
    claveEncriptada = claveEncriptada.ToUpper();

    claveEncriptada = claveEncriptada.Replace("+", "a").Replace("*",
"Q").Replace("?", "E");

    int desplazamiento = 3;

    string claveDesencriptada = "";

    foreach (char c in claveEncriptada)
    {
        if (char.IsLetter(c))
        {
            int codigoAscii = (int)c;

            codigoAscii -= desplazamiento;
            if (codigoAscii < 'A')
            {
                codigoAscii += 26;
            }

            claveDesencriptada += (char)codigoAscii;
        }
        else
        {
            claveDesencriptada += c;
        }
    }

    return claveDesencriptada;
}
}

```

Tragamonedas

```
<Grid>
    <Label x:Name="reloj" Content="" HorizontalAlignment="Center"
Margin="0,31,0,0" VerticalAlignment="Top" FontSize="48" FontWeight="Normal"
Width="200" Height="74" Background="#FF06864D" Foreground="#FFFEFEFE"/>
    <Label x:Name="msj" Content="" HorizontalAlignment="Center"
Margin="0,294,0,0" VerticalAlignment="Top" FontSize="20" FontWeight="Bold"
Width="290" Height="45" Background="#FFF9F0B0" Foreground="#FF050505"/>
    <TextBox x:Name="tbNume1" HorizontalAlignment="Left"
Margin="215,217,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="80"
FontSize="22" FontWeight="Bold" TextAlignment="Center"/>
    <TextBox x:Name="tbNume2" HorizontalAlignment="Center"
Margin="0,217,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="80"
FontSize="22" FontWeight="Bold" TextAlignment="Center"/>
    <TextBox x:Name="tbNume3" HorizontalAlignment="Left"
Margin="503,217,0,0" TextWrapping="Wrap" VerticalAlignment="Top" Width="80"
FontSize="22" FontWeight="Bold" TextAlignment="Center"/>
    <Button x:Name="btPalanca" Content="Tira la palanca"
HorizontalAlignment="Center" Margin="0,146,0,0" VerticalAlignment="Top"
FontSize="16" FontWeight="Bold" Width="144" Click="btPalanca_Click"/>
    <Image x:Name="img1" HorizontalAlignment="Left" Height="40"
Margin="236,171,0,0" VerticalAlignment="Top" Width="40"/>
    <Image x:Name="img2" HorizontalAlignment="Left" Height="40"
Margin="375,171,0,0" VerticalAlignment="Top" Width="40"/>
    <Image x:Name="img3" HorizontalAlignment="Left" Height="40"
Margin="524,171,0,0" VerticalAlignment="Top" Width="40"/>
</Grid>
```

```
public partial class Tragamonedas : Window
{
    DispatcherTimer tiempo;
    int segundos;
    public Tragamonedas()
    {
        InitializeComponent();
    }

    private void btPalanca_Click(object sender, RoutedEventArgs e)
    {
        tbNume1.Text = tbNume2.Text = tbNume3.Text=string.Empty;
        msj.Content = reloj.Content=string.Empty;

        tiempo = new DispatcherTimer();
        tiempo.Interval = TimeSpan.FromSeconds(1);
        segundos = 0;
        tiempo.Tick += tiempo_Tick;
        tiempo.Start();
    }

    void tiempo_Tick(object sender, EventArgs e) {
        reloj.Content = DateTime.Now.ToLongTimeString();
        Random rd = new Random();
        tbNume1.Text = rd.Next(18, 21).ToString();
        tbNume2.Text = rd.Next(18, 21).ToString();
        tbNume3.Text = rd.Next(18, 21).ToString();

        segundos++;
        if(segundos == 6) {
            tiempo.Stop();
        }
    }
}
```

```
        if (int.Parse(tbNume1.Text) == int.Parse(tbNume2.Text) &&  
            int.Parse(tbNume2.Text) == int.Parse(tbNume3.Text))  
            msj.Content = "Ganaste el Premio Mayor...";  
        else  
            msj.Content = "Perdiste, intentalo de nuevo :(";  
    }  
}  
}
```