

INSTITUTO TECNOLOGICO DE MEXICALI
MATERIA: TOPICOS AVANZADOS DE PROGRAMACION

```
using System;
using System.Collections.Generic;
using System.ComponentModel;
using System.Data;
using System.Drawing;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Drawing;
using System.Windows.Forms;
using System.Drawing.Drawing2D;
using System.Threading;

namespace ProyectoU4
{
    public partial class Form1 : Form
    {
        delegate void dele(PictureBox pb, int laX, int vel);

        public Form1()
        {
            InitializeComponent();
        }

        private void Form1_Load(object sender, EventArgs e)
        {
            CheckForIllegalCrossThreadCalls = false;
        }

        private void Form1_Paint(object sender, PaintEventArgs e)
        {
            Graphics g;
            g = this.CreateGraphics();

            GraphicsPath graphPath = new GraphicsPath();

            Pen Lapis = new Pen(Color.White, 3);

            g.DrawLine(Lapis, new Point(30,390), new Point(30, 49));
            g.DrawLine(Lapis, new Point(170, 390), new Point(170, 170));

            g.DrawLine(Lapis, new Point(30, 49), new Point(370, 49));
            g.DrawLine(Lapis, new Point(170, 170), new Point(230, 170));

            g.DrawLine(Lapis, new Point(370, 49), new Point(370, 285));
            g.DrawLine(Lapis, new Point(230, 170), new Point(230, 390));

            g.DrawLine(Lapis, new Point(230, 390), new Point(555, 390));
            g.DrawLine(Lapis, new Point(370, 285), new Point(400, 285));

            g.DrawLine(Lapis, new Point(400, 285), new Point(400, 49));
            g.DrawLine(Lapis, new Point(555, 390), new Point(555, 170));

            g.DrawLine(Lapis, new Point(400, 49), new Point(620, 49));
            g.DrawLine(Lapis, new Point(555, 170), new Point(620, 170));
        }
    }
}
```

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```
public void Metodo()
{
    int num = 1000000000;
    dele elDelegado = new dele(Mover);
    dele elDelegado1 = new dele(Mover1);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        elDelegado.Invoke(pictureBox1, pictureBox1.Location.X, num);
        MessageBox.Show("HA LLEGADO LA NAVE 1");
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        elDelegado1.Invoke(pictureBox2, pictureBox2.Location.X, num);
        MessageBox.Show("HA LLEGADO LA NAVE 2");
    }
    else
    {
        // No hay más hilos.
    }
    this.Inicar.Enabled = true;
    this.Salir.Enabled = true;
}

public void Mover(PictureBox pb, int laX, int velocidad)
{
    Random rd = new Random();
    int num1, num2;
    int meta = 127;

    for (int l = 401; l > meta; l--)
    {
        pb.Location = new Point(laX, l);
        num1 = rd.Next(10);
        num2 = rd.Next(10);

        if (Thread.CurrentThread.Name.Equals("Nave0"))
        {
            Thread.Sleep(num1);
        }
        else if (Thread.CurrentThread.Name.Equals("Nave1"))
        {
            Thread.Sleep(num2);
        }
        else
        {
            // No hay más hilos.
        }
    }

    int y = pb.Location.Y;

    for (int i = pb.Location.X; i < 240; i++)
    {
        pb.Location = new Point(i, y);
        num1 = rd.Next(10);
        num2 = rd.Next(10);
    }
}
```

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```
if (Thread.CurrentThread.Name.Equals("Nave0"))
{
    Thread.Sleep(num1);
}
else if (Thread.CurrentThread.Name.Equals("Nave1"))
{
    Thread.Sleep(num2);
}
else
{
    // No hay más hilos.
}
}

int x = pb.Location.X;

for (int j = pb.Location.Y; j < 340; j++)
{
    pb.Location = new Point(x, j);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}

int y1 = pb.Location.Y;

for (int i = pb.Location.X; i < 498; i++)
{
    pb.Location = new Point(i, y1);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}
```

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```
int x1 = pb.Location.X;

for (int l = pb.Location.Y; l > 127; l--)
{
    pb.Location = new Point(x1, l);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}

int y2 = pb.Location.Y;

for (int i = pb.Location.X; i < 615; i++)
{
    pb.Location = new Point(i, y2);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}
}

public void Mover1(PictureBox pb, int laX, int velocidad)
{
    Random rd = new Random();
    int num1, num2;
    int meta = 60;

    for (int l = 401; l > meta; l--)
    {
        pb.Location = new Point(laX, l);
        num1 = rd.Next(10);
        num2 = rd.Next(10);

        if (Thread.CurrentThread.Name.Equals("Nave0"))
```

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```
{
    Thread.Sleep(num1);
}
else if (Thread.CurrentThread.Name.Equals("Nave1"))
{
    Thread.Sleep(num2);
}
else
{
    // No hay más hilos.
}
}

int y = pb.Location.Y;

for (int i = pb.Location.X; i < 300; i++)
{
    pb.Location = new Point(i, y);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}

int x = pb.Location.X;

for (int j = pb.Location.Y; j < 285; j++)
{
    pb.Location = new Point(x, j);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}

int y1 = pb.Location.Y;
```

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```
for (int i = pb.Location.X; i < 420; i++)
{
    pb.Location = new Point(i, y1);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}

int x1 = pb.Location.X;

for (int l = pb.Location.Y; l > 60; l--)
{
    pb.Location = new Point(x1, l);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
    else
    {
        // No hay más hilos.
    }
}

int y2 = pb.Location.Y;

for (int i = pb.Location.X; i < 615; i++)
{
    pb.Location = new Point(i, y2);
    num1 = rd.Next(10);
    num2 = rd.Next(10);

    if (Thread.CurrentThread.Name.Equals("Nave0"))
    {
        Thread.Sleep(num1);
    }
    else if (Thread.CurrentThread.Name.Equals("Nave1"))
    {
        Thread.Sleep(num2);
    }
}
```

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```
    }  
    else  
    {  
        // No hay más hilos.  
    }  
}  
}  
  
private void Inicar_Click(object sender, EventArgs e)  
{  
    this.Inicar.Enabled = false;  
    this.Salir.Enabled = false;  
    this.pictureBox3.Visible = true;  
  
    Thread[] hilos = new Thread[2];  
    for (int i = 0; i < hilos.Length; i++)  
    {  
        hilos[i] = new Thread(Metodo);  
        hilos[i].Name = "Nave" + i;  
        hilos[i].Start();  
    }  
}  
  
private void Salir_Click(object sender, EventArgs e)  
{  
    DialogResult dialogo = MessageBox.Show("¿Desea salir del sistema?",  
"Salir", MessageBoxButtons.OKCancel, MessageBoxIcon.Question);  
    if (dialogo == DialogResult.OK)  
    {  
        Application.Exit();  
    }  
}  
  
private void Form1_FormClosed(object sender, FormClosedEventArgs e)  
{  
    Application.Exit();  
}  
  
private void Form1_FormClosing(object sender, FormClosingEventArgs e)  
{  
    Application.Exit();  
}  
  
private void pictureBox3_Click(object sender, EventArgs e)  
{  
}  
}  
}
```