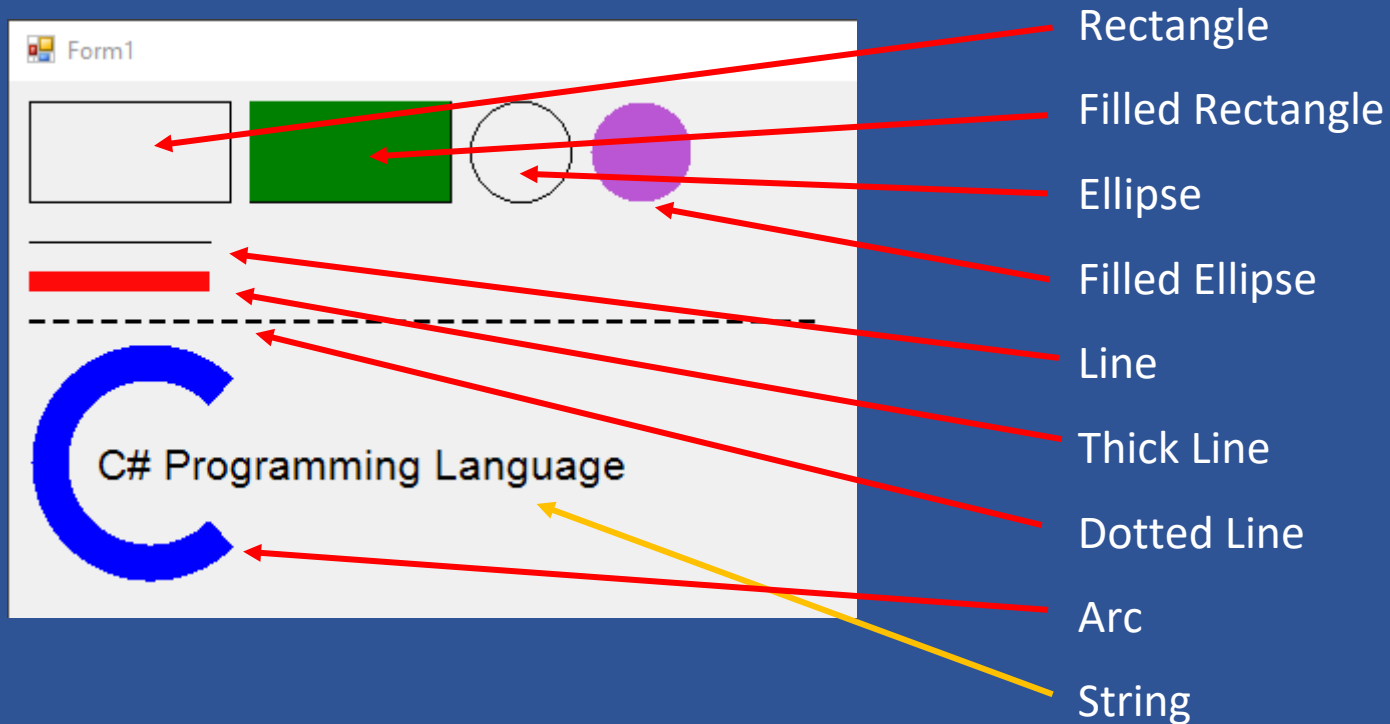


# GDI+

# About GDI+ Managed Code

- GDI+ is the portion of the Windows operating system
- Provides two-dimensional vector graphics, imaging, and typography.
- GDI+ improves on GDI (the Graphics Device Interface included with earlier versions of Windows) by adding new features and by optimizing existing features.
- The GDI+ managed class interface (a set of wrappers) is part of the .NET Framework, an environment for building, deploying, and running XML Web services and other applications.

# Example 00100: Vector graphics



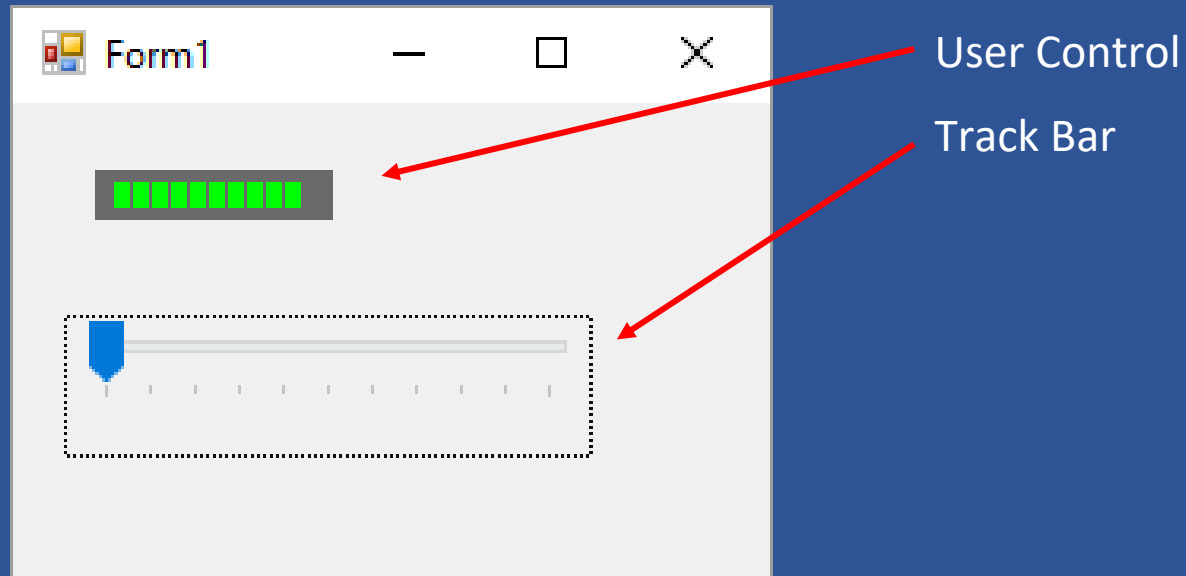
- Put Code in Form paint Event
- Use e.Graphics.Draw . . .

```
private void Form1_Paint(object sender, PaintEventArgs e)
{
    DrawGraphics(e);
}
private void DrawGraphics(PaintEventArgs e)
{
    // draw rectangle -----
    var myRec = new Rectangle(10, 10, 100, 50); // x,y,width,height
    e.Graphics.DrawRectangle(Pens.Black, myRec);

    // draw filled rectangle -----
    var myFillRec = new Rectangle(120, 10, 100, 50); // x,y,width,height
    e.Graphics.DrawRectangle(Pens.Black, myFillRec);
    e.Graphics.FillRectangle(Brushes.Green, myFillRec);
}
```

# Example 00110: GDI+ in User Control

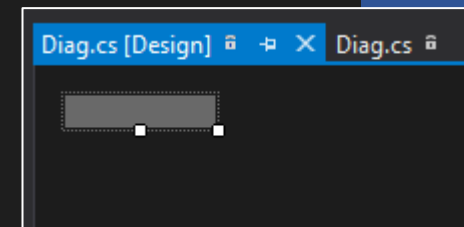
Create User Control with 10 horizontal bar LED



# Example 00120: Diag User Control

```
private void DrawBarGraph(PaintEventArgs e)
{
    const float barHeight = 12;
    float x1 = 4, y1 = 4, x2 = 4, y2 = barHeight;
    float gap = 2;
    Pen myPen;

    int j = 0;
    for (float i = 2; i < 30; i+=3)
    {
        if(j < barValue)
            myPen = new Pen(Color.Yellow, 5); // yellow
        else
            myPen = new Pen(Color.Lime, 5); // greenn
        e.Graphics.DrawLine(myPen, x1 + (gap * i), y1, x2 + (gap * i), y2);
        j++;
    }
}
```



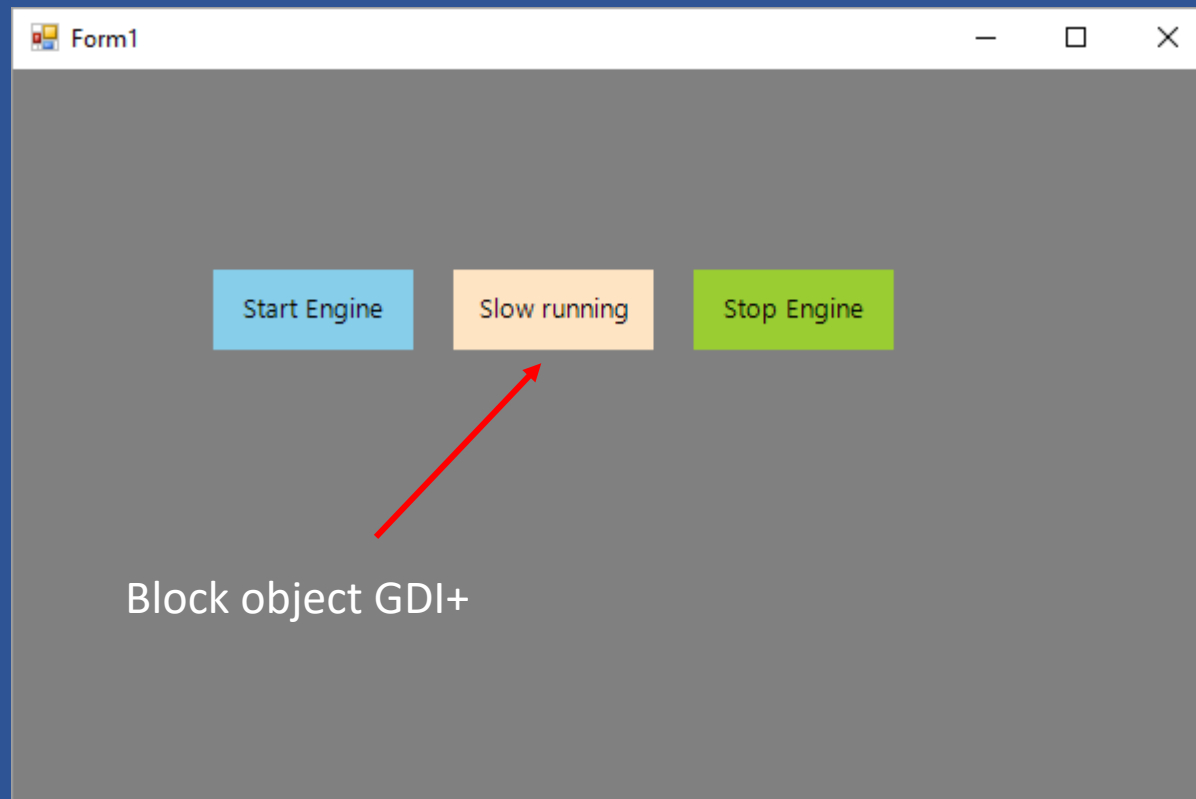
## Diag indicator on the left of DataGridView

	Name	ID	Voltage	Watt	Amp	Tempe	Active	On	Degree
	Motor A	101	7	10.1	200	37	0	1	73
	Motor B	201	0	10.1	200	37	0	1	73
	Motor C	210	2	10.1	200	37	0	1	73
	Motor Rear	8	9	5.5	200	37	0	1	50
	Motor Front	2	5	5.5	200	37	0	1	50
	Motor Left	9	0	5.5	200	37	0	1	50
	Motor Right	5	8	5.5	200	37	0	1	50
	Servo A	406	5	10.1	1.2	37	1	0	50
	Servo B	400	9	10.1	1.2	37	1	0	50
	Servo C	401	9	10.1	1.2	37	1	0	73

Show voltage in graphic

Randomize this column

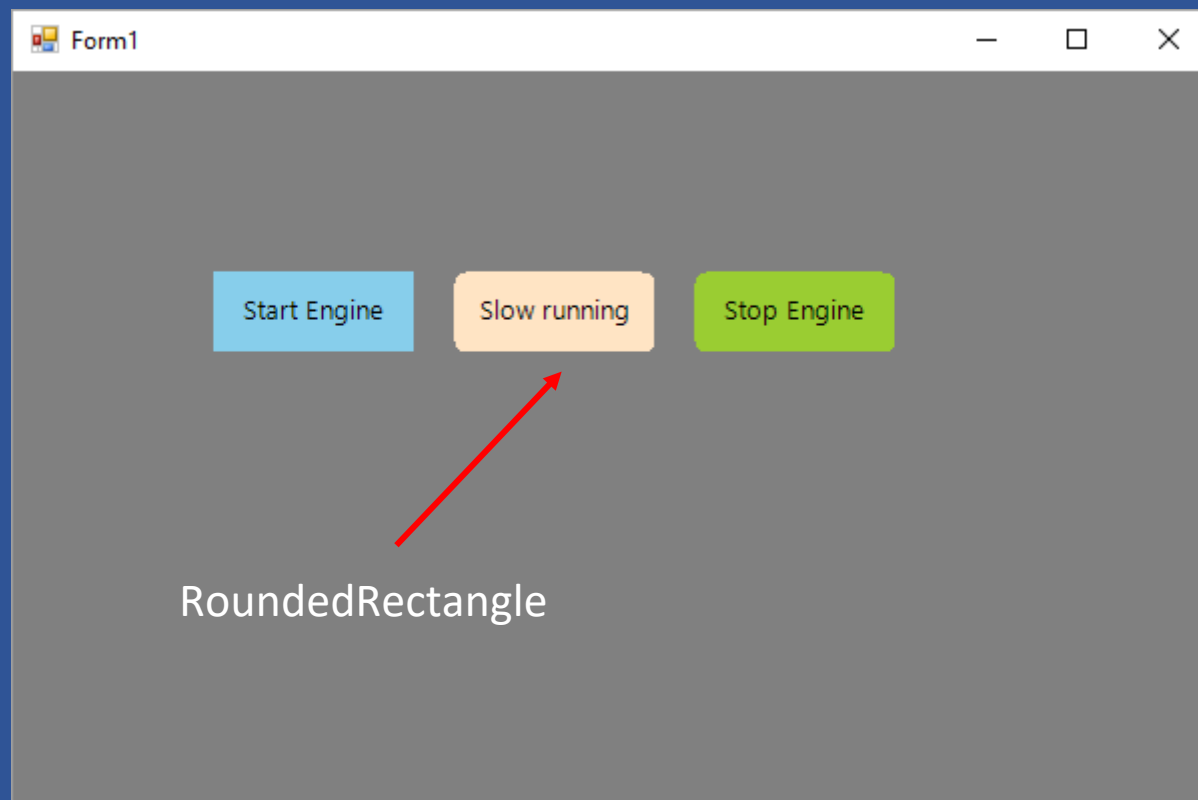
# Example 00130: Class and object GDI+ without using User control



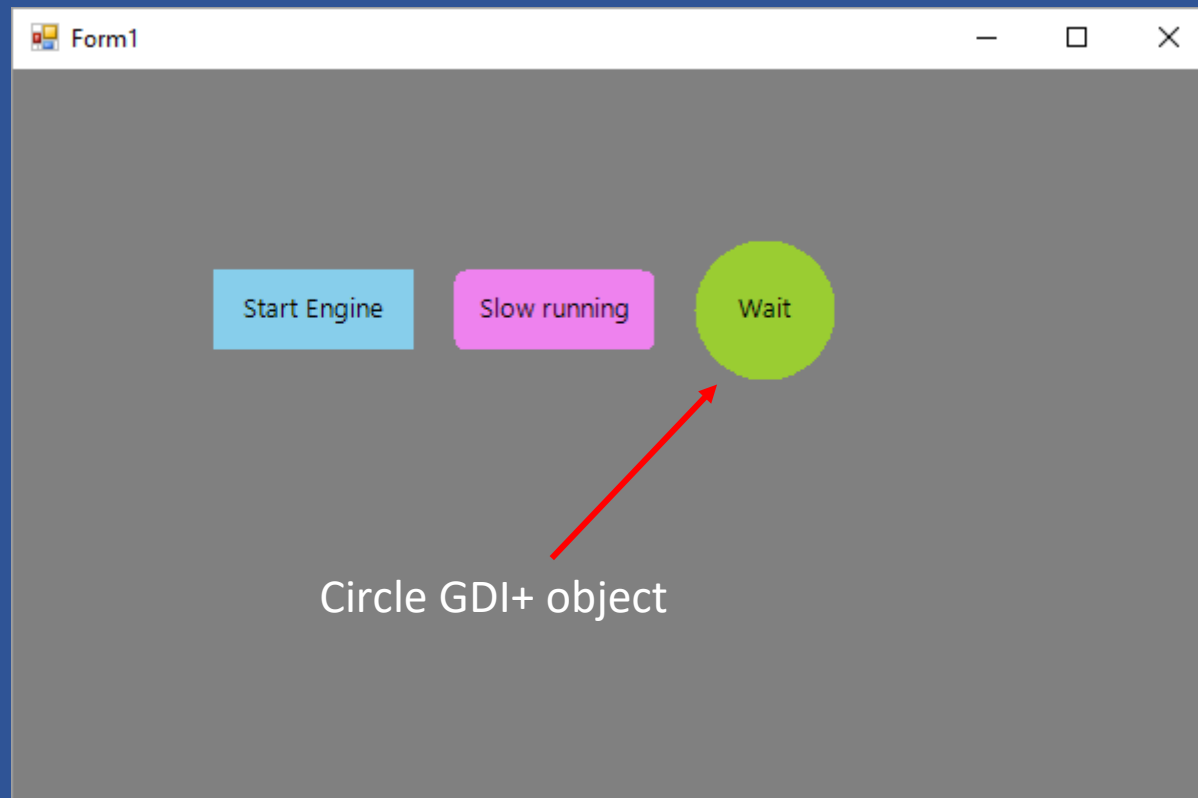


# Example 00140: Create RoundedRectangle

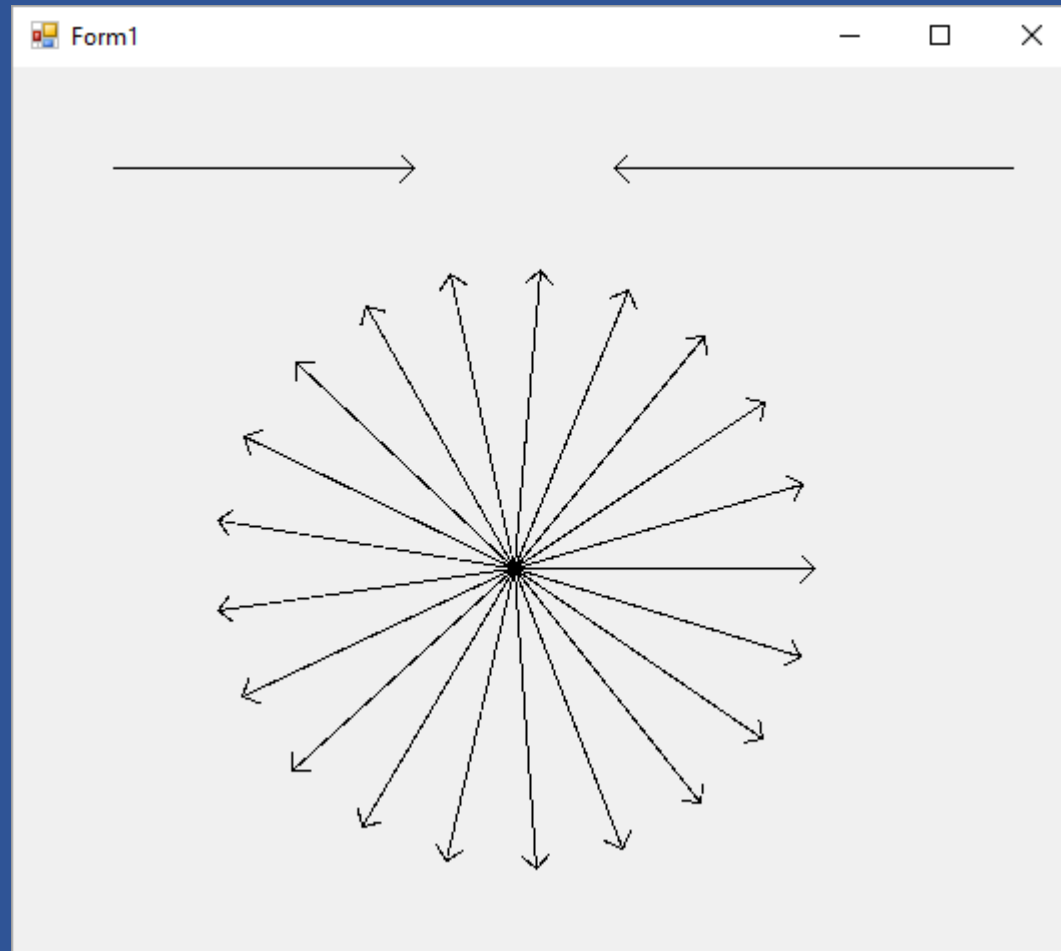
from Block using OOP inheritance



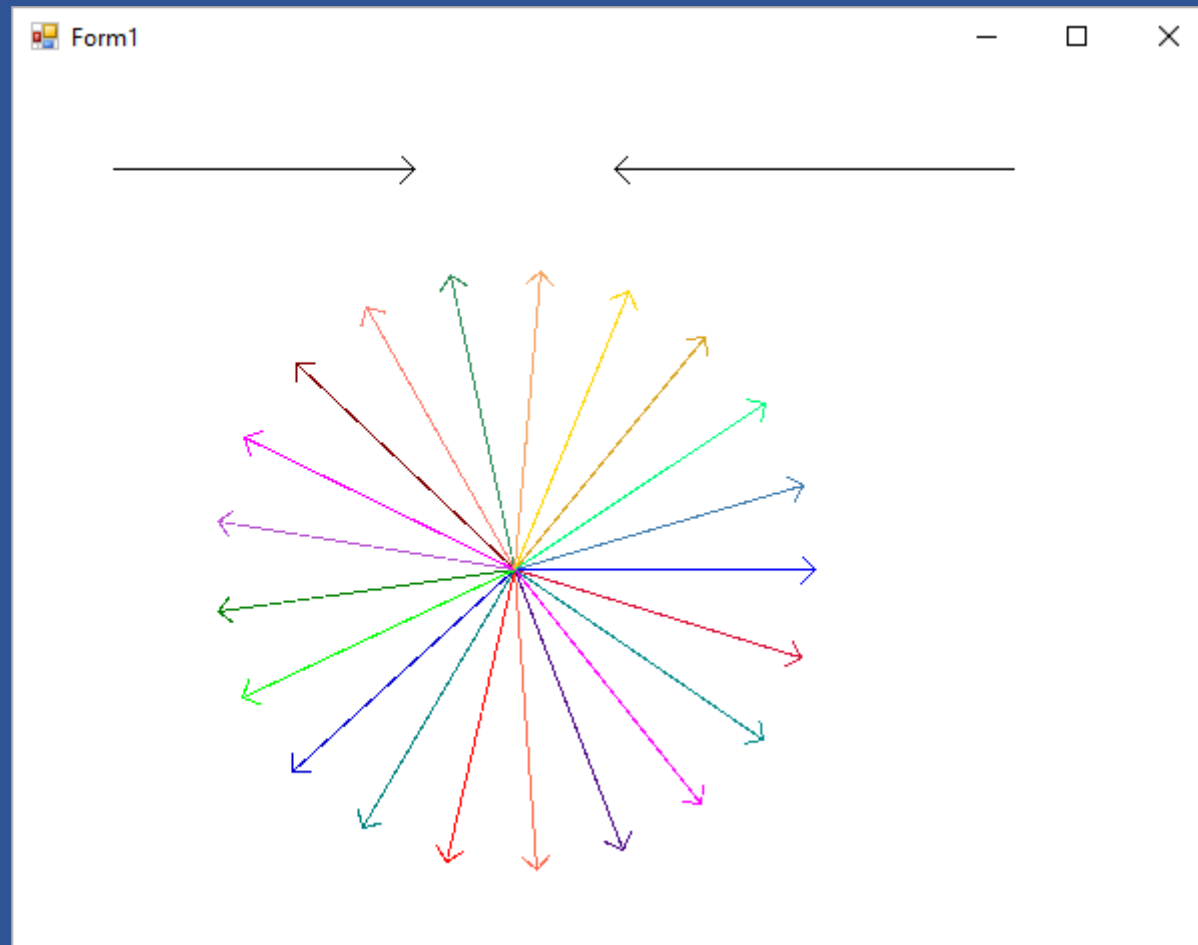
# Example 00150: Create Circle object with caption text



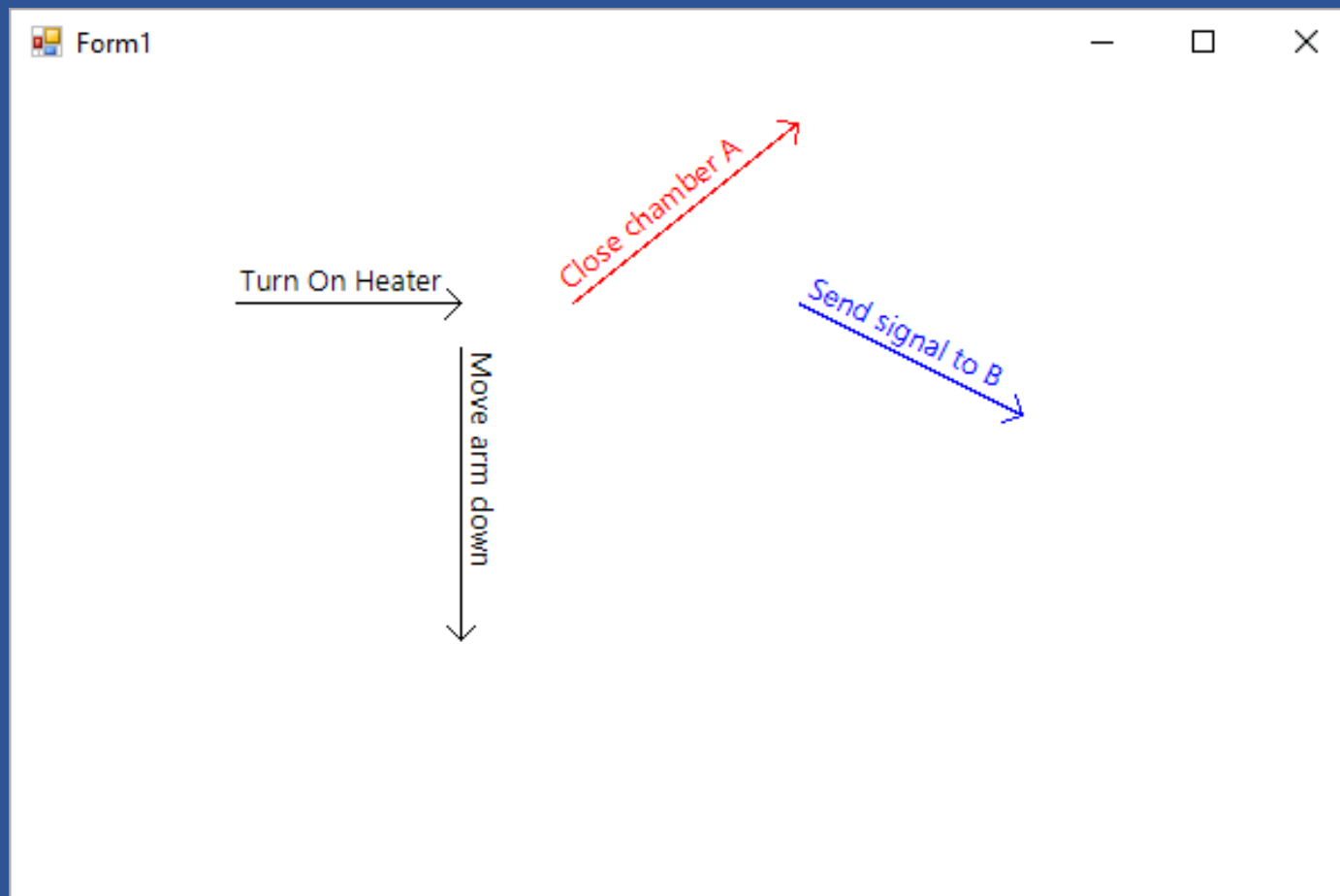
# Example 00160: How to draw GDI+ Arrow



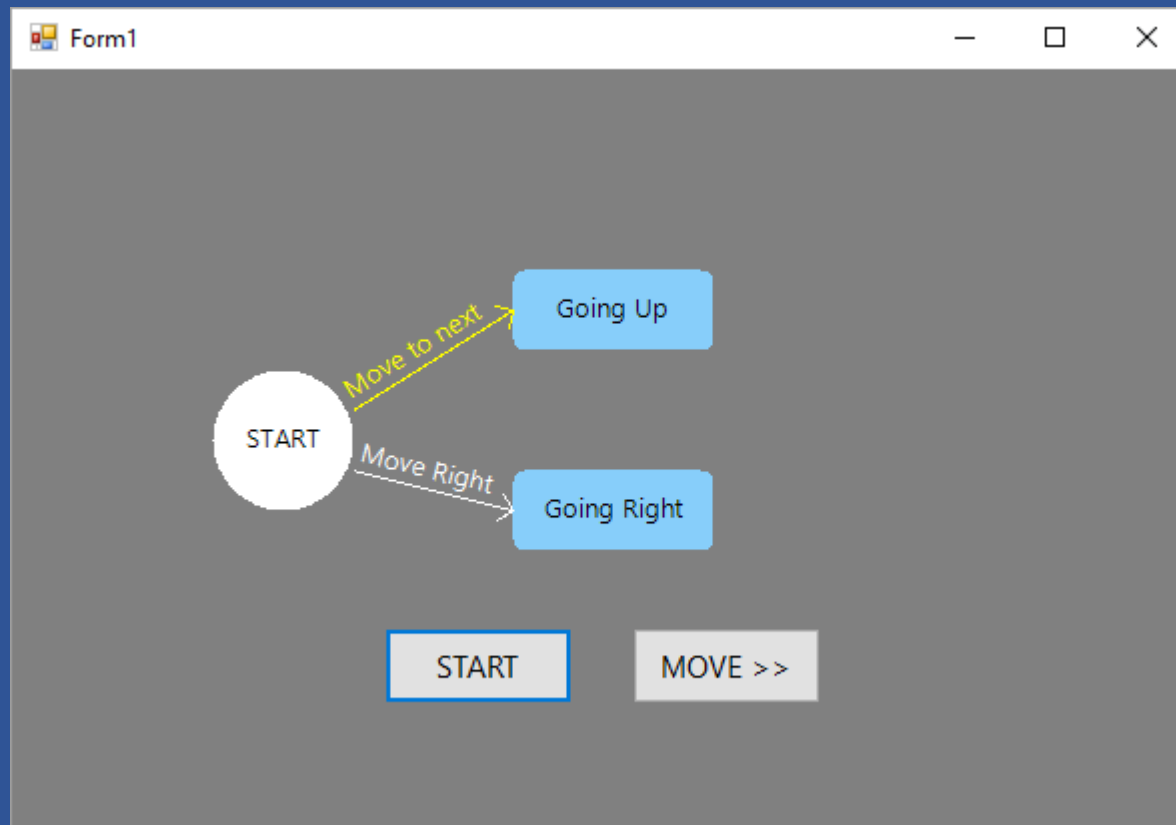
# Example 00170: Encapsulate Arrow to a class



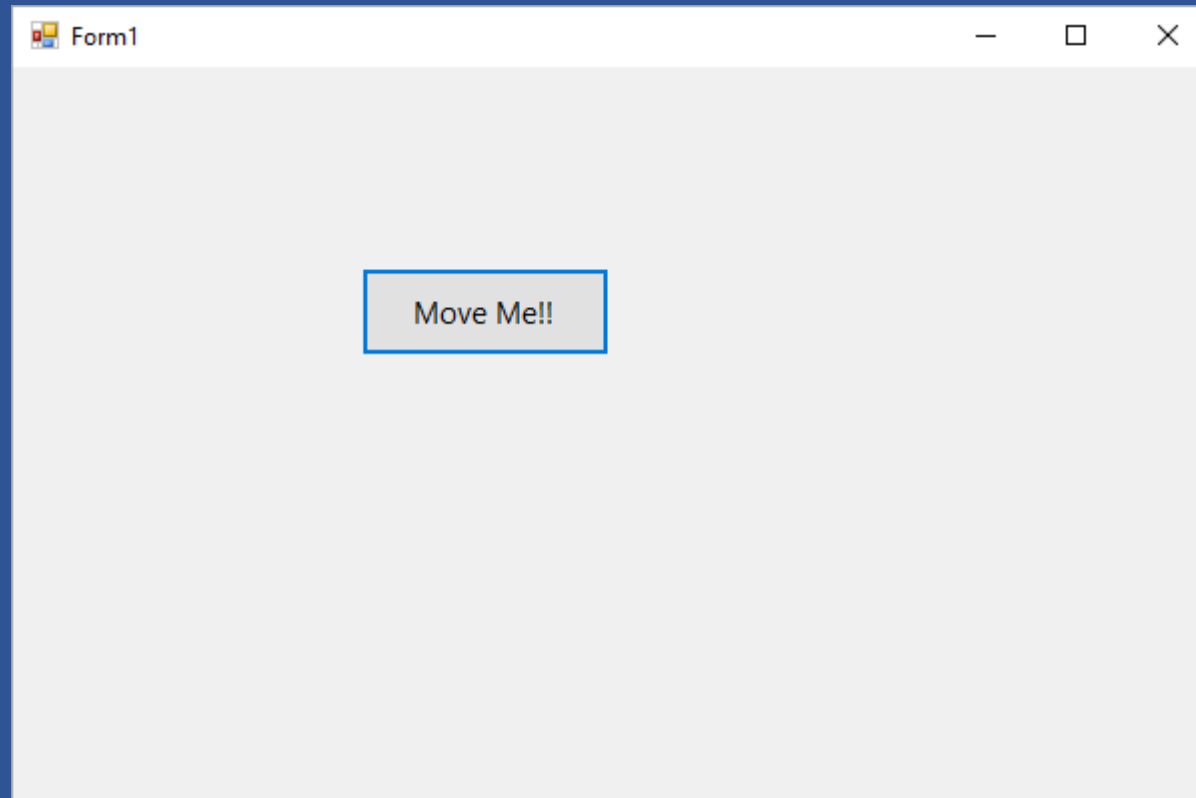
# Example 00180: Add text to arrow rotate correctly according to line angle



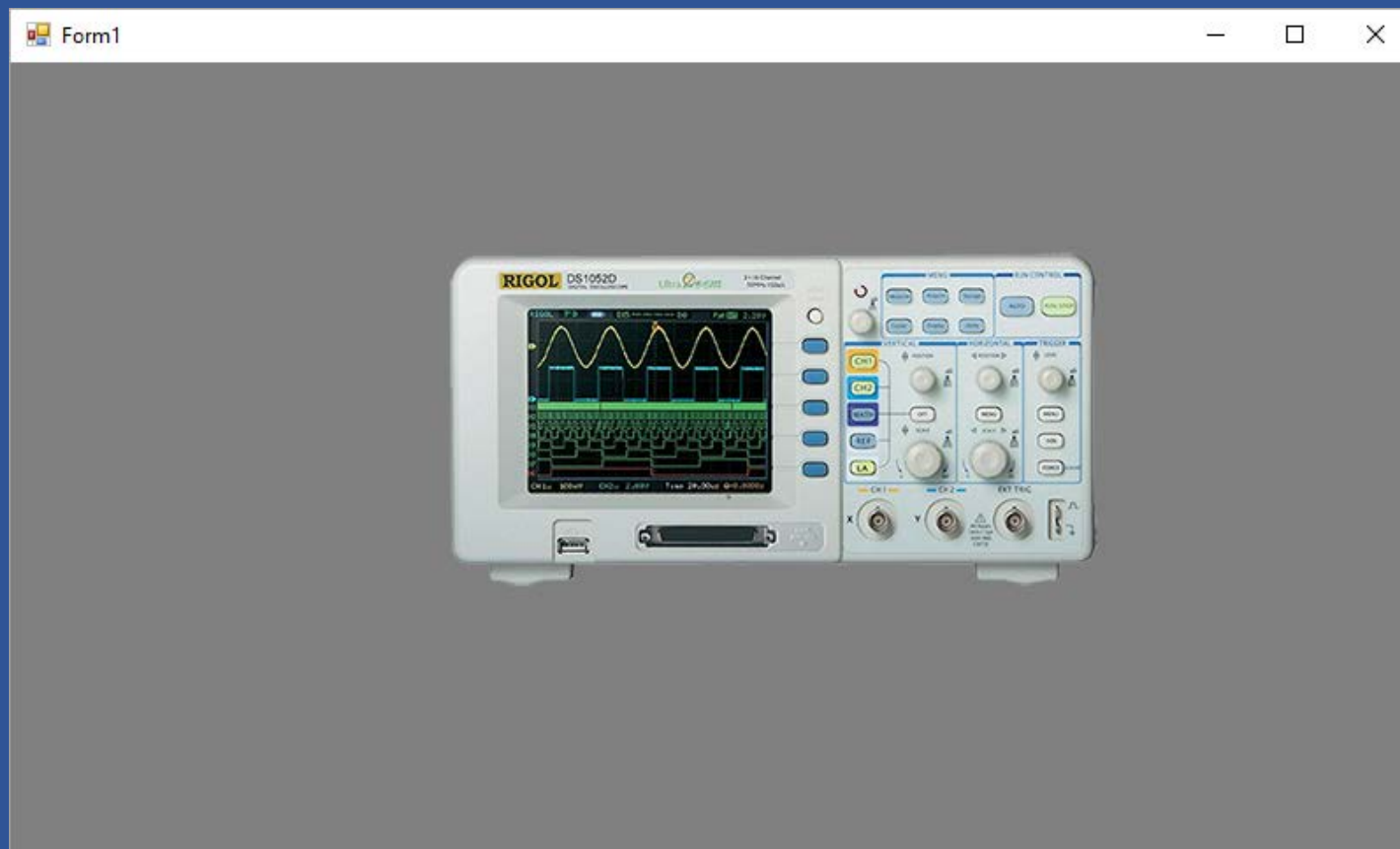
# Example 00190: Draw a simple diagram and animate GDI+ object



# Example 00200: Drag and move control

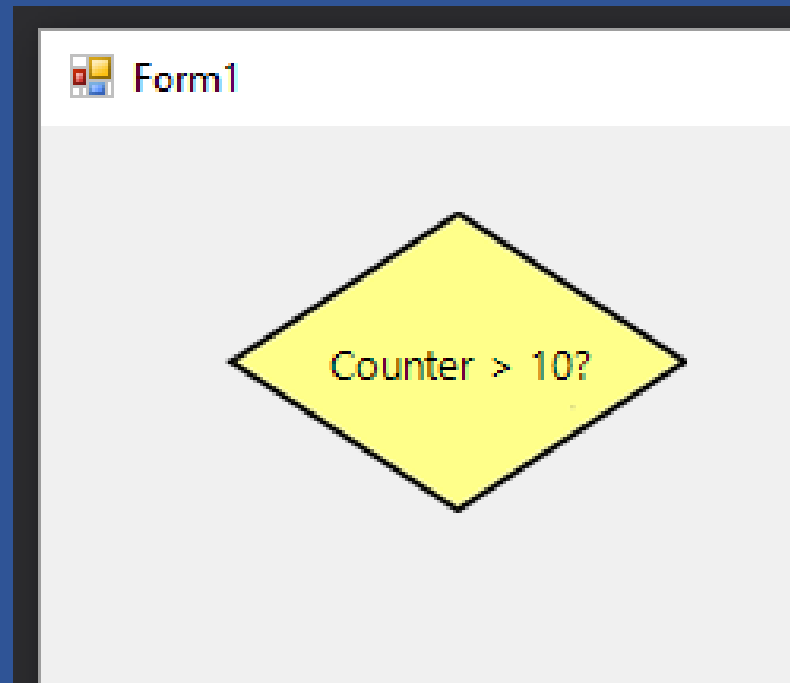


# Example 00202: Drag and move PictureBox with transparent background

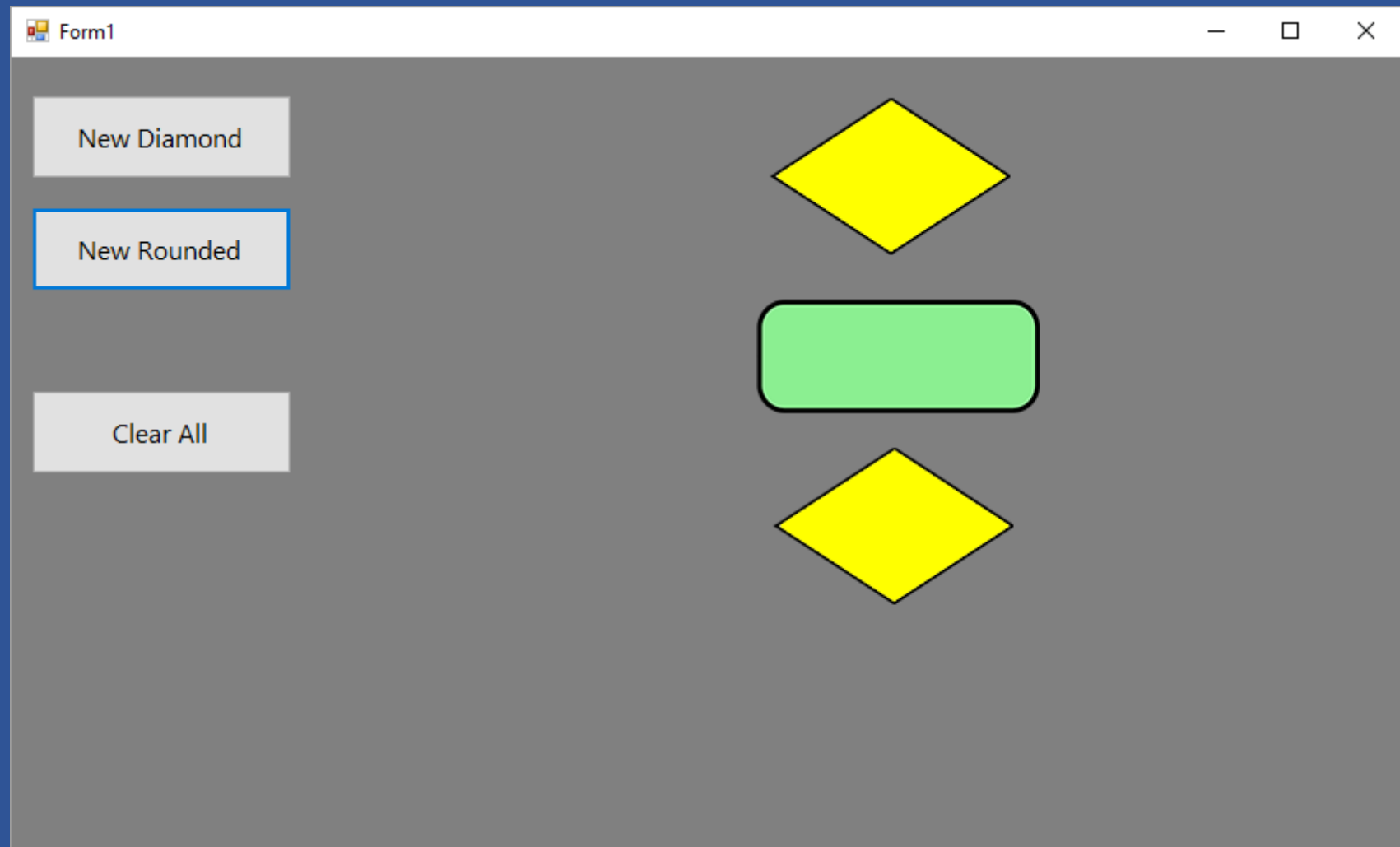




## Example 00210: Draw text inside pictureBox

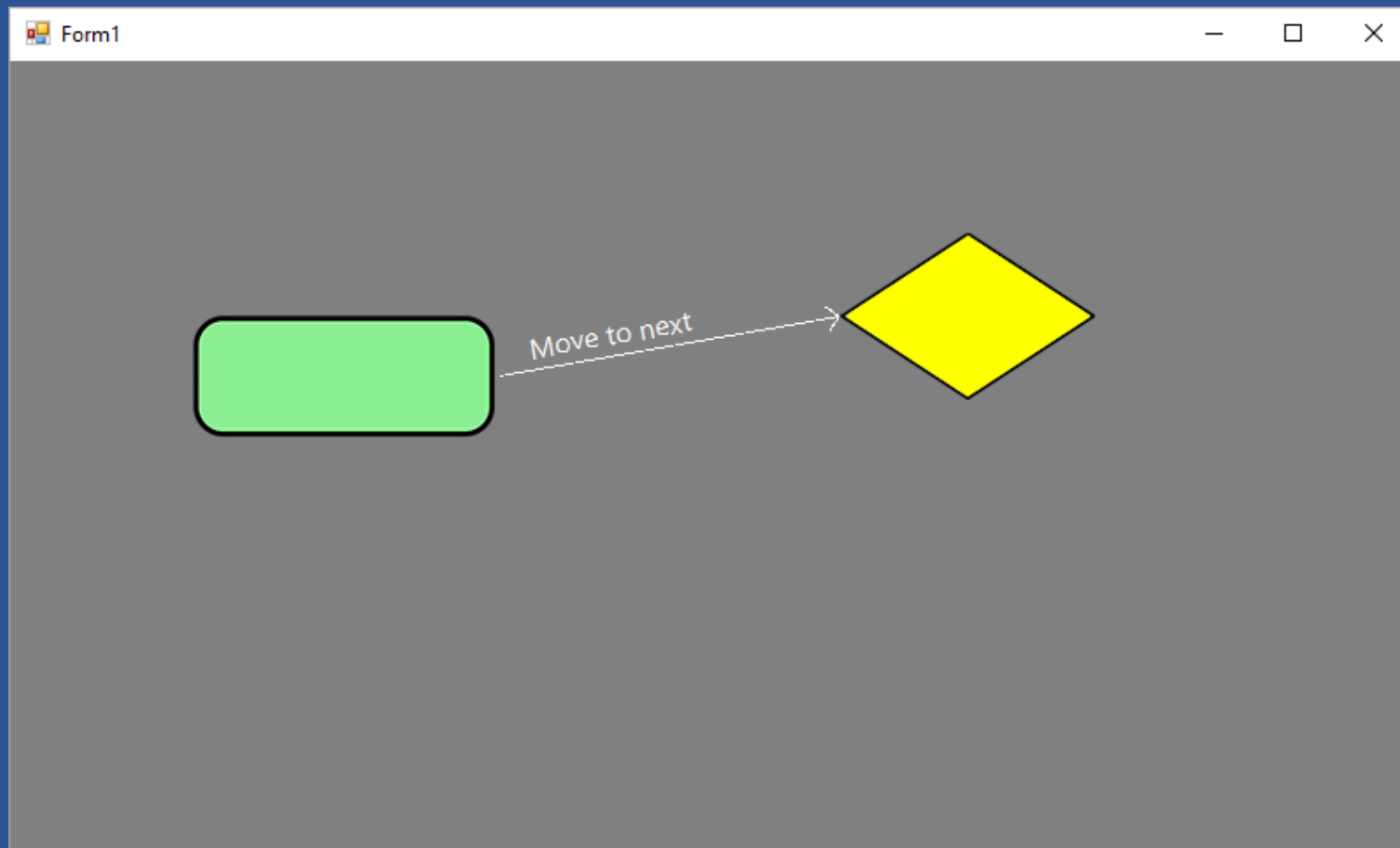


# Example 00220: Add new 2 kind of control to form



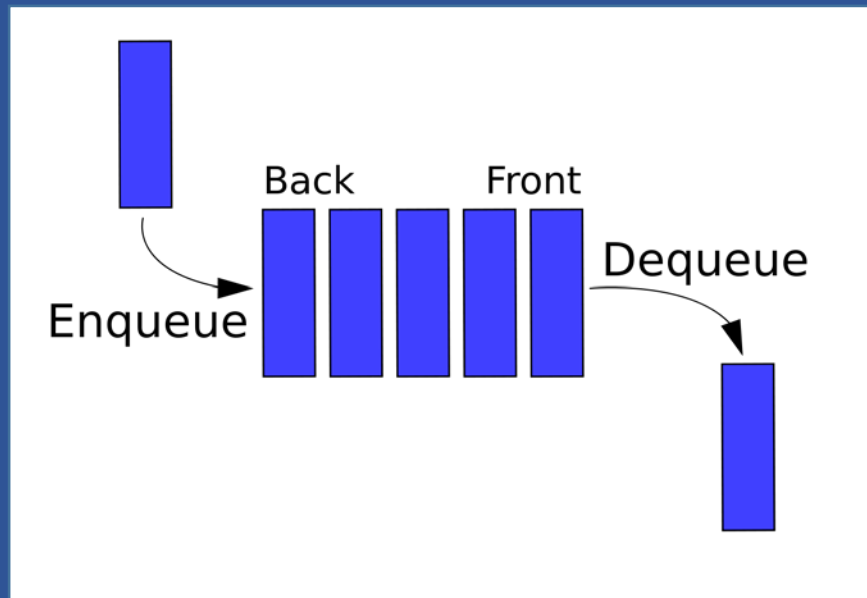
# Example 00230:

## Move Arrow Text Line when Drag Control



# Example 00240: Queue<T> operation demo GDI+

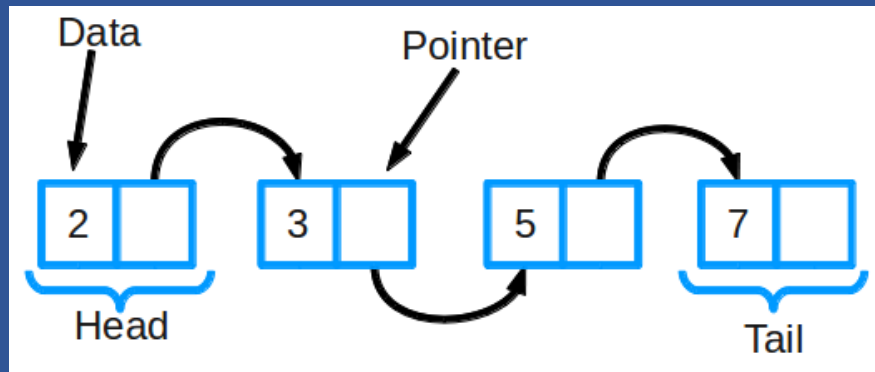
First in First Out (FIFO)



The screenshot shows a Windows Form titled 'Form1' with a light gray background. On the left side, there are three buttons: 'ENQUEUE', 'DEQUEUE', and 'CLEAR'. To the right of these buttons is a vertical list of task labels: 'Task00', 'Task01', 'Task02', 'Task03', 'Task04', and 'Task05'. The labels are arranged in a vertical stack. 'Task00' and 'Task02' are highlighted in cyan, while 'Task01', 'Task03', 'Task04', and 'Task05' are highlighted in yellow. The form has standard Windows window controls (minimize, maximize, close) in the top right corner.

# Example 00250: Demo List<T> operation demo GDI+

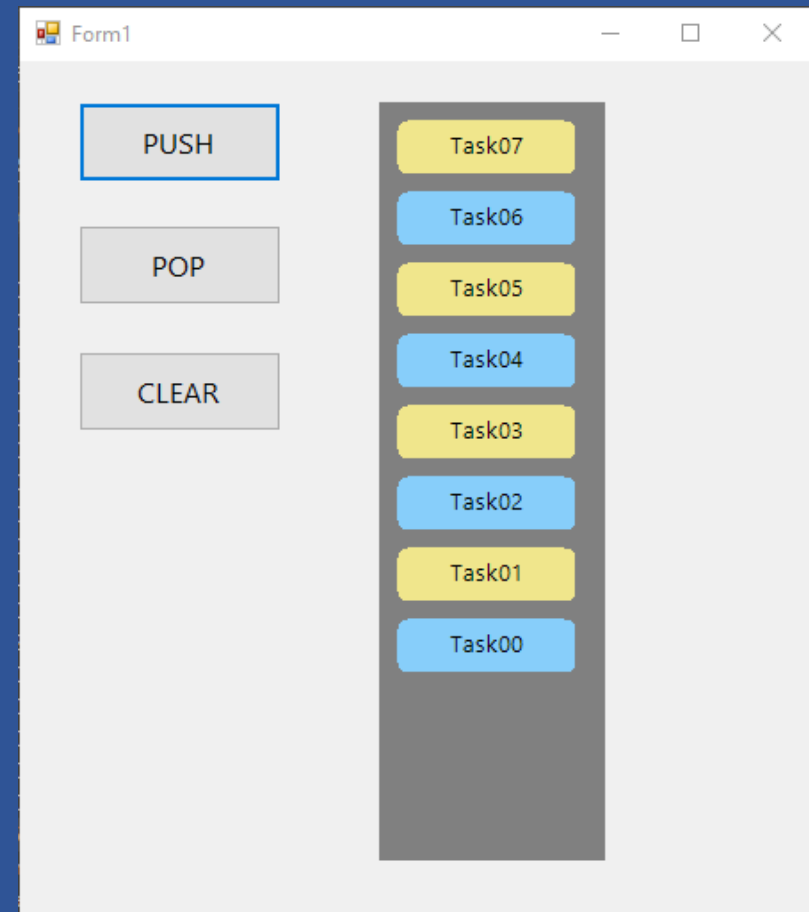
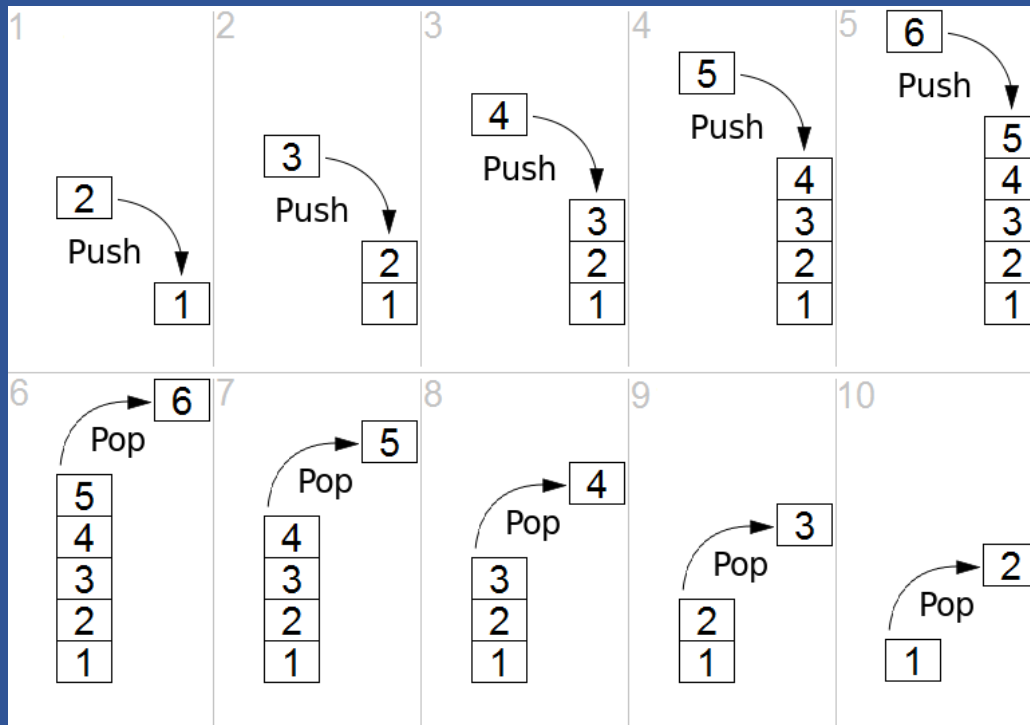
## Smart Array



The screenshot shows a Windows Form titled 'Form1'. It contains two columns of buttons. The left column has buttons labeled 'Run Task 0' through 'Run Task 9'. The right column has buttons labeled 'Task00' through 'Task09'. The 'Run Task 4' button in the left column is highlighted with a blue border. The 'Task04' button in the right column is highlighted with a green background.

# Example 00260: Stack<T> operation demo GDI+

Last In First Out (LIFO)



# Example 00270: Dictionary<T> operation demo GDI+

key pair value

