Tutorial – Graphics Device Interface (GDI)

Over the course of this tutorial you will experiment with different parts of the GDI library, and learn how to manipulate and draw different shapes and images.

In following weeks, you will be able to use these skills to help you develop tools that require more dynamic updating, such as path-editors, map creation tools and sprite editors.

Further information on the GDI library can be found at:

https://msdn.microsoft.com/en-us/library/aa983623(v=vs.71).aspx

Preparing an application that uses GDI:

1. Create a new C# Windows Form Application.

2. Override the Paint and Resize events.

3. In the Resize Event, call the Invalidate() function to force the application to re-paint the form when it is resized().

4. In the Paint event, retrieve the Graphics object from the form using the PaintEventArgs argument:

```
private void Form1_Paint(object sender, PaintEventArgs e)
        {
            //Get the Graphics Object that we will use for drawing
            Graphics g = e.Graphics;
```

All Drawing operations occur through a Form/Controls Graphics object.

5. Next, we need to create a Pen object that will describe how we want the object to be drawn.

```
    //Create a new Pen of size 5
    Pen redPen = new Pen(Color.Red);
    redPen.Width = 5;
```

You can make as many pens of different colours as you need, as long as you make sure you call the Dispose function on them one you are finished with them.

6. Use one of the Draw or Fill functions to draw a shape or polygon:

```
        redPen.DrawEllipse(p, new Rectangle(33, 45, 40, 50));

        //Don't forget to dispose of a pen when you are finished using it
        redPen.Dispose();
```

Some things to try:

Using the MSDN link above, experiment by trying to create the following objects using different types (and colours) of Brushes and Pens.

1. A simple house.

2. A face.

3. A Star

Advanced:

1. Render out a grid area using the FillRectangle and DrawLine functions

2. Modify the code so that when the user clicks at a location, it will begin to draw a marker at the clicked location