Colors, Pens, Brushes and Fonts

Graphic Objects and Color Specifications

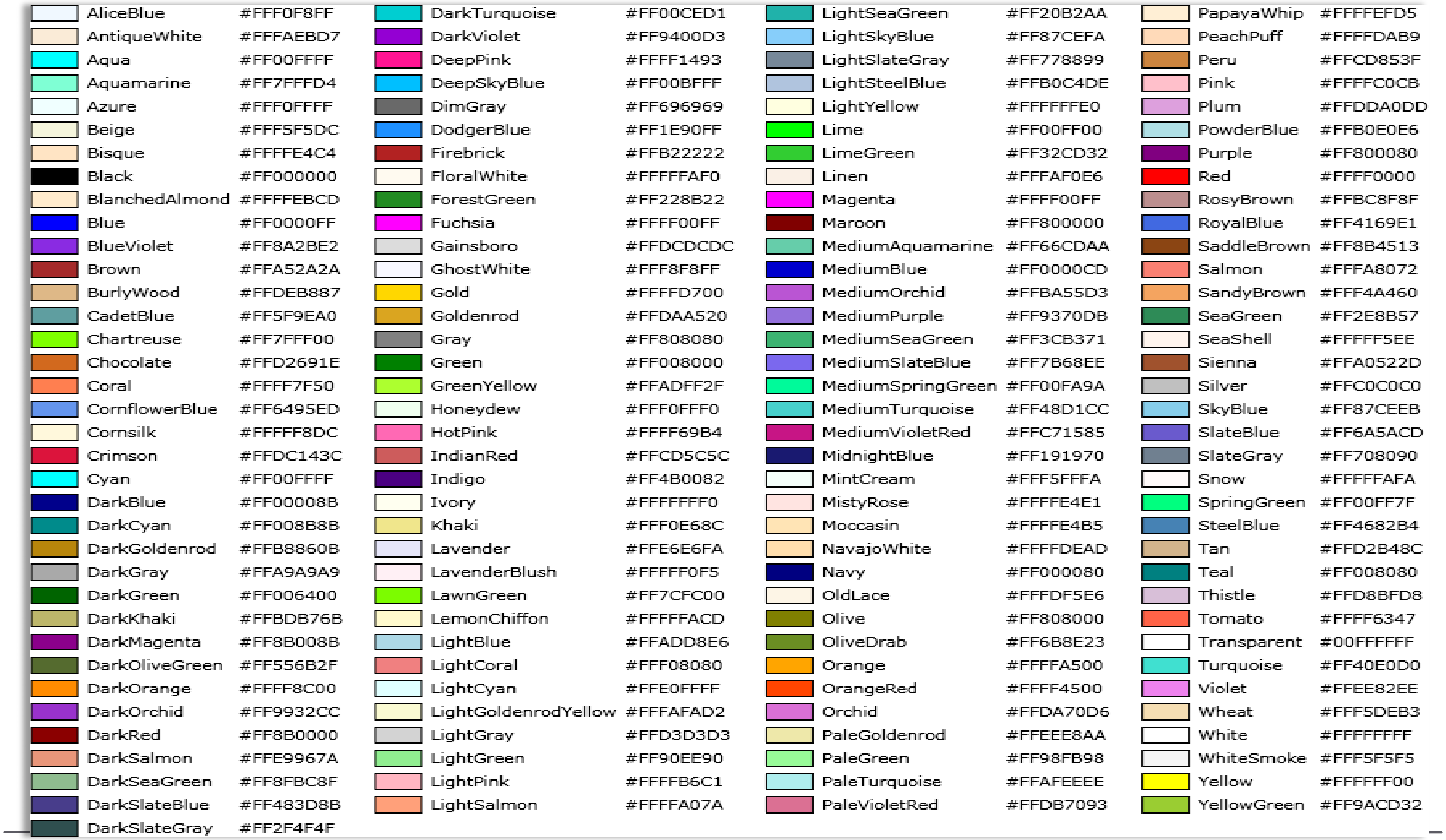
The Color Structure

- Represents an ARGB (alpha, red, green, blue) color.
- Named colors are represented by using the properties of the **Color** structure.
- For more information about these colors, see Colors by Name in the MSDN Library.
- To determine the alpha, red, green, or blue component of a color, use the A, R, G, or B property, respectively.
- You can create a custom color by using one of the **FromArgb** methods.

The Color Structure

```
private void ShowPropertiesOfSlateBlue(PaintEventArgs e)
{
    Color slateBlue = Color.FromName("SlateBlue");
    byte g = slateBlue.G;
    byte b = slateBlue.B;
    byte r = slateBlue.R;
    byte a = slateBlue.A;
    string text = String.Format("Slate Blue has these ARGB values: Alpha:{0}, " +
        "red:{1}, green: {2}, blue {3}", new object[] { a, r, g, b });
    e.Graphics.DrawString(text,
        new Font(this.Font, FontStyle.Italic),
        new SolidBrush(slateBlue),
        new RectangleF(new PointF(0.0F, 0.0F), this.Size));
}
```

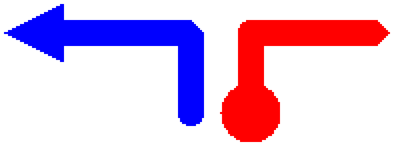
Named Colors

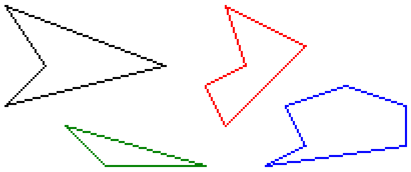


⬜	AliceBlue	#FFF0F8FF
⬜	AntiqueWhite	#FFFAEBD7
🟦	Aqua	#FF00FFFF
🟩	Aquamarine	#FF7FFFD4
⬜	Azure	#FFF0FFFF
⬜	Beige	#FFF5F5DC
⬜	Bisque	#FFFFE4C4
⬛	Black	#FF000000
⬜	BlanchedAlmond	#FFFFEBCD
🟦	Blue	#FF0000FF
🟪	BlueViolet	#FF8A2BE2
🟥	Brown	#FFA52A2A
🟫	BurlyWood	#FFDEB887
🟦	CadetBlue	#FF5F9EA0
🟩	Chartreuse	#FF7FFF00
🟧	Chocolate	#FFD2691E
🟧	Coral	#FFFF7F50
🟦	CornflowerBlue	#FF6495ED
⬜	Cornsilk	#FFFFF8DC
🟥	Crimson	#FFDC143C
🟦	Cyan	#FF00FFFF
🟦	DarkBlue	#FF00008B
🟦	DarkCyan	#FF008B8B
🟨	DarkGoldenrod	#FFB8860B
⬛	DarkGray	#FFA9A9A9
🟩	DarkGreen	#FF006400
🟨	DarkKhaki	#FFBDB76B
🟪	DarkMagenta	#FF8B008B
🟩	DarkOliveGreen	#FF556B2F
🟧	DarkOrange	#FFFF8C00
🟪	DarkOrchid	#FF9932CC
🟥	DarkRed	#FF8B0000
🟧	DarkSalmon	#FFE9967A
🟩	DarkSeaGreen	#FF8FBC8F
🟪	DarkSlateBlue	#FF483D8B
⬛	DarkSlateGray	#FF2F4F4F
🟦	DarkTurquoise	#FF00CED1
🟪	DarkViolet	#FF9400D3
🟥	DeepPink	#FFFF1493
🟦	DeepSkyBlue	#FF00BFFF
⬛	DimGray	#FF696969
🟦	DodgerBlue	#FF1E90FF
🟥	Firebrick	#FFB22222
⬜	FloralWhite	#FFFFFAF0
🟩	ForestGreen	#FF228B22
🟪	Fuchsia	#FFFF00FF
⬜	Gainsboro	#FFDCDCDC
⬜	GhostWhite	#FFF8F8FF
🟨	Gold	#FFFFD700
🟨	Goldenrod	#FFDAA520
⬛	Gray	#FF808080
🟩	Green	#FF008000
🟩	GreenYellow	#FFADFF2F
⬜	Honeydew	#FFF0FFF0
🟥	HotPink	#FFFF69B4
🟥	IndianRed	#FFCD5C5C
🟪	Indigo	#FF4B0082
⬜	Ivory	#FFFFFFF0
🟨	Khaki	#FFF0E68C
⬜	Lavender	#FFE6E6FA
⬜	LavenderBlush	#FFFFF0F5
🟩	LawnGreen	#FF7CFC00
🟨	LemonChiffon	#FFFFFACD
🟦	LightBlue	#FFADD8E6
🟥	LightCoral	#FFF08080
⬜	LightCyan	#FFE0FFFF
⬜	LightGoldenrodYellow	#FFFAFAD2
⬜	LightGray	#FFD3D3D3
🟩	LightGreen	#FF90EE90
🟥	LightPink	#FFFFB6C1
🟧	LightSalmon	#FFFFA07A
🟩	LightSeaGreen	#FF20B2AA
🟦	LightSkyBlue	#FF87CEFA
⬛	LightSlateGray	#FF778899
🟦	LightSteelBlue	#FFB0C4DE
⬜	LightYellow	#FFFFFFE0
🟩	Lime	#FF00FF00
🟩	LimeGreen	#FF32CD32
⬜	Linen	#FFFAF0E6
🟪	Magenta	#FFFF00FF
🟥	Maroon	#FF800000
🟩	MediumAquamarine	#FF66CDAA
🟦	MediumBlue	#FF0000CD
🟪	MediumOrchid	#FFBA55D3
🟪	MediumPurple	#FF9370DB
🟩	MediumSeaGreen	#FF3CB371
🟪	MediumSlateBlue	#FF7B68EE
🟩	MediumSpringGreen	#FF00FA9A
🟦	MediumTurquoise	#FF48D1CC
🟪	MediumVioletRed	#FFC71585
🟦	MidnightBlue	#FF191970
⬜	MintCream	#FFF5FFFA
⬜	MistyRose	#FFFFE4E1
🟨	Moccasin	#FFFFE4B5
🟨	NavajoWhite	#FFFFDEAD
🟦	Navy	#FF000080
⬜	OldLace	#FFFDF5E6
🟩	Olive	#FF808000
🟩	OliveDrab	#FF6B8E23
🟧	Orange	#FFFFA500
🟥	OrangeRed	#FFFF4500
🟪	Orchid	#FFDA70D6
🟨	PaleGoldenrod	#FFEEE8AA
🟩	PaleGreen	#FF98FB98
🟦	PaleTurquoise	#FFAFEEEE
🟥	PaleVioletRed	#FFDB7093
⬜	PapayaWhip	#FFFFEFD5
🟧	PeachPuff	#FFFFDAB9
🟫	Peru	#FFCD853F
🟥	Pink	#FFFFC0CB
🟪	Plum	#FFDDA0DD
🟦	PowderBlue	#FFB0E0E6
🟪	Purple	#FF800080
🟥	Red	#FFFF0000
🟫	RosyBrown	#FFBC8F8F
🟦	RoyalBlue	#FF4169E1
🟫	SaddleBrown	#FF8B4513
🟥	Salmon	#FFFA8072
🟧	SandyBrown	#FFF4A460
🟩	SeaGreen	#FF2E8B57
⬜	SeaShell	#FFFFF5EE
🟫	Sienna	#FFA0522D
⬜	Silver	#FFC0C0C0
🟦	SkyBlue	#FF87CEEB
🟪	SlateBlue	#FF6A5ACD
⬛	SlateGray	#FF708090
⬜	Snow	#FFFFFAFA
🟩	SpringGreen	#FF00FF7F
🟦	SteelBlue	#FF4682B4
🟫	Tan	#FFD2B48C
🟦	Teal	#FF008080
🟪	Thistle	#FFD8BFD8
🟥	Tomato	#FFFF6347
⬜	Transparent	#00FFFFFF
🟦	Turquoise	#FF40E0D0
🟪	Violet	#FFEE82EE
🟨	Wheat	#FFF5DEB3
⬜	White	#FFFFFFFF
⬜	WhiteSmoke	#FFF5F5F5
🟨	Yellow	#FFFFFF00
🟩	YellowGreen	#FF9ACD32

The Pen Class

- Defines an object used to draw lines and curves. This class cannot be inherited.
- A Pen draws a line of specified width and style. Use the **DashStyle** property to draw several varieties of dashed lines.
- The line drawn by a **Pen** can be filled in a variety of fill styles, including solid colors and textures.
- The fill style depends on brush or texture that is used as the fill object.





The Pen Class

```
private void ShowLineJoin(PaintEventArgs e)
{
    // Create a new pen.
    Pen skyBluePen = new Pen(Brushes.DeepSkyBlue);

    // Set the pen's width.
    skyBluePen.Width = 8.0F;

    // Set the LineJoin property.
    skyBluePen.LineJoin = System.Drawing.Drawing2D.LineJoin.Bevel;

    // Draw a rectangle.
    e.Graphics.DrawRectangle(skyBluePen,
        new Rectangle(40, 40, 150, 200));

    //Dispose of the pen.
    skyBluePen.Dispose();
}
```

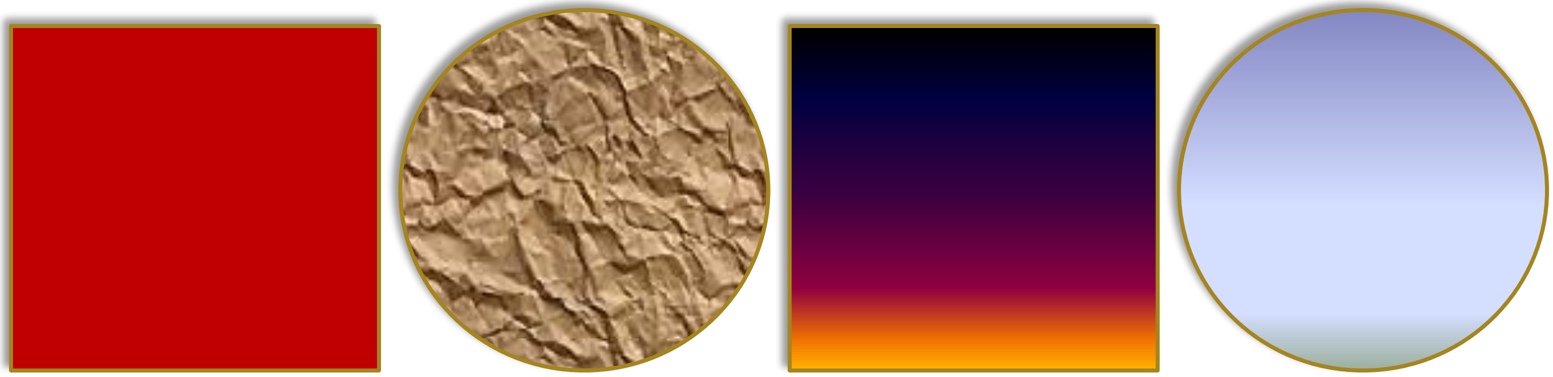
The Pens Class

- Pens for all the standard colors.
- This class cannot be inherited.

```
private void UsePensClass(PaintEventArgs e)
{
    e.Graphics.DrawEllipse(Pens.SlateBlue,
        new Rectangle(40, 40, 140, 140));
}
```

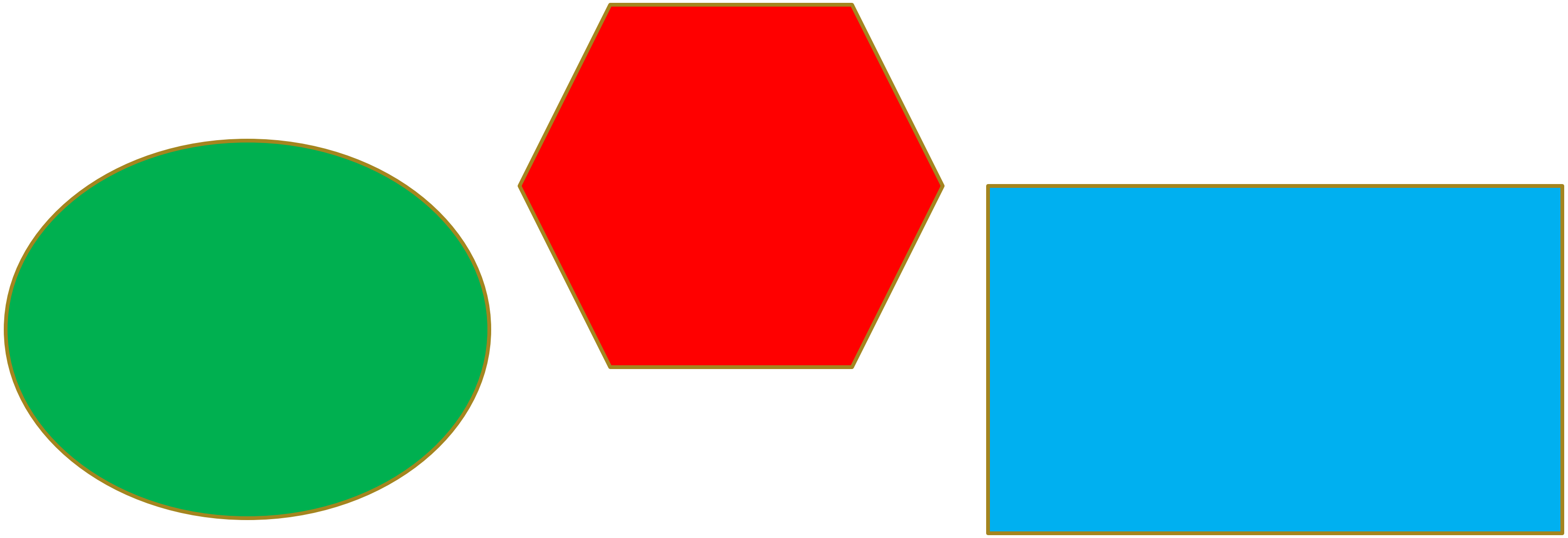
The Brush Class

- Defines objects used to fill the interiors of graphical shapes such as rectangles, ellipses, pies, polygons, and paths.
- This is an abstract base class and cannot be instantiated.
- To create a brush object, use classes derived from Brush, such as **SolidBrush**, **TextureBrush**, and **LinearGradientBrush**.



SolidBrush

- Defines a brush of a single color.
- Brushes are used to fill graphics shapes, such as rectangles, ellipses, pies, polygons, and paths.
- This class inherits from the **Brush** class.

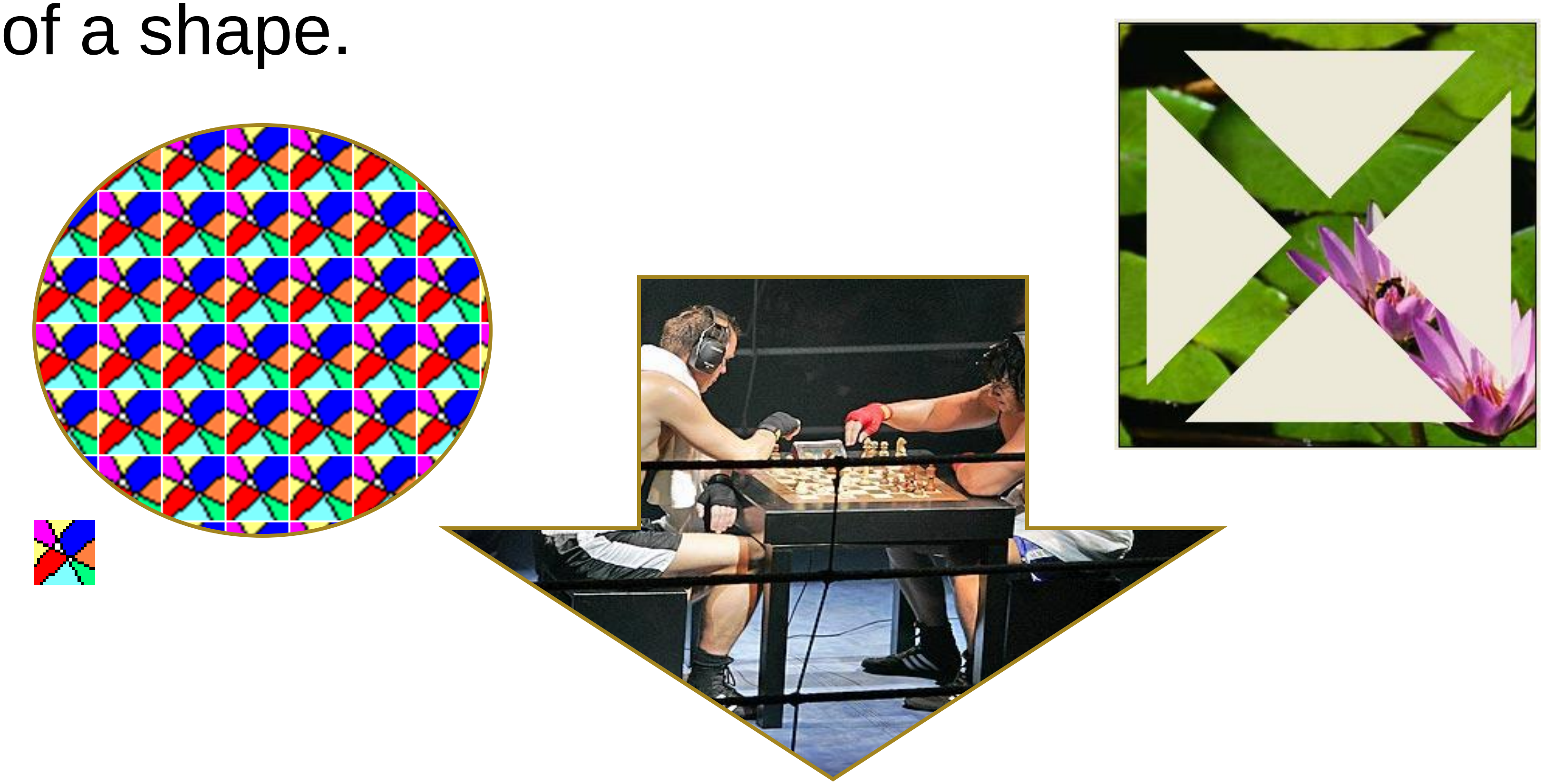


SolidBrush

```
private void AddShadow(PaintEventArgs e)
{
    // Create two SizeF objects.
    SizeF shadowSize = listBox1.Size;
    SizeF addSize = new SizeF(10.5F, 20.8F);

    // Add them together and save the result in shadowSize.
    shadowSize = shadowSize + addSize;

    // Get the location of the ListBox and convert it to a PointF.
    PointF shadowLocation = listBox1.Location;

    // Add two points to get a new location.
    shadowLocation = shadowLocation + new Size(5, 5);

    // Create a rectangleF.
    RectangleF rectFToFill =
        new RectangleF(shadowLocation, shadowSize);

    // Create a custom brush using a semi-transparent color, and
    // then fill in the rectangle.
    Color customColor = Color.FromArgb(50, Color.Gray);
    SolidBrush shadowBrush = new SolidBrush(customColor);
    e.Graphics.FillRectangles(shadowBrush, new RectangleF[] { rectFToFill });

    // Dispose of the brush.
    shadowBrush.Dispose();
}
```

TextureBrush

- Each property of the **TextureBrush** class is a **Brush** object that uses an image to fill the interior of a shape.

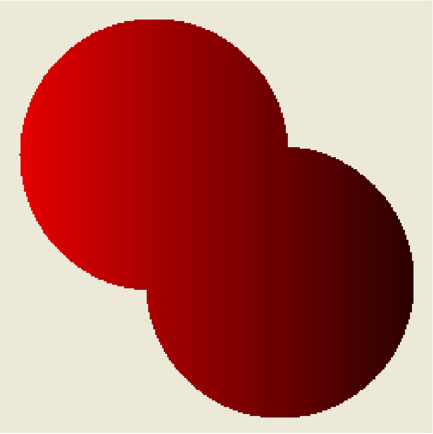


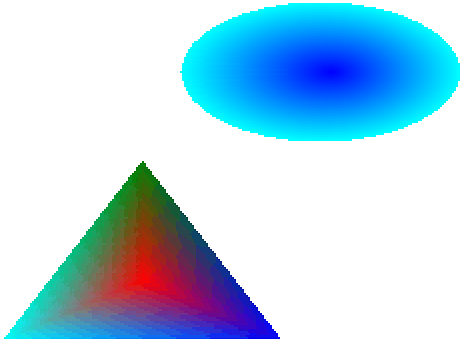
TextureBrush

```
private void Button2_Click(System.Object sender, System.EventArgs e)
{
    try
    {
        Bitmap image1 = (Bitmap)Image.FromFile(@"C:\Documents and Settings\" +
            @"All Users\Documents\My Music\music.bmp", true);

        TextureBrush texture = new TextureBrush(image1);
        texture.WrapMode = System.Drawing.Drawing2D.WrapMode.Tile;
        Graphics formGraphics = this.CreateGraphics();
        formGraphics.FillEllipse(texture,
            new RectangleF(90.0F, 110.0F, 100, 100));
        formGraphics.Dispose();

    }
    catch (System.IO.FileNotFoundException)
    {
        MessageBox.Show("There was an error opening the bitmap." +
            "Please check the path.");
    }
}
```

LinearGradientBrush

- Encapsulates a **Brush** with a linear gradient.
- This class encapsulates both two-color gradients and custom multicolor gradients.
- All linear gradients are defined along a line specified either by the width of a rectangle or by two points.
- System.Drawing.Drawing2D namespace.





The Font Class

- Defines a particular format for text, including font face, size, and style attributes.
- Windows Forms applications support TrueType fonts and have limited support for OpenType fonts.
- IF YOU ATTEMPT TO USE A FONT THAT IS NOT SUPPORTED, OR THE FONT IS NOT INSTALLED ON THE MACHINE THAT IS RUNNING THE APPLICATION, THE MICROSOFT SANS SERIF FONT WILL BE SUBSTITUTED.

The Font Class

```
private void ComboBox1_SelectedIndexChanged(Object sender, EventArgs e)
{
    // Cast the sender object back to a ComboBox.
    ComboBox ComboBox1 = (ComboBox)sender;

    // Retrieve the selected item.
    string selectedString = (string)ComboBox1.SelectedItem;

    // Convert it to lowercase.
    selectedString = selectedString.ToLower();

    // Declare the current size.
    float currentSize;

    // Switch on the selected item.
    switch (selectedString)
    {

        // If Bigger is selected, get the current size from the
        // Size property and increase it. Reset the font to the
        //  new size, using the current unit.
        case "bigger":
            currentSize = Label1.Font.Size;
            currentSize += 2.0F;
            Label1.Font = new Font(Label1.Font.Name, currentSize,
                Label1.Font.Style, Label1.Font.Unit);

            // If Smaller is selected, get the current size, in points,
            // and decrease it by 1.  Reset the font with the new size
            // in points.
            break;
        case "smaller":
            currentSize = Label1.Font.SizeInPoints;
            currentSize -= 1;
            Label1.Font = new Font(Label1.Font.Name, currentSize,
                Label1.Font.Style);
            break;
    }
}
```

The End

Colors, Pens, Brushes and Fonts