**31장 비트맵, 브러시, 드로잉**

**브러시 계층도 -** 1259p

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| Object  DispatcherObject(abstract)  DependencyObject  Freezable(abstract)  Animatable(abstract)  Brush(abstract)  GradientBrush(abstract)  LinearGradientBrush  RadialGradientBrush  SolidColorBrush  **TileBrush(abstract)**  DrawingBrush  ImageBrush  VisualBrush |

* DrawingBrush : GeometryDrawing객체(Drawing,미디어 플레이어)
* ImageBrush : ImageSource(BitmapImage,DrawingImage,그래픽 오브젝트)
* VisualBrush : DrawingVisual 객체, 컨트롤, 사용자 인터페이스의 다른 부분 그리기위해
* TileBrush에 정의된 8개의 프로퍼티를 모두 제어 가능

예제 1 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Background>  <ImageBrush  ImageSource="http://www.charlespetzold.com/PetzoldTattoo.jpg">  </ImageBrush>  </Page.Background>  </Page> |

예제 2 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Background>  <VisualBrush>  <VisualBrush.Visual>  <Button Content="Button?" />  </VisualBrush.Visual>  </VisualBrush>  </Page.Background>  </Page> |

예제 3 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Background>  <DrawingBrush>  <DrawingBrush.Drawing>  <GeometryDrawing Brush="Red">  <GeometryDrawing.Pen>  <Pen Brush="Blue" />  </GeometryDrawing.Pen>  <GeometryDrawing.Geometry>  <EllipseGeometry Center="0 0" RadiusX="10"  RadiusY="10" />  </GeometryDrawing.Geometry>  </GeometryDrawing>  </DrawingBrush.Drawing>  </DrawingBrush>  </Page.Background>  </Page> |

예제 4 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Background>  <DrawingBrush>  <DrawingBrush.Drawing>  <DrawingGroup>  <!-- Fill the background with pink. -->  <GeometryDrawing Brush="Pink">  <GeometryDrawing.Geometry>  <RectangleGeometry Rect="0 0 200 100" />  </GeometryDrawing.Geometry>  </GeometryDrawing>  <GeometryDrawing Brush="Aqua">  <GeometryDrawing.Pen>  <Pen Brush="Blue" Thickness="2" />  </GeometryDrawing.Pen>  <GeometryDrawing.Geometry>  <GeometryGroup>  <!-- Draw the outline of the blue fish. -->  <PathGeometry>  <PathFigure StartPoint="200 0"  IsClosed="True"  IsFilled="True">  <BezierSegment Point1="150 100"  Point2="50 -50"  Point3="0 50" />  <BezierSegment Point1="50 150"  Point2="150 0"  Point3="200 100" />  </PathFigure>  </PathGeometry>  <!-- Draw the fish eyes. -->  <EllipseGeometry Center="35 35"  RadiusX="5" RadiusY="5" />  <EllipseGeometry Center="165 85"  RadiusX="5" RadiusY="5" />  </GeometryGroup>  </GeometryDrawing.Geometry>  </GeometryDrawing>  </DrawingGroup>  </DrawingBrush.Drawing>  </DrawingBrush>  </Page.Background>  </Page> |

예제 5 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Background>  <ImageBrush TileMode="Tile" Viewport="25 30 50 60" ViewportUnits="Absolute"  ImageSource="http://www.charlespetzold.com/PetzoldTattoo.jpg">  </ImageBrush>  </Page.Background>  </Page> |

예제 6 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Resources>  <Style TargetType="{x:Type TextBlock}">  <Setter Property="VerticalAlignment" Value="Bottom" />  <Setter Property="FontFamily" Value="Lucida Calligraphy" />  <Setter Property="FontSize" Value="36" />  </Style>  <Style TargetType="{x:Type CheckBox}">  <Setter Property="FontSize" Value="24" />  <Setter Property="Margin" Value="12" />  </Style>  </Page.Resources>  <!-- StackPanel for controls and their reflections. -->  <StackPanel>  <!-- StackPanel for controls. -->  <StackPanel Name="pnlControls" Orientation="Horizontal"  HorizontalAlignment="Center">  <TextBlock Text="Check..." />  <StackPanel HorizontalAlignment="Center">  <CheckBox Content="CheckBox 1" />  <CheckBox Content="CheckBox 2" />  <CheckBox Content="CheckBox 3" />  </StackPanel>  <TextBlock Text="...Boxes" />  </StackPanel>  <!-- StackPanel for reflection. -->  <StackPanel Height="{Binding ElementName=pnlControls,  Path=ActualHeight}">  <!-- VisualBrush inverts image of controls. -->  <StackPanel.Background>  <VisualBrush Visual="{Binding ElementName=pnlControls}"  Stretch="None">  <VisualBrush.RelativeTransform>  <TransformGroup>  <ScaleTransform ScaleX="1" ScaleY="-1" />  <TranslateTransform Y="1" />  </TransformGroup>  </VisualBrush.RelativeTransform>  </VisualBrush>  </StackPanel.Background>  <!-- OpacityMask makes it fade out. -->  <StackPanel.OpacityMask>  <LinearGradientBrush StartPoint="0 0" EndPoint="0 1">  <GradientStop Offset="0" Color="#80000000" />  <GradientStop Offset="1" Color="#00000000" />  </LinearGradientBrush>  </StackPanel.OpacityMask>  </StackPanel>  </StackPanel>  </Page> |

예제 7 )

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| <Page xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">  <Page.Background>  <DrawingBrush TileMode="Tile" Stretch="None"  Viewport="0 0 12 12" ViewportUnits="Absolute">  <DrawingBrush.Drawing>  <GeometryDrawing Brush="Blue">  <GeometryDrawing.Geometry>  <EllipseGeometry x:Name="elipsgeo" Center="0 0" />  </GeometryDrawing.Geometry>  </GeometryDrawing>  </DrawingBrush.Drawing>  </DrawingBrush>  </Page.Background>  <Page.Triggers>  <EventTrigger RoutedEvent="Page.Loaded">  <BeginStoryboard>  <Storyboard TargetName="elipsgeo" RepeatBehavior="Forever">  <DoubleAnimation Storyboard.TargetProperty="RadiusX"  From="4" To="6" Duration="0:0:0.25"  AutoReverse="True" />  <DoubleAnimation Storyboard.TargetProperty="RadiusY"  From="6" To="4" Duration="0:0:0.25"  AutoReverse="True" />  </Storyboard>  </BeginStoryboard>  </EventTrigger>  </Page.Triggers>  </Page> |

예제 7 )

* HybridClock