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Windows Universal Layout Controls

Apps for Windows Phone & Windows Store

Telerik Software Academy
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What is a Container?

- Containers are things that contain other things
  - Like `divs` and `sections` in HTML
  - They hold other controls / elements
  - Used to build the layout of the application
- Every container is given a space to consume
  - All his children are in this space

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Containers in XAML

- In XAML containers are called Panels
- Three common types of panels
  - Panels with absolute coordinates
  - Panels with stacking order
  - Panels with proportional or with rows/columns
- Absolute coordinates Panels
  - Canvas
  - Controls inside the canvas are arranged based on the Canvas position and size

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Containers in XAML (2)

- Stacking Panels
  - `StackPanel`
  - Elements are arranged in a stacking order
    - i.e. first come goes in the beginning
- Proportional Panels
  - Grid, VariableSizedWrapGrid and WrapGrid
  - Arrange the elements in a table-like layout

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The Canvas Container

The Canvas Container

- The Canvas is a layout container
  - An element that holds other elements
  - Elements inside are positioned using fixed coordinates
  - Places elements behind or in front of others (depending on the z-order)
  - Supports size and clipping

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The Canvas Container (2)

- To position elements inside a Canvas use attached properties
- Example:
  - Places a Rectangle at specific location in a Canvas

```
<Canvas>
  <Rectangle Canvas.Left="30" Canvas.Top="30"
      Fill="Red" Width="100" Height="100"/>
  …
</Canvas>
```

The Canvas Container (3)

- Placing elements behind or in front of others depends on the z-order
- The default z-order
  - Defines which elements are "on top of" the other elements
  - Determined by the order in which the children are added to the `Canvas`
- Customize the z-order of any child element using `Canvas.ZIndex` attached property

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The Canvas Container – Example

```
<Canvas Background="White" Height="680">
  <Rectangle Canvas.Left="0" Canvas.Top="0" Fill="Red"
    Width="100" Height="100" Canvas.ZIndex="3" />
  <Rectangle Canvas.Left="20" Canvas.Top="20"
    Fill="Orange" Width="100" Height="100"
    Canvas.ZIndex="2" />
  <Canvas Canvas.Left="300" Canvas.Top="300"
    Canvas.ZIndex="1">
    <Rectangle Width="120" Height="330" RadiusX="20"
      RadiusY="20" Fill="Black"/>
    <Ellipse Canvas.Left="10" Canvas.Top="10"
      Width="100" Height="100" Fill="Red"/>
  </Canvas>
</Canvas>
```

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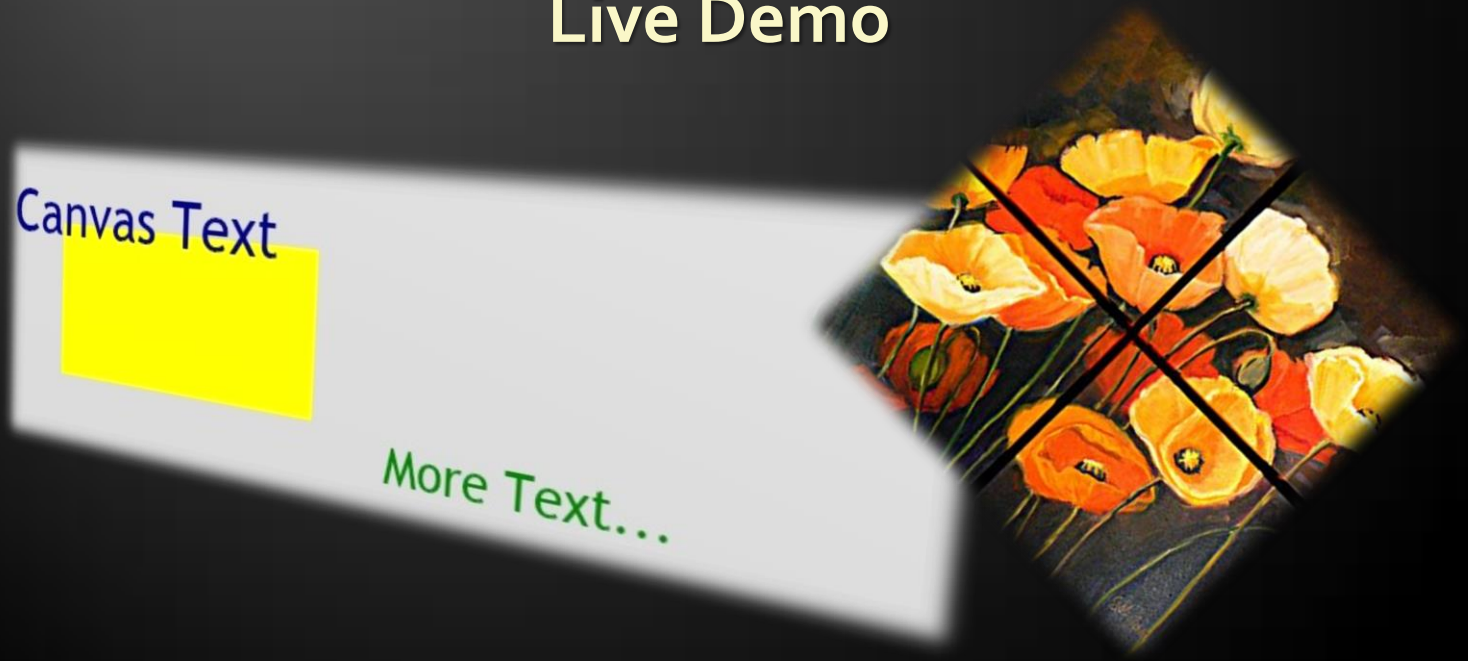
Customize the Z-order and Multiple Canvas Elements

Live Demo



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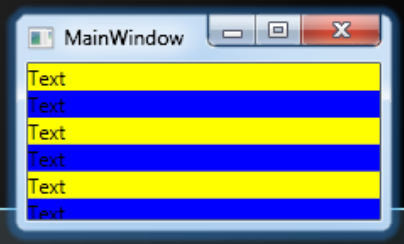
StackPanel

StackPanel

- The StackPanel arranges the elements in one row/column
  - Depends on the orientation property
  - If the size of each element is not explicitly set all elements have the same width/height
  - Can set flow orientation
    - Vertical or Horizontal




```
<StackPanel>
 <TextBlock Text="Text" Background="Yellow"/>
 <TextBlock Text="Text" Background="Blue"/>
</StackPanel>
```

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StackPanel

Live Demo

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Grid Panels

Grid and UniformGrid

Grid

- The most powerful layout container in XAML
  - Everything can be done with `Grid`
    - Sometimes way harder than using `StackPanel`
- Arranges the elements in a table-like layout
  - Predefined number of rows and columns
  - Each element has explicitly set grid row/column
  - Using the attached properties `Grid.Row` and `Grid.Column`
- If no columns/rows are defined, works the like canvas

Grid (2)

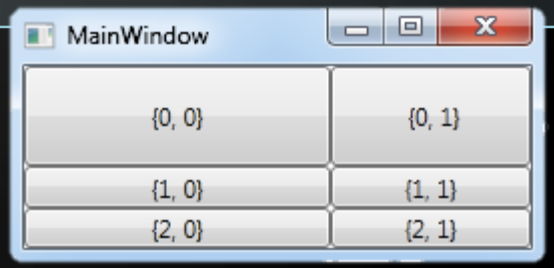
- Number of Rows is defined by a content property called "RowDefinitions"
  - Each row can be set a height
- The same with "ColumnDefinitions"

```
<Grid.RowDefinitions>
  <RowDefinition Height="50"/>
  <RowDefinition/>
  <RowDefinition/>
</Grid.RowDefinitions>
<Grid.ColumnDefinitions>
  <ColumnDefinition/>
  <ColumnDefinition Width="50"/>
</Grid.ColumnDefinitions>
```

Grid (3)

- Each of the elements in a Grid should have a Grid.Row and/or Grid.Column property set

```
<Grid>
…
  <Button Grid.Row="0" Grid.Column="0" Content="{0, 0}"/>
  <Button Grid.Row="0" Grid.Column="1" Content="{0, 1}"/>
  <Button Grid.Row="1" Grid.Column="0" Content="{1, 0}"/>
  <Button Grid.Row="1" Grid.Column="1" Content="{1, 1}"/>
  <Button Grid.Row="2" Grid.Column="0" Content="{2, 0}"/>
  <Button Grid.Row="2" Grid.Column="1" Content="{2, 1}"/>
</Grid>
```



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Grid

Live Demo

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Viewbox

Viewbox

- Viewbox is a container control that scales its content to a specified size
  - Stretches to
  - Has single child element
  - Can manipulate Stretch and StretchDirection

```
<StackPanel Margin="5" Orientation="Horizontal">
   <Viewbox MaxWidth="100" MaxHeight="100" Name="vb1">
      <Image Source="flower.jpg"/>
   </Viewbox>
   <Viewbox MaxWidth="200" MaxHeight="200" Name="vb2">
      <Image Source="flower.jpg"/>
   </Viewbox>
</StackPanel>
```

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Border Container

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Border Container

- The Border is a special kind of container
  - It can hold only one child element
  - The child element becomes surrounded by a border
- The Border properties for border style
  - `BorderBrush`
  - `BorderThickness`
  - `CornerRadius`

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XAML Overview

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