

3. WPF - Controls

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The user experiences that are delivered by the application model are constructed controls [1]. In WPF, *control* is an umbrella term that applies to a category of WPF classes that have the following characteristics:

- Hosted in either a window or a page.
- Have a user interface.
- Implement some behavior.

3.1 Built-in Controls

A subset of the built-in WPF controls that could be used in this course or at the exam, is listed here:

- Buttons: [Button](#) and [RepeatButton](#).
- Data Display: [DataGrid](#), [ListView](#), and [TreeView](#).
- Input: [TextBox](#) and [PasswordBox](#).
- Layout: [Border](#), [Canvas](#), [DockPanel](#), [Grid](#), [GridView](#), [GridSplitter](#), [GroupBox](#), [ScrollViewer](#), [StackPanel](#), [Viewbox](#), [WrapPanel](#).
- Media: [Image](#).
- Menus: [Menu](#).
- Navigation: [Frame](#) and [TabControl](#).
- Selection: [CheckBox](#), [ComboBox](#), [ListBox](#), [RadioButton](#) and [Slider](#).
- User Information: [Label](#), [ProgressBar](#), [TextBlock](#) and [ToolTip](#).

Make sure you get familiar with the controls listed above. An overview of all WPF controls can be found in the [Microsoft docs](#).

3.2 User Controls

A user control is a component consisting of a XAML part and a code-behind part. They are very useful in the following scenarios:

- Reuse the same XAML and/or C# code in multiple places
- Make a complex XAML Window or Page less complex by moving code to different components

A user control derives from the [UserControl](#) class.

The following example shows a simple user control used as the header of a window:

```

<UserControl x:Class="WiredBrainCoffee.CustomersApp.Controls.HeaderControl"
    xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
    xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
    xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
    xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
    mc:Ignorable="d"
    d:DesignHeight="450" d:DesignWidth="800">
    <Grid Background="#F05A28">
        <StackPanel HorizontalAlignment="Center" Orientation="Horizontal">
            <Image Source="/Images/logo.png" Width="100" Margin="5"/>
            <TextBlock Text="Customers App" FontSize="30"
                Foreground="White" VerticalAlignment="Center"/>
            <TextBlock Text="Version 1.0" FontSize="16"
                Foreground="#333333" VerticalAlignment="Bottom" Margin="10 0 0 22"/>
        </StackPanel>
    </Grid>
</UserControl>

```

```

public partial class HeaderControl : UserControl
{
    0 references
    public HeaderControl()
    {
        InitializeComponent();
    }
}

```

A user control can be used in a Window or Page by adding a xmlns that refers to the namespace of the user control class in the local assembly and adding a XAML element:

```

<Window x:Class="WiredBrainCoffee.CustomersApp.MainWindow"
    xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
    xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
    xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
    xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
    xmlns:controls="clr-namespace:WiredBrainCoffee.CustomersApp.Controls"
    xmlns:view="clr-namespace:WiredBrainCoffee.CustomersApp.View"
    mc:Ignorable="d"
    Title="Customers App"
    d:DesignWidth="700" d:DesignHeight="600" Height="500" Width="800" FontSize="20">
    <Grid>
        <Grid.RowDefinitions...>
        <Menu FontSize="20"...>
        <controls:HeaderControl Grid.Row="1"/>
    </Grid>
</Window>

```

3.3 Sources

[1] Microsoft, "Desktop Guide (WPF .NET)", Available:
<https://docs.microsoft.com/nl-nl/dotnet/desktop/wpf>