[C# WPF Tutorial #7 - Custom Textbox Control](https://www.youtube.com/watch?v=V86kaIBBcRk&list=PLih2KERbY1HHOOJ2C6FOrVXIwg4AZ-hk1&index=7)

A screen shot of a phone

Description automatically generated

Finished Code:

MainWindow.xaml

<Window x:Class="\_07\_WPF\_Tutorial\_v2.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:local="clr-namespace:\_07\_WPF\_Tutorial\_v2"

xmlns:userControls="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

Title="MainWindow" Height="400" Width="300">

<Grid>

<Grid.RowDefinitions>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

</Grid.RowDefinitions>

<userControls:ClearableTextBox Grid.Row="1" Width="250" Height="40" Placeholder="First Name"/>

<userControls:ClearableTextBox Grid.Row="2" Width="250" Height="40" Placeholder="Last Name"/>

<userControls:ClearableTextBox Grid.Row="3" Width="250" Height="40" Placeholder="Email"/>

<userControls:ClearableTextBox Grid.Row="4" Width="250" Height="40" Placeholder="Phone"/>

</Grid>

</Window>

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid Background="White" >

<TextBox x:Name="txtInput"

VerticalContentAlignment="Center"

FontSize="16"

FontWeight="light"

Background="Transparent"

TextChanged="txtInput\_TextChanged" />

<TextBlock x:Name="tbPlaceholder"

Text="{Binding Placeholder}"

FontSize="16"

FontWeight="Light"

Foreground="DarkGray"

VerticalAlignment="Center"

Margin="5,0,0,0"

Panel.ZIndex="-1" />

<Button x:Name="btnClear"

Width="30"

HorizontalAlignment="Right"

Content="X"

Background="Transparent"

Foreground="LightGray"

BorderThickness="0"

Click="btnClear\_Click" />

</Grid>

</UserControl>

ClearableTextBox.xaml.cs

using System.Windows;

using System.Windows.Controls;

namespace \_07\_WPF\_Tutorial\_v2.View.UserControls

{

public partial class ClearableTextBox : UserControl

{

public ClearableTextBox()

{

InitializeComponent();

}

private string \_placeholder;

public string Placeholder

{

get { return \_placeholder; }

set

{

\_placeholder = value;

tbPlaceholder.Text = \_placeholder;

}

}

private void btnClear\_Click(object sender, RoutedEventArgs e)

{

txtInput.Clear();

txtInput.Focus();

}

private void txtInput\_TextChanged(object sender, TextChangedEventArgs e)

{

if(string.IsNullOrEmpty(txtInput.Text))

{

tbPlaceholder.Visibility = Visibility.Visible;

}

else

{

tbPlaceholder.Visibility = Visibility.Hidden;

}

}

}

}

Process:

# Start new WPF solution in Visual Studio.

A black screen with white text

Description automatically generated

A black rectangular object with a black background

Description automatically generated

# Name it:

A screenshot of a computer

Description automatically generated

# Starting point. MainWindow.xaml code:

MainWindow.xaml

<Window x:Class="\_07\_WPF\_Tutorial\_v2.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:local="clr-namespace:\_07\_WPF\_Tutorial\_v2"

mc:Ignorable="d"

Title="MainWindow" Height="450" Width="800">

<Grid>

</Grid>

</Window>

# Resize MainWindow

MainWindow.xaml

<Window x:Class="\_07\_WPF\_Tutorial\_v2.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:local="clr-namespace:\_07\_WPF\_Tutorial\_v2"

mc:Ignorable="d"

Title="MainWindow" Height="400" Width="300">

<Grid>

</Grid>

</Window>

# Add the following code to the .xaml file to create the GUI.

This is the old way of doing this.

MainWindow.xaml

<Window x:Class="\_07\_WPF\_Tutorial\_v2.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:local="clr-namespace:\_07\_WPF\_Tutorial\_v2"

mc:Ignorable="d"

Title="MainWindow" Height="400" Width="300">

<Grid>

<Grid.RowDefinitions>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

</Grid.RowDefinitions>

<TextBox Grid.Row="1" Width="250" Height="40" />

<TextBox Grid.Row="2" Width="250" Height="40" />

<TextBox Grid.Row="3" Width="250" Height="40" />

<TextBox Grid.Row="4" Width="250" Height="40" />

</Grid>

</Window>

# Create folder structure.

This is the new way of doing this.

View\UserControls\ClearableTextBox.xaml

A screenshot of a computer

Description automatically generated

# ClearableTextBox.xaml starting code.

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="450" d:DesignWidth="800">

<Grid>

</Grid>

</UserControl>

# Resize.

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid>

</Grid>

</UserControl>

# Modify the ClearableTextBox GUI.

Add TextBox, TextBlock & Button

A rectangular white rectangle with blue dots

Description automatically generated

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid>

<TextBox x:Name="txtInput"

VerticalContentAlignment="Center"

FontSize="16"

FontWeight="light" />

<TextBlock x:Name="tbPlaceholder"

Text="Hello there"

FontSize="16"

FontWeight="Light"

Foreground="DarkGray"

VerticalAlignment="Center"

Margin="5,0,0,0" />

<Button x:Name="btnClear"

Width="30"

HorizontalAlignment="Right"

Content="X"

Background="Transparent"

Foreground="LightGray"

BorderThickness="0" />

</Grid>

</UserControl>

# Call ClearableTextBox userControl from namespace userControls.

In MainWindow.xaml:

1. add the namespace for the MenuBar and identify it userControls.
2. Reference the userControls:ClearableTextBox instead of just TextBox.

A screenshot of a phone

Description automatically generated

MainWindow.xaml

<Window x:Class="\_07\_WPF\_Tutorial\_v2.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:local="clr-namespace:\_07\_WPF\_Tutorial\_v2"

xmlns:userControls="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

Title="MainWindow" Height="400" Width="300">

<Grid>

<Grid.RowDefinitions>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

</Grid.RowDefinitions>

<userControls:ClearableTextBox Grid.Row="1" Width="250" Height="40" />

<userControls:ClearableTextBox Grid.Row="2" Width="250" Height="40" />

<userControls:ClearableTextBox Grid.Row="3" Width="250" Height="40" />

<userControls:ClearableTextBox Grid.Row="4" Width="250" Height="40" />

</Grid>

</Window>

# Add Clear() functionality to button.

Add functionality to Button.

Add Click event handler to Button which will automatically add btnClear\_Click() method.

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid>

<TextBox x:Name="txtInput"

VerticalContentAlignment="Center"

FontSize="16"

FontWeight="light" />

<TextBlock x:Name="tbPlaceholder"

Text="Hello there"

FontSize="16"

FontWeight="Light"

Foreground="DarkGray"

VerticalAlignment="Center"

Margin="5,0,0,0" />

<Button x:Name="btnClear"

Width="30"

HorizontalAlignment="Right"

Content="X"

Background="Transparent"

Foreground="LightGray"

BorderThickness="0"

Click="btnClear\_Click" />

</Grid>

</UserControl>

ClearableTextBox.xaml.cs

using System.Windows;

using System.Windows.Controls;

namespace \_07\_WPF\_Tutorial\_v2.View.UserControls

{

public partial class ClearableTextBox : UserControl

{

public ClearableTextBox()

{

InitializeComponent();

}

private void btnClear\_Click(object sender, RoutedEventArgs e)

{

txtInput.Clear();

txtInput.Focus();

}

}

}

# Change Z-Index of Placeholder and make TextBox background Transparent.

This allows the textbox to be clicked into in order to enter text and by making the background transparent it means the placeholder text can be seen. In this example move the background from the TextBox to the Grid.

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid Background="White">

<TextBox x:Name="txtInput"

VerticalContentAlignment="Center"

FontSize="16"

FontWeight="light"

Background="Transparent" />

<TextBlock x:Name="tbPlaceholder"

Text="Hello there"

FontSize="16"

FontWeight="Light"

Foreground="DarkGray"

VerticalAlignment="Center"

Margin="5,0,0,0"

Panel.ZIndex="-1" />

<Button x:Name="btnClear"

Width="30"

HorizontalAlignment="Right"

Content="X"

Background="Transparent"

Foreground="LightGray"

BorderThickness="0"

Click="btnClear\_Click" />

</Grid>

</UserControl>

# Clear the TextBox when text is typed in.

Create an event handler on the TextBox.

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid Background="White" >

<TextBox x:Name="txtInput"

VerticalContentAlignment="Center"

FontSize="16"

FontWeight="light"

Background="Transparent"

TextChanged="txtInput\_TextChanged" />

<TextBlock x:Name="tbPlaceholder"

Text="Hello there"

FontSize="16"

FontWeight="Light"

Foreground="DarkGray"

VerticalAlignment="Center"

Margin="5,0,0,0"

Panel.ZIndex="-1" />

<Button x:Name="btnClear"

Width="30"

HorizontalAlignment="Right"

Content="X"

Background="Transparent"

Foreground="LightGray"

BorderThickness="0"

Click="btnClear\_Click" />

</Grid>

</UserControl>

ClearableTextBox.xaml.cs

using System.Windows;

using System.Windows.Controls;

namespace \_07\_WPF\_Tutorial\_v2.View.UserControls

{

public partial class ClearableTextBox : UserControl

{

public ClearableTextBox()

{

InitializeComponent();

}

private void btnClear\_Click(object sender, RoutedEventArgs e)

{

txtInput.Clear();

txtInput.Focus();

}

private void txtInput\_TextChanged(object sender, TextChangedEventArgs e)

{

if(string.IsNullOrEmpty(txtInput.Text))

{

tbPlaceholder.Visibility = Visibility.Visible;

}

else

{

tbPlaceholder.Visibility = Visibility.Hidden;

}

}

}

}

# Customise placeholder text.

Add full property to ClearableTextBox.xaml.cs

ClearableTextBox.xaml.cs

using System.Windows;

using System.Windows.Controls;

namespace \_07\_WPF\_Tutorial\_v2.View.UserControls

{

public partial class ClearableTextBox : UserControl

{

public ClearableTextBox()

{

InitializeComponent();

}

private string \_placeholder;

public string Placeholder

{

get { return \_placeholder; }

set

{

\_placeholder = value;

tbPlaceholder.Text = \_placeholder; // use bindings instead see tutorial 08

}

}

private void btnClear\_Click(object sender, RoutedEventArgs e)

{

txtInput.Clear();

txtInput.Focus();

}

private void txtInput\_TextChanged(object sender, TextChangedEventArgs e)

{

if(string.IsNullOrEmpty(txtInput.Text))

{

tbPlaceholder.Visibility = Visibility.Visible;

}

else

{

tbPlaceholder.Visibility = Visibility.Hidden;

}

}

}

}

ClearableTextBox.xaml

<UserControl x:Class="\_07\_WPF\_Tutorial\_v2.View.UserControls.ClearableTextBox"

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"

xmlns:local="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

d:DesignHeight="40" d:DesignWidth="250">

<Grid Background="White" >

<TextBox x:Name="txtInput"

VerticalContentAlignment="Center"

FontSize="16"

FontWeight="light"

Background="Transparent"

TextChanged="txtInput\_TextChanged" />

<TextBlock x:Name="tbPlaceholder"

Text="{Binding Placeholder}"

FontSize="16"

FontWeight="Light"

Foreground="DarkGray"

VerticalAlignment="Center"

Margin="5,0,0,0"

Panel.ZIndex="-1" />

<Button x:Name="btnClear"

Width="30"

HorizontalAlignment="Right"

Content="X"

Background="Transparent"

Foreground="LightGray"

BorderThickness="0"

Click="btnClear\_Click" />

</Grid>

</UserControl>

<Window x:Class="\_07\_WPF\_Tutorial\_v2.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:local="clr-namespace:\_07\_WPF\_Tutorial\_v2"

xmlns:userControls="clr-namespace:\_07\_WPF\_Tutorial\_v2.View.UserControls"

mc:Ignorable="d"

Title="MainWindow" Height="400" Width="300">

<Grid>

<Grid.RowDefinitions>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

<RowDefinition/>

</Grid.RowDefinitions>

<userControls:ClearableTextBox Grid.Row="1" Width="250" Height="40" Placeholder="First Name"/>

<userControls:ClearableTextBox Grid.Row="2" Width="250" Height="40" Placeholder="Last Name"/>

<userControls:ClearableTextBox Grid.Row="3" Width="250" Height="40" Placeholder="Email"/>

<userControls:ClearableTextBox Grid.Row="4" Width="250" Height="40" Placeholder="Phone"/>

</Grid>

</Window>

Further to do: this could do with having the data bindings completed correctly.