

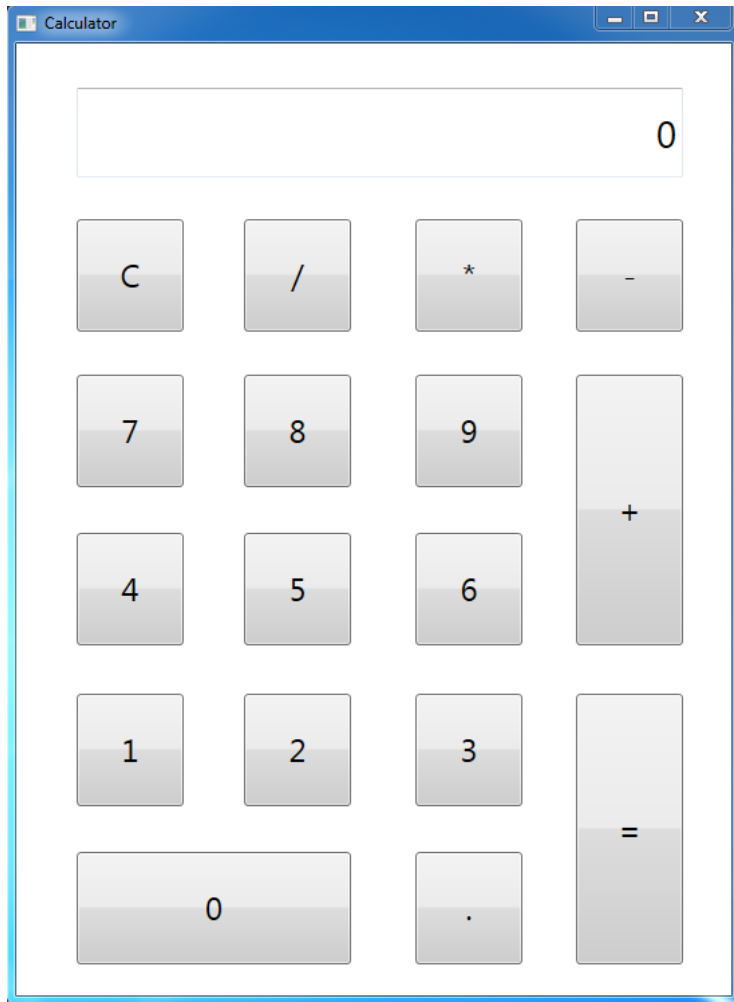
# VISUAL PROGRAMMING

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## WPF Calculator Application

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# WPF Layout & XAML



```
<Window x:Name="mwindow" x:Class="calc.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:calc"
  mc:Ignorable="d"
```

```
  Title="Calculator" Height="748.396" Width="549.733"
```

```
  WindowStartupLocation="CenterScreen">
```

```
  <Grid>
```

```
    <Button x:Name="seven" Content="7"
```

```
      HorizontalAlignment="Left" Height="84" Margin="45,246.529,0,0"
```

```
      VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24"
```

```
      Grid.Row="1" Click="button_click"/>
```

```
    <Button x:Name="eight" Content="8" HorizontalAlignment="Left"
```

```
      Height="84" Margin="170,246.529,0,0" VerticalAlignment="Top"
```

```
      Width="80" Grid.Column="1" FontSize="24" Grid.Row="1"
```

```
      Click="button_click"/>
```

```
    <Button x:Name="nine" Content="9" HorizontalAlignment="Left"
```

```
      Height="84" Margin="298,246.529,0,0" VerticalAlignment="Top"
```

```
      Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571"
```

```
      FontSize="24" Grid.Row="1" Click="button_click"/>
```

# XAML (cont.)

```
<Button x:Name="four" Content="4" HorizontalAlignment="Left" Height="84" Margin="45,364.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="five" Content="5" HorizontalAlignment="Left" Height="84" Margin="170,364.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="six" Content="6" HorizontalAlignment="Left" Height="84" Margin="298,364.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="one" Content="1" HorizontalAlignment="Left" Height="84" Margin="45,484.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="two" Content="2" HorizontalAlignment="Left" Height="84" Margin="170,484.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="three" Content="3" HorizontalAlignment="Left" Height="84" Margin="298,484.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="zero" Content="0" HorizontalAlignment="Left" Height="84" Margin="45,602.529,0,0"
VerticalAlignment="Top" Width="205" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="dot" Content="." HorizontalAlignment="Left" Height="84" Margin="298,602.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="addition" Content="+" HorizontalAlignment="Left" Height="202" Margin="418,246.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

# XAML (cont.)

```
<Button x:Name="equal" Content="=" HorizontalAlignment="Left" Height="202" Margin="418,484.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="clear" Content="C" HorizontalAlignment="Left" Height="84" Margin="45,130.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="divide" Content="/" HorizontalAlignment="Left" Height="84" Margin="170,130.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" FontSize="24" Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="multiply" Content="*" HorizontalAlignment="Left" Height="84" Margin="298,130.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

```
<Button x:Name="subtract" Content="-" HorizontalAlignment="Left" Height="84" Margin="418,130.529,0,0"
VerticalAlignment="Top" Width="80" Grid.Column="1" RenderTransformOrigin="3.383,0.571" FontSize="24"
Grid.Row="1" Click="button_click"/>
```

```
<TextBox x:Name="result" Grid.ColumnSpan="2" HorizontalAlignment="Left" Height="67" TextWrapping="Wrap"
Text="0" VerticalAlignment="Top" Width="453" Margin="45,32.529,0,0" FontSize="28" TextAlignment="Right"
HorizontalContentAlignment="Center" VerticalContentAlignment="Center" IsReadOnly="True" Grid.Row="1"/>
</Grid>
</Window>
```

# C# code

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
using System.Windows;
using System.Windows.Controls;
using System.Windows.Data;
using System.Windows.Documents;
using System.Windows.Input;
using System.Windows.Media;
using System.Windows.Media.Imaging;
using System.Windows.Navigation;
using System.Windows.Shapes;

namespace WpfApplication1
{
    /// <summary>
    /// Interaction logic for MainWindow.xaml
    /// </summary>
    public partial class MainWindow : Window
    {
        private float val1 = 0, val2 = 0;
        private char sign = '+';
        public MainWindow()
        {
            InitializeComponent();
        }
    }
}
```

# C# code (Cont.)

```
private void clear_Click(object sender, RoutedEventArgs e)
{
    if (res.Text == "0")
        res.Text = "";

    if (sender == zero)
        res.Text += "0";
    else if (sender == one)
        res.Text += "1";
    else if (sender == two)
        res.Text += "2";
    else if (sender == three)
        res.Text += "3";
    else if (sender == four)
        res.Text += "4";
    else if (sender == five)
        res.Text += "5";
    else if (sender == six)
        res.Text += "6";
    else if (sender == seven)
        res.Text += "7";
    else if (sender == eight)
        res.Text += "8";
    else if (sender == nine)
        res.Text += "9";
    else if (sender == dot)
        res.Text += ".";
}
```

```
else if (sender == clear)
{
    res.Text = "0";
    val1 = 0;
    val2 = 0;
    sign = ' ';
}
else if (sender == add)
{
    val1 = float.Parse(res.Text);
    sign = '+';
    res.Text = "0";
}
else if (sender == subtract)
{
    val1 = float.Parse(res.Text);
    sign = '-';
    res.Text = "0";
}
else if (sender == divide)
{
    val1 = float.Parse(res.Text);
    sign = '/';
    res.Text = "0";
}
```

# C# code (Cont.)

```
else if (sender == multiply)
    {
        val1 = float.Parse(res.Text);
        sign = '*';
        res.Text = "0";
    }
else if (sender == equal)
    {
        if (res.Text != "")
            {
                val2 = float.Parse(res.Text);
                if (sign == '+')
                    val2 += val1;
                else if (sign == '-')
                    val2 -= val1;
                else if (sign == '*')
                    val2 *= val1;
                else if (sign == '/')
                    {
                        if (val2 == 0)
                            MessageBox.Show("Divide by zero error...!");
                        else
                            val2 = val1/val2;
                    }
                else
                    MessageBox.Show("Invalid operation");
                res.Text = val2.ToString();
            }
    }
else
    {
        MessageBox.Show("Invalid operation");
        res.Text = "0";
    }
}
```



# Questions

