Creating Your First WinUI App

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Module Outline

Get ready for coding

- Look at the starter solution
- Set up your environment

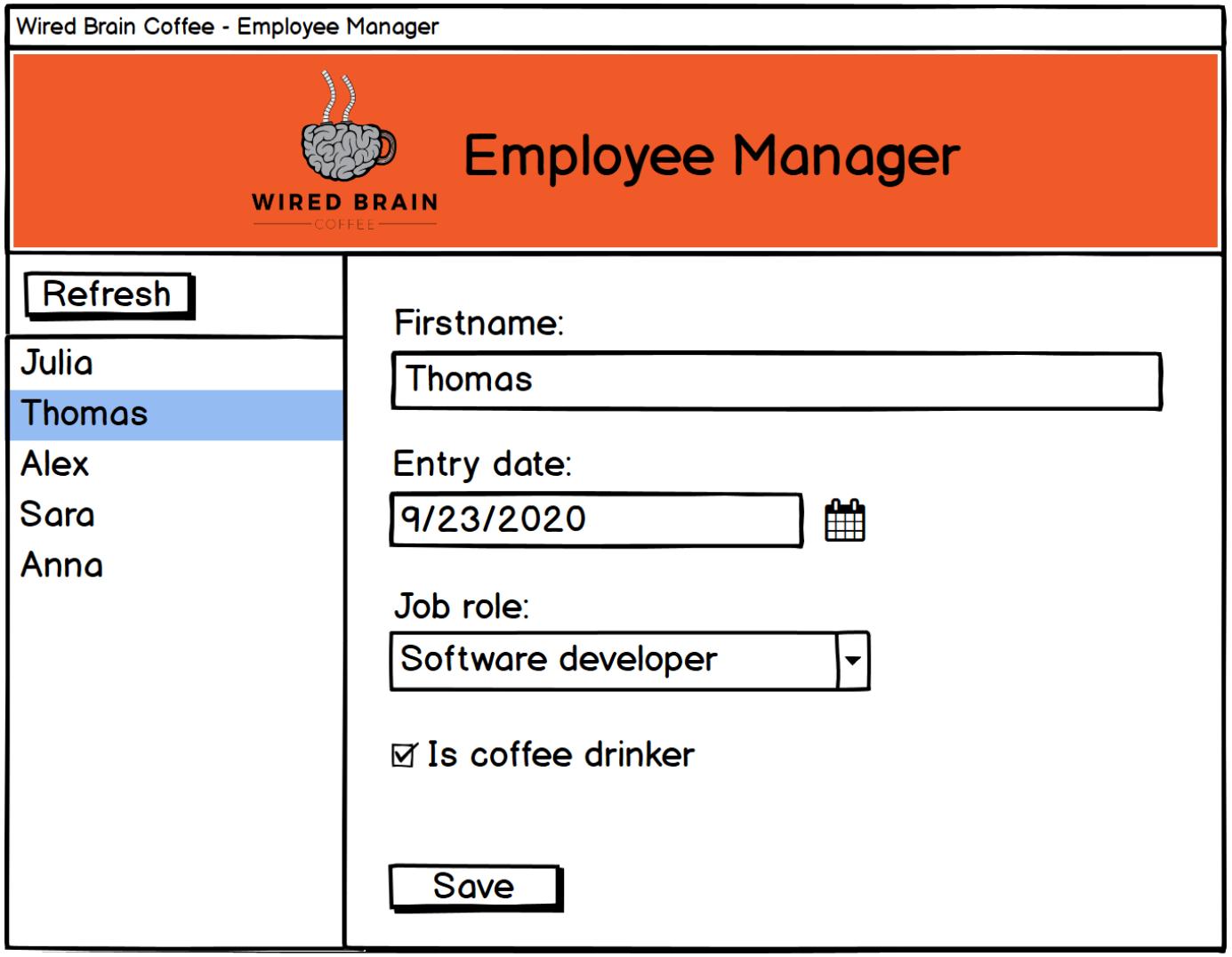
Create a WinUI project

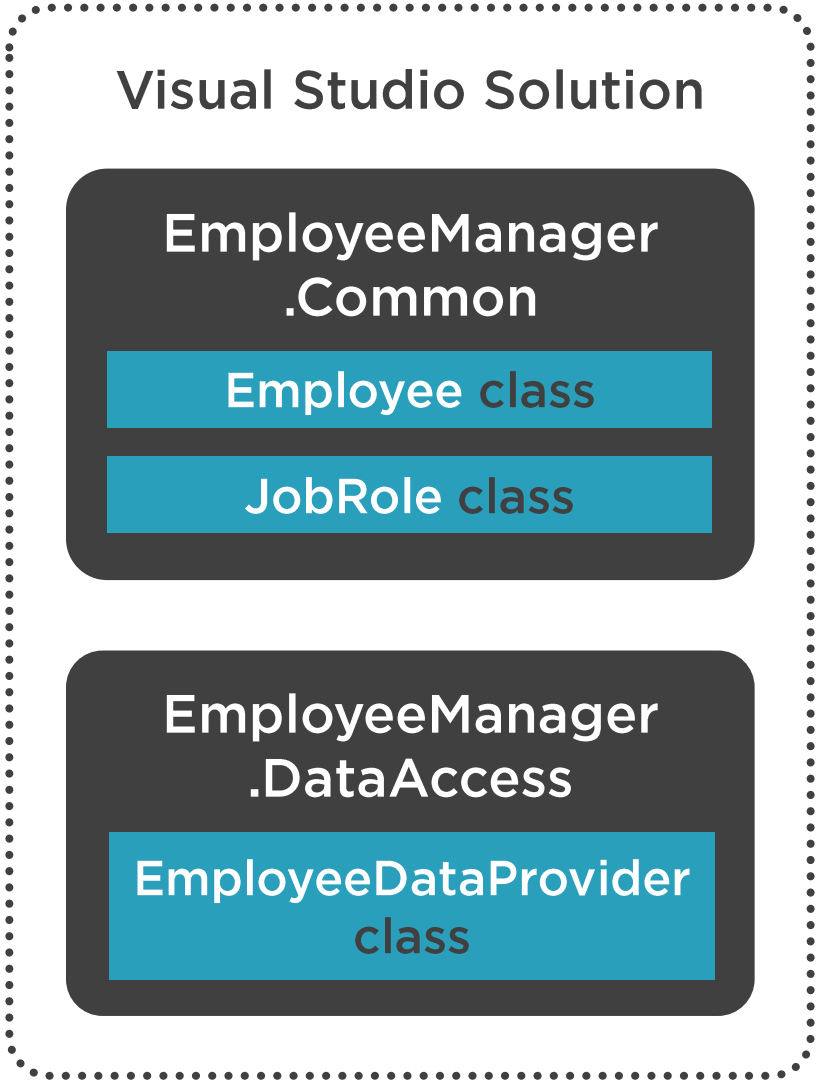
- Walk through the project structure
- Understand XAML layout
- Build the main layout of the WinUI app

Implement the app with the Model-View-ViewModel (MVVM) pattern

- Understand the MVVM pattern
- Use the MVVM pattern

Look at the Starter Solution





Demo

Look at the starter solution

Set up Your Environment

Windows 10
version 1809
(build 17763)
or later

Visual Studio 2019

Workloads

- .NET desktop development
- UWP development

WinUI project templates

Visual Studio extension

- Project Reunion

https://docs.microsoft.com/windows/apps/winui

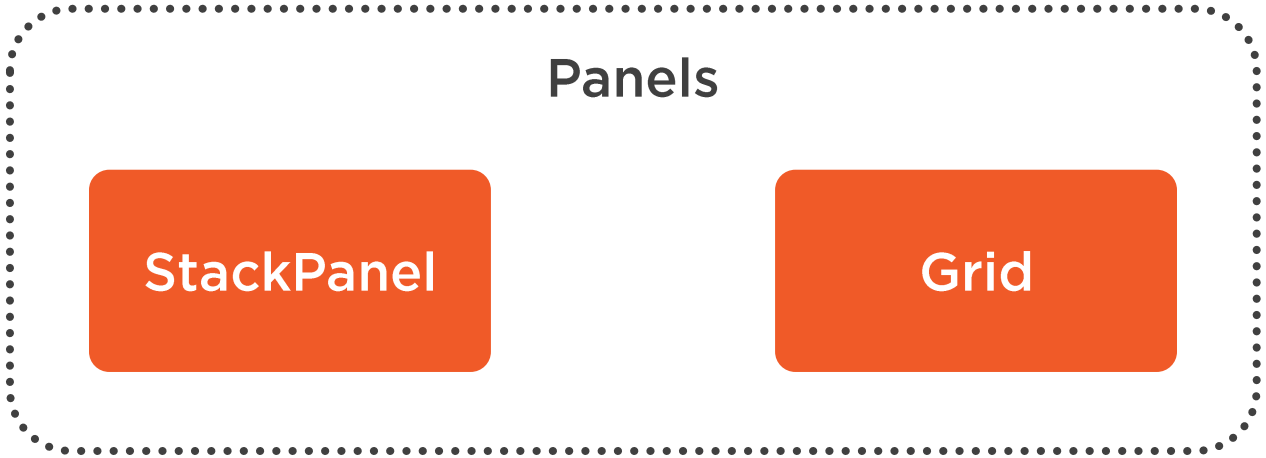
Demo

Install the Project Reunion extension with the WinUI project templates

Demo

Create a WinUI desktop app

Understand XAML Layout

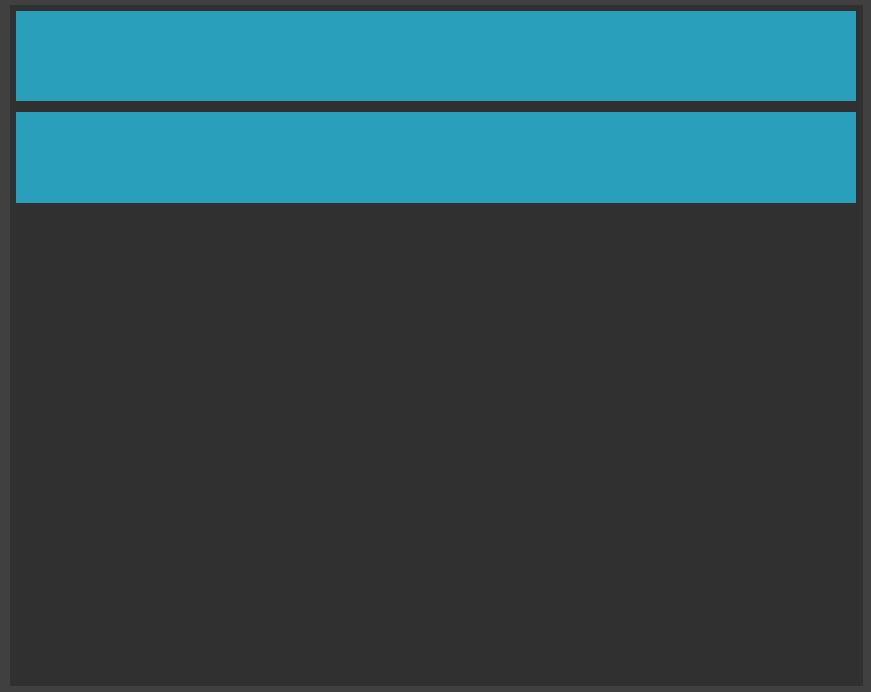


Understand XAML Layout

StackPanel

Grid

```
<StackPanel>
  <Rectangle Fill="LightBlue"
    Height="20" Margin="2"/>
  <Rectangle Fill="LightBlue"
    Height="20" Margin="2"/>
</StackPanel>
```

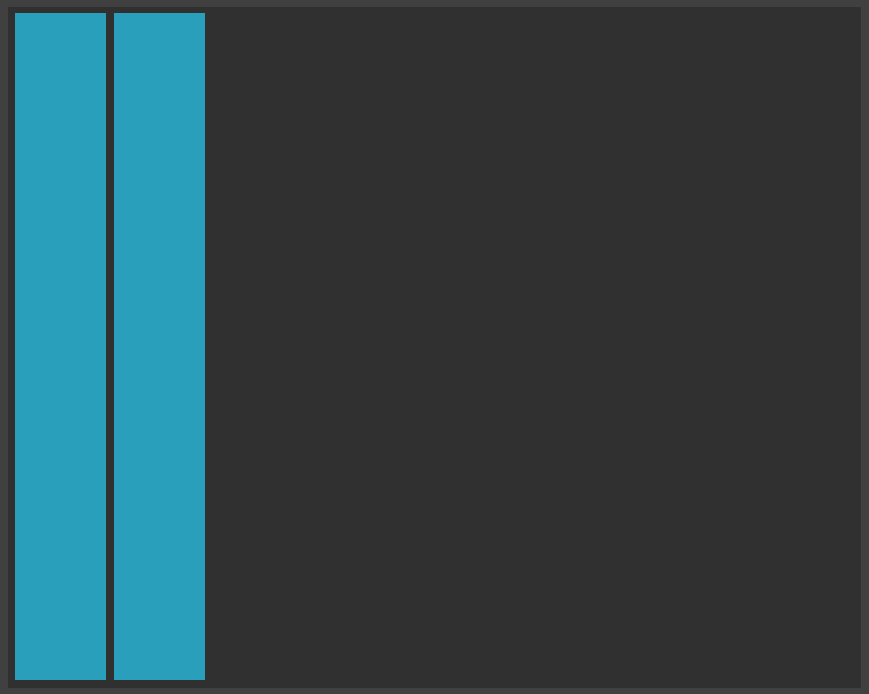


Understand XAML Layout

StackPanel

Grid

```
<StackPanel Orientation="Horizontal">
  <Rectangle Fill="LightBlue"
    Width="20" Margin="2"/>
  <Rectangle Fill="LightBlue"
    Width="20" Margin="2"/>
</StackPanel>2
```



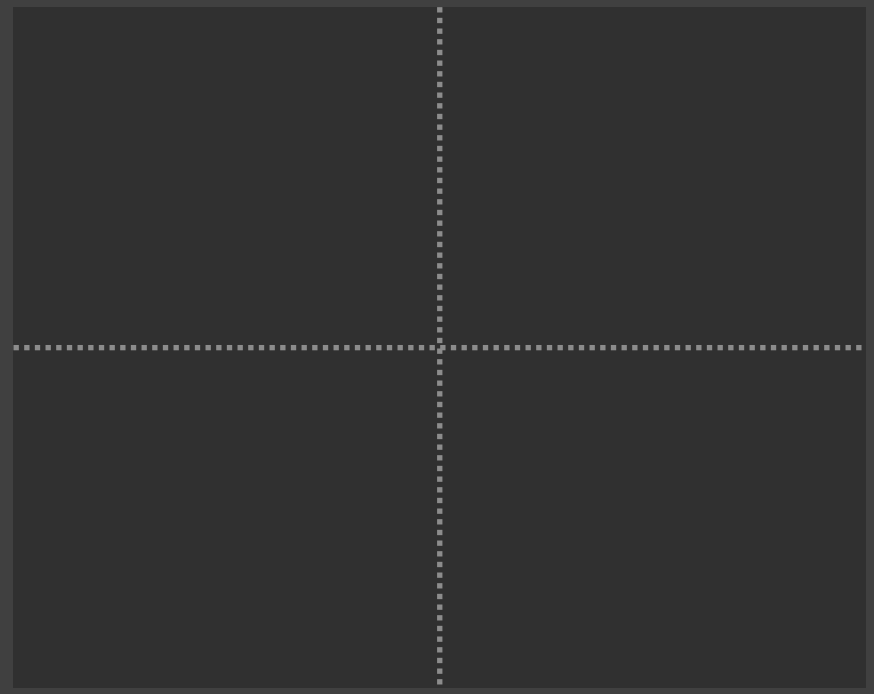
Understand XAML Layout

StackPanel

Grid

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition/>
    <RowDefinition/>
  </Grid.RowDefinitions>
  <Grid.ColumnDefinitions>
    <ColumnDefinition/>
    <ColumnDefinition/>
  </Grid.ColumnDefinitions>


</Grid>
```



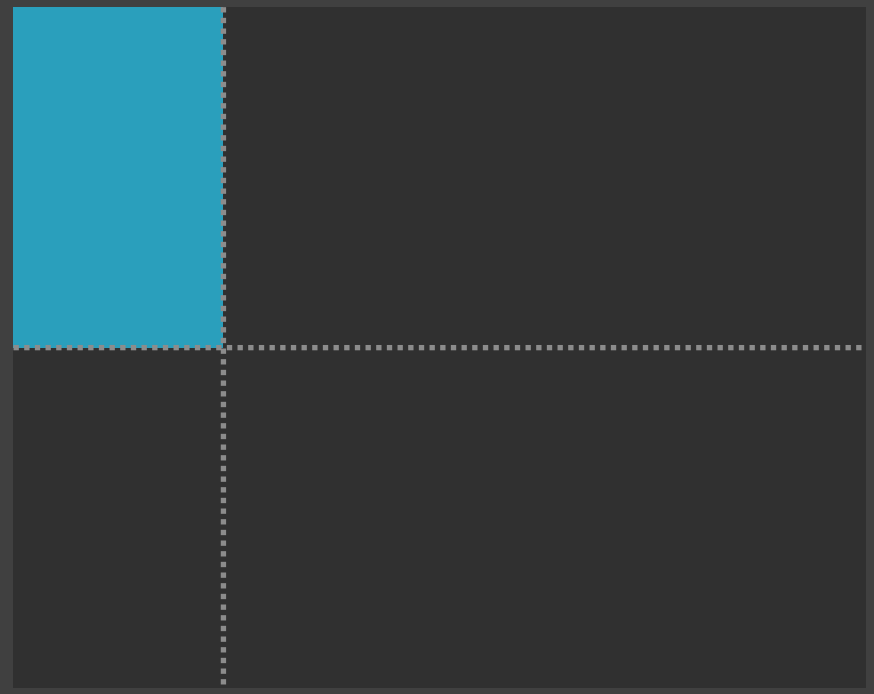
Understand XAML Layout

StackPanel

Grid

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition/>
    <RowDefinition/>
  </Grid.RowDefinitions>
  <Grid.ColumnDefinitions>
    <ColumnDefinition Width="40"/>
    <ColumnDefinition/>
  </Grid.ColumnDefinitions>
  <Rectangle Fill="LightBlue"/>

</Grid>
```



Understand XAML Layout

StackPanel

Grid

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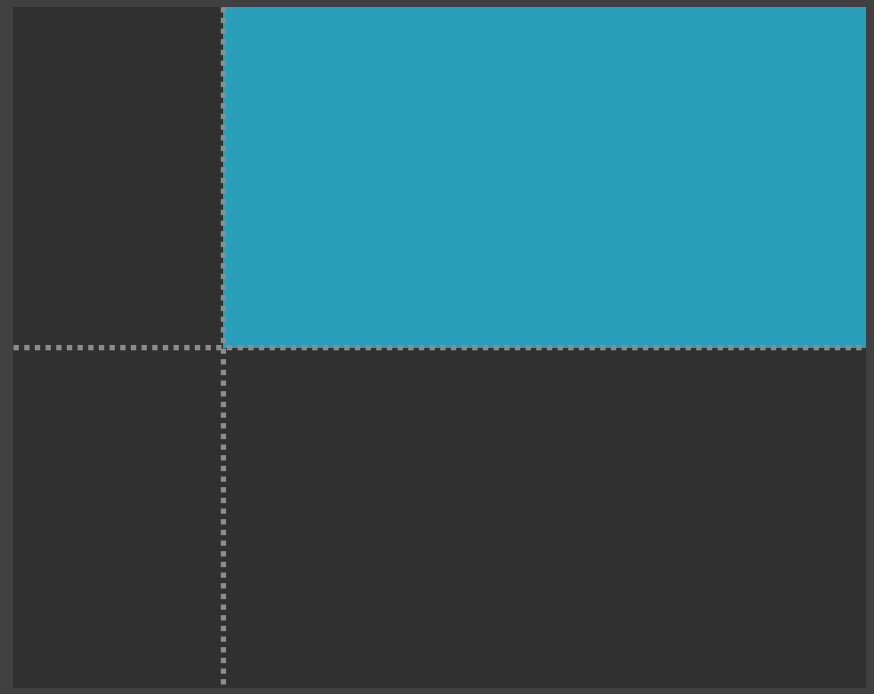
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition/>
    <RowDefinition/>
  </Grid.RowDefinitions>
  <Grid.ColumnDefinitions>
    <ColumnDefinition Width="40"/>
    <ColumnDefinition/>
  </Grid.ColumnDefinitions>
  <Rectangle Fill="LightBlue"
    Grid.Column="1"/>
</Grid>
```



Understand XAML Layout

StackPanel

Grid

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<Grid>
  <Grid.RowDefinitions>
    <RowDefinition/>
    <RowDefinition/>
  </Grid.RowDefinitions>
  <Grid.ColumnDefinitions>
    <ColumnDefinition Width="40"/>
    <ColumnDefinition/>
  </Grid.ColumnDefinitions>
  <Rectangle Fill="LightBlue"
    Grid.Column="1" Grid.Row="1"/>
</Grid>
```
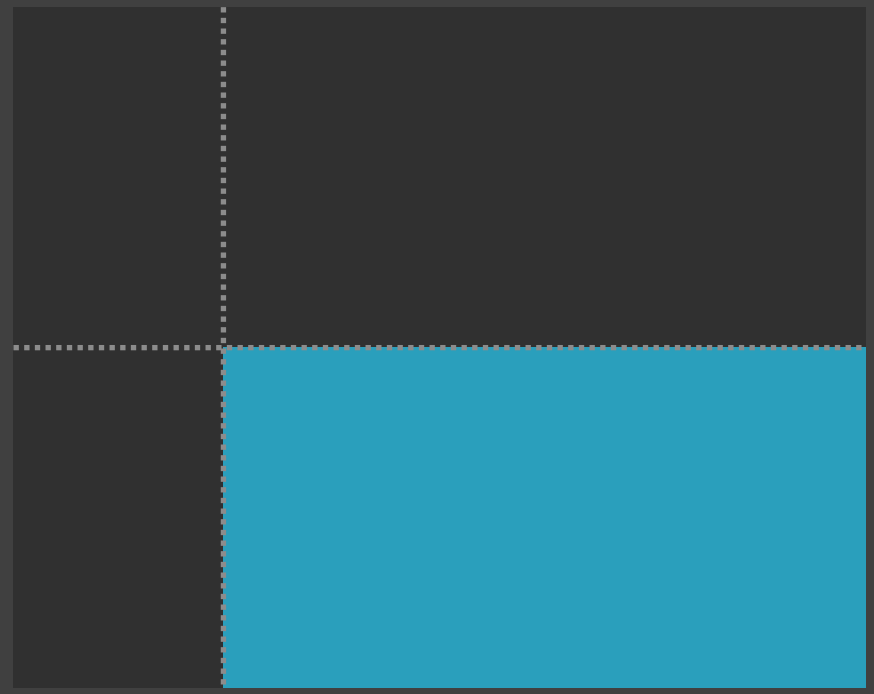
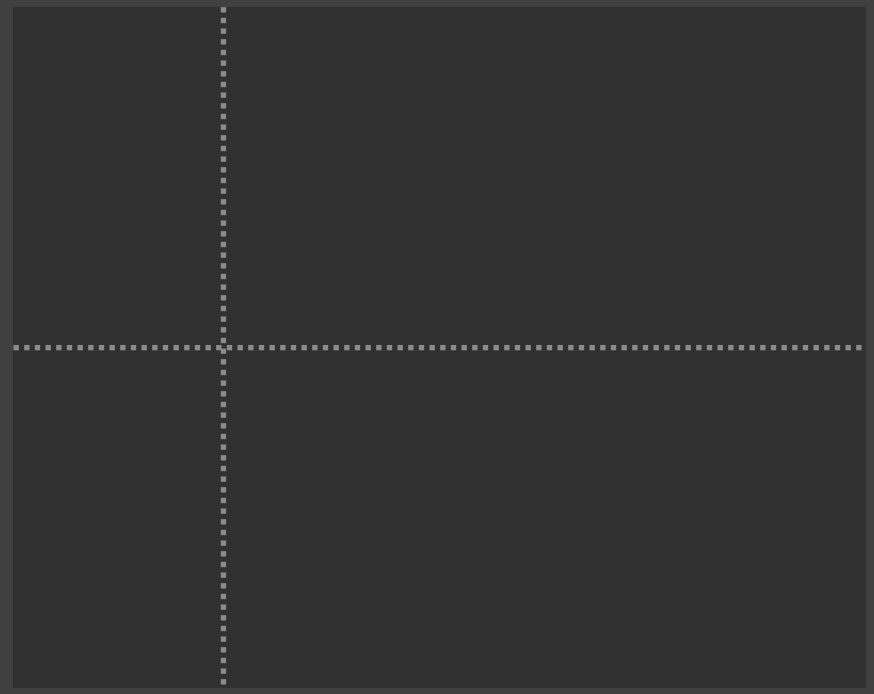



Understand XAML Layout

StackPanel

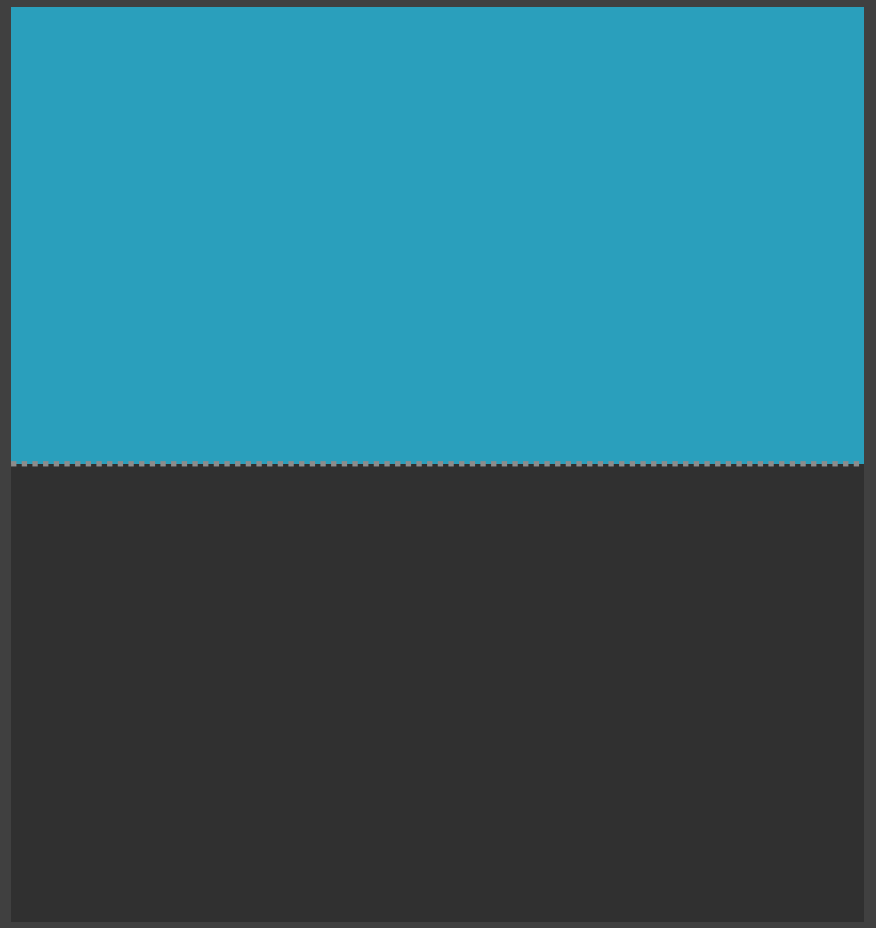
Grid

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition/>
    <RowDefinition/>
  </Grid.RowDefinitions>
  <Grid.ColumnDefinitions>
    <ColumnDefinition Width="40"/>
    <ColumnDefinition/>
  </Grid.ColumnDefinitions>
  <StackPanel Grid.Column="1">
  </StackPanel>
</Grid>
```



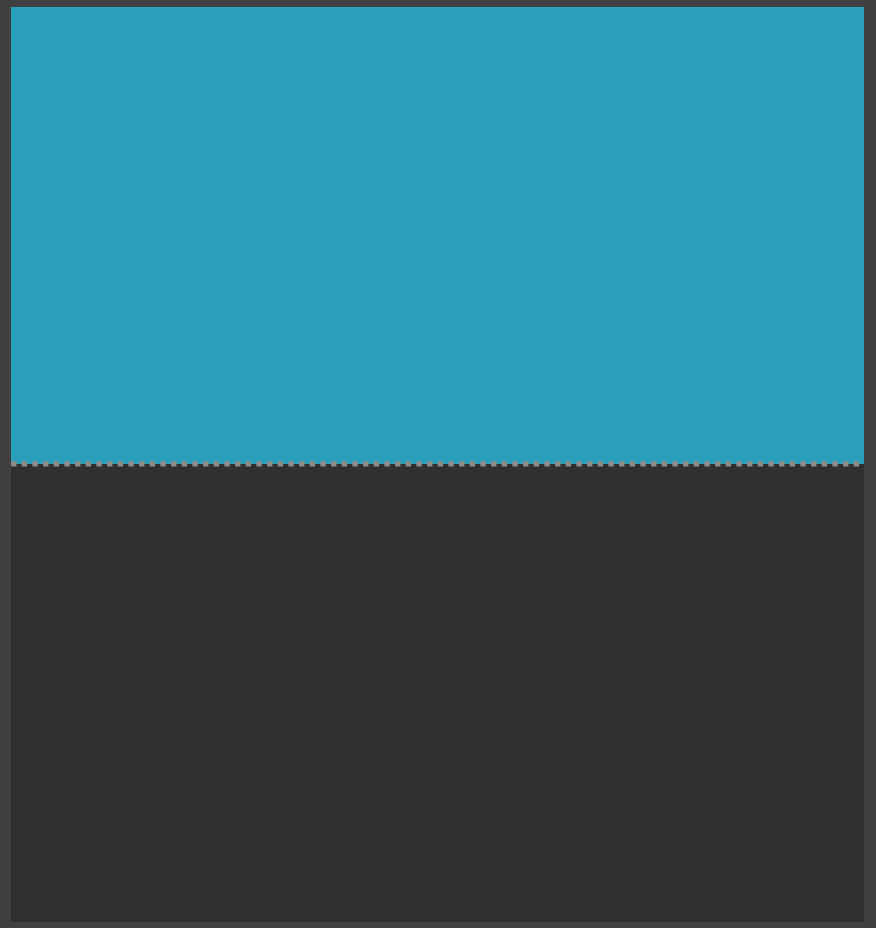
Understand the Size of Rows and Columns

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition/>
    <RowDefinition/>
  </Grid.RowDefinitions>

  <Rectangle Fill="LightBlue"/>

</Grid>
```



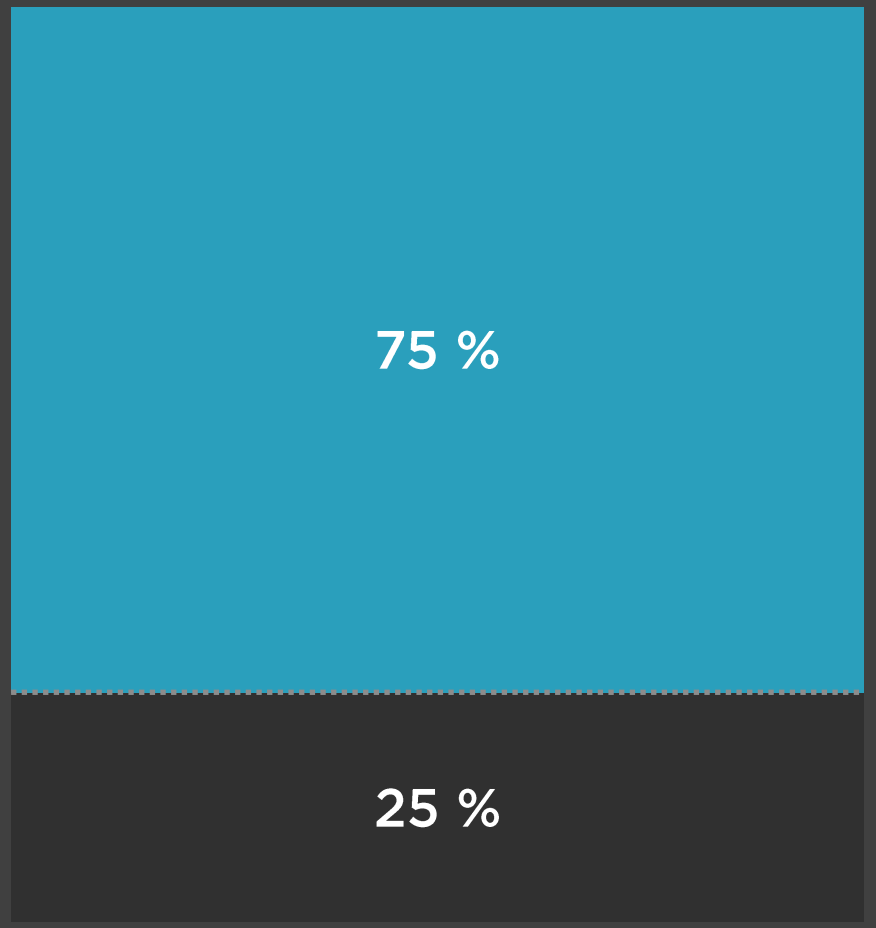
Understand the Size of Rows and Columns

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition Height="*"/>
    <RowDefinition Height="*"/>
  </Grid.RowDefinitions>

  <Rectangle Fill="LightBlue"/>

</Grid>
```



Understand the Size of Rows and Columns

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition Height="3*"/>
    <RowDefinition Height="*"/>
  </Grid.RowDefinitions>

  <Rectangle Fill="LightBlue"/>

</Grid>
```



Understand the Size of Rows and Columns

```
<Grid>
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    <RowDefinition Height="100"/>
    <RowDefinition Height="*"/>
  </Grid.RowDefinitions>

  <Rectangle Fill="LightBlue"/>

</Grid>
```
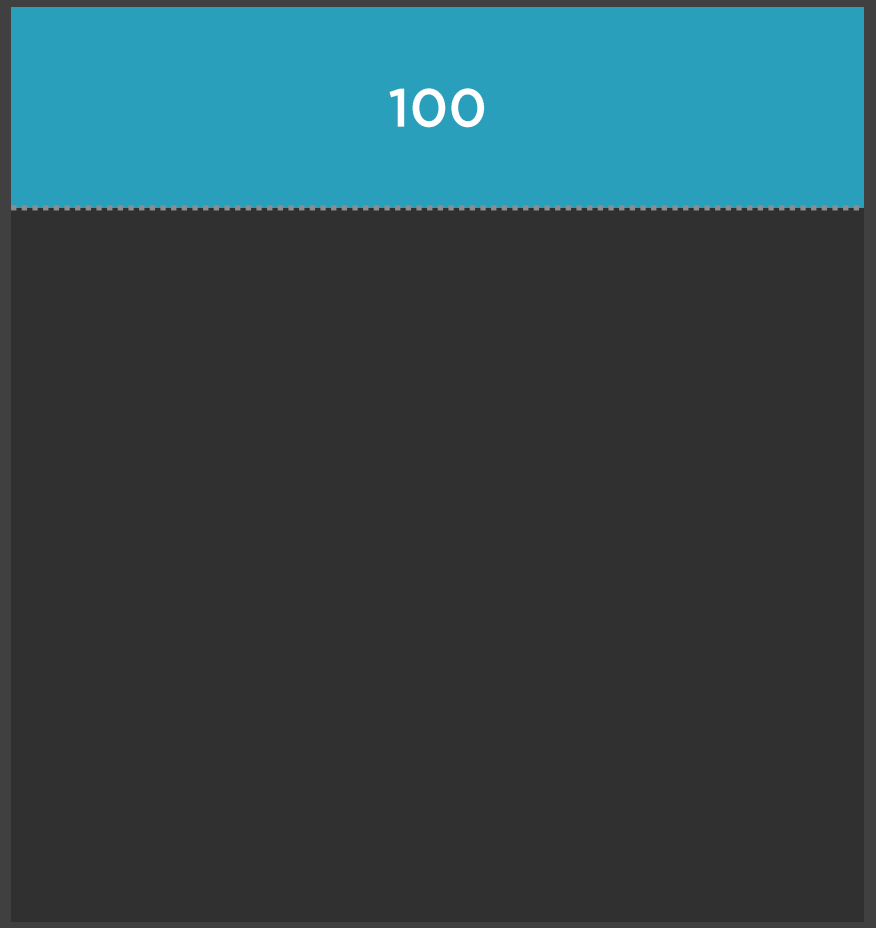
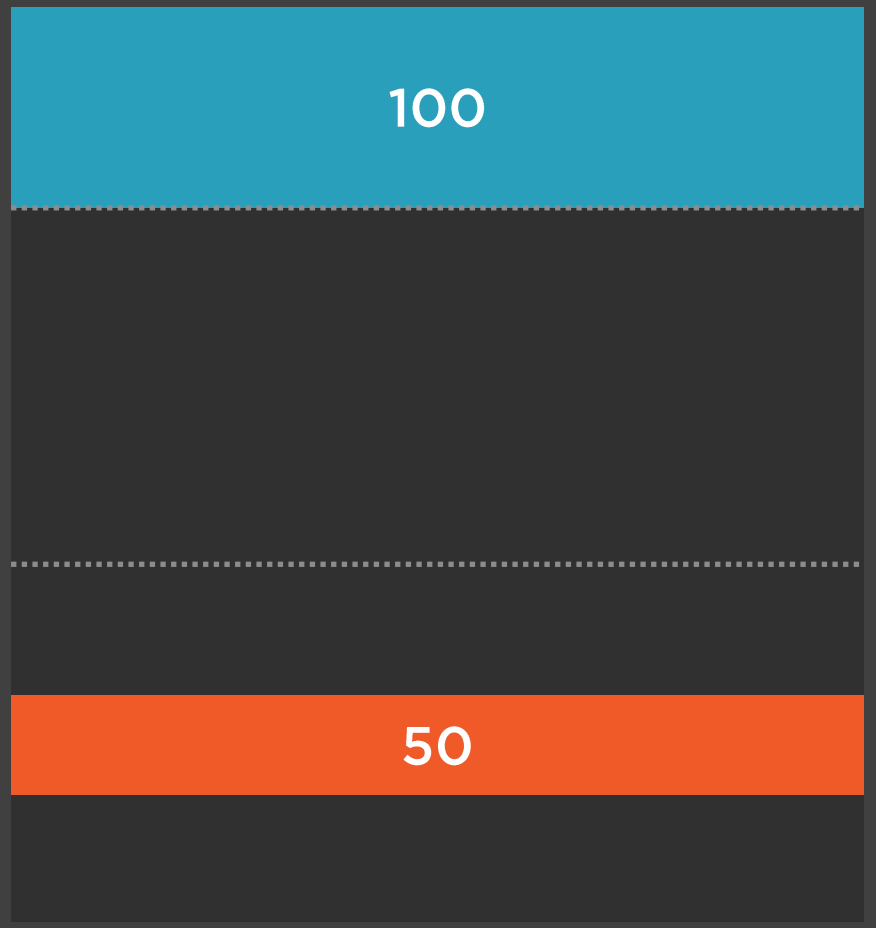



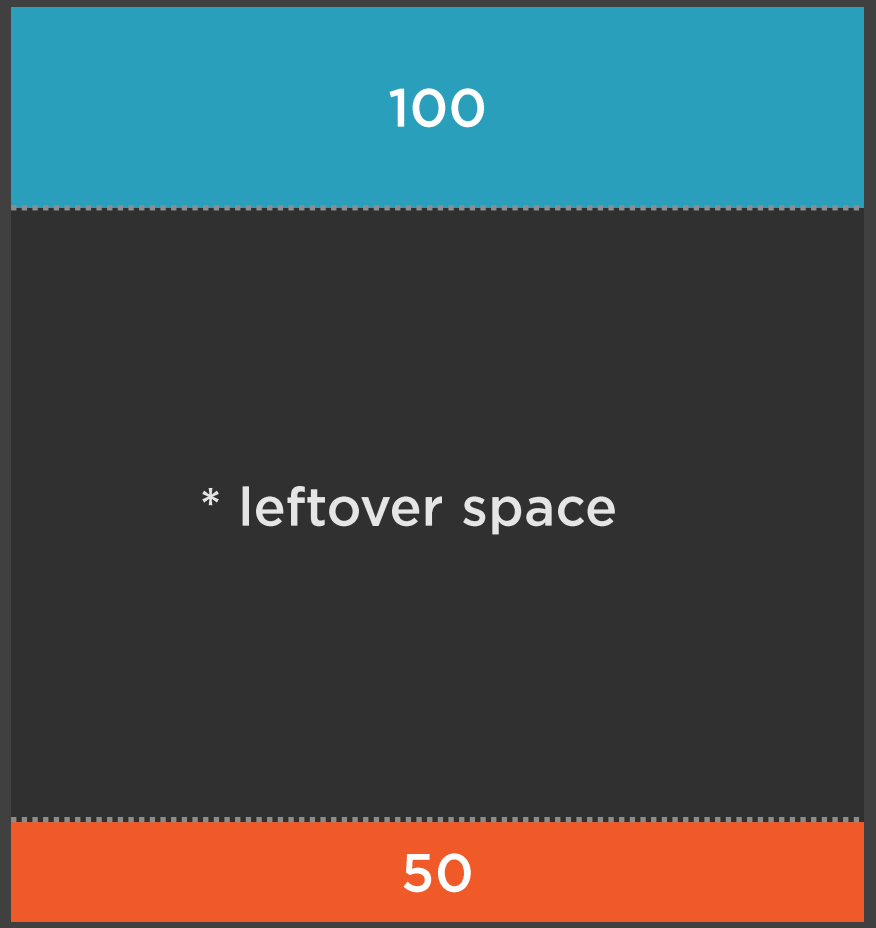
Understand the Size of Rows and Columns

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition Height="100"/>
    <RowDefinition Height="*"/>
    <RowDefinition Height="*"/>
  </Grid.RowDefinitions>

  <Rectangle Fill="LightBlue"/>

  <Rectangle Fill="Orange"
     Grid.Row="2" Height="50"/>
</Grid>
```



Understand the Size of Rows and Columns

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition Height="100"/>
    <RowDefinition Height="*"/>
    <RowDefinition Height="Auto"/>
  </Grid.RowDefinitions>

  <Rectangle Fill="LightBlue"/>

  <Rectangle Fill="Orange"
     Grid.Row="2" Height="50"/>
</Grid>
```



Position Elements with Layout Properties

Width

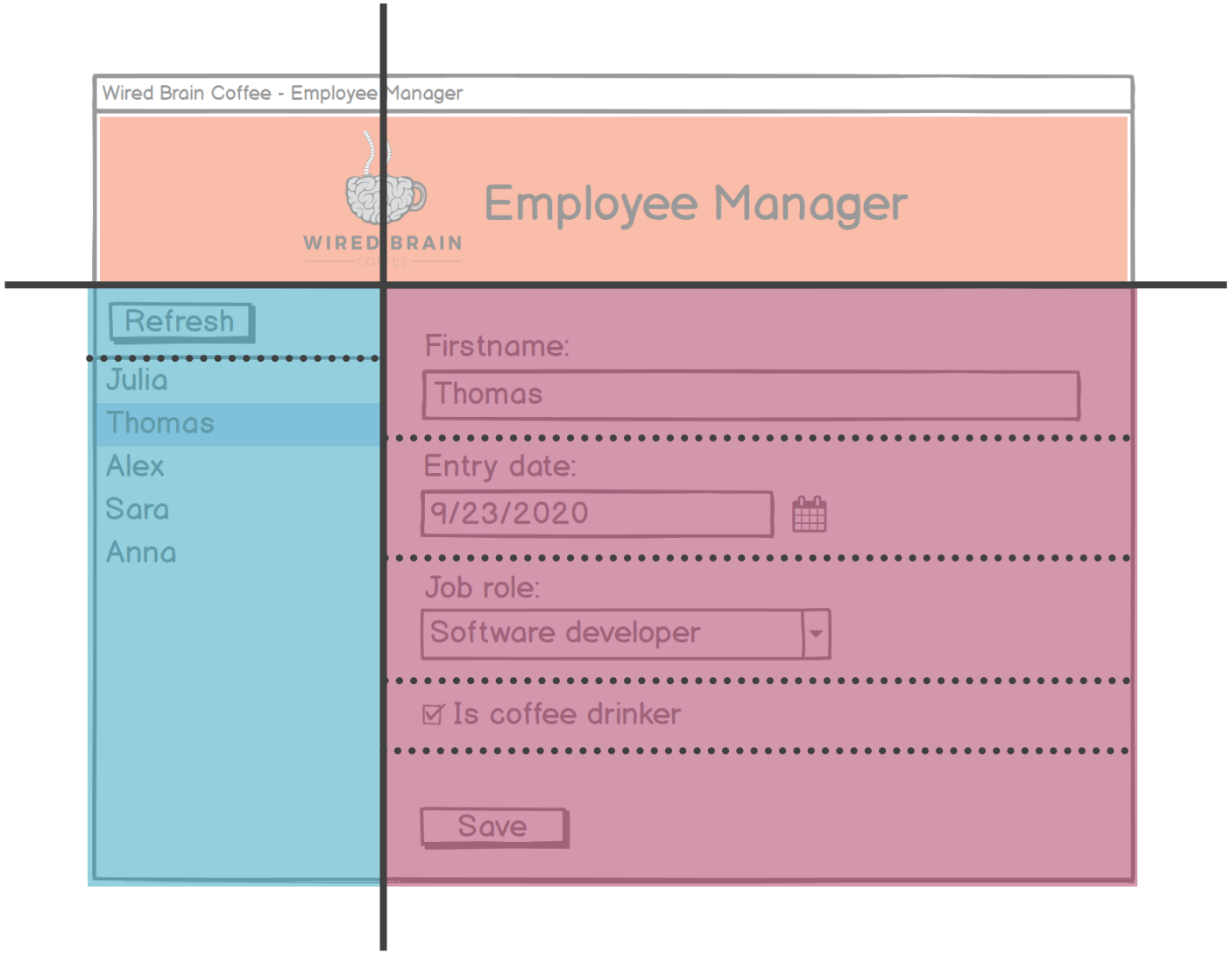
Height

Margin

HorizontalAlignment

VerticalAlignment

Build the Main Layout



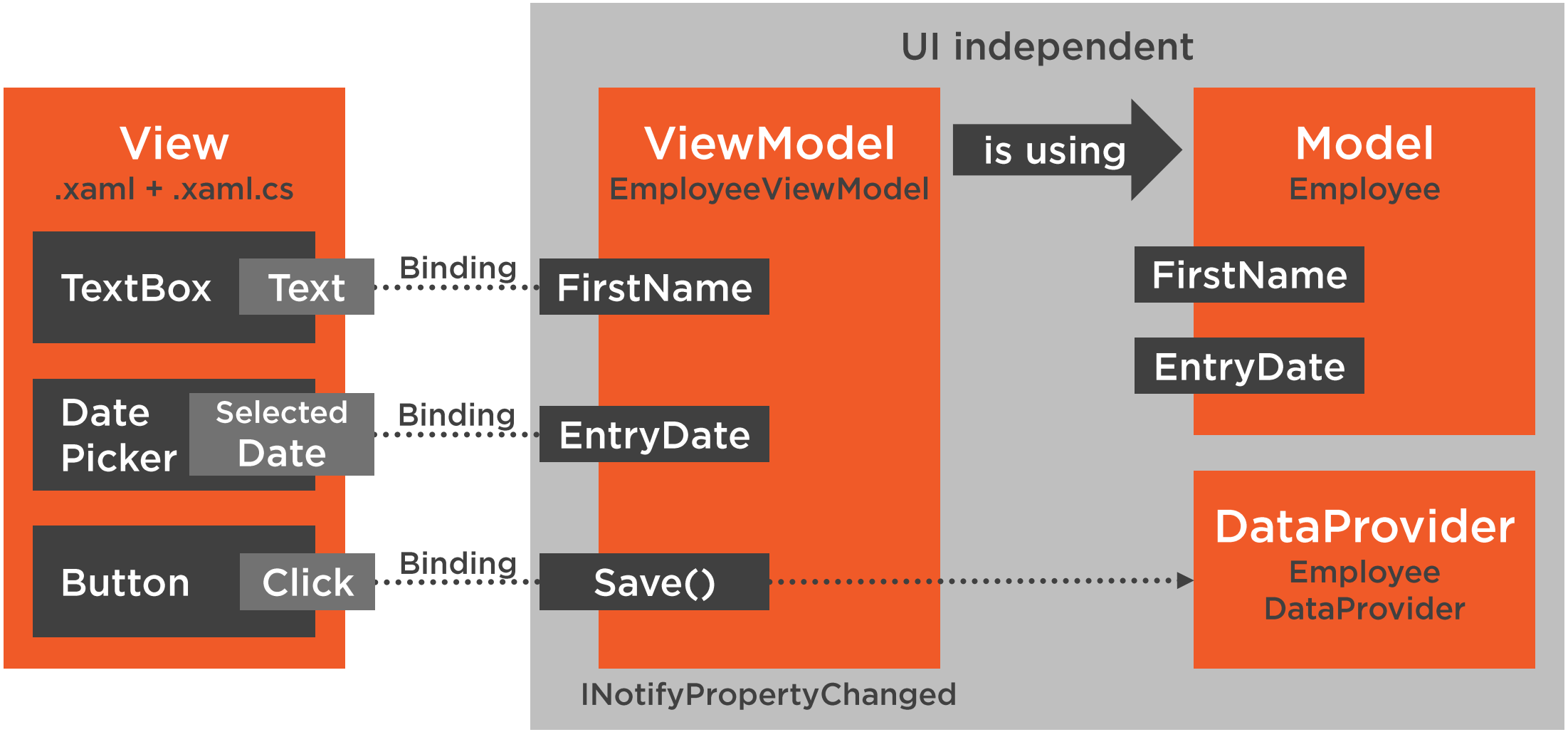
Demo

Build the main layout

Demo

Extract the header into a UserControl

Understand the MVVM Pattern



Advantages of MVVM

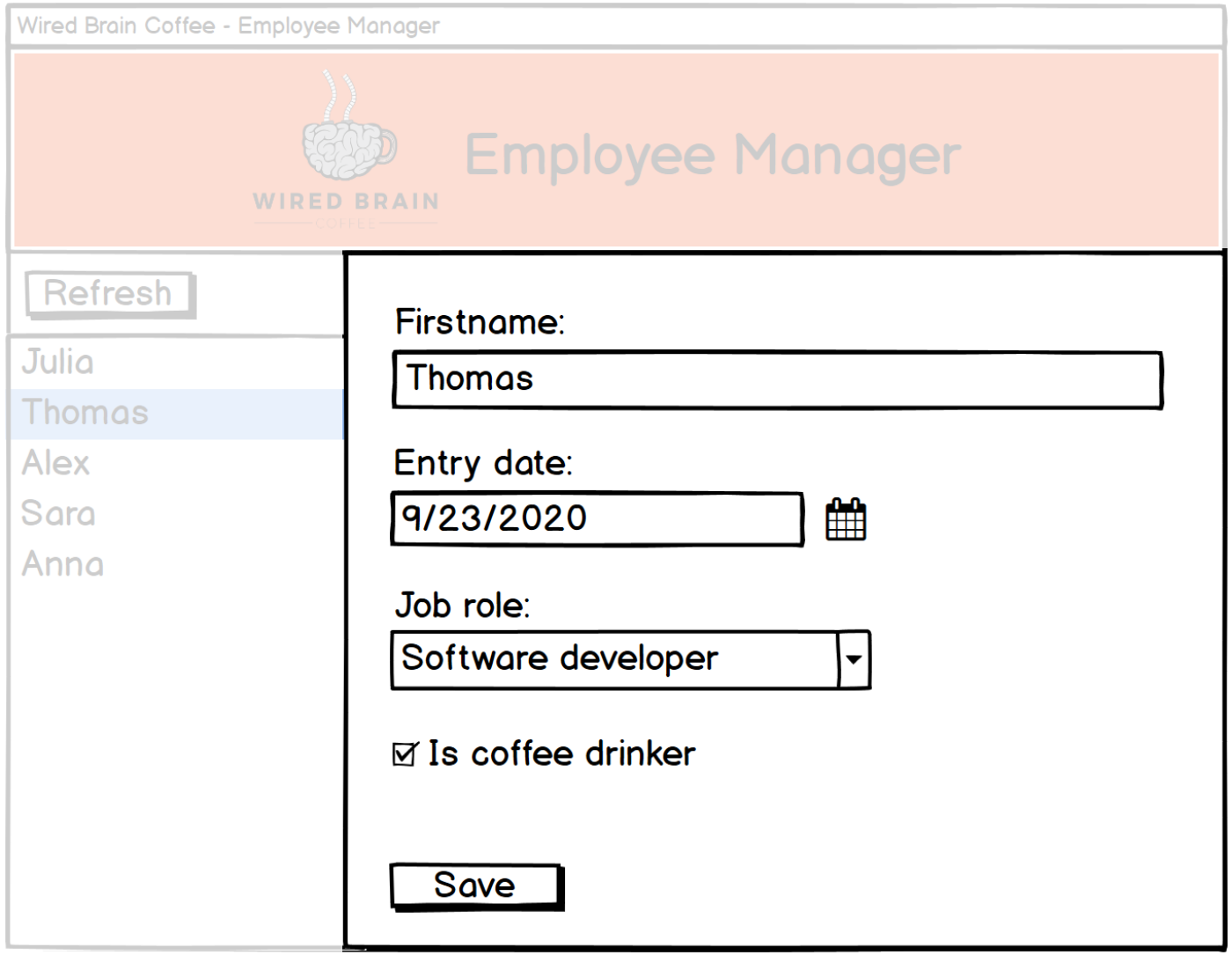
Maintainability

Testability

Course: WPF and MVVM: Test Driven Development of ViewModels

Course: Building an Enterprise App with WPF, MVVM, and Entity Framework Code First

Create a ViewModel for an Employee



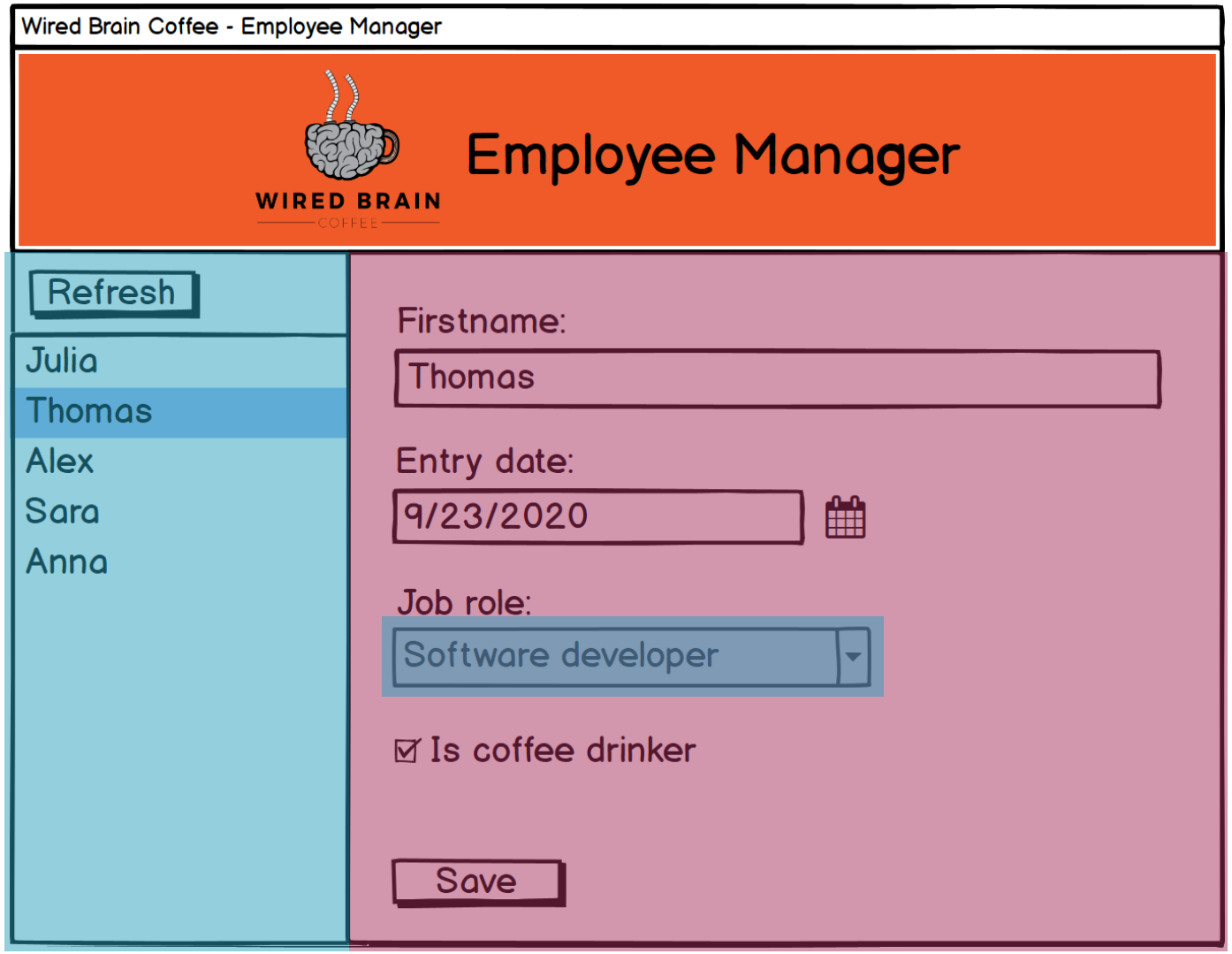
Demo

Create a ViewModel for an employee

Demo

Implement a ViewModelBase class

Build a ViewModel for the MainWindow



Demo

Build a ViewModel for the MainWindow

Demo

Bind the View to the ViewModel with x:Bind

Demo

Run the WinUI desktop app

Summary

Create a WinUI project

Understand XAML layout

- StackPanel
- Grid

Extract XAML parts into UserControls

Implement the app with the MVVM pattern

- Data Binding with x:Bind