

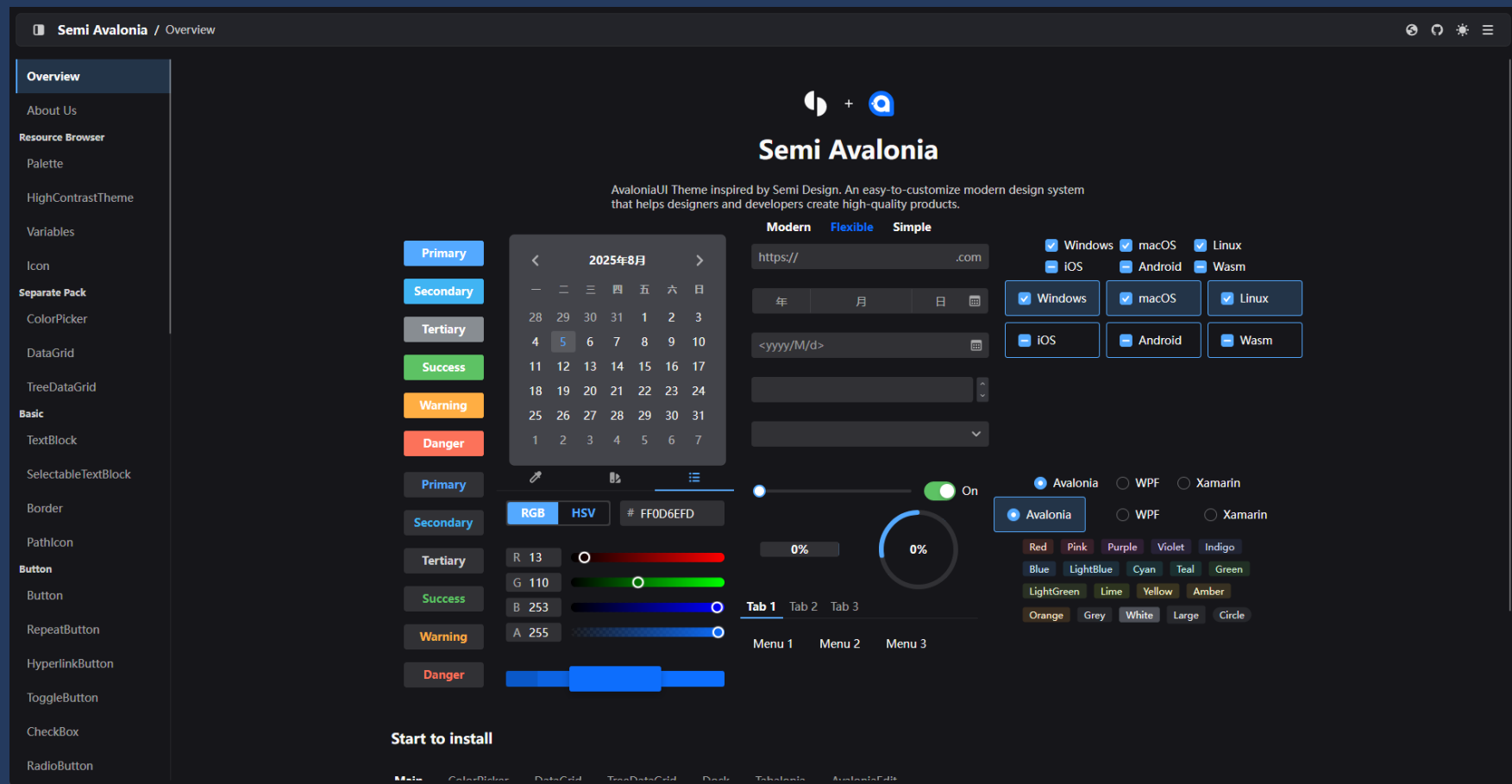
资源系统

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为什么需要资源

为什么需要资源



为什么需要资源

```
<Color x:Key="SemiWhiteColor">■ White</Color>
<Color x:Key="SemiBlackColor">■ Black</Color>
<Color x:Key="SemiRed0Color">■ #6C090B</Color>
<Color x:Key="SemiRed1Color">■ #901110</Color>
<Color x:Key="SemiRed2Color">■ #B42019</Color>
<Color x:Key="SemiRed3Color">■ #D73324</Color>
<Color x:Key="SemiRed4Color">■ #FB4932</Color>
<Color x:Key="SemiRed5Color">■ #FC725A</Color>
<Color x:Key="SemiRed6Color">■ #FD9983</Color>
<Color x:Key="SemiRed7Color">■ #FDBEAC</Color>
<Color x:Key="SemiRed8Color">■ #FEE0D5</Color>
<Color x:Key="SemiRed9Color">■ #FFF3EF</Color>
```

```
<StreamGeometry x:Key="SemiIconBottomCenterStroked">
    M7 2a1 1 0 0 0-1 1v10a1 1 0 0 0 1 1h10a1 1 0 0 0
    1-1V3a1 1 0 0 0-1-1H7Zm1 10V4h8v8H8Zm-5 8a1 1 0 1
    0 0 2h18a1 1 0 1 0 0-2H3Z
</StreamGeometry>
<StreamGeometry x:Key="SemiIconBottomLeftStroked">
    M4 3a1 1 0 0 0-2 0v18a1 1 0 0 0 1 1h18a1 1 0 1 0
    0-2H4V3Zm7-1a1 1 0 0 0-1 1v10a1 1 0 0 0 1 1h10a1 1
    0 0 0 1-1V3a1 1 0 0 0-1-1H11Zm1 10V4h8v8h-8Z
</StreamGeometry>
<StreamGeometry x:Key="SemiIconBottomRightStroked">
    M22 3a1 1 0 1 0-2 0v17H3a1 1 0 1 0 0 2h18a1 1 0 0 0
    1-1V3ZM3 2a1 1 0 0 0-1 1v10a1 1 0 0 0 1 1h10a1 1
    0 0 0 1-1V3a1 1 0 0 0-1-1H3Zm1 10V4h8v8H4Z
</StreamGeometry>
```

```
<x:Double x:Key="SemiHeightControlSmall">24</x:Double> <!-- 表单项高度 - 小尺寸 -->
<x:Double x:Key="SemiHeightControlDefault">32</x:Double> <!-- 表单项高度 - 默认尺寸 -->
<x:Double x:Key="SemiHeightControlLarge">40</x:Double> <!-- 表单项高度 - 大尺寸 -->
<x:Double x:Key="SemiWidthIconExtraSmall">8</x:Double> <!-- 图标尺寸 - 超小 -->
<x:Double x:Key="SemiWidthIconSmall">12</x:Double> <!-- 图标尺寸 - 小 -->
<x:Double x:Key="SemiWidthIconMedium">16</x:Double> <!-- 图标尺寸 - 中 -->
<x:Double x:Key="SemiWidthIconLarge">20</x:Double> <!-- 图标尺寸 - 大 -->
<x:Double x:Key="SemiWidthIconExtraLarge">24</x:Double> <!-- 图标尺寸 - 超大 -->
```

资源是什么

常见的资源

- `Brush`: 笔刷, 用于填充图形的颜色或纹理, 如`SolidColorBrush`和`LinearGradientBrush`
- `Geometry`: 图形数据, 描述形状的轮廓, 常常用在`PathIcon`这种图标控件中
- `x:String`: 字符串
- 值类型:
 - `x:Int32`、`x:Double`等基本数据类型
 - `Thickness`、`CornerRadius`、`Color`等结构体
 - `FontWeight`、`HorizontalAlignment`等枚举类型

资源的用途

- 控件样式和主题统一（如颜色、字体、间距等）
- 复用复杂对象（如笔刷、几何图形、模板等）
- 动态切换主题或风格
- 提高维护性和可读性，减少重复代码

区分Resource和Asset



颜色



圆角



字体文件



图片文件



间距



字号



音频文件



视频文件

声明资源

声明资源

--核心ResourceDictionary

声明资源

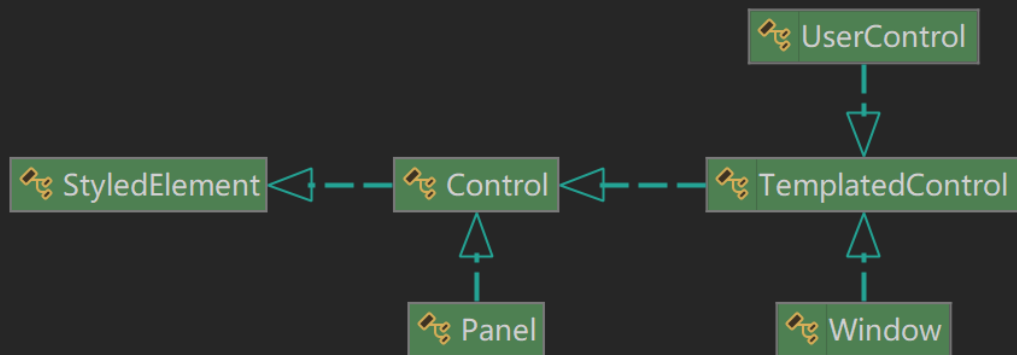
声明资源

```
public class StyledElement : Animatable,  
    15 用法  👤 Jeremy Koritzinsky +1 更多...  
    public IDictionary<string, object> Resources  
    {  
        get => _resources ??= new ResourceDictionary( owner: this);  
        ◇  
        set  
        {  
            value = value ?? throw new ArgumentNullException(nameof(value));  
            _resources?.RemoveOwner(this);  
            _resources = value;  
            _resources.AddOwner(this);  
        }  
    }  
}
```

声明资源

- StyledElement: StyledElement的Resources属性
- StyleBase: StyleBase的Resources属性
- Application: Application的Resources属性
- Styles文件的Resources属性
- ResourceDictionary文件

声明资源



```
<UserControl.Resources>
  <x:Double x:Key="btnfs">50</x:Double>
  <FontWeight x:Key="btnfw">Bold</FontWeight>
  <SolidColorBrush x:Key="btnfg" Color="Blue" />
  <SolidColorBrush x:Key="btbnb" Color="Red" />
</UserControl.Resources>
```

StyledElement的Resources属性

```
<UserControl.Styles>
  <Style>
    <Style.Resources>
      <x:Double x:Key="btnfs">50</x:Double>
      <FontWeight x:Key="btnfw">Bold</FontWeight>
      <SolidColorBrush x:Key="btnfg" Color="Blue" />
      <SolidColorBrush x:Key="btbnb" Color="Red" />
    </Style.Resources>
  </Style>
</UserControl.Styles>
```

StyleBase的Resources属性

声明资源

```
<Application.Resources>
  <x:Double x:Key="btnfs">50</x:Double>
  <FontWeight x:Key="btnfw">Bold</FontWeight>
  <SolidColorBrush x:Key="btnfg" Color="■Blue" />
  <SolidColorBrush x:Key="btbnb" Color="■Red" />
</Application.Resources>
```

Application的Resources属性

```
<Styles
  xmlns="https://github.com/avaloniaui"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">
  <Styles.Resources>
    <x:Double x:Key="btnfs">50</x:Double>
    <FontWeight x:Key="btnfw">Bold</FontWeight>
    <SolidColorBrush x:Key="btnfg" Color="■Blue" />
    <SolidColorBrush x:Key="btbnb" Color="■Red" />
  </Styles.Resources>
</Styles>
```

Styles文件的Resources属性

```
<ResourceDictionary
  xmlns="https://github.com/avaloniaui"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml">
  <x:Double x:Key="btnfs">50</x:Double>
  <FontWeight x:Key="btnfw">Bold</FontWeight>
  <SolidColorBrush x:Key="btnfg" Color="■Blue" />
  <SolidColorBrush x:Key="btbnb" Color="■Red" />
</ResourceDictionary>
```

ResourceDictionary文件

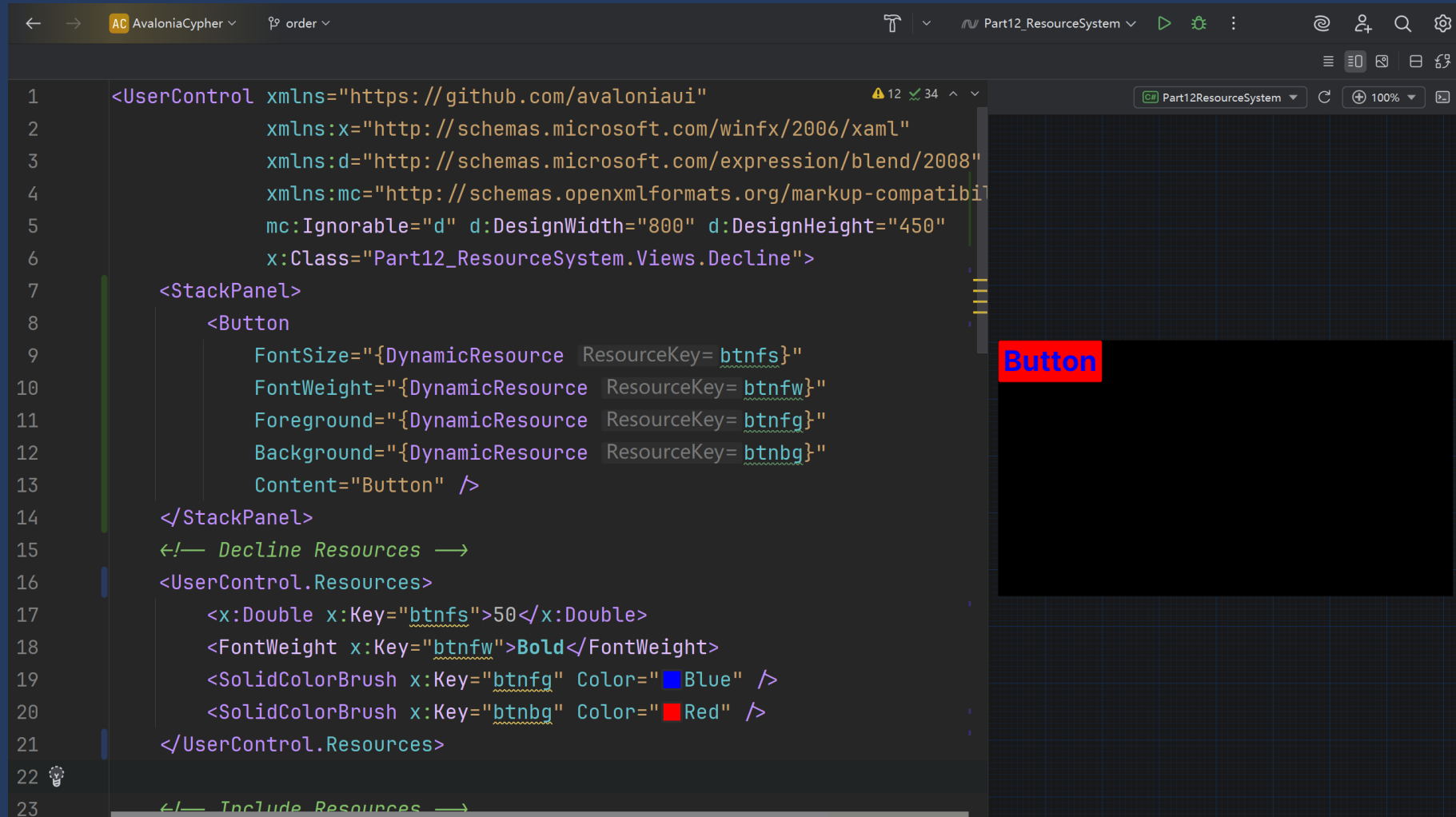
使用资源

StaticResource

```
← → AC AvaloniaCypher order ↕
Part12_ResourceSystem ▶ ⚙️ 🔍 ⚙️
Part12ResourceSystem 100%
1 <UserControl xmlns="https://github.com/avaloniaui"
2     xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
3     xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
4     xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility/2006"
5     mc:Ignorable="d" d:DesignWidth="800" d:DesignHeight="450"
6     x:Class="Part12_ResourceSystem.Views.Decline">
7     <StackPanel>
8         <Button
9             FontSize="{StaticResource ResourceKey= btnfs}"
10            FontWeight="{StaticResource ResourceKey= btnfw}"
11            Foreground="{StaticResource ResourceKey= btnfg}"
12            Background="{StaticResource ResourceKey= btnbg}"
13            Content="Button" />
14     </StackPanel>
15     <!-- Decline Resources -->
16     <UserControl.Resources>
17         <x:Double x:Key="btnfs">50</x:Double>
18         <FontWeight x:Key="btnfw">Bold</FontWeight>
19         <SolidColorBrush x:Key="btnfg" Color="Blue" />
20         <SolidColorBrush x:Key="btnbg" Color="Red" />
21     </UserControl.Resources>
22
23     <!-- Include Resources -->
```

StaticResource

DynamicResource



The screenshot shows the Visual Studio Code editor with a file named 'Part12_ResourceSystem'. The code is XAML for a UserControl. It defines a StackPanel containing a Button. The Button's properties (FontSize, FontWeight, Foreground, Background) are set using DynamicResource with keys btnfs, btnfw, btnfg, and btnbg. The Content is 'Button'. Below the StackPanel, there is a comment 'Decline Resources' and a Resources section defining the dynamic resources: btnfs is 50, btnfw is Bold, btnfg is Blue, and btnbg is Red. At the bottom, there is a comment 'Include Resources'. To the right of the code editor is a preview window showing a black rectangle with the word 'Button' in red text.

```
1 <UserControl xmlns="https://github.com/avaloniaui"
2             xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
3             xmlns:d="http://schemas.microsoft.com/expression/blend/2008"
4             xmlns:mc="http://schemas.openxmlformats.org/markup-compatibility"
5             mc:Ignorable="d" d:DesignWidth="800" d:DesignHeight="450"
6             x:Class="Part12_ResourceSystem.Views.Decline">
7     <StackPanel>
8         <Button
9             FontSize="{DynamicResource ResourceKey= btnfs}"
10            FontWeight="{DynamicResource ResourceKey= btnfw}"
11            Foreground="{DynamicResource ResourceKey= btnfg}"
12            Background="{DynamicResource ResourceKey= btnbg}"
13            Content="Button" />
14    </StackPanel>
15    <!-- Decline Resources -->
16    <UserControl.Resources>
17        <x:Double x:Key="btnfs">50</x:Double>
18        <FontWeight x:Key="btnfw">Bold</FontWeight>
19        <SolidColorBrush x:Key="btnfg" Color="Blue" />
20        <SolidColorBrush x:Key="btnbg" Color="Red" />
21    </UserControl.Resources>
22
23    <!-- Include Resources -->
```

区别与选择

- **StaticResource**: 程序编译的时候就直接解析资源，查找资源时只执行一次，适合大多数静态样式场景。
- **DynamicResource**: 程序运行的时候动态查找资源，查找资源时会监听资源变化，资源更新时自动刷新绑定，适合需要动态切换主题或资源的场景。

资源的查找顺序

资源的查找顺序

Application

- | - Resources [7]
- | - Styles
 - | - Resources [8]

UserControl

- | - Resources [5]
- | - Styles
 - | - Resources [6]
- | - StackPanel
 - | - Resources [3]
 - | - Styles
 - | - Resources [4]
- | - Button
 - | - Resources [1]
 - | - Styles
 - | - Resources [2]

资源的查找顺序

- `StaticResource`: 程序编译的时候就直接解析资源
- `DynamicResource`: 程序运行的时候动态查找资源
- `StaticResource`的实际流程:
 1. XAML 加载器构造 `Button`
 2. 遇到 `Content="{StaticResource btnc}"`, 立即尝试解析资源
 3. 此时 `Button.Resources` 还没被加载进去
 4. 因此向上查找, 命中 `StackPanel.Resources["btnc"]`, 即 `"StackPanelResource"`

资源的查找顺序

UserControl

- Resources [13]
 - Merged dictionary [15]
 - Merged dictionary [14]
- Styles
 - Resources [16]
 - Merged dictionary [18]
 - Merged dictionary [17]
- StackPanel
 - Resources [7]
 - Merged dictionary [9]
 - Merged dictionary [8]
 - Styles
 - Resources [10]
 - Merged dictionary [12]
 - Merged dictionary [11]
 - Button
 - Resources [1]
 - Merged dictionary [3]
 - Merged dictionary [2]
 - Styles
 - Resources [4]
 - Merged dictionary [6]
 - Merged dictionary [5]

Application

- Resources [13]
 - Merged dictionary [15]
 - Merged dictionary [14]
- Styles
 - Resources [16]
 - Merged dictionary [18]
 - Merged dictionary [17]

Merged dictionary可以是

- ResourceDictionary
- ResourceInclude
- MergedResourceInclude

资源的查找顺序

Application [8]

- (Resources/Styles)

StyledElement

- Resources [1]

 - ThemeDictionaries

 - Merged dictionary(Default) [3]

 - Merged dictionary(Light/Dark) [2]

 - MergedDictionaries

 - Merged dictionary [5]

 - Merged dictionary [4]

- Styles

 - Style

 - Resources [7]

 - (ThemeDictionaries/MergedDictionaries)

 - Style

 - Resources [6]

 - (ThemeDictionaries/MergedDictionaries)

小结

