

Navigation

Introduction

- ❖ The Silverlight navigation system is based on two controls. The `Frame` and the `Page`. A single frame container can switch between multiple pages.
- ❖ We can alternatively load the required user controls and switch them with each other. Instead of removing and loading we can alternatively chose the hiding option by referring the `Visibility` property most controls have. Another option involve with changing the root visual.

The Frame and The Page

- ❖ The `Frame` is a content control. It contains a single child element. `Frame` inherits from `ContentControl`.

The Frame and The Page

```
<UserControl x:Class="SilverlightApplication23.MainPage"
  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"
  mc:Ignorable="d"
  d:DesignHeight="300" d:DesignWidth="500"
  xmlns:sdk="http://schemas.microsoft.com/winfx/2006/xaml/presentation/sdk">

  <Grid x:Name="MainContainer" Background="White">
    <Grid.ColumnDefinitions>
      <ColumnDefinition></ColumnDefinition>
    </Grid.ColumnDefinitions>
    <Grid.RowDefinitions>
      <RowDefinition></RowDefinition>
      <RowDefinition MaxHeight="100"></RowDefinition>
    </Grid.RowDefinitions>
    <sdk:Frame Height="179" Grid.Row="0" HorizontalAlignment="Left"
      Margin="43,30,0,0" Name="MainFrame" VerticalAlignment="Top"
      Width="315" />
  </Grid>
</UserControl>
```



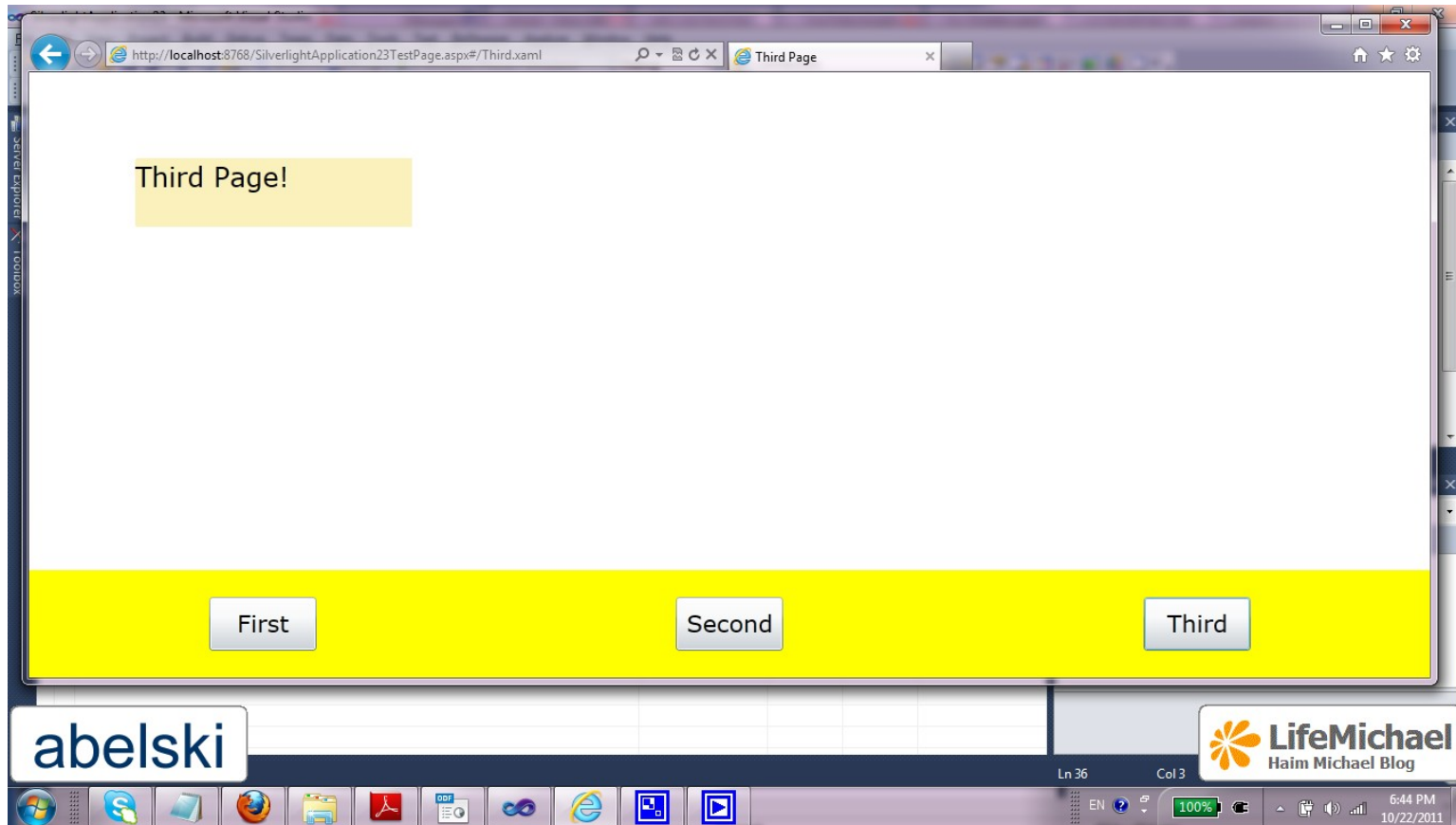
The Frame and The Page

```
<Grid Grid.Row="1" x:Name="LayoutButtons" Background="Yellow">
  <Grid.ColumnDefinitions>
    <ColumnDefinition ></ColumnDefinition>
    <ColumnDefinition ></ColumnDefinition>
    <ColumnDefinition ></ColumnDefinition>
  </Grid.ColumnDefinitions>
  <Grid.RowDefinitions>
    <RowDefinition></RowDefinition>
  </Grid.RowDefinitions>
  <Button FontSize="22" Grid.Column="0" Content="First"
    MaxWidth="100" MaxHeight="50" Click="ButtonClick"></Button>
  <Button FontSize="22" Grid.Column="1" Content="Second"
    MaxWidth="100" MaxHeight="50" Click="ButtonClick1"></Button>
  <Button FontSize="22" Grid.Column="3" Content="Third"
    MaxWidth="100" MaxHeight="50" Click="ButtonClick2"></Button>
</Grid>
</Grid>
</UserControl>
```

The Frame and The Page

```
namespace SilverlightApplication23
{
    public partial class MainPage : UserControl
    {
        public MainPage()
        {
            InitializeComponent();
        }
        private void ButtonClick(object sender, RoutedEventArgs e)
        {
            MainFrame.Navigate(new Uri("/First.xaml", UriKind.Relative));
        }
        private void ButtonClick1(object sender, RoutedEventArgs e)
        {
            MainFrame.Navigate(new Uri("/Second.xaml", UriKind.Relative));
        }
        private void ButtonClick2(object sender, RoutedEventArgs e)
        {
            MainFrame.Navigate(new Uri("/Third.xaml", UriKind.Relative));
        }
    }
}
```

The Frame and The Page



Browser URI Integration

- ❖ When we navigate from one page to another the name of the XAML page resource is appended to the URI.

```
localhost://Navigation/TestPage.html#/Page1.xaml
```

- ❖ Each page navigation is a separated item in the web browser history.
- ❖ When having more than one frame they will all share the same navigation path.

Browser URI Integration

- ❖ This behavior has its security implications. Malicious users can take advantage of that and try to hack into pages they are not allowed.



The UriMapper Resource

- ❖ We can create a separated resource that defines the possible navigation paths and use it in our application.

The UriMapper Resource

```
<Application xmlns="http://schemas.microsoft.com/winfx/2006/xaml/presentation"
  xmlns:x="http://schemas.microsoft.com/winfx/2006/xaml"
  xmlns:sdk="http://schemas.microsoft.com/winfx/2006/xaml/presentation/sdk"
  x:Class="SilverlightApplication23.App" >
  <Application.Resources>
    <sdk:UriMapper x:Key="ApplicationUriMapper">
      <sdk:UriMapping Uri="The Third" MappedUri="/Third.xaml" />
      <sdk:UriMapping Uri="The Second" MappedUri="/Second.xaml"/>
      <sdk:UriMapping Uri="The First" MappedUri="/First.xaml" />
    </sdk:UriMapper>
  </Application.Resources>
</Application>
```



App.xaml

The UriMapper Resource

MainPage.xaml

```
<UserControl x:Class="SilverlightApplication23.MainPage"
  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"
  mc:Ignorable="d"
  d:DesignHeight="300" d:DesignWidth="500"
  xmlns:sdk="http://schemas.microsoft.com/winfx/2006/xaml/presentation/sdk">

  <Grid x:Name="MainContainer" Background="White">
    <Grid.ColumnDefinitions>
      <ColumnDefinition></ColumnDefinition>
    </Grid.ColumnDefinitions>
    <Grid.RowDefinitions>
      <RowDefinition></RowDefinition>
      <RowDefinition MaxHeight="100"></RowDefinition>
    </Grid.RowDefinitions>
```

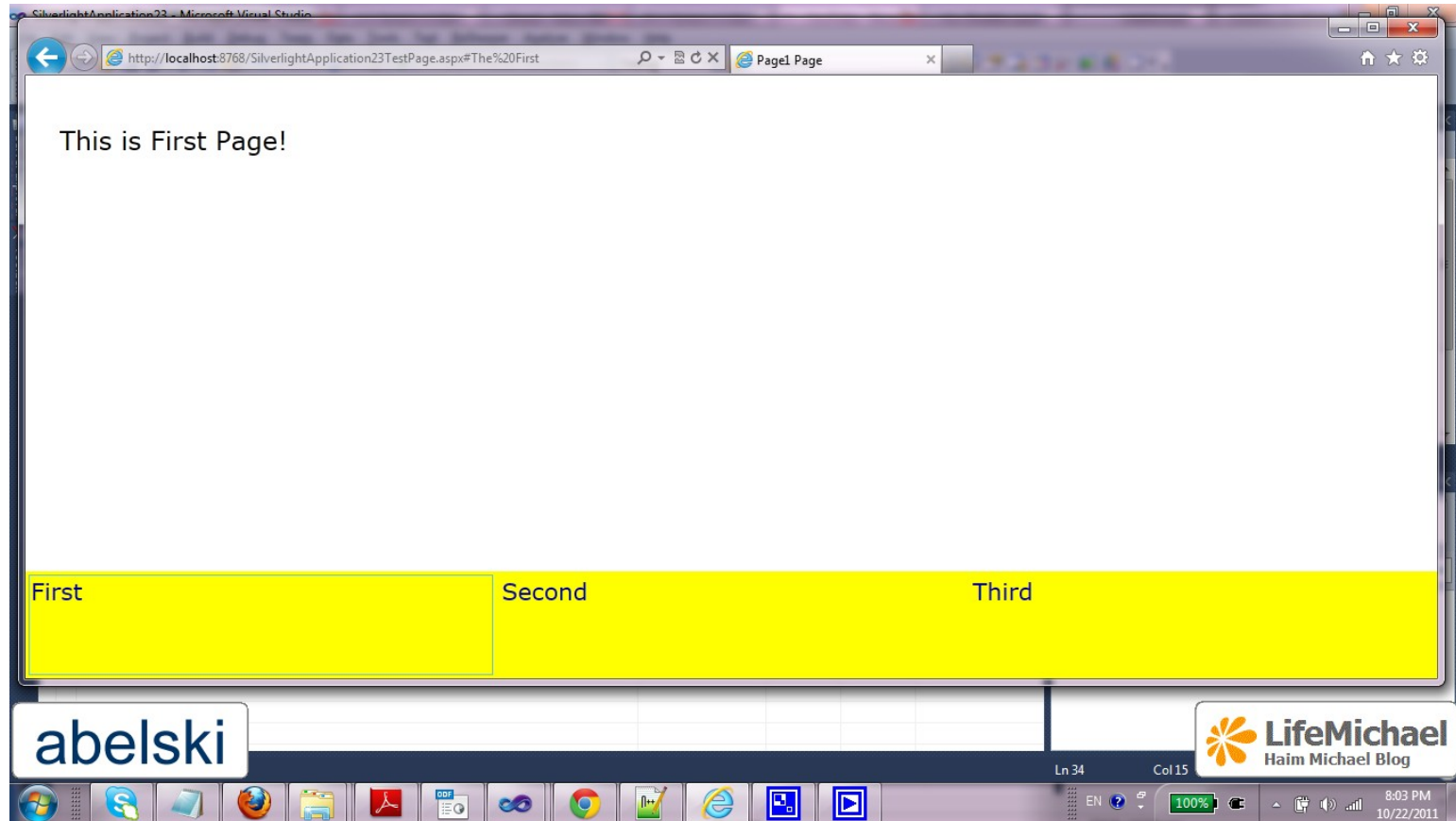
The UriMapper Resource

```
<sdk:Frame x:Name="mainFrame"
  UriMapper="{StaticResource ApplicationUriMapper}">
</sdk:Frame>
<Grid Grid.Row="1" x:Name="LayoutButtons" Background="Yellow">
  <Grid.ColumnDefinitions>
    <ColumnDefinition ></ColumnDefinition>
    <ColumnDefinition ></ColumnDefinition>
    <ColumnDefinition ></ColumnDefinition>
  </Grid.ColumnDefinitions>
  <Grid.RowDefinitions>
    <RowDefinition></RowDefinition>
  </Grid.RowDefinitions>
```

The UriMapper Resource

```
<HyperlinkButton Foreground="DarkBlue" FontSize="22" Grid.Column="0"
    NavigateUri="The First" Content="First" Margin="3">
</HyperlinkButton>
<HyperlinkButton Foreground="DarkBlue" FontSize="22" Grid.Column="1"
    NavigateUri="The Second" Content="Second" Margin="3">
</HyperlinkButton>
<HyperlinkButton Foreground="DarkBlue" FontSize="22" Grid.Column="2"
    NavigateUri="The Third" Content="Third" Margin="3">
</HyperlinkButton>
</Grid>
</Grid>
</UserControl>
```

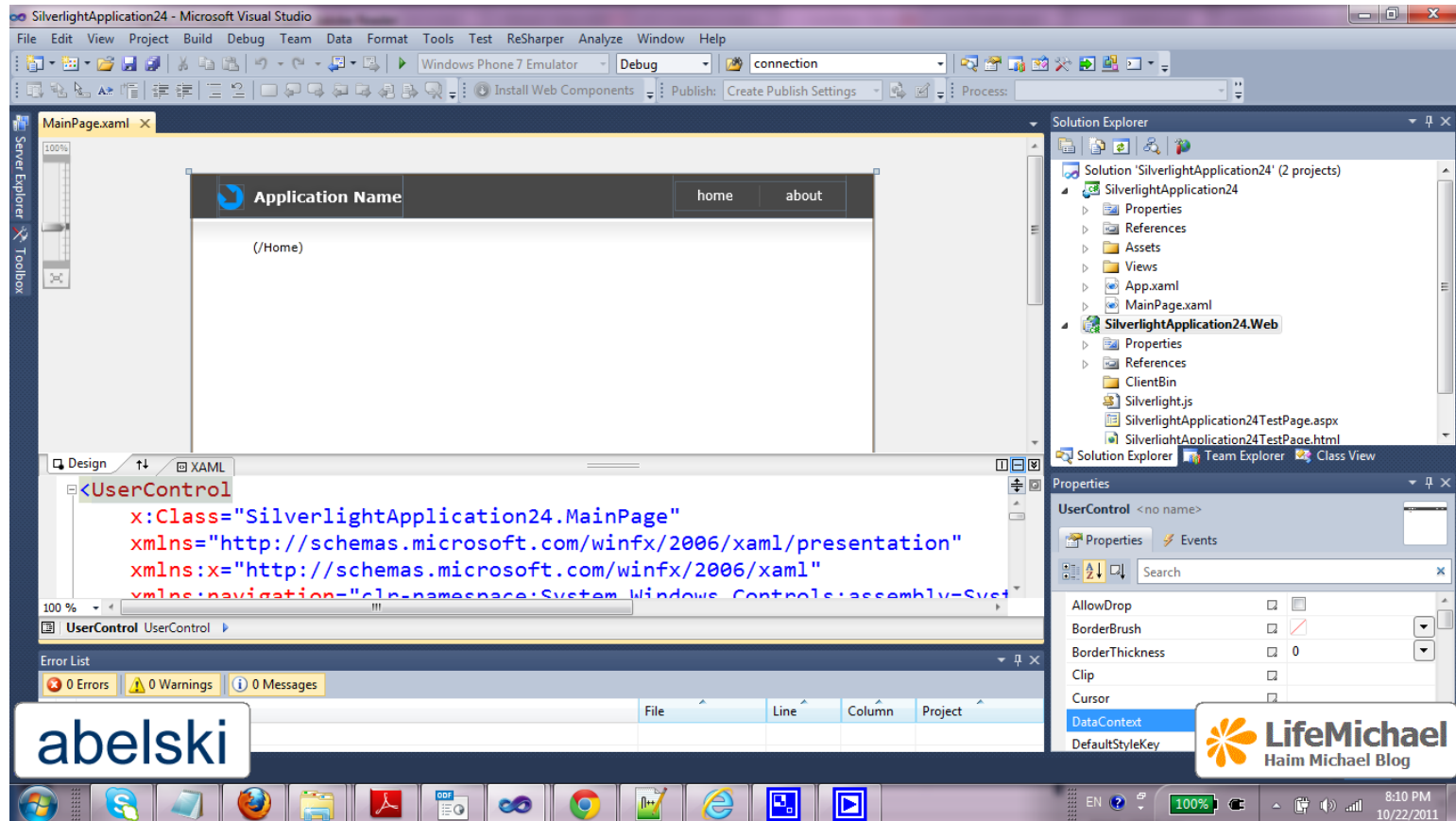
The UriMapper Resource



Silverlight Navigation Application

- ❖ We can create a new Silverlight project using this template and get ready to modify application with a beautiful accurate design.

Silverlight Navigation Application



Custom Content Loader

- ❖ The possibility to develop a custom content loader responsible for loading pages enables us to support authentication capabilities.