



Windows Phone

Creating a Silverlight UI on Windows Phone



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Windows Phone 7 Jump Start  
Microsoft Corporation

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# Agenda

Page Navigation

Handling the Hardware Back Key

Application Bar

Orientation-Aware Pages

Wrap-up

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Windows Phone

Page Navigation

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# Graphics Composition



- Shell frame composes all UI into a single scene
- Central page management enables cross-app UI transitions and other effects
- System-wide Z-order enforcement emphasizes core phone functionality

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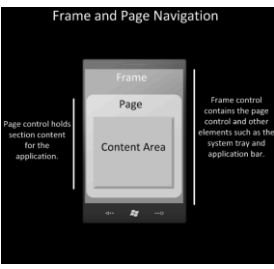
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# Frame and Page

- Frame
  - Top-level container control
  - PhoneApplicationFrame class
  - Contains the page control and system elements such as system tray and application bar
- Page
  - Fills the entire content region of the frame
  - PhoneApplicationPage-derived class
  - Contains a title
  - Optionally surfaces its own application bar



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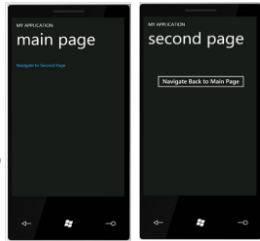
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# Page Navigation

- Silverlight on Windows Phone uses a Page-based navigation model
  - Similar to web page model
  - Each page identified by a URI
  - Each page is essentially stateless

```
private void hyperlinkButton1_Click(
    object sender, RoutedEventArgs e)
{
    NavigationService.Navigate(
        new Uri("/SecondPage.xaml",
            UriKind.RelativeOrAbsolute)
    );
}
```



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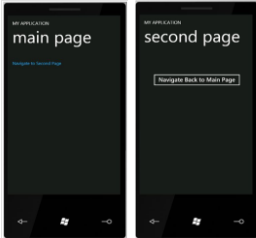
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## Navigating Back

- Application can provide controls to navigate back to preceding page

```
private void button1_Click(
    object sender, RoutedEventArgs e)
{
    NavigationService.GoBack();
}
```
- The hardware Back key will also navigate back to preceding page
  - No code required — built-in behavior



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## Overriding Back Key

- May need to override Back hardware key if 'back to previous page' is not logical behavior
  - For example, when displaying a popup panel
  - User would expect Back key to close the panel, not the page

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## Overriding Back Key

```
1. <phone:PhoneApplicationPage
2.     x:Class="WindowsPhoneApplication4.Detail"
3.     ...
4.     BackKeyPress="PhoneApplicationPage_BackKeyPress"
5.     shell:SystemTray.IsVisible="True">

In code:
1. private void PhoneApplicationPage_BackKeyPress(object sender,
   System.ComponentModel.CancelEventArgs e)
2. {
3.     e.Cancel = true;    // Tell system we've handled it
4. }
```

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## Passing Data Between Pages

- Can pass string data between pages using query strings:

```
1. private void passParam_Click(object sender, RoutedEventArgs e)
2. {
3.     NavigationService.Navigate(new Uri("/SecondPage.xaml?msg=" +
4.         textBox1.Text, UriKind.Relative));
5. }
```

- On destination page:

```
1. protected override void OnNavigatedTo(
2.     System.Windows.Navigation.NavigationEventArgs e)
3. {
4.     base.OnNavigatedTo(e);
5.     string msg = "";
6.     if (NavigationContext.QueryString.TryGetValue("msg", out msg))
7.         textBlock1.Text = msg;
8. }
```

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## Passing Objects Between Pages

- Often, you will need to pass a data object from one page to another
  - For example, the user selects an item in a list and navigates to a Details page
- One solution for this is to store your ViewModel (i.e. data) in your App class
  - Global to whole application
- Pass the selected item index in query string



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## Page Navigation

# Demo

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Application Bar

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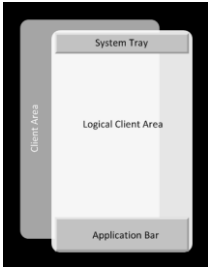
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Application Chrome

System Tray and Application Bar

- System Tray
  - System owned indicator area that displays system-level status information
  - Apps can show/hide  
`Microsoft.Phone.Shell.SystemTray.IsVisible = false;`
- Application Bar
  - Area where applications can display buttons for the most common tasks
  - Can display pop-up menu for less common tasks



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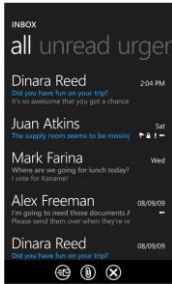
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Application Bar

- Use the ApplicationBar instead of creating your own menu system
- Up to 4 buttons plus optional menu
  - Swipe up the bar to bring up the menu
  - Change in Beta – all buttons must specify Text property as well as IconUrl
- Don't fill all 4 slots if not needed
- Use white foreground on transparent background for icons
  - System will colorize button according to users selected theme



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# Application Bar in Xaml

```
1 <phoneApplicationPage>
2   xClass="MyAppMainPage"
3   ...>
4
5 <phoneApplicationPage.ApplicationBar>
6   <shellApplicationBar xName="AppBar" IsMenuEnabled="True">
7     <shellApplicationBarButtons>
8       <shellApplicationBarIconButton xName="NewContactButton"
9         IconUri="Images/appbarnewest.png" Text="New"
10        Click="NewContactButton_Click"/>
11       <shellApplicationBarIconButton xName="SearchButton"
12         IconUri="Images/appbarfeaturesearch.png" Text="Find"
13        Click="SearchButton_Click"/>
14     </shellApplicationBarButtons>
15     <shellApplicationBarMenuItems>
16       <shellApplicationBarMenuItem xName="GenerateMenuItem"
17         Text="Generate Data" Click="GenerateMenuItem_Click"/>
18       <shellApplicationBarMenuItem xName="ClearMenuItem"
19         Text="Clear Data" Click="ClearMenuItem_Click"/>
20     </shellApplicationBarMenuItems>
21   </shellApplicationBar>
22 </phoneApplicationPage.ApplicationBar>
```

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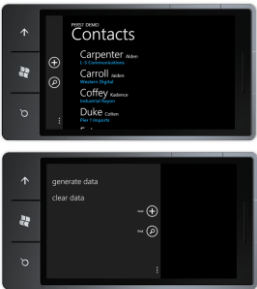
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# App Bar & Landscape

- ApplicationBar paints on side of screen in Landscape
- Has built-in animation when page switches orientation



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# Application Bar Opacity

- If Application Bar opacity is less than 1, displayed page will be the size of the screen
  - Application Bar overlays screen content
- If Opacity is 1, displayed page is resized to the area of the screen not covered by the Application Bar



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Application Bar

Demo

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Orientation-Aware Pages

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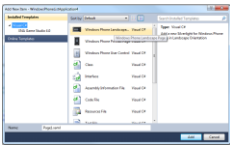
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Orientation Support

- In Visual Studio 'Add New Item', you can add a Landscape Page or a Portrait Page
- In fact, any page can be either – or both
- PhoneApplicationPage.SupportedOrientations property states what orientations the page supports
  - Portrait
  - Landscape
  - PortraitOrLandscape
- If set to PortraitOrLandscape, page will re-orientate itself automatically when the user rotates the phone
- You cannot force a page to re-orientate in code
- You can force a page to always use a specific orientation by setting the SupportedOrientations property to the value you require



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## Orientation-Aware Pages

1. <phone:PhoneApplicationPage

2. x:Class="OrientationSample.MainPage"

3. ...

4. SupportedOrientations="PortraitOnLandscape" Orientation="Portrait"

5. mc:Ignorable="d" d:DesignWidth="480" d:DesignHeight="768">

Can use a ScrollViewer to scroll content when in landscape:

1. <ScrollViewer x:Name="ContentGrid" Grid.Row="1" VerticalScrollBarVisibility="Auto">

2. <StackPanel Background="{StaticResource PhoneBackgroundBrush}" Height="632"

3. Width="466">

4. <!--Adding various controls and UI elements.-->

5. <Button Content="This is a Button" Width="254" />

6. <Rectangle Width="100" Height="100" Margin="12,0" HorizontalAlignment="Left"

7. Fill="{StaticResource PhoneAccentBrush}" />

8. </StackPanel>

9. </ScrollViewer>

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## Orientation-Aware Forms



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## Handling Orientation Changes

# Demo

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## Lab 3 – Complete After Session Before Thursday Morning Session

- Windows Phone Navigation and Controls
- <http://channel9.msdn.com/learn/courses/WP7TrainingKit/WP7Silverlight/WindowsPhoneNavigationAndControlsLab/>
  - Complete all three exercises

We'll hold office hours tomorrow from 1-4 pm PST in the BTL Forum – if you have any questions or need support while doing your labs

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## Review

- Apps navigate between pages using the NavigationService
- You can pass data objects between pages by using the Query String
- An Application Bar can have up to four icons
- Application Bar can only have opacity of 0.5 or 1.0
- You can change the display orientation of a Page in code at runtime
- System auto reorients LandscapeOrPortrait forms on phone rotation

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# Coming Up Next...

Windows Phone game development

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