Blend 101 including OS X Dock Demo

Monday, May 16, 2011
2:33 PM

1. **New Project**
   a. WPF Application
   b. Name your project (OSXDockExample)
   c. Select a location (Example: C:_Projects\Training\OSXDock\Completed)
   d. Select a Language (C#)
   e. Select a target framework version (4.0)
   f. Click Ok

2. **Add ItemsControl to the design surface**
   a. Click the Asset Library Chevrons in the toolstrip (>>)
   b. Type "Items" into the search box (Your cursor should default to this textbox). This will filter the asset library down to just items with the term Items in them
   c. Click on the ItemsControl asset (should be the first on in the search results). This will add the ItemsControl to the Asset tools button (under the asset library chevrons). These tools will stay there for the remainder o the Blend session for quick access to commonly used assets)
   d. Double click on the ItemsControl from the asset tool button. This will add the ItemsControl control to the design surface with the default sizing
   e. Press the V key on your keyboard to switch to selection mode so you can manipulate the ItemsControl sizing.
   f. Align and size your ItemsControl as you see fit. The OX Dock long horizontal list of items so size appropriately
      i. NOTE: You can turn on GridLines and / or snap to Grid / Snap lines to make positioning and sizing easier (All the buttons on the footer of the design surface)

3. **Add sample data to your ItemsControl.**
   a. Select the data tab
   b. Select the "Project" level in the sample data list
   c. Select New Sample Data from the first button in the top right corner of the data tab
   d. Give your data source a name (SampleDockData). Select Define in "Project" an check the box to "enable sample data when application is running". Click ok
   e. Edit the name of your collection. Change it to "DockItems"
   f. Edit the first property and change it to "Name" and make sure the type is string
   g. Edit the second property and change it to "Image" and change the type to Image.
   h. Click the "Edit Sample Values" button to the right of the collection node
   i. This will show examples of you sample data. Change the Name column to limit the length Max Word Count to 1 and the max word length to 10 characters
   j. click ok

4. **Associate the SampleData to the ItemsControl**
   a. Drag the sample data node from the data tabe and drop it in the ItemsControl on the design surface (the hover over text should say "Data bind [ItemsControl].DataContext to SampleDockData"
   b. Bind the ItemsControl's ItemsSource to th DocItems collection from the data source.

5. **Get the basic ItemsControl working**
   a. Click on the properties tab. With your ItemsControl selected (hit the V key if you need to switch to selection mode and click on the ItemsControl to select it) click in the name box at the very top of the properties pane and give your ItemsControl a name (Dock). This should how a list of TypeNames, not exactly what we want
   b. Set the ItemTemplate to bind a Textblock.Text to the SampleDockData.Name property
      i. Right click on the ItemsControl and select Edit Additional Templates | Edit Generated Items (ItemTemplate) | Create Empty
      ii. Give and name to the DataTemplate "DockItemTemplate" and click OK
      iii. This will bring into the DataTemplate editing mode. In the Objects and Timeline panel you will see the elements that make up the current template (By default it is just a grid)
      iv. Add a TextBlock as a child to the grid. Select the TextBlock from the Toolstrip and double click it to add it as a child of the grid
      v. Switch to selection mode (V on the keybaord)
      vi. Go to the properties panel and DataBind the Text property of the TextBlock to the Name property of the Sample data source we added earlier
      vii. F5 and run the project to verify it is working as expected

6. **Change the item layout from Vertical to Horizontal**
   a. Click on the breadcrumb at the top of the design surface windows to jump from DataTemplate editing to editing the main window layout. Select the ItemsControl
   b. Right click on the ItemsControl and select "Edit Additional Templates | Layout of Items | Edit Layout of Items (ItemsPanel) | Create a Copy.
   c. Name the ItemPanelTemplate (DockItemsPanelTemplate) and click Ok
   d. Select the VirtualizingStackPanel element from the Objects and Timeline list.
   e. Go to the properties panel and change the Oritentation property from Vertical to Horizontal
   f. Use the breadcrumb to navigate back to editing the main document. Your items shoul now be laid out horizontally

7. **Tweak item alignment**
   a. Right click on the ItemsControl and select Edit Additional Templates | Item Template | Edit Current
   b. Select the grid in the Objects and Timeline list
   c. Set margins on the grid as you see fit (Maybe 5 left and right)
   d. Select the TextBlock and set some padding on the text to space it from the edge of the grid (Maybe 3 all around, custom expression shortcut)
   e. Save and run and make sure it works as expected

8. **Add the Image Element Above the text**
   a. Go back into the ItemTemplate.
   b. Right click on the grid element and select change layout type | StackPanel
   c. Go to the Asset library and search for Image. Select the image asset.
   d. Double click on the Image asset from the Asset button to add it as a child of the StackPanel
   e. ReOrder the Image above the StackPanel by dragging it in the Objects list.
   f. Databind the Source property image to the Image field of the sample data source
   g. Change the Image Height and Width to 75
   h. Center the text under the image by selecting the text block and setting the horizontal alignment to center.
   i. Save and run

9. **Add the MouseOver Animations**
   a. Use h breadcrumb to and click on the ItemsControl to select the ItemTemplate (Edit Current)
   b. Click the plus icon to add a new Storyboard and name it DockItemMouseOver
   c. Press the F6 key to switch into animation layout mode (this will make it easier to edit the timeline)
   d. With the Stackpanel selected drag the timeline to .3 seconds and then click add keyframe
   e. Go over to the properties panel and select the scale transform settings and set X and y to 3
   f. Click on the keyframe oval in the timeline to set the keyframe easing style. Change the keyframe easing to

Alternative Sample DataSource option

1. Add some sample data to your list box so we can see how the items will be displayed. I prefer to use a design time ViewModel for this but you can also use the data tab to create sample data. I feel like this adds too much overhead to your project for a very narrow purpose. A MockViewModel can be useful outside of the design time, for example in unit tests, whereas the sample data approach really is only useful for Blend.
   a. Create MockViewModel class.
   b. Click on the project tab. Right click on the project node in the "Solution Explorer"
   c. Select "Add New Item". Select "Class". Name the class MockViewModel.cs. Click Ok
      i. Blend 4 gives you the ability to write C# code within the text editor in Blend which is perfect for this type of work
      ii. In the using section of the class file add "using System.Collections.ObjectModel"
      iii. Add a private member to your class of type List<DockItem> called dockItems
         1) Something like this:
            private List<DockItem> dockItems = new List<DockItem>();
      iv. Add a public readonly property to your class of type ObservableCollection<DockItem> called DockItems. In the getter return a new ObservableCollection passing in the private List<DockItem> as the constructor parameter
         1) Something like this
            public ObservableCollection<DockItem> DockItems
            {
                get { return new ObservableCollection<DockItem>(dockItems); }
            }
      v. Create a new class (underneath the MockViewModel class call DockItem
         1) Create three public auto properties in this class all of type string. Name, ImageUri, and ToolTip.
            a) Like This:
               public class DockItem
               {
                   public string Name { get; set; }
                   public string ImageUri { get; set; }
                   public string ToolTip { get; set; }
               }
      vi. Back in the constructor of the MockViewModel populate your List<DockItem> with several DockItem instances. For now just new up a DockItem and set it's Name property.
         1) Something like this:
            public MockViewModel()
            {
                dockItems.Add(new DockItem { Name = "Item1" });
                dockItems.Add(new DockItem { Name = "Item2" });
                dockItems.Add(new DockItem { Name = "Item3" });
                dockItems.Add(new DockItem { Name = "Item4" });
                dockItems.Add(new DockItem { Name = "Item5" });
            }
            NOTE: For this specific example you will need to provide value for the ImageURI that points to an actual image.

   d. Now we have a class that has a collection of items that we can bind to in the xaml file and show in our list box. This will be the data for our Dock.
   e. Save an close the MockViewModel.cs file

something you like (like cubic InOut or cubic out)

g. Click the X to exit storyboard editing mode

10. **Associate the MouseOver trigger with the MouseOver storyboard.**
    a. Select the triggers tab and Click on the Property Trigger
    b. Select the StackPanel.IsMouseOver True
    c. Add and activation action of an select the MouseOver begin
    d. Add an deactivation action and Select MouseOver remove
    e. Save and run the app and make sure it is working as expected.

11. **Clean up Animations (Reverse instead of remove)**
    a. Right click on the ItemsControl and Select Edit Additional Templates (Item Template) | Edit Current
    b. Select the Triggers Tab and Select on the existing IsMouseOver Trigger
    c. Hit F6 to get into Animation Editing Mode
    d. Click the Plus in the Objects and Timeline box to Create a newAnimation. Name it DockItemMouseOut
    e. Click the add keyframe button to add a keyframe at 0 seconds. Set the Scale X and Y property to 3 at keyframe zero
    f. This will start our animation in the right place. Go to .3 seconds and drop anther keyframe and change the sacle X and Y to 1. Play the animation. This should be the reverse of the previous storyboard.
    g. Set the Keyframe easing to the same easing you used in the previous animations (Cubic InOut)
    h. Oress the X to close the storyboard and press F6 to toggle back to the default workspace. Select the IsMouse over Trigger. Add a new Deactivating action and set it to the new MouseOut animation Begin.
    i. Clean up the "pop" by deleting the starting keyframe.

12. **Add "Selection Bounce animation" (Stop here for Code Camp)**
    a. Create a new storyboard for selection. Call it DockItemClicked
    b. Start the item at scale X and Y 3 on keyframe 0
    c. Tranlate In the y direction -20 or at keyframe .3 and then back to 0 at keyframe .9
    d. Add a bounce out easing for the last keyframe (2 bounces with a 3 bounciness)
    e. Add an Event Trigger for when the StackPanel.MuseLeftButtonUp is fired begin the clicked animation.
    f. Add another event trigger to Remove the clicked storyboard on MouseOut.

13. **Do a little dance we are done!**