Windows Phone 8 Development Fundamentals

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| Teal | Lime | Pink | Orange | Blue | Red | Green | Brown | Purple |

Agenda

Development

- Tools and Installation
- XAML and Code
- Elements and Controls
- Resources
- Layout and Panels
- Data Binding
- Navigation

App Challenge

Getting the Tools

Go to http://dev.windowsphone.com

Download the Windows Phone 8 SDK

Install on Windows 8 64 bit with Hyper-V support

    Required for emulator

Installs the Express edition of Visual Studio if VS is not present

    Otherwise, integrates with existing Visual Studio installation

Start developing!

Creating a new Project

Demo

XAML

e**X**tensible **A**pplication **M**arkup **L**anguage

Declarative way of creating objects and setting properties

Used mostly for UI and related objects

Visual Studio provides a designer that generates XAML

Can also use Expression Blend

Special XAML features

Type converters

Markup extensions

XAML vs. Code

Demo

XAML Rules

XML Element – create a new instance

XML attribute – set a property

   Type converter may execute

   Can use markup extensions

Type.Property – set a "complex" property value

ContentProperty attribute – no need to specify Type.Property

Property of type **IList** or **IDictionary**

   Add child elements (XAML calls appropriate Add method)

   Need **x:Key** in case of a dictionary

Elements and Controls

The WP8 UI class hierarchy is quite complex

Everything is based on the **FrameworkElement** class which contains the fundamental properties of all elements

Many built in elements and controls

Can create custom elements

Elements vs. Controls

The **Control** class has a **Template** property which elements lack

Elements and Controls

Demo

Layout and Panels

WP8 provides layout containers (panels) that arrange elements in certain ways

Grid, Canvas, StackPanel

Combining panels can create complex and flexible user interface

More panels exist in the Windows Phone 8 Toolkit

Layout Panels

Demo

Resources

Arbitrary named .NET objects, stored in the Resources collection property of an element

Typically used for sharing the resource among child objects

Application wide resources stored in App.Xaml

Resources accessed in XAML with {StaticResource}

Resource keys are lookup up the visual tree

Resources

Demo

Control Families

Content controls
Derive from **ContentControl**

Have a Content property, which can be anything

Customizable via a **DataTemplate** (discussed later)

Items controls
Derive from **ItemsControl**

Properties

ItemTemplate – template for individual items

ItemsPanel – modify the hosting panel for items

Data Binding

Data binding means tying two arbitrary objects

Typical scenario is a non-visual object (or collection) to a visual element

Any changes to the non-visual object are reflected in the visual element (and optionally vice versa)

Applied mostly declaratively in XAML

Data Templates

The default data binding rendering is usually not enough

Different types (e.g. images), formatting, colors

Rendering can be modified via

Data templates

Value converters

Technically, unrelated to data binding

Data Binding & Data Templates

Demo

Navigation

A typical app is made up of more than one page

Navigation to a different page can be done with the **NavigationService.Navigate** method

Available in any **Page**'s **NavigationService** property

Uses a URI for a XAML page

Can add named parameters as query string

Available with the **NavigationContext.QueryString** property

Pages can override **OnNavigatedTo**, **OnNavigatedFrom** and **OnNavigatingFrom**

Data Binding & Data Templates

Demo

App Challenge

Build an app that allows free-form drawing over an empty canvas or one of the pictures in the phone's picture library

Allow saving resulting images

Extra: straight line drawings and other shapes

Extra: undo / redo operations

Bonus

Use the Nokia Imaging SDK to add special effects

SDK: http://developer.nokia.com/lumia/nokia-apis/imaging

Prizes

5 (five) Nokia Lumia Windows Phone 8 devices

Line: http://www.dvlup.com/Challenge/439

Resources

https://www.dreamspark.com/

> For students and academics
>
> Free licenses for Microsoft OS and tools

https://www.facebook.com/msdnisrael

> Israel's developer community group

http://dev.windowsphone.com

Thank you!

Q&A