

Xamarin – písanie Android a iOS aplikácií v C#

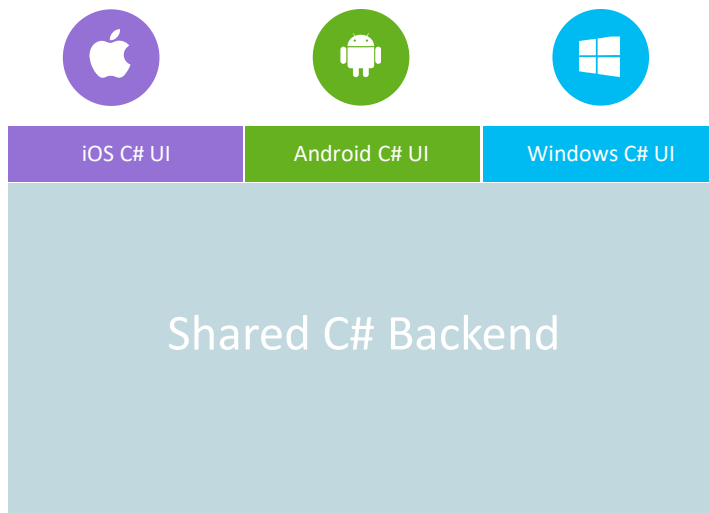
Roman Jašek

Software Architect, Riganti s.r.o.

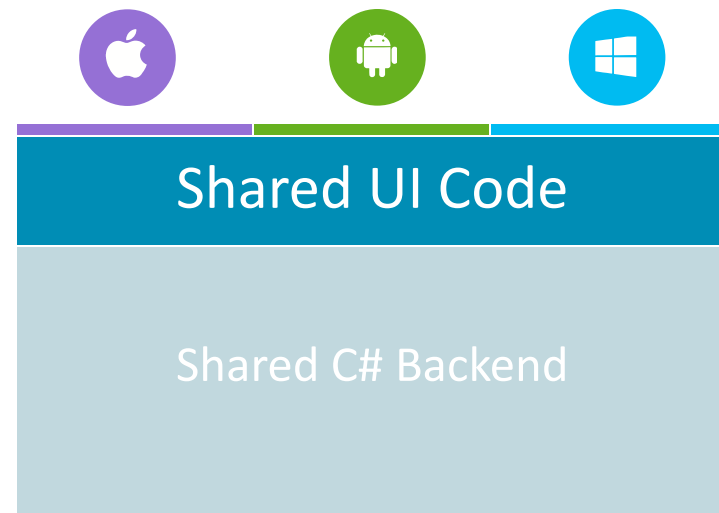
MSP, MCP

roman.jasek@riganti.cz

Xamarin vs. Xamarin Forms

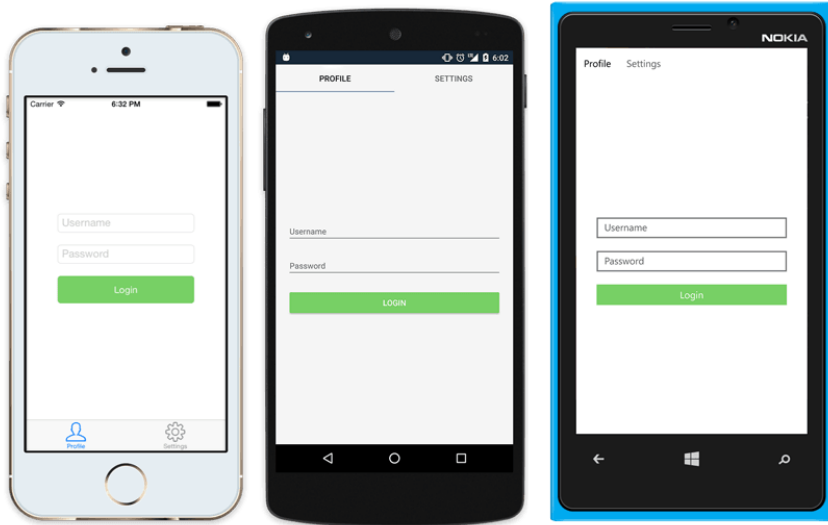


Xamarin



Xamarin Forms
Viac zdieľaného kódu

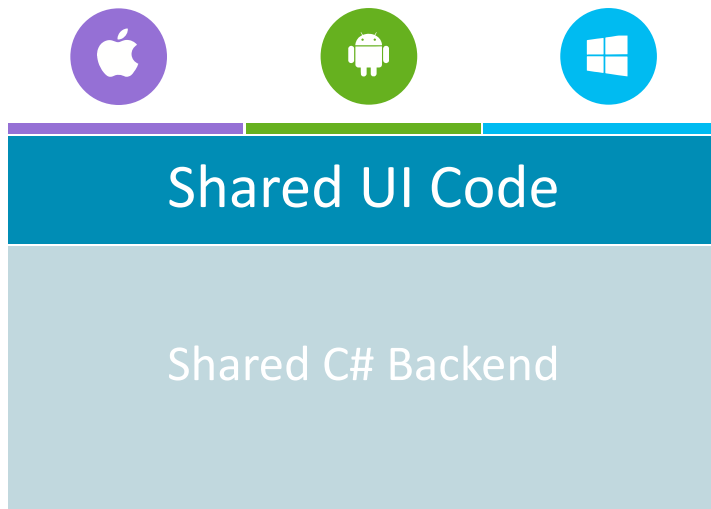
Natívne UI zo zdieľaného kódu



```
<?xml version="1.0" encoding="UTF-8"?>
<TabbedPage xmlns="http://xamarin.com/schemas/2014/forms"

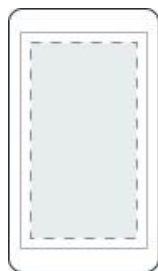
xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
           x:Class="MyApp.MainPage">
<TabbedPage.Children>
<ContentPage Title="Profile" Icon="Profile.png">
  <StackLayout Spacing="20" Padding="20"
              VerticalOptions="Center">
    <Entry Placeholder="Username"
            Text="{Binding Username}"/>
    <Entry Placeholder="Password"
            Text="{Binding Password}"
            IsPassword="true"/>
    <Button Text="Login" TextColor="White"
            BackgroundColor="#77D065"
            Command="{Binding LoginCommand}"/>
  </StackLayout>
</ContentPage>
<ContentPage Title="Settings" Icon="Settings.png">
  <!-- Settings -->
</ContentPage>
</TabbedPage.Children>
</TabbedPage>
```

Aktuálny stav

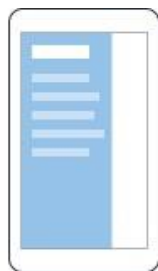


- ✓ 40+ stránok, layoutov, komponent (XAML)
- ✓ Data binding
- ✓ Navigácia
- ✓ Animácie
- ...

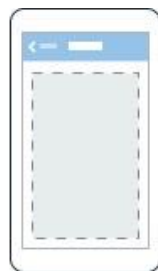
Stránky



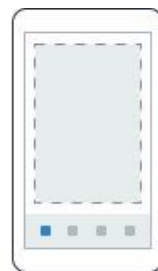
Content



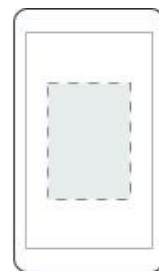
MasterDetail



Navigation

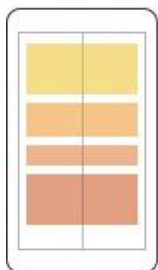


Tabbed

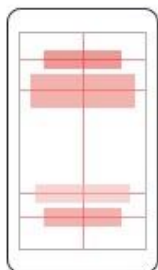


Carousel

Layout



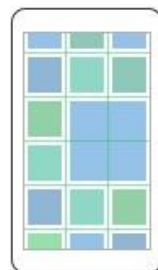
Stack



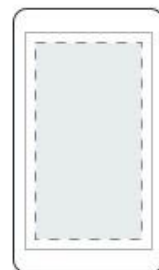
Absolute



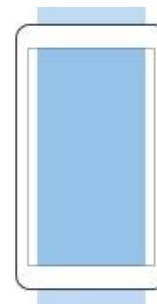
Relative



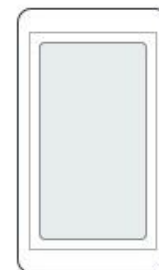
Grid



ContentView



ScrollView



Frame

Komponenty

ActivityIndicator

BoxView

Button

DatePicker

Editor

Entry

Image

Label

ListView

Map

OpenGLView

Picker

ProgressBar

SearchBar

Slider

Stepper

TableView

TimePicker

WebView

EntryCell

ImageCell

SwitchCell

TextCell

ViewCell

Komponenty tretích strán



Rozdiely – názvy

WPF	Xamarin Forms
StackPanel	StackLayout
TextBox	Entry
ListBox	ListView
CheckBox	Switch
ProgressBar	ActivityIndicator
Grid	Grid
Label	Label
Button	Button
Image	Image
Date/TimePicker	Date/TimePicker

Rozdiely – Data Binding

Windows	Xamarin.Forms
DataContext	BindingContext
{Binding Property}	{Binding Property}
ItemsSource	ItemsSource
ItemTemplate	ItemTemplate
DataTemplate	DataTemplate

```
<Label Text="{Binding Color.R,  
          Converter={StaticResource intConverter},  
          ConverterParameter=255,  
          StringFormat='R={0:X2}'}" />
```

Chýba mód OneTime

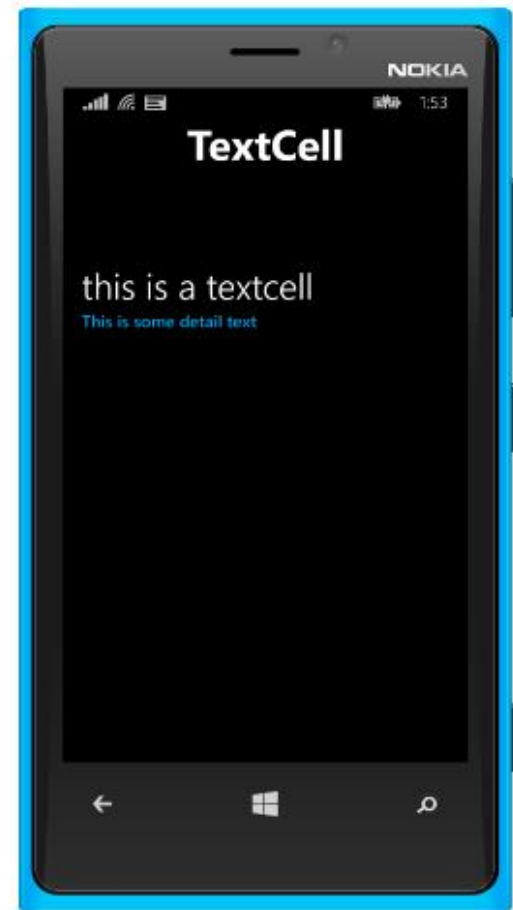
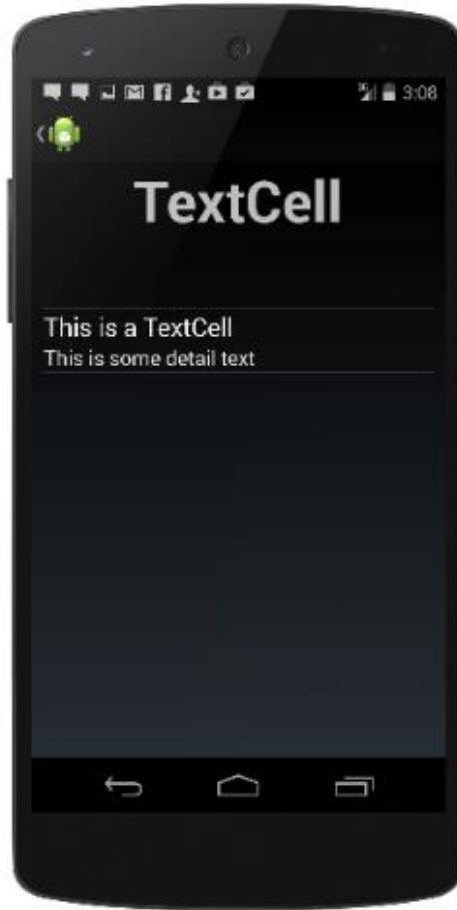
Grid, StackLayout

- Prakticky rovnaké použitie ako vo WPF
- Môžeme používať Grid v Android/iOS?
Awesome!

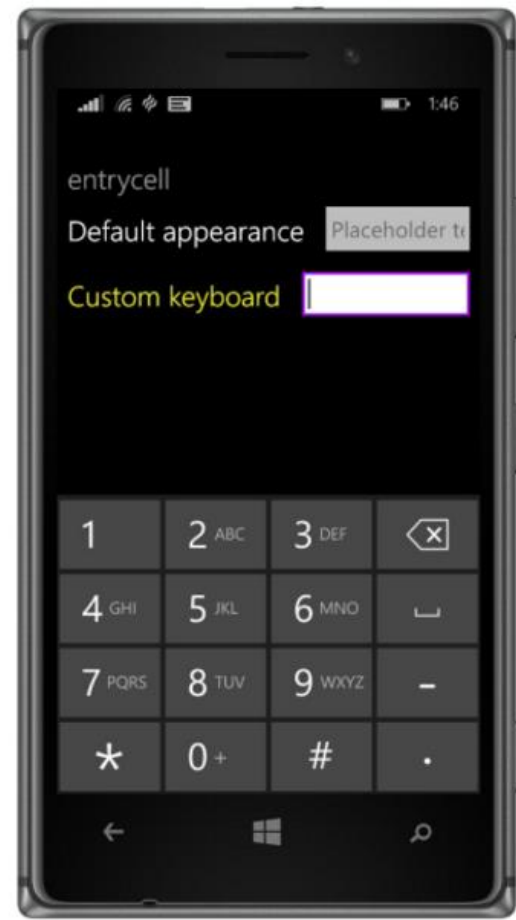
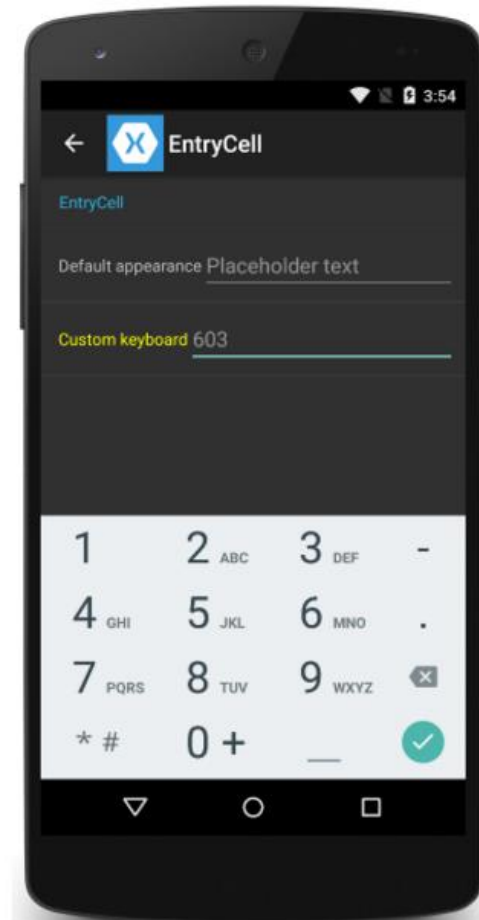
TableView & ListView

- Použitie vo formulároch, menu, štruktúrovaných dátach
- Veľmi jednoduché na použitie
- Predpripravené typy buniek

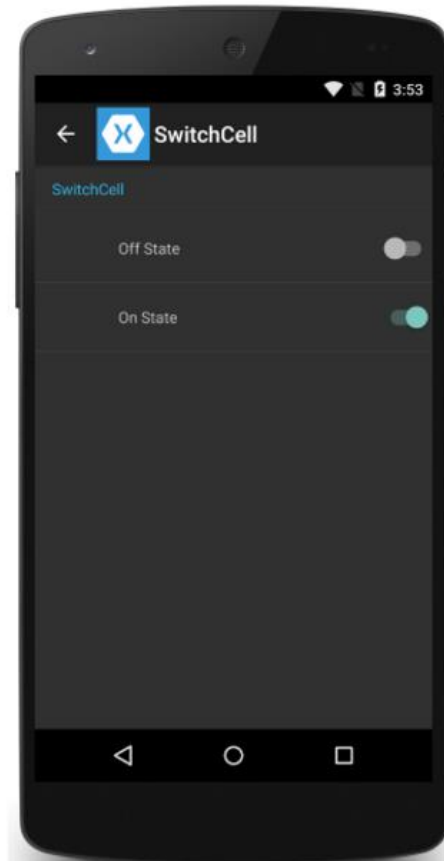
TextCell



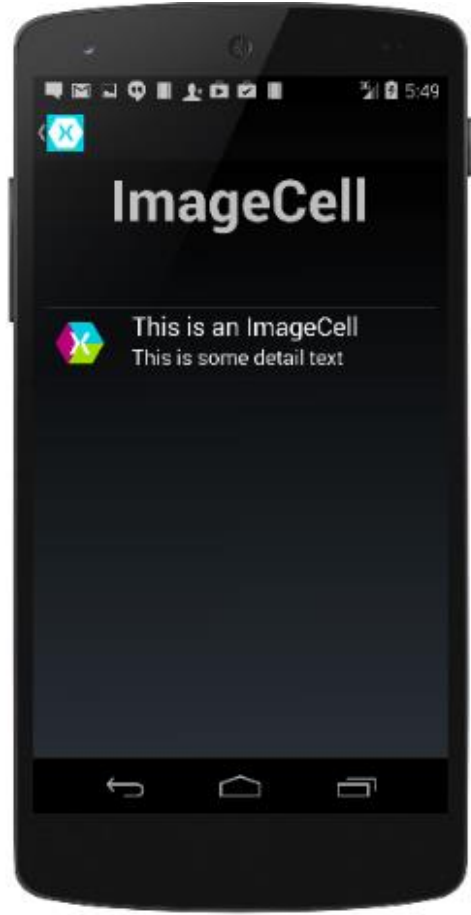
EntryCell



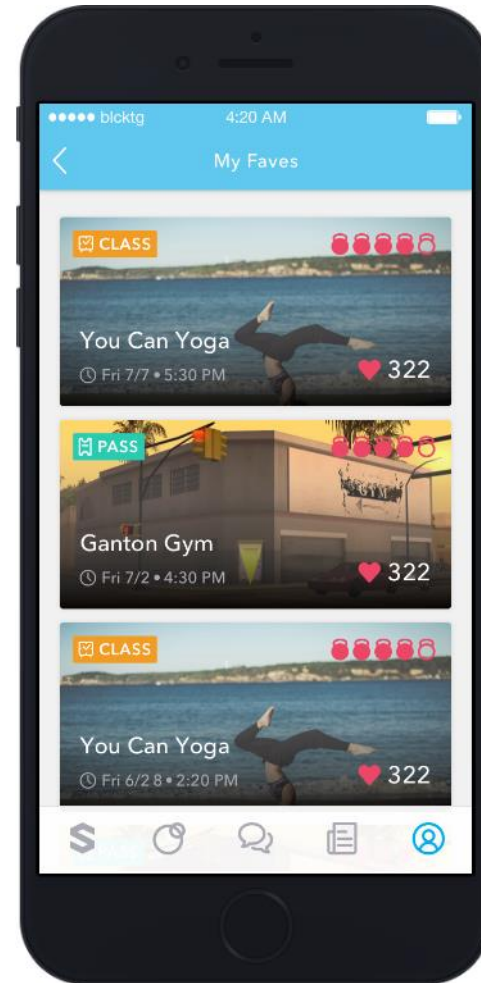
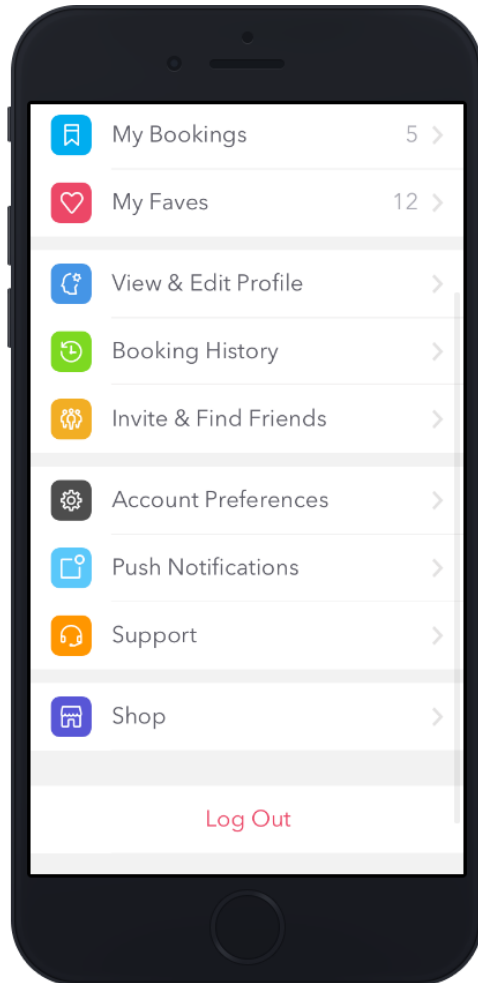
SwitchCell



ImageCell

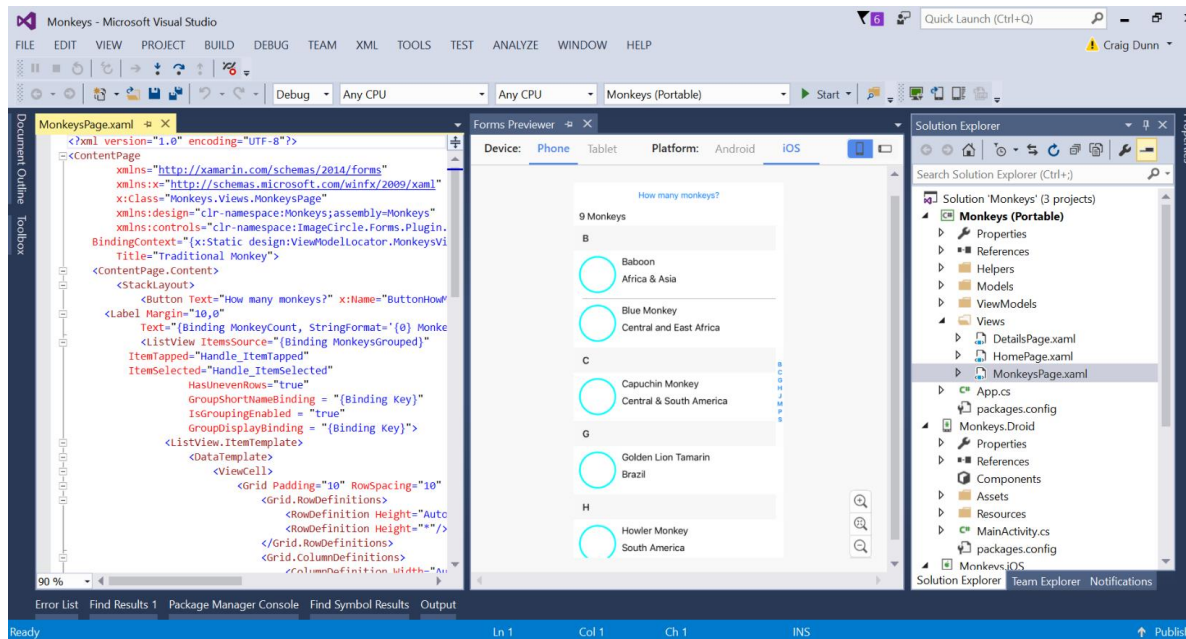


ViewCell



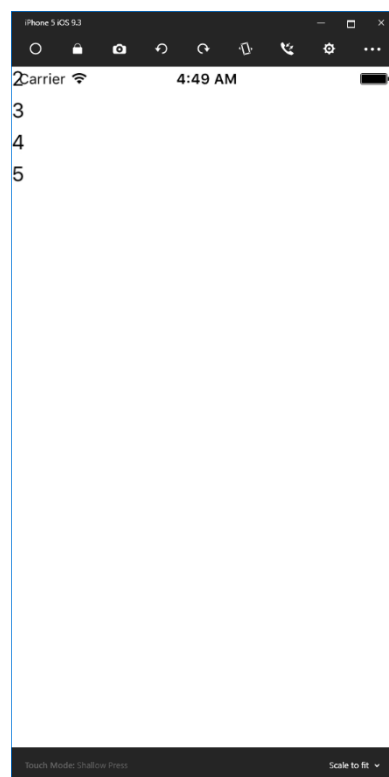
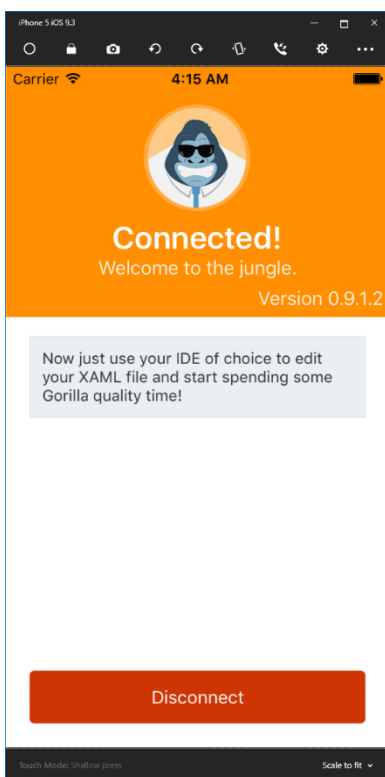
Ladenie layoutu 1

- XAML Previewer



Ladenie layoutu 2

- Gorilla Player



- Server na PC
- Klient v simulátore
- Možnosť zobrazit' priamo na telefóne
- Použiteľné na základné ladenie layoutu
- Nepodporuje custom komponenty
- Podporuje sample dáta

Ladenie aplikácie

- Xamarin Live Player
- Funkčná aplikácia na device
- iOS – podpora len pre Shared project
- Určené pre jednoduchý setup, nie zložité scenáre
- Zatiaľ early preview

Intellisense

- Extensions:
 - Enable XAML Language for Xamarin.Forms
 - Resharper

Data Binding Intellisense

`xmlns:d=http://schemas.microsoft.com/expression/blend/2008`

`xmlns:mc=http://schemas.openxmlformats.org/markup-compatibility/2006`

`mc:Ignorable="d"`

`d:DataContext="{d:DesignInstance test:TestViewModel}"`

1. Nainstalovat XCC do projektu
(Xaml Conditional Compilation)

2. Do .csproj přidat:

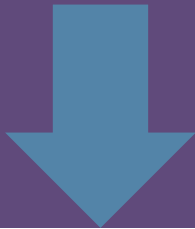
```
<XccRemoveIgnorableContent>True</XccRemoveIgnorableContent>
```

- Xamarin Previewer nepodporuje
- Ale Gorilla Player **podporuje**

XAML Compilation

XAML

XAMLC



Compile-time

Parsed & turned into
IL

Parsed and inflated

Runtime



Výhody

- ✓ Rýchlejšie načítanie
- ✓ Menšia veľkosť aplikácií
- ✓ Chyby v XAML pri kompilácii

IoC

- Autofac
 - Ninject
 - SimpleInjector
 - TinyIoC
 - MvvmCross
 - Unity
-
- XLabs má wrapper nad kontajnermi

Platforme špecifické (1)

```
<ContentPage.Padding>  
  <OnPlatform x:TypeArguments="Thickness">  
    <OnPlatform.iOS>  
      0, 20, 0, 0  
    </OnPlatform.iOS>  
    <OnPlatform.Android>  
      0, 0, 0, 0  
    </OnPlatform.Android>  
    <OnPlatform.WinPhone>  
      0, 0, 0, 0  
    </OnPlatform.WinPhone>  
  </OnPlatform>  
</ContentPage.Padding>
```

Platforme špecifické (2)

- Navigácia na Activity/Storyboard
- Dá sa navigovať oboma smermi

Custom Renderer

- Keď sa niečo nedá v XAML
- Platformne špecifické
- Vo Forms projekte vyrobiť triedu
- V Android/iOS projekte vyrobiť Renderer
- [`assembly: ExportRenderer(typeof(Border), typeof(BorderRenderer))`]

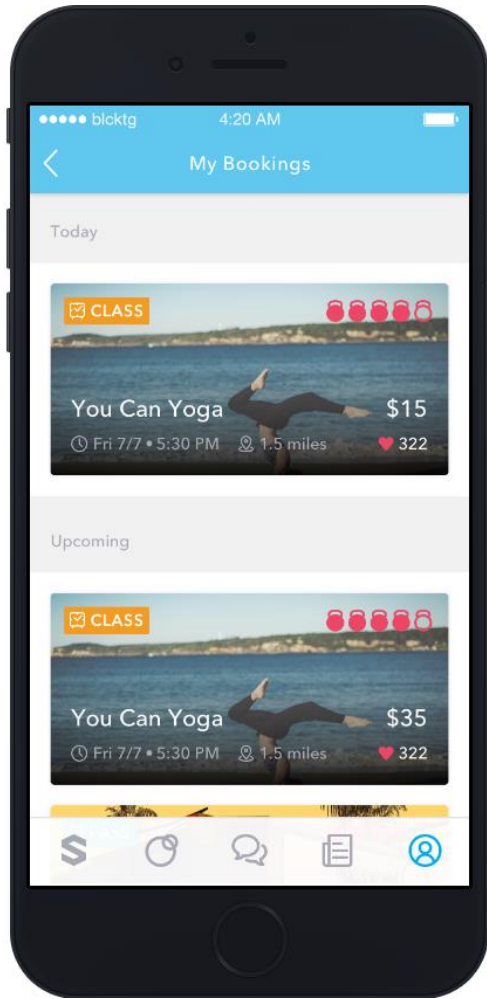
Pozitíva

- XAML!
- .Net
- Dokumentácia
- Zdieľanie kódu – 85-90%

Xamarin + Swagger - Demo

Nedostatky (a ako ich riešiť)

ListView – problém 1

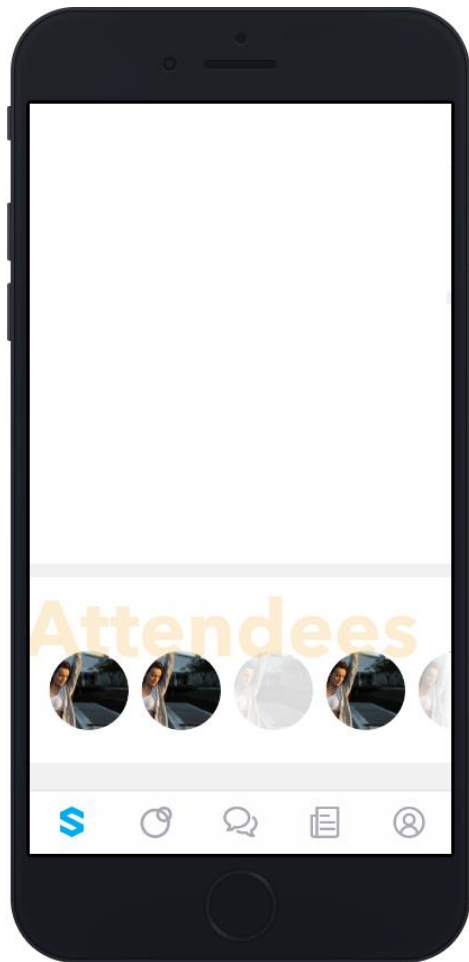


2 ListView na stránke

Riešenie:

- RepeaterView (XLabs)

ListView – problém 2



Horizontal ListView

Riešenie:

- RepeaterView (XLabs)

Layoutové podivnosti 1

- Default spacing

```
<Grid ColumnSpacing="0" RowSpacing="0" />
```

Layoutové podivnosti 2

- Grid – automatické Rows/Columns

```
<Grid>
  <Grid.RowDefinitions>
    <RowDefinition />
    <RowDefinition />
  </Grid.RowDefinitions>
  <Label Grid.Row="0" Text="Test 1" />
  <Label Grid.Row="1" Text="Test 2" />
  <Label Grid.Row="2" Text="Test 3" />
</Grid>
```

Button Content

- Tlačítko má len text



Riešenia:

1. Priehľadné tlačítko nad Grid
2. GestureRecognizers! (Tap, Pinch, Pan)

Circle Image

BorderRadius?



Custom Renderer!

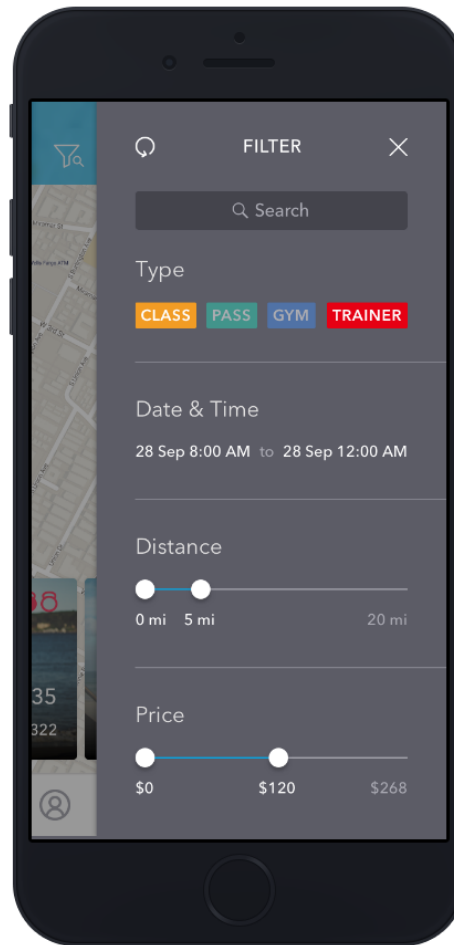
Border

Frame – ak nepotrebuje modifikovať



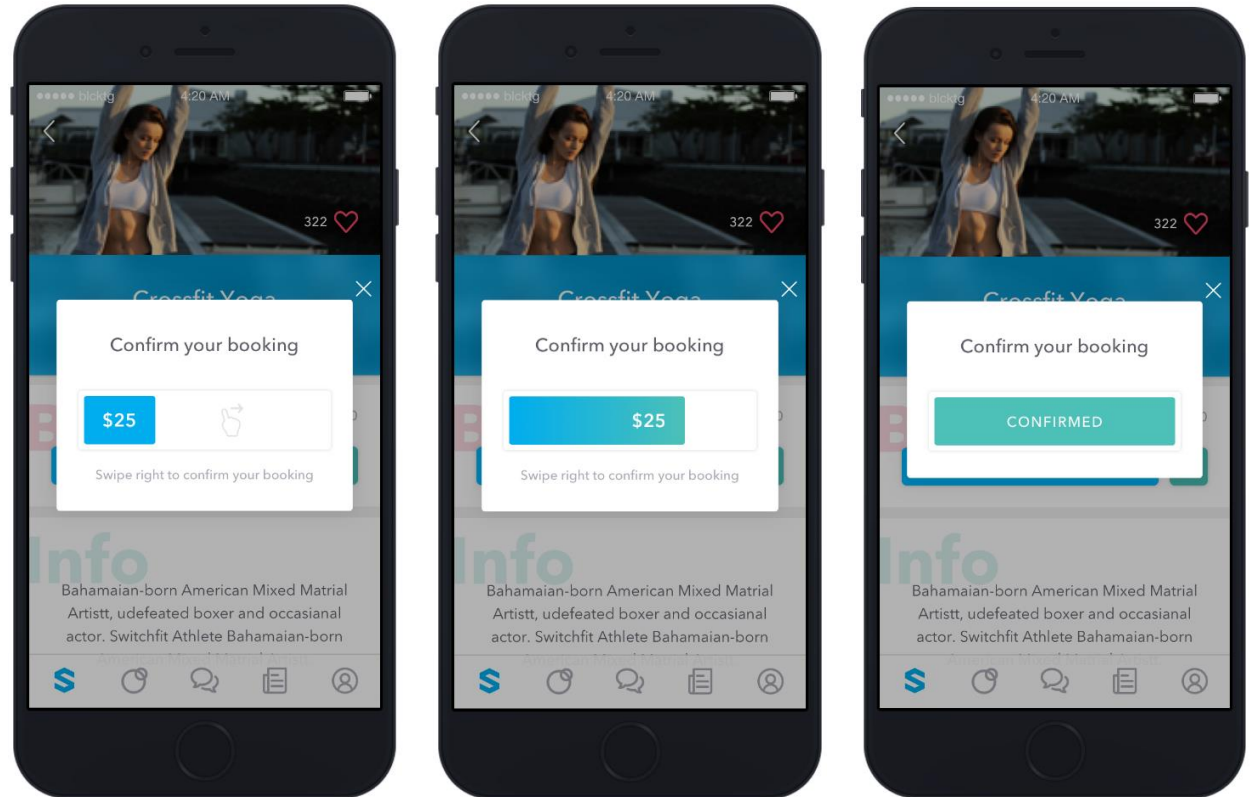
Inak - Custom Renderer

Menu napravo



Custom slider

- Gradient
- Vrstvy



SVG

- Externé knižnice
- Najjednoduchšie – custom font

iOS 10.2 – fotky

- Info.plist:

- `<key>NSCameraUsageDescription</key>`
`<string>Je v podstate jedno čo sem napíšete</string>`

Ďalšie oprávnenia:

- `<key>NSLocationAlwaysUsageDescription</key>`
- `<key>NSLocationWhenInUseUsageDescription</key>`
- `<key>NSCalendarsUsageDescription</key>`
- `<key>NSRemindersUsageDescription</key>`
- `<key>NSPhotoLibraryUsageDescription</key>`
- `<key>NSContactsUsageDescription</key>`
- ...

BindableProperty názov

- `public static string ErrorTextProperty`
- `public string ErrorLabelText{get... set...}`
- Toto nefunguje
- Treba pomenovať BindableProperty rovnako ako property

Prepnutie na vyššie rozlíšenie (iPhone 6S Plus...)

- Použiť `LaunchScreen.layout` namiesto obrázka v properties projektu

Real World Projekt - demo

Real World Projekt - štatistiky

- 80 Views
- 169 Controls

- PCL project - 549 C# súborov (88%)
- iOS projekt - 76 C# súborov (12%)