Custom Vision API y Xamarin

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Agenda

- Introducción (Cognitive Services)
- Custom Vision API
- Práctica Custom Vision API
- Xamarin
- Integración de Xamarin con Custom Vision API

Cognitive Services

Use inteligencia artificial para resolver problemas empresariales

Visión

Algoritmos de procesamiento de imágenes para identificar, moderar y poner una leyenda de forma inteligente a sus imágenes.

Voz

Convierta voz en texto, use la voz con fines de comprobación o agregue reconocimiento del hablante a sus aplicaciones.

Conocimiento

Cree mapas de información y datos complejos para resolver tareas como recomendaciones inteligentes y búsqueda semántica.

Búsqueda

Agregue Bing Search APIs a sus aplicaciones y aproveche la capacidad de buscar en miles de millones de páginas web, imágenes, vídeos y noticias con una sola llamada API.

Lenguaje

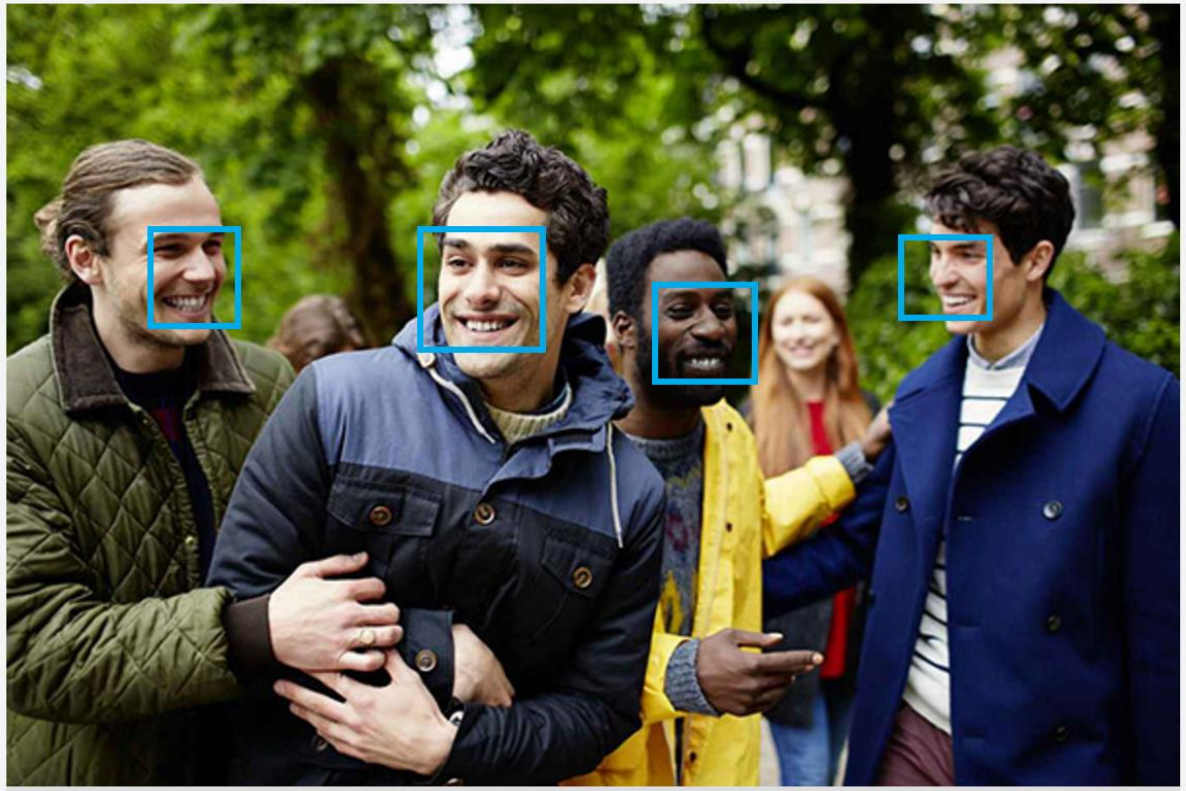
Permita que las aplicaciones procesen lenguaje natural con scripts precompilados, evalúen los sentimientos y aprendan a reconocer lo que los usuarios desean.

https://microsoft.com/cognitive

Face API

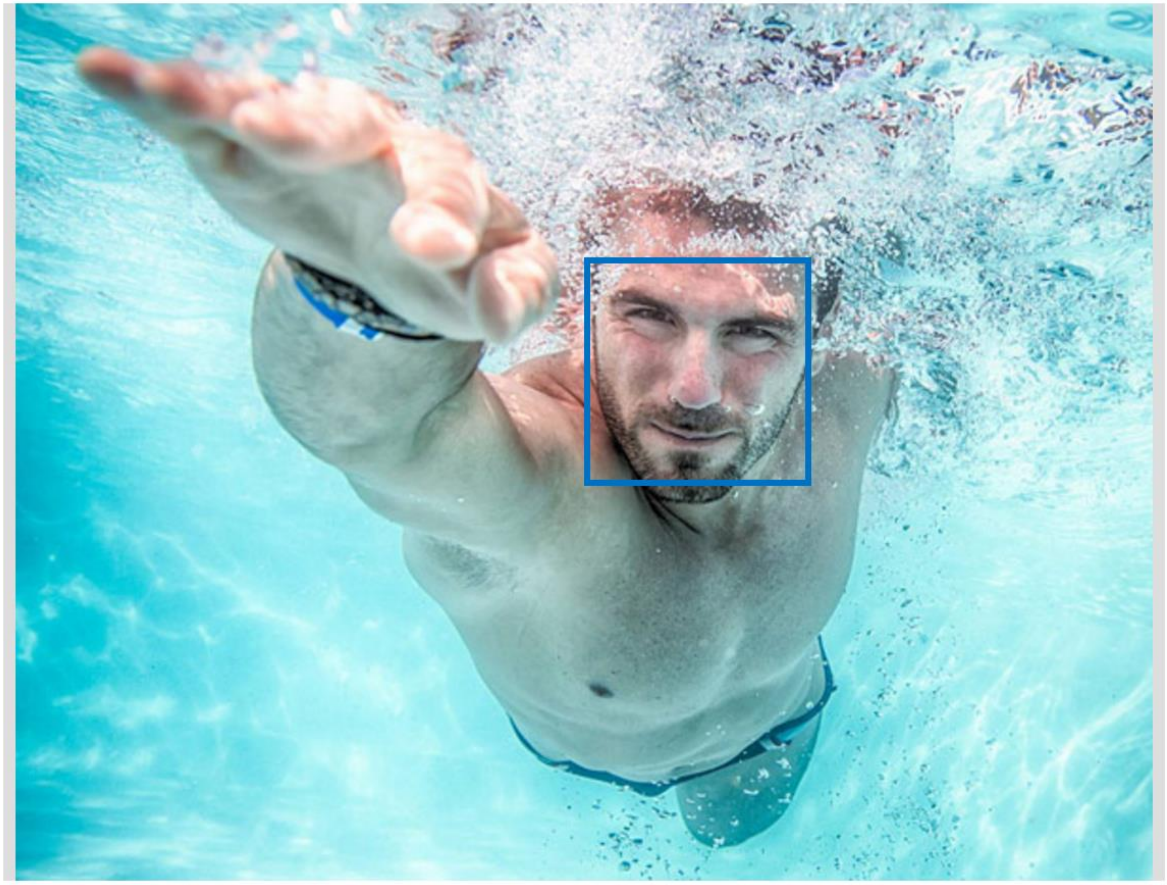

```
"FaceAttributes": {
  "Hair": {
    "Bald": 0.01,
    "Invisible": false,
    "HairColor": [
      {
        "Color": "brown",
        "Confidence": 1.0
      },
      {
        "Color": "blond",
        "Confidence": 0.69
      },
      {
        "Color": "black",
        "Confidence": 0.45
      },
      {
        "Color": "other",
```

Emotion API




```
    "Scores": {
      "Anger": 1.0570484E-08,
      "Contempt": 1.52679547E-09,
      "Disgust": 1.60232943E-07,
      "Fear": 6.00660363E-12,
      "Happiness": 0.9999998,
      "Neutral": 9.449728E-09,
      "Sadness": 1.23025981E-08,
      "Surprise": 9.91396E-10
    }
  },
  {
    "FaceRectangle": {
      "Top": 141,
      "Left": 331,
      "Width": 52,
      "Height": 52
    },
    "Scores": {
```

Computer Vision API



FEATURE NAME:	VALUE
Description	{ "Tags": ["water", "swimming", "sport", "pool", "person", "man", "frisbee", "ocean", "blue", "bird", "riding", "top", "standing", "wave", "young", "body", "large", "game", "glass", "pond", "playing", "board", "catch", "clear", "boat", "white"], "Captions": [{ "Text": "a man swimming in a pool of water", "Confidence": 0.8909298 }] }
Tags	[{ "Name": "water", "Confidence": 0.9997857 }, { "Name": "swimming", "Confidence": 0.955619633 }, { "Name": "sport", "Confidence": 0.953807831 }, { "Name": "pool", "Confidence": 0.9515978 }, { "Name": "person", "Confidence": 0.889862537 }, { "Name": "water sport", "Confidence": 0.664259 }]
Image format	"Jpeg"

Custom Vision API

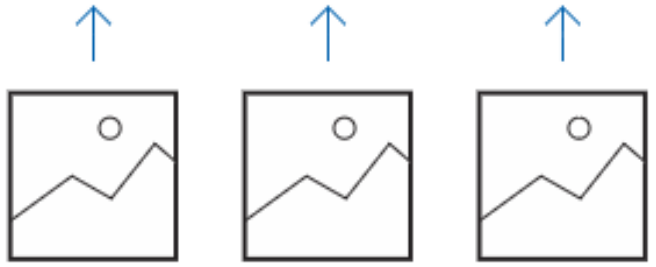
https://azure.microsoft.com/en-us/services/cognitive-services/custom-vision-service/

https://www.customvision.ai/

Custom Vision API

- Parecido a Computer Vision API
- ¡Tus propios datos!
- Continua entrenando tu modelo
- Montado en Azure con APIs REST fáciles de utilizar para entrenamiento y evaluación de modelos.
- ¡Es 100% gratuito y NO requieres cuenta de Azure!

3 simples pasos

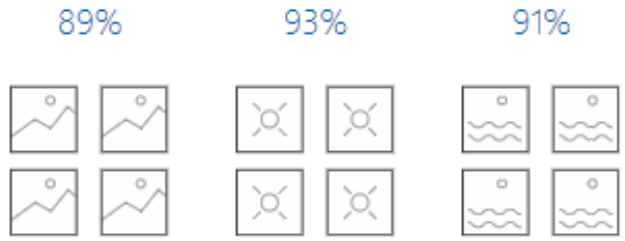


Upload Images

Bring your own labeled images, or use Custom Vision to quickly add tags to any unlabeled images.

Train

Use your labeled images to teach Custom Vision the concepts you care about.



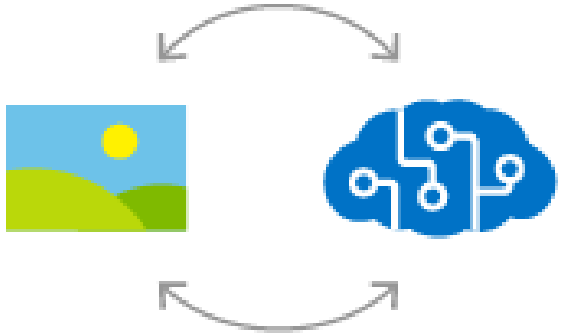
Evaluate

Use simple REST API calls to quickly tag images with your new custom computer vision model.

Aprendizaje activo y continuo

Active learning

Images evaluated through your custom vision model become part of a feedback loop you can use to keep improving your classifier.



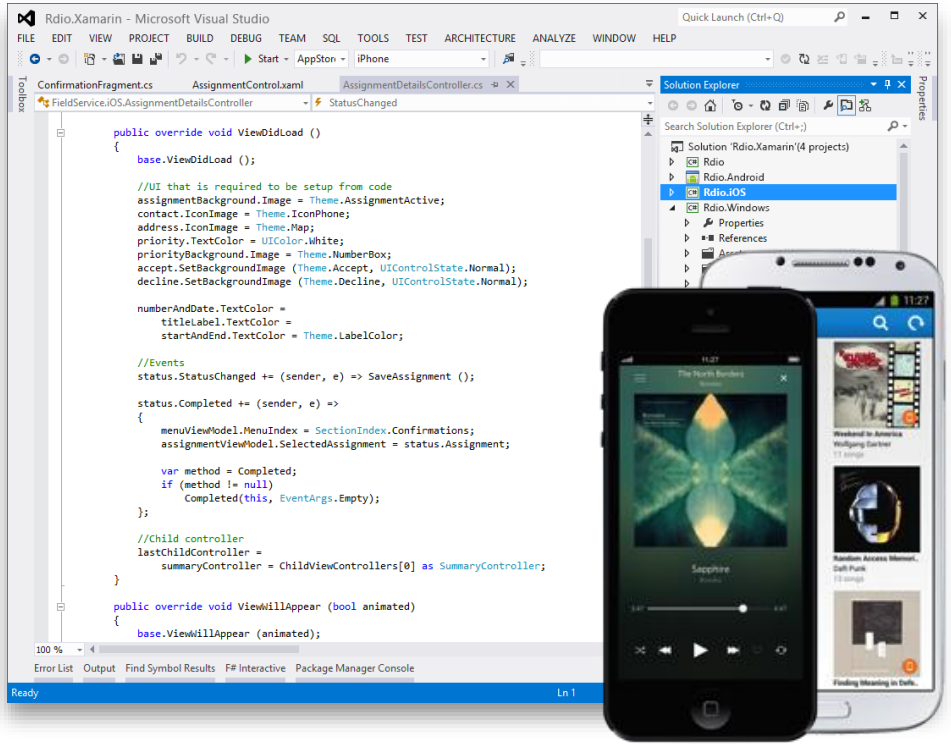
Práctica de Custom Vision API

https://github.com/icebeam7/Pokedex

Xamarin

https://www.xamarin.com/

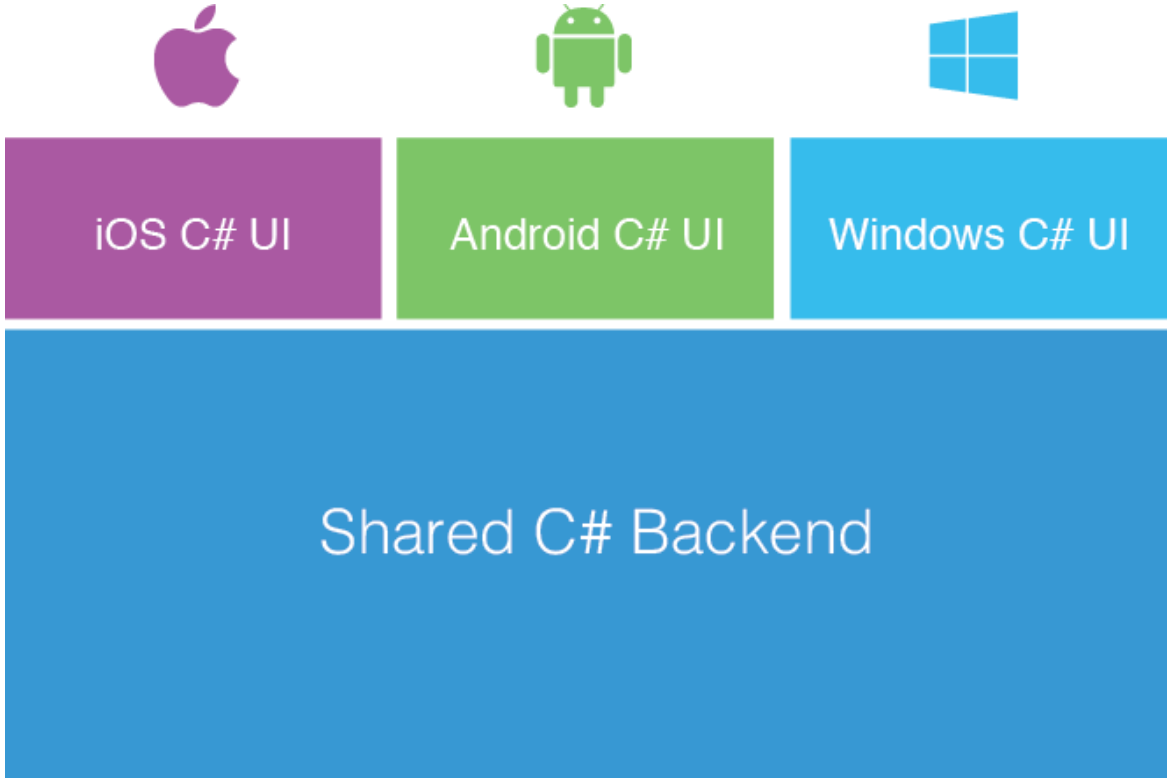
Xamarin Platform



Crea aplicaciones de iOS, Android, Mac y Windows nativas en Visual Studio con C#

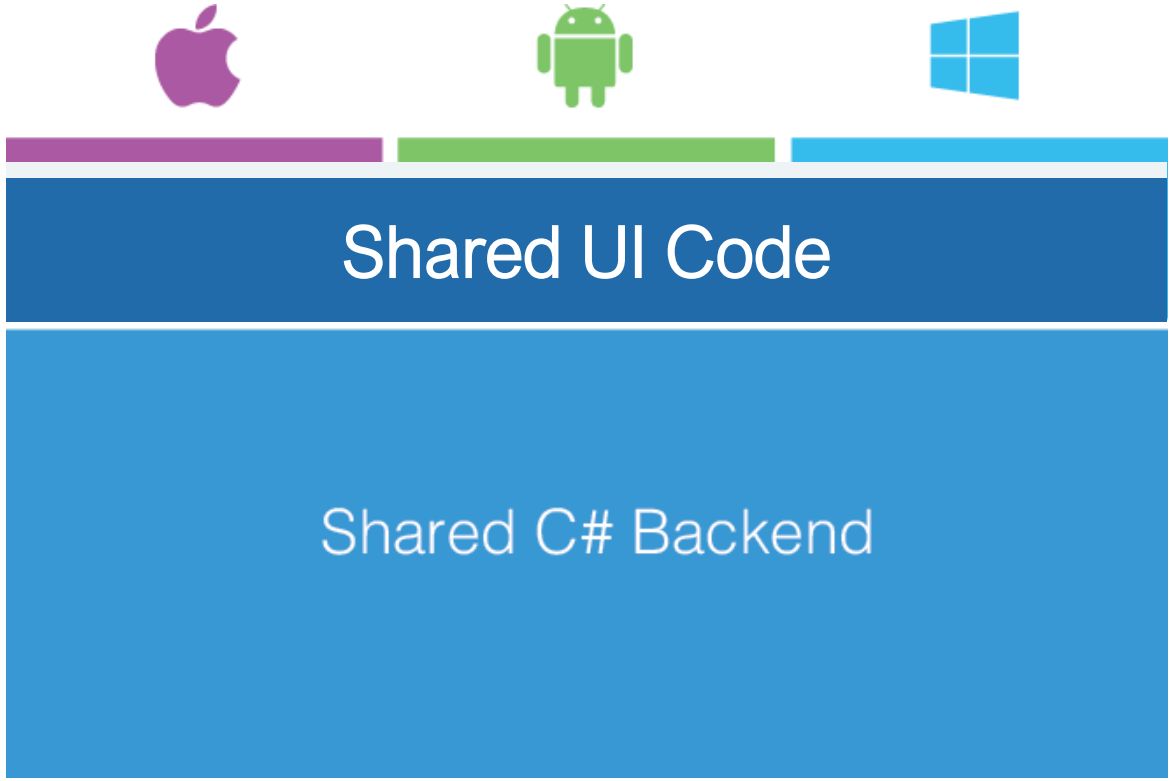
La estrategia única de Xamarin

Xamarin Traditional



Xamarin.Forms:

Más código compartido, controles nativos

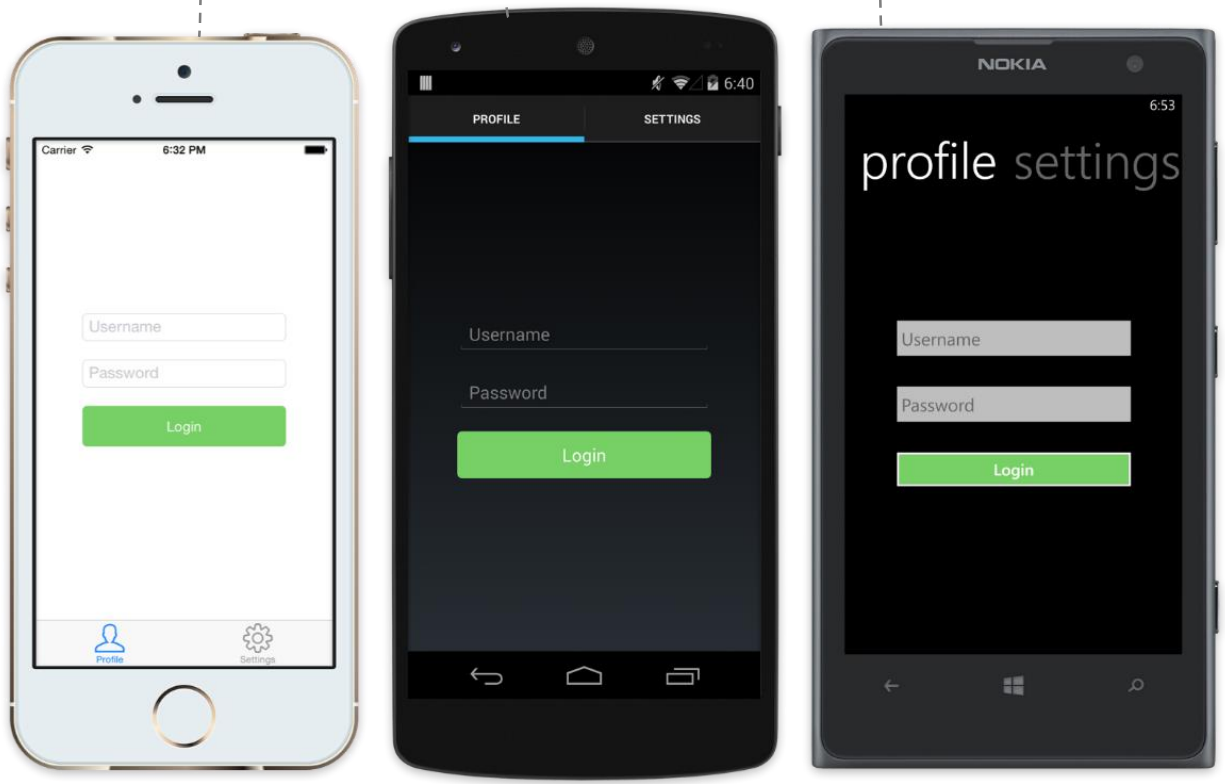


Ejemplo de Xamarin.Forms

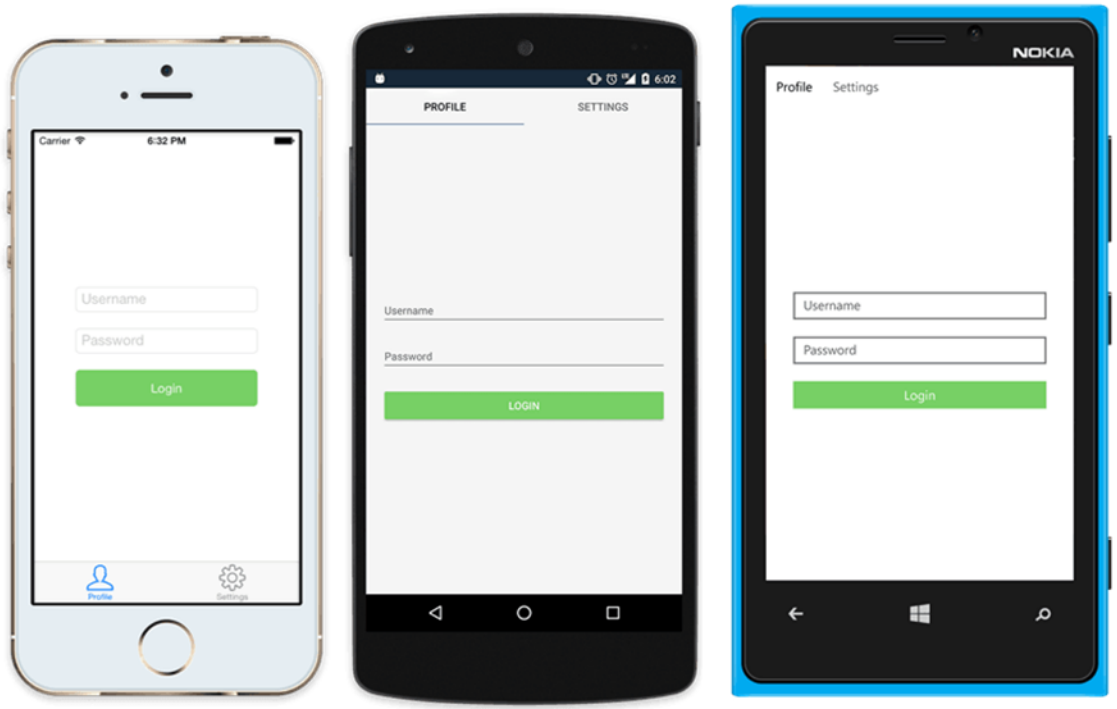
```
using Xamarin.Forms;

var profilePage = new ContentPage {
    Title = "Profile",
    Icon = "Profile.png",
    Content = new StackLayout {
        Spacing = 20, Padding = 50,
        VerticalOptions = LayoutOptions.Center,
        Children = {
            new Entry { Placeholder = "Username" },
            new Entry { Placeholder = "Password", IsPassword = true },
            new Button {
                Text = "Login",
                TextColor = Color.White,
                BackgroundColor = Color.FromHex("77D065") }}}
};

var settingsPage = new ContentPage {
    Title = "Settings",
    Icon = "Settings.png",
    (...)
};

var mainPage = new TabbedPage { Children = { profilePage, settingsPage } };
```

Utiliza una sola API para construir interfaces de usuario nativas y específicas de plataforma.

En tiempo de ejecución, cada página de Xamarin.Forms y sus controles son mapeados a elementos de interfaz de usuario nativos y específicos de plataforma.

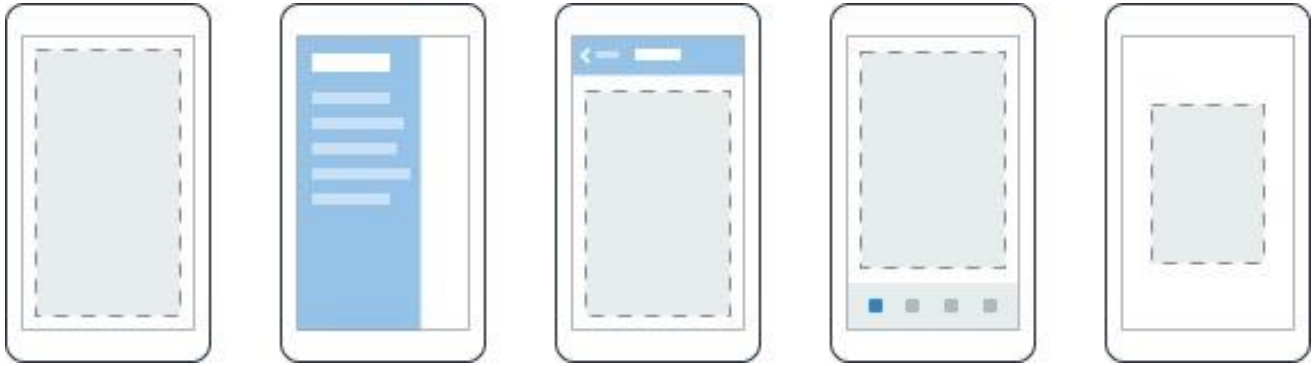


UI nativa desde código compartido (XAML)



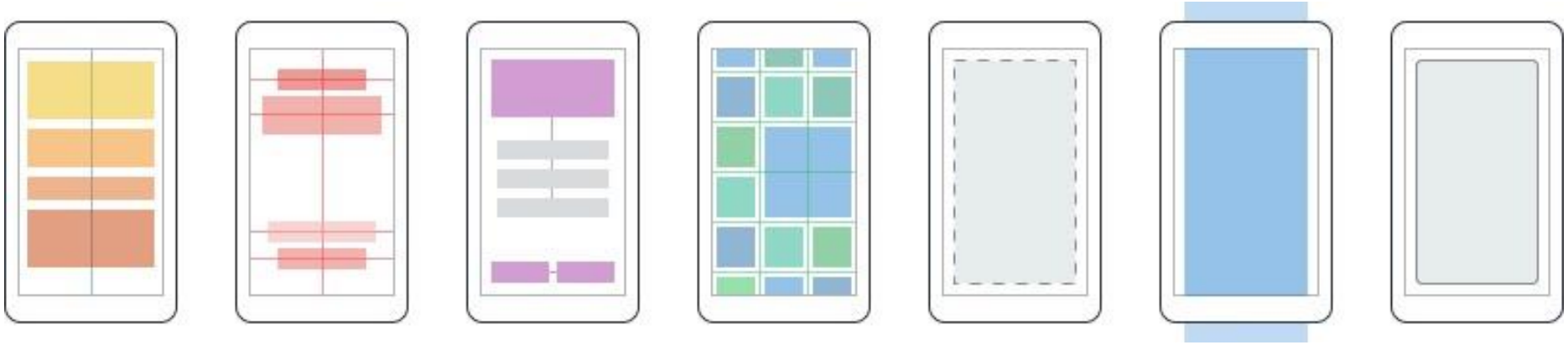

```
<?xml version="1.0" encoding="UTF-8"?>
<TabbedPage xmlns="http://xamarin.com/schemas/2014/forms"
            xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
            x:Class="MyApp.MainPage">
<TabbedPage.Children>
<ContentPage Title="Profile" Icon="Profile.png">
    <StackLayout Spacing="20" 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>
```

Pages



Content MasterDetail Navigation Tabbed Carousel

Layouts

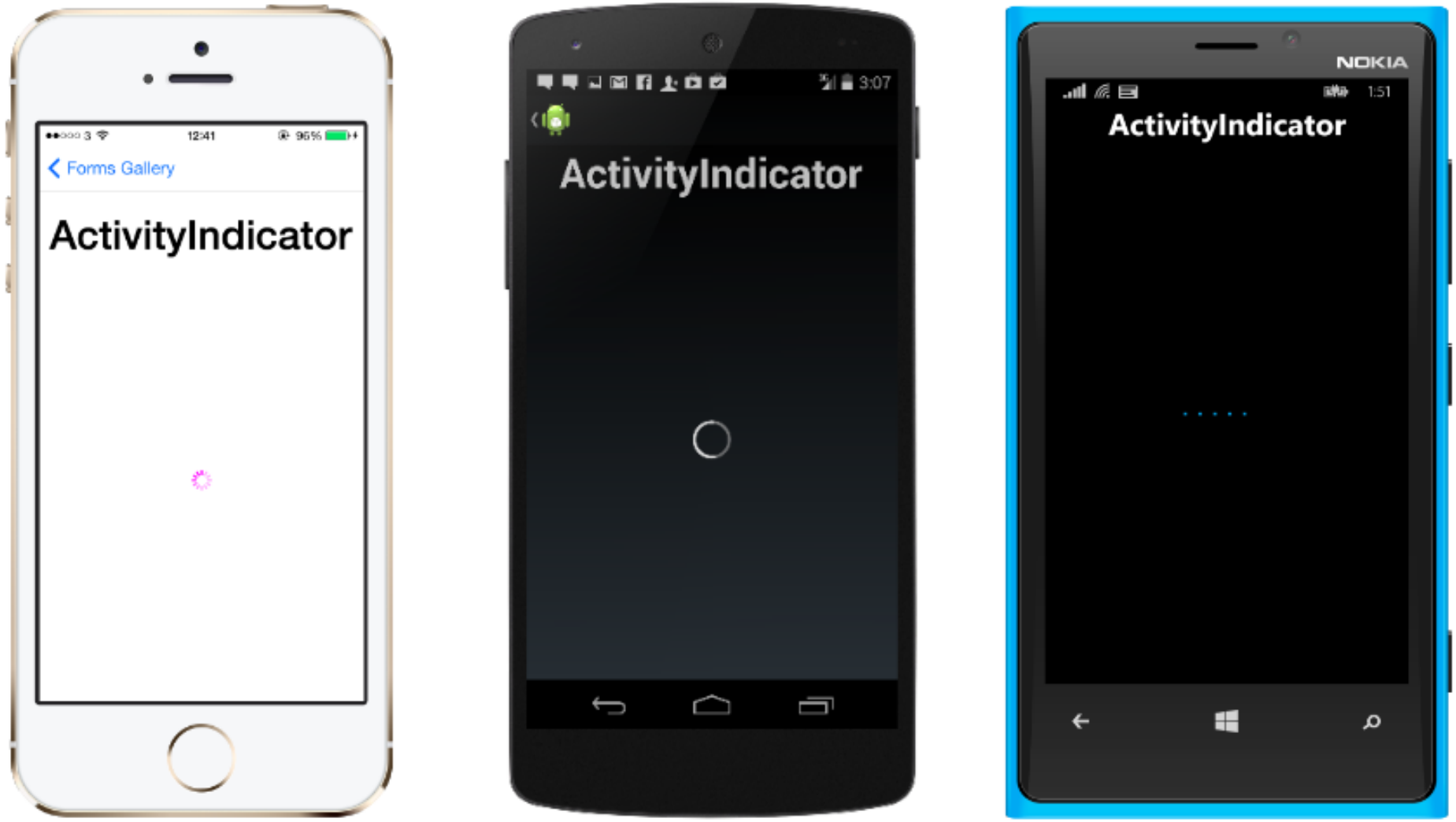


Stack Absolute Relative Grid ContentView ScrollView Frame

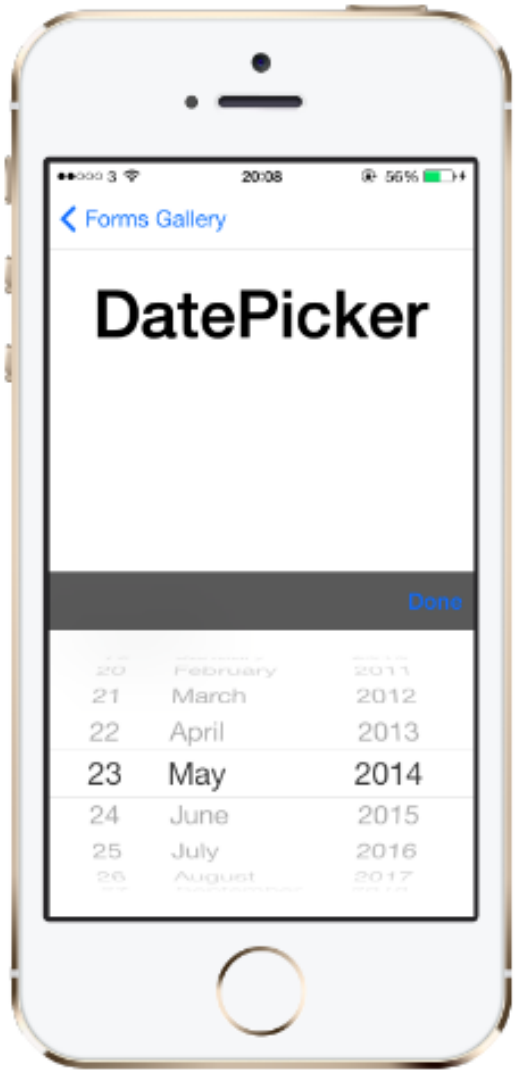
Controles

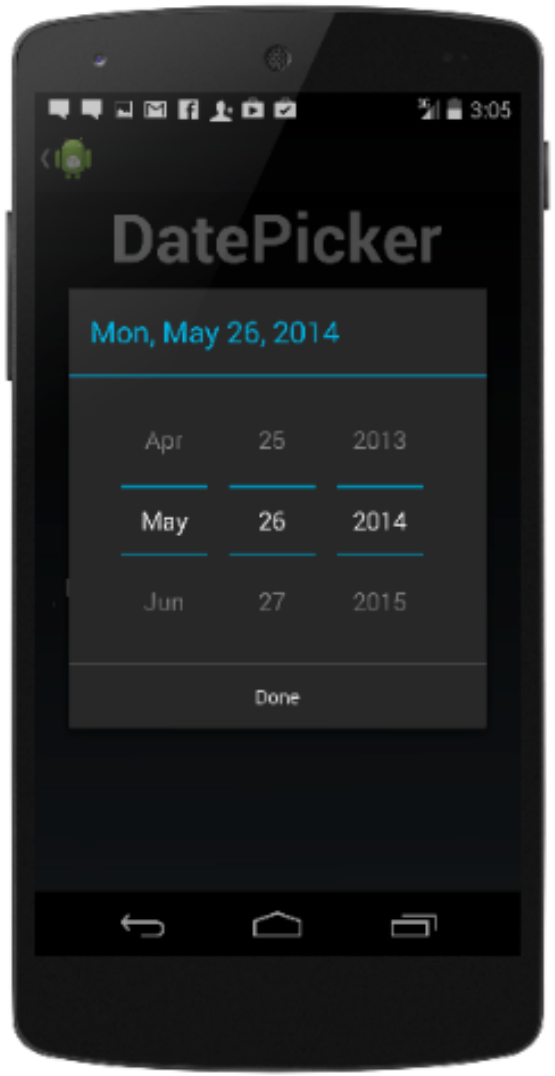
ActivityIndicator	BoxView	Button	DatePicker	Editor
Entry	Image	Label	ListView	Map
OpenGLView	Picker	ProgressBar	SearchBar	Slider
Stepper	TableView	TimePicker	WebView	EntryCell
ImageCell	SwitchCell	TextCell	ViewCell	

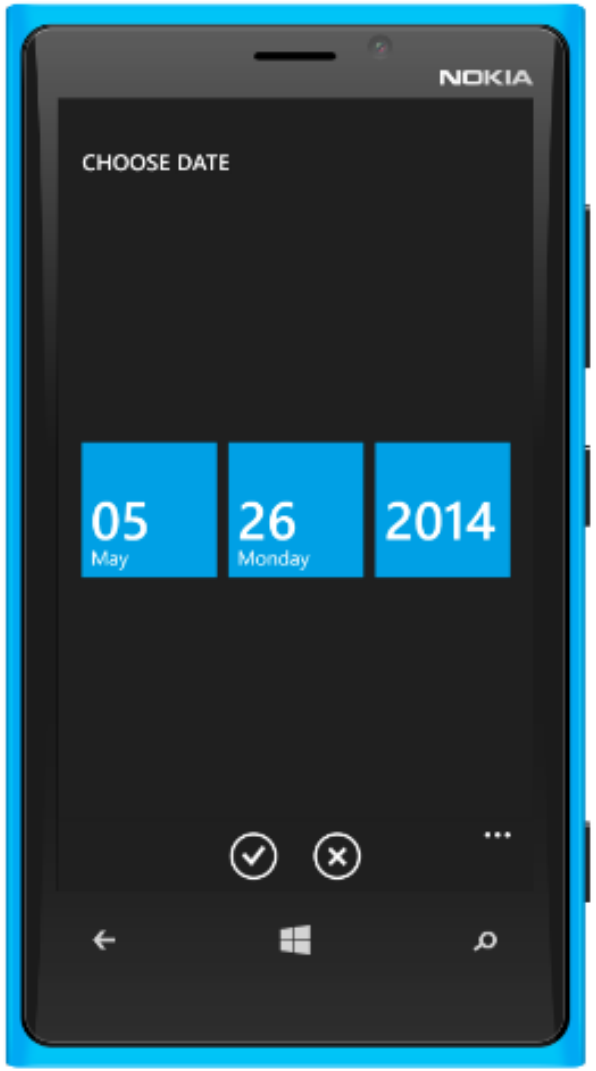
Activity Indicator



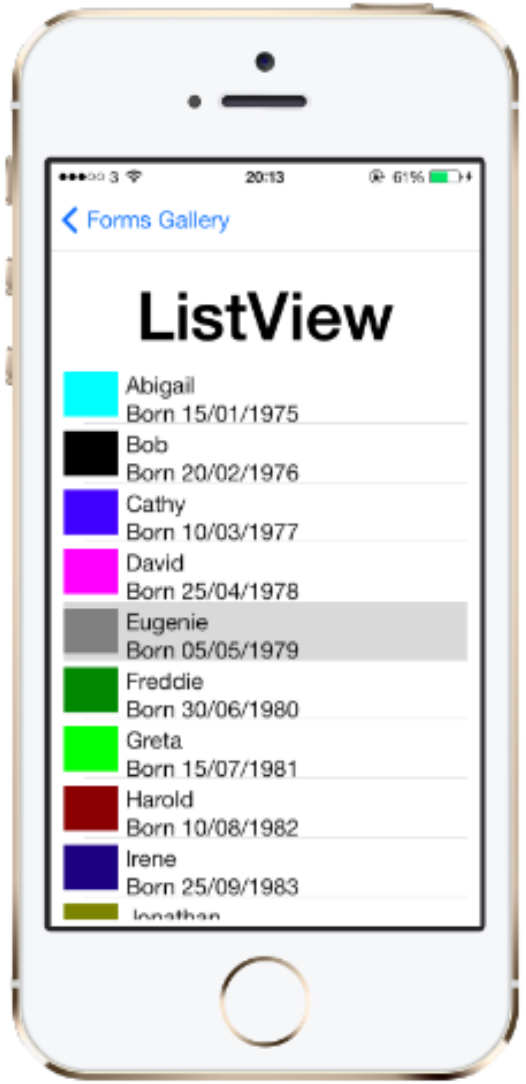
Date Picker

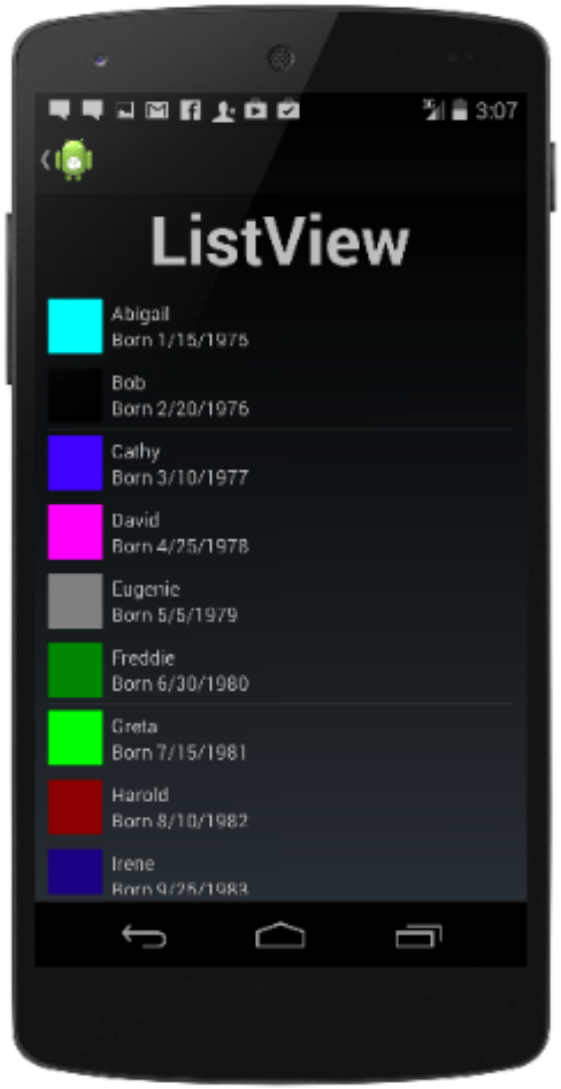

20:08
56%
Forms Gallery
DatePicker
Done
21 March 2012
22 April 2013
23 May 2014
24 June 2015
25 July 2016


3:05
DatePicker
Mon, May 26, 2014
Apr 25 2013
May 26 2014
Jun 27 2015
Done


NOKIA
CHOOSE DATE
05
May
26
Monday
2014

ListView


Forms Gallery
ListView
Abigail
Born 15/01/1975
Bob
Born 20/02/1976
Cathy
Born 10/03/1977
David
Born 25/04/1978
Eugenie
Born 05/05/1979
Freddie
Born 30/06/1980
Greta
Born 15/07/1981
Harold
Born 10/08/1982
Irene
Born 25/09/1983


ListView
Abigail
Born 1/15/1975
Bob
Born 2/20/1976
Cathy
Born 3/10/1977
David
Born 4/25/1978
Eugenie
Born 5/5/1979
Freddie
Born 6/30/1980
Greta
Born 7/15/1981
Harold
Born 8/10/1982
Irene


NOKIA
ListView
Abigail
Born 1/15/1975
Bob
Born 2/20/1976
Cathy
Born 3/10/1977
David
Born 4/25/1978
Eugenie
Born 5/5/1979
Freddie
Born 6/30/1980
Greta
Born 7/15/1981
Harold
Born 8/10/1982
Irene
Born 9/25/1983
Jonathan
Born 10/10/1984
Kathy

¡Xamarin está incluido en Visual Studio!

¡Incluyendo la Community Edition! (gratuita)

Integración de Xamarin con Custom Vision API

Q & A

Recursos para aprender Xamarin

https://developer.xamarin.com/guides/xamarin-forms/creating-mobile-apps-xamarin-forms/

https://www.facebook.com/groups/xamarindiplomadoitc/

¡Gracias!

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