

Xamarin e Xamairin.Forms



por Giordano Lins

Xamarin

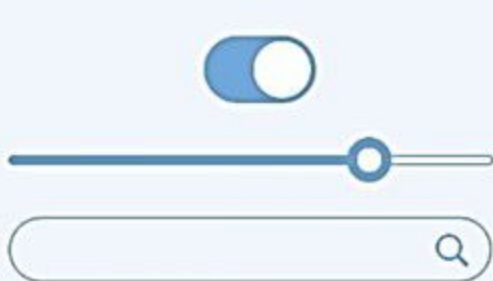
Xamarin é o nome da companhia comprada pela Microsoft em 2016, e o mesmo nome do conjunto de ferramentas e serviços utilizados para desenvolver aplicativos nativos para Android, iOS e Windows com C#.

O principal objetivo do Xamarin é facilitar o desenvolvimento de aplicativos através da **reutilização do conhecimento de programação em .NET**.

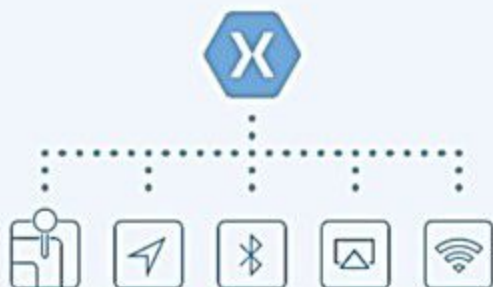
A razão por trás desse objetivo é que para desenvolver aplicativos em Android é necessário conhecer Java, para iOS é necessário conhecer Objective-C ou Swift, para windows, é necessário conhecer C#.

O que é um aplicativo nativo?

The Anatomy of a Native App



Native User Interfaces



Native API Access



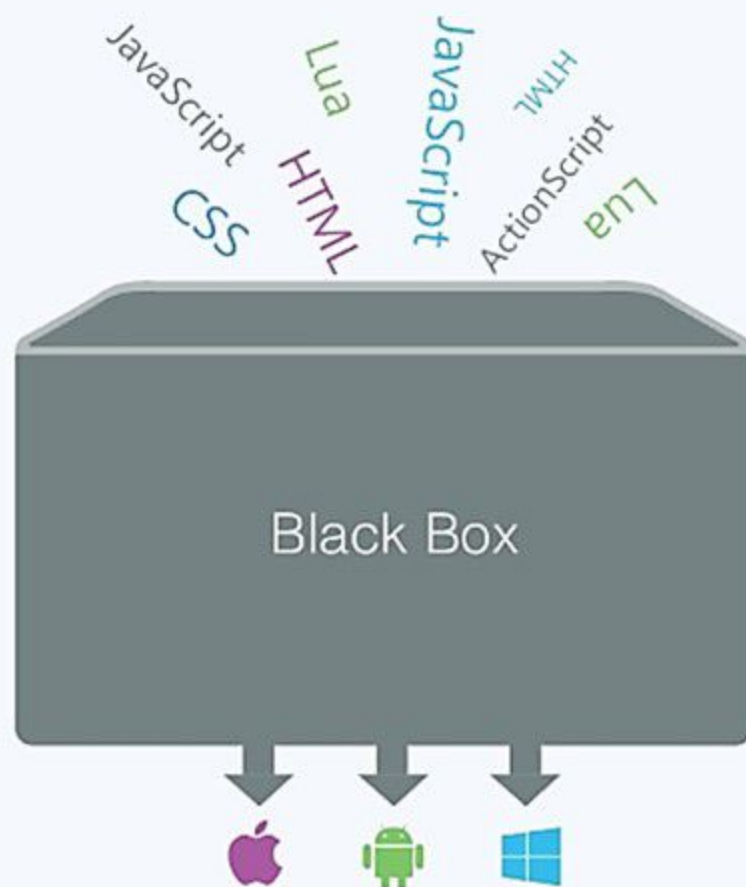
Native Performance



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Estratégias de desenvolvimentos de APPs



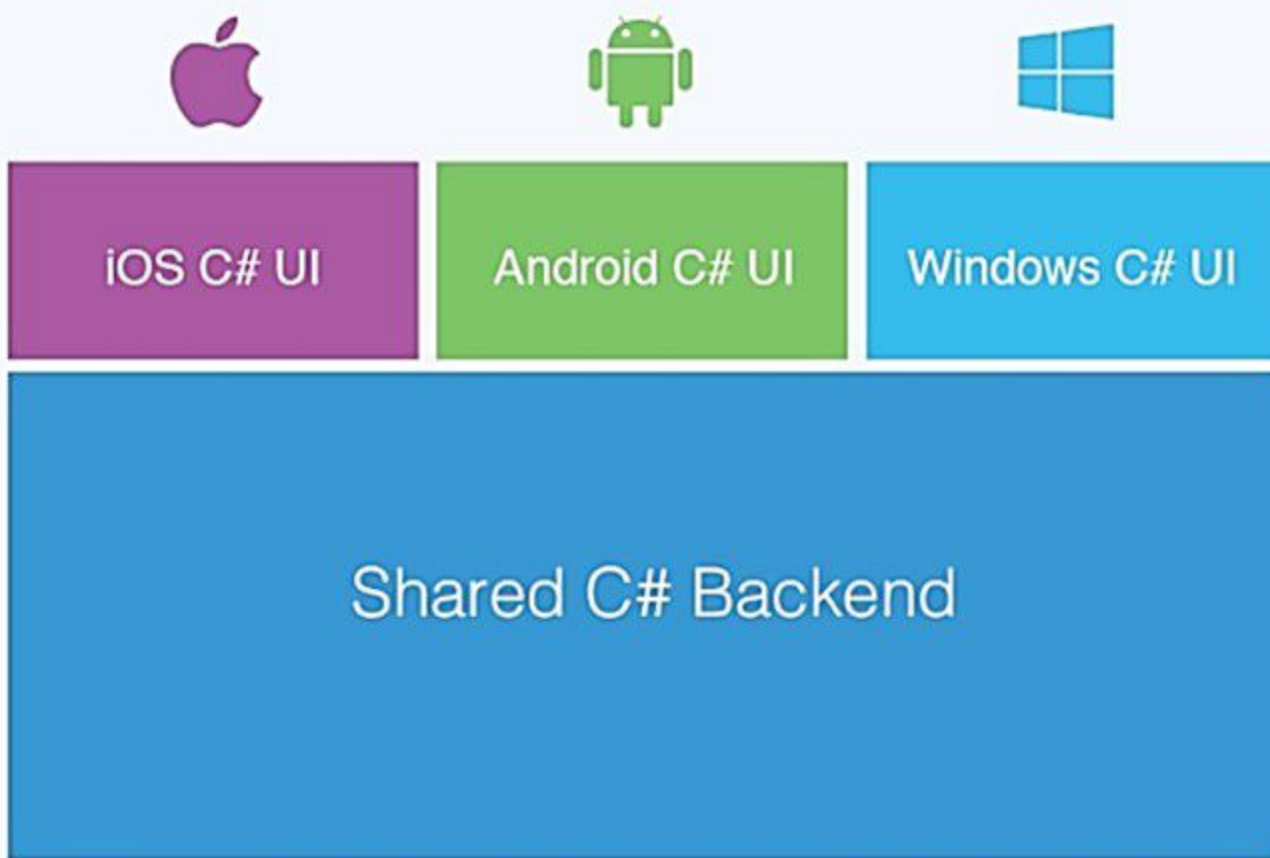
A filosofia "Write-Once-Run-Anywhere"



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Xamarin Nativo com Compartilhamento de Código

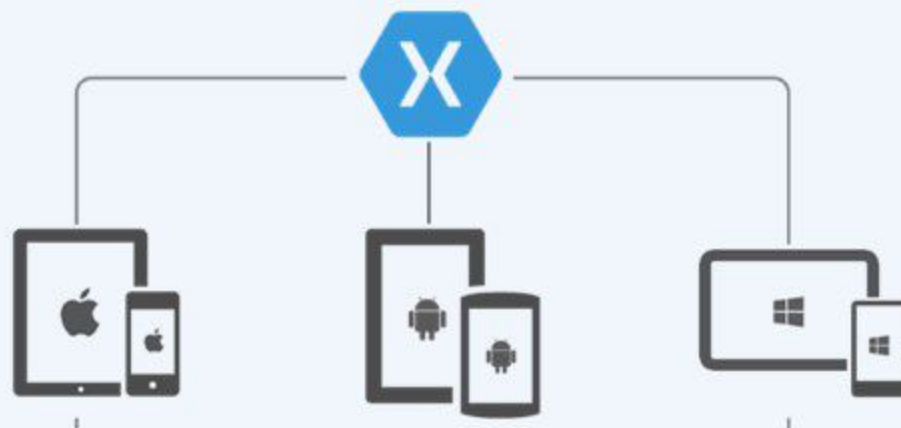


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Como funciona?

- Xamarin.Android
- Xamarin.iOS
- Xamarin.Mac
- Xamarin.Forms



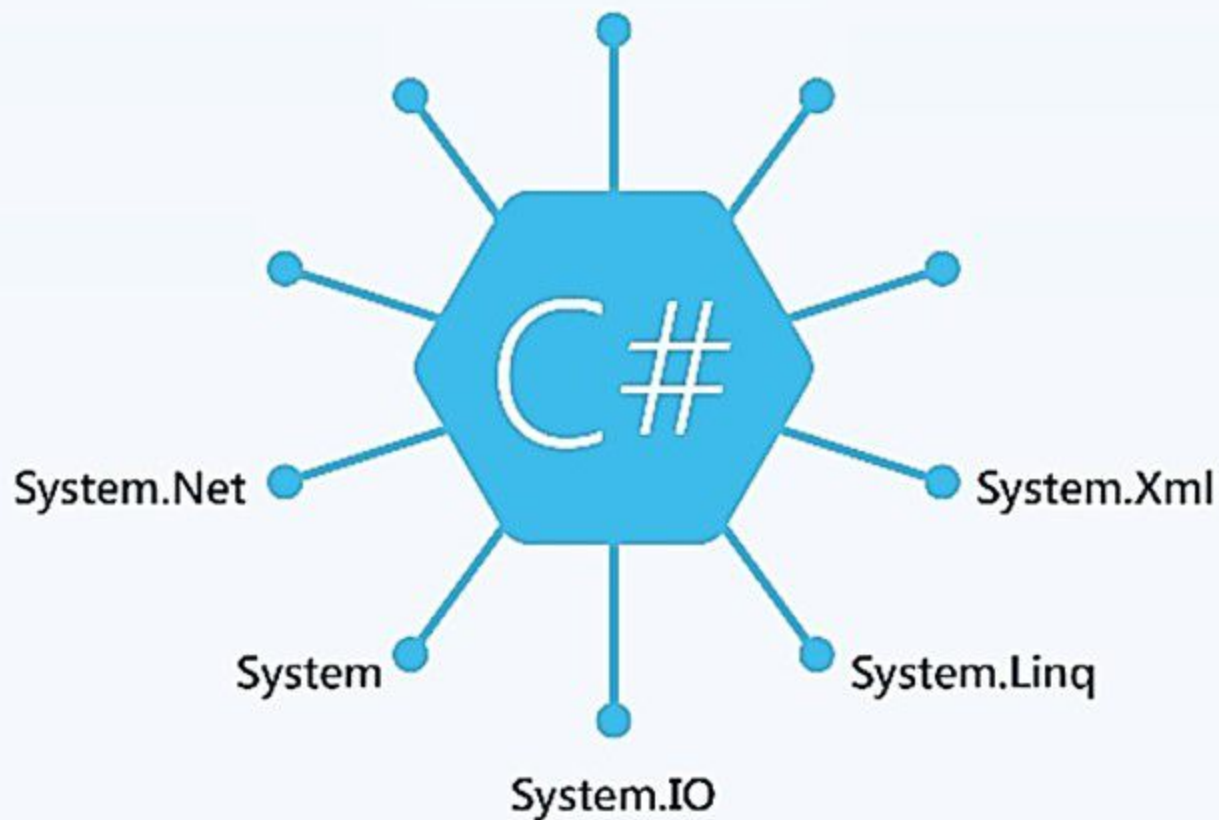
Encapsulam as APIs nativas



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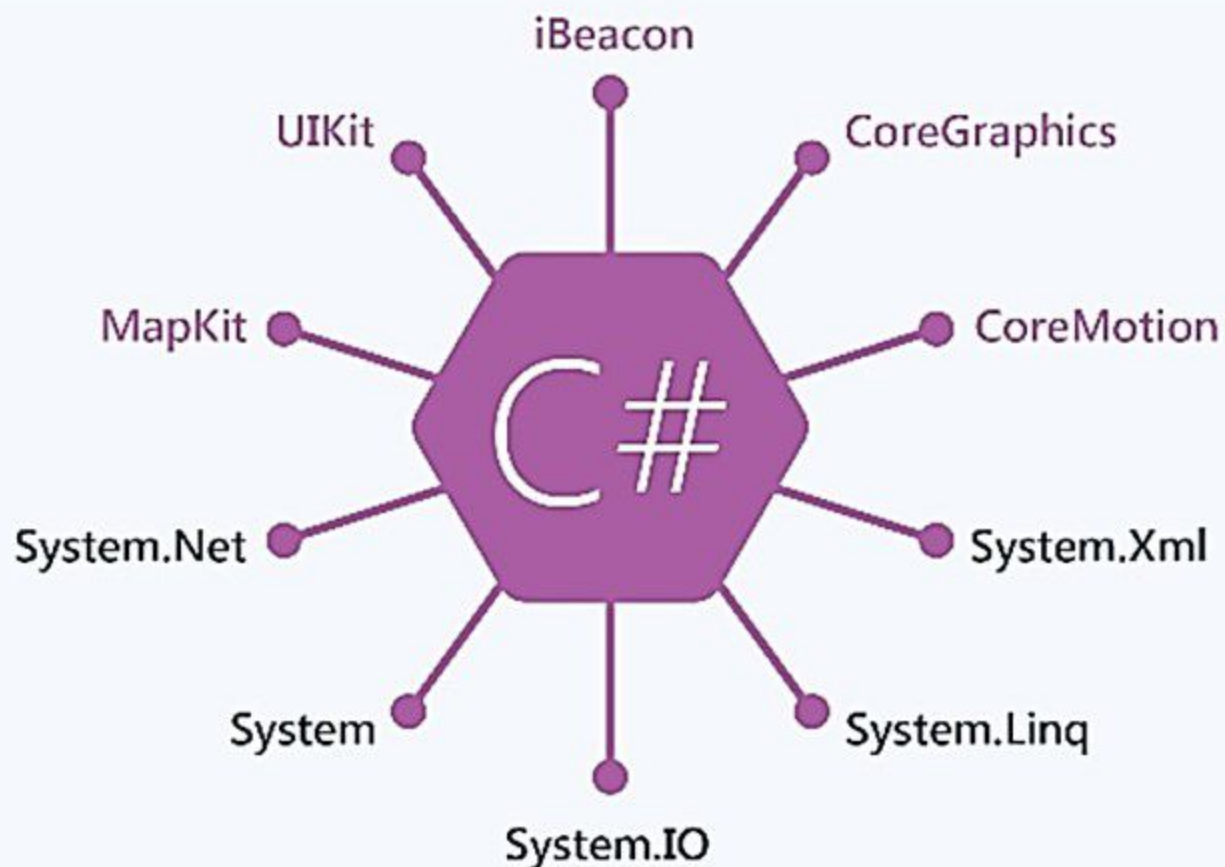
APIs "Windows"



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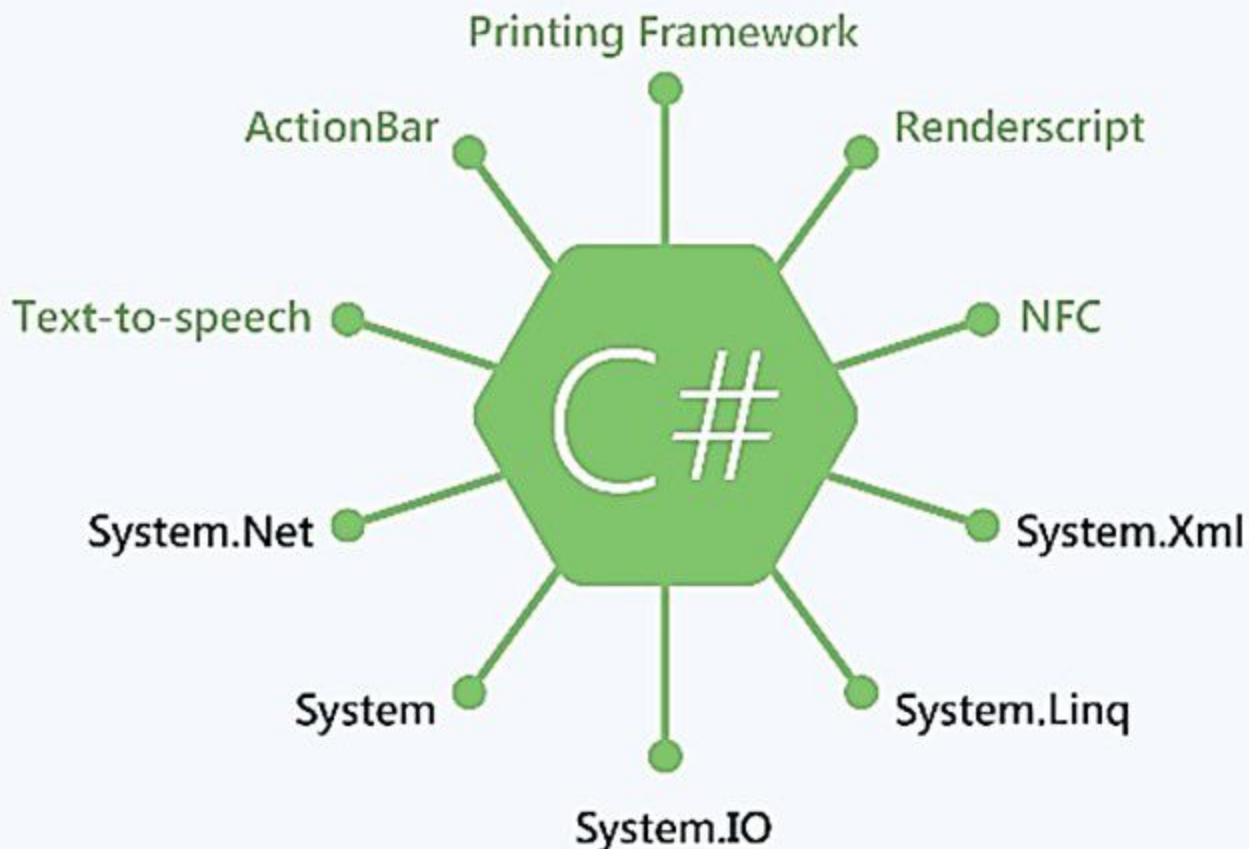
APIs "iOS"



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APIs "Android"



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Qualquer coisa que pode ser feita
com Objective-C, Swift ou Java,
**pode ser feita com C# e
Xamarin** no Visual Studio!



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Performance Nativa

Xamarin.iOS realiza a compilação **AOT** (Ahead of Time) para produzir um binário ARM para a Apple's Store.



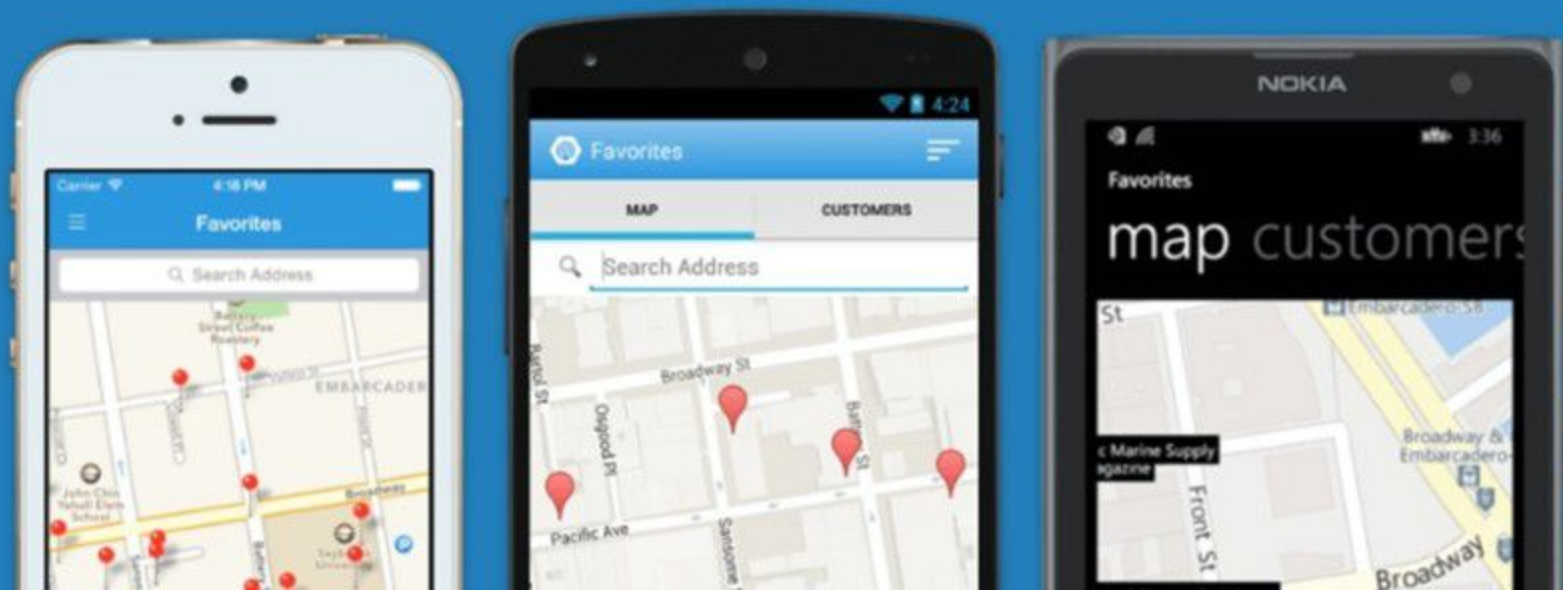
Xamarin.Android utiliza a compilação **JIT** (Just in Time) para o dispositivo Android.



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Xamarin.Forms



Como funciona o Xamarin.Forms



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Como funciona o Xamarin.Forms

- Constrói facilmente interfaces de usuário nativas utilizando código compartilhado
- Elementos do Xamarin.Forms são mapeados para controles nativos e comportamento nativo
- É possível misturar o Xamarin.Forms com as APIs nativas



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O que está incluso

- Mais de 40 Páginas, Layouts e Controles (A partir do *code-behind* ou do XAML)
- *Two-way Data Binding*
- Navegação
- API de animação
- Serviços de Dependência
- Centro de Mensagens



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MVVM

Padrão
Arquitetural

Baseado no
MVC

Data Binding
Command

XAML



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MVVM

Binding
Target

Binding
Source



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MVVM

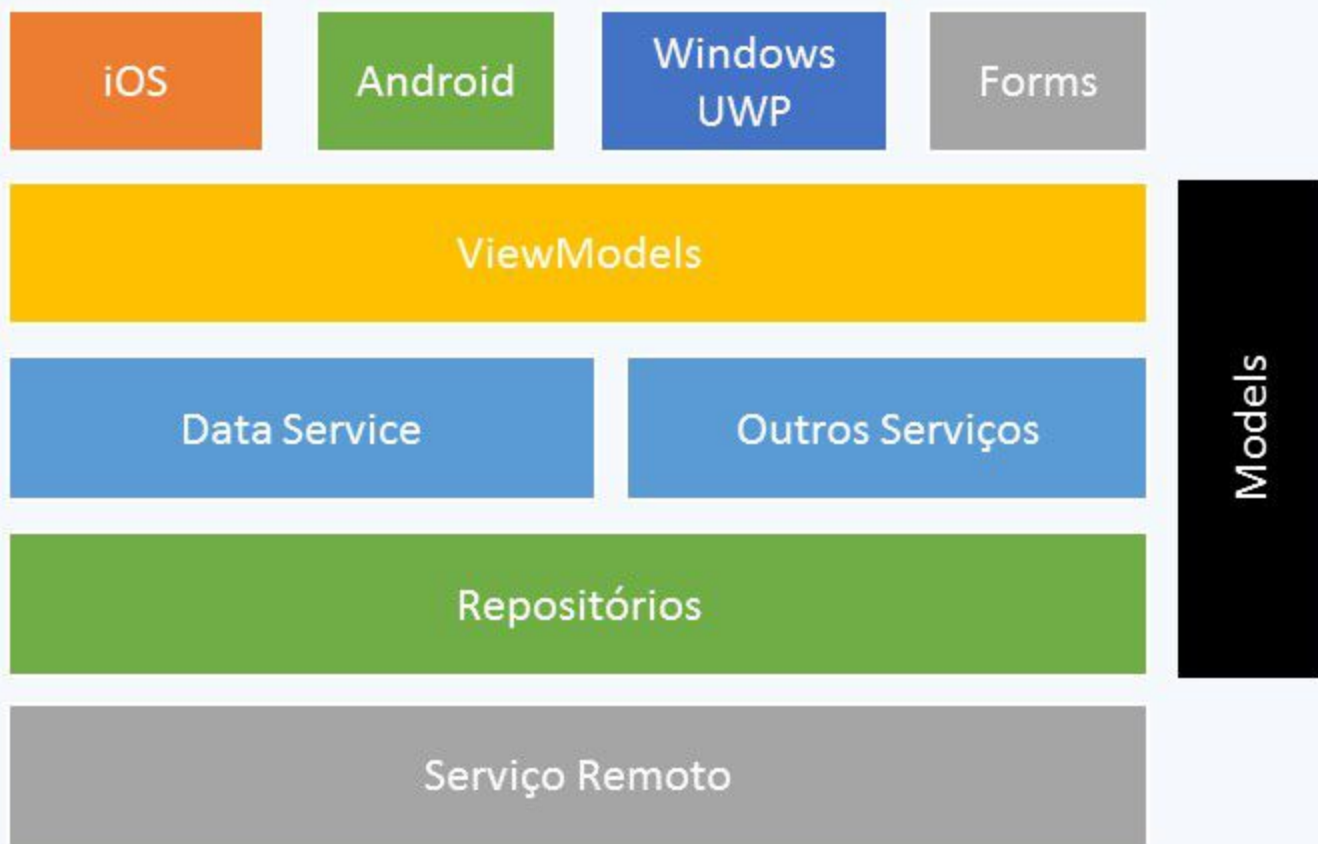
- Conversão
- Formatação
- Sincronização:
 - OneTime
 - OneWay
 - TwoWay
 - OneWayToSource



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Estrutura do App



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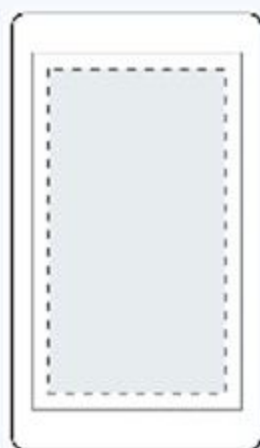
```
private string GetFolderPath()  
{  
    string path = "";  
  
    #if __ANDROID__  
    path = Environment.GetFolderPath(  
        Environment.SpecialFolder.MyDocuments);  
  
    #elif __IOS__  
    path = Environment.GetFolderPath(  
        Environment.SpecialFolder.MyDocuments);  
  
    #elif WINDOWS_PHONE  
    path = Windows.Storage.KnownFolders  
        .DocumentsLibrary.Path;  
  
    #endif  
  
    return path;  
}
```



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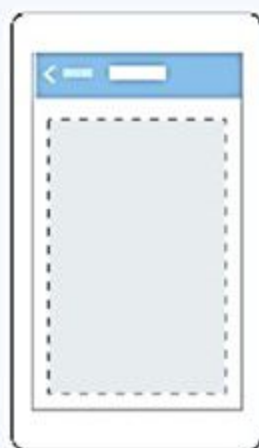
Páginas



Content



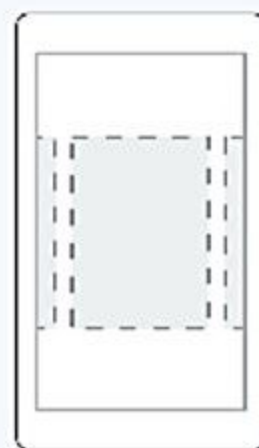
MasterDetail



Navigation



Tabbed



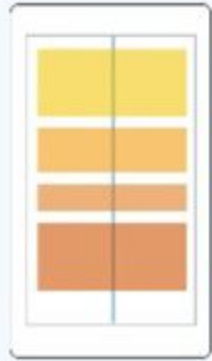
Carousel



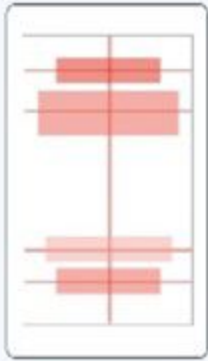
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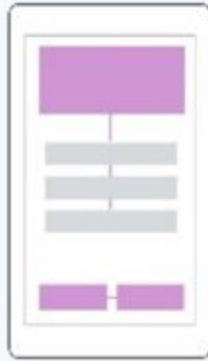
Layouts



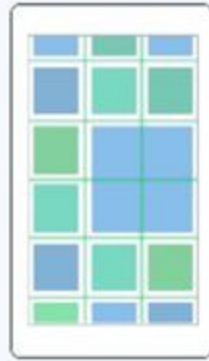
Stack



Absolute



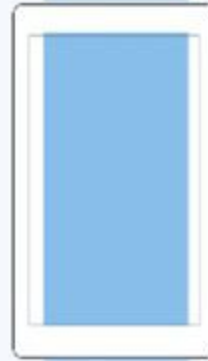
Relative



Grid



ContentView



ScrollView



Frame



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Controls

ActivityIndicator

BoxView

Button

DatePicker

Editor

Entry

Image

Label

ListView

Map

OpenGLView

Picker

ProgressBar

SearchBar

Slider

Stepper

TableView

TimePicker

WebView

EntryCell

ImageCell

SwitchCell

TextCell

ViewCell



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```

public class LoginViewModel : INotifyPropertyChanged
{
    private string username = string.Empty;
    public string Username
    {
        get { return username; }
        set { username = value; OnPropertyChanged ("Username"); }
    }

    private string password = string.Empty;
    public string Password
    {
        get { return password; }
        set { password = value; OnPropertyChanged ("Password"); }
    }

    public Command LoginCommand
    {
        get {
            return new Command (() => {
                //Log into Server here
            });
        }
    }
}

```



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```

public class LoginPage : ContentPage
{
    public LoginPage()
    {
        //set binding context
        this.BindingContext = new LoginViewModel ();

        //create UI & bind to properties
        var username = new Entry { Placeholder = "Username" };
        username.SetBinding (Entry.TextProperty, "Username");

        var password = new Entry { Placeholder = "Password", IsPassword = true };
        password.SetBinding (Entry.TextProperty, "Password");

        var loginButton = new Button {
            Text = "Login",
            TextColor = Color.White,
            BackgroundColor = Color.FromHex("77D065")
        };

        loginButton.SetBinding (Button.CommandProperty, "LoginCommand");

        //set main content of page
        Content = new StackLayout{
            VerticalOptions = LayoutOptions.Center,
            Padding = 50, Spacing = 10,
            Children = { username, password, loginButton }
        };
    }
}

```



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```

<?xml version="1.0" encoding="UTF-8" ?>
<ContentPage
  xmlns="http://xamarin.com/schemas/2014/forms"
  xmlns:x="http://schemas.microsoft.com/winfx/2009/xaml"
  x:Class="LoginExampleForms.LoginPageXAML">
  <ContentPage.Content>

    <StackLayout VerticalOptions="Center" Padding="50" Spacing="10">

      <Entry Placeholder="Username" Text="{Binding Username}"/>
      <Entry Placeholder="Password" Text="{Binding Password}"/>
      <Button Text="Login"
        TextColor="#FFFFFF"
        BackgroundColor="#77D065"
        Command="{Binding LoginCommand}"/>

    </StackLayout>

  </ContentPage.Content>
</ContentPage>

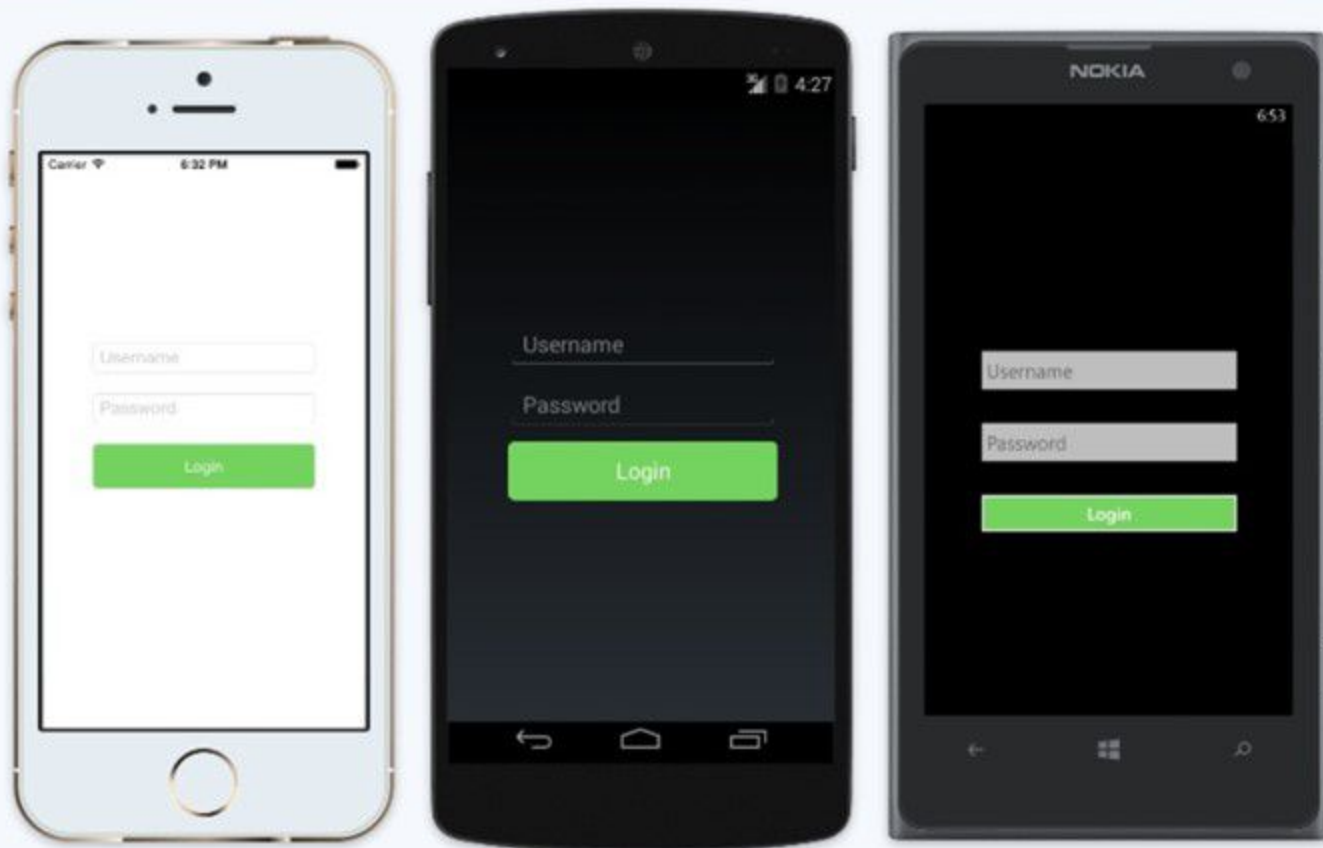
```



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Login Page



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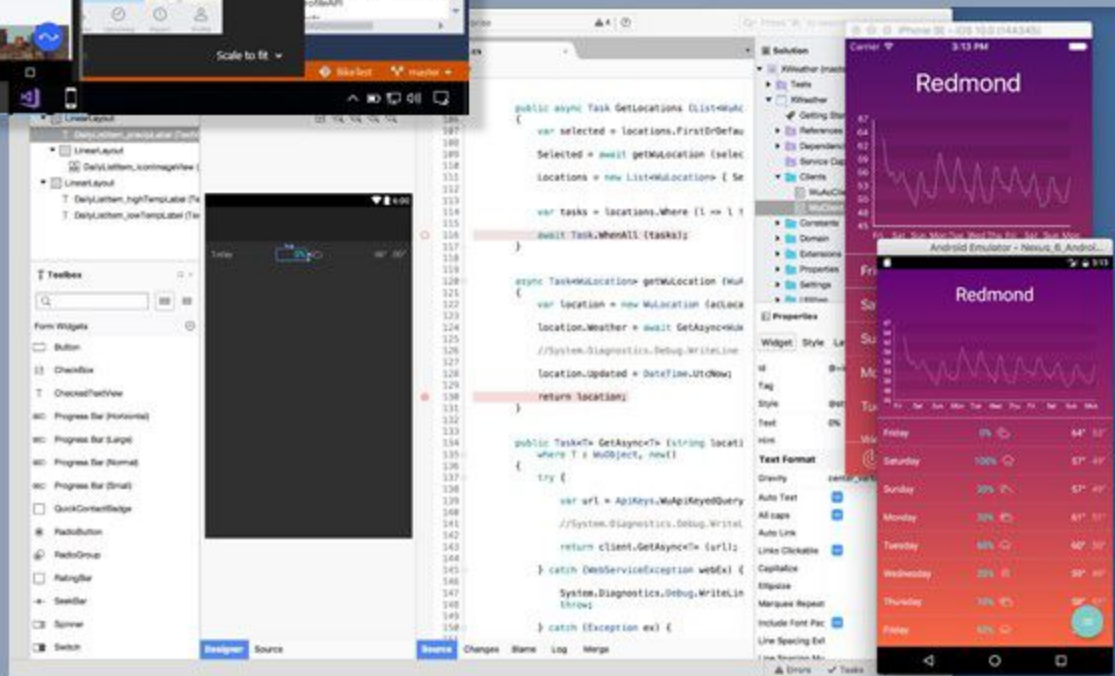
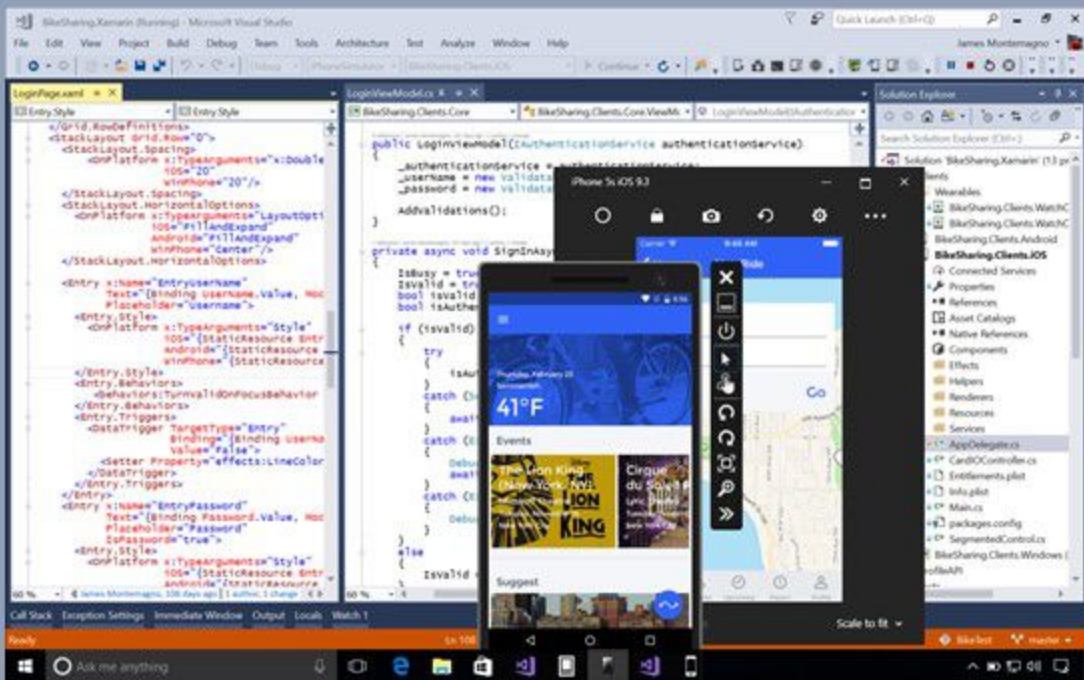


Ferramentas



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Xamarin University

- Aulas online
- Videos de instrução
- Certificação (Xamarin Certified Mobile Developer)
- Xamarin Test Cloud

<https://university.xamarin.com/>



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Referências

- Xamarin.Forms Succuntly - Alessandro Del Sole (2017)
- <https://developer.xamarin.com/>
- <http://open.xamarin.com/documentation>
- <https://www.youtube.com/playlist?list=PLDzXQPWT8wED1eXjcfjGndwGVzBF8U7uO>



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