

**Xamarin**
University

XAM 101 //

Introduction to Mobile Development


- ▶ Lecture will begin shortly
- ▶ Download class materials from university.xamarin.com




Xamarin University

Objectives

- 1) Hands On with Xamarin
- 2) How Xamarin Works
- 3) Exploring Xamarin University

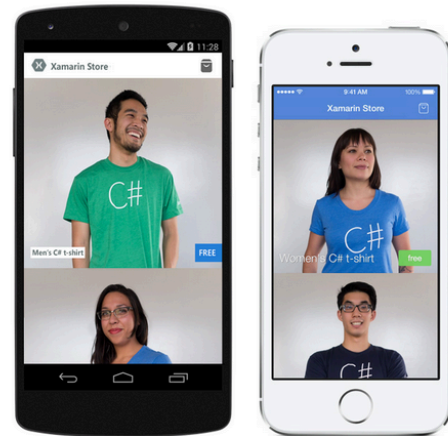


Shared, Cross-platform C#



Let's Build and Run an Application

.. and get a Free T-Shirt!



Xamarin University

Objective 2

How Xamarin Works

Xamarin University

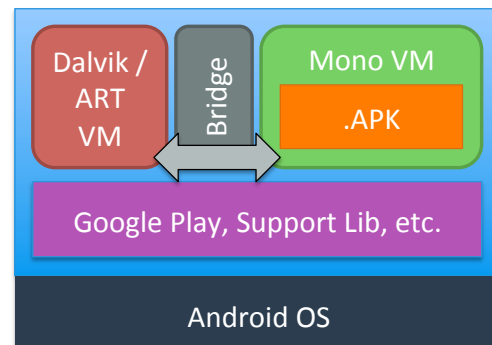
Build + Execution Model

- ❖ Build process utilizes Apple and Google tool chain to create 100% native application
 - **Xamarin.Android** uses JIT compilation to execute code at runtime
 - **Xamarin.iOS** uses "Ahead-of-Time" (AOT) compilation to create ARMx binary



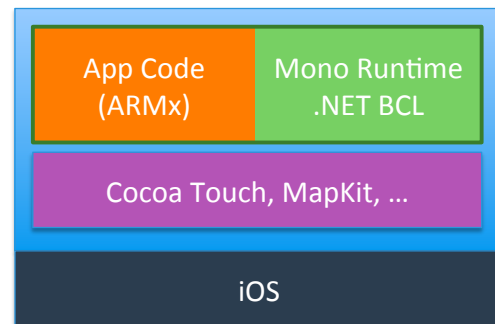
Android Runtime Model

- ❖ Mono VM + Java VM execute side-by-side (supports both Dalvik and ART)
- ❖ Mono VM JITs IL into native code and executes most of your code
- ❖ Can utilize native libraries directly as well as .NET BCL

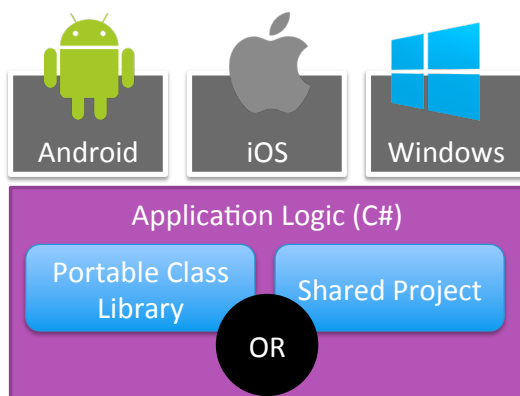


iOS Runtime Model

- ❖ Native ARMvX code – no JIT used
- ❖ Mono Runtime provides system services such as Garbage Collection
- ❖ Full access to iOS Frameworks such as MapKit as well as .NET BCL

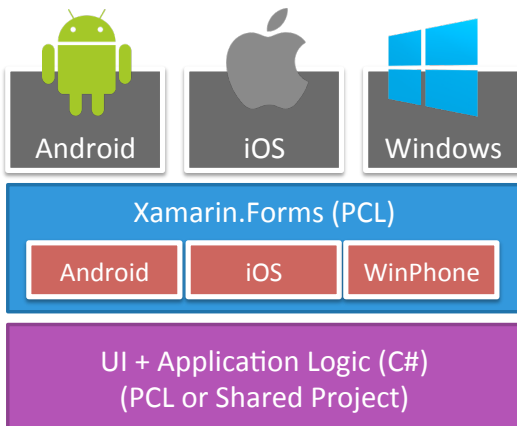


Code Sharing – platform UI






- ❖ UI is *platform specific* and tuned to the platform
- ❖ App logic is C# and potentially sharable using either PCLs or Shared Projects
- ❖ **~75-90% shared code** on average

Code Sharing - Xamarin.Forms



- ❖ Provides UI abstraction layer
- ❖ *Renders native UI* on iOS, Android and Windows Phone 8
- ❖ UI + logic written in C#, allowing for **~99% code sharing**

Platform Comparisons

			
App Package	.app	.apk	.xap
typeof(Screen)	Controller	Activity	Page
typeof(Control)	View	Widget	Control
UI Files (xml)	.storyboard	.axml	.xaml
UI Pattern	MVC	MVC	MVVM

Reusing Existing Code

- ❖ Existing .NET code can be repurposed and used in your mobile apps
- ❖ Use scan.xamarin.com to determine how portable your code will be



Distribution

- ❖ Xamarin apps are distributed just like native applications
- ✓ **iOS:** App Store, Enterprise, Ad-Hoc
- ✓ **Android:** Google Play, Amazon Marketplace, .apk distribution
- ✓ **Windows:** Windows Marketplace



Class Worksheet



- ❖ docs.xamarin.com
- ❖ Apple iOS Documentation
- ❖ Google Android Documentation
- ❖ api.xamarin.com
- ❖ Xamarin Store Application

Flash Quiz

- ① Xamarin.iOS uses JIT compilation to create executable code at runtime
- a) True
 - b) False

Flash Quiz

- ① Xamarin.iOS uses JIT compilation to create executable code at runtime
- a) True
 - b) False**

Flash Quiz

- ② Xamarin.Forms is a _____ (pick the best definition)
- a) Implementation of Windows Forms for iOS and Android
 - b) Set of classes for building data entry applications
 - c) Cross-platform UI abstraction layer for iOS, Android and WP8
 - d) WPF for iOS and Android

Flash Quiz

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Flash Quiz

- ③ To design and build *Xamarin.iOS* applications, you can use _____
- a) Xamarin Studio on Windows or OS X, Visual Studio on Windows
 - b) Xamarin Studio on OS X, Visual Studio on Windows
 - c) Only Xamarin Studio on OS X
 - d) Only Visual Studio on Windows

Flash Quiz

- ③ To design and build *Xamarin.iOS* applications, you can use _____
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Objective 3

Exploring Xamarin University

Certification



- ❖ Covers both iOS and Android as well as cross-platform techniques
- ❖ Annual certification verifiable through university.xamarin.com/certification
- ❖ Access to Xamarin Certified Developers LinkedIn Group

university.xamarin.com/resources/certification

Certification Requirements

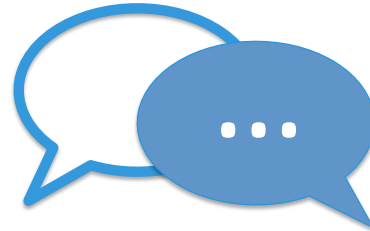
IOS101 / 102	Intro to Xamarin.iOS <i>[optional]</i>
IOS110	Tables and Collection Views
AND101 / 102	Intro to Xamarin.Android <i>[optional]</i>
AND110	ListView and Adapters
XAM110	Introduction to Cross-Platform Mobile Development
XAM120	Introduction to Xamarin.Forms
XAM160	Data in Mobile
XAM205	Mobile Navigation Patterns
XAM210	Backgrounding

XAM220	Publishing an Application
XAM300	Advanced Cross-Platform Mobile Development
XAM370	Memory Management + Best Practices

These are the required classes you **must attend** to be invited to take the certification exam. It is recommended you also view or attend the *optional* sessions to maximize your knowledge and take advantage of your subscription benefits

Participate in the Community

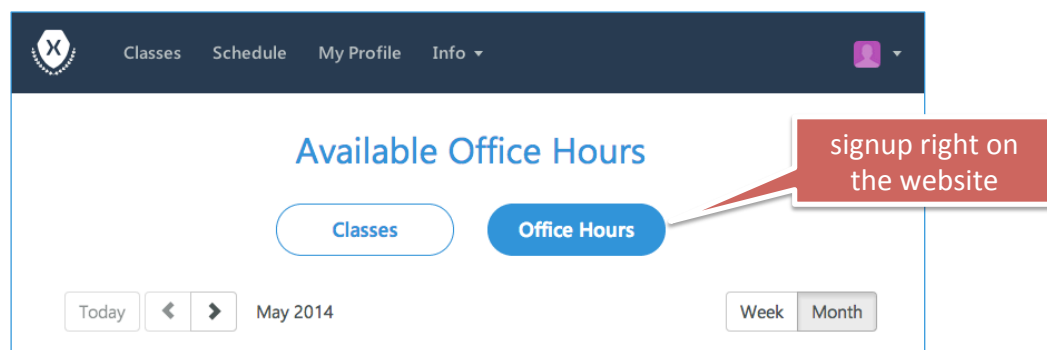
- ❖ Private Xamarin University Forum available for you
- ❖ Ask questions, get answers from instructors
- ❖ The more involvement you have, the more you will get out of your subscription!



forums.xamarin.com

Office Hours

- ❖ 30 minute 1:1 session with a Xamarin University instructor to discuss your specific project goals and how to achieve them!



Xamarin University

XAM101 - Introduction to Mobile Development

Thank You

Please complete the class survey in your profile:
university.xamarin.com/profile

