

Orientation and Welcome

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



Before we start...

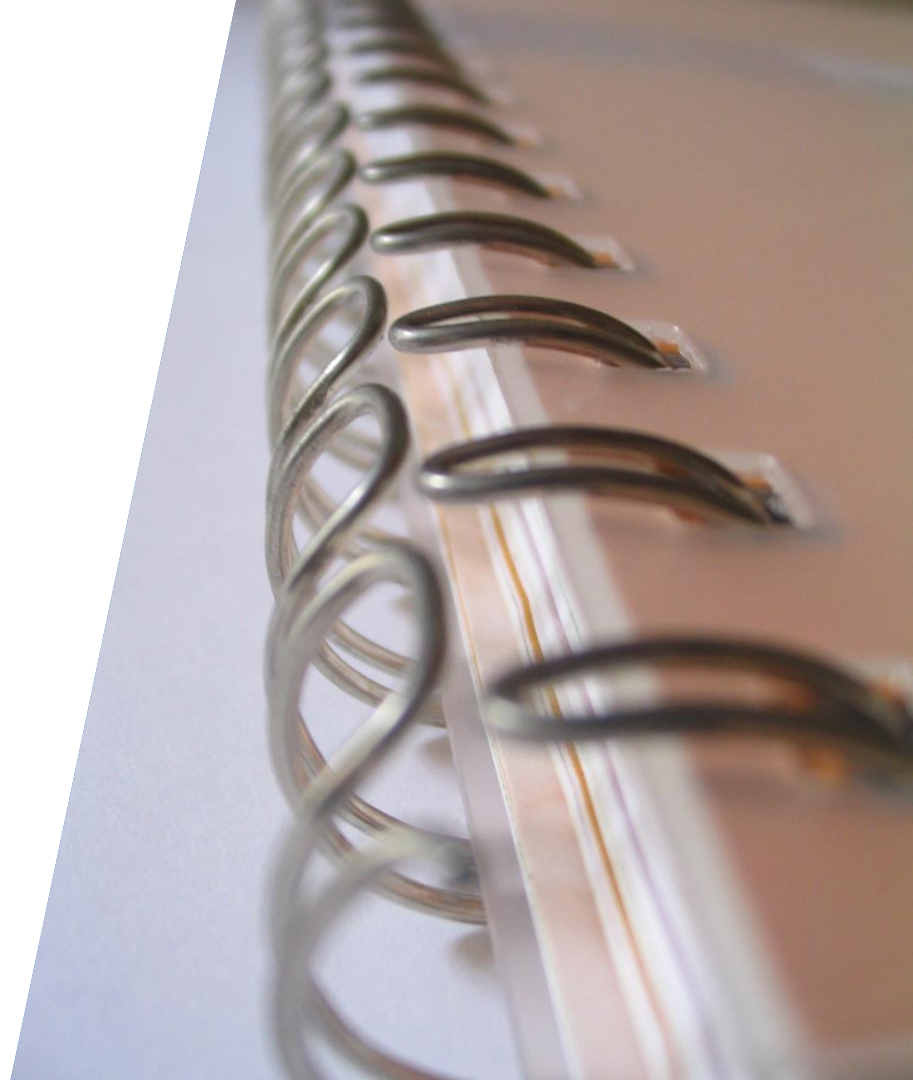
- ❖ One of the goals of this class is to set up and verify your development environment
- ❖ Download and launch the Xamarin Installer *now* on your development machine to begin the automated setup so you are ready when we hit the installation section

1. Xamarin Installer
www.xamarin.com/download
2. [optional] Visual Studio Emulator for Android (Windows)
aka.ms/vsemu

Note: for iOS development with Visual Studio, you need to set up a Mac with the Xamarin tools. Download the same installer and install it on your Mac.

Objectives

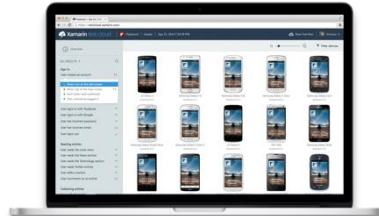
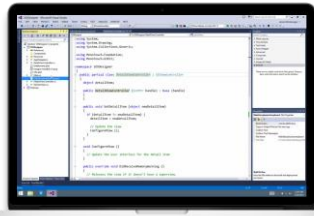
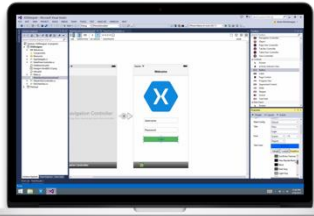
1. Xamarin SDLC
2. Exploring Xamarin University
3. Installing Xamarin



Xamarin SDLC

Xamarin Platform

- ❖ Xamarin platform lets you develop, test, and monitor your released application for iOS, Android, and Windows



 Xamarin Development Platform

 Xamarin Test Cloud

 HOCKEYAPP

Design

Develop

Integrate

Test

Monitor

Building mobile apps

- ❖ There are three common ways to create mobile applications, each with specific strengths and weaknesses

A light blue parallelogram shape containing the word 'Silo' in white text.

Silo

A medium blue parallelogram shape containing the words 'Black Box' in white text.

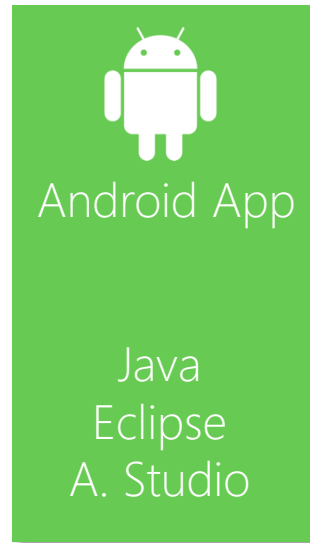
Black Box

A dark blue parallelogram shape containing the word 'Xamarin' in white text.

Xamarin

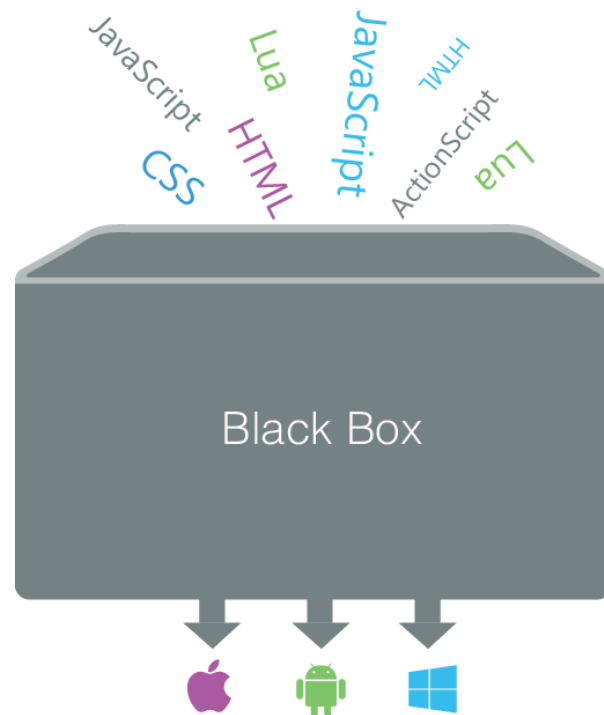
Silo approach

- ❖ Can write the same application multiple times using the vendor's tools



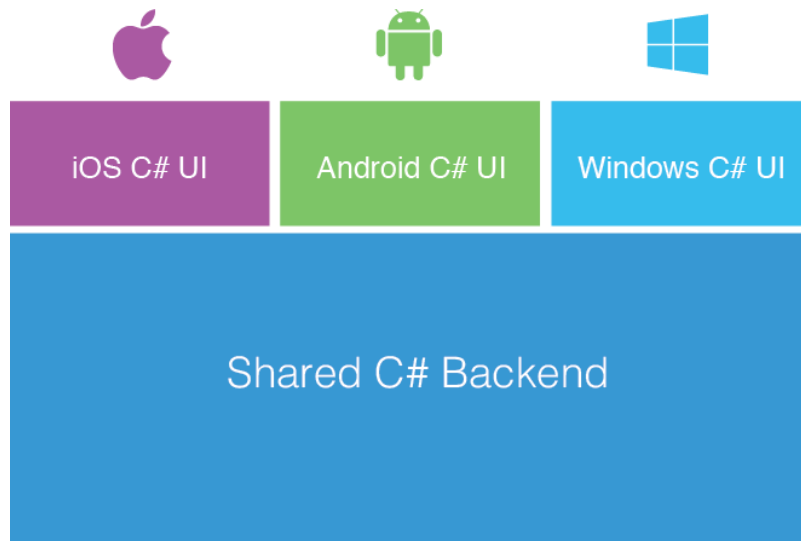
Black Box approach

- ❖ Can use high-level tools that convert a single code base (typically HTML/JavaScript) to an app for each platform



Xamarin approach

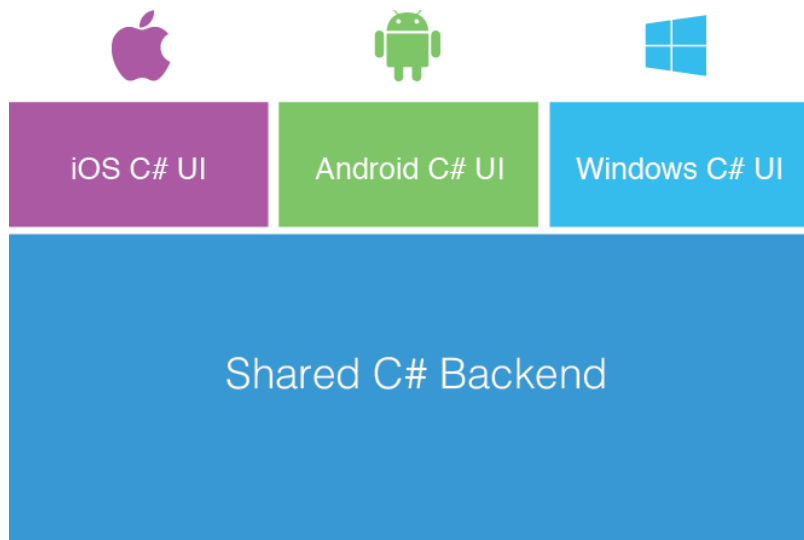
- ❖ Can build native apps using C# and .NET, sharing the business logic but leveraging each platform's benefits and paradigms



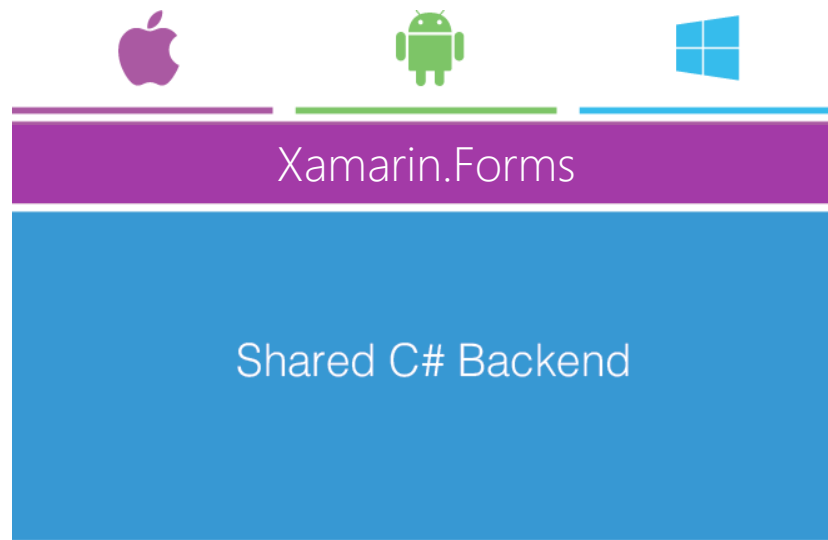
Traditional Xamarin approach

Xamarin approach

- ❖ Xamarin.Forms enables even more code-sharing through a shared UI definition when deep platform integration is unnecessary



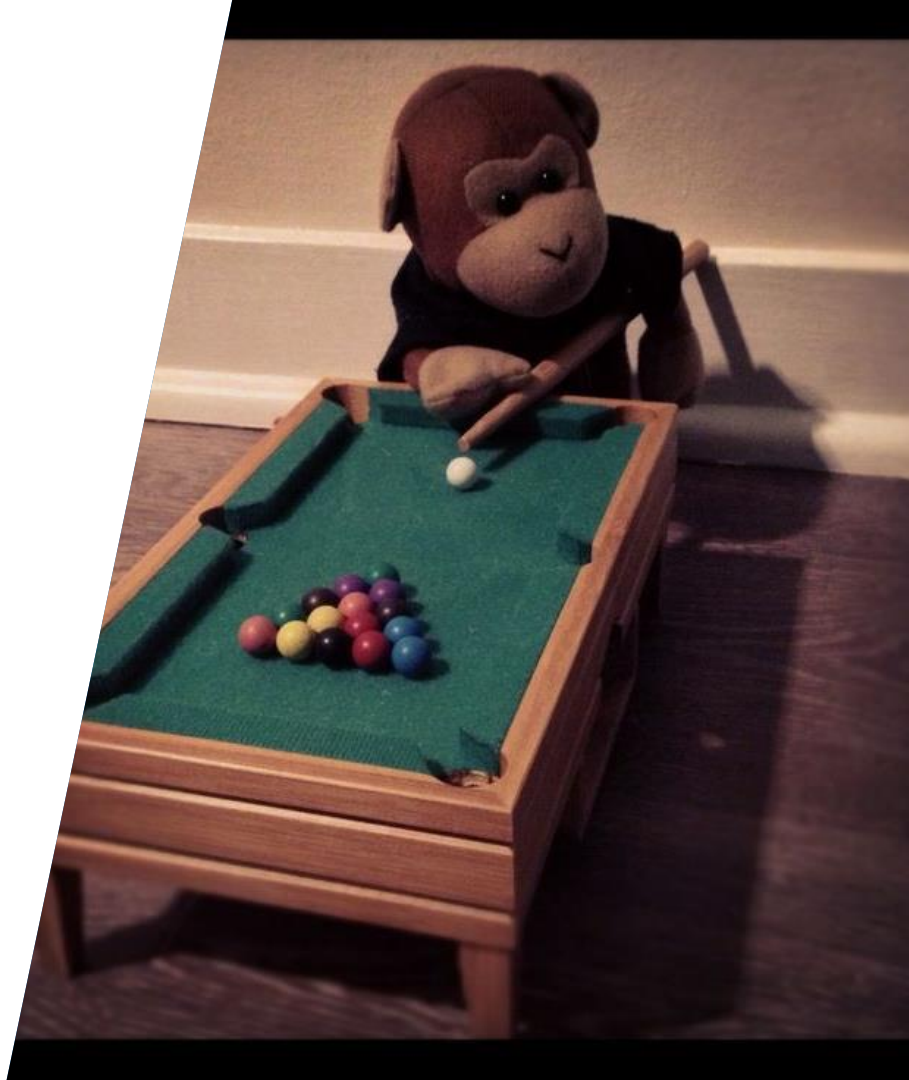
Traditional Xamarin approach

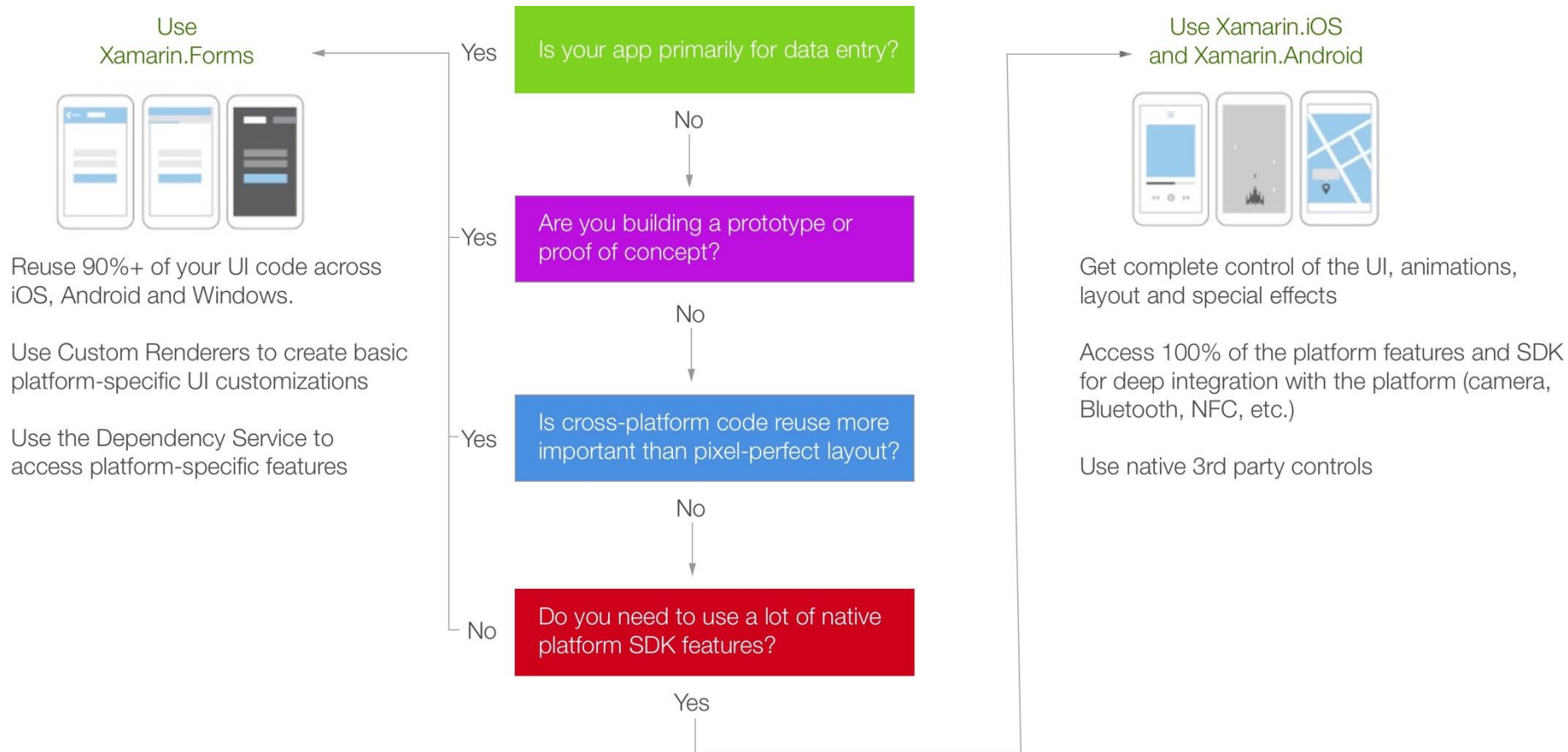


Xamarin.Forms approach

Traditional vs. Forms

- ❖ Xamarin.Forms is not suitable for all types of apps
 - ✓ Great for data-driven (forms) and utility applications
 - ✗ Not ideal if your UI will be highly customized to the platform
- ❖ Can be used for quick prototyping even if you do not utilize it for the final app





Flash Quiz

Flash Quiz

- ① Xamarin.Forms uses the native controls on each platform to render a UI
- a) True
 - b) False

Flash Quiz

- ① Xamarin.Forms uses the native controls on each platform to render a UI
- a) True
 - b) False

Flash Quiz

- ② Tom wants to build an application that has pixel-perfect layout on both iPhone and iPad devices, Xamarin.Forms would be a perfect choice for this application
- a) True
 - b) False

Flash Quiz

- ② Tom wants to build an application that has pixel-perfect layout on both iPhone and iPad devices, Xamarin.Forms would be a perfect choice for this application
- a) True
 - b) False

Flash Quiz

- ③ Xamarin.Forms is perfect for prototyping and quick data-entry type applications which do not require custom UI elements
- a) True
 - b) False

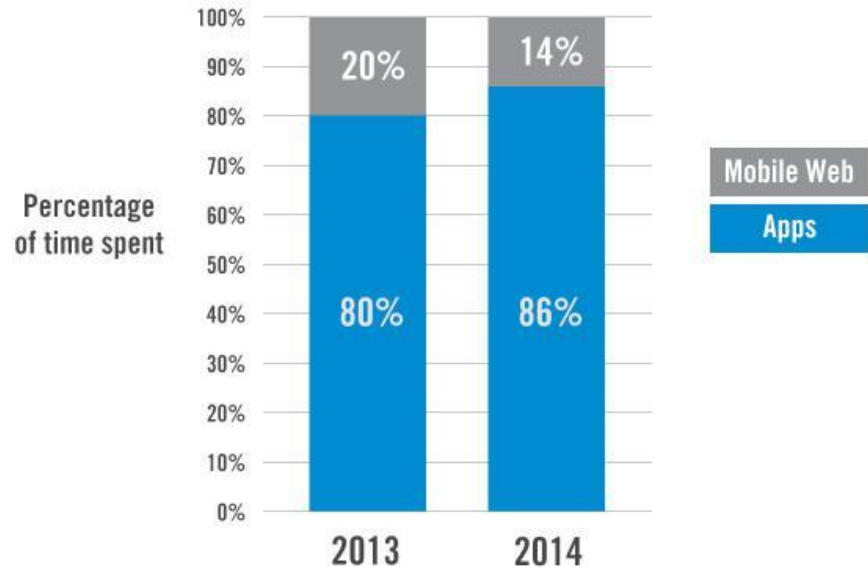
Flash Quiz

- ③ Xamarin.Forms is perfect for prototyping and quick data-entry type applications which do not require custom UI elements
- a) True
 - b) False

Why Native apps?

- ❖ Native apps can integrate better with the platform, are faster, more power efficient, and visually look better
- ❖ Plus, users *like* them better!

Apps Continue to Dominate the Mobile Web





Anything you can do in Objective-C, Swift,
or Java can be done in C# (or F#) with Xamarin

Demonstration

Cross-platform applications with Xamarin





Exploring Xamarin University



What's included?



Instructor-led
classes



Office
Hours



Community
and Forums



Certification
Process

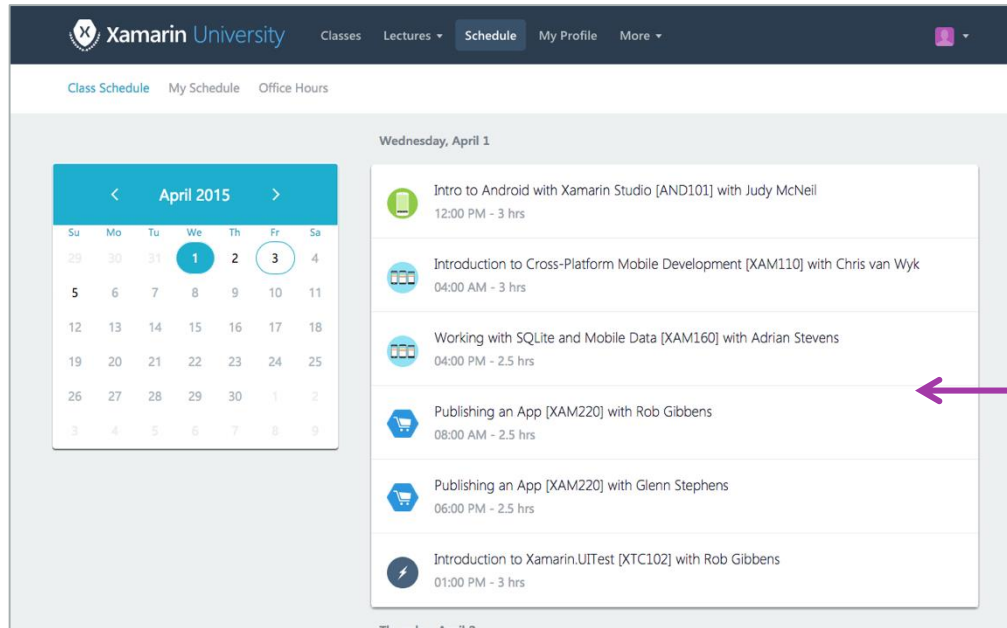
Working with the website

❖ university.xamarin.com is your portal to Xamarin University, use it to:

- ✓ Schedule classes
- ✓ Download course materials
- ✓ Take self-guided courses
- ✓ Check your certification progress
- ✓ Schedule office hours
- ✓ Request a class in your time zone
- ✓ Access recorded lectures

Class calendar

- ❖ The **Schedule** tab lets you see classes by calendar date

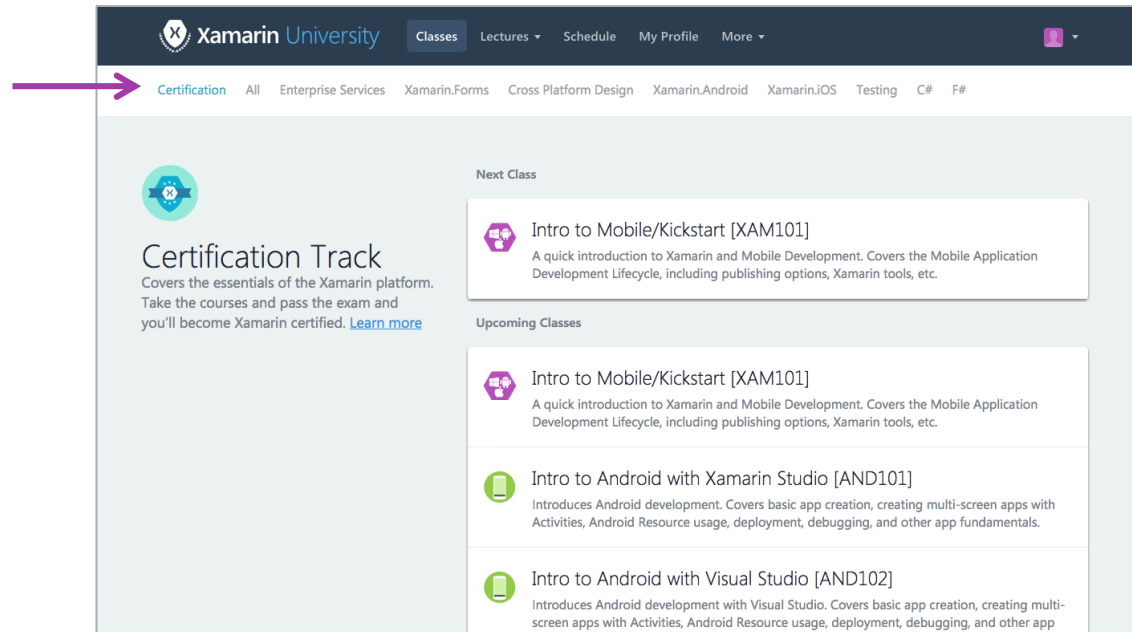


Click on a class to
get more information
or to enroll for that
time

Browsing classes

- ❖ Can use the **Classes** tab to browse classes by category

Technology tracks are listed across the top and are used to organize the available classes






Class details


- ❖ Selecting a class provides details about the class and upcoming runs

Type Providers in F# [FSC105]

One of the unique features of F# is the ability to pull data into the language in a typed fashion using type providers. This class will dive into the included type providers and explore some of the available 3rd party extensions you can use to process data efficiently and safely.

 Support  Materials  Videos

Register for an upcoming class:

 Today 4:00 pm-6:00 pm
Adrian Stevens

12 spots left

[Request new class time ▶](#)

Quick access to the FAQ, class materials, and recorded video of the class

If you can't find a date/time that works for your schedule, you can request a new class and we'll try to fit it in!

Taking classes

- ❖ You will receive an email once you register for a class and another just before the class starts
- ❖ Class will show up on your **profile page** with links to join the class, add it to your calendar, and unregister from the class

Introduction to Cross-Platform Mobile Development [XAM110]

Wednesday, April 22 at 4pm | 3 hrs
(-05:00) Central Time (US & Canada)

[Join the GoToMeeting](#)[Add to Calendar](#)

This class is intended to follow introductory iOS and Android classes and introduces how to create solutions that target multiple platforms and how to maximize code sharing between them.



Ju
|

[Watch](#)[Class](#)

You're registered!

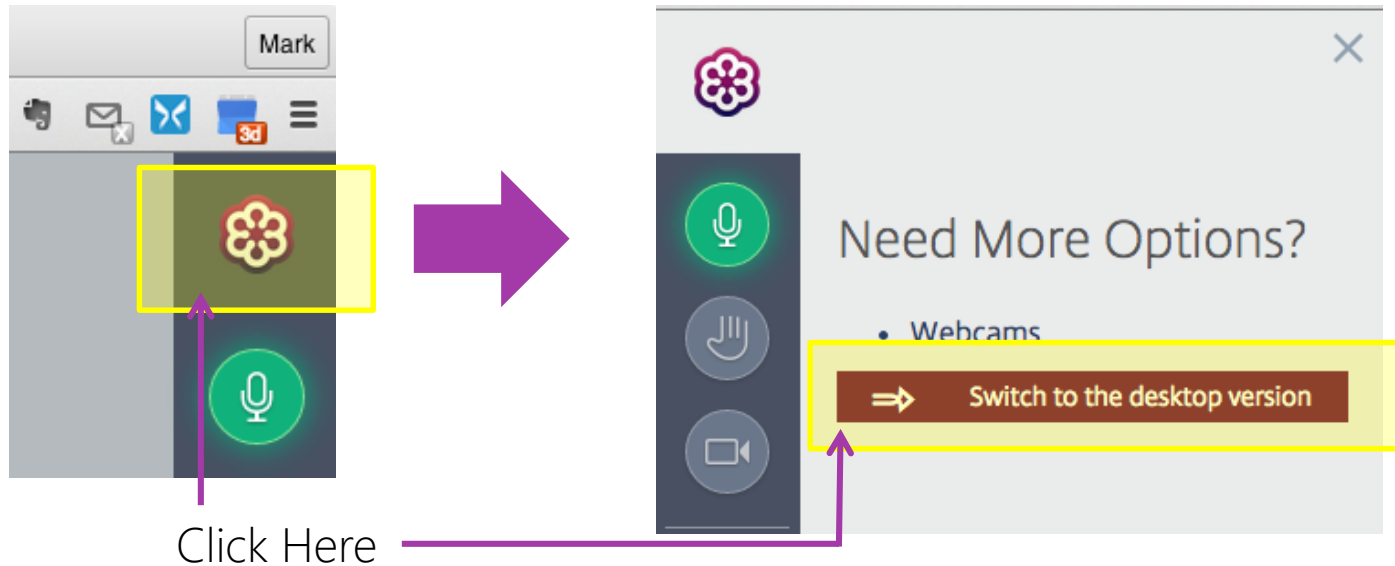
[Remove from My Classes](#)

This class is full.

If you remove this from your classes someone from the waiting list will be assigned to this spot.

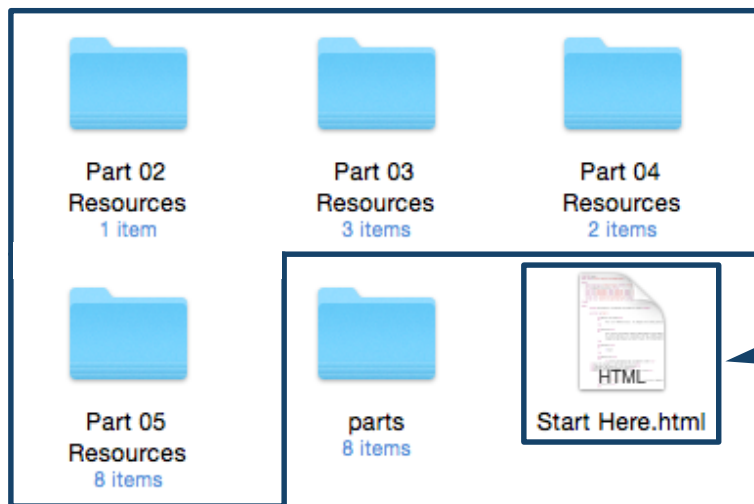
GotoTraining

- ❖ Use the desktop client, not the web client when joining a class



Class materials

- ❖ Each class has a set of accompanying materials, please download them before each class starts



Resource folders hold lab exercises, required assets and completed projects – one folder for each exercise

Begin at **Start Here** – this has the setup requirements (which can vary from class to class), links to slides, exercises, and additional resources

Class participation

- ❖ We want you to participate in class – this makes the experience much more engaging for everyone
- ❖ Take advantage of the deep experience of our instructors – ask questions verbally and in the chat window
- ❖ Sometimes we might ask *you* a question in class, so be prepared!



After-class feedback

- ❖ Each class has a post-class survey you can fill out, the results are read by management and by the instructor

Summary slide at the end of each class provides a reminder

Thank You!

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



Class identifiers

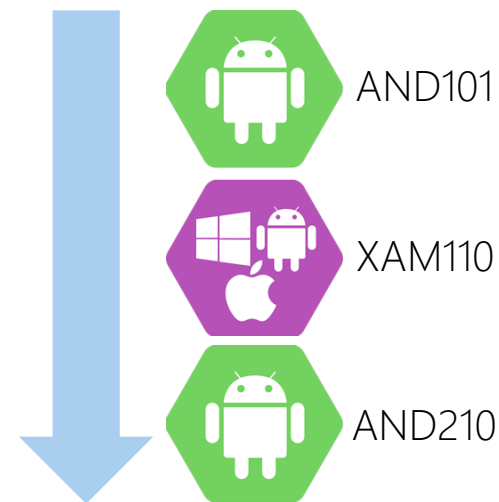
❖ Classes identifiers include technology + number

AND	Focuses on Android
iOS	Focuses on iOS
XTC	Testing and Xamarin Test Cloud
ENT	Enterprise solutions
XAM	Cross-Platform and Xamarin.Forms
CSC	Learning C# classes
FSC	Learning F# classes

100 level classes are introductory
200 level classes are intermediate
300+ level classes are advanced

Class ordering

- ❖ Try to take the classes in ascending order
- ❖ Courses assume pre-requisite knowledge based on course numbering
- ❖ When you register for a class, it will list prerequisites if explicit dependencies exist between classes



Recorded Lectures

❖ There are several different recording types to supplement your learning



Class
Recordings



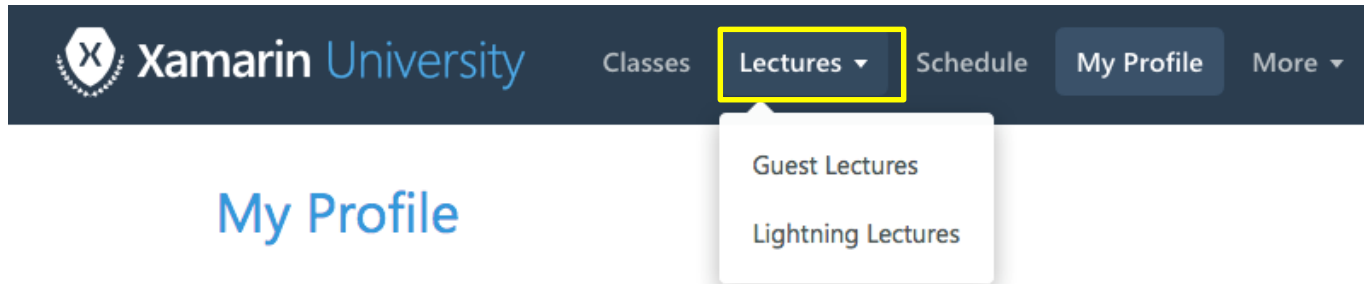
Guest
Lectures



Lightning
Lectures


Recorded Lectures

- ❖ Guest lectures and Lightning Lectures are available in the **Lectures** tab



Self-guided classes

- ❖ Some of the classes are available as self-guided courses – these classes cover the same content as the live classes but can be taken at any time

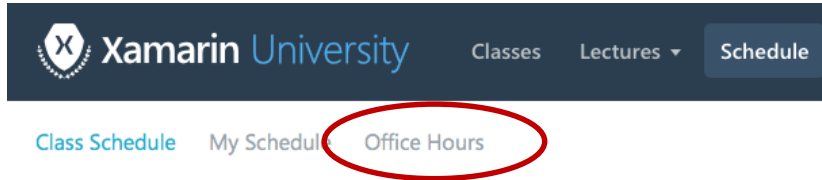
<p>Resources and Styles in Xamarin.Forms [XAM140]</p> <p>This course shows you how to use XAML based resources to eliminate repeated</p>	<p>Register for an upcoming class, or take the self-guided class.</p> <hr/> <div data-bbox="865 634 923 692"></div> <div data-bbox="952 653 1170 682">Self-guided learning.</div> <div data-bbox="1441 653 1541 682">Start Now</div>
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Courses with self-guided learning versions available will show the green icon on the class details

Office Hours

- ❖ Up to eight 30 minute 1:1 session with a Xamarin University instructor to discuss your specific project goals and how to achieve them!
- ❖ Sign up at on the website from the **Schedule** page



Community

- ❖ You have access to a private forum for all students where you can ask questions in between classes
- ❖ Interact and get to know the instructors and other students at Xamarin University
- ❖ Visit forums.xamarin.com



Connecting with XamU

- ❖ We send out a quarterly email newsletter to all subscribers
- ❖ Can also use your favorite social media format to get updates and tips from Xamarin University



Connecting with XamU

Facebook (Community Managed)

<https://www.facebook.com/groups/xamarinuniversity/>

LinkedIn – Xamarin Certified Developers (Private Group)

<https://www.linkedin.com/grp/home?gid=6664619>

Twitter feed

<https://twitter.com/XamarinU>

Getting certified

- ❖ Certification involves progressing through the certification-track courses, you can view your progress on your profile page
- ❖ You must take **live classes** with instructors to be counted for certification (not videos)
- ❖ You can opt-out of introductory classes by taking an optional *assessment test* available on the certification information page



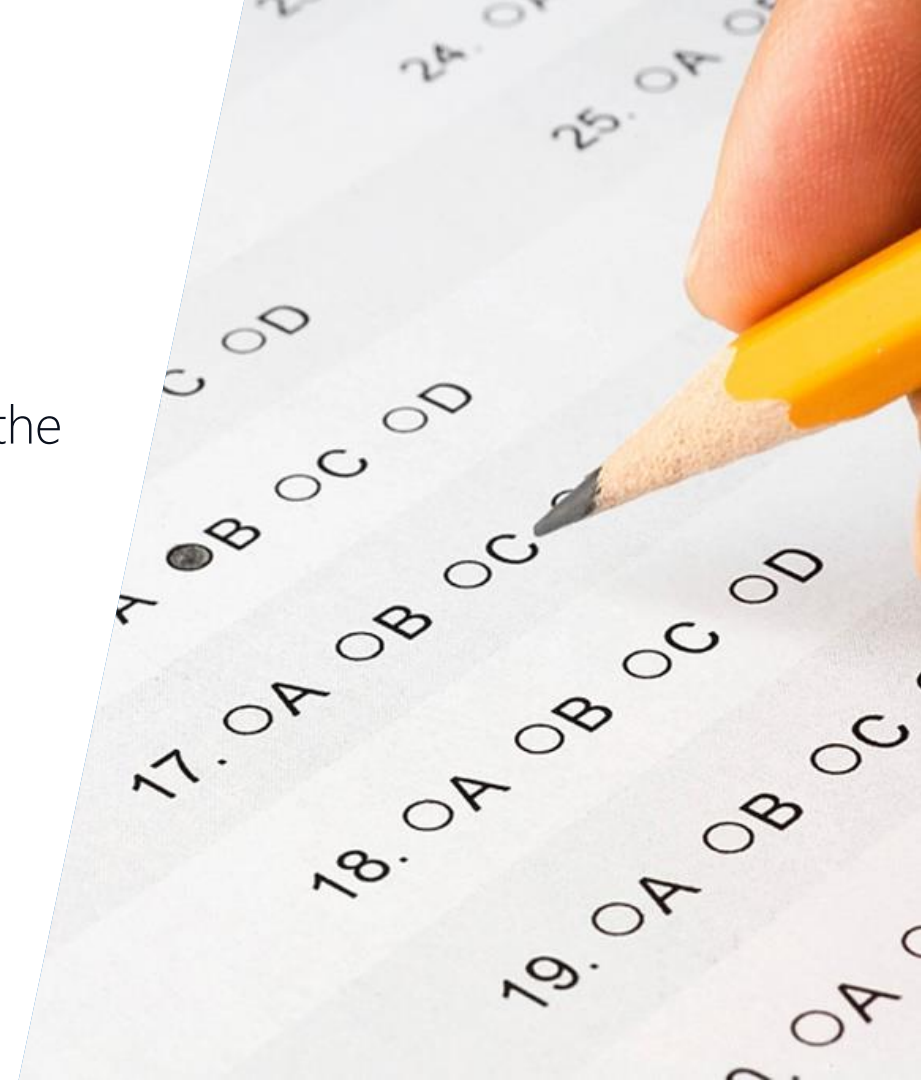
Xamarin Certified Mobile Developer



- ❖ Valid for one year from pass date
- ❖ Verifiable online by your customers:
university.xamarin.com/certification
- ❖ Gives you access to a private LinkedIn group with other certified developers
- ❖ Web Badge + Cool Swag

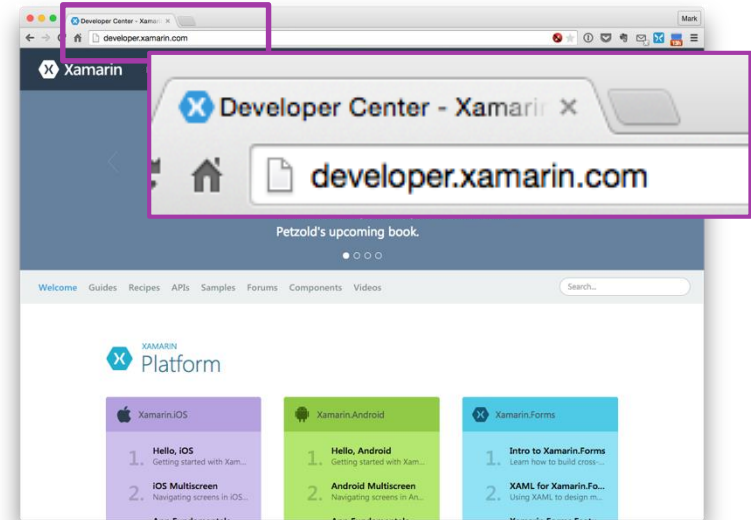
Certification Exam

- ❖ Once you complete all the live coursework and the 1 on 1 with an instructor, you will be invited to take the certification exam
 - Taken online
 - 150 questions
 - 3 hours to complete
 - Must score $\geq 80\%$ to pass
 - Questions are pulled from the required classes

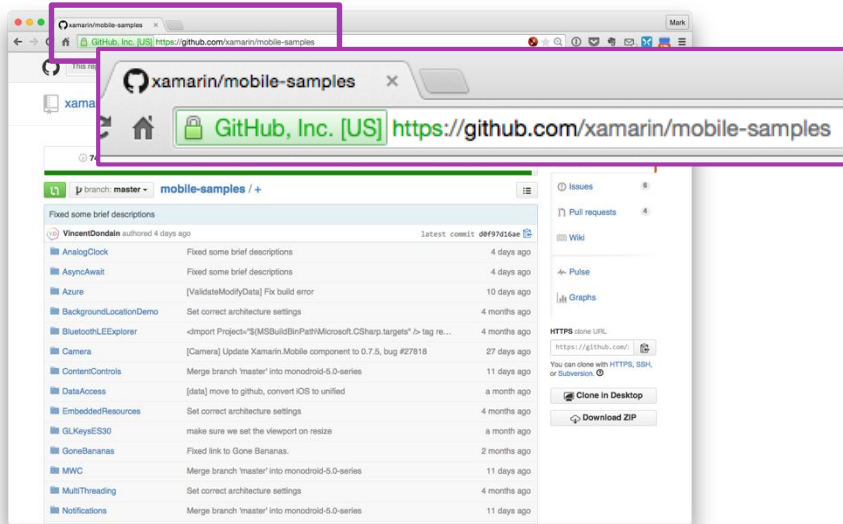


Other resources: documentation

- ❖ Xamarin Developer Center has
 - API documentation
 - Reference material
 - Getting started guides
 - Common recipes
 - Walkthroughs
- ❖ Course lab materials have links to related documentation topics



Other resources: samples

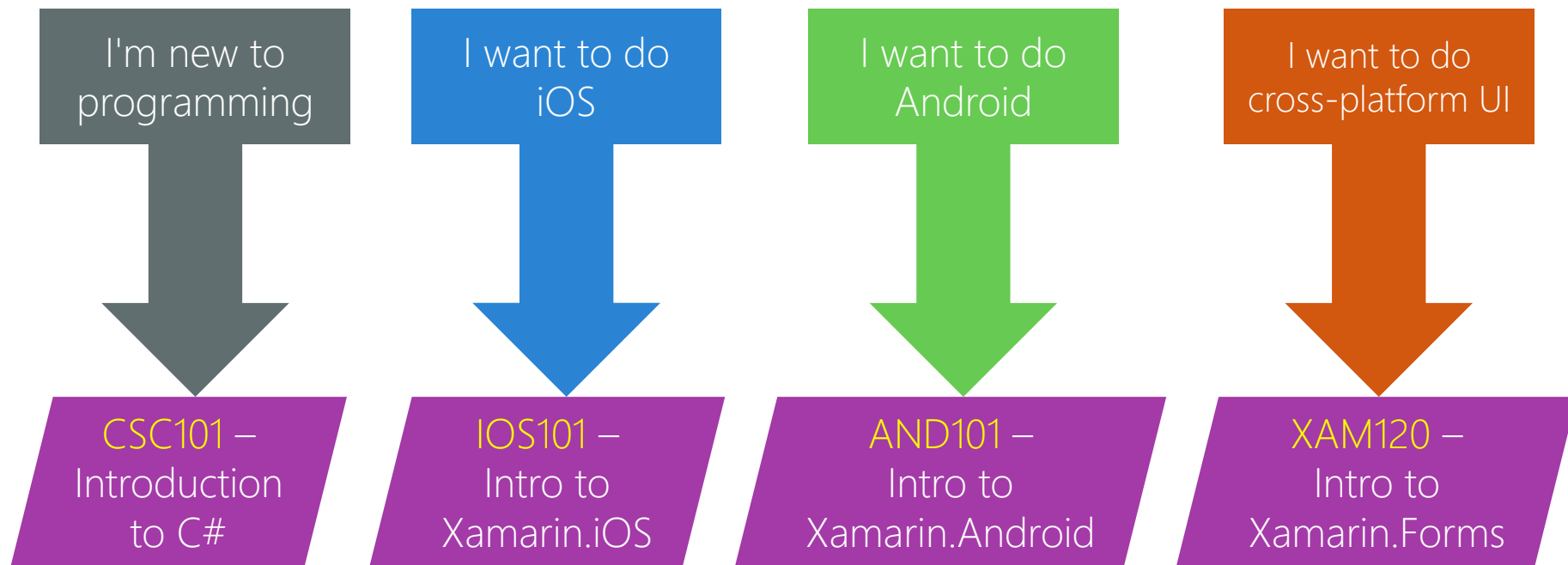


❖ Samples Github repository includes full projects and working code for a variety of common tasks

❖ github.com/xamarin

❖ xamarin.com/prebuilt

What class should I take next?



Installing Xamarin

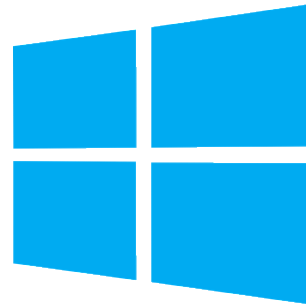


Supported operating systems

❖ Xamarin tools can be installed on Mac OS X and Windows



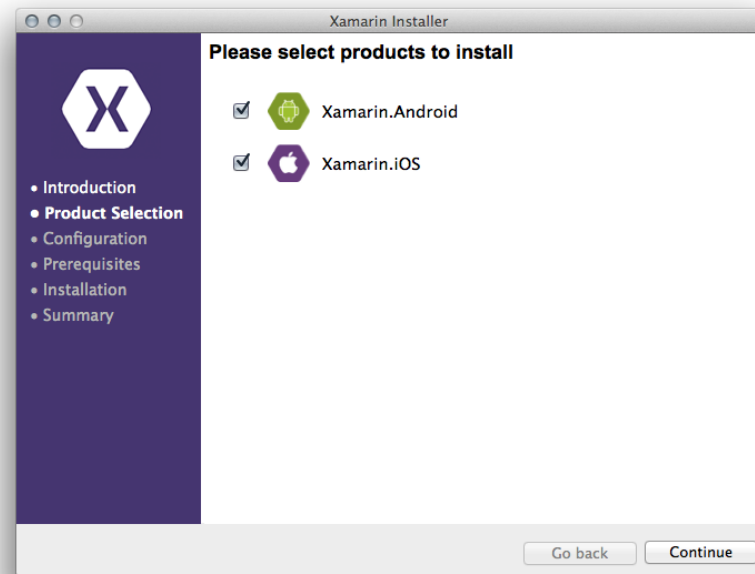
- iOS and Android
- Xamarin Studio IDE



- iOS, Android and Windows
- Visual Studio IDE

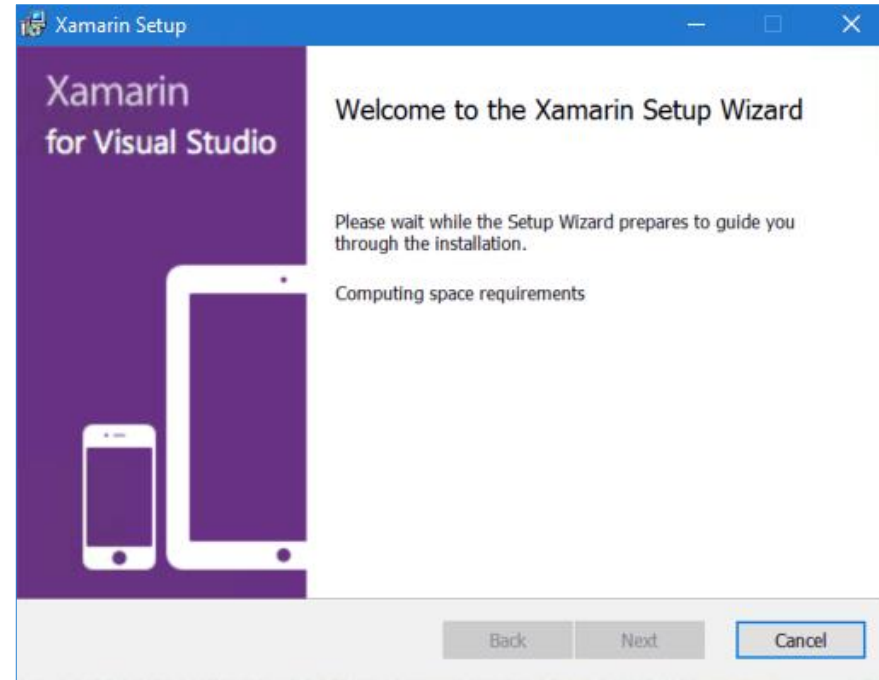
Installing on a Mac

- ❖ Recommend latest OS X
- ❖ Must Install Xcode from AppStore
 - Installs the iOS SDK
- ❖ Use Xamarin Unified Installer
 - Downloads and installs all required components



Installing on Windows

- ❖ Windows 7 or higher, Visual Studio 2012 or higher (recommend latest)
- ❖ Installs directly from any version of Visual Studio 2015
- ❖ Or can use installer to integrate tools into existing Visual Studio installation



MSDN Enterprise benefits

- ❖ Xamarin dev tools are open source (open.xamarin.com) and free, however there are additional benefits included with an MSDN enterprise license



Bytecode hiding
for Android APKs



Live app
inspector



Profiler



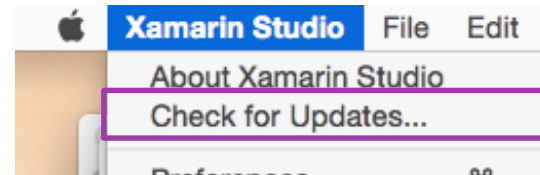
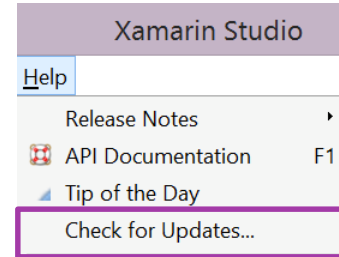
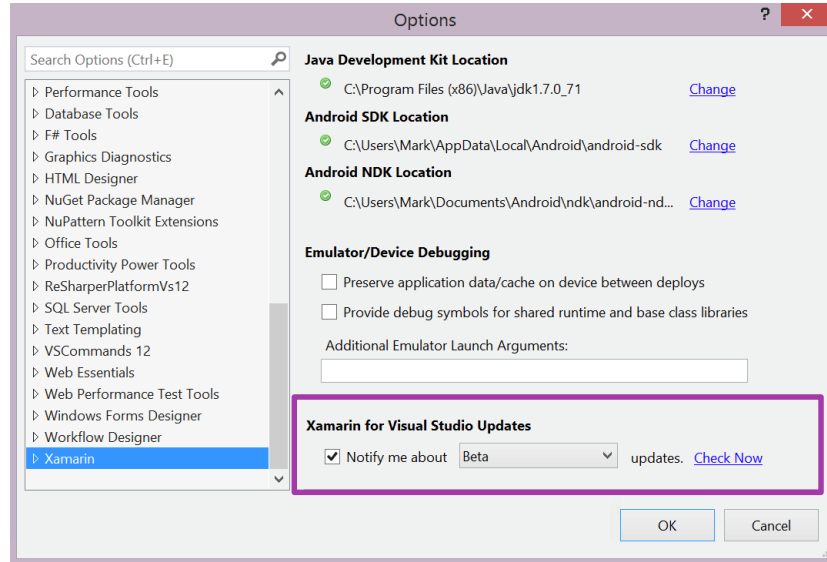
Test Recorder



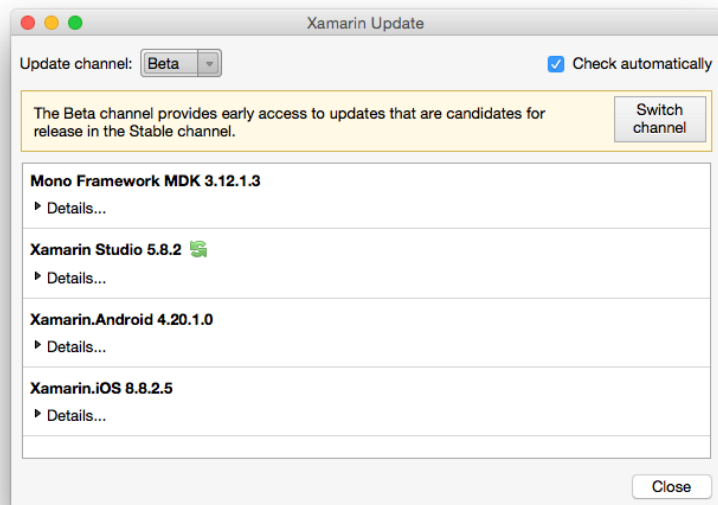
Important: Make sure to use the installers from your MSDN downloads page to ensure you get the correct edition of the development environment installed!

Keeping Xamarin up to date

- ❖ Xamarin releases updates frequently to add new APIs, match vendor releases, and fix issues



Xamarin release channels

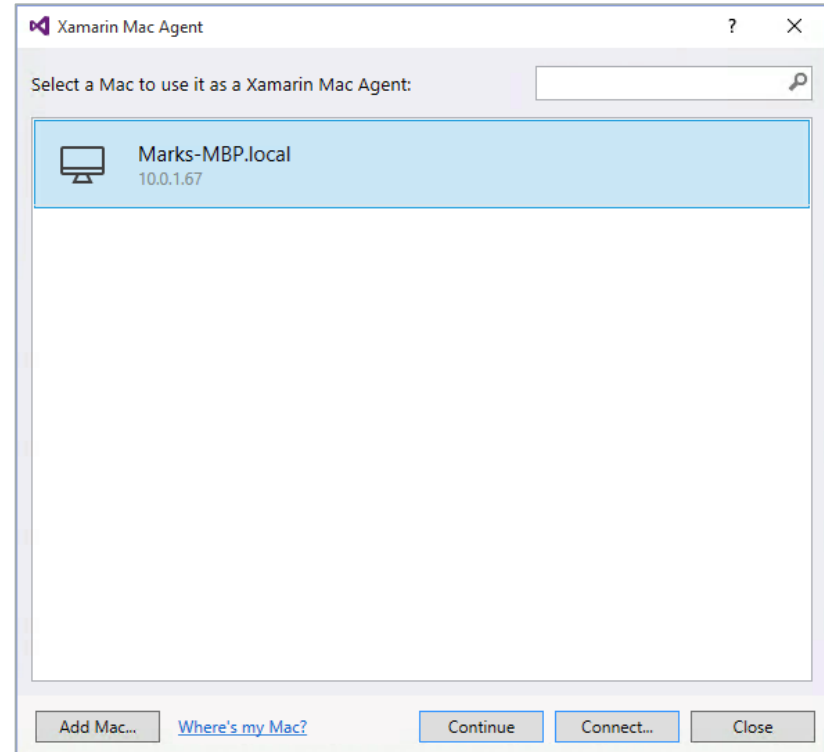


Alpha: most current, least tested
Beta: what's next
Stable: released code, most tested

- ❖ Updates are deployed in stages and exposed through release channels (alpha > beta > stable)
- ❖ Can switch channels at any time to try out new features or move back to a more stable environment
- ❖ We recommend the stable channel for most classes

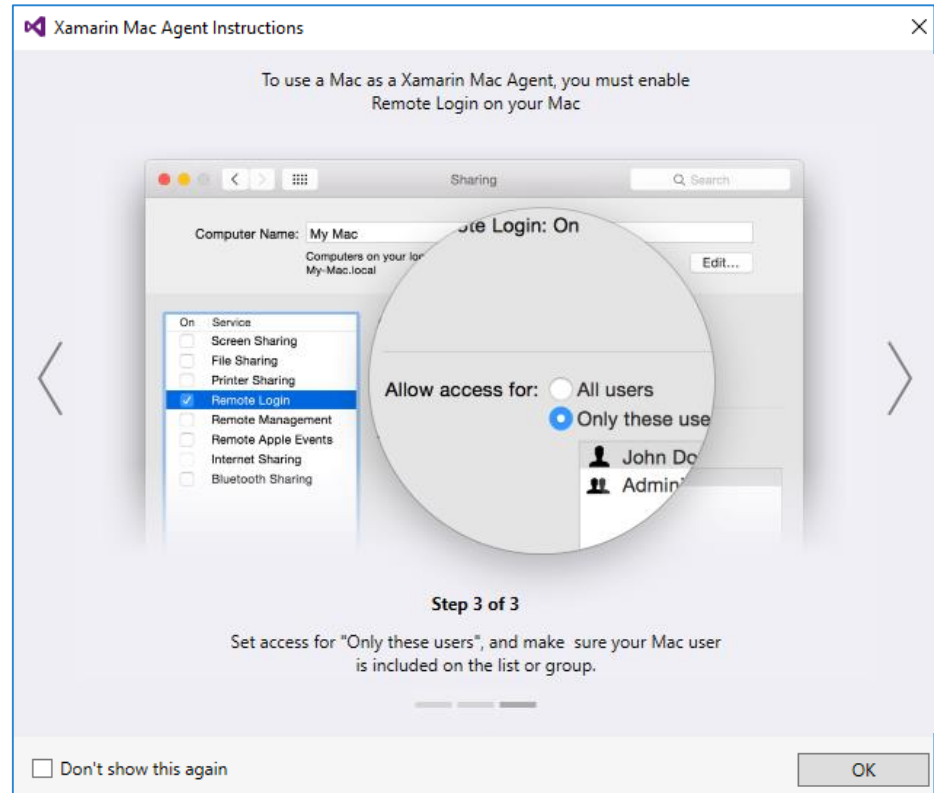
Using Visual Studio

- ❖ Apple licensing requires a Mac OS X machine to use the iOS SDK
- ❖ Xamarin allows you to build iOS apps on Windows by **delegating** parts of the build to a networked Mac OS X machine using a small server process called the **Xamarin Mac Agent**



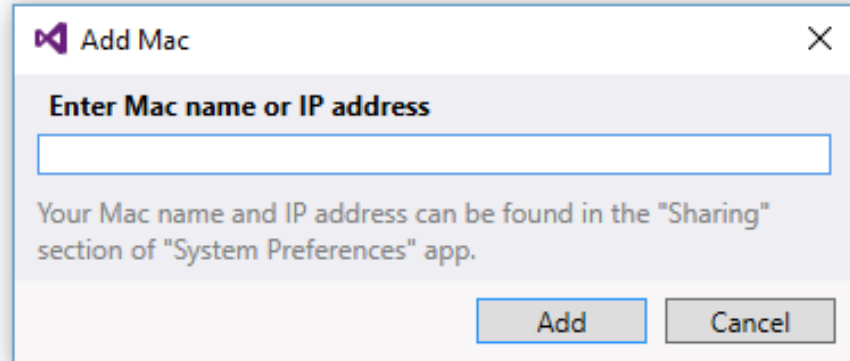
Connecting to the Mac Host

- ❖ Creating or opening an iOS project in VS will login to the associated Mac host
- ❖ If no host is available, it will launch the connection wizard
- ❖ Can also use **Tools > iOS > Xamarin Mac Agent** to launch connection wizard manually to connect to a different host



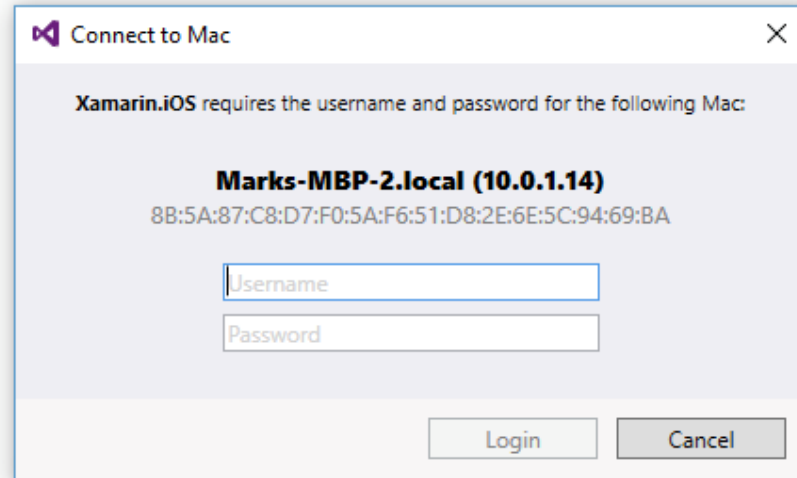
Mac Host setup

- ❖ The Mac host must have Xcode and the Xamarin tools installed



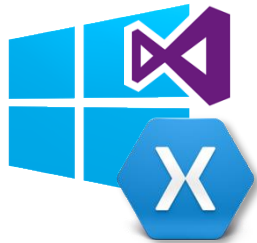
Mac Host setup

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Connecting to the Mac

- ❖ Building an iOS application will automatically connect to the build agent



Visual Studio with
Xamarin Tools

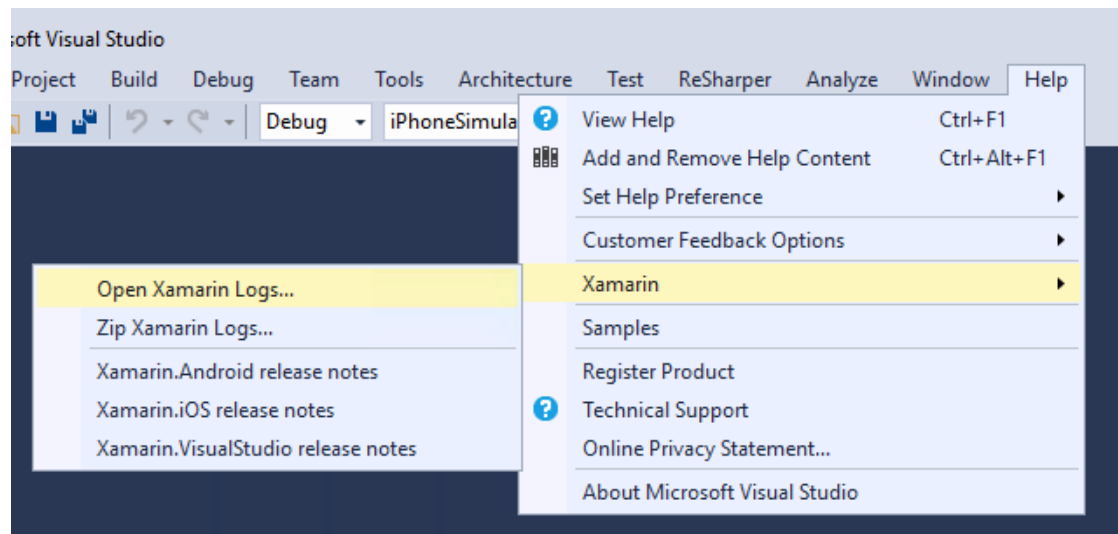


Mac Host with
Xamarin Tools
and Xcode

```
Starting agents on Mac Marks-MBP-2.local (10.0.1.14)
Activating the Mac...
Starting Agent IDB 4.0.0.1649...
Connected to the Mac Marks-MBP-2.local (10.0.1.14) with Limited support.
Agent IDB 4.0.0.1649 is running
Starting Agent Build 4.0.0.1649...
Agent Build 4.0.0.1649 is running
Starting Agent Designer 4.0.0.1649...
Agent Designer 4.0.0.1649 is running
```

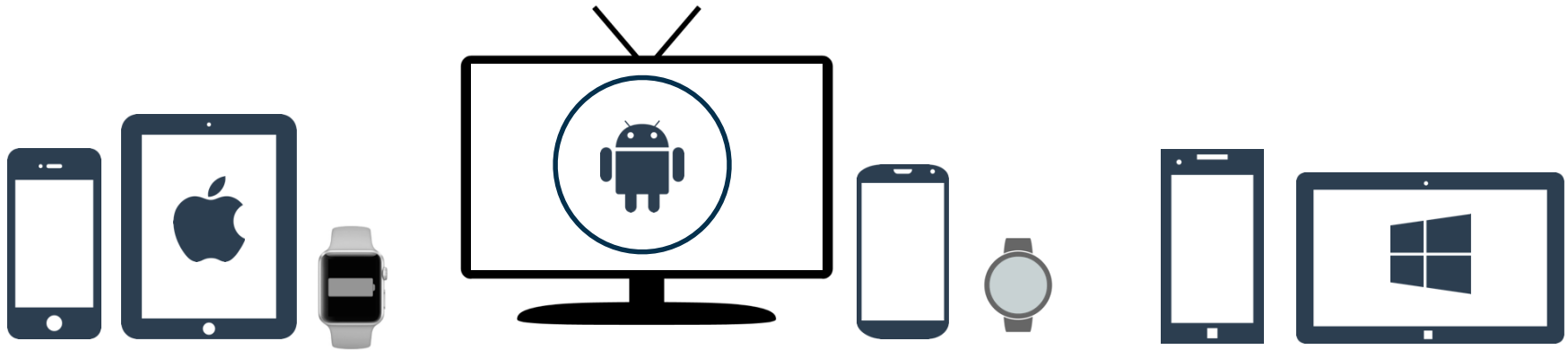
Troubleshooting XMA

- ❖ XMA is very user friendly and will generally diagnose and help you correct any connection issues; use **Help > Xamarin** to get more detailed log information if necessary



Running your applications

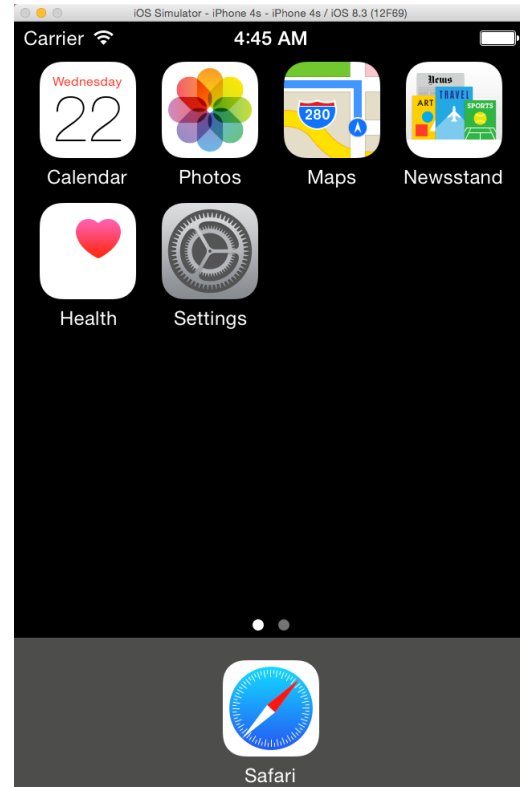
- ❖ Need to run applications to test them – can run on devices, or use emulators and simulators which simulate a real device in software



iOS, Android, and Windows all have emulators or simulators

Running iOS applications

- ❖ Apple supplies an iOS simulator with Xcode which can be launched on the Mac host with either Xamarin Studio (Mac) or Visual Studio (Windows)
- ❖ Supports different devices, resolutions and can also install different versions of iOS through Xcode



Running Android apps (Google)

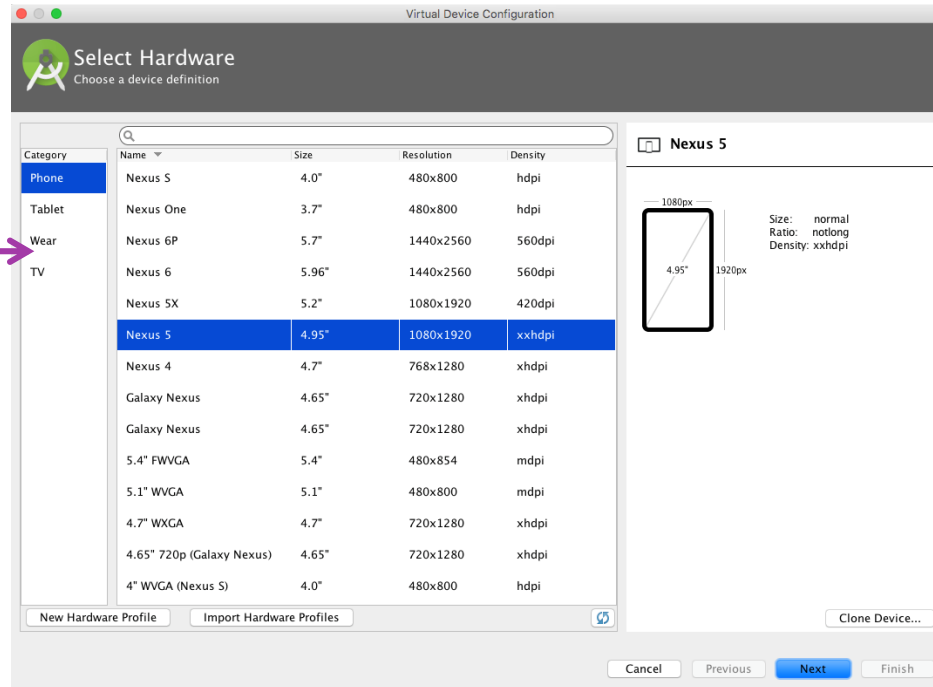
- ❖ Google provides the standard Android emulator and includes it with the Android SDK
- ❖ Google emulators can include Google apps support automatically
- ❖ Much better emulator engine and configuration support is available if you install the **Android Studio** IDE from Google



Installing the Google emulators

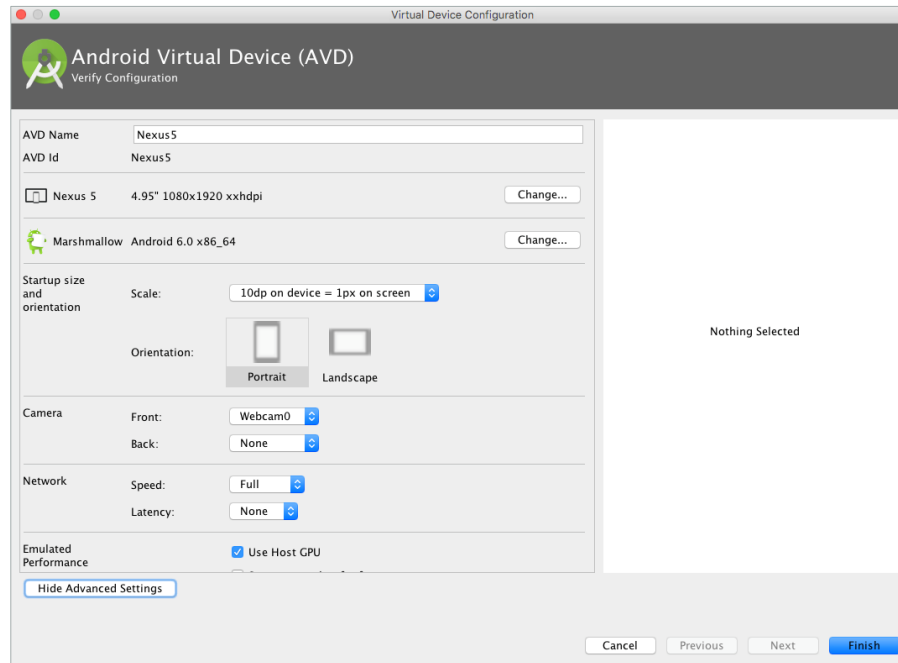
- ❖ Google supports the widest variety of Android devices and versions

Includes TV
and wearable
definitions



Creating a new Google emulator

- ❖ Android Studio provides access to a much nicer configuration dialog

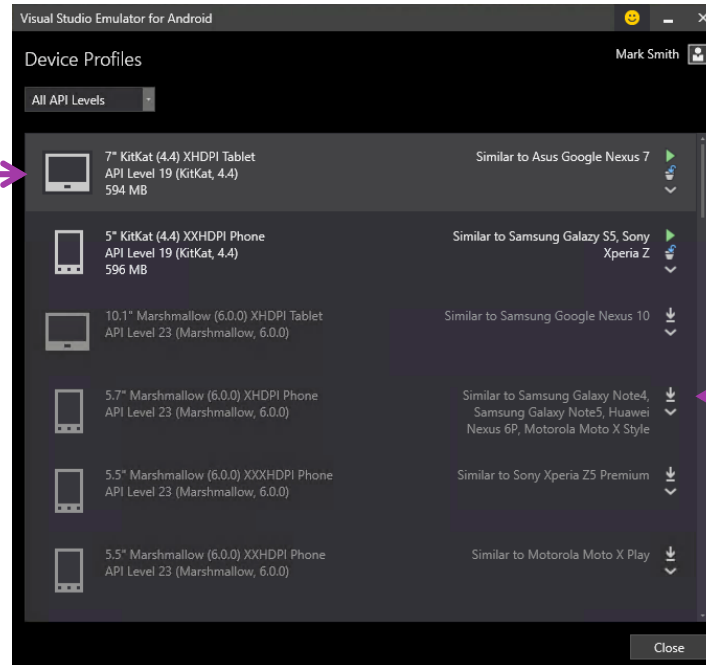


-
- The figure consists of two side-by-side screenshots of a Windows Phone 8.1 device. The left screenshot shows the lock screen with a blurred background and a circular clock. The right screenshot shows the Bing Maps application with a map of the Seattle area and various toolbars at the top and bottom.

Visual Studio Emulator for Android

- ❖ Can add multiple device profiles for testing of different device styles

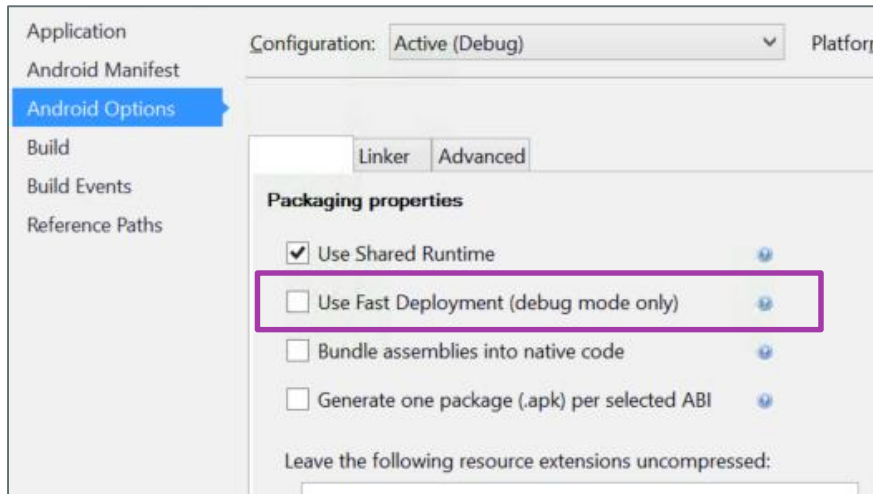
Can start different device styles



and download other styles as needed

Running apps on Android emulators

- ❖ Some Android emulators do not support the "Fast Deployment" optimization which updates the app in-place on the device, if your application will not install, try turning this feature off in the project settings



Running Windows Phone apps (VS)

- ❖ Visual Studio has a set of optional Windows Phone emulators which use Hyper-V to run various phone images including 8.0, 8.1, and 10.0
- ❖ Be aware that it interferes with other virtualization software such as VMWare and Virtual Box



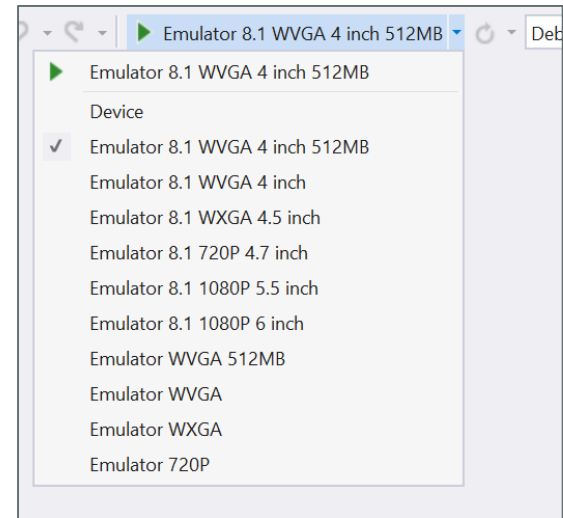
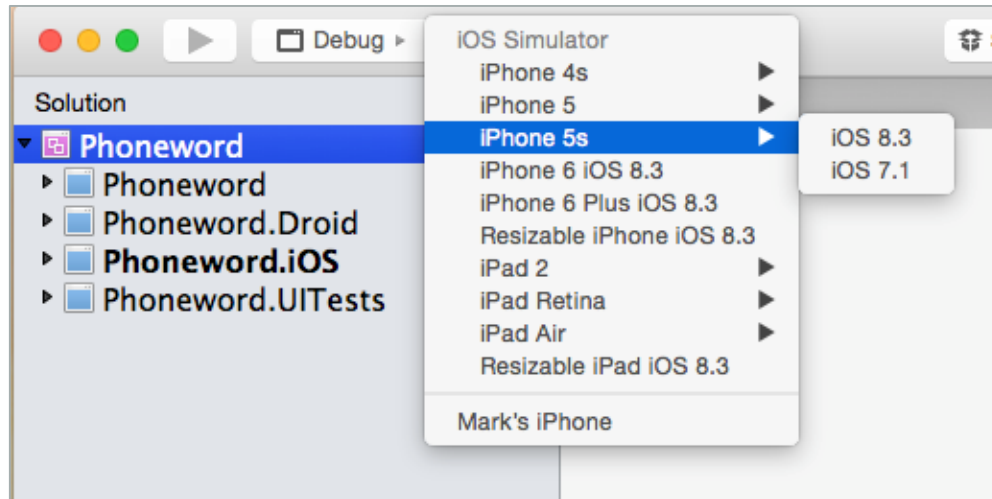
Using a real device

- ❖ Can also use a physical device to test your applications – requires some one-time platform-specific setup
 - iOS: <http://bit.ly/1R7YmH8>
 - Android: <http://bit.ly/1PjDIFz>
 - Windows Phone: <http://bit.ly/1GLnLxV>
- ❖ Most classes work fine with simulators, but you should setup a device to test with too



Selecting a device or emulator

- ❖ Can select the device (or emulator) to run your startup project through the toolbar device-selection drop-down



Choices change based on the startup project (iOS, Android, or Windows Phone)

Setup Validation

Let's make sure your environment is ready to go!



Thank You!

Please complete the class survey in your profile:
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