

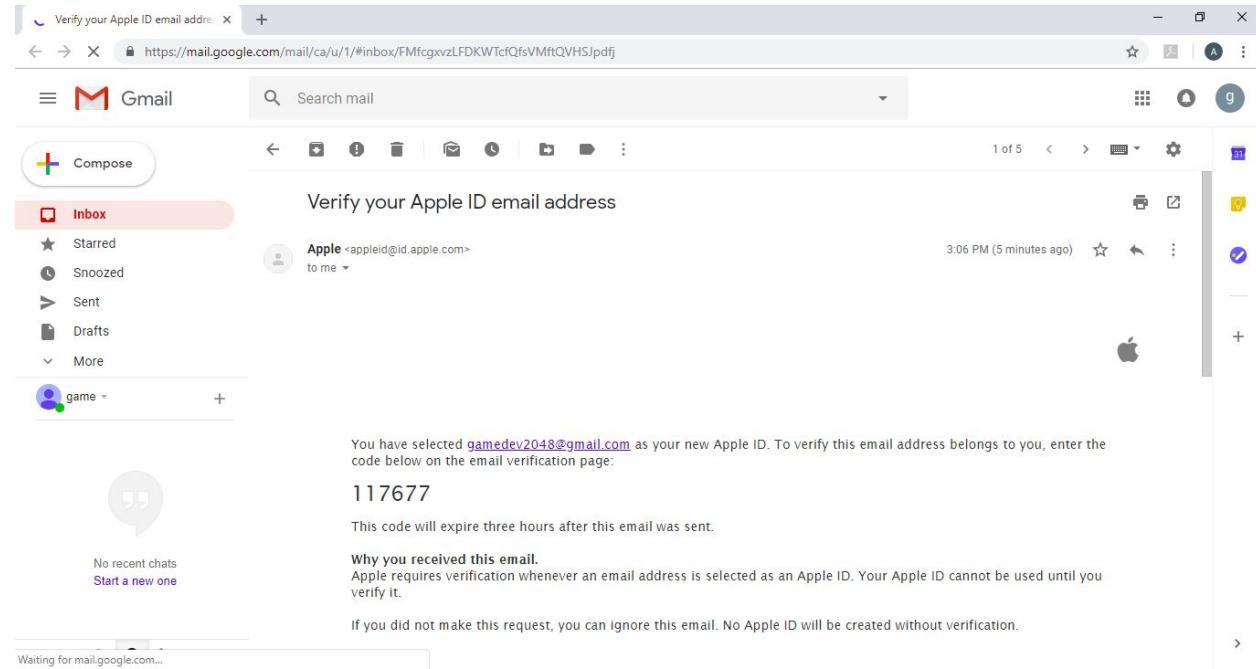
Develop and Deploy iOS app to iPhone/iPad device using Visual Studio 2017 Community in Mac or Windows 10

Prerequisite:

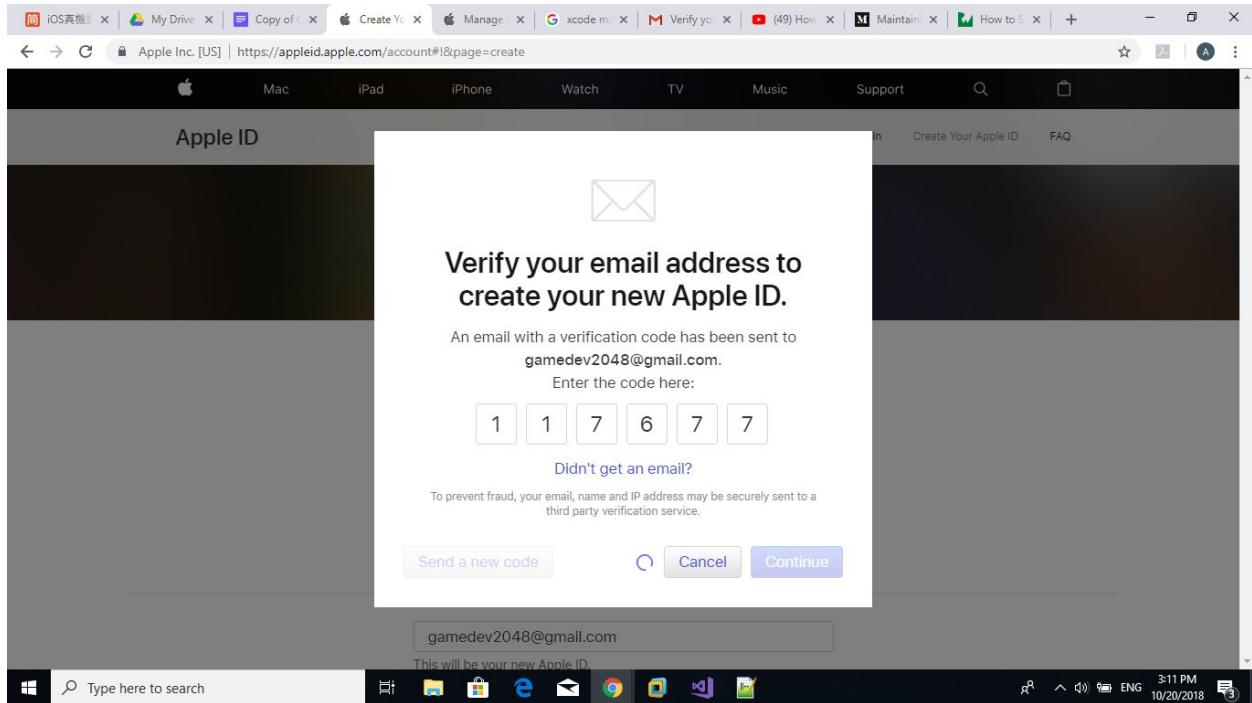
1. Apple Developer ID
2. Visual Studio 2017 with iOS App (Xamarin) installed in Windows 10
3. Mac or Mac VM with Xcode installed

Create an Apple Developer ID

First create an new gmail account (or any other email account). Use the new gmail account to create a new Apple Developer Id.

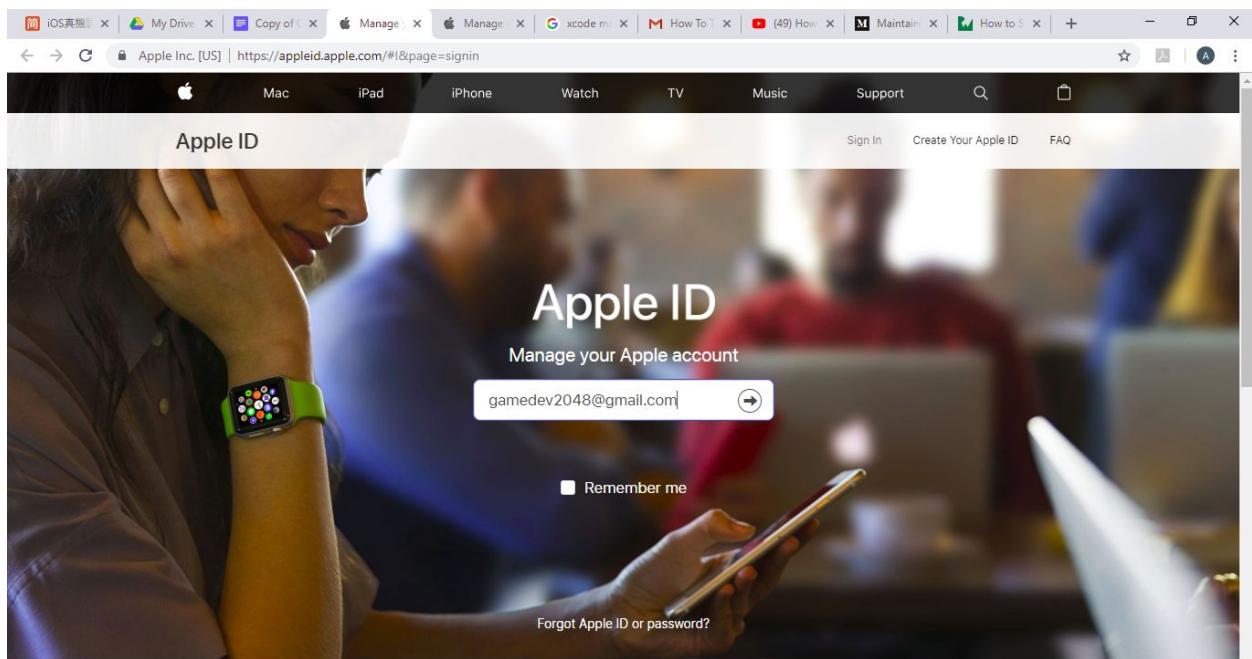


Verify your email address by providing the code you receive in your new gmail account.



Go to the following URL to create a new Apple Developer ID

<https://appleid.apple.com/#!&page=signin>



Follow the steps to create a new Apple Developer ID. A new Apple ID is created as shown below. e.g.gamedev2048@gmail.com

The screenshot shows a web browser window with multiple tabs open, including iTunes Connect, Manage your App, Manual provision, Google Drive, Verify your Apple ID, Inbox, Develop and Deploy, and another tab for the developer account. The main content area displays the Apple Developer account management interface. At the top, it says "game dev" and "Your Apple ID is gamedev2047@gmail.com". On the right, there is a "Sign Out" button. Below this, the "Account" section is visible, showing the following details:

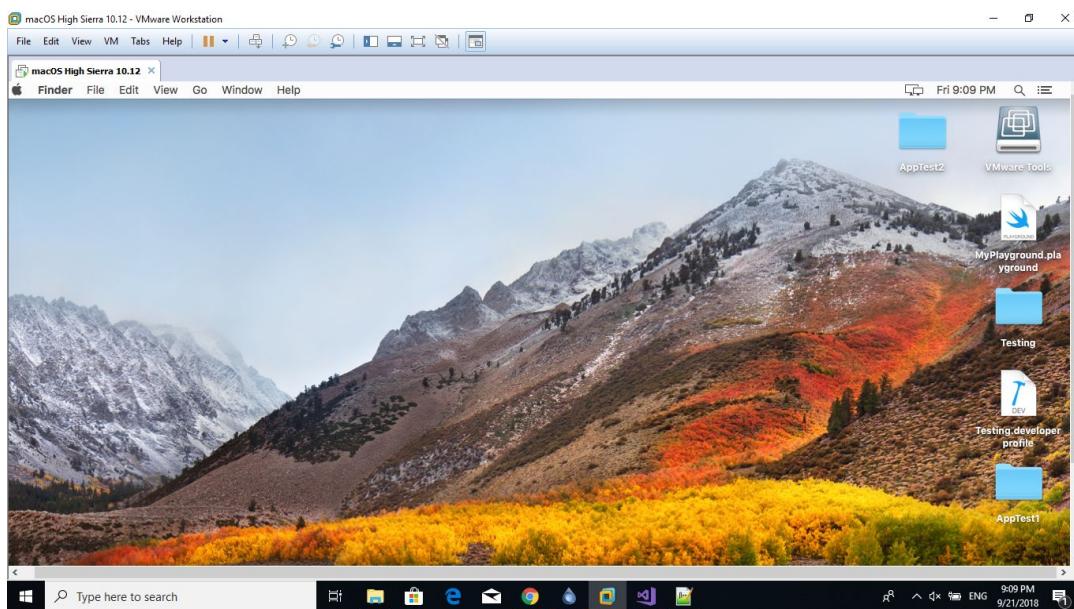
- APPLE ID: gamedev2047@gmail.com
- REACHABLE AT: gamedev2047@gmail.com
- BIRTHDAY: [Redacted]
- LANGUAGE: English (US) - English (US)
- COUNTRY / REGION: United States

Below the account section, the "Security" section is partially visible, showing fields for PASSWORD (Change Password...) and SECURITY QUESTIONS (Change Questions...). The bottom of the screen shows a Windows taskbar with various icons and a search bar.

Set up Mac or Mac VM before doing “Pair to Mac” from Visual Studio

If you don't have a Mac machine, you can use a Mac VM. Make sure the host Windows 10 PC is able to connect to the Mac or Mac VM (**Note: if using a Mac VM, make sure the Mac VM can connect to Internet using NAT from VM**)

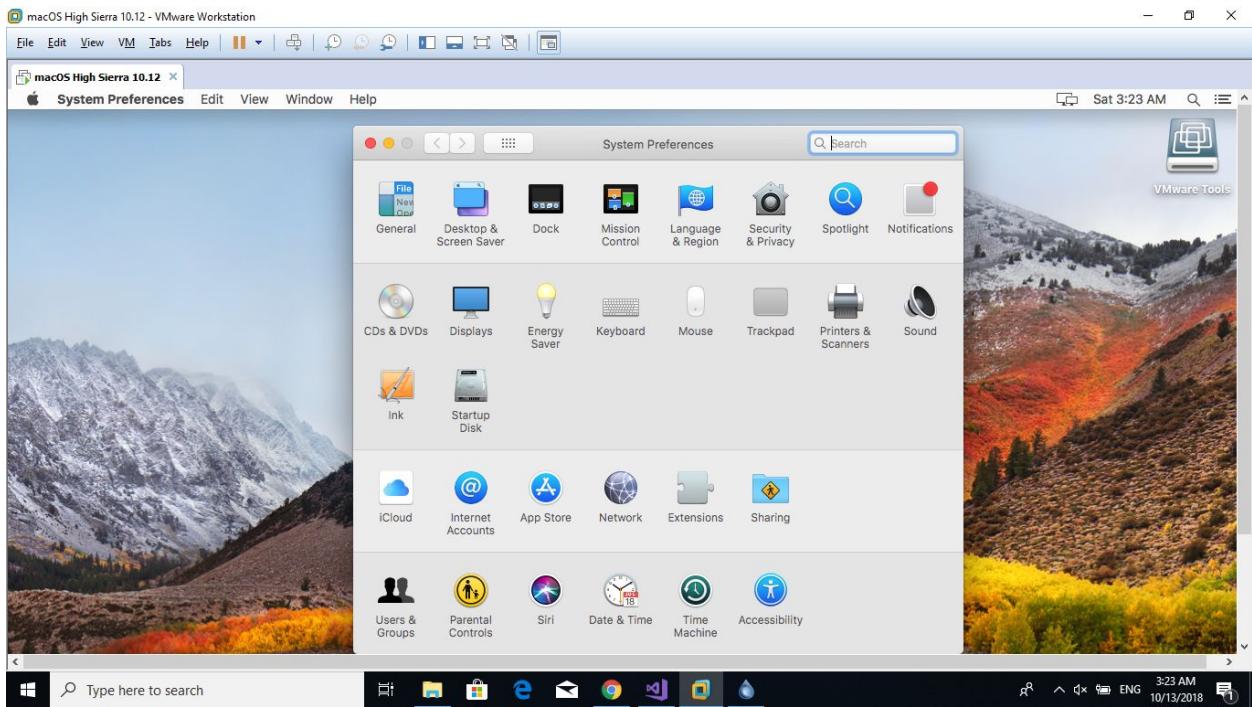
Power on the Mac or Mac VM



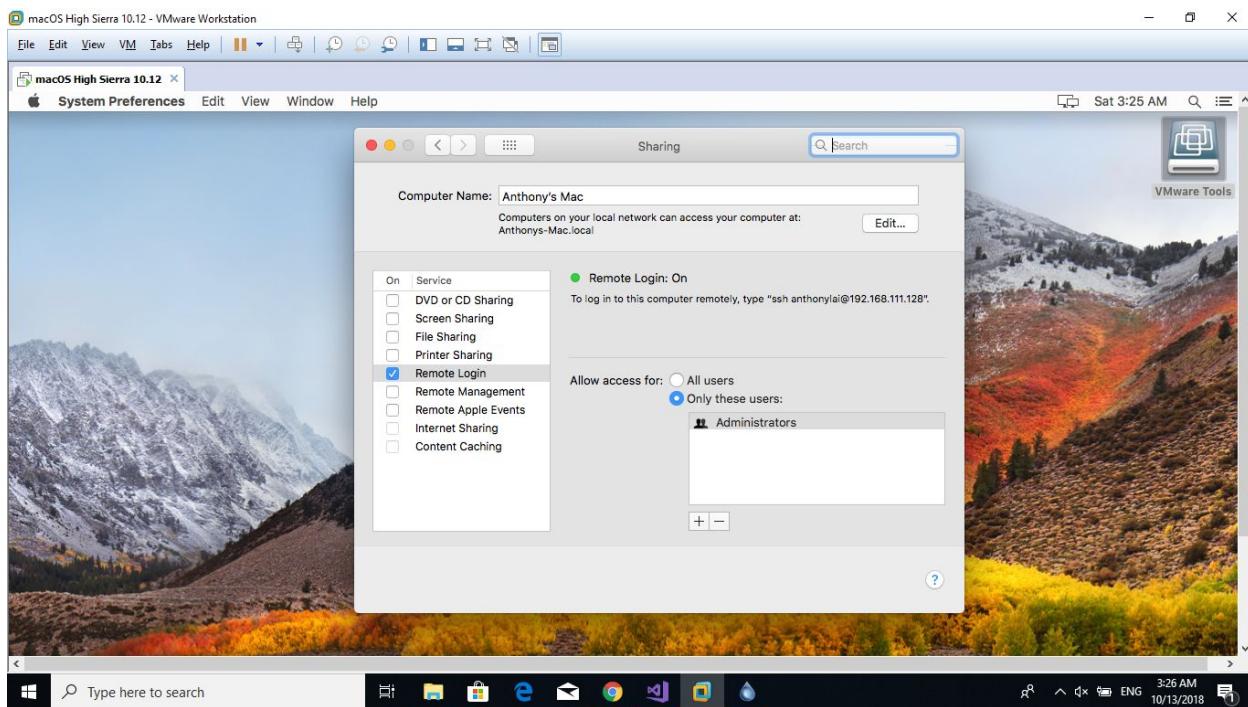
Click “**System Preference**” at the bottom menu bar



Click the “**Sharing**” icon inside System Preference



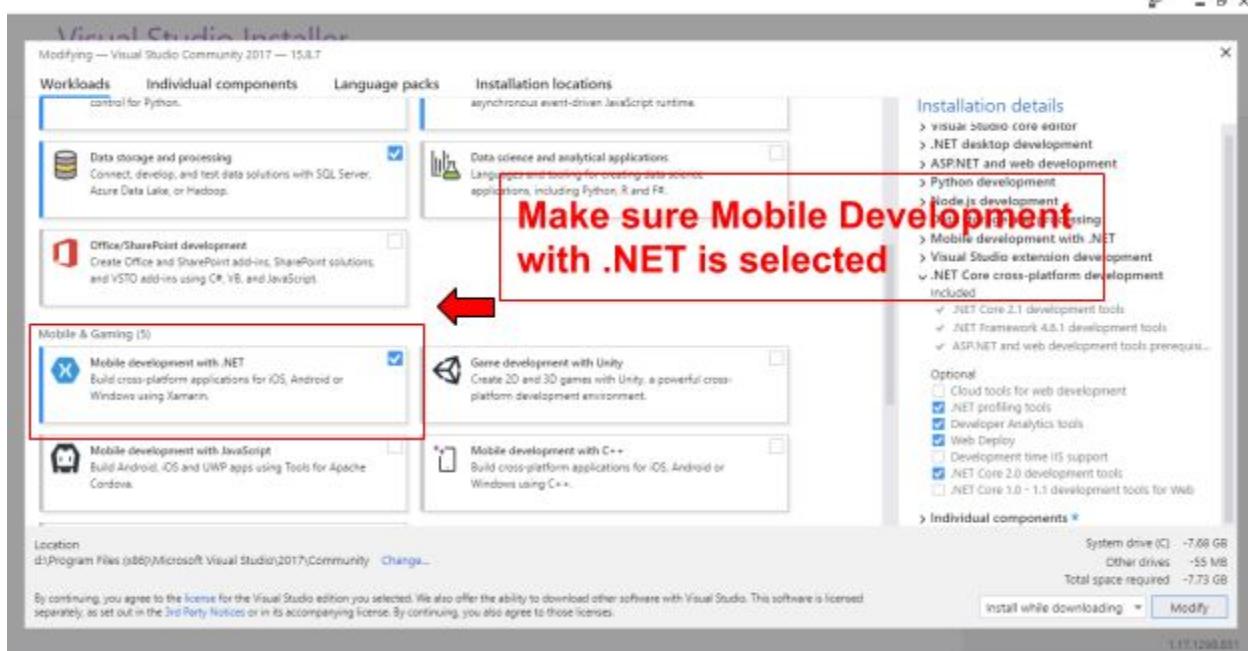
Enable “**Remote Login**” as shown below and leave the other setting as default.



Download and install **Visual Studio Community**. You can either install **Visual Studio Community** in Windows 10 PC or in a Mac machine. If you install **Visual Studio Community** to Mac, please download and install “**Visual Studio Community for Mac**” as shown below.

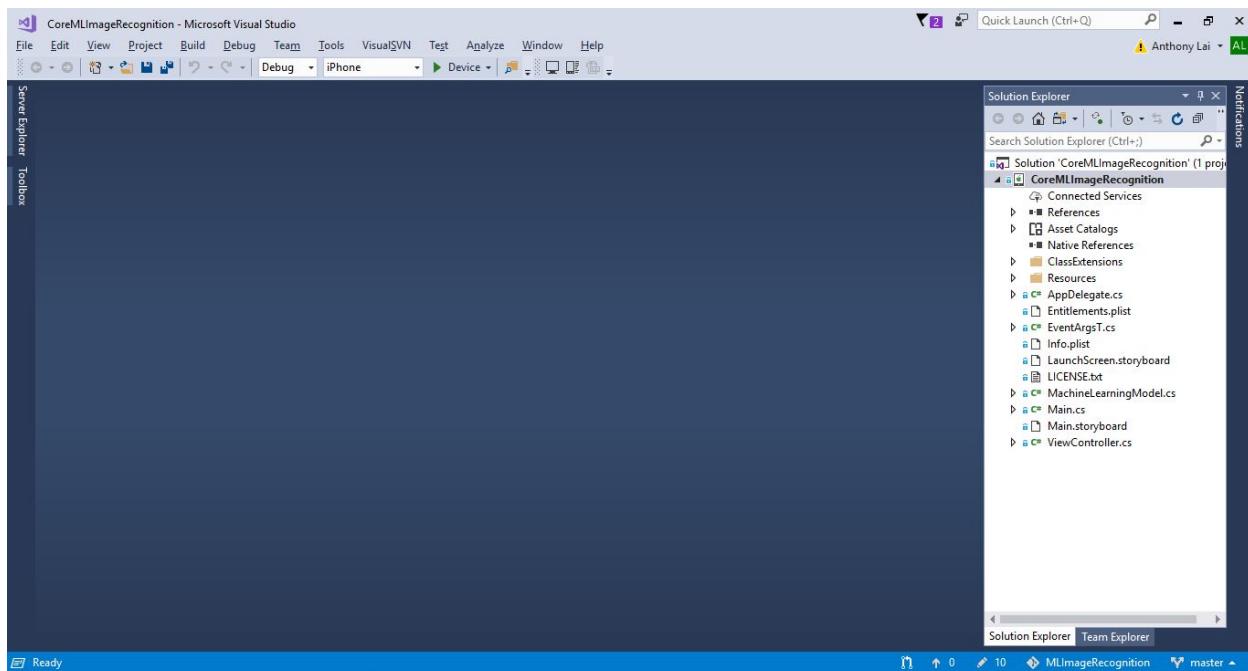
A screenshot of a Microsoft browser window displaying the "Visual Studio for Mac | Visual Studio" page at https://visualstudio.microsoft.com/vs/mac/. The page compares three editions: "Visual Studio Community for Mac", "Visual Studio Professional for Mac", and "Visual Studio Enterprise for Mac". Each edition has a "Download" button. Below the editions, there is a "What's new" section listing various Microsoft products like Surface devices and Office apps, along with links for "Store & Support", "Education", "Enterprise", "Developer", and "Company". At the bottom, there are links for "Contact us", "Privacy & cookies", "Terms of use", "Trademarks", "About our ads", and "© Microsoft". A "Feedback" button is located in the bottom right corner.

When installing **Visual Studio Community**, make sure “Mobile Development with .NET” is selected as shown below.

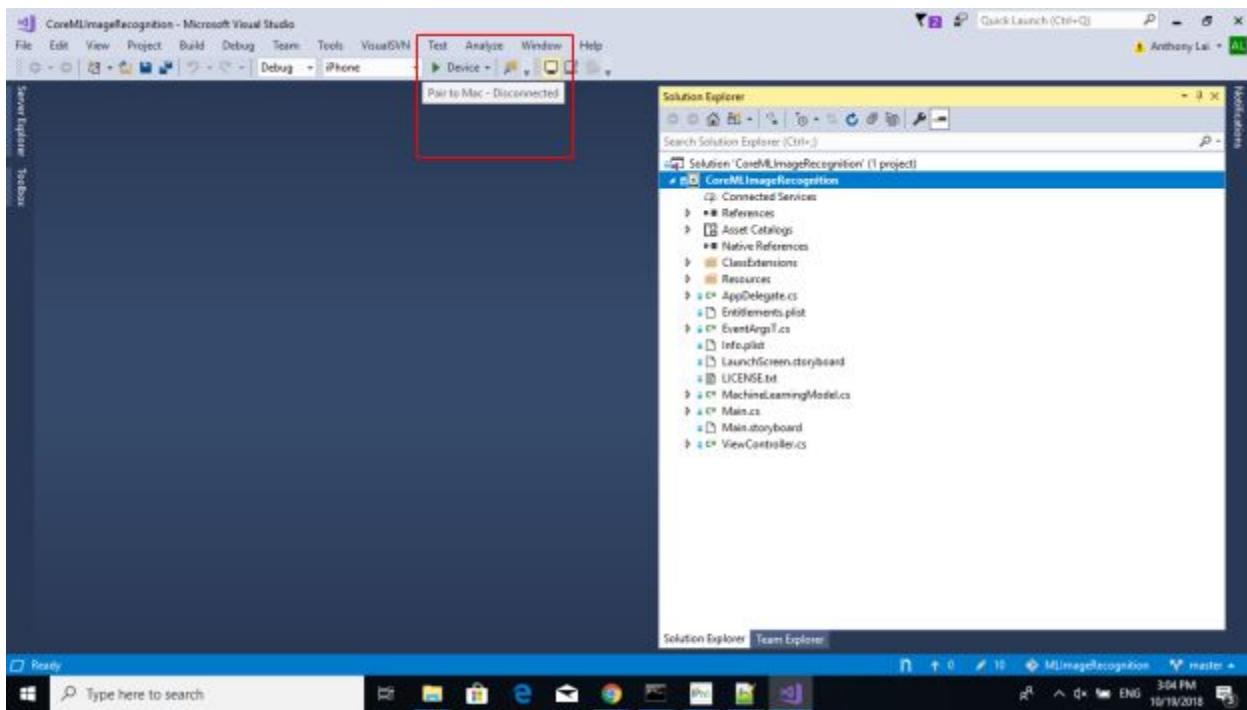


After **Visual Studio Community** is installed, download the Image Recognition project “MLImageRecognition” from github using the following URL.

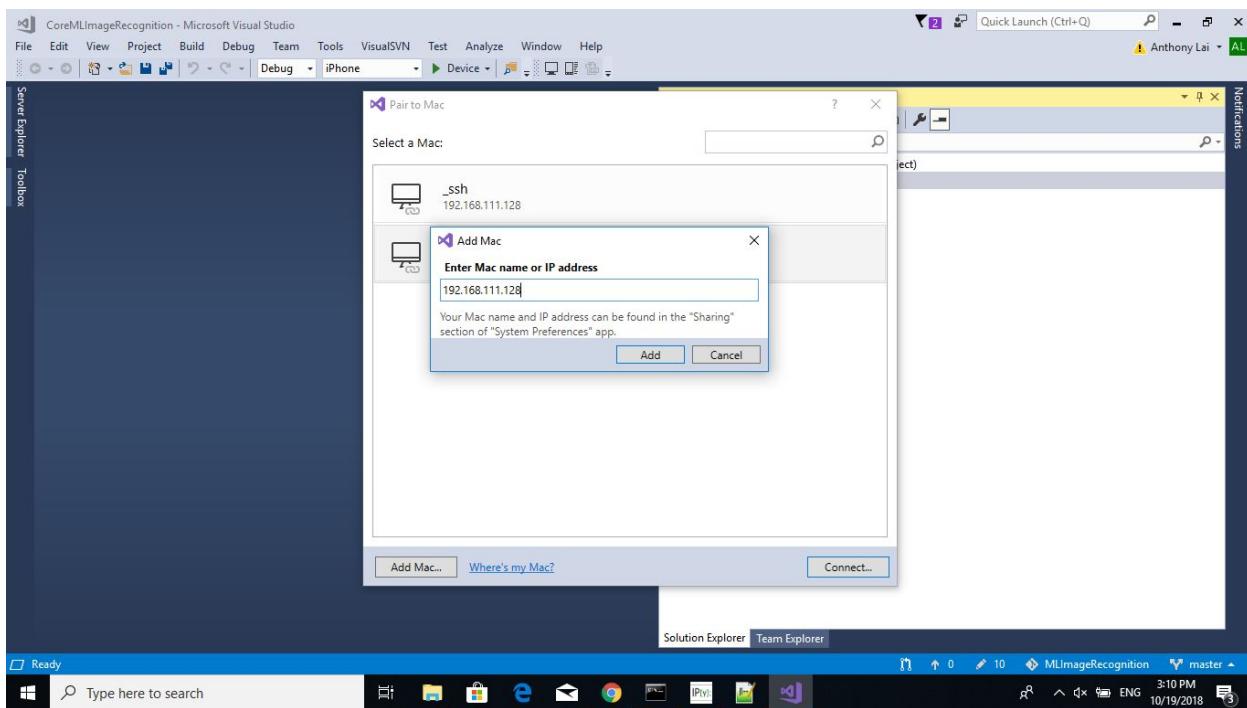
<https://github.com/siliconvalley4u/MLImageRecognition>



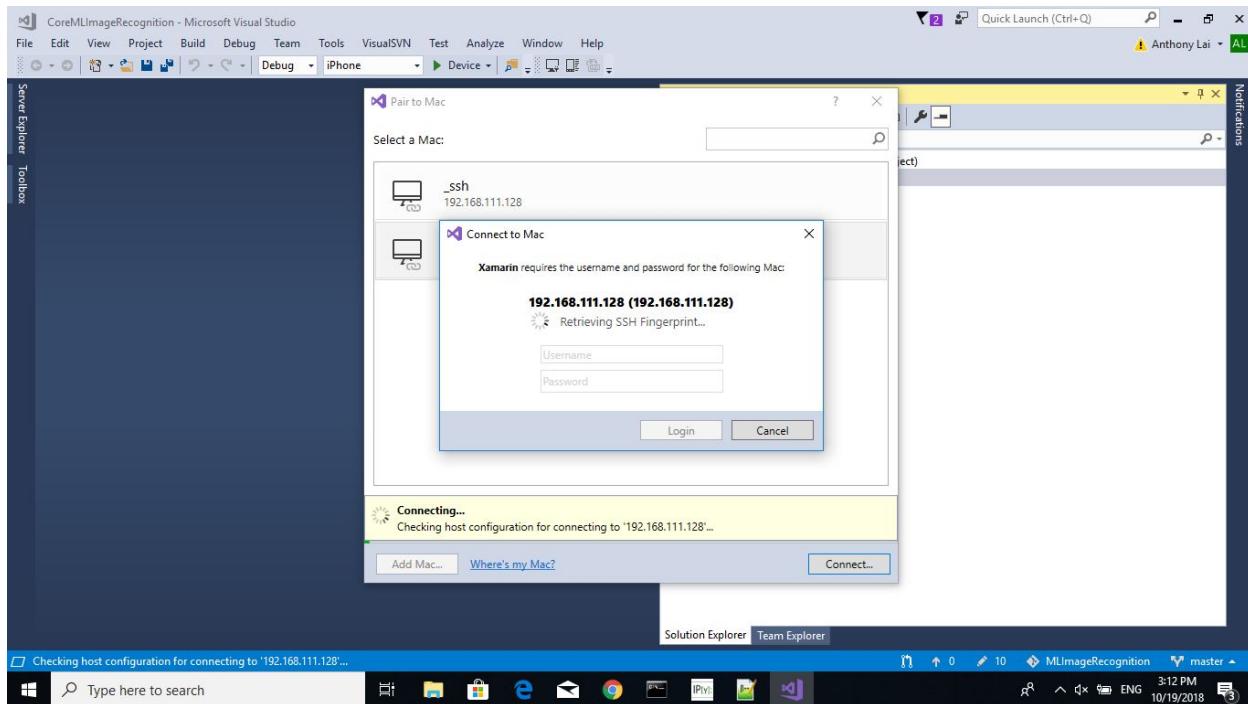
Now open the “MLImageRecognition” project in **Visual Studio Community**, then click the “Pair to Mac” icon on the top menu bar as shown below.



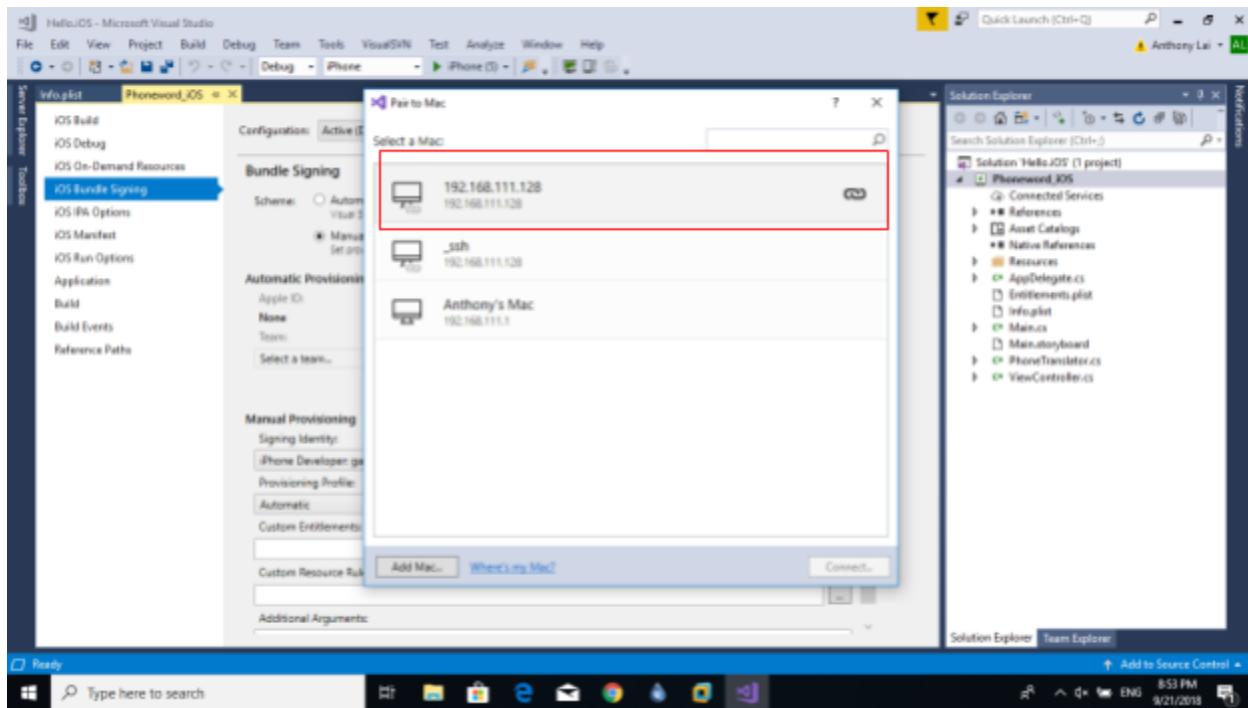
Click the “Add Mac...” button and then provide the IP (e.g. 192.168.111.128) of the Mac machine or Mac VM as shown below. Then click the “Add” button.



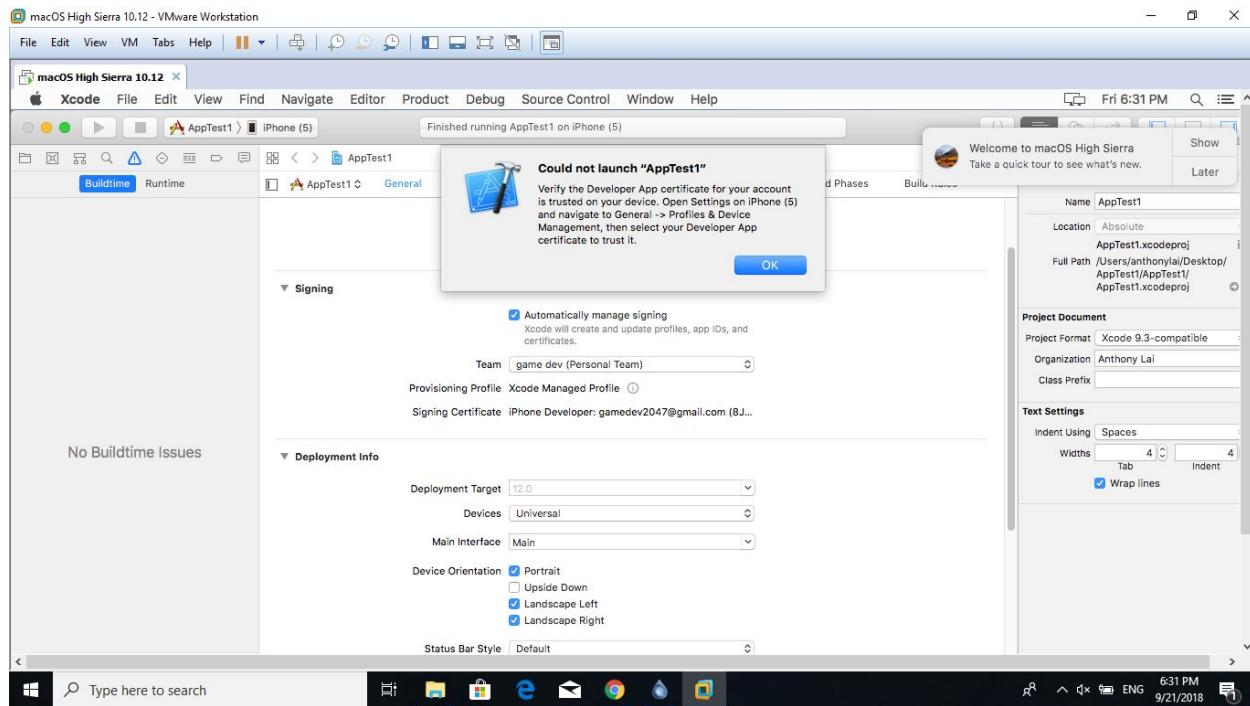
When the login screen is shown below, provide the username and password of Mac machine or Mac VM. Click the login button.



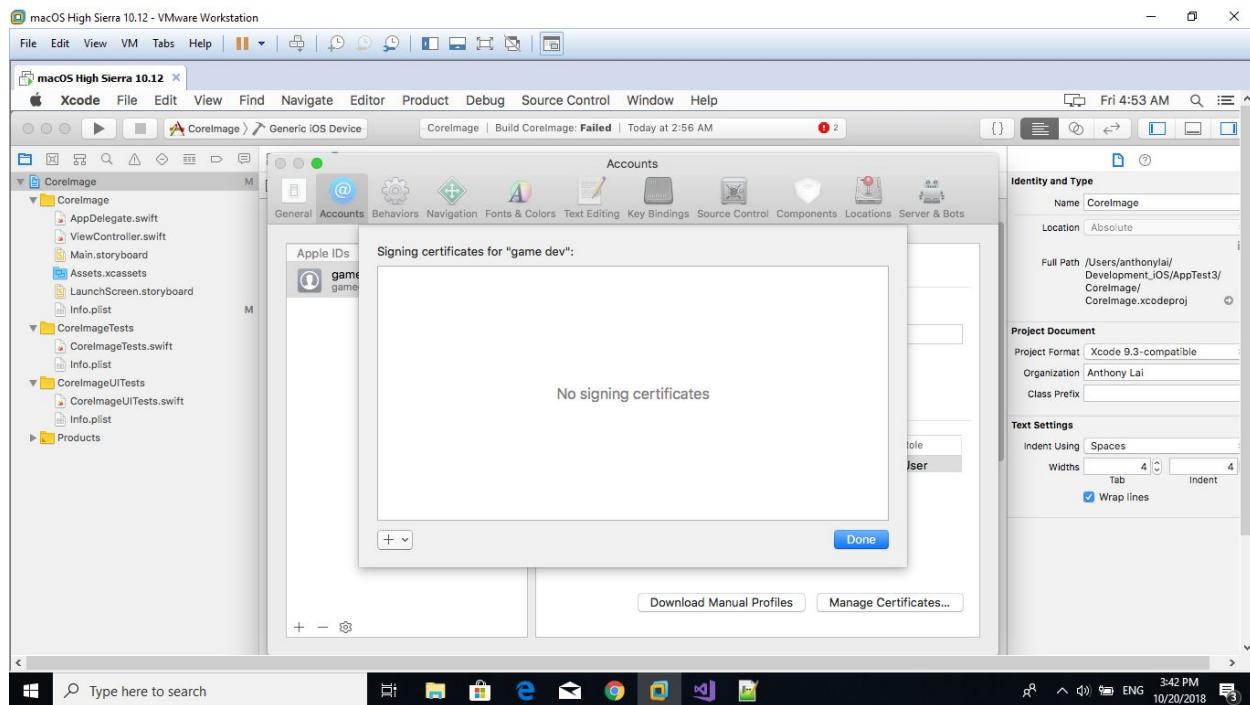
Once login is done, you will see the screen with connected icon as shown below.



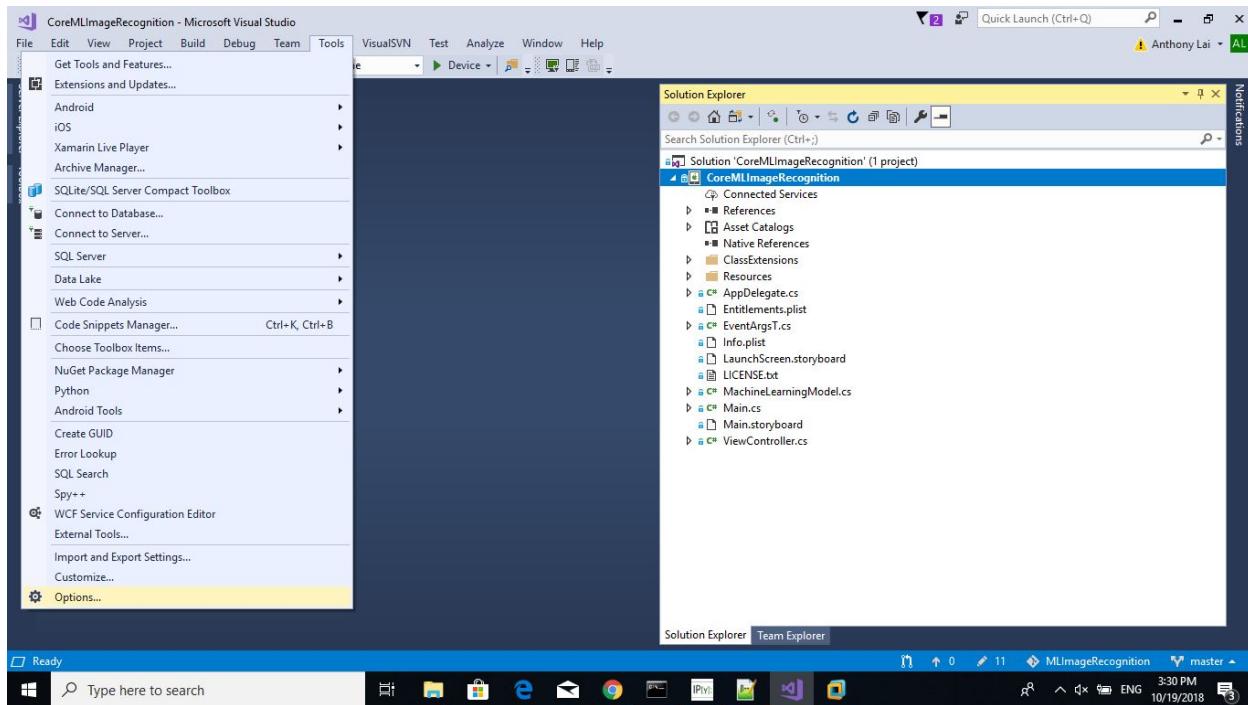
Now, install the latest Xcode in the Mac Machine or Mac VM. Go to App Store and search for Xcode and then install it to your Mac Machine or Mac VM.



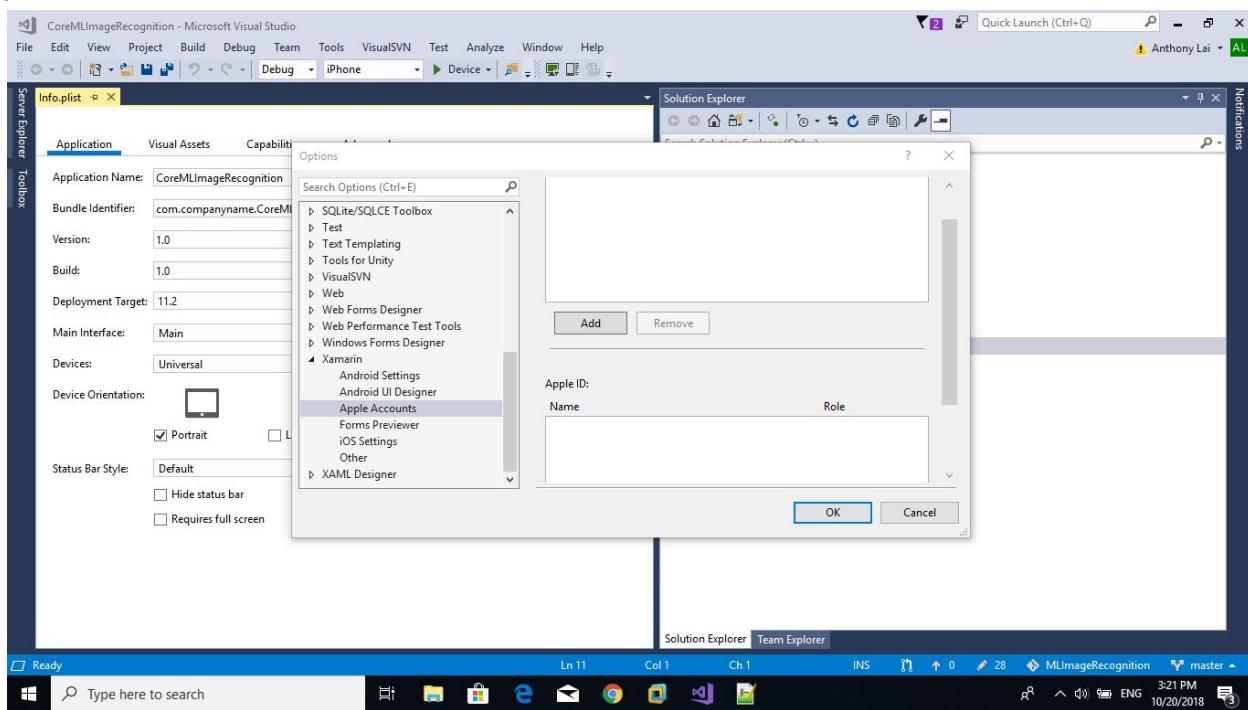
After install Xcode in Mac Machine or Mac VM,



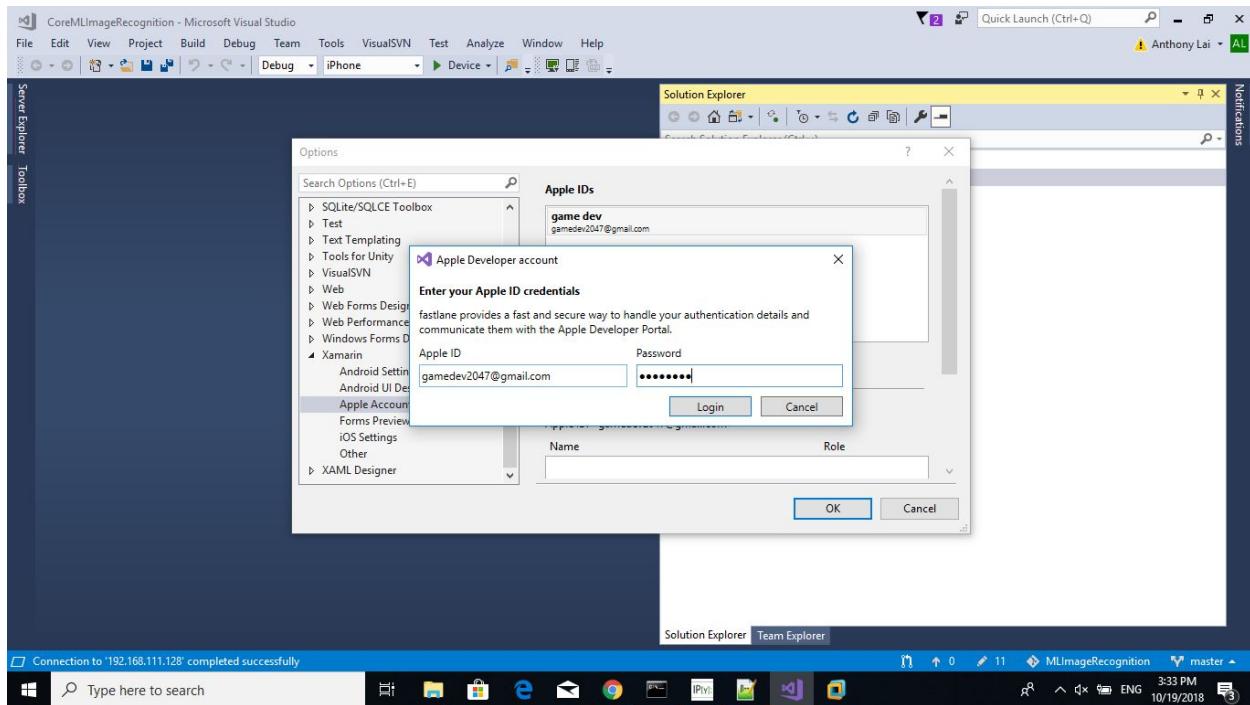
Go to **Visual Studio Community**, select Tools -> Options as shown below.



Select “Apple Account” under Xamarin as shown below and then click the “Add” button to add your own Apple ID.

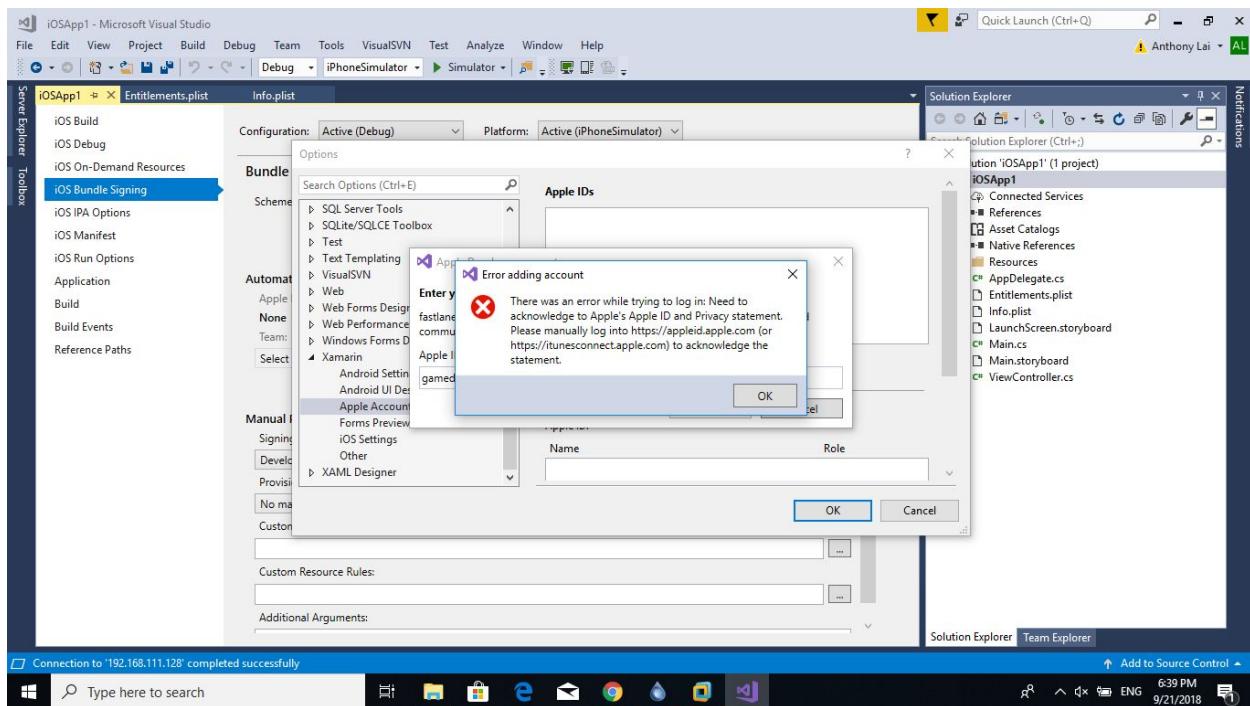


Provide the Apple ID and Password and then click the Login button as shown below.

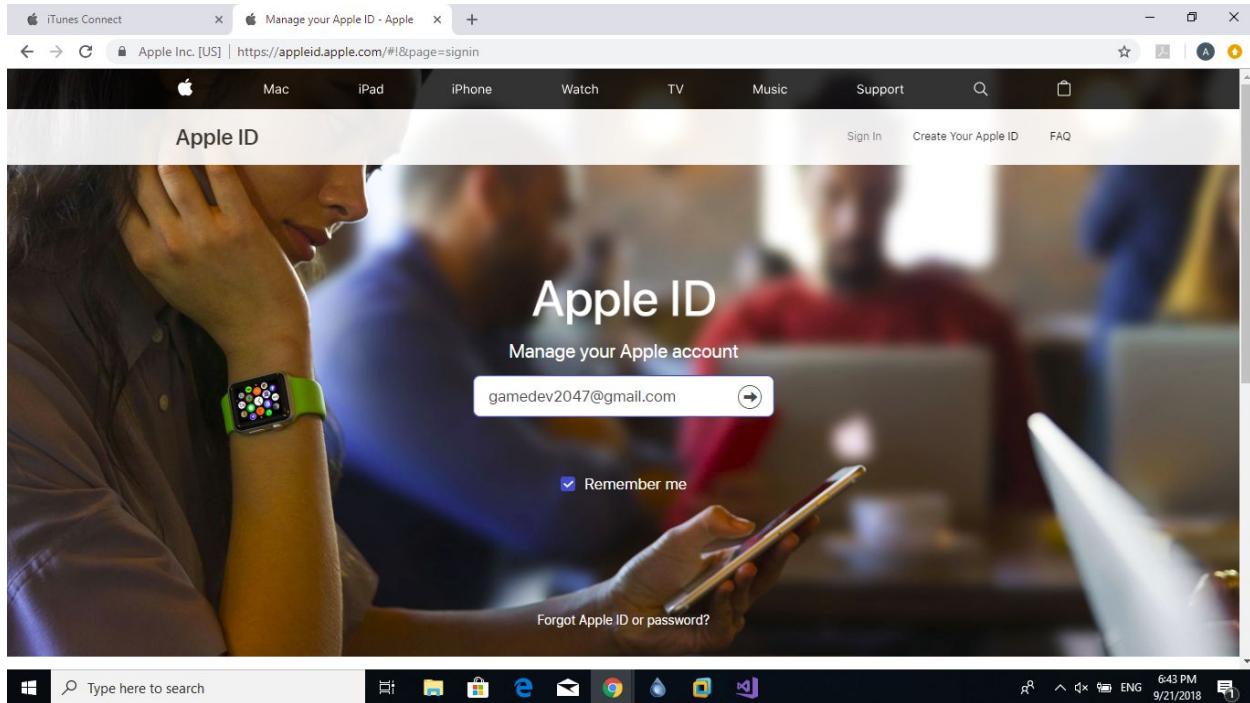


When you see the following error message. You have to go to Apple ID website below to login with your Apple ID Account and then agree the privacy agreement.

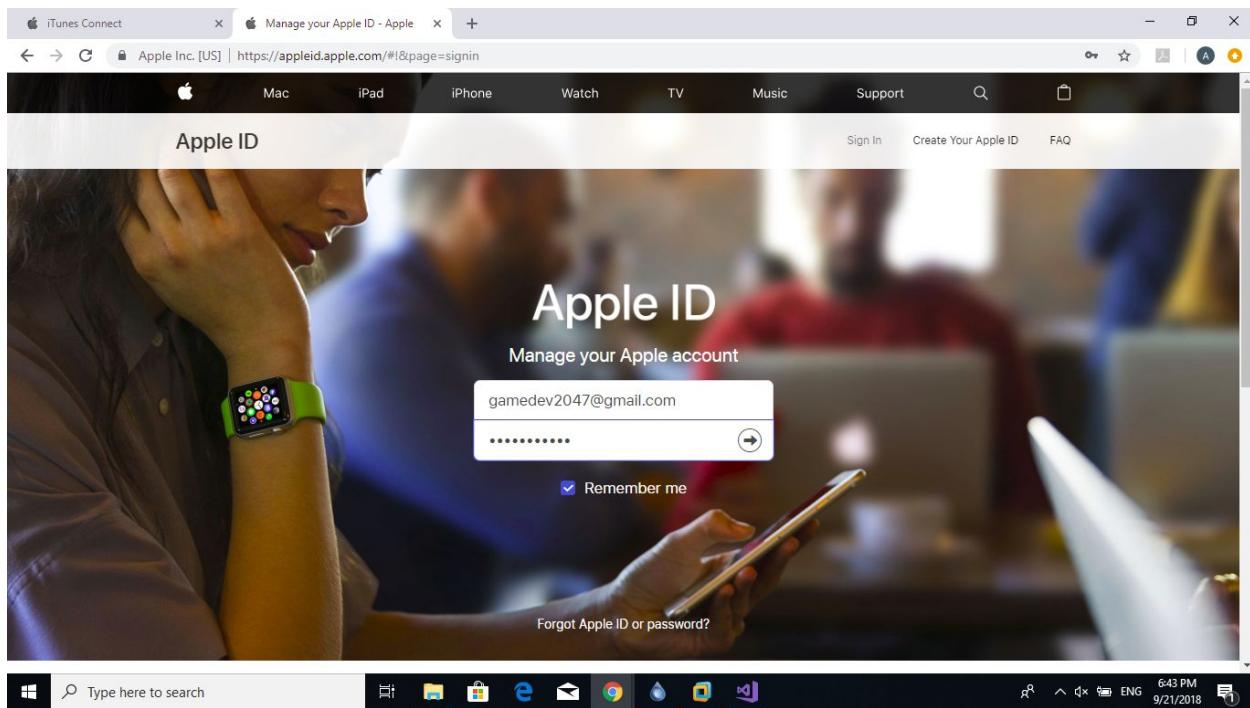
<https://appleid.apple.com/#!&page=signin>



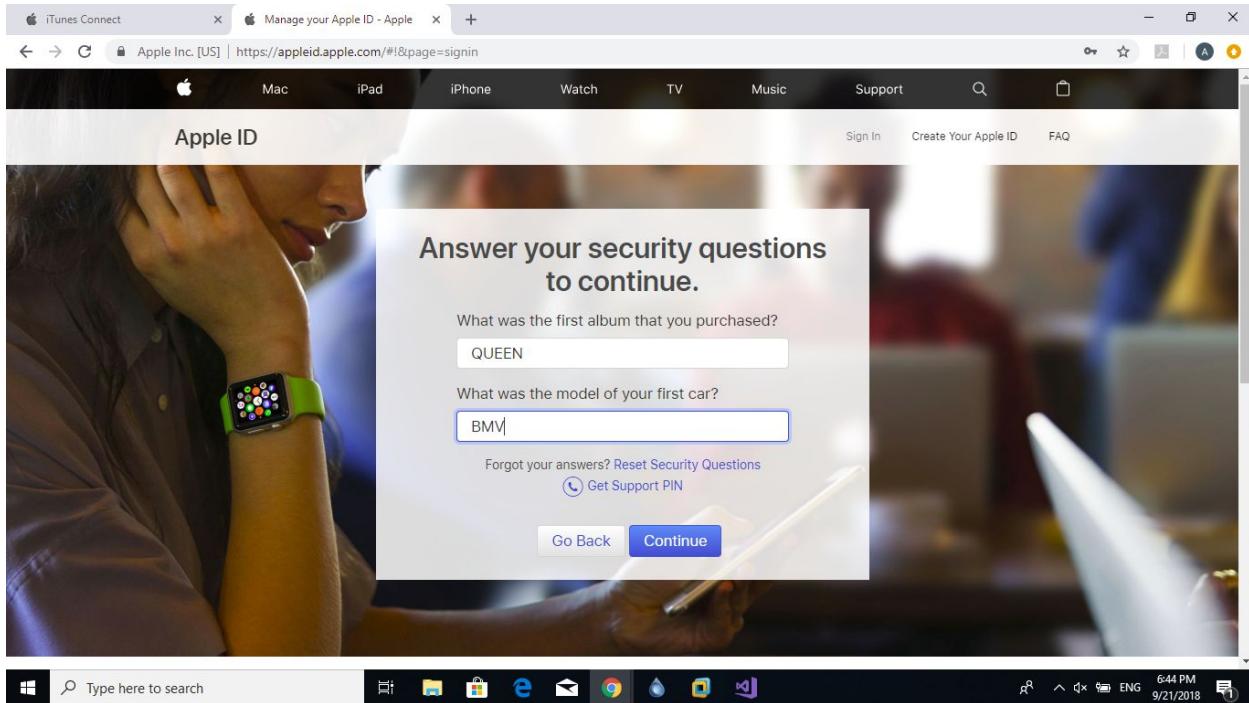
Input your Apple ID



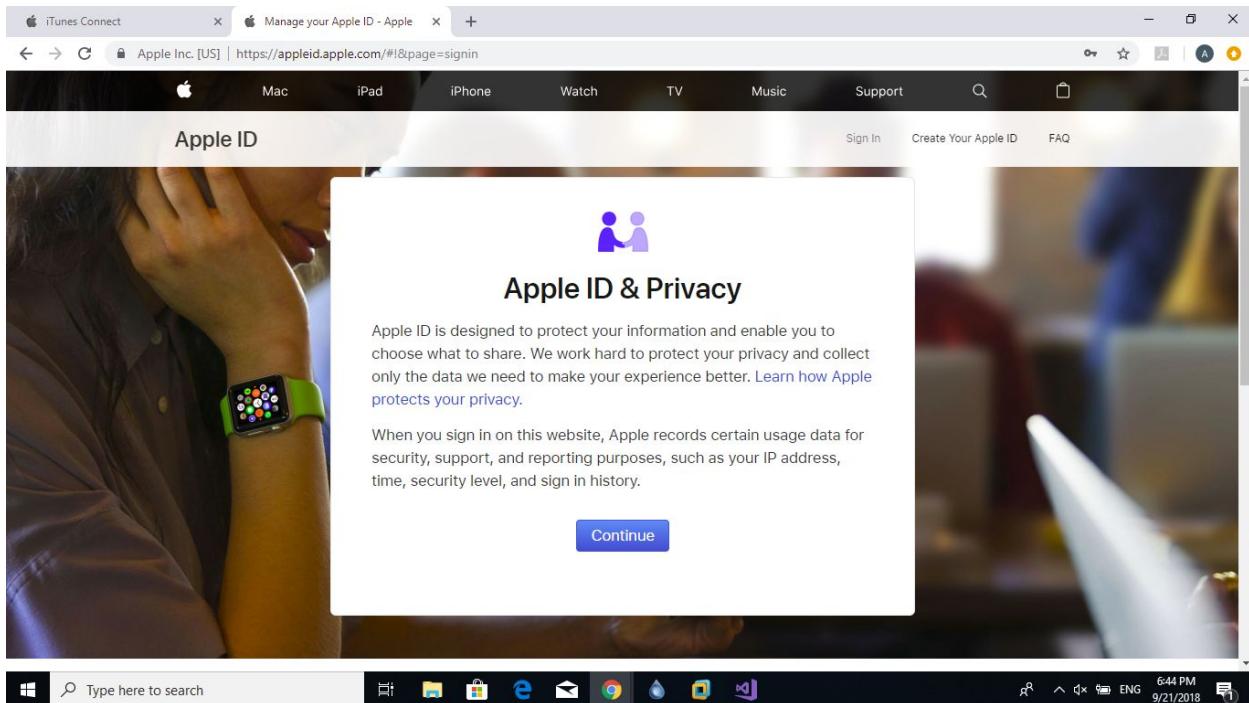
And then your Apple ID password



Click the “Continue” button



The “Apple ID & Privacy” screen will be shown as below. Click the “Continue” button.



Goto the follow URL to accept the Apple Developer Agreement.

<https://developer.apple.com/account/>

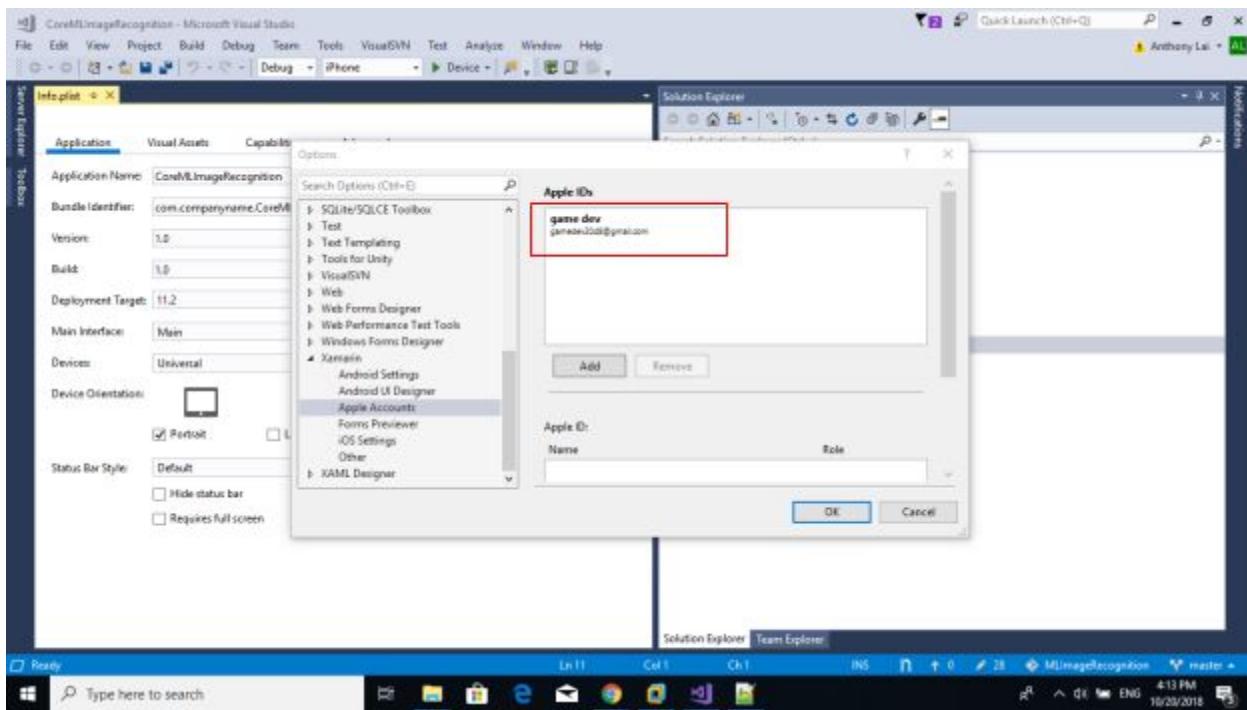
This screenshot shows the Apple Developer website with the URL <https://developer.apple.com/register/agree/>. The page title is "Apple Developer Agreement". At the top, there is a note: "This is a legal agreement between you and Apple." followed by a link to "Download PDF". Below this, the "THIS IS A LEGAL AGREEMENT BETWEEN YOU AND APPLE INC. ("APPLE") STATING THE TERMS THAT GOVERN YOUR PARTICIPATION AS AN APPLE DEVELOPER. PLEASE READ THIS APPLE DEVELOPER AGREEMENT ("AGREEMENT") BEFORE PRESSING THE "AGREE" BUTTON AND CHECKING THE BOX AT THE BOTTOM OF THIS PAGE. BY PRESSING "AGREE," YOU ARE AGREEING TO BE BOUND BY THE TERMS OF THIS AGREEMENT. IF YOU DO NOT AGREE TO THE TERMS OF THIS AGREEMENT, PRESS "CANCEL".

The main content area is titled "Apple Developer Agreement" and contains the first section of the agreement, which discusses the relationship with Apple and the requirements for becoming an Apple Developer.

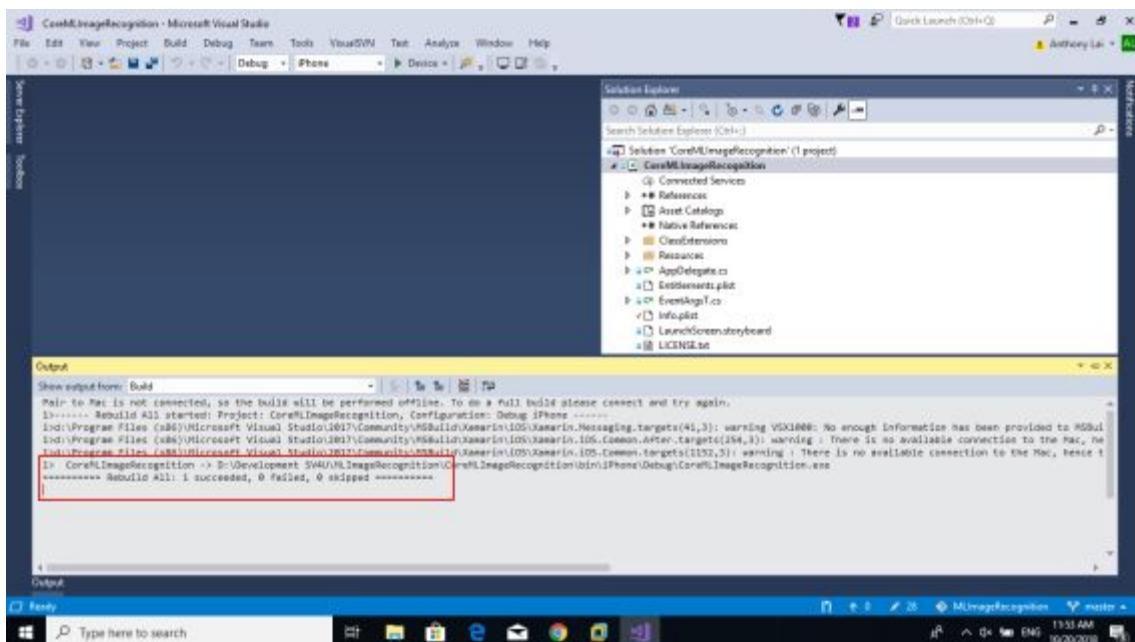
After you accept the “Apple Developer Agreement”, you will be able to use your new Apple ID to develop iOS app.

This screenshot shows the Apple Developer website's account page with the URL <https://developer.apple.com/account/#/welcome>. The page title is "Account". On the left, there is a sidebar with links: Welcome, Documentation, Downloads, Forums, Bug Reporter, Account Help, and Contact Us. The main content area is titled "Getting Started" and includes a "Welcome" message: "Download Xcode, learn how to build an app, and install it directly on your Apple device." Below this, there are two cards: "Download Tools" (with an icon of a wrench) and "Build Your First App" (with an icon of a gear). At the bottom, there is a call-to-action: "Join the Apple Developer Program" with the subtext: "Membership in the Apple Developer Program includes everything you need to develop, distribute, and sell apps for iPhone, iPad, and Mac."

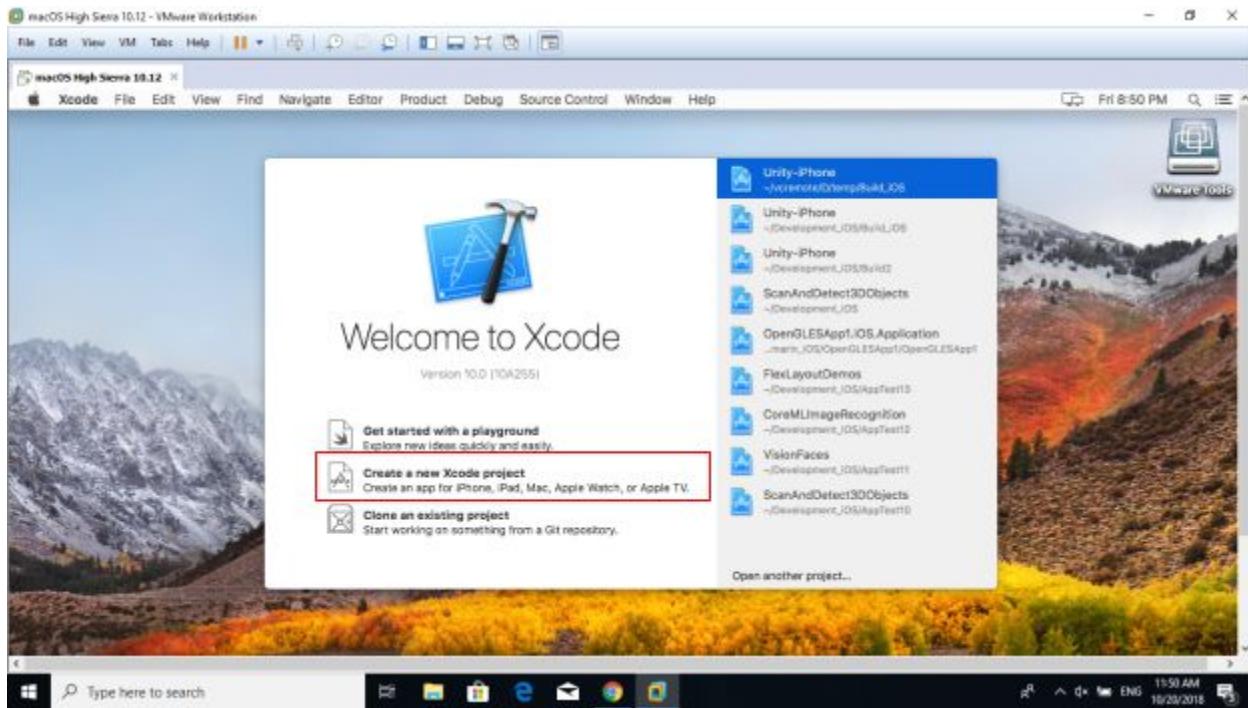
Now try to add your Apple ID again under Tools->Options->Xamarin->Apple Accounts. This time after input your Apple ID and password, you should see your Apple ID inside the text box as shown below. **Note In Visual Studio for Windows, when you go to *Tools > Options > Xamarin > Apple Accounts*, you will get a prompt to install FastLane before your Apple ID will show up under Automatic Provisioning.**



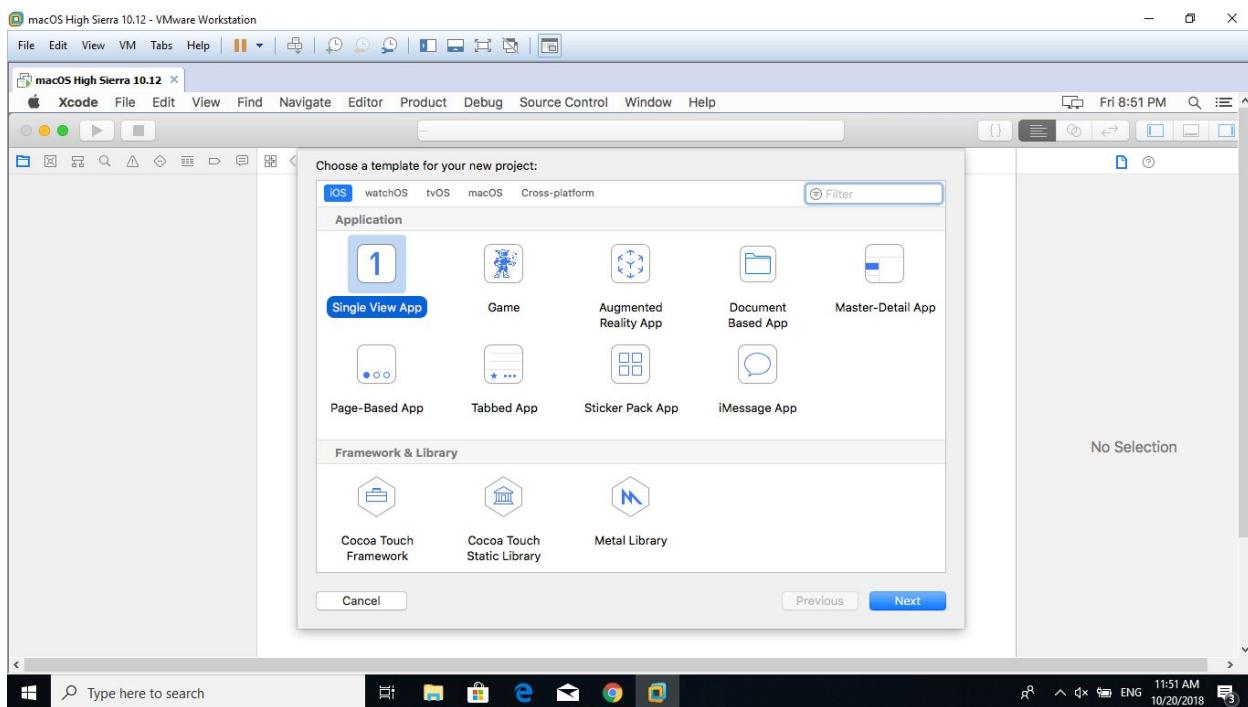
Now build the “MLImageRecognition” project in **Visual Studio Community**. Make sure there is no error as shown below. If there is any error, fixing it and rebuild.



In order to deploy the “MLImageRecognition” iOS app from **Visual Studio Community** to your iphone/ipad. First create a new Xcode project using Xcode in the Mac machine or Mac VM



When the “Choose a template for your new project:” screen appeared, select “Single View App” and click the “Next” button at the bottom.

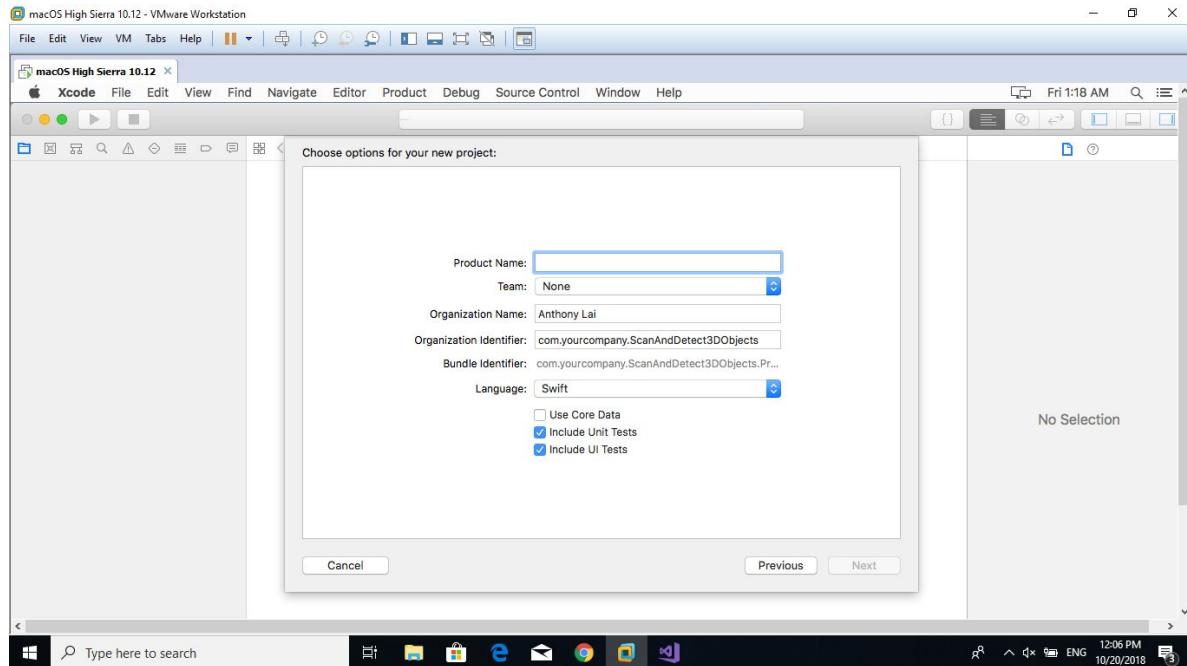


When the “Choose options for your new project” screen appeared, you have to provide the following:

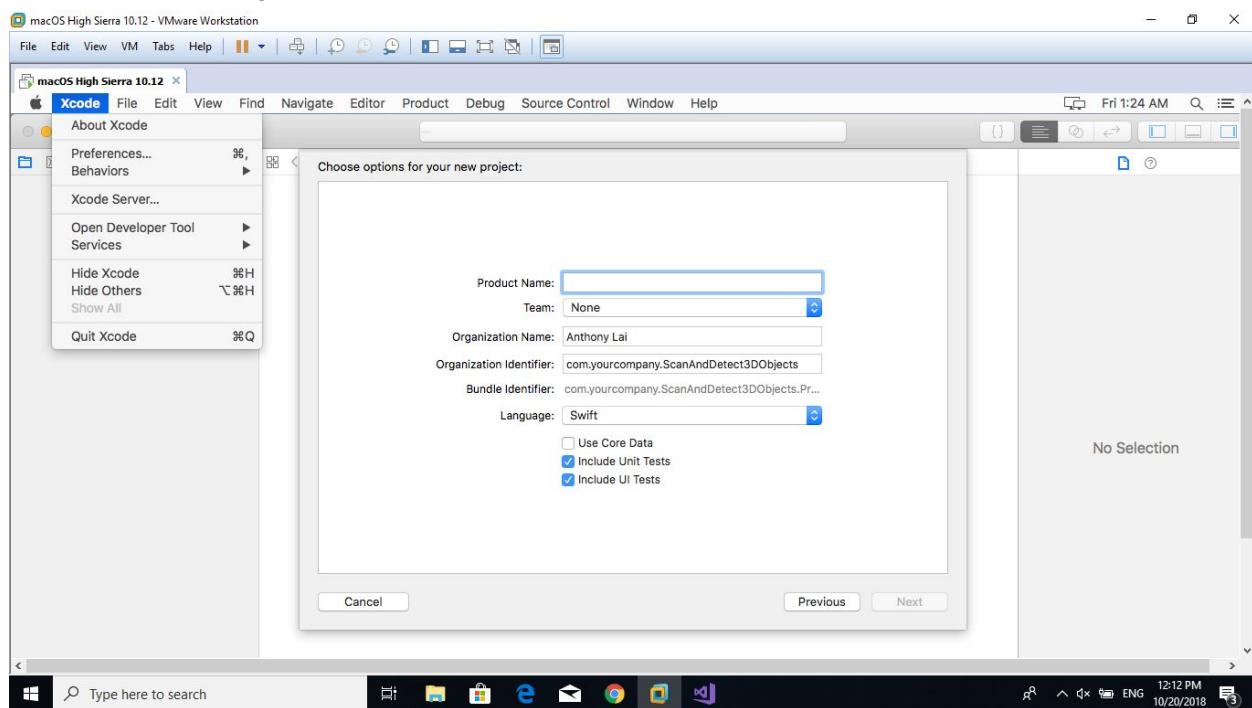
Product Name:

Team:

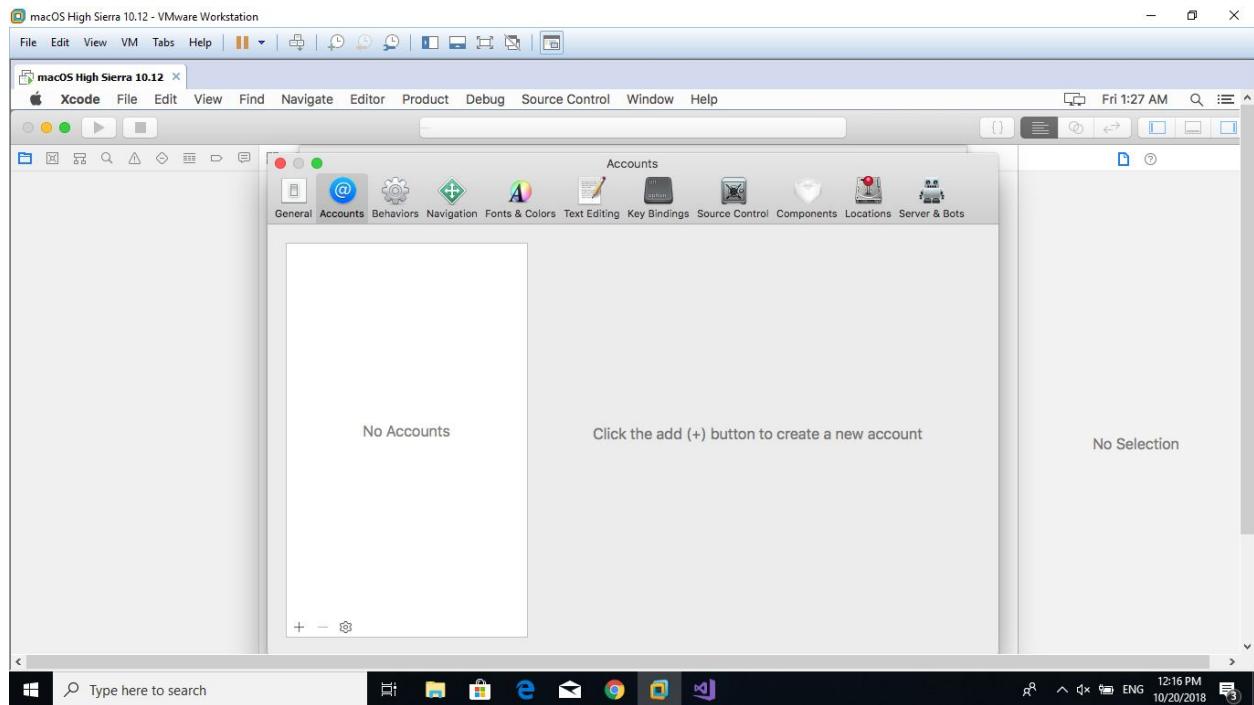
Organization Identifier:



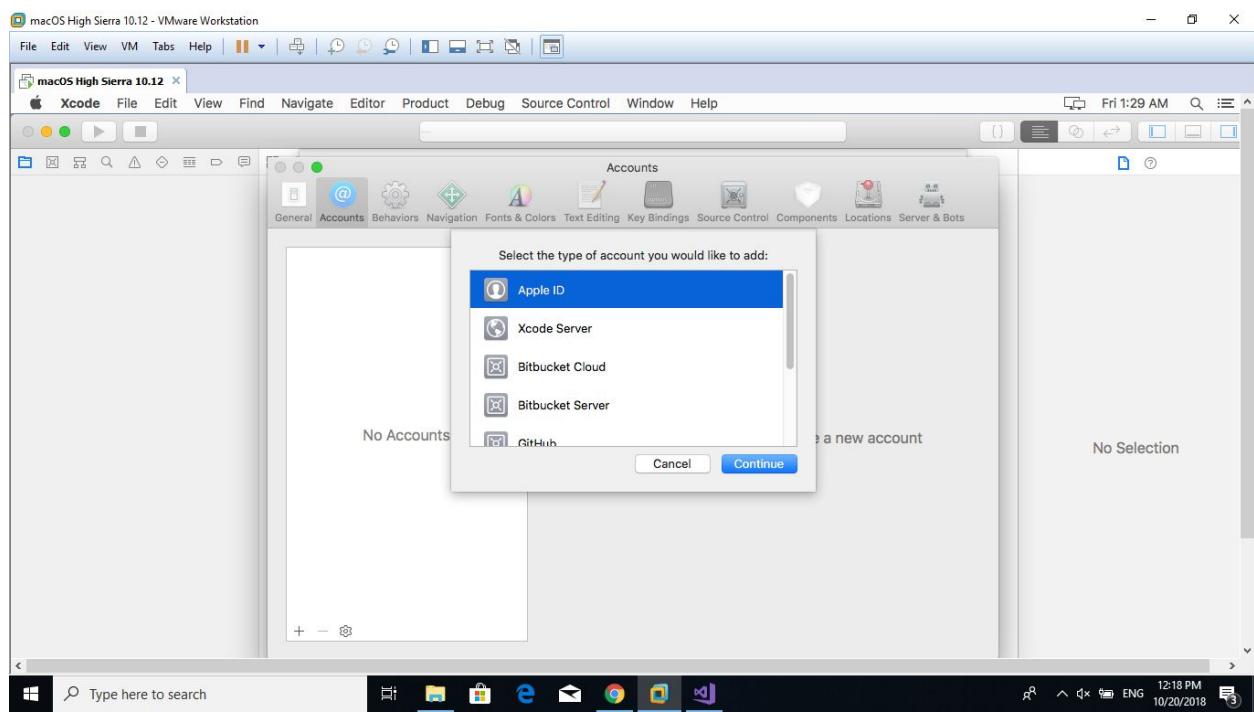
To create a Team, go to Xcode -> Preferences



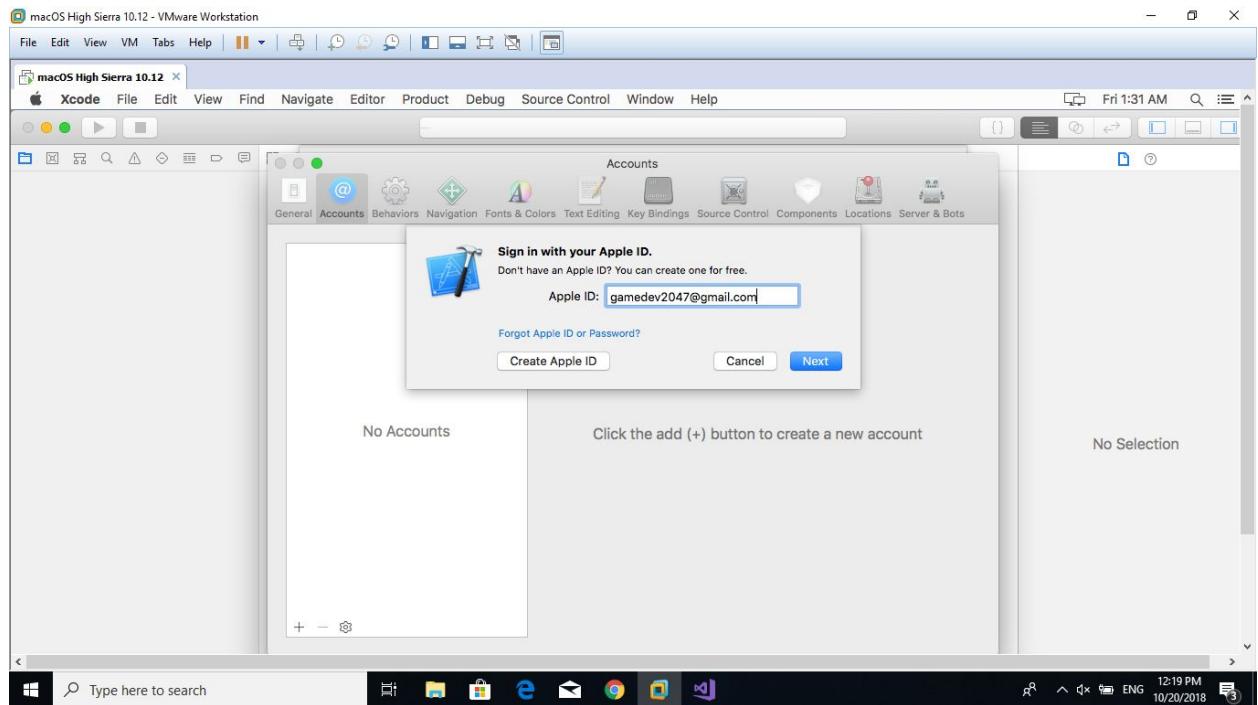
Click the Accounts icon and then click the “+” icon at the bottom left hand corner to your Apple ID.



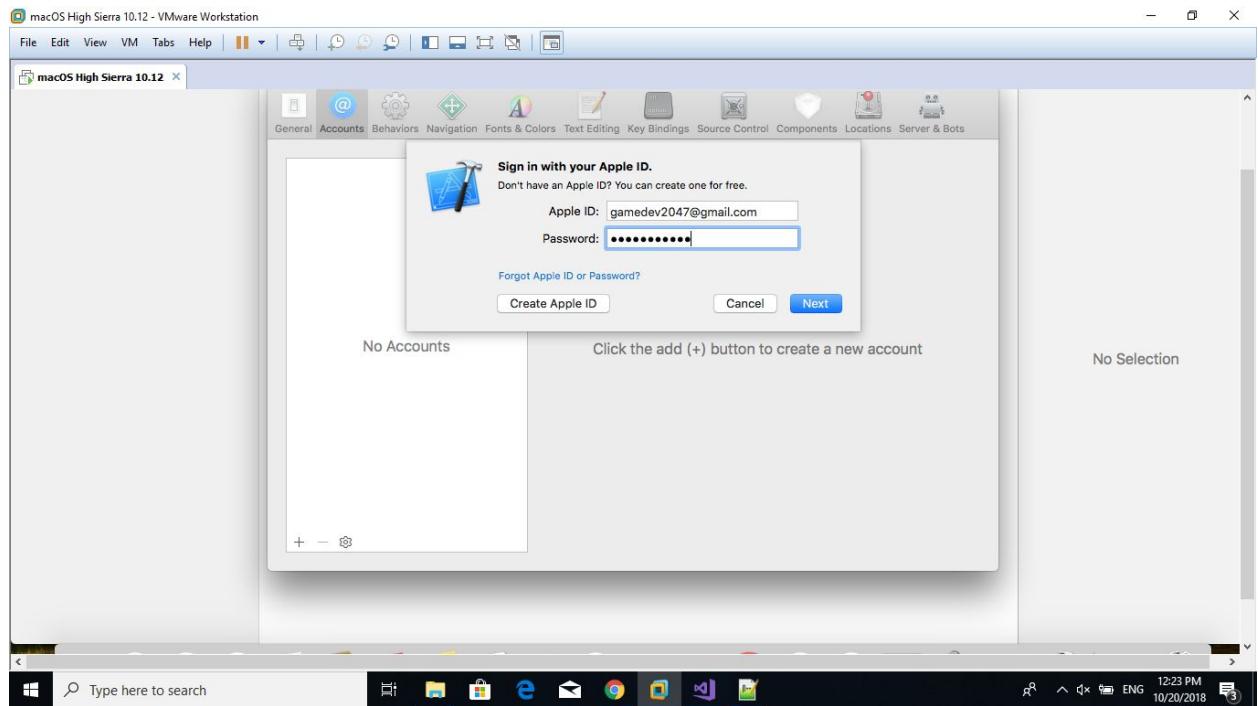
Select “Apple ID” and then click the “Continue” button



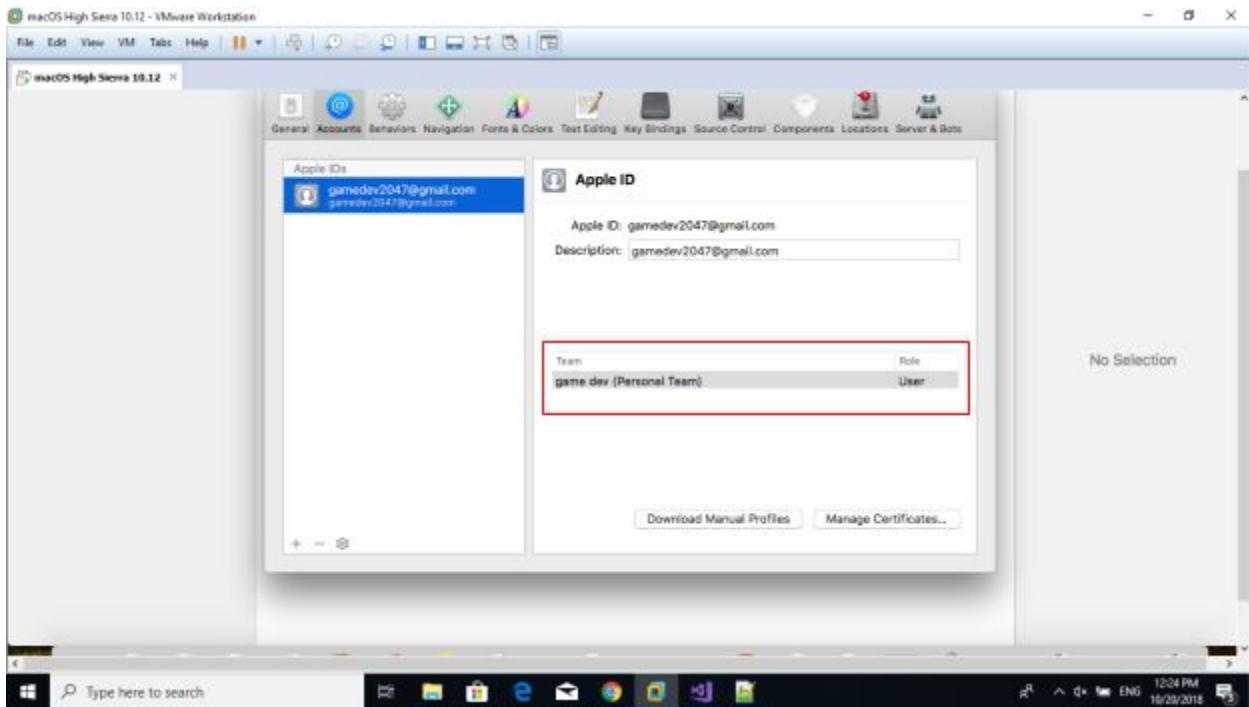
Input your Apple ID and then click the “Next” button



Input the password for your Apple ID and click the “Next” button



After you added your Apple ID, you will see the Team, e.g. game dev (Personal Team) as shown below. Close the “Preferences” menu.

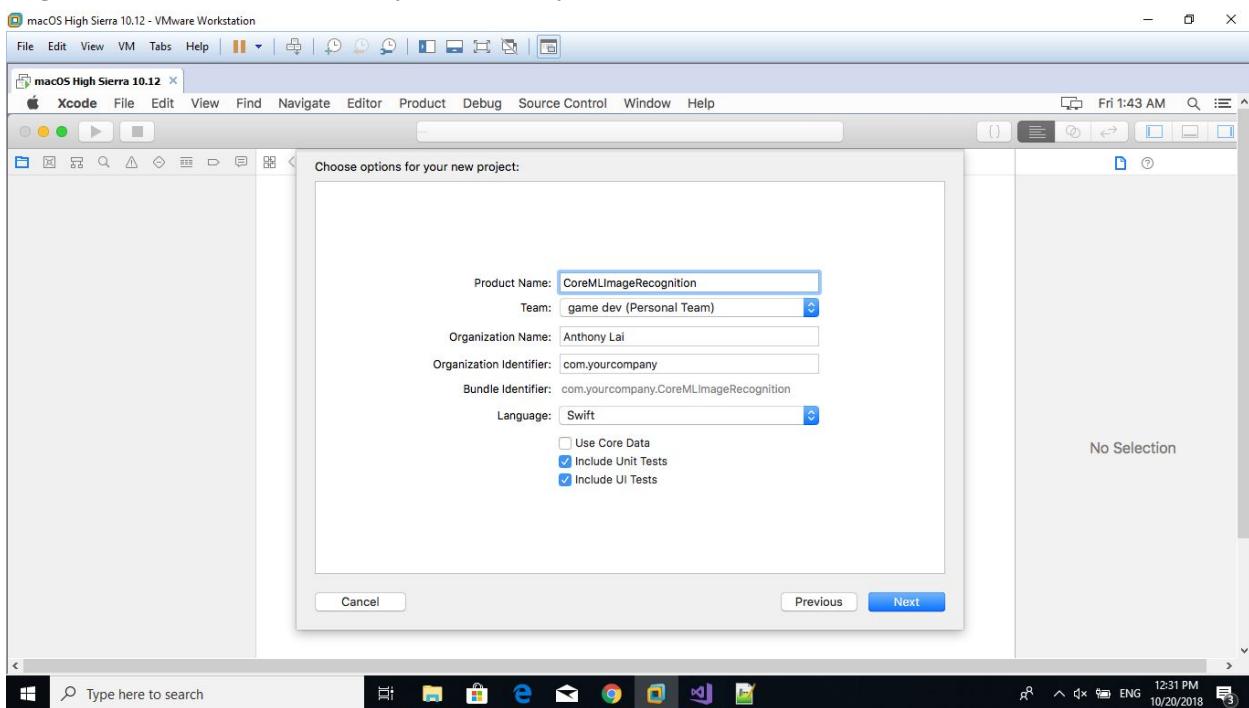


Now provide the following with the others as default and then click the next button

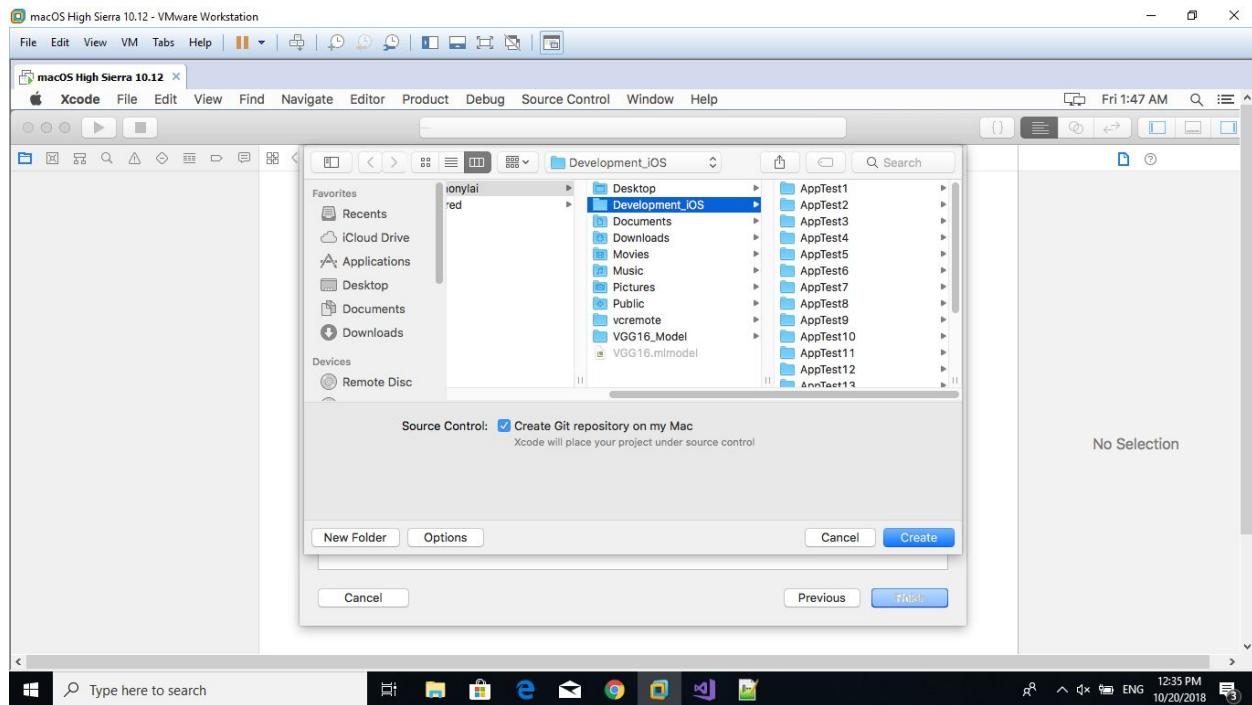
Product Name: CoreMLImageRecognition

Team: game dev (Personal Team)

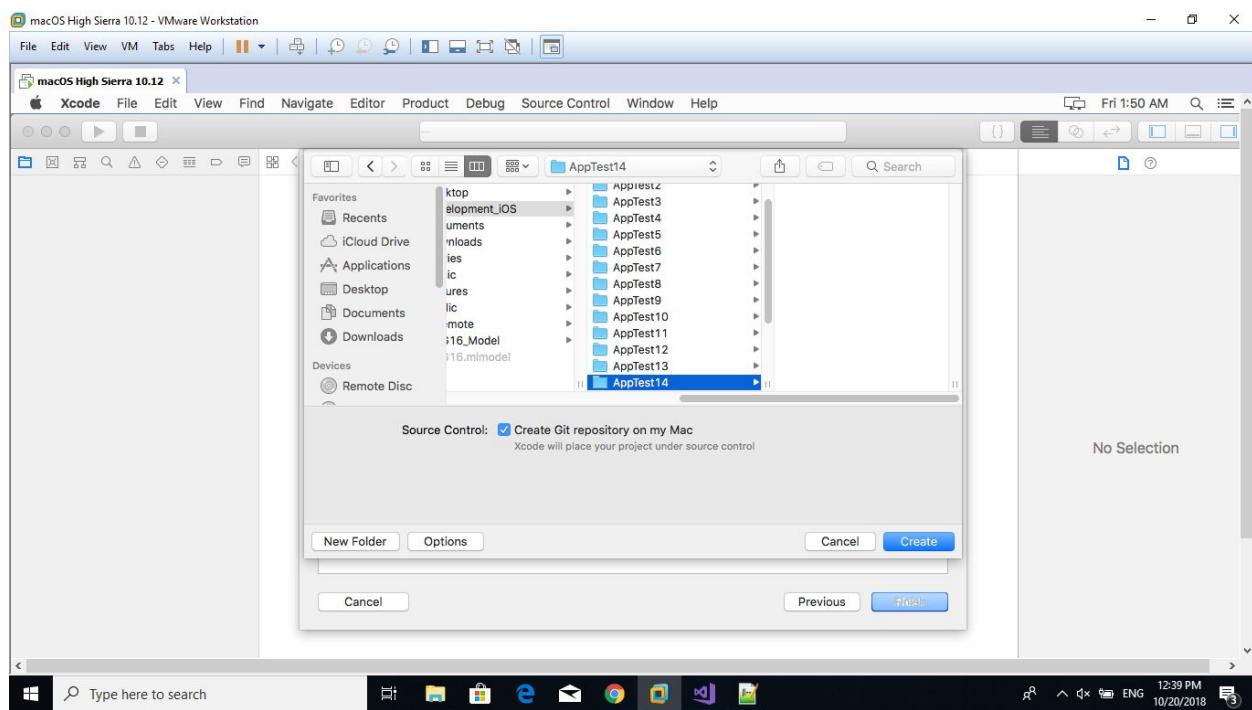
Organization Identifier: com.yourcompany



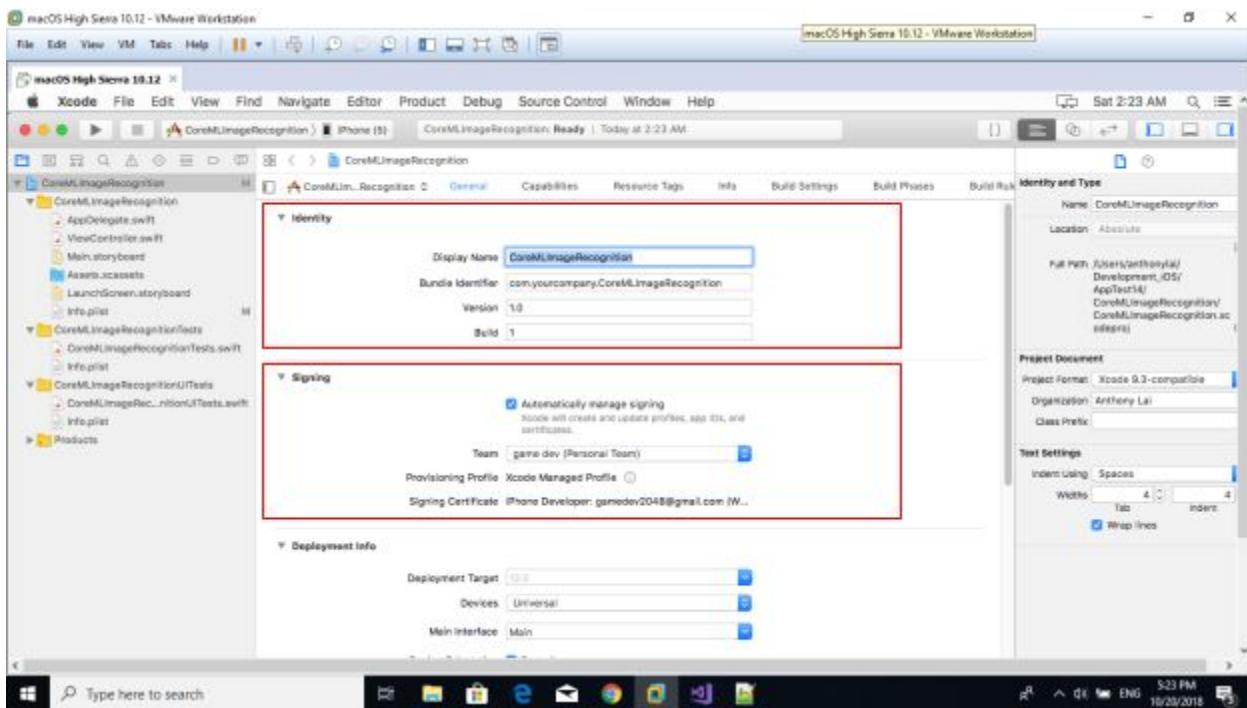
Choose a directory to place your new Xcode project. Or, you can make a New Folder for storing your new project.



After you choose the directory or folder, click the “Create” button at the bottom right hand corner.



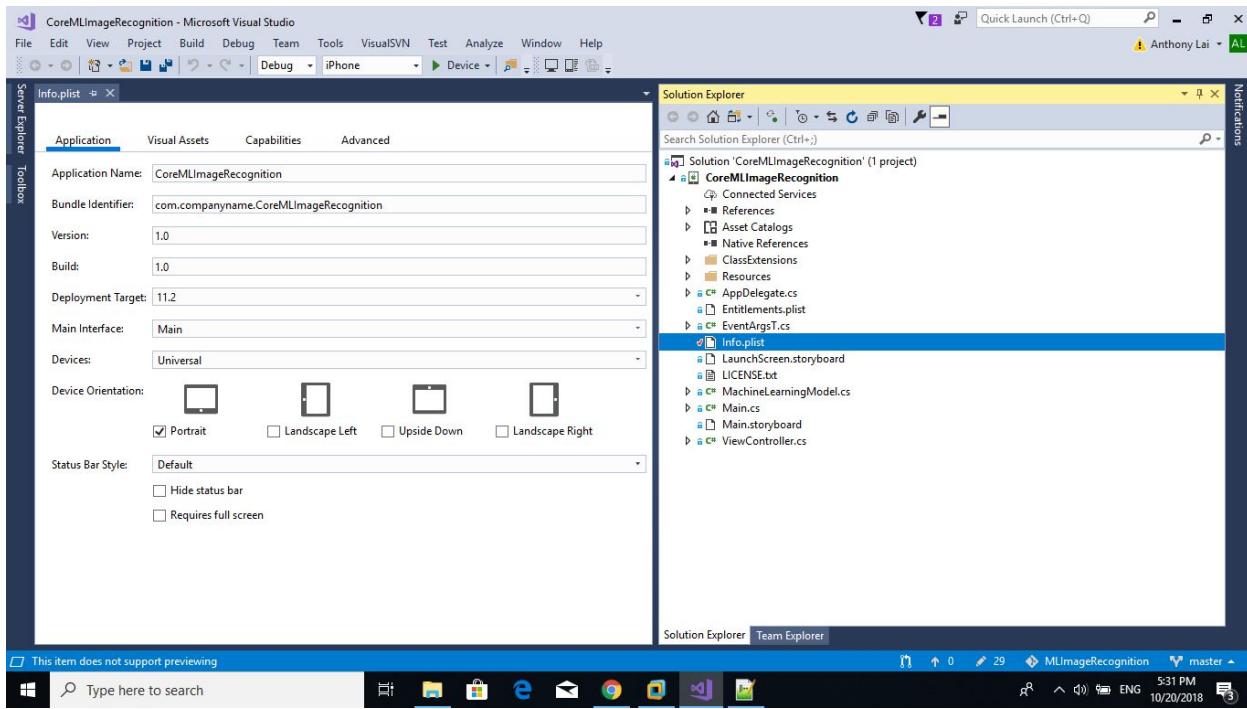
Now you have created a new Xcode project with **Identity** and **Signing** information as shown below. Note that the **Signing Certificate** shows no error message. **If there is any error for your new Apple ID, reboot your Mac machine or Mac VM**



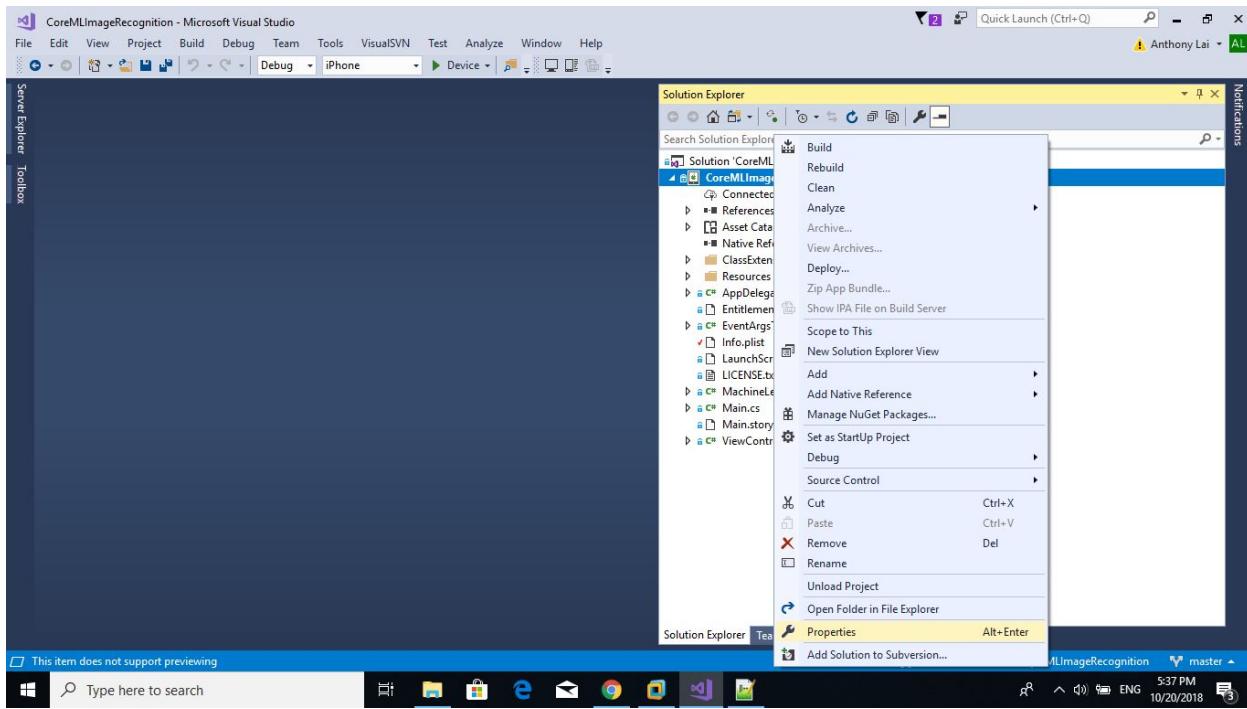
In Visual Studio, update the “Info.plist” file with **Application Name** and **Bundle Identifier** matched that in the Xcode project.

Application Name: CoreMLImageRecognition

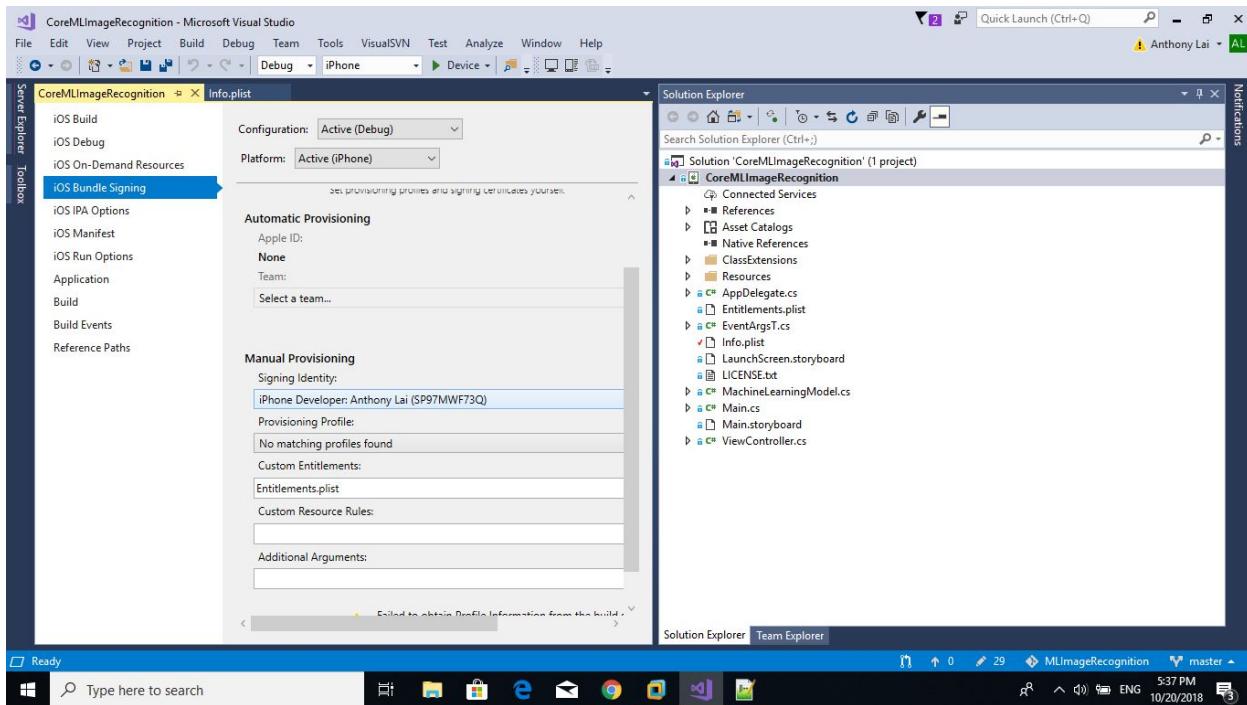
Bundle Identifier: com.companyname.CoreMLImageRecognition



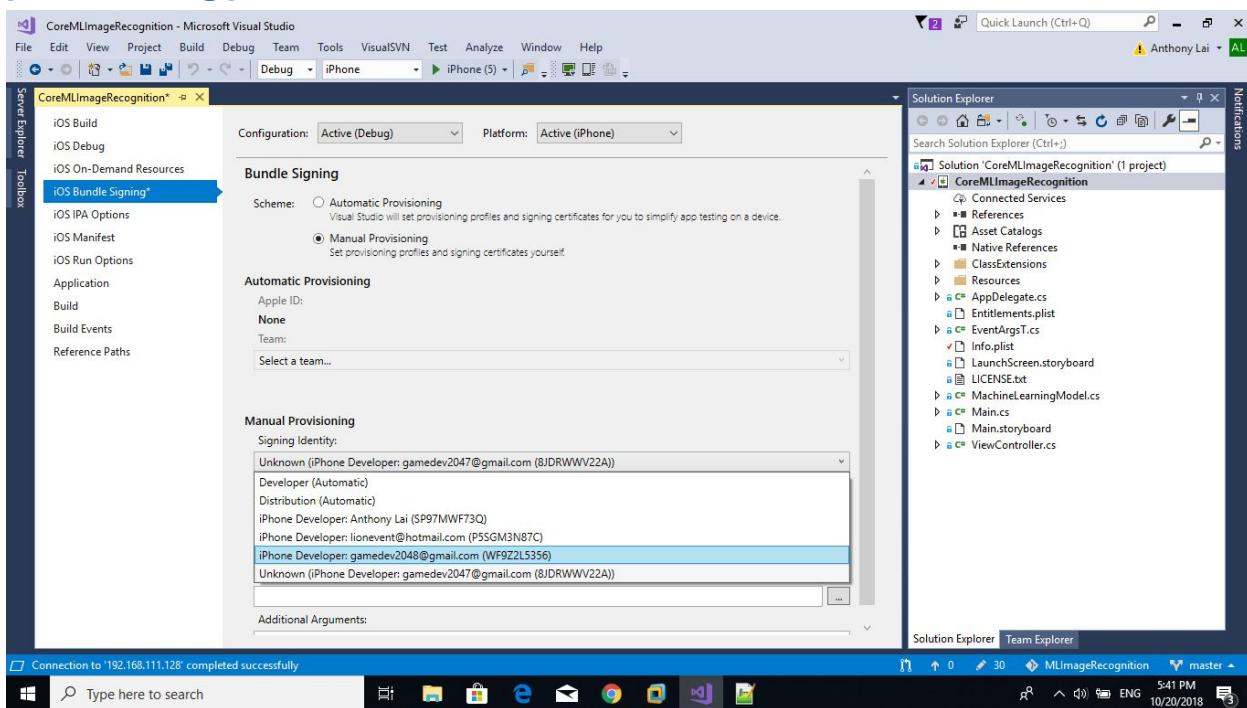
Now right click the “CoreMLImageRecognition” project and Visual Studio and select “Properties”



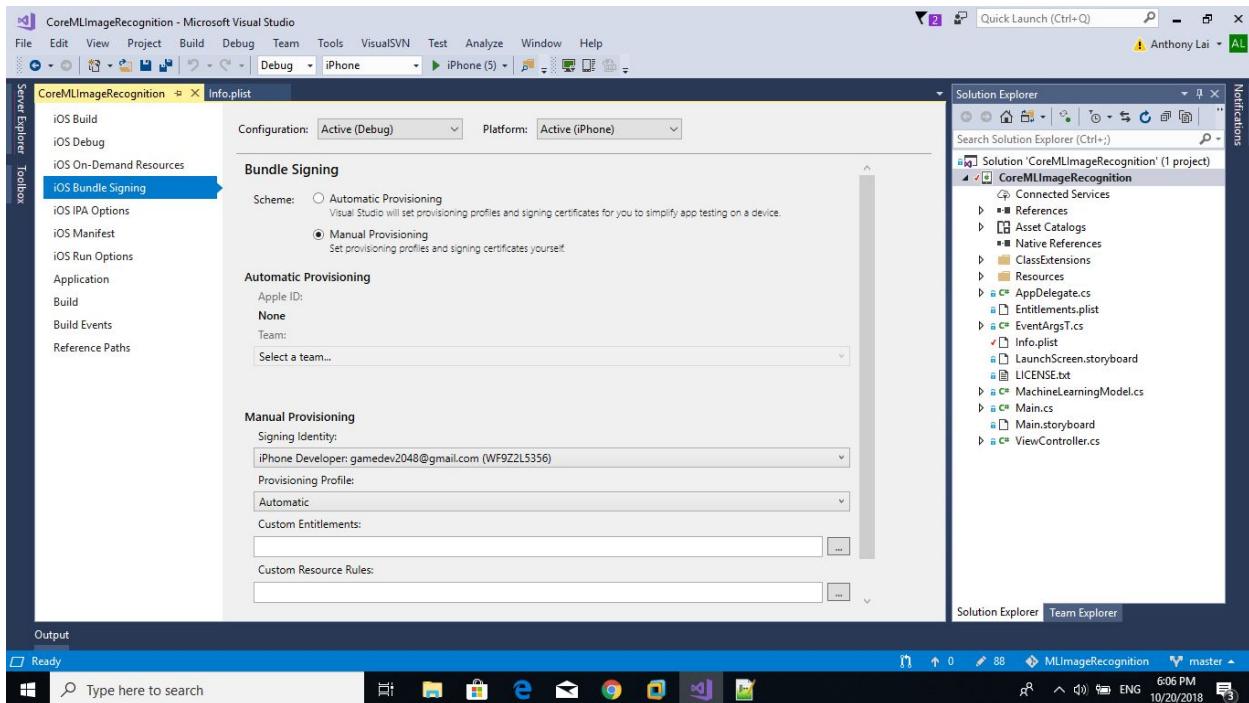
Click the “iOS Bundle Signing”,



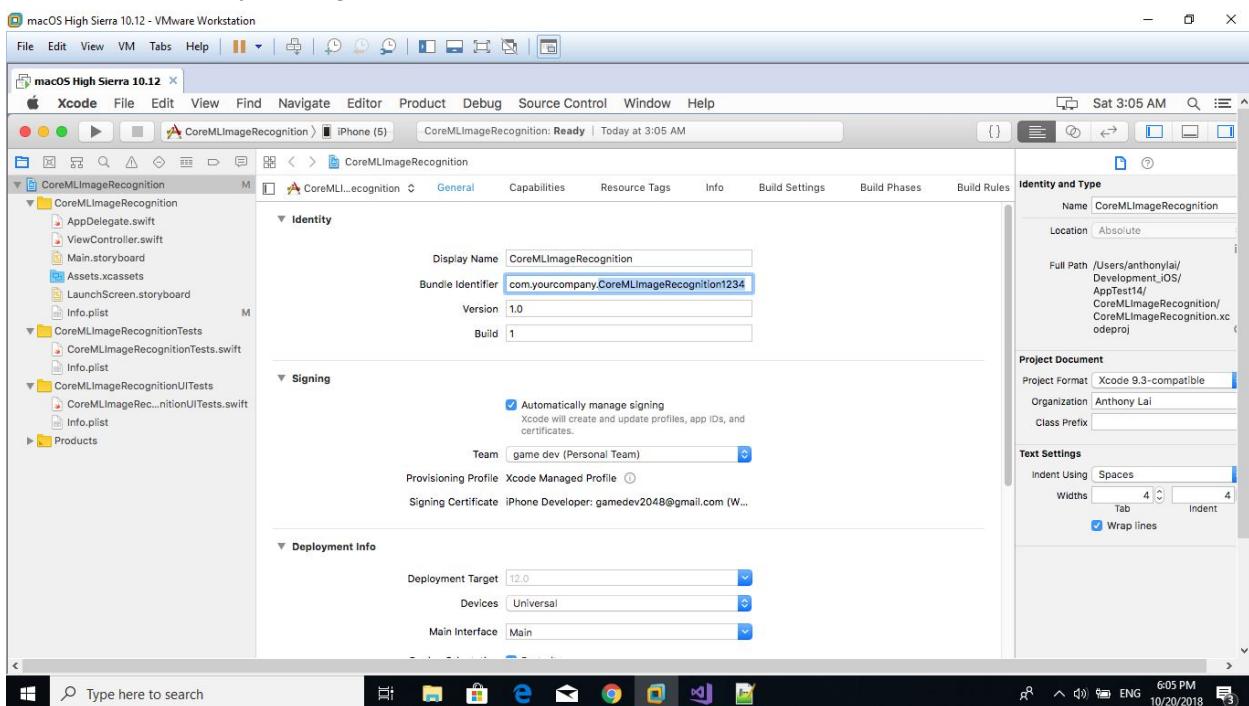
Under **Manual Provisioning**, signing identity, select “**iPhone Developer: gamedev2048@gmail.com (WF9Z2L5356)**” as shown below.



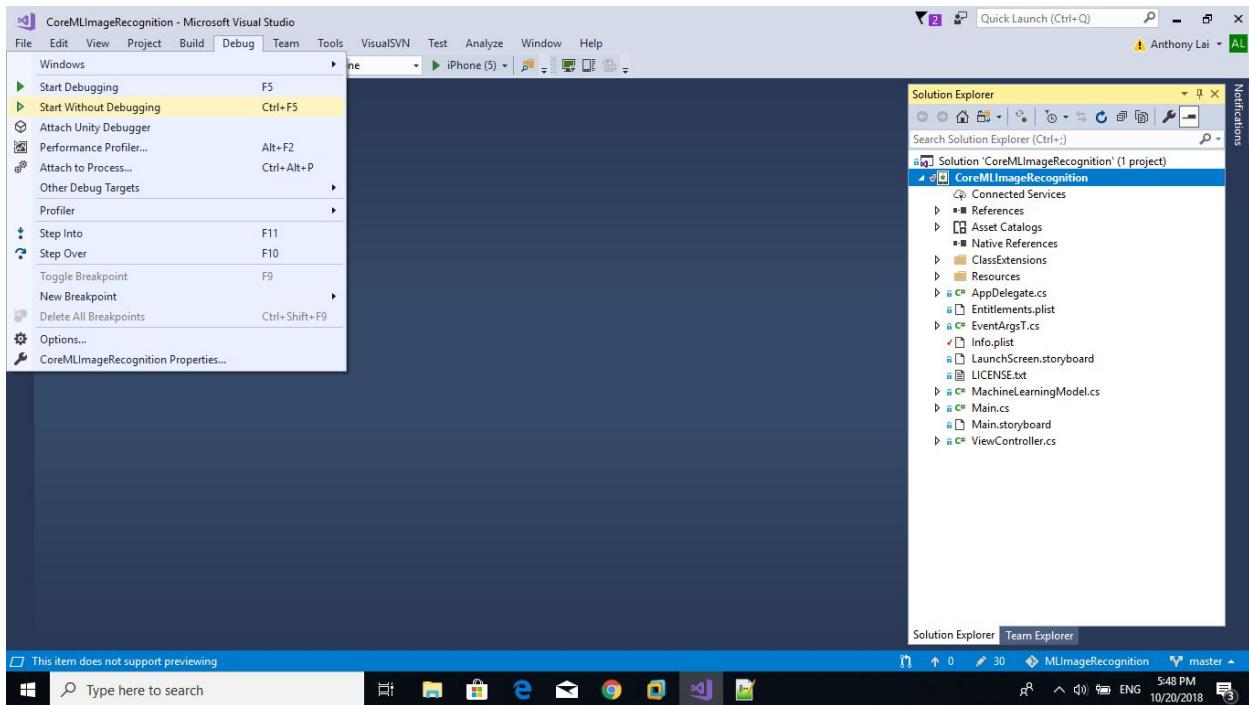
You should see “Automatic” is selected under Provisioning Profile



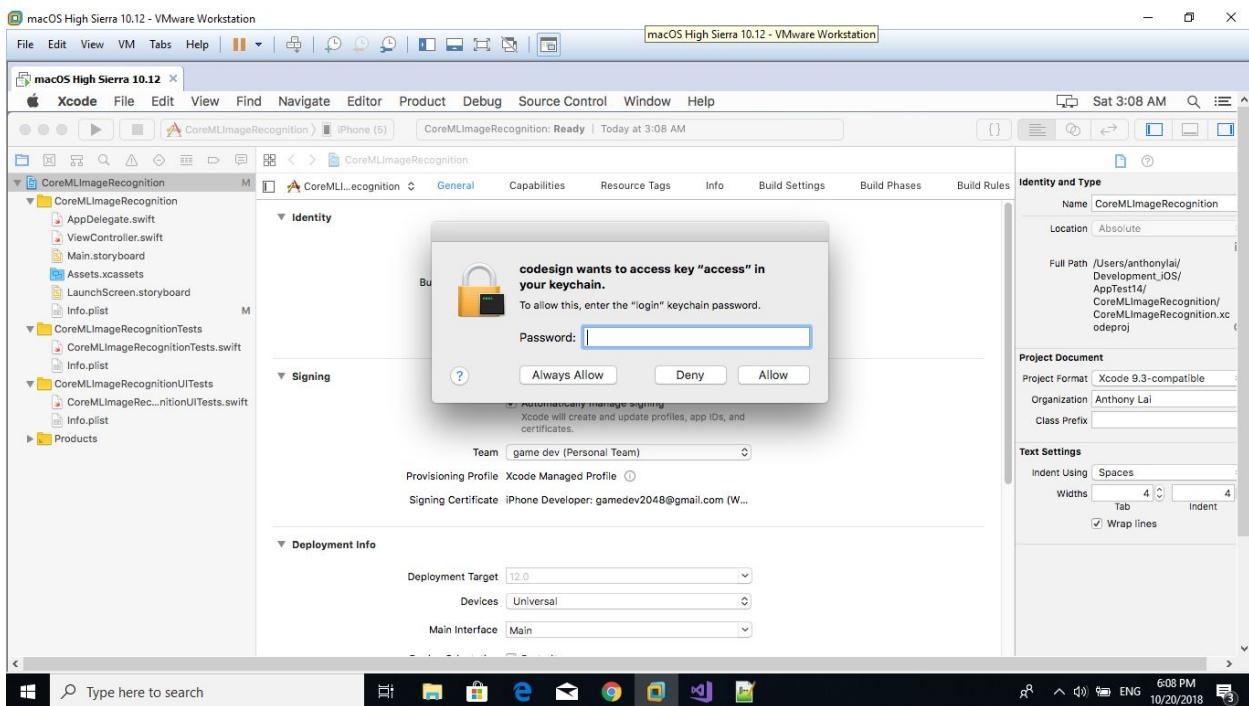
If you cannot see “Automatic” is selected under Provisioning Profile, go to Xcode and change Bundle Identifier by adding some number at the end as shown below.



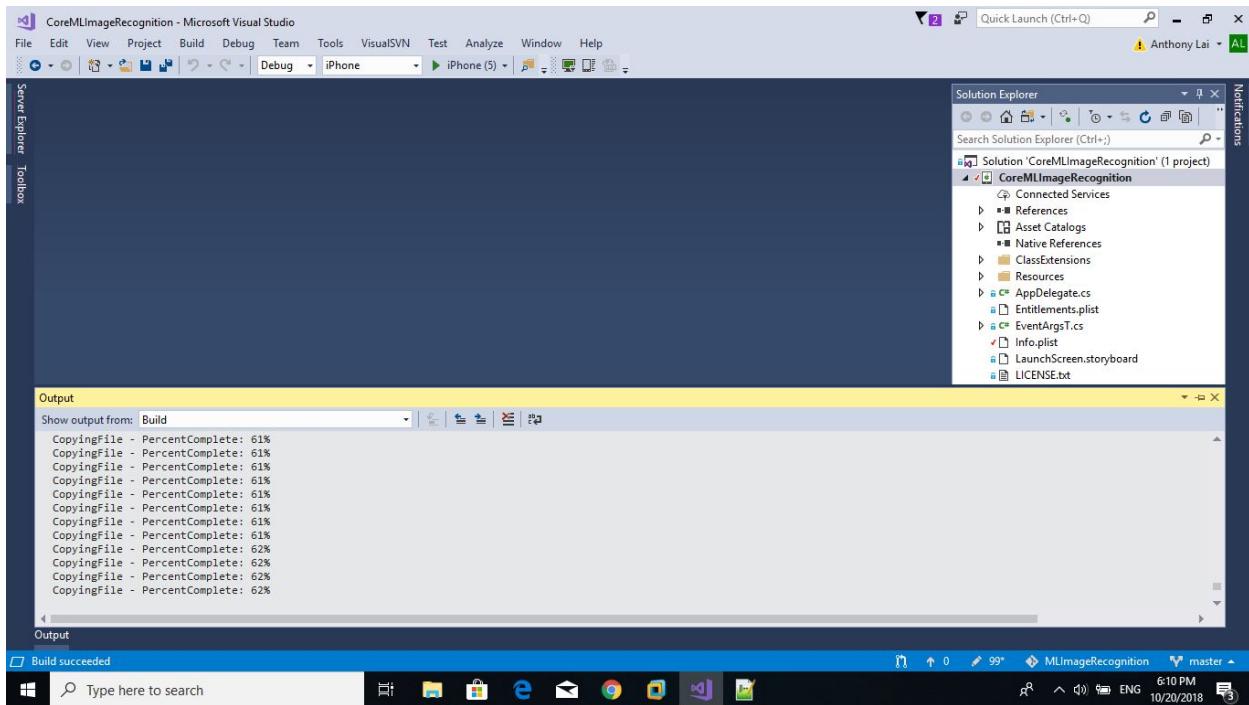
Now build and deploy the iOS app from Visual Studio Community to your iPhone by select “Start without Debugging”



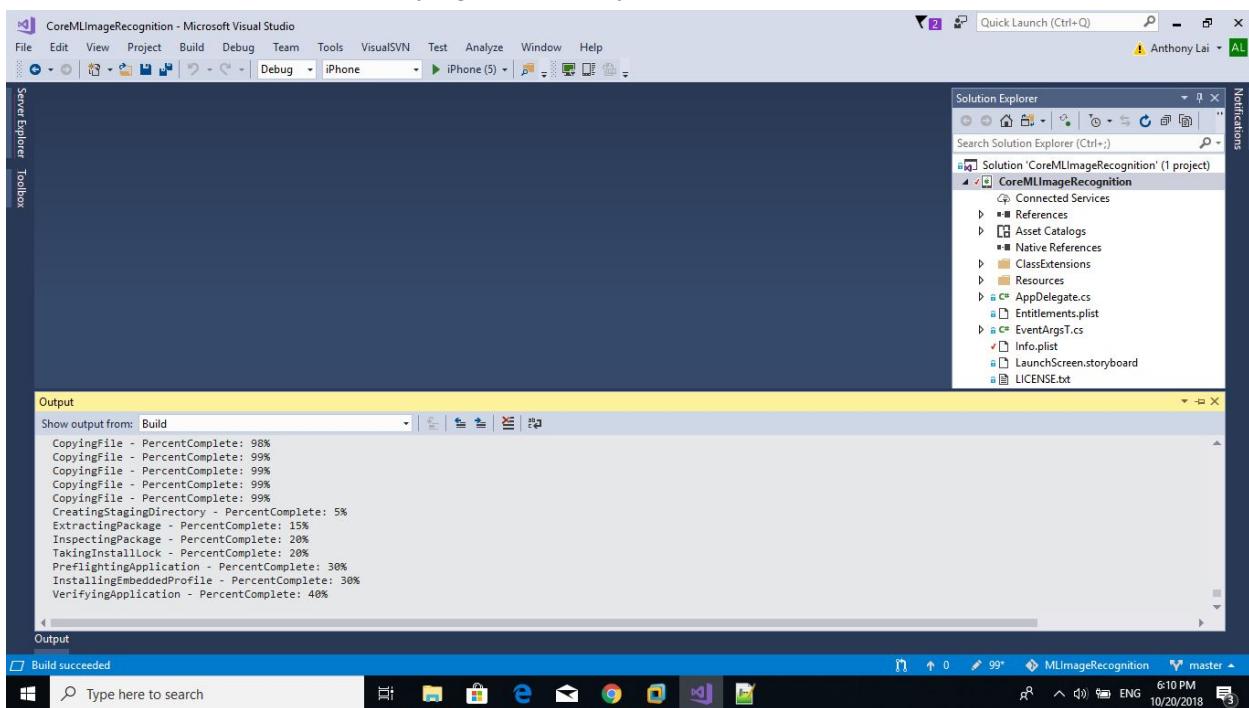
You may have to go to your Mac machine or Mac VM to provide the password for codesign wants to access key “access” you keychain. Type in your password for the user you use to login and then click “Always allow” button.



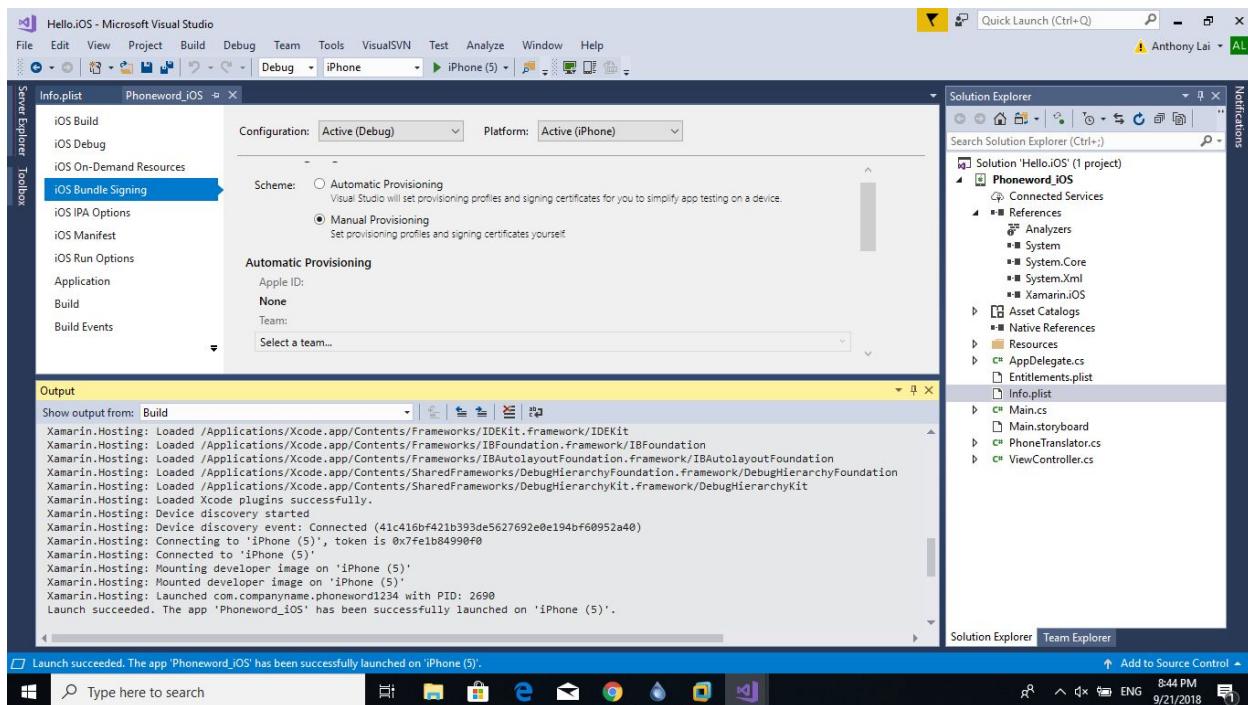
Below show the status for deploying the app to your iphone



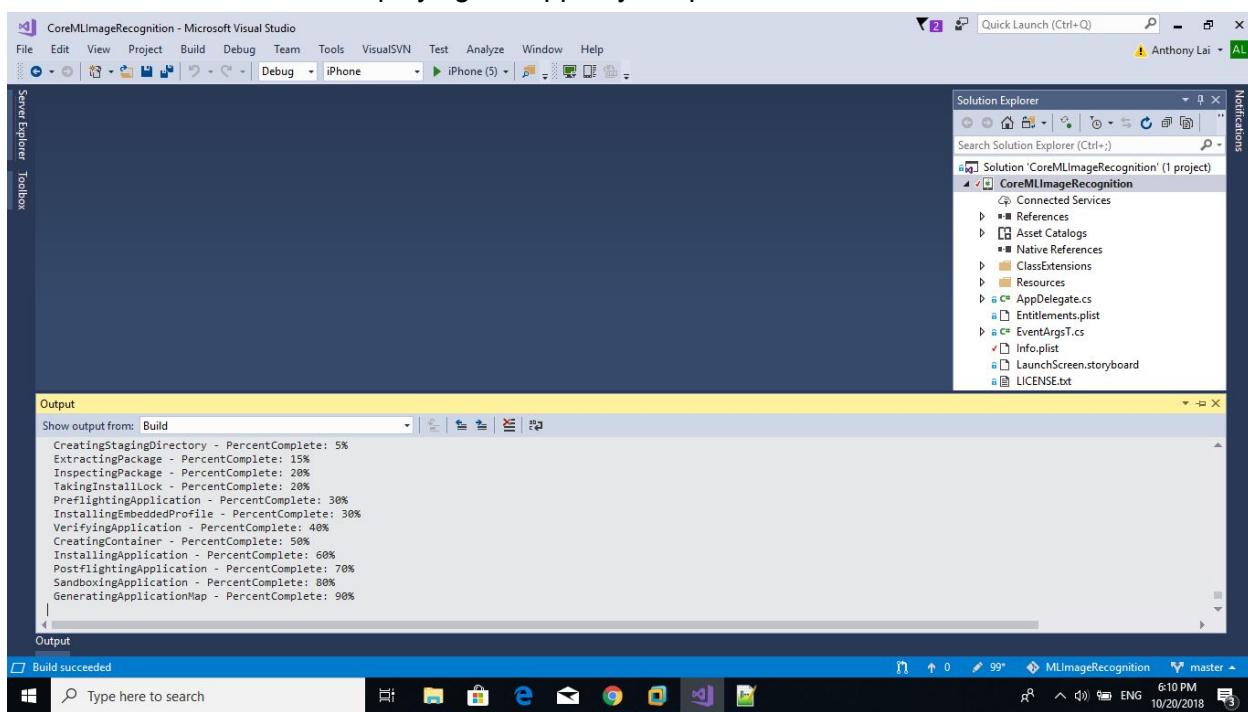
Below show the status for deploying the app to your iphone



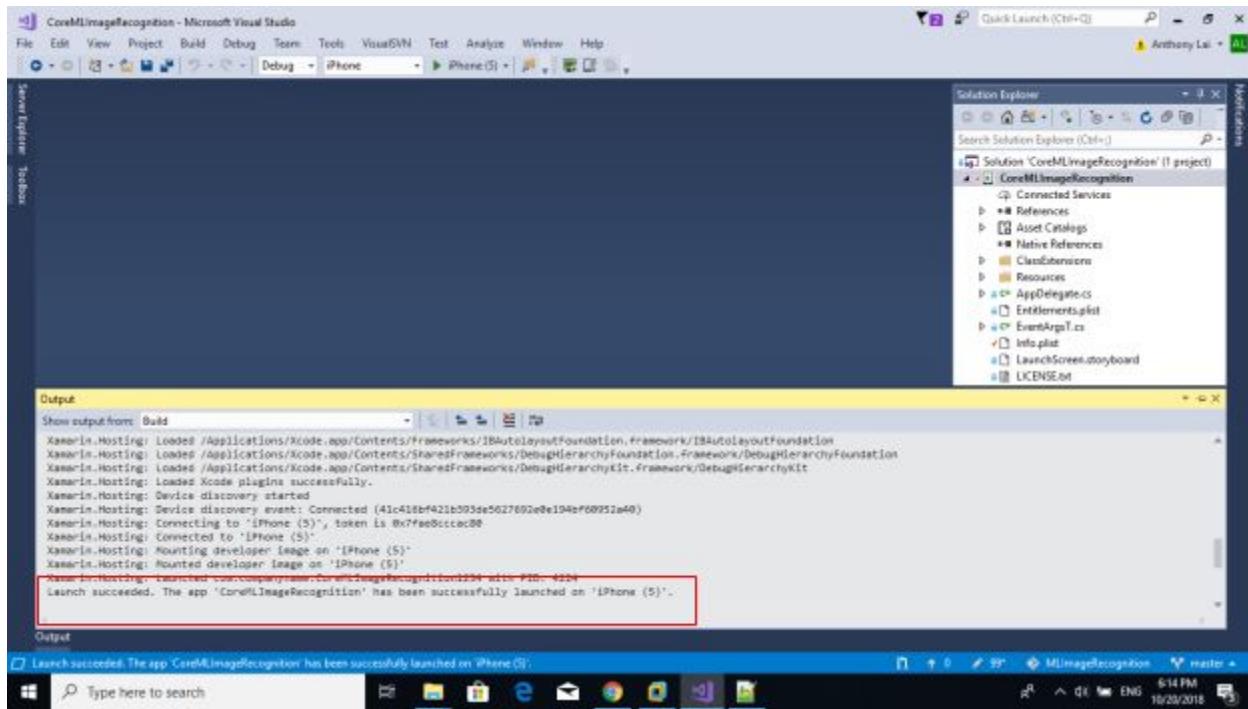
Below show the status for deploying the app to your iphone



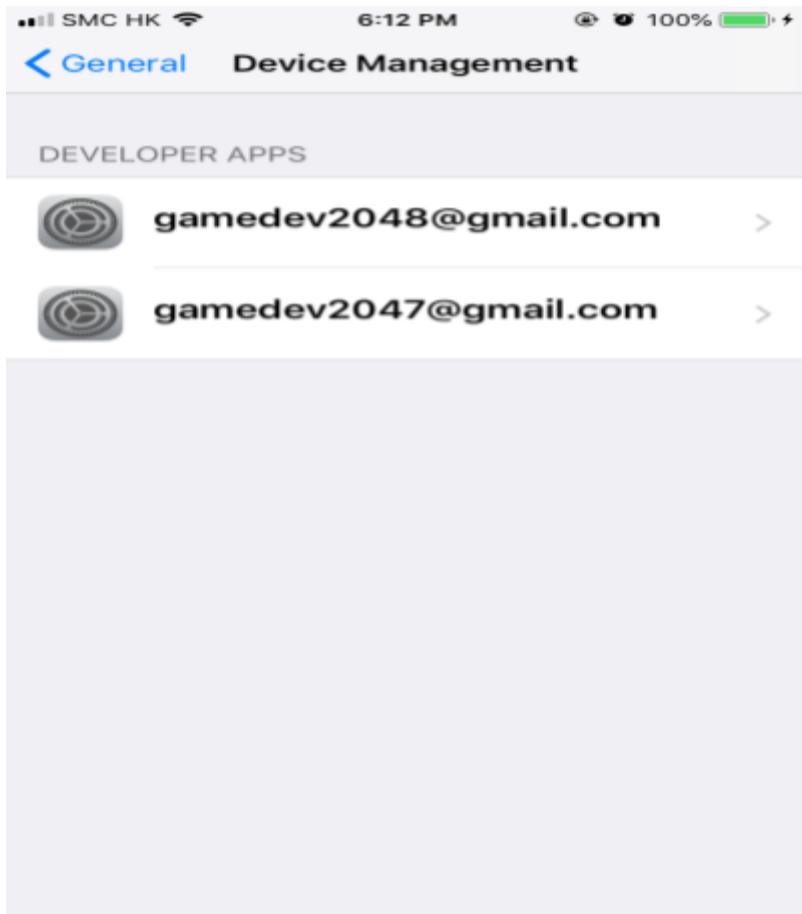
Below show the status for deploying the app to your iphone



When it is done, the message “**Launch succeeded. The app 'CoreMLImageRecognition' has been successfully launched on 'iPhone (5)'.**” will be shown as below.



For the first time you deploy iOS app to your iphone using your new Apple ID, you have to trust your new Apple ID. Go to your iphone Setting -> General->Device Management. Select **gamedev2048@gmail.com**



Click Trust "[gamedev2048@gmail.com](#)" to trust your new Apple ID for your iphone

SMC HK 6:12 PM 100%

[Back](#) gamedev2048@gmail.com

Apps from developer "iPhone Developer: gamedev2048@gmail.com (WF9Z2L5356)" are not trusted on this iPhone and will not run until the developer is trusted.

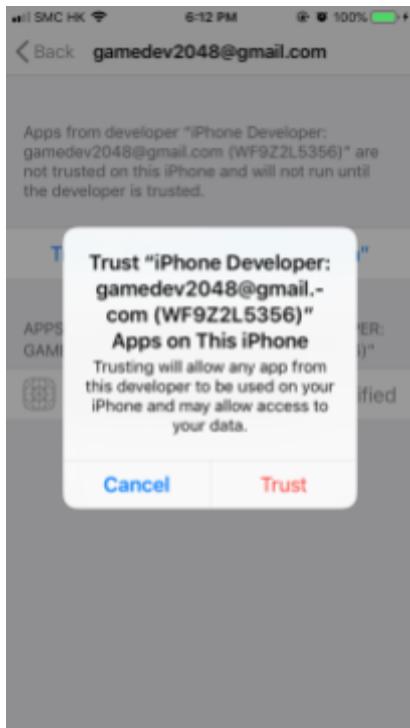
[Trust "gamedev2048@gmail.com"](#)

APPS FROM DEVELOPER "IPHONE DEVELOPER: GAMEDEV2048@GMAIL.COM (WF9Z2L5356)"



CoreMLImageRecognition Verified

Select the "Trust" button



Now you can start the “CoreML Image Recognition” app in you iphone



CoreML Image Recognition

Test the app by select any photo from your iphone. The result of image recognition will be shown.



VGG16 thinks:
restaurant, eating house, eating place,
eatery : 48.94 %
plate : 38.71 %
hot pot, hotpot : 3.13 %
soup bowl : 2.36 %
tray : 1.71 %...



VGG16

[Choose Image...](#)