

What other technologies can be used, to create a 'native' iOS application

I started my research because I am a third year BSc Web and Mobile Development student at the University of Sunderland and one of my modules is iOS App Design and Development, so I would have needed a Mac, which was not possible due to financial reasons. Since I personally don't have an Apple machine, I could only use the Mac for hours, which was assured for us. However, I wanted to find a solution on how to create an iOS app in the absence of a Mac.

Many problems can be caused by the fact that many developers use Windows machines and do not have access to Macs running XCode. I would like to present technology alternatives that are suitable for creating a "native" iOS application.

As a first option, you can rent a Mac in the cloud. So you can work on Windows using Xcode by connecting to a Mac that is located elsewhere. You can choose from many providers such as MacinCloud, MacStatium, Mac Cloud and etc. Macincloud provides the ability to create a variety of tools and applications that are suitable for developing applications from anywhere with internet access. Such as Xcode iOS SDK Tool, Xamrin Studio 6.3x, PhoneGap and ect. Although, this service also has financial implications, there are several options to choose from, but the most popular is the Managed Server which is \$ 20 + per month. (MacinCloud - Rent a Mac in the Cloud! - Mac in the Cloud, 2020).

As a second option, create a virtual machine that behaves as a stand-alone system, complete with virtual hardware devices such as processors, memory, and so on. It installs and runs the same way on a real machine. To create a virtual machine, two things are required to first download a copy of macOS from the App Store. The second is to install VirtualBox or VMware software. So after creating the virtual machine, you have the option to use xCode to create an iOS application. (Udayan, 2020)

A third option is to use Platform Tools. This means that once you have written the code, you can run it anywhere on the platform you want. This also has advantages and disadvantages. Benefits such as updates sync instantly, reduce development costs by building applications across multiple platforms, and more. Disadvantages include custom application design, then differences between different devices and languages are difficult to bring together from the platform API, user interaction, because Android and iPhone have different layouts, so the design is difficult to implement.

You can choose from a number of cross-platform tools for application development. However, most cross-platform devices are not for beginners due to the difficulty of use and also require a basic knowledge of iOS and Android. These cross-platform tools include Flutter, Native Script, Xamarin, Sppcelerator Titanium and many more. (Top Mobile Development Technologies used for Mobile Apps | Fingent Blog, 2018).

I'd like to present an example of a cross-platform, so, Microsoft Xmarin Live Player allows you to run Visual Studio directly from a Windows desktop computer that can install, run, test, and debug iOS applications. So Xamarin Live Player is required to install Xamarin applications. So, all you have to do is install Xamarin Live Player on iOS devices, then pair Xamarin with Visual Studio, then the QR code will appear on the screen which will be scanned, then you will have to select it in the Visual studio IDE the Xamarin Live Player configuration, in order to connect to each other. So it's important to run

over the same WiFi network as your phone and so a quick bit exchange is created between the IDE and the Xamarin live Player. (Lardinois, 2017)

Among the cross-platform devices, everyone can find the right device for their needs.

The fourth option is Swift's free, open source code, which means you can run it on any system. So it is possible to run on Windows and Linux, providing an easy-to-use development environment. System requirements Windows 7 and 10 64bit. (Choudhary, 2020)

The fifth option to run xCode is to create your own "Hackintosh". A Hackintosh is a computer that runs the Apple Macintosh operating system on computer hardware that is not licensed by Apple for that purpose. So "The EULA provides, first, that you don't" buy "the software — you only" license "it. And that the license terms do not permit you to install the software on non-Apple hardware. Thus, if you install OS X on a non-Apple machine — making a "Hackintosh" —you are in breach of contract and also copyright law. " (Kinsella, 2016) There are a number of tools that exist and help us that allow us to install any version of macOS on a non-Apple PC. Apple doesn't allow this, but that doesn't mean it's not even possible. Personally, I would not recommend this opportunity to anyone, but there are those who take advantage of this opportunity and take this risk. Those who take advantage of this option can use this method to create an iOS app.

The last options include if you don't want to rent a Mac to the cloud or if you don't want to use it with cross-platforms devices, buying a used Mac Mini could be the solution, which is now available for £350-£450, though this is true. requires research, but it can also be an option to solve the problem. However, once you have the right machine, you will be able to create a 'native' iOS application with xCode.

In summary, I have outlined six solutions for creating an iOS application in Windows. Personally, I was also surprised by the wealth of possibilities in my research. I do not recommend "Hackintosh" to anyone, but I have no experience with other solutions and can only rely on them with the knowledge of my research. However, I chose the solution of creating a Virtual Machine (VMware). It was very difficult to create a macOS virtual machine on Windows, as there are a number of descriptions that illustrate what to do step by step, but unfortunately these are incomplete and the omission of some steps makes it difficult to create a virtual machine. Luckily, with the help of my husband, it took me 5 hours to get the virtual machine up and running, which I still use flawlessly to this day.

I hope that by finding these opportunities, I will make things easier for many people who have faced the same problem.

References

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