

# How to build an iOS app from scratch: Marist Maps

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#### Abstract

iOS app development has become increasingly relevant today and has introduced a new focus area for coding. In 2014 at the Worldwide Developers Conference, Apple introduced the new programming language Swift, which would be used for iOS app development amongst use for other Apple products. It has since grown with popularity as has the use of technology and apps in general. Many companies use apps to house data or provide access to information in an easy way, while developers are also working on games and apps for everyday use for the app store. This leaves a new and large demand for people to create those apps and also many possibilities of what to create for this project. Swift is what I used to create a new app with no prior knowledge of the language. This project has resulted in a working app for iPhones. It also includes a video that serves as a tutorial for others to be able to follow along and recreate the app. The beginning struggles included that I have never worked with Swift and had to become familiar with it before beginning to program. The first steps were figuring out what kind of app to develop and then getting all of the necessary tools installed, and after that I was able to begin development.

### Background

App Idea:

- Marist Maps
- User can select a destination from a list of common Marist locations and an arrow will point them in the right direction and update to change as the user moves.
- User will be notified of any buildings they pass that exist within the app.
- User can add a location not listed and it will be saved into the pre-existing list
- The camera button allows the user to use the app with the camera open to provide a dynamic background and allow them to see on their phone what is in front of them.

#### Tools Used:

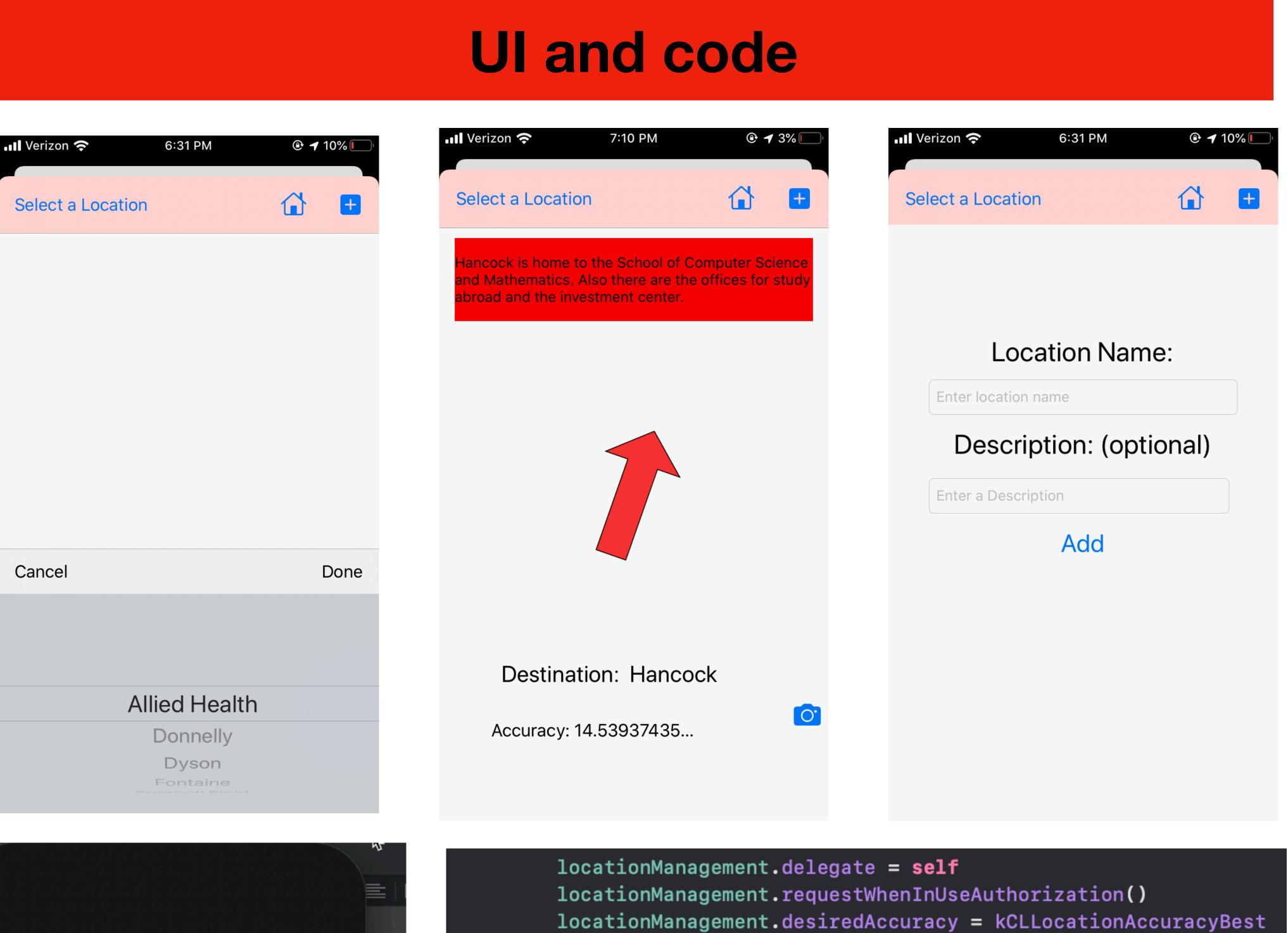
- Xcode version 11.0
- Swift

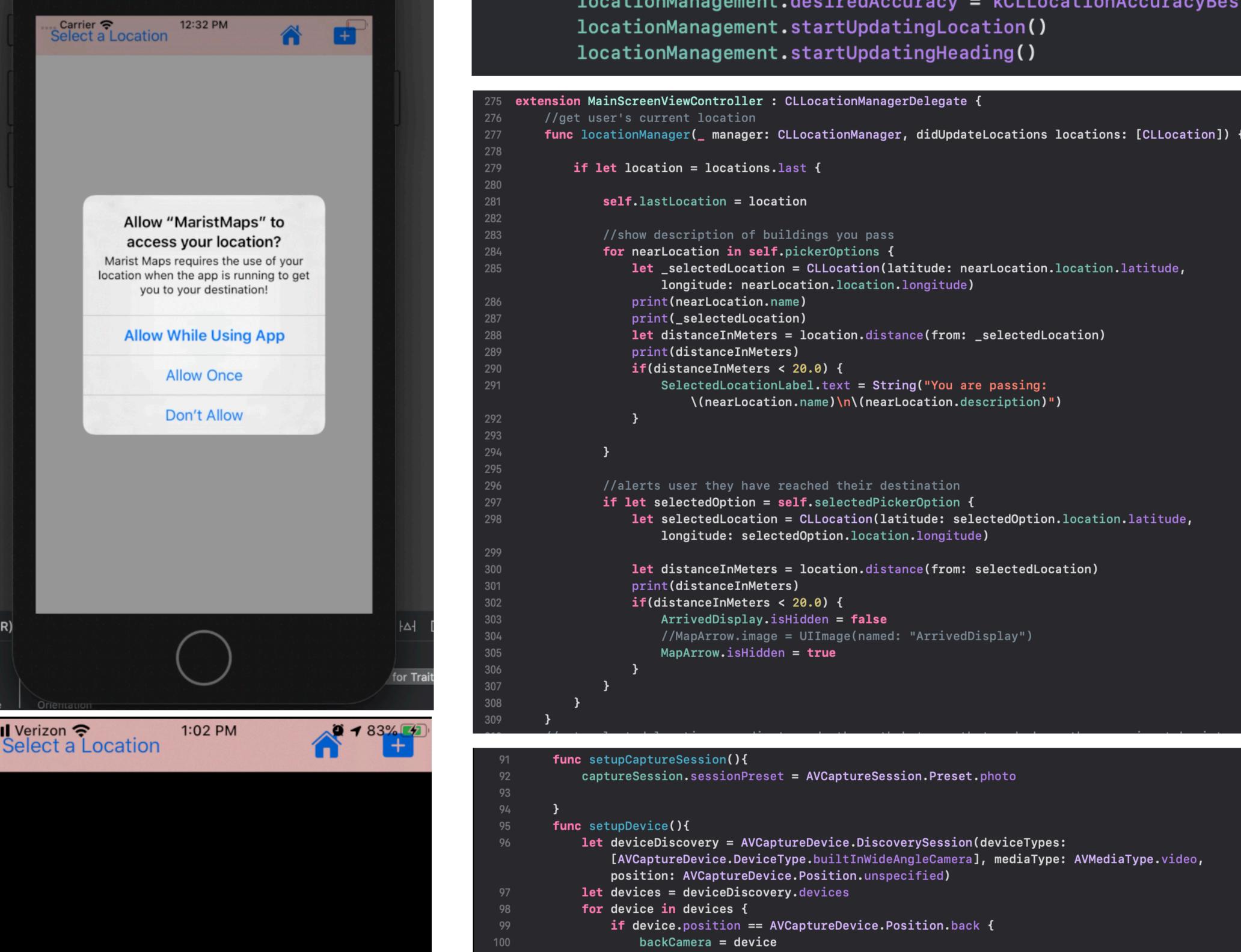
iPhone functionality used:

- Camera feature
- Location/Coordinates
- Heading/bearing of phone

Prior Knowledge:

• Knowledge of other programming languages is useful





"MaristMaps" Would Like to

Access the Camera

Marist Maps requires the use of your

camera for one of the features

Don't Allow



#### Reflection

Coding in a new language and environment takes some time to get accustomed to and to be able to do efficiently. The hardest part I found was not actually within the coding itself, but choosing an app idea that was original and also allowed for expansion and utilizing more of the features the iPhone has. After beginning to code, I found it to be a good learning experience to both get down creating a simple UI and incorporate location and camera services. With Swift as a whole, I found it to be a generally easy language to get used to. It offers command completion for built in functions with exactly what parameters are necessary and expected which was helpful. In addition, it was easy to find more information about keywords by using the option command on the keyboard and then clicking. This was especially useful and helped me to learn more in depth. It would pop up the keyword with its type, a summary, discussion, and related topics. I was able to use this, for example, in debugging the location my app was using from the device. When hovering CLHeading, a related topic was headingAccuracy which I was able to look at to see the accuracy between the reported heading and the true heading. I think the hardest part of building the app was debugging. I used the console a lot in this project to verify the values being returned from the locations that are pre-coded into the app, the location returned when adding a new name, and the location used when a destination is selected.

### Helpful Sources

https://www.youtube.com/watch?v=7TqXrMnfJy8

https://stackoverflow.com/questions/26998029/ calculating-bearing-between-two-cllocation-points-inswift

https://medium.com/swiftly-swift/how-to-build-a-compass-app-in-swift-2b6647ae25e8

https://stackoverflow.com/questions/31728680/how-to-make-an-uipickerview-with-a-done-button