Homework #2 – Geo Calculator App (iOS)

CUS 357 – Winter 2017
Due Date: 12pm, Wednesday, Feb 1, 2017

Learning Objectives

- Developing familiarity with essential iOS concepts.
- Become more proficient in Swift.

Please implement and submit this assignment in pairs.

Creating A Geo Calculator App

You are to create a very simple distance calculator app that will take two geo coordinates and compute the distance between them as well as the bearing. Figures 1 below includes screenshots of how your app should look and behave.

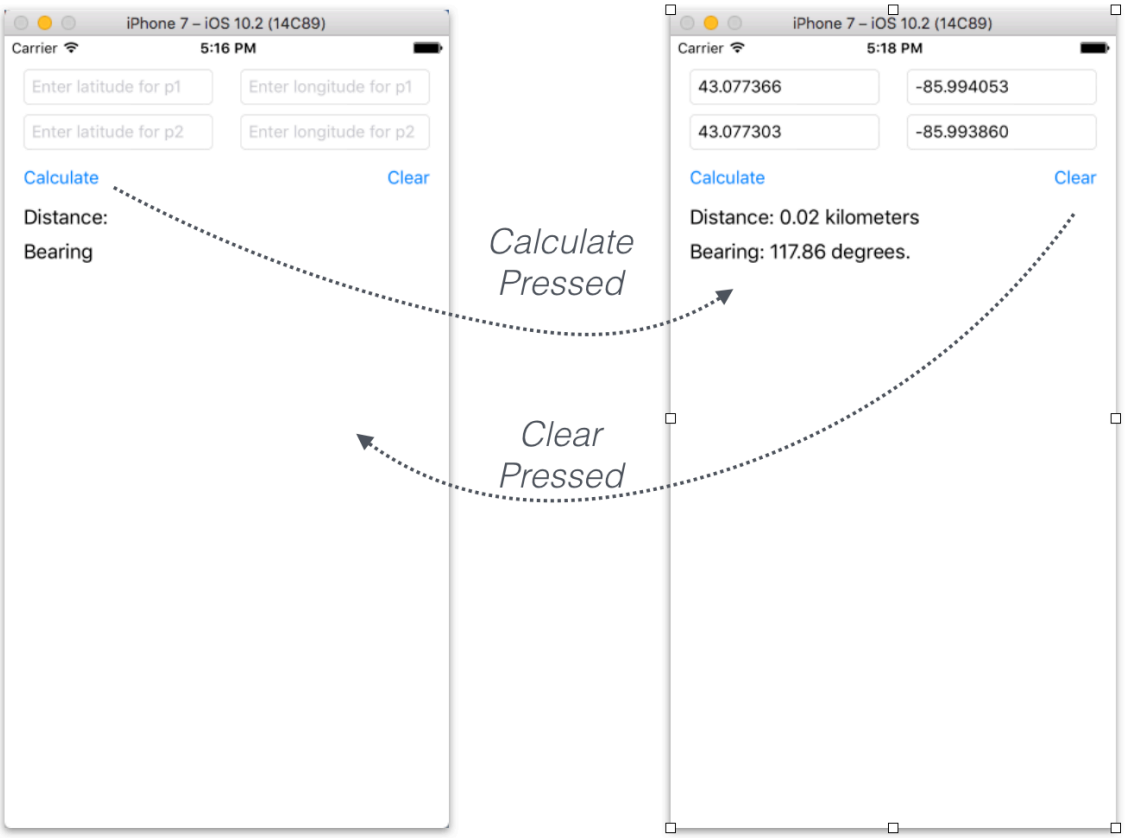

Figure 1. The Geo Calculator in action.

The user can enter a start latitude/longitude and an end latitude/longitude in decimal. When the calculate button is tapped, the app will compute the distance between the two points in kilometers and the bearing (degrees in decimal) and display it as shown in the

figure. Be sure to properly round (e.g. don't just truncate) the distance and bearing out to 2 decimal places and use the units shown.

Your user interface must mimic the interfaces shown in Figure 1 as much as possible. Here are some more specific requirements.

- Make sure a clear button appears in the UITextField elements when the user enters text, to facilitate easy clearing of the field. (see Figure 2)
- Prevent non-numeric values from being entered by using the specialized UITextField (DecimalMinusTextField[1]) that the instructor provides you instead of the standard qwerty pad when the text field gets focus. (see Figure 2.)
- The keypad should disappear and the text field should lose focus whenever either button is pressed, or if you tap on the screen anywhere other than an input field.

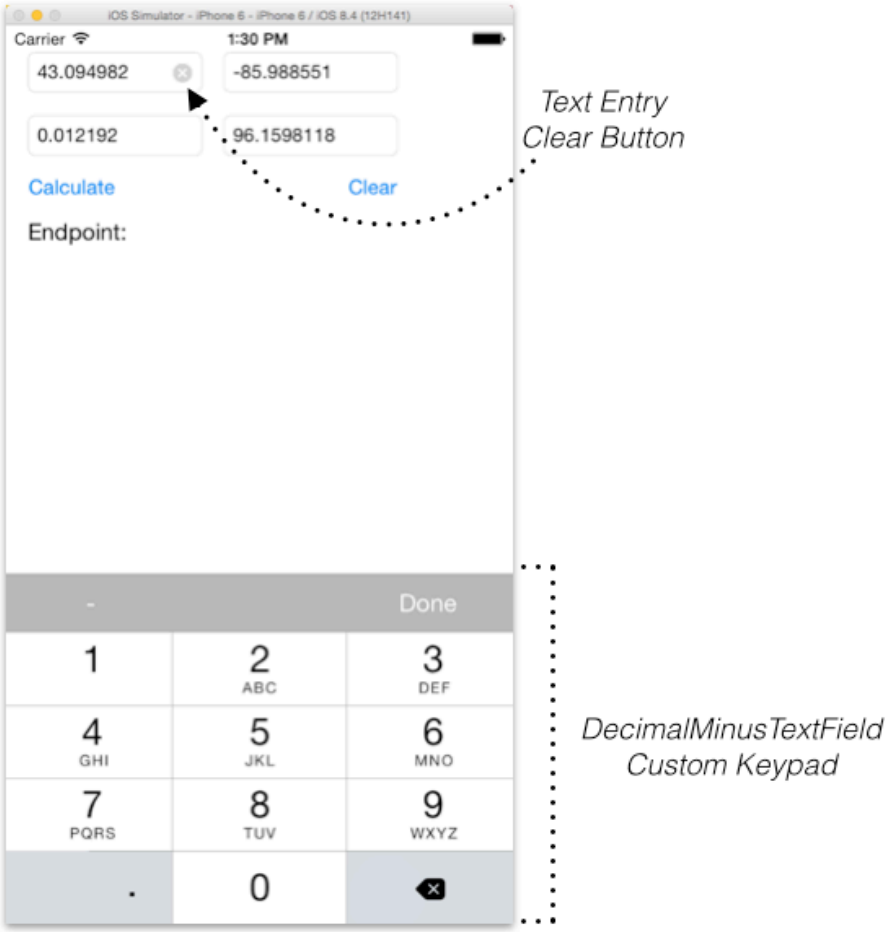

Figure 2. Some user interface details.

You only need to support the iPhone 7 device (not iPad). The only supported screen orientation is portrait. Don't worry about the precise layout (e.g. no need to worry about

[1] You can download the source and find the instructions for DecimalMinusTextField here: https://github.com/jengelsma/DecimalMinusTextField.

any Auto Layout constraints at this point), just make sure your app is fully functional and correctly computes the output.

Helpful Hints

You may have to search the iOS documentation / StackOverflow to learn how to implement some of the functionality described in this homework specification. Here are a couple of hints to help you get started:

- In order to capture touches outside the UITextFields (e.g. to dismiss the soft keypad) you can override your view controller's touchesBegan:withEvent method and call the endEditing method on your controller's view object.
- You can research various formulas online (there are many!) for calculating the various outputs required in this assignment. They will involve using transcendental functions from Swift's math library. Alternately, you can use the Swift extensions to CLLocation that the instructor has provided[2].

Deliverables

To receive credit for your lab, you must:

- One person of your pair must submit a ZIP archive of your final project and submit it to Blackboard.
- Make sure you include both developer's names in the code headers as well as in the Blackboard submission note.

[2] You can download the source and find the instructors for the instructor's CLLocation extensions here: https://github.com/jengelsma/JRECLLocation.