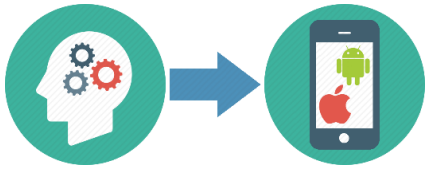
# Mobile App Development

## CS 4153



## Multi-Week Assignment 01

20 Points – Due October 19, 2017 Last updated: Sep 30, 2017 6:30 AM

*On long trips, you might need something to occupy your time (assuming you're not the driver). A popular pastime is to look for license plates from the different states, and to see how many of the state plates can be spotted before the trip is over.*

*In this assignment, you will write an app that lets the user play "the license plate game".*

1. Create a new, Swift 4 project in Xcode 9 production version. Name the project
   *MW01_ lastName_firstName*
   where *lastName* is the part of your name that OSU considers to be your last name, and *firstName* is your first name.
2. Your app should look nice and work correctly on any iPhone model supported by Xcode 9 production version.
3. The root view controller for the app is a table view controller. Embed it in a navigation controller.
   - Set the title in the navigation bar of the table view controller to "US States".
4. Create a 2D array of tuples that will act as the data source for your table view.
   - The 1st sub-array contains tuples for states with names that begin with the letter 'A'; the 2nd sub-array contains tuples for the letter 'C'; the 3rd sub-array contains tuples for the letter 'D'; and so on. (Note that there is no sub-array for the letter 'B'. Do not include sub-arrays for letters for which there are no states.)
   - The tuples in each sub-array appear in alphabetical order based on the names of the states in the sub-array.
   - Each tuple contains all of the information about one state:
     * The name of a state (a string). The names can be found at this website.
     * The nickname of the state (a string). The nicknames can be found at the same website as the names.
     * The URL at which an image of a current license plate for the state is found (a string). The images can be found at this website.
     * The current background color of the table view cell containing the textual state information (a UIColor). The value of this color is white initially, but may change as the game progresses.

5. Create a property that represents the current score. (The current score is zero initially, and its value is the number of states for which the user has spotted license plates.

6. Add a toolbar to the bottom of the navigation controller.
   - Add a bar button item to the toolbar; change the button style to *plain* and change the label of the button to "Score: 0 / 50". Change the *tint* property of the button to black.
   - Add a second bar button item to the right of the first bar button item. Separate the two buttons with a *flexible space* item. The label of the second button is "Reset Game". When the user taps it, display an alert asking them to verify that they want to reset that game. If they respond by tapping "Yes", reset the backgrounds of all states to white, update the table view, and reset the score back to zero.

7. The cell prototype for the table view is of the *subtitle* style.
   - The "title" line of the cell contains the name of the corresponding state.
   - The "subtitle" line of the cell contains the nickname of the corresponding state.
   - The cell prototype also has a *detail disclosure* accessory.

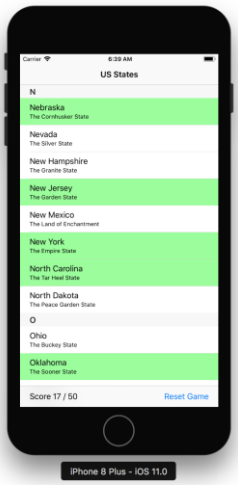
8. The table view is sectioned, and the section header for each section is the letter with which the state names begin in that section.

9. When the user taps a cell with a white background, change the background to pleasant, pastel color and increment the score in the toolbar. When the user taps a cell with a pastel background, display an alert asking the user to verify that she/he want to reset that state. If they respond by tapping the "Yes" button on the alert, set the background color of the cell to white and decrement the score in the toolbar.

10. When the user taps the detail disclosure accessory, segue to a UIViewController (such as the one that was in the project when it was created).
    - Before the segue actually occurs, populate two public variables in the destination view controller with the name of the state for which the table cell was tapped, and the license plate image URL for the state.

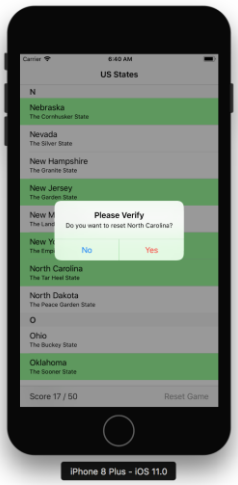
11. Add a *webkit view* to the destination view controller such that it fills its root view.
    - Set the title of the destination view controller to the name of the state, provided by the table view controller during the segue process.
    - Load the license plate image the state from the Web, using the URL provided by the table view controller during the segue process.
    - Hide the toolbar at the bottom of the destination view controller. (Don't forget to "unhide" the toolbar when returning from the segue!)

## Sample Screenshots

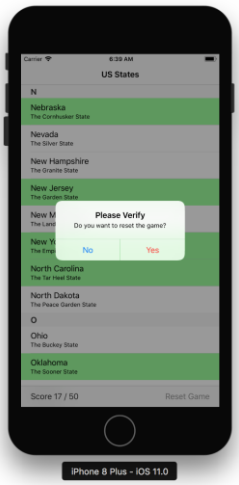



Main Screen


Segue Screen




"Reset State" Alert




"Reset Game" Dialog

## General Notes

- Starting with iOS 9, apps can open – by default – HTTPS websites, but not HTTP websites. The site that contains the license plate images for your app uses HTTP. To permit your app to open images on this site:

  1. Right click on *info.plist* in the project navigator for your project.
  2. On the menu, choose *Open As* > *Source Code*. This displays the XML version of the file in the editor.
  3. Near the bottom of the code, just after the final `</array>` statement, add this code:

```
<key>NSAppTransportSecurity</key>
  <dict>
    <key>NSExceptionDomains</key>
    <dict>
      <key>www.15q.net</key>
      <dict>
        <key>NSTemporaryExceptionAllowsInsecureHTTPLoads</key>
        <true/>
      </dict>
    </dict>
  </dict>
```

  This provides an HTTP exception for the license plate website.

## Bonus (5 Points)

- When the user selects a cell (i.e., it turns pastel), play a short, upbeat sound.
- When the user deselects a cell, play a short downbeat sound.
- When the user begins the game or resets the game, play different upbeat sound or a short tune.

## Submitting Your Solution

- Zip your project folder into a single file, go to the course BrightSpace site, navigate to the *Dropbox* page, and submit the zip file in the folder that corresponds to this assignment.
- If you use the Xcode 9 production version, please add a note in the Dropbox to indicate that fact.