# Homework 3

The purpose of this assignment is to demonstrate your understanding of both gesture recognizers and settings bundles in iOS.

In order to successfully complete this assignment, you must successfully implement all of the Functional Requirements below. As with all apps that you submit for this class, you should also:

- Ensure that your app does not crash or behave in an unstable manner
- Make use of good design patterns (e.g. MVC) and structure your app accordingly
- Follow the Human Interface Guidelines when designing your app's UI
- Test your app on an actual device running the latest version of iOS

## Functional Requirements

The app should launch to a blank white screen, showing only the default iOS status bar. This screen is the shape canvas, upon which the user will add shapes.

When the user taps once on the shape canvas, the app should add a square of a solid color centered under the point the user tapped. The user must be able to tap multiple times around the canvas to add multiple squares. Squares may overlap.

All the squares should be of the same color and size. You may choose the size, within reason; the reference implementation uses squares 50pts on a side.

Once a square has been added to the canvas, the user should be able to move it around by touching down on the square with a single finger, dragging that finger around the canvas, then releasing. The shape should move along with the user's finger, keeping the same relative anchor point; it should not "jump" at either end of the drag to become centered under the user's finger.

The app should expose two settings through the system's Settings app:

- A multiple-select setting between three noticeably distinct colors of your choice. The value for this setting should be the common color of all squares on the canvas.

- A slider setting for the amount of corner rounding to apply to each square[1]. This slider should have a minimum value of 0, and should have a maximum value not exceeding 1/3 the side length of the square (e.g. a maximum of 10pts for a 30pt square).

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[1] You can apply rounded corners to a view using its layer's `cornerRadius` property.

All squares on the shape canvas should update both their color and their corner rounding immediately upon settings changes in the system's Settings app. At no point should any one square look different from any other; in addition, new squares must respect the current settings values.

## Bonus Opportunities

You can earn 10 bonus points if, in addition to exposing your app's settings through the system's Settings app, you also add controls to your app that manipulate the same settings. For full credit, you must:

- Provide a segmented control for selecting between the three colors; and
- Provide a slider for adjusting the corner rounding; and
- Place both controls on the same screen as the shape canvas, but not allow squares to be added or dragged over or under the controls; and
- Keep the values in the controls in sync with the values shown in the system Settings app at all times; and
- Update the visible squares immediately when the controls' values change.

## Submitting Your Work

To submit your work, upload a .zip file to the appropriate drop box that contains your entire Xcode project directory, including:

- Your .xcodeproj bundle and all its contents
- All your source files, including code, .xib files, and any image resources
- Any additional files that your app requires to run

Name this zip file "UW_HW3_<*UW NetID*>.zip", where <*UW NetID*> is the username assigned to you by UW. (For example, the instructor's submission would be named UW_HW3_tekl.zip.)

Your submission should compile cleanly on the first try, throwing absolutely no errors, warnings, or static analyzer problems. You may lose points if your solution does not compile cleanly.

Your submission should, once compiled, run well on an actual device running the latest version of iOS. You may choose to support past versions of iOS, but all testing will be done on the newest version available on the due date.