

Washington State University
School of Electrical Engineering and Computer Science
Spring 2018

CptS 479 Mobile Application Development

Homework 11

Due: April 10, 2018 (11:59pm)

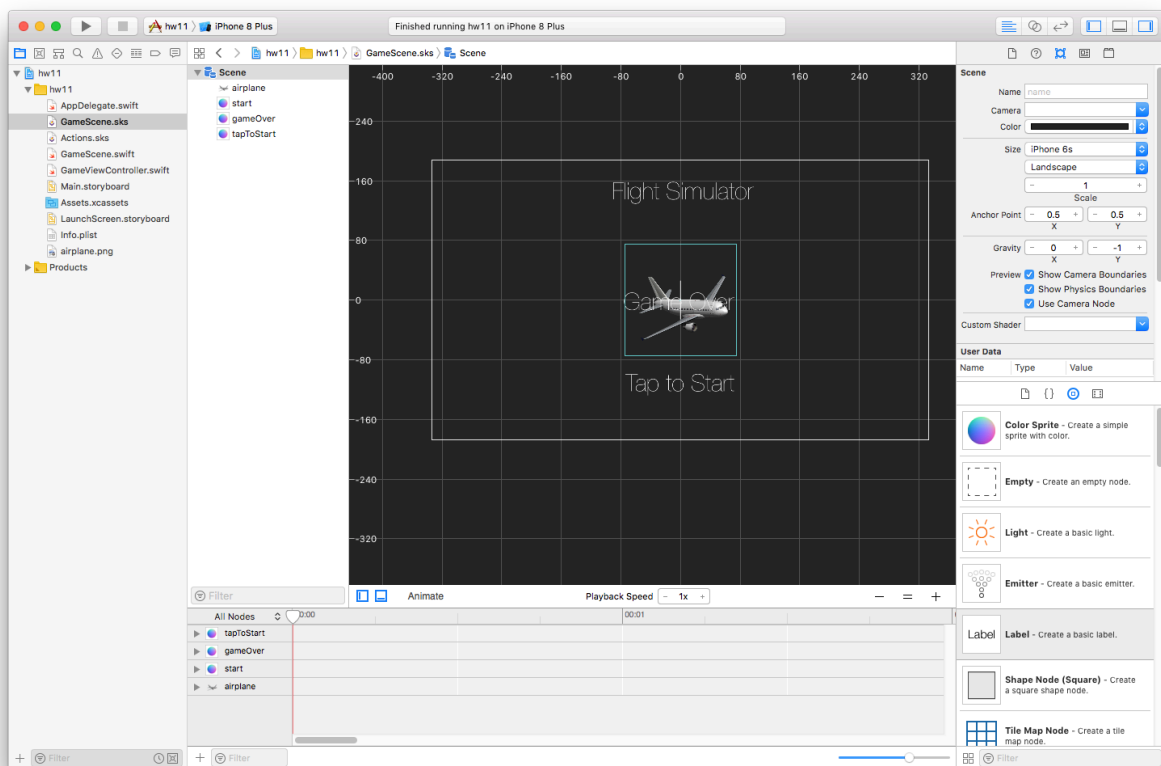
General Instructions: Rename your project folder to be lastname-firstname. Create a compressed zip file of this entire directory and submit as an attachment under Content → Homework 11 for this course on the Blackboard Learn system by the above deadline. You may submit multiple times, but only the most recent entry submitted before the above deadline will be graded. Make sure all files are actually copied into the app directory and not just referenced elsewhere on your computer.

While traveling, you typically spend a lot of time waiting, so what better to pass the time than a game. For this homework you will use SpriteKit to implement a flight simulator game. A video of the game is available at <http://www.eecs.wsu.edu/~holder/courses/MAD/hw11/hw11.mp4>. See screenshots below. Specifically,

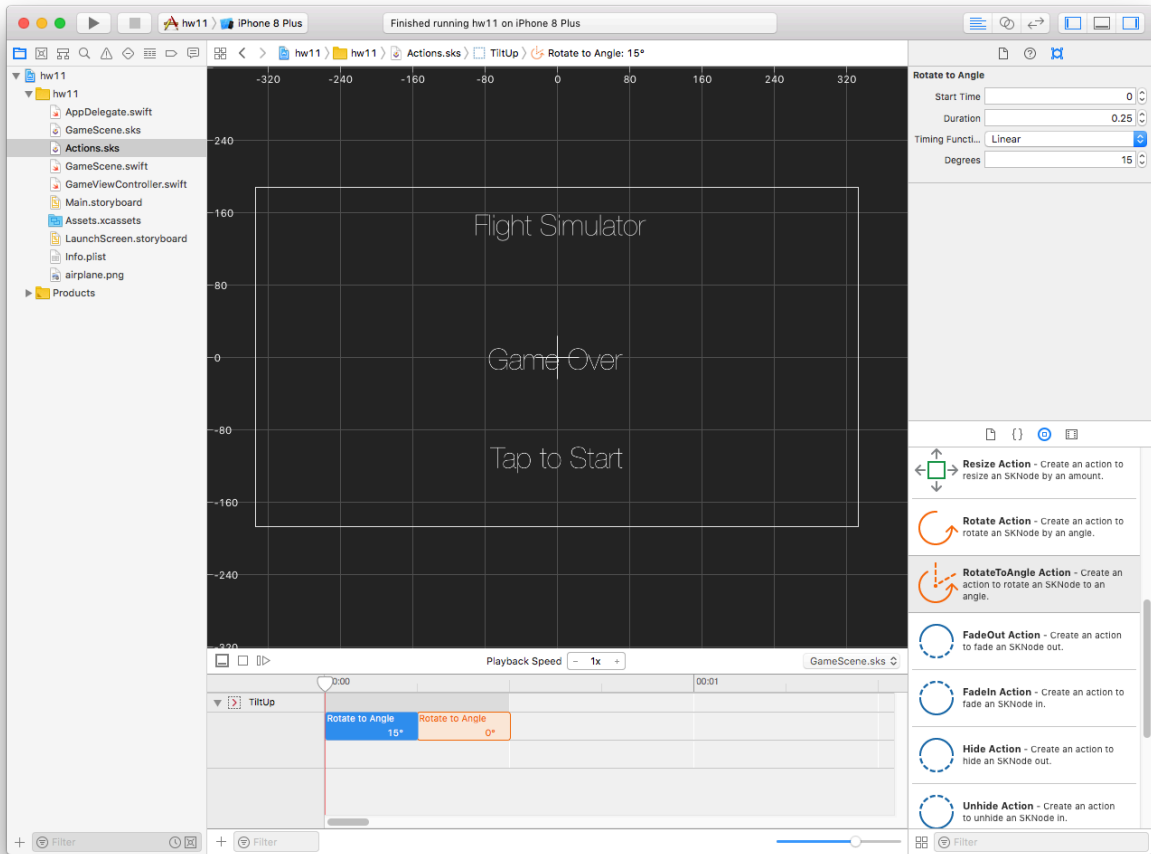
1. Start with a new Game project using SpriteKit. We are going to limit our game to run in Landscape Left orientation, so uncheck the other orientations on the General settings of the app. Also, in the GameViewController, remove or modify the shouldAutorotate and supportedInterfaceOrientations accordingly. You should not need to make any other changes to GameViewController.
2. In GameScene.swift, you can remove all the sample code, although leave empty versions of didMove and update, as we will still need those.
3. In GameScene.sks, you can remove the HelloLabel. We are going to add three labels and a color sprite. See the screenshot below.
 - a. For the whole Scene, change the Size attribute to “iPhone 6s” and Landscape. Also change gravity Y to -1.0.
 - b. Add a Label node for “Flight Simulator” and position top-center.
 - c. Add a Label node for “Game Over” and position center-center.
 - d. Add a Label node for “Tap to Start” and position bottom-center.
 - e. Add a Color Sprite node and change its texture to our airplane, which is available at <http://www.eecs.wsu.edu/~holder/courses/MAD/hw11/airplane.png>. Change its Size to 150x150, and position should be X=Y=0. Add a “Bounding rectangle” physics body to this node.
4. In the Actions.sks file, remove the Pulse action and create a new action called “TiltUp” that consists of two RotateToAngle Actions. The first rotates to 15 degrees for 0.25 seconds, and the second rotates back to 0 degrees for 0.25 seconds. See screenshot.

5. In GameScene.swift, you will implement the following functionality.
 - a. Initially, in didMove, add a tap gesture recognizer to the scene, make sure the airplane is stationary at the center of the screen, that Game Over is hidden, and Tap to Start is visible.
 - b. Add a gameOver method that pauses the game, hides the airplane, shows the Game Over label and disables the tap gesture for 2 seconds. After that, the tap gesture is re-enabled and the Tap to Start label appears.
 - c. When the tap gesture is recognized, if the game is not paused, then you should execute the TiltUp action on the airplane and apply an impulse of $(dx=0, dy=100)$ to the airplane. If the game is paused, then the tap should make sure the Game Over and Tap to Start labels are hidden, reposition the airplane to the center of the screen with zero velocity, and unpause the game.
 - d. Finally, in the update method, check the airplane's y position. If it is off the top or bottom of the screen, then call the gameOver method.
6. Have fun playing the game!

Screenshot: GameScene.sks



Screenshot: Actions.sks



Screenshots: Phone





iPhone 8 Plus - 11.3



iPhone 8 Plus - 11.3