TINKER ACADEMY

Mobile App Development

Handout 5: Touch Event Listeners User Interface

Note your Student ID. You will need to use it throughout the Course.

Setup Instructions In Classroom

Connect to the Local Class Network

1. Select WiFi “TINKER ACADEMY”
2. This network has only LOCAL access and does NOT connect to the internet

Update the Course

1. Ensure you are connected to “TINKER ACADEMY”
2. Restart the VM. Login into the VM.
3. Open Firefox in the VM
4. Your Instructor would tell you what to type in the browser. (Typically it is 192.168.1.5)
5. You should see a page with a list of entries.
6. Click on CourseUpdate<Date>.zip. This will download CourseUpdate<Date>.zip onto your VM
7. Open Nautilus. Click on Downloads. You should see the file CourseUpdate<Date>.zip
8. Right Click on CourseUpdate<Date>.zip. Select Extract Here.
9. Open the extracted folder
10. Double click Course Update. Select “Run” in the window.

Update the Course (Alternate Approach In Class Using USB)

1. Borrow a USB drive from the Instructor
2. If you are on VirtualBox
    a. Click on Devices in the Top level Menu
    b. Select Drag ‘n’ Drop
    c. Select Bidirectional
3. If you are on VirtualBox (Another Way)
    a. Shutdown Virtual Machine
    b. Click on VM in the VirtualBox Manager
    c. Click on the Settings
    d. Click General
    e. Click Advanced Tab

    f. Select “Bidirectional” under Drag ‘n’ Drop
    g. Click OK
    h. Start Virtual Machine
4. If you are on VMWare
    a. Open the virtual machine settings editor (VM > Settings),
    b. Click the Options tab
    c. Select Guest isolation.
    d. Deselect Disable drag and drop to and from this virtual machine
5. Open Nautilus, Click on Desktop
6. Drag the file CourseUpdate<Date>.zip from Windows or Mac onto Desktop in your Virtual Machine
7. Right Click on CourseUpdate<Date>.zip. Select Extract Here.
8. Open the extracted folder
9. Double click Course Update. Select “Run” in the window.
10. Eject the USB Drive and hand it back to the Tinker Academy instructor

Setup Instructions At Home

Connect to your Home WiFi Network

Updating the Course (Using Wifi)

1. Make sure you are on the Home WiFi Network.
2. Click the “Setup” folder in “Nautilus” under “Bookmarks”
3. Double click “Course Update”. Choose “Run”.
   If you see a window popup with the message “update course failed”.
   Hop onto Skype, and request help in the class chat group.
   And send an email to classes@tinkeracademy.com with your name and student ID.
4. Follow the instructions in this handout (last 2 pages) on the quiz and homework steps.

Submitting Quiz and Homework

1. Make sure you are on the Home WiFi Network.
2. Click the “Setup” folder in “Nautilus” under “Bookmarks”
3. Double click “Course Submit”. Choose “Run”.
   If you see a window popup with the message “submit course failed”.
   Hop onto Skype, and request help in the class chat group.
   And send an email to classes@tinkeracademy.com with your name and student ID.

Virtual Machine Installation

Installing the Virtual Machine (VM)

1. Borrow the USB drive from your Tinker Academy instructor

2. Create the folder “tinkeracademy” (without the quotes) under Documents using Finder or Windows Explorer. Type it in *exactly* as indicated.
3. Copy the folder “installers” from the USB drive to under “tinkeracademy” using Finder or Windows Explorer
4. Eject the USB Drive and hand it back to the Tinker Academy instructor
5. Locate the VirtualBox installer under “tinkeracademy” using Finder or Windows Explorer

If your Laptop is	Double click on
Windows 7	VirtualBox-4.3.12-93733-Win.exe
Windows 8	VirtualBox-4.3.14-95030-Win.exe
Mac	VirtualBox-4.2.26-95022-OSX.dmg

6. Install the VirtualBox application
7. Congratulations, You completed a major milestone. Give yourself a pat on the back :)

Importing the Virtual Machine (VM)

1. Locate the Virtual Machine “tinkeracademy.ova” under “tinkeracademy”
2. Double click on “tinkeracademy.ova”. You should get the import screen in VirtualBox with an “Import” Button. Click on the “Import” button to Import the Virtual Machine.

Starting the Virtual Machine (VM)

1. Once the Import is complete and successful, you should see the VM “TinkerAcademy” in the side panel in VirtualBox.
2. If it says “Powered Off” click on the Start Button (Green Arrow) in the VirtualBox Toolbar. This will start the VM.
3. If it says “Running” click on the Show Button (Green Arrow) in the VirtualBox Toolbar. This should display the VM window.
4. Once the VM starts up you will be presented with a login screen. Type in “password” without the quotes. Type it in exactly as indicated and hit “Enter”.
5. Once the login is completed you should see a Desktop with a few icons. The Screen might go fuzzy for a few seconds before displaying the Desktop. *That is ok.*
6. Congratulations. You are now running Linux within your laptop.
7. Double click on the “Firefox” icon in the Sidebar. This should launch Firefox. Verify you have network access. Close “Firefox”

Launching the Virtual Machine in Full Screen

1. Use the VirtualBox menu View->Switch to Fullscreen to switch the VM to fullscreen mode
2. Use the same VirtualBox menu View->Switch to Fullscreen to switch the VM back out of fullscreen mode

Shutting Down the Virtual Machine

1. Click on the red close window button (to the top left on a Mac, top right in Windows).
2. You will prompted with a confirmation message asking if you want to “Power Off” the machine. Click the button to confirm power off.
3. In a few minutes the VM will shut down and you should see the VirtualBox side panel with the “Tinker academy” VM indicating “Powered Off”.

Restarting the Virtual Machine

1. Start VirtualBox
2. Click on the VM “TinkerAcademy” in the VirtualBox side panel.
3. Click on the Start Button (Green Arrow) in the VirtualBox Toolbar. This will start the VM.
4. Once the VM startup you will be presented with a login screen.

Right Click in VM on Mac

1. Open System Preferences, Trackpad
2. Enable “Secondary Click”, Toggle the small arrow to the right and select “Click with two fingers”.

Installing Corona SDK and Sublime Text

1. Ensure you are connected to “TINKER ACADEMY”
2. Open **Chrome or Safari in Windows or Mac** (NOT in the VM)
3. Your Instructor would tell you what to type in the browser. (Typically it is 192.168.1.5)
4. You should see a page with a list of entries.
5. Click on TA-GME-1-Installers.zip. This will download TA-GME-1-Installers.zip onto your VM
6. Extract TA-GME-1-Installers.zip.
7. Open the extracted folder
8. Open corona.
9. Select the installer ending in .dmg for Mac.
10. Select the installer ending in .msi for Windows.
11. Double click to begin the installation process for Corona.
12. Open sublimetext.
13. Select the installer ending in .dmg for Mac.
14. Select the installer ending in Setup.exe for Windows. If you are on a 64 bit Windows select the installer ending in x64 Setup.exe. If you are not sure if you are on 64 bit Windows select Setup.exe.
15. Double click to begin the installation process for Sublime Text 2.

Register Corona SDK

1. Ensure you are connected to the Cupertino WiFi
2. If your Skype ID is tinkeracademy001 use student001@tinkeracademy.com as your email address. Use tinker2014 as your password

Enable Drag ‘n’ Drop

1. If you are on VirtualBox
    a. Click on Devices in the Top level Menu
    b. Select Drag ‘n’ Drop
    c. Select Bidirectional
2. If you are on VirtualBox (Another Way)
    a. Shutdown Virtual Machine
    b. Click on VM in the VirtualBox Manager
    c. Click on the Settings
    d. Click General

    e. Click Advanced Tab
    f. Select “Bidirectional” under Drag ‘n’ Drop
    g. Click OK
    h. Start Virtual Machine
3. If you are on VMWare
    a. Open the virtual machine settings editor (VM > Settings),
    b. Click the Options tab
    c. Select Guest isolation.
    d. Deselect Disable drag and drop to and from this virtual machine

SimulPlay Part 2: The Game Logic

What is the game logic?

The objective of the game is to kick around a soccer ball without letting it collide with the ground. Multiple Players launch the game simultaneously. Each player gets a turn at random.

The Game starts on tapping the START button.

When its the player's turn to play, the game will drop the soccer ball from a random locati

The player has to "kick" the ball to ensure that the soccer ball does not collide with the ground

If the soccer ball is "kicked" successfully, all players get a score increased by 100 points.

If any player "misses" and the ball collides with the ground, then all player's score gets reset t 0.

Initialize The Game

1. Open game.lua in **simulplay** in Sublime Text

2. Type in the code below within the startGame function in game.lua

```
function onGameUpdate(score, shouldDropBall)
end

function startGame()
        initializeGame(onGameUpdate)
end
```

The code contains hooks up the code to initialize the game.

When the START button is clicked, the startGame function is invoked.

The startGame function invokes the function initializeGame.

The function initializeGame requires a function as the input that will be invoked whenever the game is updated.

The function initializeGame ensures that the game is initialized correctly and onGameUpdate is invoked whenever the game is updated.

(initializeGame is part of the Game API. We will cover it a later section.)

onGameUpdate takes 2 inputs

1. score
2. shouldDropBall

score refers to the current game score.
shouldDropBall indicates if the ball should be dropped into the game

Add in the Game Play

What is game play?

Game play refers to the the plot of the game.

In our game

When its the player's turn to play, the game will drop the soccer ball from a random location.

1. Open game.lua in **simulplay** in Sublime Text

2. Type in the highlighted code below within the startGame function in game.lua

```
function onGameUpdate(score, shouldDropBall)
	displayScore(score)
	if shouldDropBall then
		dropBall()
	end
end

function onBallTapped(event)
	kickBall()
```

```
end
```

displayScore, dropBall and kickBall are part of the Game API.

We will cover it in the next section.

Review the Game API

The Game Logic uses the following Game APIs

Game API	Inputs	It provides...
initializeGame	callback debug	• Initializes the game timer • Listens to collision events • Registers the onGameUpdate function
dropBall		• creates a ball at a random location • adds physics to the ball • applies random “drop” physics force to the ball • listens to ball tap events
kickBall		• applies a random “kick” physics force to the ball

Review the Network API

The Game API uses the Network APIs to communicate with the server and receive game updates.

The network API’s communicate with server using the user id. The user id is a special generated id that is is guaranteed to be unique to within high levels of probability.

Network API	Inputs	It returns...
nextturn		• the user id of the next turn player

	user id	• the latest group score
addscore	user id	• adds to the group total score • returns the latest group score
resetscore	user id	• resets the group score to 0 • returns the latest group score

The network API uses the network Lua table to make network requests and listen to network events

Function	What does this do?
network.request	Sends a request to the URL with the parameters and register the network listener
network listener	Listens to network events. Once the network completes the request, the network listener receives a network.phase of “ended”

The Physics API

Physics API	What does this do?
ball:applyLinearImpulse	Linear Impulse applies a linear impulse along the X and Y directions
ball:applyAngularImpulse	Angular Impulse applies a rotational impulse along the X and Y directions

The Physics Collision Detection

Collision detection is a feature of the underlying physics engine.

When 2 objects that have physics applied to them collide they generate a collision event.

The game can listen to collision events. The collision event tells the game which 2 objects collided.

The game can then take appropriate action based on the collision event.

Collision event detection is added using the

```
Runtime:addEventListener(“collision”, onCollision)
```

where the event listener is the onCollision function

Put your Gaming Hats On!

Trial Run

3 Volunteers

1. Relaunch Launch Game in Corona Simulator (Command R on Mac or Control+R on Windows)
2. Don’t click the start button yet
3. Wait for the Ready Signal

The Real Deal

1. Relaunch Launch Game in Corona Simulator (Command R on Mac or Control+R on Windows)
2. Don’t click the start button yet
3. Wait for the Ready Signal

That was a LOT we covered!

You made it this far! Awesome!

In the next class, we will be moving to Graphics Images and Animation Audio and Video using the Corona Game Engine.

Quiz 5: Touch Event Listeners User Interface

Open the Quiz

Make sure you are on the Home WiFi.
Follow the instructions in “Updating the Course” in this Handout.
Open Quiz4.odt under “Courses” “TA-GME-1” “quiz” “quiz5”

Complete the Quiz

1. Attempt each question. Type in the answers in the “Answer:” box.
2. Save the file using File->Save or Ctrl-S

Submit the Quiz

Make sure you are on the Home WiFi.
Follow the instructions in “Submitting Quiz and Homework” in this Handout.