CS5530
Mobile/Wireless Systems
Xcode

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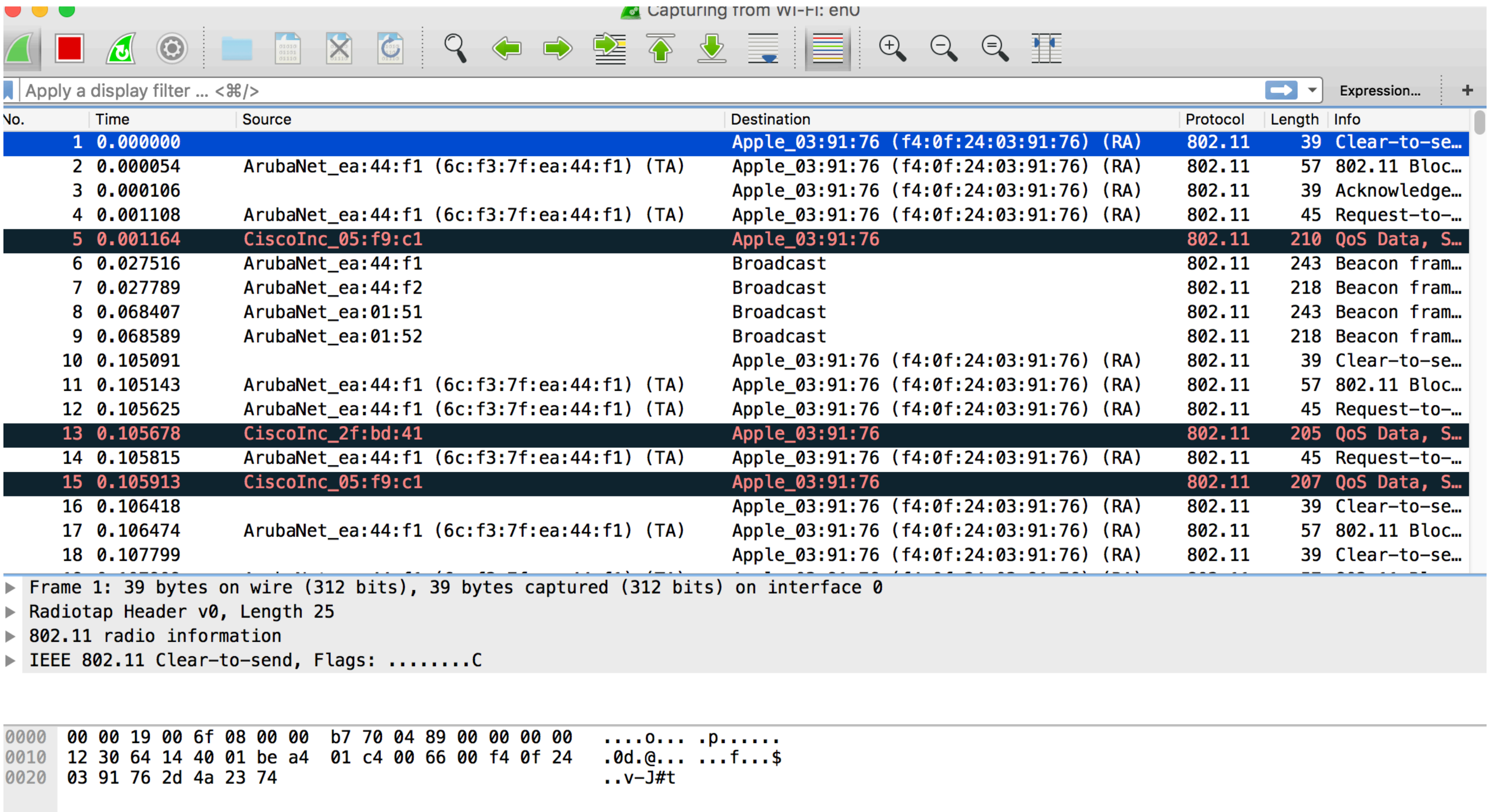
Monitoring a wireless network: Wireshark



No.	Time	Source	Destination	Protocol	Length	Info
1	0.000000		Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	39	Clear-to-se…
2	0.000054	ArubaNet_ea:44:f1 (6c:f3:7f:ea:44:f1) (TA)	Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	57	802.11 Bloc…
3	0.000106		Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	39	Acknowledge…
4	0.001108	ArubaNet_ea:44:f1 (6c:f3:7f:ea:44:f1) (TA)	Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	45	Request-to-…
5	0.001164	CiscoInc_05:f9:c1	Apple_03:91:76	802.11	210	QoS Data, S…
6	0.027516	ArubaNet_ea:44:f1	Broadcast	802.11	243	Beacon fram…
7	0.027789	ArubaNet_ea:44:f2	Broadcast	802.11	218	Beacon fram…
8	0.068407	ArubaNet_ea:01:51	Broadcast	802.11	243	Beacon fram…
9	0.068589	ArubaNet_ea:01:52	Broadcast	802.11	218	Beacon fram…
10	0.105091		Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	39	Clear-to-se…
11	0.105143	ArubaNet_ea:44:f1 (6c:f3:7f:ea:44:f1) (TA)	Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	57	802.11 Bloc…
12	0.105625	ArubaNet_ea:44:f1 (6c:f3:7f:ea:44:f1) (TA)	Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	45	Request-to-…
13	0.105678	CiscoInc_2f:bd:41	Apple_03:91:76	802.11	205	QoS Data, S…
14	0.105815	ArubaNet_ea:44:f1 (6c:f3:7f:ea:44:f1) (TA)	Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	45	Request-to-…
15	0.105913	CiscoInc_05:f9:c1	Apple_03:91:76	802.11	207	QoS Data, S…
16	0.106418		Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	39	Clear-to-se…
17	0.106474	ArubaNet_ea:44:f1 (6c:f3:7f:ea:44:f1) (TA)	Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	57	802.11 Bloc…
18	0.107799		Apple_03:91:76 (f4:0f:24:03:91:76) (RA)	802.11	39	Clear-to-se…

```
▶ Frame 1: 39 bytes on wire (312 bits), 39 bytes captured (312 bits) on interface 0
▶ Radiotap Header v0, Length 25
▶ 802.11 radio information
▶ IEEE 802.11 Clear-to-send, Flags: ........C
```

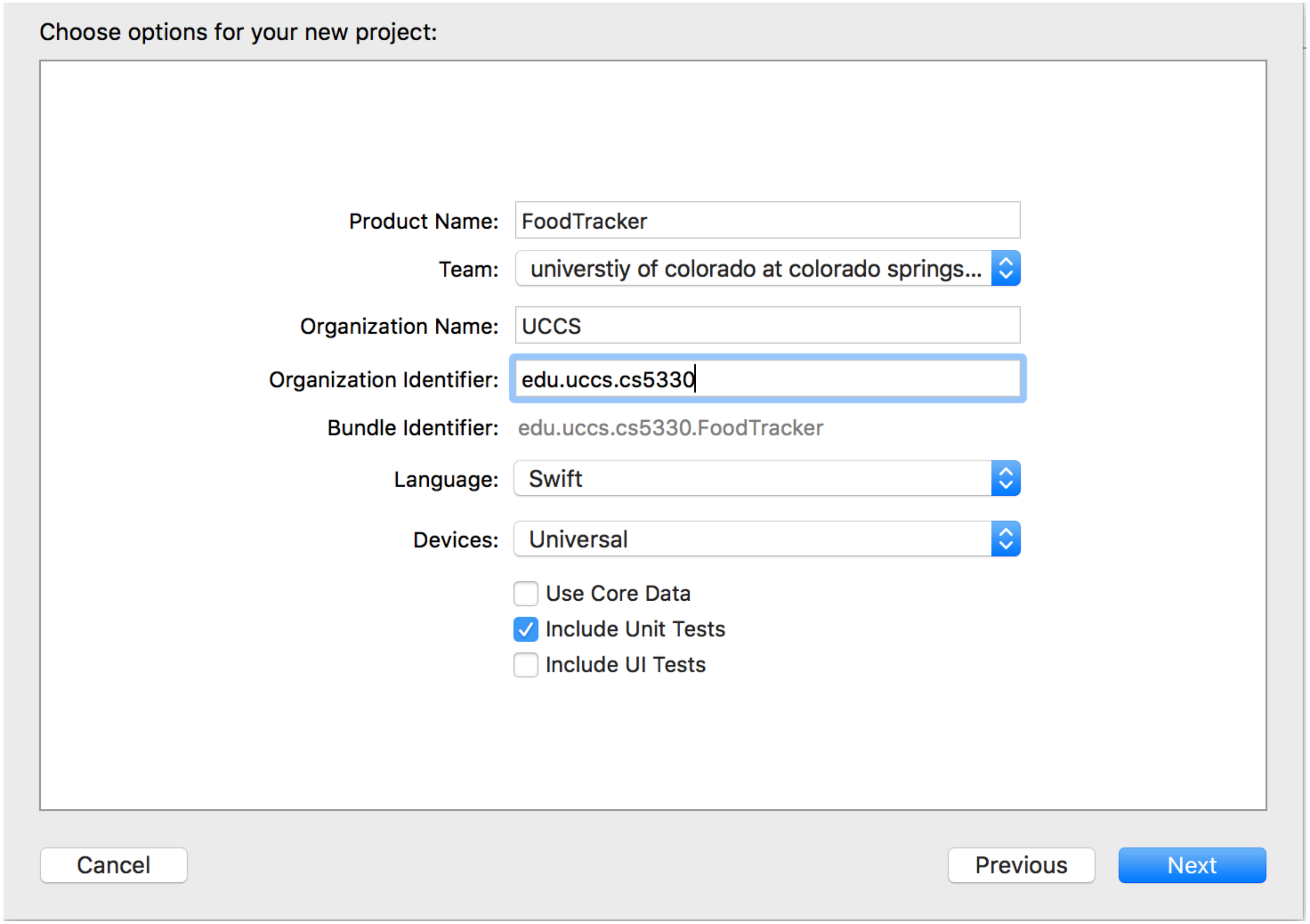
```
0000  00 00 19 00 6f 08 00 00  b7 70 04 89 00 00 00 00   ....o... .p......
0010  12 30 64 14 40 01 be a4  01 c4 00 66 00 f4 0f 24   .0d.@... ...f...$
0020  03 91 76 2d 4a 23 74                               ..v-J#t
```

Project idea: monitor wireless network and analyze data

Outline

- Turn on iMac
  - If the login is Windows, restart and choose Mac OS
- Open Xcode
  - If you are using your Macbook and don’t have xcode, please download and install the latest version
- Structure of Xcode
  - Create a basic UI
- Swift
  - Programming language

Product name



Choose options for your new project:

Product Name: FoodTracker

Team: universtiy of colorado at colorado springs...

Organization Name: UCCS

Organization Identifier: edu.uccs.cs5330

Bundle Identifier: edu.uccs.cs5330.FoodTracker

Language: Swift

Devices: Universal

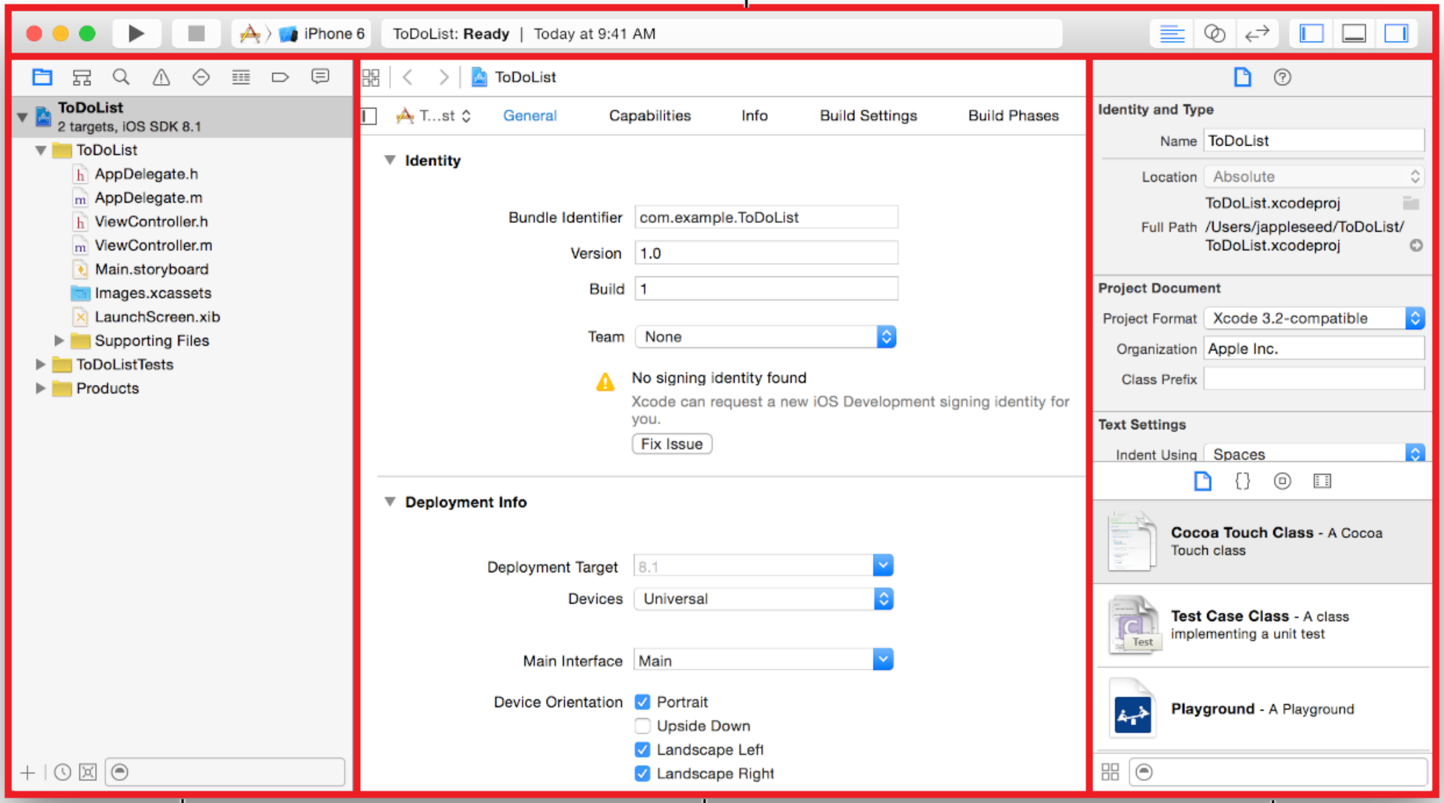
□ Use Core Data

☑ Include Unit Tests

□ Include UI Tests

Xcode IDE

Toolbar



ToDoList: **Ready** | Today at 9:41 AM

Bundle Identifier: com.example.ToDoList

Version: 1.0

Build: 1

Team: None

No signing identity found

Xcode can request a new iOS Development signing identity for you.

Deployment Target: 8.1

Devices: Universal

Main Interface: Main

Device Orientation:
- ☑ Portrait
- □ Upside Down
- ☑ Landscape Left
- ☑ Landscape Right

Name: ToDoList

Location: Absolute

ToDoList.xcodeproj

Full Path: /Users/jappleseed/ToDoList/ToDoList.xcodeproj

Project Format: Xcode 3.2-compatible

Organization: Apple Inc.

Class Prefix:

Indent Using: Spaces

Cocoa Touch Class - A Cocoa Touch class

Test Case Class - A class implementing a unit test

Playground - A Playground

Navigator area

Editor area

Utility area

Xcode

- AppDelegate
  - Entry point to app
  - Creates an application object (manage app’s life cycle)
  - var window: UIWindow?
    - Stores a reference to app’s window
- ViewController
  - For controlling UI
- Storyboard
  - A visual representation of app’s UI

Xcode

- Outlets and actions
  - Outlets provide a way to reference interface objects—the objects you added to your storyboard—from source code files
  - An action (or an action method) is a piece of code that’s linked to an event that can occur in your app. When that event takes place, the system executes the action’s code

Xcode – Process user input

- Delegates
  - Example: update label name when user enters text in a text field and hits enter
    - When working with user input from a text field, you need help from a text field delegate
  - A delegate is an object that acts on behalf of, or in coordination with, another object
  - The delegating object sends a message to the delegate
    - The message tells the delegate about an event that the delegating object is about to handle or has just handled
    - The delegate may respond (updating the appearance or state of itself or of other objects)

Xcode – Process user input

- Delegates
  - Any object can serve as a delegate for another object as long as it conforms to the appropriate **protocol**
  - The protocol that defines a text field’s delegate is called UITextFieldDelegate
  - Make ViewController the text field’s delegate
    - ViewController needs to adopt the UITextFieldDelegate protocol

Xcode – Process user input

- Delegates
  - When user taps a text field, it becomes the first responder
  - The first responder
    - An object that is first on the line for receiving app events, including key events, motion events, and action messages, etc.
  - When a user finishes editing the text field, need to resign its first-responder status
    - The text field will no longer be the active object in the app, events need to get routed to a more appropriate object
    - textFieldShouldReturn()

Xcode – Process user input

- Delegates
  - After textFieldShouldReturn() need to call another function as the next responder
  - textFieldDidEndEditing(): reads the information entered into the text field and does something with it