iPhone App Dev

Lesson 7

Source Codes

https://github.com/makzan/ios-dev-course-example

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Reminder

- You need to develop an iOS app at the end of the course.

Summary

- Usage of table view
- Setting up table view
- Sections and rows
- Selecting table cell
- Choosing the table cell style
- Customizing the table cell accessory
- Using UISwitch in accessory view
- Displaying image in table view

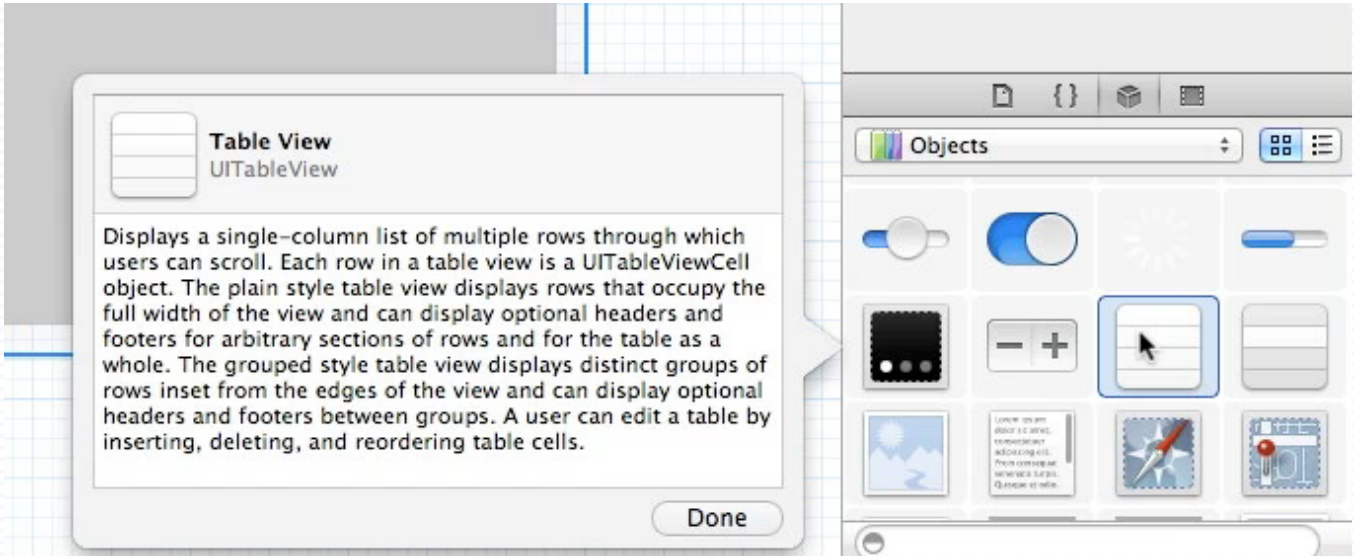
Usage of table view


AT&T
2:30 AM
Settings
Airplane Mode
OFF
Wi-Fi
dahouse2
Notifications
Location Services
On
Sounds
Brightness
Wallpaper
General
AT&T
2:14 PM
77%
Manage Storage
Info
Flixster
3.6 MB
OFF
percyfx
954 KB
OFF
Public Radio
448 KB
ON
Momento
435 KB
ON
GuitarToolkit
334 KB
ON
JetCarStunts
326 KB
ON
Words
191 KB
ON
Urbanspoon
179 KB
ON
TextNow
81.7 KB
ON
1.8 MB available of 5.0 GB on iCloud
3G
9:41 AM
Edit
Chats
Broadcast Message
Group Chat
Search
Jack Whitman
6:24 PM
Hey check out this awesome picture of an old Italian car
1
Whitman family chat
6:23 PM
Me:
Let's go drink and smoke a cigar...
Alice Whitman
6:08 PM
Oh yeah, I knew that
Francis Whitman
5:36 PM
image
Favorites
Status
Contacts
Chats
Settings

We find table view in almost every app.

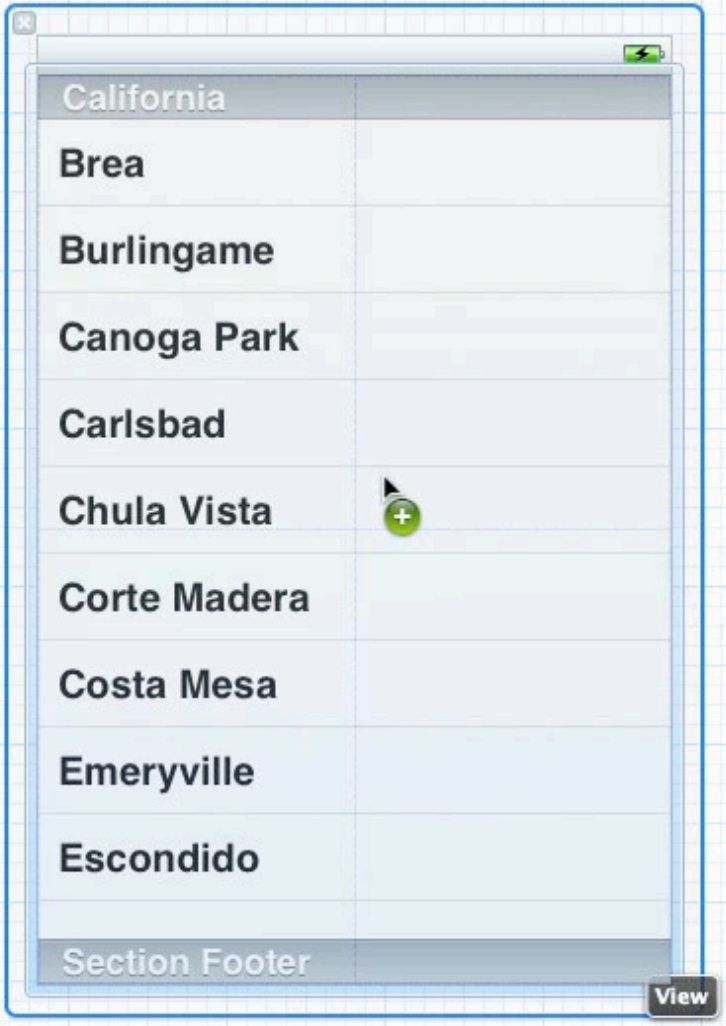
Setting up table view

Setting up table view



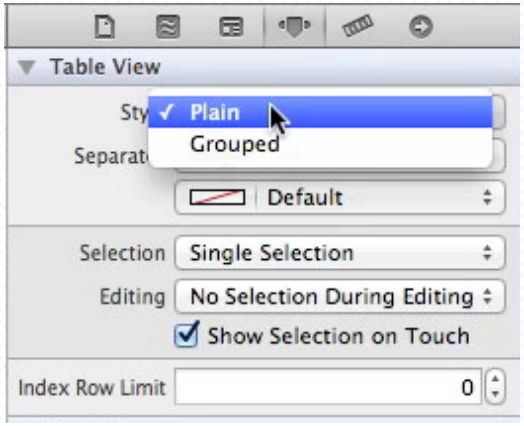
First, let's identify the table view in interface builder.

Setting up table view



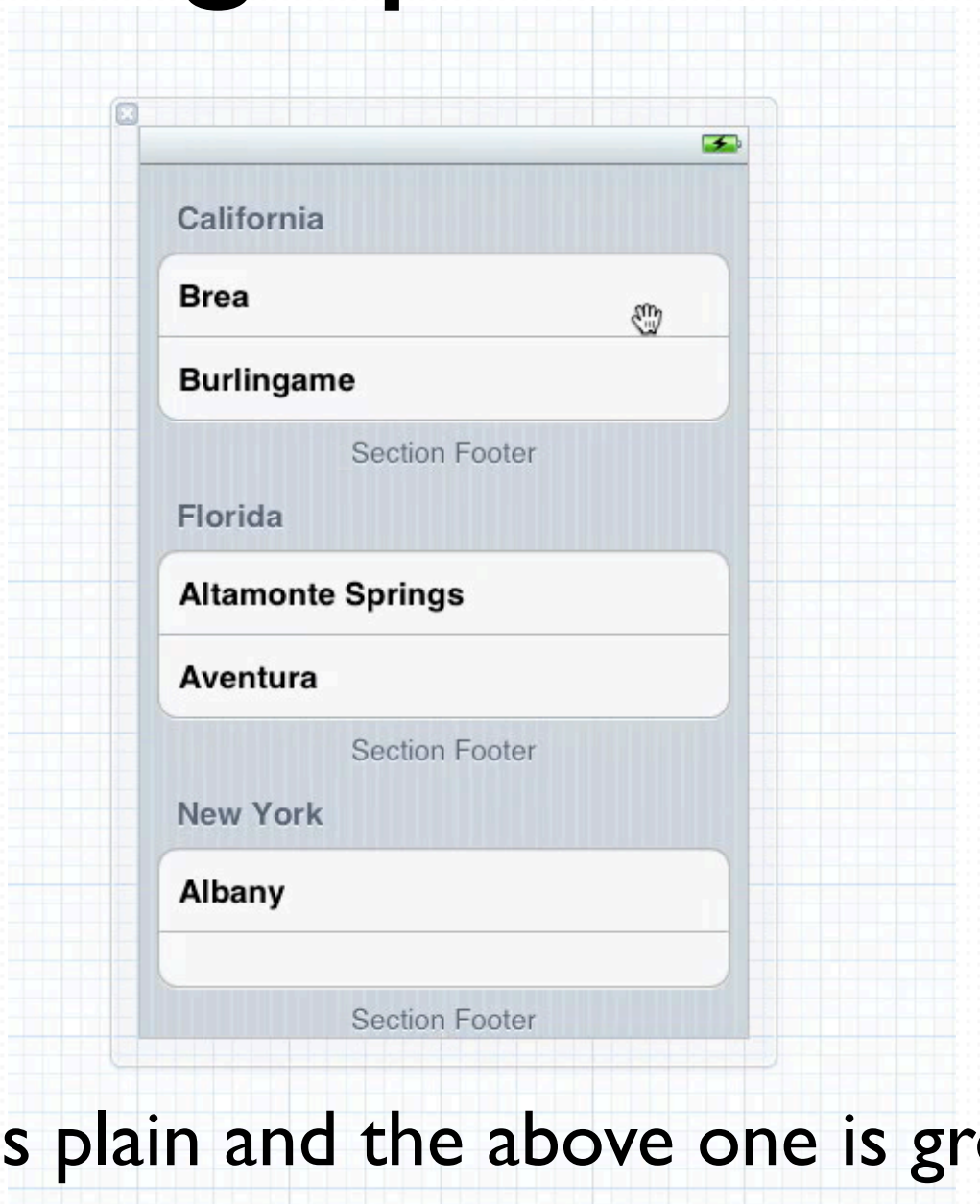
Drag the table view into the view.

Setting up table view



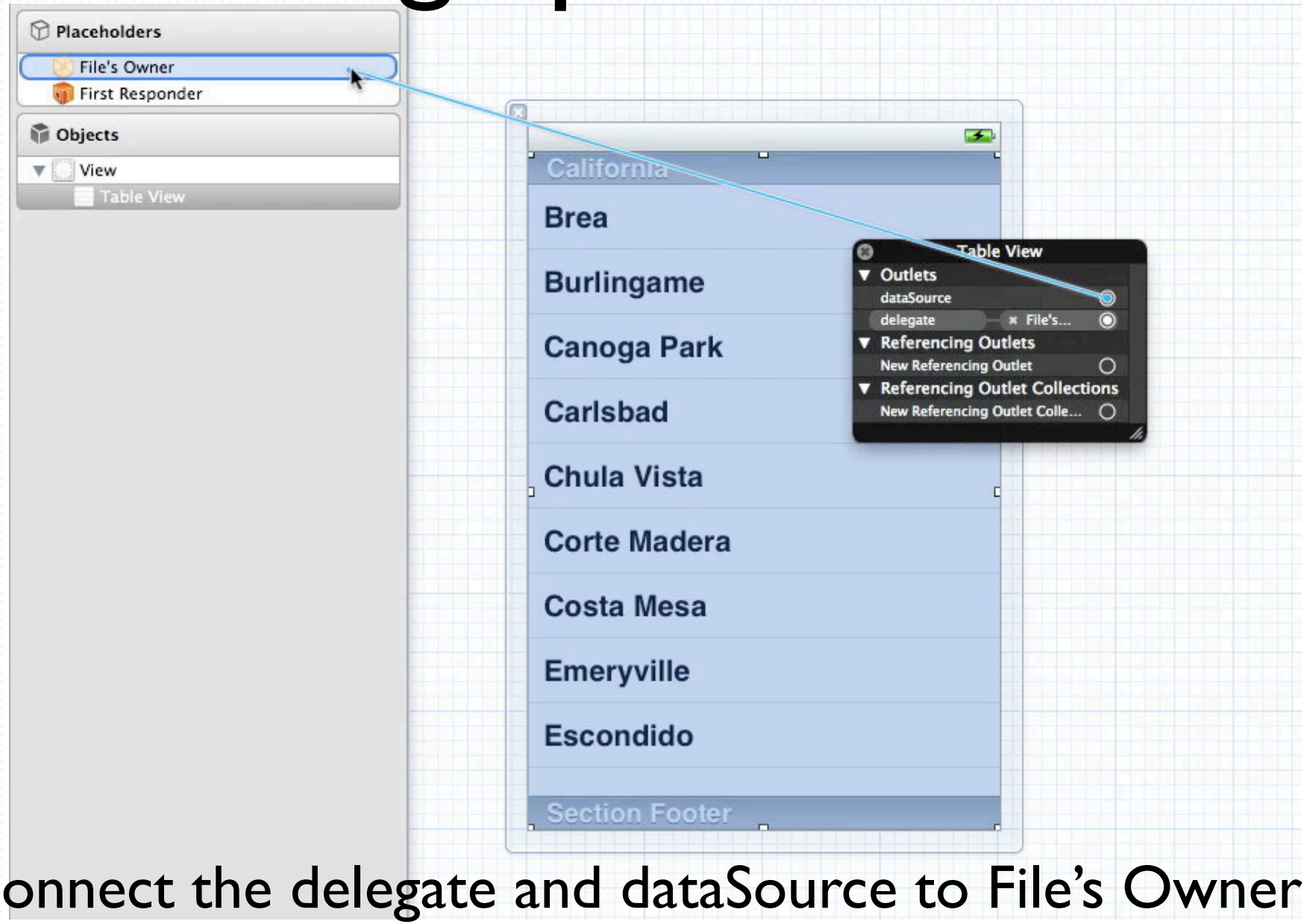
There are two styles in table view, Plain or Grouped.

Setting up table view



The default is plain and the above one is grouped style.

Setting up table view



Connect the delegate and dataSource to File's Owner

Setting up table view

ViewController.h

```
#import <UIKit/UIKit.h>

@interface ViewController : UIViewController <UITableViewDelegate, UITableViewDataSource>

@end
```

Include the table delegate and data source in header.

Setting up table view

ViewController.m

```
#pragma mark - Table Data Source

- (NSInteger)tableView:(UITableView *)tableView numberOfRowsInSection:(NSInteger)section
{
    return 3;
}
```

Implement the method to set numbers of rows.

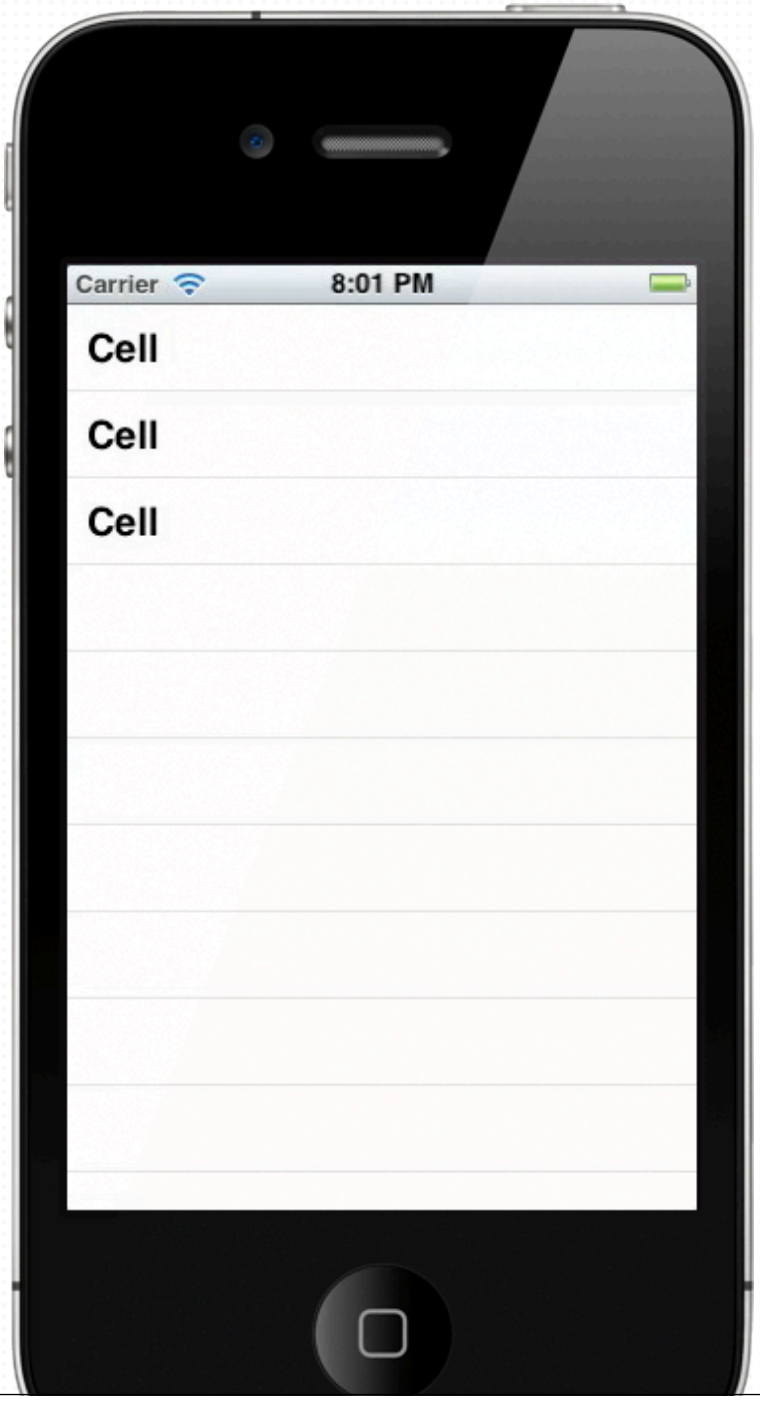
Setting up table view

ViewController.m

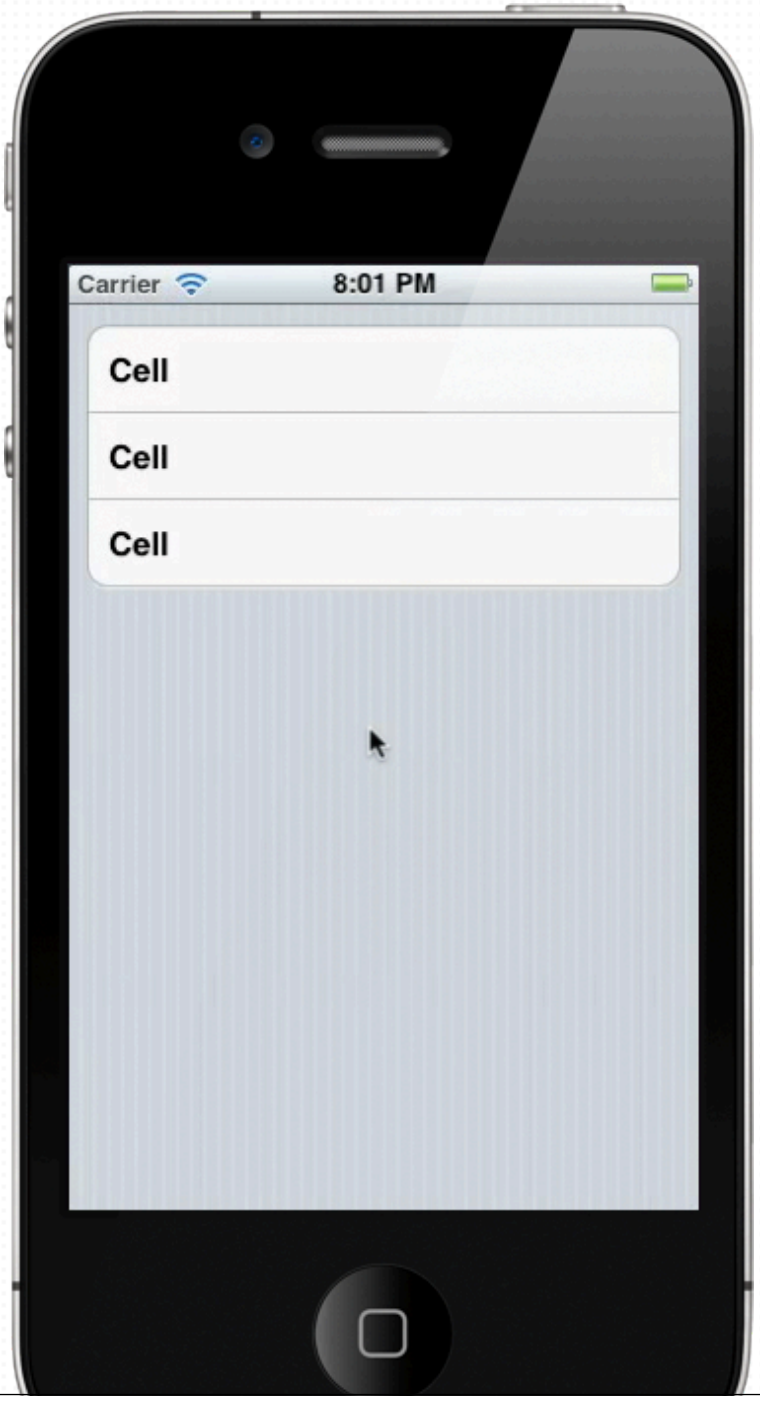
```
- (UITableViewCell *)tableView:(UITableView *)tableView cellForRowAtIndexPath:(NSIndexPath *)indexPath
{
    UITableViewCell *cell = [tableView dequeueReusableCellWithIdentifier:@"NormalCell"];
    if (cell == nil)
    {
        cell = [[UITableViewCell alloc] initWithStyle:UITableViewCellStyleDefault reuseIdentifier:@"NormalCell"];
    }

    cell.textLabel.text = @"Cell";

    return cell;
}
```

Implement the Table Cell in the above data source method.

The result in plain style.



The result in grouped style.



Section and Row

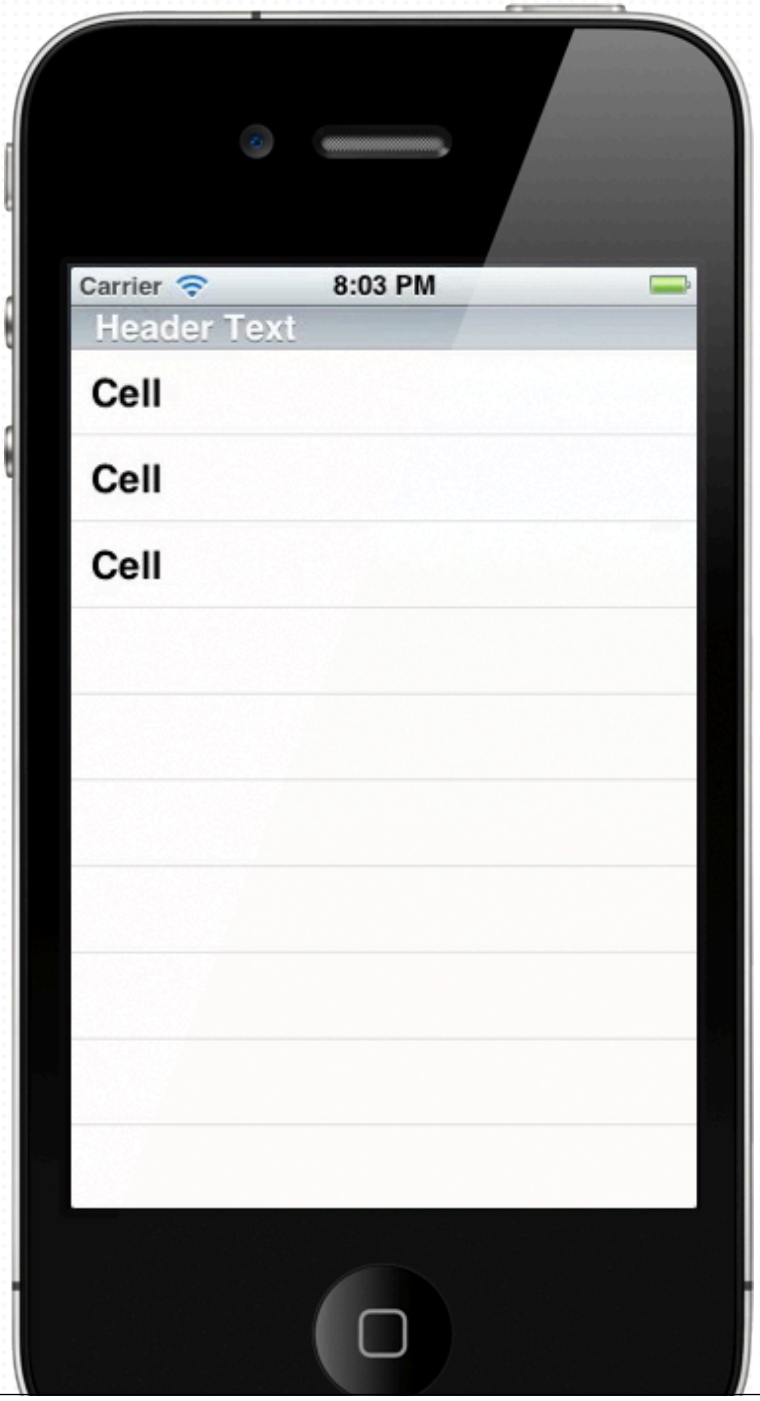
Sections and Rows

ViewController.m

```
- (NSString *)tableView:(UITableView *)tableView titleForHeaderInSection:
    (NSInteger)section
{
    return @"Header Text";
}
```

The section appears when we set the above data source method.

The result with section header



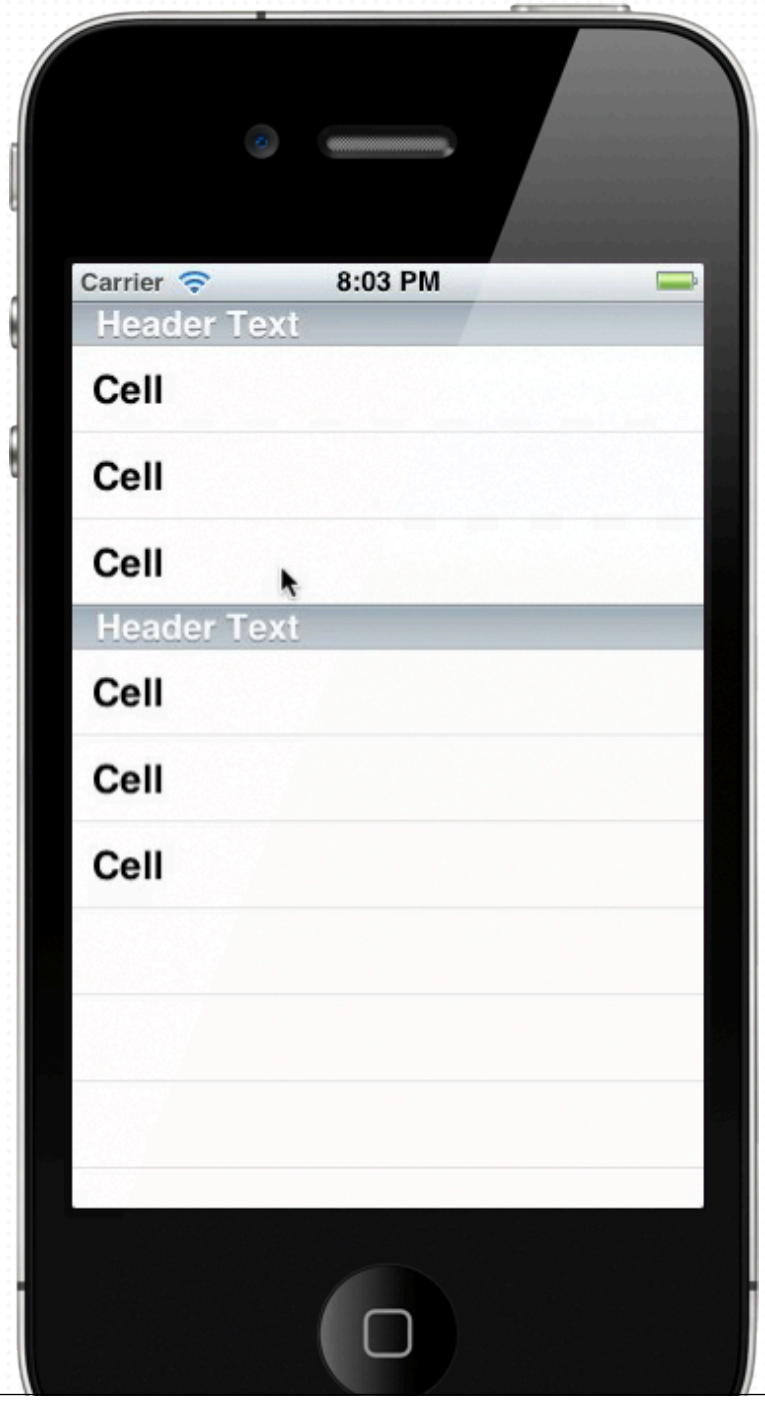
Sections and Rows

ViewController.m

```
- (NSInteger)numberOfSectionsInTableView:(UITableView *)tableView
{
    return 2;
}
```

We can also set how many sections in the table view

The result with 2 sections



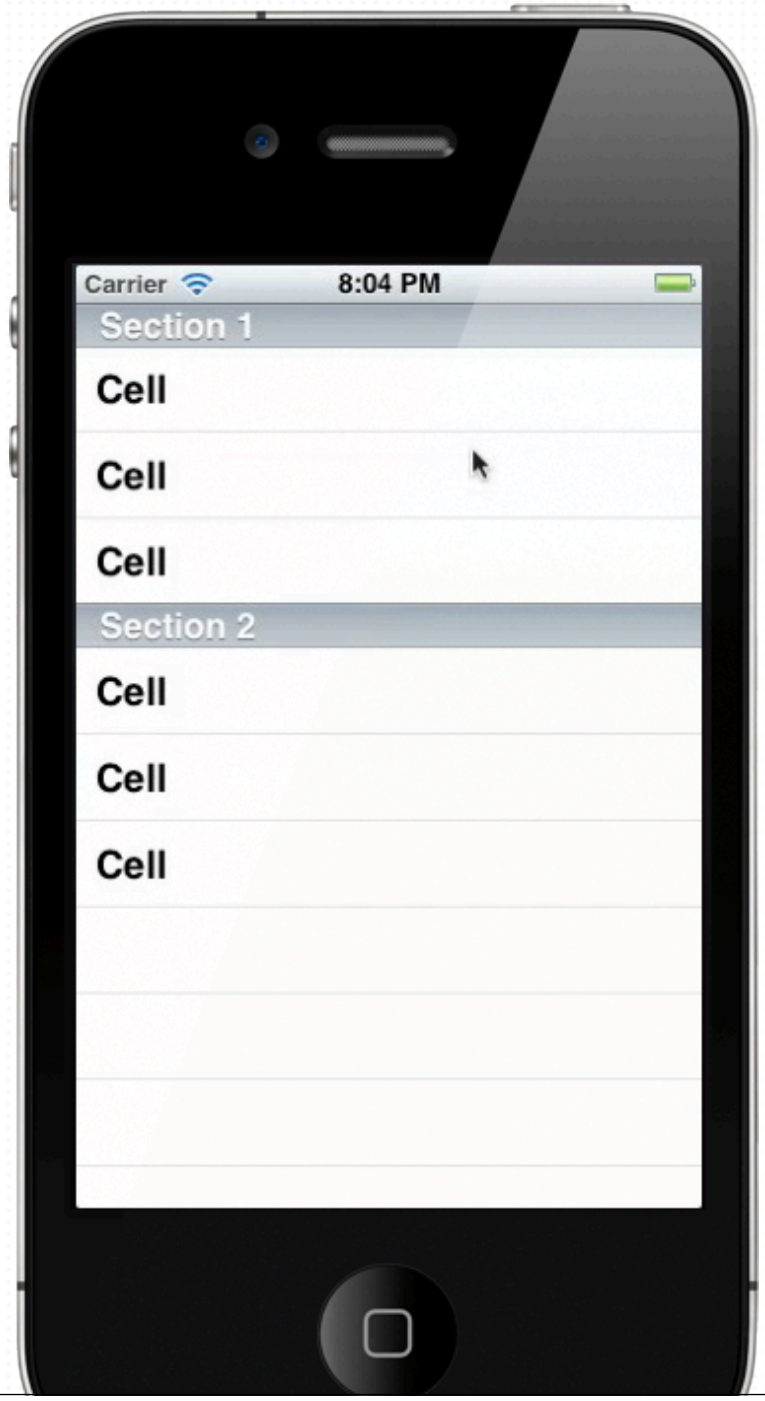
Sections and Rows

ViewController.m

```
- (NSString *)tableView:(UITableView *)tableView titleForHeaderInSection:(NSInteger)section
{
    if (section == 0)
    {
        return @"Section 1";
    }
    else if (section == 1)
    {
        return @"Section 2";
    }
    return @"";
}
```

We can set each section header

The result with 2 section headers



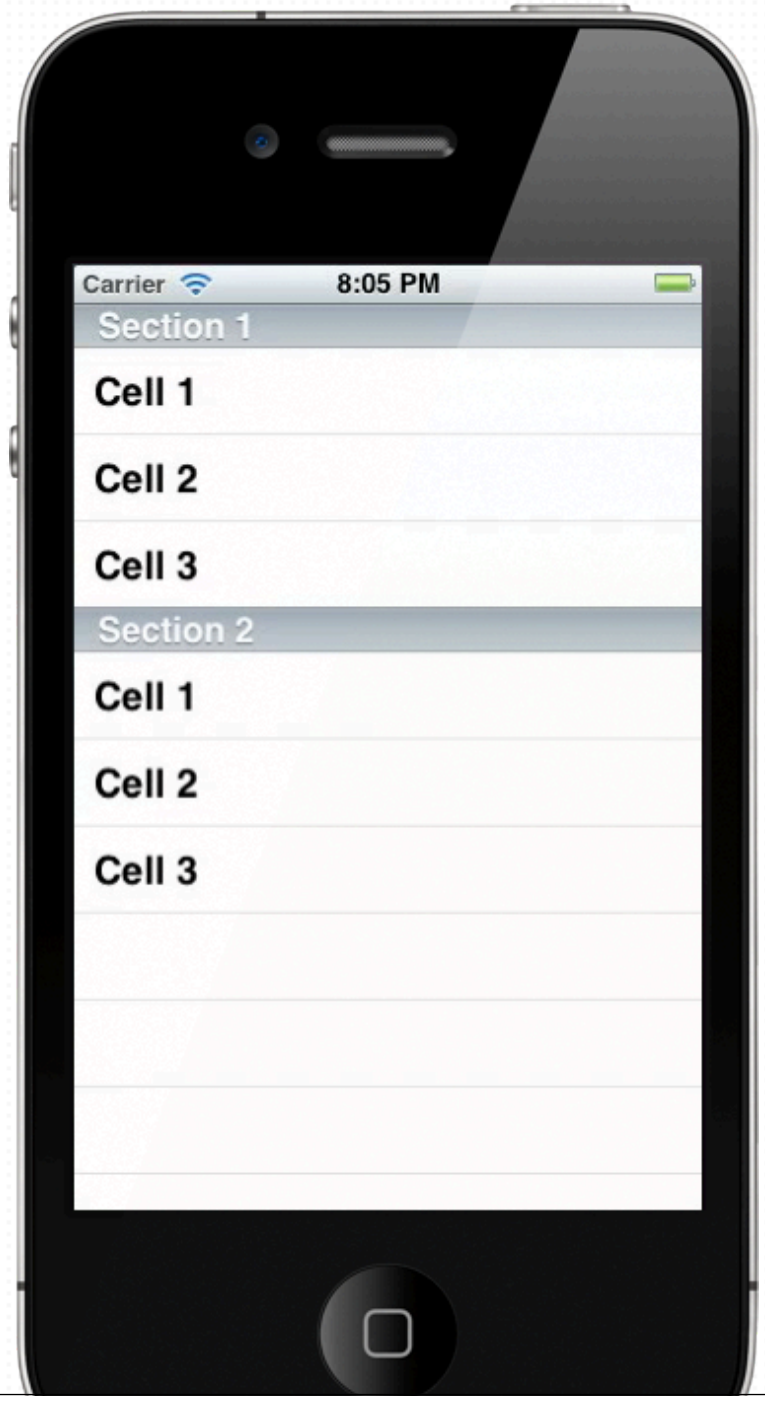
Sections and Rows

ViewController.m

```
- (UITableViewCell *)tableView:(UITableView *)tableView cellForRowAtIndexPath:(NSIndexPath *)
    indexPath
{
    UITableViewCell *cell = [tableView dequeueReusableCellWithIdentifier:@"NormalCell"];
    if (cell == nil)
    {
        cell = [[UITableViewCell alloc] initWithStyle:UITableViewCellStyleDefault reuseIdentifier:
            @"NormalCell"];
    }

    if (indexPath.row == 0)
    {
        cell.textLabel.text = @"Cell 1";
    }
    else if (indexPath.row == 1)
    {
        cell.textLabel.text = @"Cell 2";
    }
    else if (indexPath.row == 2)
    {
        cell.textLabel.text = @"Cell 3";
    }


    return cell;
}
```

The cell implementation method becomes more complicated to display different cell content.

The result with different cell content.



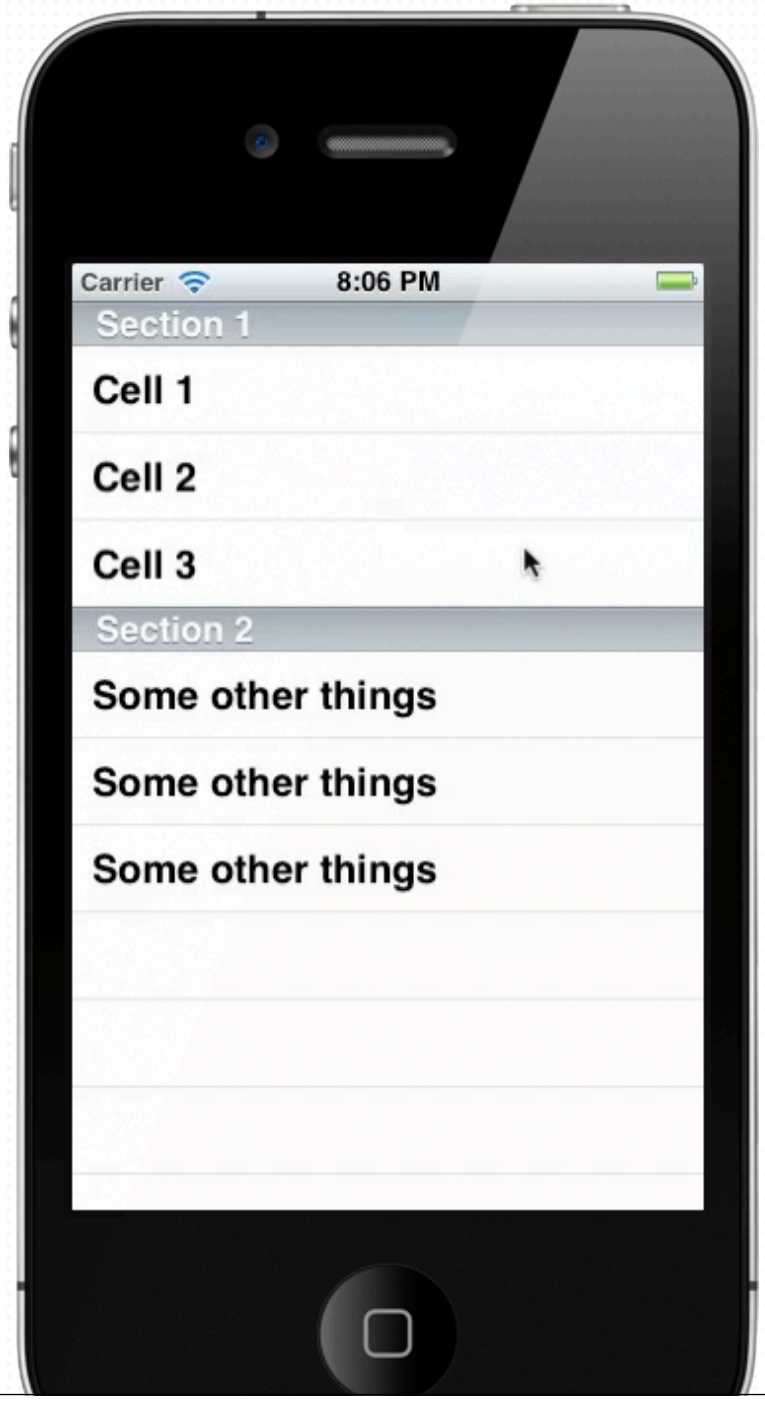
Sections and Rows

ViewController.m

```
if (indexPath.section == 0)
{
    if (indexPath.row == 0)
    {
        cell.textLabel.text = @"Cell 1";
    }
    else if (indexPath.row == 1)
    {
        cell.textLabel.text = @"Cell 2";
    }
    else if (indexPath.row == 2)
    {
        cell.textLabel.text = @"Cell 3";
    }
}
else if (indexPath.section == 1)
{
    cell.textLabel.text = @"Some other things";
}
```

We may also set content based on the section index

The result with different cell content.



Sections and Rows

ViewController.m

```
@interface ViewController ()
@property (nonatomic, retain) NSMutableArray *dataArray;
@end


@implementation ViewController
@synthesize dataArray = _dataArray;


- (void)viewDidLoad
{
    [super viewDidLoad];
    // Do any additional setup after loading the view, typically from a nib.

    self.dataArray = [[NSMutableArray alloc] initWithCapacity:10];
    [self.dataArray addObject:@"Record 1"];
    [self.dataArray addObject:@"Record 2"];
    [self.dataArray addObject:@"Record 3"];
}
```

Let's try using some dynamic content. Create an Array with some string content.

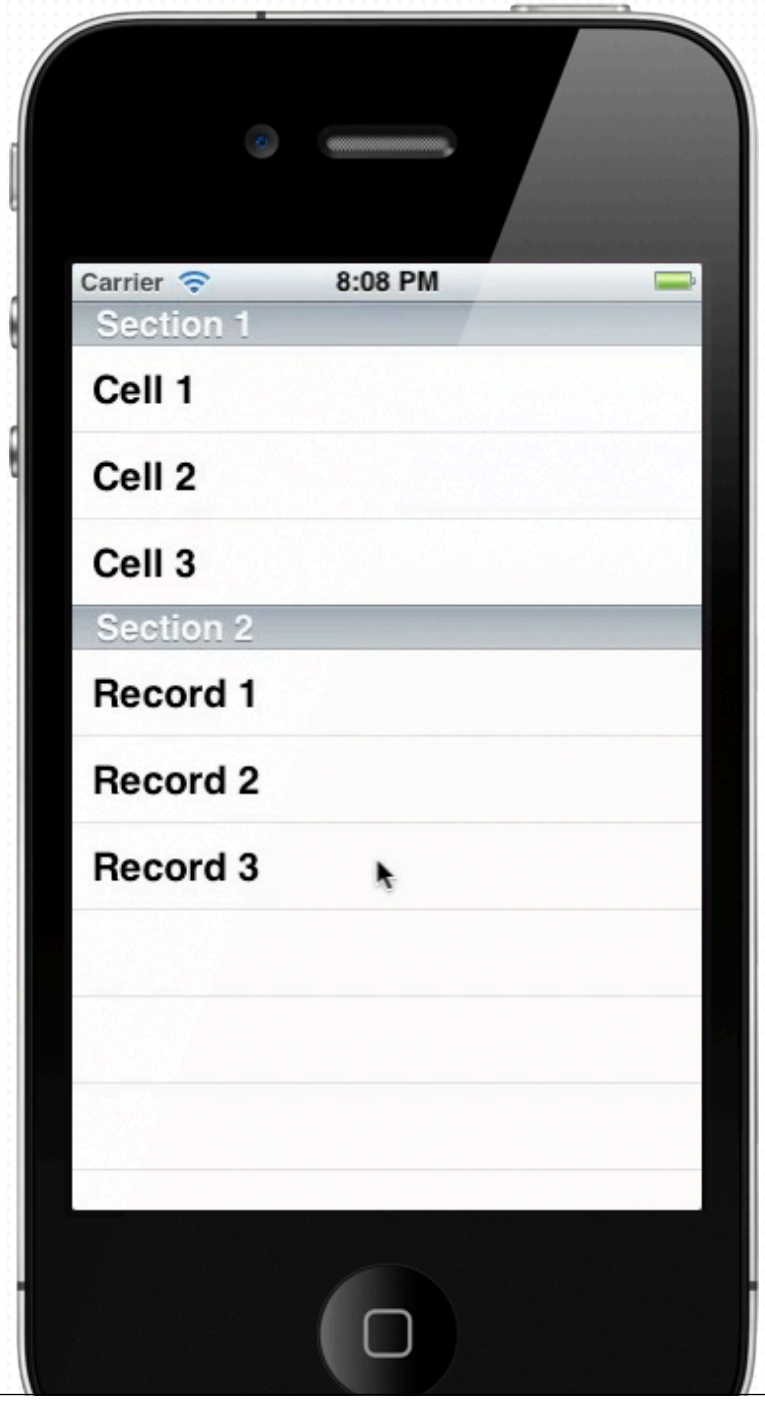
Sections and Rows

ViewController.m

```
}
else if (indexPath.section == 1)
{
    cell.textLabel.text = [self.dataArray objectAtIndex:indexPath.row];
}
```

Replace the table cell text to the array content.

The result with cell content from array.



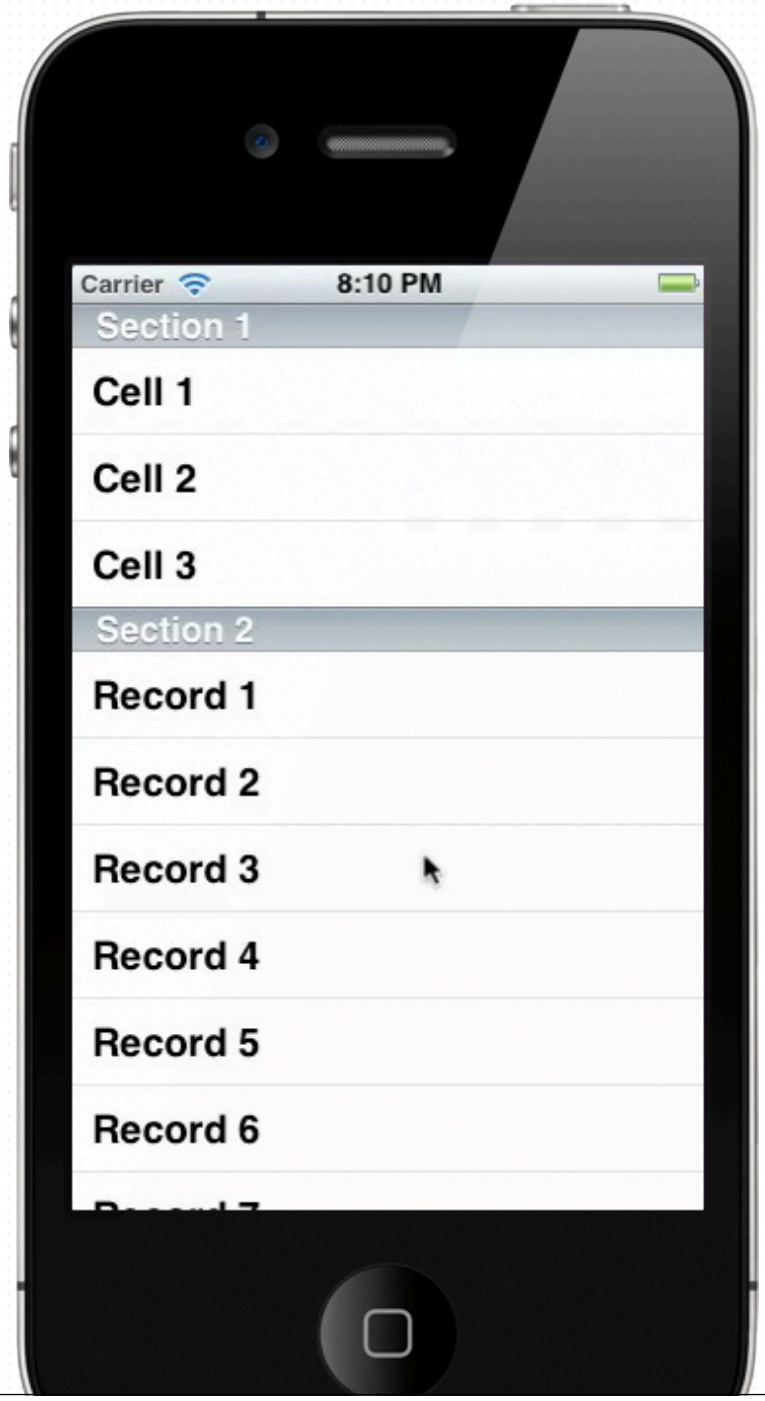
Sections and Rows

ViewController.m

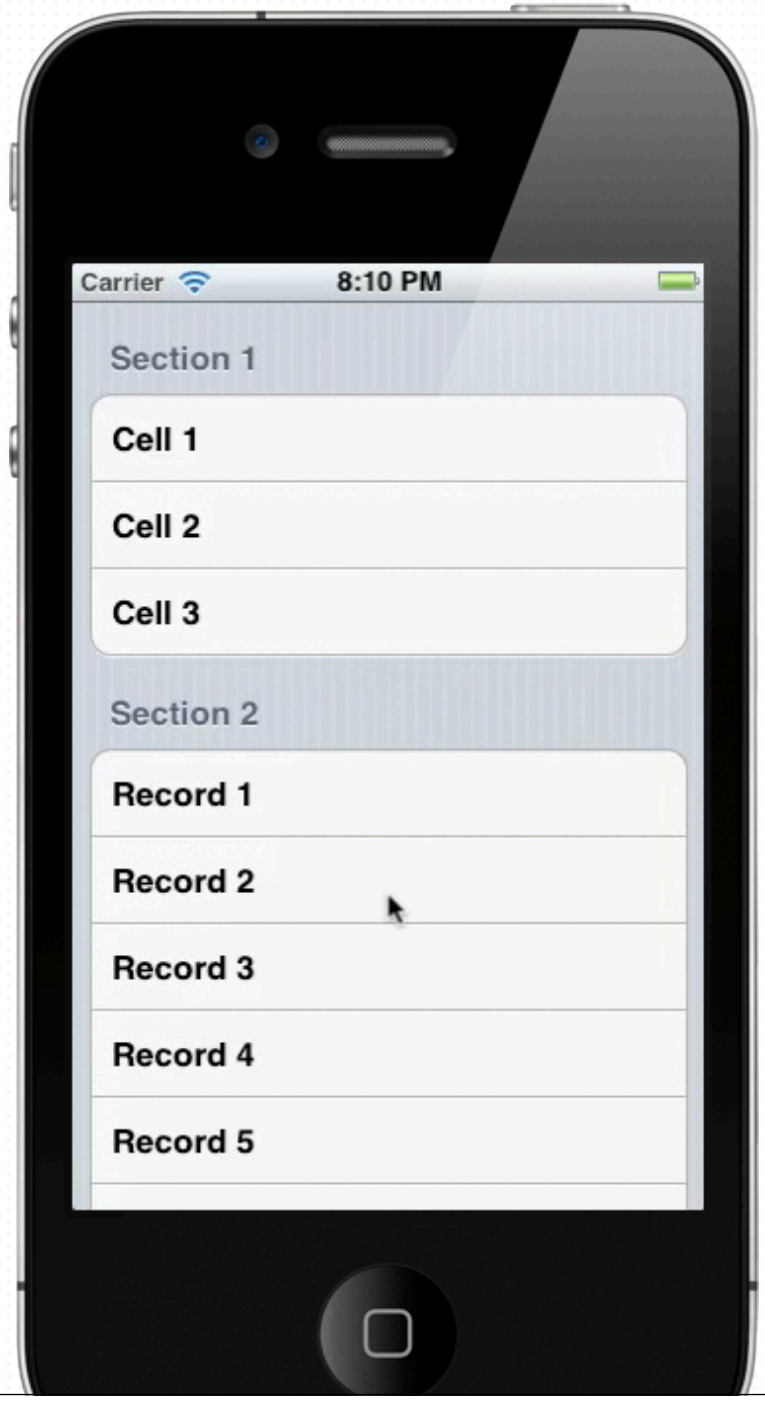
```
- (NSInteger)tableView:(UITableView *)tableView numberOfRowsInSection:(NSInteger)section
{
    if (section == 0)
    {
        return 3;
    }
    else if (section == 1)
    {
        return [self.dataArray count];
    }

    return 0;
}
```

We can set the number of rows according to the object count in the data array

The result with many records in the data array.



The same code base with grouped style



Selecting table cell

Selecting table cell

ViewController.m

```
#pragma mark - Table View Delegates

- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:
    (NSIndexPath *)indexPath
{
    [tableView deselectRowAtIndexPath:indexPath animated:YES];
}
```

We can know the table cell selection with the above delegate method.

The cell with selection and deselection effect

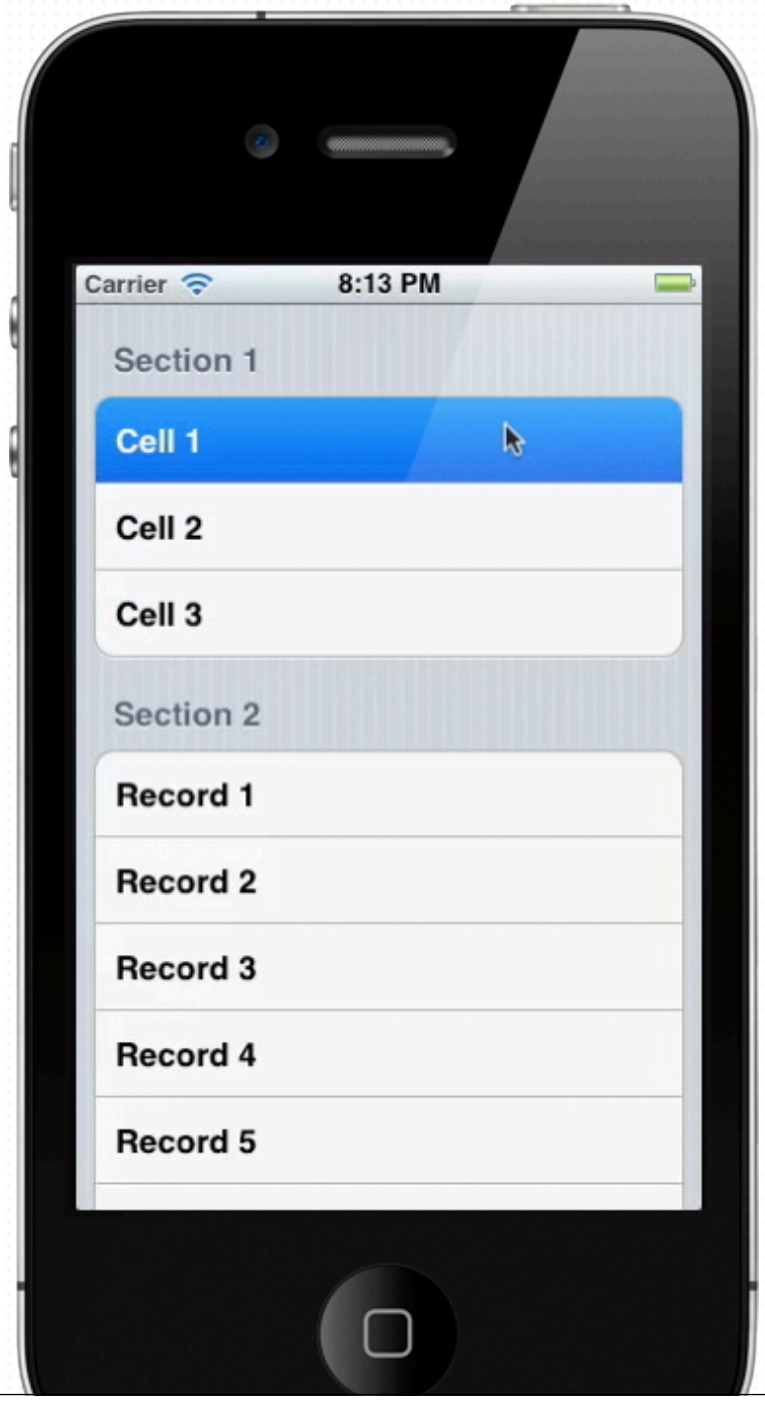


Table cell style

Table cell style

ViewController.m

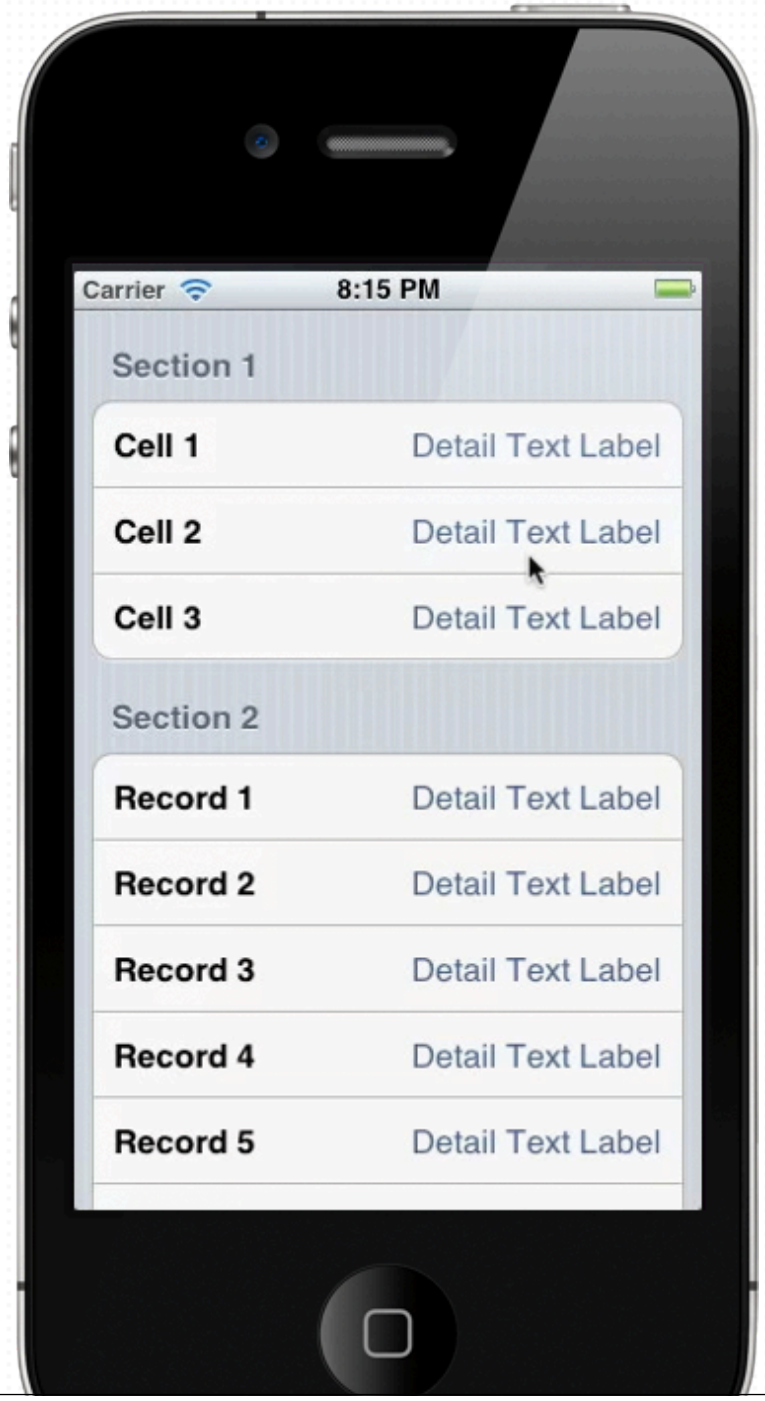
```
{
    UITableViewCell *cell = [tableView dequeueReusableCellWithIdentifier:@"NormalCell"];
    if (cell == nil)
    {
        cell = [[UITableViewCell alloc] initWithStyle:UITableViewCellStyleSubtitle reuseIdentifier:
            @"NormalCell"];
    }

    if (indexPath.section == 0)
    {
        if (indexPath.row == 0)
        {
            cell.textLabel.text = @"Cell 1";
        }


    cell.detailTextLabel.text = @"Detail Text Label";
```

```
UITableViewCellStyle UITableViewCellStyleDefault
UITableViewCellStyle UITableViewCellStyleSubtitle
UITableViewCellStyle UITableViewCellStyleValue1
UITableViewCellStyle UITableViewCellStyleValue2
```

There are 4 cells styles. We also set a detail text label to preview the cell styles.

The result with subtitle cell style

The result with value1 cell style



The result with value 2 cell style

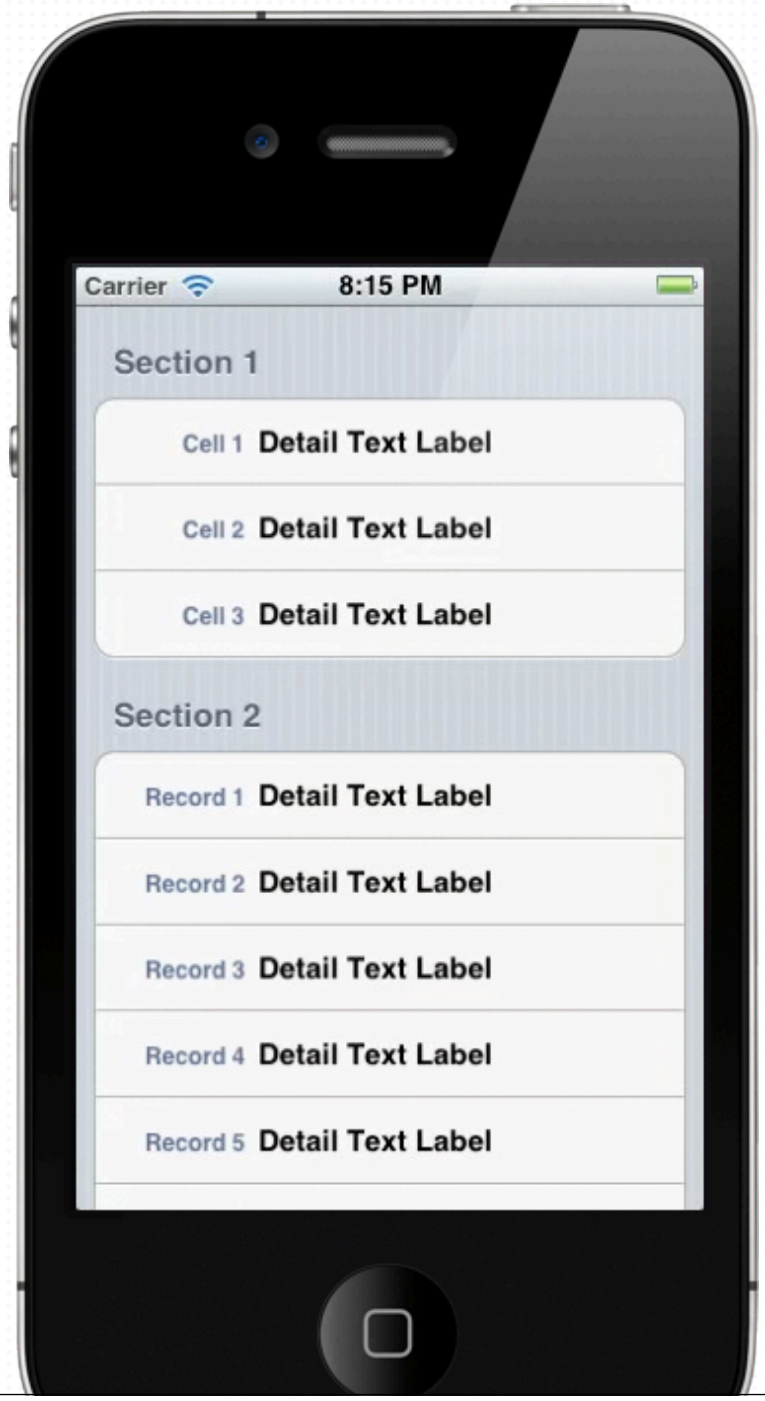
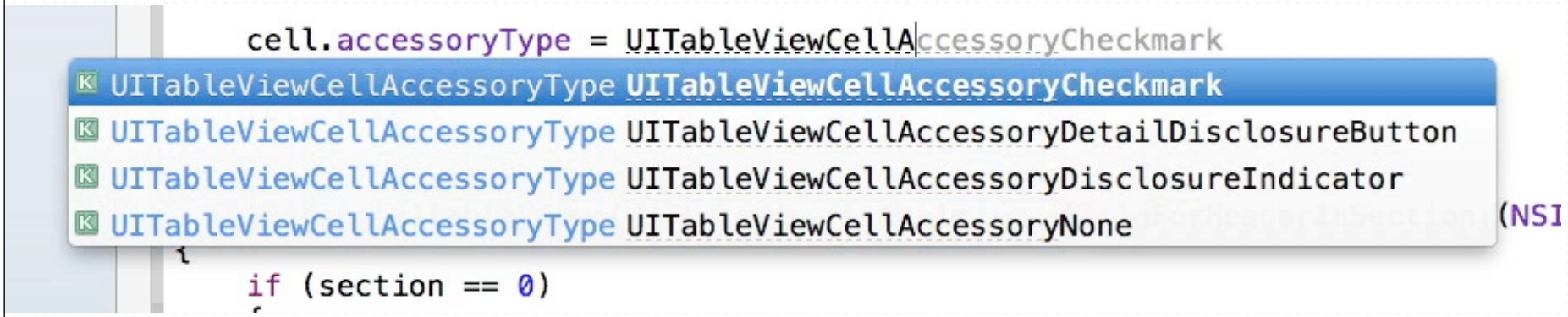


Table cell accessory

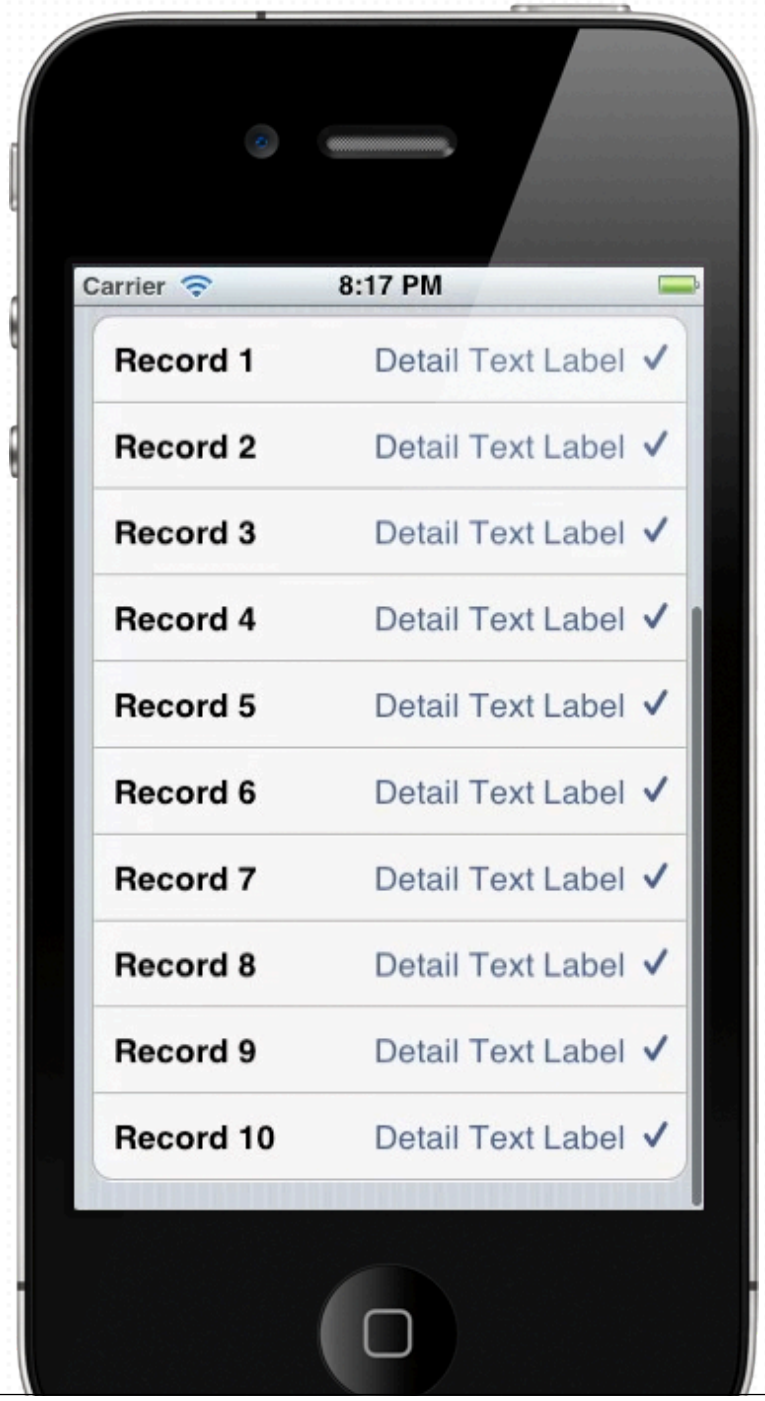
Table cell accessory

ViewController.m

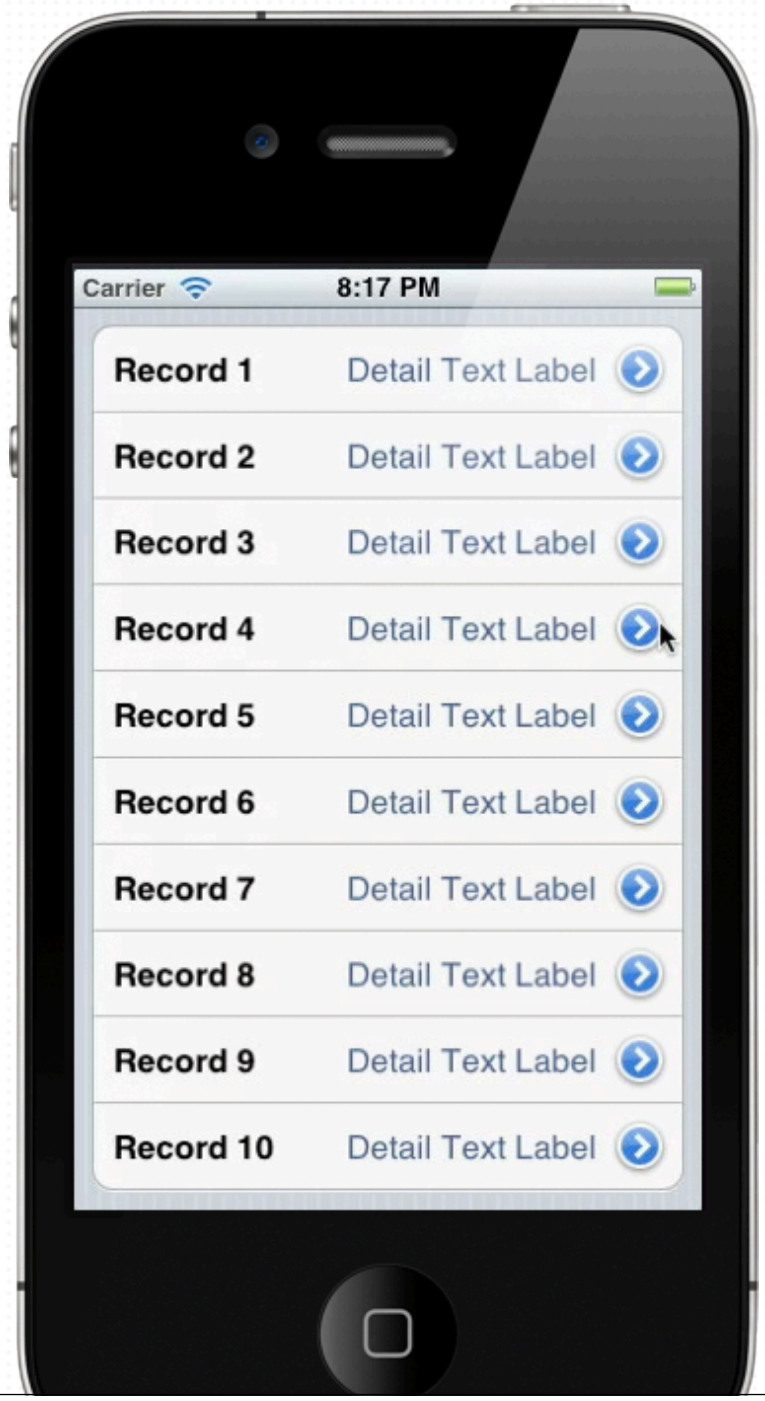


We can set the accessoryType with several default option

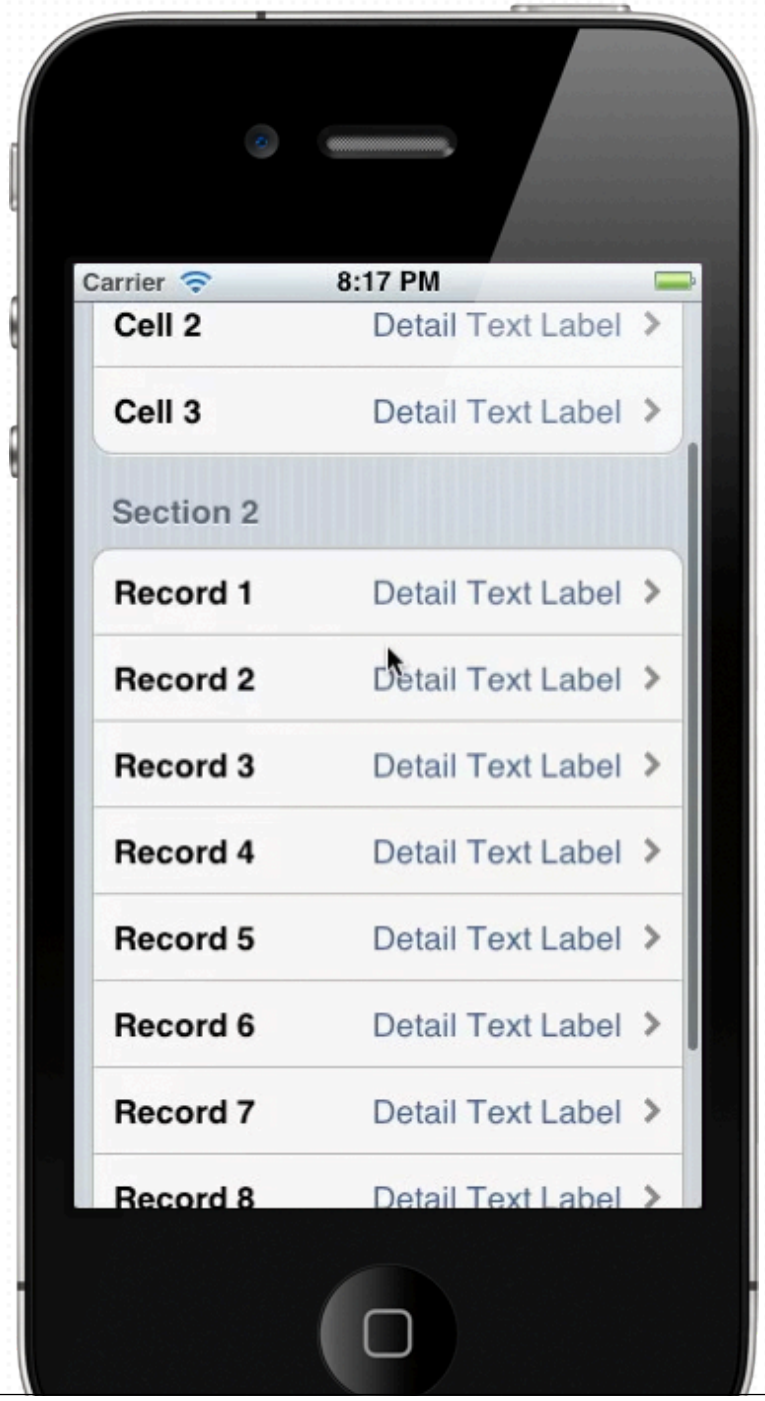
The result with check mark accessory



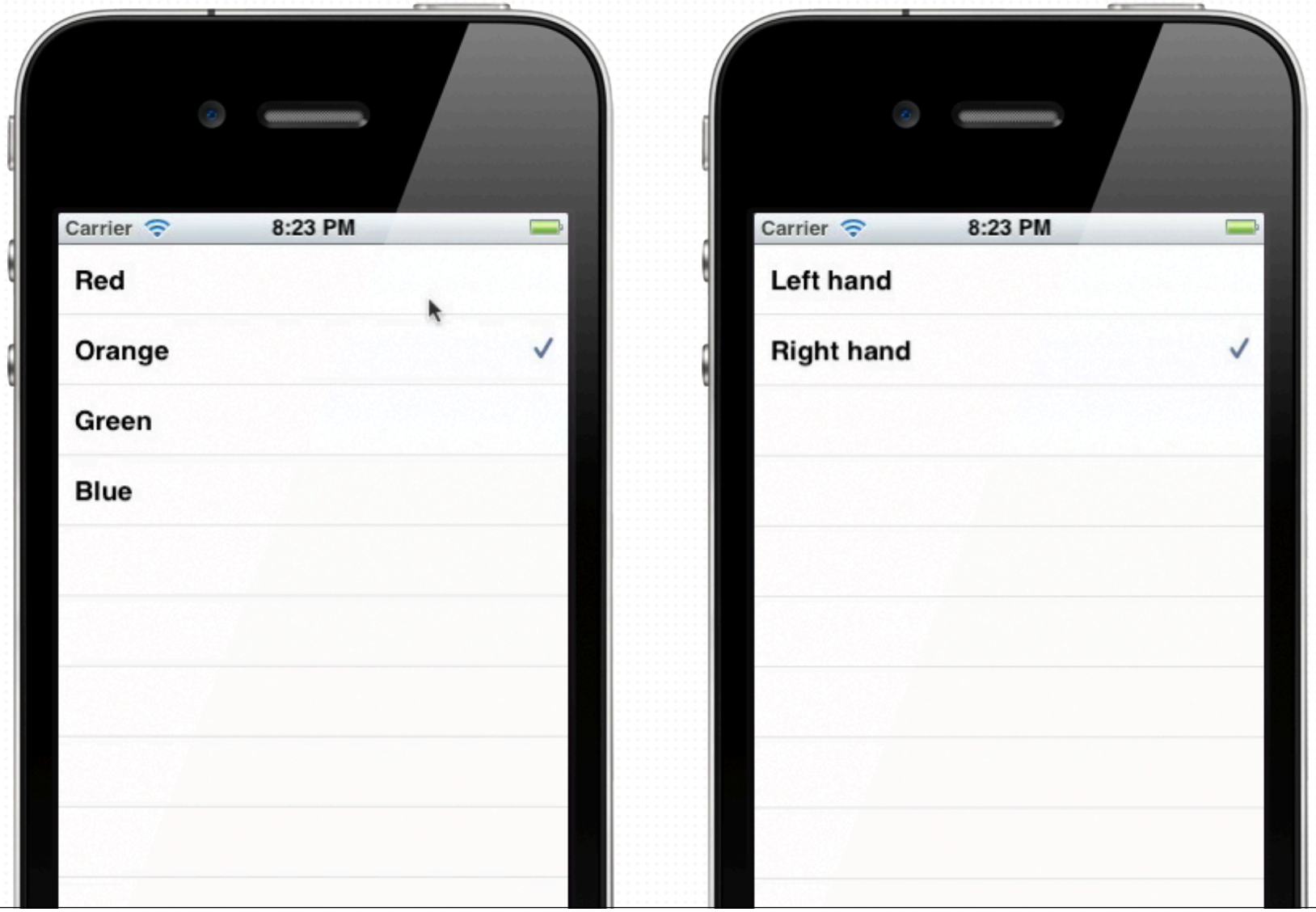
The result with detail disclosure button accessory



The result with disclosure indicator accessory



Example: Choosing Options in Table View



Option Choosing

ViewController.m

```
@implementation ViewController {
    int chosenIndex;
}
```

Create an instance variable to store the chosen index

Option Choosing

ViewController.m

```
#pragma mark - Table Data Source

- (NSInteger)tableView:(UITableView *)tableView numberOfRowsInSection:(NSInteger)section
{
    return 2;
}
```

Set the number of rows to 2 because we are showing two options now.

Option Choosing

ViewController.m

```
// reset the check mark first
cell.accessoryType = UITableViewCellAccessoryNone;

// and show the mark if this cell is the one we want.
if (chosenIndex == indexPath.row)
{
    cell.accessoryType = UITableViewCellAccessoryCheckmark;
}


if (indexPath.row == 0)
{
    cell.textLabel.text = @"Left hand";
}
else if (indexPath.row == 1)
{
    cell.textLabel.text = @"Right hand";
}
```

We change the cell implementation method to the above

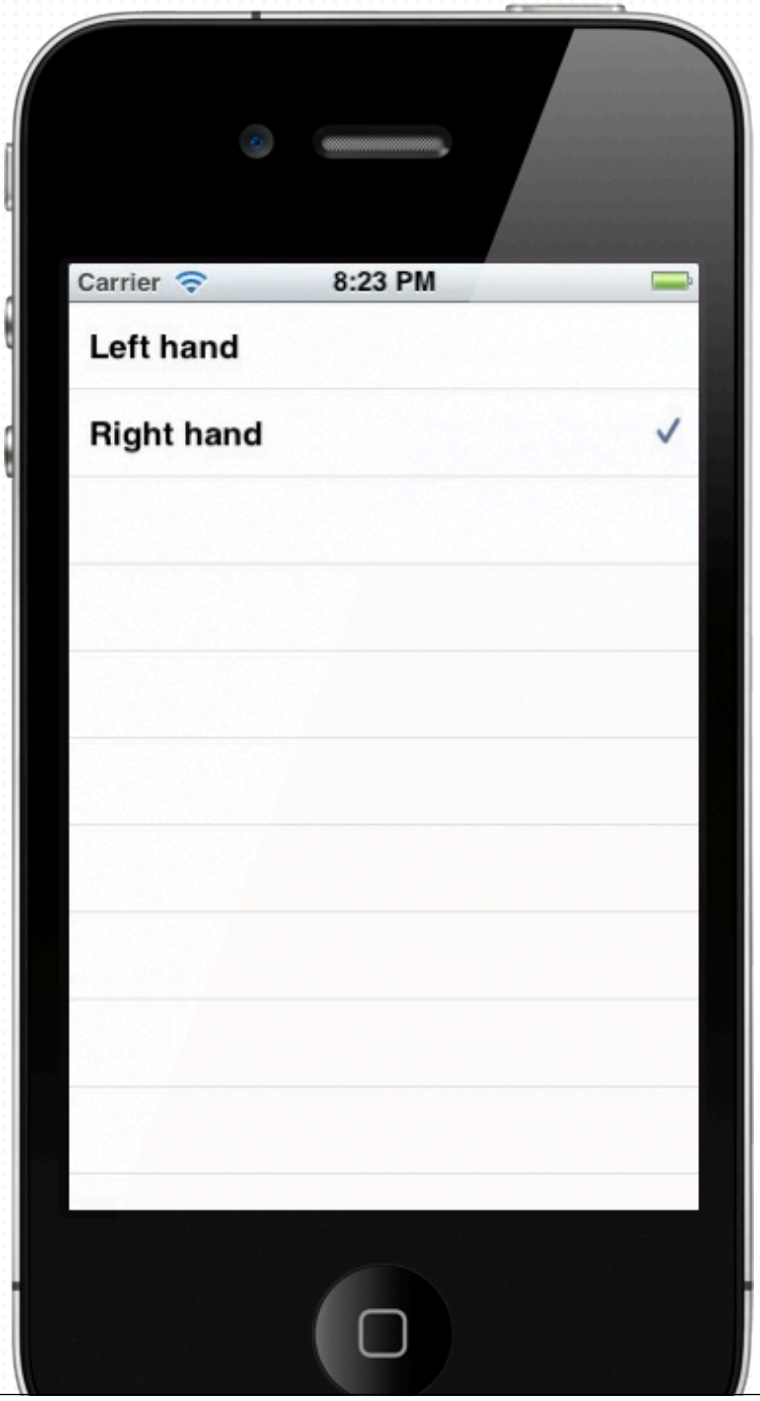
Option Choosing

ViewController.m

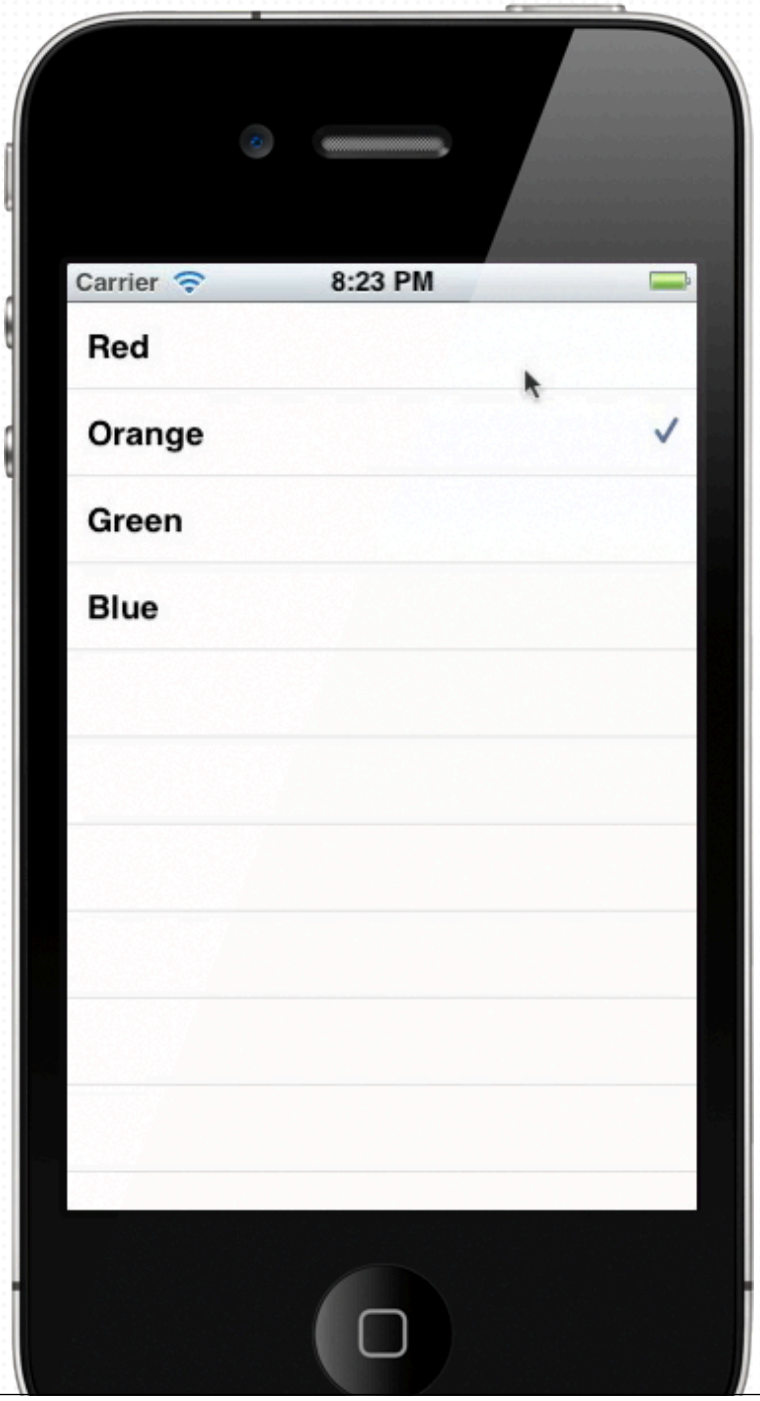
```
#pragma mark - Table View Delegates

- (void)tableView:(UITableView *)tableView didSelectRowAtIndexPath:(NSIndexPath *)indexPath
{
    [tableView deselectRowAtIndexPath:indexPath animated:YES];

    chosenIndex = indexPath.row;

    [tableView reloadData];
}
```

When selecting the cell, we store the index and refresh the table view

The result with two options



We can extend the example with more options.



UISwitch view inside cell

UISwitch inside cell

ViewController.m

```
        else if (indexPath.row == 2)
        {
            cell.textLabel.text = @"Cell 3";
        }

    }
    else if (indexPath.section == 1)
    {
        cell.textLabel.text = [self.dataArray objectAtIndex:indexPath.row];

        UISwitch *switchView = [[UISwitch alloc] init];
        cell.accessoryView = switchView;

        [switchView release];
    }


    return cell;
}
```

Instead of the default accessory options, we can directly put a view in the accessory view

The cell with switch view

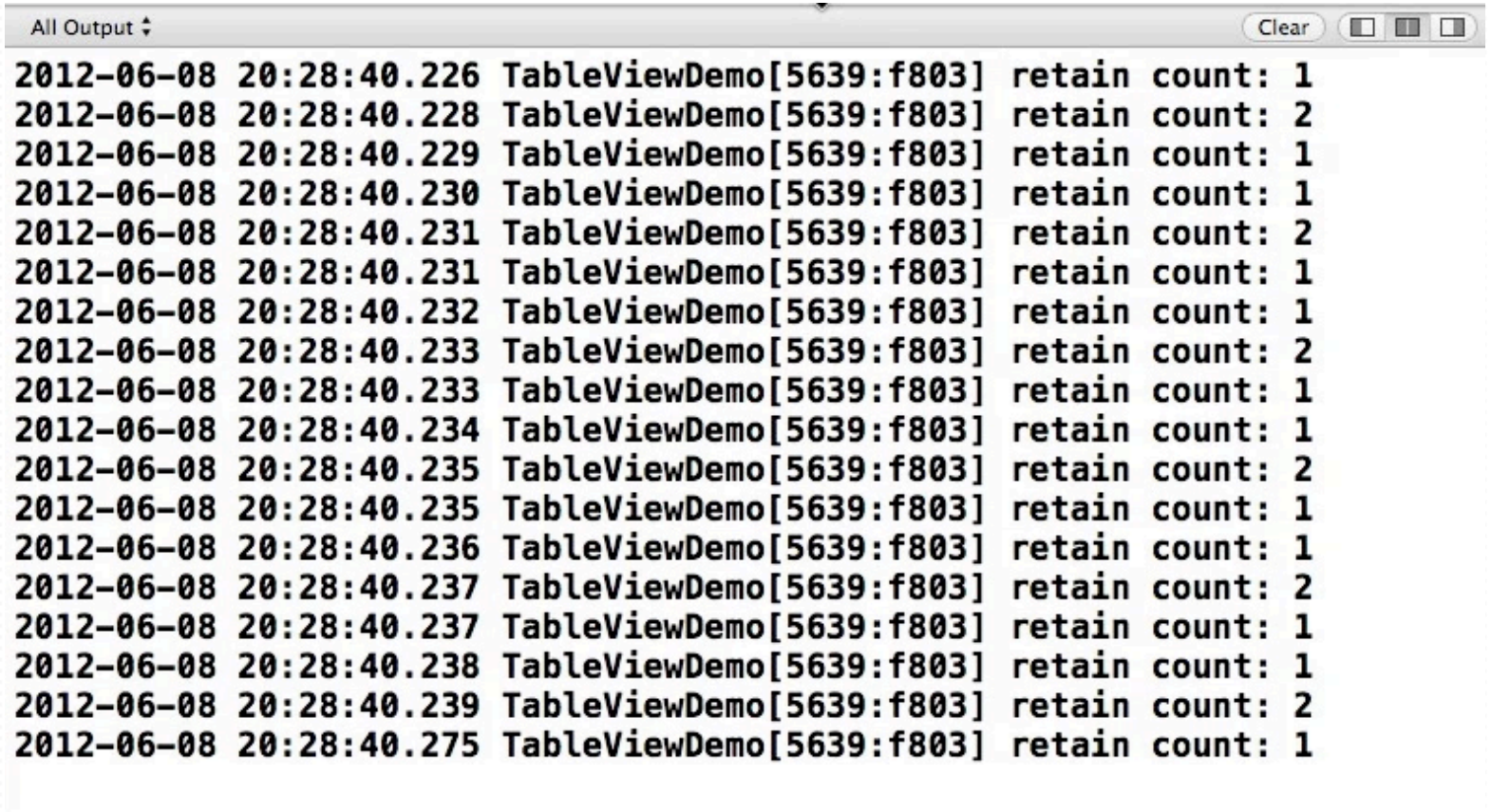
UISwitch inside cell

ViewController.m

```
    }
    else if (indexPath.section == 1)
    {
        cell.textLabel.text = [self.dataArray objectAtIndex:indexPath.row];

        UISwitch *switchView = [[UISwitch alloc] init];
        NSLog(@"retain count: %d", [switchView retainCount]);
        cell.accessoryView = switchView;
        NSLog(@"retain count: %d", [switchView retainCount]);

        [switchView release];
        NSLog(@"retain count: %d", [switchView retainCount]);
    }


    return cell;
}
```

Will the 'release' cause problem? Let's check if the accessoryView retains the view

UISwitch inside cell



The retain count shows that accessoryView retains the view and increases the retain count to 2. So we are safe here.

UISwitch inside cell

ViewController.m

```
- (UITableViewCell *)tableView:(UITableView *)tableView cellForRowAtIndexPath:(NSIndexPath *)indexPath
{
    NSString *identifier = @"NormalCell";

    if (indexPath.section == 1)
    {
        identifier = @"SwitchCell";
    }

    UITableViewCell *cell = [tableView dequeueReusableCellWithIdentifier:identifier];
    if (cell == nil)
    {
        cell = [[UITableViewCell alloc] initWithStyle:UITableViewCellStyleValue1 reuseIdentifier:identifier];
    }
```

Since we have two types of table cell now, we need two identifier for the cell reuse

Setup IBAction in code

ViewController.m

```
}
else if (indexPath.section == 1)
{
    cell.textLabel.text = [self.dataArray objectAtIndex:indexPath.row];

    UISwitch *switchView = [[UISwitch alloc] init];
    [switchView addTarget:self action:@selector(switchViewToggled:) forControlEvents:UIControlEventValueChanged];
    cell.accessoryView = switchView;

    [switchView release];
}
```

We want to track the valueChanged IBAction. We do not have interface builder, so we setup the IBAction in code.

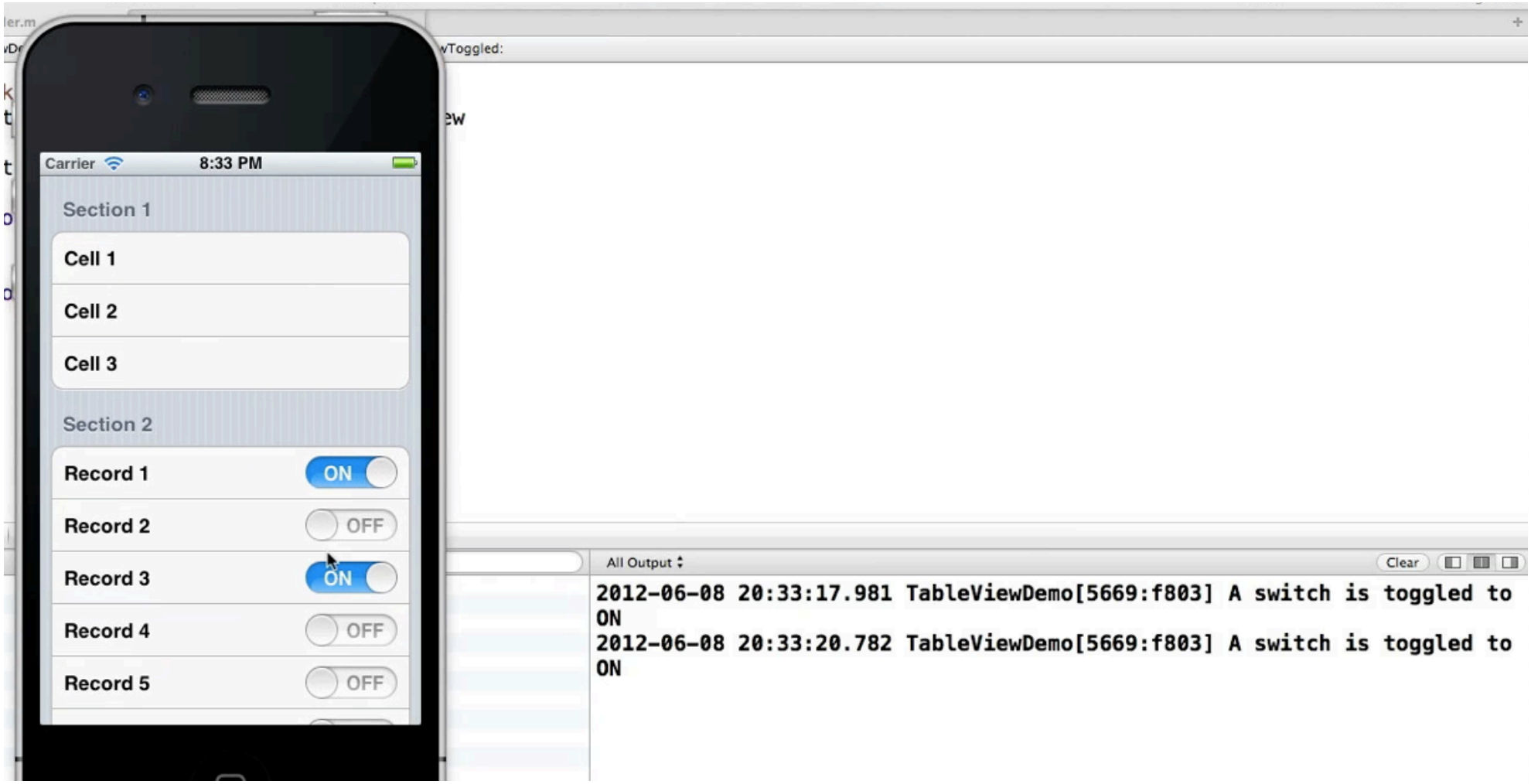
UISwitch inside cell

ViewController.m

```
#pragma mark - Switch View Actions
- (void)switchViewToggled:(UISwitch*)switchView
{
    if (switchView.on)
    {
        NSLog(@"A switch is toggled to ON");
    }
    else {
        NSLog(@"A switch is toggled to OFF");
    }

}
```

We setup the IBAction method to track the switch

UISwitch inside cell



Now we can know a switch is toggled. But we do not know which one.

UISwitch inside cell

ViewController.m

```
        }

    }
    else if (indexPath.section == 1)
    {
        cell.textLabel.text = [self.dataArray objectAtIndex:indexPath.row];

        UISwitch *switchView = [[UISwitch alloc] init];
        [switchView addTarget:self action:@selector(switchViewToggled:) forControlEvents:UIControlEventValueChanged];
        switchView.tag = indexPath.row;
        cell.accessoryView = switchView;

        [switchView release];
    }


    return cell;
}
```

There is a 'tag' property in every UIView. We can assign any integer on it. Let's assign the cell row index.

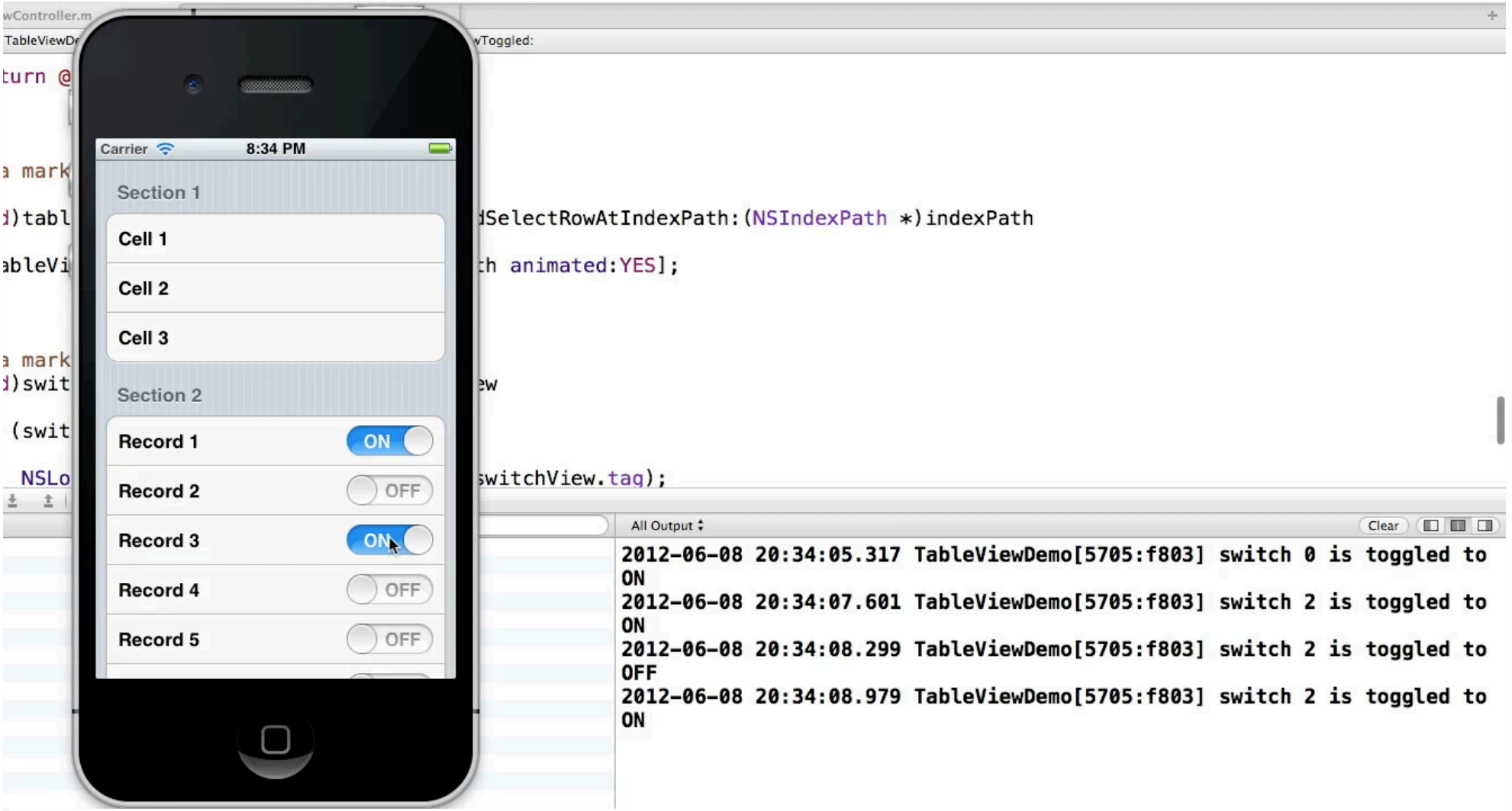
UISwitch inside cell

ViewController.m

```
#pragma mark - Switch View Actions
- (void)switchViewToggled:(UISwitch*)switchView
{
    if (switchView.on)
    {
        NSLog(@"switch %d is toggled to ON", switchView.tag);
    }
    else {
        NSLog(@"switch %d is toggled to OFF", switchView.tag);
    }

}
```

And revisit the switch view IBAction method with the view tag value

UISwitch inside cell



The result showing the switch index when toggling

Displaying image in cell

Displaying image in cell

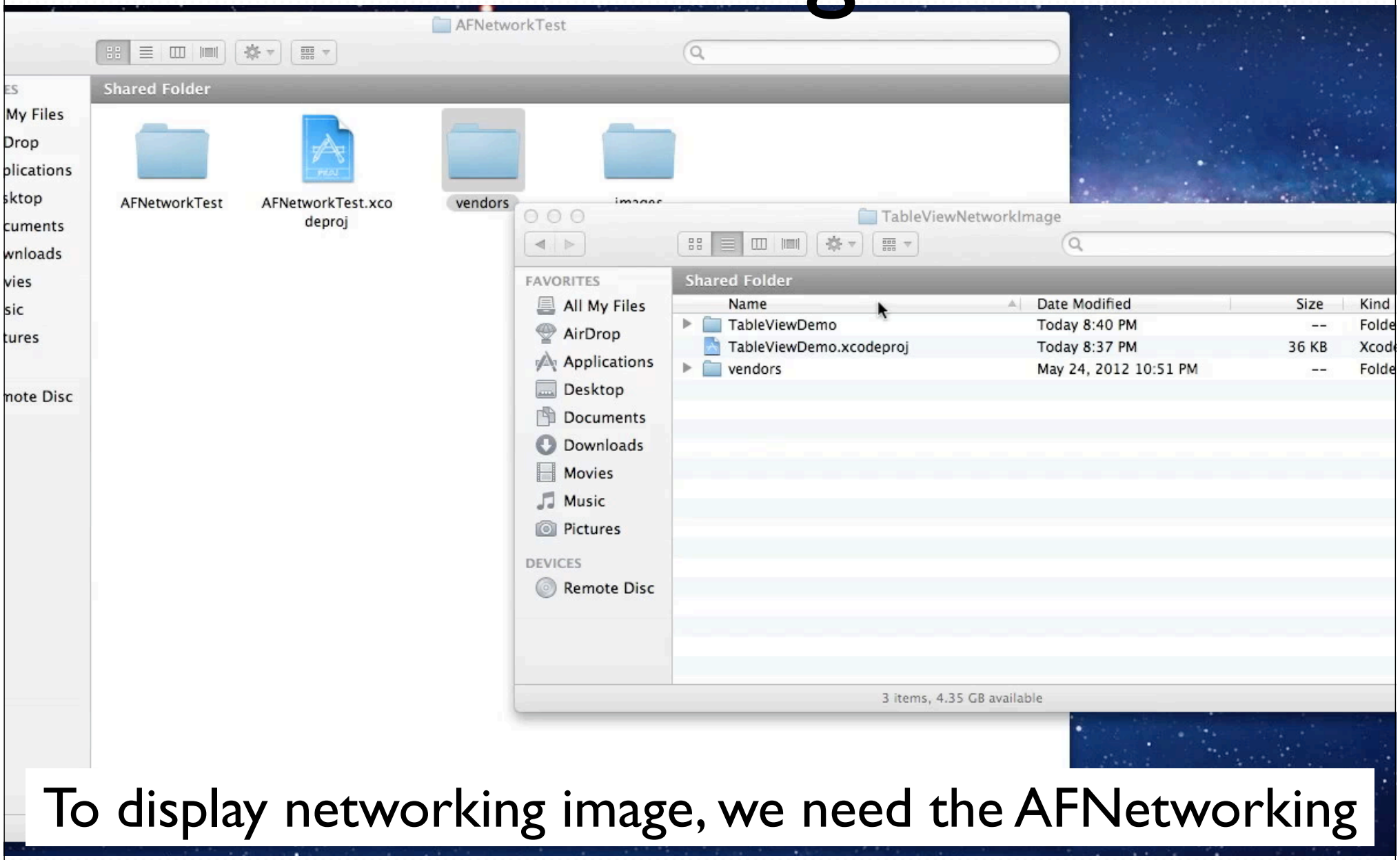
ViewController.m

```
cell.imageView.image = [UIImage imageNamed:@"face.png"];
```

There is a default image property showing image on the left hand side of the cell

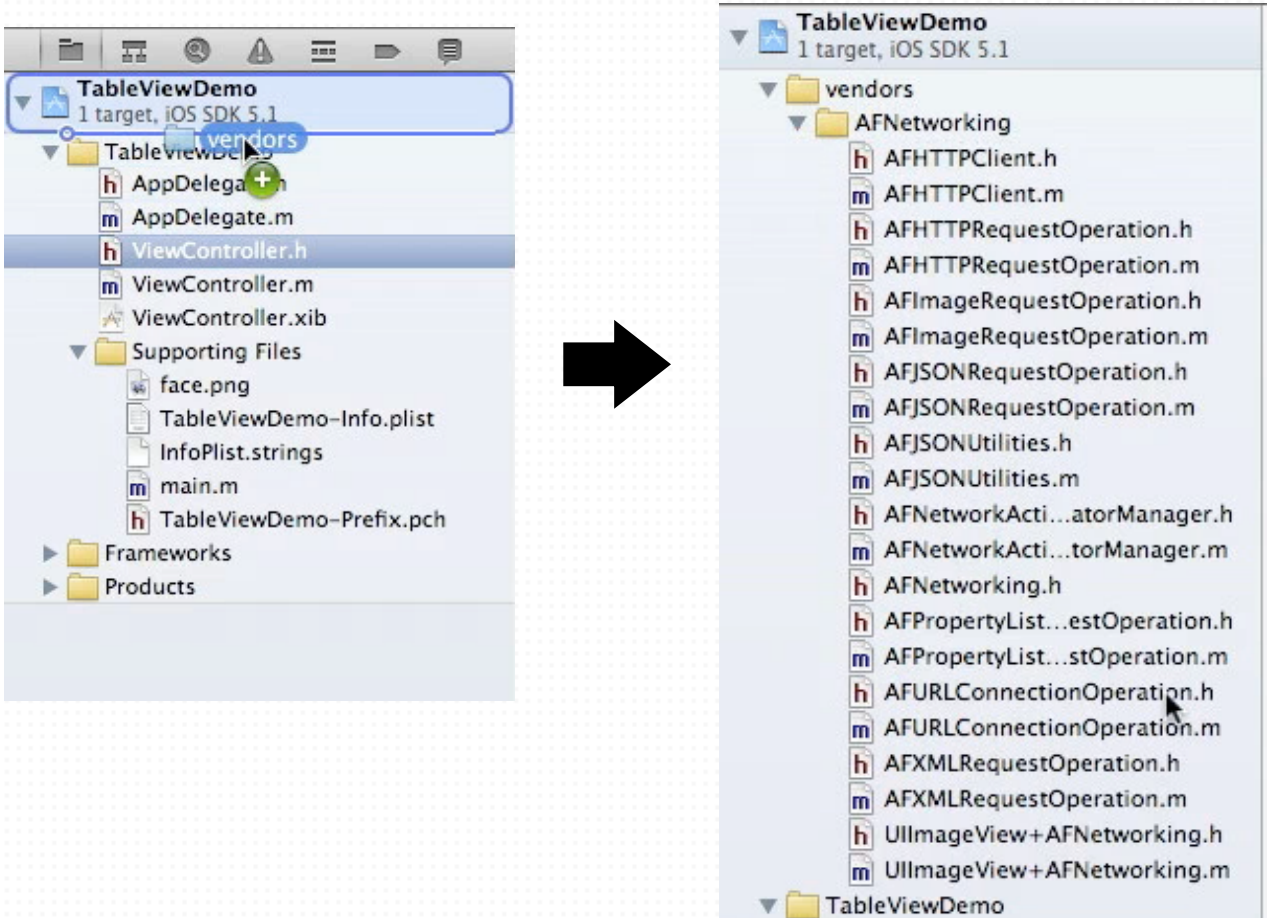
The result with local cell image

Network image in cell



To display networking image, we need the AFNetworking

Network image in cell



Add the AFNetworking files into XCode project

Network image in cell

ViewController.m

```
#import "ViewController.h"
#import "UIImageView+AFNetworking.h"

@interface ViewController ()
@property (nonatomic, retain) NSMutableArray *dataArray;
@end
```

Import the UIImageView+AFNetworking.h file

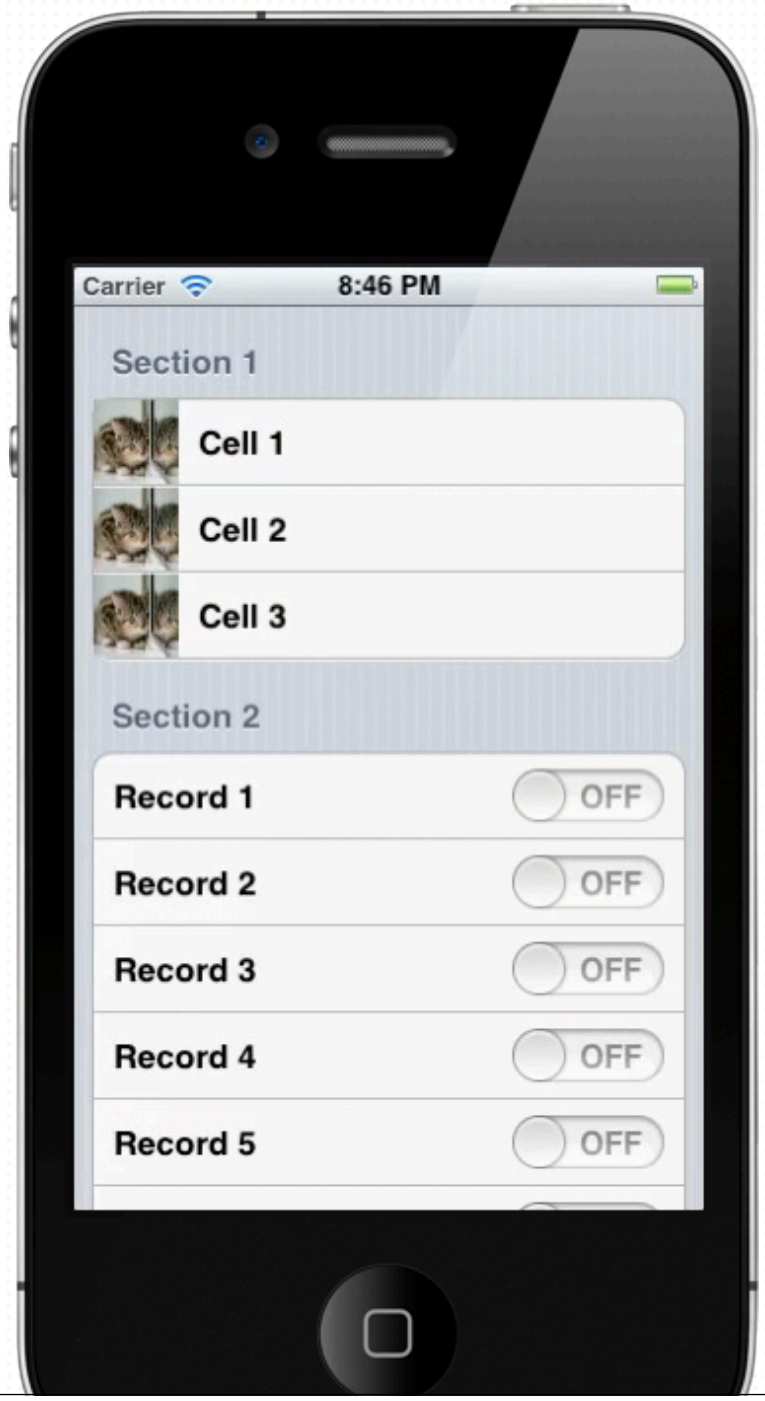
Network image in cell

ViewController.m

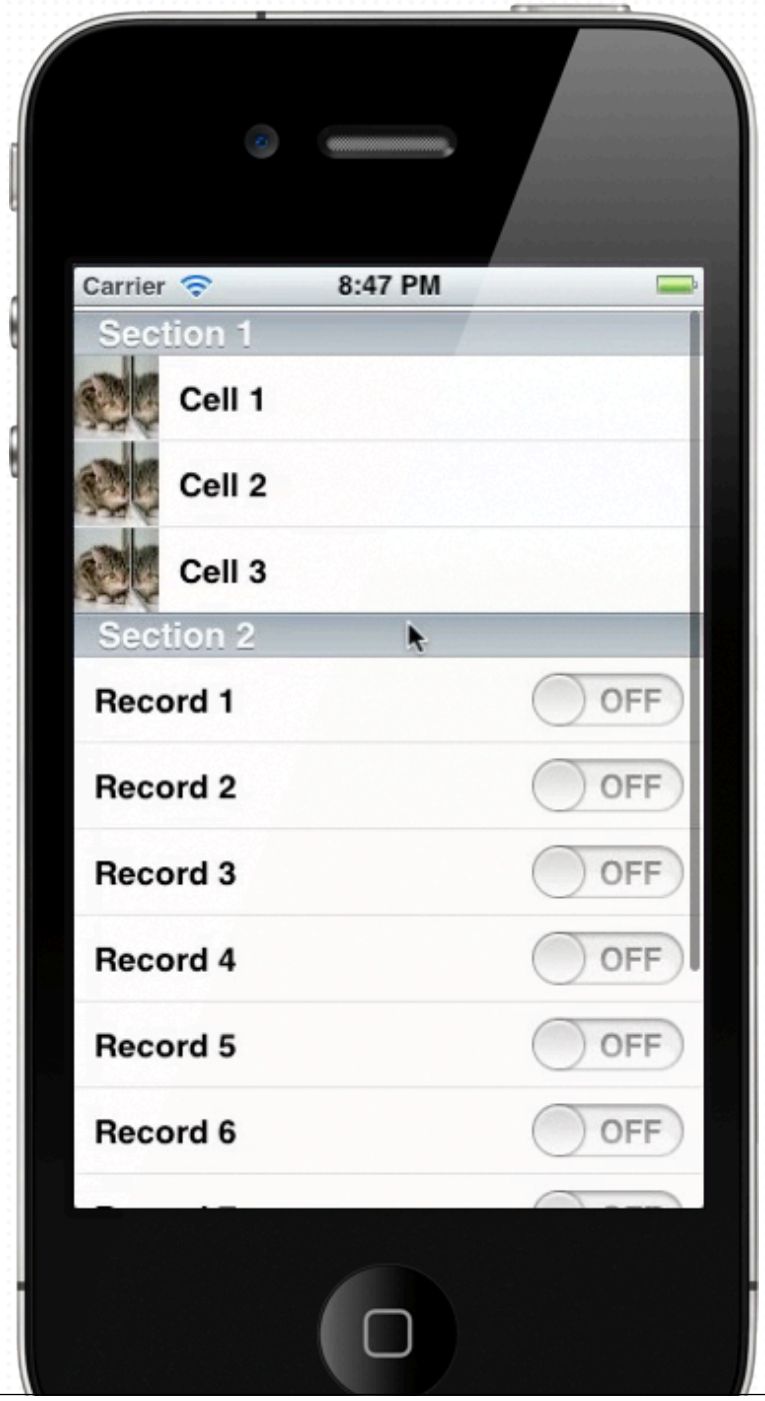
```
NSURL *imageURL = [NSURL URLWithString:@"http://placekitten.com/80/80.png"];
[cell.imageView setImageWithURL:imageURL];
```

Use the AFNetworking method to set the cell image view with an image URL

The result with networking image



The same code base with plain table style



Exercise

- Integrate table view in your app
  - App setting view
  - List of choices
  - Groups of app buttons
  - Displaying dynamic content in table cell
- What other table delegate or data source methods we can use?
- Table view is the most important element in iOS dev. Explore it and master it!