

iOS 프로그래밍

TableView, TableViewCell

학습 목표

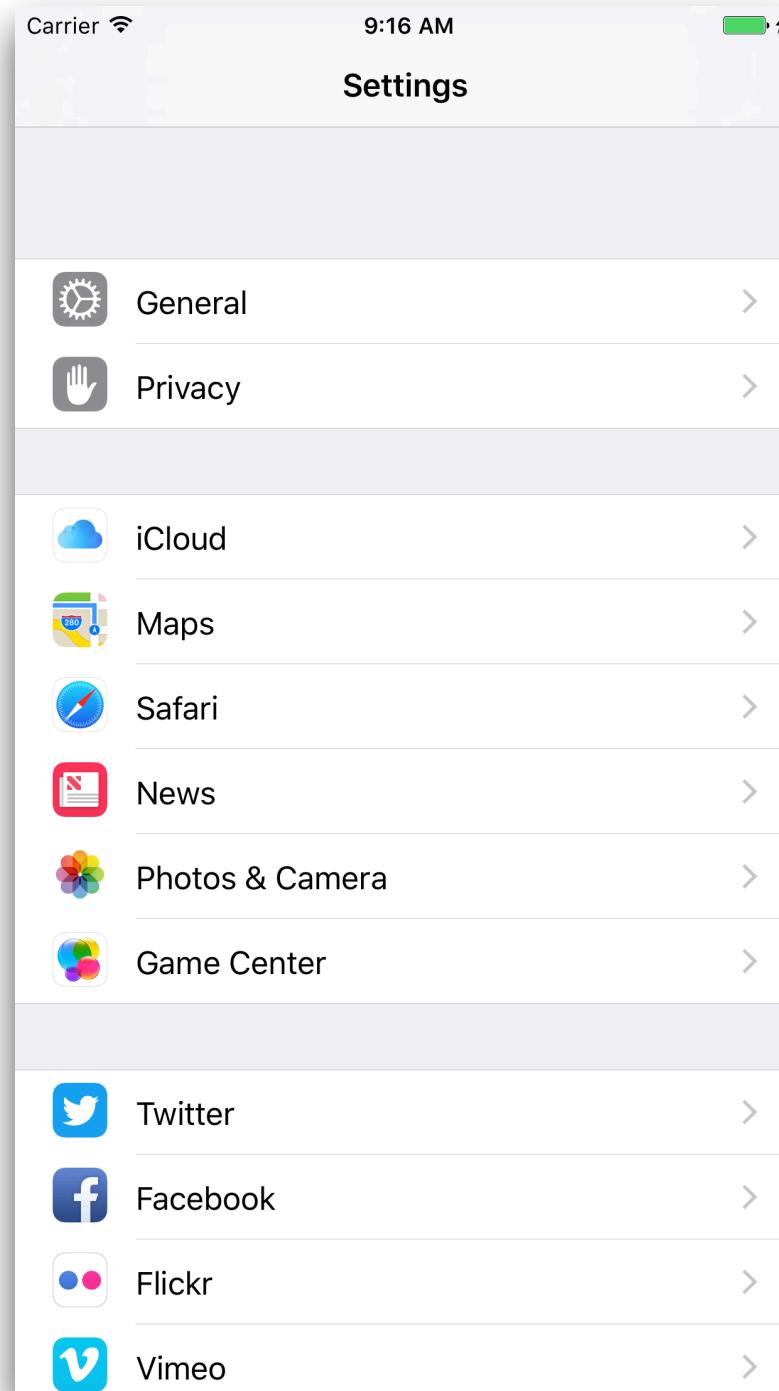
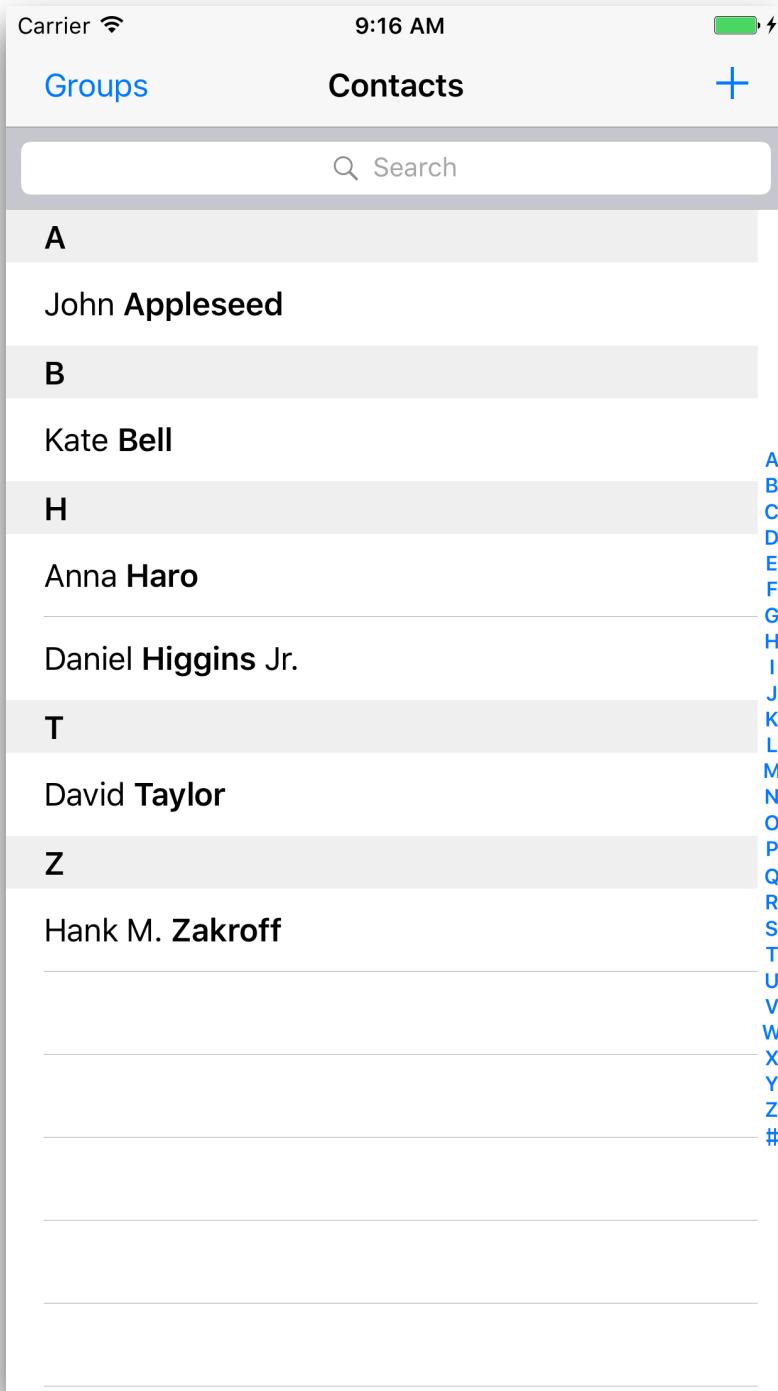
- * Delegate 와 DataSource
- * UITableView 이해와 활용
- * Custom UITableViewCell 만들기

UITableView

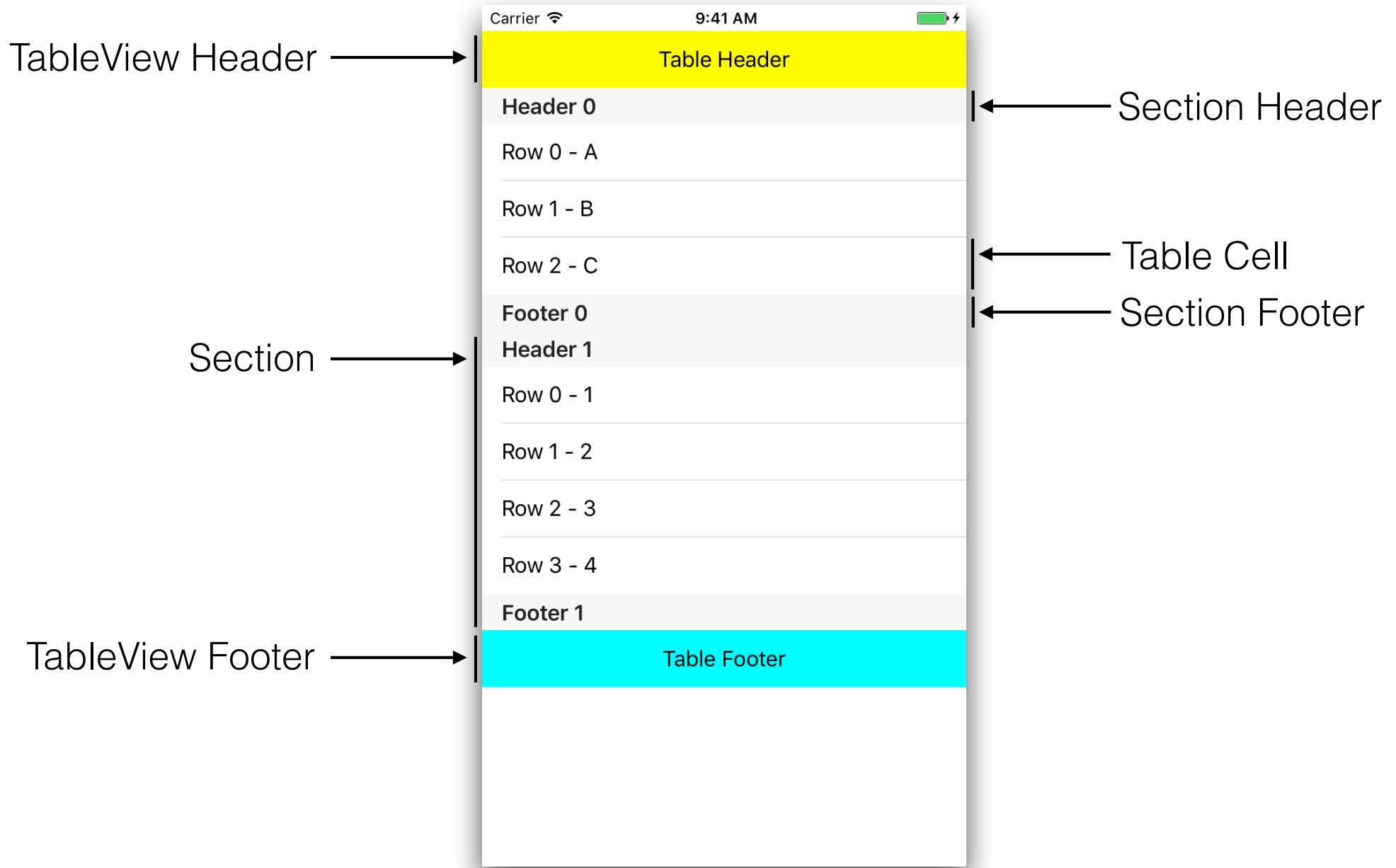
Static Cell

UITableView

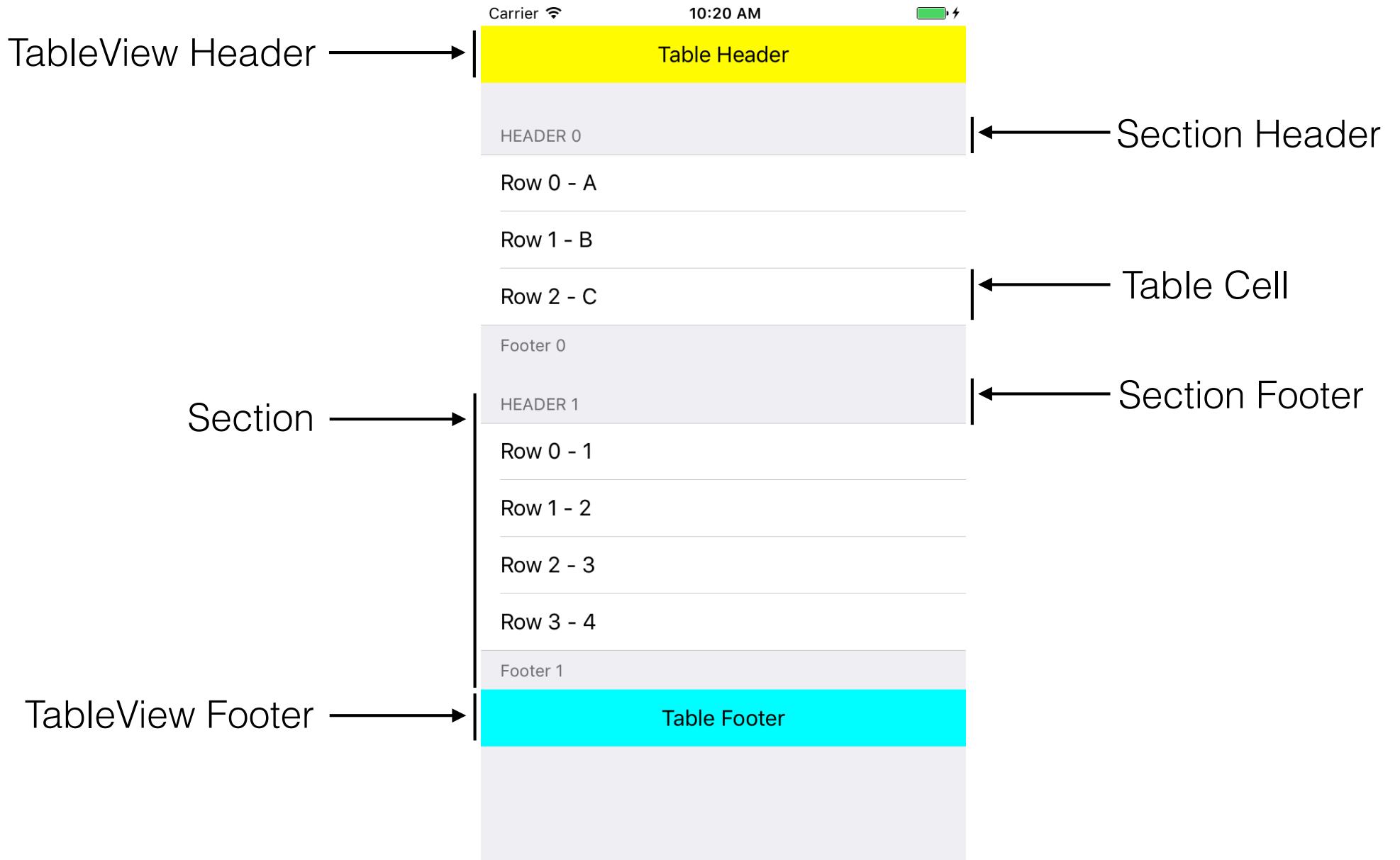
Dynamic TableView DataSource



Plain Style TableView

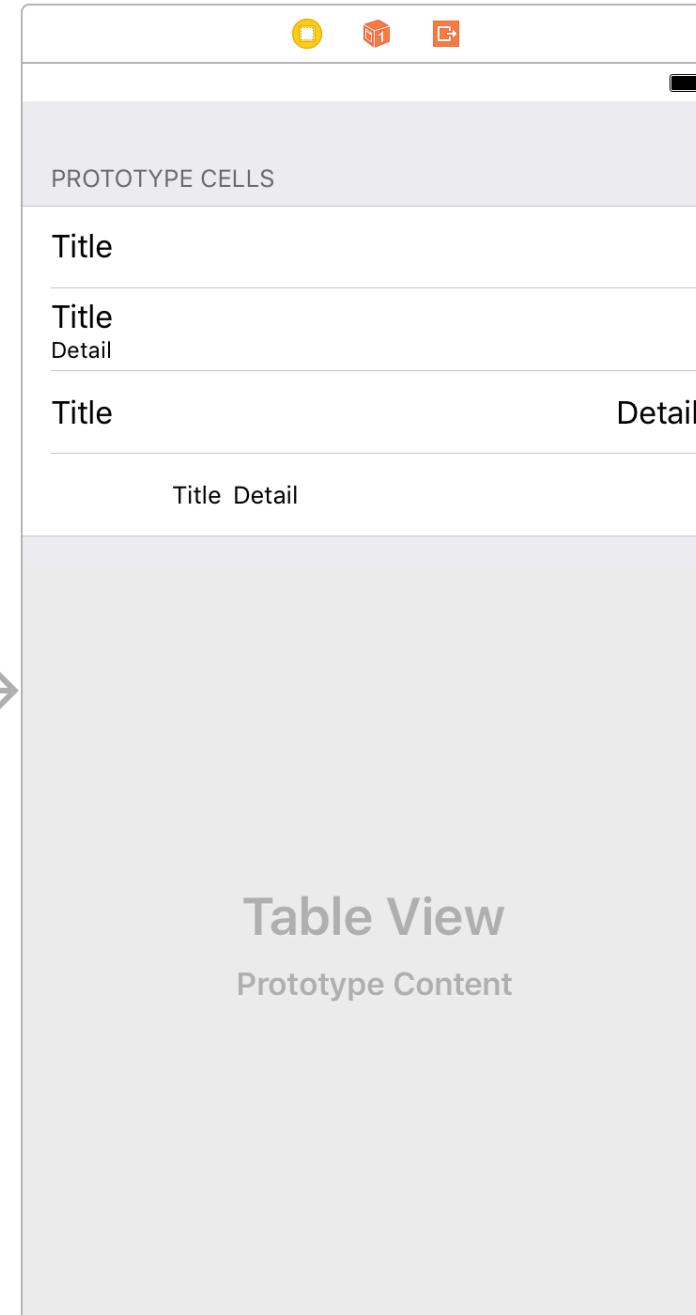


Grouped Style TableView

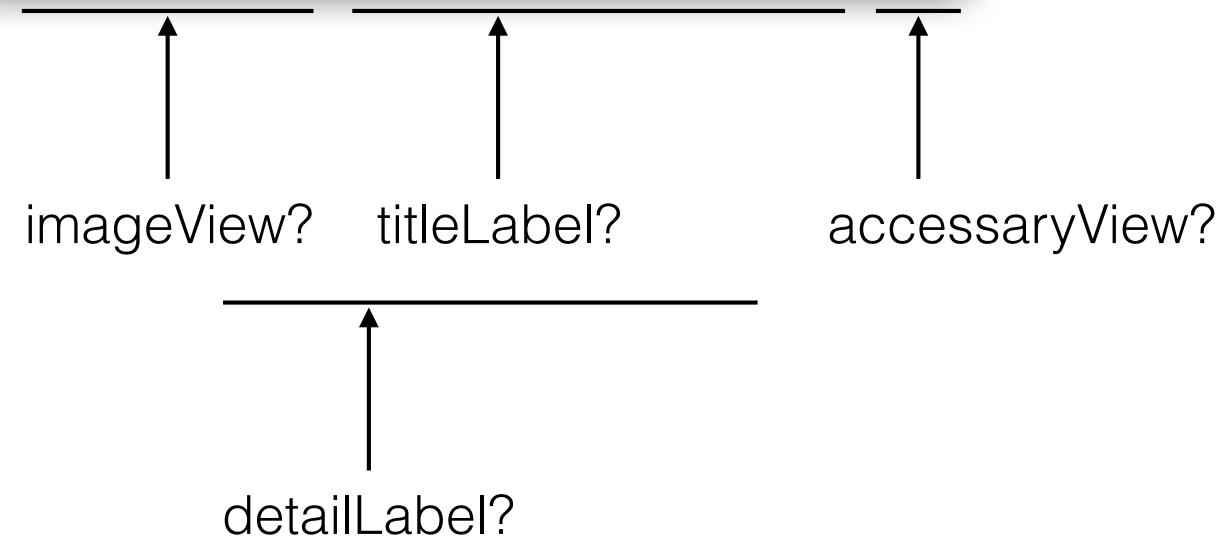


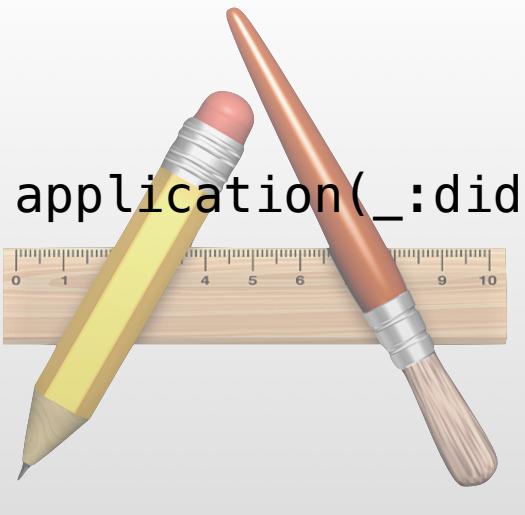
View Controller Scene

View Controller
Top Layout Guide
Bottom Layout Guide
View
Table View
cell
Content View
Title
imageCell
Content View
Title
Detail
imageCell
Content View
Title
Detail
imageCell
Content View
Title
Detail
First Responder
Exit
Storyboard Entry Point



- ← Basic
- ← Subtitle
- ← Right Detail
- ← Left Detail





```
application(_: didFinishLaunchingWithOptions:)
```



?

Cupertino	Red
San Jose	Blue
Sunnyvale	Yellow
Los Gatos	Green
Mountain View	Black

```
tableView(_: numberOfRowsInSection:)
```



?

Delegate 객체는
무엇을 구현해야 할까

UITableView Program

델리게이션

UITableView

Cupertino	Red
San Jose	Blue
Sunnyvale	Yellow
Los Gatos	Green
Mountain View	Black

UITableViewDataSource

테이블뷰 화면을 보여주기 위해 필요한 함수

`numberOfSections(in:)`

`tableView(_: numberOfRowsInSection:)`

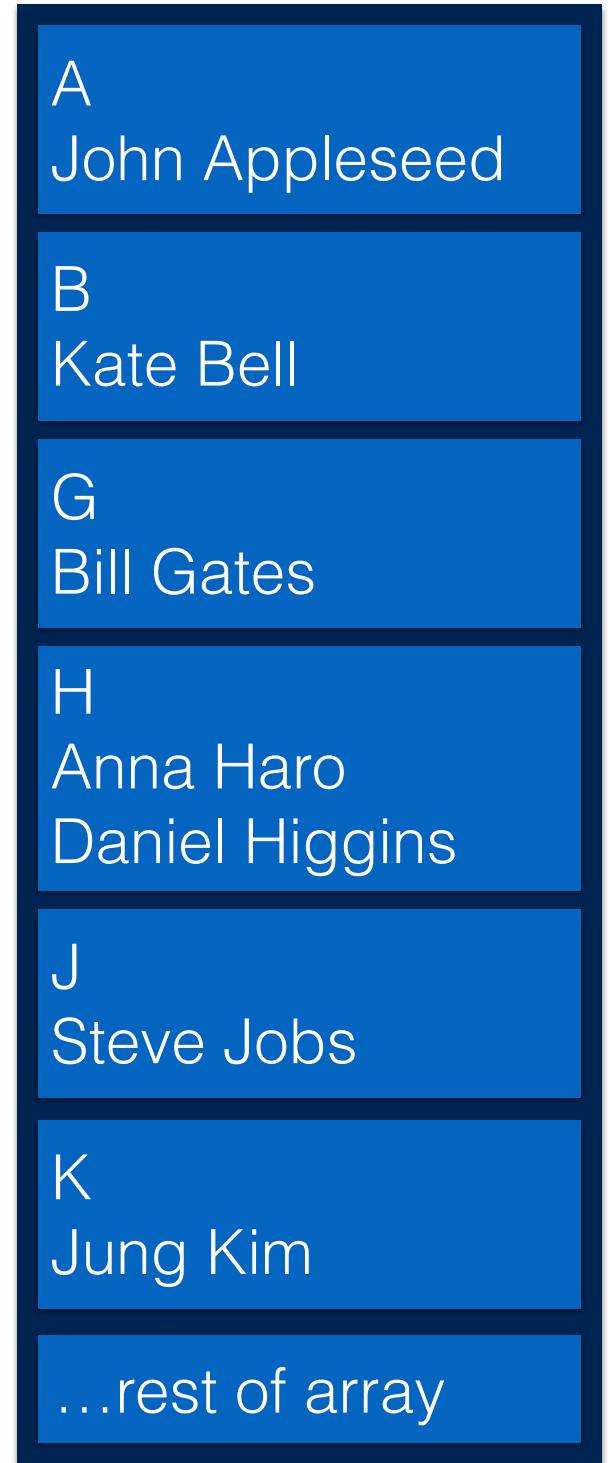
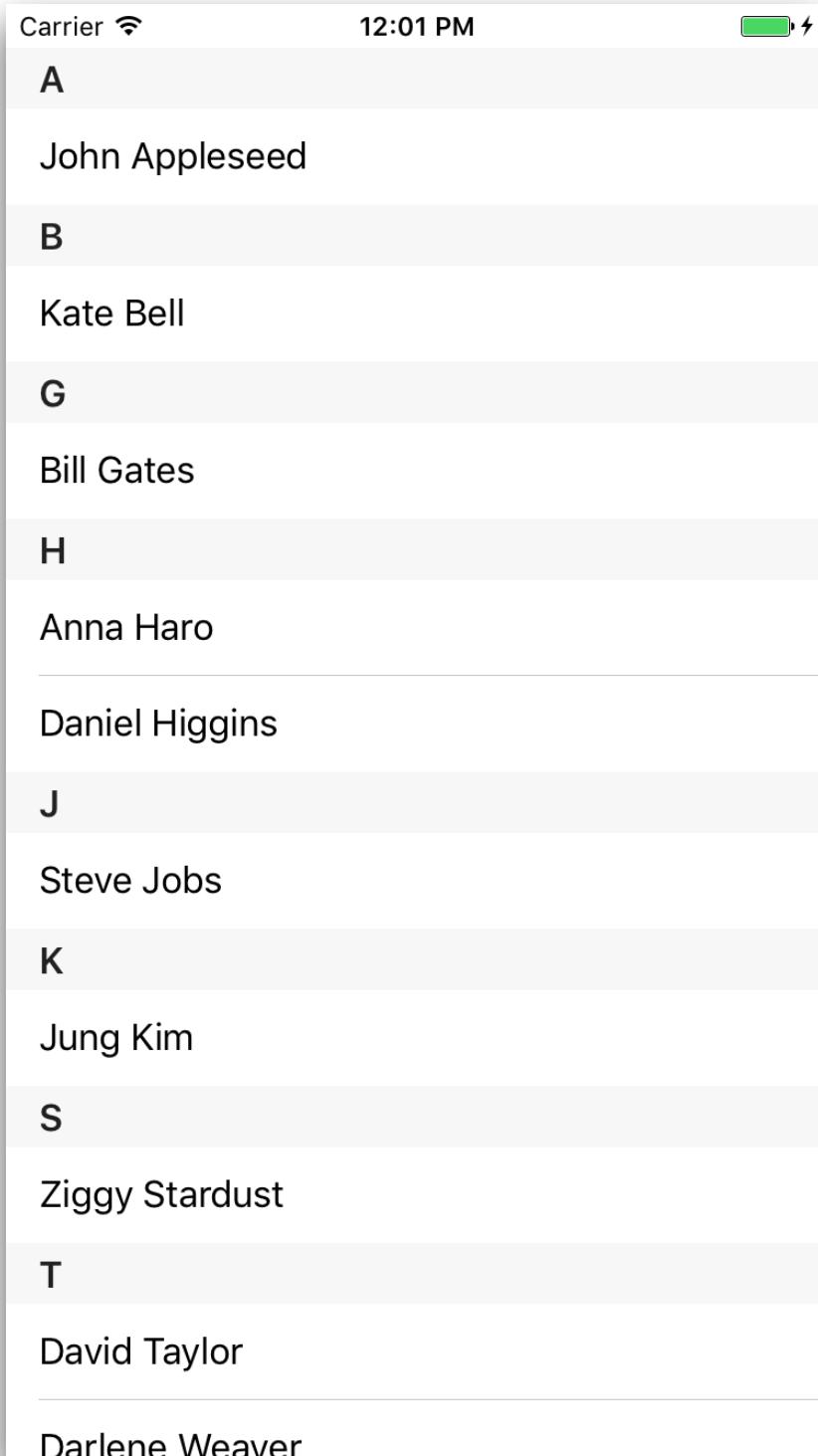
`tableView(_: cellForRowAt:)`

UITableViewDelegate

테이블뷰 동작을 처리하기 위해 필요한 함수

`tableView(_: heightForRowAt:)`

`tableView(_: didSelectRowAt:)`



Carrier 12:01 PM

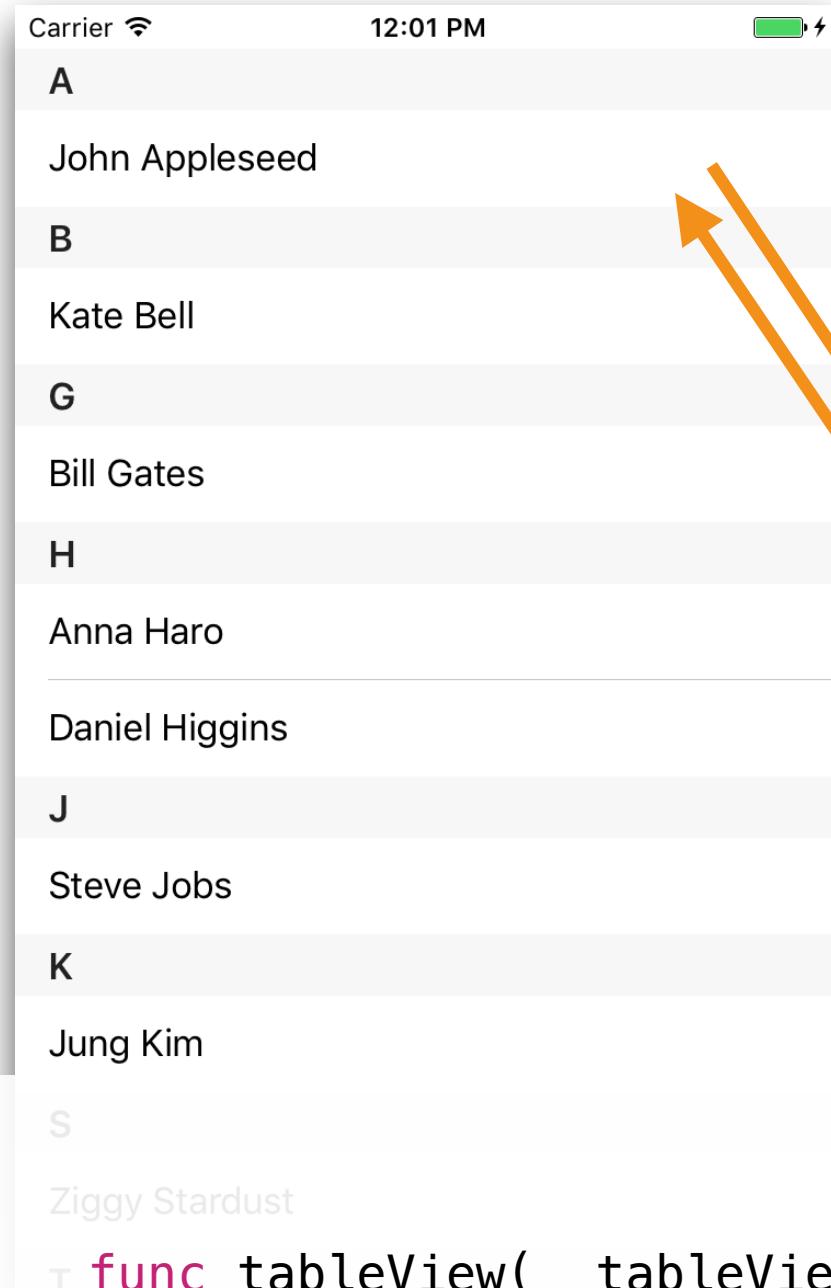
A	John Appleseed
B	Kate Bell
G	Bill Gates
H	Anna Haro
Daniel Higgins	
J	Steve Jobs
K	Jung Kim
S	Ziggy Stardust

UITableViewDataSource

section 개수가
몇 개인가?

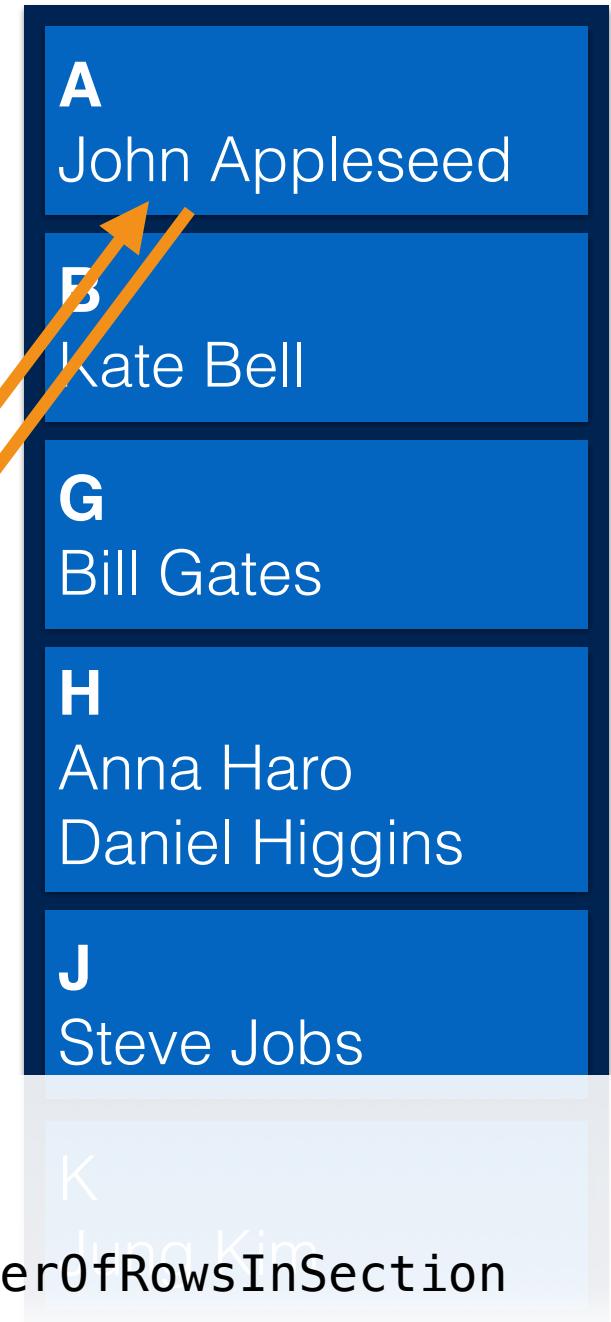
A	John Appleseed
B	Kate Bell
G	Bill Gates
H	Anna Haro
Daniel Higgins	
J	Steve Jobs
K	Jung Kim

```
T func numberOfRowsInSection(in tableView: UITableView) -> Int {  
}
```

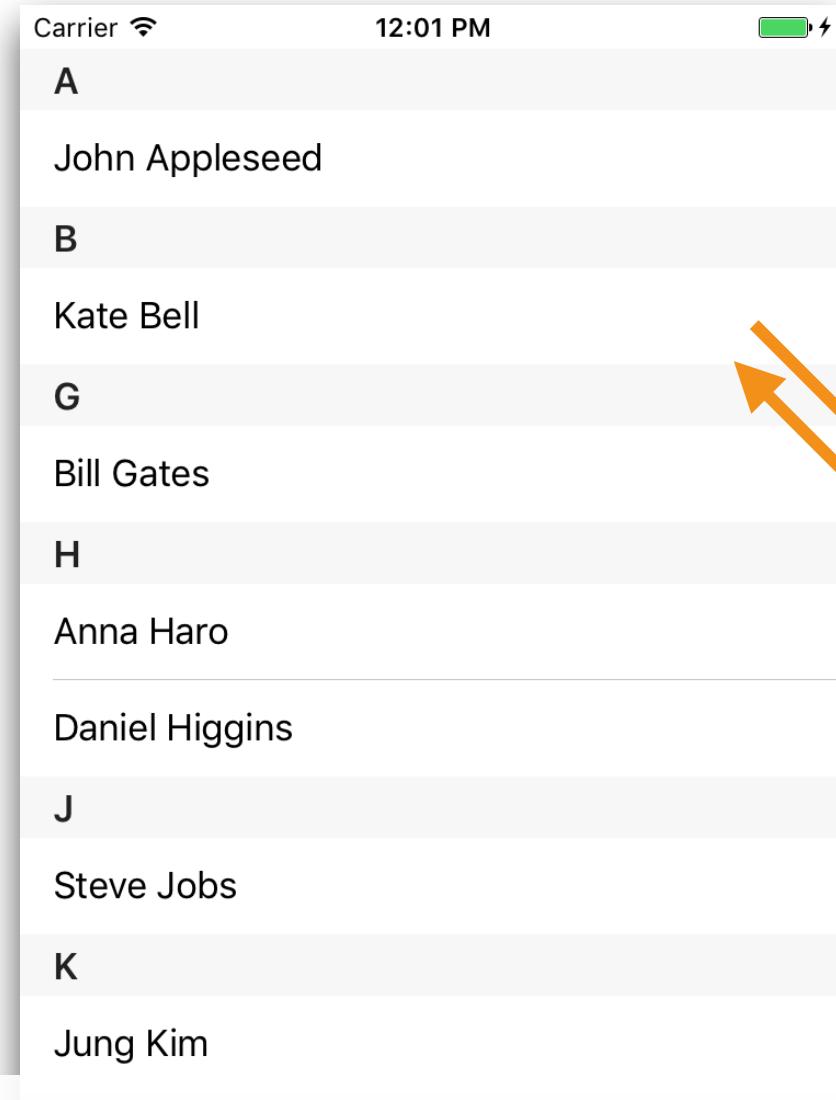


UITableViewDataSource

section 0 에는
row가 몇 개인가?

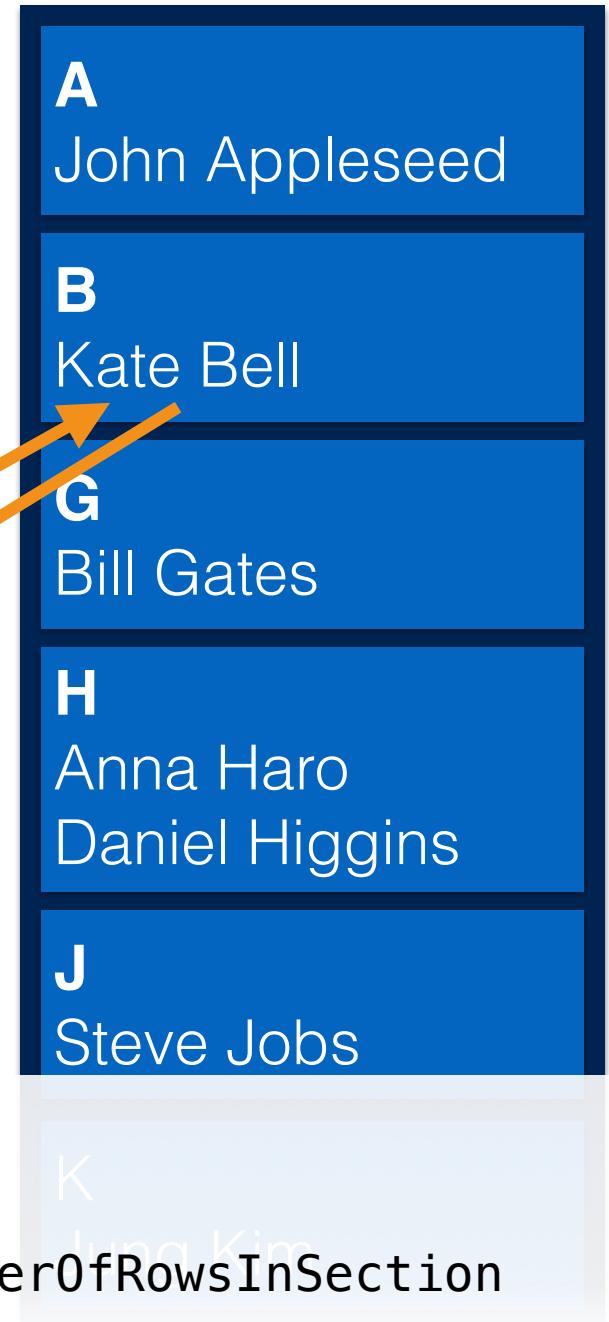


```
T func tableView(_ tableView: UITableView, numberOfRowsInSection section: Int) -> Int {  
    }  
}
```

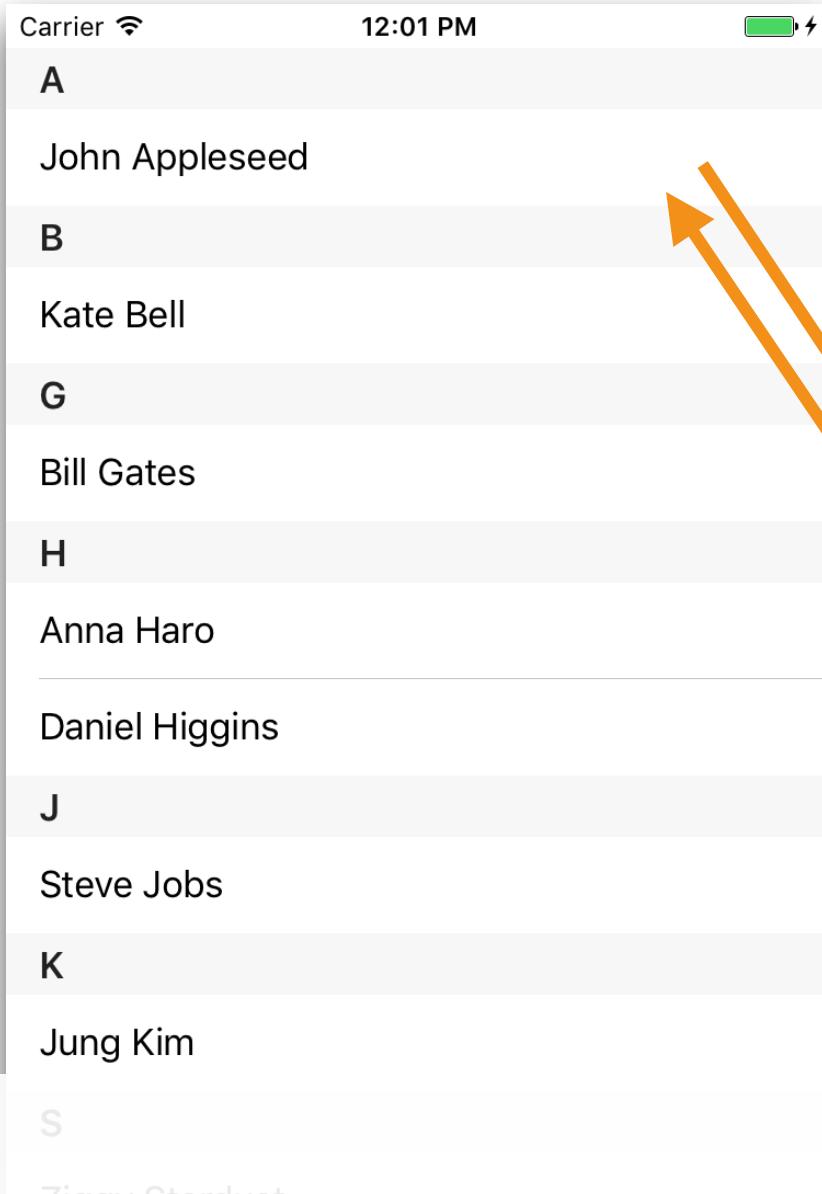


UITableViewDataSource

section 1 에는
row가 몇 개인가?

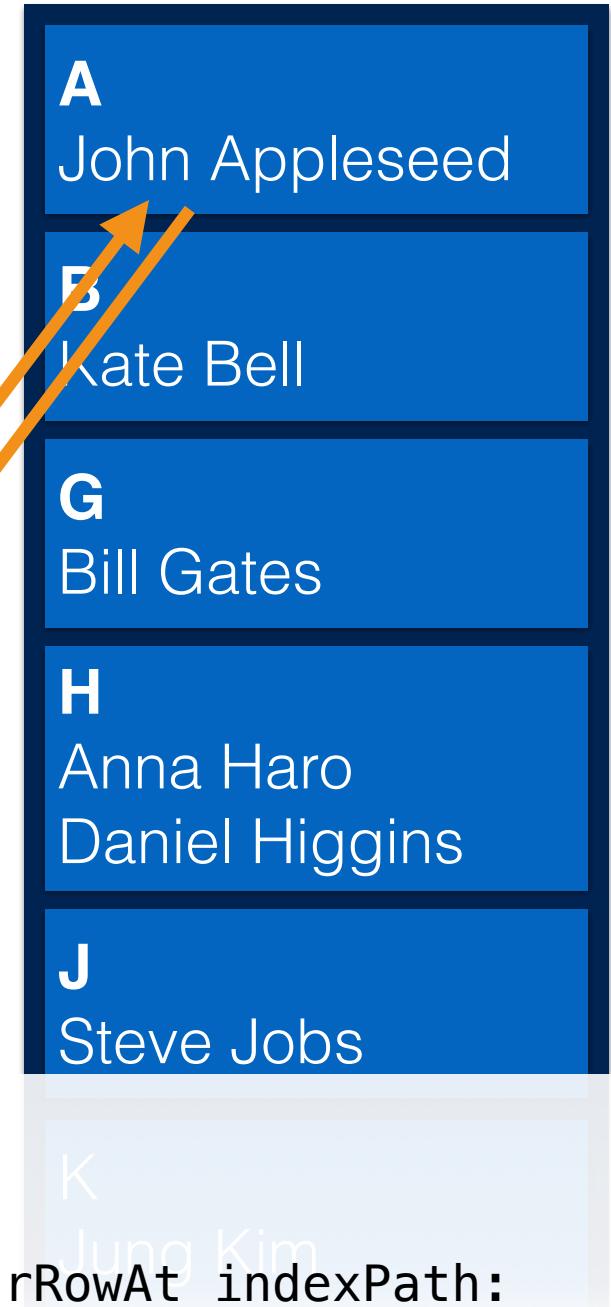


```
T func tableView(_ tableView: UITableView, numberOfRowsInSection section: Int) -> Int {  
}
```



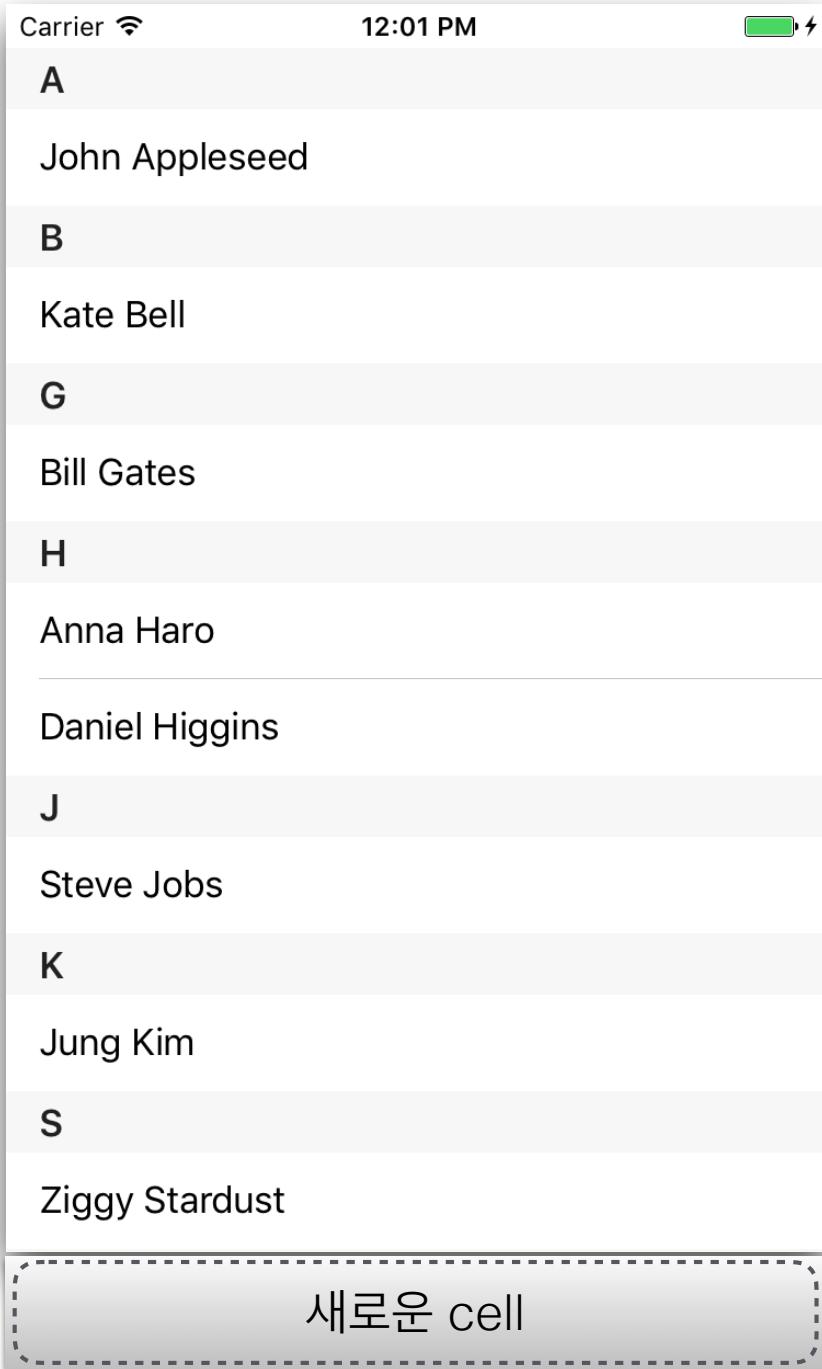
UITableViewDataSource

section 0, row 0 에
보여줄 cell 은?



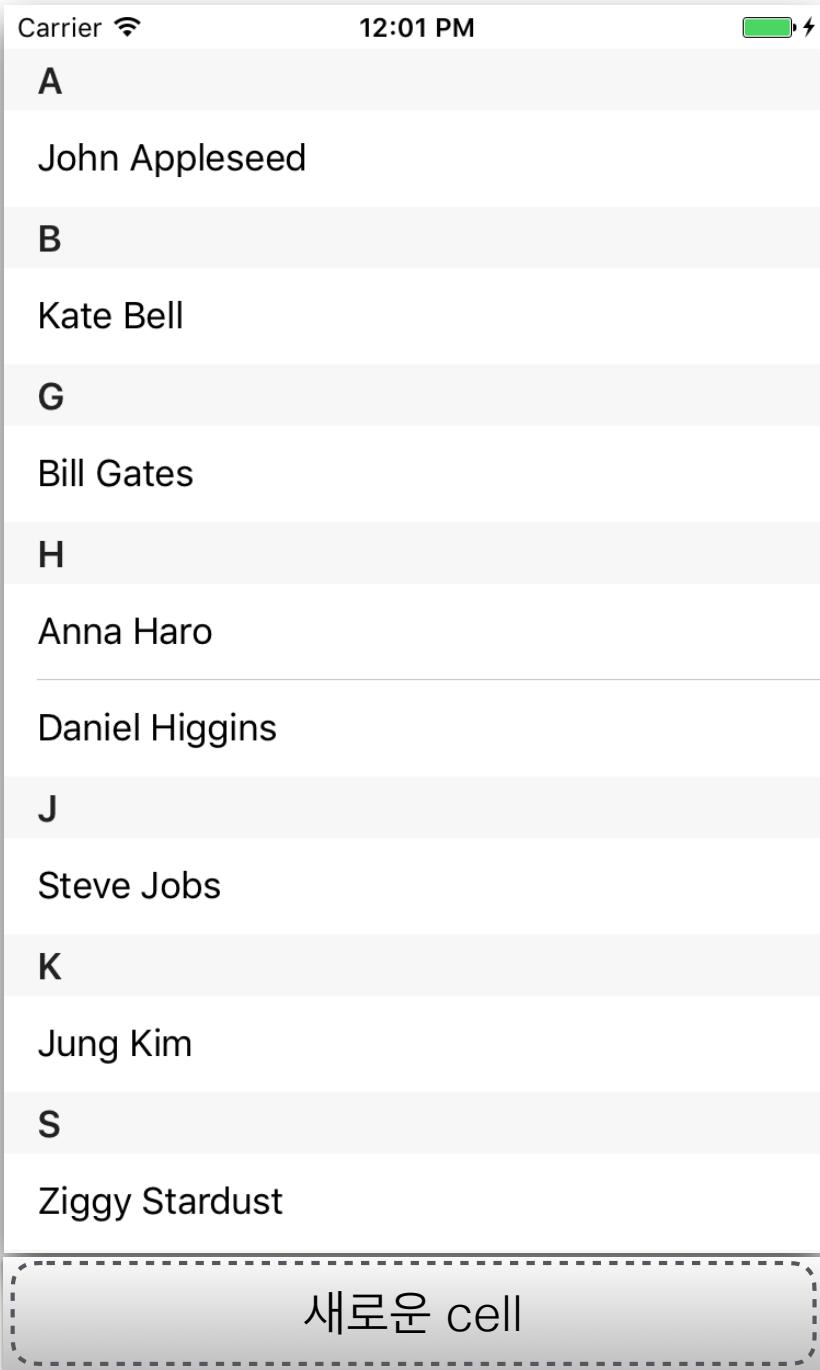
```
func tableView(_ tableView: UITableView, cellForRowAt indexPath:  
IndexPath) -> UITableViewCell {  
}
```

John Appleseed



Reuse Queue

```
func tableView(_:, cellForRowAt:)
```

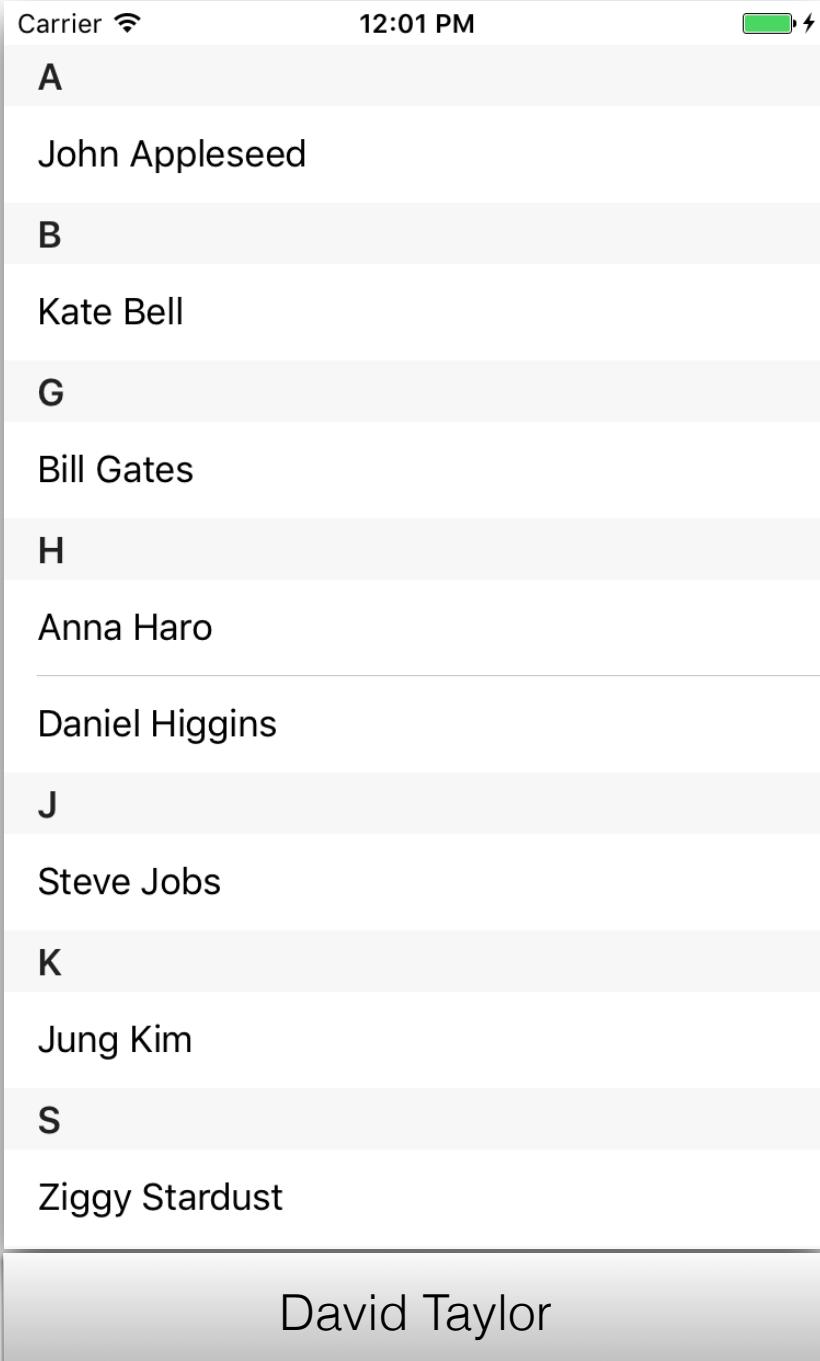


Reuse Queue

```
func tableView(_:, cellForRowAt:)
```

```
dequeueReusableCell(withIdentifier: "cell",  
for: indexPath)
```

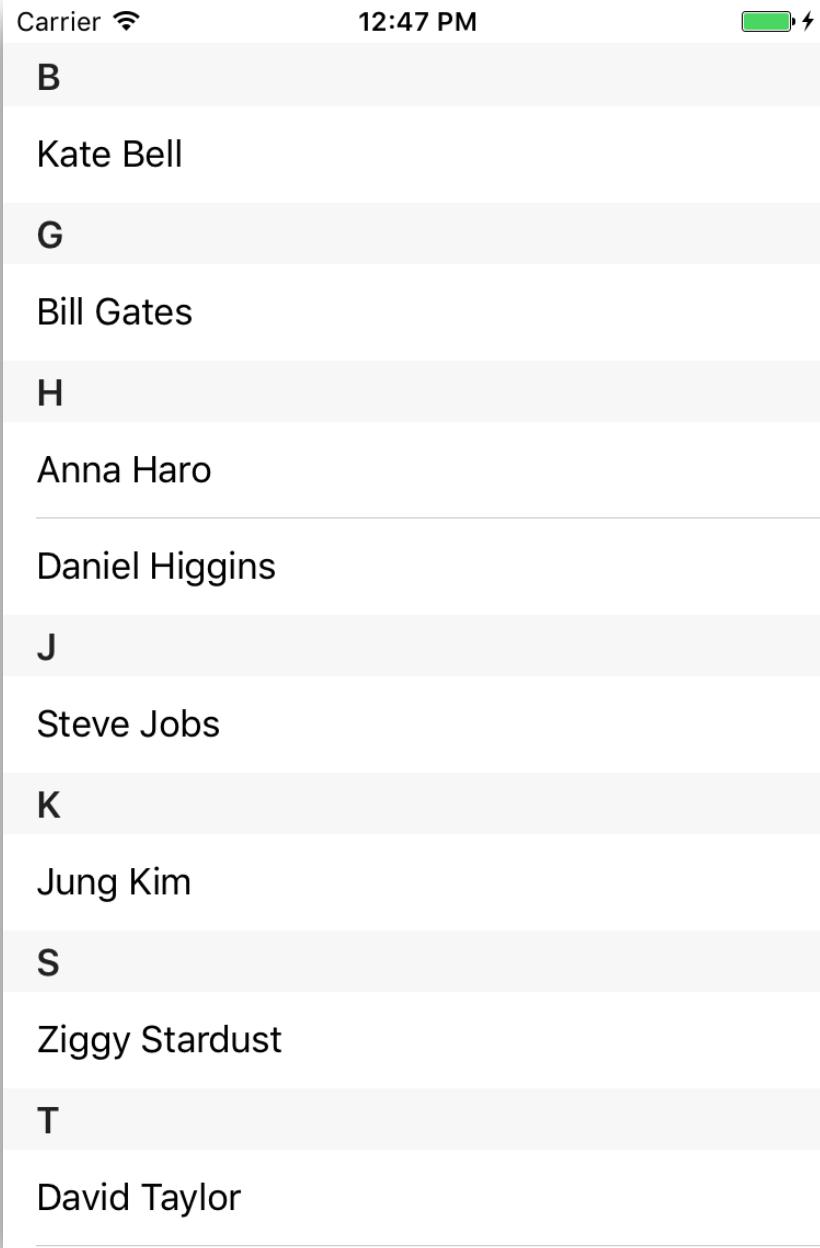
David Taylor



Reuse Queue

```
func tableView(_:, cellForRowAt:)
```

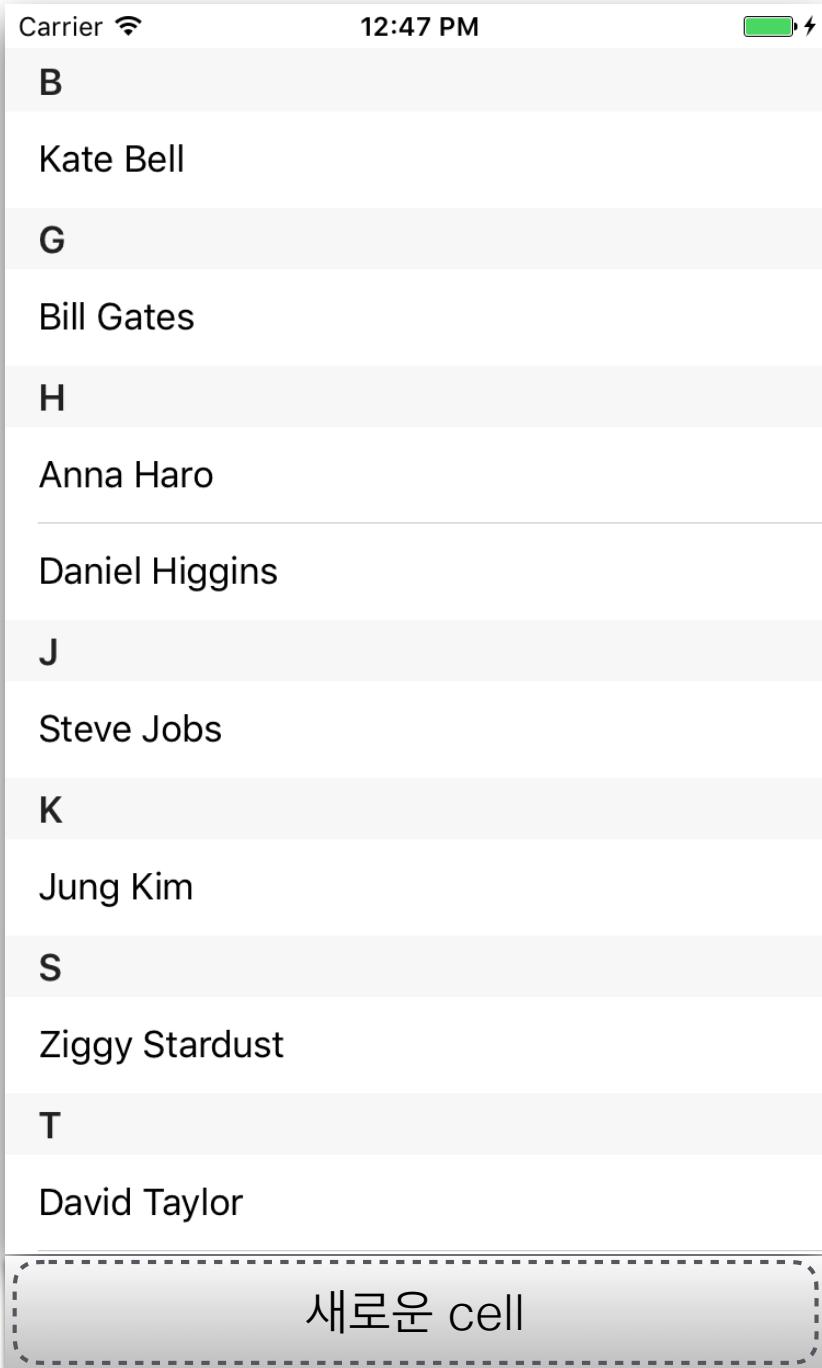
```
dequeueReusableCell(withIdentifier: "cell",  
for: indexPath)
```



Reuse Queue

John Appleseed

```
func tableView(_:, cellForRowAt:)
```

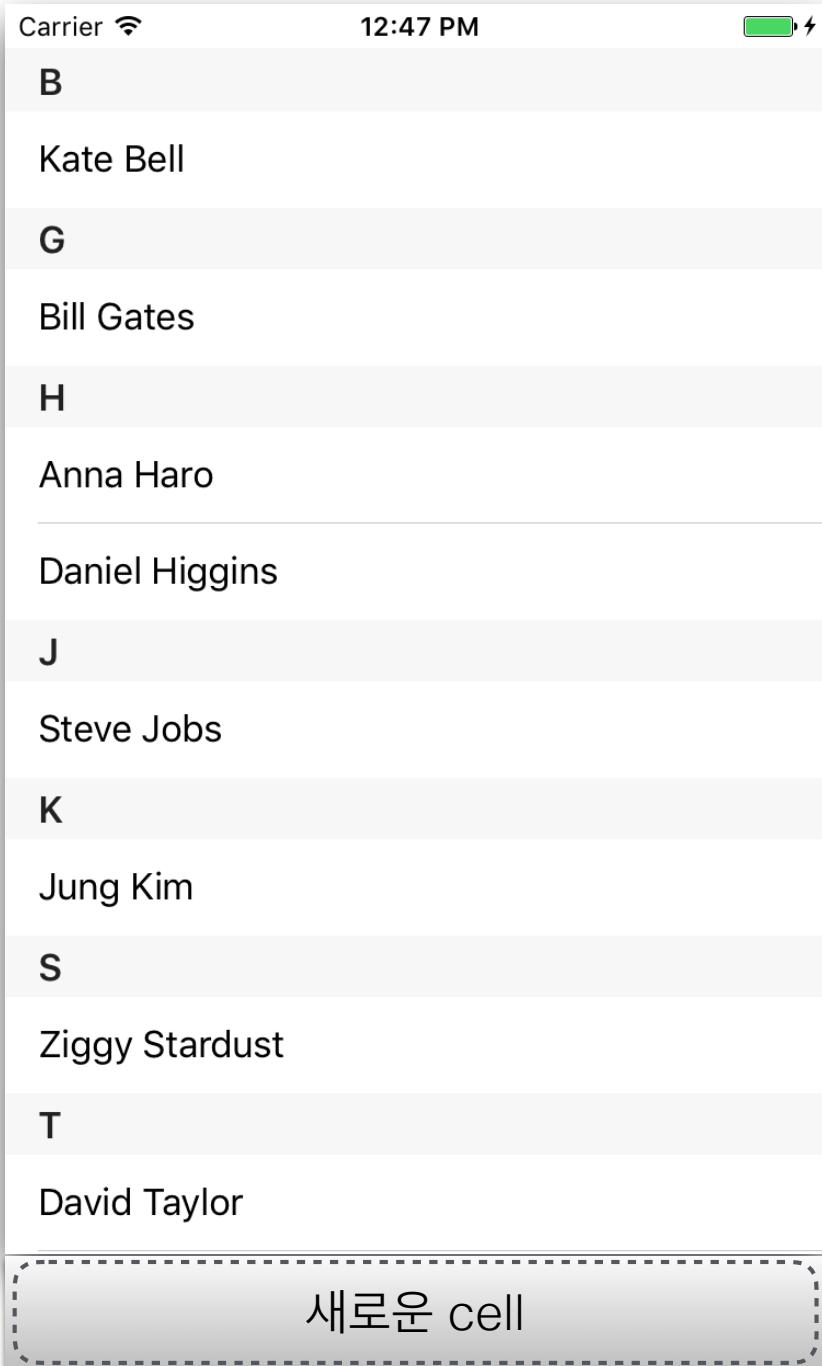


Reuse Queue

John Appleseed

```
func tableView(_:, cellForRowAt:)
```

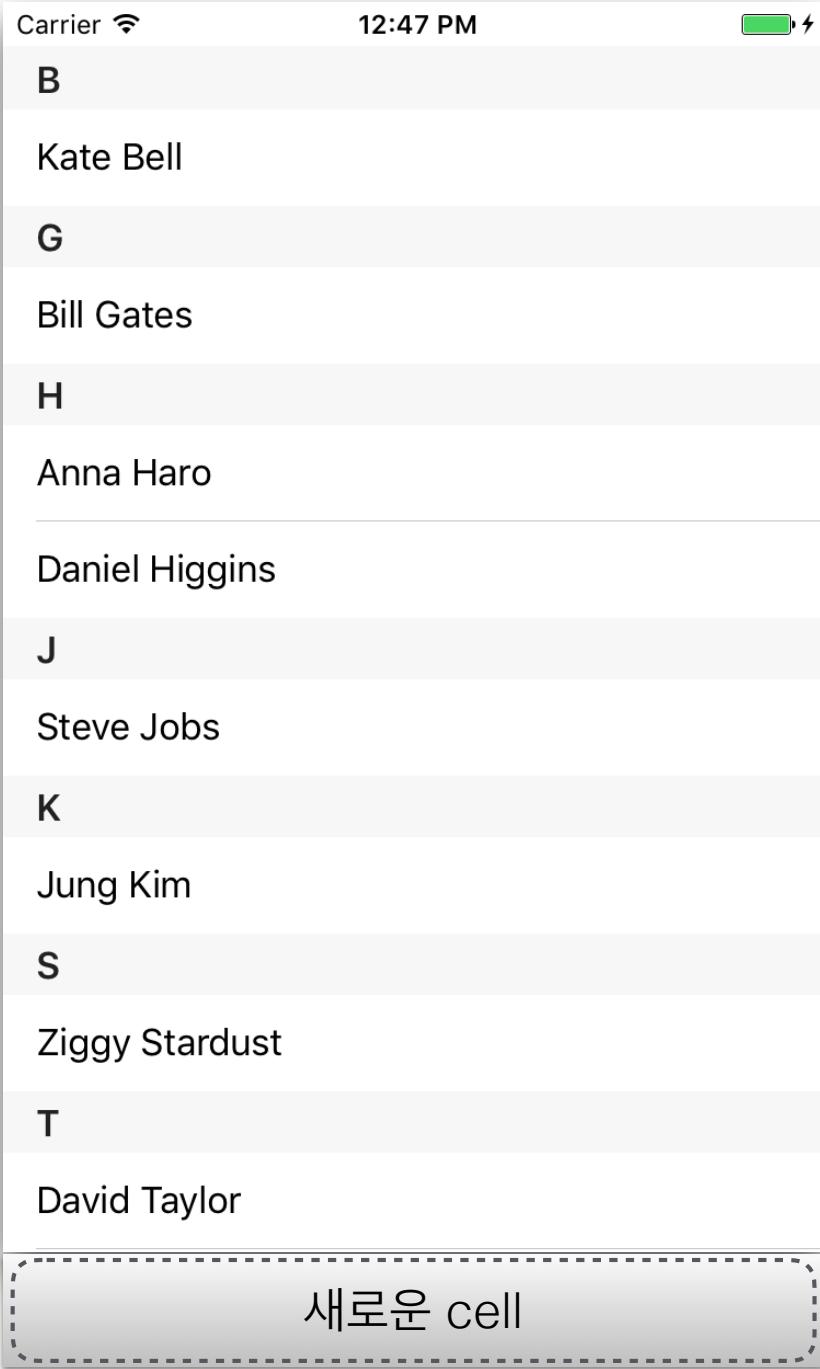
새로운 cell



Reuse Queue

```
func tableView(_:, cellForRowAt:)
```

John Appleseed



Reuse Queue

```
func tableView(_:, cellForRowAt:)
```

```
dequeueReusableCell(withIdentifier: "cell",  
for: indexPath)
```

Darlene Weaver

Reuse Queue

B

Kate Bell

G

Bill Gates

H

Anna Haro

Daniel Higgins

J

Steve Jobs

K

Jung Kim

S

Ziggy Stardust

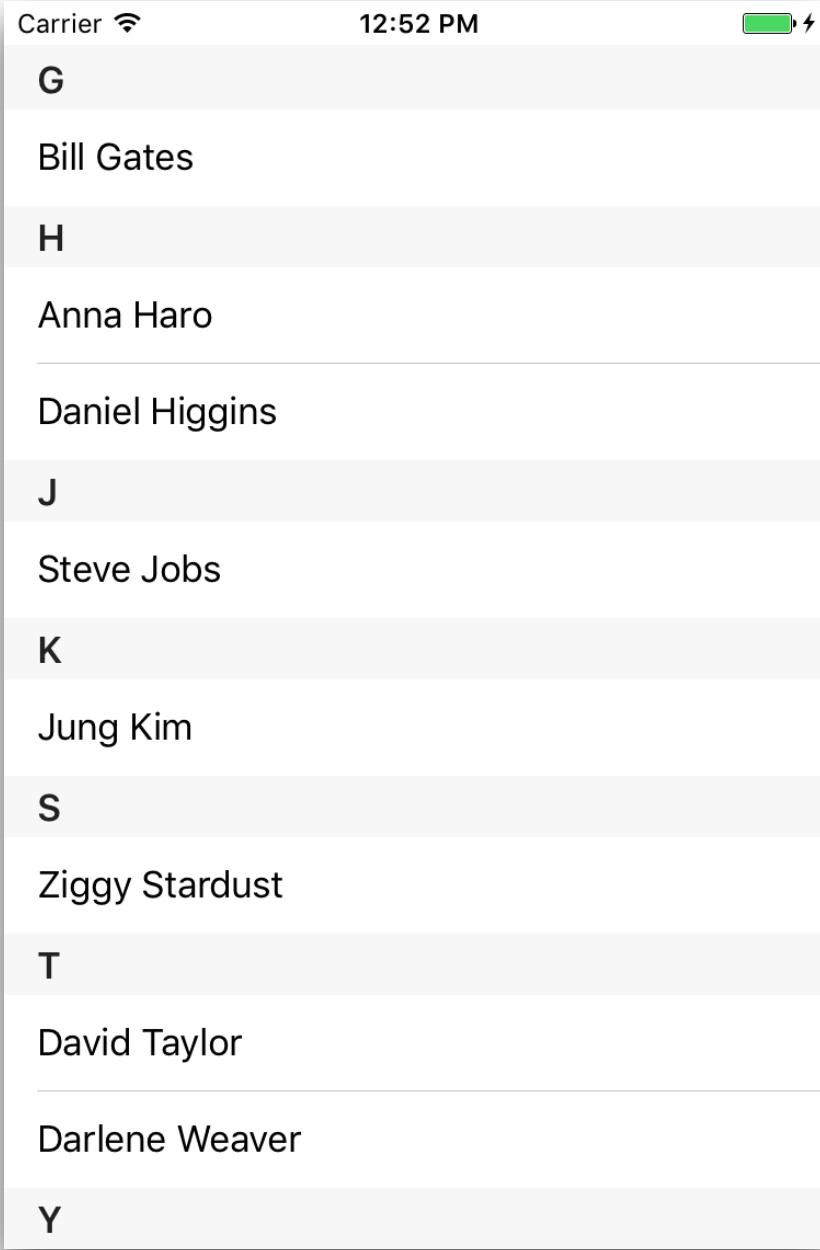
T

David Taylor

Darlene Weaver

```
func tableView(_:, cellForRowAt:)
```

```
dequeueReusableCell(withIdentifier: "cell",  
for: indexPath)
```



Reuse Queue

```
func tableView(_:, cellForRowAt:)
```

```
dequeueReusableCell(withIdentifier: "cell",  
for: indexPath)
```

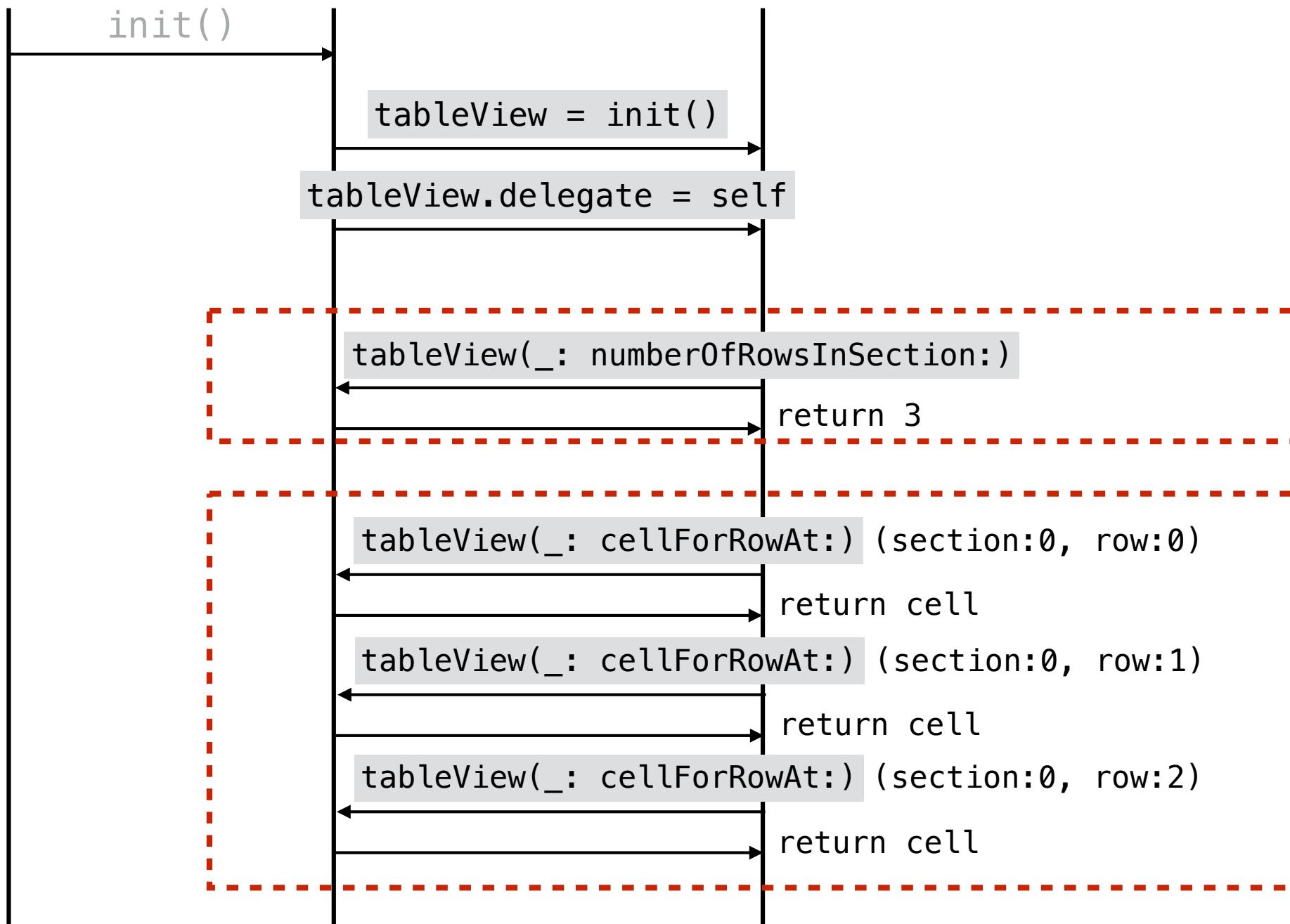
UITableViewDataSource

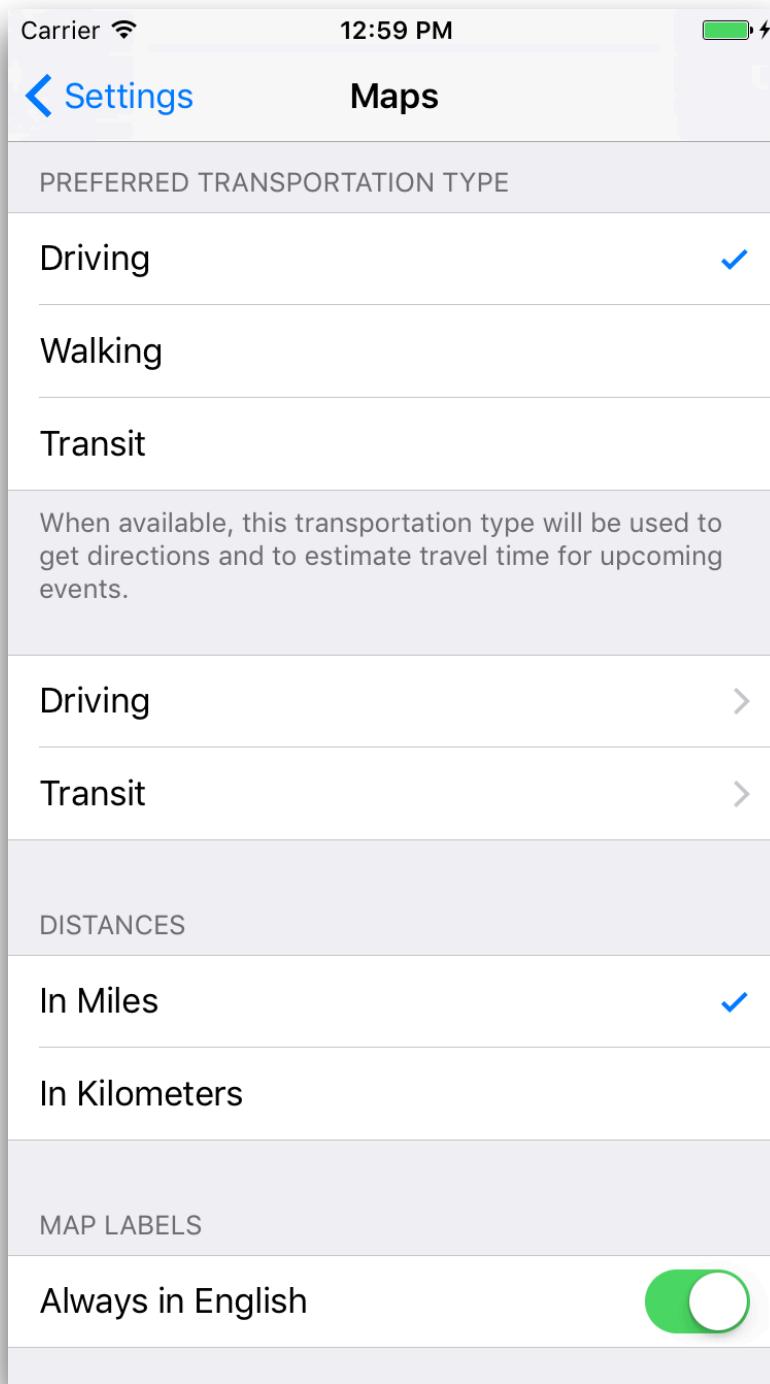
```
public protocol UITableViewDataSource : NSObjectProtocol {  
  
    public func tableView(_ tableView: UITableView,  
    numberOfRowsInSection section: Int) -> Int  
  
    public func tableView(_ tableView: UITableView, cellForRowAt  
    indexPath: IndexPath) -> UITableViewCell  
  
    optional public func numberOfSections(in tableView: UITableView)  
    -> Int // Default is 1 if not implemented  
  
    optional public func tableView(_ tableView: UITableView,  
    titleForHeaderInSection section: Int) -> String? // fixed font  
    style. use custom view (UILabel) if you want something different  
  
    optional public func tableView(_ tableView: UITableView,  
    titleForFooterInSection section: Int) -> String?
```

AppDelegate

ViewController

TableView





← “cell identifier1”

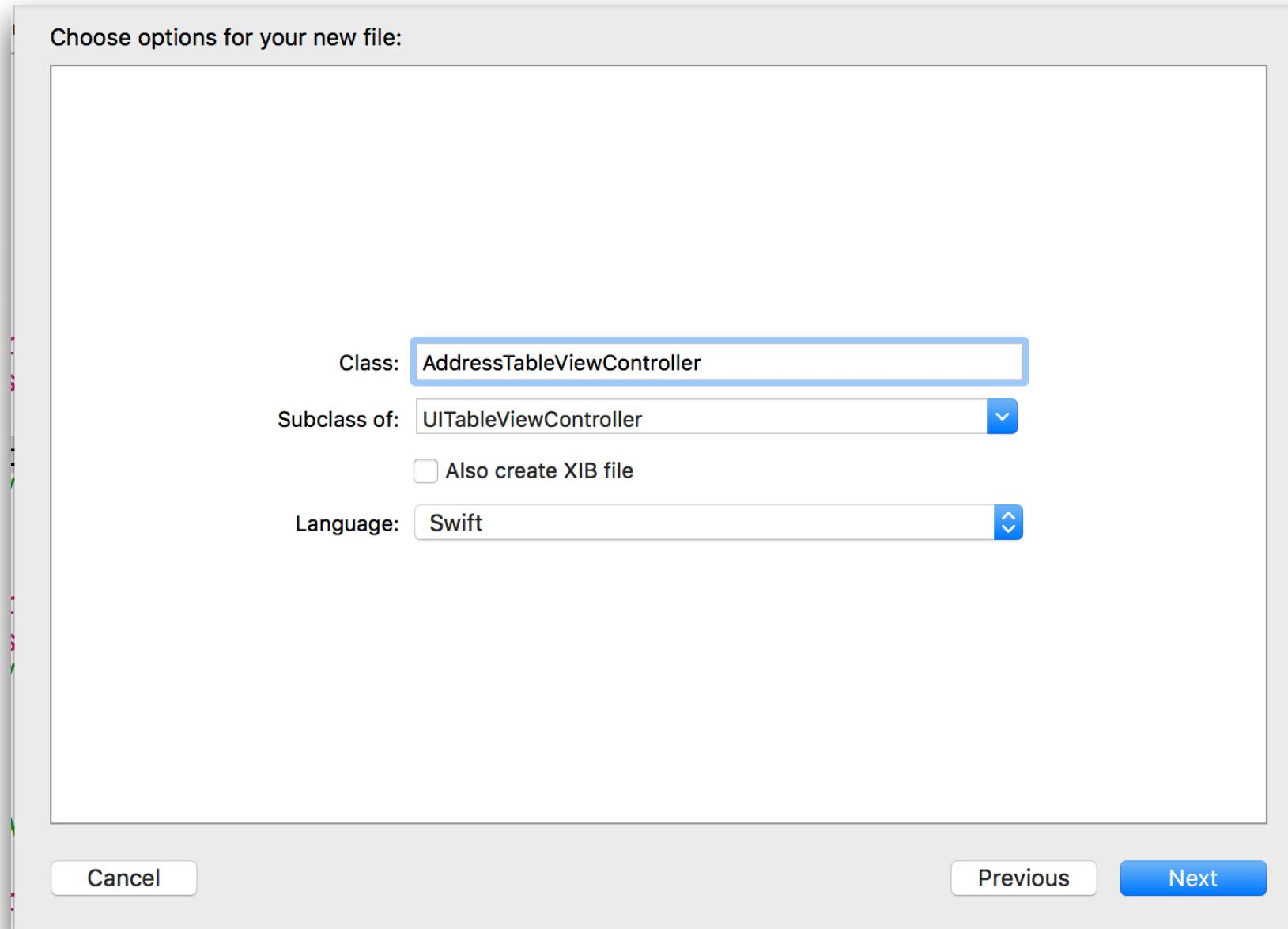
← “cell identifier2”

← “cell identifier3”

코딩미션

주소록 with UITableViewController

AddressTableViewController



주소록 TableView 만들기

Data Array

```
let nameArray = [ [ "ㄱ" : ["김다인", "김수완", "김준영", "김하은", "김형종"] ],  
                  [ "ㅂ" : ["박예준", "박진수"] ],  
                  [ "ㅅ" : ["서동욱", "송통일"] ],  
                  [ "ㅇ" : ["양재형", "오세훈", "이단비", "이미정", "이정웅", "이준범"] ],  
                  [ "ㅈ" : ["전한나"] ],  
                  [ "ㅊ" : ["최승이", "최혜선"] ],  
                  [ "ㅎ" : ["한민호", "한지웅", "홍성호", "홍창남", "황예린"] ] ]
```

주소록 TableView 만들기

Section 과 Row



클래스

UITableView 연결

```
import AVFoundation

class AddressMainViewController: UIViewController {

    @IBOutlet weak var tableView: UITableView!
    let synthesizer = AVSpeechSynthesizer()

    override func viewDidLoad() {
        super.viewDidLoad()

        self.tableView.dataSource = self
        self.tableView.delegate = self
    }

    func speakSomething(name: String) {
        synthesizer.stopSpeaking(at: .immediate)
        let utterance = AVSpeechUtterance(string: name)
        utterance.voice = AVSpeechSynthesisVoice.init(language: "ko_KR")
        utterance.rate = 0.5
        synthesizer.speak(utterance)
    }
}
```

프로토콜 상속

UITableViewDataSource + UITableViewDelegate

```
extension AddressMainViewController : UITableViewDataSource, UITableViewDelegate {
    func numberOfSections(in tableView: UITableView) -> Int {
        return 0
    }

    func tableView(_ tableView: UITableView,
                  numberOfRowsInSection section: Int) -> Int {
        return 0
    }

    func tableView(_ tableView: UITableView,
                  cellForRowAt indexPath: IndexPath) -> UITableViewCell {
        let cell = tableView.dequeueReusableCell(withIdentifier: "cell", for: indexPath)
        return cell
    }
}
```

UITableViewDelegate

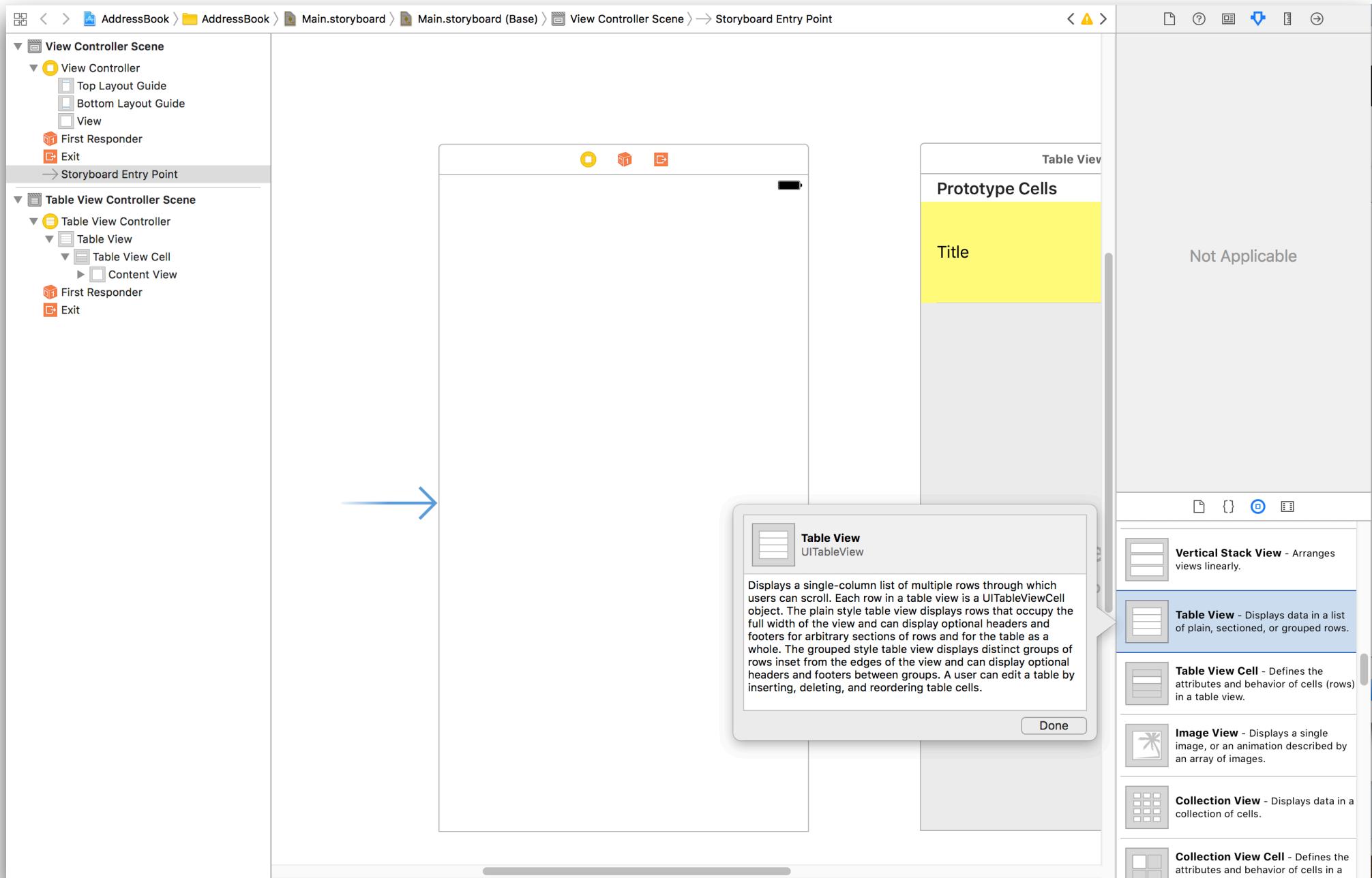
<https://developer.apple.com/documentation/uikit/uitableviewdelegate>

- * 홀수 cell 높이는 40pt으로, 짝수 cell 높이는 50pt로 조정해보세요.
- * 클래스에 다음 함수를 추가하고, cell을 선택하면 `speakSomething()` 함수에 해당 이름을 넘겨서 호출하세요.
- * **플러스 미션** : 특정 cell을 삭제하도록 만들어보세요.

코딩미션

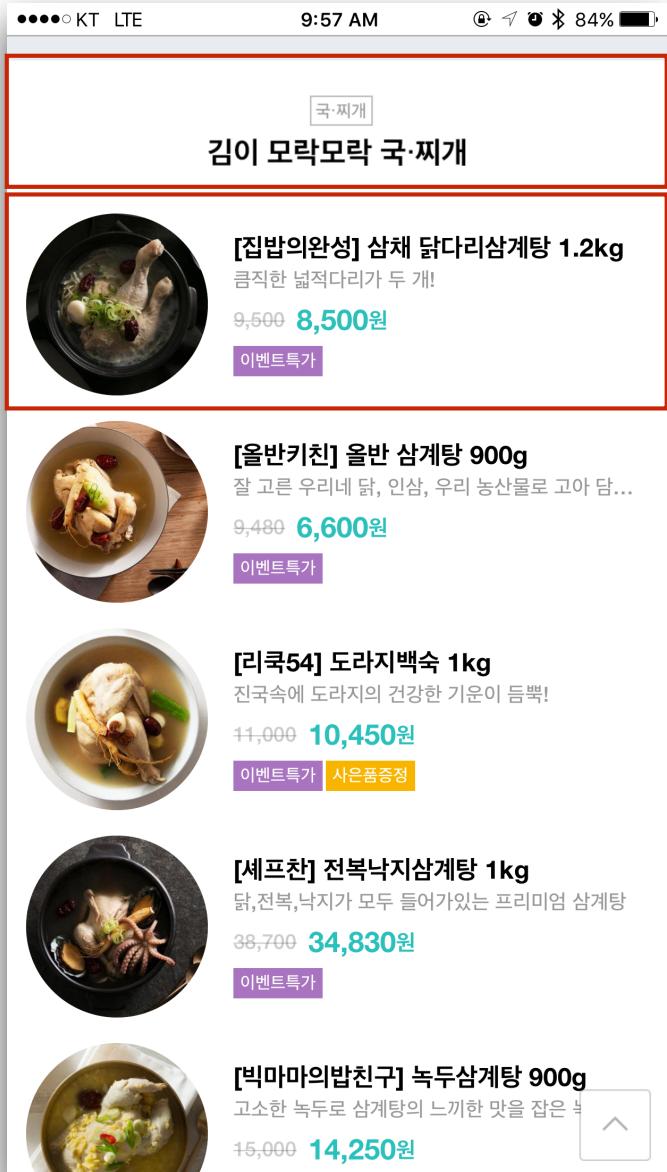
주문 앱 만들기

UITableView 만 사용하기



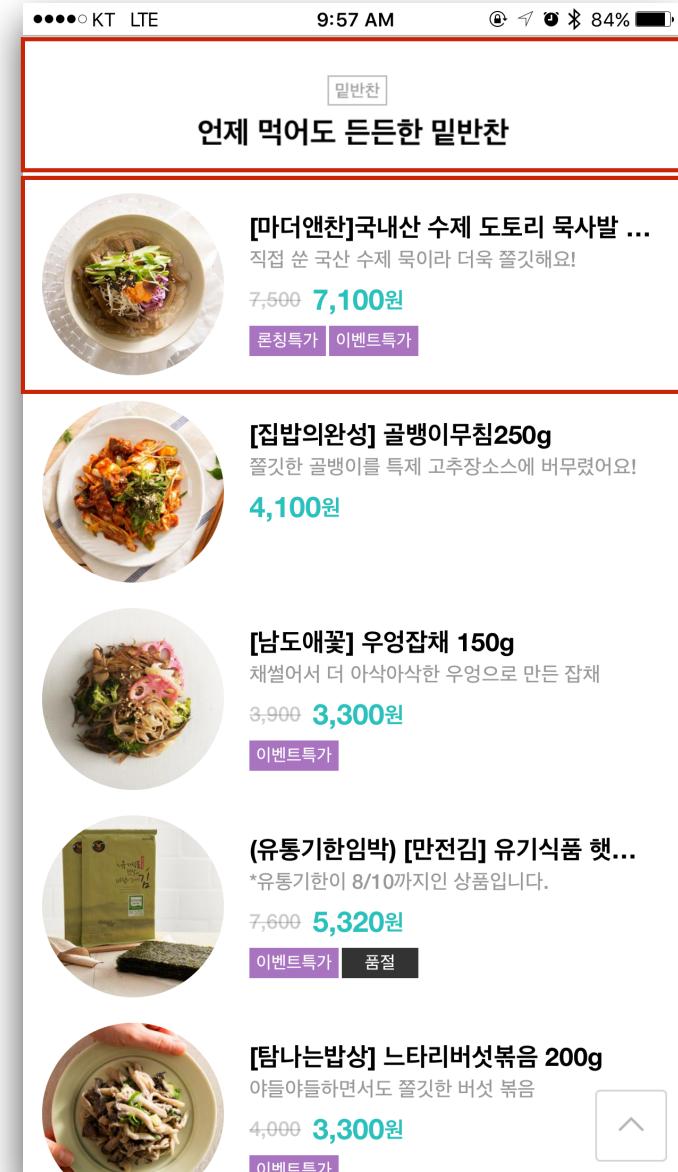
Cell 확장하기

UITableViewCell



Section Header

Custom TableViewCell Cell



Cell 디자인



[마더앤찬]국내산 수제 도토리 묵사발 ... ← 타이틀 제목
직접 쑨 국산 수제 묵이라 더욱 쫄깃해요! ← 상세 설명
7,500 7,100원 ← 메뉴 가격
론칭특가 | 이벤트특가 ← 이벤트 배지

메뉴 이미지

```
{ "detail_hash" : "HF778",
  "image" : "https://cdn.bmf.kr/_data/product/HF778/cad8eee316cf7151e07638aa57b32a9d.jpg",
  "alt" : "[마더앤찬]국내산 수제 도토리 묵사발 먹어보세요",
  "delivery_type" : ["새벽배송", "전국택배"],
  "title" : "[마더앤찬]국내산 수제 도토리 묵사발 먹어보세요",
  "description" : "직접 쑨 국산 수제 묵이라 더욱 쫄깃해요!",
  "n_price" : "7,500",
  "s_price" : "7,100",
  "badge" : [ "론칭특가", "이벤트특가" ]
}
```

JavaScript Object Notation

데이터 교환을 위해 사용하는 가벼운 텍스트 형식
기본 구조

배열 : 값을 순서대로 보관하는 리스트 구조

[“오브젝트1”, “오브젝트2”, “오브젝트3”]

사전 : 키이름(name)과 값(value) 쌍으로 보관하는 구조

{ “키이름” : “오브젝트” }

<http://www.json.org/json-ko.html>

DataSource JSON Sample

```
[{"detail_hash": "HBDEF",  
 "image": "https://cdn.bmf.kr/_data/product/HF56E/2d3f99a9a35601f4e98837bc4d39b2c8.jpg",  
 "alt": "[윤식당] 불고기 with Rice (재료)",  
 "delivery_type": ["새벽배송", "전국택배"],  
 "title": "[윤식당] 불고기 with Rice (재료)",  
 "description": "윤식당 불고기메뉴의 가장 기본인 불고기라이스! (마더소스 포함)",  
 "s_price": "7,000"},  
,  
 {"detail_hash": "HDF73",  
 "image": "https://cdn.bmf.kr/_data/product/HDF73/7674311a02ba7c88675f3186ddaeef9e.jpg",  
 "alt": "[빅마마의밥친구] 아삭 고소한 연근고기조림 250g",  
 "delivery_type": ["새벽배송", "전국택배"],  
 "title": "[빅마마의밥친구] 아삭 고소한 연근고기조림 250g",  
 "description": "편식하는 아이도 좋아하는 건강한 연근조림",  
 "s_price": "5,500"},  
,  
 {"detail_hash": "HF778",  
 "image": "https://cdn.bmf.kr/_data/product/HF778/cad8eee316cf7151e07638aa57b32a9d.jpg",  
 "alt": "[소중한식사] 골뱅이무침 195g",  
 "delivery_type": ["새벽배송", "전국택배"],  
 "title": "[소중한식사] 골뱅이무침 195g",  
 "description": "매콤새콤달콤, 반찬으로도 안주로도 좋은",  
 "n_price": "7,000",  
 "s_price": "6,300",  
 "badge": ["이벤트특가"]}]
```

<https://www.dropbox.com/s/ot1igphychsusv6/main.json?dl=0>

JSON Serialization 미션

이전 슬라이드 main.json 파일을 다운로드하고 프로젝트에 복사

json 파일을 읽어서 **Serialization** 하고

인스턴스 변수 var jsonArray :
Array<Dictionary<String, Any>>로 저장하세요.

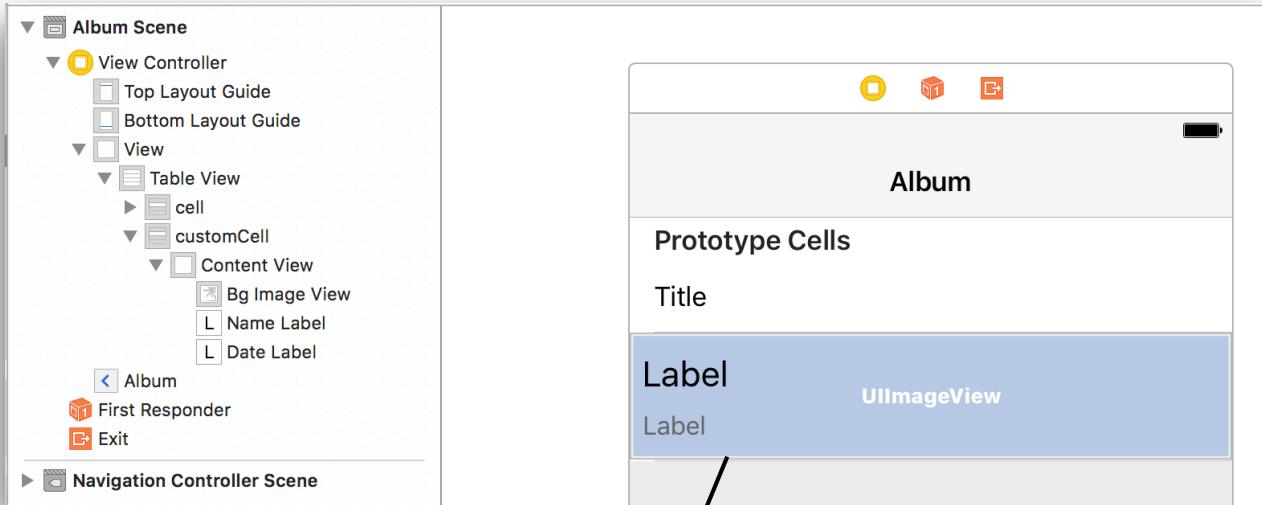
Custom Cell 디자인을 하고 jsonArray로 테이블뷰를 완성하세요.

힌트.

<https://developer.apple.com/swift/blog/?id=37>

~~메뉴 이미지 파일은 아주 고려하지마세요.~~

Custom Cell 클래스 만들기



IBOutlet 연결은 커스텀 클래스로

```
class CustomTableViewCell: UITableViewCell {
    @IBOutlet weak var bgImageView: UIImageView!

    @IBOutlet weak var dateLabel: UILabel!
    @IBOutlet weak var nameLabel: UILabel!
    override func awakeFromNib() {
        super.awakeFromNib()
        // Initialization code
    }

    override func setSelected(_ selected: Bool, animated: Bool) {
        super.setSelected(selected, animated: animated)

        // Configure the view for the selected state
    }
}
```

여러 Section 미션

main 메뉴 JSON 파일과 동일한 형식을 가지는

다음 json 파일들을 읽어서 4개 Section 으로 구분해서, 여러 메뉴를 완성하세요.

<https://www.dropbox.com/s/5jr9ncen7cipcjo/course.json?dl=0>

<https://www.dropbox.com/s/tgmbsh78j8wfhvm/soup.json?dl=0>

<https://www.dropbox.com/s/umxjdwssisxe4f5/side.json?dl=0>

플러스 미션 : Section Header를 추가해보세요.

여러 단말용으로 오토레이아웃을 적용해보세요.

UICollectionView

Layout

CollectionView

Classes and protocols

목적

관련 클래스 / 프로토콜

최상위 관리

UICollectionView
UICollectionViewController

콘텐츠 관리

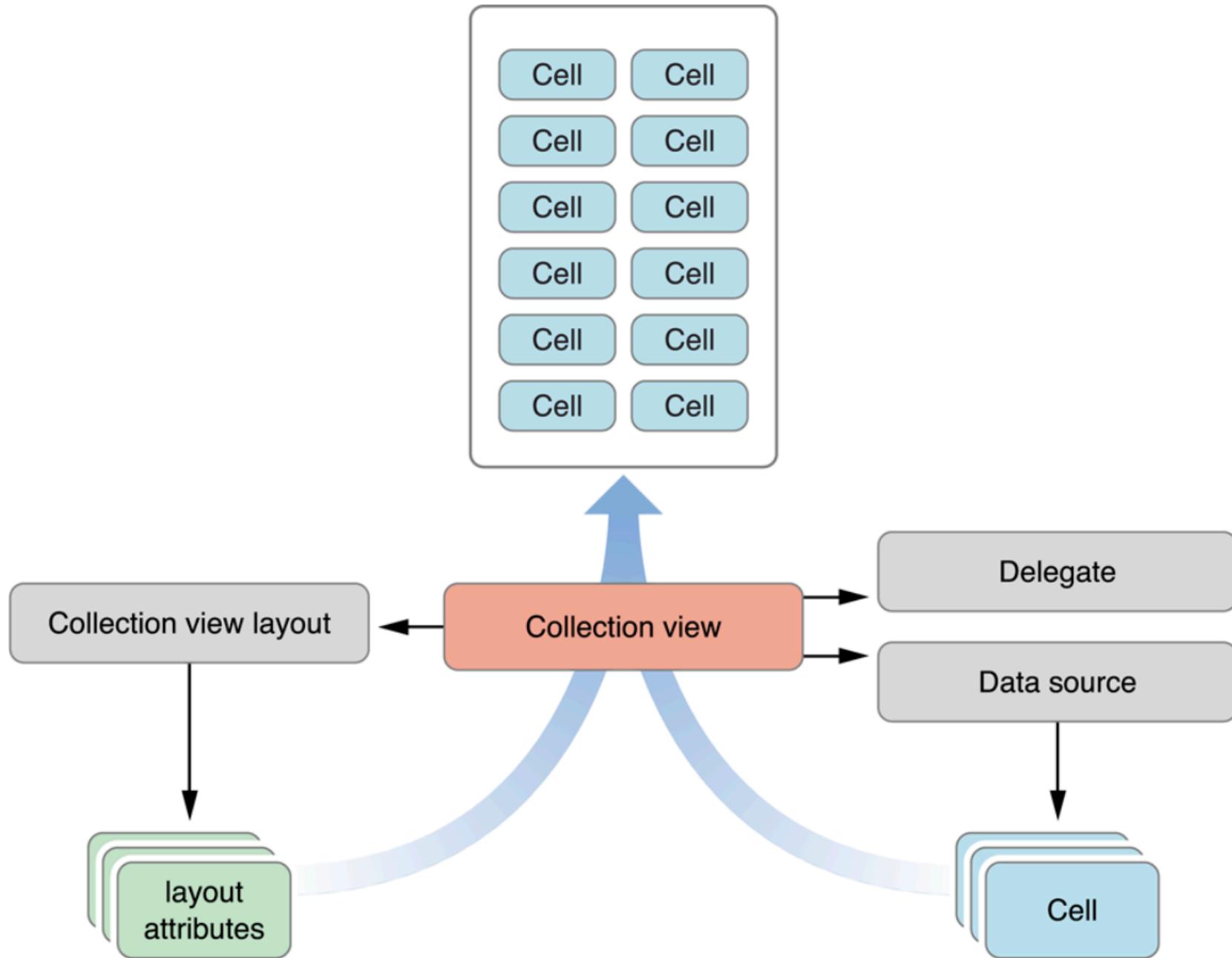
UICollectionViewDataSource
UICollectionViewDelegate

화면 표시

UICollectionViewResuableView
UICollectionViewCell

레이아웃

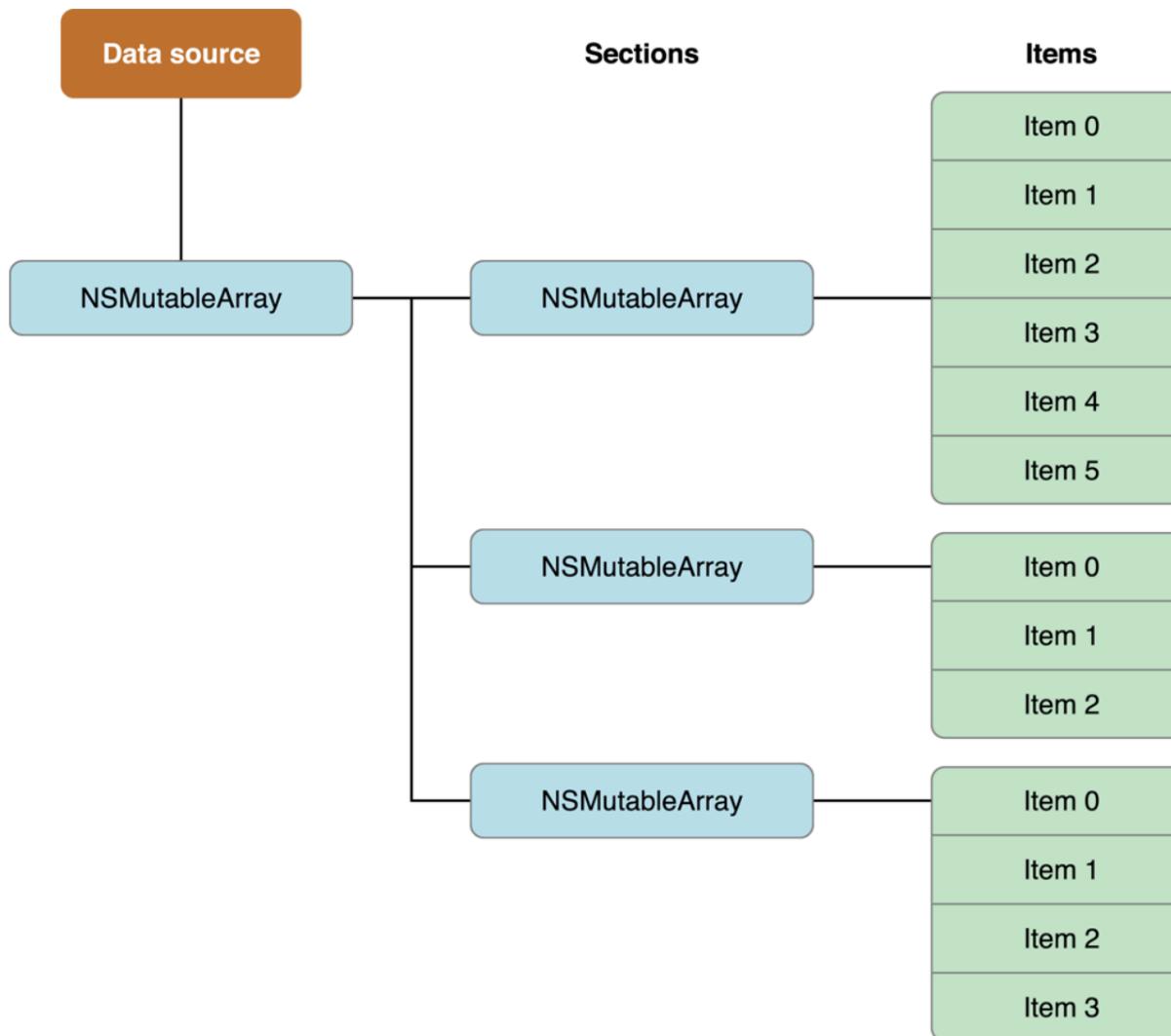
UICollectionViewFlowLayout
UICollectionViewDelegateFlowLayout



Layout-Related Data Objects

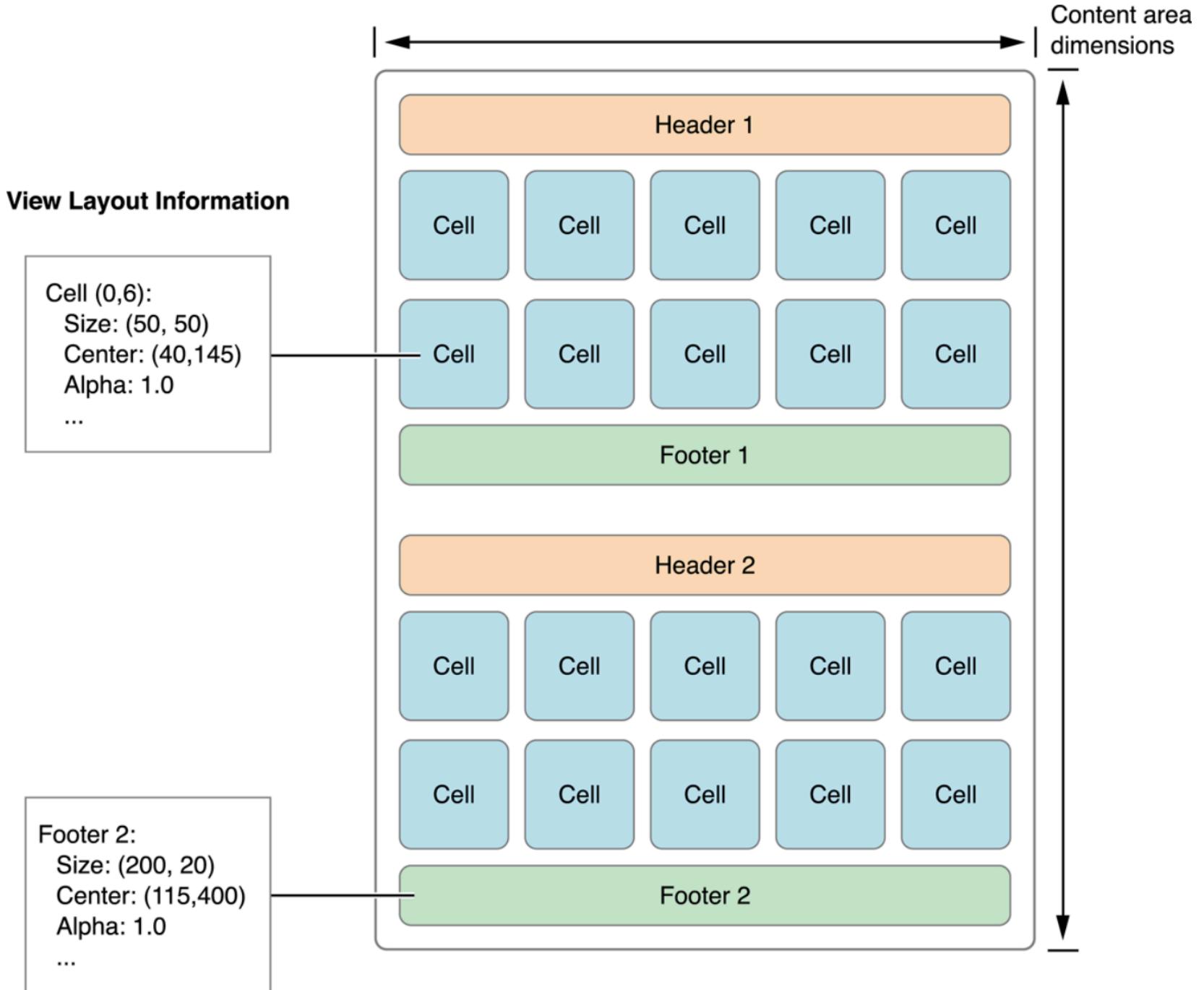
Content-Related Objects

Data Source

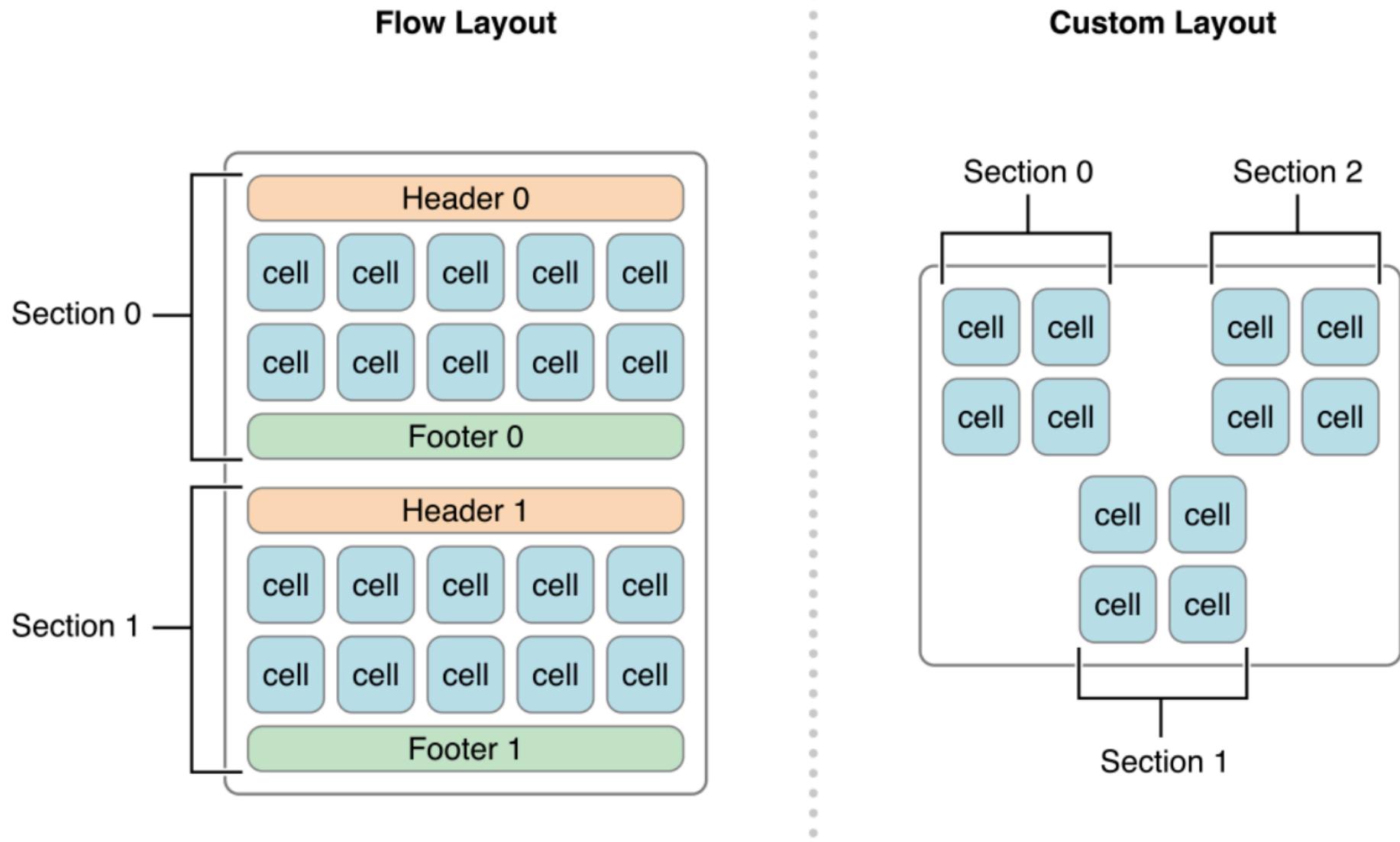


```
let addressSource = [["John Appleseed"], ["Kate Bell"], ["Bill Gates"], ["Anna  
Haro", "Daniel Higgins"], ["Steve Jobs"], ["Jung Kim"], ["Ziggy Stardust"],  
["David Taylor", "Darlene Weaver"], ["JS Yoon"], ["Hank Zakroff"]]
```

CollectionView Layout

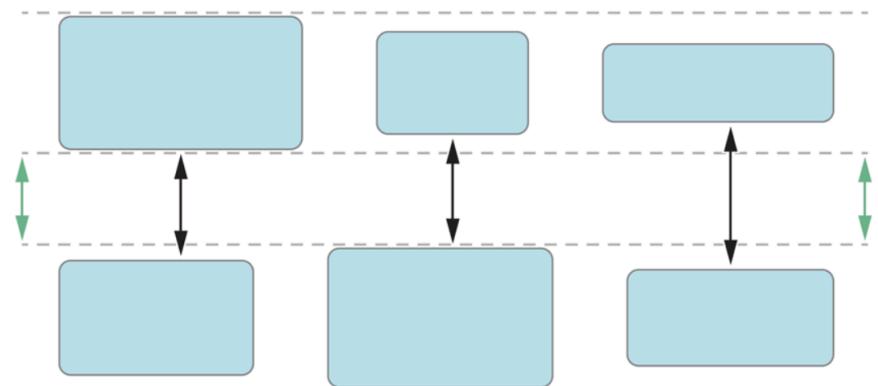
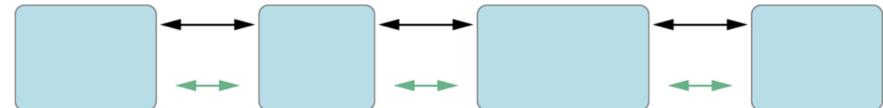
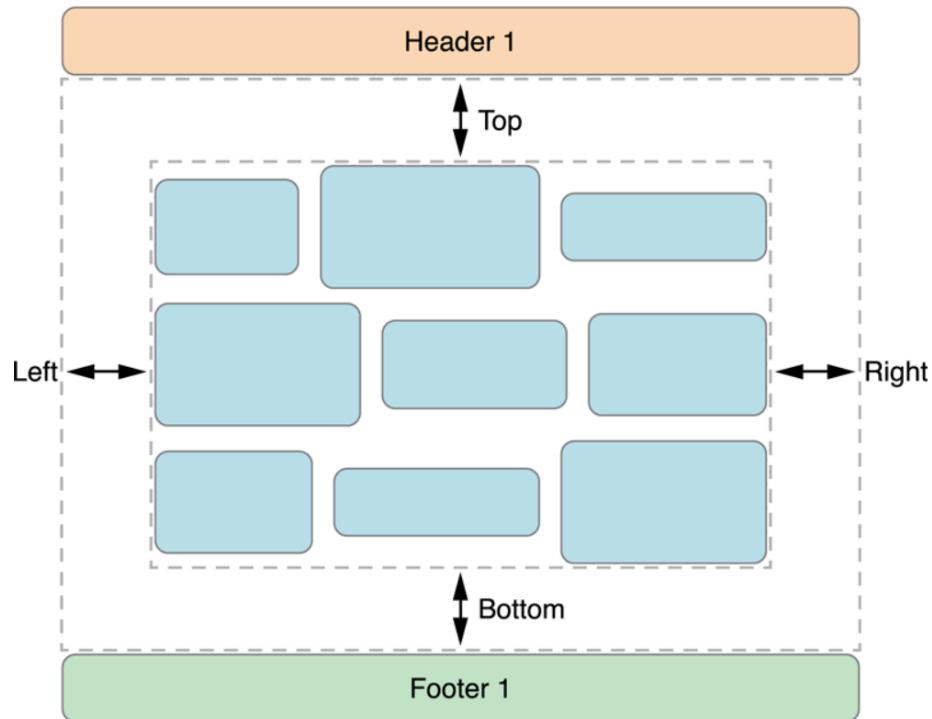


Flow Layout



ItemSize & Space

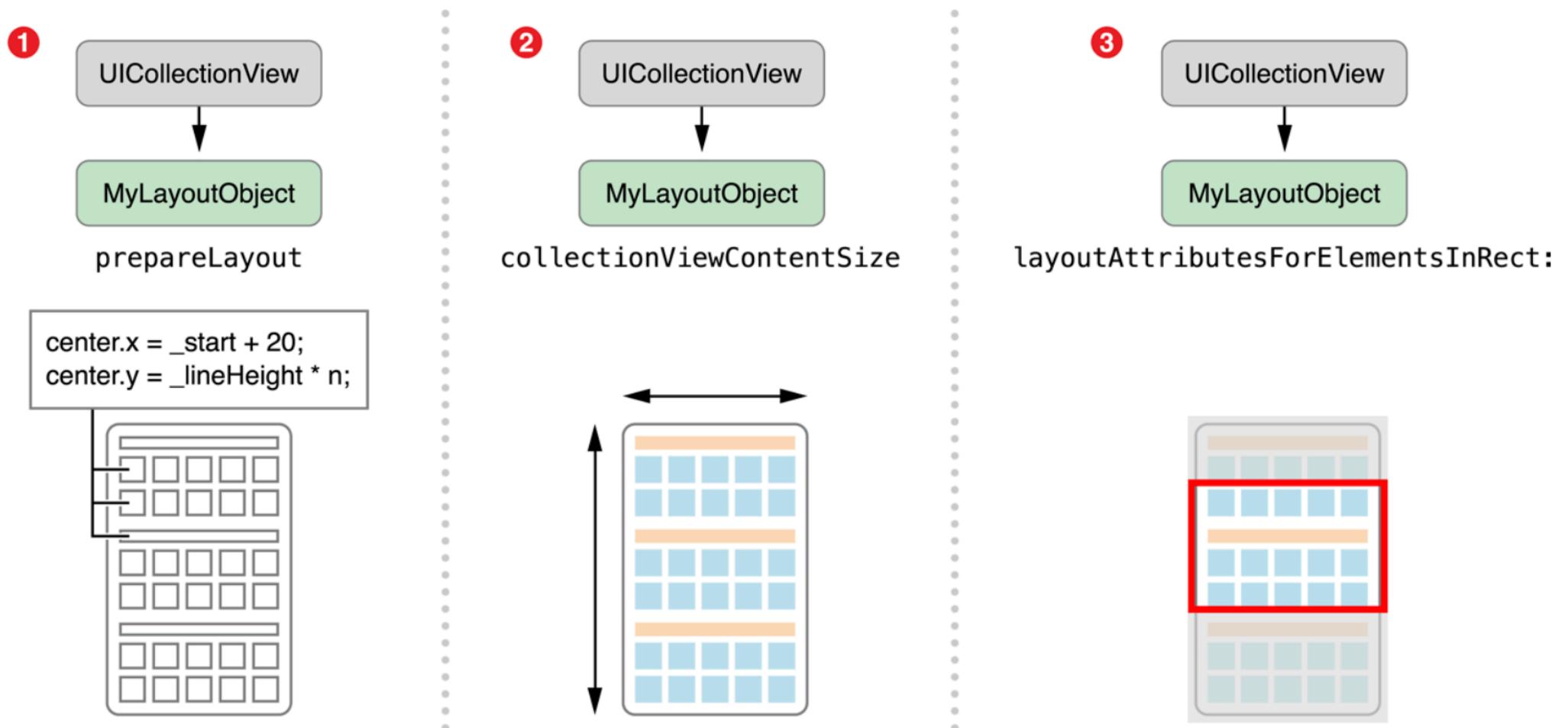
```
inset = UIEdgeInsetsMake(top, left, bottom, right)
```



```
let screenSize = UIScreen.main.bounds  
let itemWidth = (screenSize.width-30)/2  
let layout = self.collectionView.collectionViewLayout as! UICollectionViewFlowLayout  
layout.itemSize.width = itemWidth  
layout.itemSize.height = itemWidth  
layout.minimumInteritemSpacing = 10
```

Custom Layout

Subclassing UICollectionViewLayout



Layout Transition & Animation

