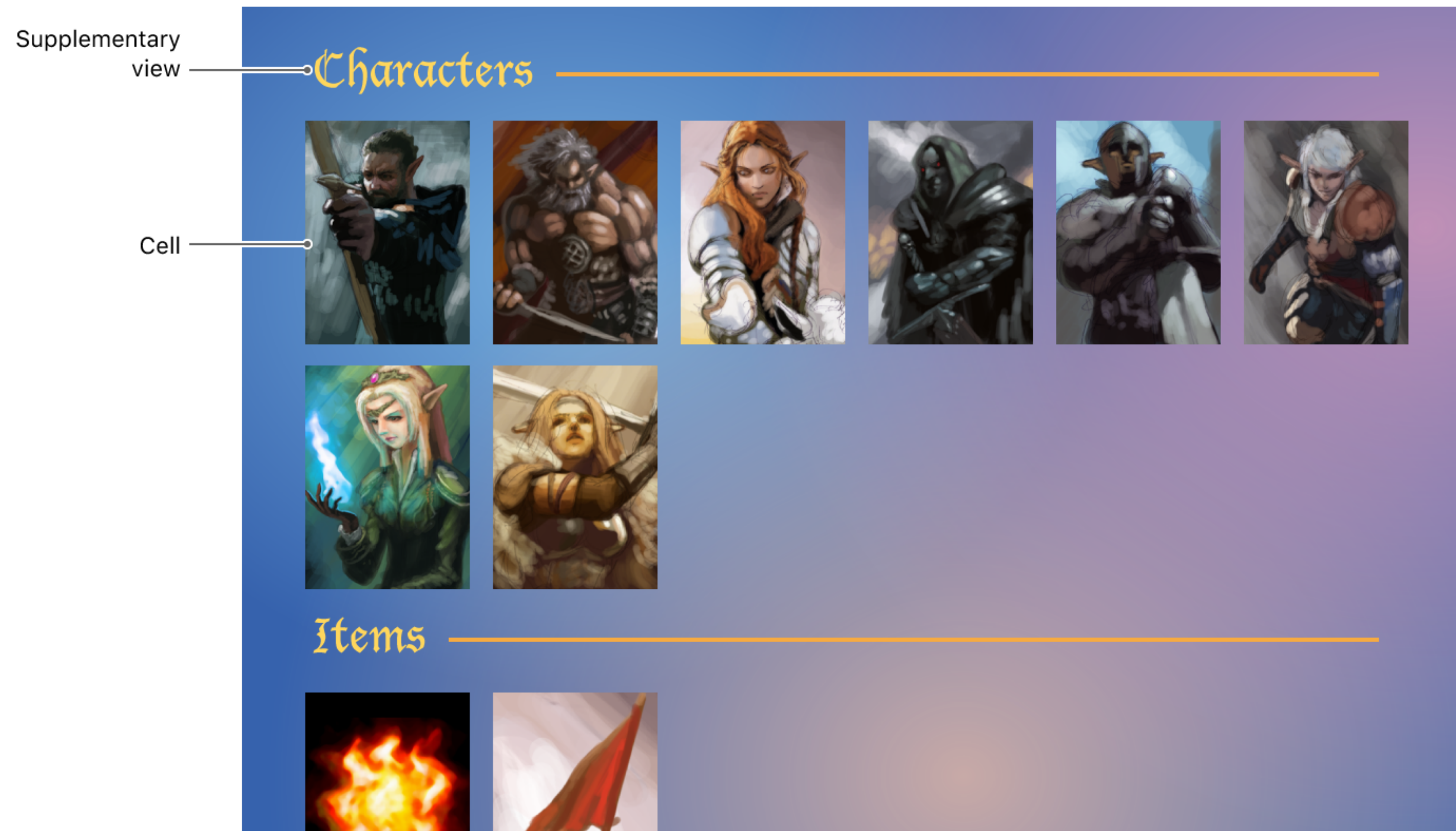


# UICollectionView

# UICollectionView

- 정렬된 자료들을 사용자가 원하는 형식에 맞게 유연하게 표현할 수 있는 객체





# UICollectionView vs UITableView



0. Christ the Redeemer / Christ the Redeemer is an Art Deco statue of Jesus Christ in Rio de...



1. Corcovado / Corcovado, meaning "hunchback" in Portuguese, is a mountain in ce...



2. Maracanã / The Maracanã, officially Estádio Jornalista Mário Filho, is a football stadium in Ri...



3. Ipanema / Fashionable Ipanema is known for its iconic namesake beach, which draws...



4. Fernando de Noronha / Fernando de Noronha is a volcanic archipelago about 350...

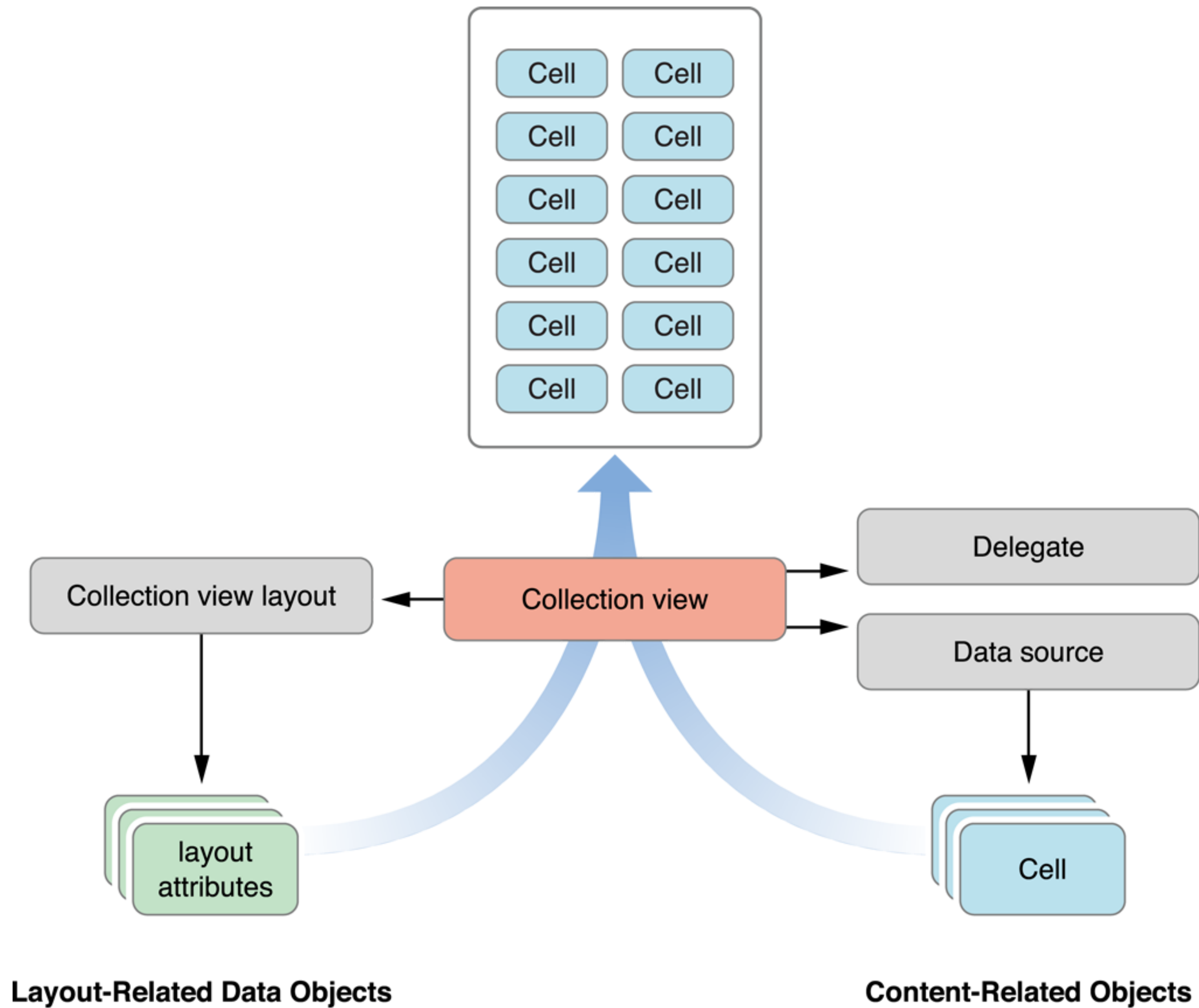


5. Amazon Theatre, Manaus / The Amazon Theatre is an opera house located in Manaus, in the...





# Merging Content and Layout



# The classes / protocols for collection views

Purpose	Classes/Protocols
Top-level containment and management	<code>UICollectionView</code> <code>UICollectionViewController</code>
Content management	<code>UICollectionViewDataSource</code> protocol <code>UICollectionViewDelegate</code> protocol
Presentation	<code>UICollectionViewReusableView</code> <code>UICollectionViewCell</code>
Layout	<code>UICollectionViewLayout</code> <code>UICollectionViewLayoutAttributes</code> <code>UICollectionViewUpdateItem</code>
Flow layout	<code>UICollectionViewFlowLayout</code> <code>UICollectionViewDelegateFlowLayout</code> protocol

# Three types of visual elements

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- 셀 (Cell)

- 컬렉션 뷰의 단일 데이터 항목을 표현하는 개체이며, 레이아웃에 의해 배치되는 주요 요소
- 각 셀은 다중 섹션으로 나누거나 하나의 그룹으로만 묶어 표현할 수 있음
- 컬렉션 뷰의 콘텐츠 영역에 셀들을 배열하는 것이 레이아웃 객체(Layout object)의 주 업무

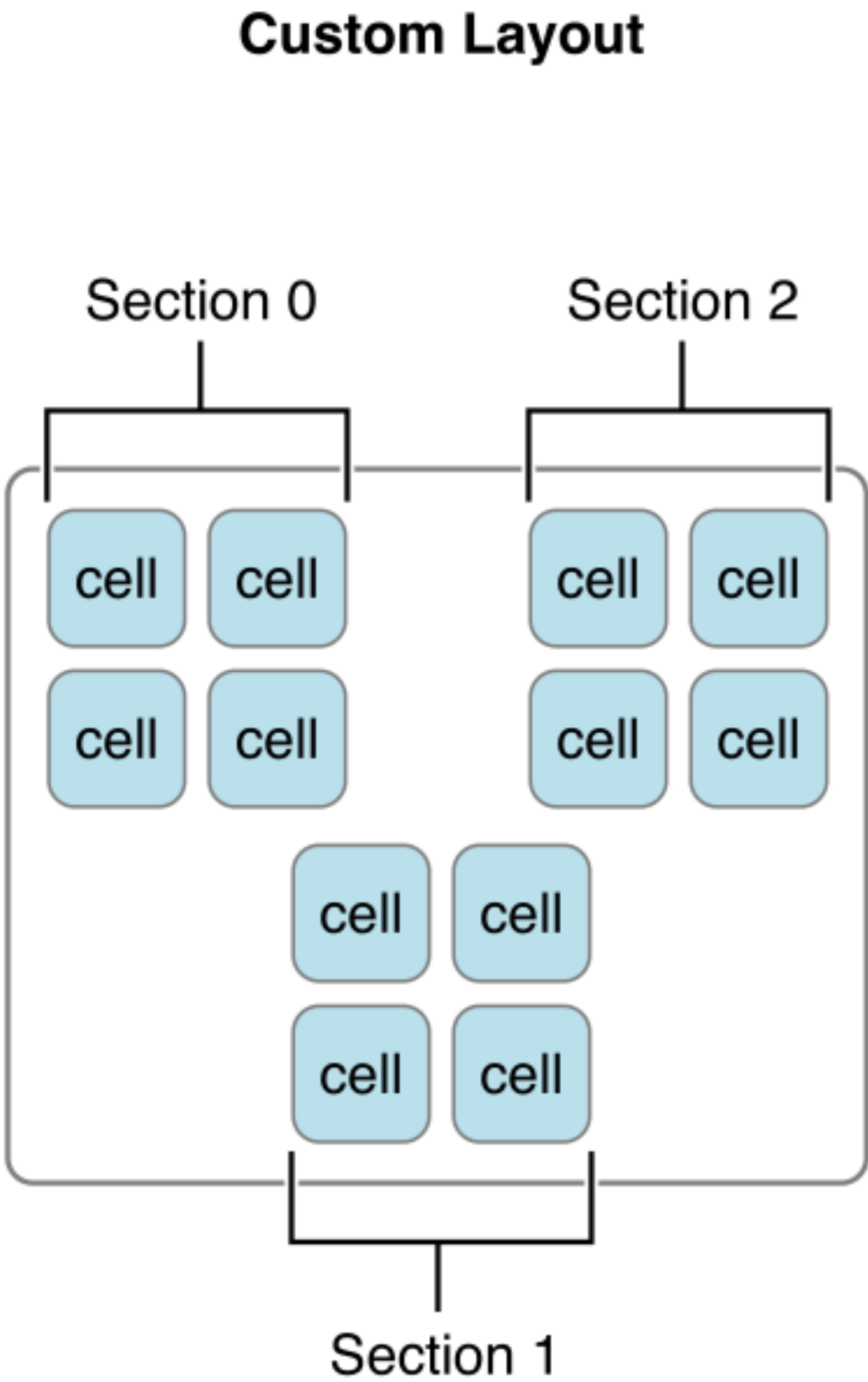
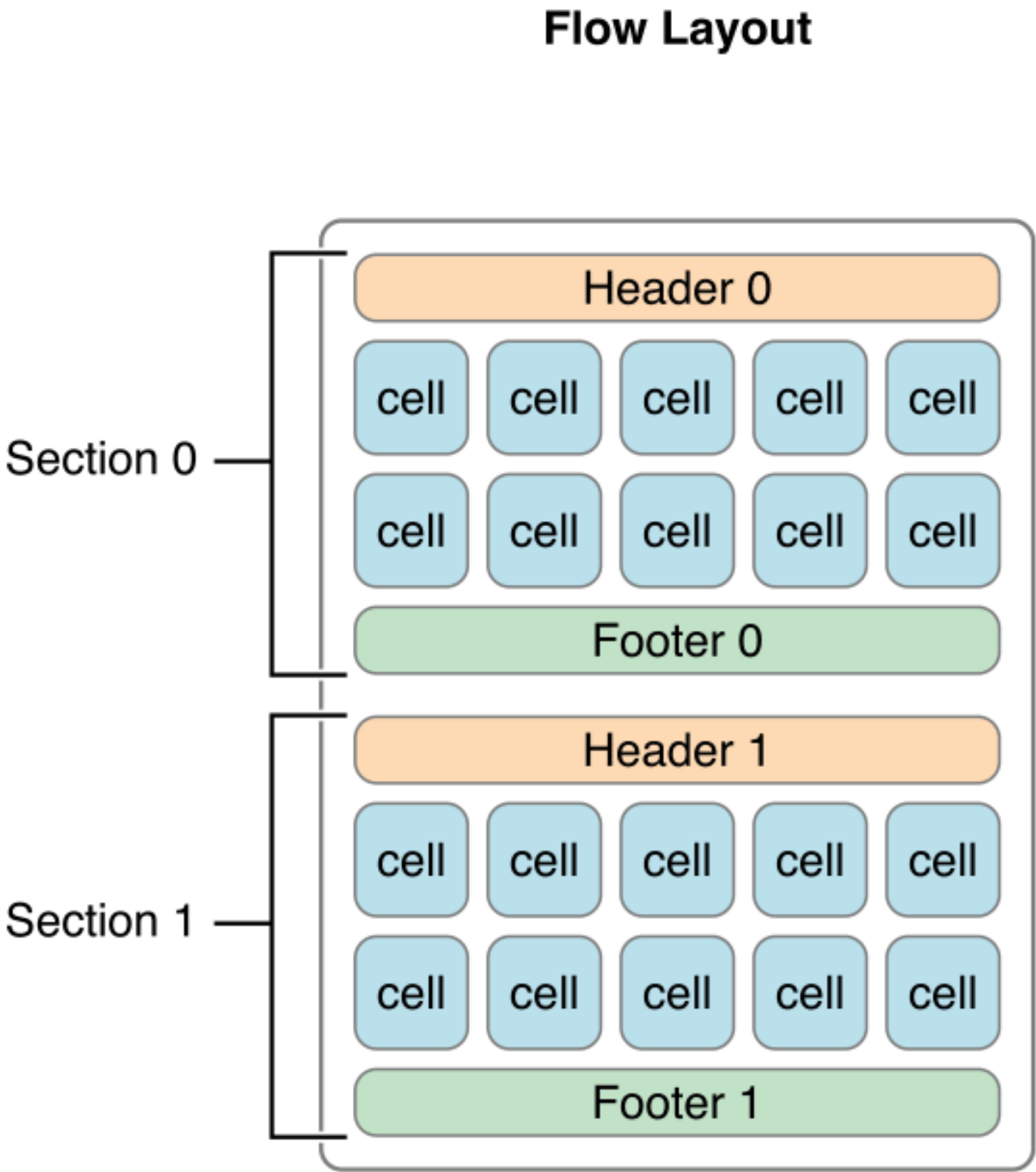
- 보조(보충) 뷰 (Supplementary views)

- 섹션 또는 컬렉션 뷰 자체에 대한 헤더와 푸터 같은 역할을 하는 뷰
- 셀처럼 데이터를 표현할 수 있는 것은 같지만, 사용자가 선택할 수 없는 뷰
- 선택 사항(Optional)이며, 높이를 0으로 설정하면 미생성

- 장식 뷰 (Decoration views)

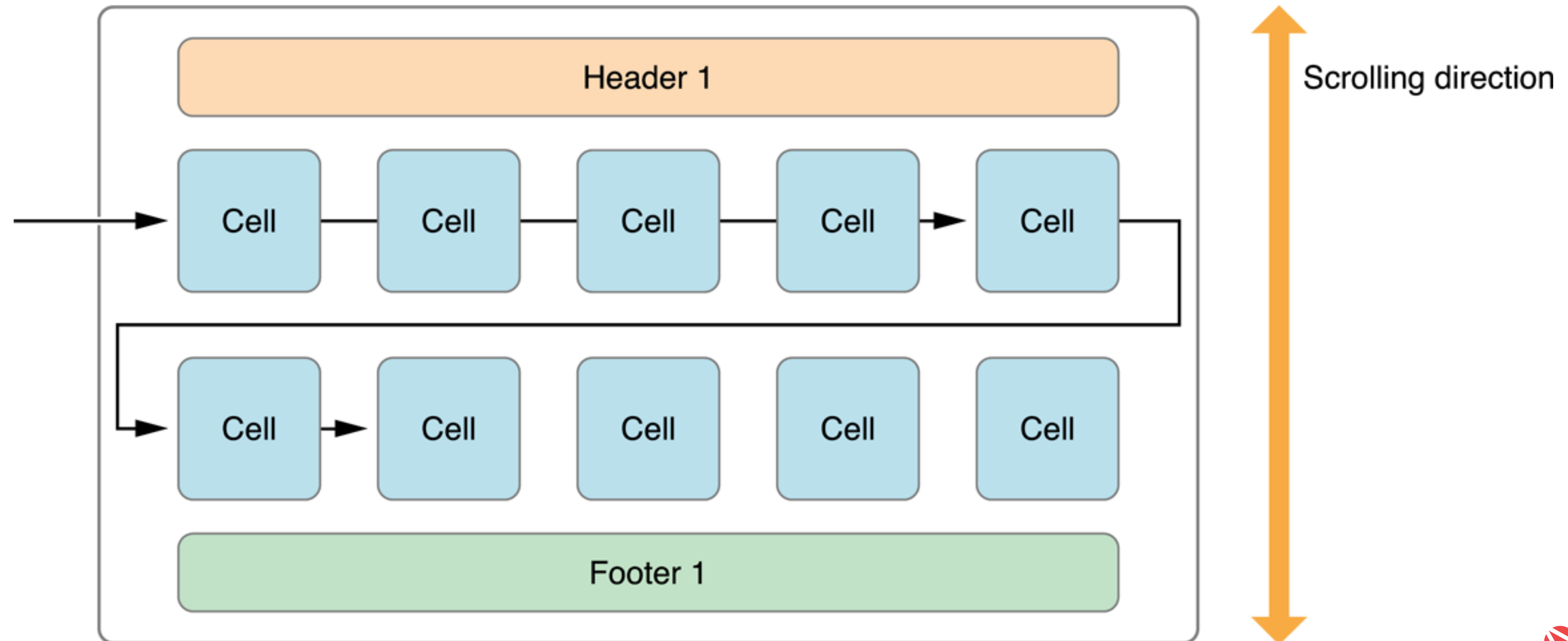
- 컬렉션 뷰의 배경을 꾸미는 데 사용하는 시각적 장식용 뷰
- 선택사항이며, 사용자가 선택할 수 없고 레이아웃 객체를 통해 정의

# CollectionViewLayout



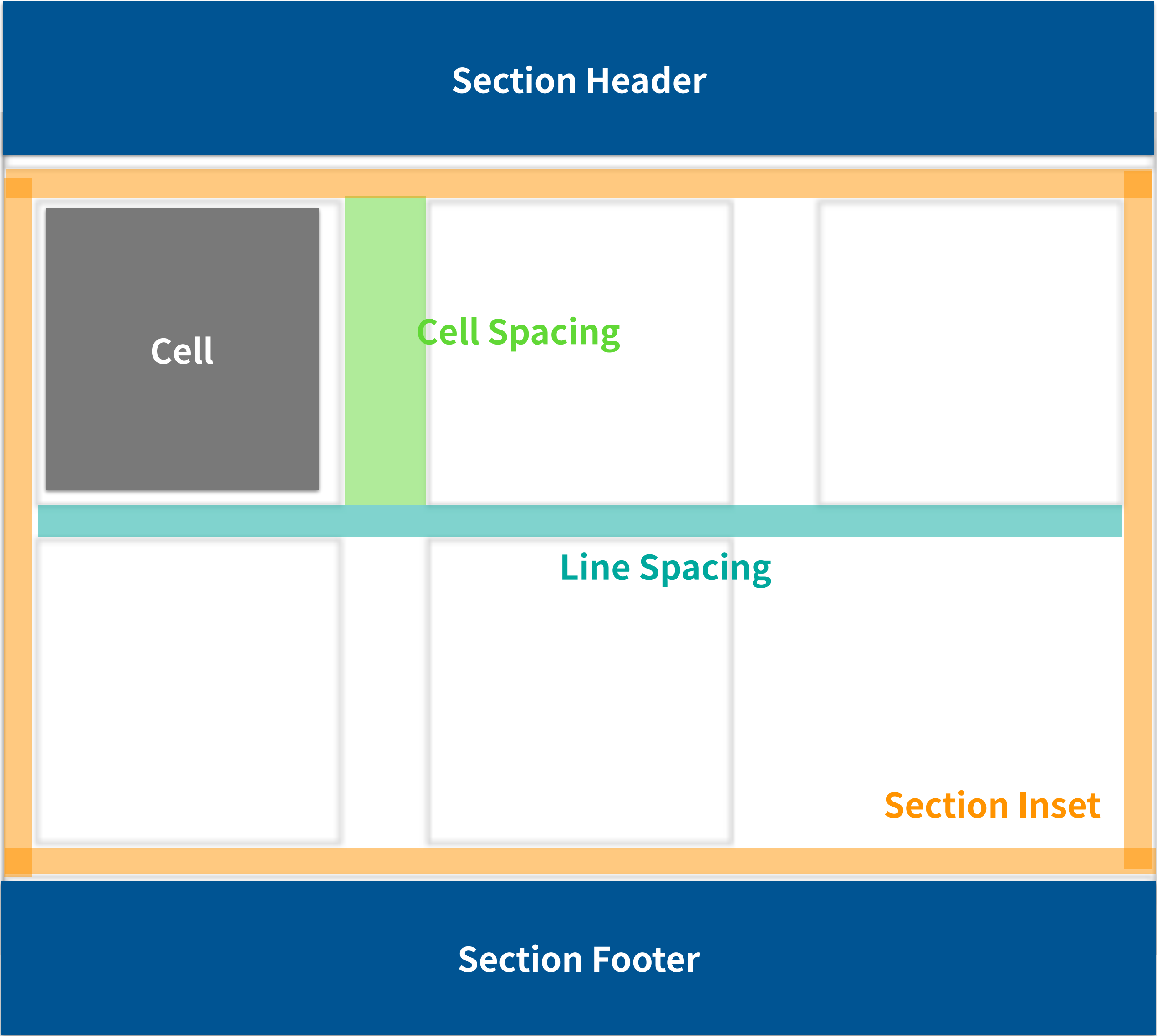
# FlowLayout

- UICollectionViewFlowLayout Class
- Scroll Direction - Vertical / Horizontal



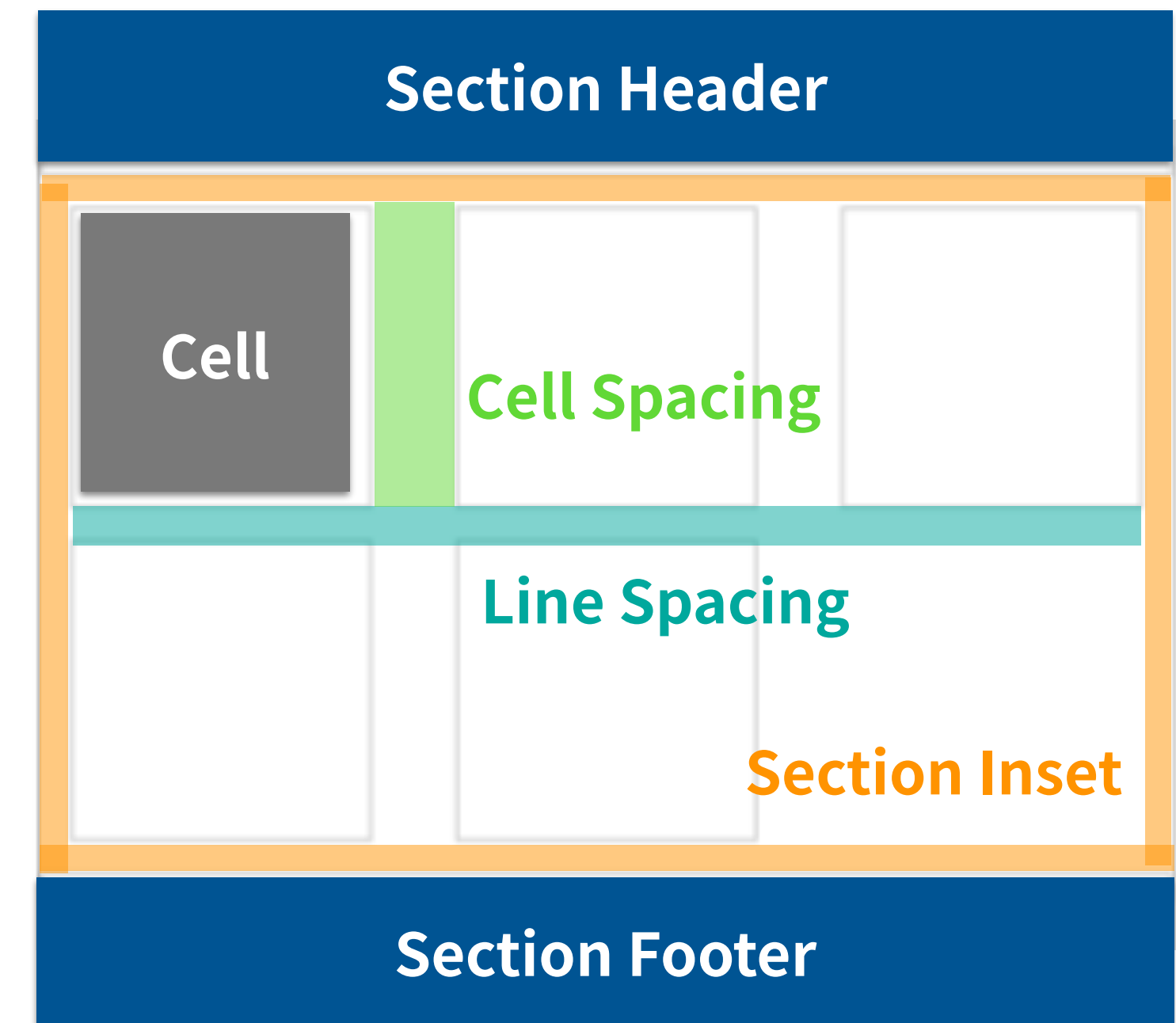


# Section Layout

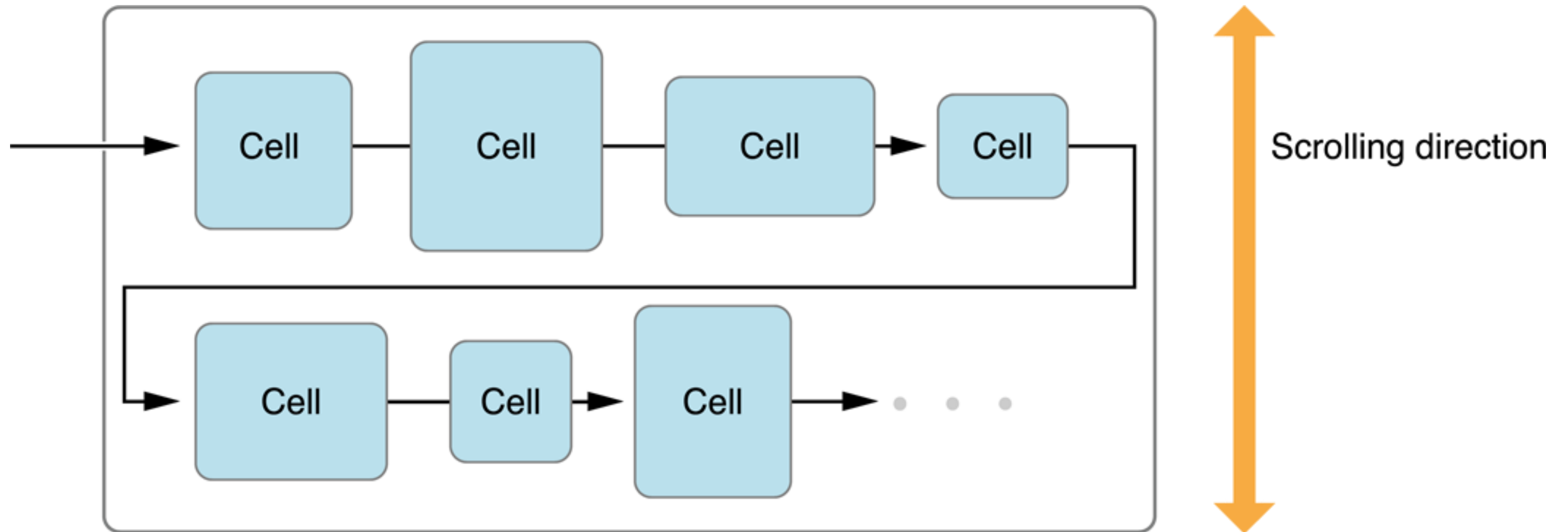


# UICollectionViewDelegateFlowLayout Protocol

```
protocol UICollectionViewDelegateFlowLayout : UICollectionViewDelegate {  
    optional func collectionView(_ collectionView: UICollectionView,  
        layout collectionViewLayout: UICollectionViewLayout,  
        sizeForItemAt indexPath: IndexPath) -> CGSize  
  
    optional func collectionView(_ collectionView: UICollectionView,  
        layout collectionViewLayout: UICollectionViewLayout,  
        insetForSectionAt section: Int) -> UIEdgeInsets  
  
    optional func collectionView(_ collectionView: UICollectionView,  
        layout collectionViewLayout: UICollectionViewLayout,  
        minimumLineSpacingForSectionAt section: Int) -> CGFloat  
  
    optional func collectionView(_ collectionView: UICollectionView,  
        layout collectionViewLayout: UICollectionViewLayout,  
        minimumInteritemSpacingForSectionAt section: Int) -> CGFloat  
  
    optional func collectionView(_ collectionView: UICollectionView,  
        layout collectionViewLayout: UICollectionViewLayout,  
        referenceSizeForHeaderInSection section: Int) -> CGSize  
  
    optional func collectionView(_ collectionView: UICollectionView,  
        layout collectionViewLayout: UICollectionViewLayout,  
        referenceSizeForFooterInSection section: Int) -> CGSize  
}
```



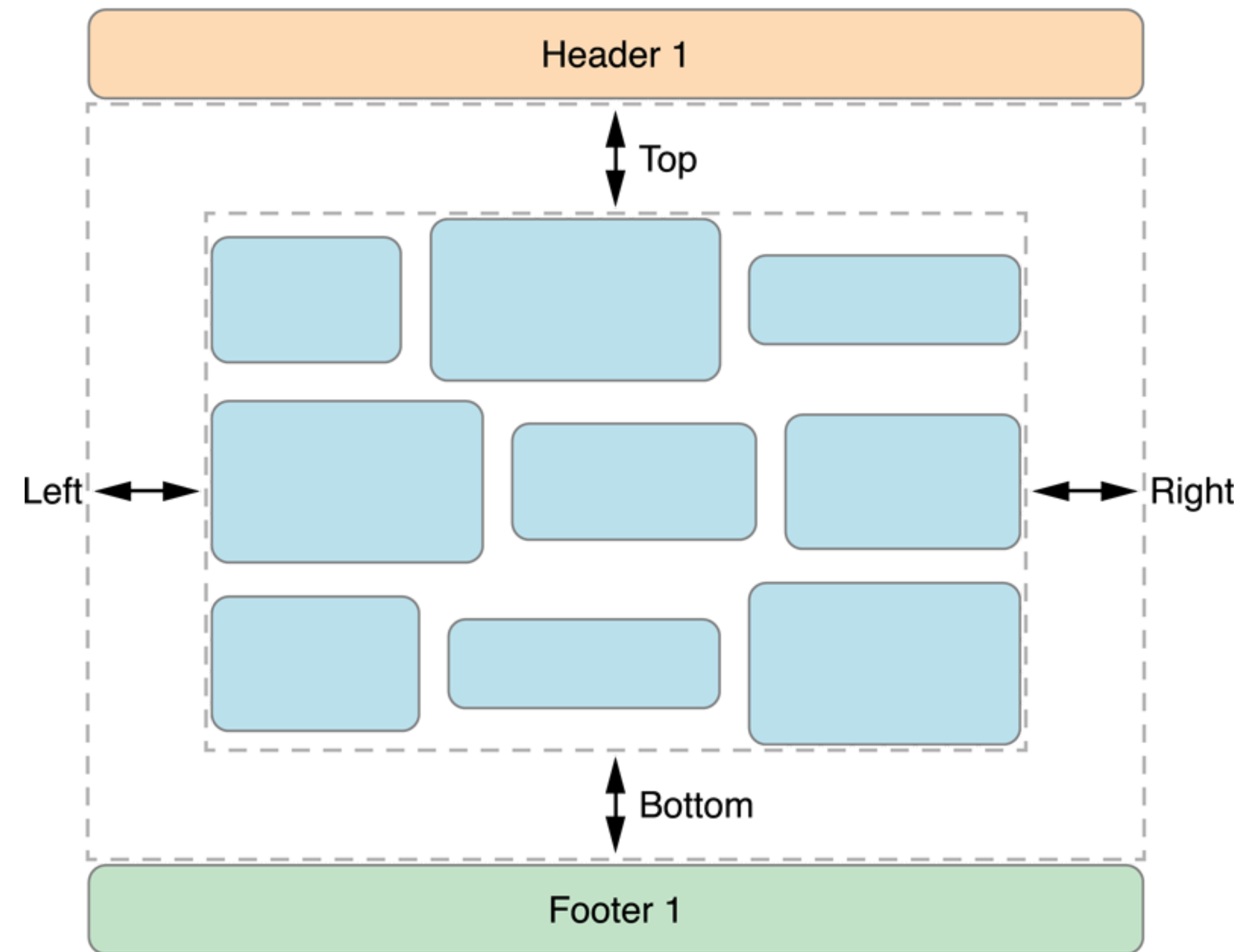
# Item Size



```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    sizeForItemAt indexPath: IndexPath  
) -> CGSize
```

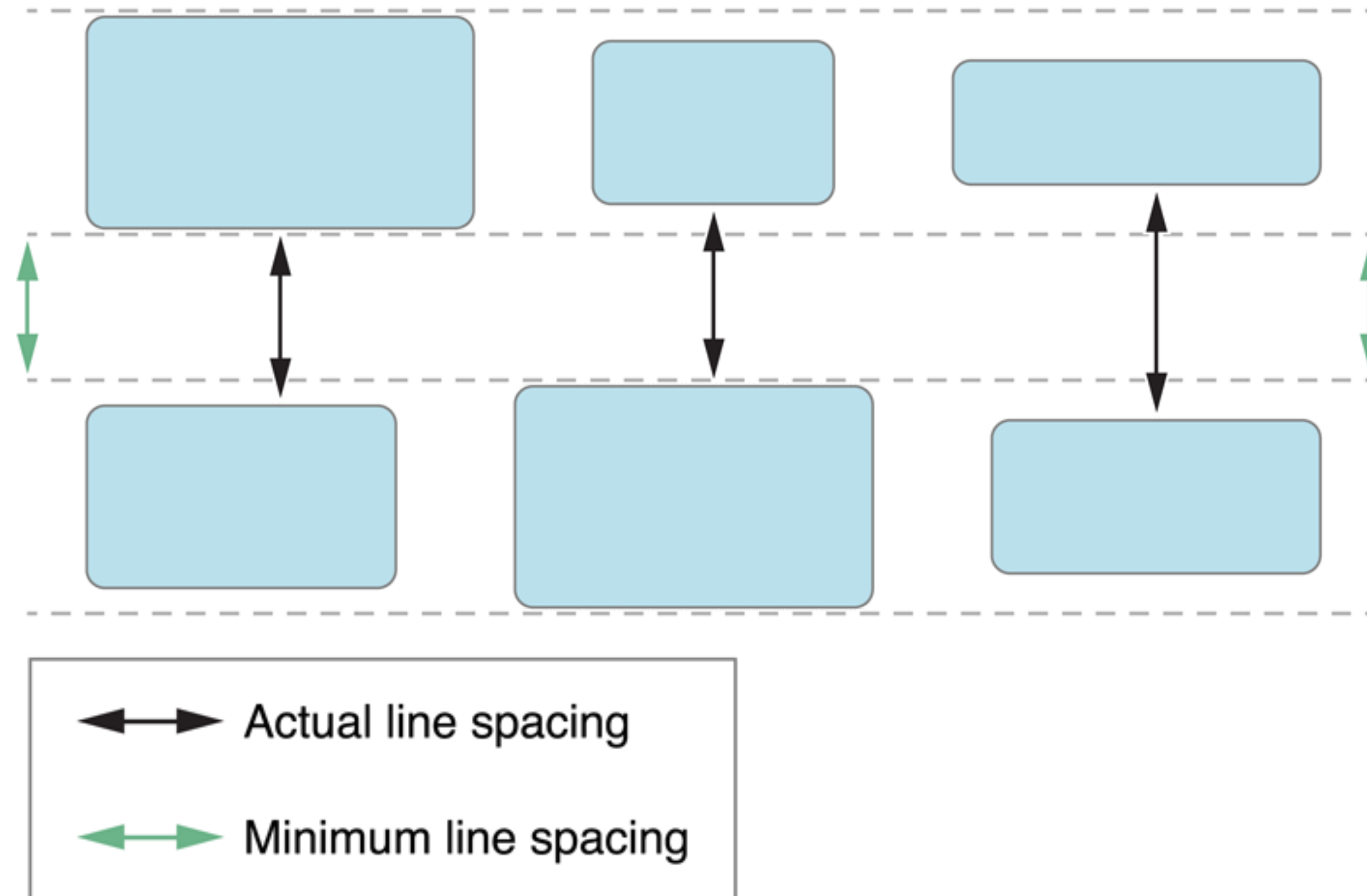


# Section Inset



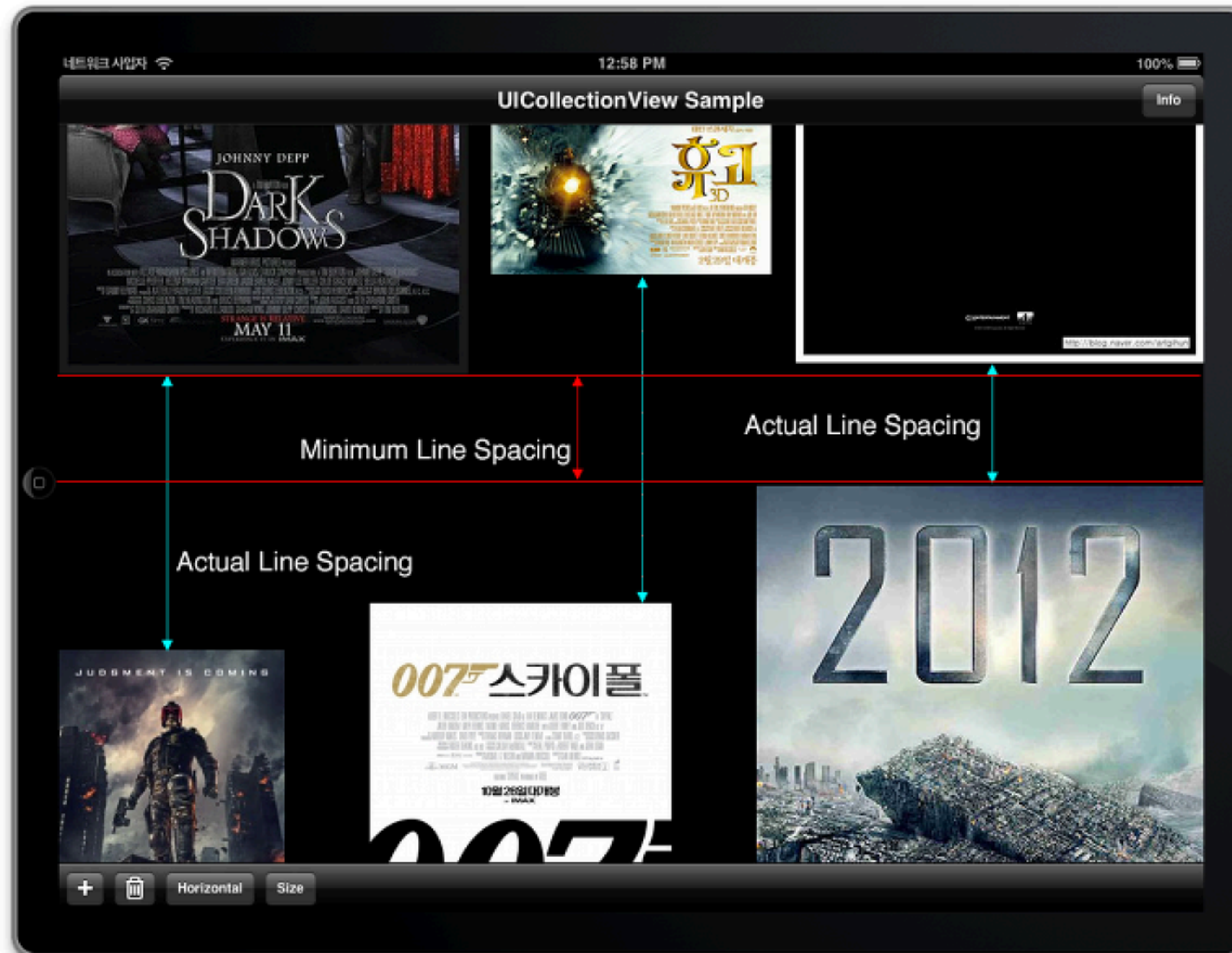
```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    insetForSectionAt section: Int  
) -> UIEdgeInsets
```

# Line spacing



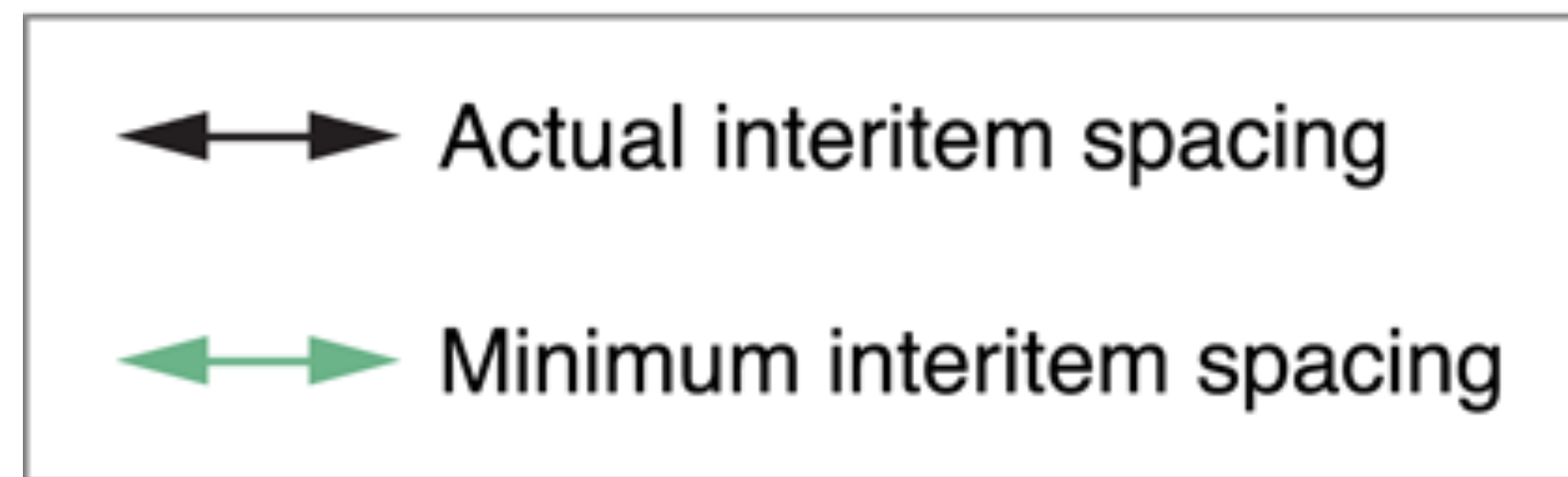
```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    minimumLineSpacingForSectionAt section: Int  
) -> CGFloat
```

# Line spacing



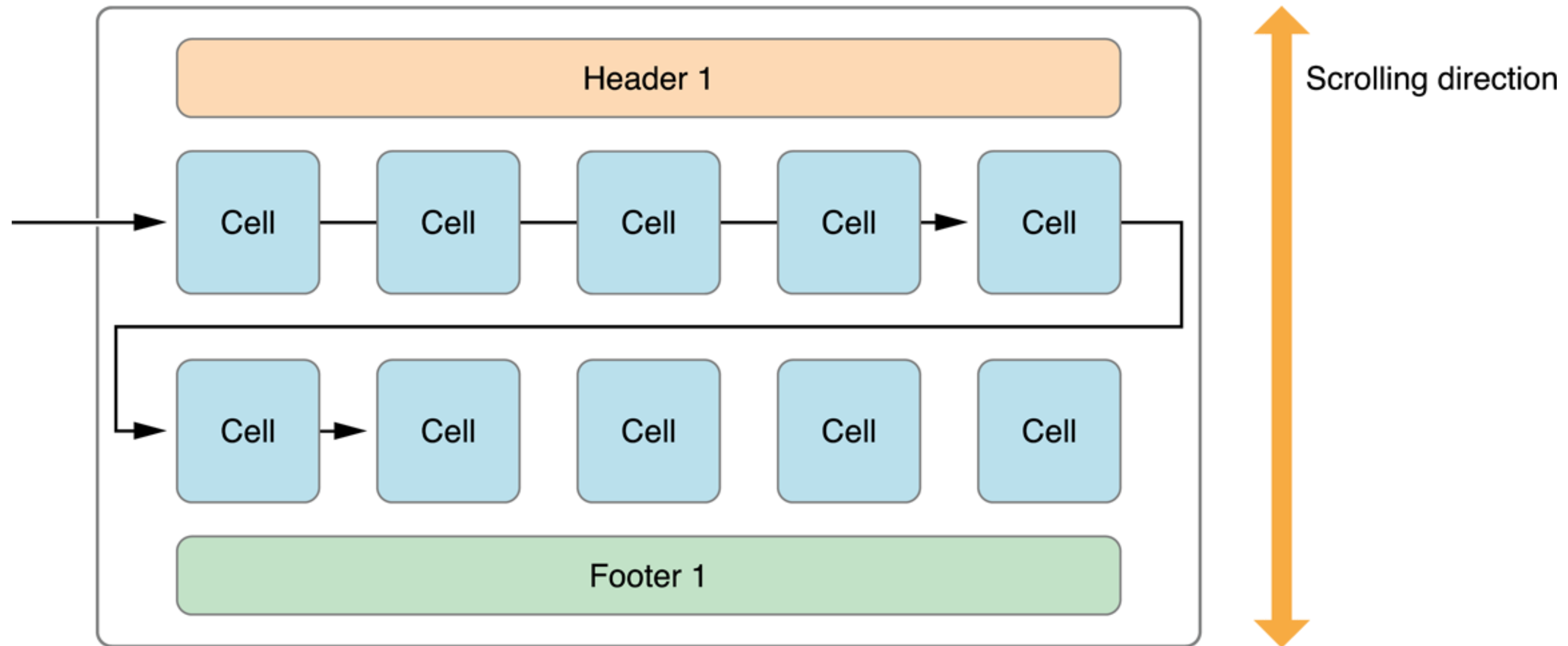


# Interitem spacing



```
func collectionView(  
    _collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    minimumInteritemSpacingForSectionAt section: Int  
) -> CGFloat
```

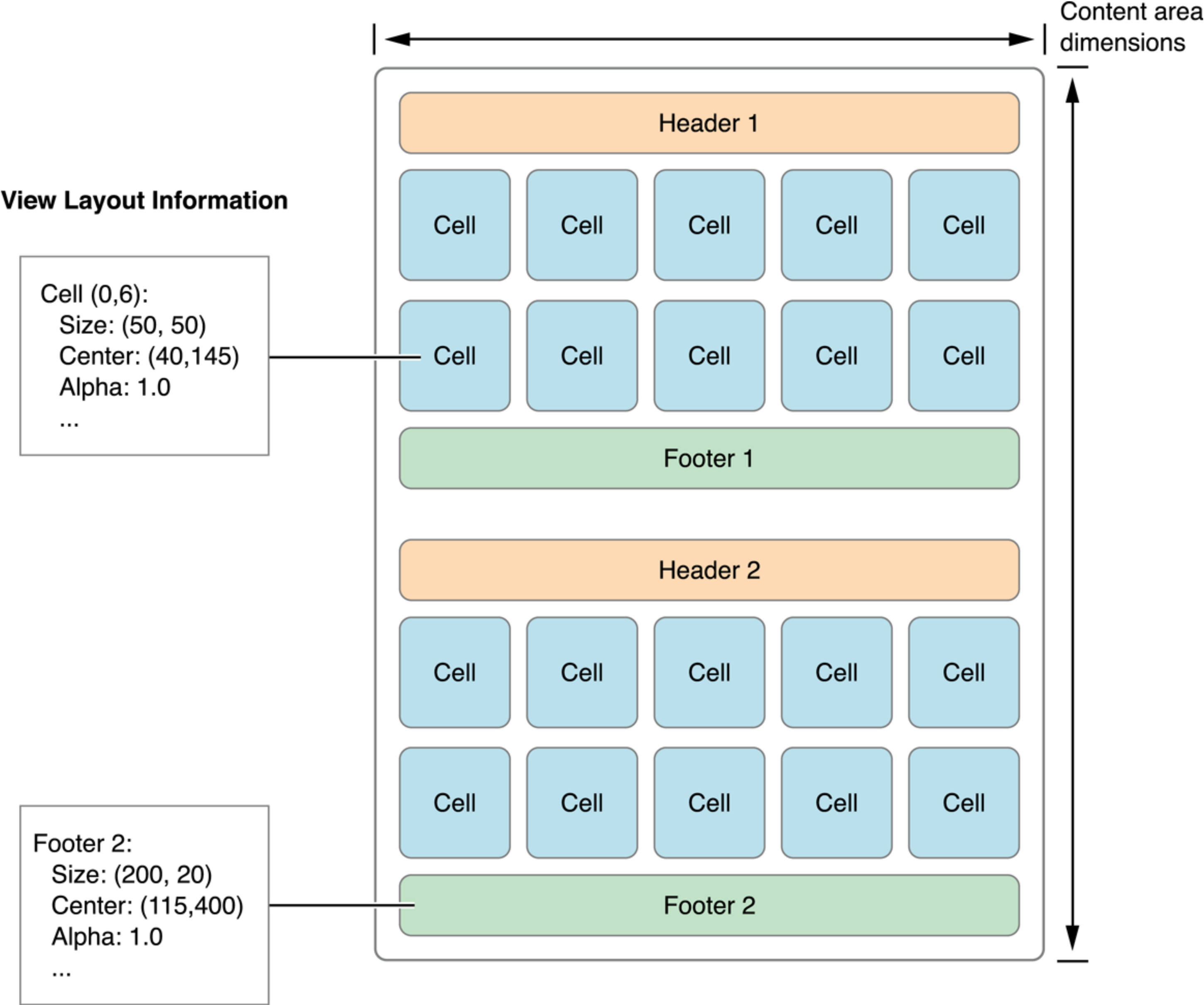
# Header / Footer Size



```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    referenceSizeForHeaderInSection section: Int  
) -> CGSize
```

```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    referenceSizeForFooterInSection section: Int  
) -> CGSize
```

# Layout Metrics





# Cell Hierarchy

---

Custom View

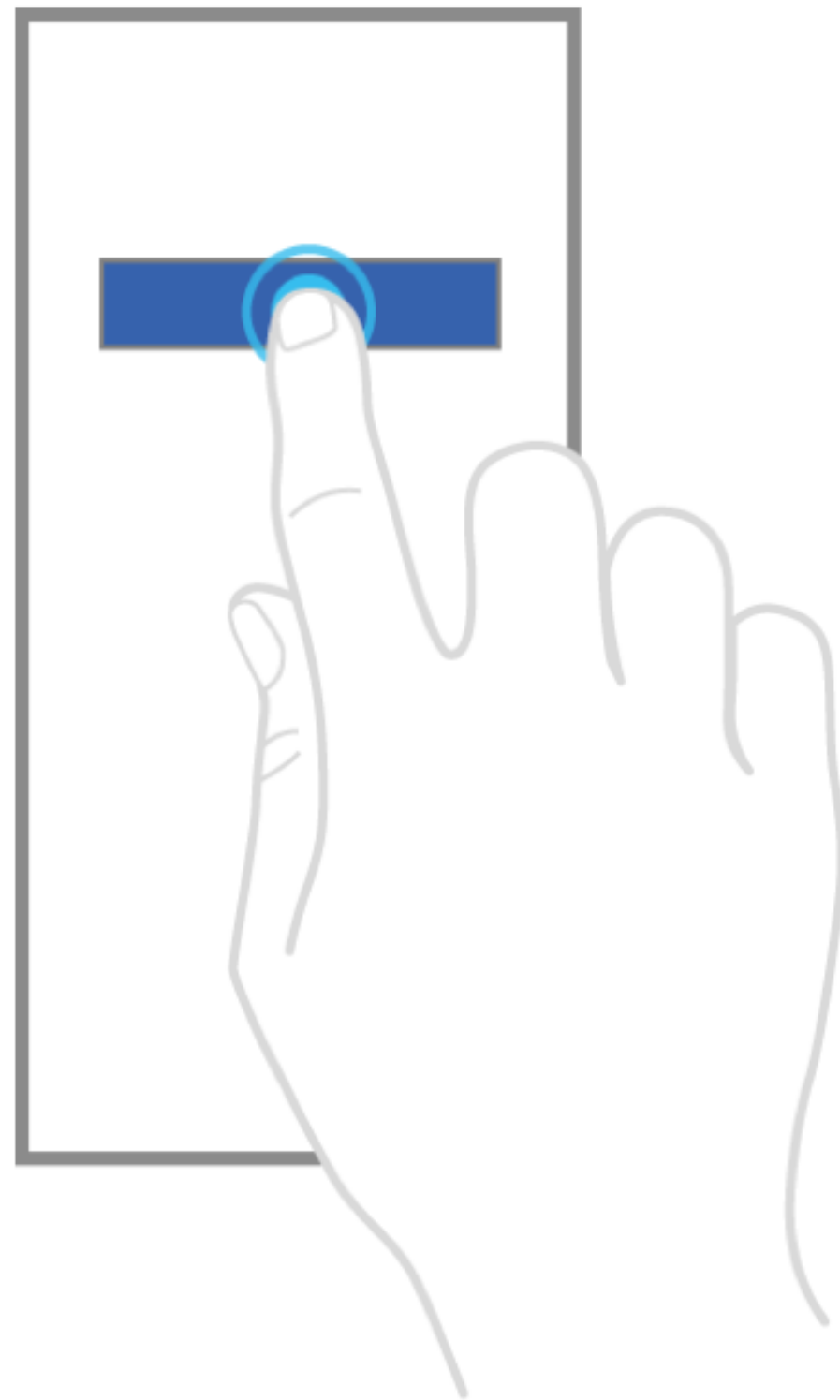
Content View

Selected Background View

Background View

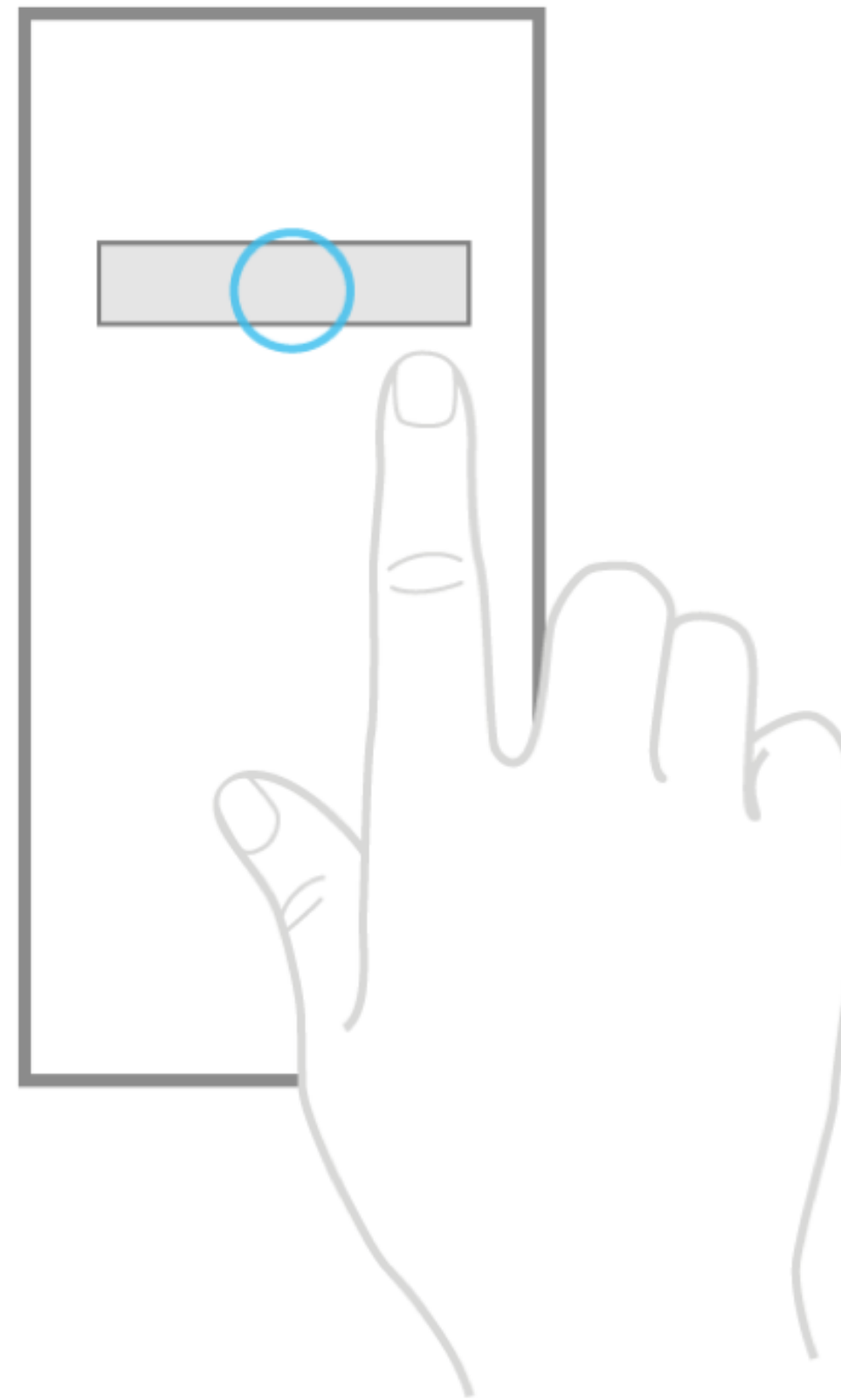
# The State of a Cell

User touches cell



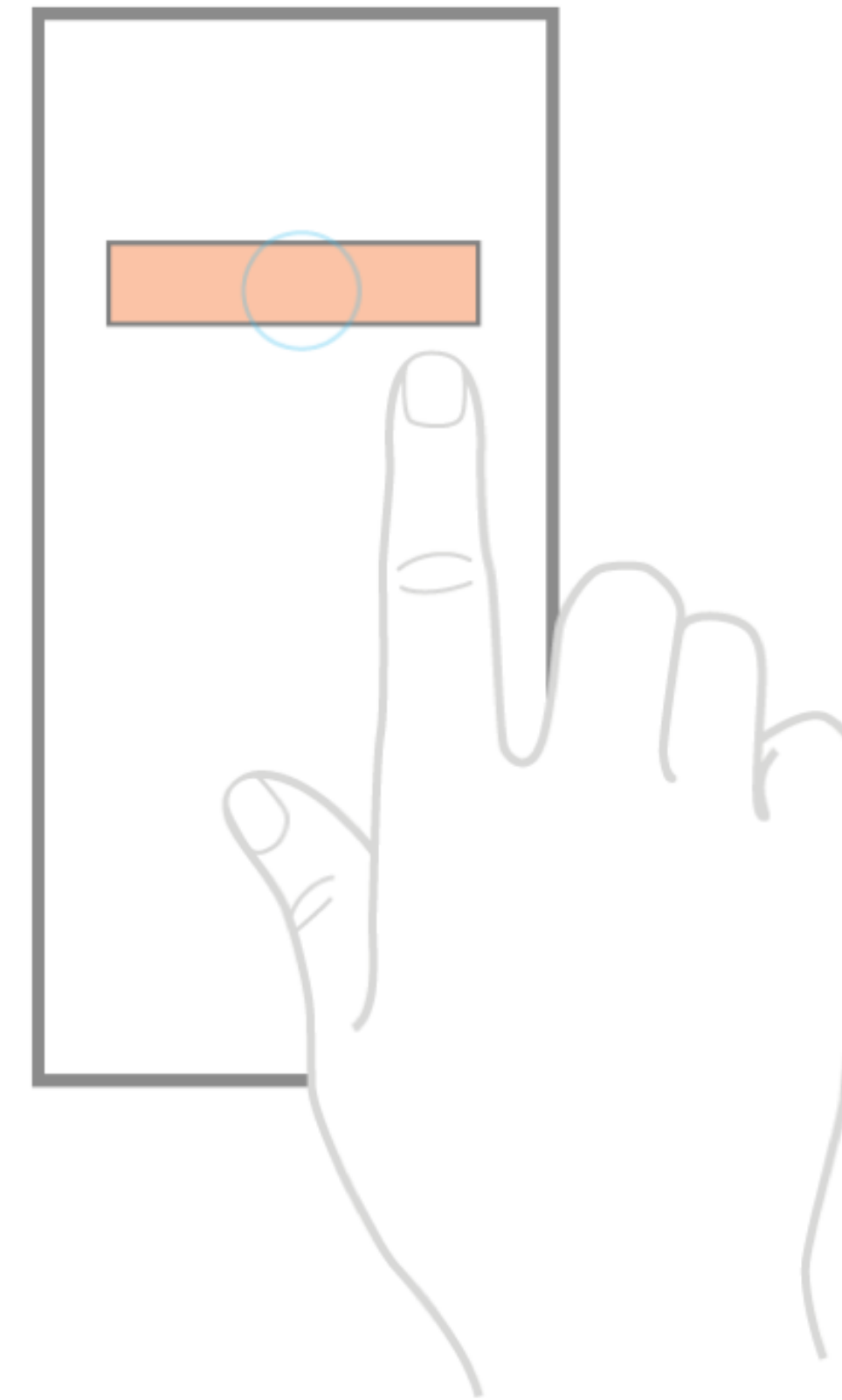
`isHighlighted: true`  
`isSelected: false`

User lifts finger



`isHighlighted: false`  
`isSelected: false`

Collection view selects cell



`isHighlighted: false`  
`isSelected: true`