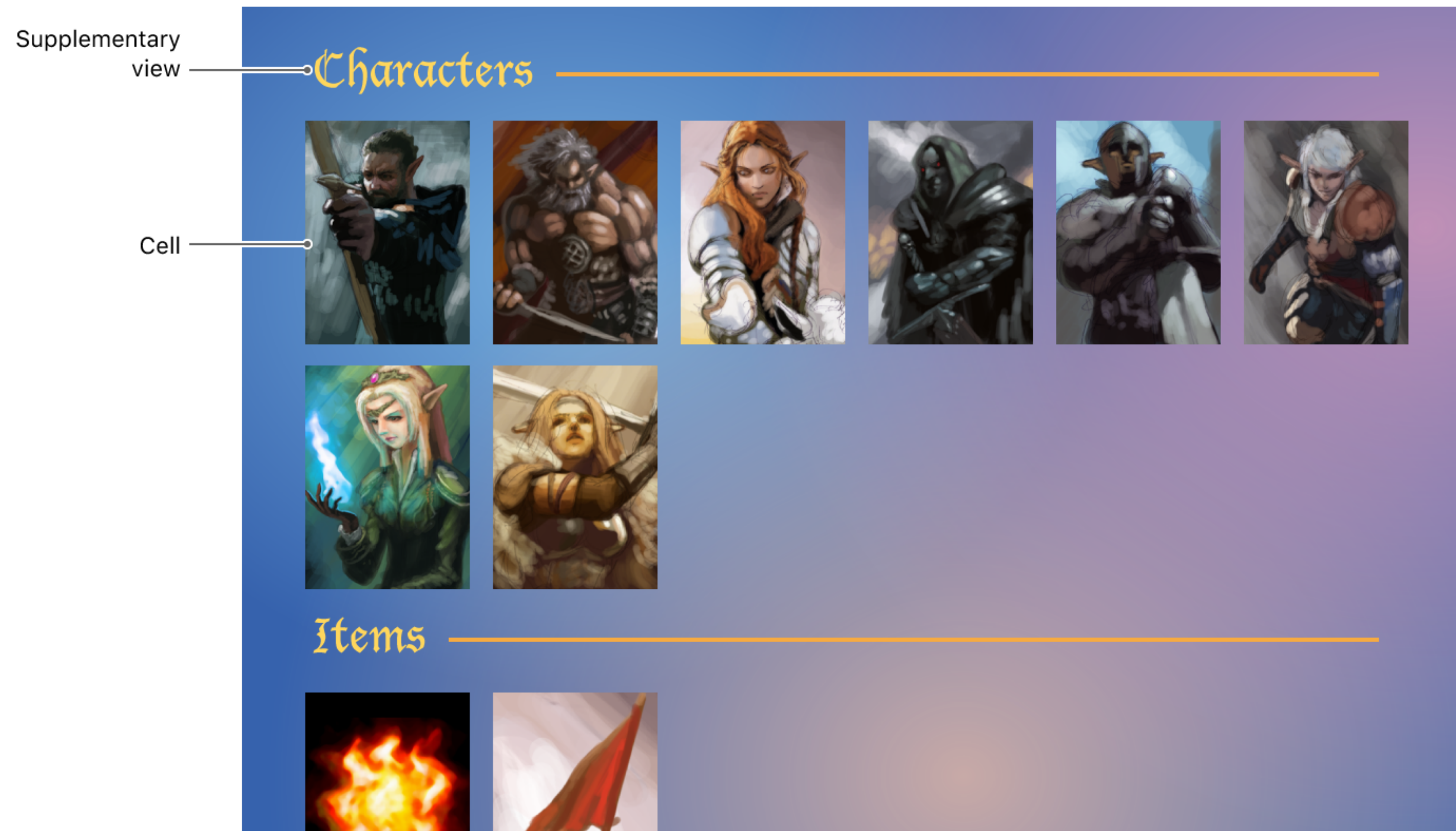


UICollectionView

UICollectionView

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



UICollectionView vs UITableView

 <p>0. Christ th...</p>	 <p>1. Iguazu F...</p>	 <p>2. Sugarlo...</p>
 <p>3. Corcova...</p>	 <p>4. Copaca...</p>	 <p>5. Maracan...</p>
 <p>6. Ipanema...</p>	 <p>7. Fernand...</p>	 <p>8. Amazon...</p>

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...



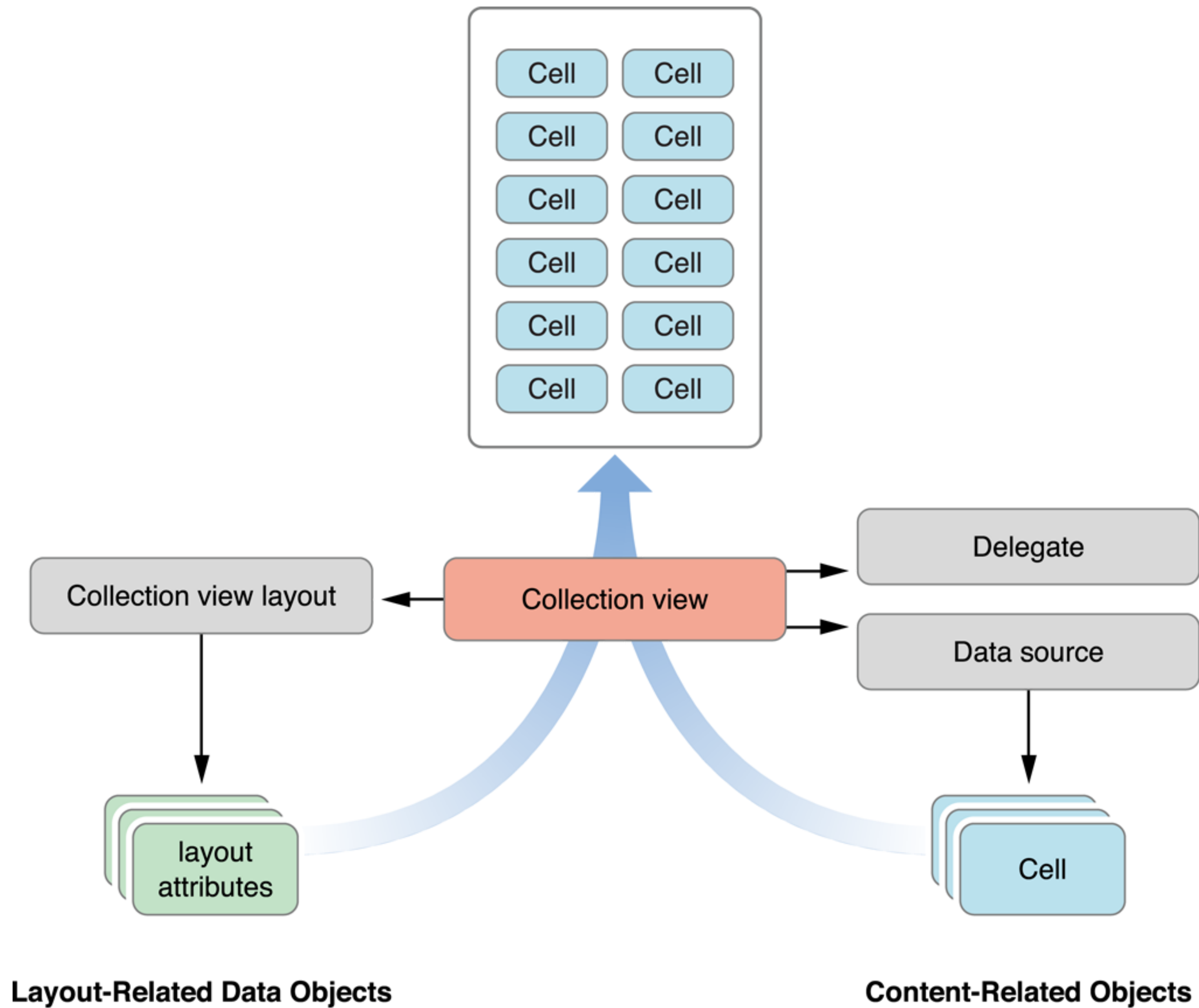
4. Fernando de Noronha / Fernando de Noronha is a volcanic archipelago about 350...



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

- 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)

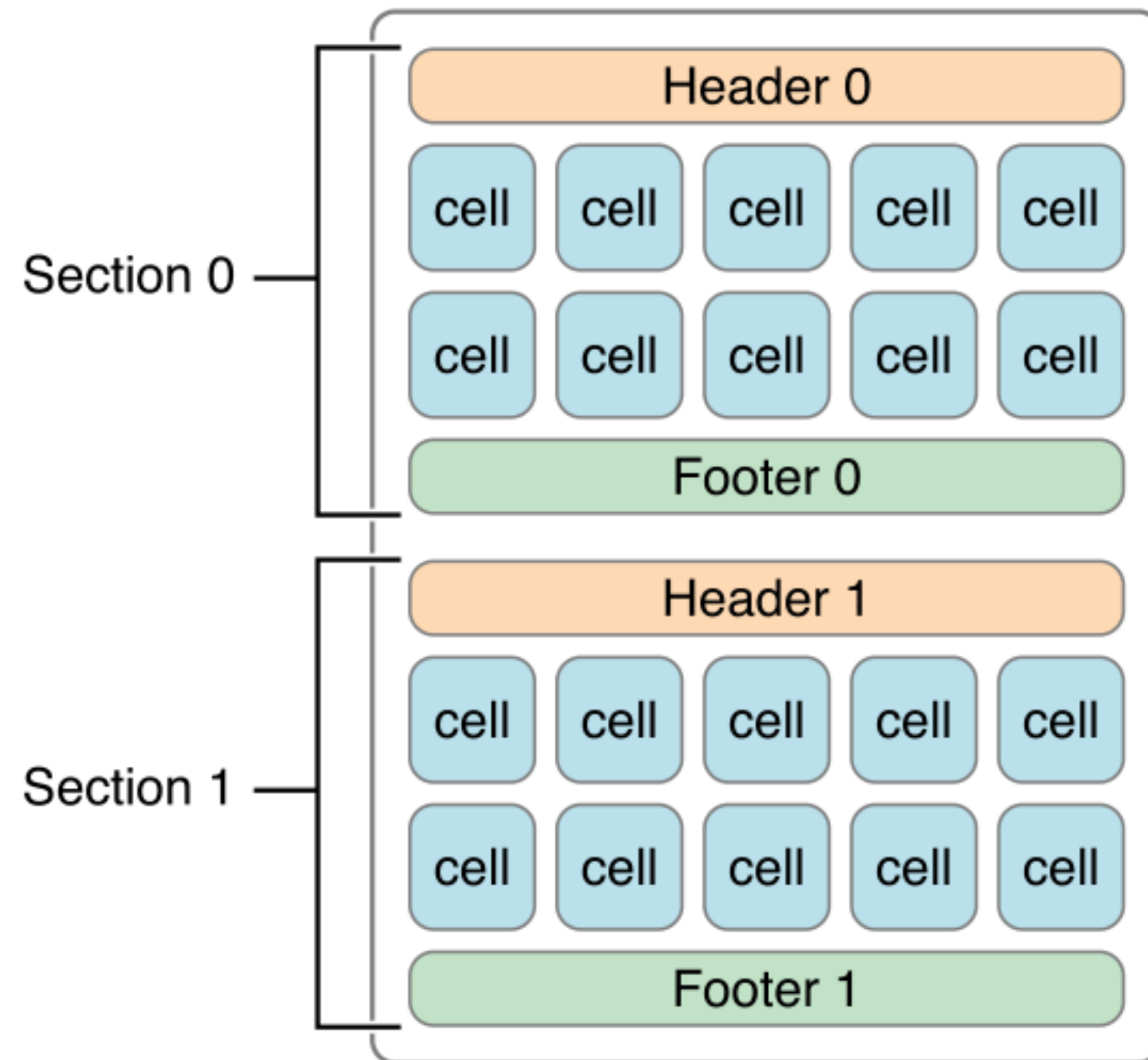
- 섹션 또는 컬렉션 뷰 자체에 대한 헤더와 푸터 같은 역할을 하는 뷰
- 셀처럼 데이터를 표현할 수 있는 것은 같지만, 사용자가 선택할 수 없는 뷰
- 선택 사항(Optional)이며, 높이를 0으로 설정하면 미생성

- 장식 뷰 (Decoration views)

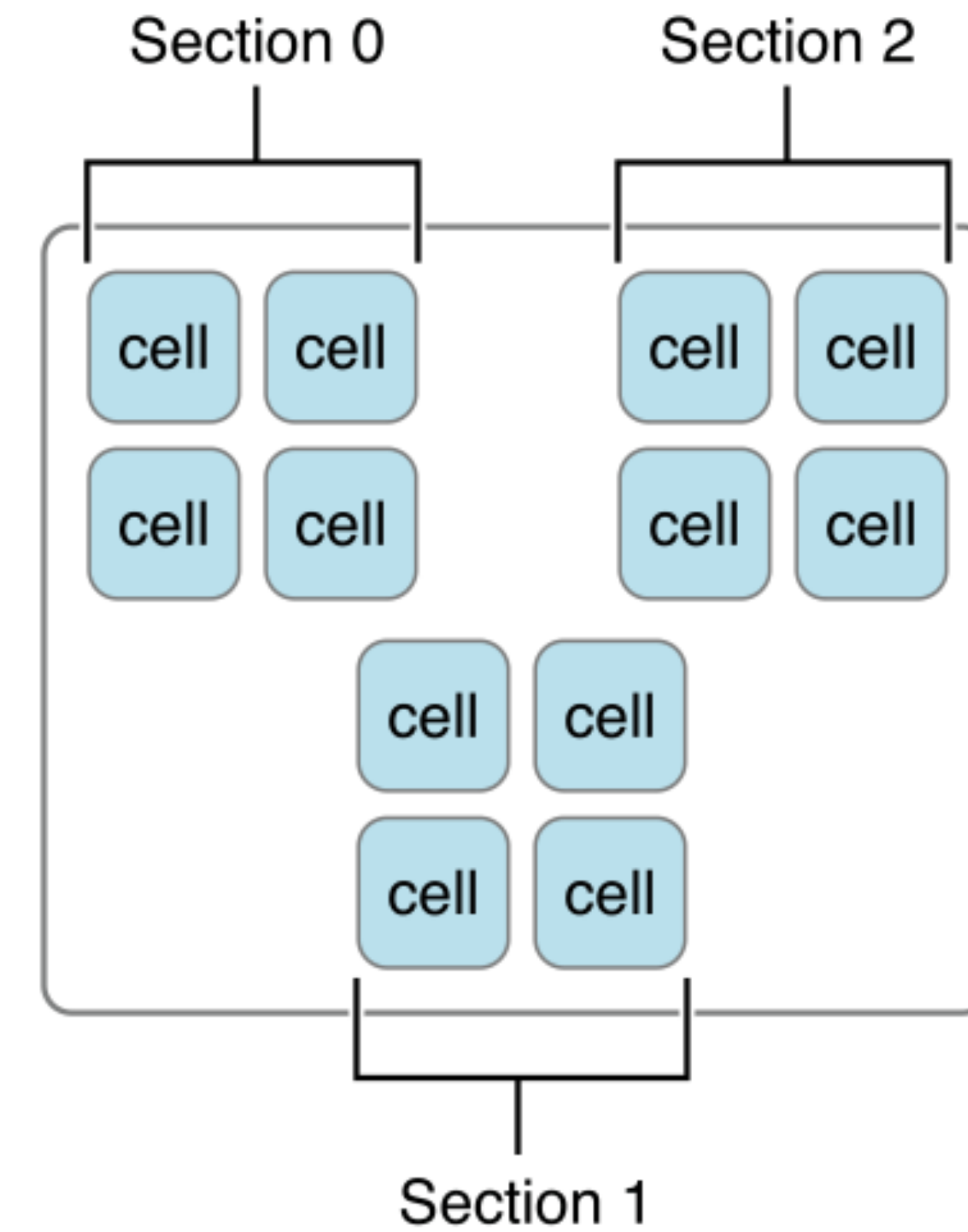
- 컬렉션 뷰의 배경을 꾸미는 데 사용하는 시각적 장식용 뷰
- 선택사항이며, 사용자가 선택할 수 없고 레이아웃 객체를 통해 정의

CollectionViewLayout

Flow Layout

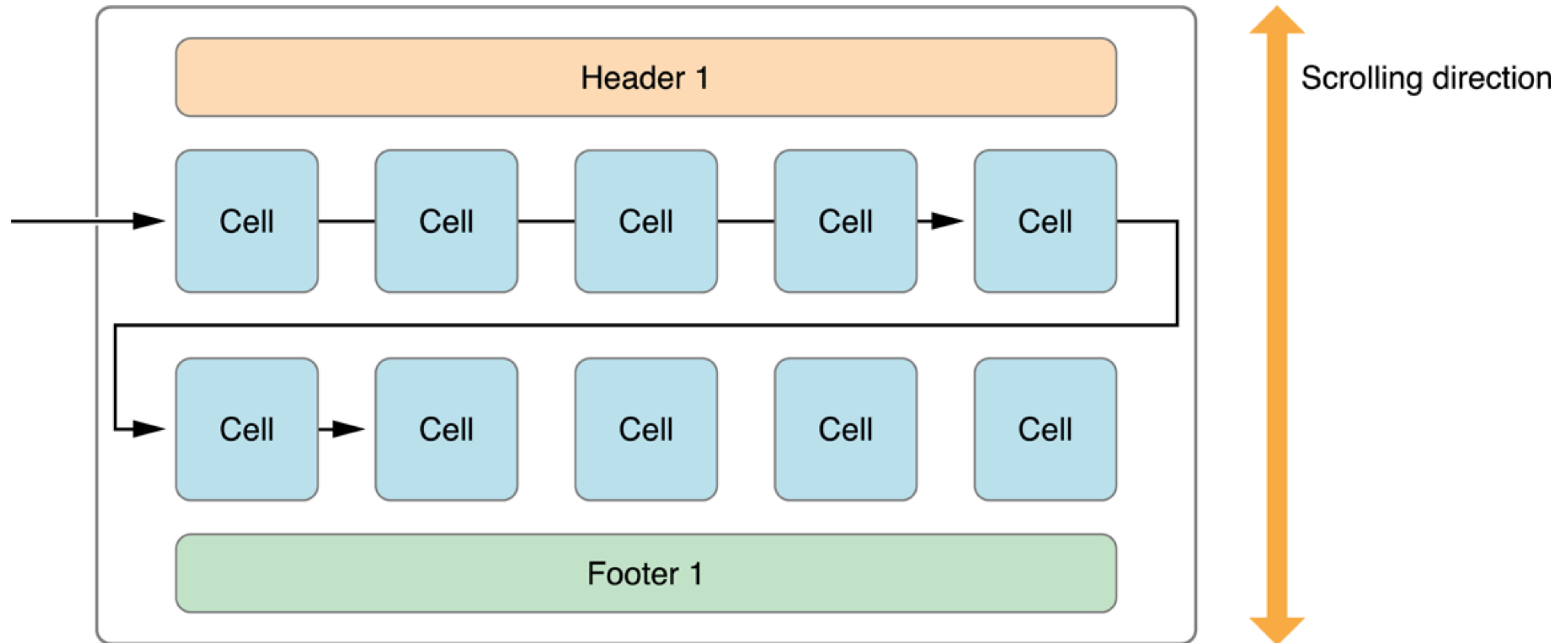


Custom Layout

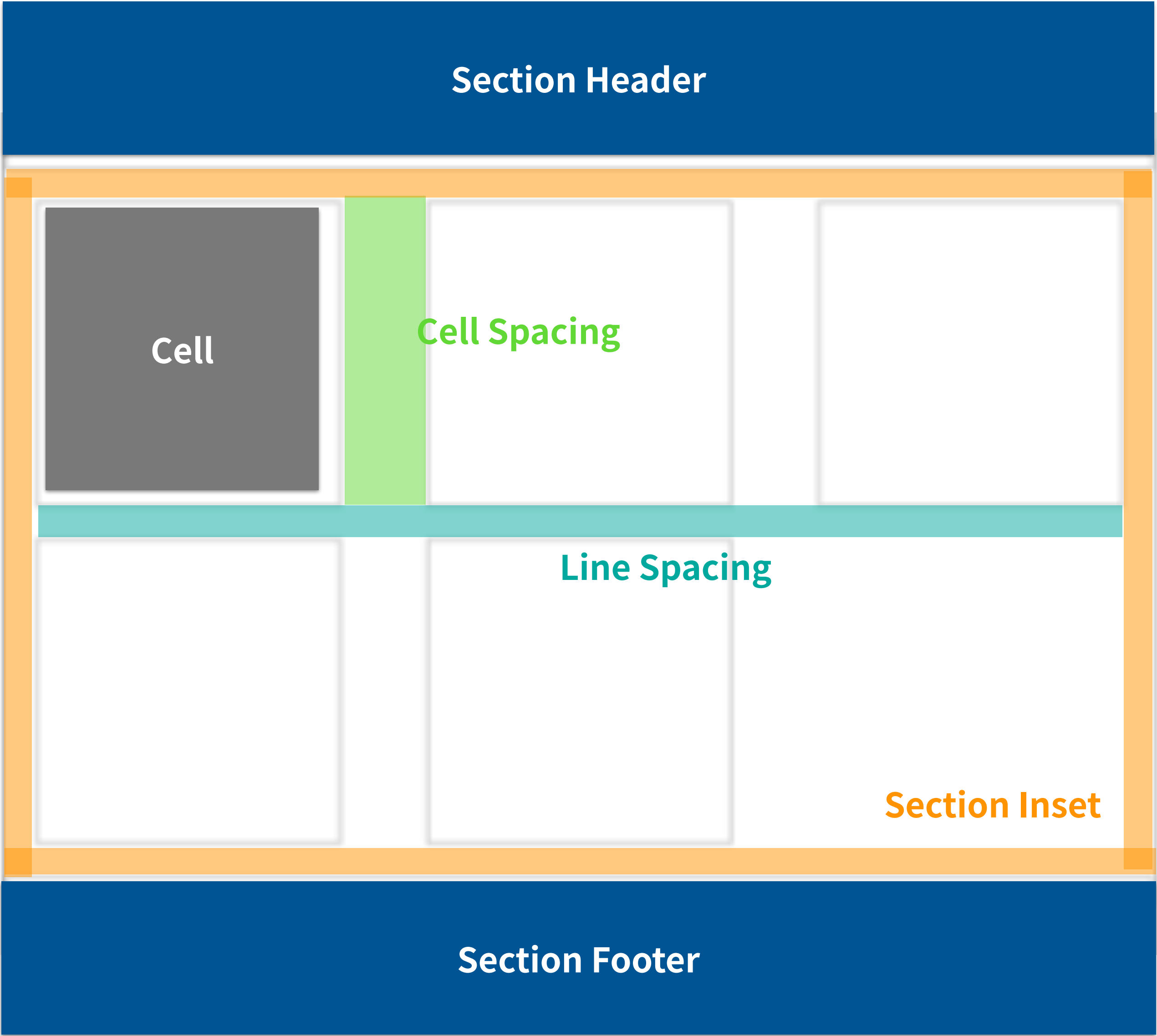


FlowLayout

- 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

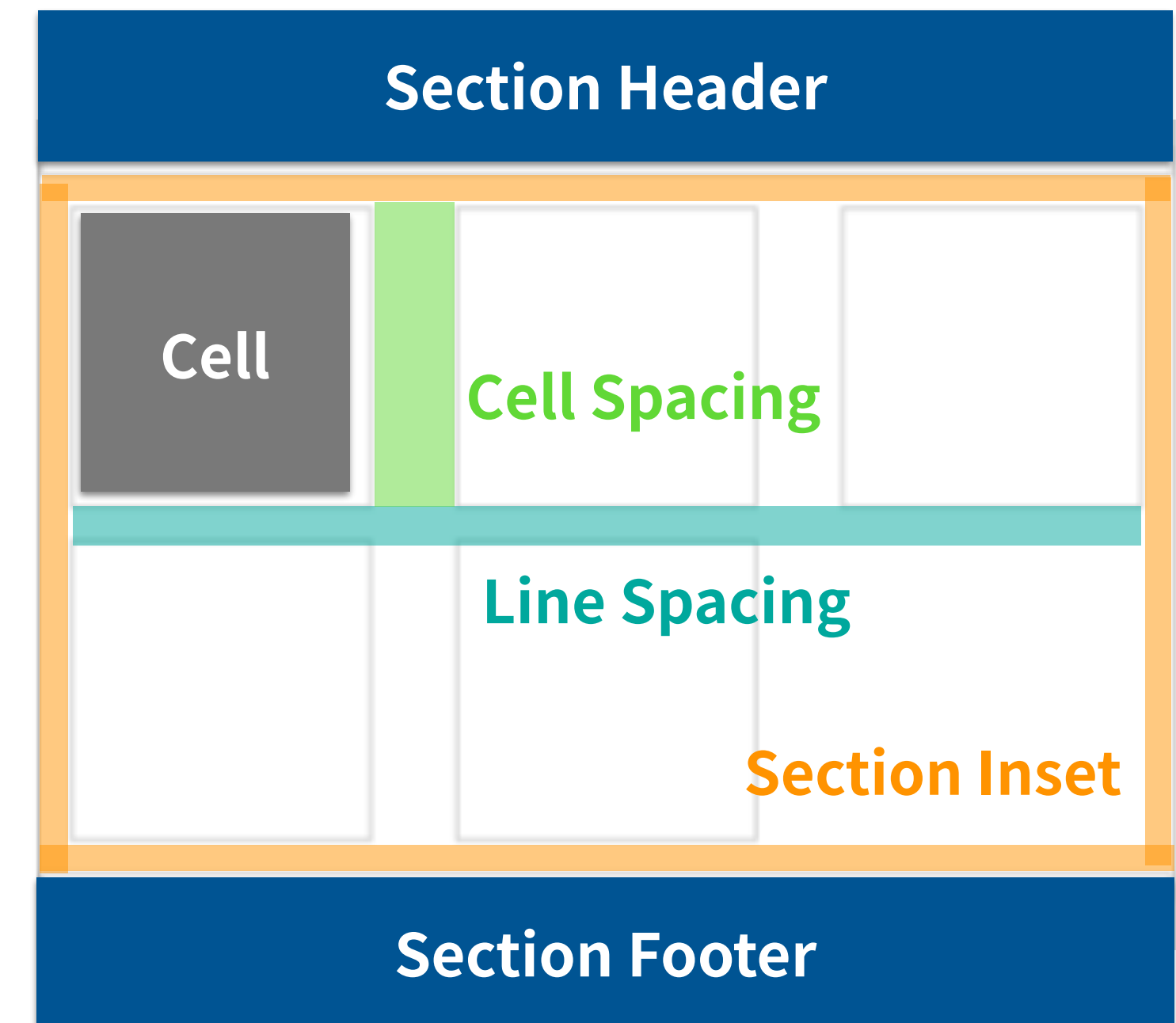
    optional func collectionView(_ collectionView: UICollectionView,
        layout collectionViewLayout: UICollectionViewLayout,
        insetForSectionAt section: Int) -> UIEdgeInsets

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

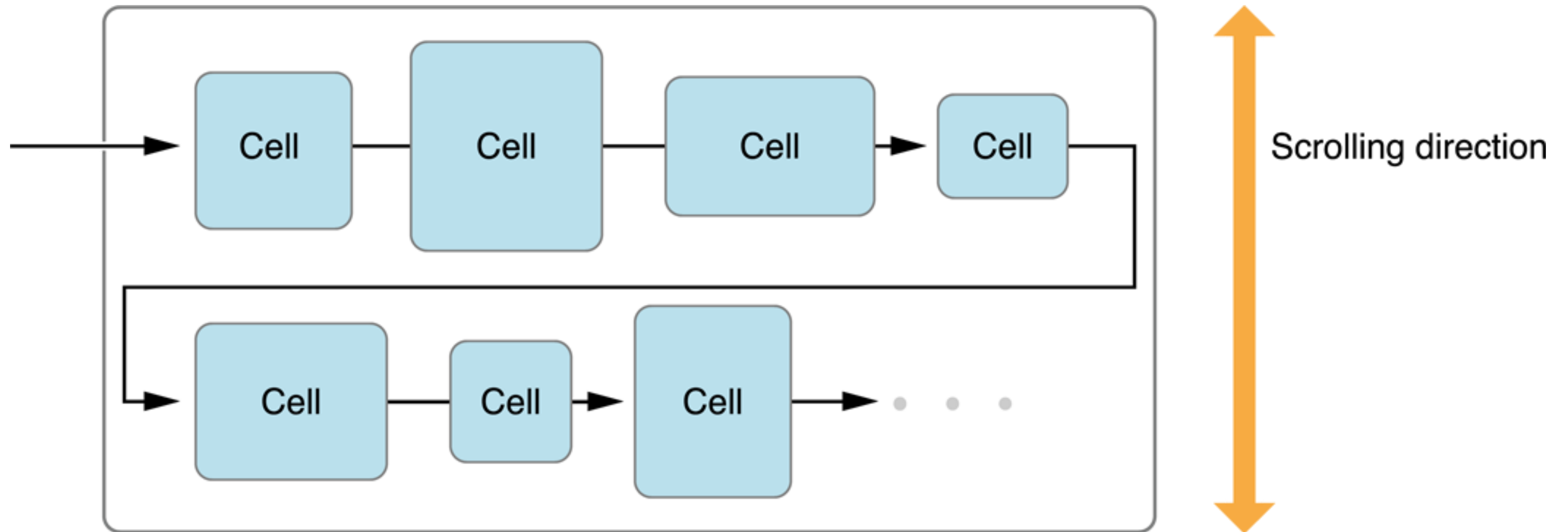
    optional func collectionView(_ collectionView: UICollectionView,
        layout collectionViewLayout: UICollectionViewLayout,
        minimumInteritemSpacingForSectionAt section: Int) -> CGFloat

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

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

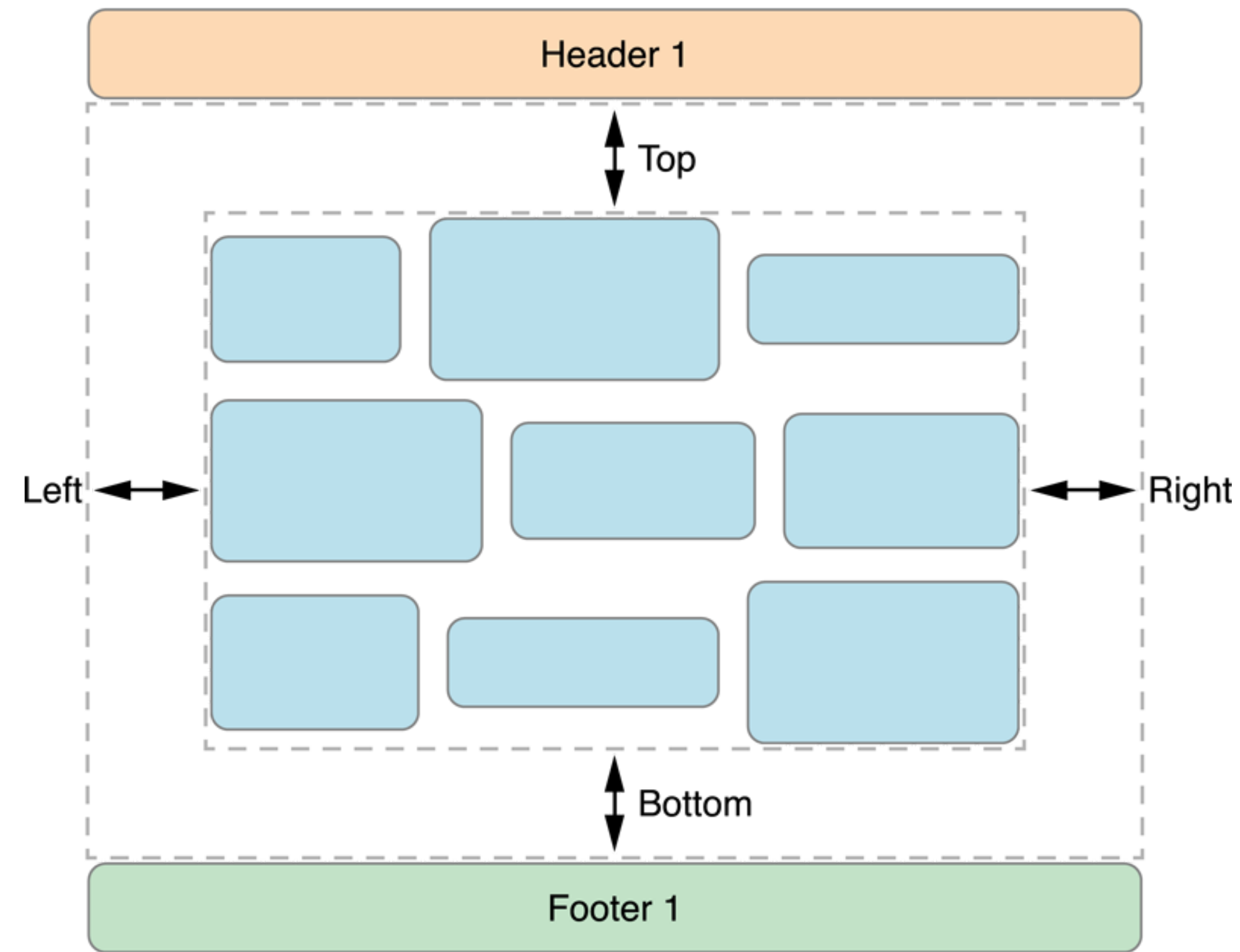


Item Size



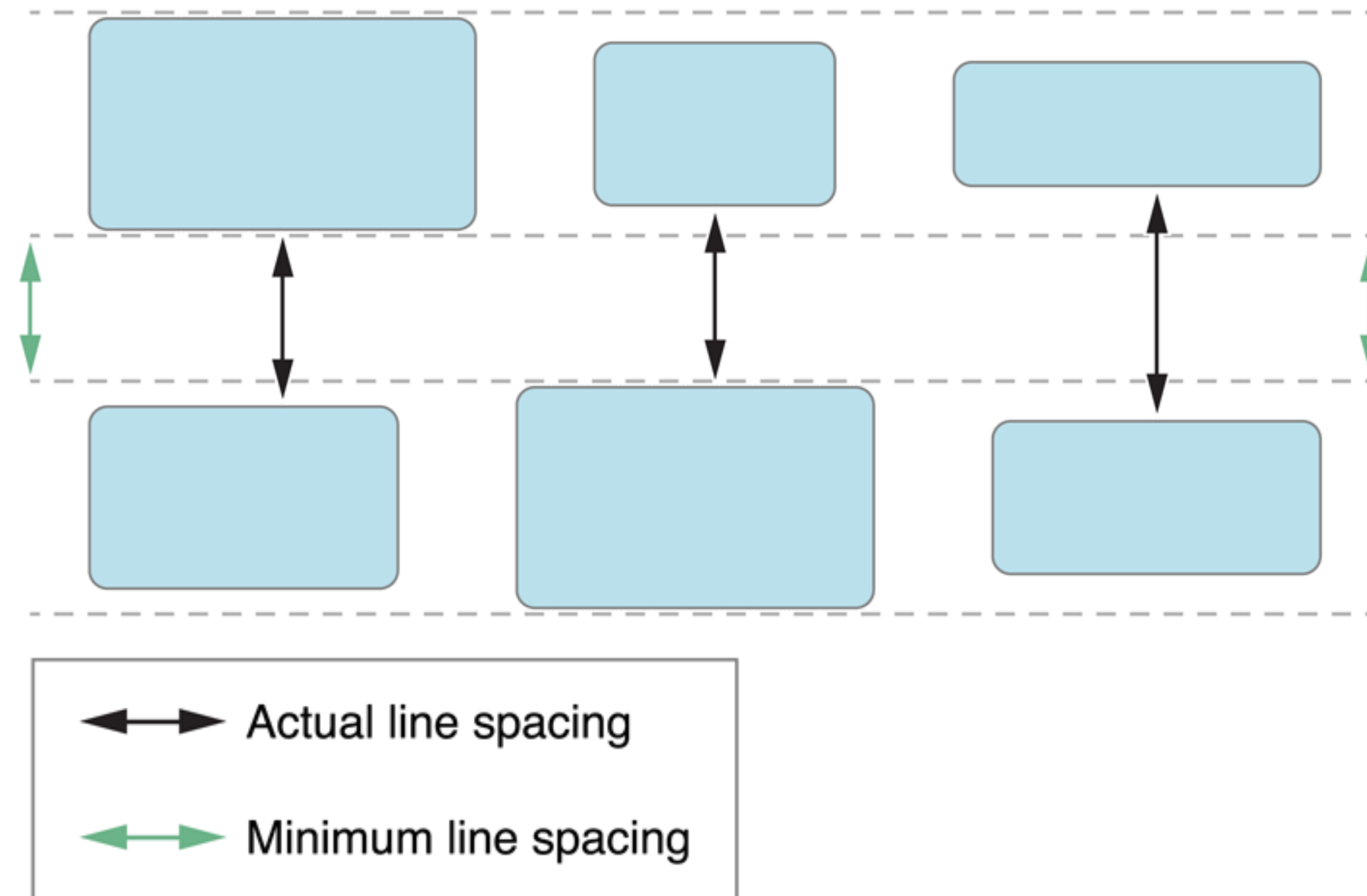
```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    sizeForItemAt indexPath: IndexPath  
)-> CGSize
```


Section Inset



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

Line spacing

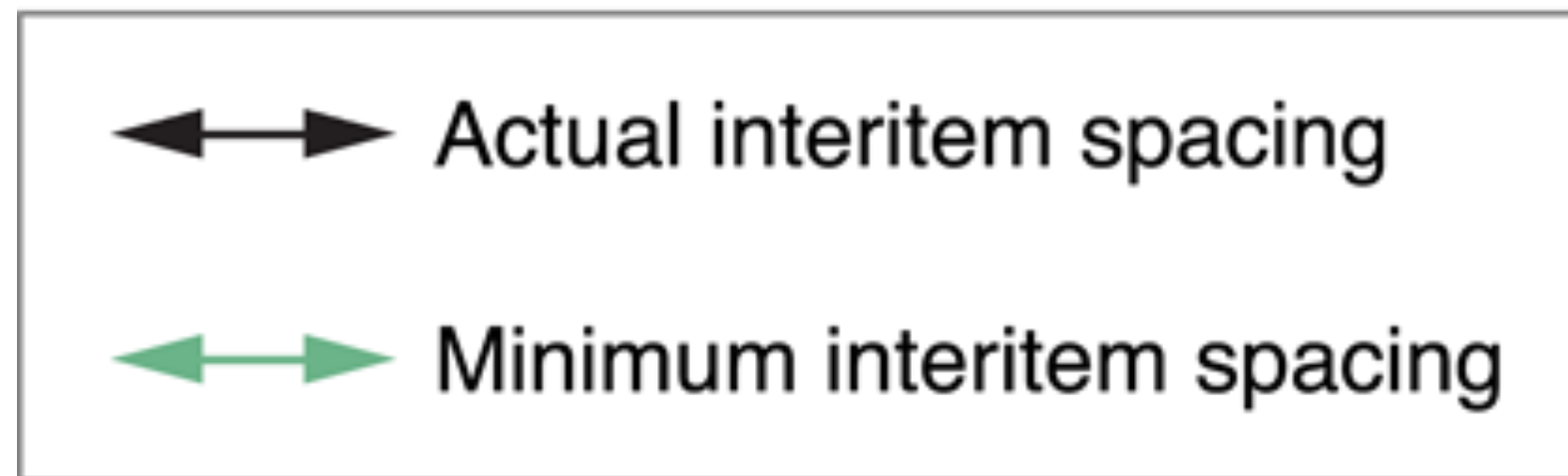


```
func collectionView(  
    _ collectionView: UICollectionView,  
    layout collectionViewLayout: UICollectionViewLayout,  
    minimumLineSpacingForSectionAt section: Int  
) -> CGFloat
```

Line spacing

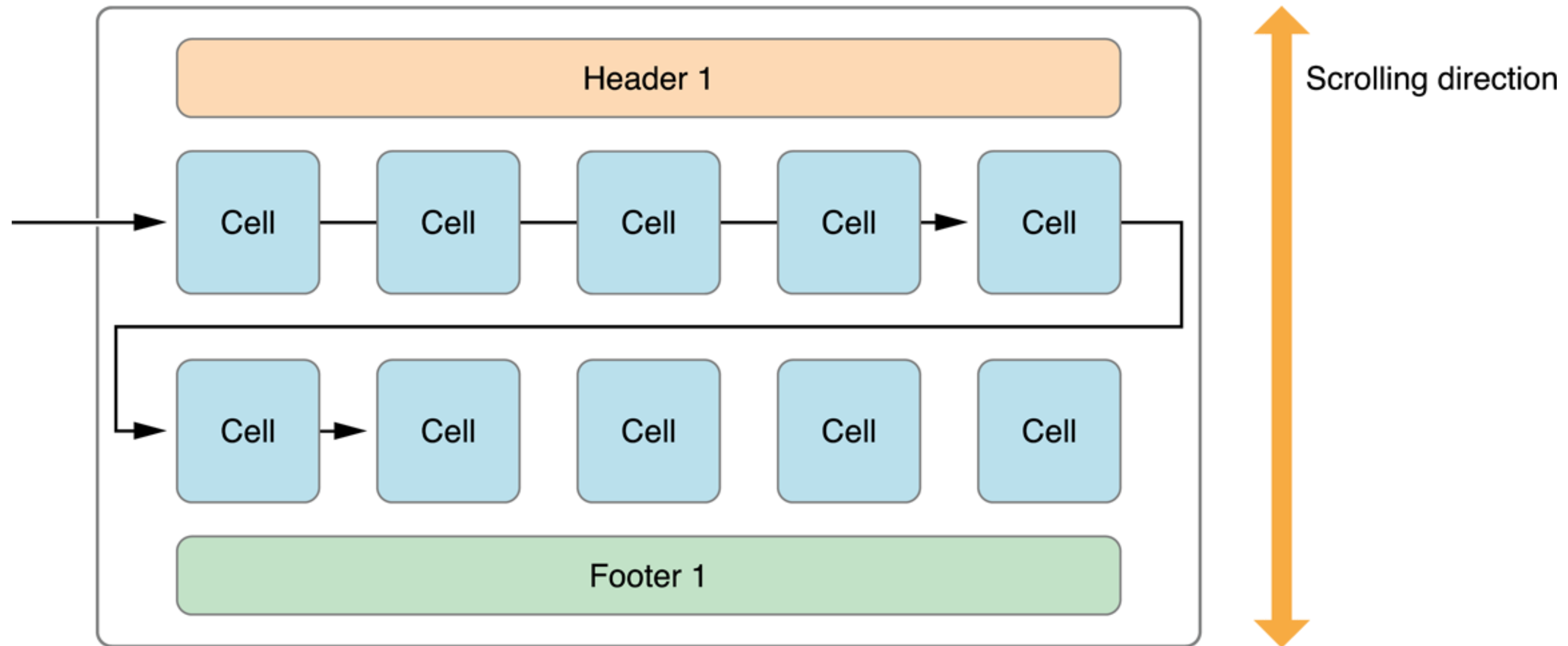


Interitem spacing



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

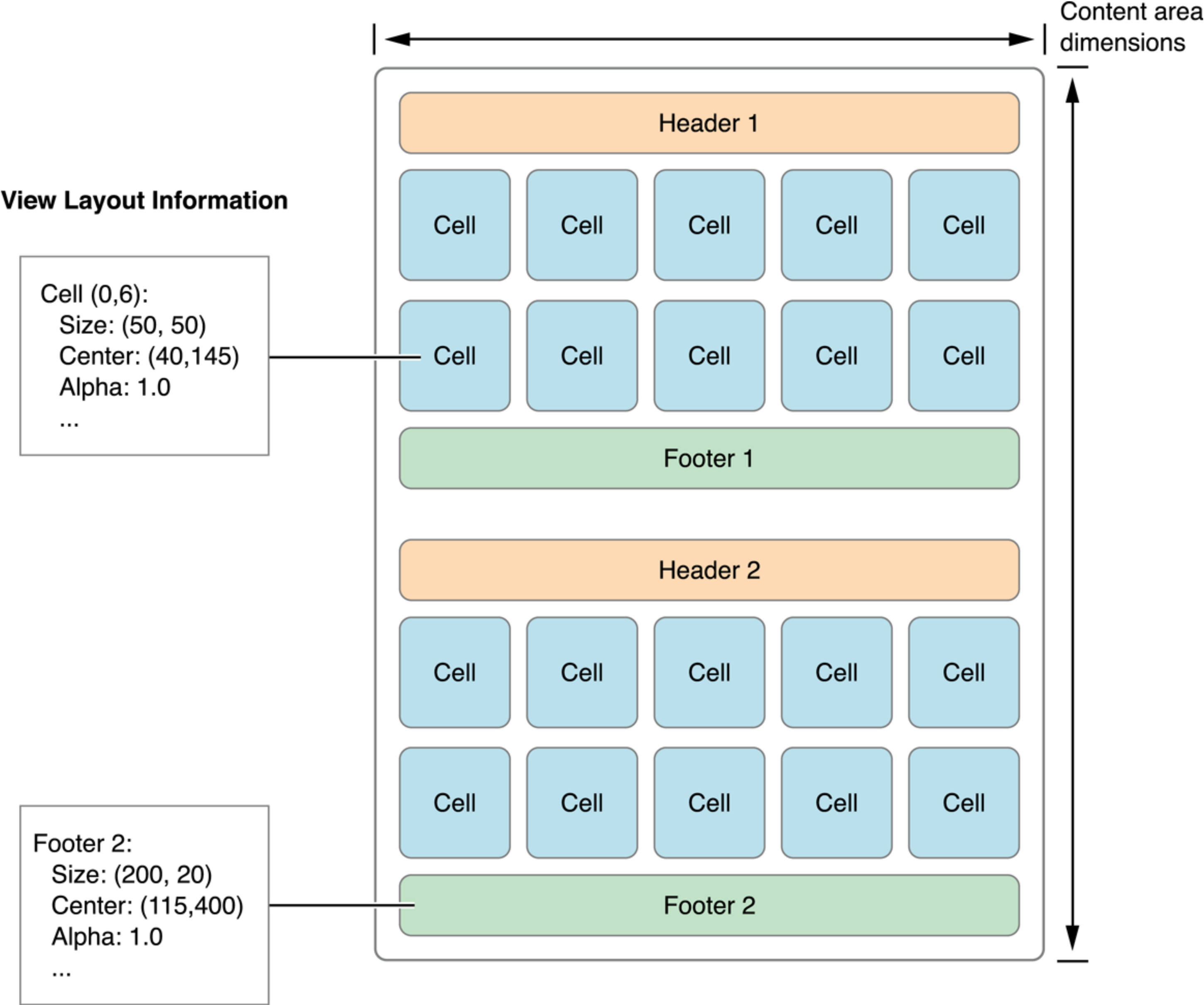
Header / Footer Size



```
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

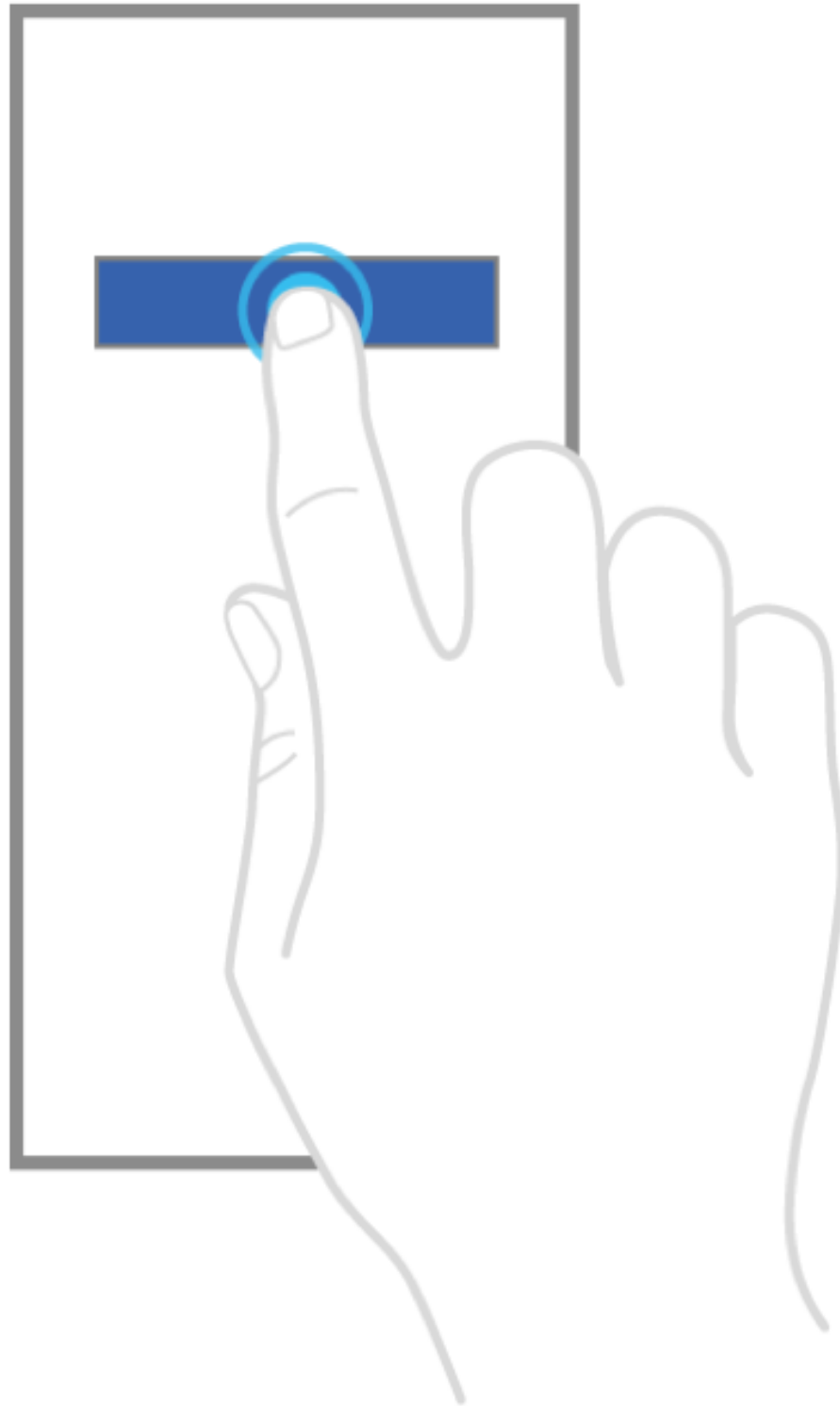
Content View

Selected Background View

Background View

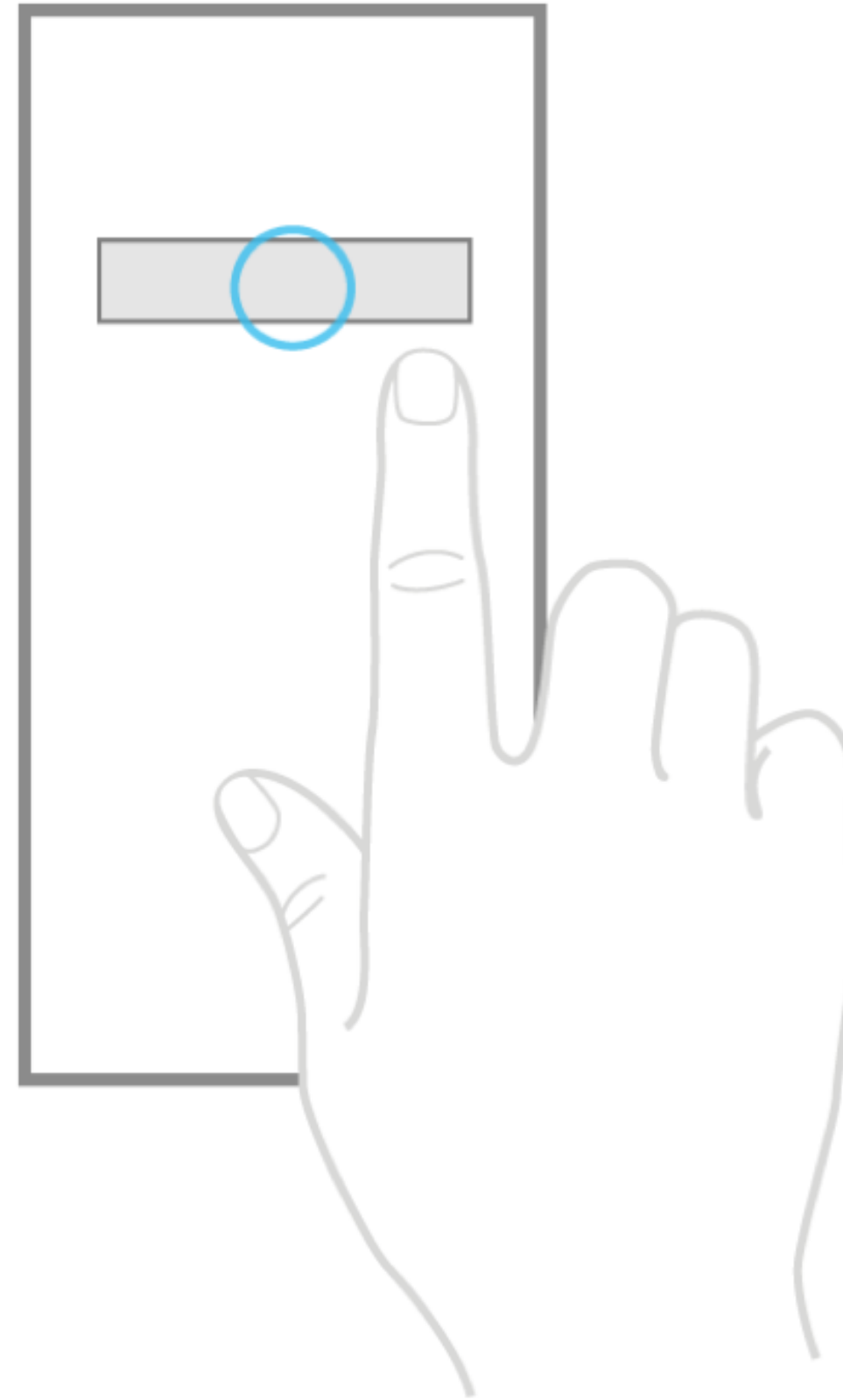
The State of a Cell

User touches cell



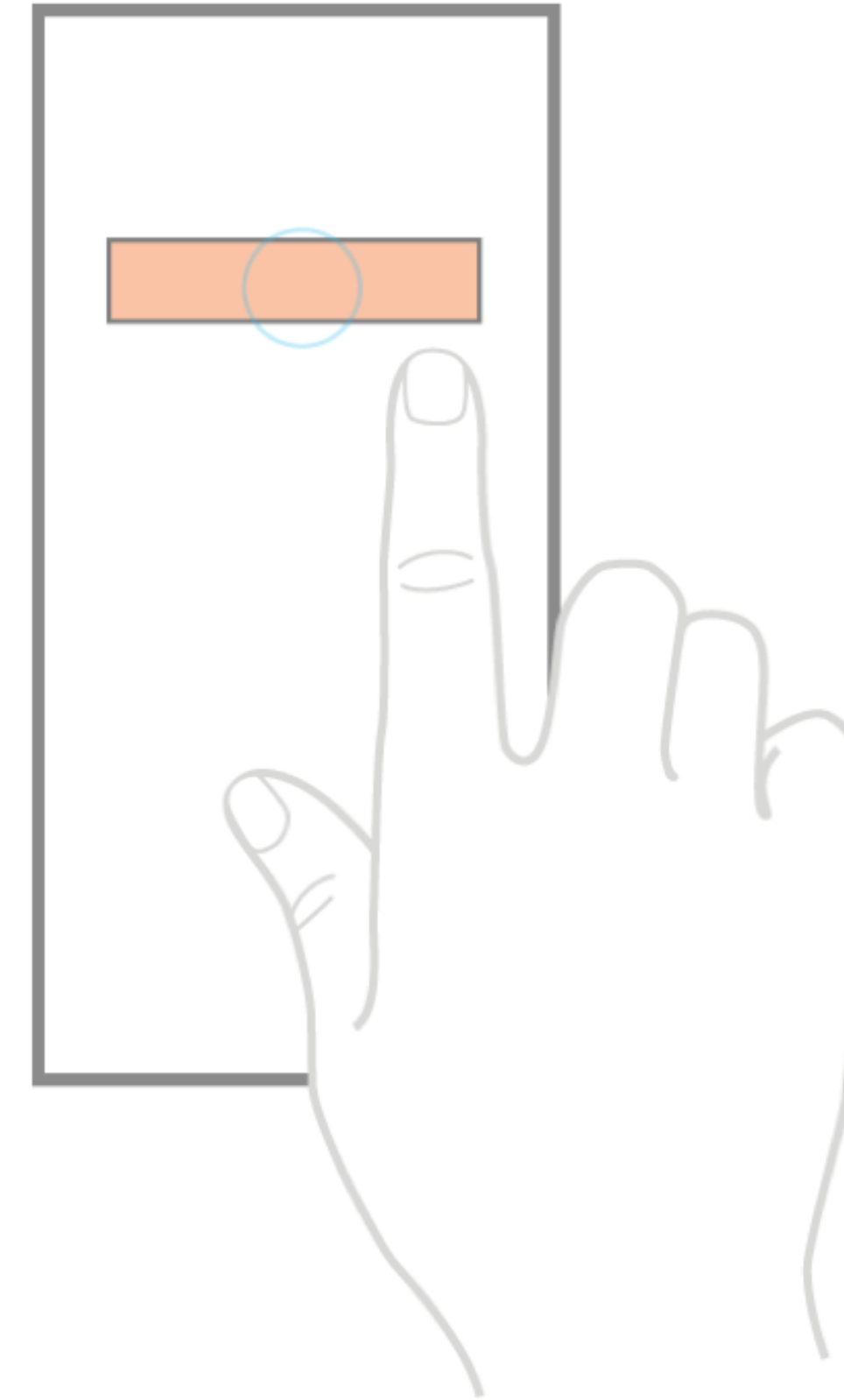
`isHighlighted: true`
`isSelected: false`

User lifts finger



`isHighlighted: false`
`isSelected: false`

Collection view selects cell



`isHighlighted: false`
`isSelected: true`