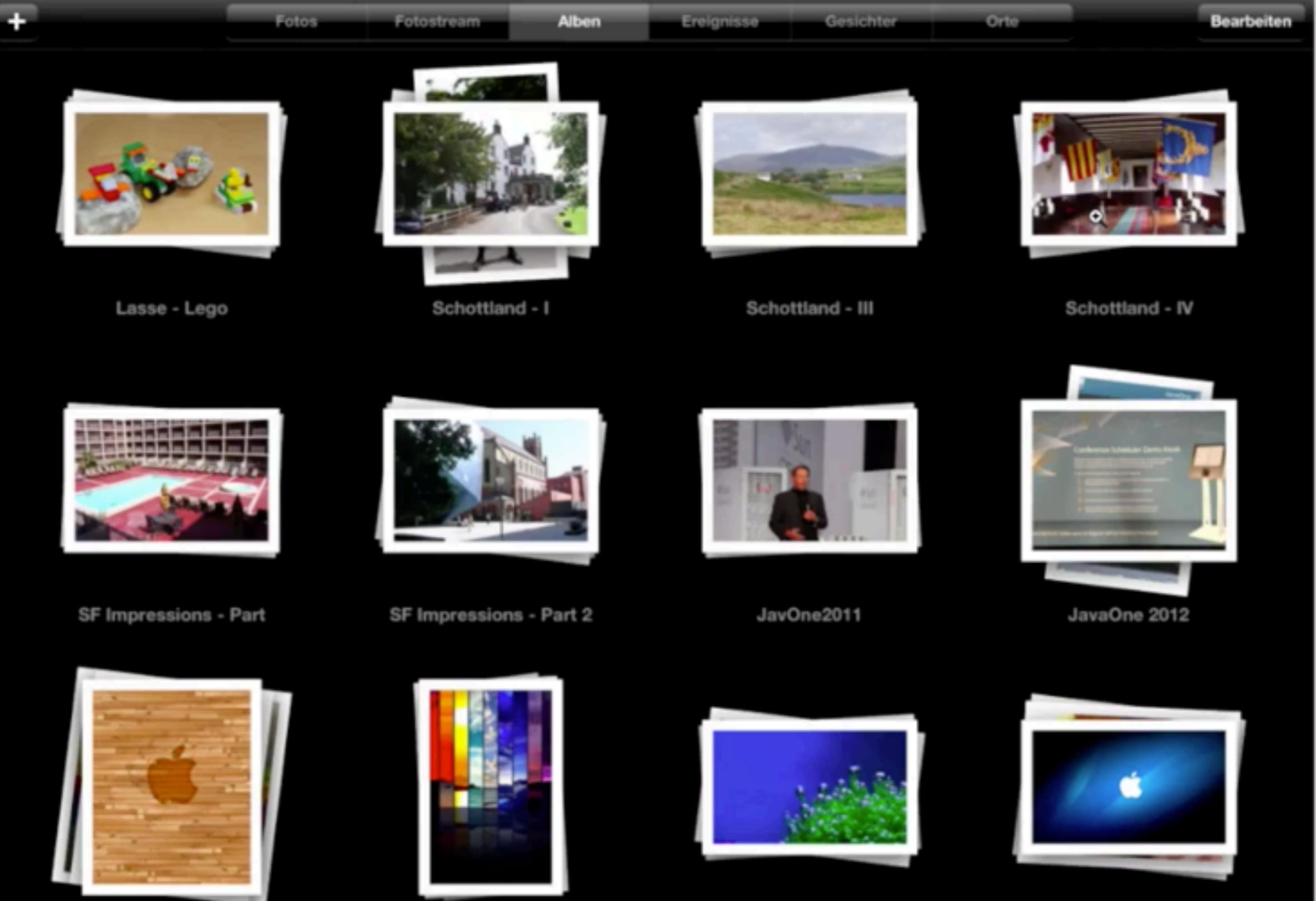


UICollectionView

What is a UICollectionView?

- A view object that manages an ordered collection of data items and presents them using customizable layouts.
- Data is primarily presented in cells `UICollectionViewCell`, and optionally supplementary views `UICollectionViewReusableView`, and decoration view(s).
- The layout object is responsible for defining the organization and location of all cells and supplementary views inside the collection view.
- The collection view uses a **data source object**, which is any object that conforms to the `UICollectionViewDataSource` protocol.
- The layout object is like another data source, only it concerns visual information instead of item data.



June 2015

DayWeekMonthYear

Sun	Mon	Tue	Wed	Thu	Fri	Sat
	1	2	3 • Dev Meeting 4 PM	4	5	6
7	8	9	10 • Dev Meeting 4 PM	11	12	13
14	15	16	17 • Dev Meeting 4 PM	18	19	20
21 Father's Day National Aboriginal Da...	22 Discovery Day (NF, LR)	23	24 St. Jean Baptiste Day... • Dev Meeting 4 PM	25	26	27
28	29	30				

Today

Calendars

Inbox (1)



Weather App UI

719

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Flat design

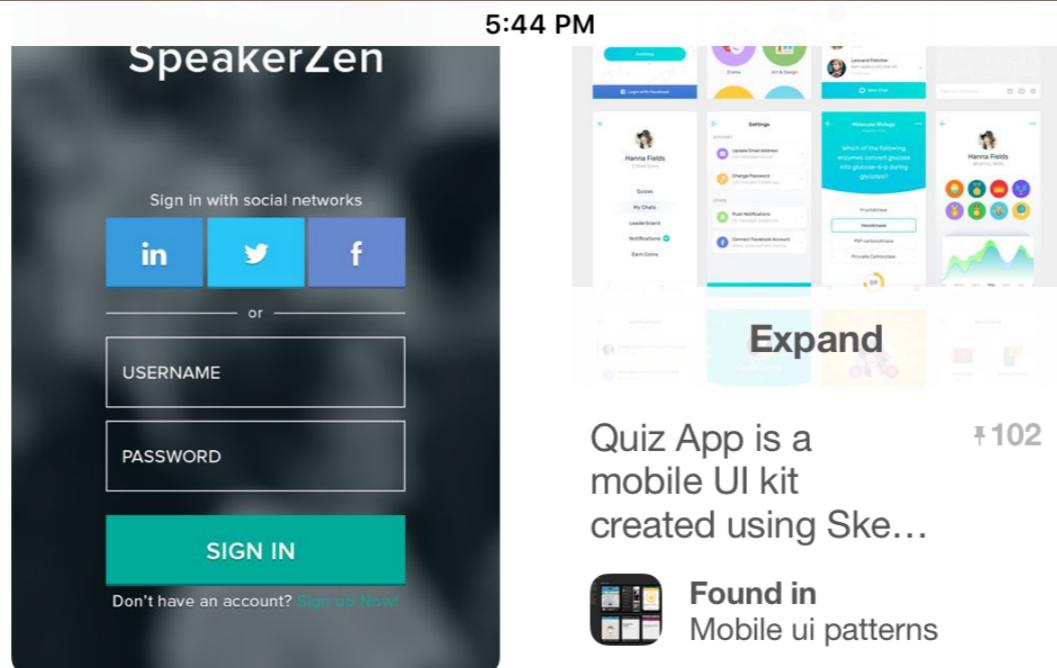


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teachers and
students

EduDemic



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iPad app



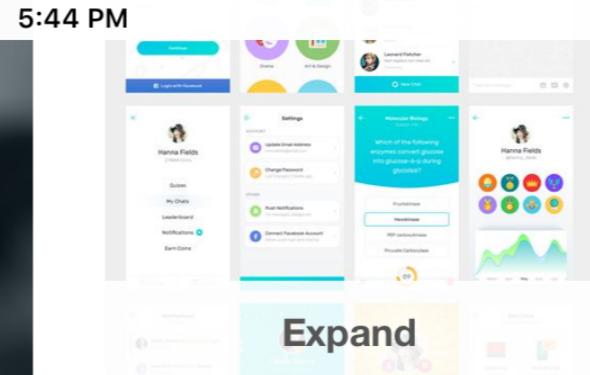
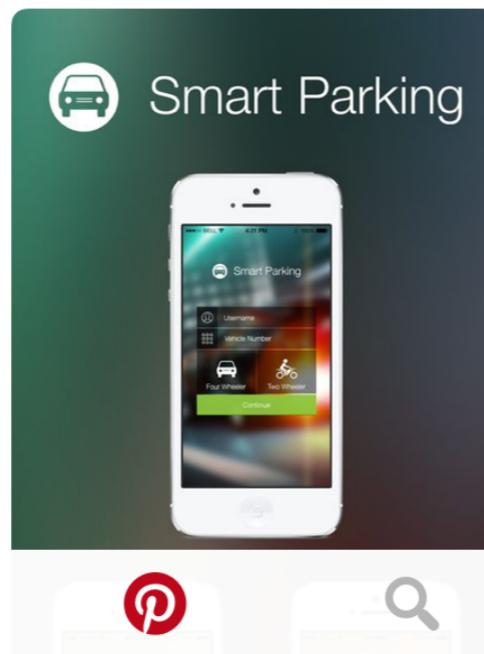
Login #form #ui
#userinterface

548

dribbble.com



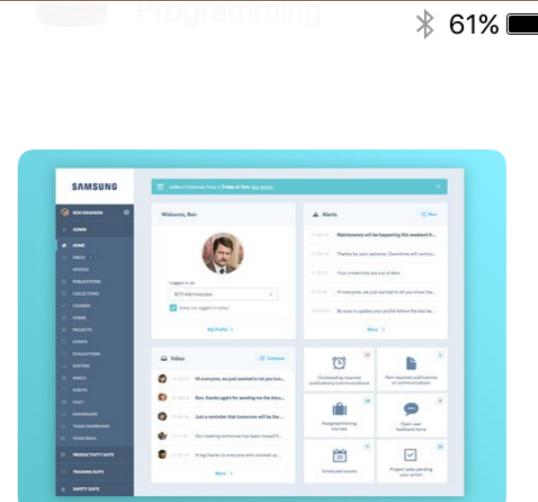
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App icon



Quiz App is a
mobile UI kit
created using Ske...

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Mobile ui patterns



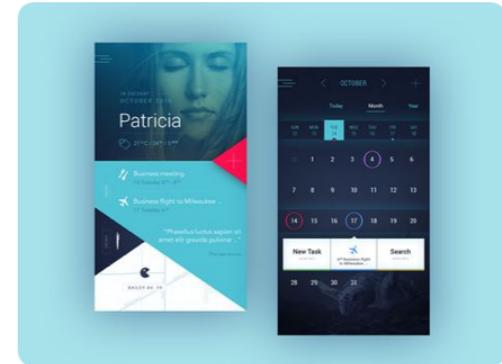
Dashboard

363

Dribbble



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Flat web design



All-in-one app mobile

21

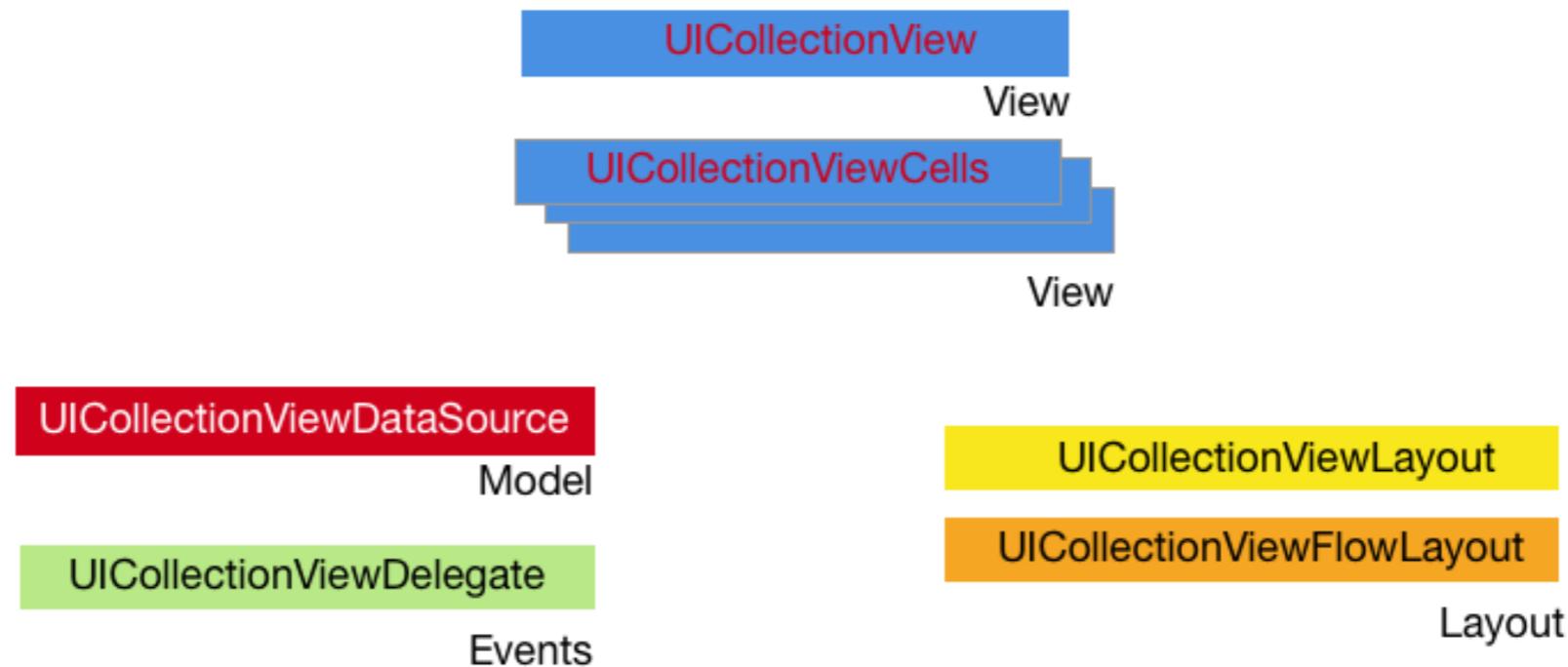
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Mobile design

50,000 Foot View

OverView



Cell

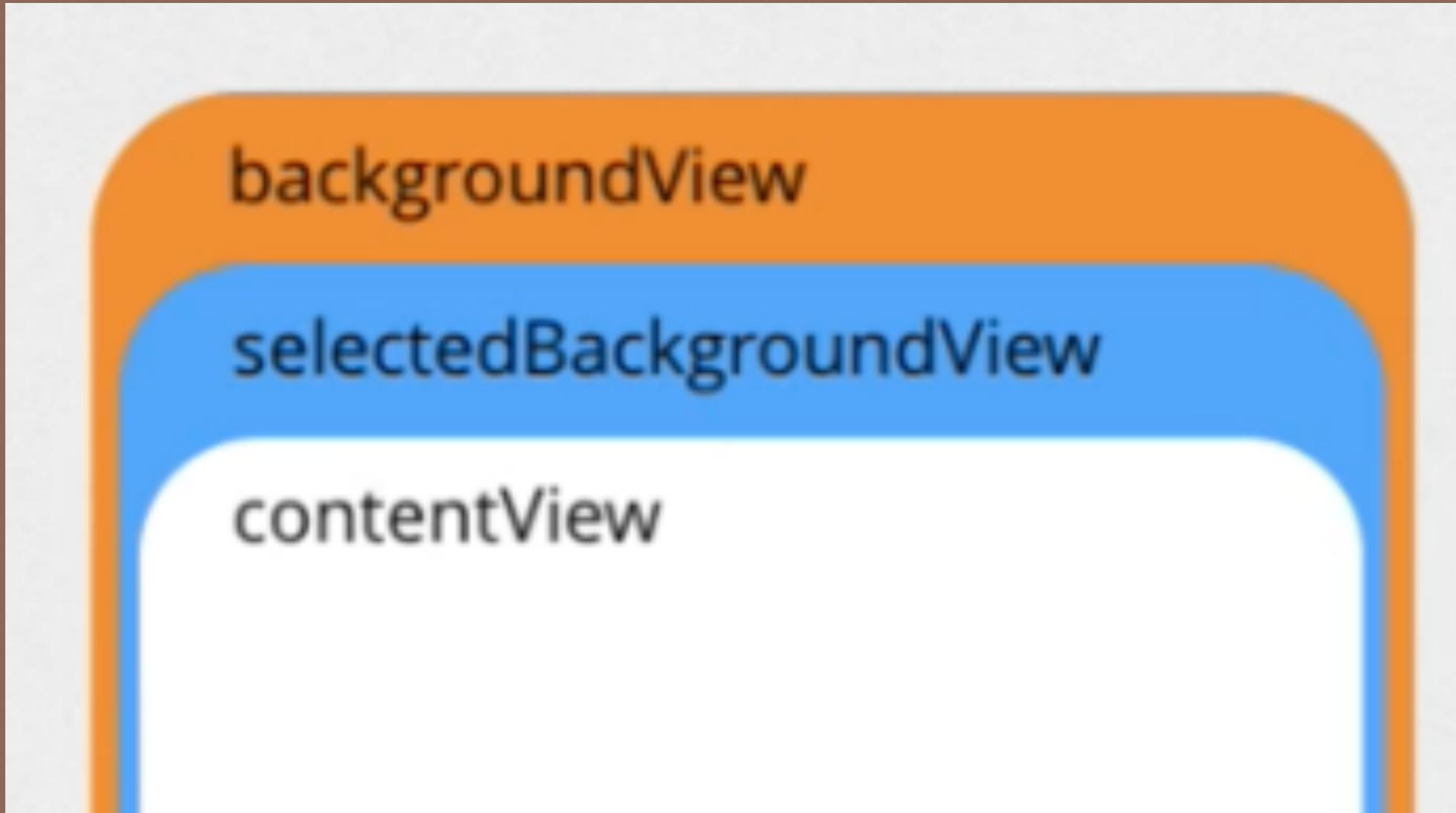


Decoration view

Supplementary view

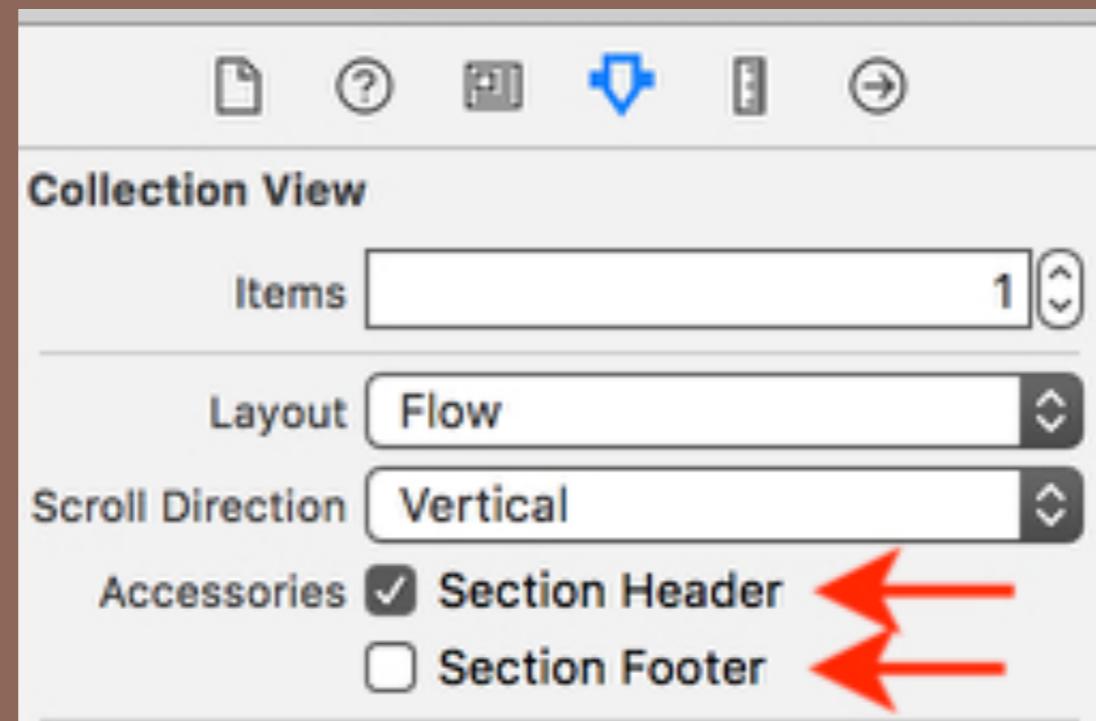
UICollectionViewCell

- Cells are the content (add content to contentView)



UICollectionViewReusableView

- UICollectionViewReusableView is an abstract class.
- You subclass it in order to create supplementary views.
- These can be things like headers and footers.
- UICollectionViewCell also subclasses UICollectionView.



UICollectionViewDataSource

UICollectionViewDataSource

Providing content



UIcollectionView

UIcollectionViewDataSource

CV: How many items are in section 0

DS: 4

CV: What should I display in section 0, item 4?

DS:



UICollectionViewDataSource Important Methods

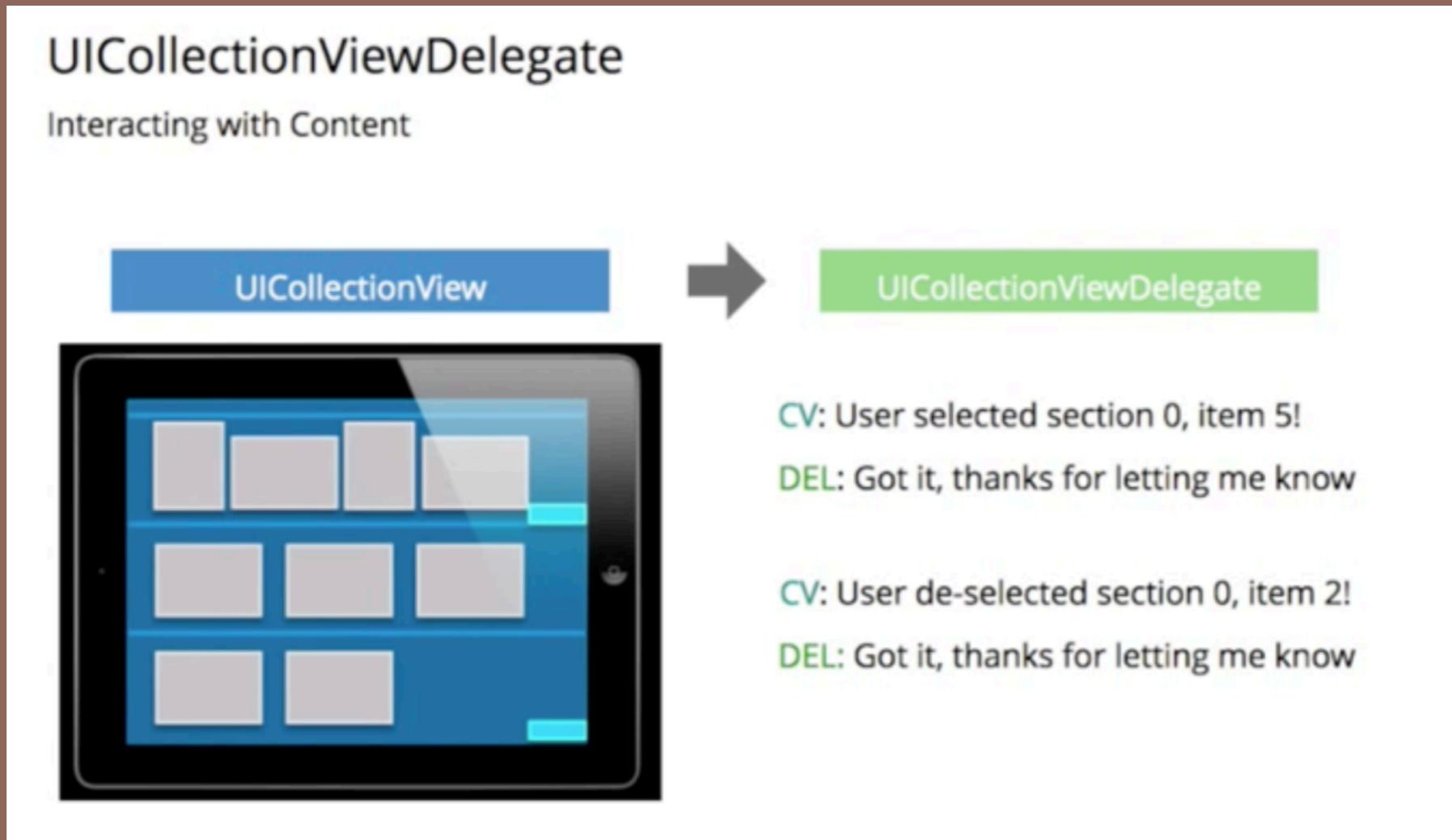
```
// you should implement this and return the number of sections in your collection
- (NSInteger)numberOfSectionsInCollectionView:(UICollectionView *)collectionView;

// you have to determine the number of items there are for each section and return it here
- (NSInteger)collectionView:(UICollectionView *)collectionView
    numberOfItemsInSection:(NSInteger)section;

// this is where the model and view intersect
- (UICollectionViewCell *)collectionView:(UICollectionView *)collectionView
    cellForItemAtIndexPath:(NSIndexPath *)indexPath;

// if including headers/footers implement this method
- (UICollectionReusableView *)collectionView:(UICollectionView *)collectionView
    viewForSupplementaryElementOfKind:(NSString *)kind
        atIndexPath:(NSIndexPath *)indexPath;
```

UICollectionViewDelegate



```
- (void)collectionView:(UICollectionView *)collectionView  
didSelectItemAtIndexPath:(NSIndexPath *)indexPath;
```

UICollectionViewFlowLayout

- Subclass of UICollectionViewLayout.
- Used for most grid style layouts.
- By default, a flow layout instance is automatically created and hooked up in IB.
- Access it using the UICollectionView's collectionViewLayout property. (⚠ You will need to cast this).
- What is the difference between a collectionview added as a subview in a UIViewController and a UICollectionViewController? (Make sure you understand this)

UICollectionViewFlowLayout

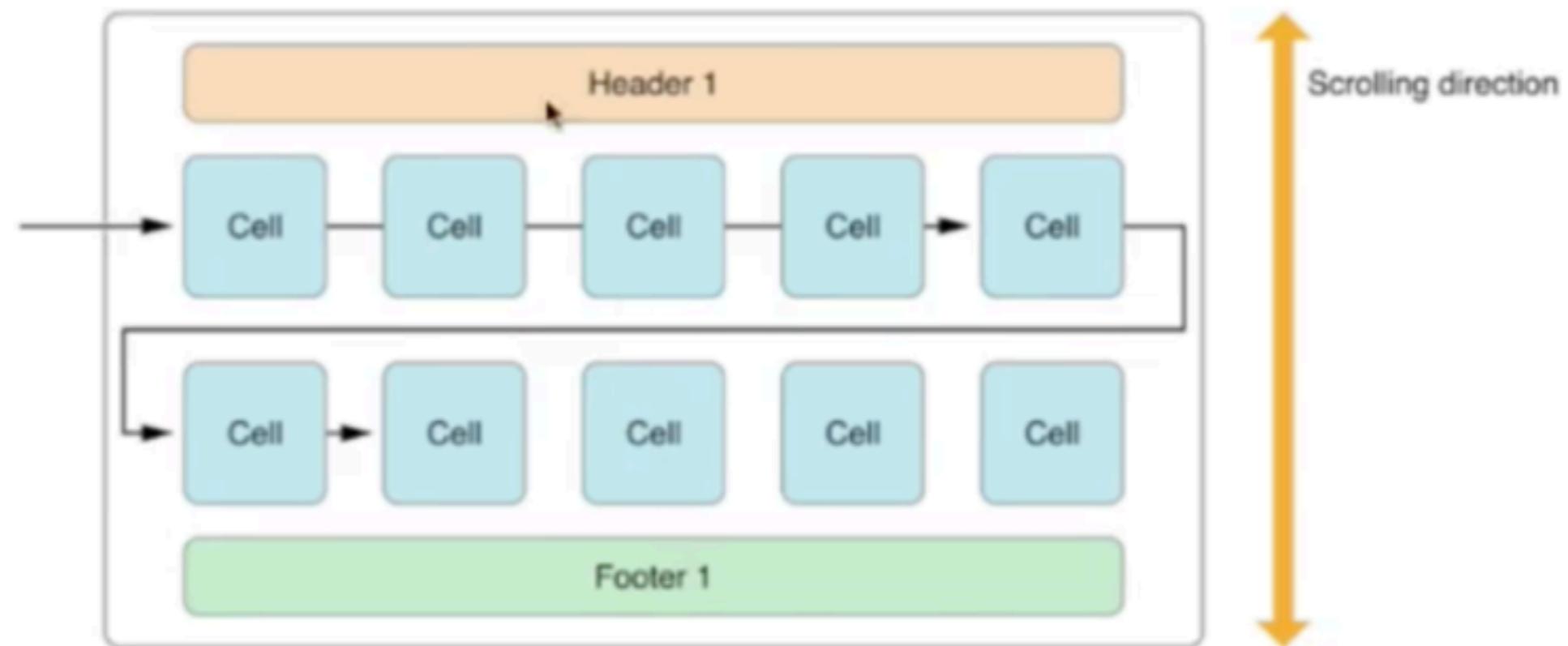
- You can setup static values for the flowlayout in the storyboard.
- ⚠️ static default flowlayout values automatically set in storyboard may affect your layout & give you results you aren't expecting 🚑.
- Storyboard is a good place to look to see what properties the layout has. Experiment.
- To setup values that are *relative* to the view's dimensions use viewDidLoad or viewWillLayoutSubviews. (Setting up flow layout dimensions in storyboard does not allow us to make our layout relative to the current screen size).

UICollectionViewFlowLayout

How to layout content

```
((UICollectionViewFlowLayout *)self.collectionView.collectionViewLayout).  
scrollDirection = UICollectionViewScrollDirectionVertical;
```

The grid's scroll direction



```
// some property definitions
@property (nonatomic) CGFloat minimumInteritemSpacing;
@property (nonatomic) CGFloat minimumLineSpacing;
@property (nonatomic) UICollectionViewScrollDirection scrollDirection;

// E.g. of casting layout setup in IB to `UICollectionViewFlowLayout`
UICollectionViewFlowLayout* layout = (UICollectionViewFlowLayout*)self.collectionView.collectionViewLayout;
layout.minimumLineSpacing = 10;
```

UICollectionViewFlowLayout

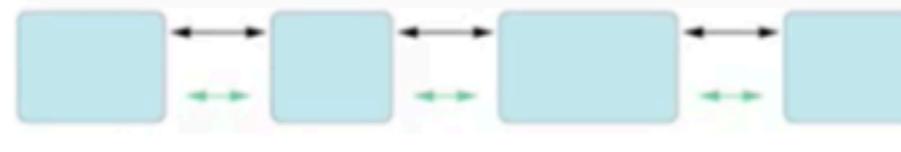
How to layout content

```
var minimumInteritemSpacing: CGFloat  
minimumInteritemSpacing = 5.0
```

Minimum horizontal spacing between cells

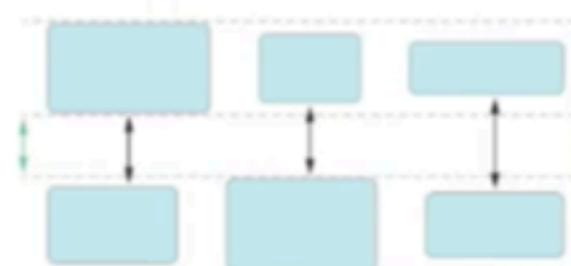
```
((UICollectionViewFlowLayout *)self.collectionView.collectionViewLayout).  
minimumInteritemSpacing = 5.0;
```

```
((UICollectionViewFlowLayout *)self.collectionView.collectionViewLayout).  
minimumLineSpacing = 10.0;
```



```
var minimumLineSpacing: CGFloat  
minimumLineSpacing = 10.0
```

Minimum vertical spacing between cells



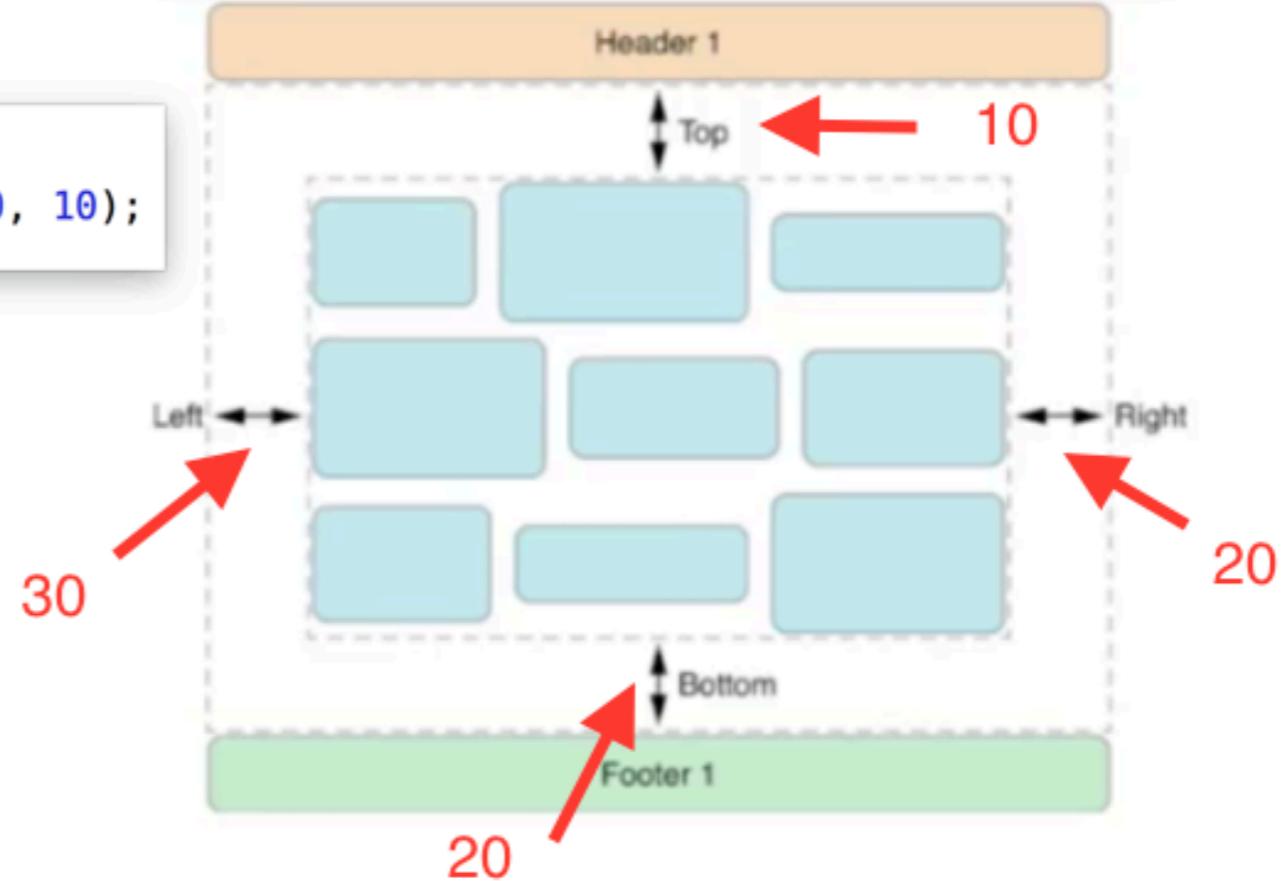
UICollectionViewFlowLayout

How to layout content

```
UIEdgeInsets sectionInsets;  
sectionInsets = UIEdgeInsetsMake(10, 30, 20, 10);
```

Padding on sections

```
UIEdgeInsetsMake(CGFloat top, CGFloat left,  
CGFloat bottom, CGFloat right);
```



UICollectionViewDelegateFlowLayout

- You can also setup a delegate to create dynamically sized cells using UICollectionViewDelegateFlowLayout.
 - `(CGSize)collectionView:(UICollectionView *)collectionView
layout:(UICollectionViewLayout *)collectionViewLayout
sizeForItemAtIndexPath:(NSIndexPath *)indexPath;`

UICollectionViewLayout

- You can customize UICollectionViewFlowLayout by subclassing it.
- You can also create a custom layout class by subclassing UICollectionViewLayout and setting your instance to the collectionViewLayout property (can be done in IB).
- Layouts can be switched at run time with animations.
- Subclasses of UICollectionViewLayout must override the following:

`collectionViewContentSize`

`layoutAttributesForElementsInRect:`

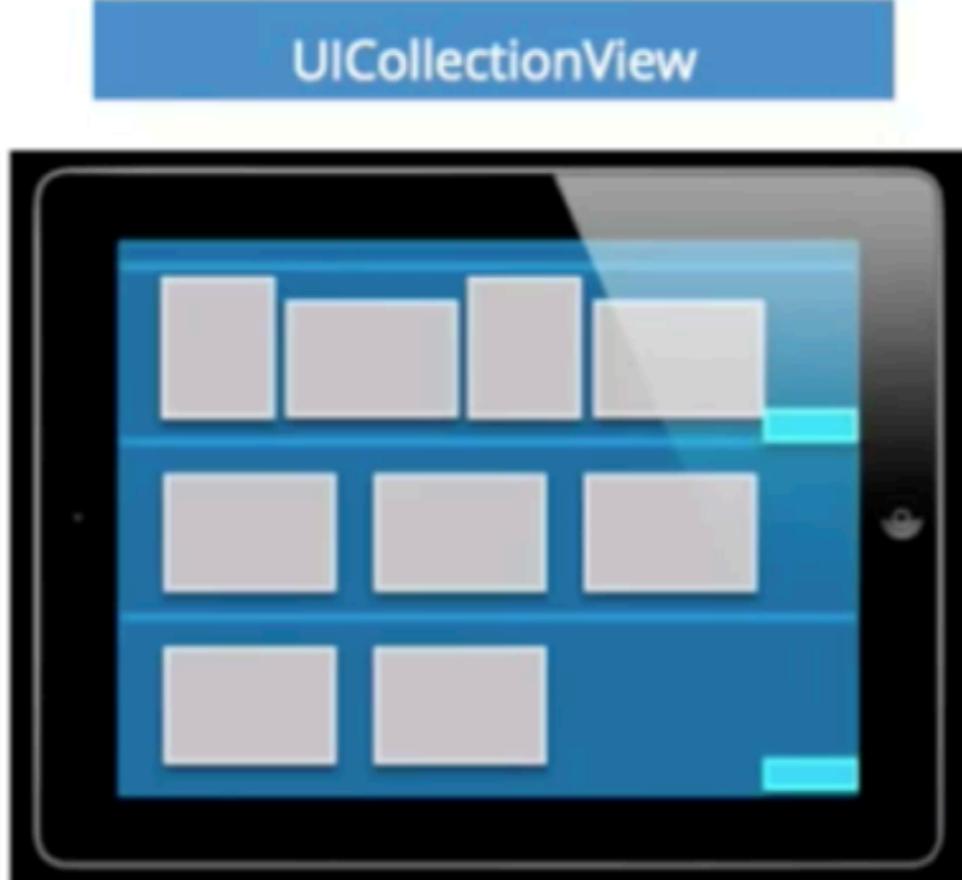
`layoutAttributesForItemAtIndexPath:`

and

`shouldInvalidateLayoutForBoundsChange:`

UICollectionViewLayout

How to layout content



UICollectionViewLayout

UICollectionViewFlowLayout

CV: What's the min. spacing between
cells?

DEL: 5pts

CV: What's the padding on section 0?

DEL: 20 pts

UICollectionViewLayout

Complex layout examples

