

iOS Development Workshop @ Cohab

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- Gesture Recognizers
- Scroll Views
- Web Views
- Image Views

Gesture Recognizers

Gesture Recognizers

- How we can react to “gestures”
- We’ve seen how to be notified of basic events like touch

Gestures

- Tapping (any number of taps)
- Pinching in and out
- Panning or dragging
- Swiping
- Rotating
- Long Press

Gesture Recognizers

- Base class `UIGestureRecognizer`
- We will actually use subclasses

Gesture Recognizer

- Add a gesture recognizer to a UIView
- Provide implementation to handle the gesture event
 - Much like Actions that we have seen before

Gesture Recognizers

- `UITapGestureRecognizer *tap = [[UITapGestureRecognizer alloc] initWithTarget:self action:@selector(tapped:)];`



We are specifying the class which
contains the action

Gesture Recognizers

- `UITapGestureRecognizer *tap = [[UITapGestureRecognizer alloc] initWithTarget:self action:@selector(tapped:)];`



We are specifying the method that will be called when our gesture recognizer is fired

Gesture Recognizers

- `UIPinchGestureRecognizer *pinch = [[UIPinchGestureRecognizer alloc] initWithTarget:self action:@selector(pinch:)];`
- `[button addGestureRecognizer:pinch];`
- `[pinch release];`

Add the Gesture Recognizer to a view



Our Action

```
-(void)pinched:(UIPinchGestureRecognizer *)  
recognizer {  
    // Handle pinching  
}
```

Responding to Pinch

- Pinch Gesture has 2 Properties
 - scale
 - velocity

Responding to Pinch

- scale
 - Relative position of the pinch gesture to when it started
 - Smaller values for when pinch closer together
 - Larger values for when pinch further away

Responding to Pinch

- velocity
 - Velocity of the pinch in scale factor per second

Tap Gesture

- After initializing a `UITapGestureRecognizer`
 - Set `numberOfTapsRequired`
 - 2 for Double Tap, 3 for Triple Tap
 - `numberOfTouchesRequired`
 - How many fingers are needed for the tap gesture
 - 2 finger double tap?

Swipe Gesture

- Set direction of `UISwipeGestureRecognizer`
- `swipe.direction = UISwipeGestureRecognizerDirectionLeft;`
- Can use bitwise OR to add multiple directions
 - `UISwipeGestureRecognizerDirectionLeft | UISwipeGestureRecognizerDirectionRight`

Swipe Gesture

- `numberOfTouchesRequired`
 - How many fingers are required for the swipe event

Long Press

- `minimumPressDuration`
- `numberOfTapsRequired`
- `numberOfTouchesRequired`
- `allowableMovement`
 - Maximum movement before the gesture fails, default of 10 points

Gestures

- Keep gestures actions to the appropriate idea
 - Pinching to Zooming, not selection of a row
 - Not using Rotation to refresh a screen

Sample Gesture Recognizer App

Scroll Views

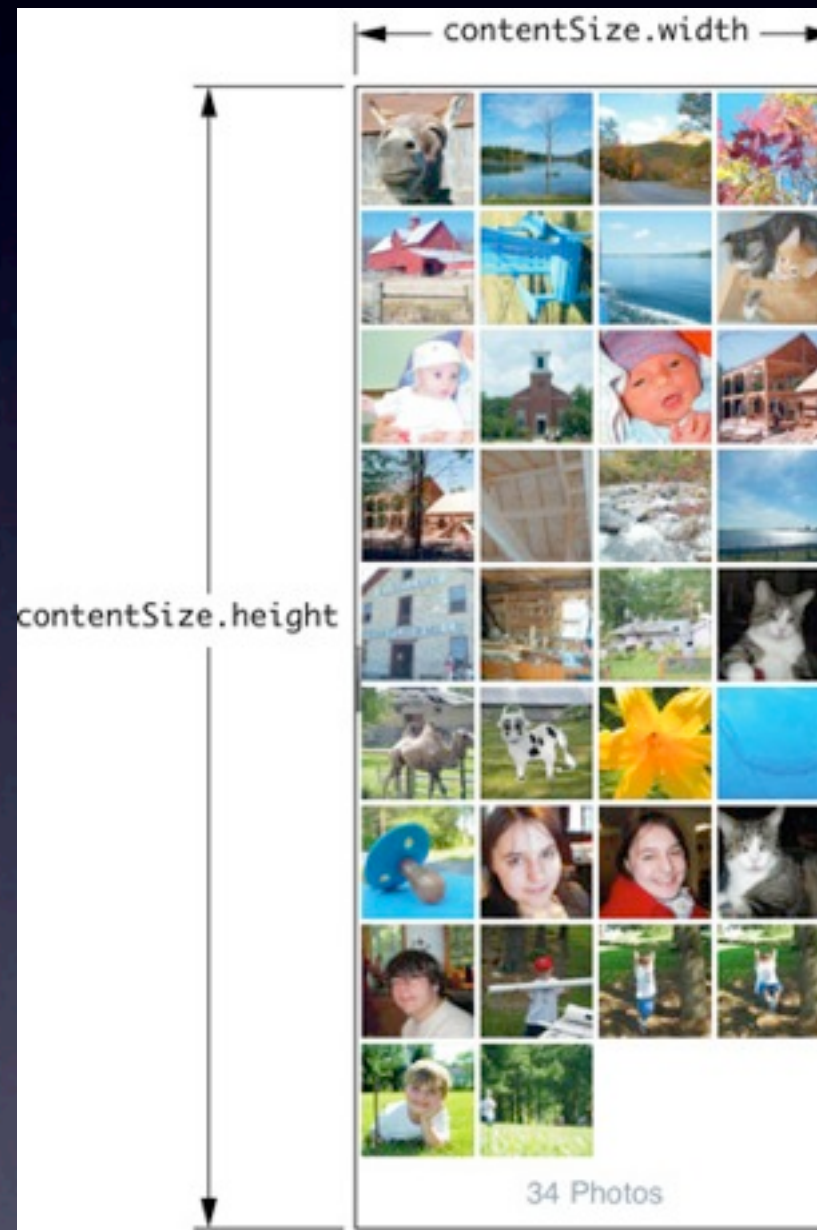
UIScrollView

- Provides support for displaying content that is larger than the size of the application's window
- Enables users to scroll within that content by making swiping gestures, and to zoom in and back from portions of the content by making pinching gestures.

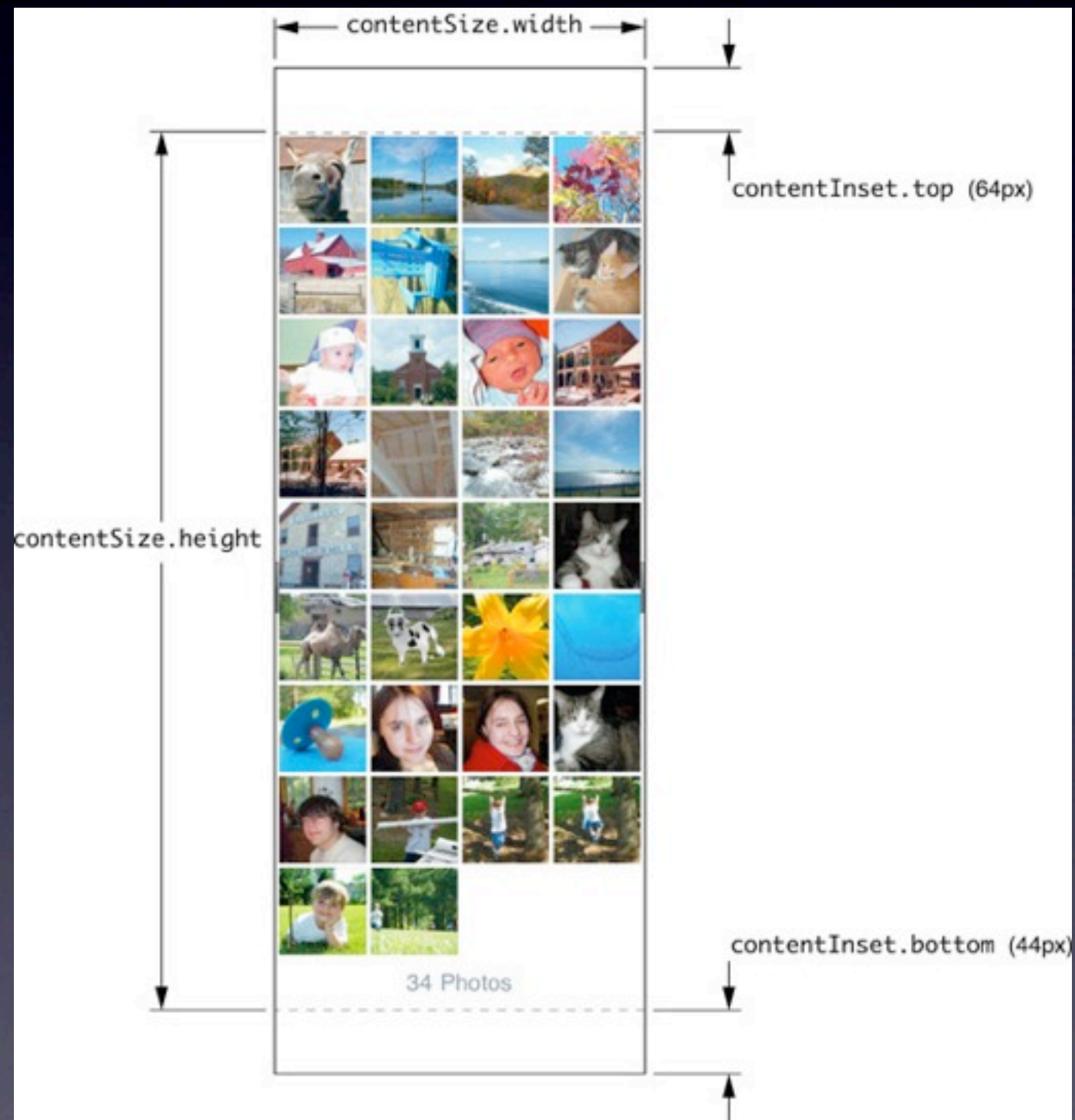
UIScrollView

- Subclass of several UIKit classes:
 - UITableView
 - UITextView

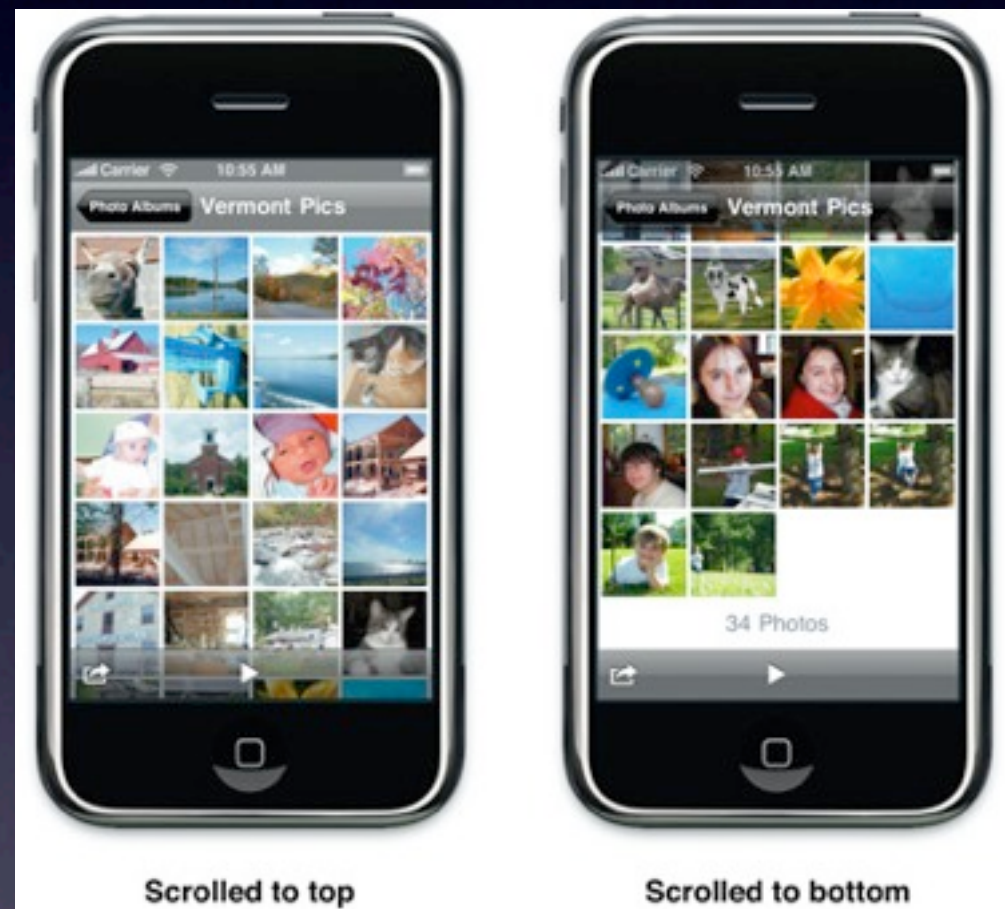
UIScrollView



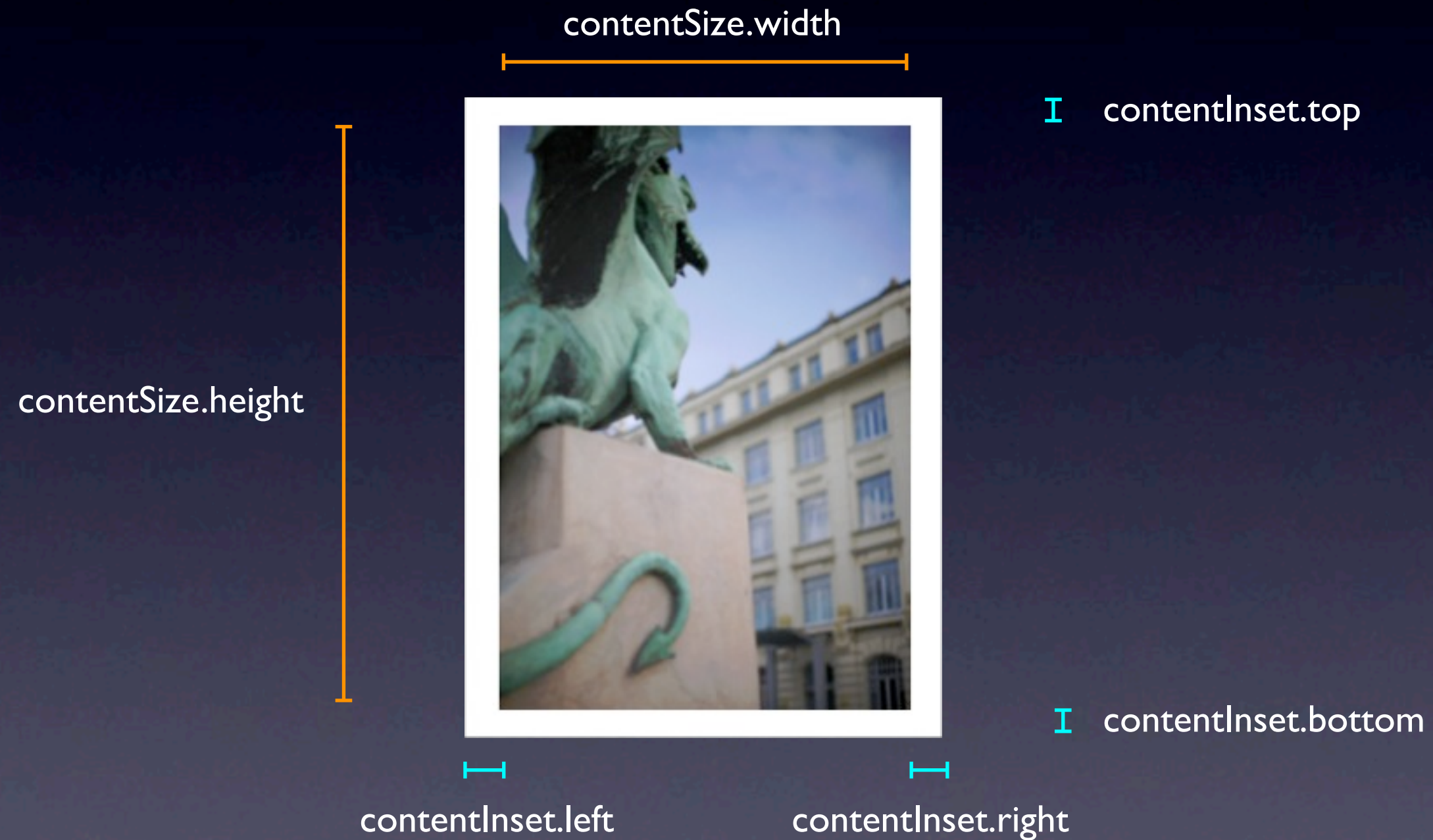
UIScrollView



UIScrollView



UIScrollView



UIScrollView

- Programmatic scrolling
 - `-(void)scrollRectToVisible:(CGRect)aRect animated:(BOOL)animated;`

UIScrollView

- Zooming
 - Won't work without minimum and maximum zoom scale being set
 - `scrollView.minimumZoomScale = 0.5;`
 - `scrollView.maximumZoomScale = 2.0;`
- Won't work without delegate method
 - `-(UIView *)viewForZoomingInScrollView: (UIScrollView *)scrollView;`

UIScrollView

- Programmatic Zooming
 - `-(void)setZoomScale:(float)scale animated:(BOOL)animated;`
 - `-(void)zoomToRect:(CGRect)aRect animated:(BOOL)animated;`

UIScrollViewDelegate

- `-(void)scrollViewDidScroll:(UIScrollView *)sender;`
- `-(void)scrollViewDidScrollToTop:(UIScrollView *)sender;`

UIScrollView

- States
 - `scrollView.zooming;`
 - `scrollView.dragging;`
 - `scrollView.tracking;`
 - `scrollView.decelerating;`

Web Views

UIWebView

- Used to embed web content in your application
- Based on WebKit
- You can also use this class to move back and forward in the history of webpages, and you can even set some web content properties programmatically

UIWebView

- Not just for displaying HTML or webpages
 - Excel
 - Keynote
 - Number
 - Pages
 - PDF
 - Powerpoint
 - Word
 - Rich Text Format

UIWebView

- Easy to connect back, forward, reload buttons
 - `-(void)goBack;`
 - `-(void)goForward;`
 - `@property BOOL canGoBack`
 - `@property BOOL canGoForward`

UIWebView

- Can use delegate to control or observe user's clicking
 - Prevent clicking certain links
 - Respond to user's navigation

UIWebView

- Supports JavaScript
- `-(NSString *)stringByEvaluatingJavaScriptFromString:(NSString *)scriptd`

UIWebView

- NSURL
 - Basically a string
 - Ex: file://..., http://...
 - `[NSURL URLWithString:@"http://google.com"]`

Images

UIImage

- A UIImage object is a high-level way to display image data
- Image objects are immutable, so you cannot change their properties after creation

UIImage

Tagged Image File Format (TIFF)	.tiff, .tif
Joint Photographic Experts Group (JPEG)	.jpg, .jpeg
Graphic Interchange Format (GIF)	.gif
Portable Network Graphic (PNG)	.png
Windows Bitmap Format (DIB)	.bmp, .BMPf
Windows Icon Format	.ico
Windows Cursor	.cur
XWindow bitmap	.xbm

UIImage

- Create by Name

- `UIImage *image = [UIImage imageNamed:@"dog.png"];`

- Create with data

- `UIImage *image = [[UIImage alloc] initWithData:(NSData *)data];`

UIImage

- Image Size
 - Points not pixels
 - `@property (readonly) CGSize size;`

Image Views

UIImageView

- View-based container for displaying either a single image or for animating a series of images
- Can change the image in the UIImageView any time
 - `@property (retain) UIImage *image;`
 - Setting the image after initialization does not modify it's frame

UIImageView

- Animating a sequence of images
 - `@property (retain) NSArray *animationImages; // UIImage`
 - `@property NSTimeInterval animationDuration;`
 - `@property NSInteger animationRepeatCount;`
 - `@property BOOL isAnimating;`
 - `-(void)startAnimating;`
 - `-(void)stopAnimating;`

Questions?