

Featured

#WWDC15

# What's New in Cocoa Touch

Session 107

Jason Beaver Senior Engineering Manager, iOS Platform Technologies

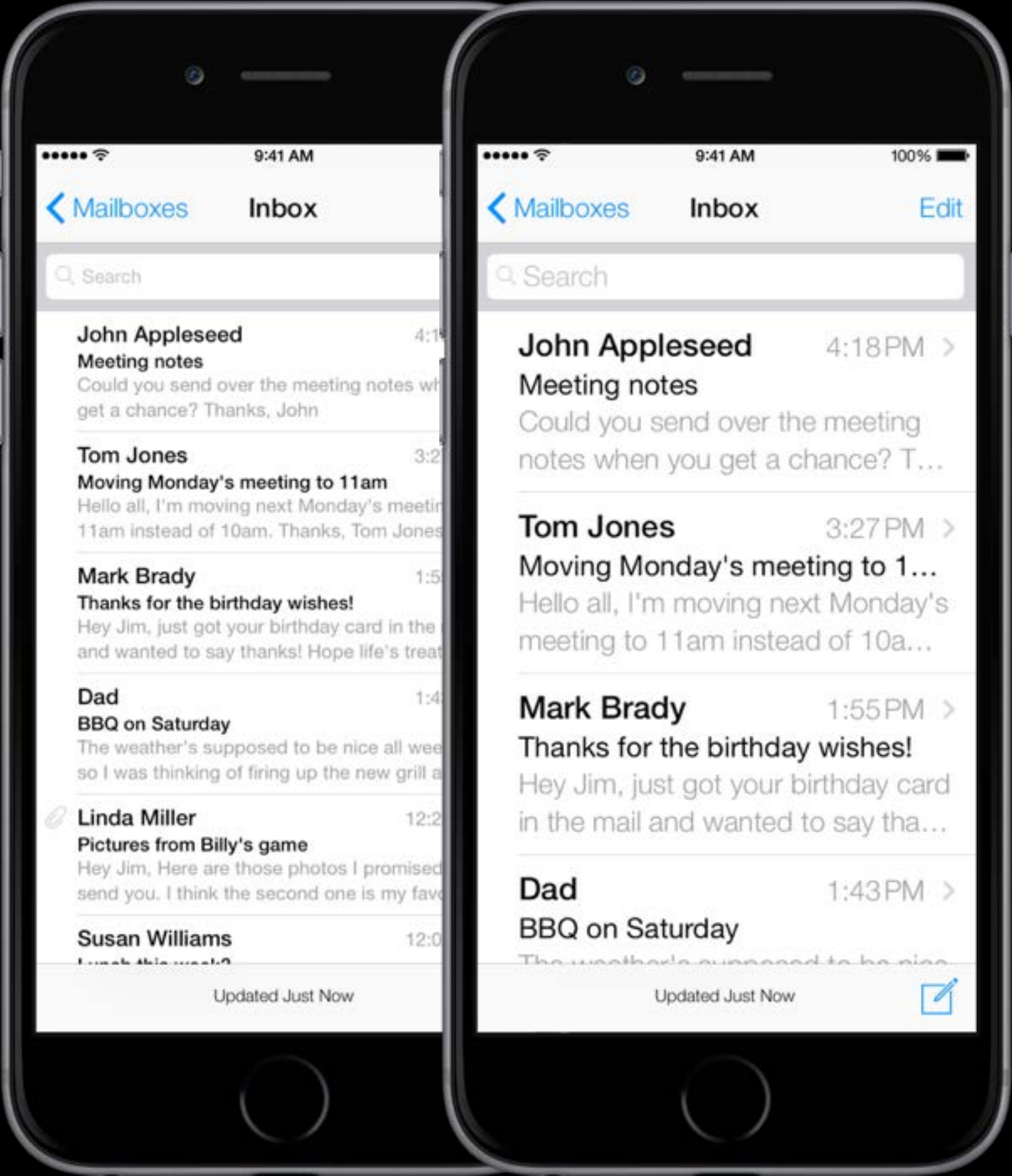




# Auto Layout



# Dynamic Type



# Adaptivity



# Adaptivity



Size Classes



# Adaptivity



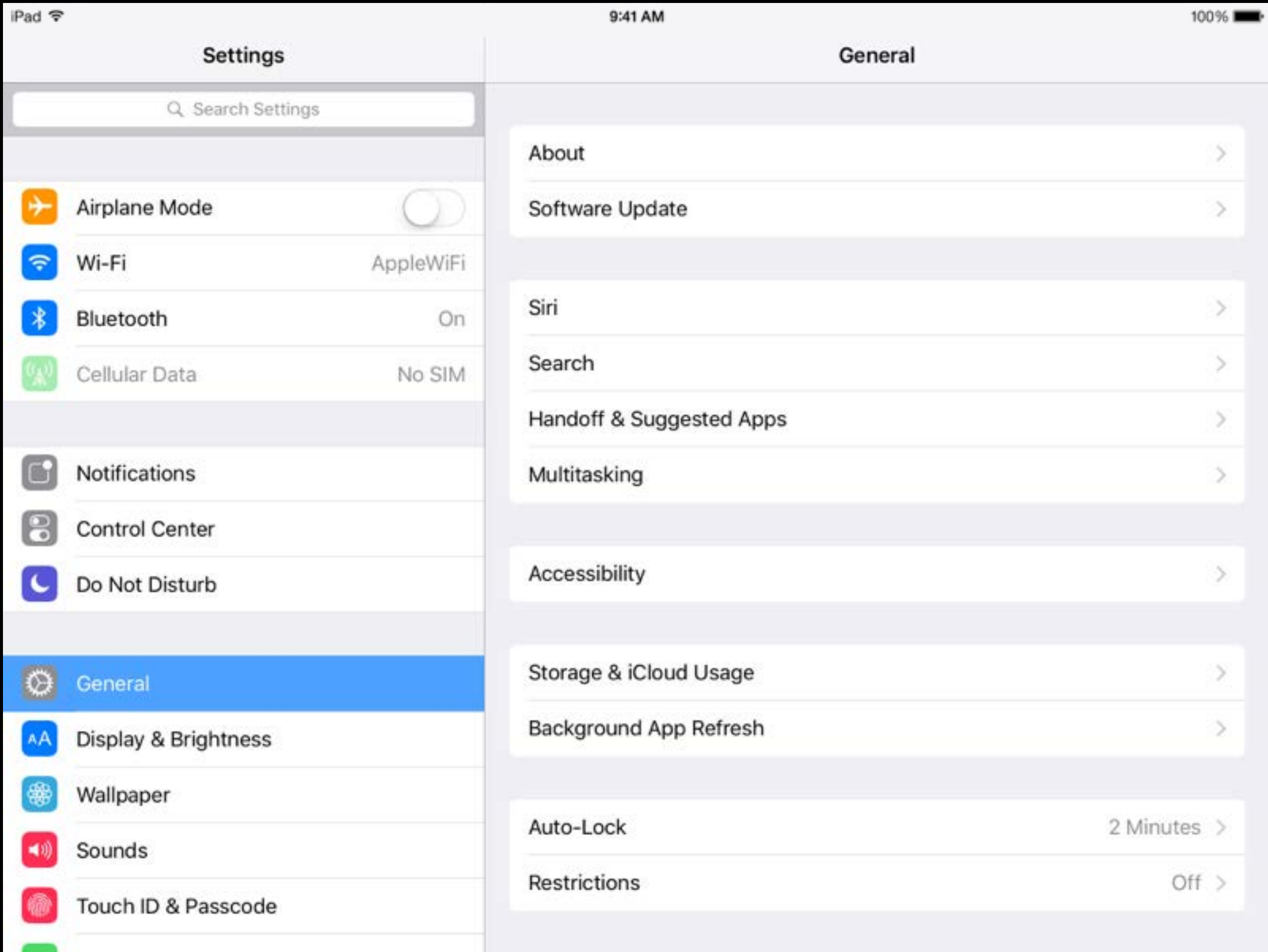
## Size Classes

Regular Height



Compact Width

Regular Height



Regular Width



# Adaptivity



Size Classes

# Adaptivity



Size Classes

View Controllers

# Adaptivity



Size Classes

View Controllers

View Controller Presentations

# Adaptivity



Size Classes

View Controllers

View Controller Presentations

Search Results

# Adaptivity



Size Classes

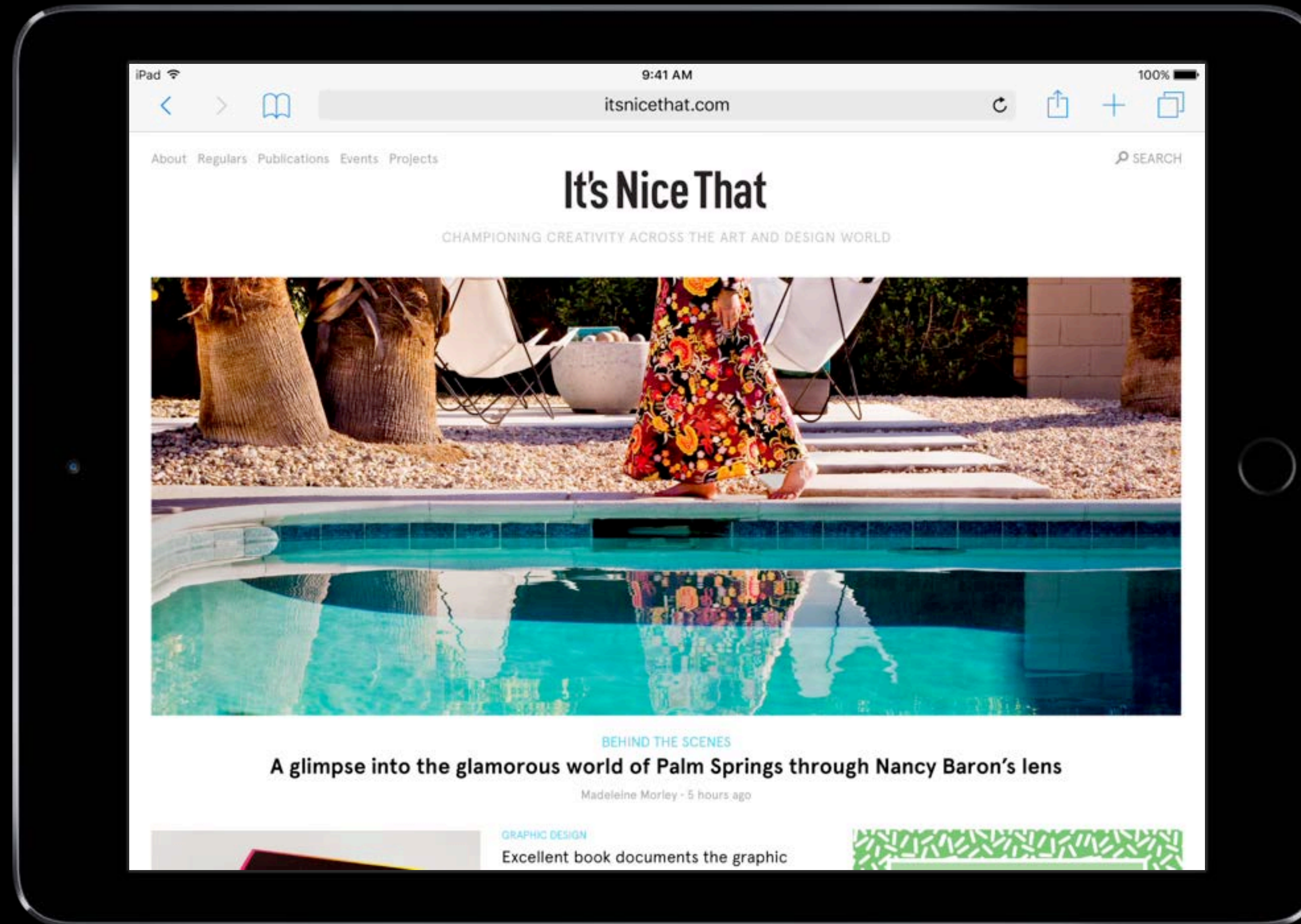
View Controllers

View Controller Presentations

Search Results

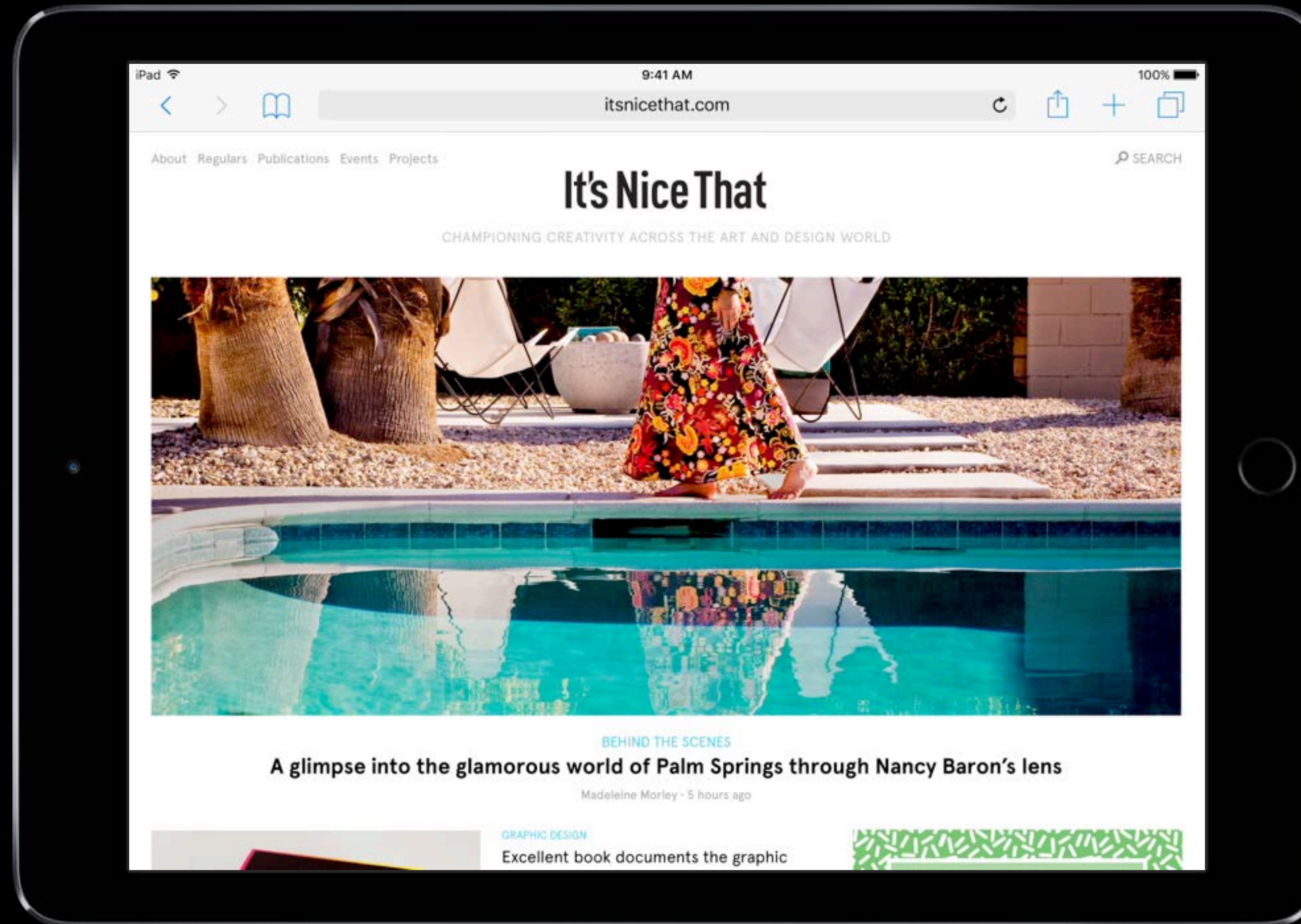
Action Sheets

# Multitasking in iOS



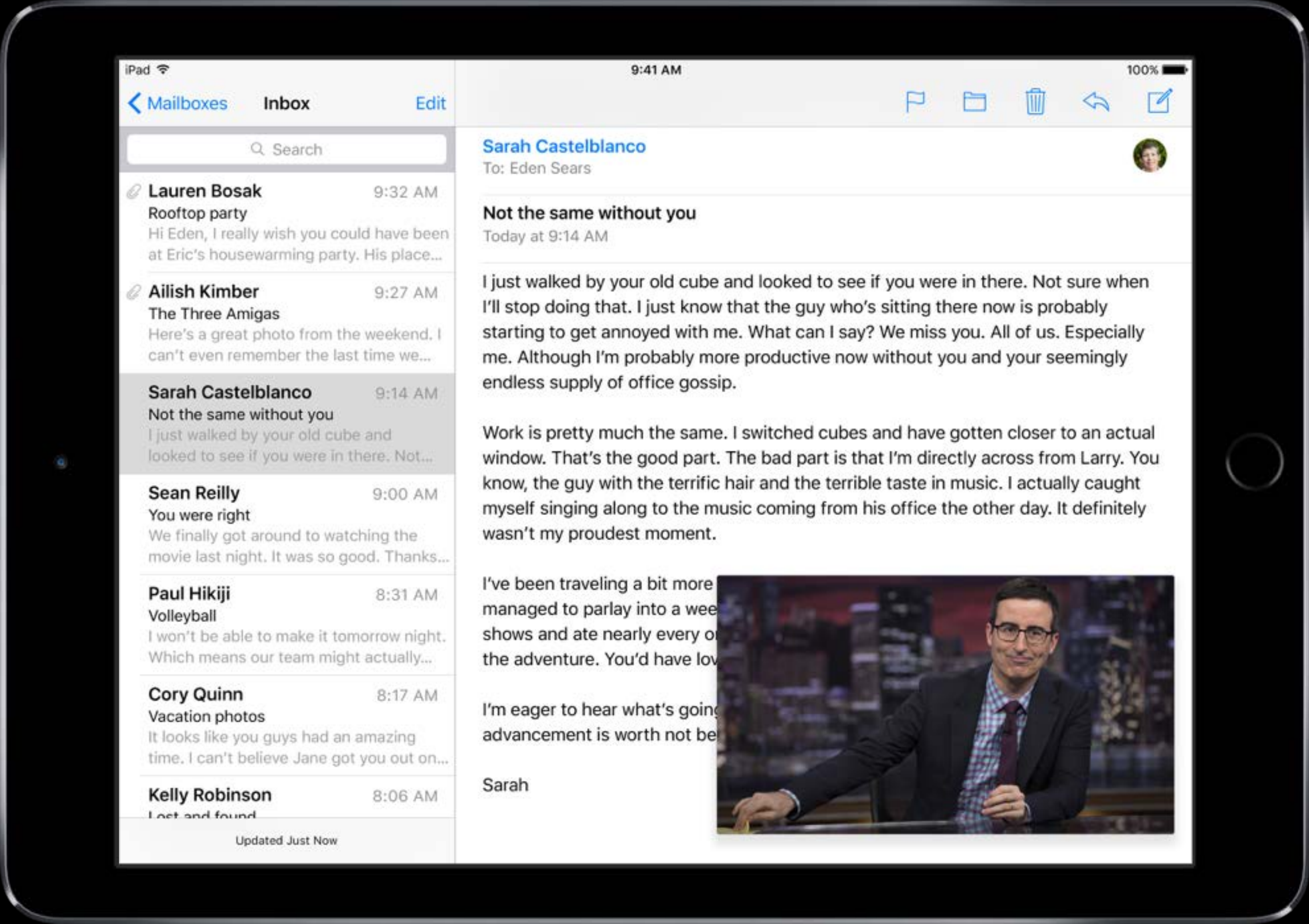


# Multitasking in iOS





# Picture-in-Picture



# Multitasking in iOS



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Getting Started with Multitasking on iPad in iOS 9

Presidio

Tuesday 4:30PM

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Multitasking Essentials for Media-Based Apps on iPad in iOS 9

Pacific Heights

Wednesday 2:30PM

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Optimizing Your App for Multitasking on iPad in iOS 9

Presidio

Wednesday 3:30PM

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# Auto Layout



# Layout Guides

# Layout Guides

UILayoutGuide



# Layout Guides

UILayoutGuide

UIView

# Layout Guides

UILayoutGuide

UIView

var layoutMarginsGuide

# Layout Guides

UILayoutGuide

UIView

var layoutMarginsGuide

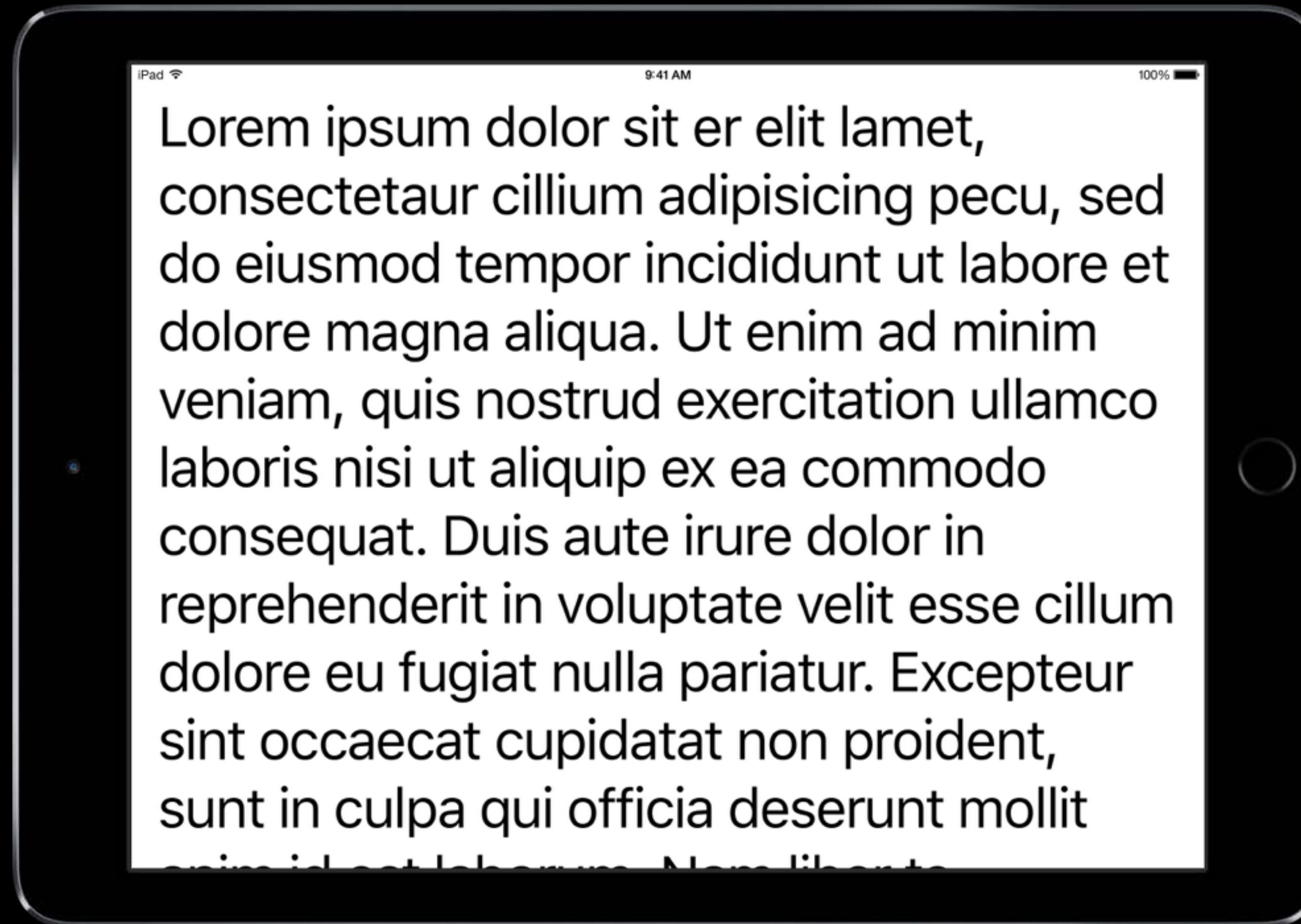
var readableContentGuide

# Layout Guides

Readable content margin

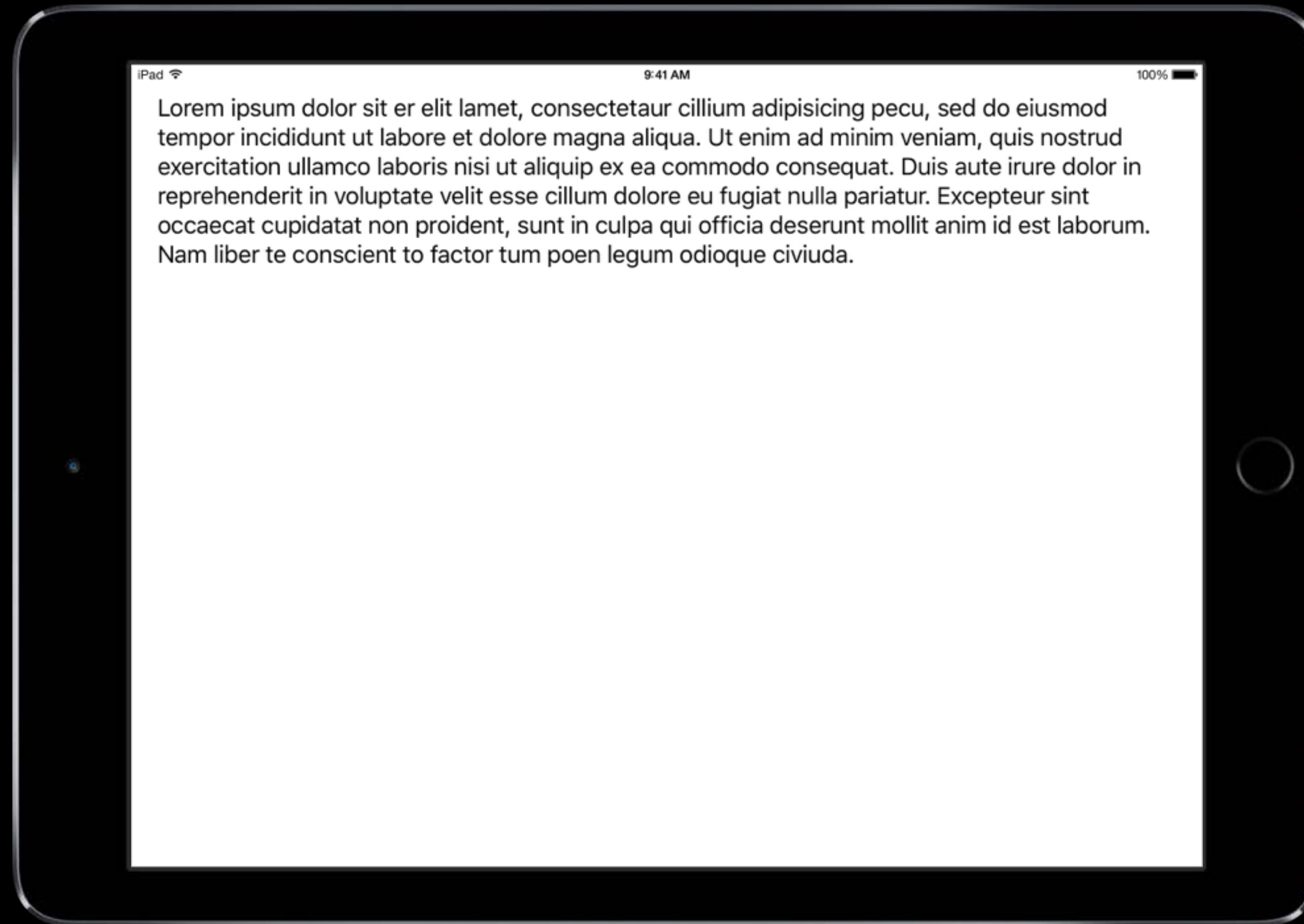
# Layout Guides

## Readable content margin



# Layout Guides

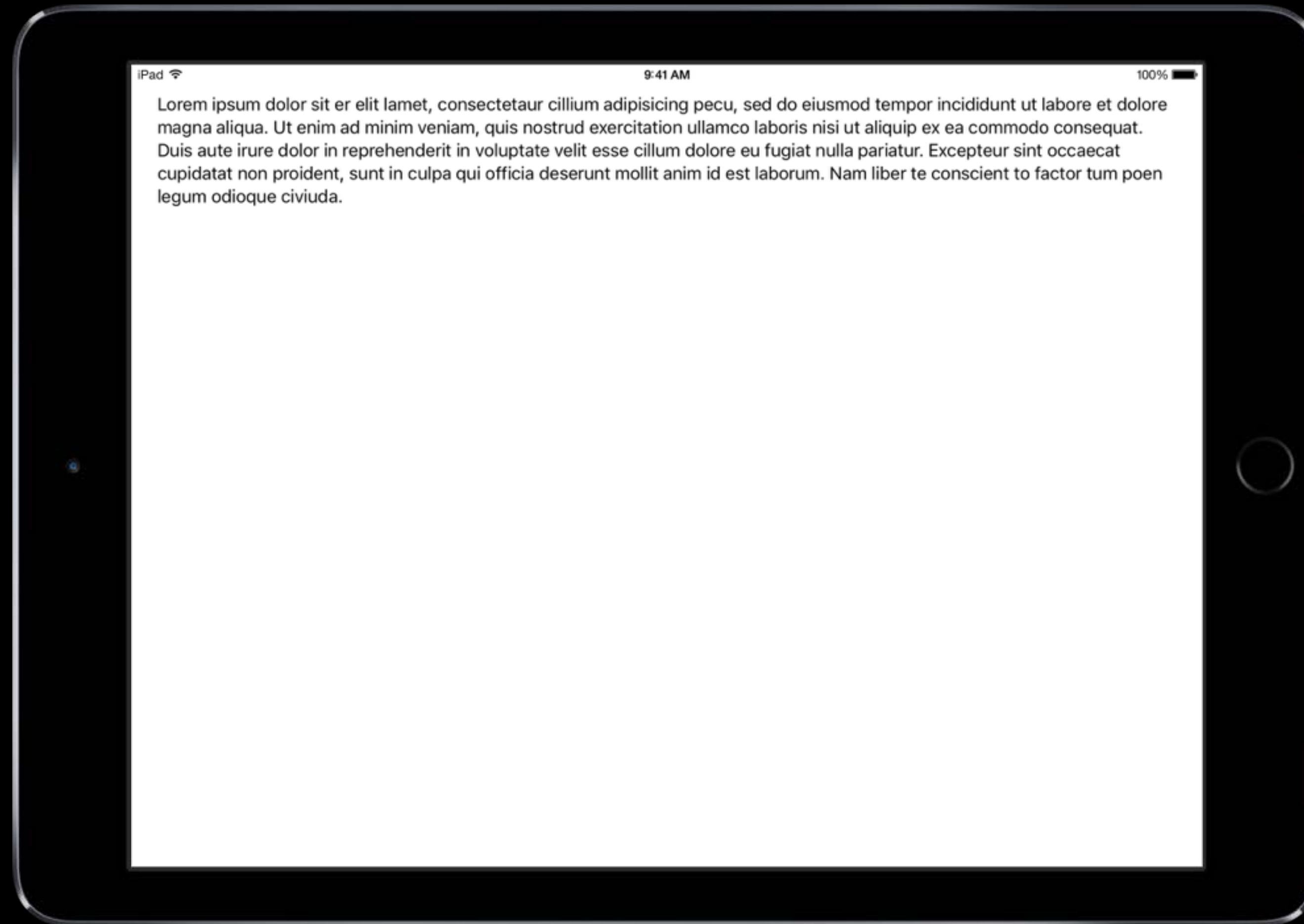
## Readable content margin





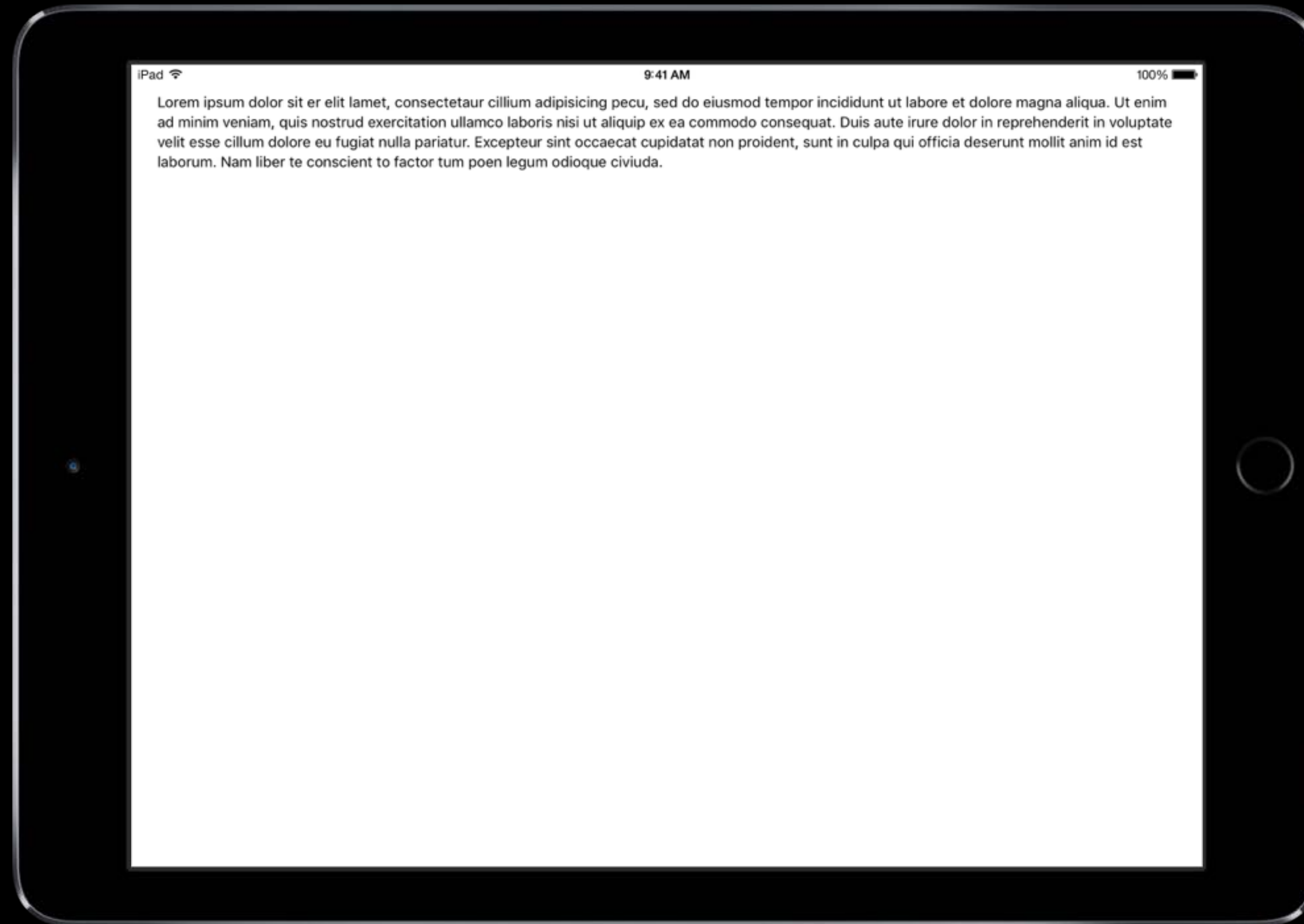
# Layout Guides

## Readable content margin



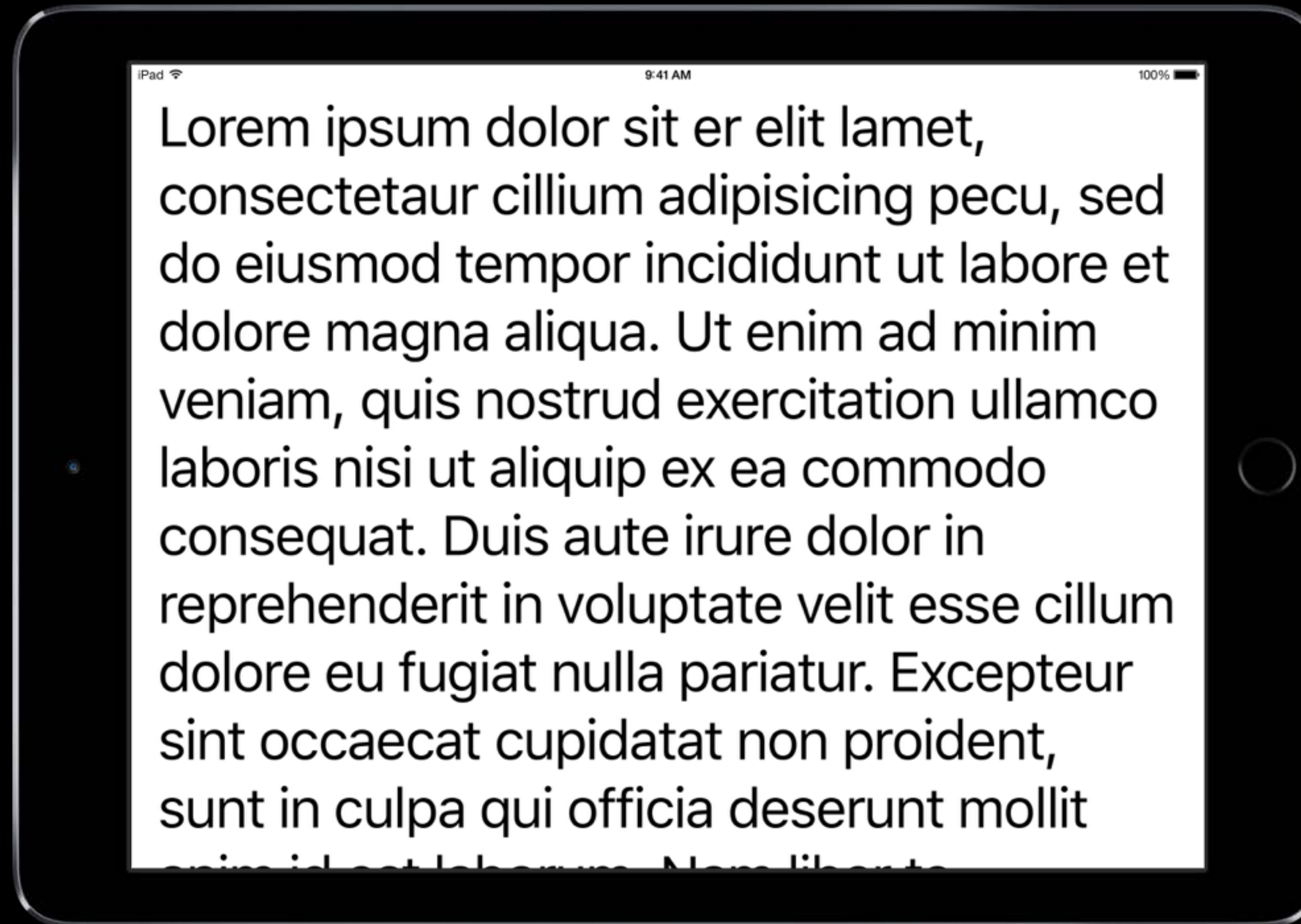
# Layout Guides

Readable content margin



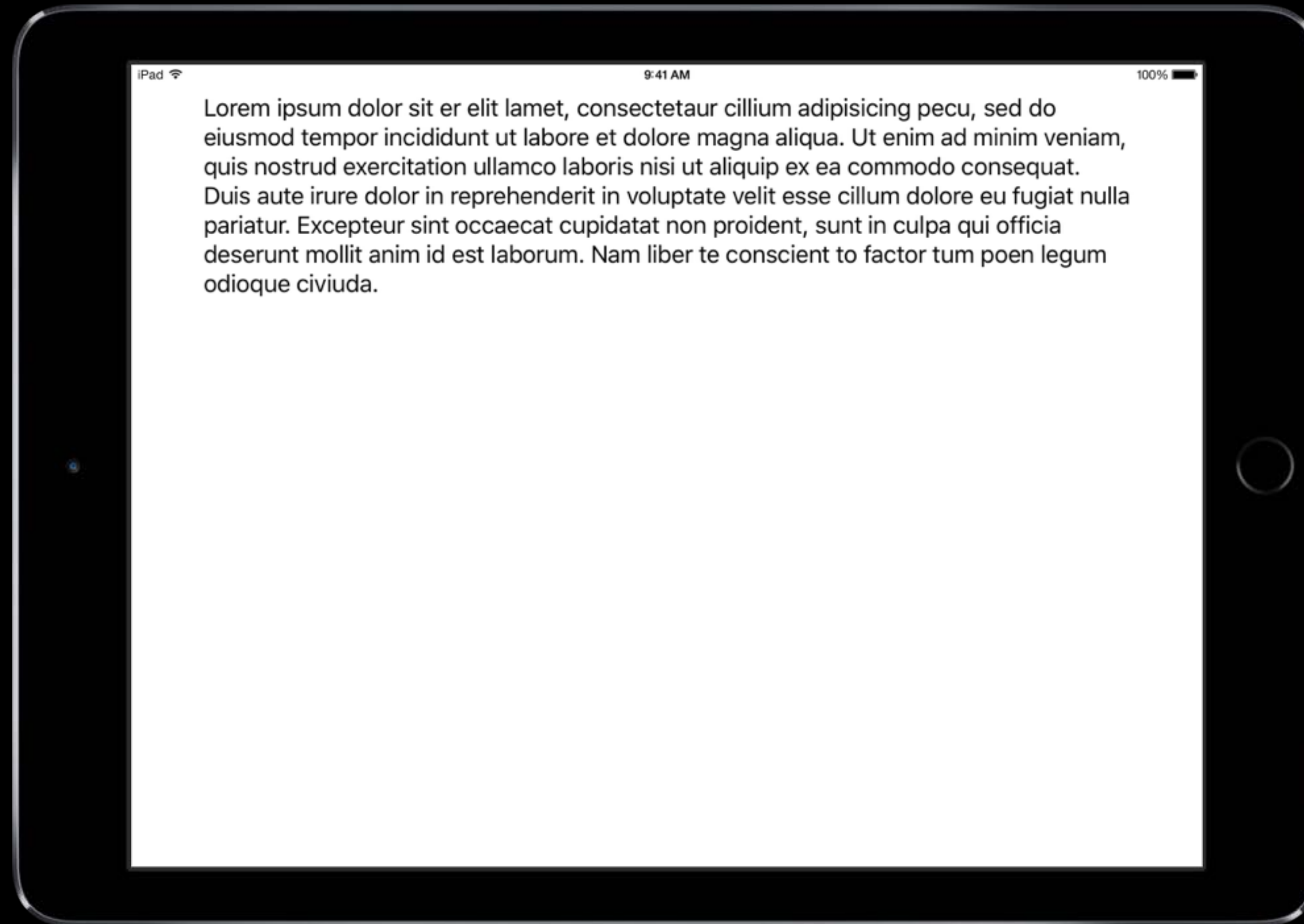
# Layout Guides

## Readable content margin



# Layout Guides

## Readable content margin



# Layout Guides

## Readable content margin



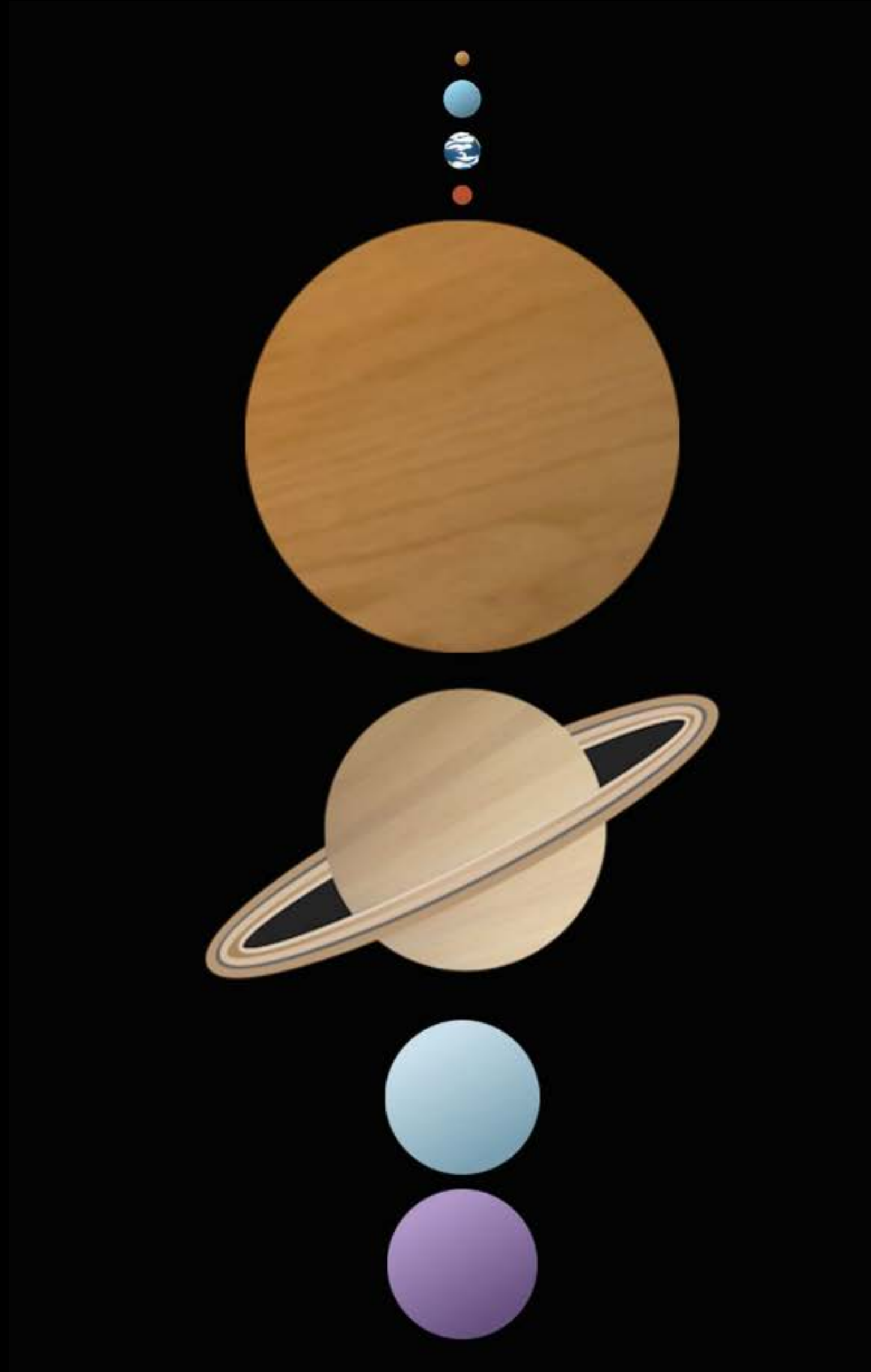
# Layout Guides

## Readable content margin

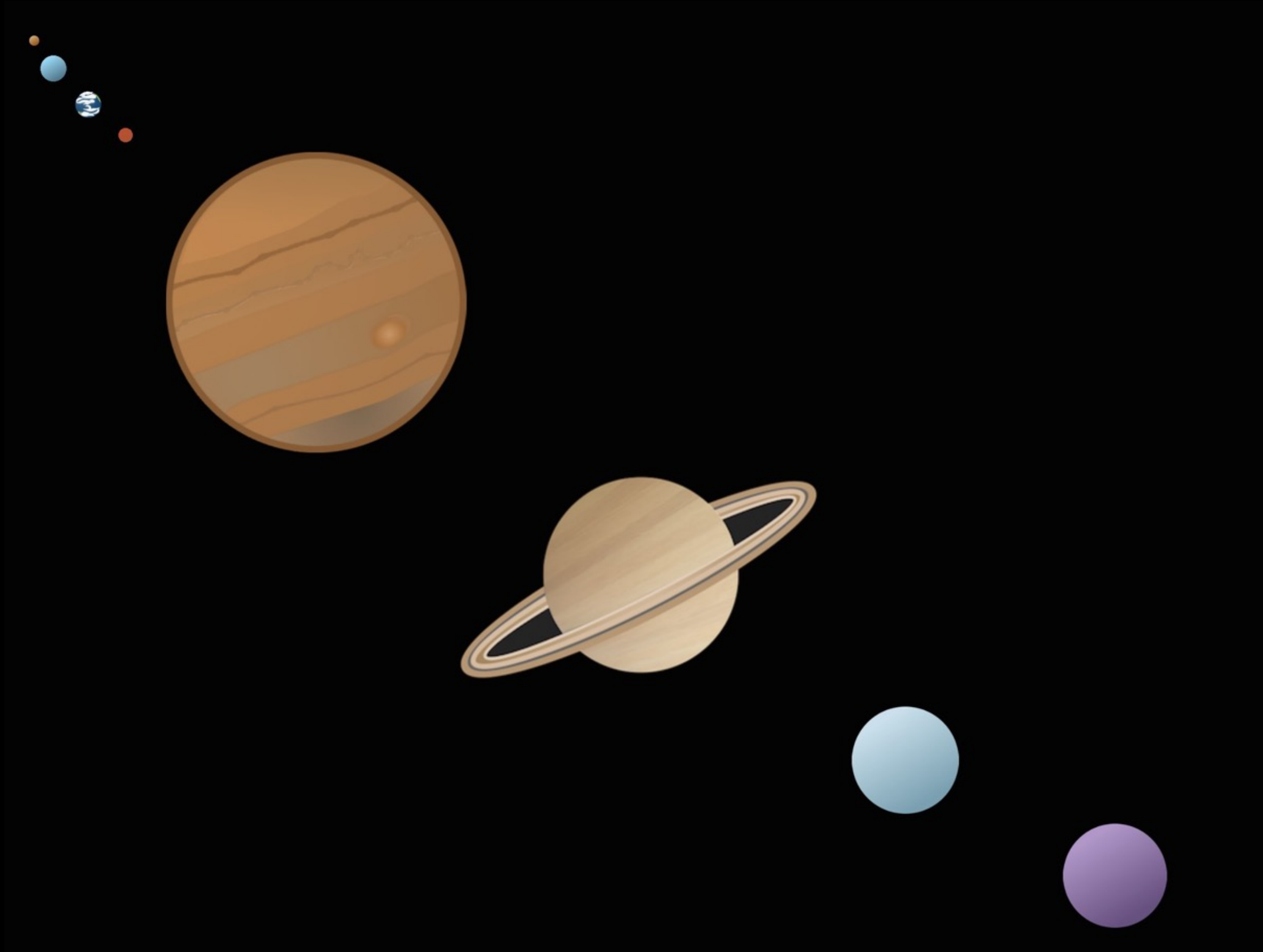




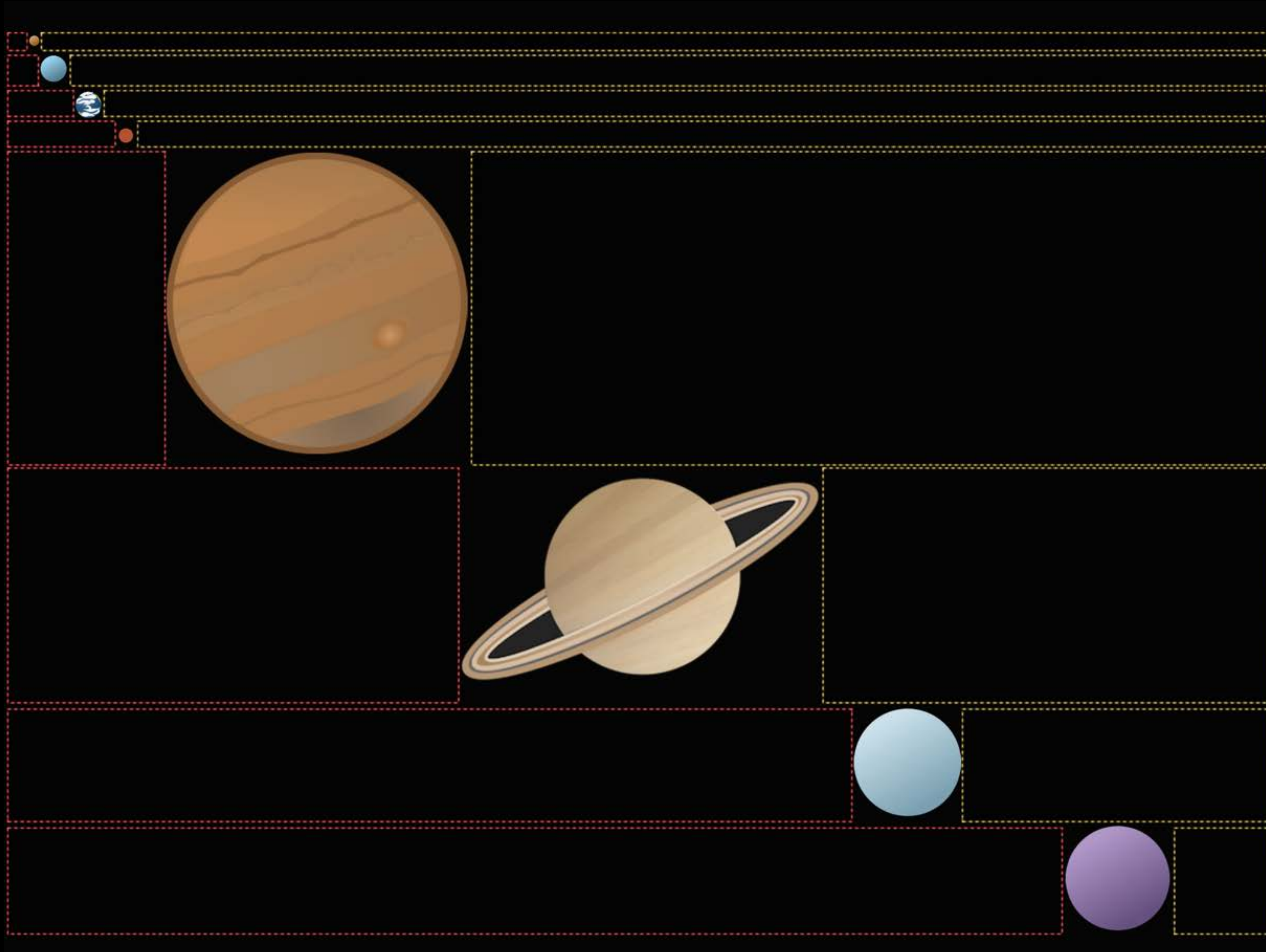
# Layout Guides



# Layout Guides

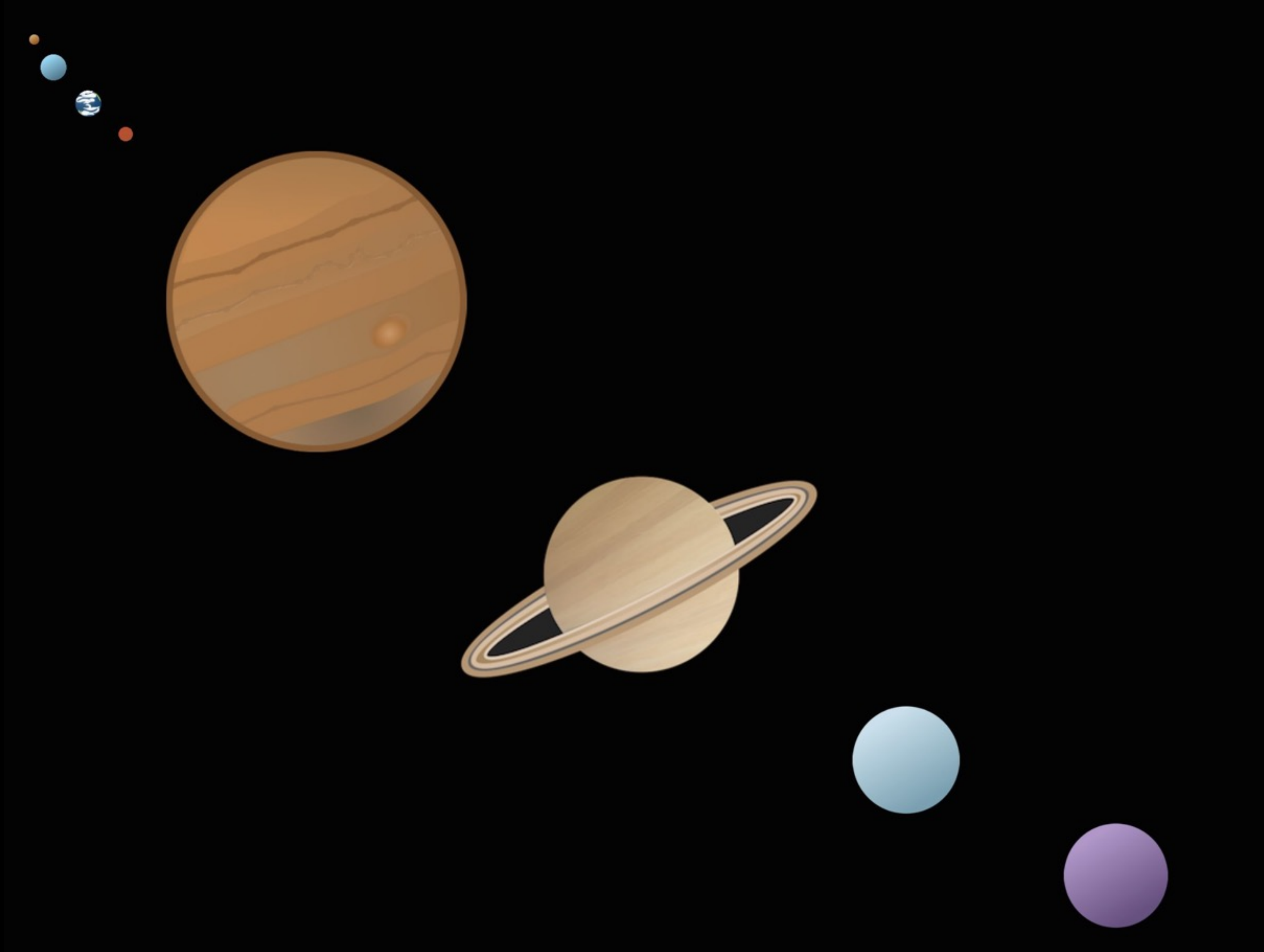


# Layout Guides

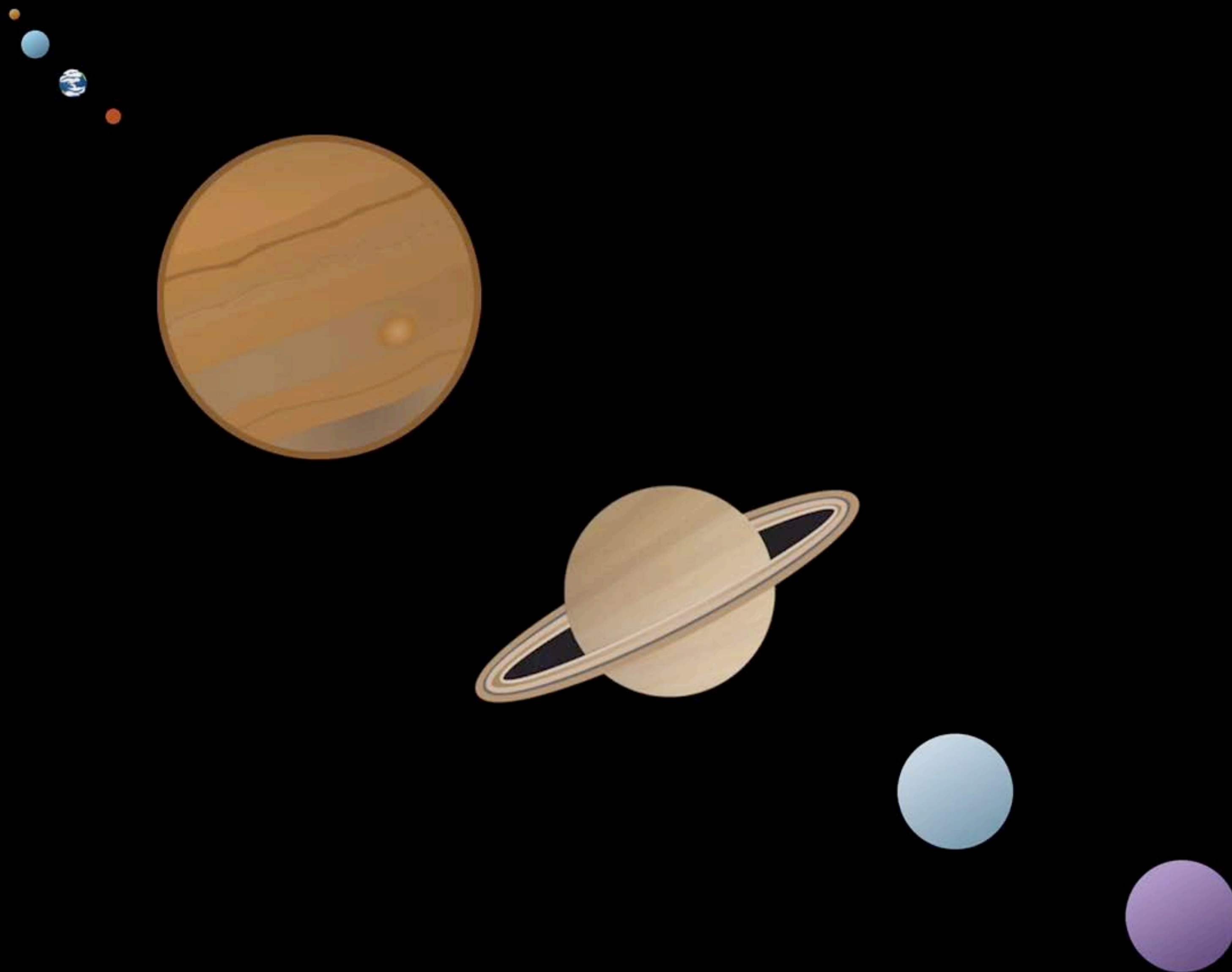




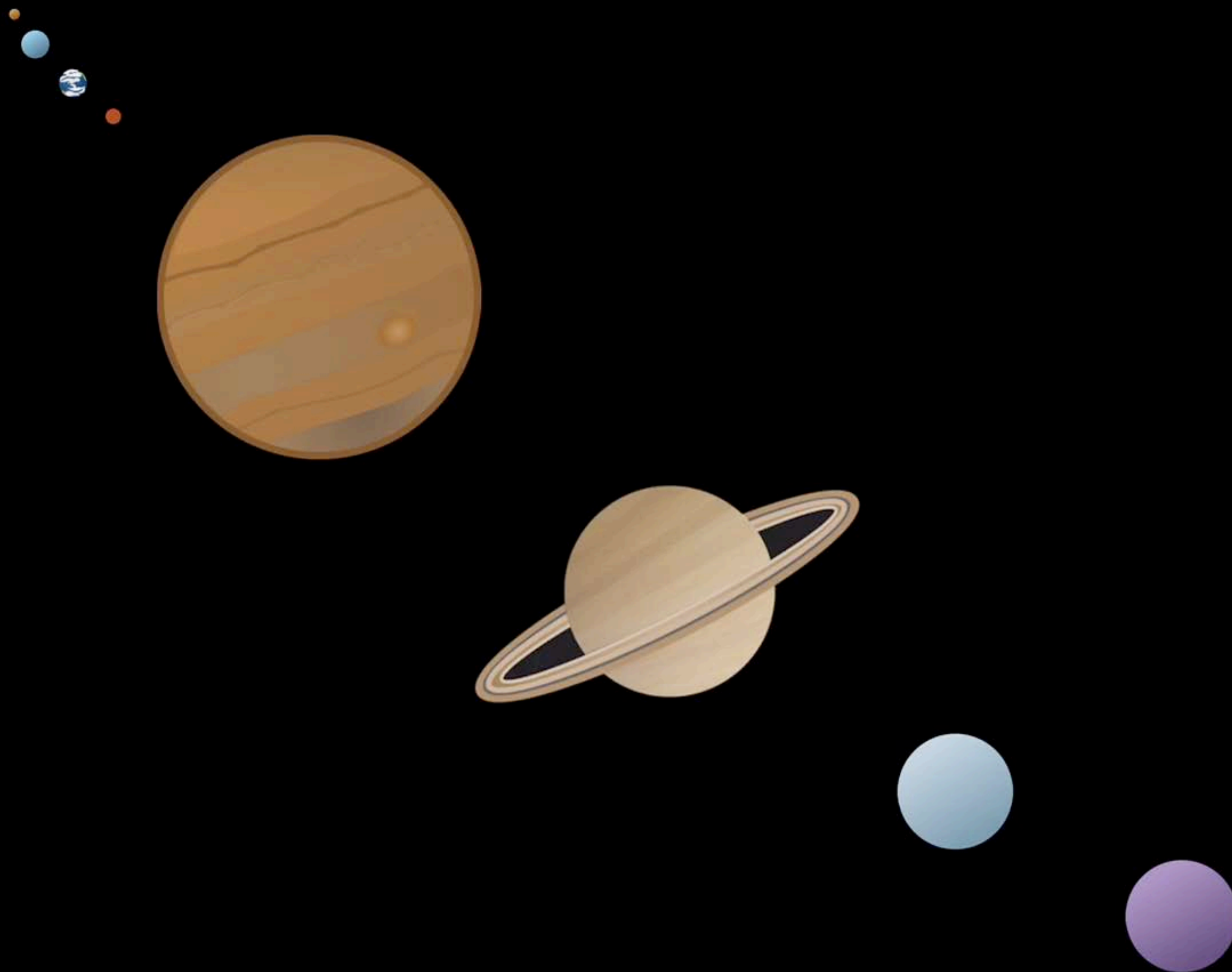
# Layout Guides



# Layout Guides



# Layout Guides





# Layout Guides

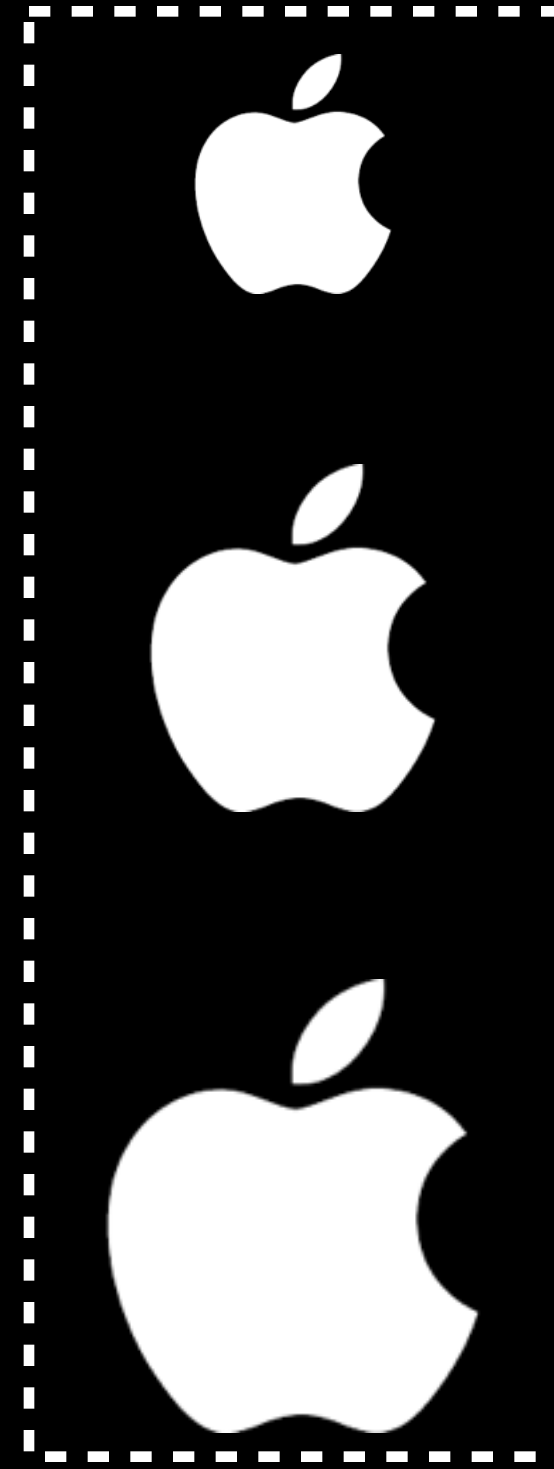


# Layout Guides

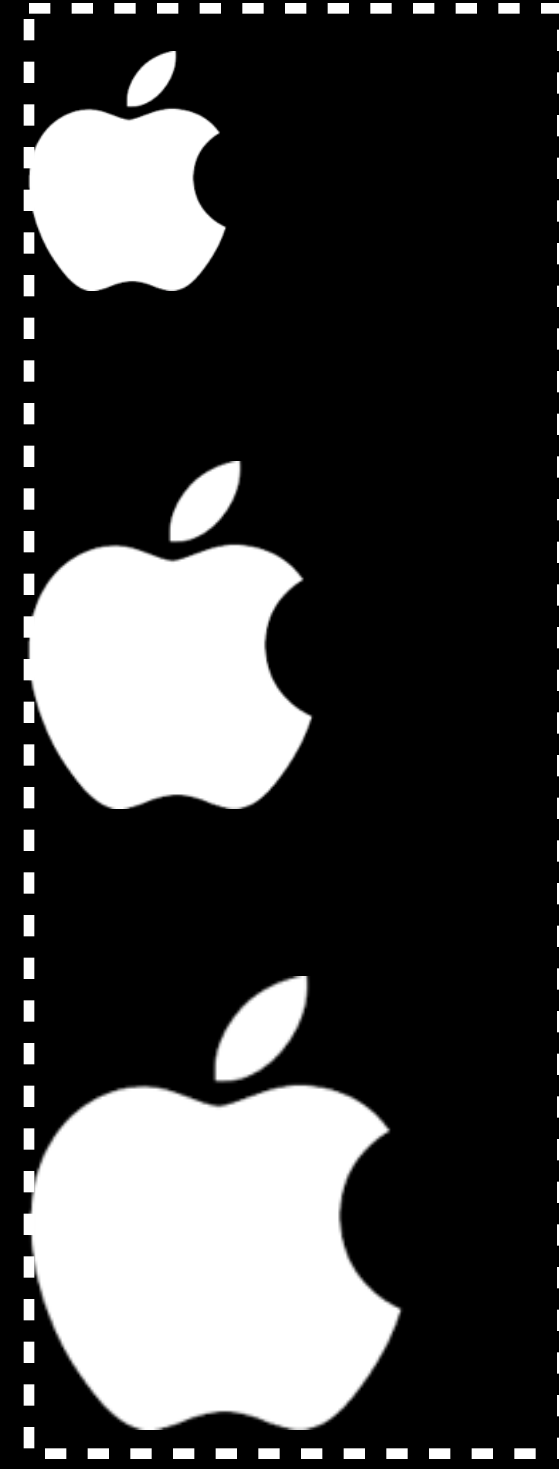


# UIStackView

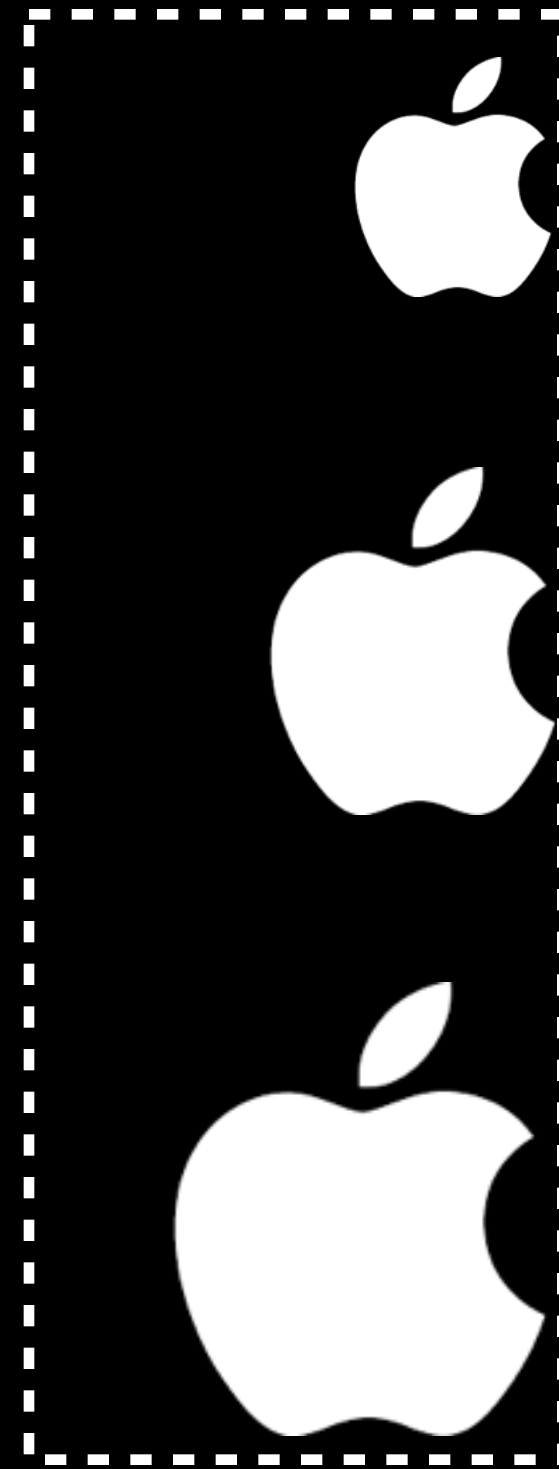
# UIStackView



# UIStackView

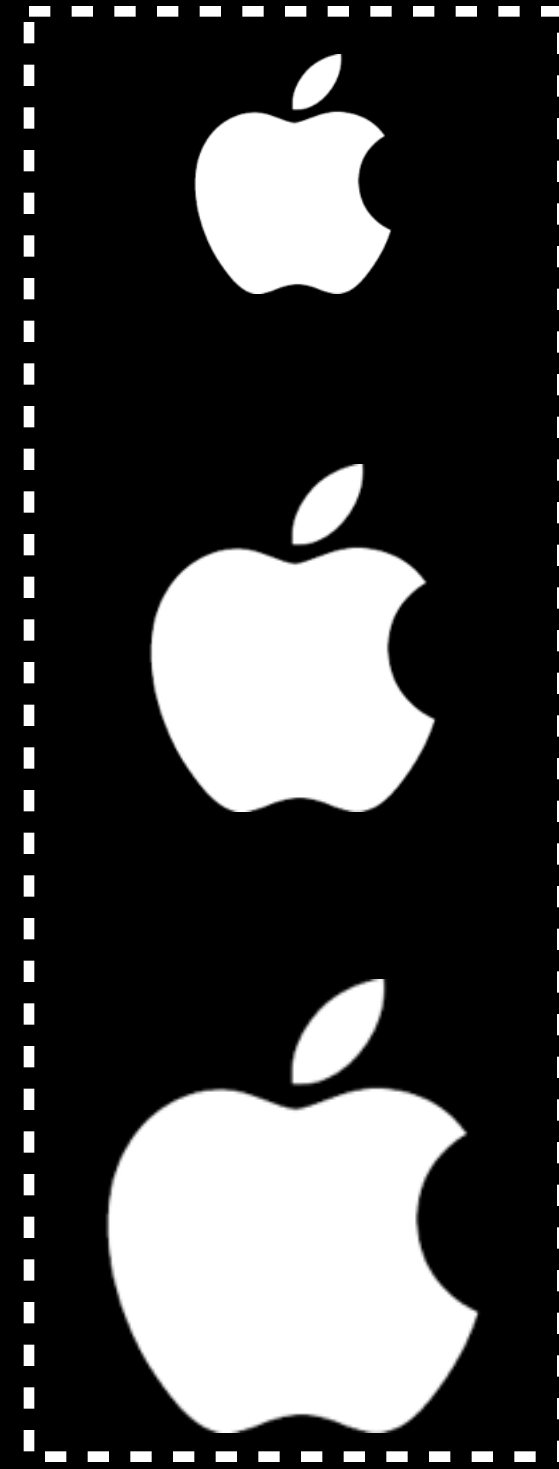


# UIStackView

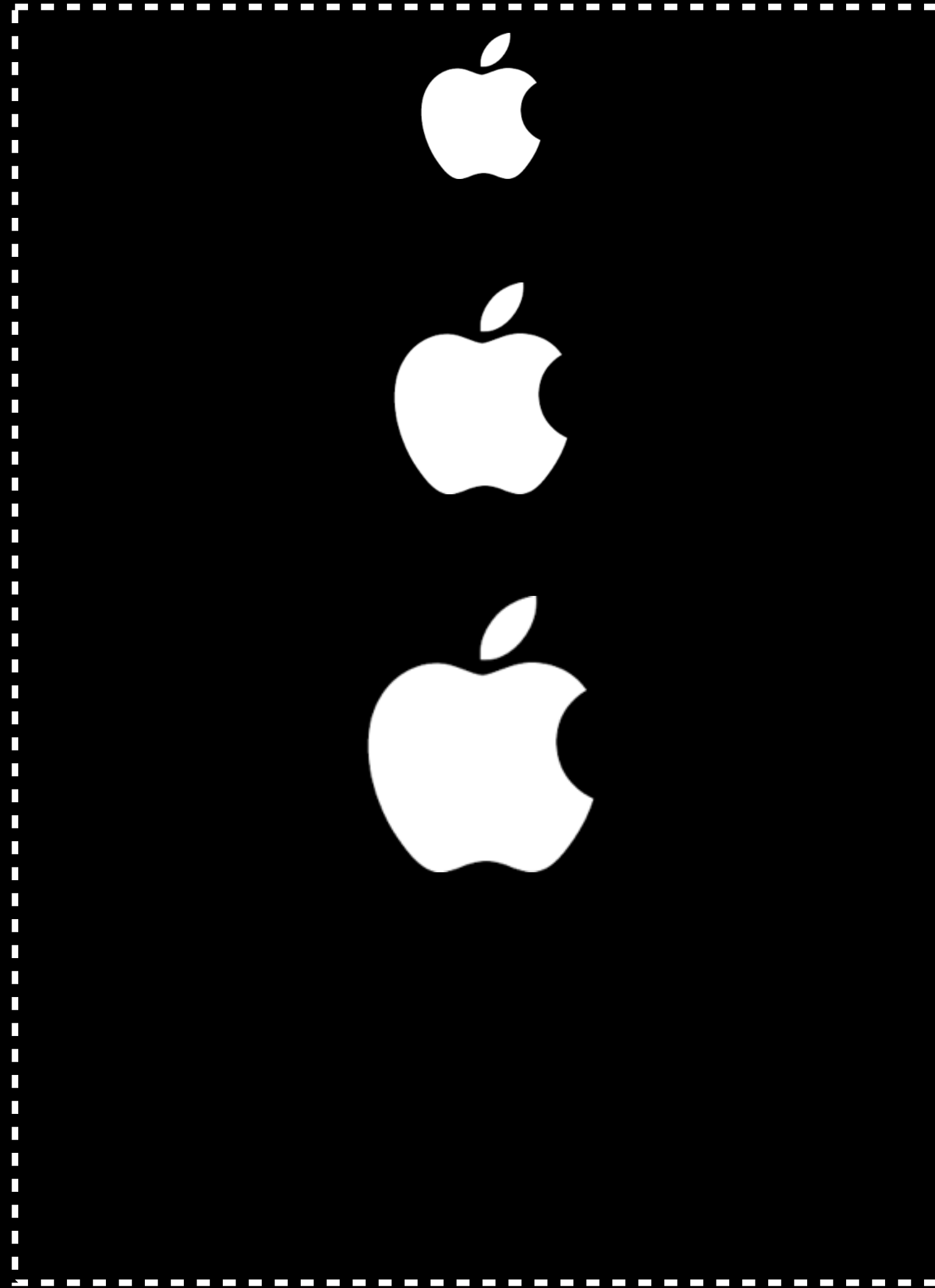




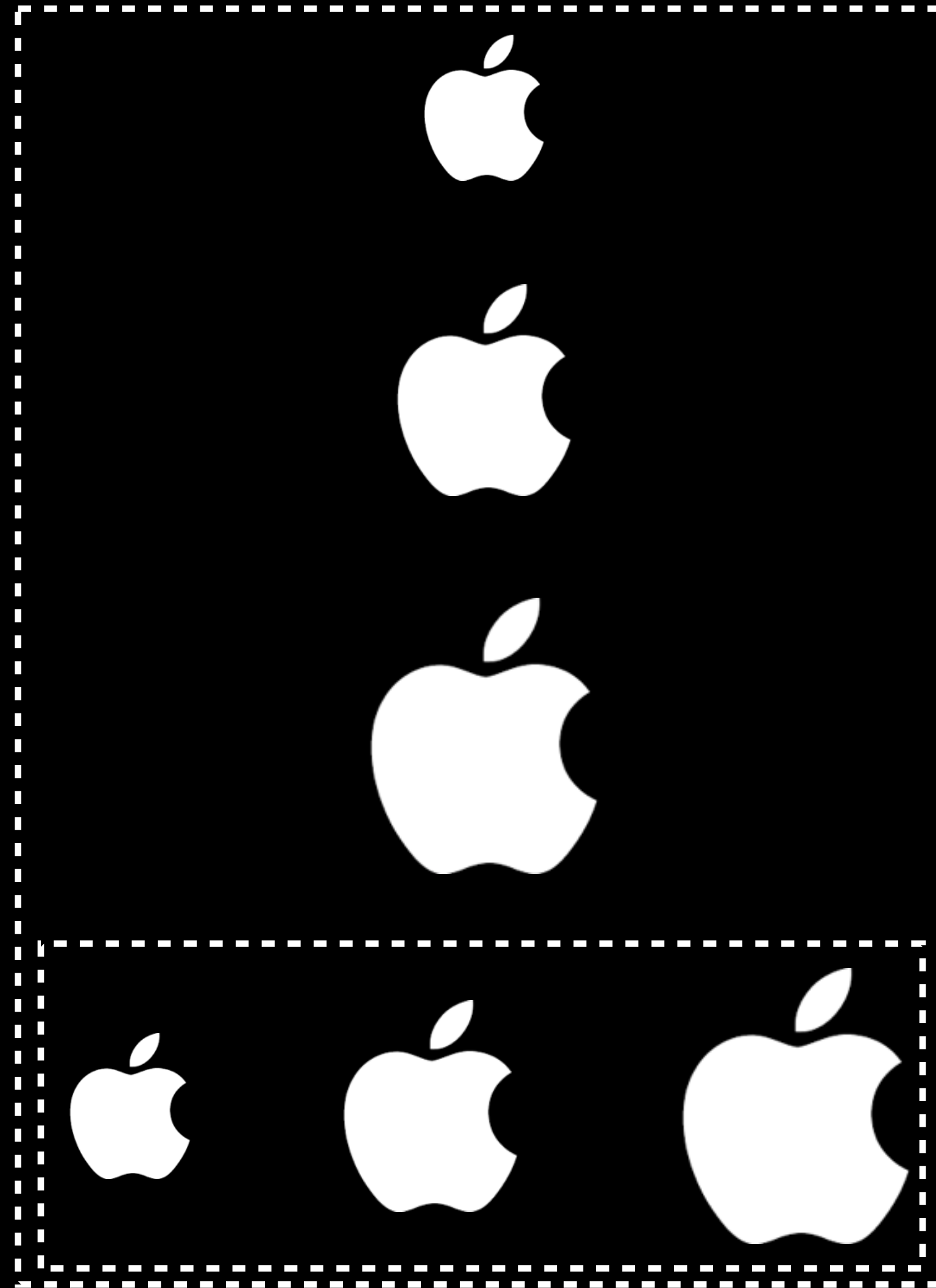
# UIStackView



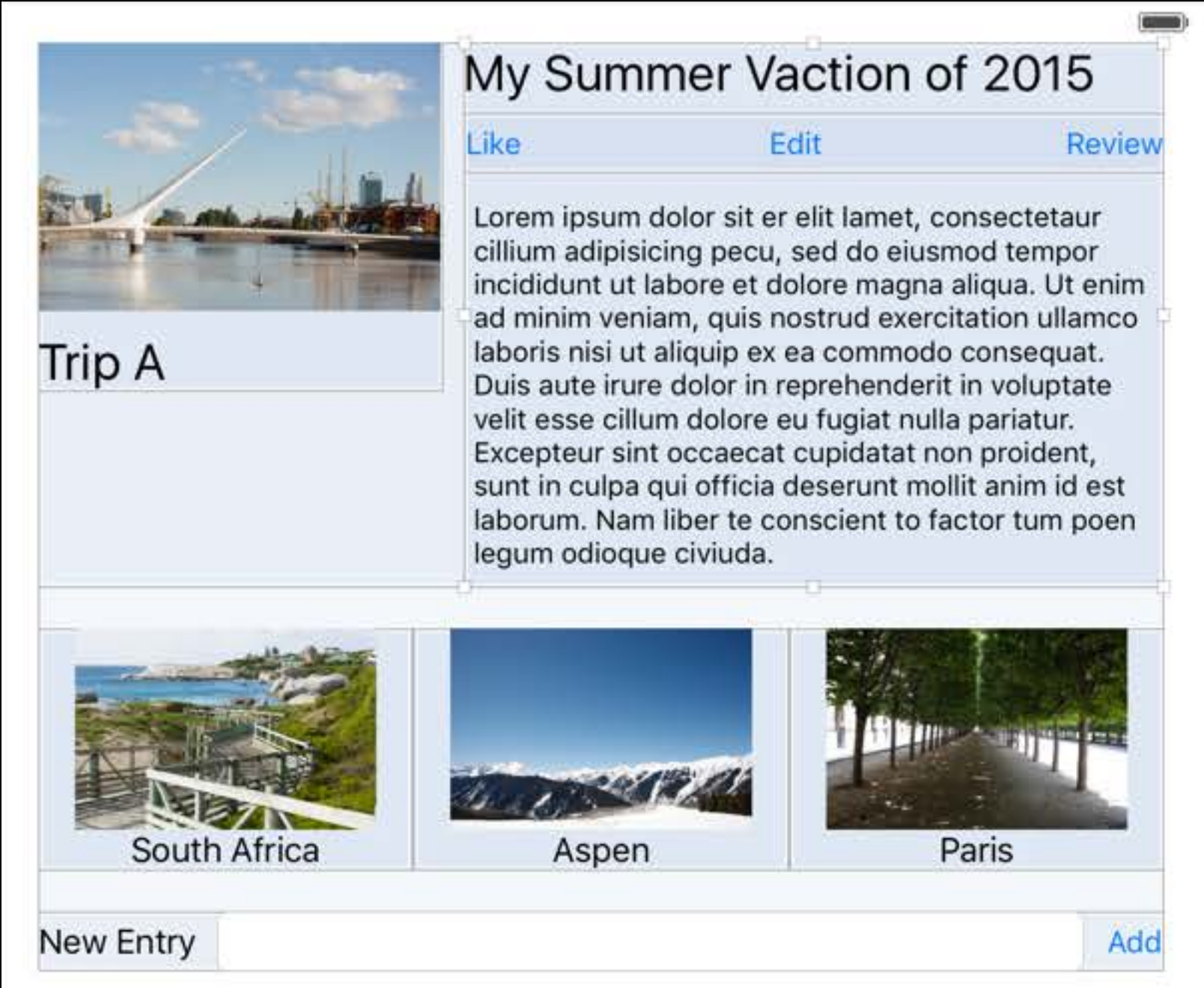
# UIStackView



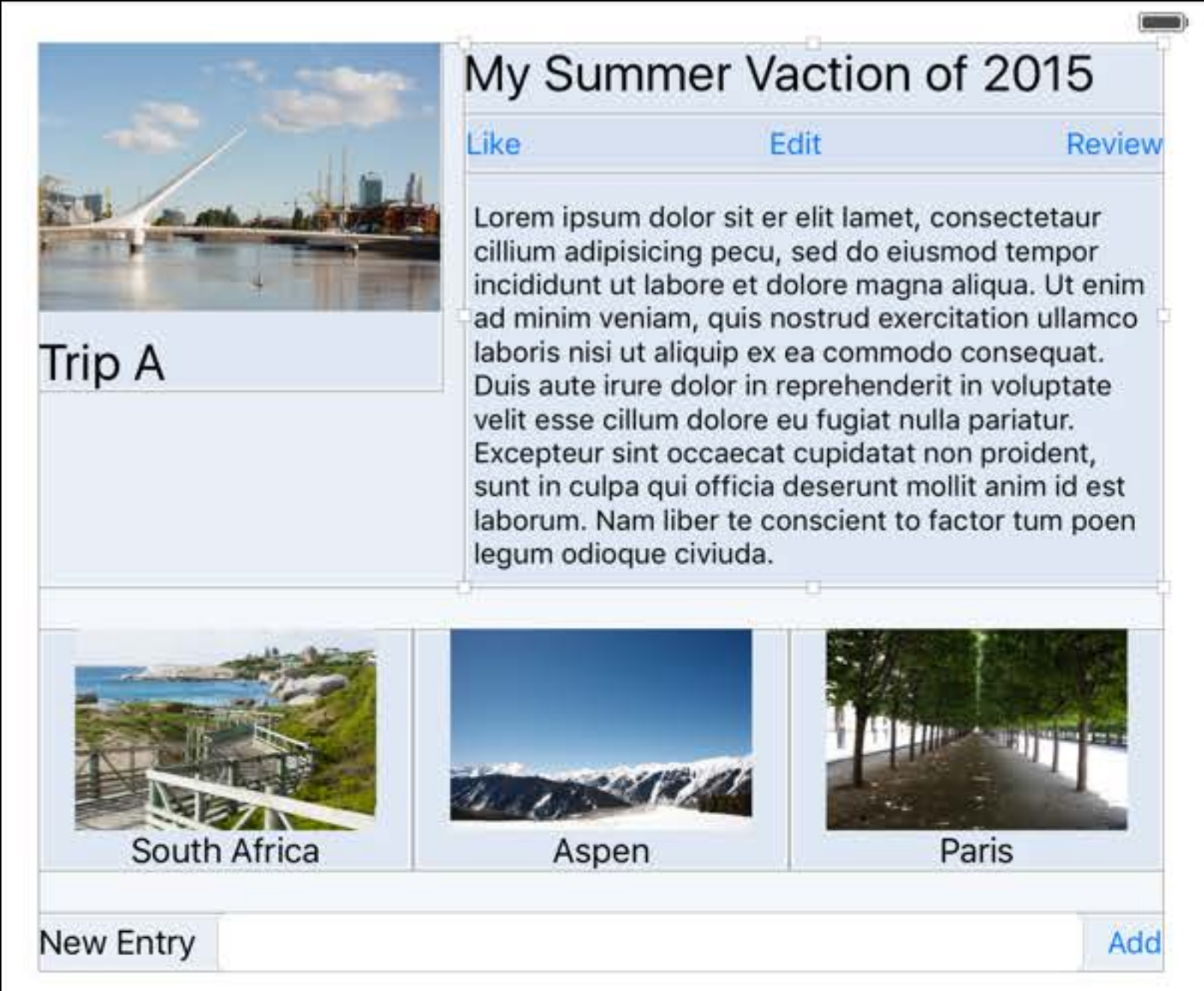
# UIStackView



# UIStackView



# UIStackView



Mysteries of Auto Layout, Part 1

Presidio

Thursday 11:00AM

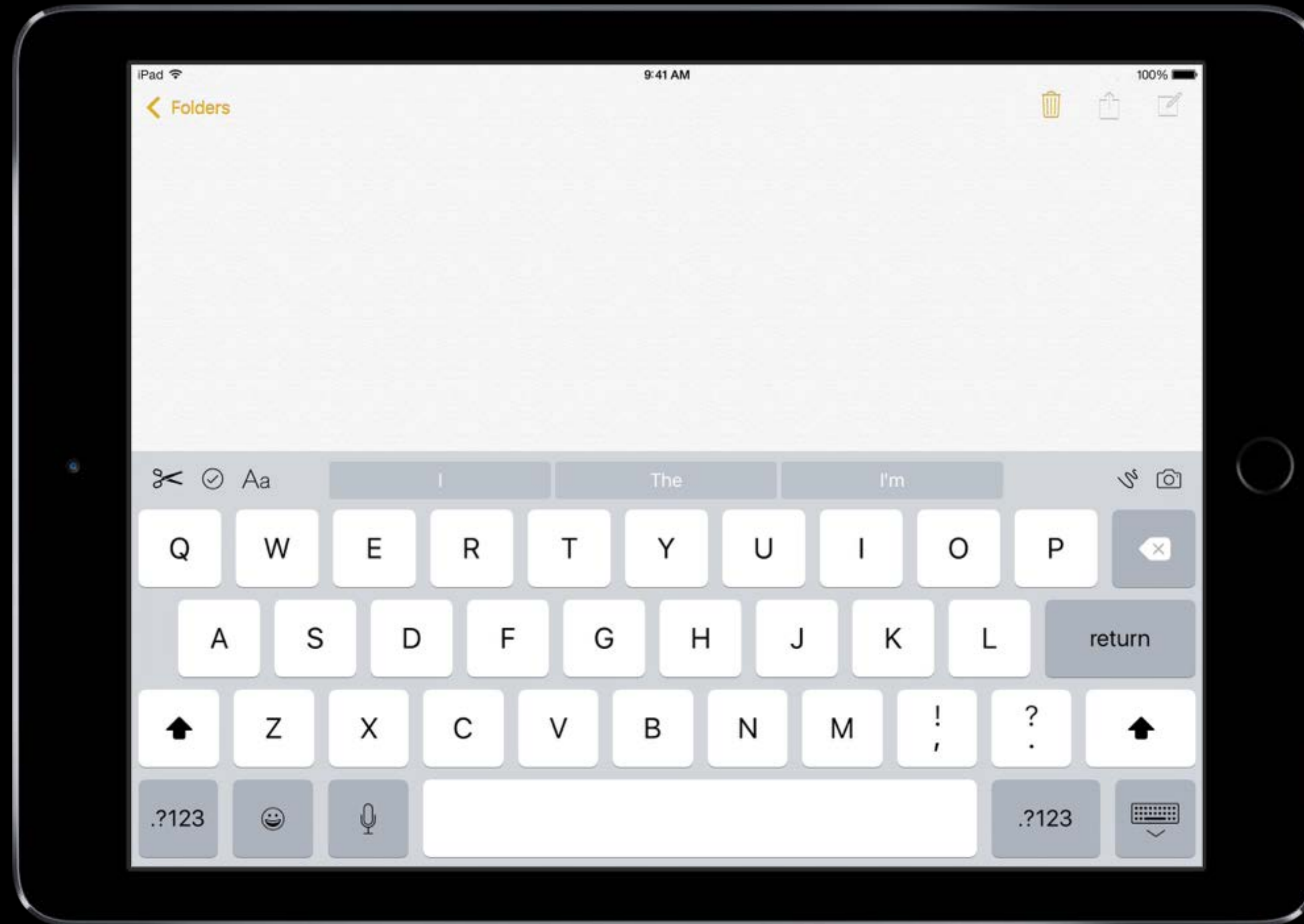
Mysteries of Auto Layout, Part 2

Presidio

Thursday 1:30PM

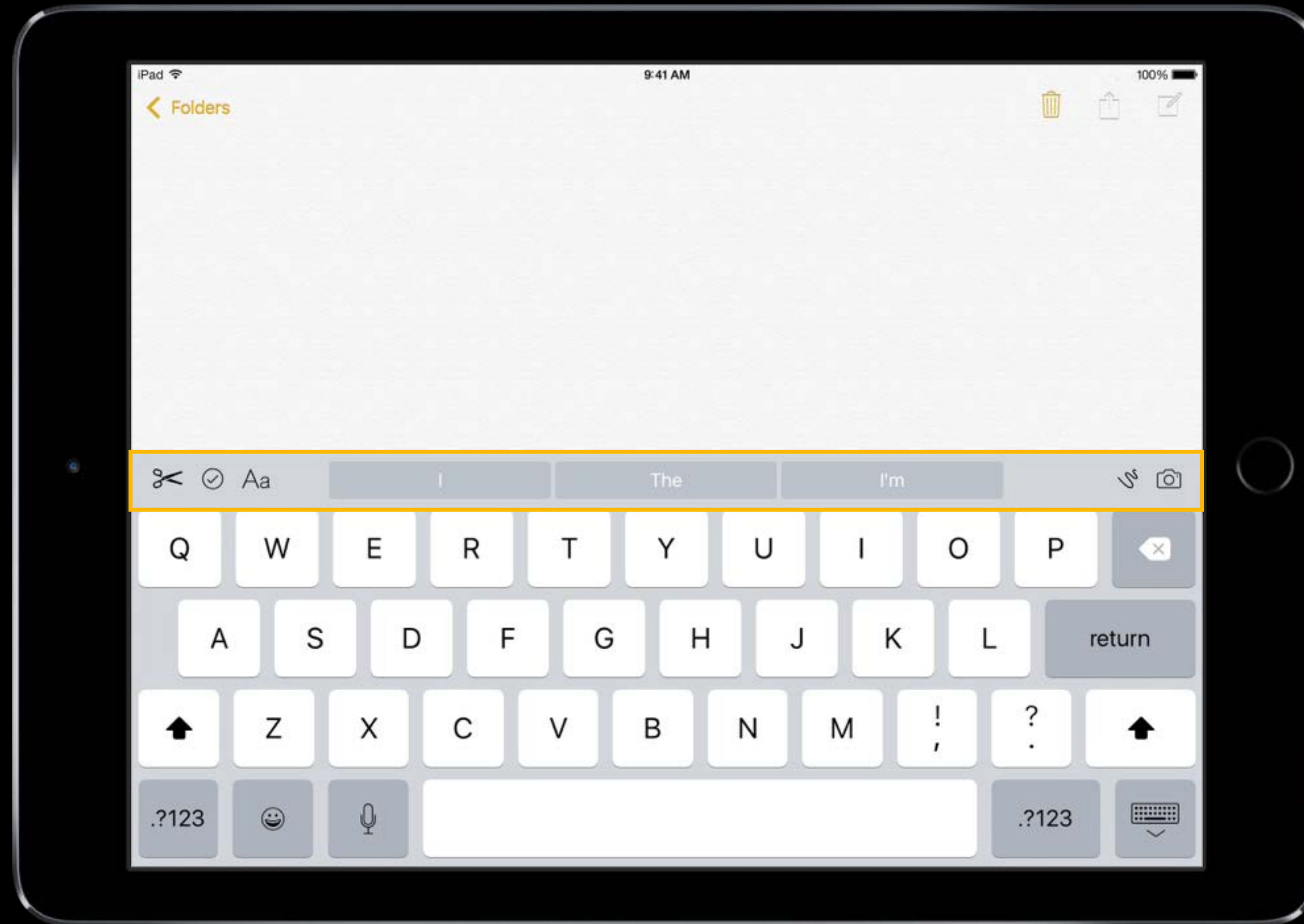


# Shortcuts Bar





# Shortcuts Bar



# Shortcuts Bar

# Shortcuts Bar

UITextInput

# Shortcuts Bar

UITextInput

func **inputAssistantItem**

# Shortcuts Bar

UITextField

func **inputAssistantItem**

UITextFieldAssistantItem

# Shortcuts Bar

UITextField

```
func inputAssistantItem
```

UITextFieldAssistantItem

```
var leadingBarButtonGroups: [UIBarButtonItemGroup]
```



# Shortcuts Bar

UITextField

```
func inputAssistantItem
```

UITextFieldAssistantItem

```
var leadingBarButtonGroups: [UIBarButtonItemGroup]
```

```
var trailingBarButtonGroups: [UIBarButtonItemGroup]
```

# Storyboards

# Storyboards

Organizing your storyboards

# Storyboards

Organizing your storyboards

Unwinding segues

# Storyboards

Organizing your storyboards

Unwinding segues

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What's New in Storyboards

Nob Hill

Thursday 9:00AM

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# Right-to-Left

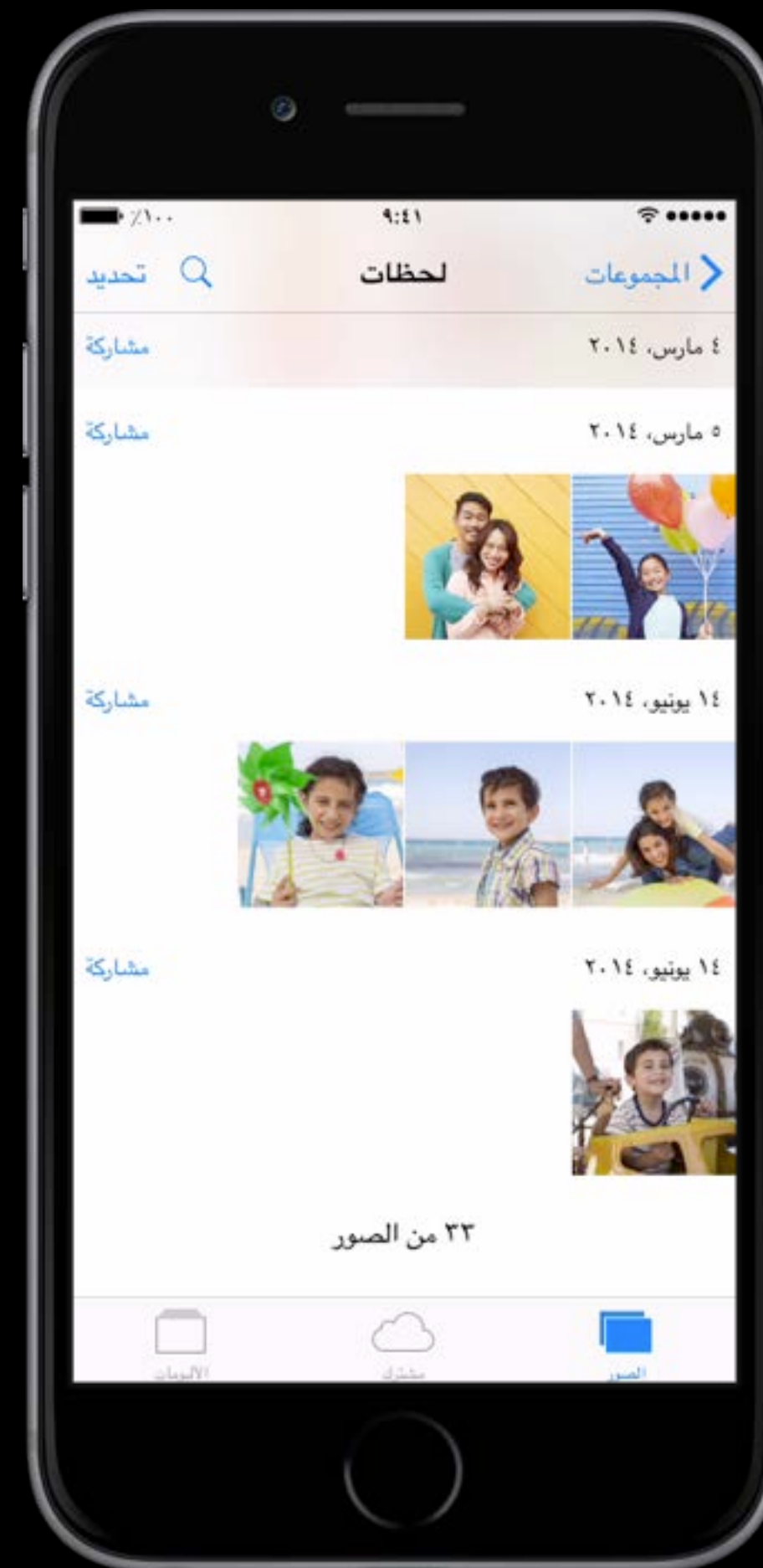


# Right-to-Left

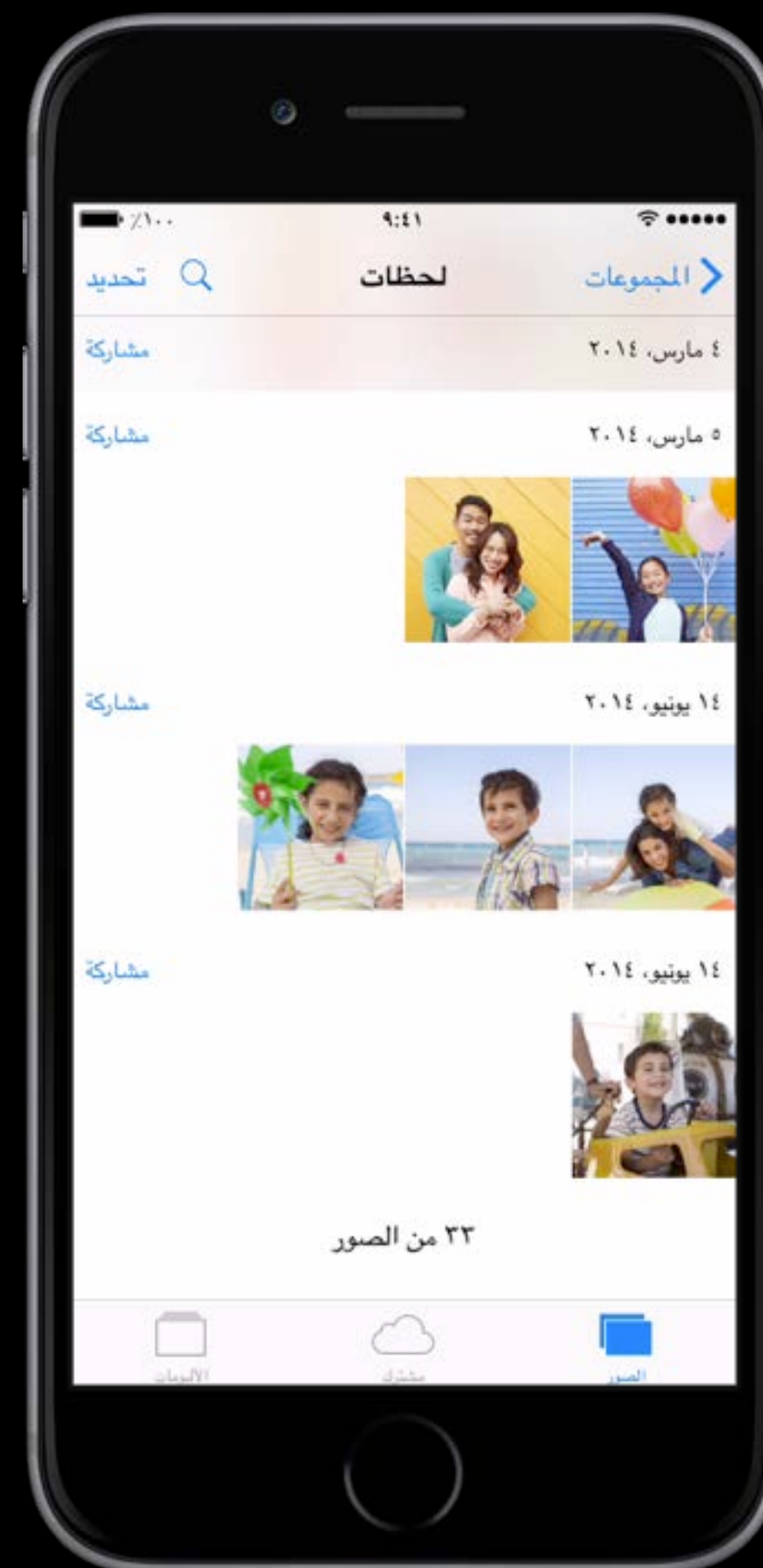




# Right-to-Left



# Right-to-Left



# Right-to-Left



# Right-to-Left



Right-to-Left

# Right-to-Left

UIViewController

var semanticContentAttribute

UIView

var semanticContentAttribute

# Right-to-Left

UIViewController

```
var semanticContentAttribute
```

UIView

```
var semanticContentAttribute
```

```
static func userInterfaceLayoutDirectionForSemanticContentAttribute
```



Right-to-Left

# Right-to-Left

UISemanticContentAttribute

UISemanticContentAttribute**Unspecified**

# Right-to-Left

UISemanticContentAttribute

UISemanticContentAttributeUnspecified

UISemanticContentAttributePlayback

# Right-to-Left

UISemanticContentAttribute

UISemanticContentAttributeUnspecified

UISemanticContentAttributePlayback

UISemanticContentAttributeSpatial

# Right-to-Left

UISemanticContentAttribute

UISemanticContentAttributeUnspecified

UISemanticContentAttributePlayback

UISemanticContentAttributeSpatial

UISemanticContentAttributeForceLeftToRight

UISemanticContentAttributeForceRightToLeft

Right-to-Left

# Right-to-Left

UIImage



# Right-to-Left

UIImage

```
func imageFlippedForRightToLeft
```

# Right-to-Left

UIImage

```
func imageFlippedForRightToLeft  
var isFlippedInRightToLeft
```

# Right-to-Left

UIImage

```
func imageFlippedForRightToLeft
```

```
var isFlippedInRightToLeft
```

# Accessibility

# Accessibility

Changes to AVSpeechSynthesis

# Accessibility

Changes to AVSpeechSynthesis



# Text Editing Gestures

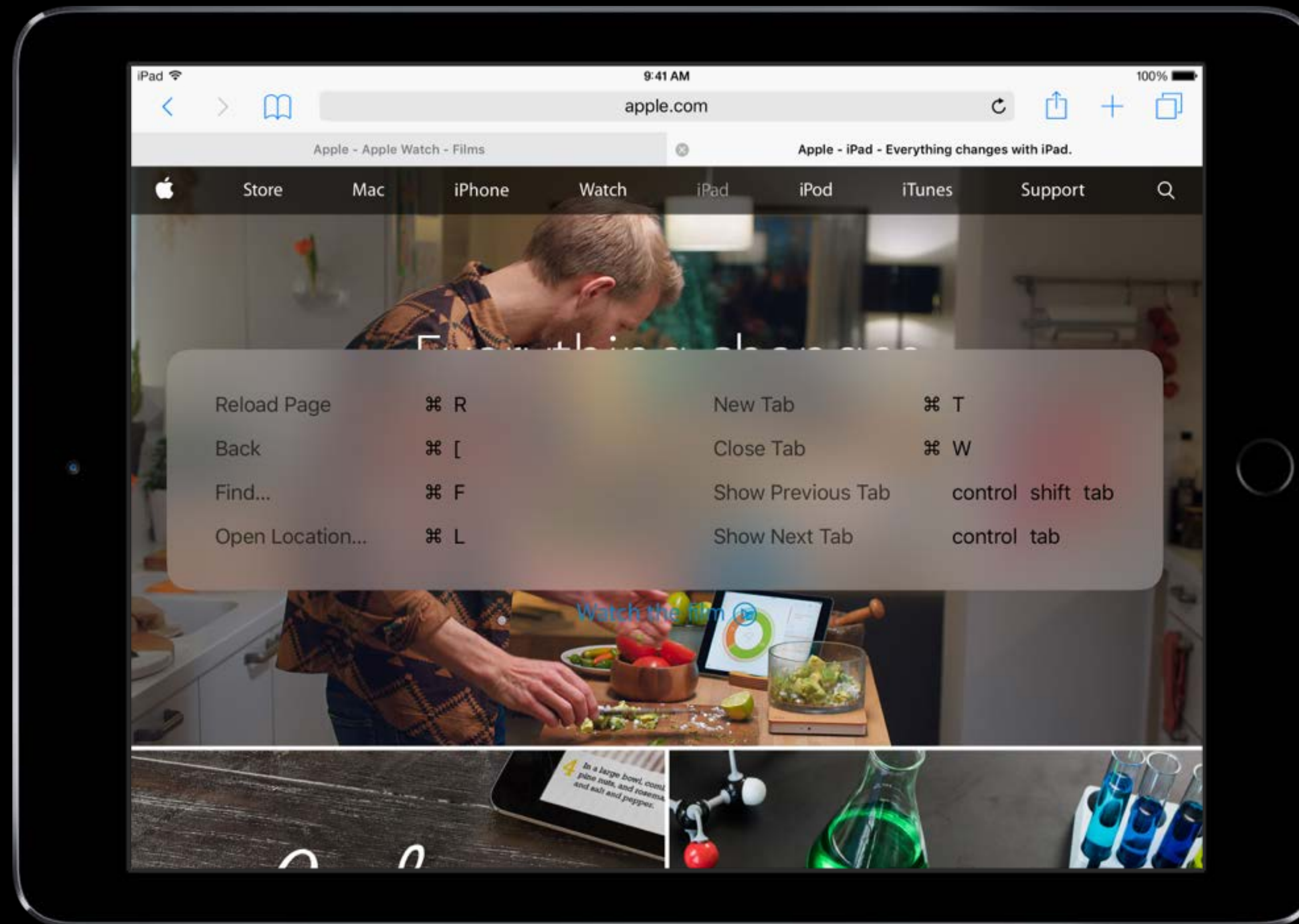


# Text Editing Gestures





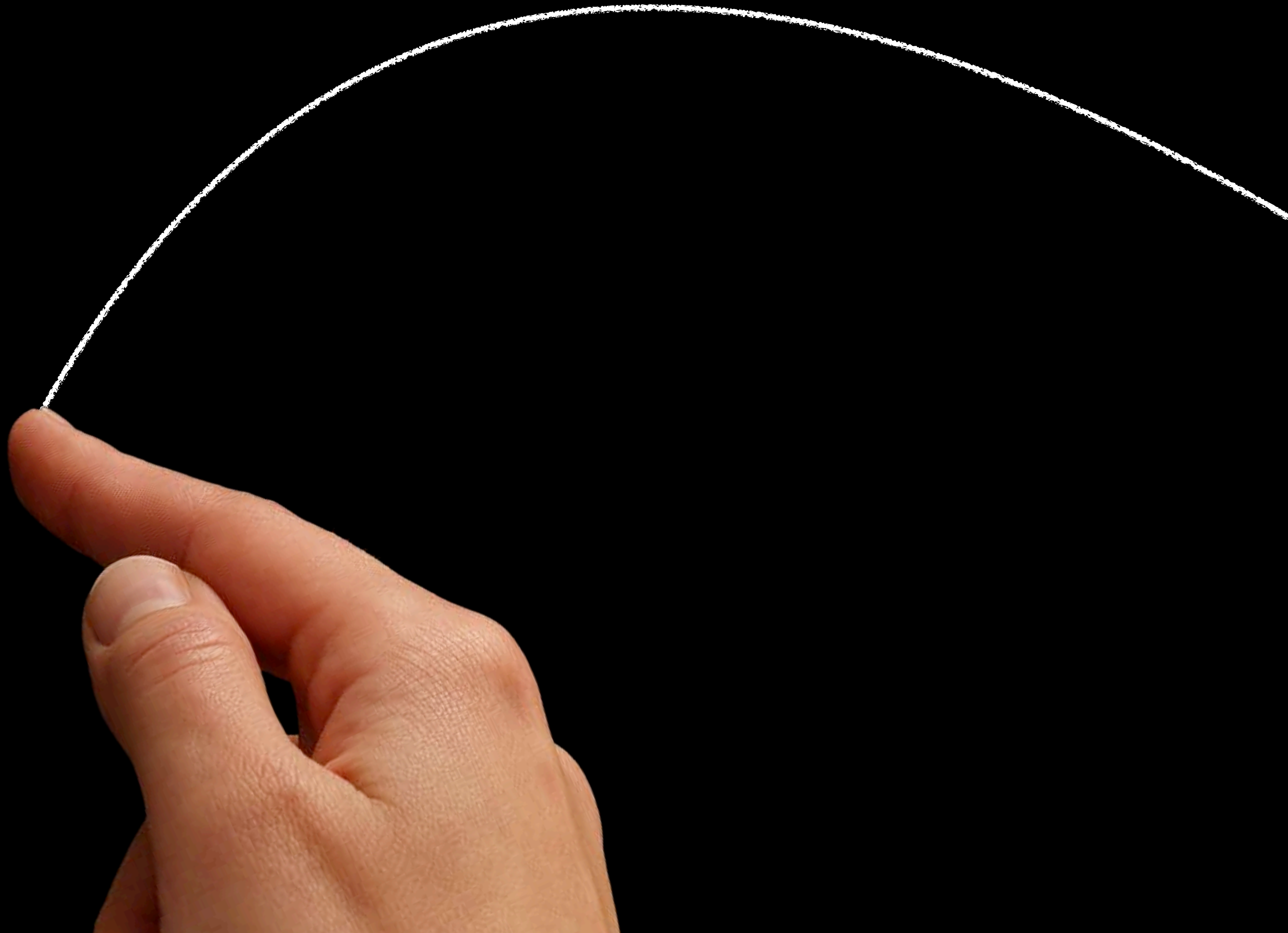
# Keyboard Commands



|                  |     |                   |                   |
|------------------|-----|-------------------|-------------------|
| Reload Page      | ⌘ R | New Tab           | ⌘ T               |
| Back             | ⌘ [ | Close Tab         | ⌘ W               |
| Find...          | ⌘ F | Show Previous Tab | control shift tab |
| Open Location... | ⌘ L | Show Next Tab     | control tab       |

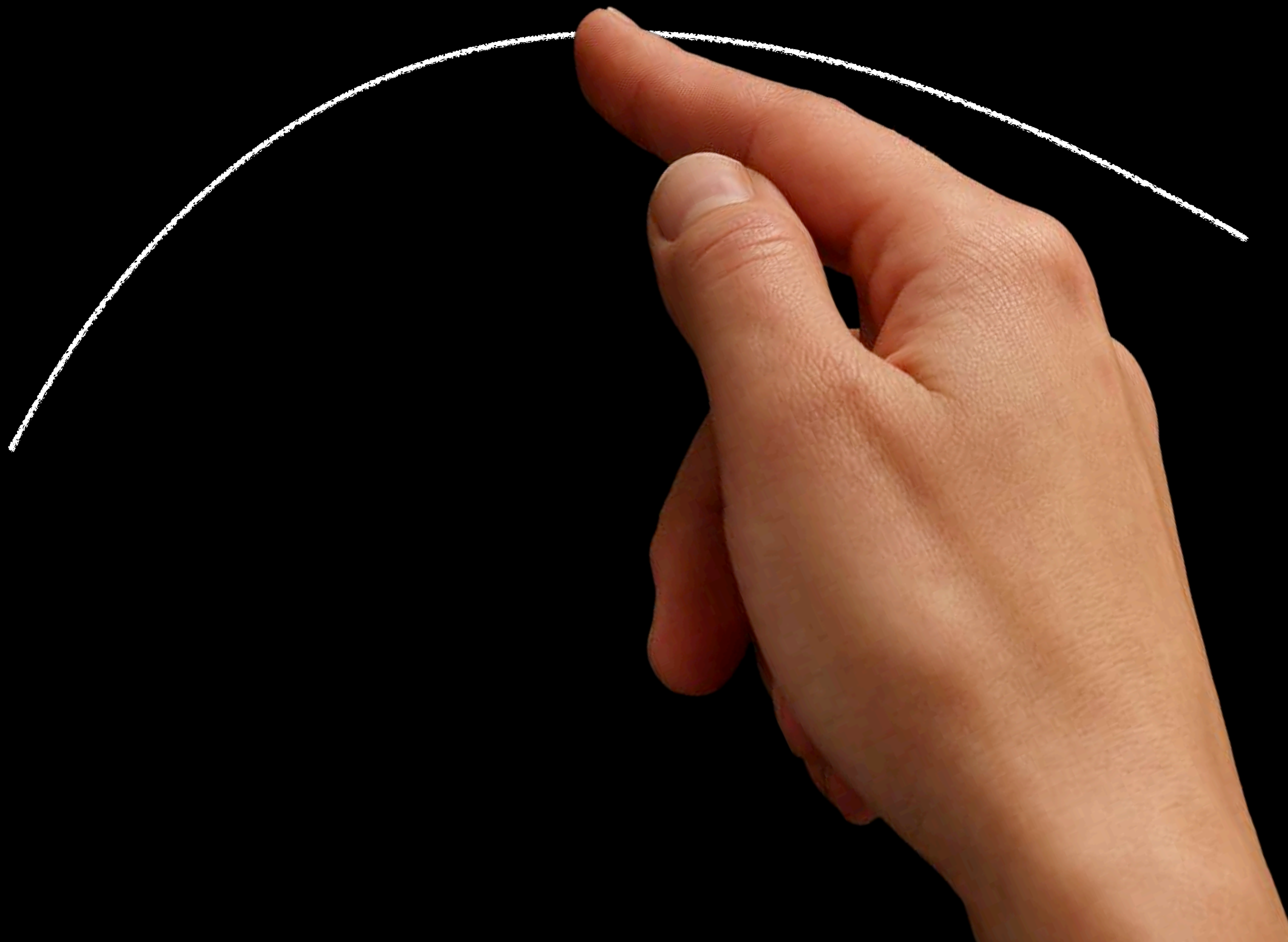
# Touch Events

# Touch Events



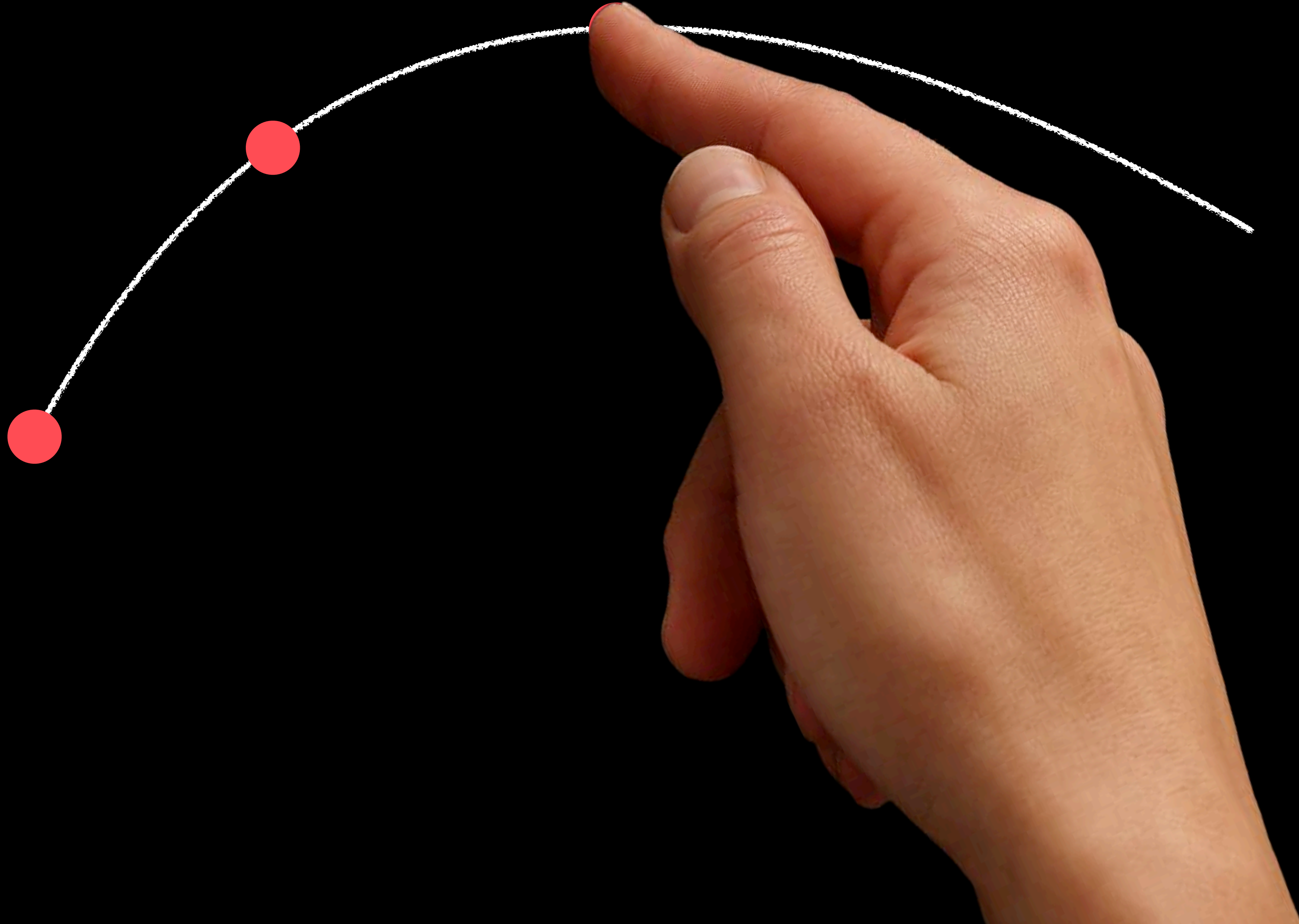


# Touch Events



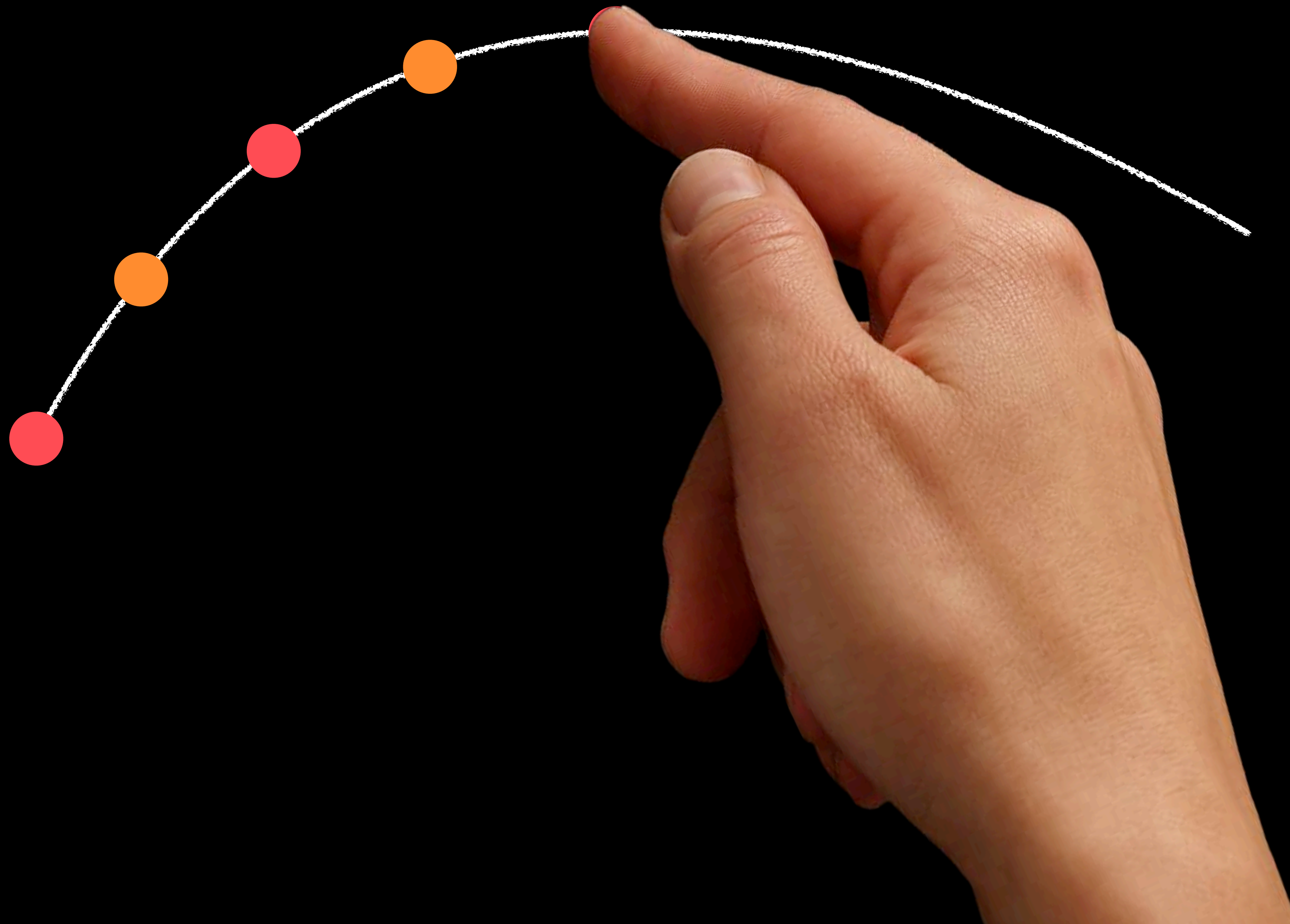


# Touch Events





# Touch Events





# Touch Events



# Touch Events

# Touch Events

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Advanced Touch Input on iOS

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Mission

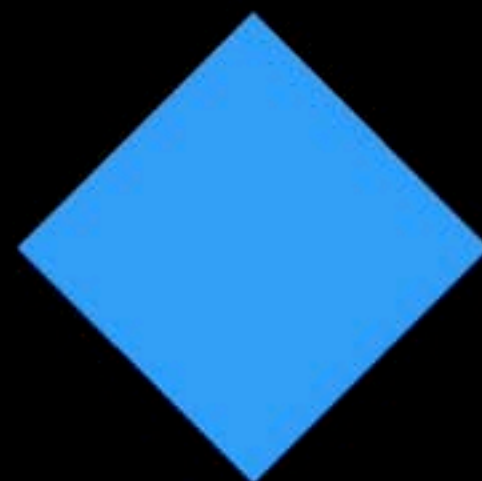
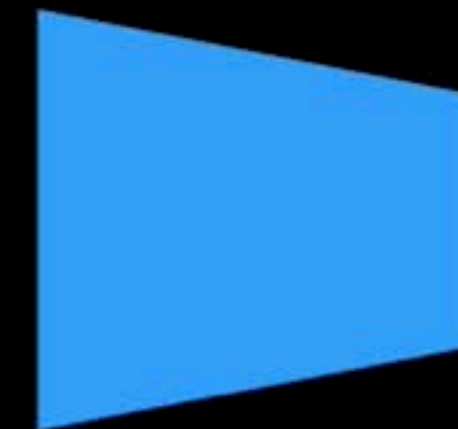
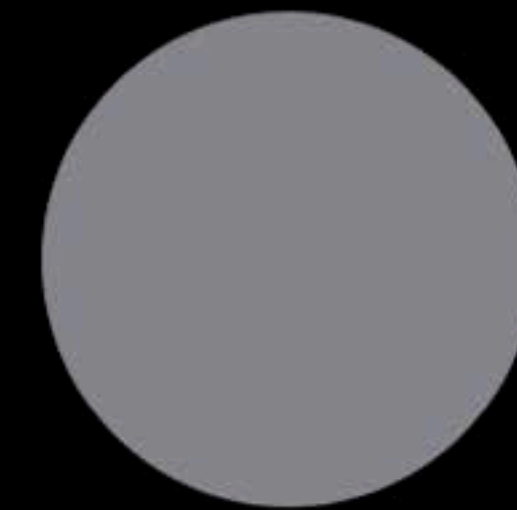
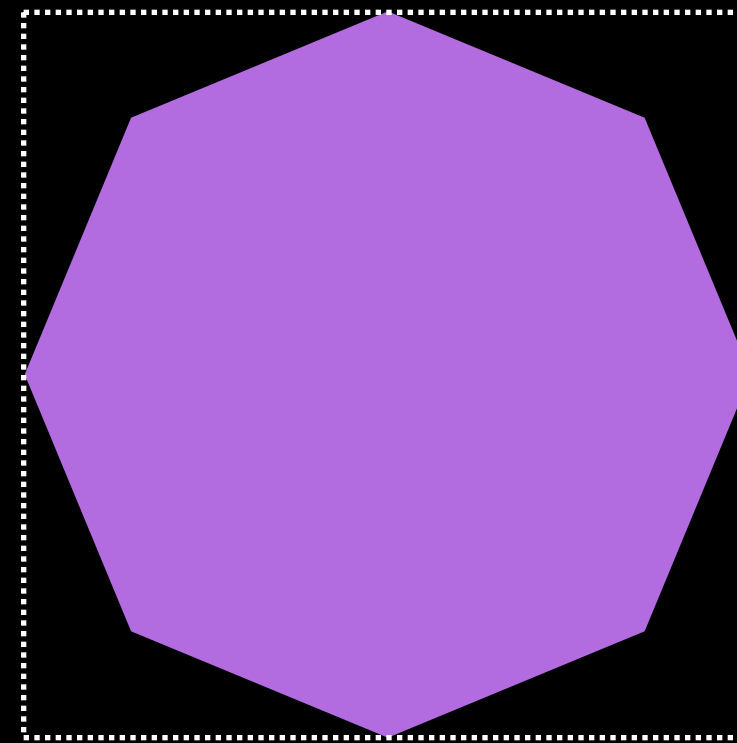
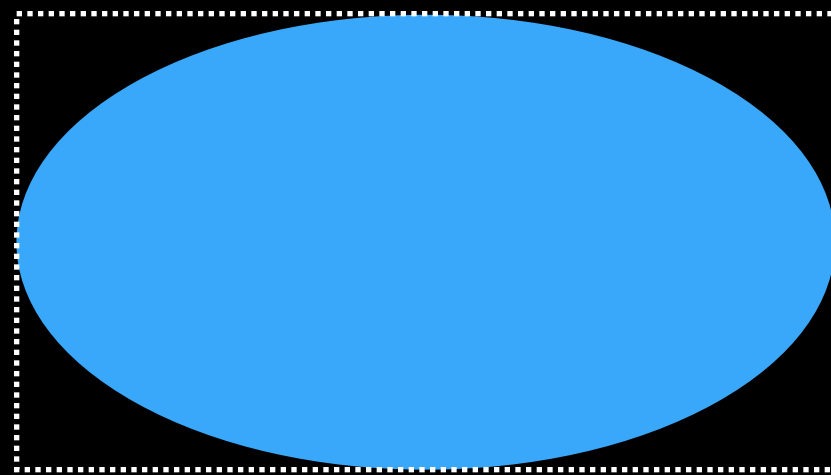
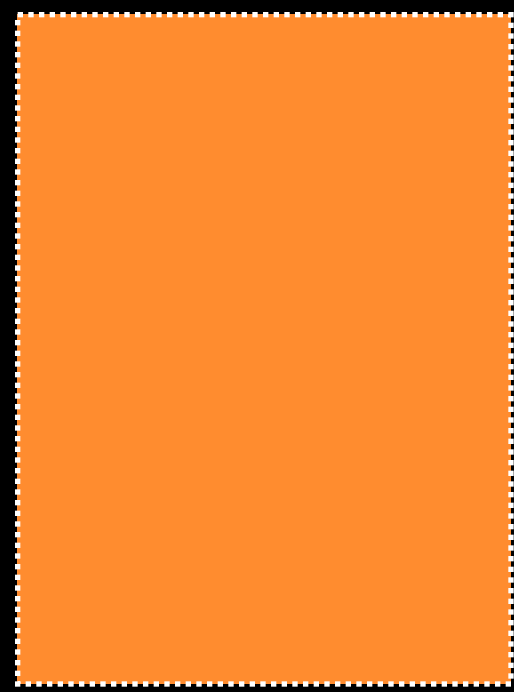
Friday 3:30PM

# UIKit Dynamics

# UIKit Dynamics

Support for non-rectangular collision bounds

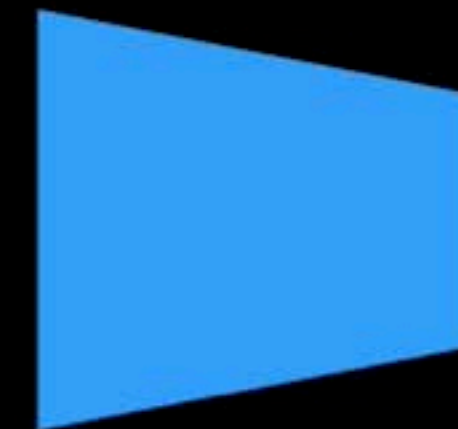
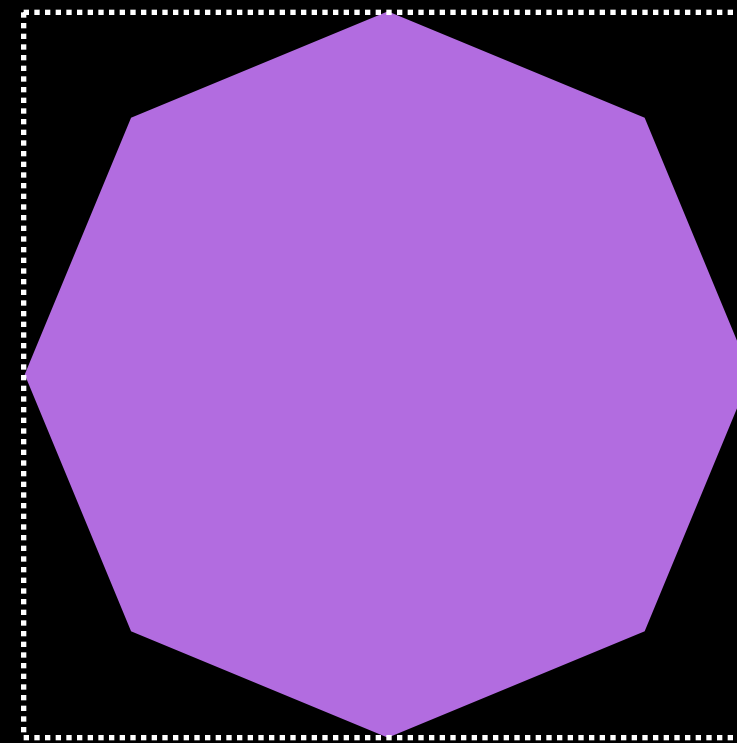
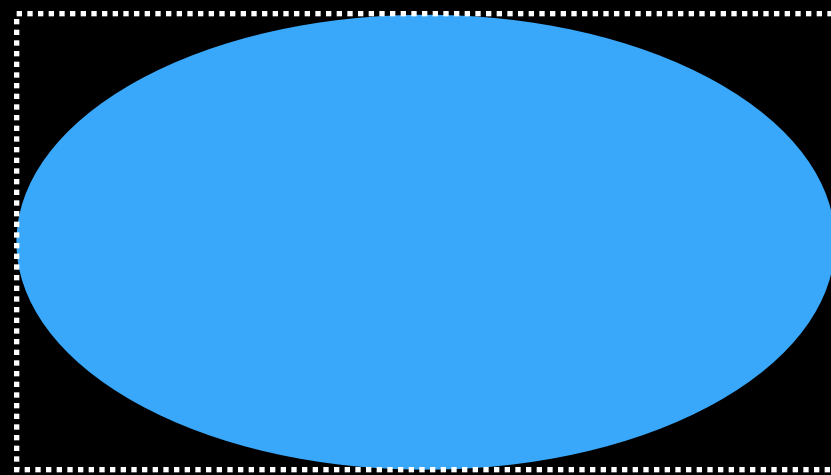
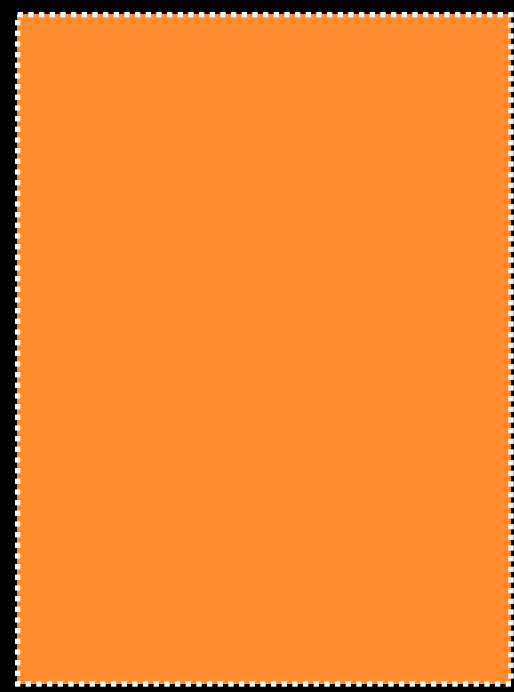
```
enum UIDynamicItemCollisionBoundsType : UInt {  
    case Rectangle  
    case Ellipse  
    case Path  
}
```



# UIKit Dynamics

Support for non-rectangular collision bounds

```
enum UIDynamicItemCollisionBoundsType : UInt {  
    case Rectangle  
    case Ellipse  
    case Path  
}
```





# UIKit Dynamics

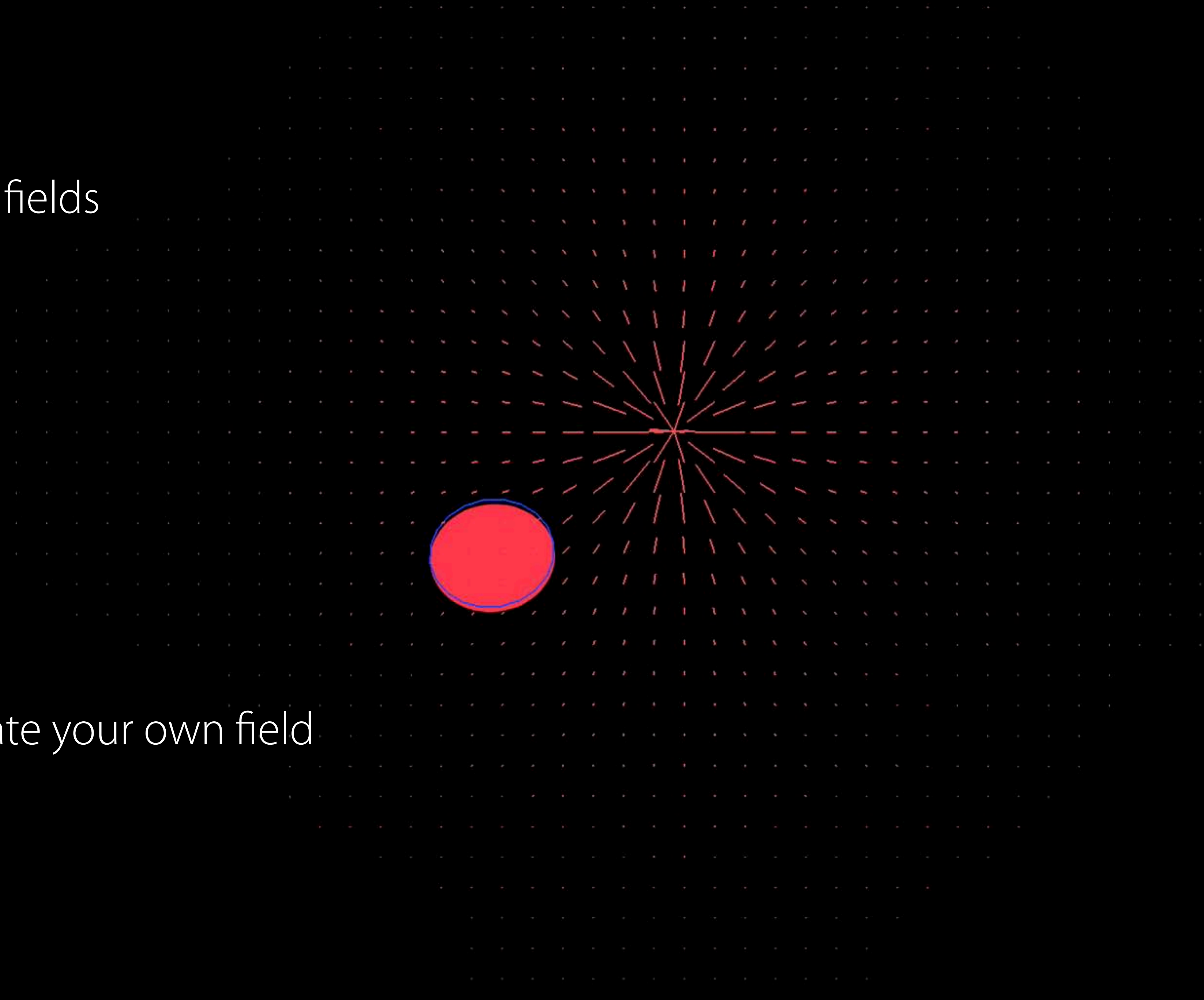
## UIFieldBehavior

Adds support for vector force fields

Several built-in field types

- Linear and Radial Gravity
- Spring
- Drag and Velocity
- Noise and Turbulance
- Electric and Magnetic

Custom field evaluator to create your own field



# UIKit Dynamics

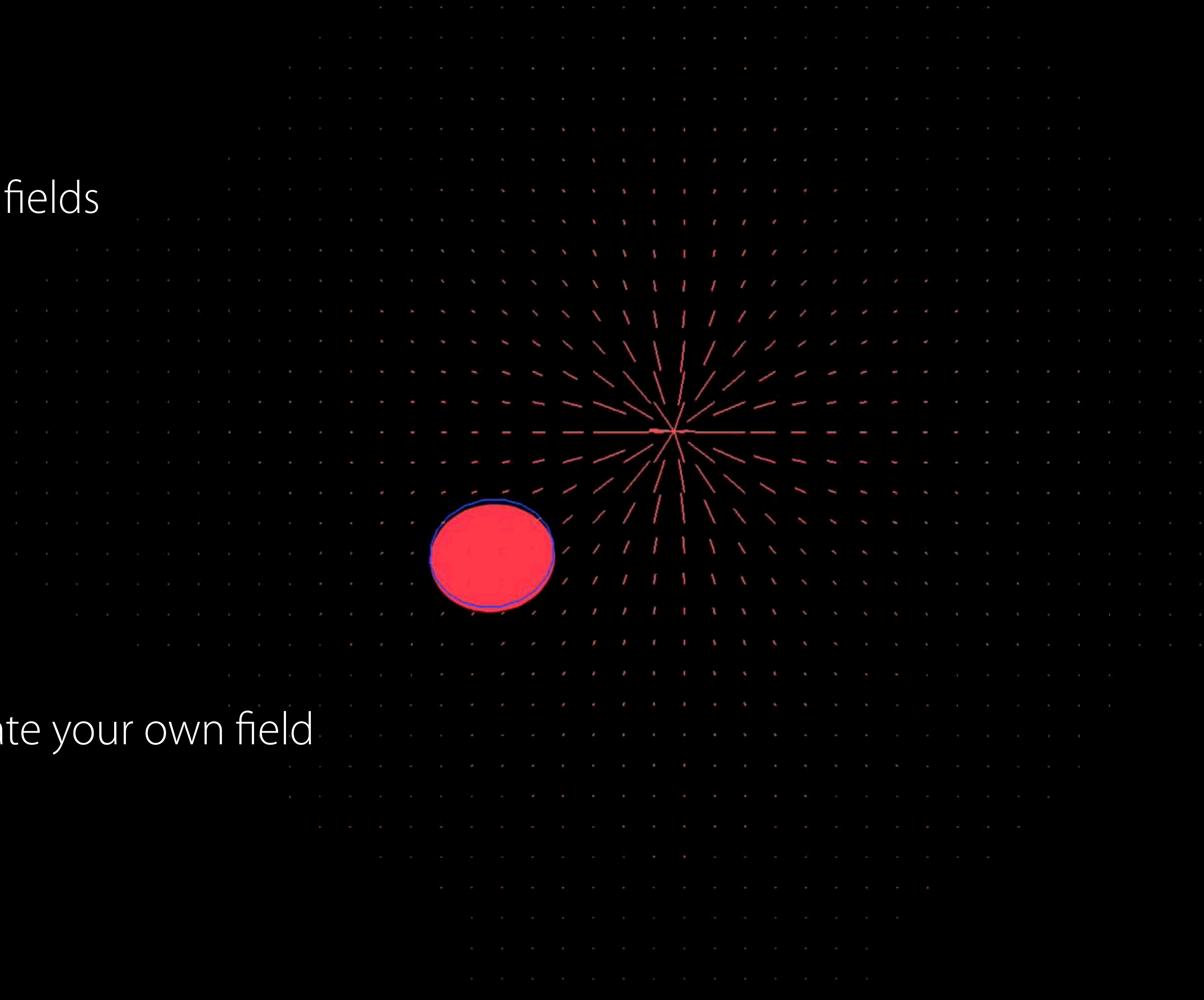
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# UIKit Dynamics

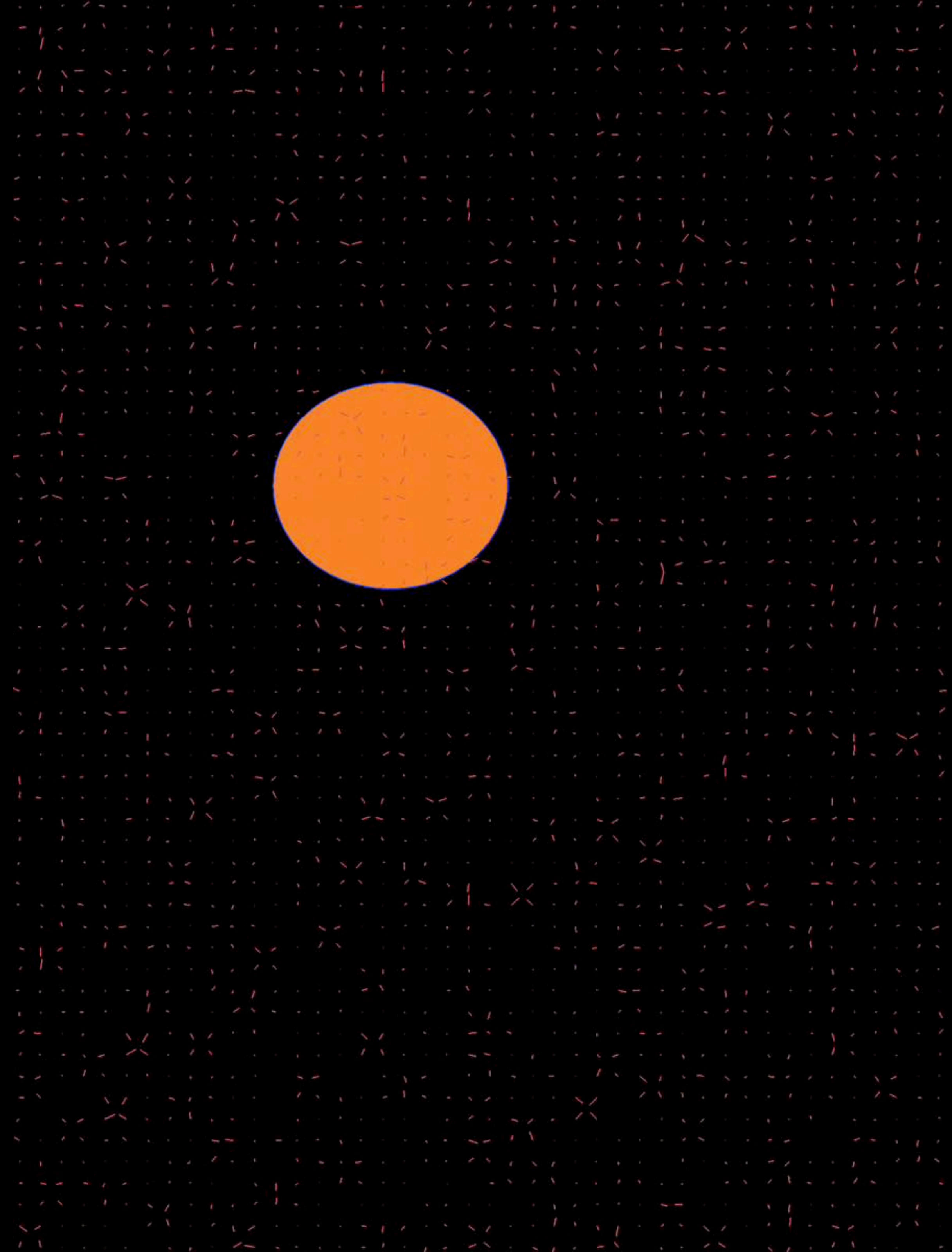
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# UIKit Dynamics

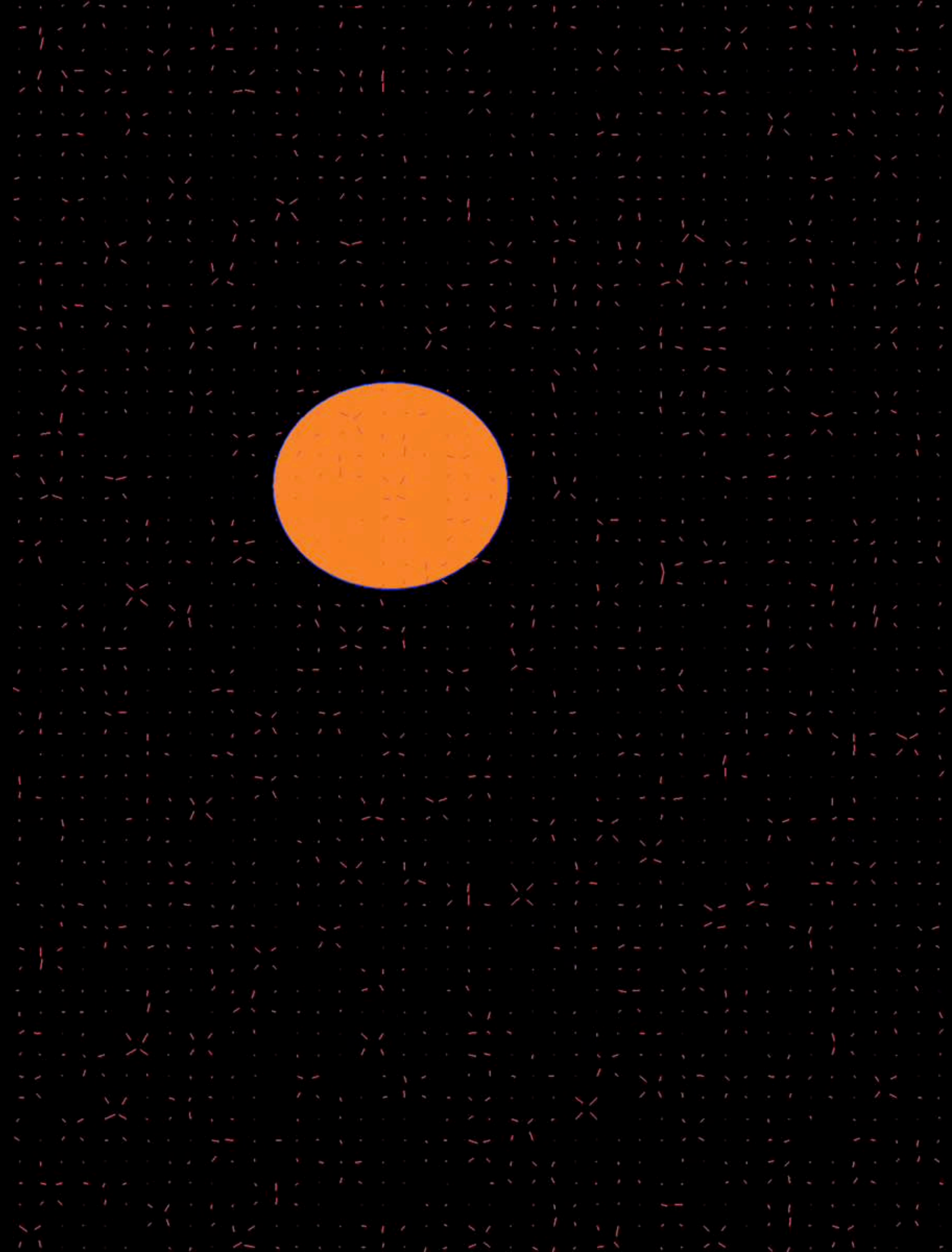
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- Spring
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Custom field evaluator to create your own field



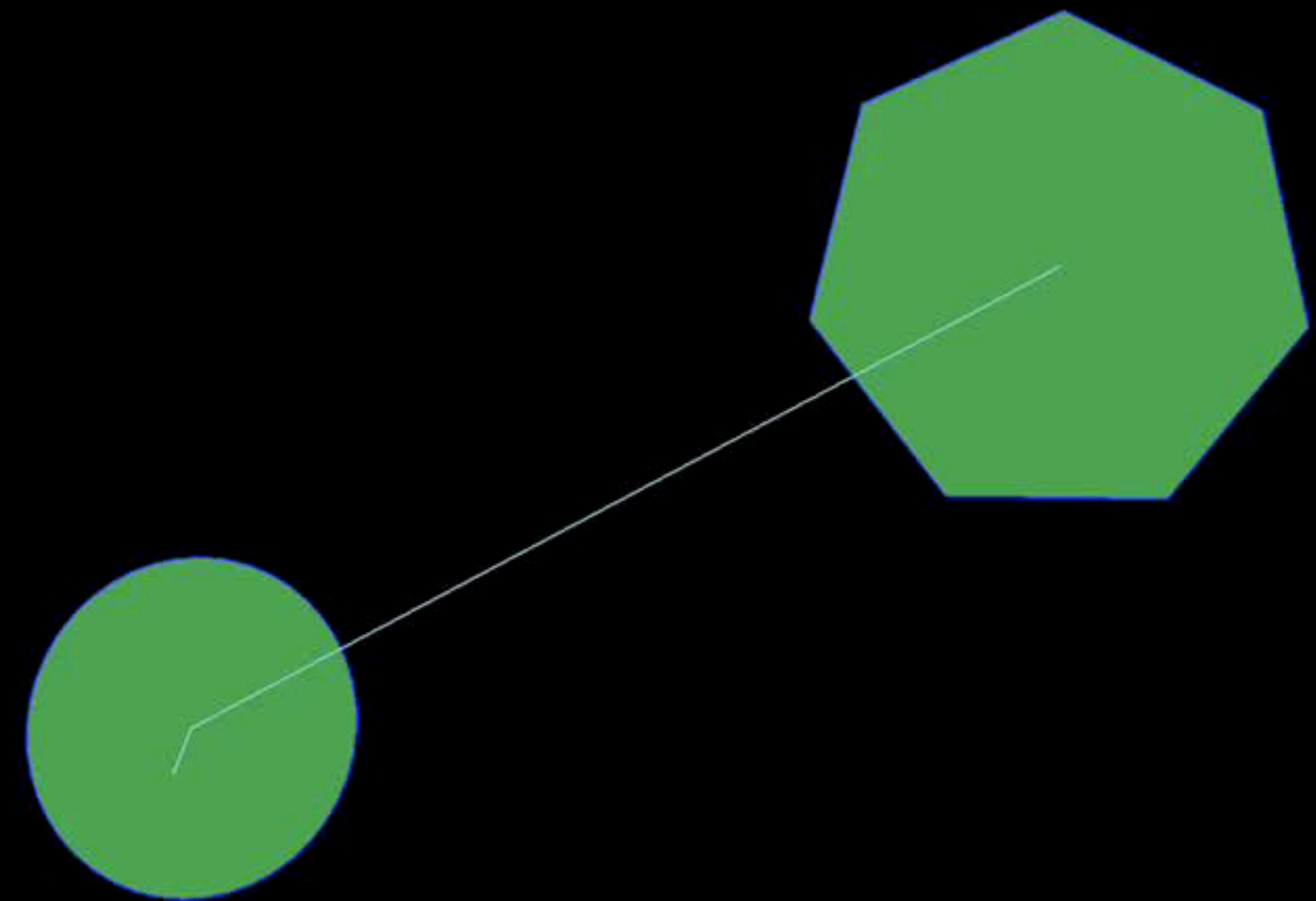


# UIKit Dynamics

## UIAttachmentBehavior

Support for additional attachment types

- Fixed
- Sliding
- Pin
- Limit

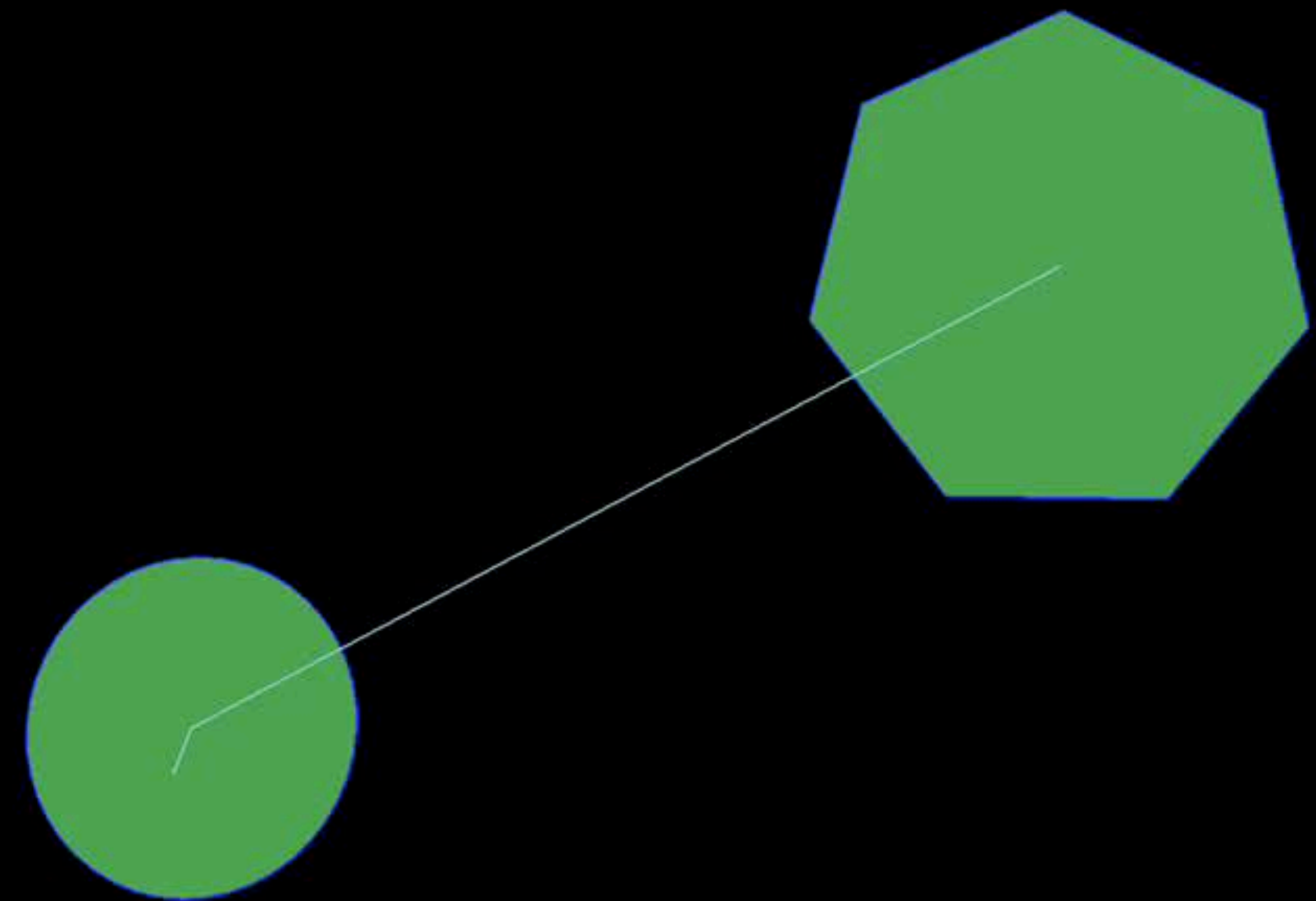


# UIKit Dynamics

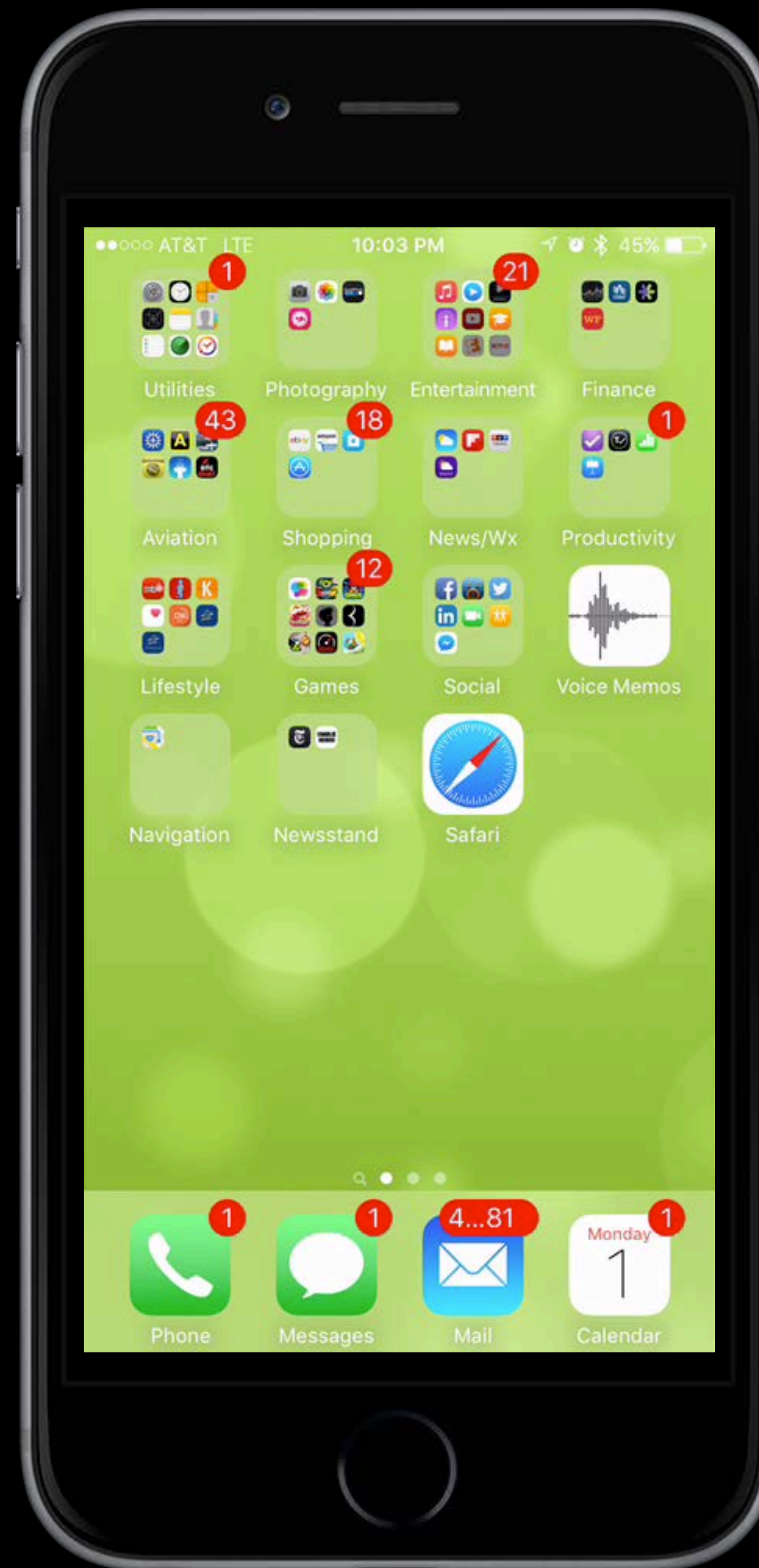
## UIAttachmentBehavior

Support for additional attachment types

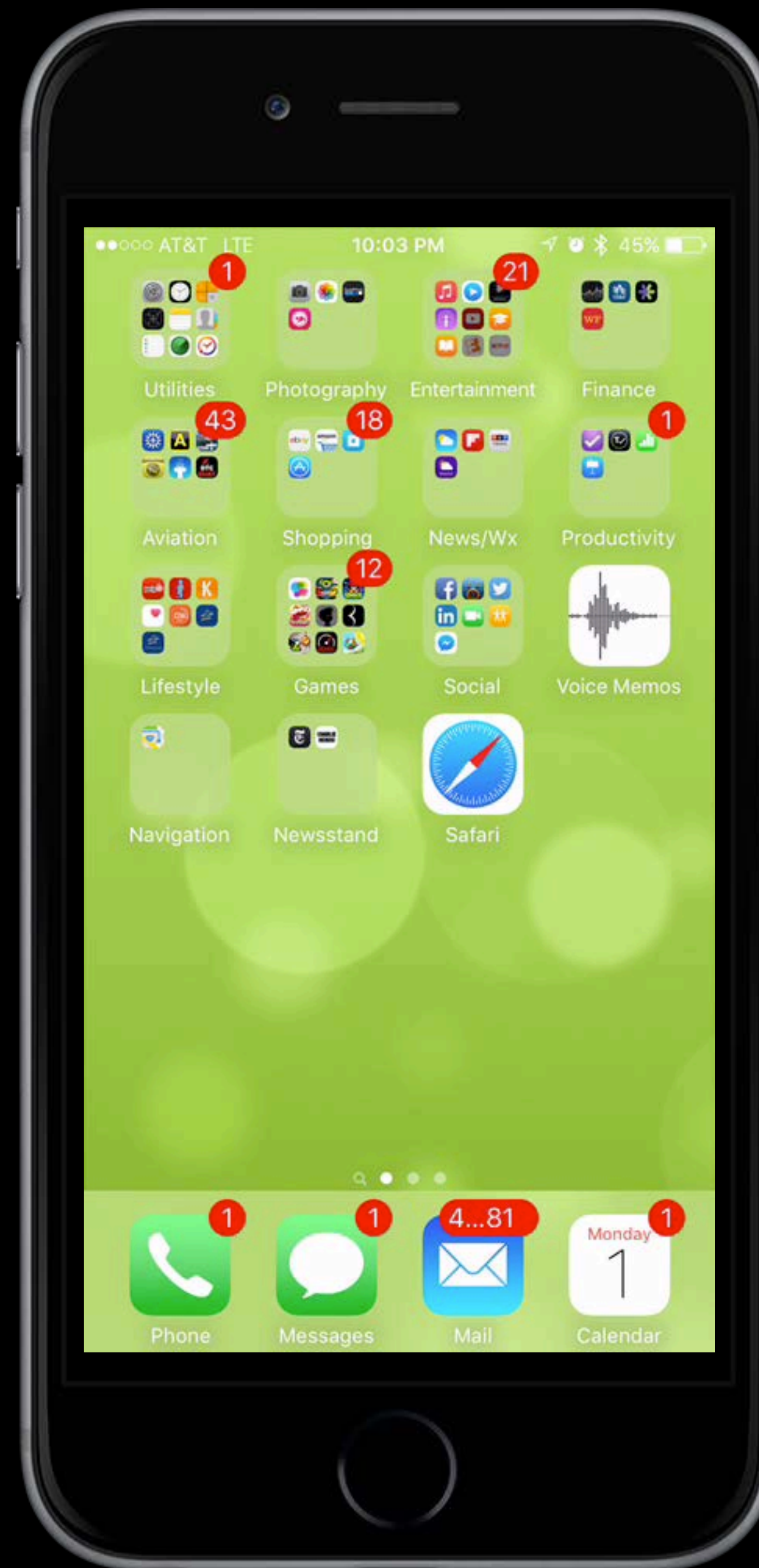
- Fixed
- Sliding
- Pin
- Limit



# Visual Effects



# Visual Effects



# Visual Effects

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What's New in UIKit Dynamics and Visual Effects

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Mission

Friday 10:00AM

# API Optimizations for Swift



# API Optimizations for Swift

Nullability

# API Optimizations for Swift

Nullability

Lightweight Generics

# API Optimizations for Swift

Nullability

Lightweight Generics

# Notifications

# Notifications

`UIUserNotificationAction`

# Notifications

```
UIUserNotificationAction  
    var behavior
```

# Notifications

`UIUserNotificationAction`  
var `behavior`



# Notifications

```
UIUserNotificationAction  
    var behavior  
    var actionParameters
```





# Notifications

```
UIUserNotificationAction  
    var behavior  
    var actionParameters
```

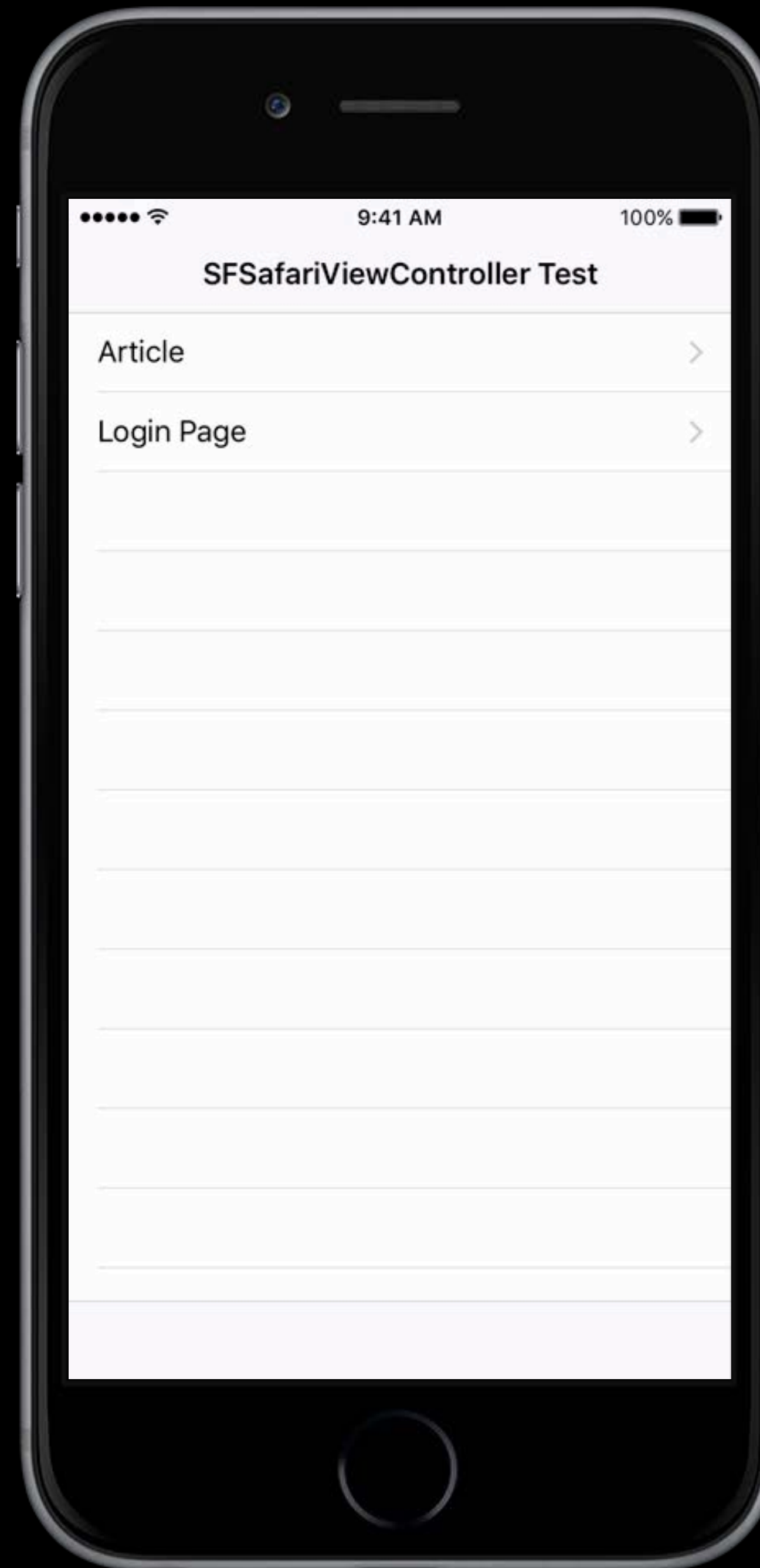
# Safari

# Safari

SFSafariViewController

# Safari

SFSafariViewController



# Safari

SFSafariViewController

# New Extension Points

# New Extension Points

VPN



# New Extension Points

VPN

Packet tunnel provider





# New Extension Points

VPN

Packet tunnel provider

App proxy provider



# New Extension Points

VPN

Packet tunnel provider

App proxy provider

Filter control provider/filter data provider



# New Extension Points

## VPN

Packet tunnel provider

App proxy provider

Filter control provider/filter data provider



# New Extension Points

Safari



# New Extension Points

Safari

Shared Links





# New Extension Points

Safari

Shared Links

Content blocking



# New Extension Points

Safari

Shared Links

Content blocking





# New Extension Points

Spotlight



# New Extension Points

## Spotlight

Indexing of application data



# New Extension Points

## Spotlight

Indexing of application data

Index maintenance



# New Extension Points

## Spotlight

Indexing of application data

Index maintenance



# New Extension Points

Audio Units



# New Extension Points

Audio Units



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Audio Unit Extensions

Nob Hill

Thursday 11:00AM

---



# Contacts



# Contacts

New Swift and Objective-C API



# Contacts

New Swift and Objective-C API



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Introducing the Contacts Framework for iOS & OS X

Pacific Heights

Thursday 3:30PM

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# Wallet and PassKit



# Wallet and PassKit

Card provisioning



# Wallet and PassKit

Card provisioning

Apple Pay suppression



# Wallet and PassKit

Card provisioning

Apple Pay suppression



---

Wallet - The home for Apple Pay and more

---

Mission

Tuesday 10:00AM



# Core Location



# Core Location

Updates to background location tracking



# Core Location

Updates to background location tracking  
New API



# Core Location

Updates to background location tracking

New API

`CLLocationManager`



# Core Location

Updates to background location tracking

New API

`CLLocationManager`

func `requestLocation`



# Core Location

Updates to background location tracking

New API

`CLLocationManager`

`func requestLocation`



# MapKit





# MapKit

Access to 3D Flyover view



# MapKit

Access to 3D Flyover view

Show traffic



# MapKit

Access to 3D Flyover view

Show traffic

Show compass and scale



# MapKit

Access to 3D Flyover view

Show traffic

Show compass and scale

Create custom callouts



# MapKit

Access to 3D Flyover view

Show traffic

Show compass and scale

Create custom callouts



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What's New in MapKit

Nob Hill

Tuesday 4:30PM

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# HealthKit



# HealthKit

Direct support in watchOS 2





# HealthKit

Direct support in watchOS 2

New data types



# HealthKit

Direct support in watchOS 2

New data types

New APIs for activity apps in watchOS 2



# HealthKit

Direct support in watchOS 2

New data types

New APIs for activity apps in watchOS 2



# ResearchKit



# ResearchKit

iPad support



# ResearchKit

iPad support

New active tasks



# ResearchKit

iPad support

New active tasks

New image capture step





# ResearchKit

iPad support

New active tasks

New image capture step



# HomeKit



# HomeKit

Detailed change notifications



# HomeKit

Detailed change notifications

Predefined scenes



# HomeKit

Detailed change notifications

Predefined scenes

Expanded trigger support





# HomeKit

Detailed change notifications

Predefined scenes

Expanded trigger support

watchOS 2 support



# HomeKit

Detailed change notifications

Predefined scenes

Expanded trigger support

watchOS 2 support

Remote access





# HomeKit

Detailed change notifications

Predefined scenes

Expanded trigger support

watchOS 2 support

Remote access

New standard profiles



# HomeKit

Detailed change notifications

Predefined scenes

Expanded trigger support

watchOS 2 support

Remote access

New standard profiles



# CloudKit



# CloudKit

Updated limits and pricing for public  
databases



# CloudKit

Updated limits and pricing for public databases

CloudKit web services to integrate with your web application



# CloudKit

Updated limits and pricing for public databases

CloudKit web services to integrate with your web application

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What's New in CloudKit

Mission

Tuesday 3:30PM

---

CloudKit Tips and Tricks

Pacific Heights

Thursday 4:30PM

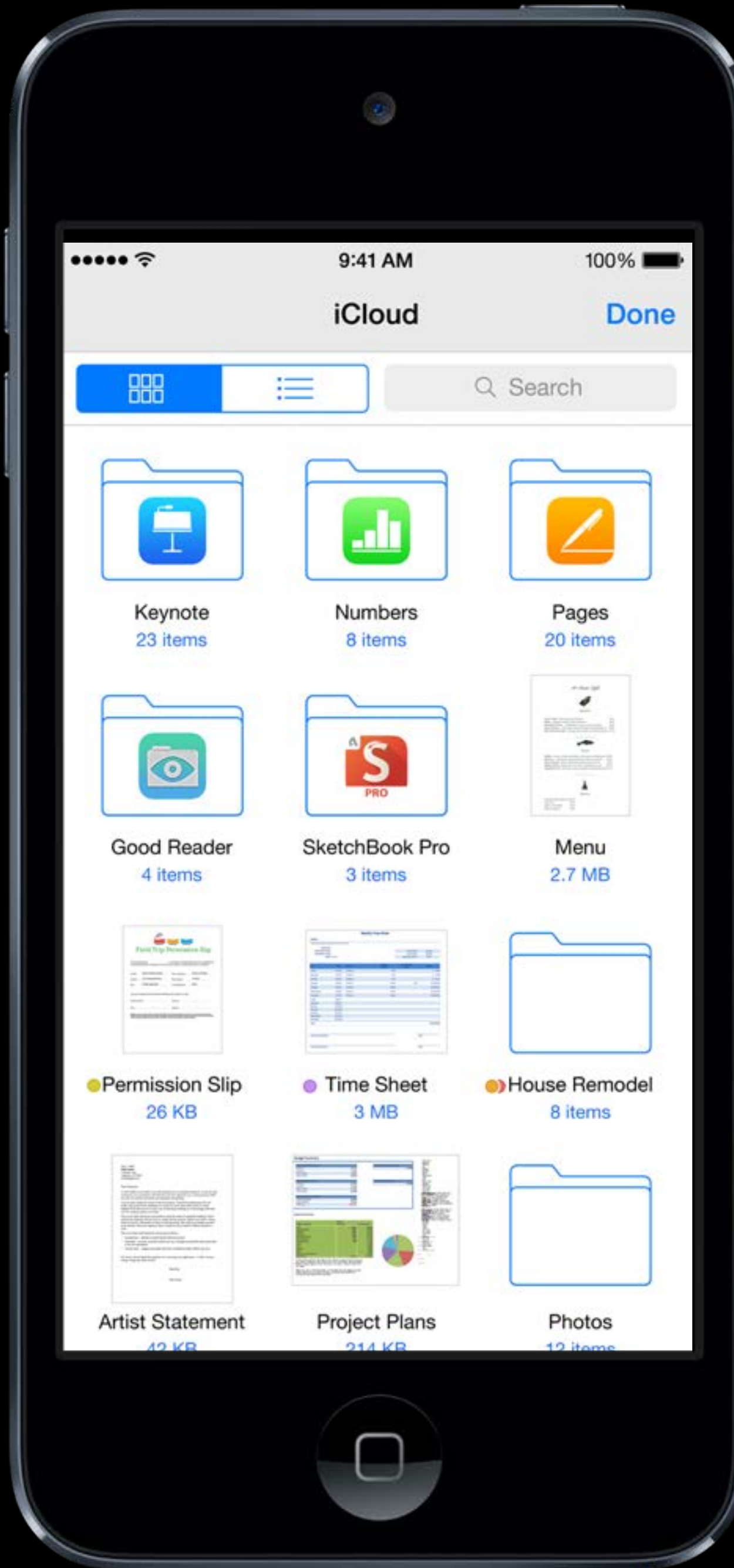
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# UIDocument



# UIDocument

Open in Place



# UIDocument

Open in Place

# On Demand Resources

# On Demand Resources

Hosted on the App Store

# On Demand Resources

Hosted on the App Store

Dynamically loaded content

# On Demand Resources

Hosted on the App Store

Dynamically loaded content

Intelligent caching

# On Demand Resources



# On Demand Resources

The screenshot shows the Xcode interface for the 'SpriteRequest' project. The top status bar indicates a successful clean build of 'SpriteRequestiOS' at 12:41 PM. The 'Asset Tags' tab is selected, showing a hierarchical list of resources categorized into 'Initial Install Tags' and 'Download Only On Demand'.

**SpriteRequest**

SpriteRequestiOS ▾ General Capabilities **Asset Tags** Info Build Settings Build Phases Build Rules

All **Prioritized** + 🔍

- ▼ **Initial Install Tags** (13 KB)
  - ▼ **all effects** (13 KB) ×
    - FlameEffect.sks ...in SpriteRequestShared/ODRAssets/SKParticleAsset
    - SmokeEffect.sks ...in SpriteRequestShared/ODRAssets/SKParticleAsset
    - spark.png ...in SpriteRequestShared/ODRAssets/SKParticleAsset
- ▼ **Prioritized Tag Download Order** (29 KB)
  - ▶ **chess peices** (17 KB) ×
  - ▶ **flame effect** (9 KB) ×
  - ▶ **red tint pawn** (3 KB) ×
- ▼ **Download Only On Demand** (645 KB)
  - ▶ **black knight** (2 KB) ×
  - ▶ **dice set** (264 KB) ×
  - ▶ **fpp** (4 KB) ×
  - ▶ **kings** (4 KB) ×
  - ▶ **ripple** (5 KB) ×
  - ▶ **smoke effect** (9 KB) ×
  - ▶ **soccer universal** (128 KB) ×

# On Demand Resources

# On Demand Resources

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Introducing On Demand Resources

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Pacific Heights

Wednesday 4:30PM

# App Slicing

# App Slicing

Automatically tailors your application

# App Slicing

Automatically tailors your application

New NSDataAsset class

# App Slicing

Automatically tailors your application

New NSDataAsset class



# Game Center



# Game Center

Guest players



# Game Center

Guest players

Unified environment



# Game Center

ReplayKit



# Game Center

ReplayKit



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Going Social with ReplayKit and Game Center

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Mission

Wednesday 1:30PM

# SpriteKit





# SpriteKit

Metal backed





# SpriteKit

Metal backed

All new action editor



# SpriteKit

Metal backed

All new action editor

Integrated with On Demand Resources



# SpriteKit

Metal backed

All new action editor

Integrated with On Demand Resources



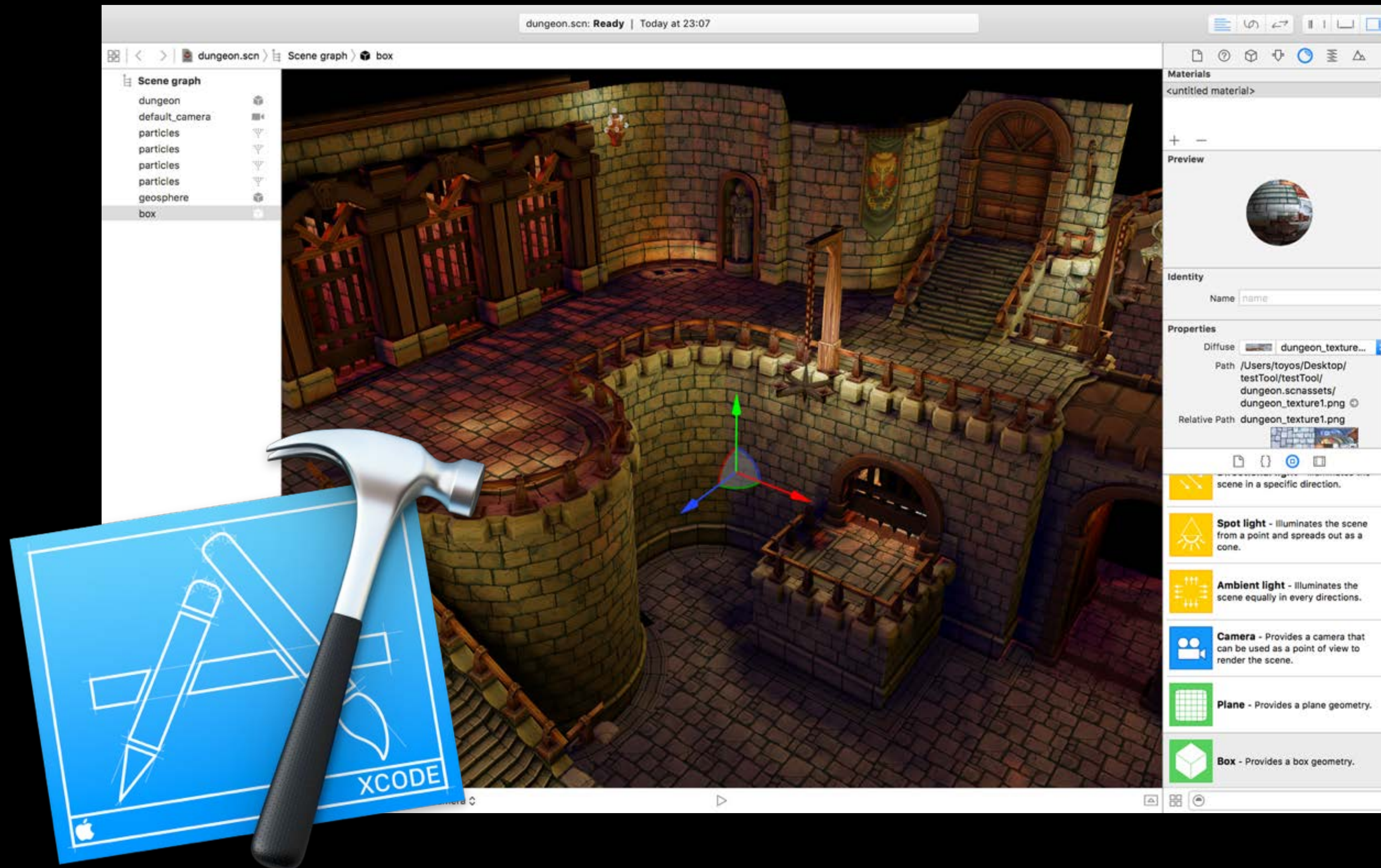
# SceneKit





# New Scene Editor

Available in Xcode 7





# SceneKit

## New features



# SceneKit

New features

Scene transitions





# SceneKit

## New features

Scene transitions

Audio nodes



# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O



# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O

Ambient occlusion and light maps



# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O

Ambient occlusion and light maps

Physics collision tests



# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O

Ambient occlusion and light maps

Physics collision tests

Billboards





# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O

Ambient occlusion and light maps

Physics collision tests

Billboards

Blend modes



# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O

Ambient occlusion and light maps

Physics collision tests

Billboards

Blend modes

Debug layers





# SceneKit

## New features

Scene transitions

Audio nodes

Model I/O

Ambient occlusion and light maps

Physics collision tests

Billboards

Blend modes

Debug layers



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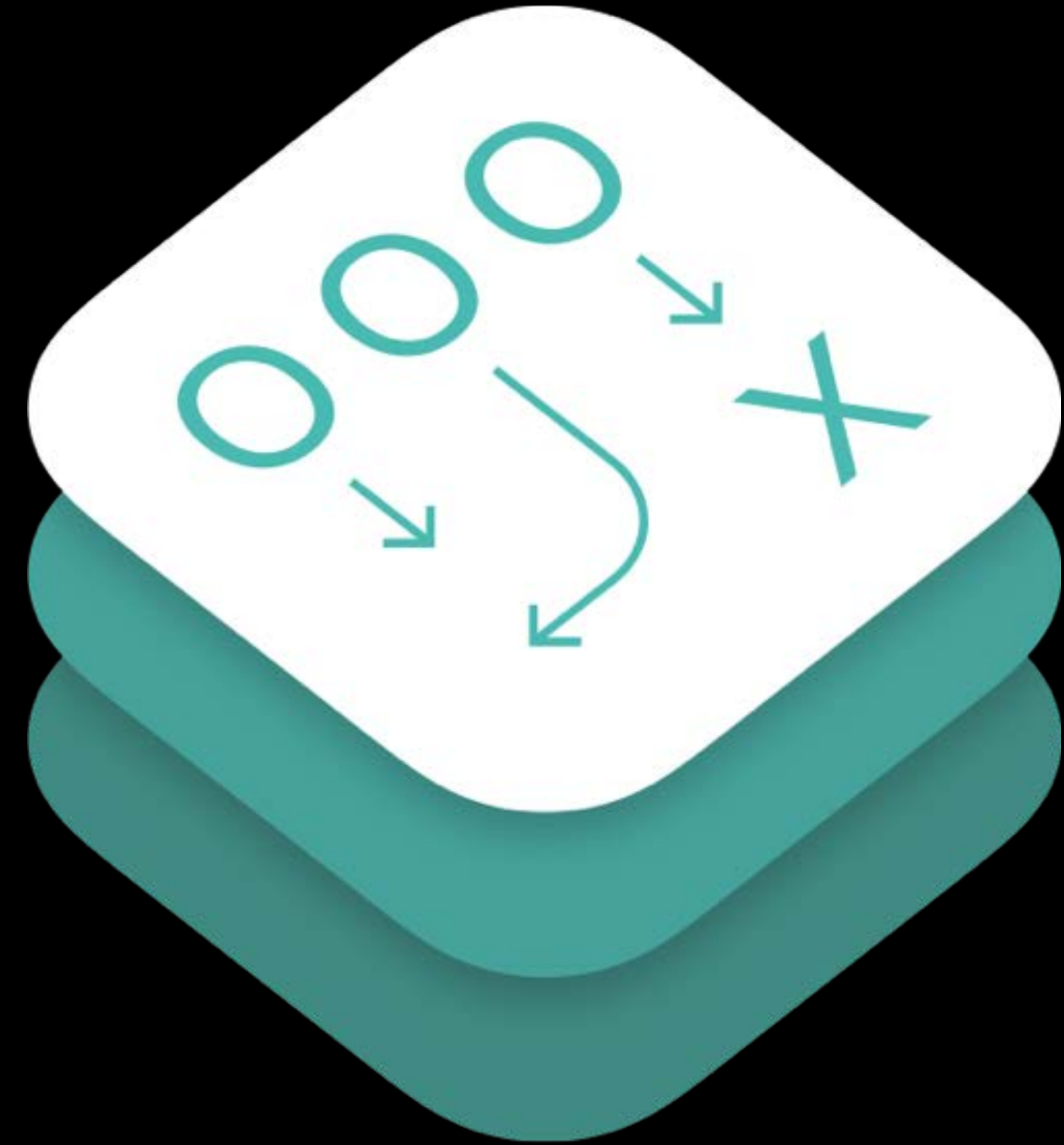
Enhancements to SceneKit

Mission

Wednesday 2:30PM

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# GamePlayKit



# GamePlayKit

Entities and components



# GamePlayKit

Entities and components

Agents



# GamePlayKit

Entities and components

Agents

Path finding



# GamePlayKit

Entities and components

Agents

Path finding

AI





# GamePlayKit

Entities and components

Agents

Path finding

AI

Rule systems





# GamePlayKit

Entities and components

Agents

Path finding

AI

Rule systems

State machines



# GamePlayKit

Entities and components

Agents

Path finding

AI

Rule systems

State machines

Random sources



# GamePlayKit

Entities and components

Agents

Path finding

AI

Rule systems

State machines

Random sources



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Introducing GameplayKit

Mission

Thursday 11:00AM

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watchOS 2



# watchOS 2



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Introducing WatchKit for watchOS 2

Presidio

Tuesday 10:00AM

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# More Information

## Documentation

What's New in iOS

Start Developing iOS Apps

iOS App Programming Guide

Adopting Multitasking Enhancements on iPad

[developer.apple.com/library/](http://developer.apple.com/library/)

## Technical Support

Apple Developer Forums

[developer.apple.com/forums](http://developer.apple.com/forums)

Developer Technical Support

[developer.apple.com/support/technical](http://developer.apple.com/support/technical)

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