

#WWDC19

# Modernizing Your UI for iOS 13

David Duncan, iOS System Experience

Flexible UI

Bars

Presentations

Search

Gestures

Menus

# Flexible UI

David Duncan

# Launch Storyboards



The image shows a screenshot of the Xcode IDE interface. On the left, the 'PROJECT' sidebar is visible, showing the project name 'ForScreenshots' and a target of the same name. The main area is divided into two panes. The left pane displays the 'Identity' settings for the target, including fields for Display Name, Bundle Identifier, Version, and Build. Below this is the 'Deployment Info' section, which includes a table for targets and devices, and options for Main Interface, Device Orientation, and Status Bar Style. The right pane shows a storyboard view for an iPhone Xr, with a 'View Controller' at the top and a large white area representing the screen. An arrow points from the storyboard view towards the 'Deployment Info' section. The bottom status bar indicates the current view is for an iPhone Xr at 100% zoom.

Target	Device
iOS 13.0 c	<input checked="" type="checkbox"/> iPhone
	<input checked="" type="checkbox"/> iPad
	<input type="checkbox"/> Mac (requires macOS 10.15)

# Launch Storyboards

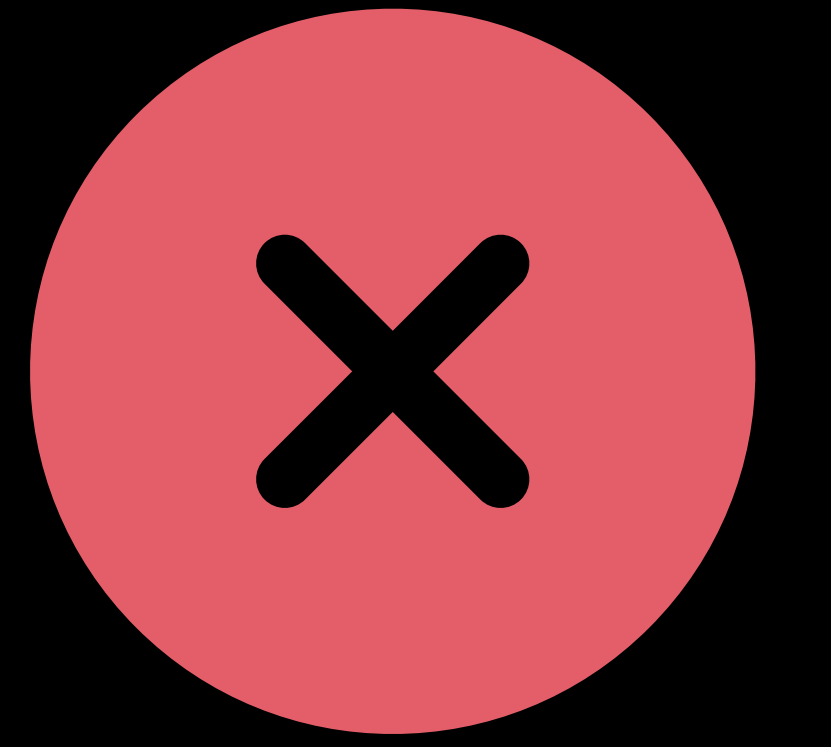


The image shows a screenshot of the Xcode IDE. The left sidebar displays the project structure for 'ForScreenshots'. The main area is divided into two panes. The left pane shows the 'General' settings for the target, including 'Identity' (Display Name: ForScreenshots, Bundle Identifier: com.yourcompany.ForScreenshots, Version: 1.0, Build: 1) and 'Deployment Info' (Target: iOS 13.0, Device: iPhone/iPad, Main Interface: Main, Device Orientation: Portrait/Landscape, Status Bar Style: Default). The right pane shows a storyboard view for 'View Controller' on an iPhone Xr device. A red-bordered box highlights the 'App Icons and Launch Images' section, which contains the following settings:

- App Icons Source:
- Launch Images Source:
- Launch Screen File:

Below this section, there are fields for 'Add frameworks, libraries, and embedded content here' and 'Development Assets'.

# Launch Images



The screenshot displays the Xcode interface for a project named 'ForScreenshots'. The left sidebar shows the 'PROJECT' and 'TARGETS' sections. The main area is divided into two panes: 'Identity' and 'App Icons and Launch Images'.

**Identity Settings:**

- Display Name: ForScreenshots
- Bundle Identifier: com.yourcompany.ForScreenshots
- Version: 1.0
- Build: 1

**Deployment Info:**

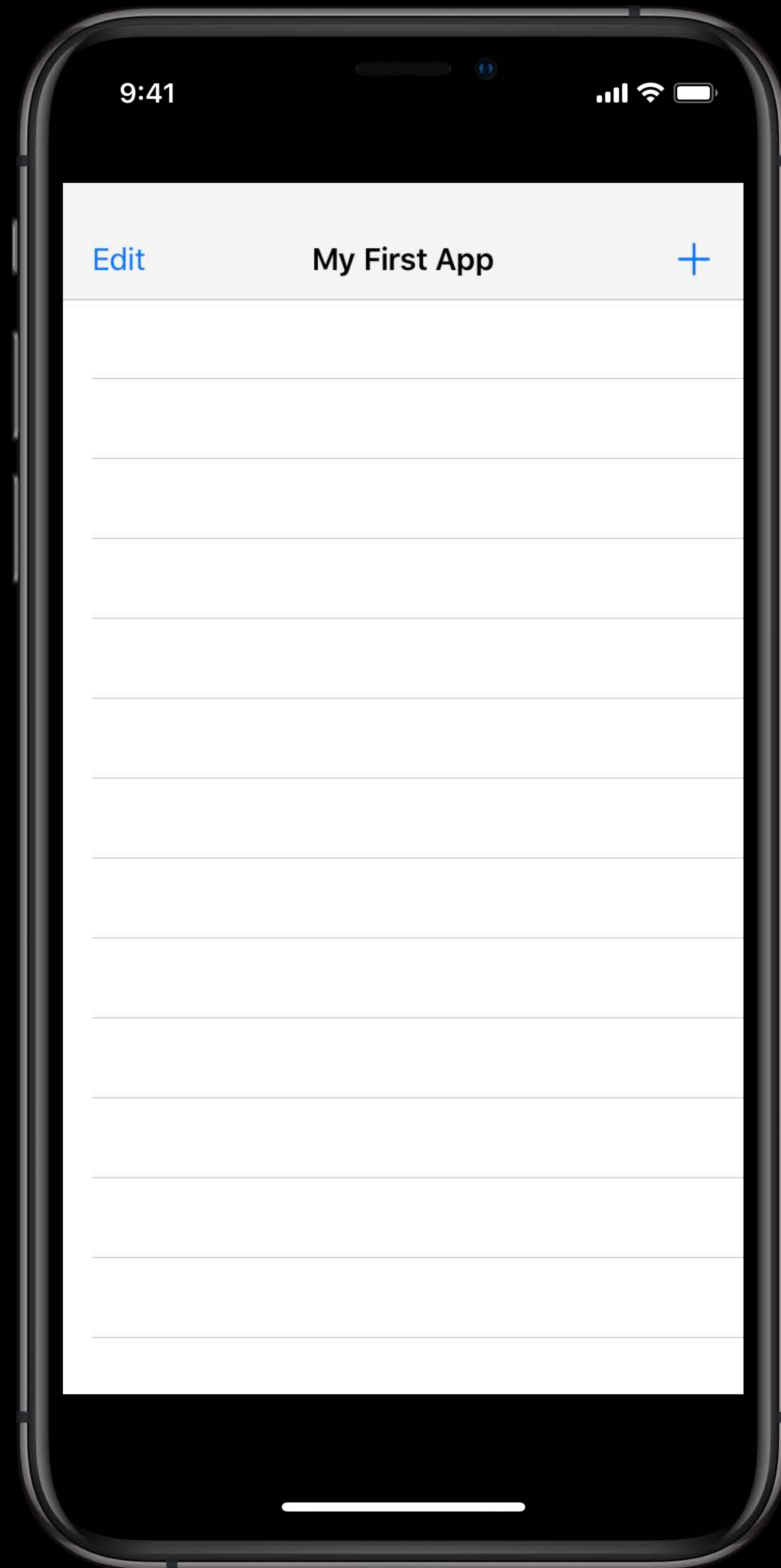
- Target: iOS 13.0
- Device:  iPhone,  iPad,  Mac (requires macOS 10.15)
- Main Interface: Main
- Device Orientation:  Portrait,  Upside Down,  Landscape Left,  Landscape Right
- Status Bar Style: Default

**App Icons and Launch Images:**

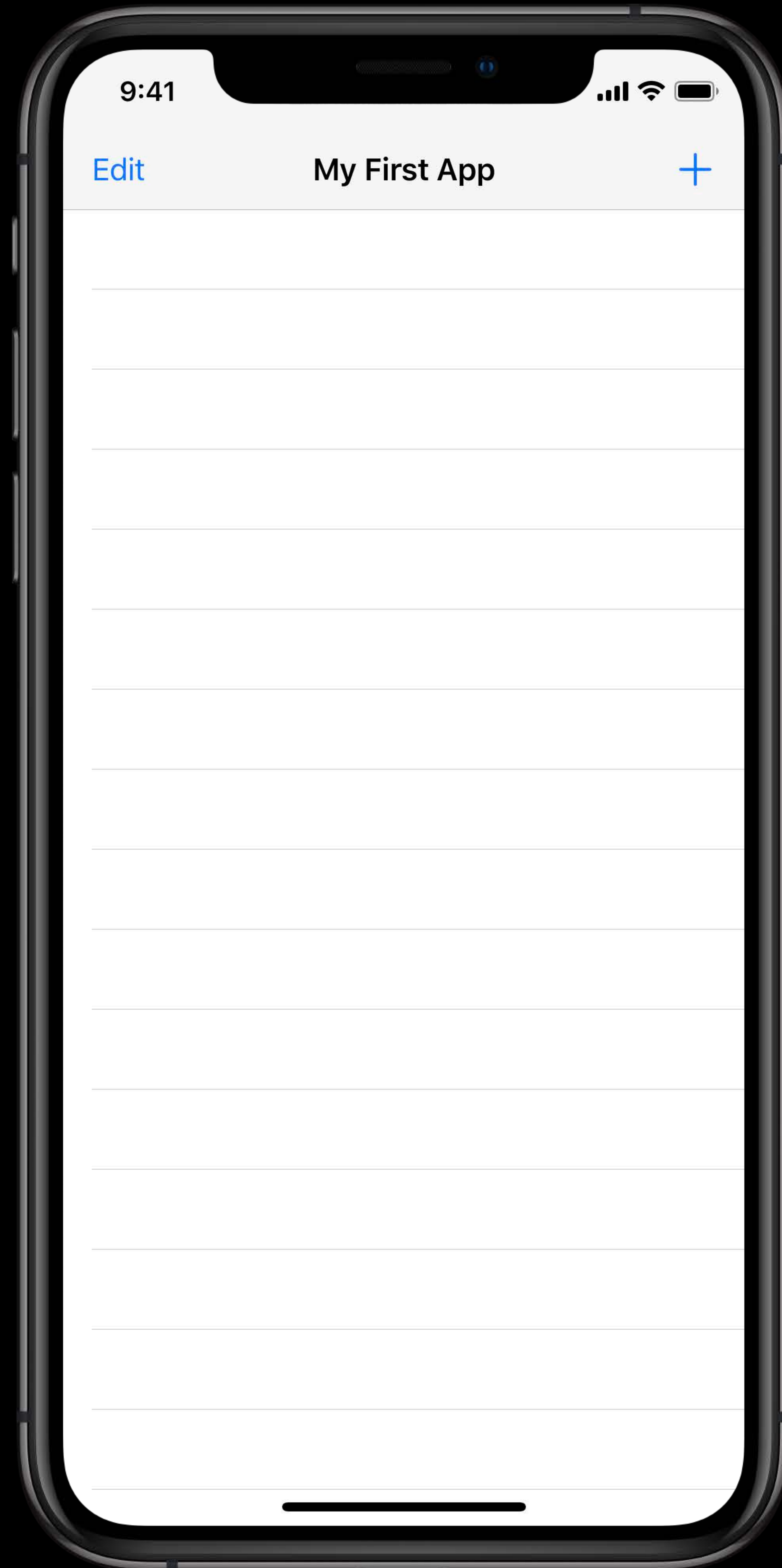
- App Icons Source: Applcon
- Launch Images Source: LaunchImage
- Launch Screen File: LaunchScreen

The right pane shows the 'LaunchImage' asset catalog. It displays various device-specific launch image slots with their dimensions and labels, including iPhone Xs Max, iPhone Xs, iPhone X, iPhone 12+, iPhone 11+, Retina HD 5.5", Retina HD 4.7", iPhone Portrait iOS 8+, iPhone Landscape iOS 8+, iPhone Portrait iOS 7+, iPad Portrait iOS 7+, and iPad Landscape iOS 7+. Two slots at the bottom are marked as 'Unassigned' with yellow warning icons.

# Be Resizable

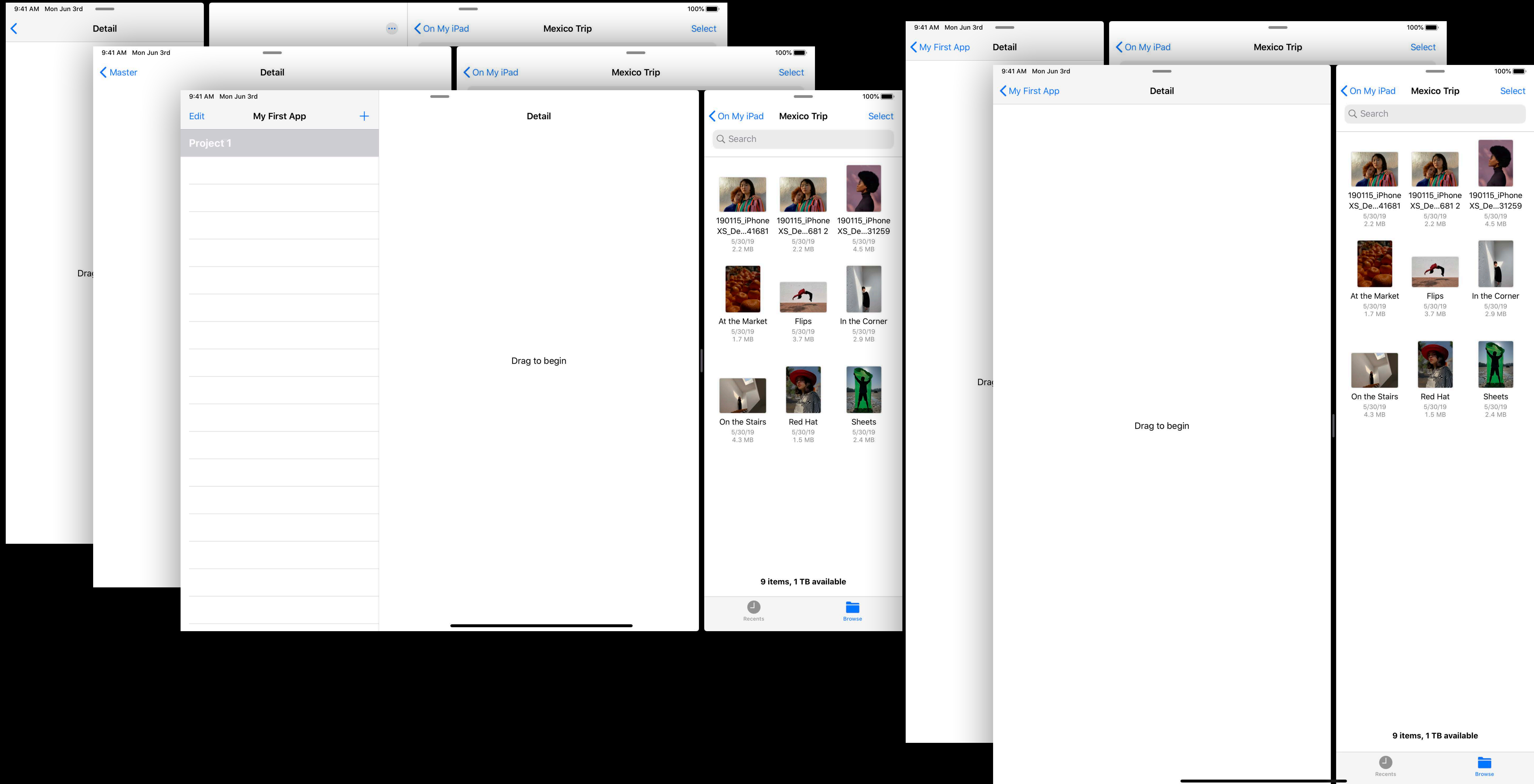


# Be Resizable





# Be Resizable



# Actions

Adopt Launch Storyboards

Support any size

Support Split Screen Multitasking

Required April 2020

**Bars**

9:41



# Settings



Simon Pickford

Apple ID, iCloud, iTunes & App Store



Airplane Mode



Wi-Fi

AppleWiFi >



Bluetooth

On >



Cellular



Personal Hotspot

Off >



Notifications



Sounds & Haptics



Display & Brightness



9:41



# Settings



Simon Pickford

Apple ID, iCloud, iTunes & App Store



Airplane Mode



Wi-Fi

AppleWiFi >



Bluetooth

On >



Cellular



Personal Hotspot

Off >



Notifications



Sounds & Haptics



Display & Brightness




# Settings


 **Simon Pickford**  
 Apple ID, iCloud, iTunes & App Store


 Airplane Mode


 Wi-Fi AppleWiFi


 Bluetooth On

 Cellular Data

 Notifications

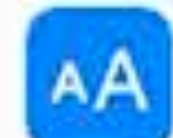
 Sounds

 Do Not Disturb


 Screen Time


 **General**

 Control Center

 Display & Brightness

 Accessibility

 Wallpaper

 Siri & Search

## General

About >

Software Update >

AirDrop >

Handoff >

Multitasking & Dock >

iPad Storage >

Background App Refresh >

Date & Time >

Keyboard >

Fonts >

Language & Region >

Dictionary >

iTunes Wi-Fi Sync >

VPN Not Connected >


# Settings


 Simon Pickford  
Apple ID, iCloud, iTunes & App Store

 Airplane Mode


 Wi-Fi AppleWiFi


 Bluetooth On

 Cellular Data


 Notifications


 Sounds


 Do Not Disturb


 Screen Time


 General

 Control Center

 Display & Brightness

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## General

About >

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AirDrop >

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Background App Refresh >

Date & Time >

Keyboard >

Fonts >

Language & Region >

Dictionary >

iTunes Wi-Fi Sync >

VPN Not Connected >

# New Bar Appearance

Free when you link against iOS 13

Appearance Customization



```
let appearance = UINavigationControllerAppearance()

appearance.configureWithOpaqueBackground()

appearance.titleTextAttributes = [.foregroundColor: myAppLabelColor]
appearance.largeTitleTextAttributes = [.foregroundColor: myAppLabelColor]

navigationBar.standardAppearance = appearance
```

```
let appearance = UINavigationControllerAppearance()
```

```
appearance.configureWithOpaqueBackground()
```

```
appearance.titleTextAttributes = [.foregroundColor: myAppLabelColor]
```

```
appearance.largeTitleTextAttributes = [.foregroundColor: myAppLabelColor]
```

```
navigationBar.standardAppearance = appearance
```

```
let appearance = UINavigationControllerAppearance()
```

```
appearance.configureWithOpaqueBackground()
```

```
appearance.titleTextAttributes = [.foregroundColor: myAppLabelColor]
```

```
appearance.largeTitleTextAttributes = [.foregroundColor: myAppLabelColor]
```

```
navigationBar.standardAppearance = appearance
```

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let appearance = UINavigationControllerAppearance()
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```
appearance.configureWithOpaqueBackground()
```

```
appearance.titleTextAttributes = [.foregroundColor: myAppLabelColor]
```

```
appearance.largeTitleTextAttributes = [.foregroundColor: myAppLabelColor]
```

```
navigationBar.standardAppearance = appearance
```

```
let appearance = UINavigationControllerAppearance()

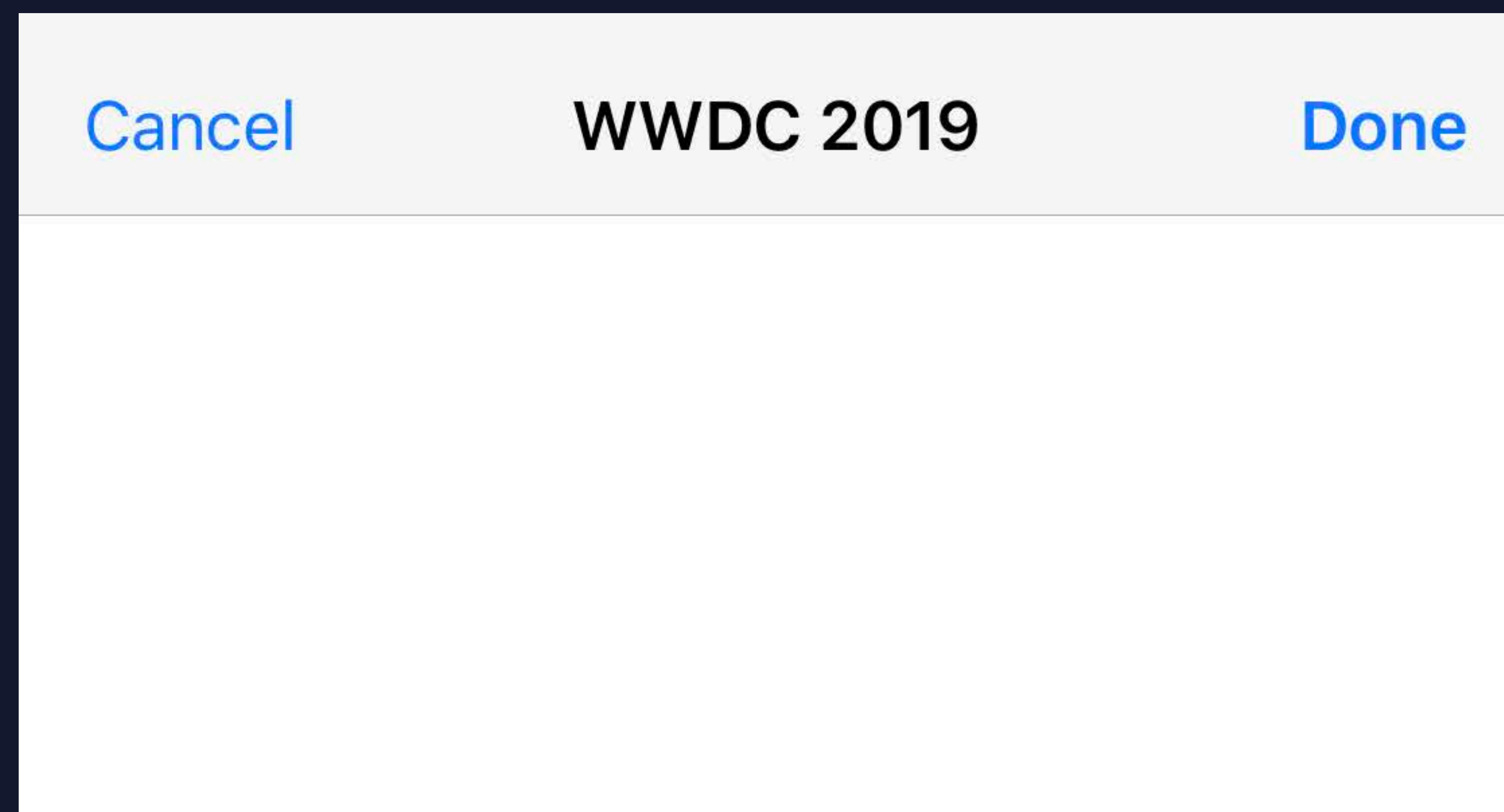
appearance.configureWithOpaqueBackground()

appearance.titleTextAttributes = [.foregroundColor: myAppLabelColor]
appearance.largeTitleTextAttributes = [.foregroundColor: myAppLabelColor]

navigationBar.standardAppearance = appearance
```

// Customizing

.standardAppearance



// Customizing

.compactAppearance

Cancel

WWDC 2019

Done

// Customizing

.scrollEdgeAppearance

Cancel

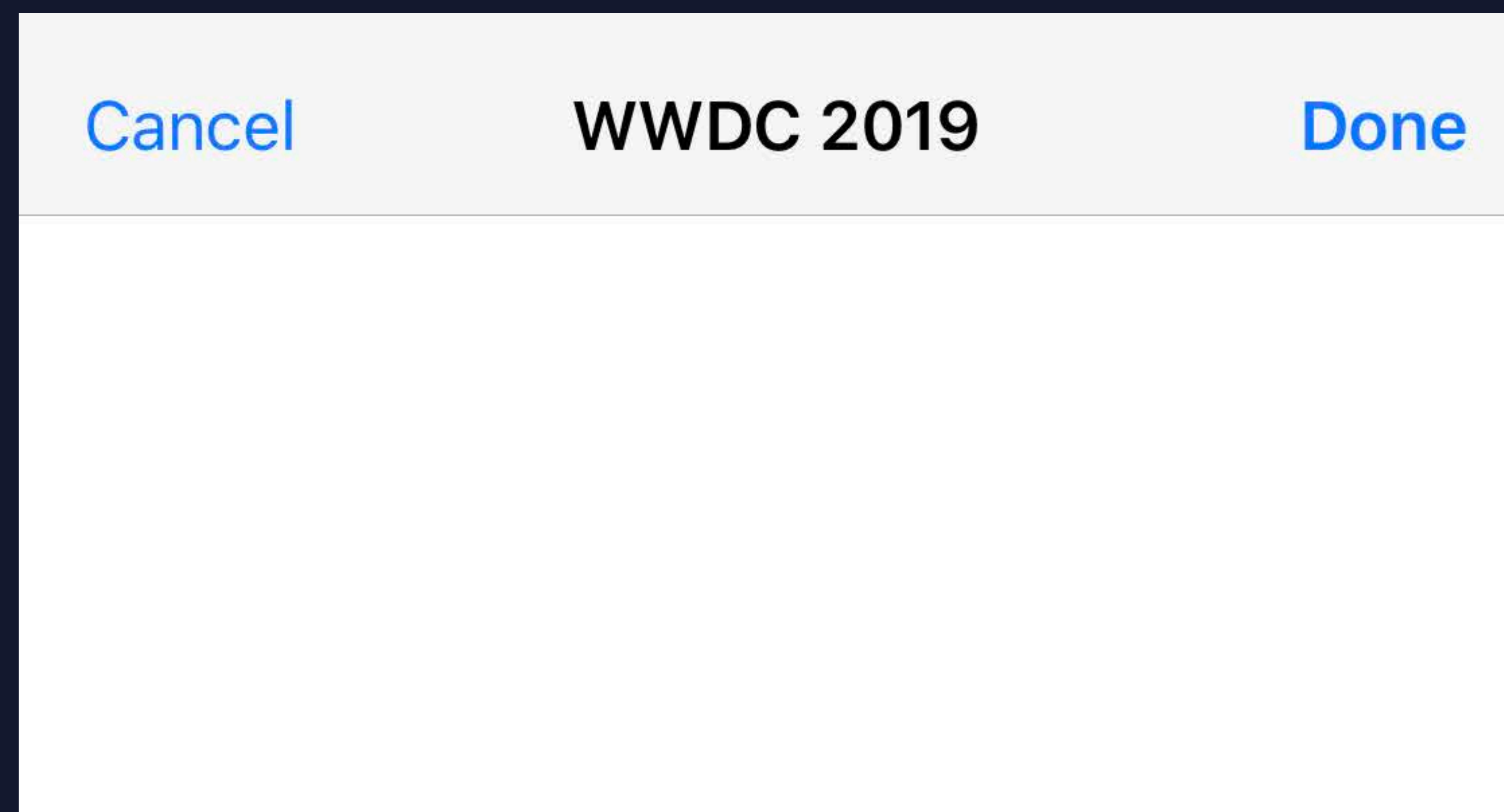
Done

**WWDC 2019**



```
// Customizing
```

```
.buttonAppearance
```



```
.doneButtonAppearance
```

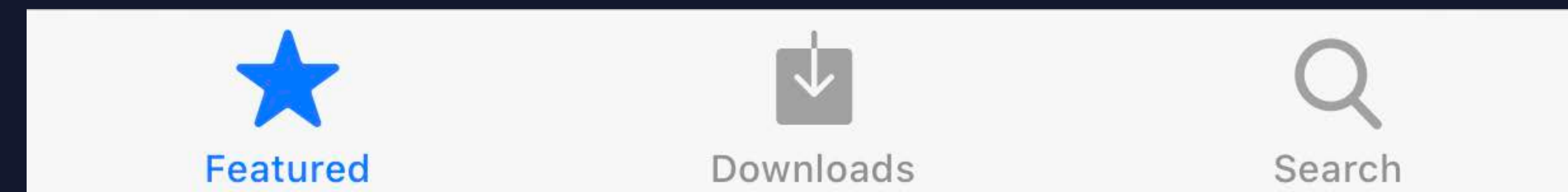
# Customizing Bars

UIToolbar: UIToolbarAppearance

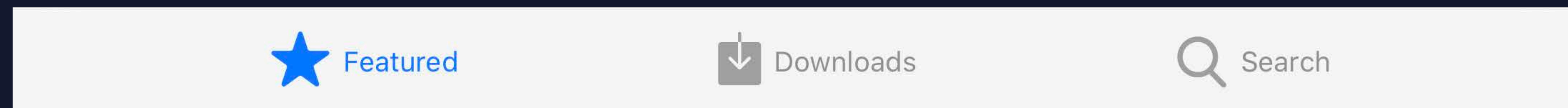
UITabBar: UITabBarAppearance

// Customizing

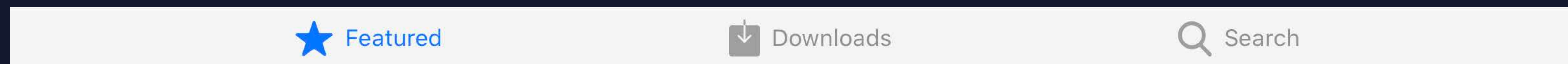
`.stackedLayoutAppearance`



`.inlineLayoutAppearance`



`.compactInlineLayoutAppearance`



9:41



Edit



1

Today



1

Scheduled



1

All

Local



Reminders

1 >

iCloud

UPGRADE



Reminders

0 >

Add List

9:41



Edit



1

Today



1

Scheduled



1

All

Local



Reminders

1 >

iCloud

UPGRADE



Reminders

0 >

Add List

```
let appearance = navigationBar.standardAppearance.copy()
```

```
// Configure whatever else you want
```

```
navigationItem.standardAppearance = appearance
```

```
let appearance = navigationBar.standardAppearance.copy()
```

```
// Configure whatever else you want
```

```
navigationItem.standardAppearance = appearance
```

```
let appearance = navigationBar.standardAppearance.copy()
```

```
// Configure whatever else you want
```

```
navigationItem.standardAppearance = appearance
```



```
let appearance = navigationBar.standardAppearance.copy()
```

```
// Configure whatever else you want
```

```
navigationItem.standardAppearance = appearance
```

# Presentations

Russell Ladd

9:41



Groups



# Contacts

Q Search



Jane Appleseed

My Card

A

Jane Appleseed

me

B

Emily Bergendahl

Allen Buchinski

D

Kat Dawson

Kevin Dolan

E

Aled Evans

F

Amy Frost

K

Ailish Kimber

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
#

9:41



Groups



# Contacts

Q Search



Jane Appleseed

My Card

A

Jane Appleseed

me

B

Emily Bergendahl

Allen Buchinski

D

Kat Dawson

Kevin Dolan

E

Aled Evans

F

Amy Frost

K

Ailish Kimber

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
#

9:41



Cancel

New Contact

Done



First name

Last name

Company

+ add phone

+ add email

Ringtone **Default** >

Text Tone **Default** >

9:41



Cancel

New Contact

Done



First name

Last name

Company

+ add phone

+ add email

Ringtone **Default** >

Text Tone **Default** >

Sheets

Sheet



UIModalPresentationStyle.pageSheet

```
UIModalPresentationStyle.pageSheet  
                          .formSheet
```

9:41



Cancel

# Photo Shoot



To: [Kat Dawson](#)

Cc/Bcc:

Subject: Photo Shoot

Hey Kat,

So we're all set for the photo shoot next week! Erica will be supervising the shoot of course. Andy will be getting there on the early side, around 5:30 AM (yikes) to get everything set up.

The rest of the crew will be getting in around 6:30 - 7:00. Would you mind picking up some coffee and bagels for them? I'm sure everyone will appreciate some nosh and caffeine.

We'll be meeting up on the north side of the parking lot (across the street from the residence). Traffic shouldn't be too bad. It's typically light on Friday. You should bring some money to pay for the parking permit.

It's going to be great! See ya in a couple days. Holler if you need anything in the meantime.

Best, Jane.

Cancel

Photo Shoot



To: [Kat Dawson](#)

Cc/Bcc:

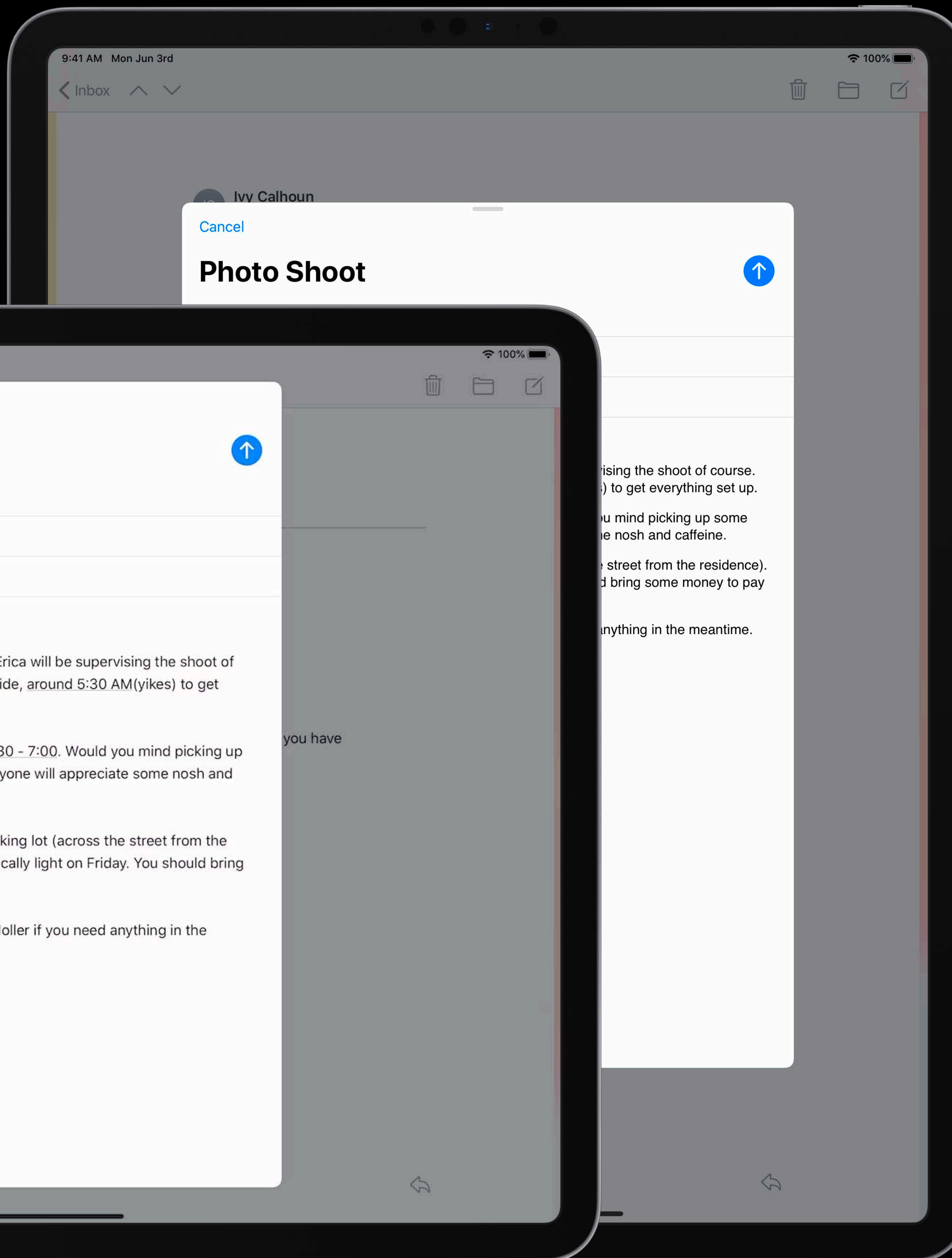
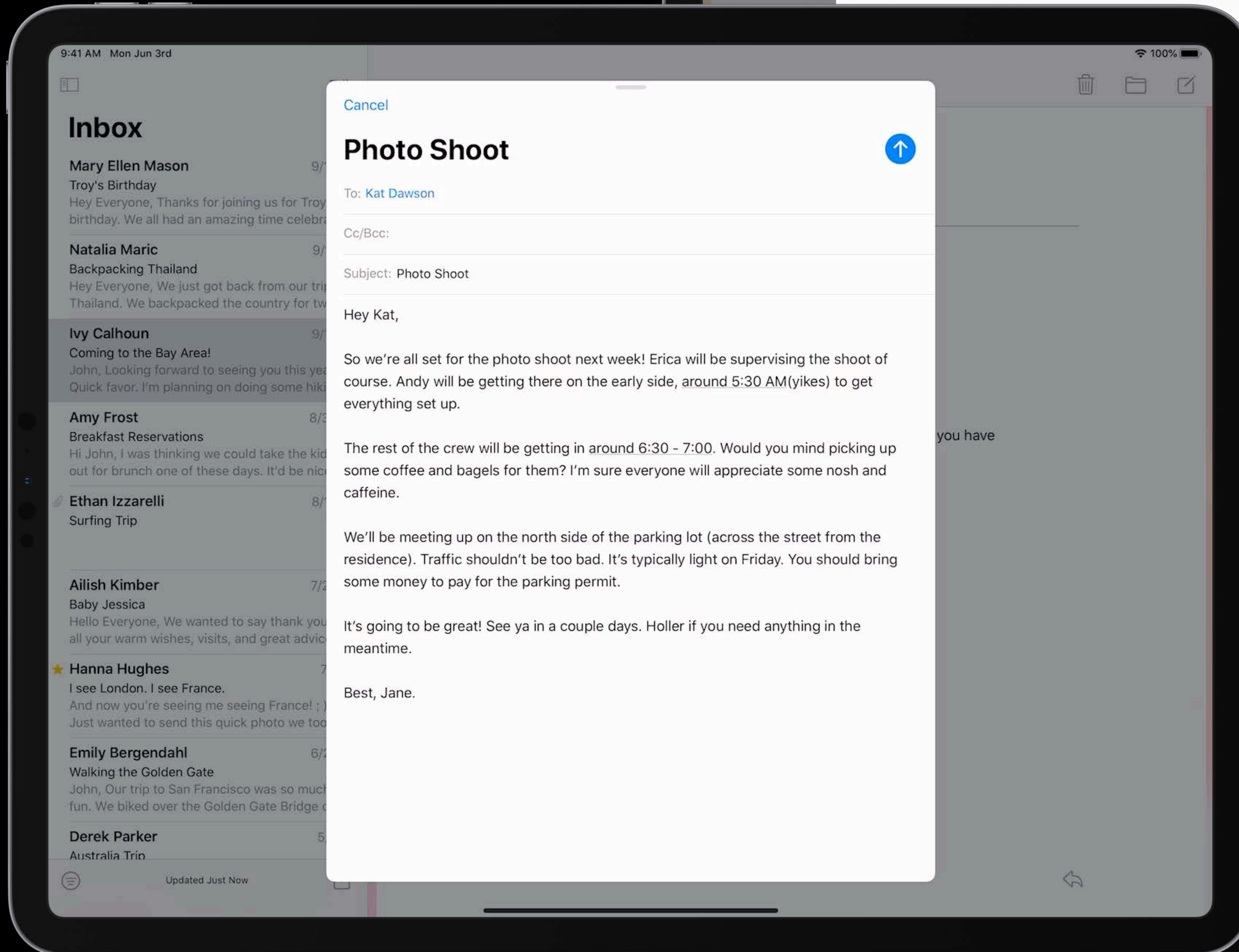
Subject: Photo Shoot

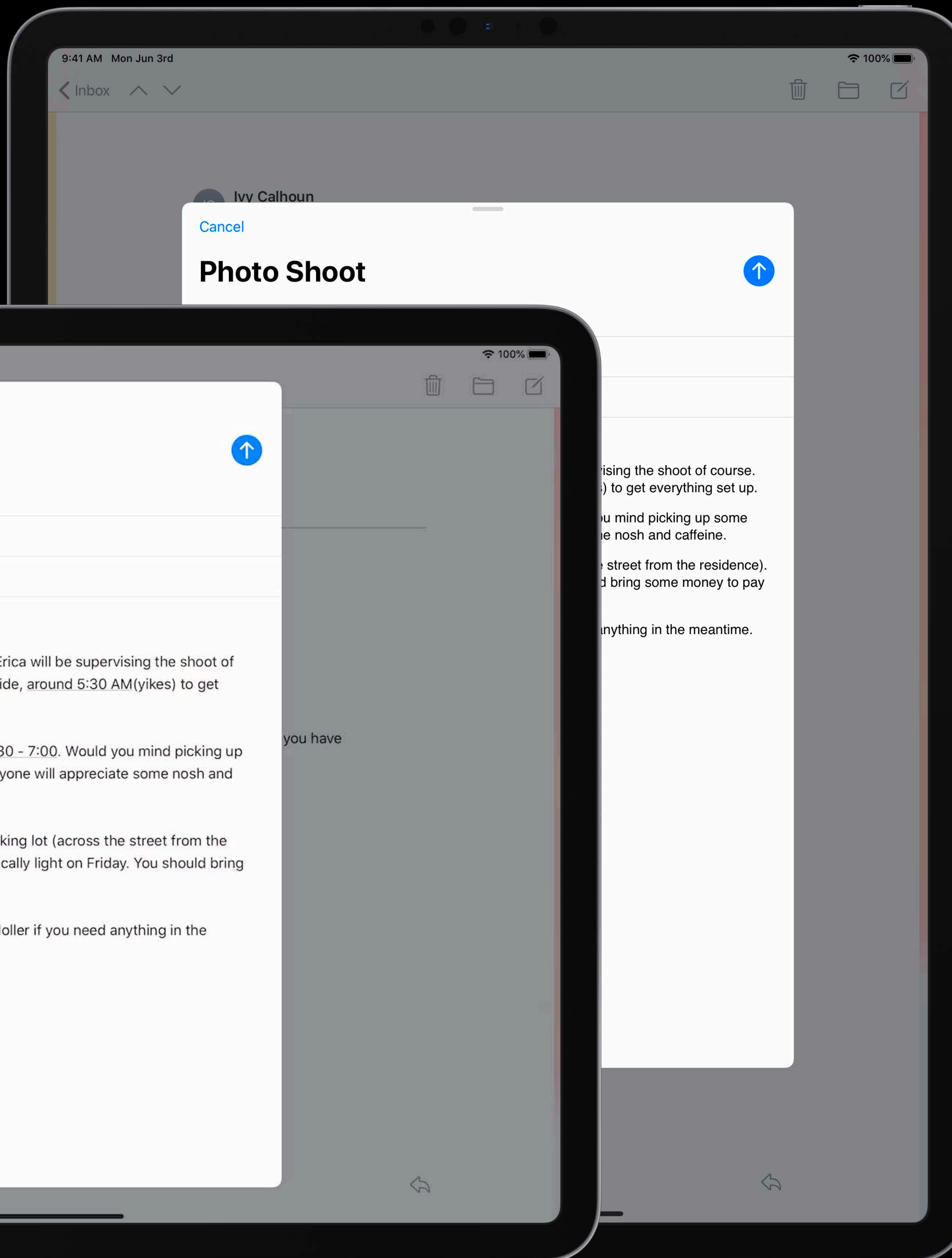
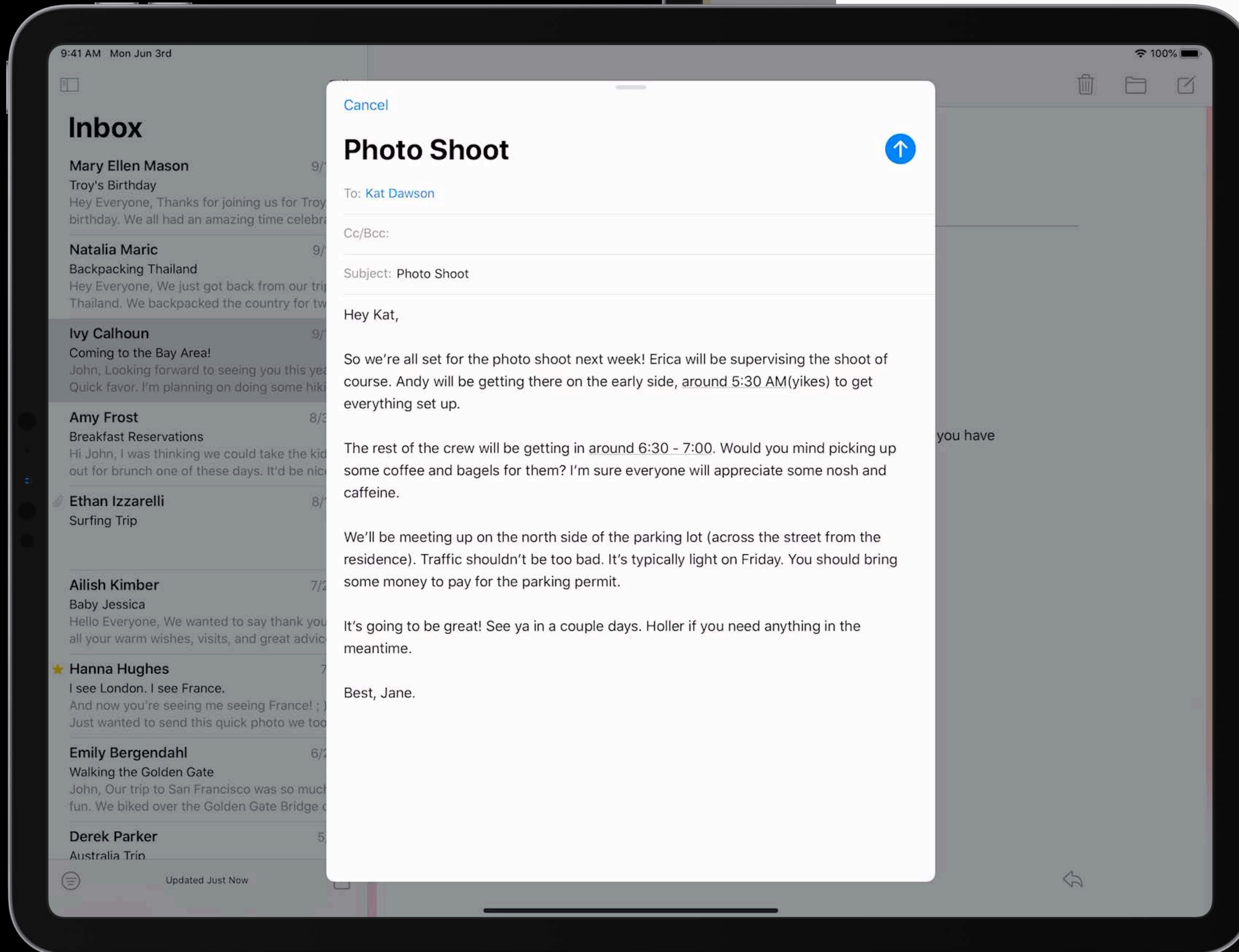
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Ivy Calhoun

Cancel

## Photo Shoot



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Cc/Bcc:

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Best, Jane.



Ivy Calhoun

Cancel

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Cc/Bcc:

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It's going to be great in the meantime.

Best, Jane.

Readable Width



Cancel

## Photo Shoot



To: [Kat Dawson](#)

Cc/Bcc:

Subject: Photo Shoot

Hey Kat,

So we're all set for the photo shoot next week! Erica will be supervising the shoot of course. Andy will be getting there on the early side, around 5:30 AM (yikes) to get everything set up.

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It's going to be great! See you **Readable Width** thing in the meantime.

Best, Jane.





Cancel

## Photo Shoot



To: [Kat Dawson](#)

Cc/Bcc:

Subject: Photo Shoot

Hey Kat,

So we're all set for the photo shoot next week! Erica will be supervising the shoot of course. Andy will be getting there on the early side, around 5:30 AM (yikes) to get everything set up.

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We'll be meeting up on the north side of the parking lot (across the street from the residence). Traffic shouldn't be too bad. It's typically light on Friday. You should bring some money to pay for the

Readable Width

It's going to be great! See ya in a couple days. Holler if you need anything in the meantime.

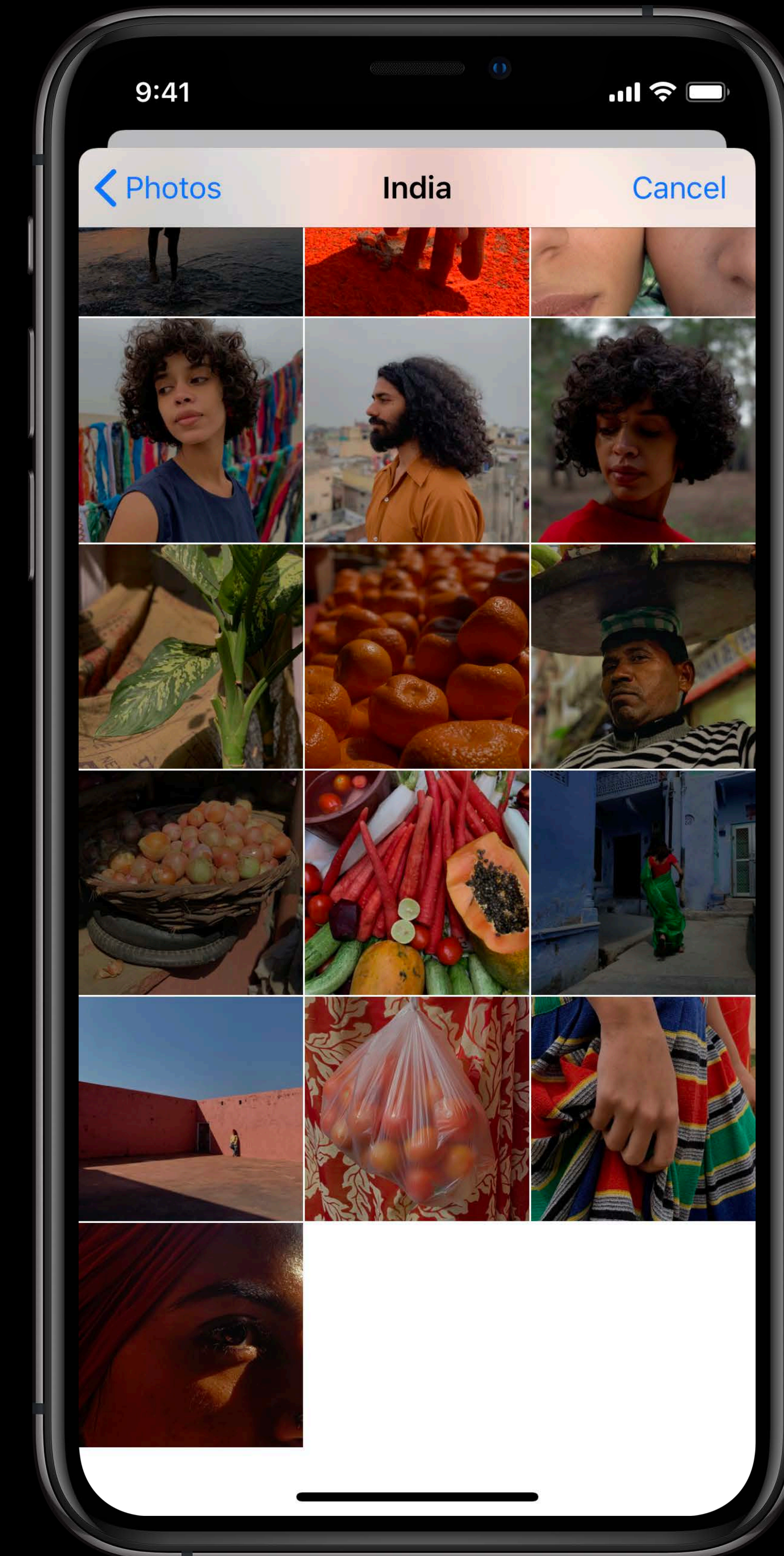
Best, Jane.

```
UIModalPresentationStyle.pageSheet  
                          .formSheet
```

NEW

```
UIModalPresentationStyle.automatic  
                          .pageSheet  
                          .formSheet
```

```
class MyViewController: UIViewController {  
  
    func pickPhoto() {  
        let imagePicker = UIImagePickerController()  
        imagePicker.sourceType = .photoLibrary  
        present(imagePicker, animated: true)  
    }  
  
    func presentCamera() {  
        let camera = UIImagePickerController()  
        camera.sourceType = .camera  
        present(camera, animated: true)  
    }  
}
```



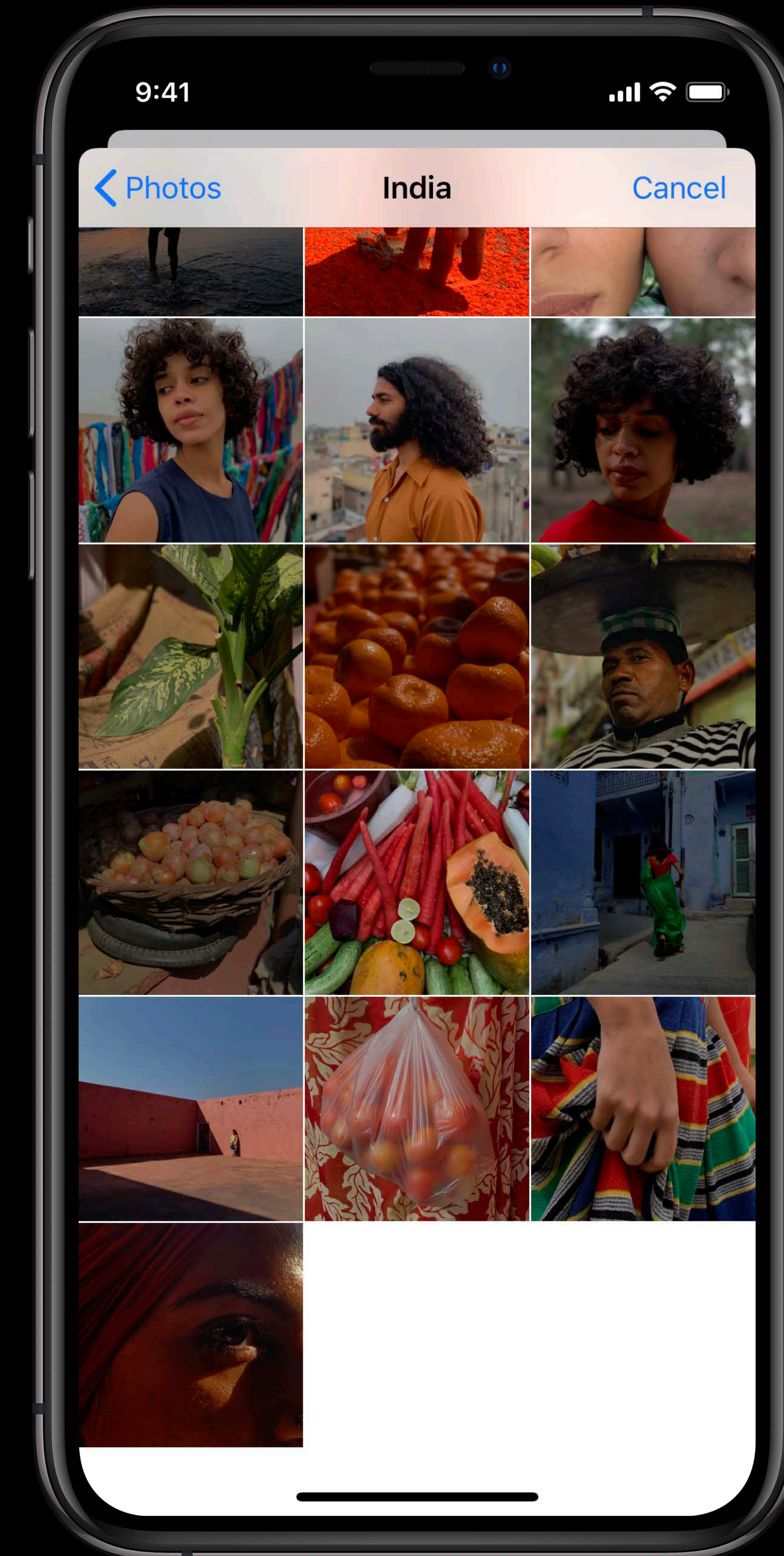
```

class MyViewController: UIViewController {

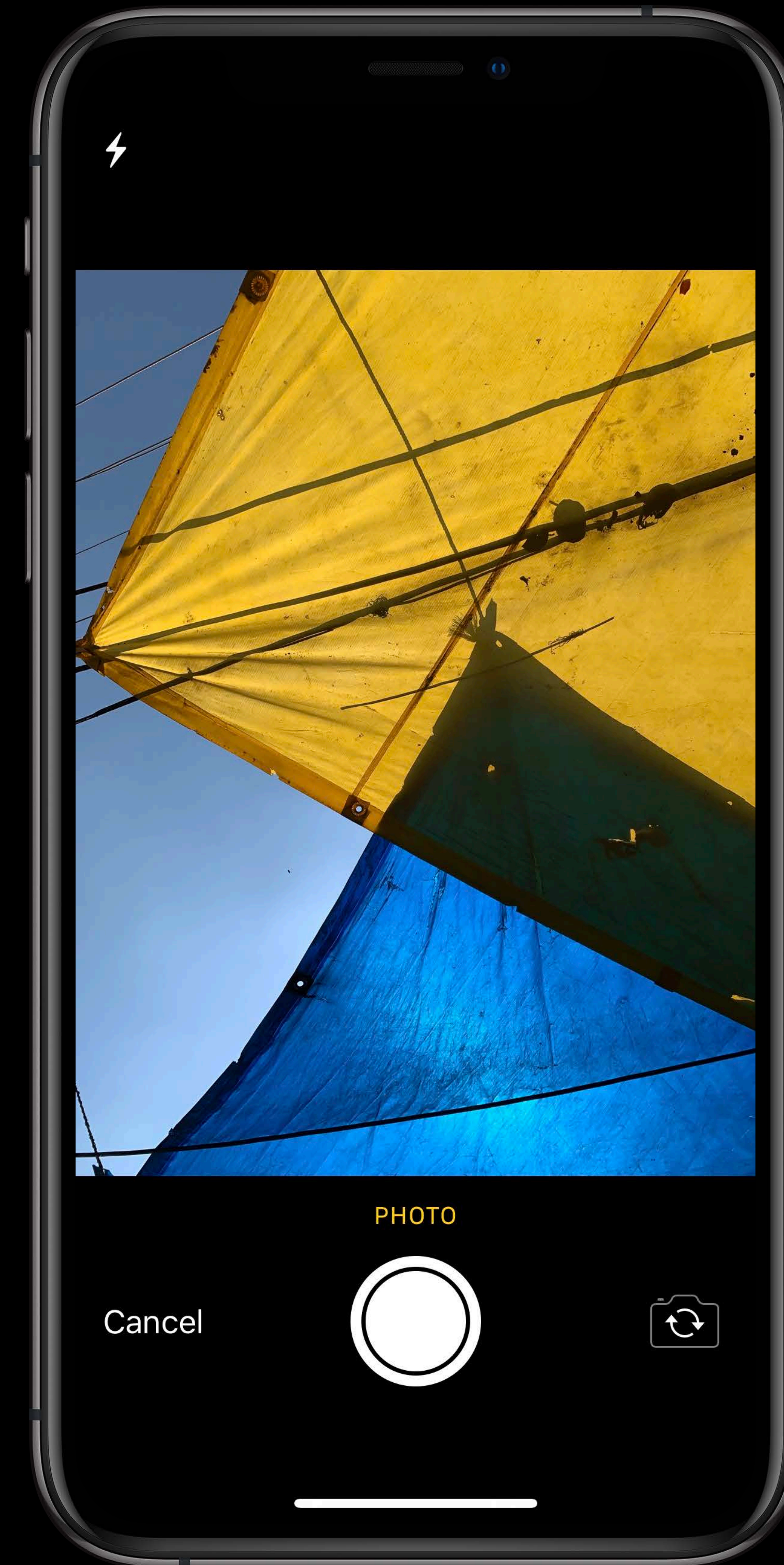
    func pickPhoto() {
        let imagePicker = UIImagePickerController()
        imagePicker.sourceType = .photoLibrary
        present(imagePicker, animated: true)
    }

    func presentCamera() {
        let camera = UIImagePickerController()
        camera.sourceType = .camera
        present(camera, animated: true)
    }
}

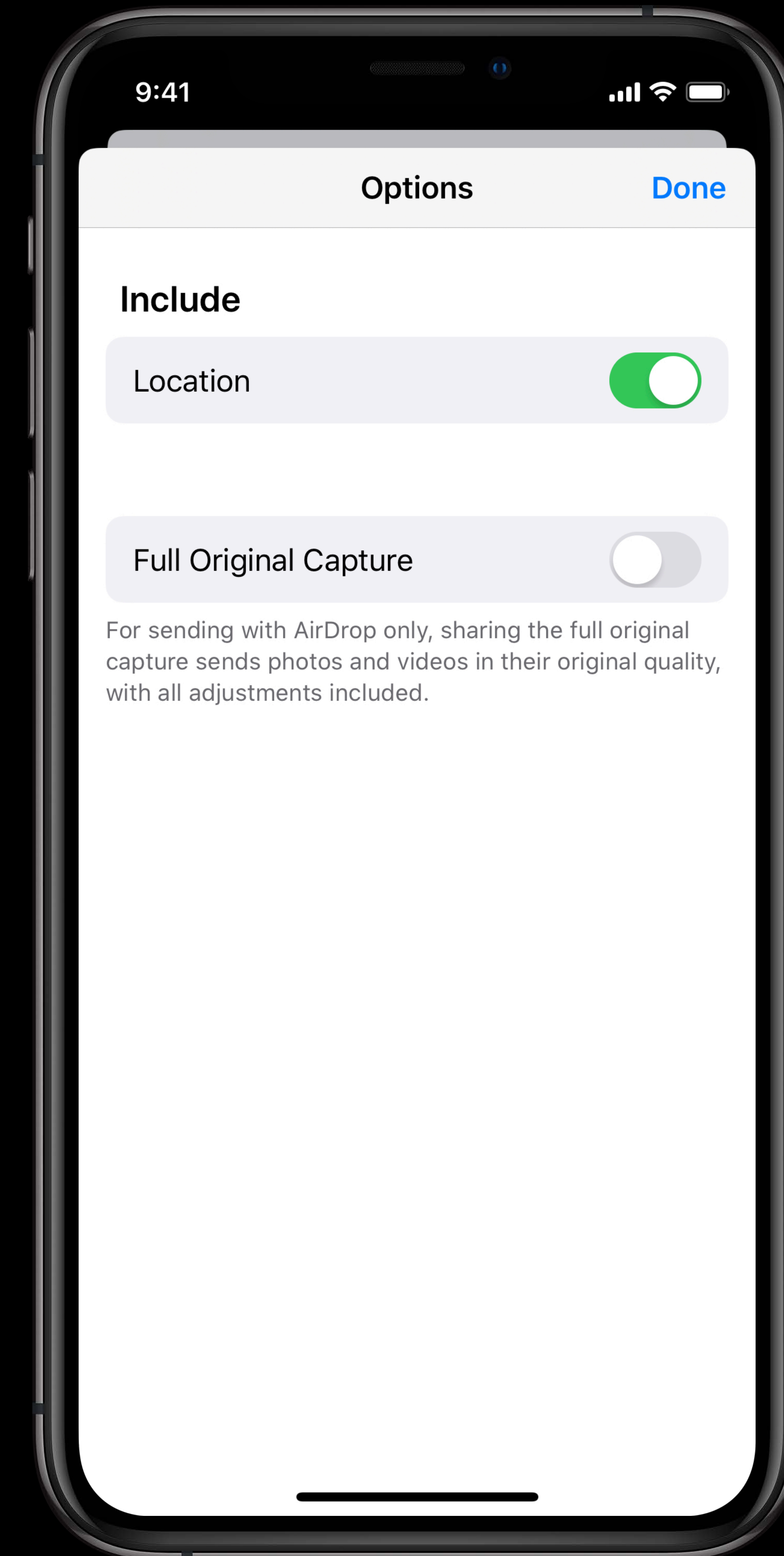
```



```
class MyViewController: UIViewController {  
  
    func pickPhoto() {  
        let imagePicker = UIImagePickerController()  
        imagePicker.sourceType = .photoLibrary  
        present(imagePicker, animated: true)  
    }  
  
    func presentCamera() {  
        let camera = UIImagePickerController()  
        camera.sourceType = .camera  
        present(camera, animated: true)  
    }  
}
```



```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        present(cameraVC, animated: true)  
    }  
}
```

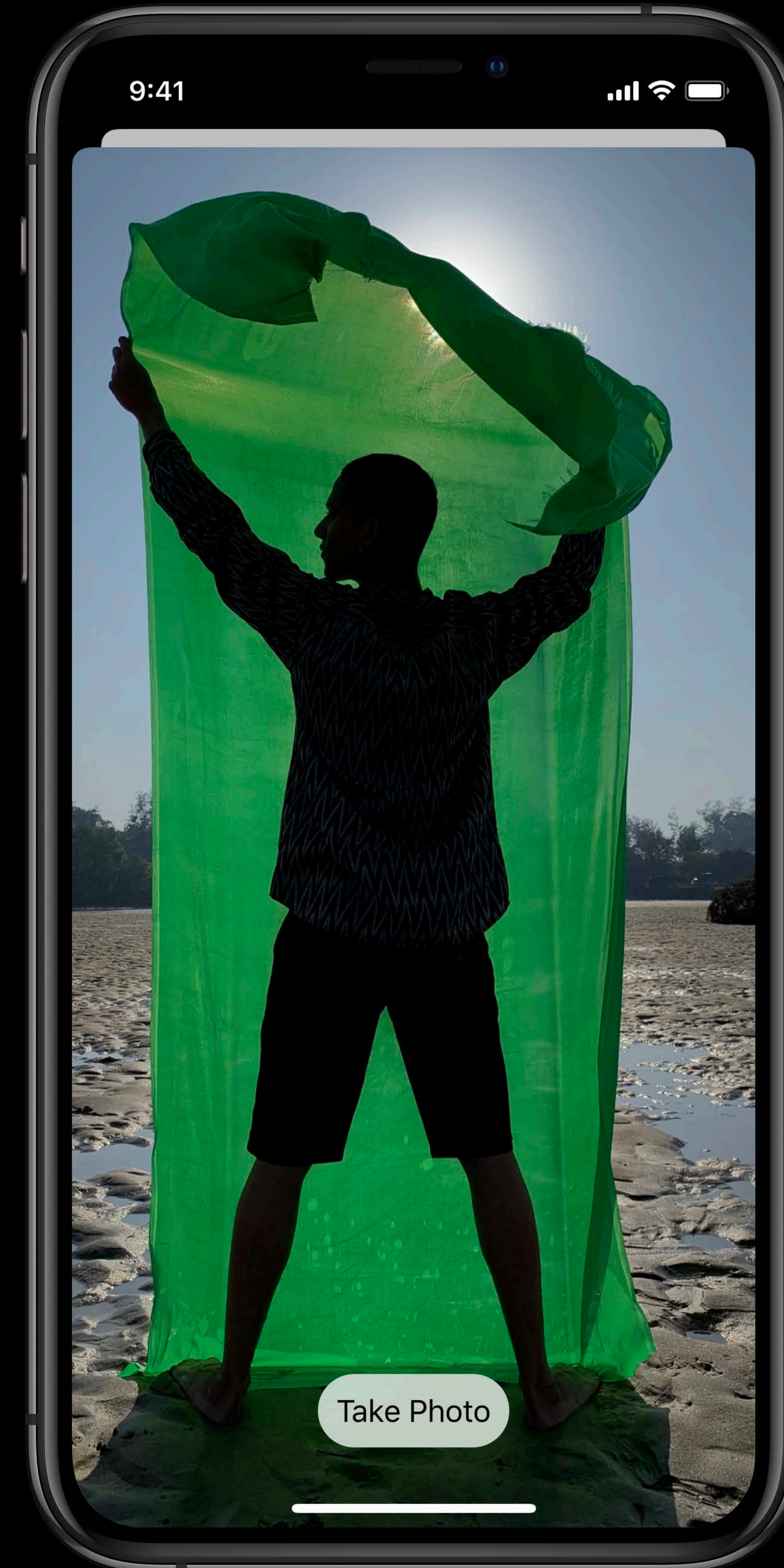


```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        present(cameraVC, animated: true)  
    }  
}
```

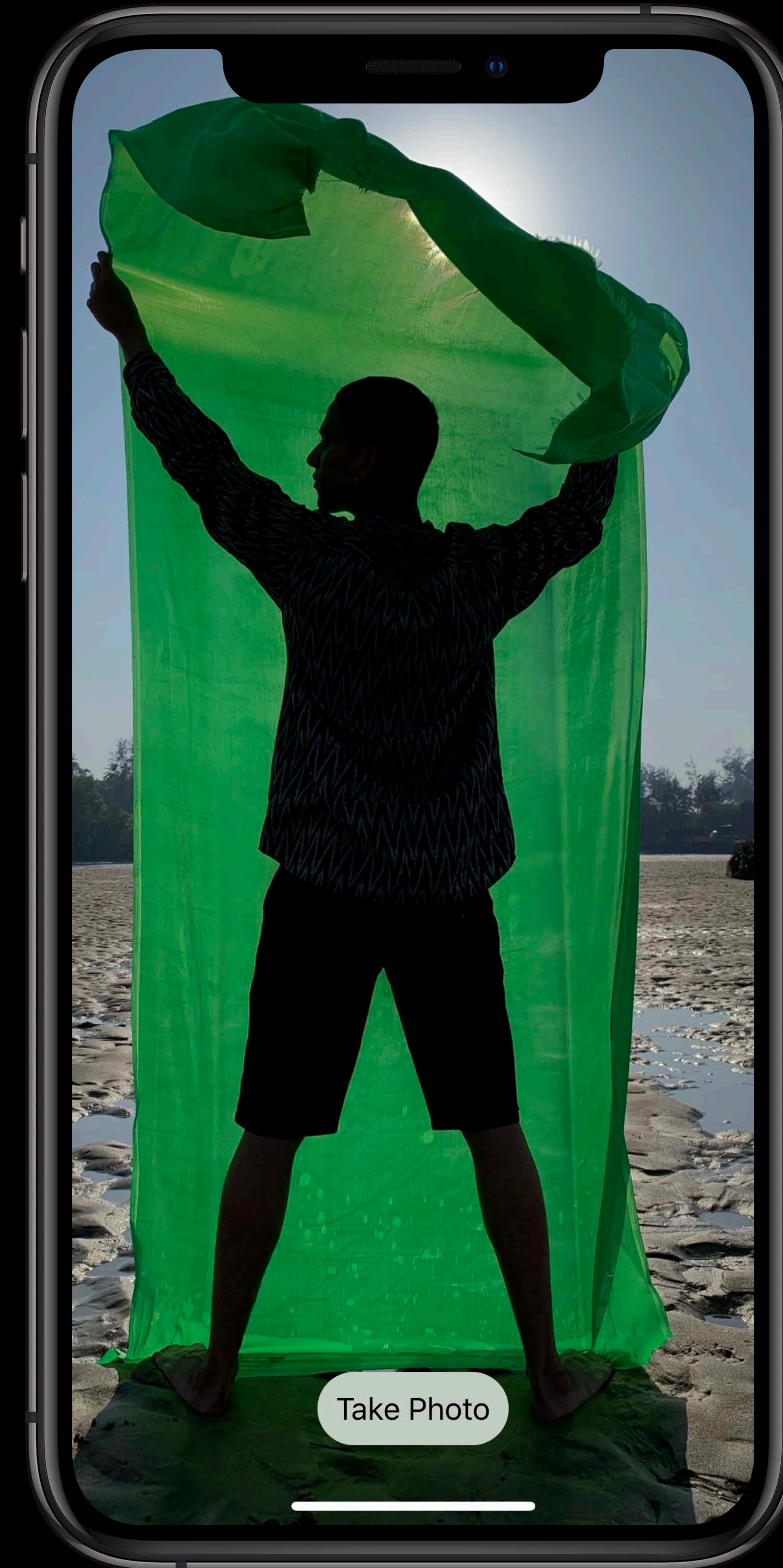




```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        present(cameraVC, animated: true)  
    }  
}
```

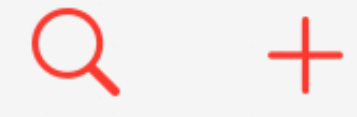


```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        cameraVC.modalPresentationStyle = .fullScreen  
        present(cameraVC, animated: true)  
    }  
}
```



# June 2019

Day Week Month Year



Sun 2 Mon 3 Tue 4 Wed 5 Thu 6 Fri 7 Sat 8

12 AM  
1 AM  
2 AM  
3 AM  
4 AM  
5 AM  
6 AM  
7 AM  
8 AM  
9 AM  
10 AM  
11 AM  
Noon

No Events

Today

Calendars

Inbox

## Recents

Search

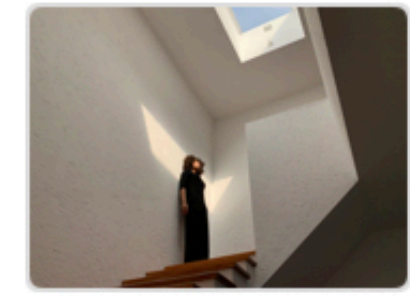


Photo 1  
Today at 12:24 AM  
4.3 MB



Photo 2  
Today at 12:24 AM  
2.8 MB

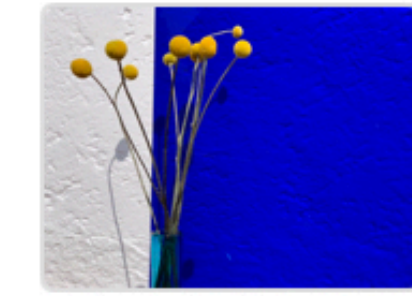


Photo 3  
Today at 12:24 AM  
2.4 MB



Photo 4  
Today at 12:24 AM  
2.9 MB



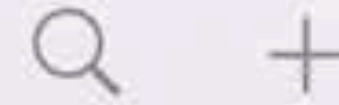
Photo 5  
Today at 12:24 AM  
3.7 MB

Recents

Browse

# June 2019

Day Week Month Year



Sun 2 Mon 3 Tue 4

Cancel New Event Add

12 AM  
1 AM  
2 AM  
3 AM  
4 AM  
5 AM  
6 AM  
7 AM  
8 AM  
9 AM  
10 AM  
11 AM  
Noon

Title

Location

All-day

Starts Jun 3, 2019 12:00 AM

Ends 1:00 AM

Repeat Never >

Travel Time None >

Calendar • Home >

Invitees None >

Alert None >

# Recents

Search

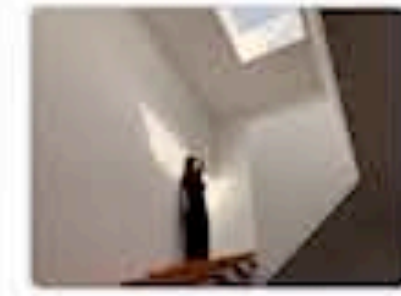


Photo 1  
Today at 12:24 AM  
4.3 MB



Photo 2  
Today at 12:24 AM  
2.8 MB



Photo 3  
Today at 12:24 AM  
2.4 MB



Photo 4  
Today at 12:24 AM  
2.9 MB



Photo 5  
Today at 12:24 AM  
3.7 MB

# June 2019

Day Week Month Year



Sun 2 Mon 3 Tue 4

Cancel New Event Add

12 AM  
1 AM  
2 AM  
3 AM  
4 AM  
5 AM  
6 AM  
7 AM  
8 AM  
9 AM  
10 AM  
11 AM  
Noon

Title

Location

All-day

Starts Jun 3, 2019 12:00 AM

Ends 1:00 AM

Repeat Never >

Travel Time None >

Calendar • Home >

Invitees None >

Alert None >

Today

Calendars

Inbox

# Recents

Search

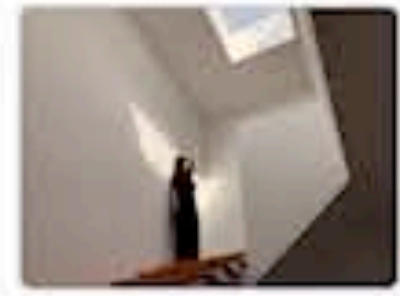


Photo 1  
Today at 12:24 AM  
4.3 MB



Photo 2  
Today at 12:24 AM  
2.8 MB



Photo 3  
Today at 12:24 AM  
2.4 MB

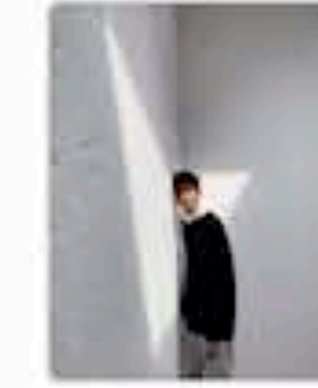


Photo 4  
Today at 12:24 AM  
2.9 MB



Photo 5  
Today at 12:24 AM  
3.7 MB

Recents

Browse

Cancel New Event Add

Title

Location

All-day

Starts Jun 3, 2019 12:00 AM

Ends 1:00 AM

Repeat Never >

Travel Time None >

Calendar • Home >

Invitees None >

Alert None >

Show As Busy >

Add attachment...

URL

Notes

# Recents

Search

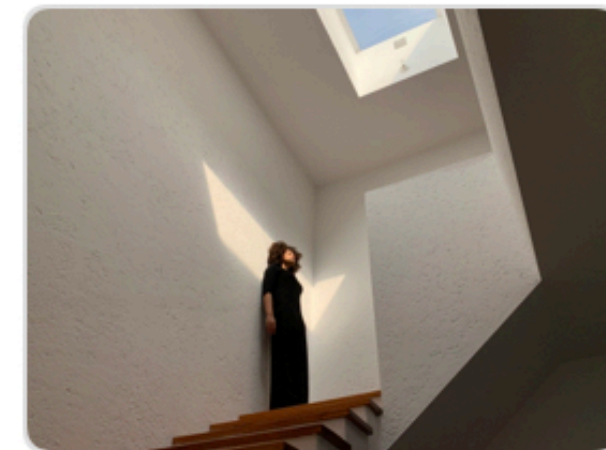


Photo 1  
Today at 12:24 AM  
4.3 MB



Photo 2  
Today at 12:24 AM  
2.8 MB

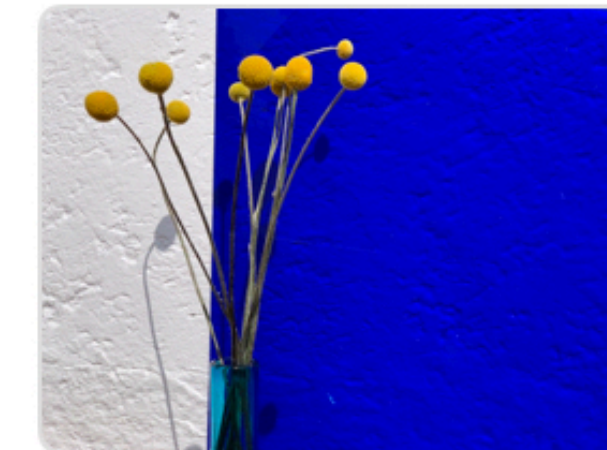


Photo 3  
Today at 12:24 AM  
2.4 MB

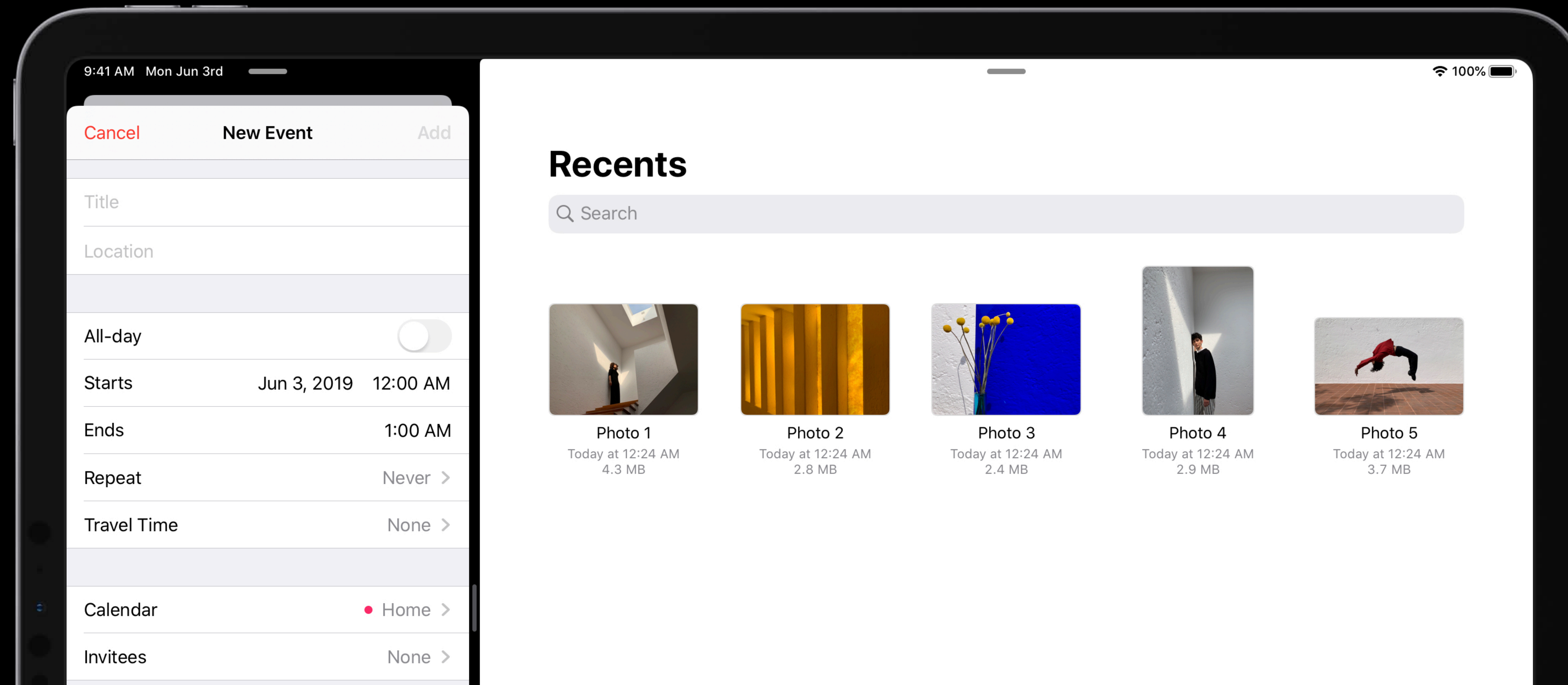


Photo 4  
Today at 12:24 AM  
2.9 MB

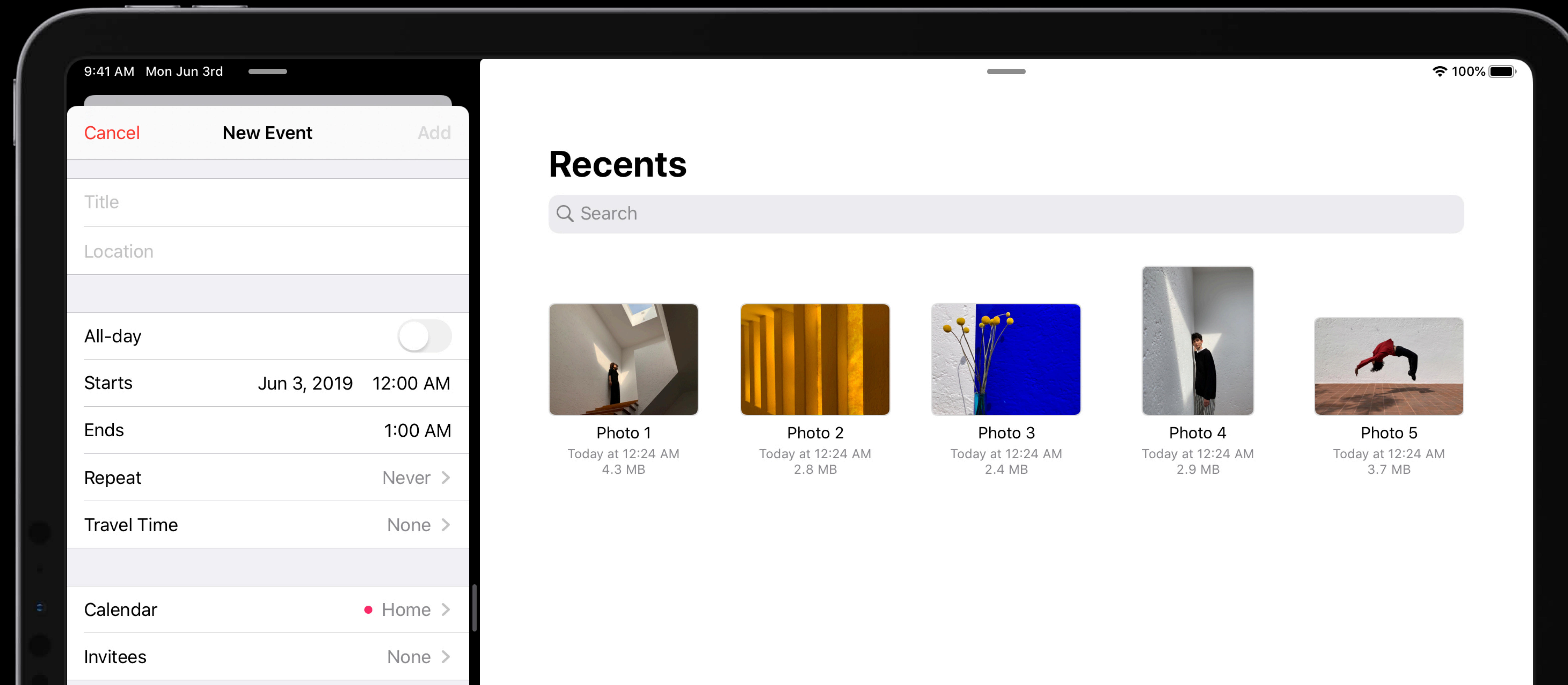


Photo 5  
Today at 12:24 AM  
3.7 MB

```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        optionsVC.modalPresentationStyle = .popover  
        present(optionsVC, animated: true)  
    }  
}
```



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Done

 Jane Appleseed  
To: Kat Dawson >

---

### Photo Shoot

Today at 8:17 PM

Hey Kat,

So we're all set for the photo shoot next week! Erica will be supervising the shoot of course. Andy will be getting there on the early side, around 5:30 AM (yikes) to get everything set up.

The rest of the crew will be getting in around 6:30 - 7:00. Would you mind picking up some coffee and bagels for them? I'm sure everyone will appreciate some nosh and caffeine.


We'll be meeting up on the north side of the parking lot (across the street from the residence). Traffic shouldn't be too bad. It's typically light on Friday. You should bring some money to pay for the parking permit.

It's going to be great! See ya in a couple days. Holler if you need anything in the meantime.

Best, Jane.



Done

 Jane Appleseed  
To: Kat Dawson >

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It's going to be great! See ya in a couple days. Holler if you need anything in the meantime.

Best, Jane.



Done

Jane Appleseed

Cancel

## Re: Photo Shoot

To: Jane Appleseed

Cc/Bcc:

Subject: Re: Photo Shoot

On Jun 2, 2019, at 8:17 PM, Jane Appleseed <j.appleseed@icloud.com> wrote:

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Done

Jane Appleseed

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Done

 Jane Appleseed  
To: Kat Dawson >

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NEW

```
class EmailController: UIViewController, UIAdaptivePresentationControllerDelegate {  
  
    func draftDidChange() {  
        isModalInPresentation = draft.hasChanges  
    }  
  
    func presentationControllerDidAttemptToDismiss(_: UIPresentationController) {  
        // Present action sheet  
    }  
}
```



NEW

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}
```

User Begins Pulling

```
presentedViewController  
.isModalInPresentation
```

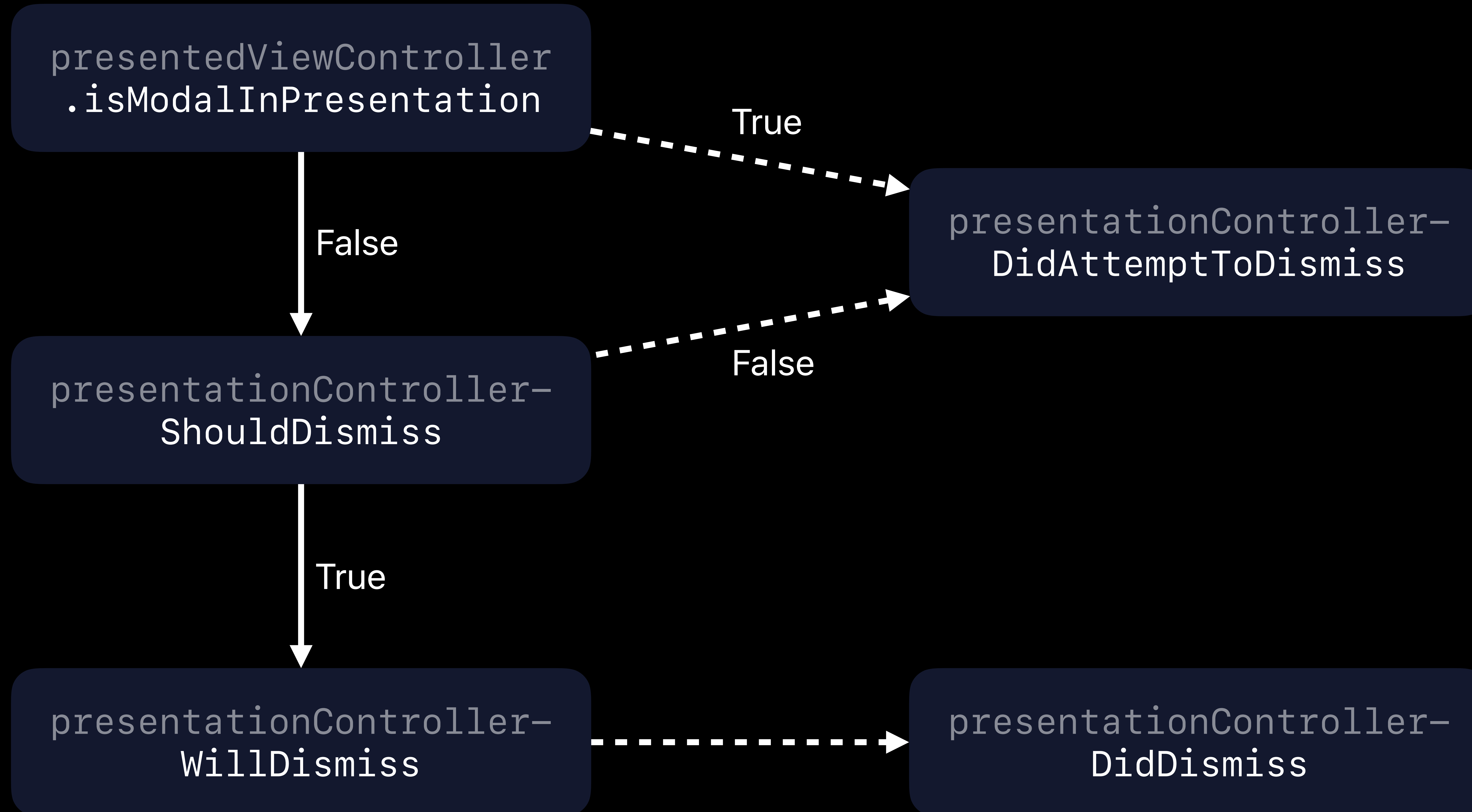
True

User Releases with Intent

```
presentationController-  
DidAttemptToDismiss
```

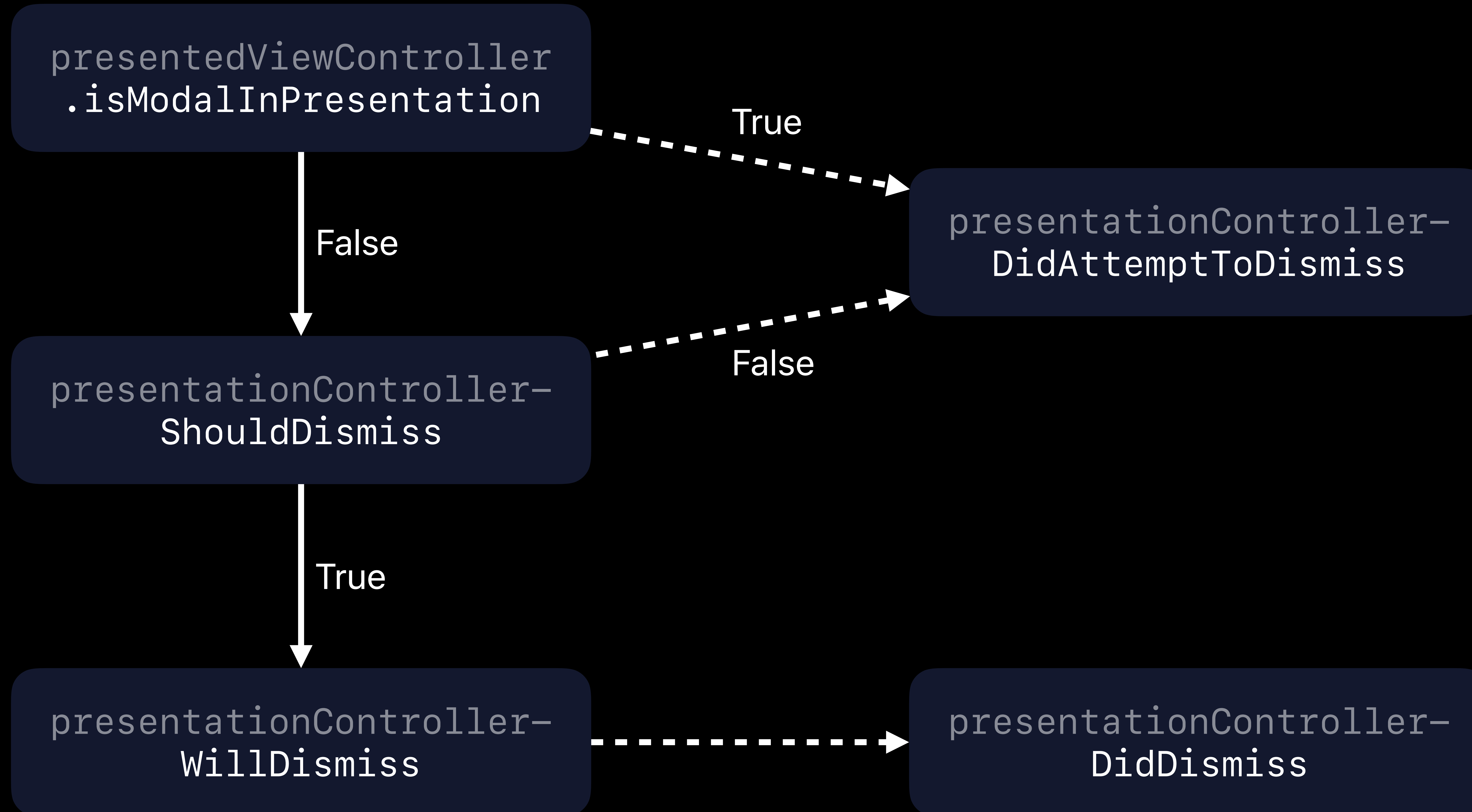
User Begins Pulling

User Releases with Intent



User Begins Pulling

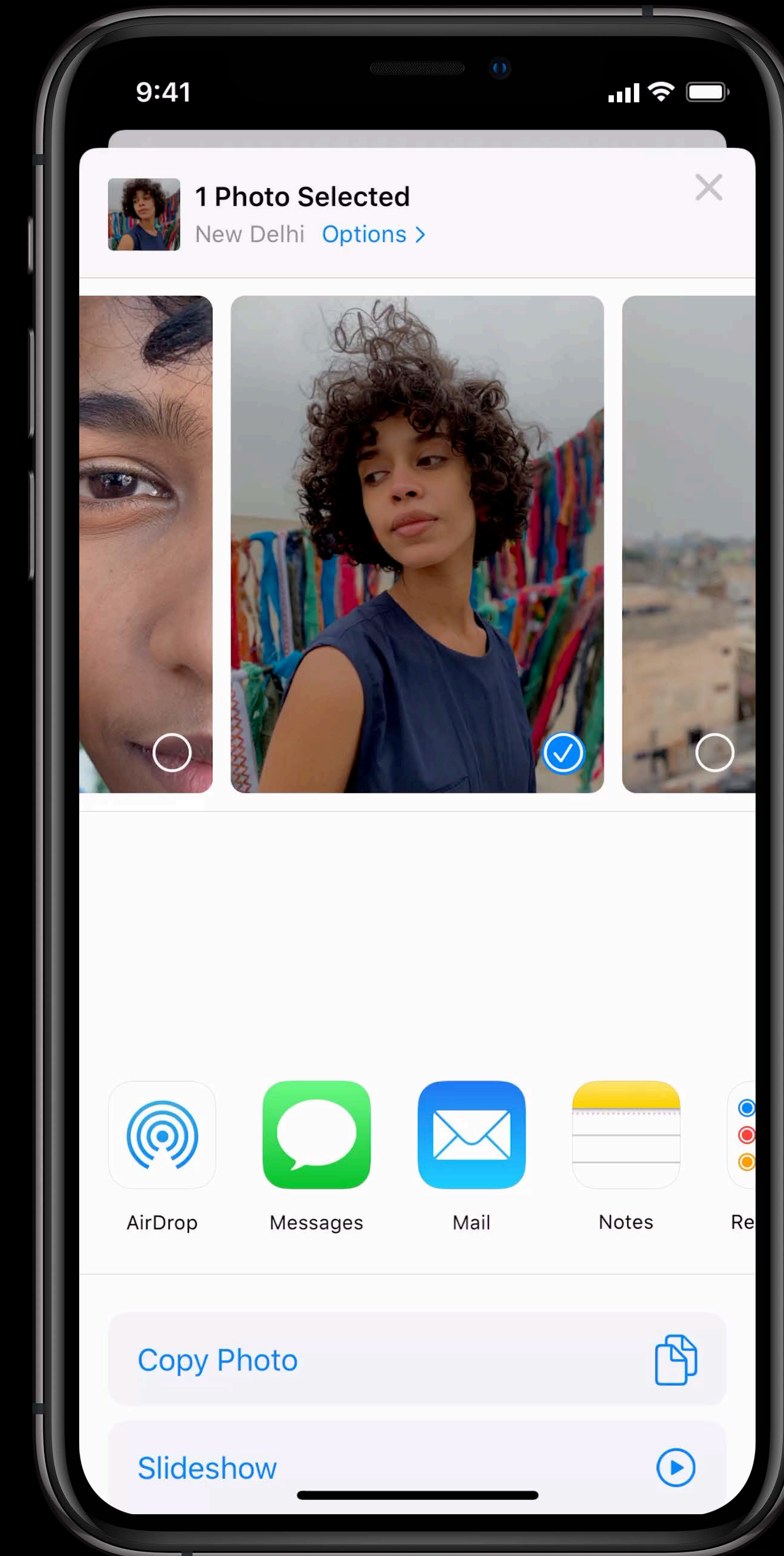
User Releases with Intent



# Share Extensions

## Principal View Controller

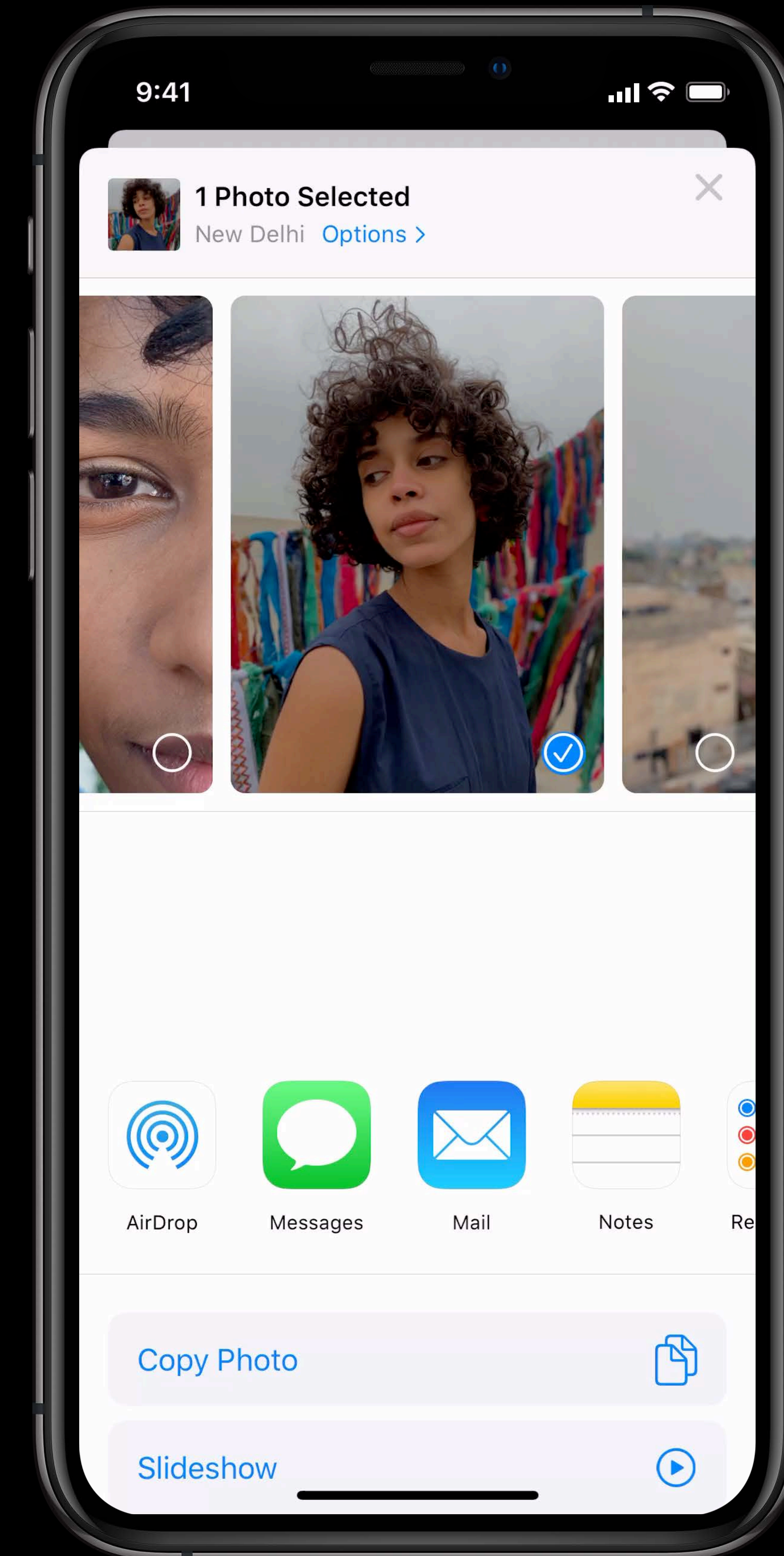
- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`



# Share Extensions

## Principal View Controller

- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`

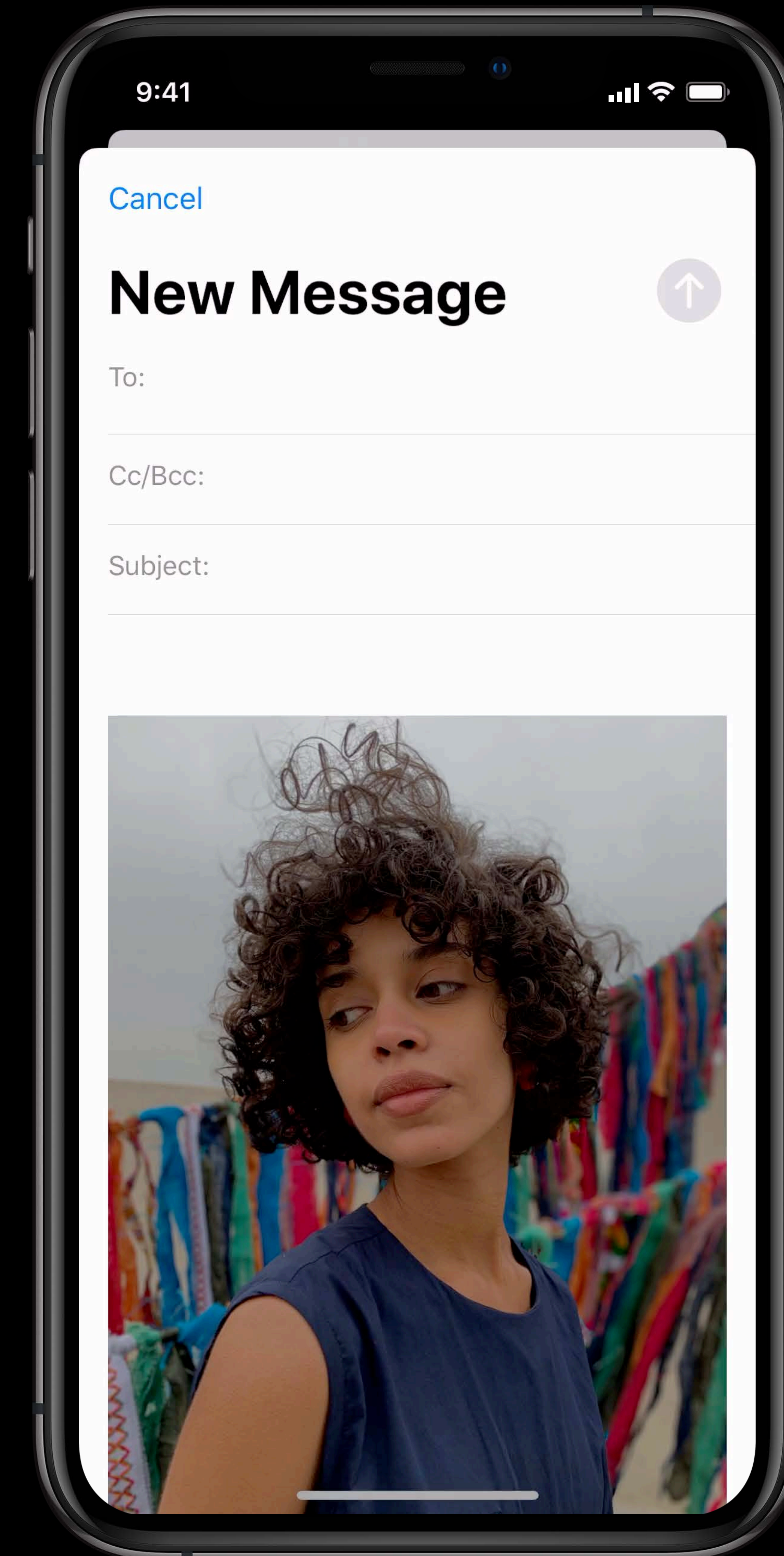




# Share Extensions

## Principal View Controller

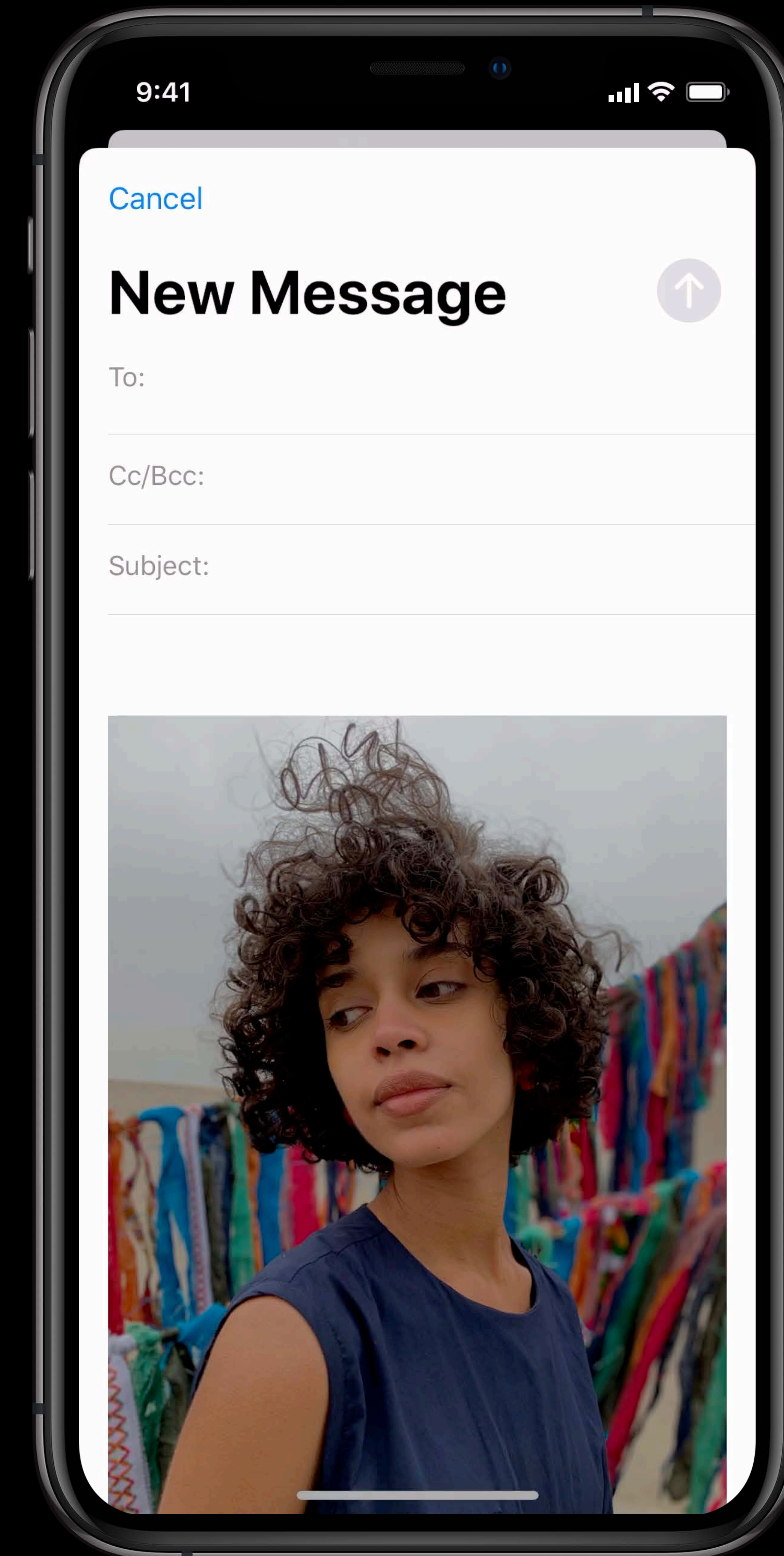
- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`



# Share Extensions

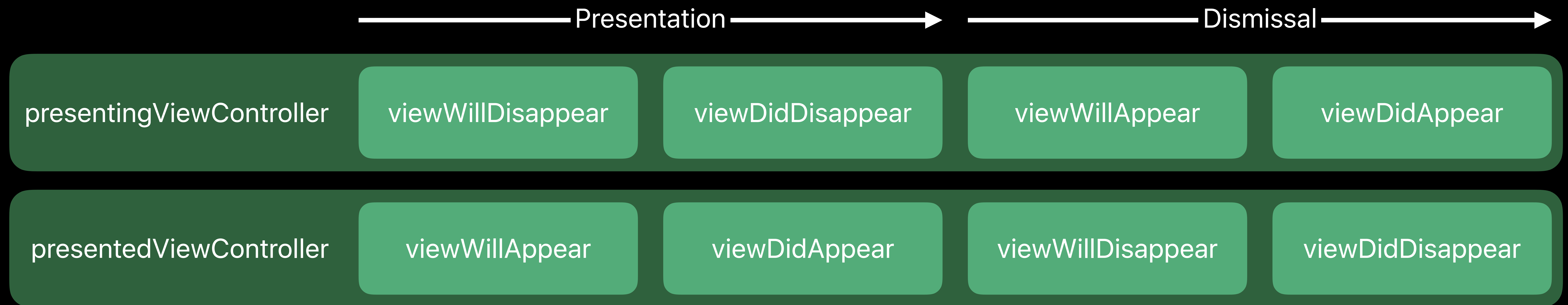
## Principal View Controller

- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`



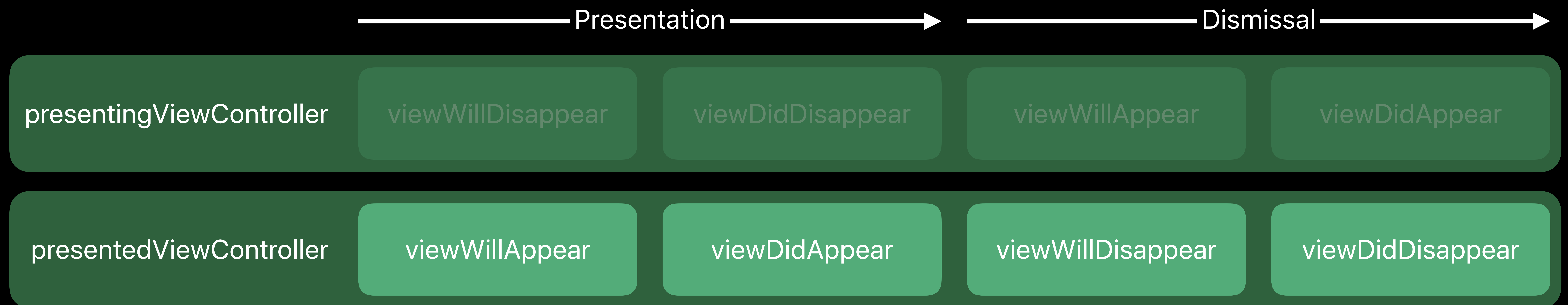
# Appearance Callbacks

Full Screen



# Appearance Callbacks

## Page and Form Sheet



UIWindow

rootViewController.view

UIWindow

Private UIKit View(s)

rootViewController.view

# Updating Your App

Use sheets

Implement the modal flow

# Search

Kyle Sluder



9:41



🔍 Ailish ✕ Cancel

All Mailboxes Current Mailbox

🔍 Search for "Ailish"

**Top Hits**

● **Ailish Kimber** Thursday >  
Re: Financial report for Q1  
Hey guys, I'm attaching the latest version to th...

**Ailish Kimber** Thursday >  
Lunch Thursday?  
Hey Simon, Are you free for lunch on Thursday...

**People**

- 👤 Ailish Kimber
- 👤 Sender contains: Ailish

**Subjects**

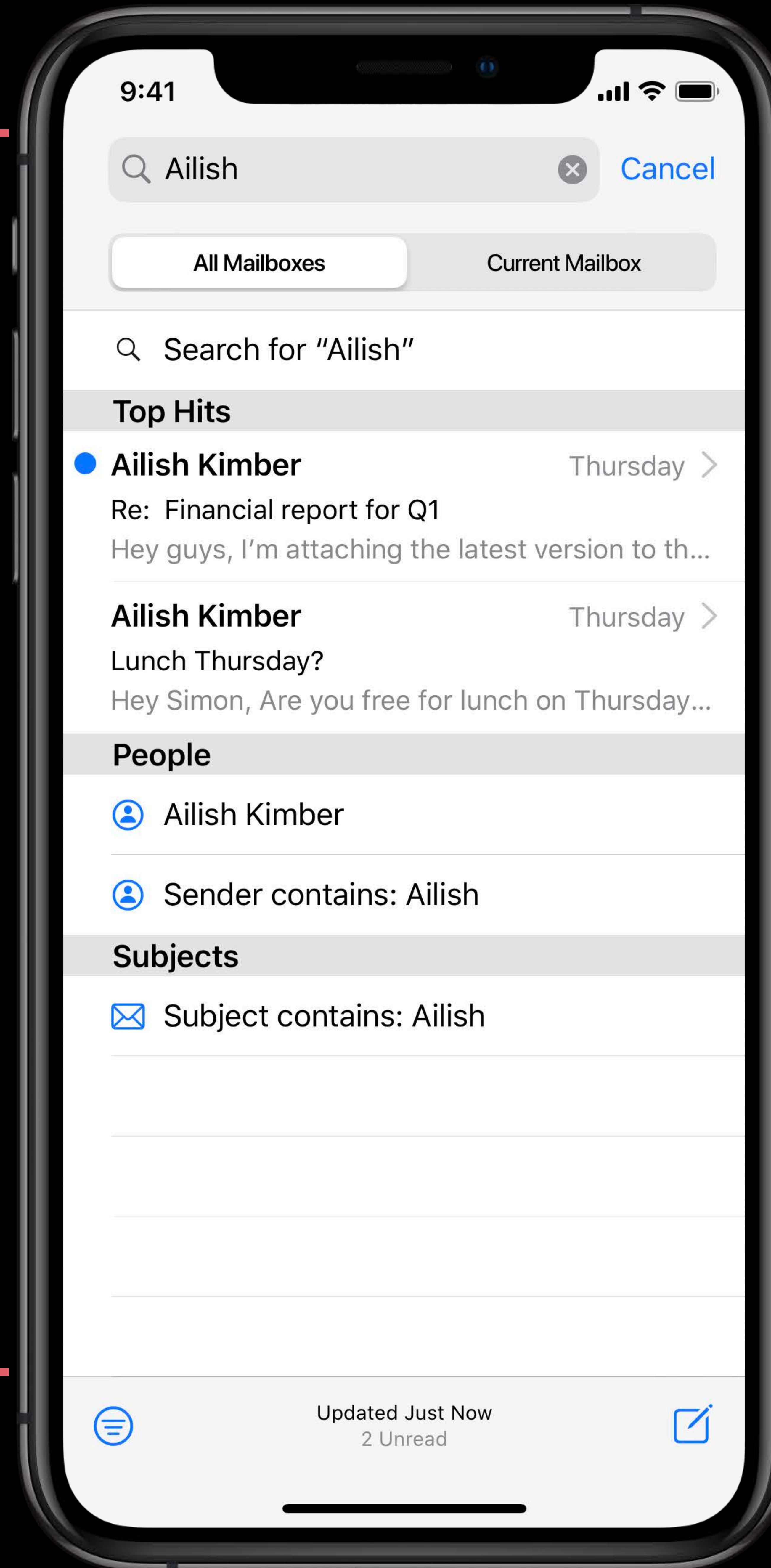
- ✉ Subject contains: Ailish



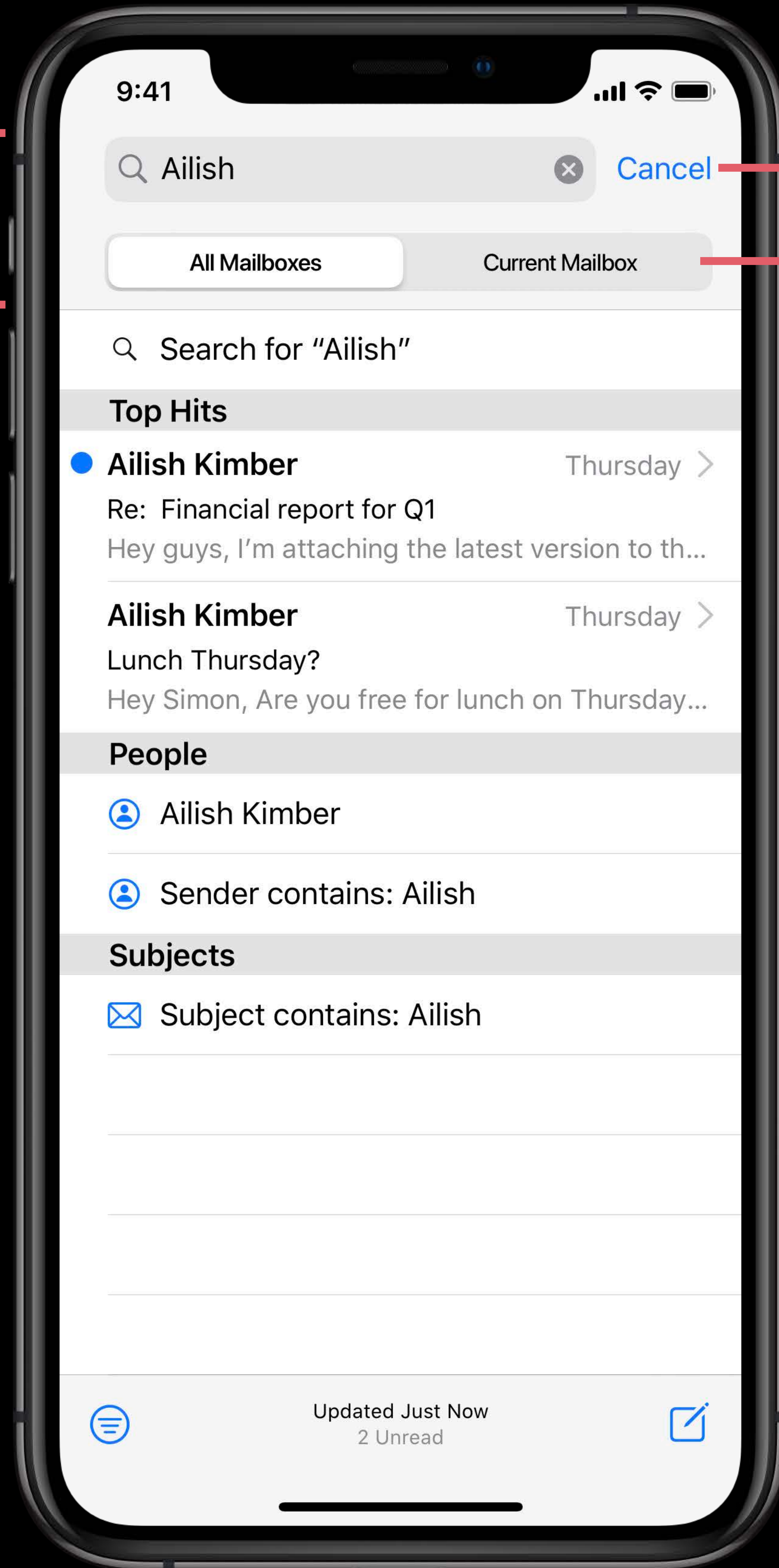
Updated Just Now  
2 Unread



UISearchController



UISearchBar

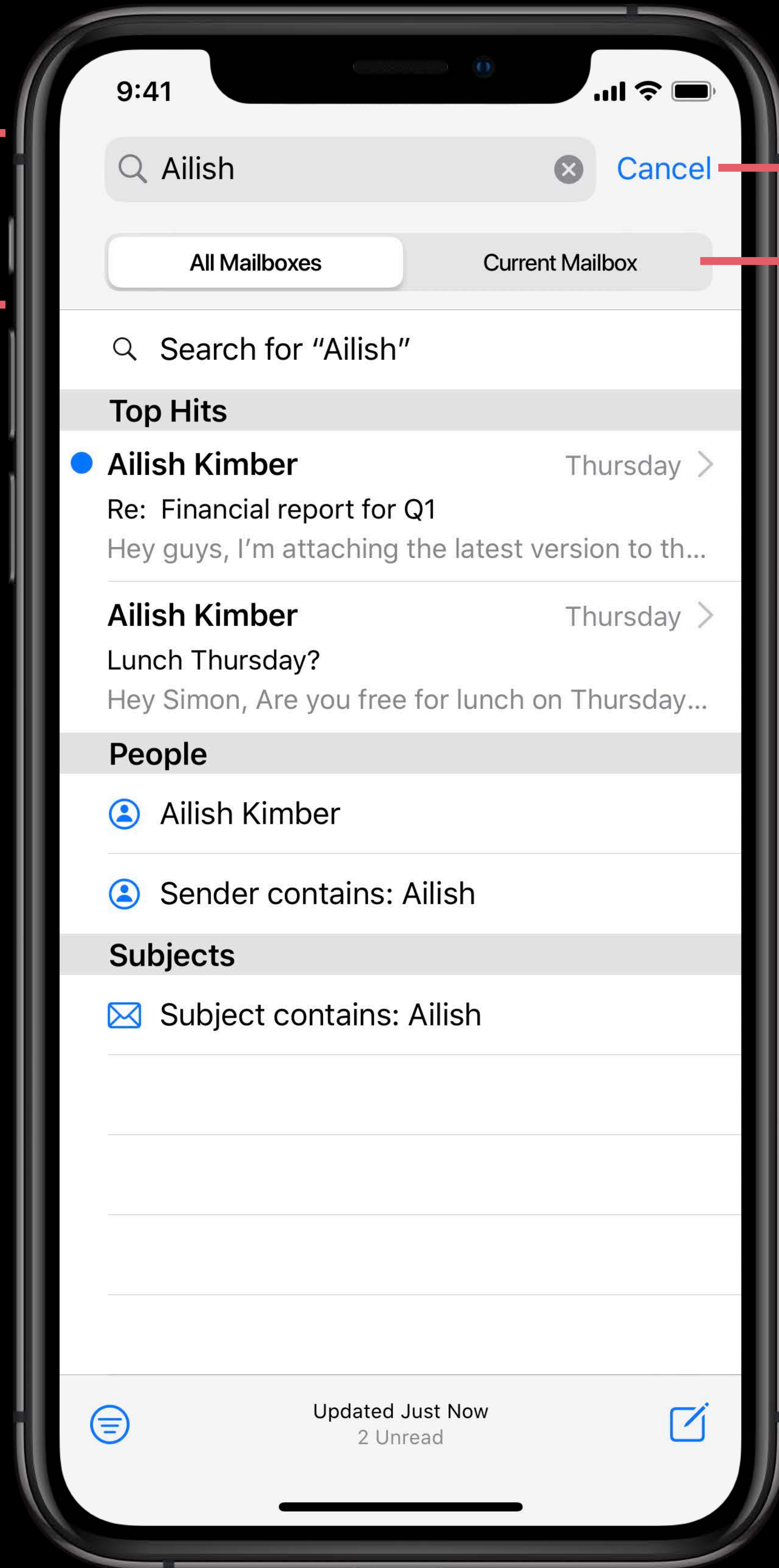


Cancel Button

Scope Bar

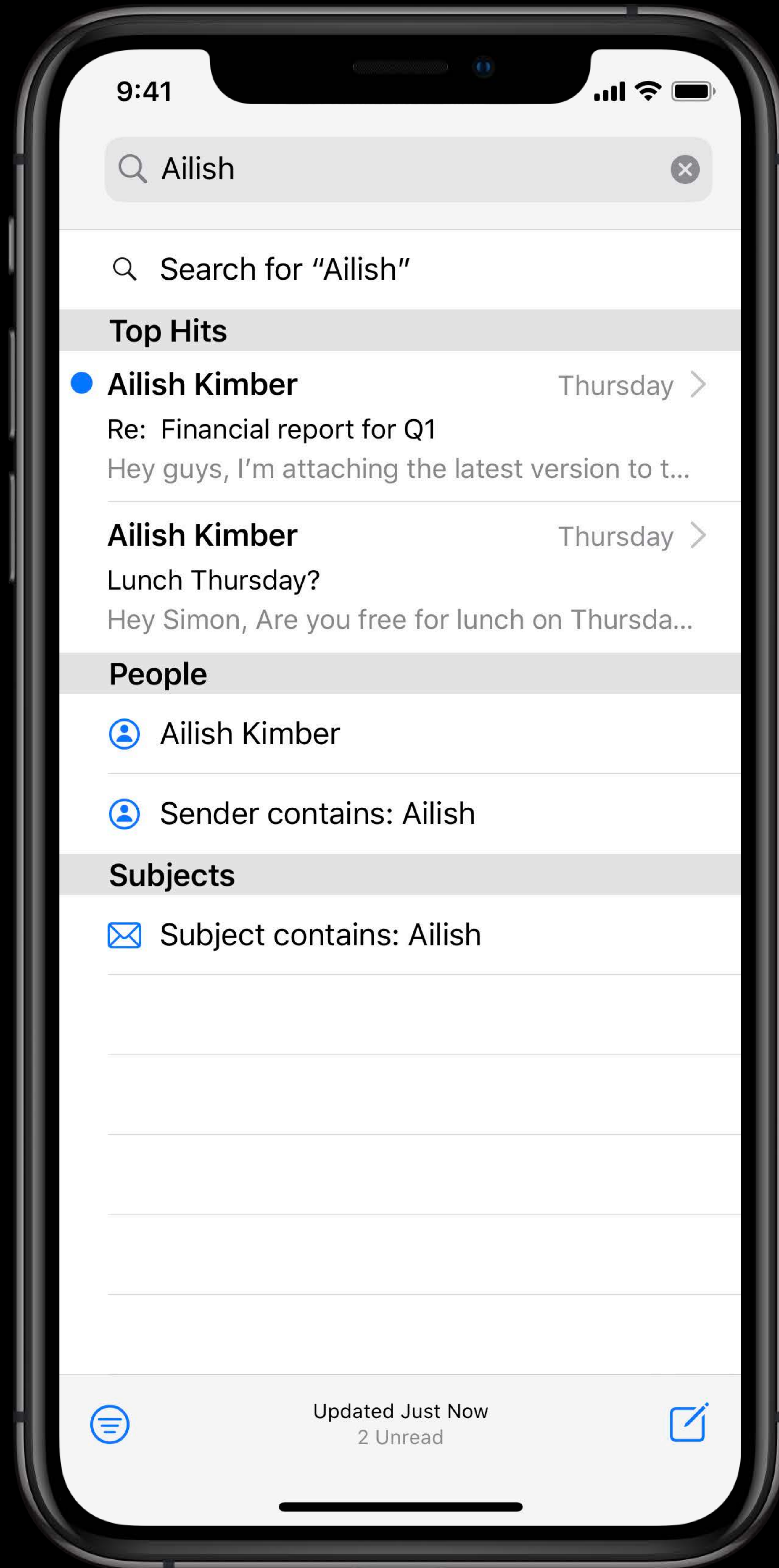


UISearchBar



Cancel Button

Scope Bar



NEW

9:41



🔍 Ailish ✕

🔍 Search for "Ailish"

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**People**

👤 Ailish Kimber

👤 Sender contains: Ailish

**Subjects**

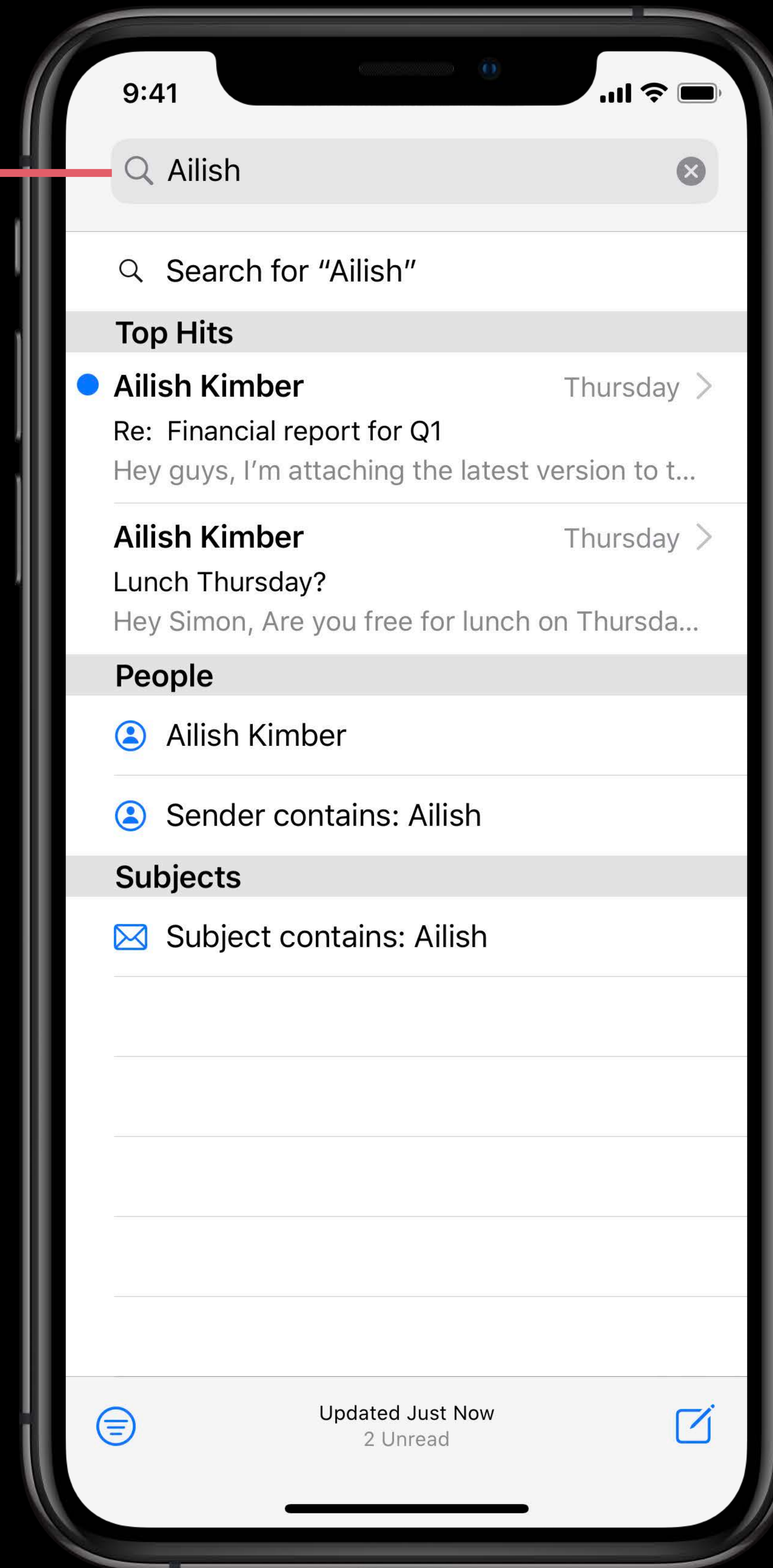
✉ Subject contains: Ailish



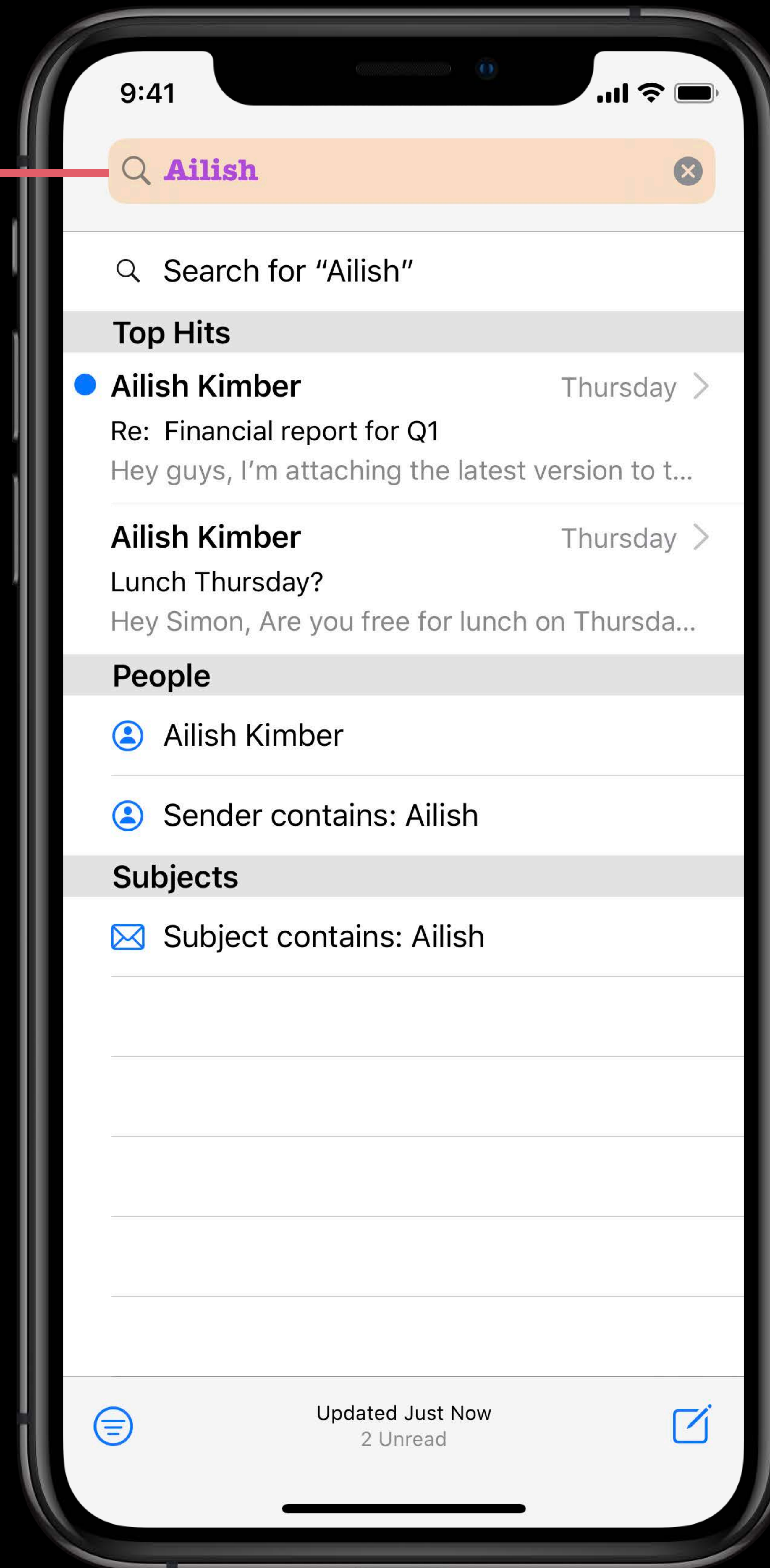
Updated Just Now  
2 Unread



UISearchBar



UISearchBar





```
func loadView() {  
  
    let searchController = UISearchController(searchResultsController: /*...*/)  
  
    // Don't automatically show the cancel button or scope bar  
    searchController.automaticallyShowsCancelButton = false  
    searchController.automaticallyShowsScopeBar = false  
  
    // Customize appearance of the search text field  
    let searchField = searchController.searchBar.textField  
    searchField.textColor = UIColor(named: "MyPinkColor")  
    searchField.font = UIFont(name: "American Typewriter", size: 18)  
  
    /* ... */  
}
```

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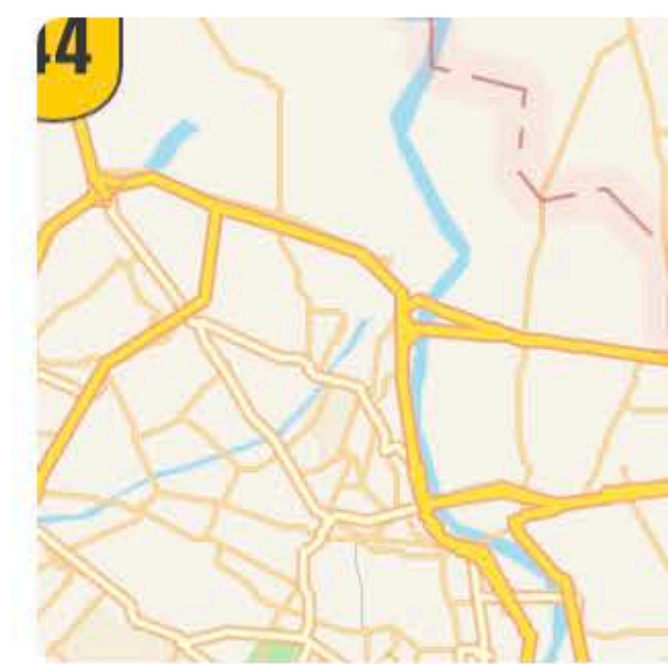
9:41



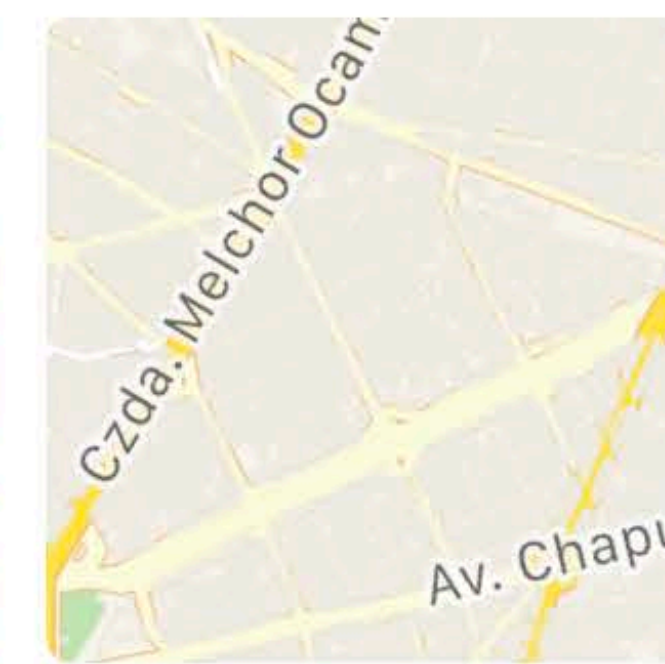
# Search

🔍 Photos, People, Places...

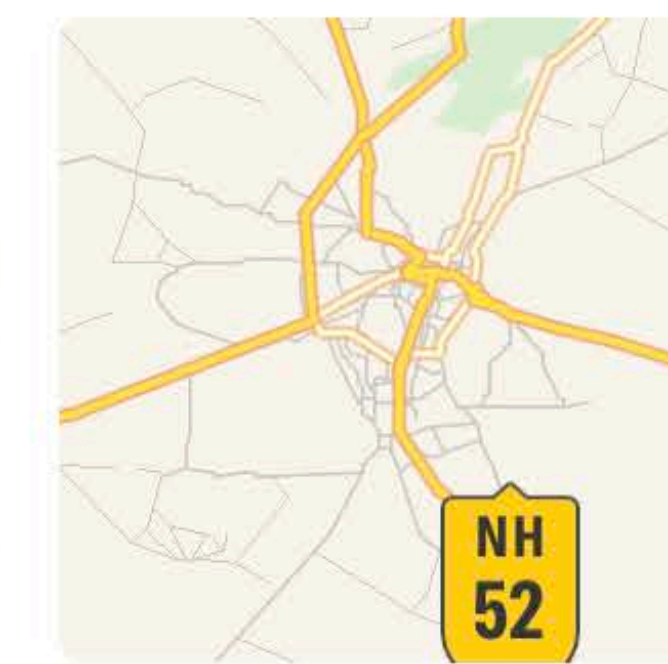
## Places



New Delhi

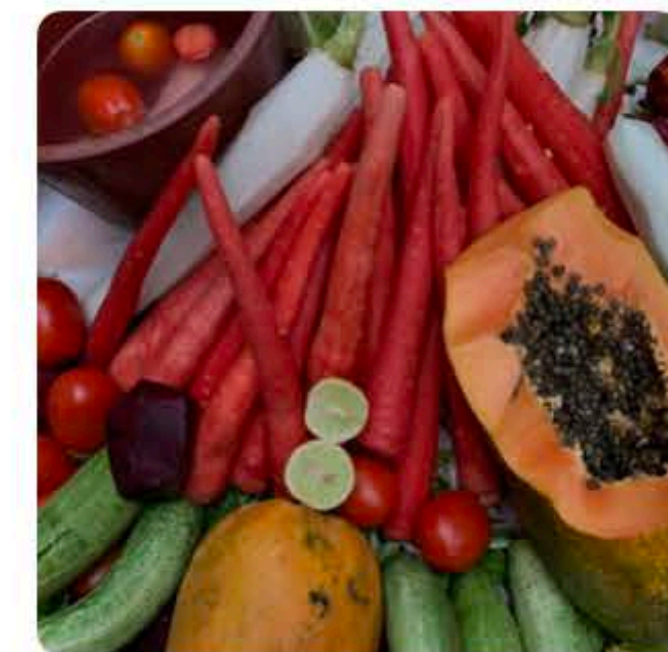


Mexico City

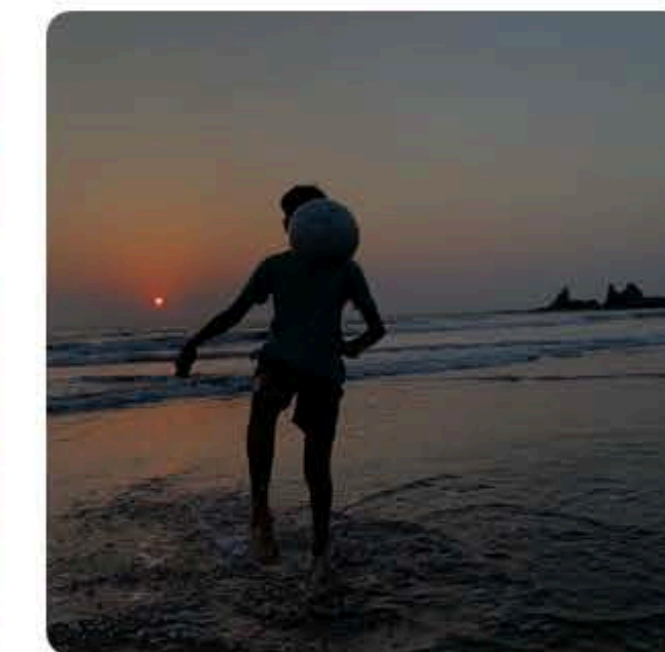


Jaipur

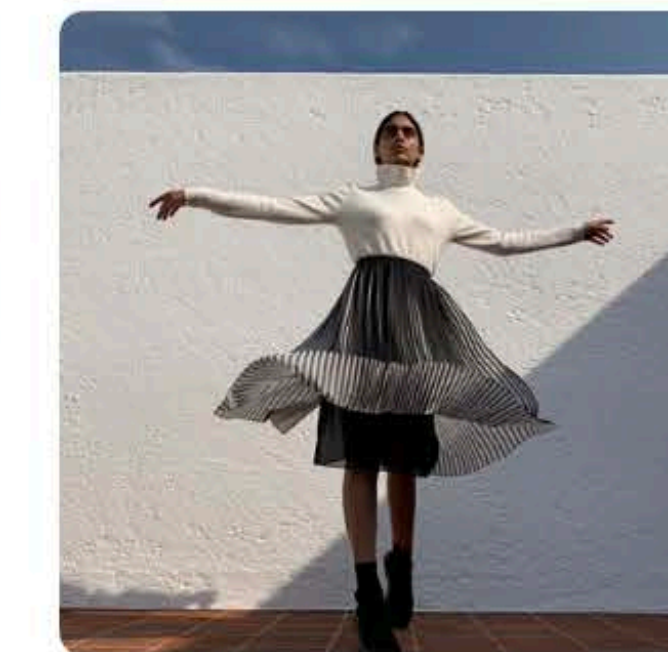
## Categories



Food



Beaches



Performances



Photos



For You



Albums



Search

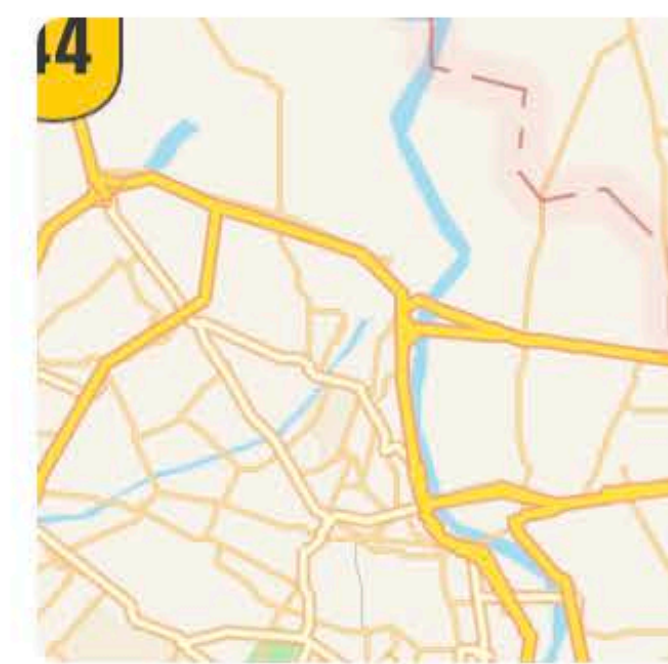
9:41



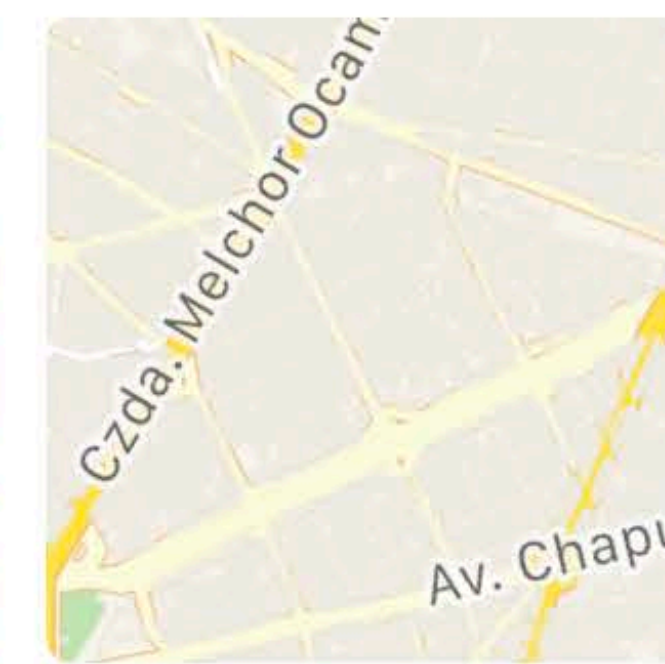
# Search

Q Photos, People, F

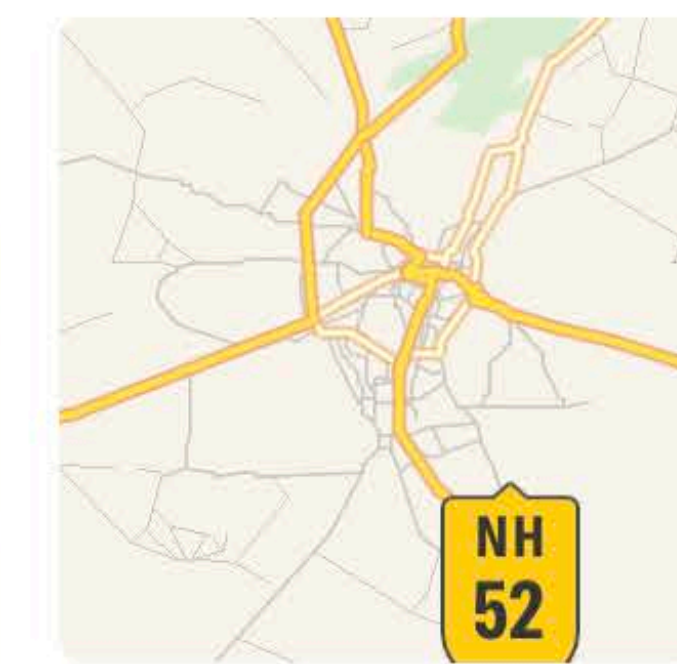
## Places



New Delhi

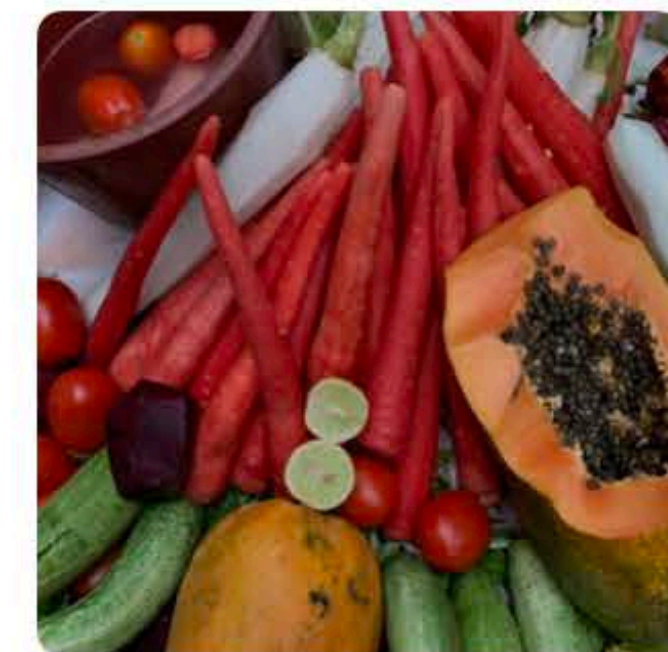


Mexico City

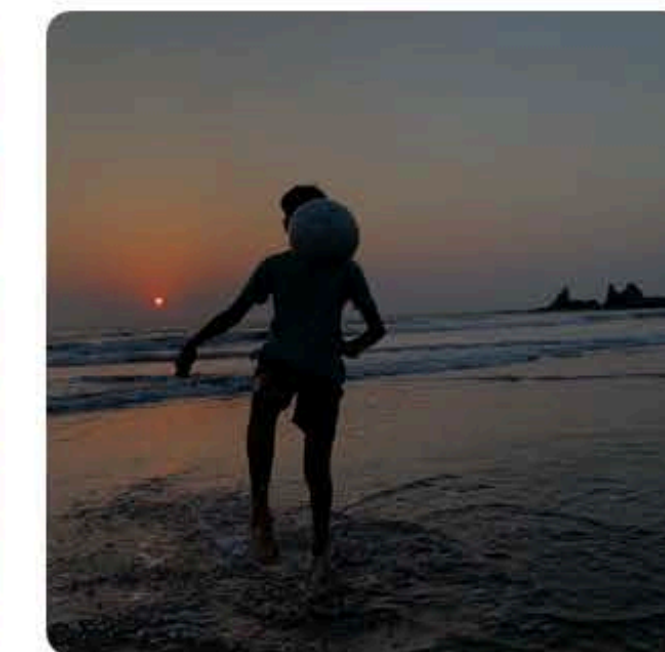


Jaipur

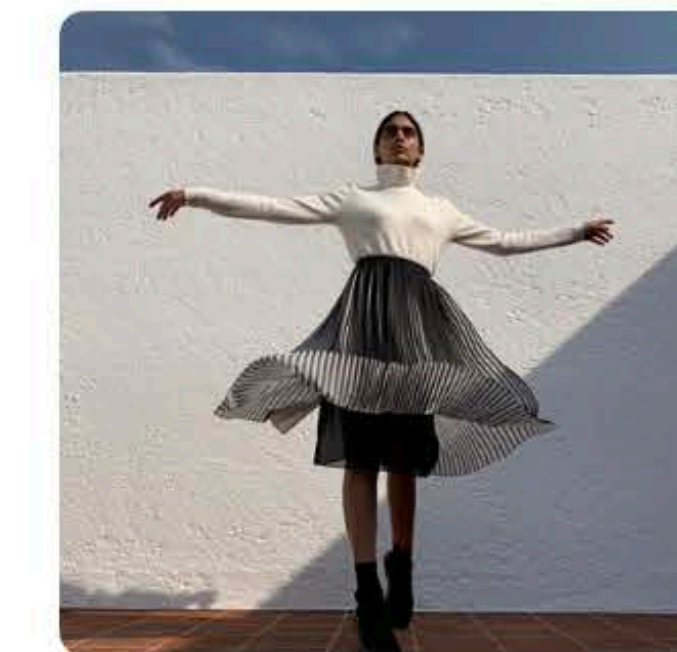
## Categories



Food



Beaches



Performances



Photos



For You



Albums



Search

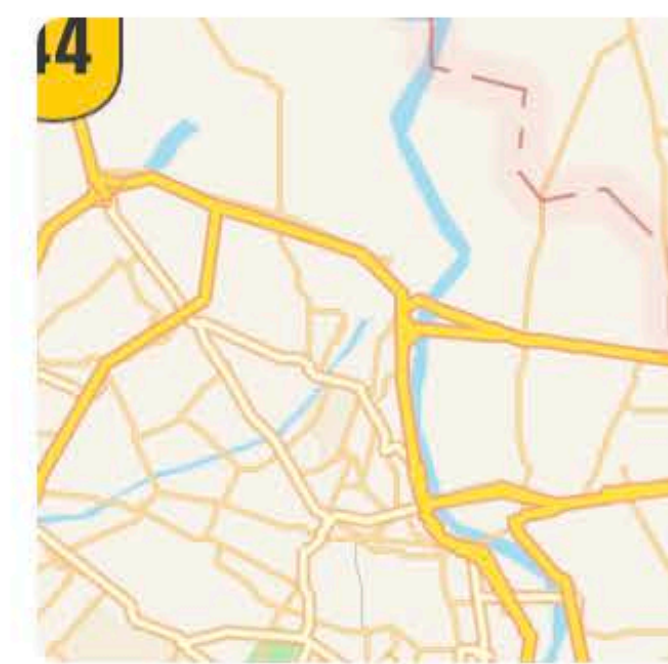
9:41



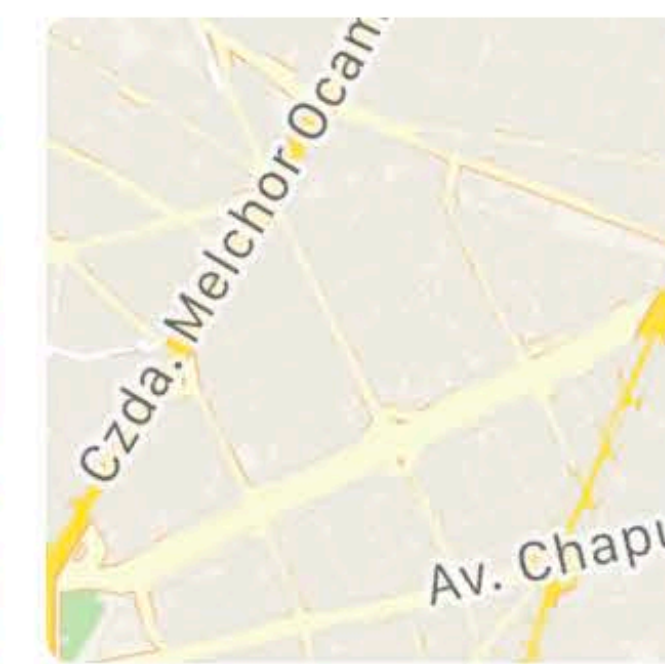
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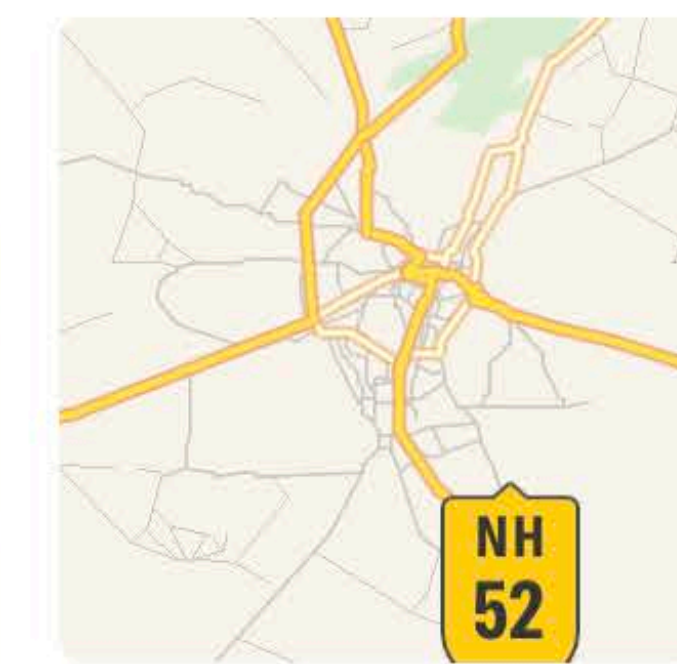
## Places



New Delhi

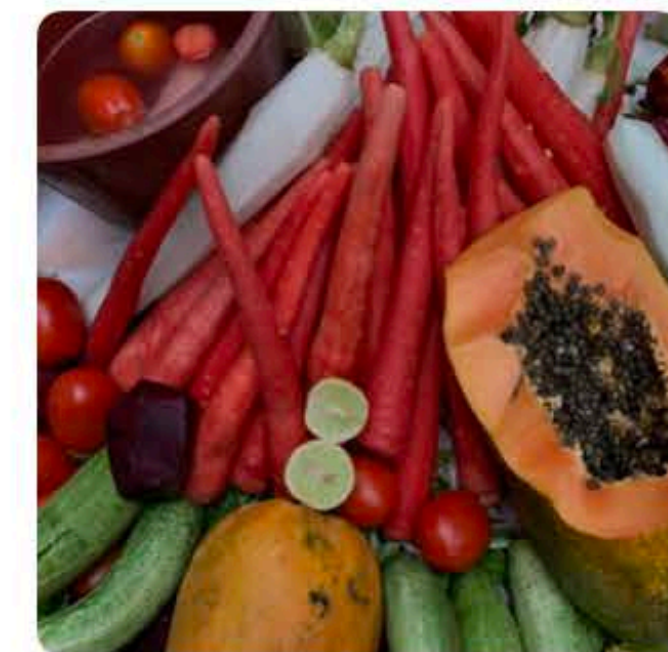


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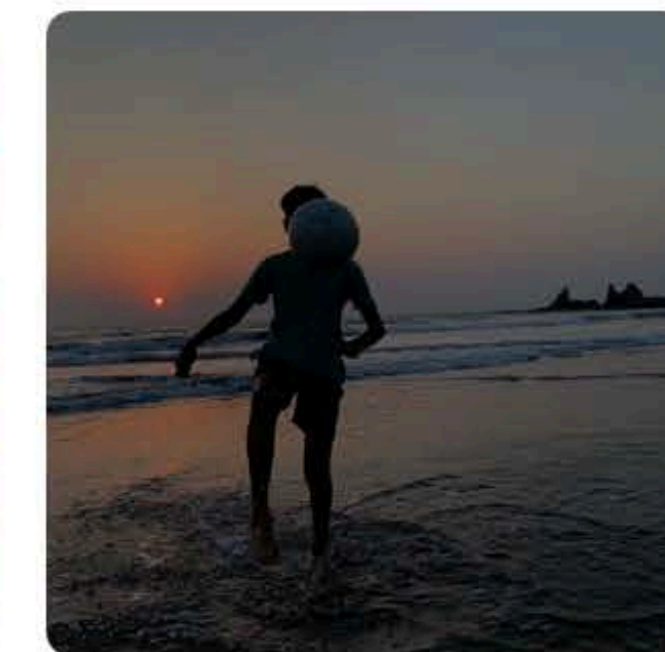


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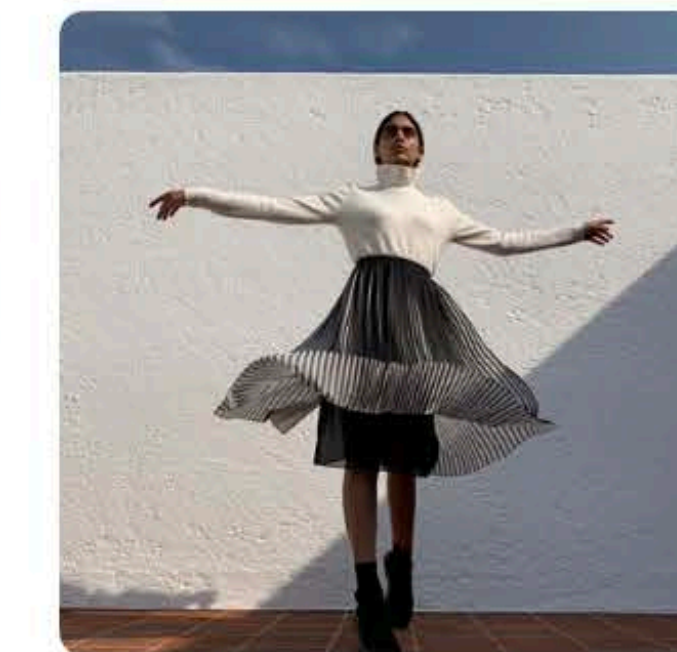
## Categories



Food



Beaches



Performances



Photos



For You



Albums



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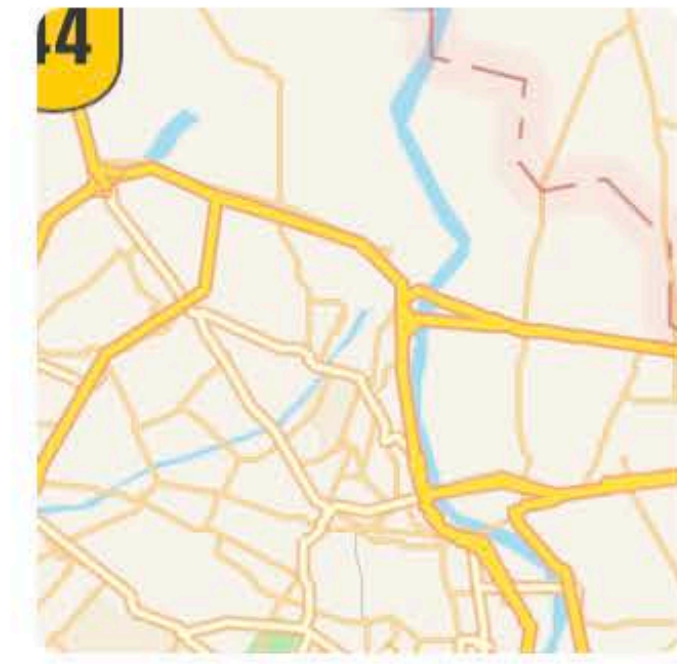
9:41



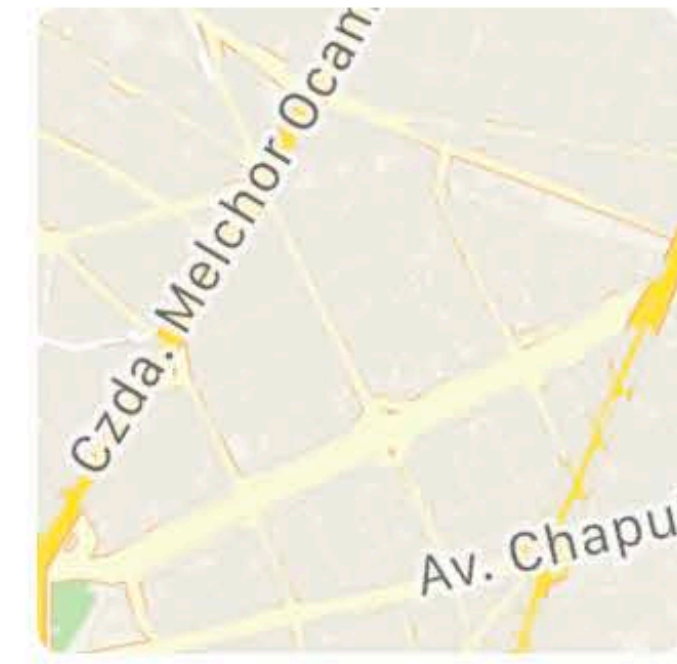
Q Photos, People, Places...

Cancel

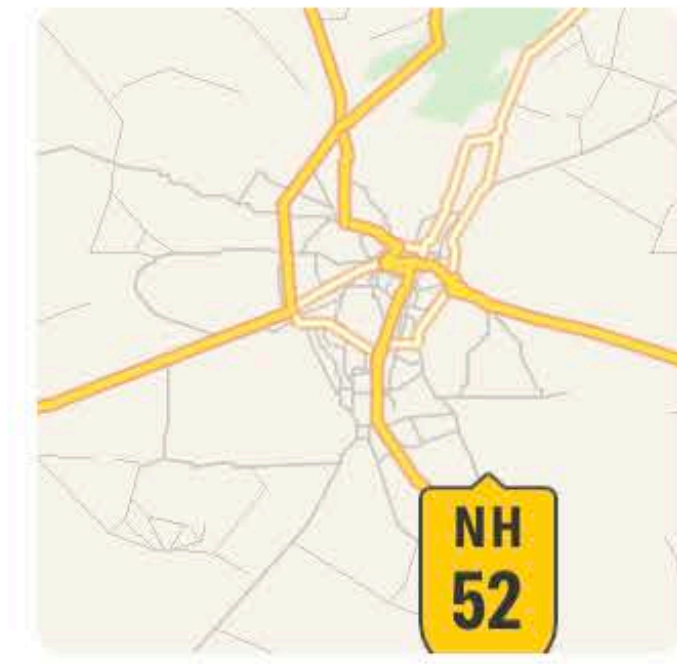
### Places



New Delhi



Mexico City

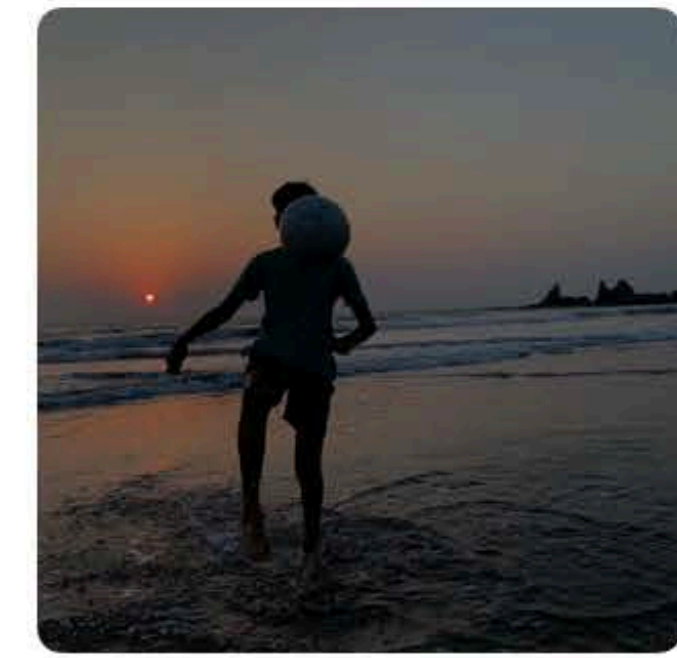


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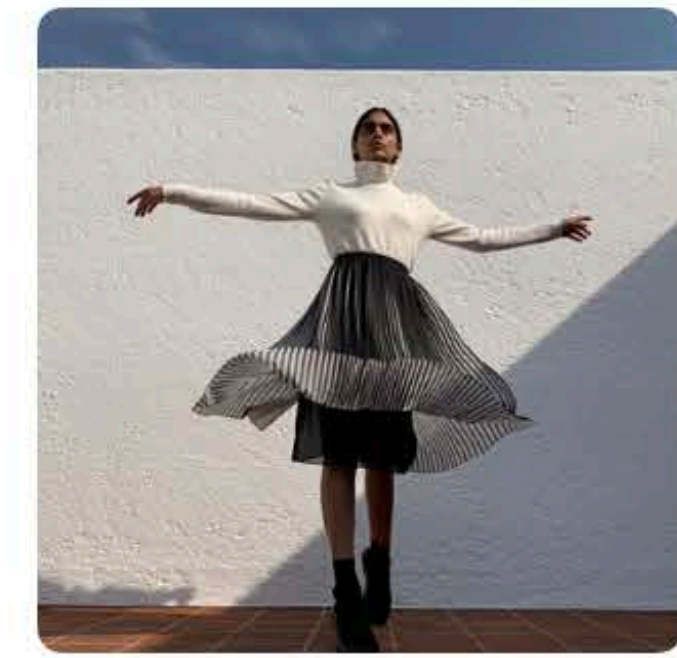
### Categories



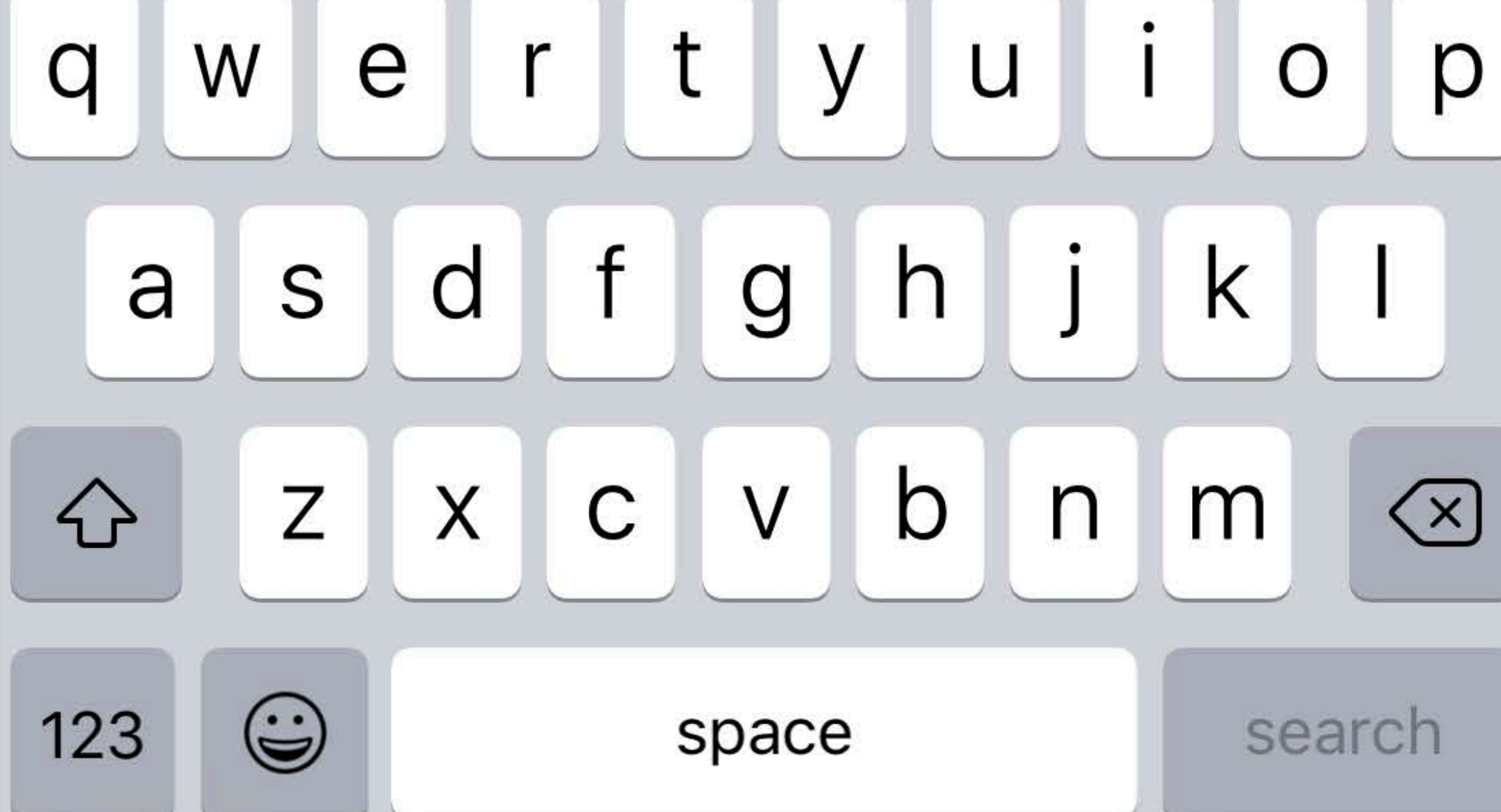
Food



Beaches



Performances



9:41



Q Mex × Cancel

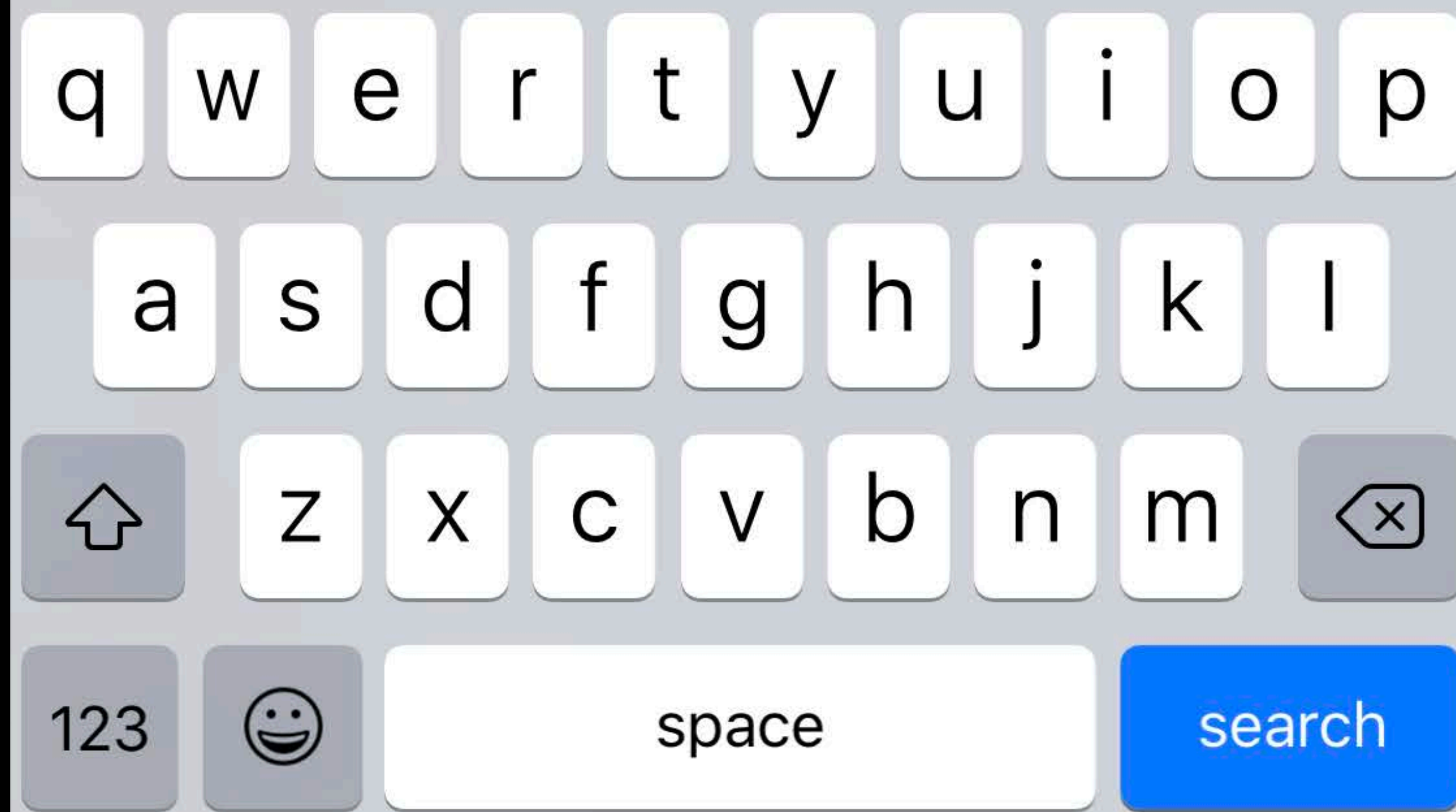
Q Mexico 14

📍 Mexico City 14

**14 Photos** [See All](#)

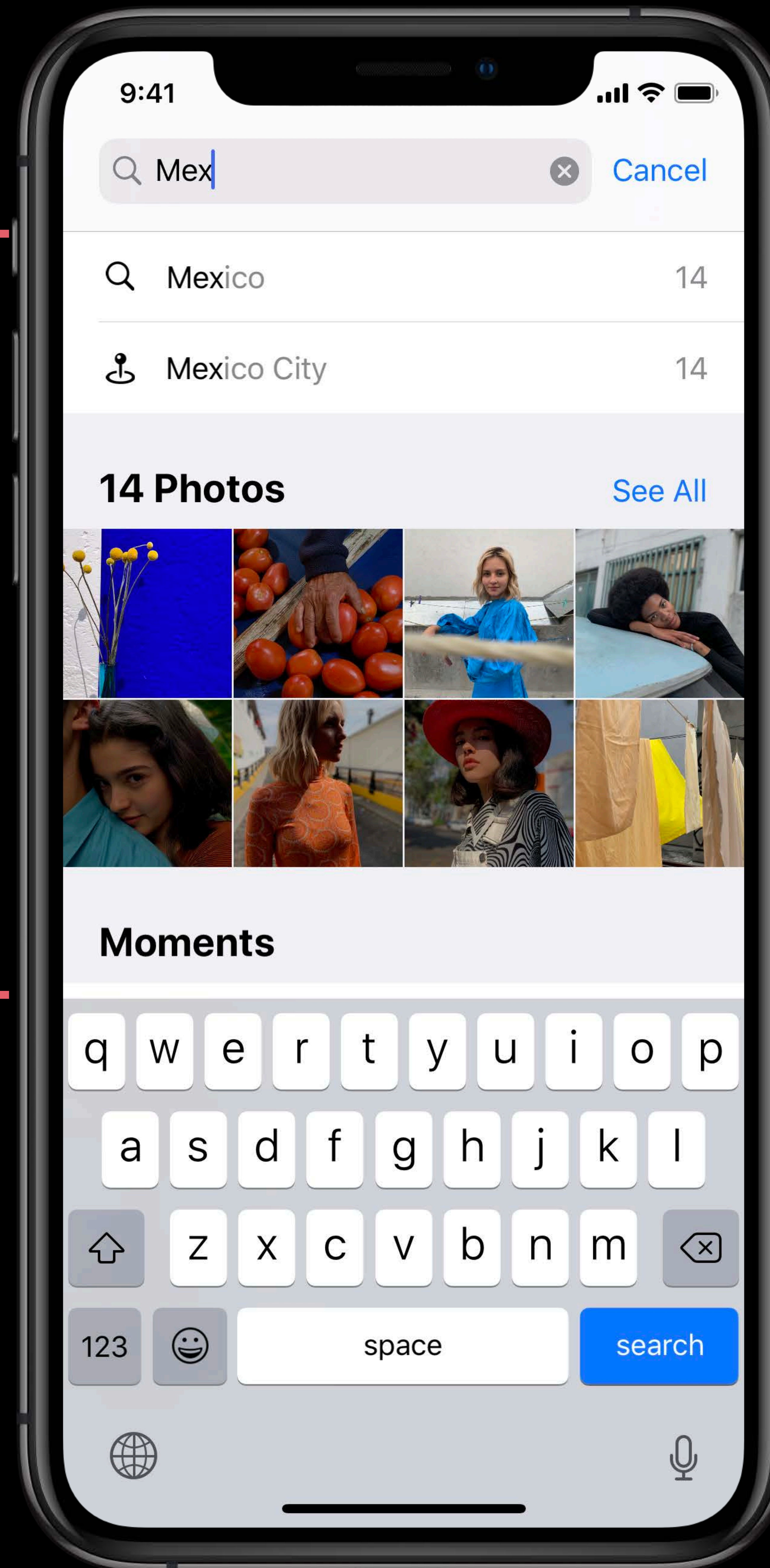


**Moments**





Search Results Controller



9:41



< Mailboxes

Edit

# Inbox

🔍 Search

**Ailish & Jared** Thursday ↻  
★ Financial report for Q1  
Hi Simon, The numbers are lining up for me... are you using the latest version of the statement?...

**Ailish Kimber** Thursday >  
Lunch Thursday?  
Hey Simon, Are you free for lunch on Thursday?  
Pete Betancourt is in town and would like to qu...

**Allen Buchinski** Thursday >  
Re: Vacation photos  
Flight back was great. Slept like a baby! Here are the photos: See you again soon! Allen Sent fro...



Updated Just Now  
2 Unread



9:41




< Mailboxes

Edit

# Inbox

Search

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Updated Just Now  
2 Unread



9:41




< Mailboxes

Edit

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Search

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Pete Betancourt is in town and would like to qu...

**Allen Buchinski** Thursday >  
Re: Vacation photos  
Flight back was great. Slept like a baby! Here are the photos: See you again soon! Allen Sent fro...



Updated Just Now  
2 Unread



9:41







Search

Cancel

All Mailboxes

Current Mailbox

### Suggested Searches

-  Unread Messages
-  Flagged Messages
-  Messages from VIPs
-  Messages with Attachments

Q W E R T Y U I O P

A S D F G H J K L

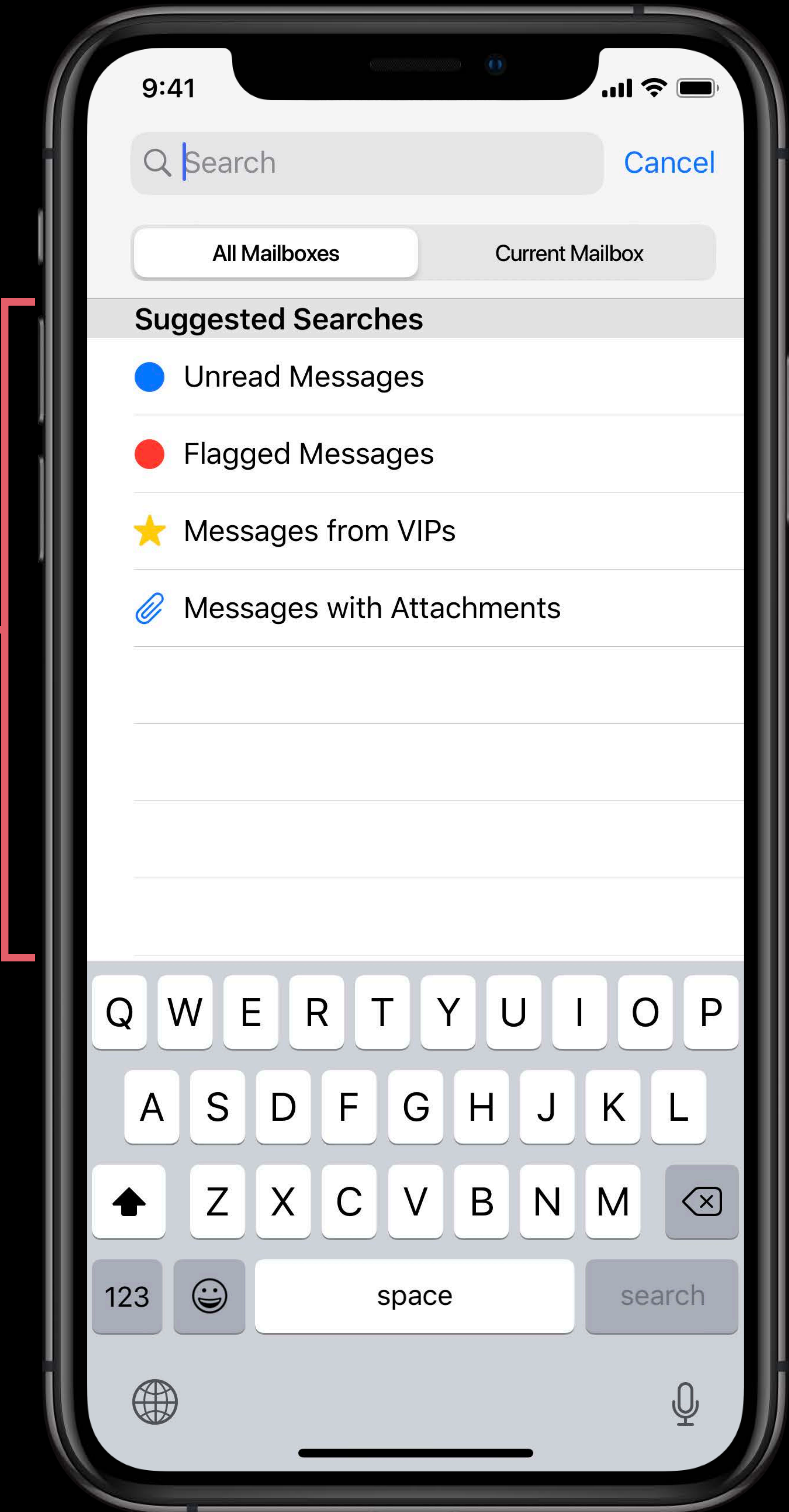
↑ Z X C V B N M ↵

123 😊 space search





Search Results Controller



```
func loadView() {  
  
    let searchController = UISearchController(searchResultsController: /*...*/)   
  
    // Show the search results controller as soon as search is activated  
    searchController.showsSearchResultsController = true  
  
    self.navigationItem.searchController = searchController  
  
    /* ... */  
}
```

```
func loadView() {  
  
    let searchController = UISearchController(searchResultsController: /*...*/)  
  
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9:41







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All Mailboxes

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↑ Z X C V B N M ↵

123 😊 space search



9:41



Search

Cancel

All Mailboxes

Current Mailbox

Suggested Searches

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Flagged Messages

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Messages with Attachments

Q W E R T Y U I O P

A S D F G H J K L

↑ Z X C V B N M ↵

123 😊 space search



9:41



Unread Cancel

All Mailboxes

Current Mailbox

**Ailish & Jared**

Thursday

Financial report for Q1

Hi Simon, The numbers are lining up for me... are you using the latest version of the statement?...

Q W E R T Y U I O P

A S D F G H J K L

↑ Z X C V B N M ↵

123 😊 space search



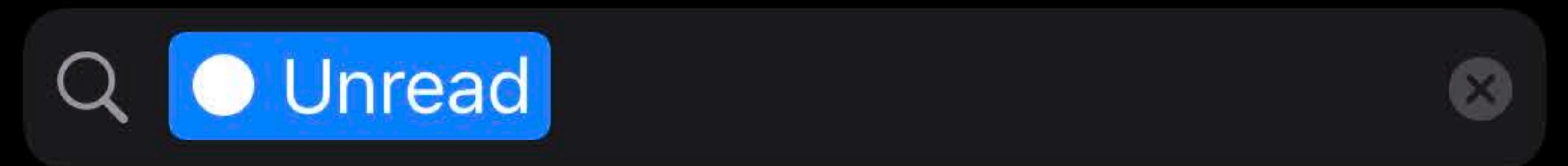
# Search Tokens

NEW

Available on any UISearchBarTextField

Copy, Paste

Drag and Drop



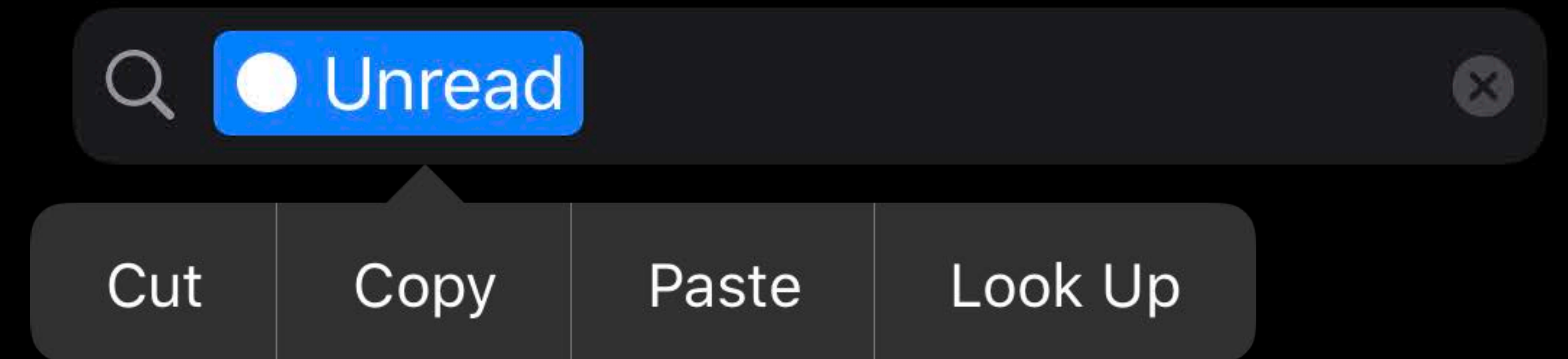
# Search Tokens

NEW

Available on any UISearchBarTextField

Copy, Paste

Drag and Drop



9:41



🔍 North Goa bea ✕ Cancel

📍 Sweet Lake Beach 1

🔍 Beach 1

**1 Photo**

[See All](#)

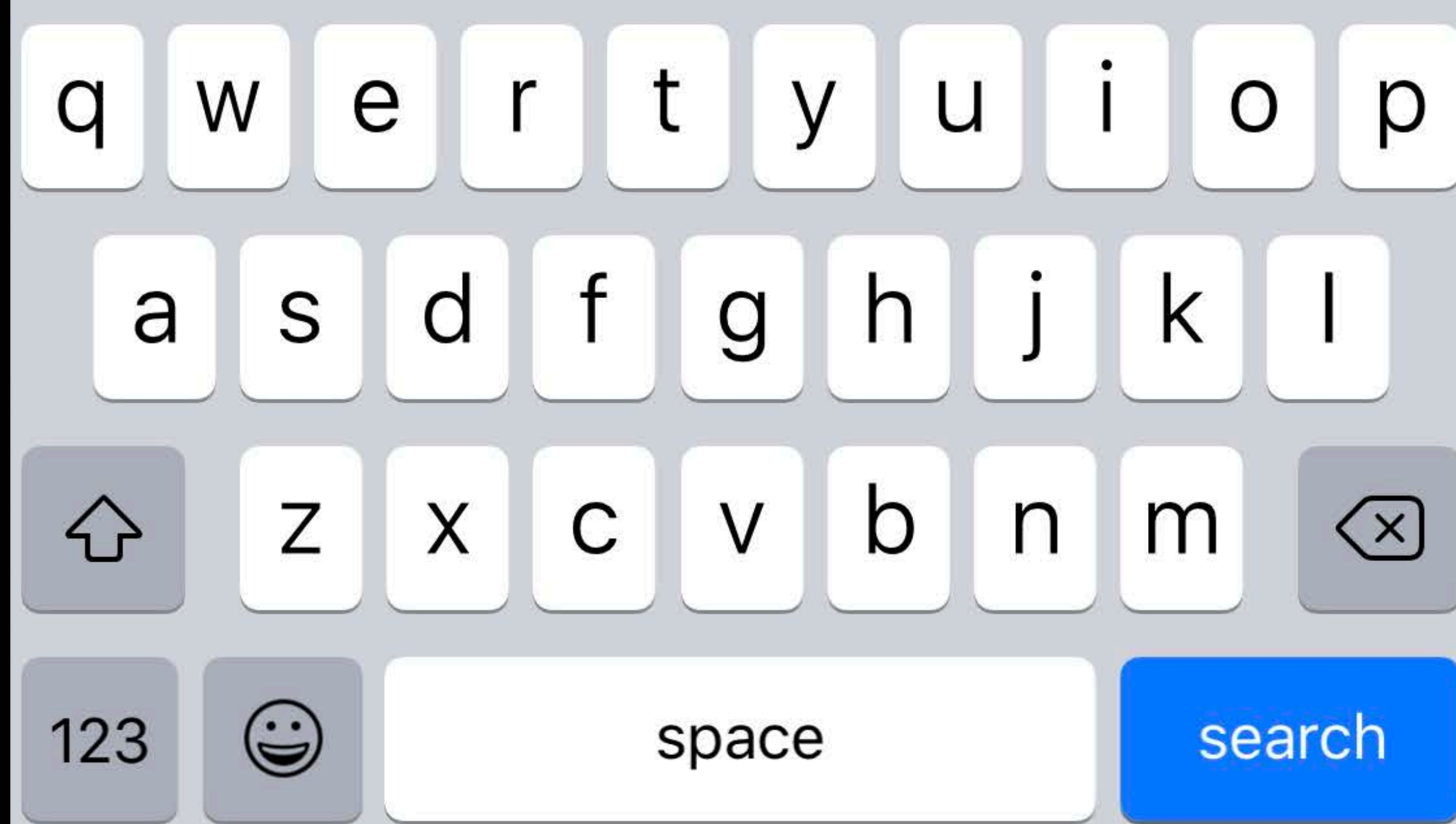


**Moments**



North Goa  
Feb 21

5 >



9:41



🔍 North Goa bea ✕ Cancel


📍 Sweet Lake Beach 1

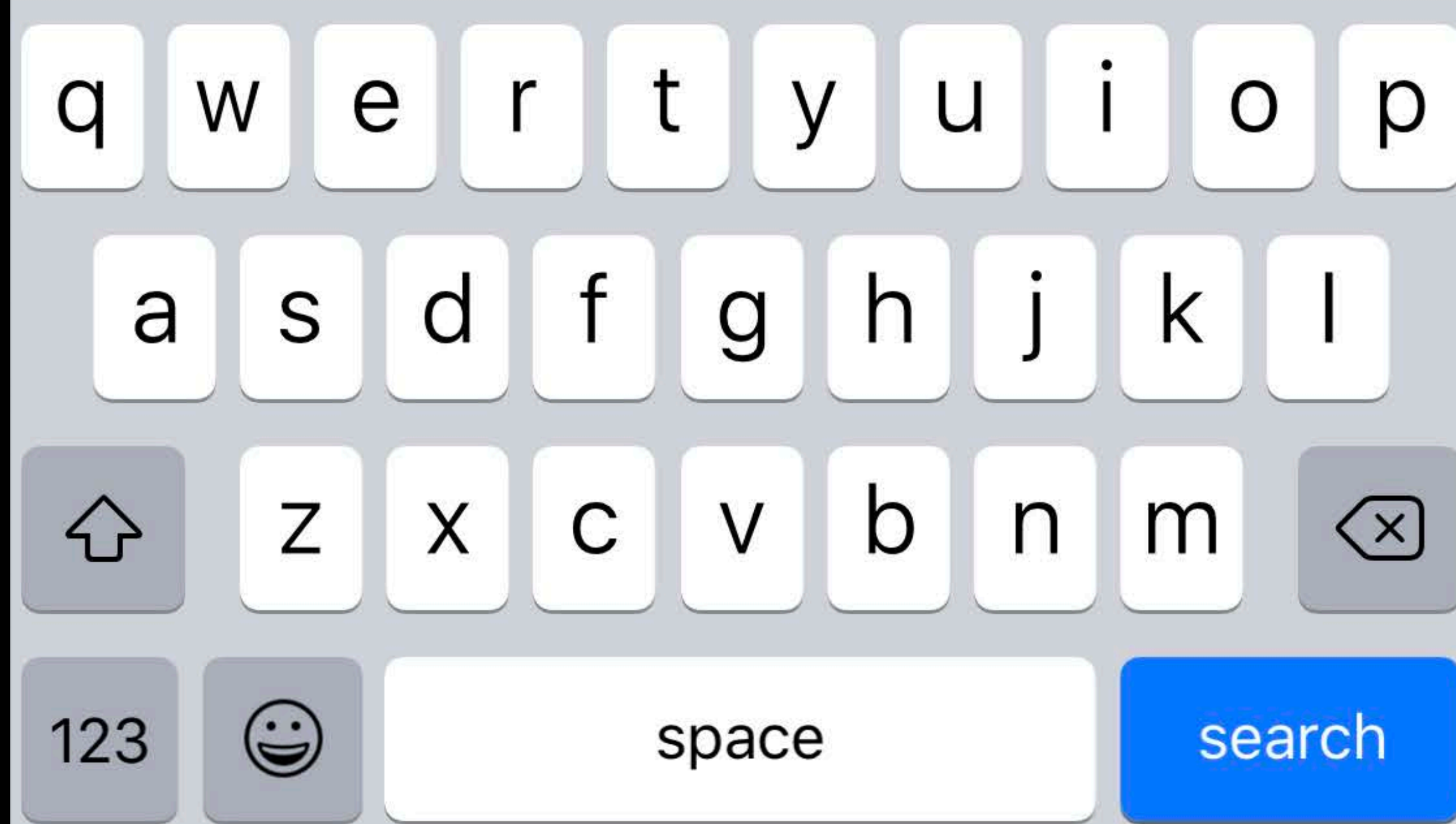
🔍 Beach 1

**1 Photo** [See All](#)



### Moments

 North Goa 5 >  
Feb 21



9:41



🔍 North Goa Beach × Cancel

1 Photo

[See All](#)



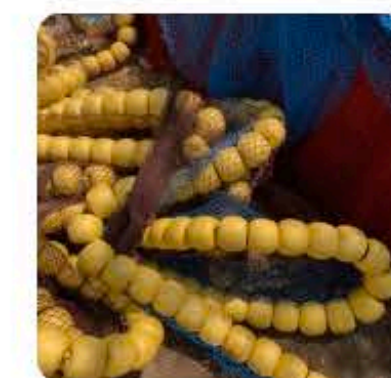
### Moments



North Goa

Feb 21

5 >



North Goa

Feb 19

6 >

q w e r t y u i o p  
a s d f g h j k l  
⬆️ z x c v b n m ⬅️  
123 😊 space search



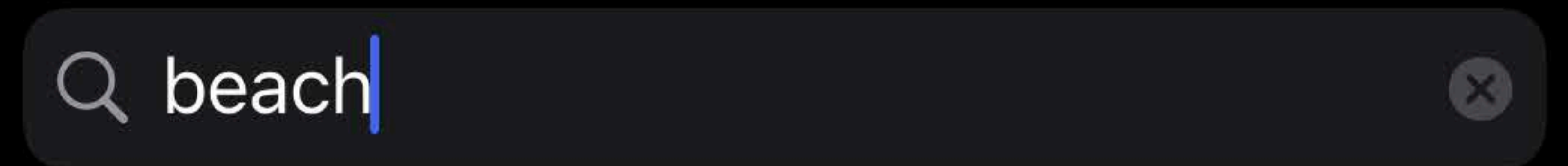


# Tokens and Text

Tokens always precede text

Can be selected and deleted

Mixed selections allowed

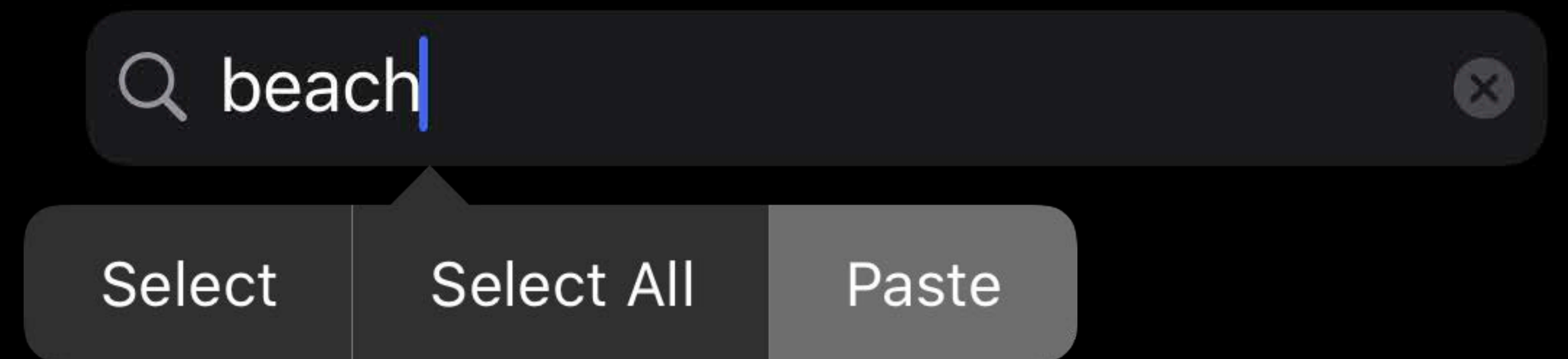


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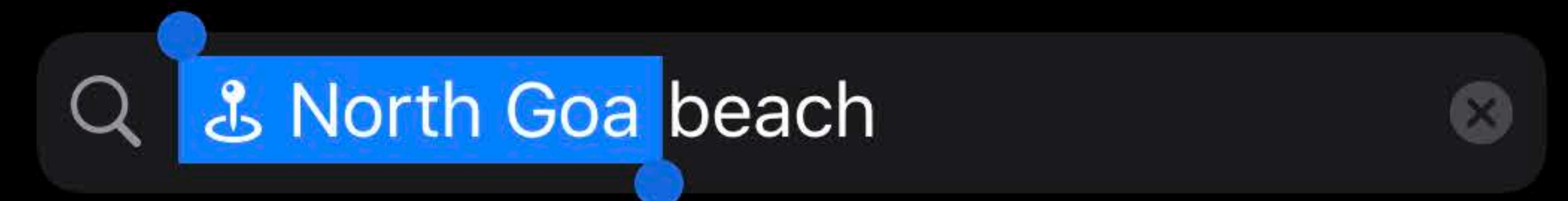


# Tokens and Text

Tokens always precede text

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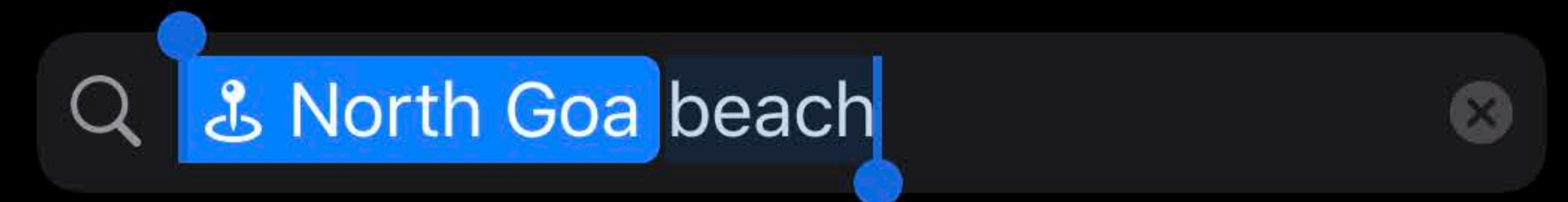


# Tokens and Text

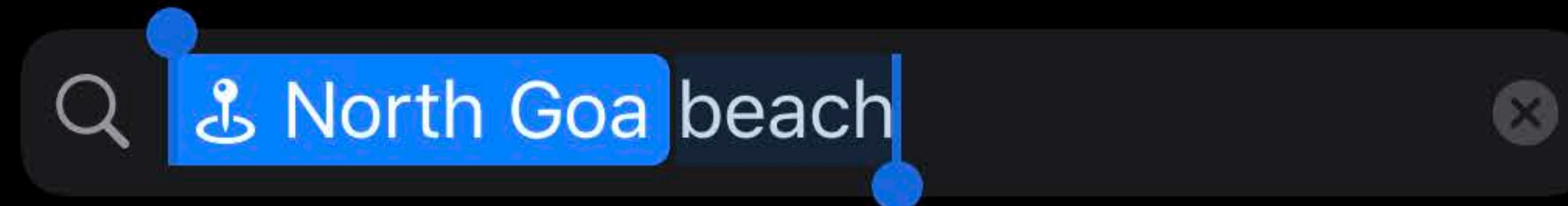
Tokens always precede text

Can be selected and deleted

Mixed selections allowed



# Creating Tokens

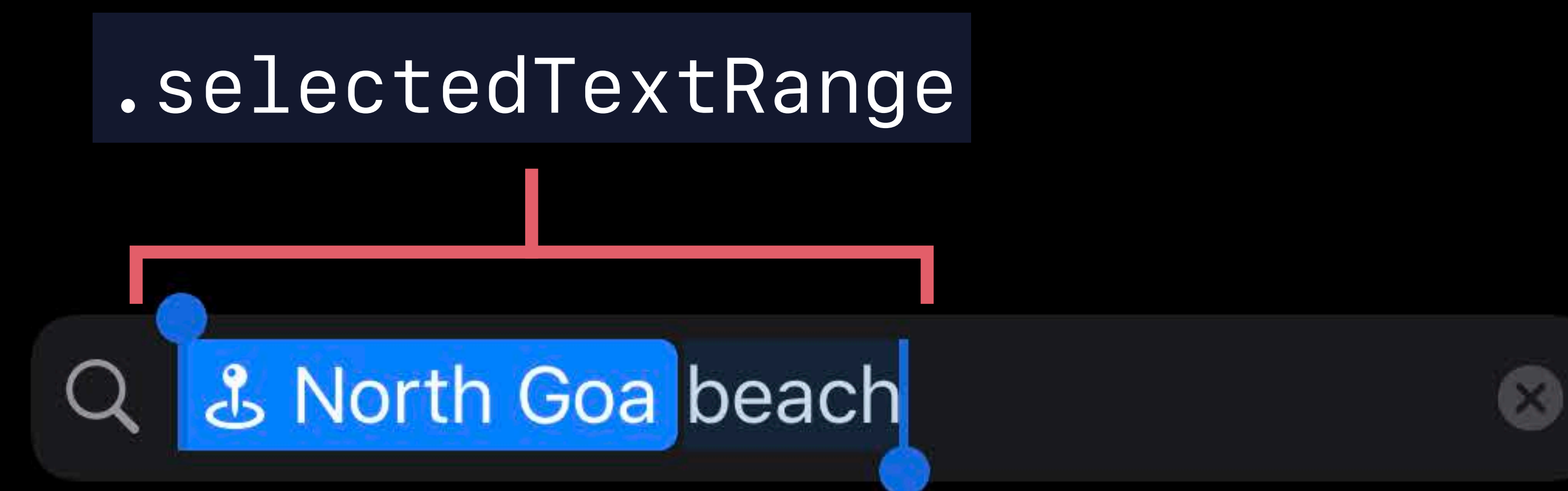


# Creating Tokens



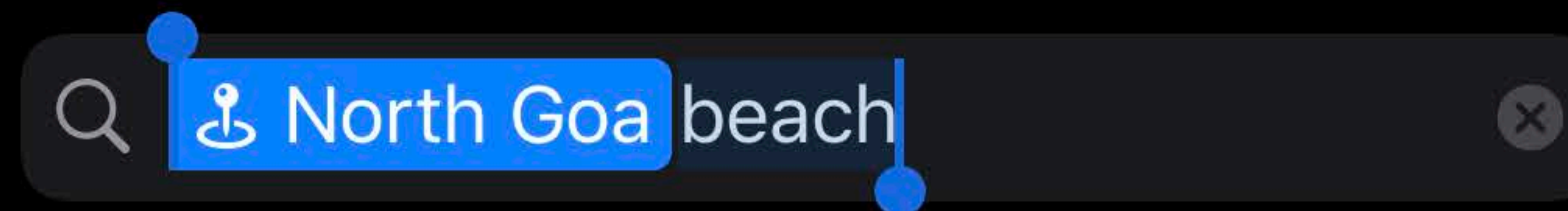
```
let selectedText = field.textIn(field.selectedTextRange) // "beach"
let token = UISearchToken(icon: nil, text: selectedText)
field.replaceTextualPortion(of: field.selectedTextRange, with: token, at: field.tokens.count)
```

# Creating Tokens



```
let selectedText = field.textIn(field.selectedTextRange) // "beach"
let token = UISearchToken(icon: nil, text: selectedText)
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```



# Creating Tokens



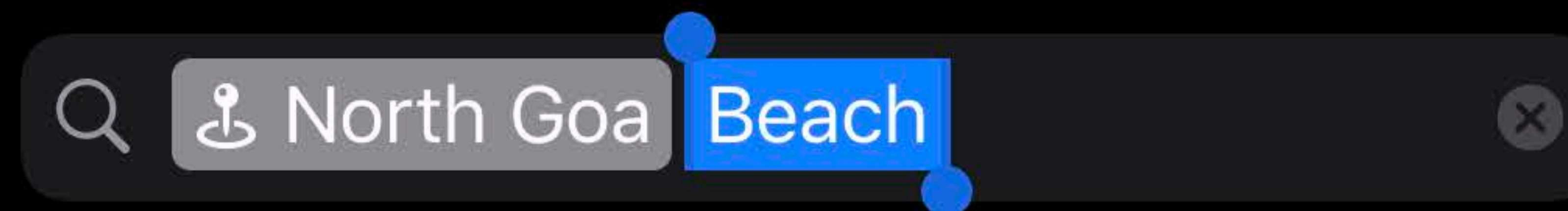
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let token = UISearchToken(icon: nil, text: selectedText)
field.replaceTextualPortion(of: field.selectedTextRange, with: token, at: field.tokens.count)
```

# Ranges and Positions

 ✕

# Ranges and Positions

UITextPosition



# Ranges and Positions

UITextPosition



# Ranges and Positions

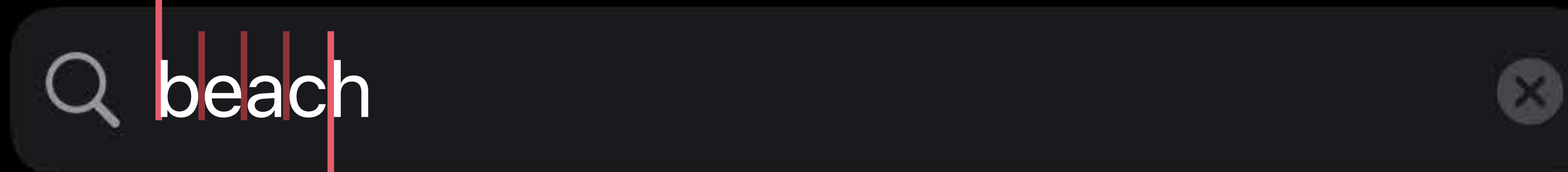
`.beginningOfDocument`

🔍 beach ✕

`.endOfDocument`

# Ranges and Positions

`.beginningOfDocument`



`.endOfDocument`



# Ranges and Positions

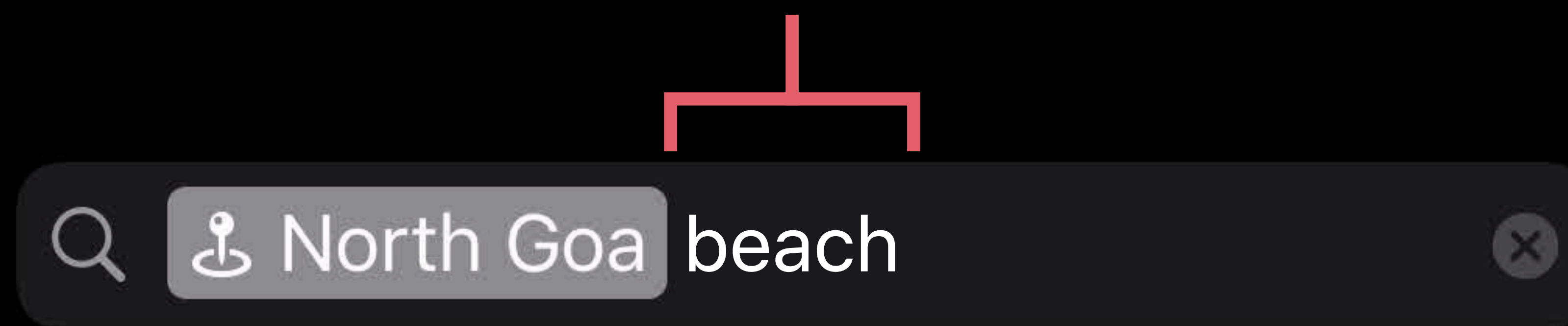
`.beginningOfDocument`



`.endOfDocument`

# Ranges and Positions

`.textualRange`



# Ranges and Positions

`textualRange.start`



`textualRange.end`

# Updating Your App

Take control with UISearchController

Customize appearance using UISearchTextField

Adopt UISearchToken

Check out the sample project

# Gestures

James Magahern

Selection gestures in custom text views

Multiple selection gestures in tables and collections

Editing gestures

9:41



condimentum mi. Orci varius natoque  
penatibus et magnis dis parturient montes,  
nascetur vulgus.

Cut Copy Paste Look Up Share...

Donec sed eros ante. Mauris ornare suscipit  
erat, sit amet scelerisque dui auctor eu.  
Suspendisse vitae ex sed justo gravida  
pellentesque aliquam et ipsum. Maecenas vel  
tortor eu elit suscipit pharetra. Mauris sed  
erat in nibh aliquet pretium. Morbi quis elit id  
ligula bibendum cursus sit amet placerat  
lectus. Nullam sagittis ut ligula dapibus  
dapibus. Suspendisse fringilla nunc vel  
pretium facilisis. Morbi maximus ut ex  
vestibulum porta. Aliquam ut elit eu urna  
dictum consequat eu a lorem. Quisque  
elementum id tellus sit amet condimentum.  
Vestibulum odio leo, condimentum sit amet

I The I'm

Q W E R T Y U I O P

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123 😊 space return



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# UITextInteraction

NEW

Three lines of code

Editable and non-editable text interactions

Use `UITextInput` protocol to control selection UI

```
// Adding UITextInteractions to Your App

// Create selection interaction with type .editable or nonEditable
let selectionInteraction = UITextInteraction(for: .editable)

// Assign `textInput` property to your view that implements the UITextInput protocol
selectionInteraction.textInput = textView

// Add the interaction to the view
textView.addInteraction(selectionInteraction)
```

Selection gestures in custom text views

**Multiple selection gestures in tables and collections**

Editing gestures

Cancel

### 3 Selected

Search



Sort by Date Edited (Default)

**Sketches and Ideas**  
4:38 PM WiFi Thermostat for...

**Interview Questions**  
4:33 PM How many engineers does it t...

**Pinball High Scores**  
4:32 PM Dialed In! - 2,535,100

**Snack-announce Ideas**  
4:32 PM "Pigs in a blanket" but for fruit...

**Stuff to do in Phoenix**  
4:32 PM Desert Botanical Garden

**Song Notes**  
4:30 PM Play Monkey Business at 4x

**Cork Hotels**  
4:30 PM Clayton Hotel

**Snack Closet Lock Code**  
4:29 PM 251 - 2nd floor Apple Park

Move To...

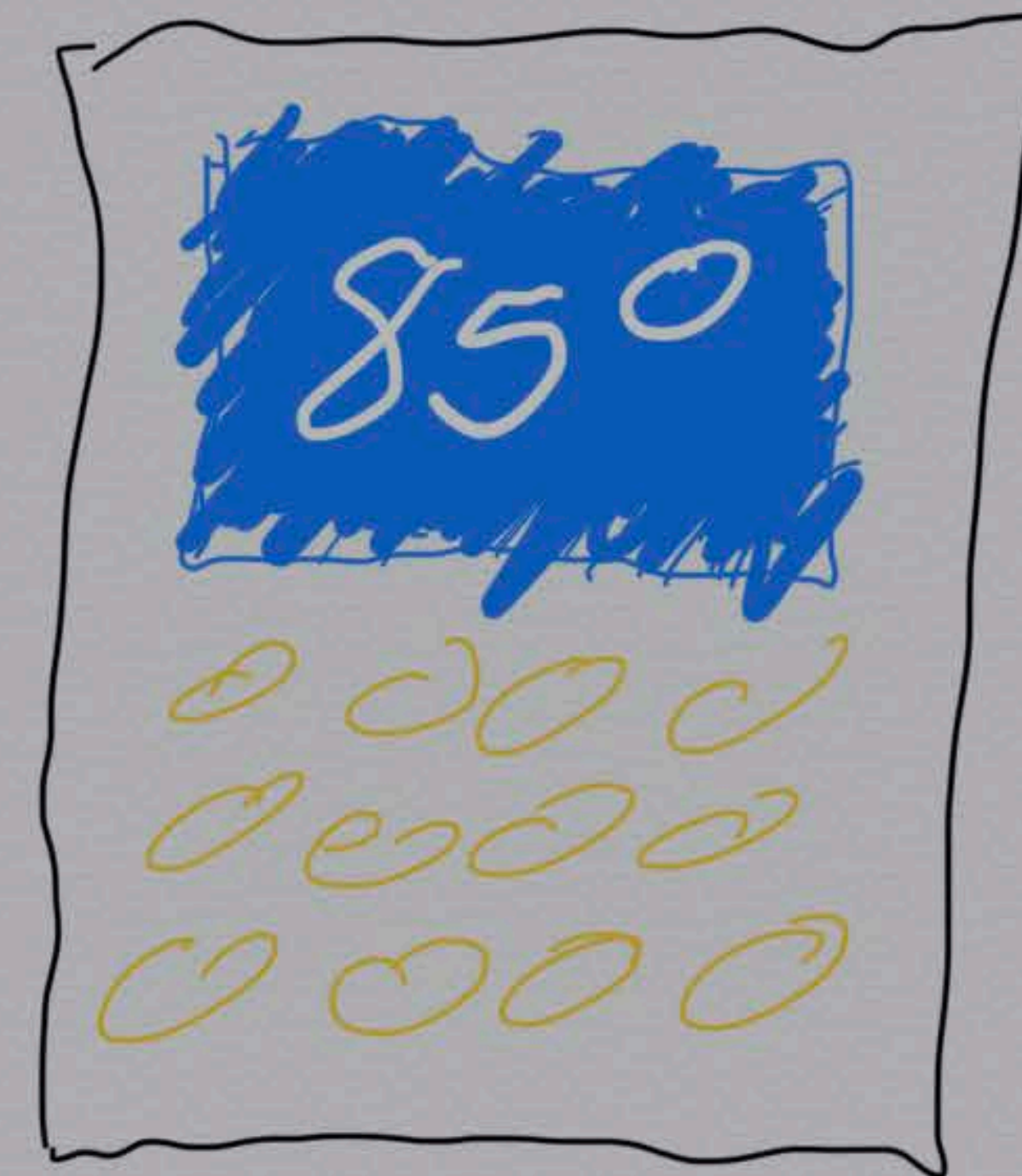
Delete

May 28, 2019 at 4:38 PM

### Sketches and Ideas

#### WiFi Thermostat for XION Arcade

- Use PICO-8 as the computer since it already has a screen, WiFi, and exposed GPIO ports.
- There can be a special button on the XION control panel (iPad) for controlling the heat
- Use the temperature sensor from the hacker box
- Use the electronic relay to control the switch
- The one currently installed is probably a line voltage thermostat



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## Locations

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- iCloud Drive
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## Favorites

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## Tags










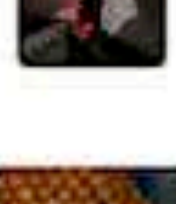



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- Yellow
- Orange
- Green
- Blue
- Purple
- Gray
- Work

< Work

Work

Select

Search

	By the Window	Apr 16, 2019 at 10:43 AM	1.8 MB
	Crosswalk	Jan 22, 2019 at 4:08 PM	8.2 MB
	Dual Tone	Apr 16, 2019 at 11:01 AM	1.8 MB
	Fashion Proto	Apr 16, 2019 at 11:01 AM	2.2 MB
	Glasses	Jan 21, 2019 at 3:09 PM	4.1 MB
	Graduation Speech	May 28, 2019 at 3:41 PM	930 bytes
	Leaf on a Pole	Apr 16, 2019 at 10:51 AM	3.2 MB
	On a Vintage Car	Apr 16, 2019 at 10:43 AM	1.7 MB
	On the Stairs	Apr 16, 2019 at 11:23 AM	4.1 MB
	Oranges	Apr 16, 2019 at 10:51 AM	2.7 MB
	PFCs	May 28, 2019 at 3:42 PM	132 KB
	Pink Background	Jan 21, 2019 at 3:28 PM	4.5 MB
	Pondering Pose	Apr 16, 2019 at 10:58 AM	2.4 MB

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## Tags













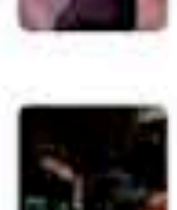
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Work

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Search

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< Work

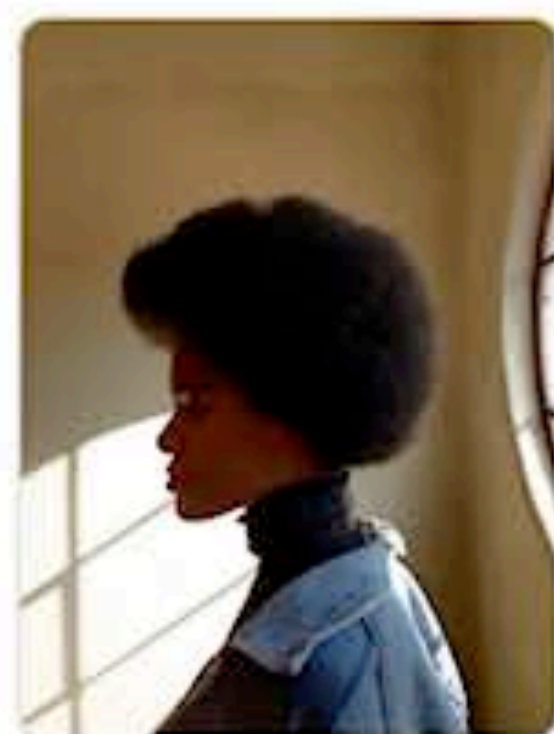
Work

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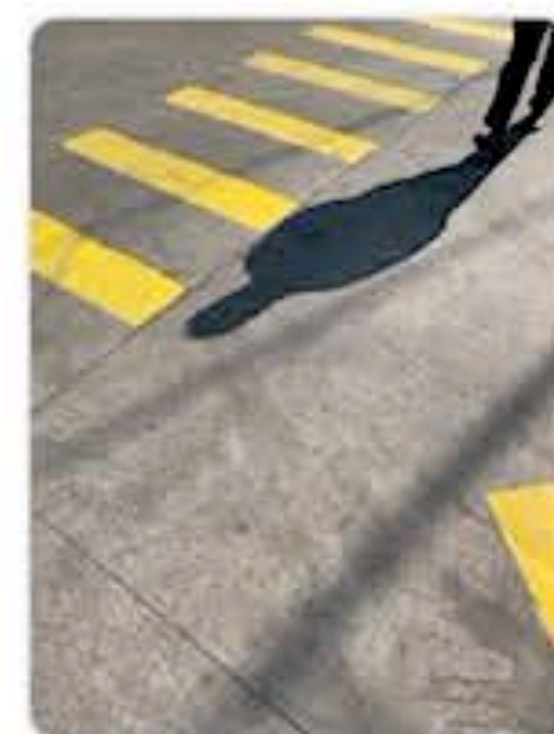
Search



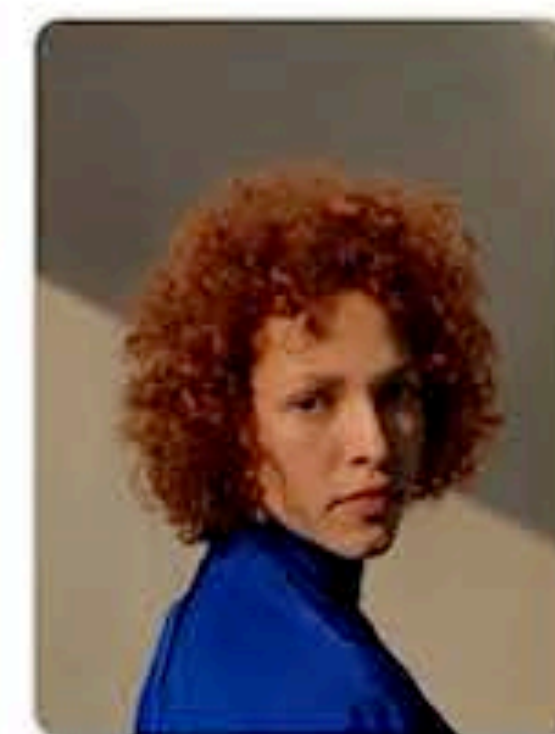
Name Date Size Kind Tags



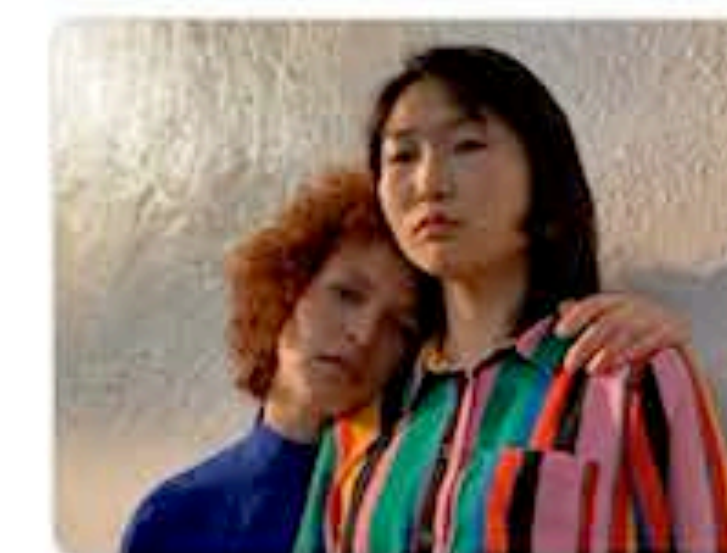
By the Window  
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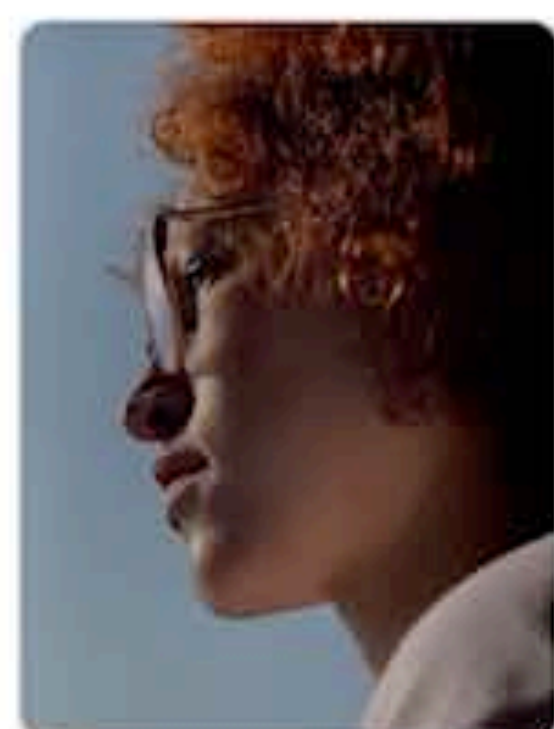
Crosswalk  
Jan 22, 2019 at 4:08 PM  
8.2 MB



Dual Tone  
Apr 16, 2019 at 11:01 AM  
1.8 MB



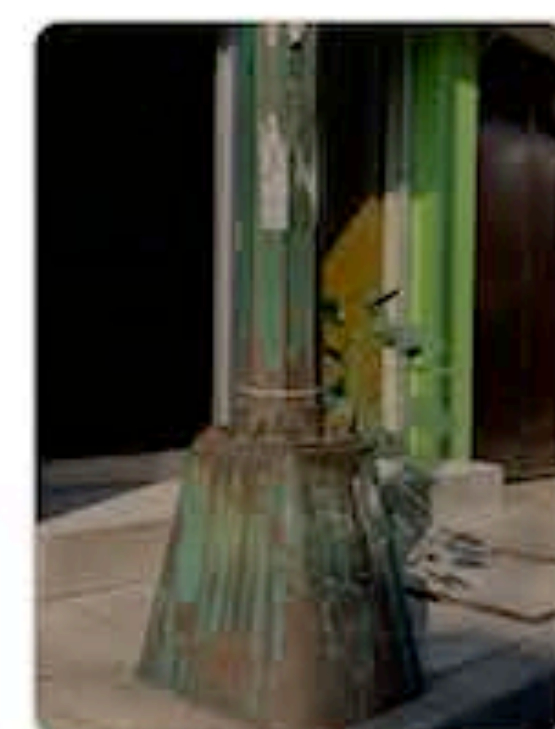
Fashion Proto  
Apr 16, 2019 at 11:01 AM  
2.2 MB



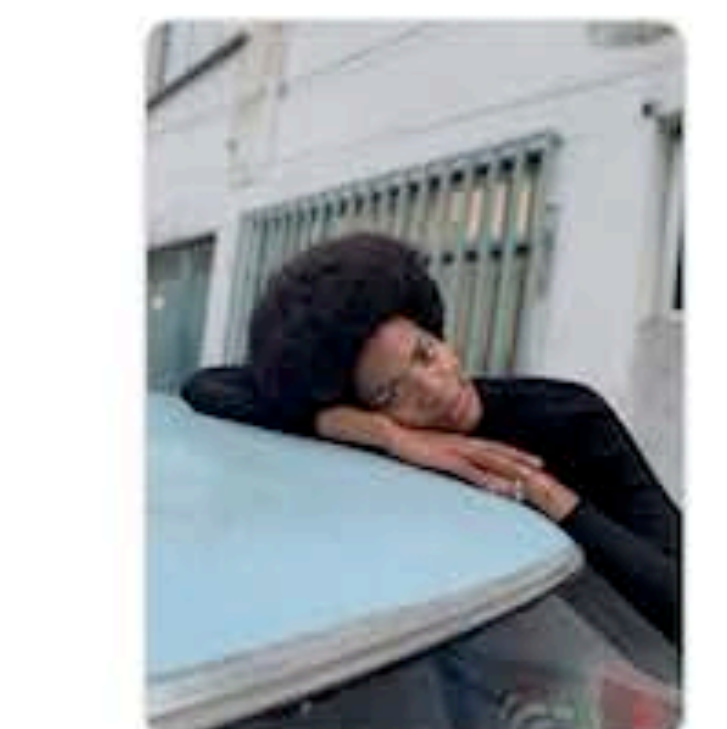
Glasses  
Jan 21, 2019 at 3:09 PM  
4.1 MB



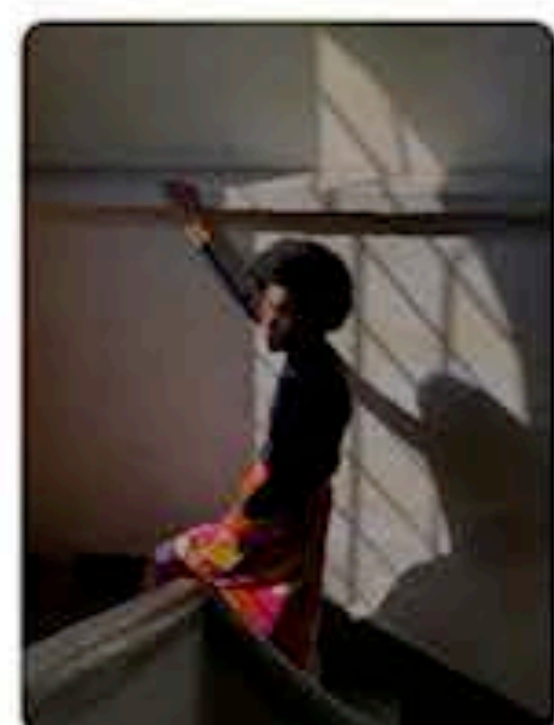
Graduation Speech  
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Leaf on a Pole  
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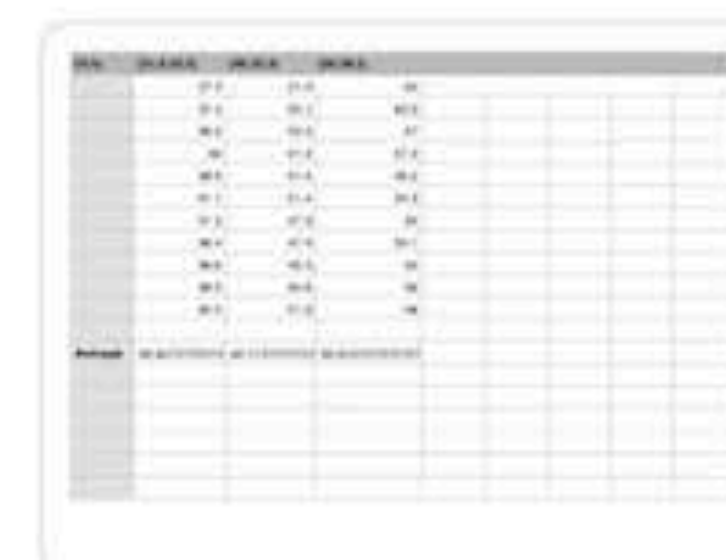
On a Vintage Car  
Apr 16, 2019 at 10:43 AM  
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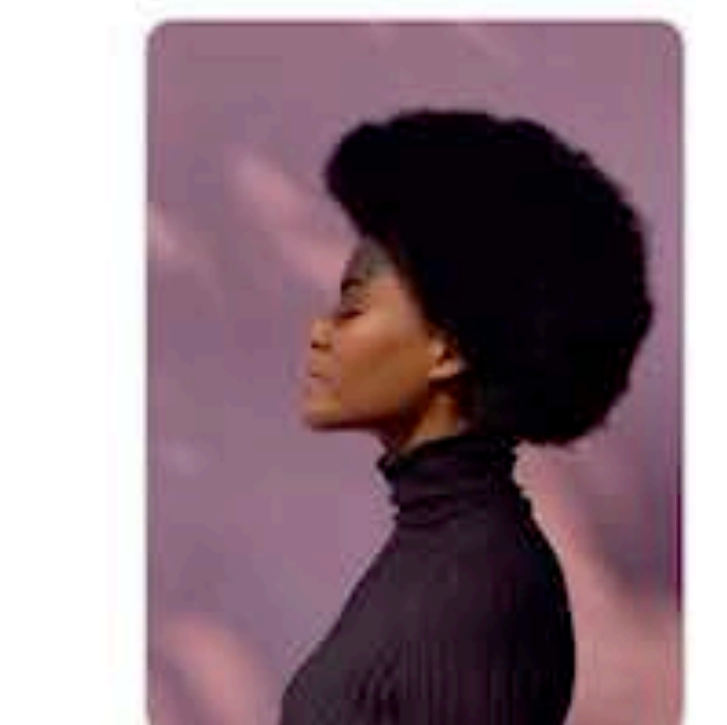
On the Stairs  
Apr 16, 2019 at 11:23 AM  
4.1 MB



Oranges  
Apr 16, 2019 at 10:51 AM  
2.7 MB



PFCs  
May 28, 2019 at 3:42 PM  
132 KB



Pink Background  
Jan 21, 2019 at 3:28 PM  
4.5 MB

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- Gray
- Work

< Work

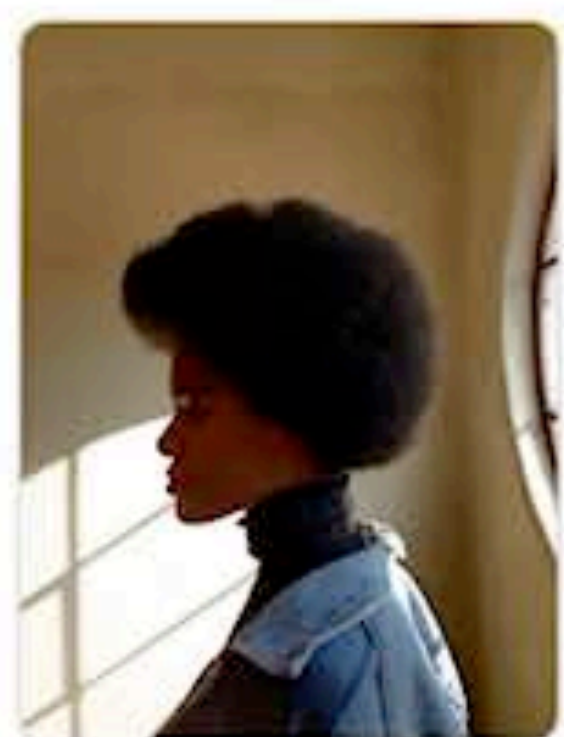
Work

Select

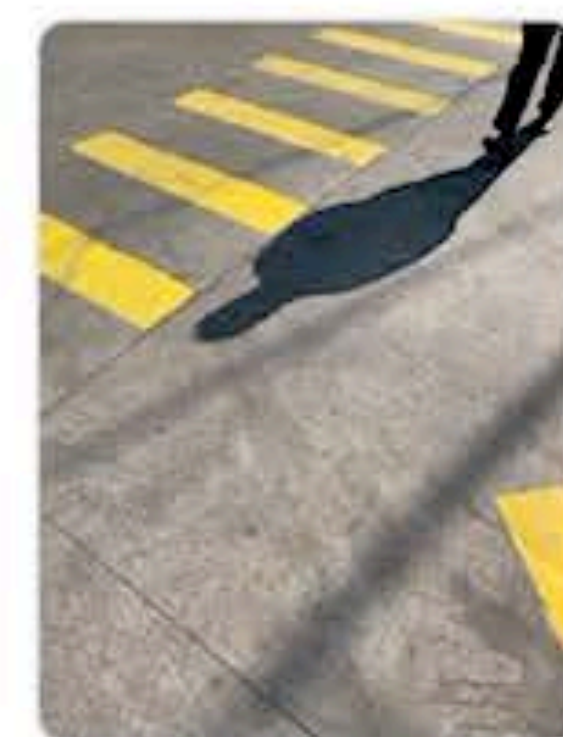
Search



Name Date Size Kind Tags



By the Window  
Apr 16, 2019 at 10:43 AM  
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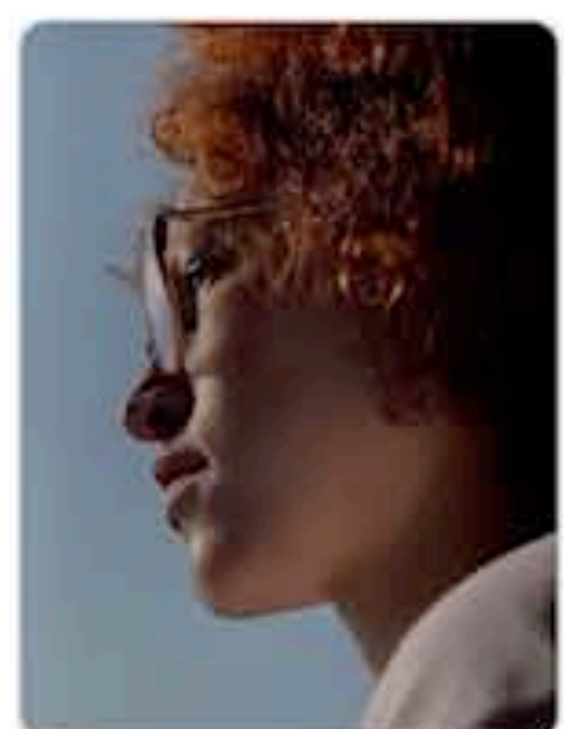
Crosswalk  
Jan 22, 2019 at 4:08 PM  
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Dual Tone  
Apr 16, 2019 at 11:01 AM  
1.8 MB



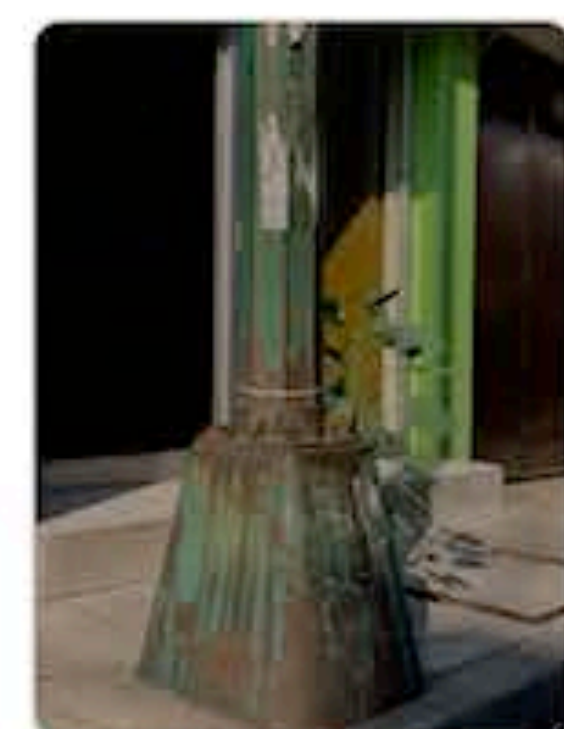
Fashion Proto  
Apr 16, 2019 at 11:01 AM  
2.2 MB



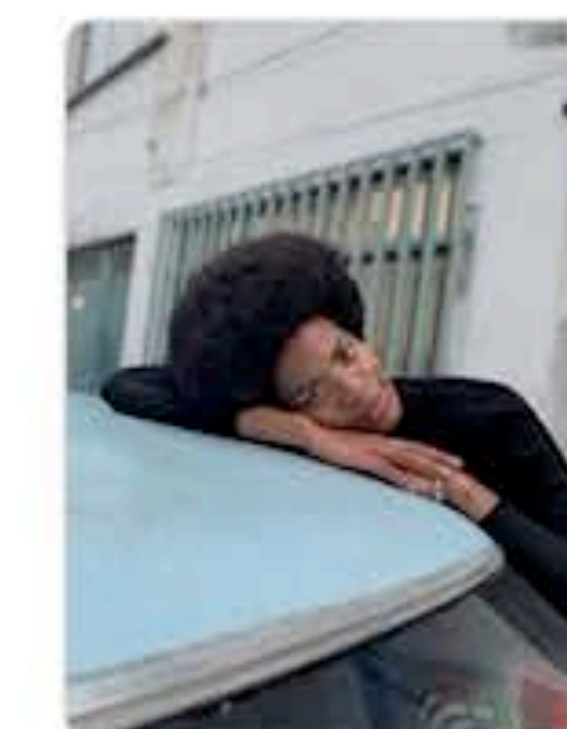
Glasses  
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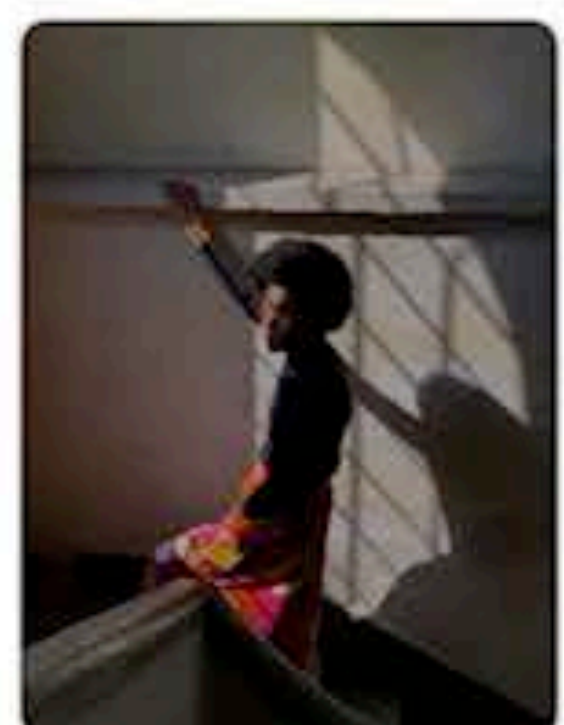
Graduation Speech  
May 28, 2019 at 3:41 PM  
930 bytes



Leaf on a Pole  
Apr 16, 2019 at 10:51 AM  
3.2 MB



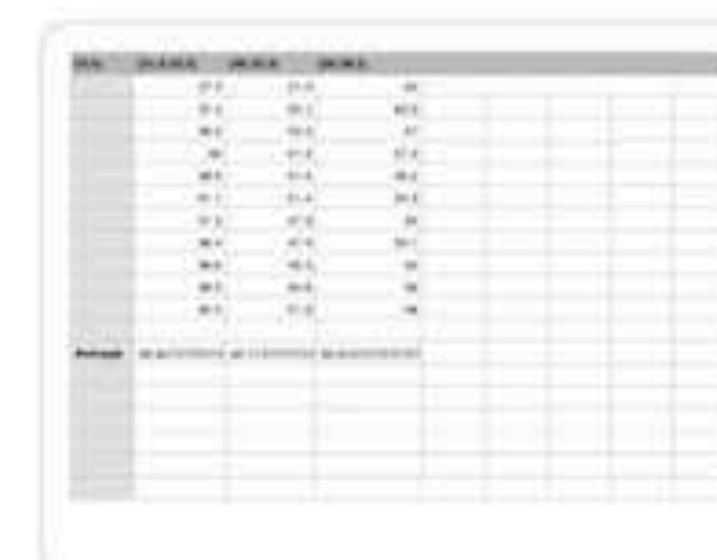
On a Vintage Car  
Apr 16, 2019 at 10:43 AM  
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On the Stairs  
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4.1 MB



Oranges  
Apr 16, 2019 at 10:51 AM  
2.7 MB



PFCs  
May 28, 2019 at 3:42 PM  
132 KB



Pink Background  
Jan 21, 2019 at 3:28 PM  
4.5 MB

Recents

Browse

# Browse

## Locations

- On My iPad
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- Recently Deleted

## Favorites

- Downloads

## Tags

- Red
- Yellow
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- Green
- Blue
- Purple
- Gray
- Work
- Home

Select All

Select Items

Done

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Name Date Size Kind Tags



- Austin Flight Info
- Downloads
- Numbers
- Work

- By the Window
- Crosswalk
- Dual Tone
- Fashion Proto
- Glasses
- Gradua...peech
- Leaf on a Pole
- On a Vi...ge Car
- On the Stairs
- Oranges
- PFCs
- Pink Ba...ground

4 items, 1.98 GB available on iCloud

Share Duplicate Move Delete More

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- iCloud Drive
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## Favorites

- Downloads

## Tags

- Red
- Yellow
- Orange
- Green
- Blue
- Purple
- Gray
- Work
- Home

Select All

Select Items

Done

🔍 Search



Name Date Size Kind Tags



Austin Flight Info

Downloads

Numbers

Work

By the Window

Crosswalk

Dual Tone

Fashion Proto

Glasses

Gradua...peech

Leaf on a Pole

On a Vi...ge Car

On the Stairs

Oranges

PFCs

Pink Ba...ground

4 items, 1.98 GB available on iCloud

Share

Duplicate

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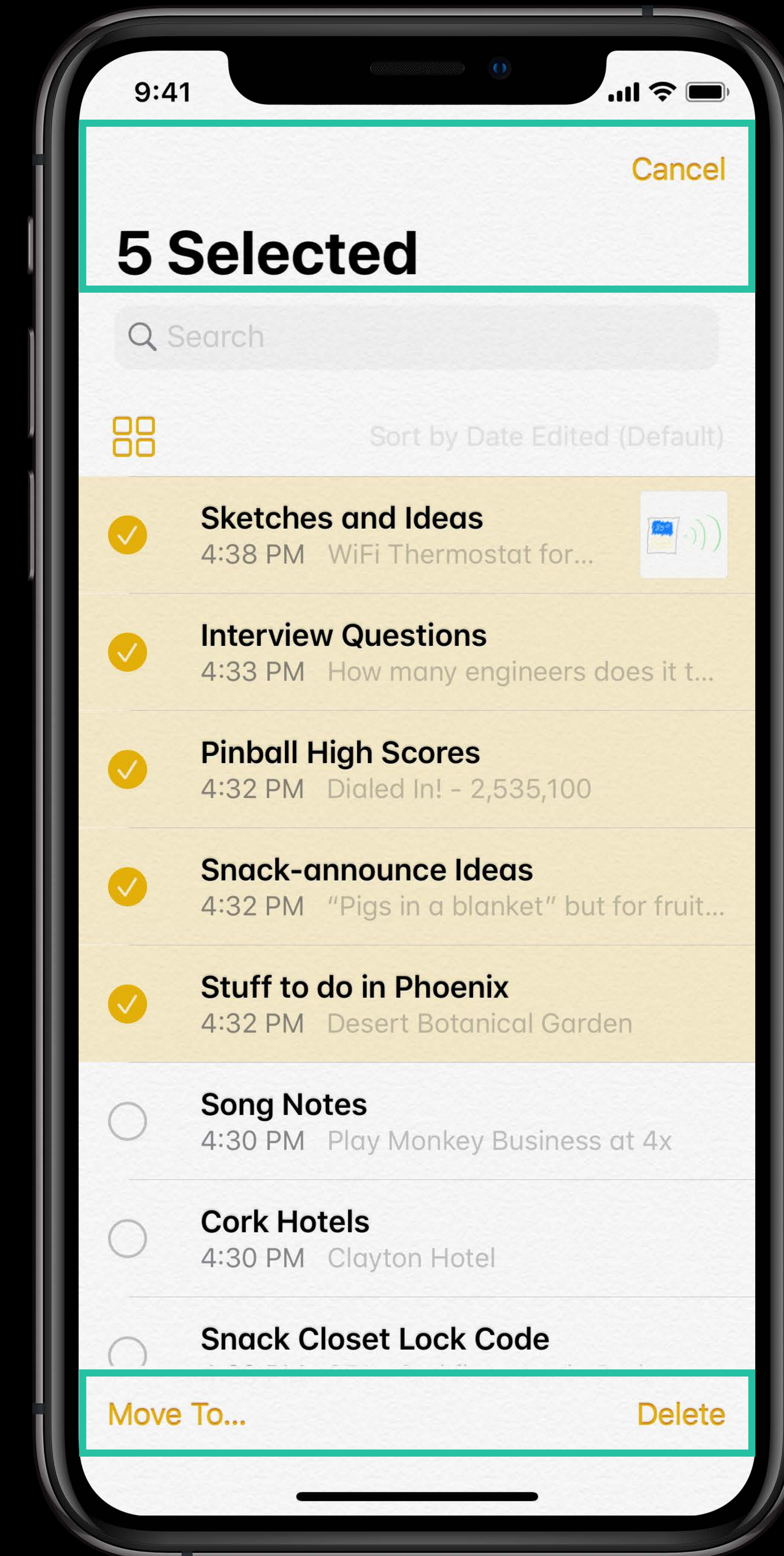
More

shift

# Multiple Selection

Your app might need to adapt

- "Select" turns into "Cancel" or "Done"
- Show action buttons
- Disable UI



# Adopting Multiple Selection Gestures



NEW

Only two delegate methods to implement  
UITableView and UICollectionView

# Adopting Multiple Selection Gestures



NEW

Only two delegate methods to implement  
UITableView and UICollectionView

```
optional func tableView(_ tableView: UITableView,  
shouldBeginMultipleSelectionInteractionAtPath indexPath: IndexPath) -> Bool
```

```
optional func tableView(_ tableView: UITableView,  
didBeginMultipleSelectionInteractionAtPath indexPath: IndexPath)
```

# Adopting Multiple Selection Gestures



NEW

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UITableView and UICollectionView

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```

```
optional func tableView(_ tableView: UITableView,  
didBeginMultipleSelectionInteractionAtPath indexPath: IndexPath)
```



Selection gestures in custom text views

Multiple selection gestures in tables and collections

Editing gestures



Done

# Projects

Q Search



Sort by Date Edited (Default)

## Sketches and Ideas

6:07 PM WiFi Thermostat for XION...



## Snack Closet Lock Code

5:29 PM 251 - 2nd floor

## Interview Questions

Tuesday How many engineers does it take to...

## Pinball High Scores

Tuesday Dialed In! - 2,535,100

## Snack-announce Ideas

Tuesday "Pigs in a blanket" but for fruit roll-...

## Stuff to do in Phoenix

Tuesday Desert Botanical Garden

## Song Notes

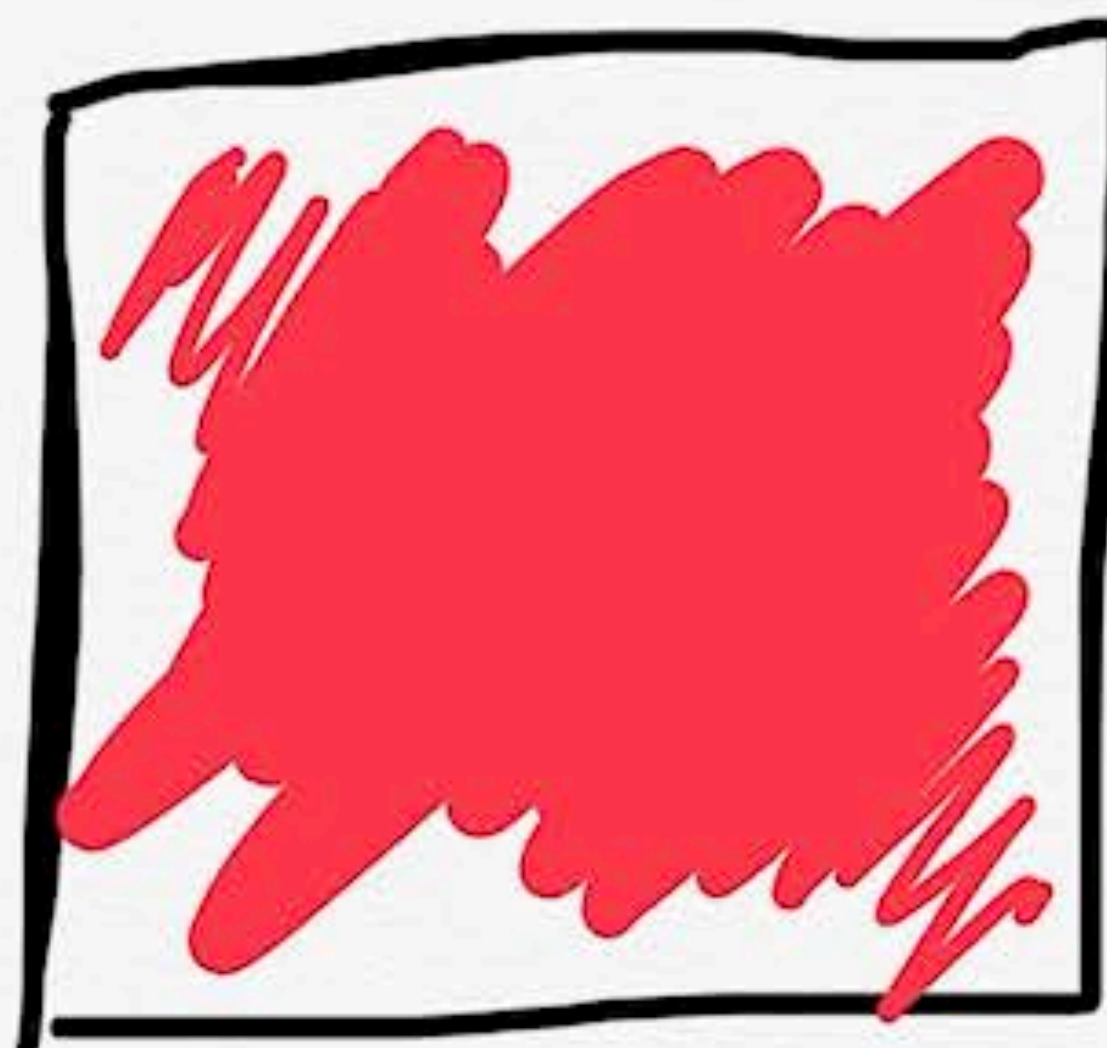
Tuesday Play Monkey Business at 4x

## Cork Hotels

Tuesday Clayton Hotel

server

Connects to command and control server for remote access



8 Notes





Done

# Projects

Q Search



Sort by Date Edited (Default)

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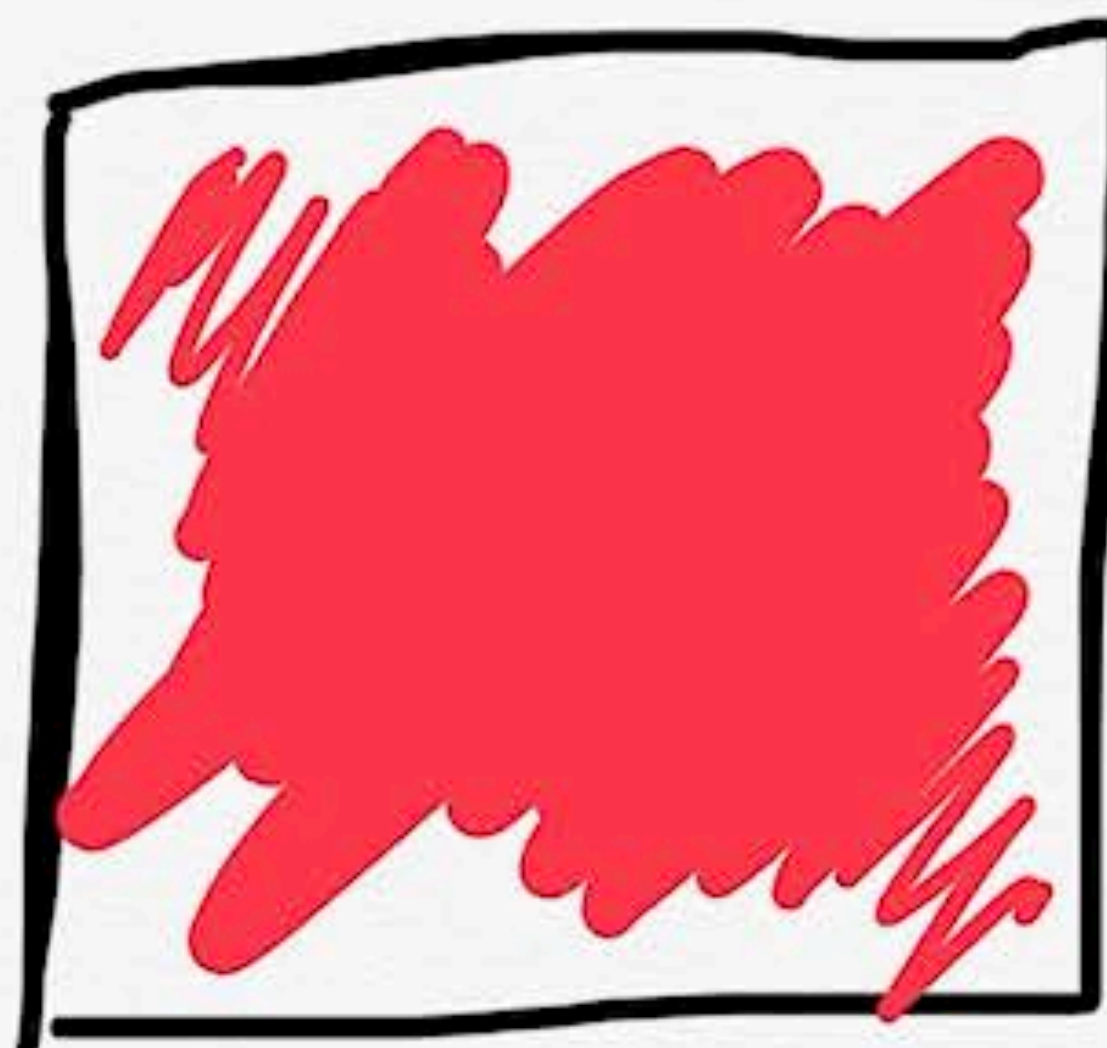
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Tuesday Clayton Hotel

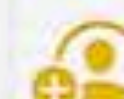
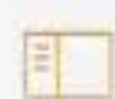
server

Connects to command and control server for remote access



8 Notes





# Projects

Search



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Tuesday "Pias in a blanket" but for fruit roll...

When toggling the temperature, make sure to wait for some time for the room to cool down before shutting it off again. Same goes for turning back on.



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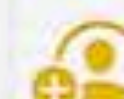
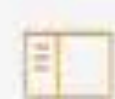


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# Projects

Search



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# Editing Gestures in iOS 13

NEW

Frees your app from adding additional UI

Unified across the entire system

Great for drawing apps

Completely free if you use `UndoManager`

```
// Working With or Without Productivity Gestures

public protocol UIResponder {
    public var editingInteractionConfiguration: UIEditingInteractionConfiguration
}

public enum UIEditingInteractionConfiguration {
    case `default` // System behavior, default
    case none      // Disable
}
```

# Updating Your App

System selection gestures in your custom text view

Boost productivity with multiple selection gestures

Stop shaking your iPad



# Menus

Mohammed Jisrawi

**UIContextMenuInteraction**

# UIContextMenuInteraction

Rich previews

Complex hierarchies

Nested sub-menus

In-line sections



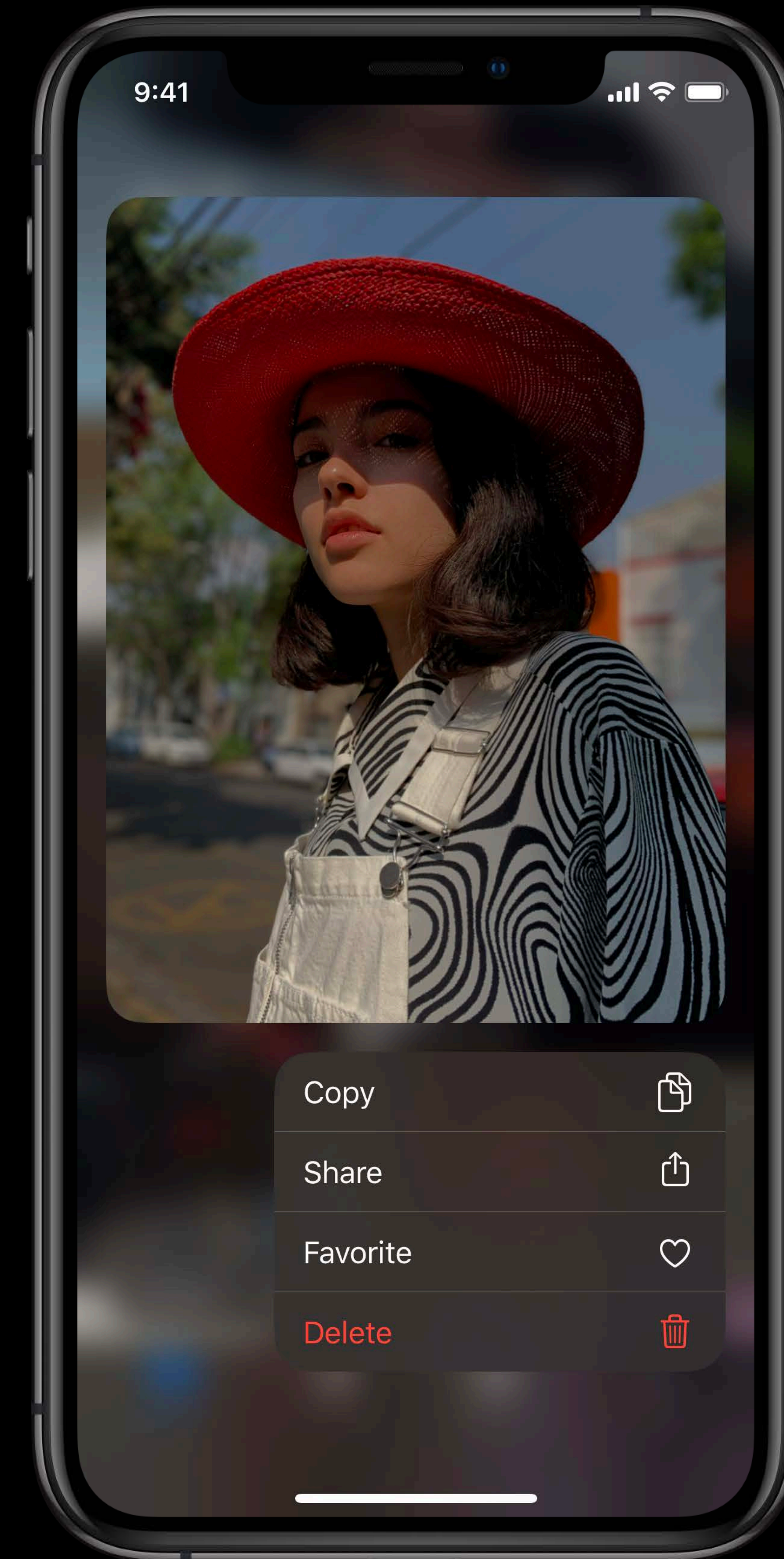
# UIContextMenuInteraction

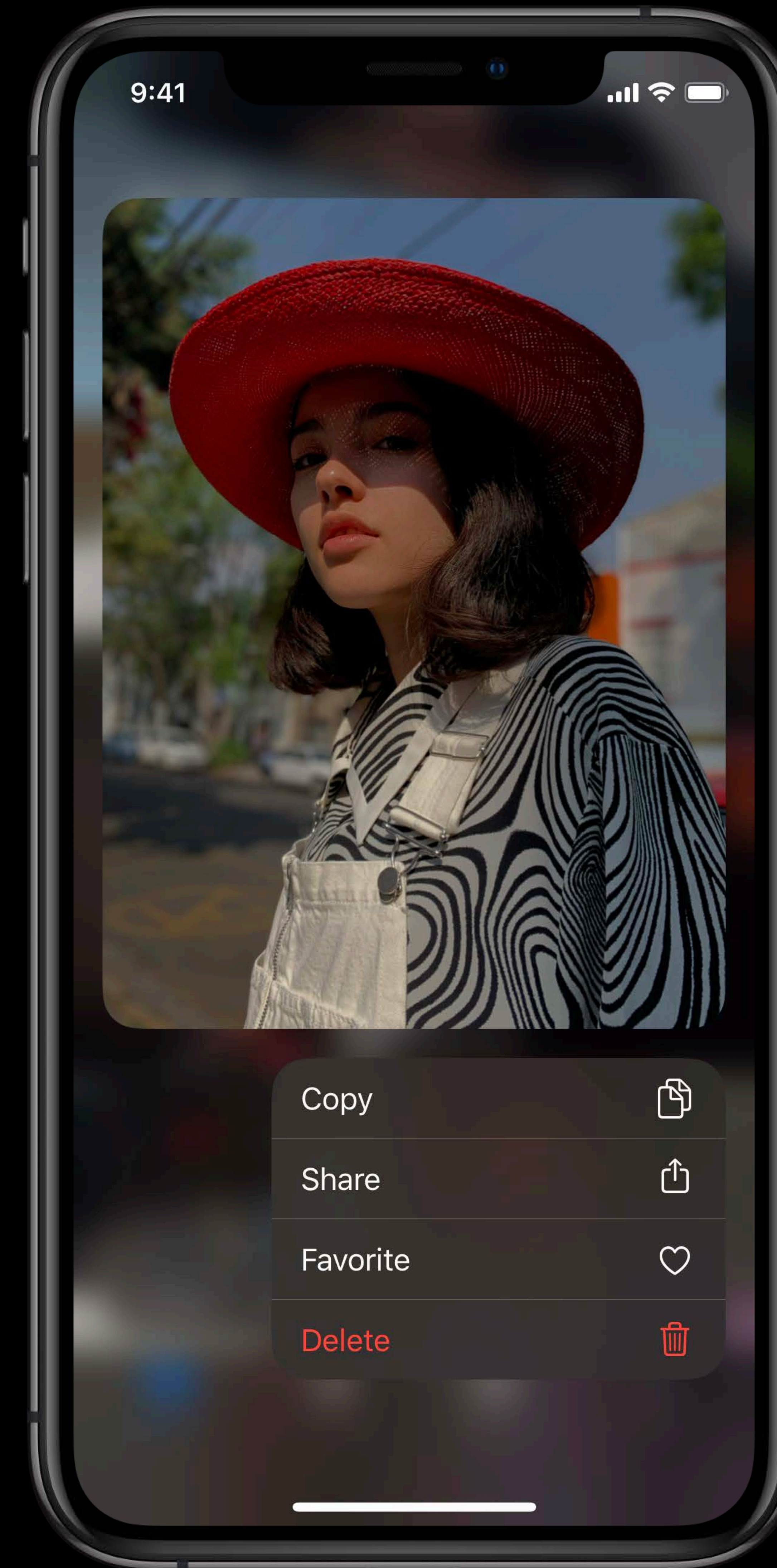
Rich previews

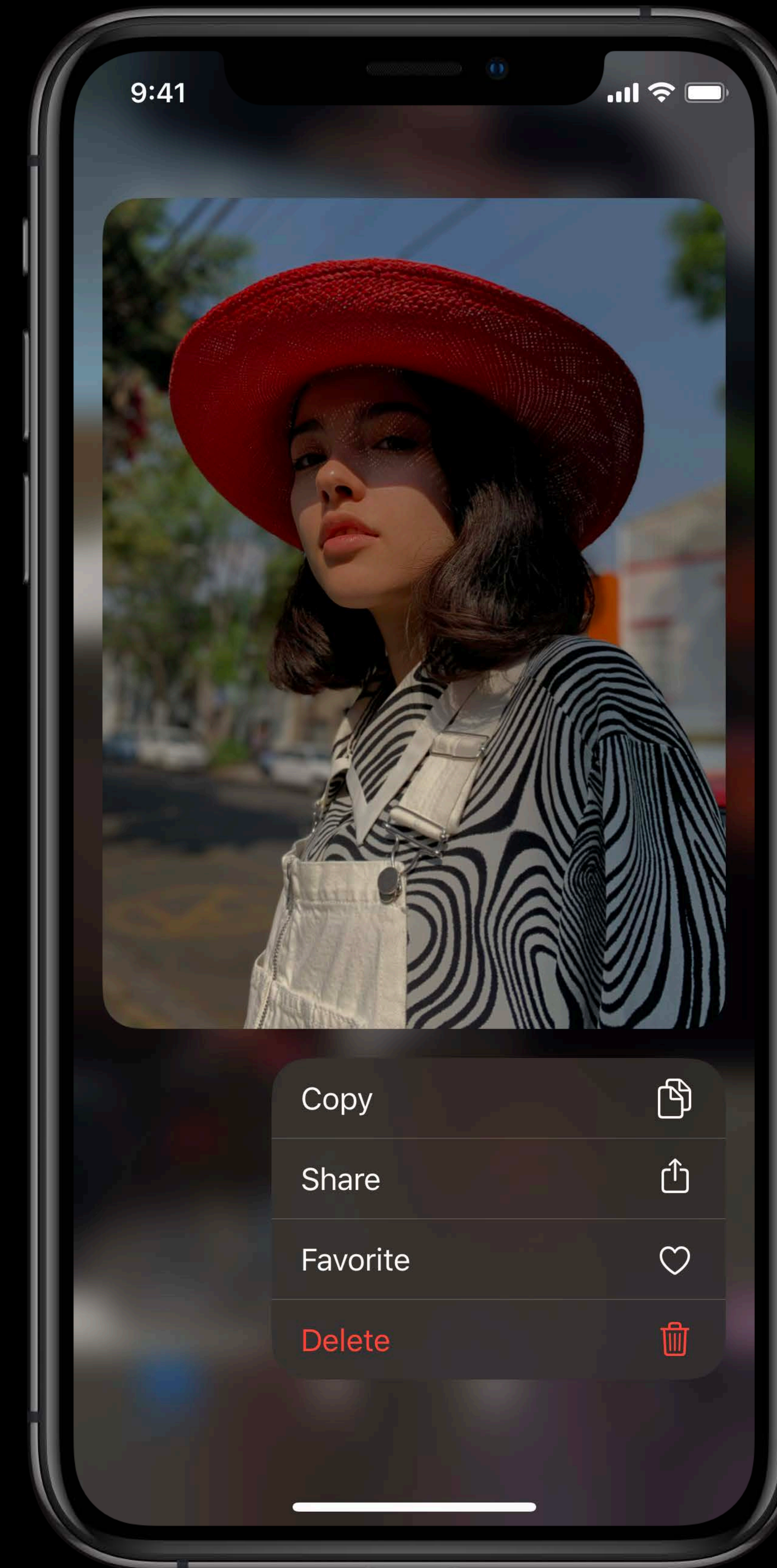
Complex hierarchies

Nested sub-menus

In-line sections





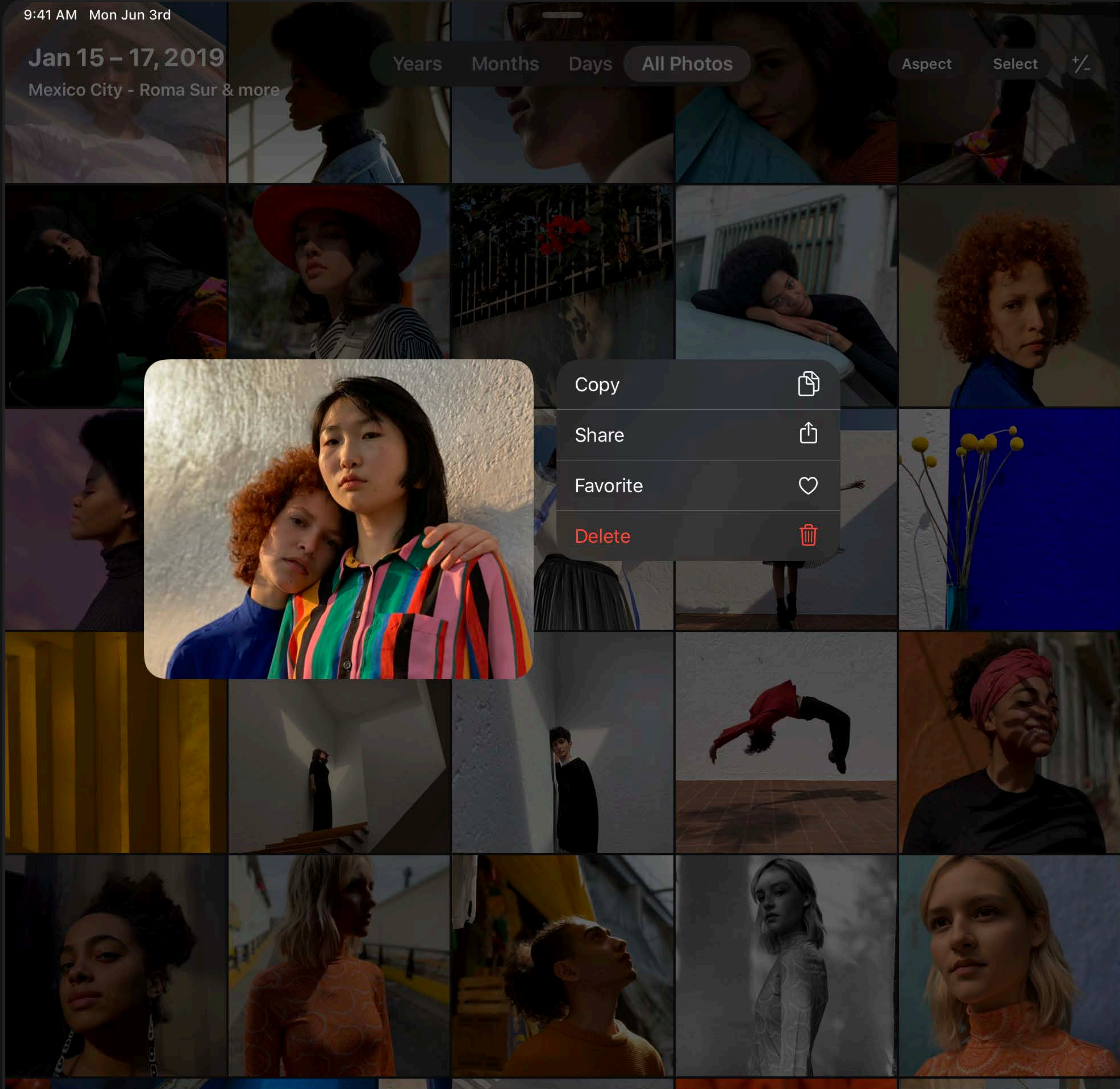


9:41 AM Mon Jun 3rd

Jan 15 - 17, 2019  
Mexico City - Roma Sur & more

Years Months Days All Photos

Aspect Select +/-

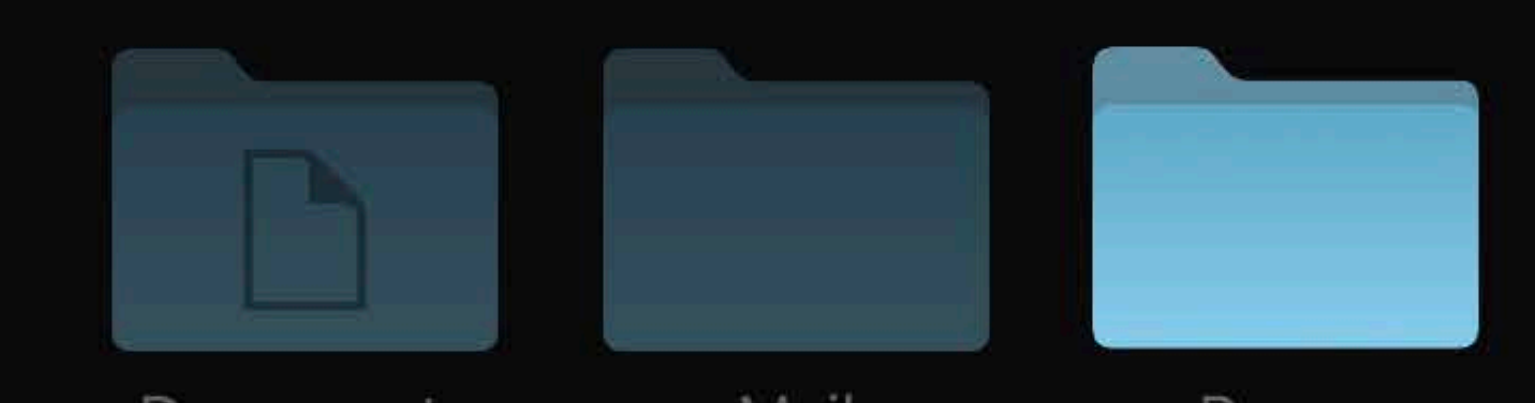


- Copy
- Share
- Favorite
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Locations iCloud Drive Select

Search



Documents 0 items

Mail Pages

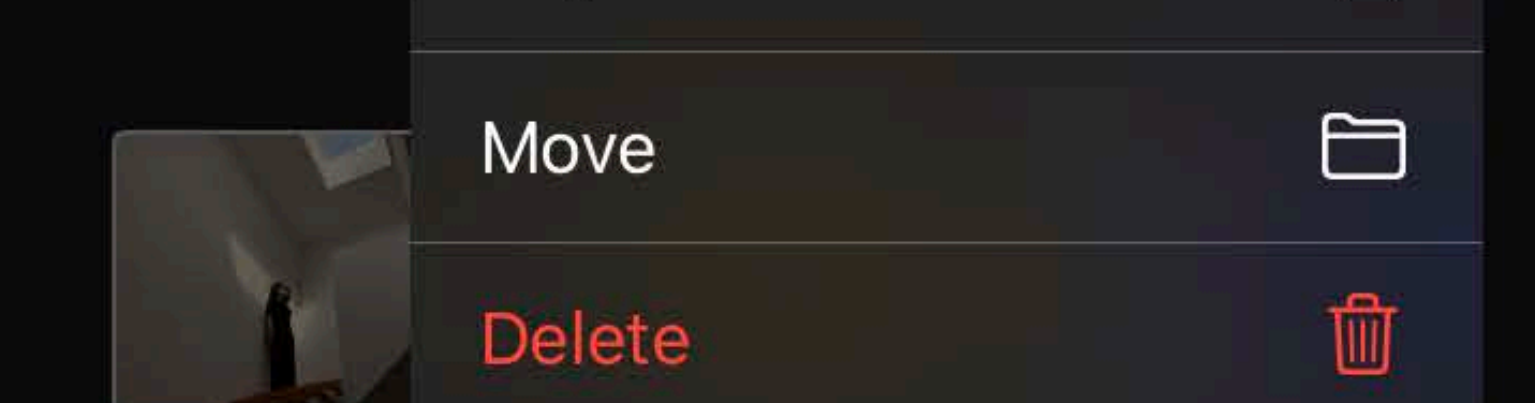


Photo 1  
12:24 AM  
4.3 MB

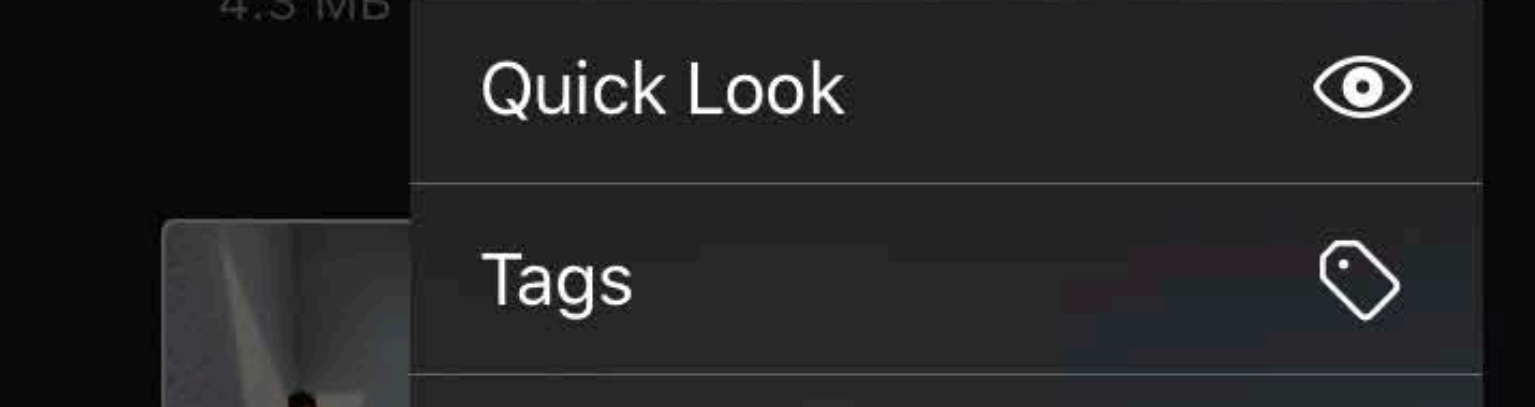


Photo 4  
12:24 AM  
2.9 MB

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- Info
- Quick Look
- Tags
- Rename
- Favorite
- Share
- Compress
- Download
- Pin

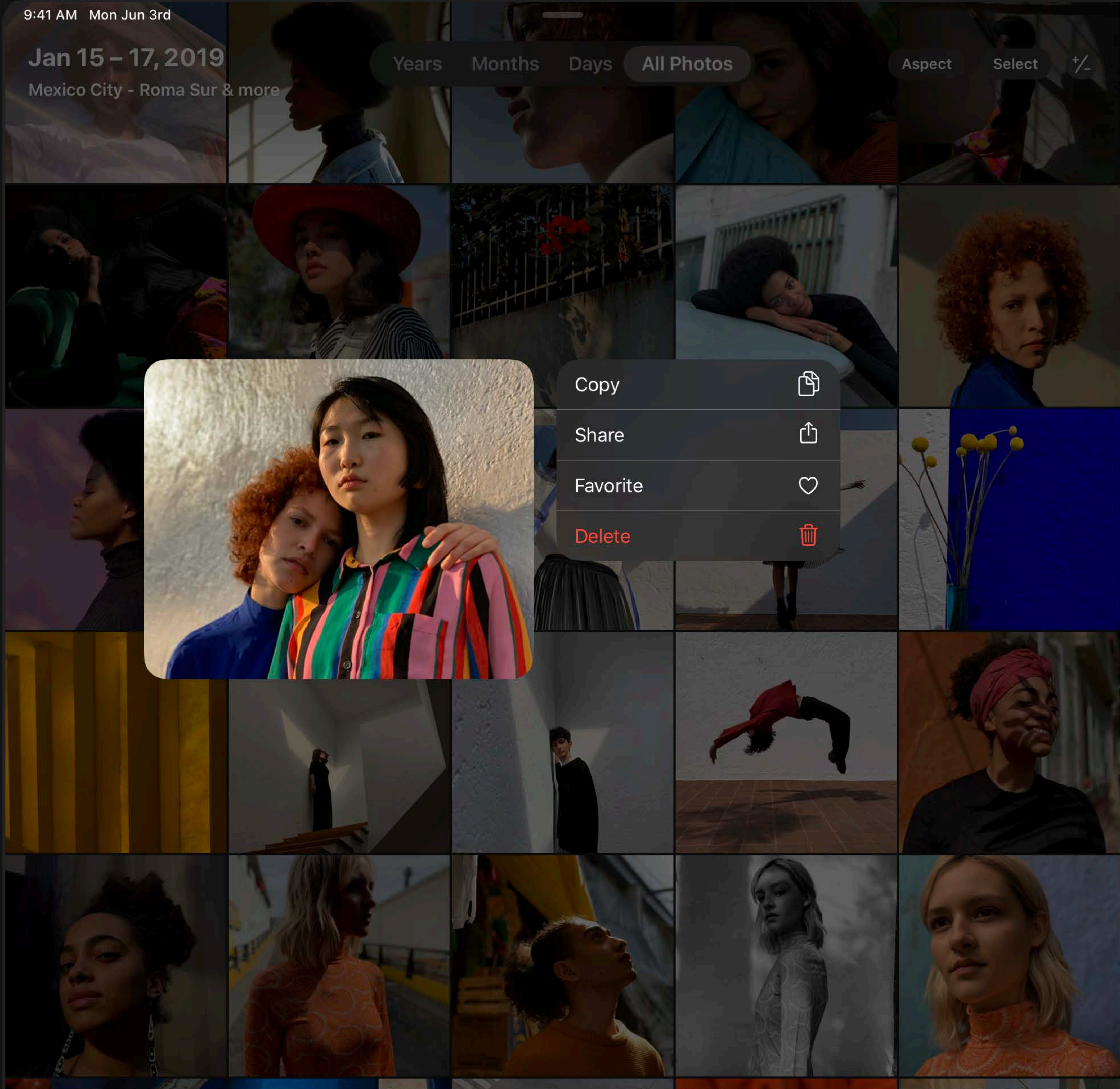
9 items, 3.08 GB available on iCloud

9:41 AM Mon Jun 3rd

Jan 15 - 17, 2019  
Mexico City - Roma Sur & more

Years Months Days All Photos

Aspect Select +/-

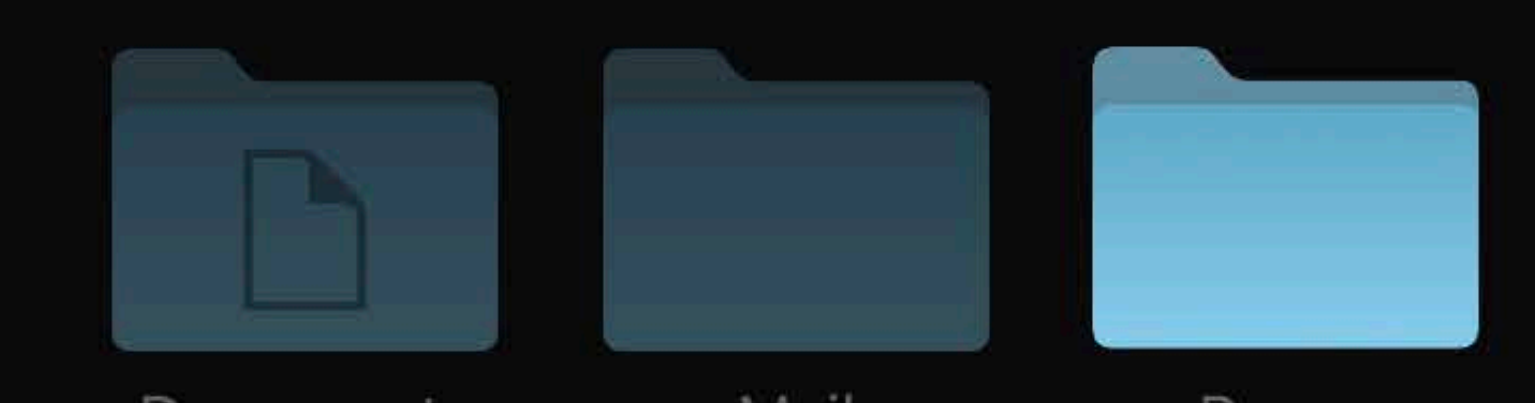


- Copy
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Locations iCloud Drive Select

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Documents 0 items

Mail Pages

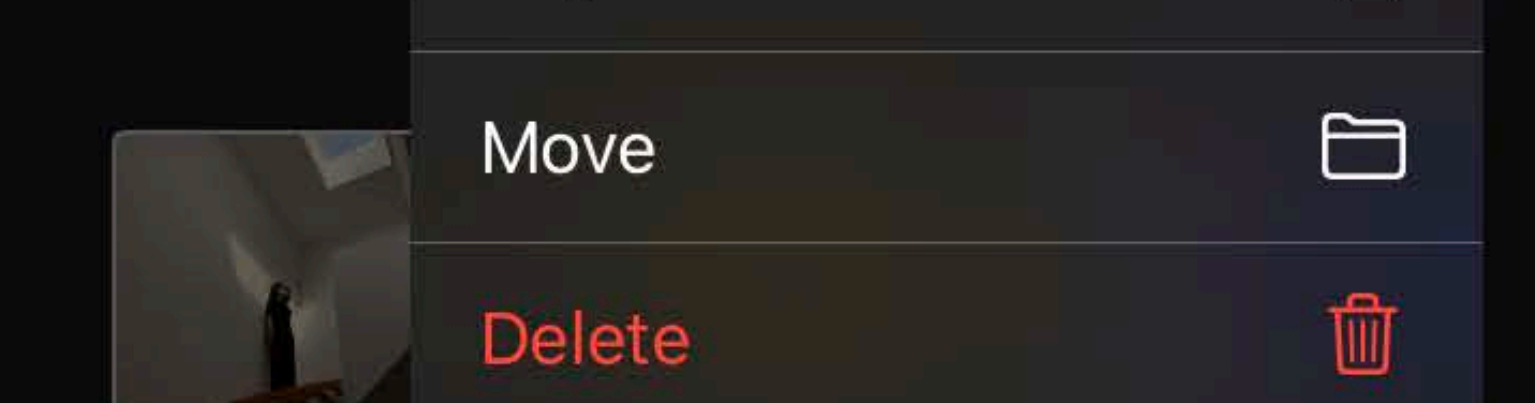


Photo 1  
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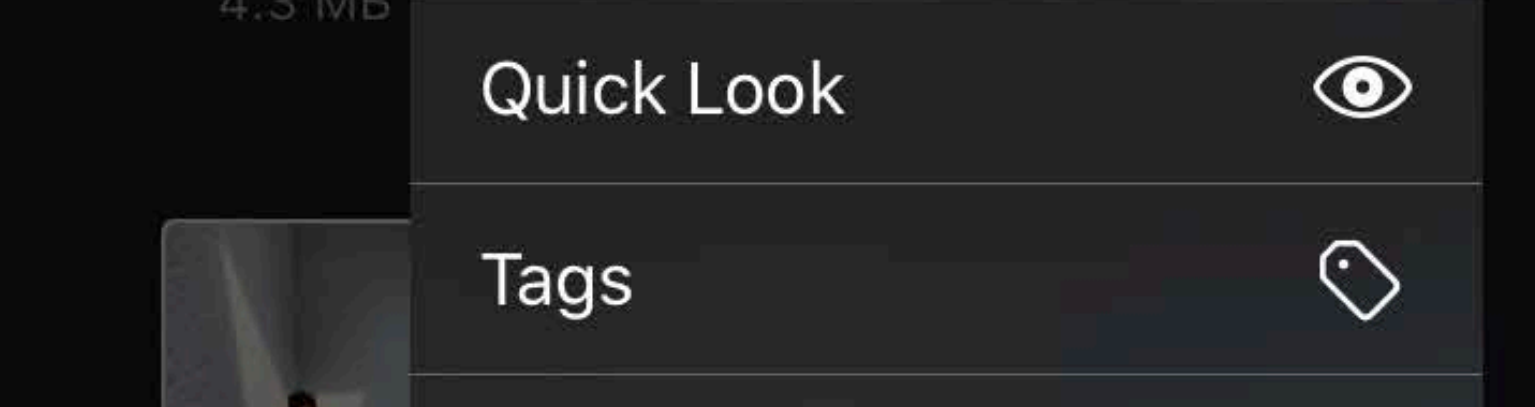


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9 items, 3.08 GB available on iCloud



NewsSettings Share Search


Apple News

- Today
- News+
- Saved Stories
- History

Following


- News Top Stories
- Apple News Spotlight

## Apple Newsroom




**Apple Design Awards celebrate best-in-class design for apps and games**

Apple Newsroom 9h ago




**WWDC**

Apple Newsroom 1d ago




**Apple unveils groundbreaking new technologies for app development**

Apple Newsroom 1d ago




**Apple previews macOS Catalina**

Apple Newsroom 1d ago




**Pro app developers react to the new Mac Pro and Pro Display XDR**

Apple Newsroom 1d ago




**Apple unveils powerful, all-new Mac Pro and groundbreaking Pro Display XDR**

Apple Newsroom 1d ago




**watchOS 6 advances health and fitness capabilities for Apple Watch**

Apple Newsroom 1d ago



**The new iPadOS powers unique experiences designed for iPad**


Apple Newsroom 1d ago



**Apple previews iOS 13**


Apple today previewed iOS 13, introducing Darwin...

Apple Newsroom 1d ago




**tvOS 13 powers the most personal cinematic experience...**

Apple Newsroom 1d ago



**Thousands of stories, one WWDC**

Apple Newsroom 5d ago



**New iPod touch delivers even greater performance**

Apple Newsroom 1w ago

- Suggest More Like This
- Suggest Less Like This
- Save
- Share Story
- Block Channel

MacBook Pro

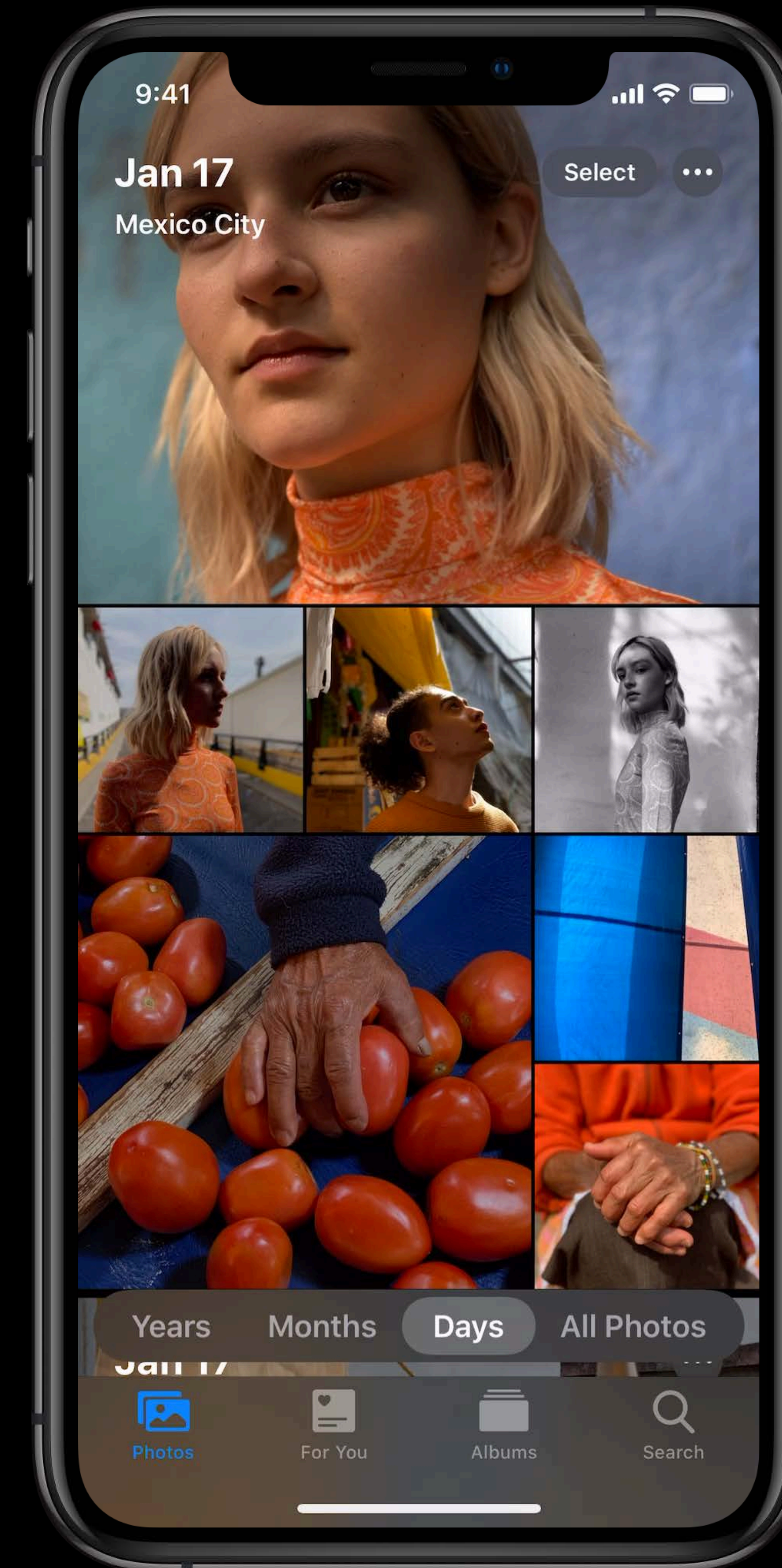
# Consistent Gestures

3D Touch

Haptic Touch

Long press

Secondary click



# Consistent Gestures

3D Touch

Haptic Touch

Long press

Secondary click

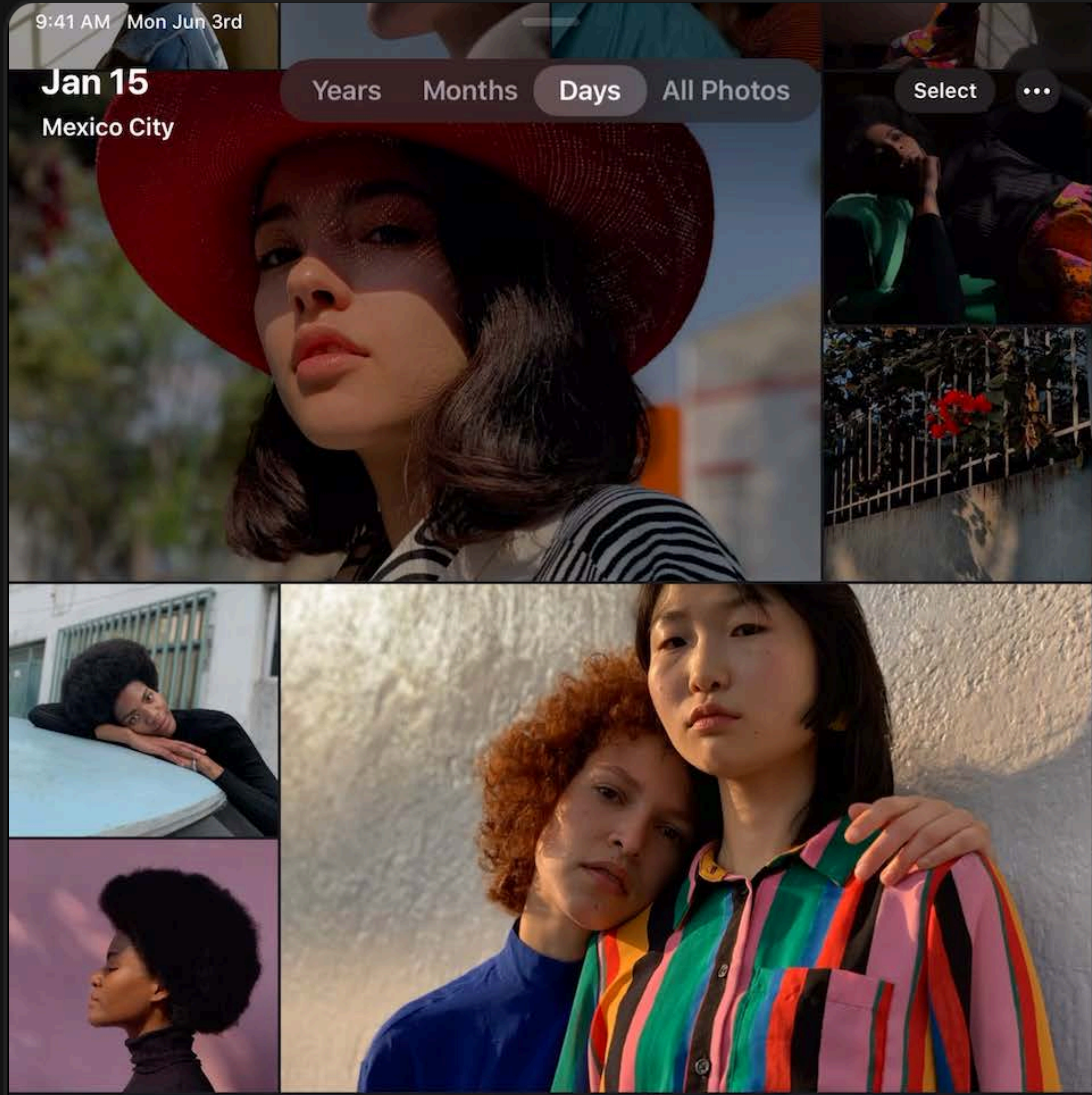


9:41 AM Mon Jun 3rd

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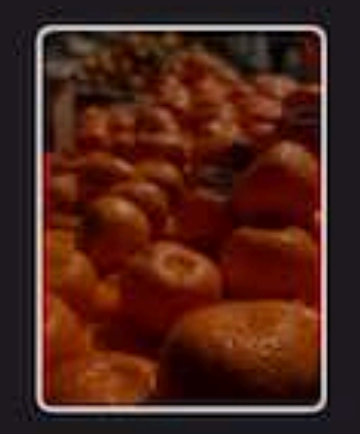
Photos For You Albums Search

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Mexico Trip

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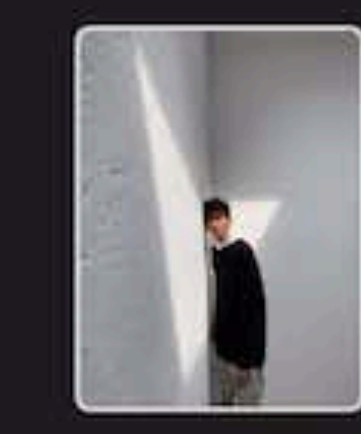
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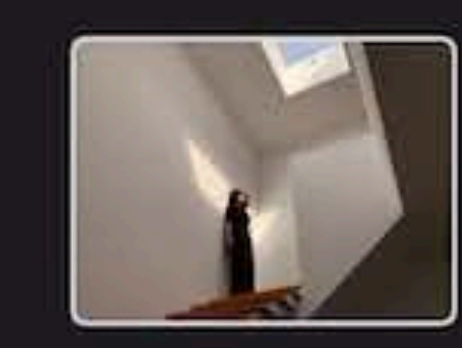
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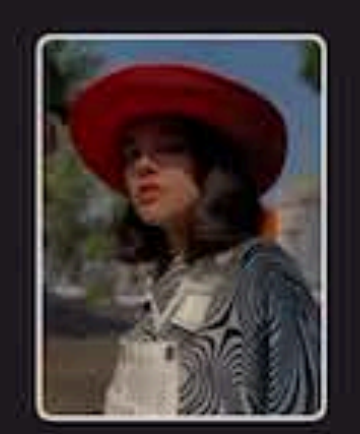
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Red Hat  
Today at 2:55 PM  
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Sheets  
Today at 2:55 PM  
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6 items, 1 TB available

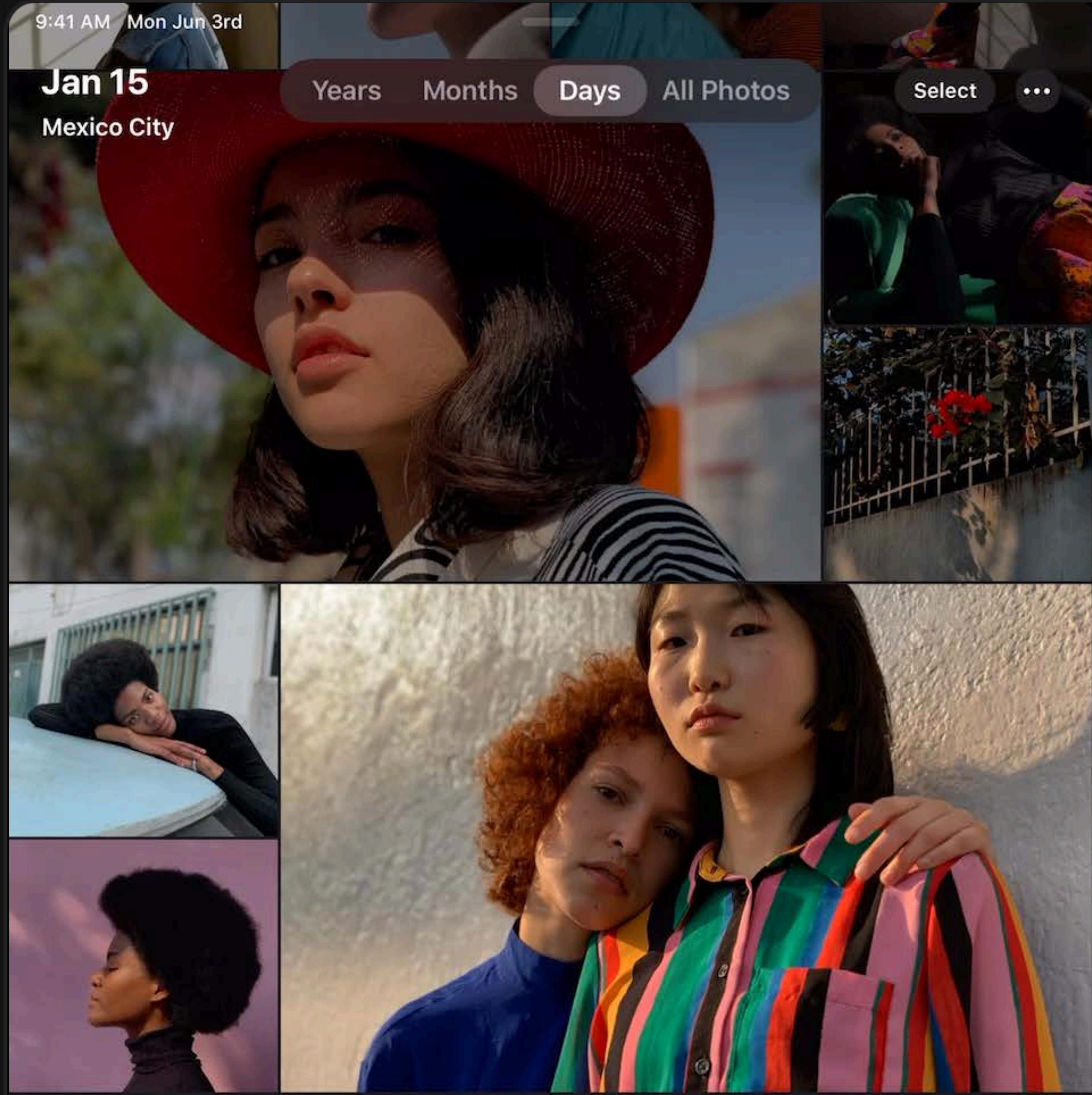
Recents Browse

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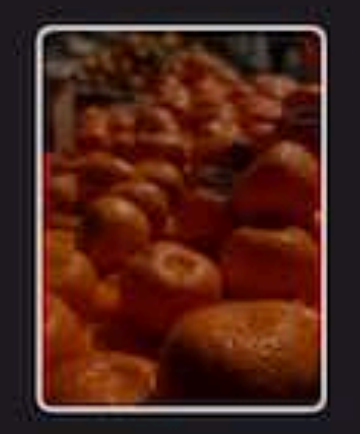
Photos For You Albums Search

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Mexico Trip

Select

Search



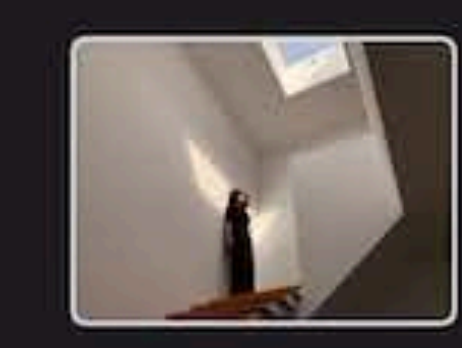
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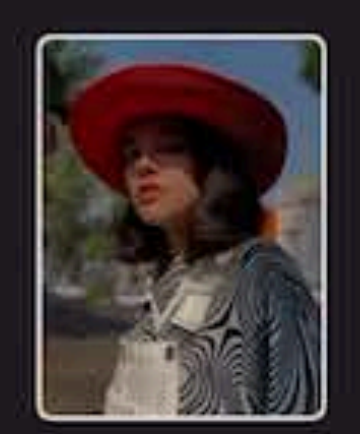
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Today at 2:55 PM  
1.5 MB





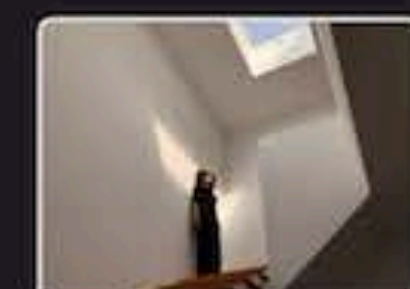




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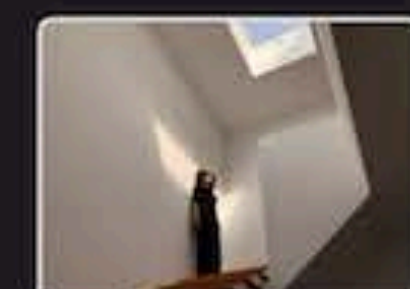


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-  190115\_iPhoneXS\_Demo-...041681  
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7 items, 1 TB available

# UIMenu and UIAction



# UIMenu and UIAction

Hierarchical menu construction system

UIMenus are composable

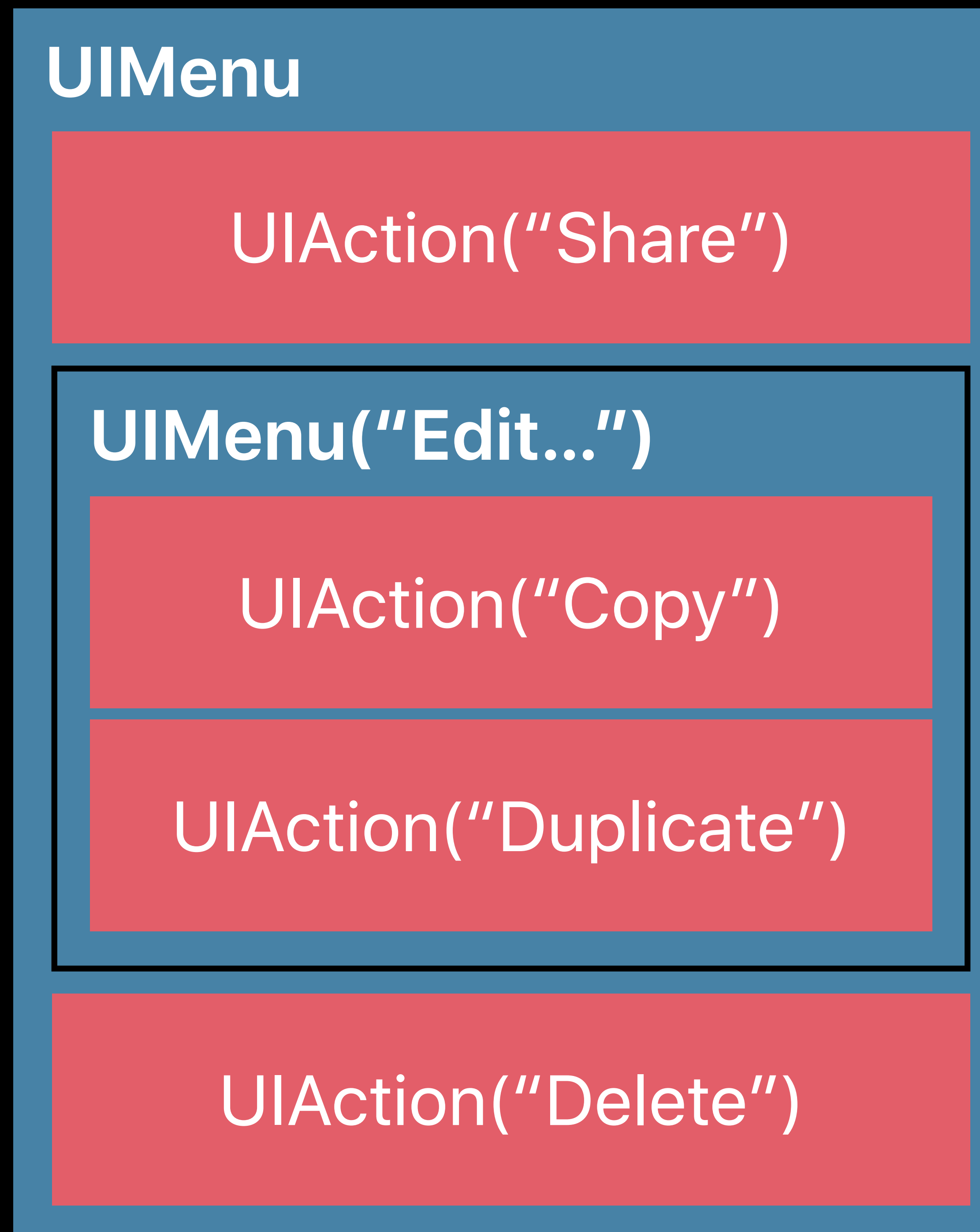
# UIMenu and UIAction

## UIMenu

UIAction("Share")

UIAction("Delete")

# UIMenu and UIAction



9:41



Groceries  
Stuff to buy

Share



Edit...

Delete



9:41



Groceries  
Stuff to buy

Share



Edit...

Delete



9:41



Groceries  
Stuff to buy

Share



Edit...

Delete



9:41



Groceries  
Stuff to buy

Share



Edit...

Delete



```
// Create a UIContextMenuInteraction with Some Delegate
let interaction = UIContextMenuInteraction(delegate: self)

// Attach It to Our View
menuSourceView.addAction(interaction)
```



# UIContextMenuInteractionDelegate

```
func contextMenuInteraction(_ interaction: UIContextMenuInteraction,  
configurationForMenuAtLocation location: CGPoint) -> UIContextMenuConfiguration?
```

One required method

Return a UIContextMenuConfiguration to start

Return nil to prevent interaction

# UIContextMenuConfiguration

```
class UIContextMenuConfiguration: NSObject {  
  
    // ...  
  
    convenience init(identifier: NSCopying?,  
                    previewProvider: UIContextMenuContentPreviewProvider?,  
                    actionProvider: UIContextMenuActionProvider?)  
    }  
}
```

```
let actionProvider = (suggestedActions: [UIMenuElement]) -> UIMenu? {
```

```
    let editMenu = UIMenu(title: "Edit...", children: [  
        UIAction(title: "Copy") { ... },  
        UIAction(title: "Duplicate") { ... }  
    ])
```

```
    return UIMenu(children: [  
        UIAction(title: "Share") { ... },  
        editMenu,  
        UIAction(title: "Delete", style: .destructive) { ... }  
    ])
```

```
}
```

```
return UIContextMenuConfiguration(identifier: "unique-ID" as NSCopying,  
    previewProvider: nil,  
    actionProvider: actionProvider)
```

```
let actionProvider = (suggestedActions: [UIMenuElement]) -> UIMenu? {
```

```
    let editMenu = UIMenu(title: "Edit...", children: [  
        UIAction(title: "Copy") { ... },  
        UIAction(title: "Duplicate") { ... }  
    ])
```

```
    return UIMenu(children: [  
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        editMenu,  
        UIAction(title: "Delete", style: .destructive) { ... }  
    ])
```

```
}
```

```
return UIContextMenuConfiguration(identifier: "unique-ID" as NSCopying,  
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let actionProvider = (suggestedActions: [UIMenuElement]) -> UIMenu? {  
  
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        UIAction(title: "Share") { ... },  
        editMenu,  
        UIAction(title: "Delete", style: .destructive) { ... }  
    ])  
}  
  
return UIContextMenuConfiguration(identifier: "unique-ID" as NSCopying,  
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    ])  
  
    return UIMenu(children: [  
        UIAction(title: "Share") { ... },  
        editMenu,  
        UIAction(title: "Delete", style: .destructive) { ... }  
    ])  
}
```

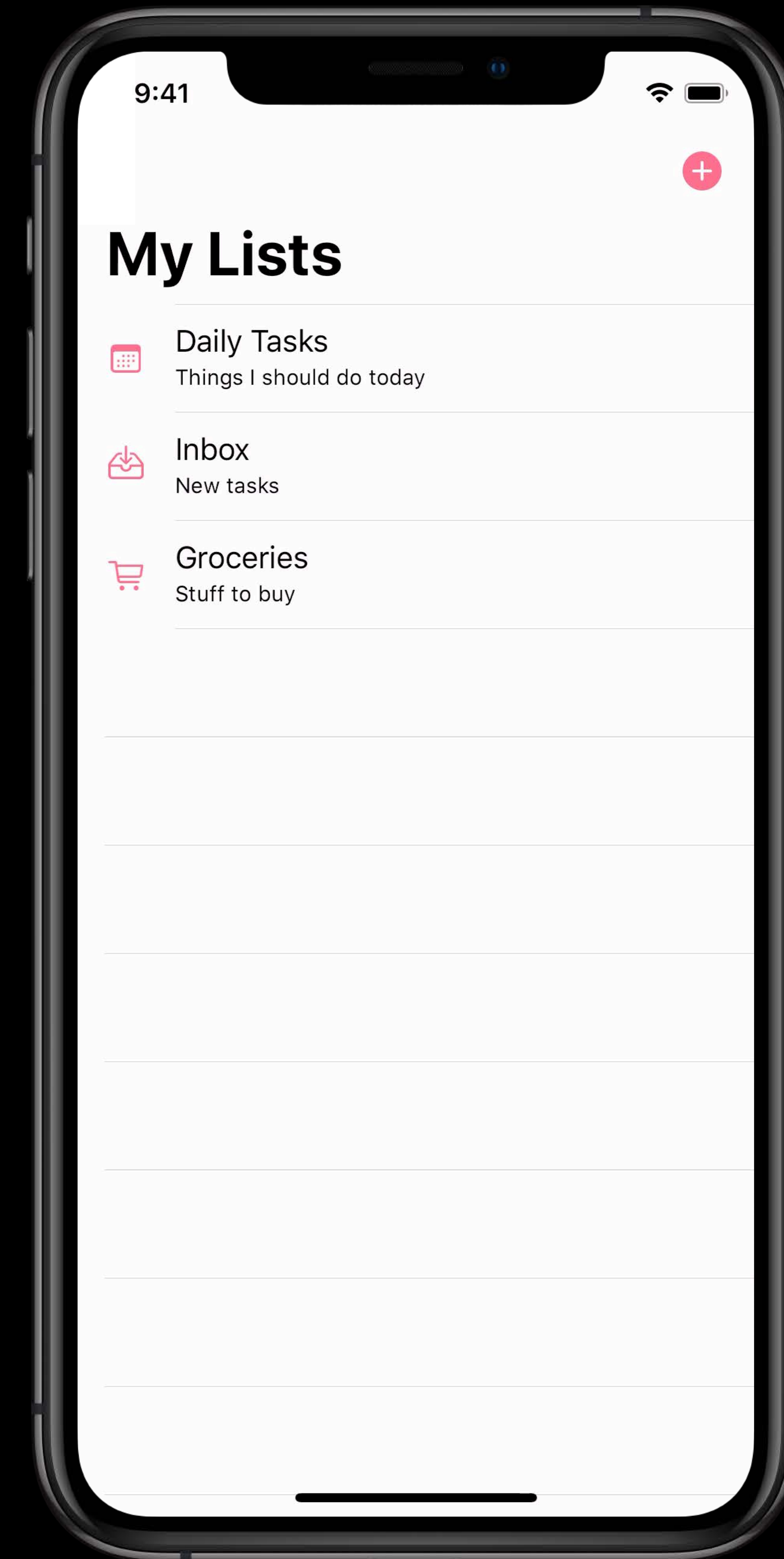
```
return UIContextMenuConfiguration(identifier: "unique-ID" as NSCopying,  
    previewProvider: nil,  
    actionProvider: actionProvider)
```

# Above and Beyond

Animation customization

Set source and destination

UITargetedPreview and UITargetedDragPreview

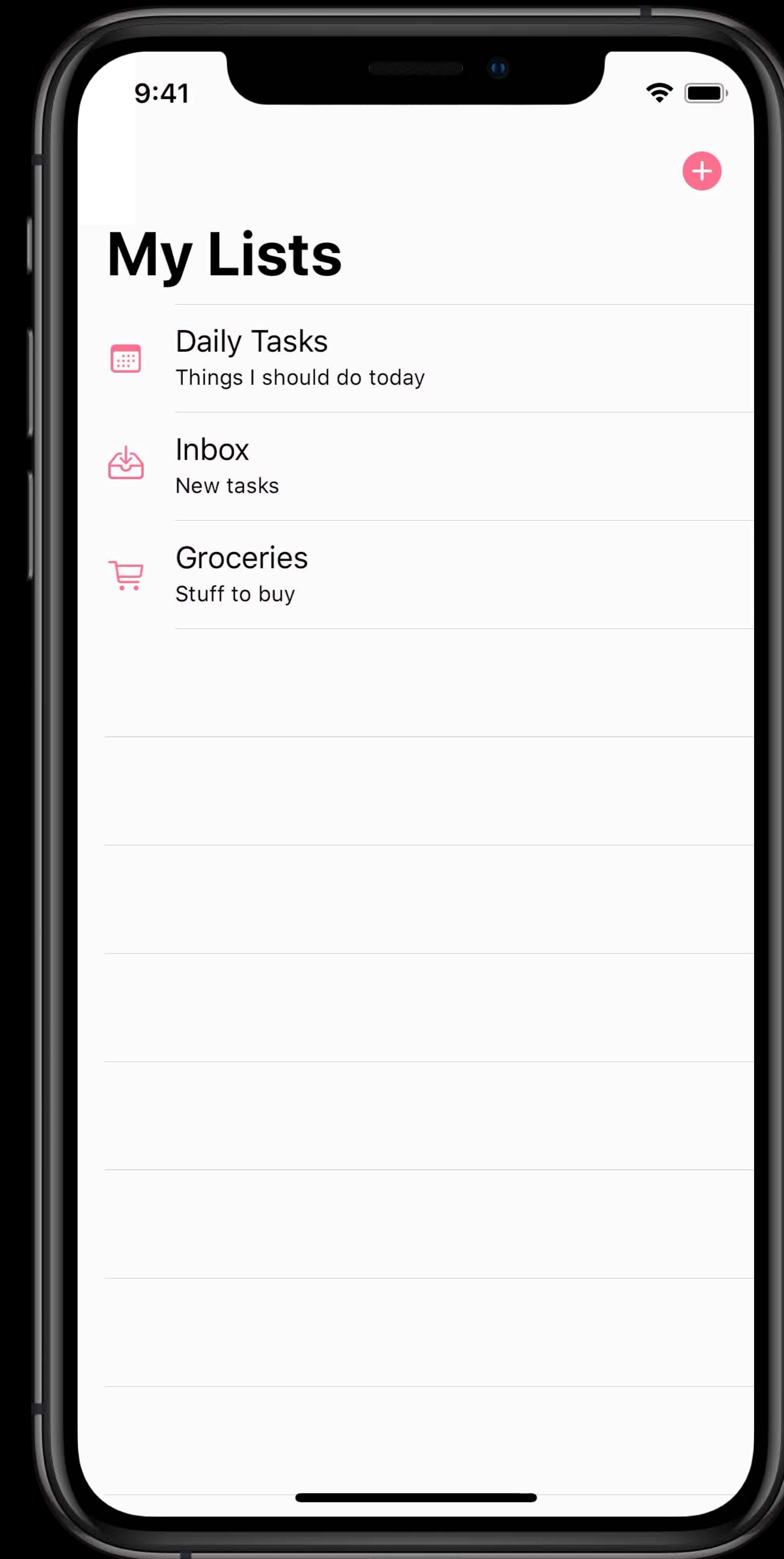


# Above and Beyond

Animation customization

Set source and destination

UITargetedPreview and UITargetedDragPreview





# UITableView and UICollectionView

```
// UITableViewDelegate  
optional func tableView(_ tableView: UITableView, contextMenuConfigurationForRowAtIndexPath  
indexPath: IndexPath, point: CGPoint) -> UIContextMenuConfiguration?
```

# UITableView and UICollectionView

```
// UITableViewDelegate  
optional func tableView(_ tableView: UITableView, contextMenuConfigurationForRowAtIndexPath  
indexPath: IndexPath, point: CGPoint) -> UIContextMenuConfiguration?
```

Polished default animations

Custom presentation and dismiss

# Peek and Pop

UIViewControllerPreviewing

# Peek and Pop

 UINavigationControllerPreviewing

 UIContextMenuInteraction

# Updating Your App

Replace long-press driven menus

Adopt it alongside Drag and Drop

# Ready to Launch

Make your app flexible

Give your app a modern look

Build a great search experience

Make your app powerful

# More Information

[developer.apple.com/wwdc19/224](https://developer.apple.com/wwdc19/224)

 WWDC19