

#WWDC19

Modernizing Your UI for iOS 13

David Duncan, iOS System Experience

Flexible UI

Bars

Presentations

Search

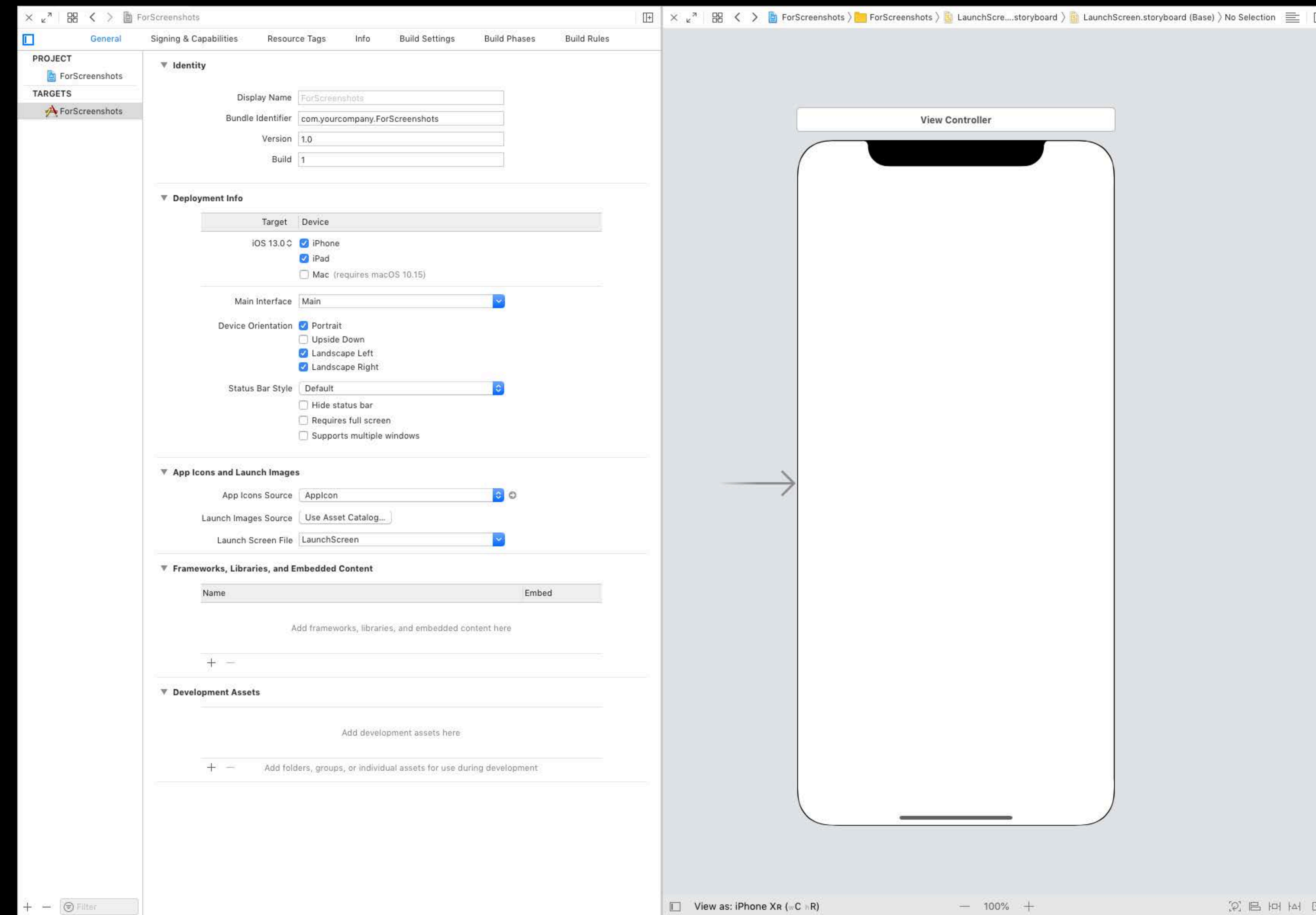
Gestures

Menus

Flexible UI

David Duncan

Launch Storyboards



Launch Storyboards

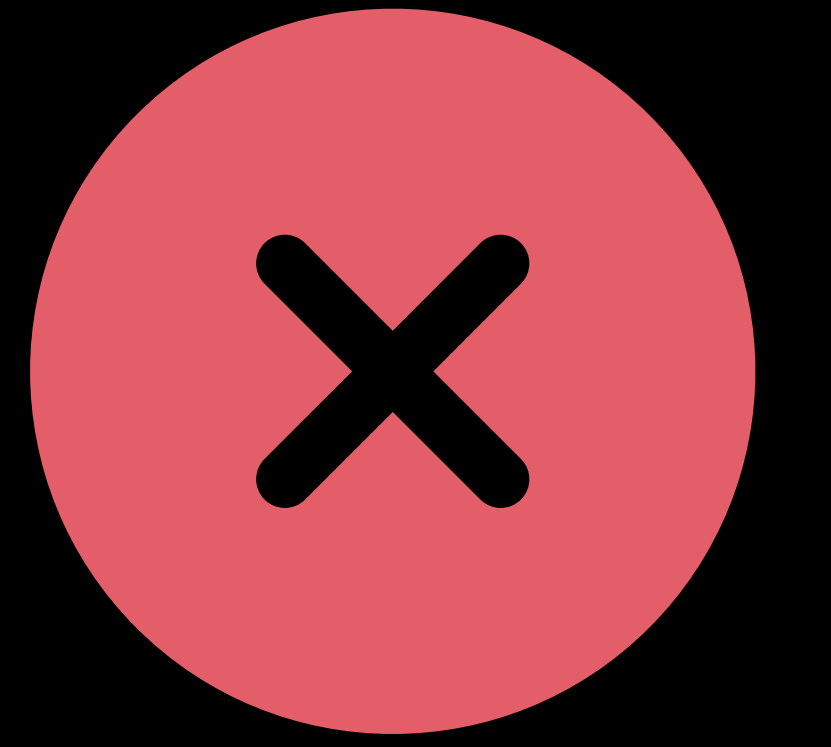


The image shows a screenshot of the Xcode IDE interface. The left sidebar displays the project 'ForScreenshots' and its targets. The main area is divided into two panes. The left pane shows the 'General' settings for the target, including 'Identity' (Display Name: ForScreenshots, Bundle Identifier: com.yourcompany.ForScreenshots, 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 an iPhone Xr device, displaying a 'View Controller' with a white background and a black notch. A red-bordered box highlights the 'App Icons and Launch Images' section, which contains the following settings:

- App Icons Source: Applcon
- Launch Images Source: Use Asset Catalog...
- Launch Screen File: LaunchScreen

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:

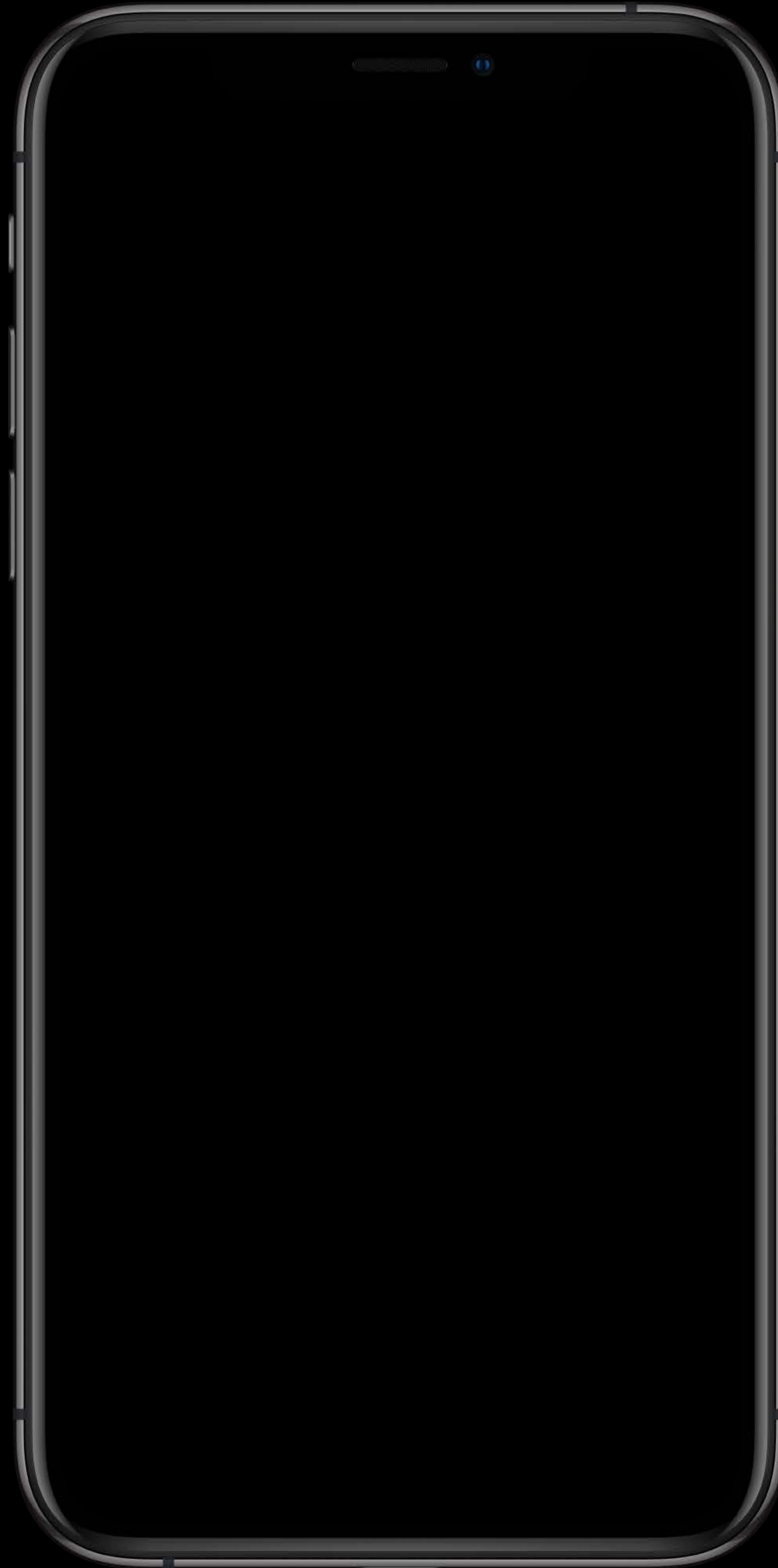
- Target: iOS 13.0
- Device: iPhone, iPad, Mac (requires macOS 10.15)
- Main Interface: Main
- Device Orientation: Portrait, Upside Down, Landscape Left, Landscape Right
- Status Bar Style: Default

App Icons and Launch Images:

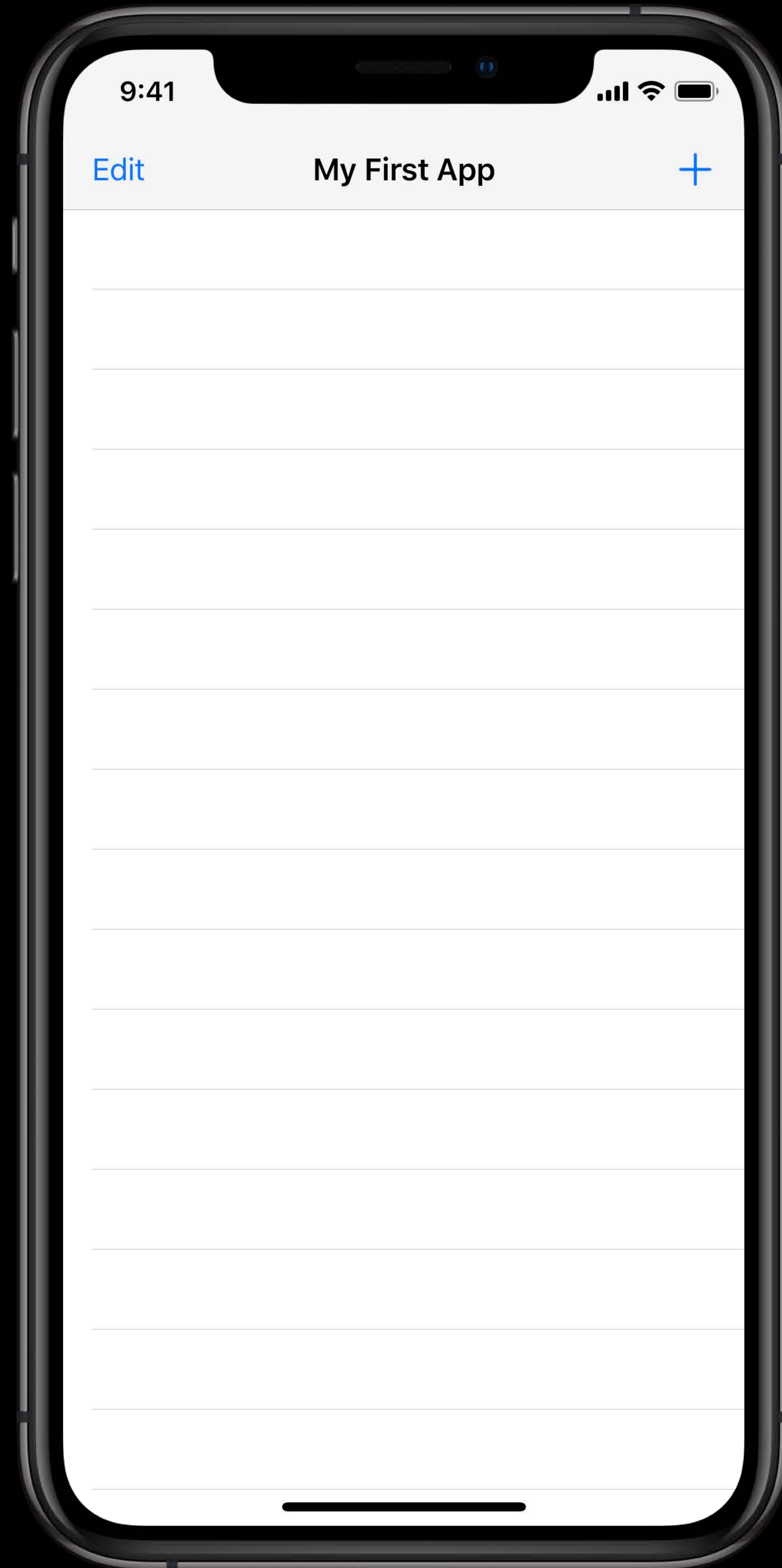
- App Icons Source: Applcon
- Launch Images Source: LaunchImage
- Launch Screen File: LaunchScreen

The right pane shows the 'LaunchImage' asset catalog. It displays a grid of launch image assets for various device models and orientations, 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+, and iPad Portrait iOS 7+ and iPad Landscape iOS 7+. Two assets are marked as 'Unassigned' with yellow warning icons.

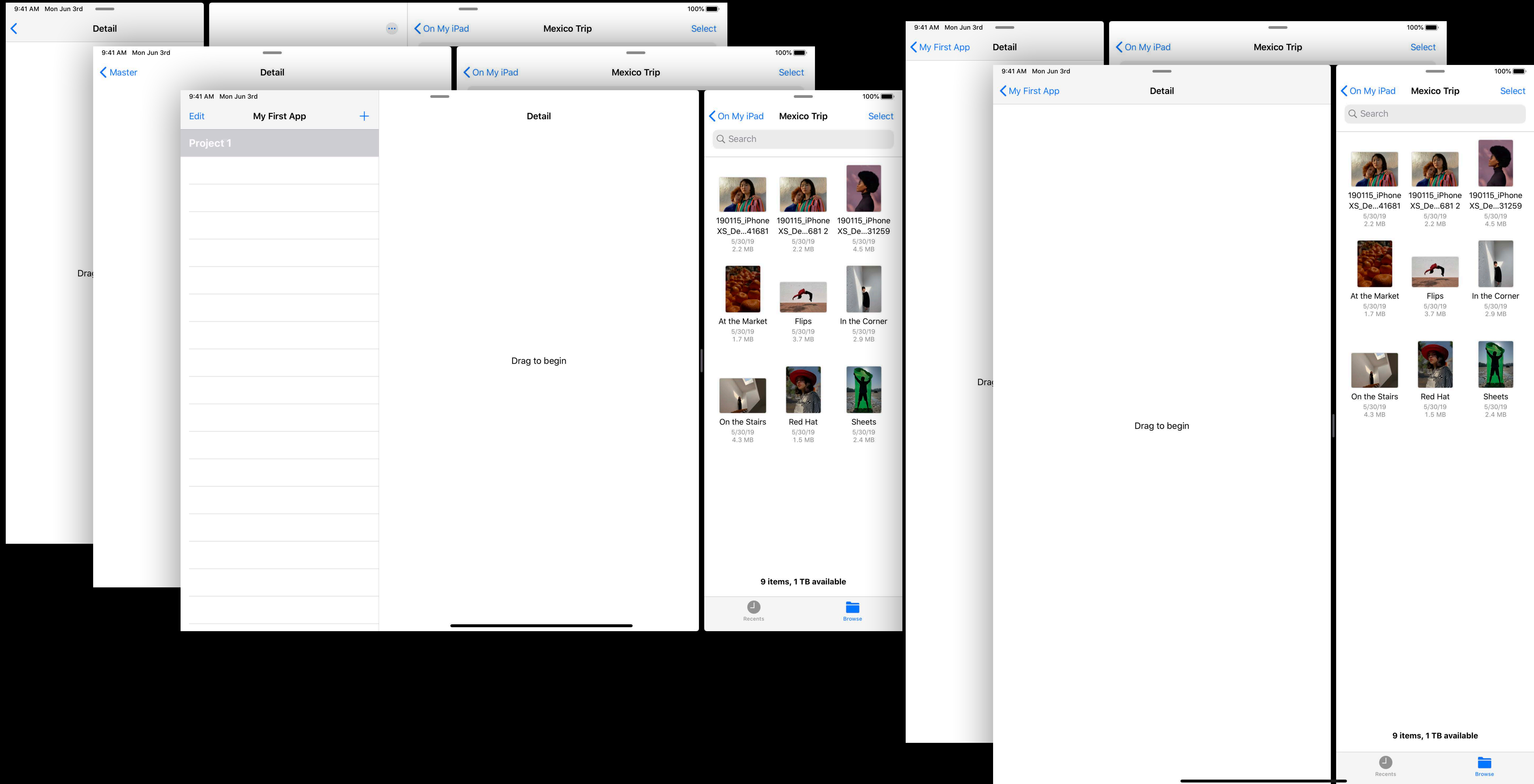
Be Resizable



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

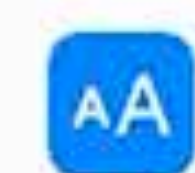
 Sounds

 Do Not Disturb


 Screen Time


 General

 Control Center

 Display & Brightness

 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 >

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
```



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

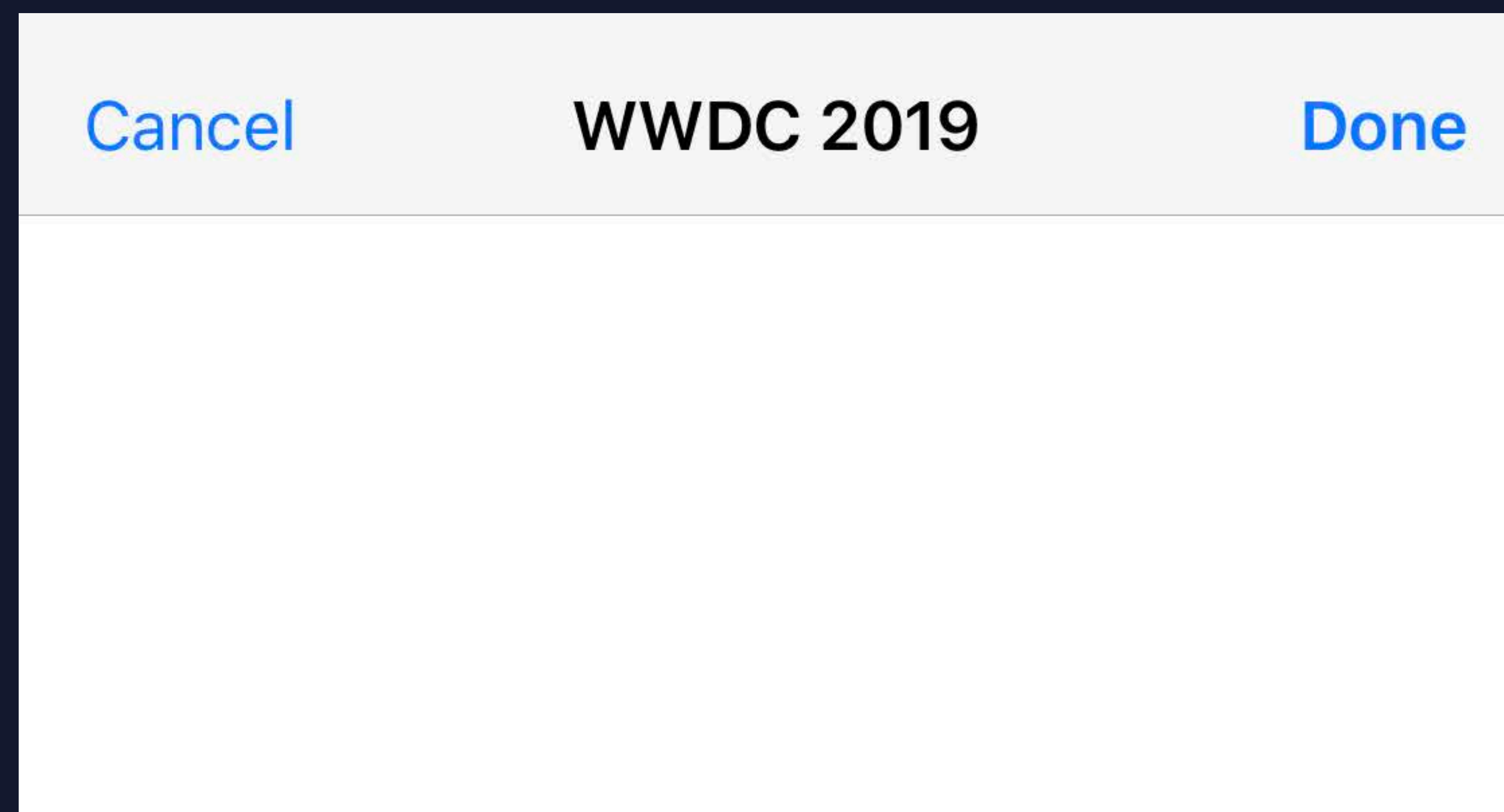
appearance.configureWithOpaqueBackground()

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

navigationBar.standardAppearance = appearance
```

// Customizing

.standardAppearance



// Customizing

.compactAppearance

Cancel

WWDC 2019

Done

// Customizing

.scrollEdgeAppearance

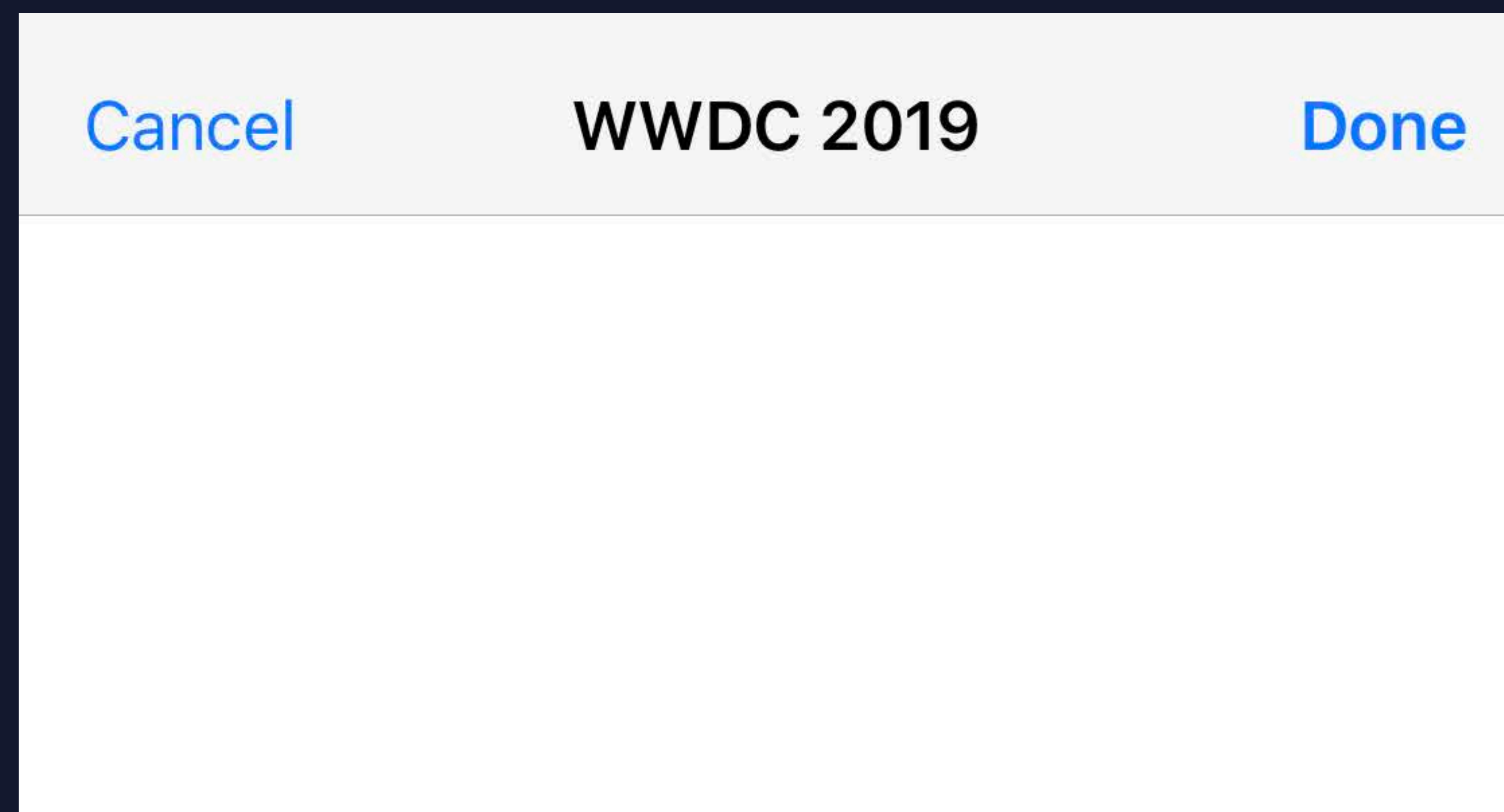
Cancel

Done

WWDC 2019

```
// Customizing
```

```
.buttonAppearance
```



```
.doneButtonAppearance
```


Customizing Bars

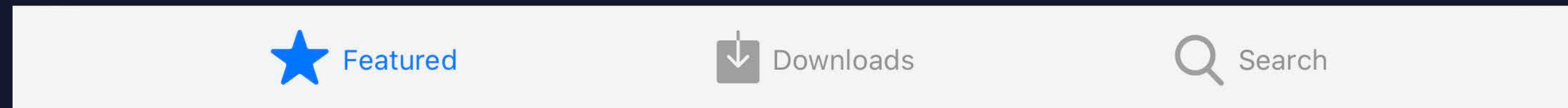
UIToolbar: UIToolbarAppearance

UITabBar: UITabBarAppearance

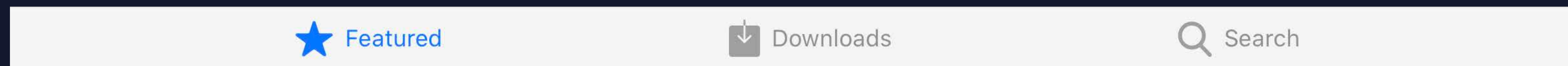
// Customizing

`.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
```

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```
navigationItem.standardAppearance = appearance
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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:

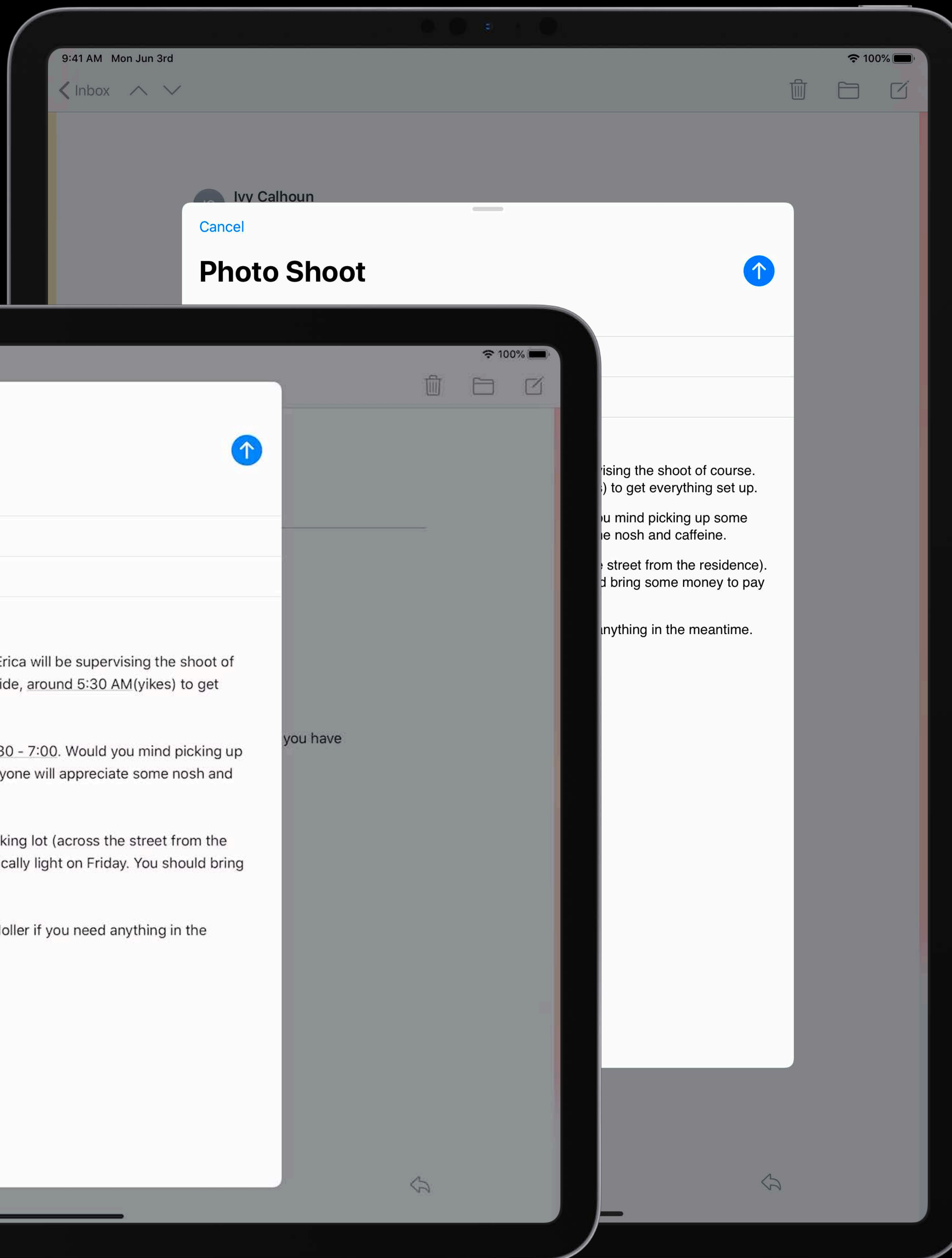
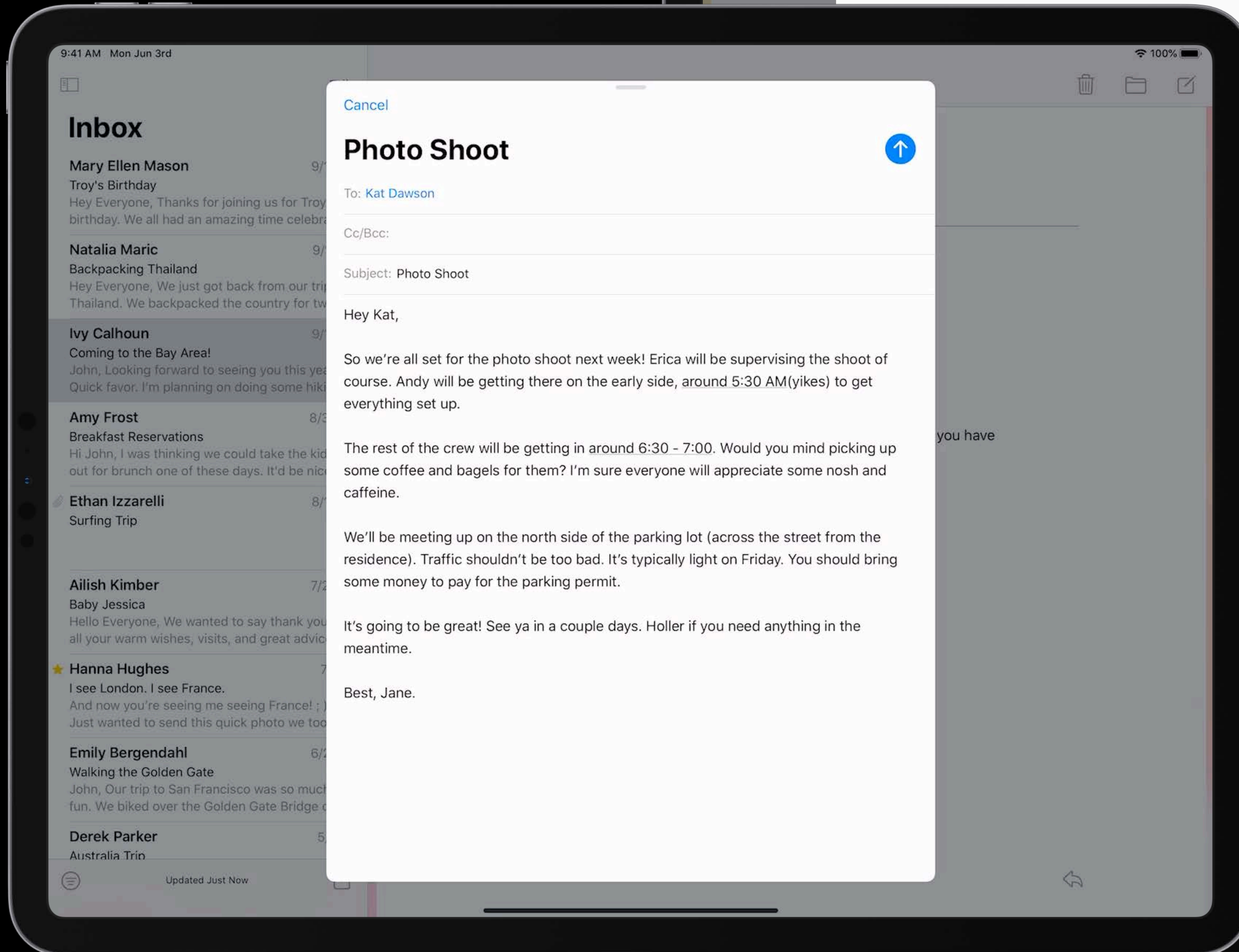
Subject: Photo Shoot

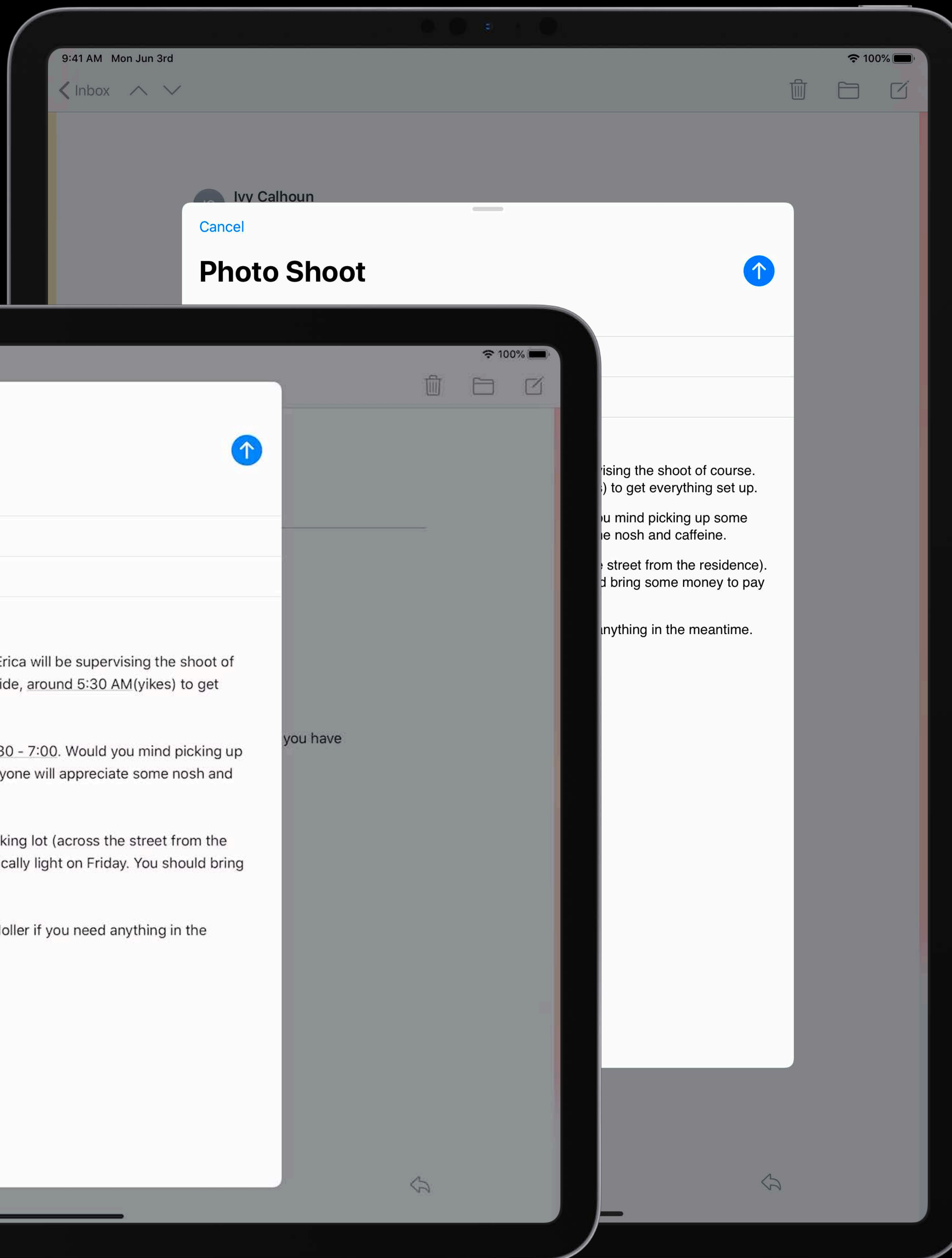
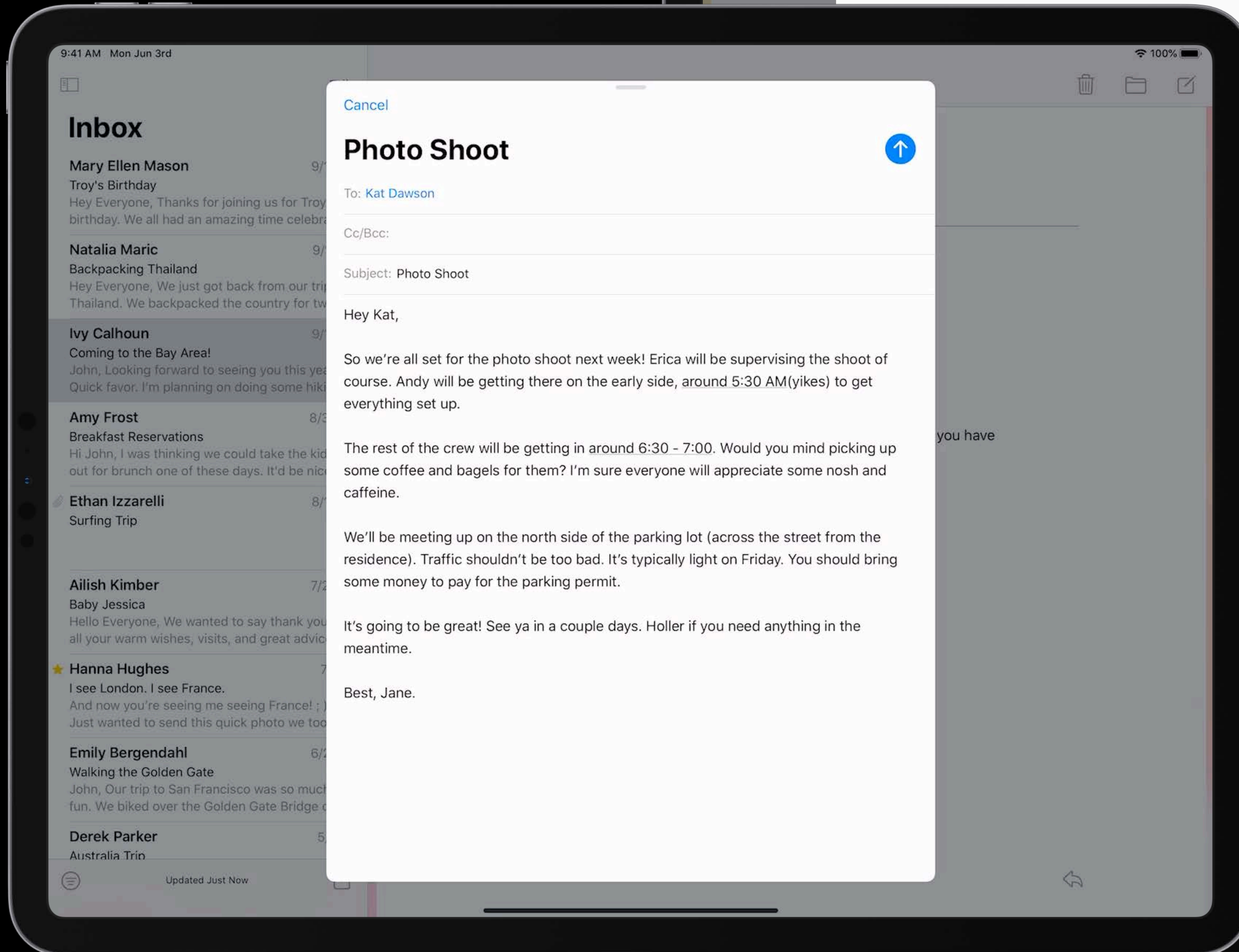
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Ivy Calhoun

Cancel

Photo Shoot



To: [Kat Dawson](#)

Cc/Bcc:

Subject: Photo Shoot

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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.



Ivy Calhoun

Cancel

Photo Shoot



To: [Kat Dawson](#)

Cc/Bcc:

Subject: Photo Shoot

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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 parking permit.

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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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 you then. **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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Readable Width

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

Best, Jane.

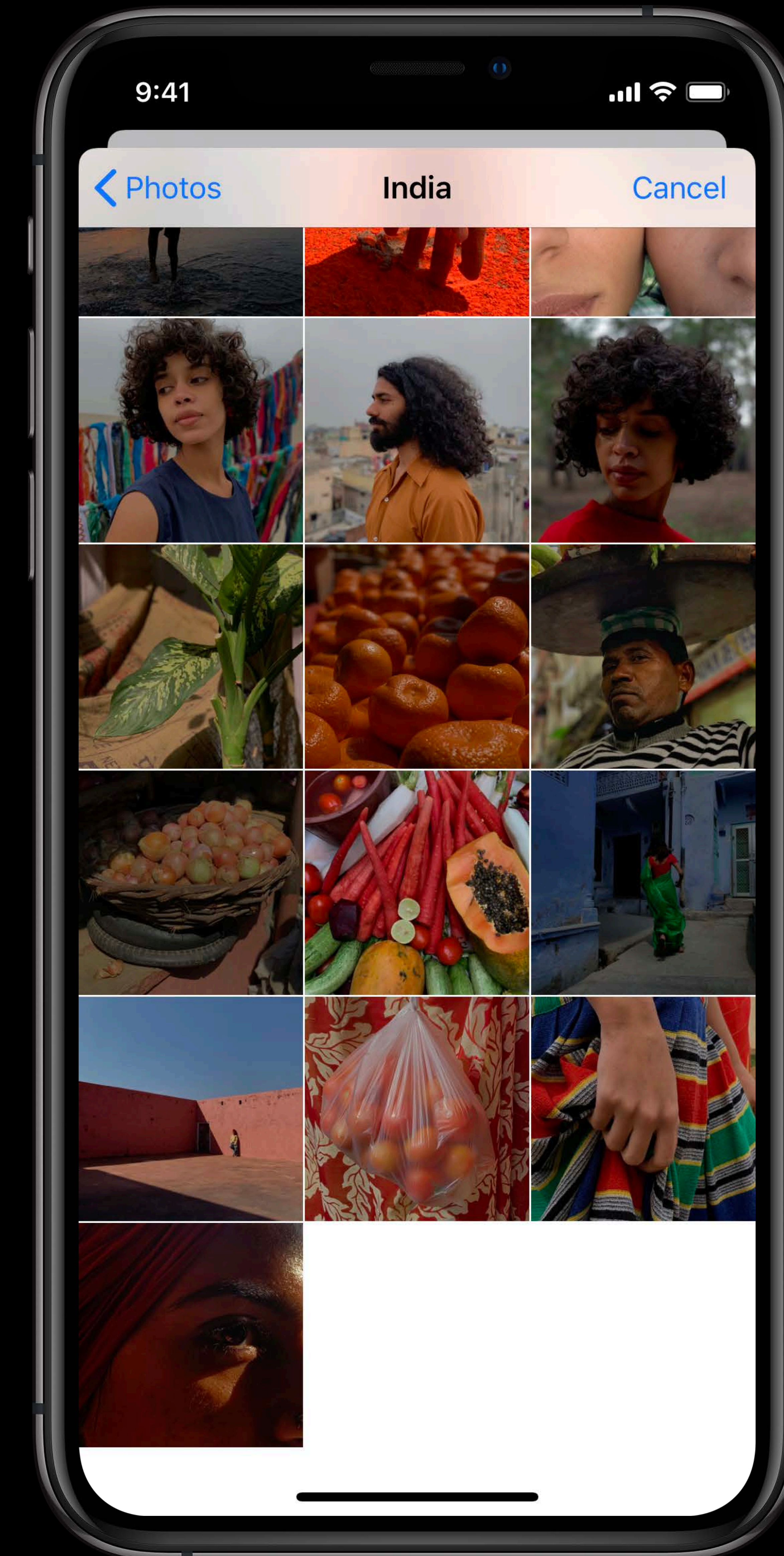
```
UIModalPresentationStyle.pageSheet  
                        .formSheet
```

NEW

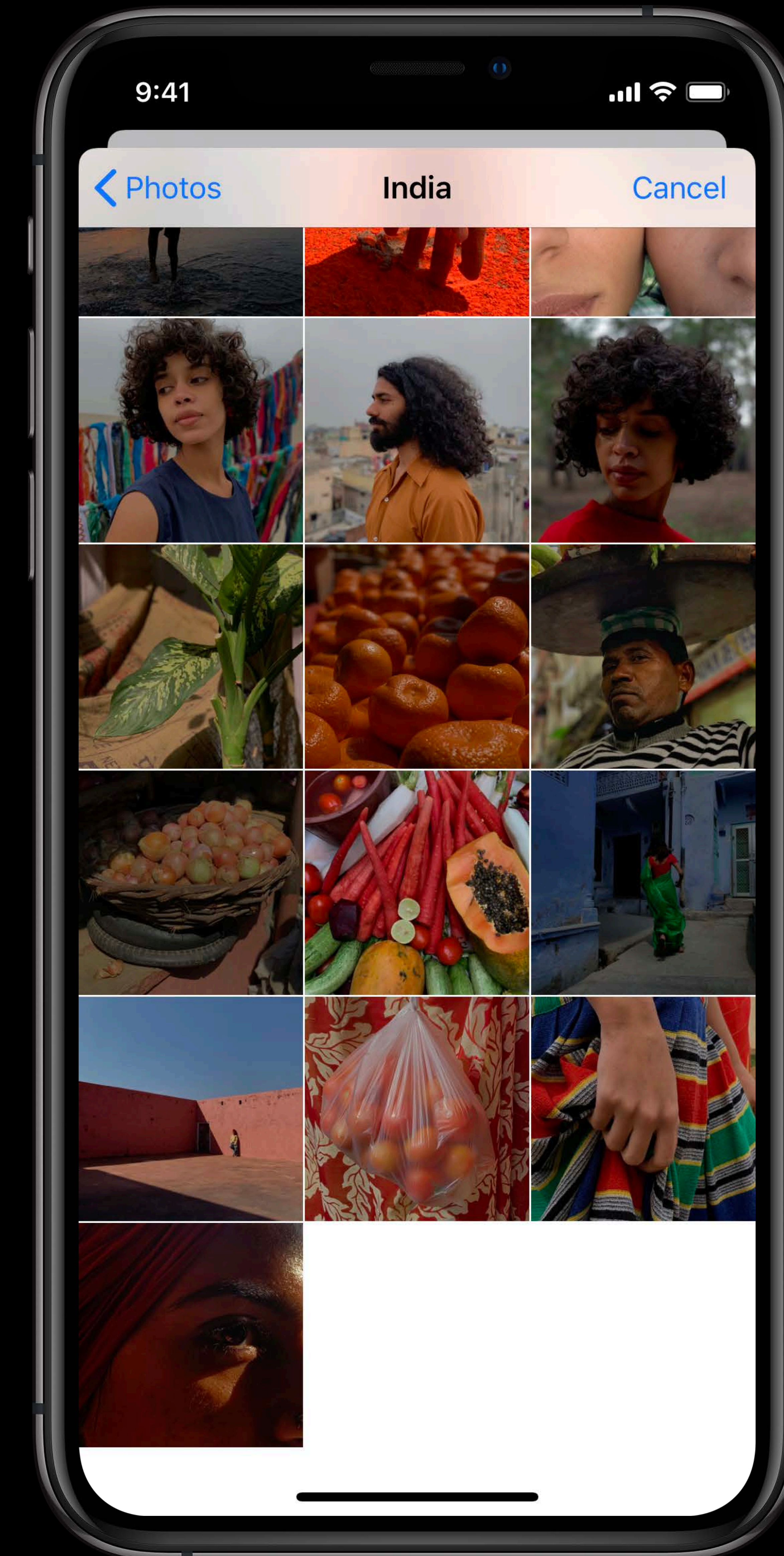
```
UIModalPresentationStyle.automatic  
                          .pageSheet  
                          .formSheet
```



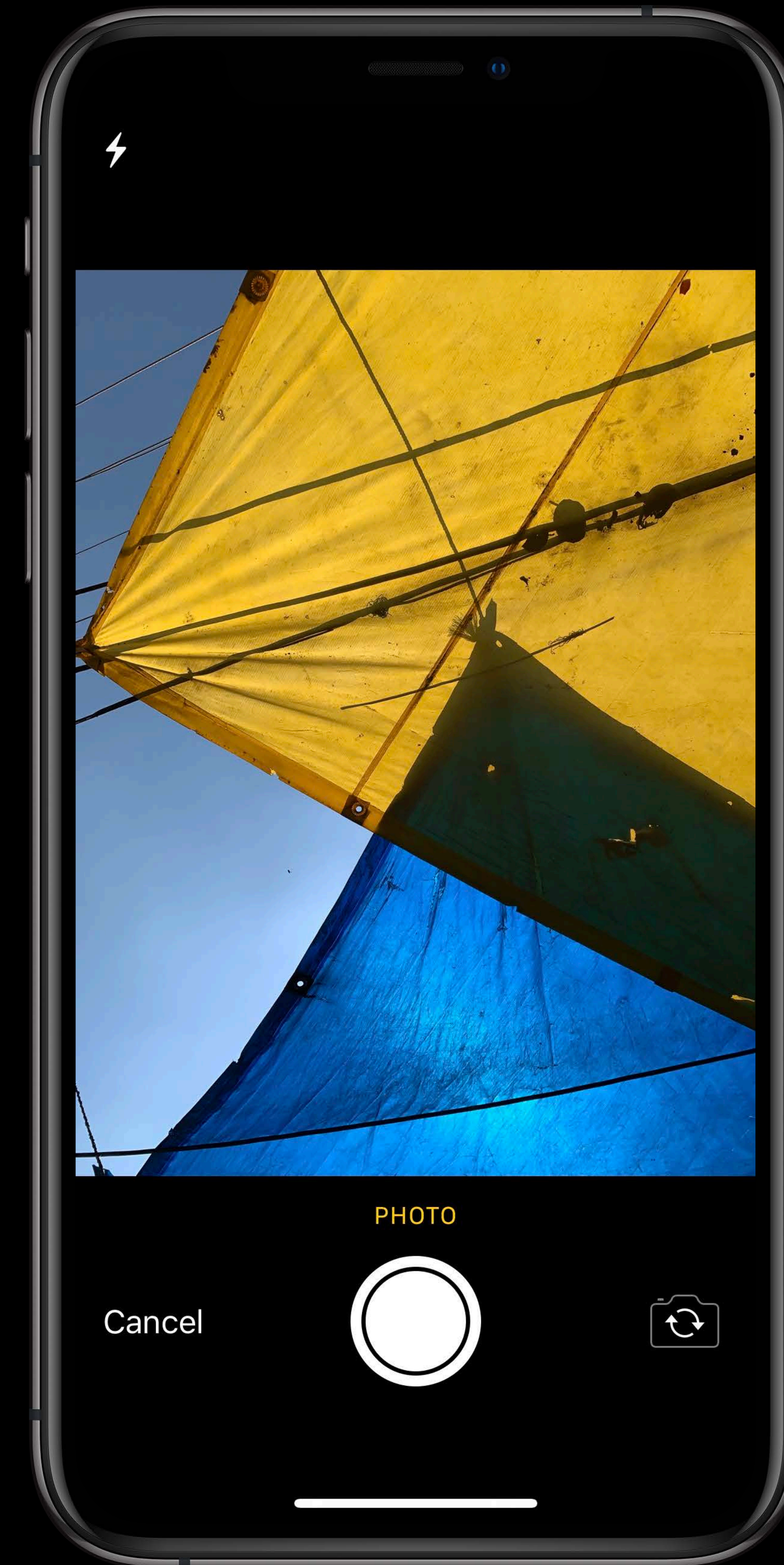
```
class MyViewController: UIViewController {  
  
    func pickPhoto() {  
        let imagePicker = UIImagePickerController()  
        imagePicker.sourceType = .photoLibrary  
        present(imagePicker, animated: true)  
    }  
  
    func presentCamera() {  
        let camera = UIImagePickerController()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



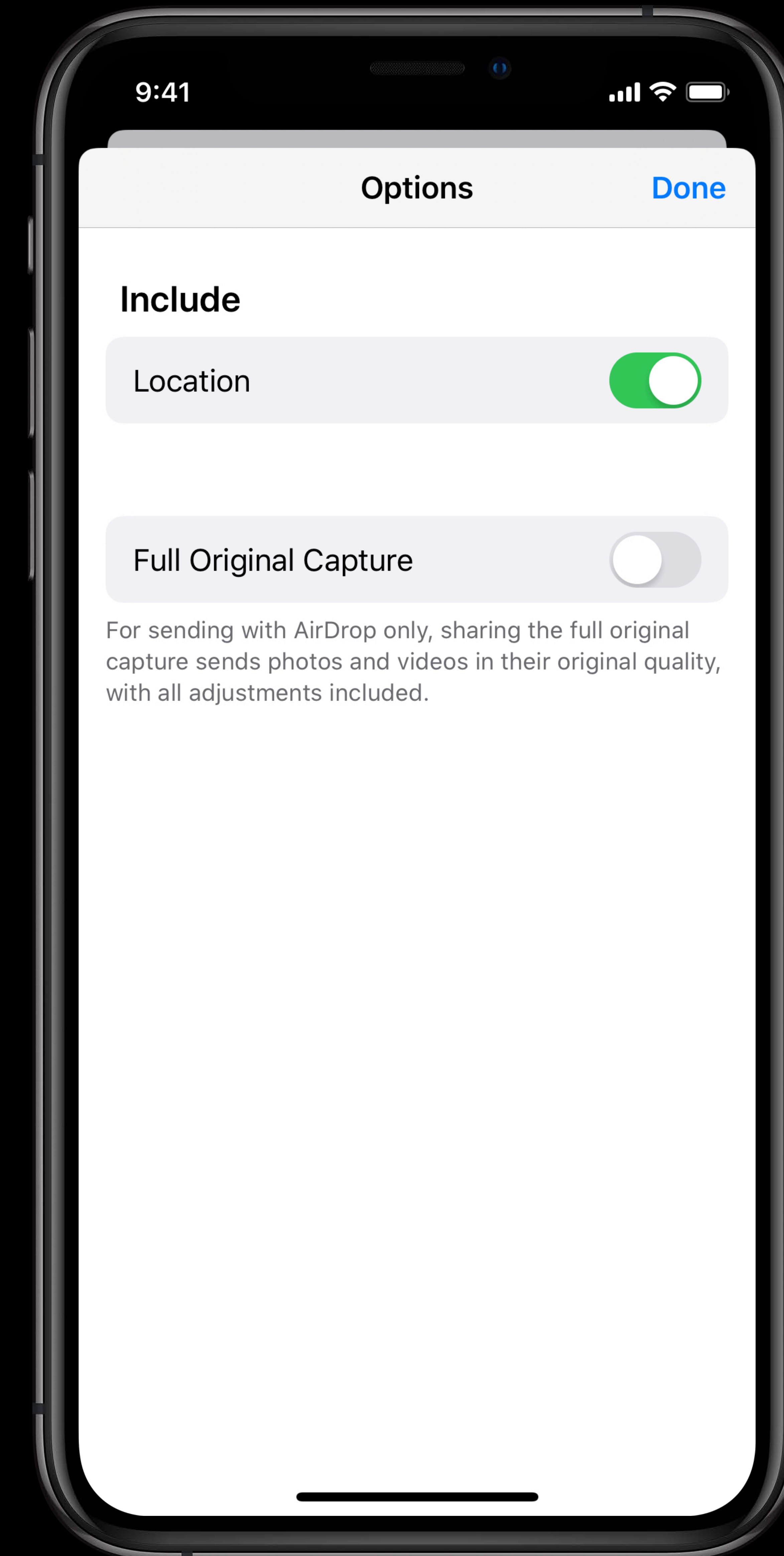

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class MyViewController: UIViewController {  
  
    func pickPhoto() {  
        let imagePicker = UIImagePickerController()  
        imagePicker.sourceType = .photoLibrary  
        present(imagePicker, animated: true)  
    }  
  
    func presentCamera()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



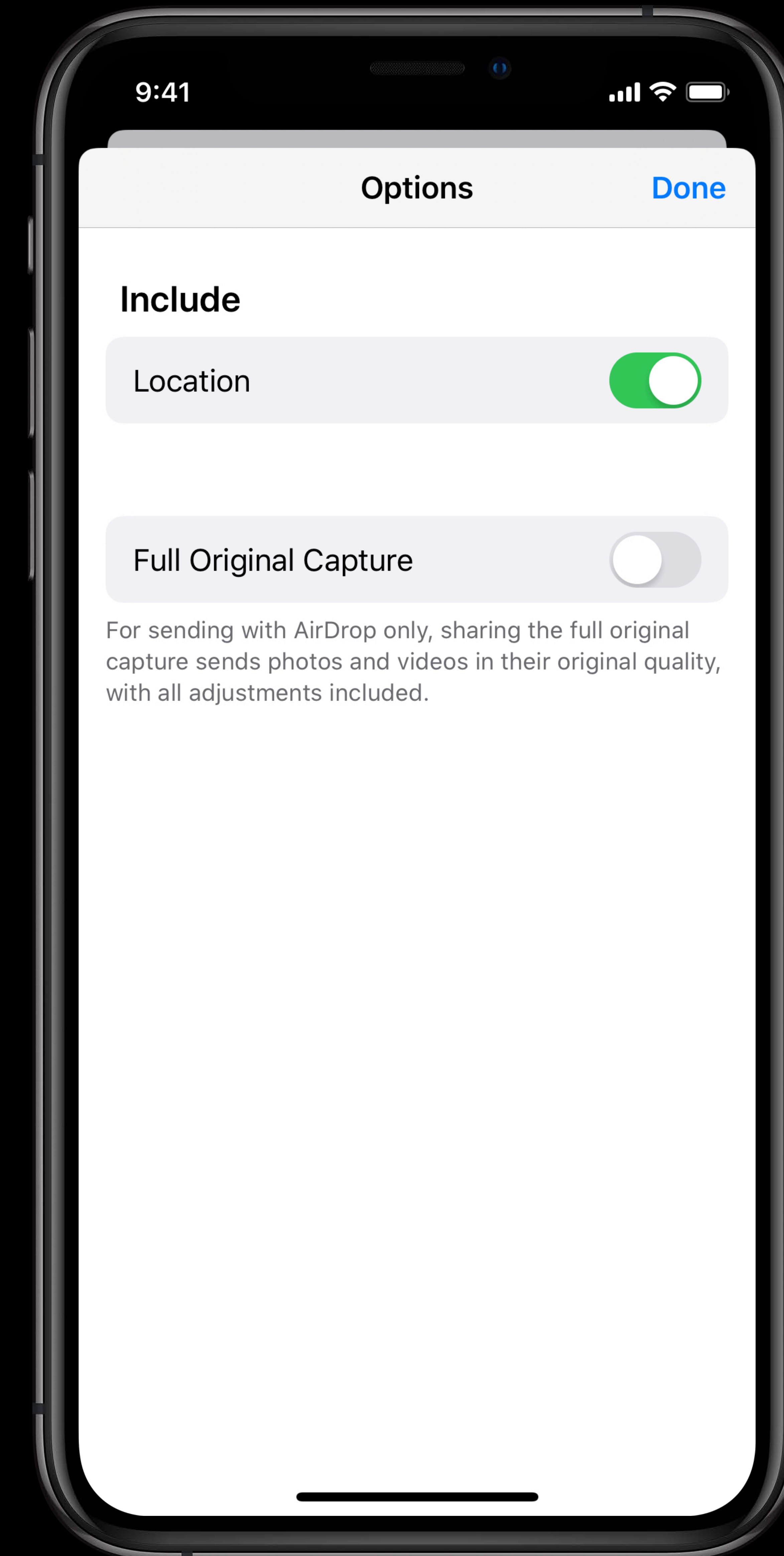

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class MyViewController: UIViewController {  
  
    func pickPhoto() {  
        let imagePicker = UIImagePickerController()  
        imagePicker.sourceType = .photoLibrary  
        present(imagePicker, animated: true)  
    }  
  
    func presentCamera()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



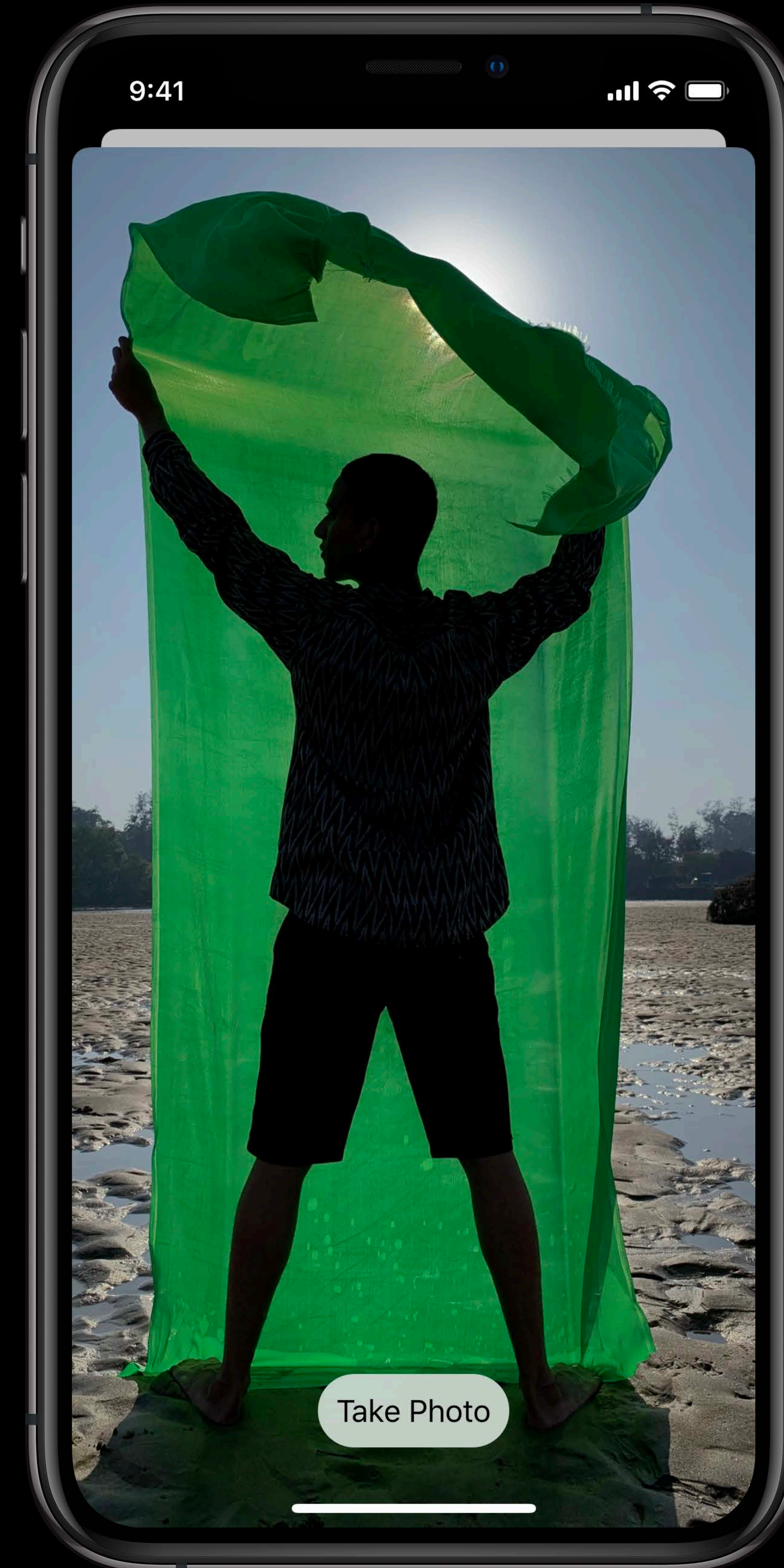

```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        present(cameraVC, animated: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



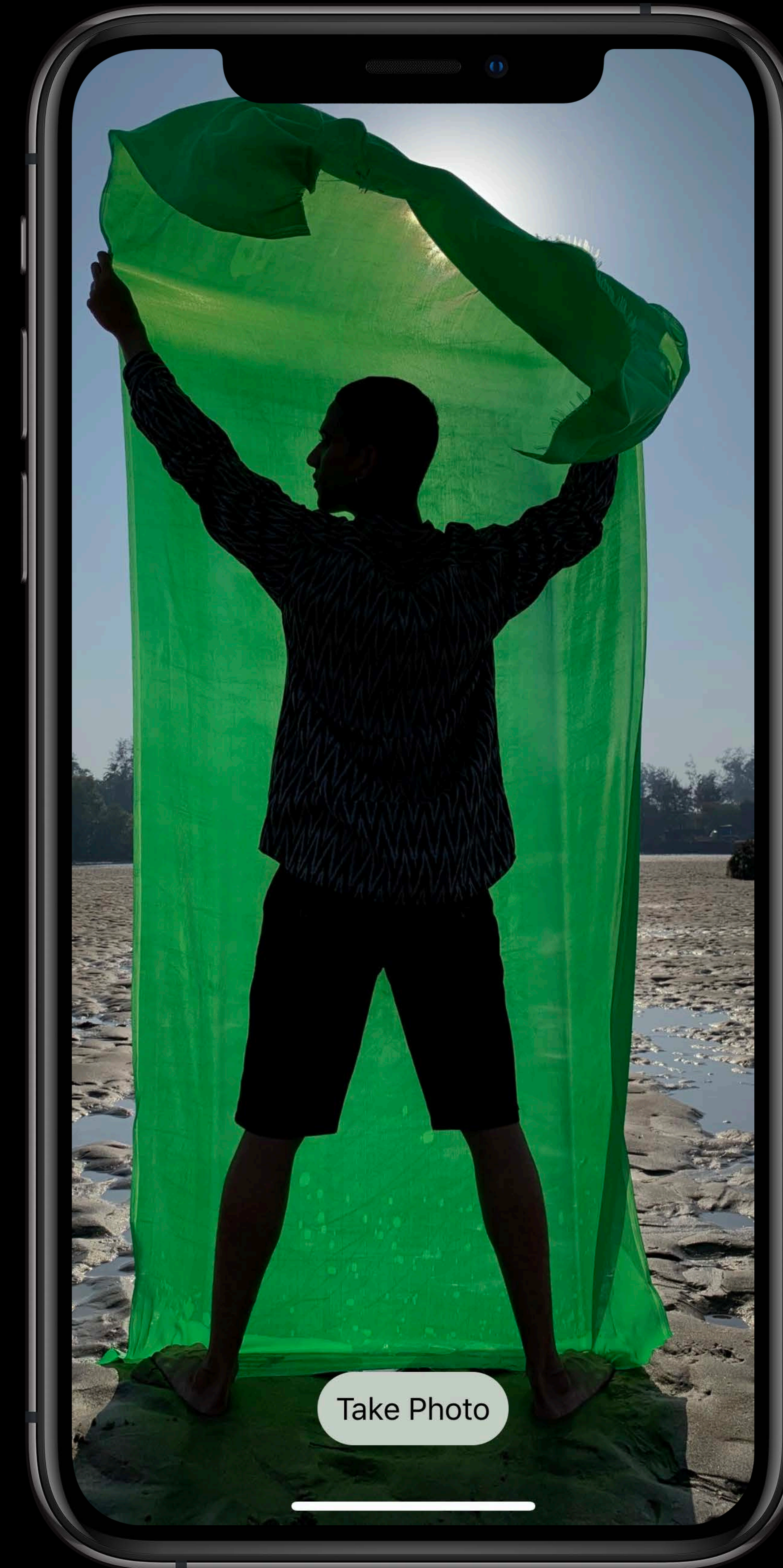

```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        present(cameraVC, animated: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




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

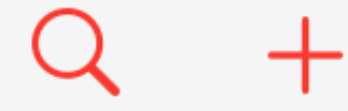



```
class MyViewController: UIViewController {  
  
    func showOptions() {  
        let optionsVC = MyOptionsViewController()  
        present(optionsVC, animated: true)  
    }  
  
    func showCustomCamera() {  
        let cameraVC = MyCameraViewController()  
        cameraVC.modalPresentationStyle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

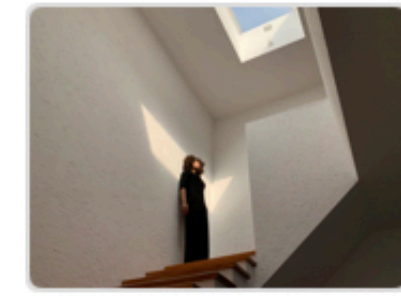


Photo 1
Today at 12:24 AM
4.3 MB



Photo 2
Today at 12:24 AM
2.8 MB

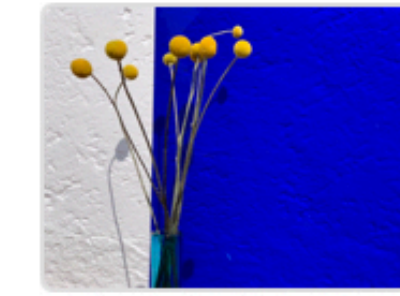


Photo 3
Today at 12:24 AM
2.4 MB



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

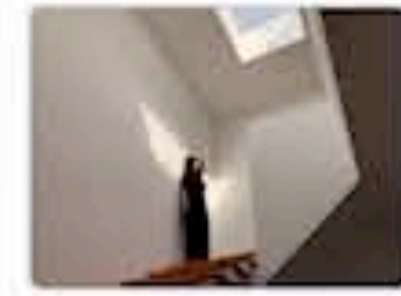


Photo 1
Today at 12:24 AM
4.3 MB



Photo 2
Today at 12:24 AM
2.8 MB



Photo 3
Today at 12:24 AM
2.4 MB

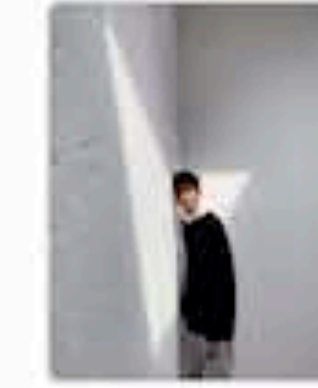


Photo 4
Today at 12:24 AM
2.9 MB



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

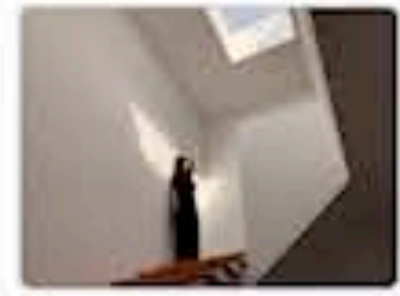


Photo 1
Today at 12:24 AM
4.3 MB



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

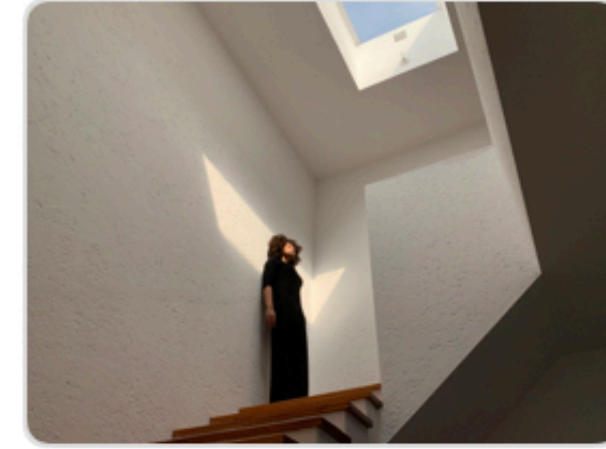


Photo 1
Today at 12:24 AM
4.3 MB



Photo 2
Today at 12:24 AM
2.8 MB

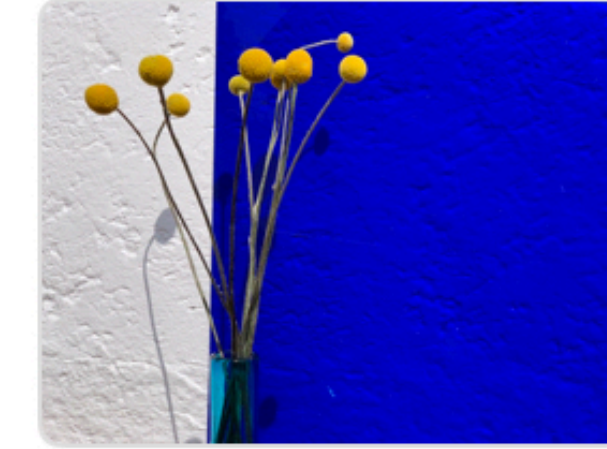


Photo 3
Today at 12:24 AM
2.4 MB

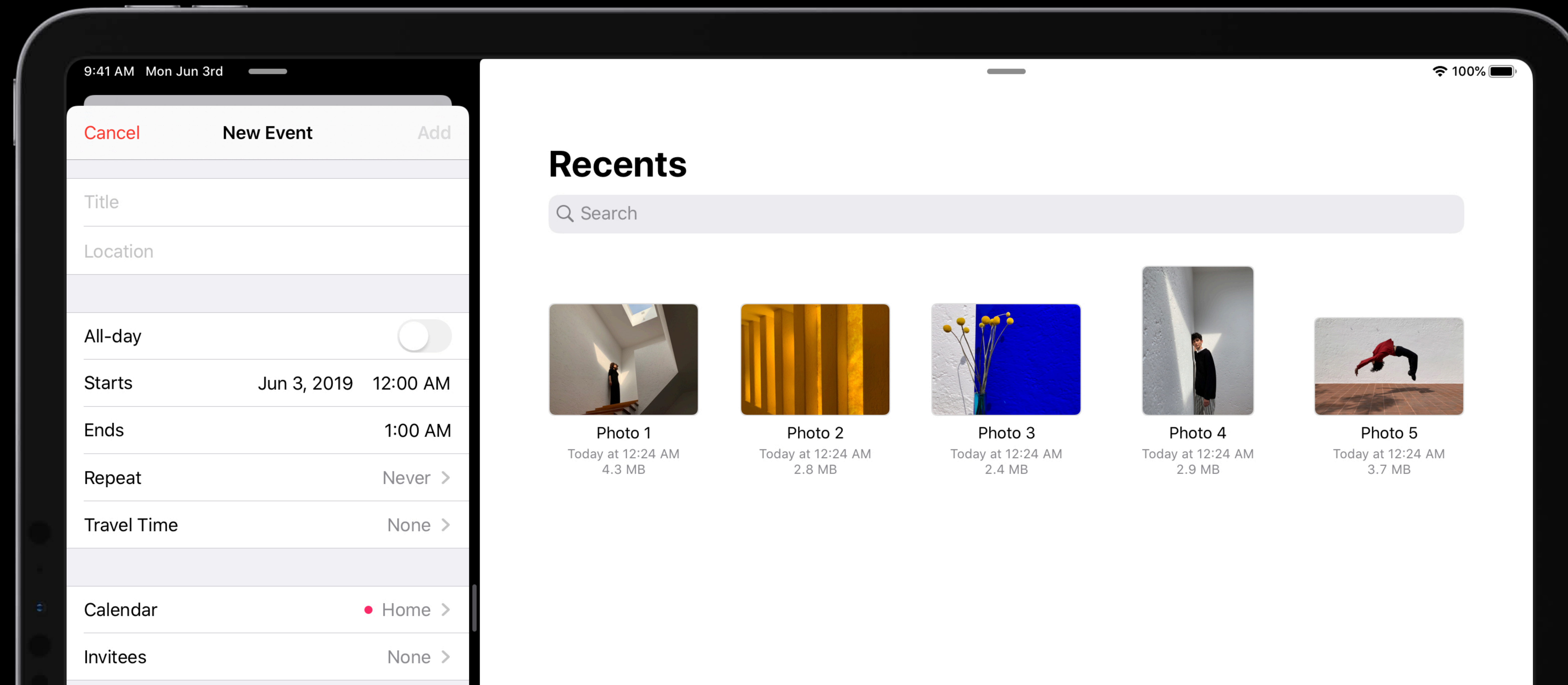


Photo 4
Today at 12:24 AM
2.9 MB

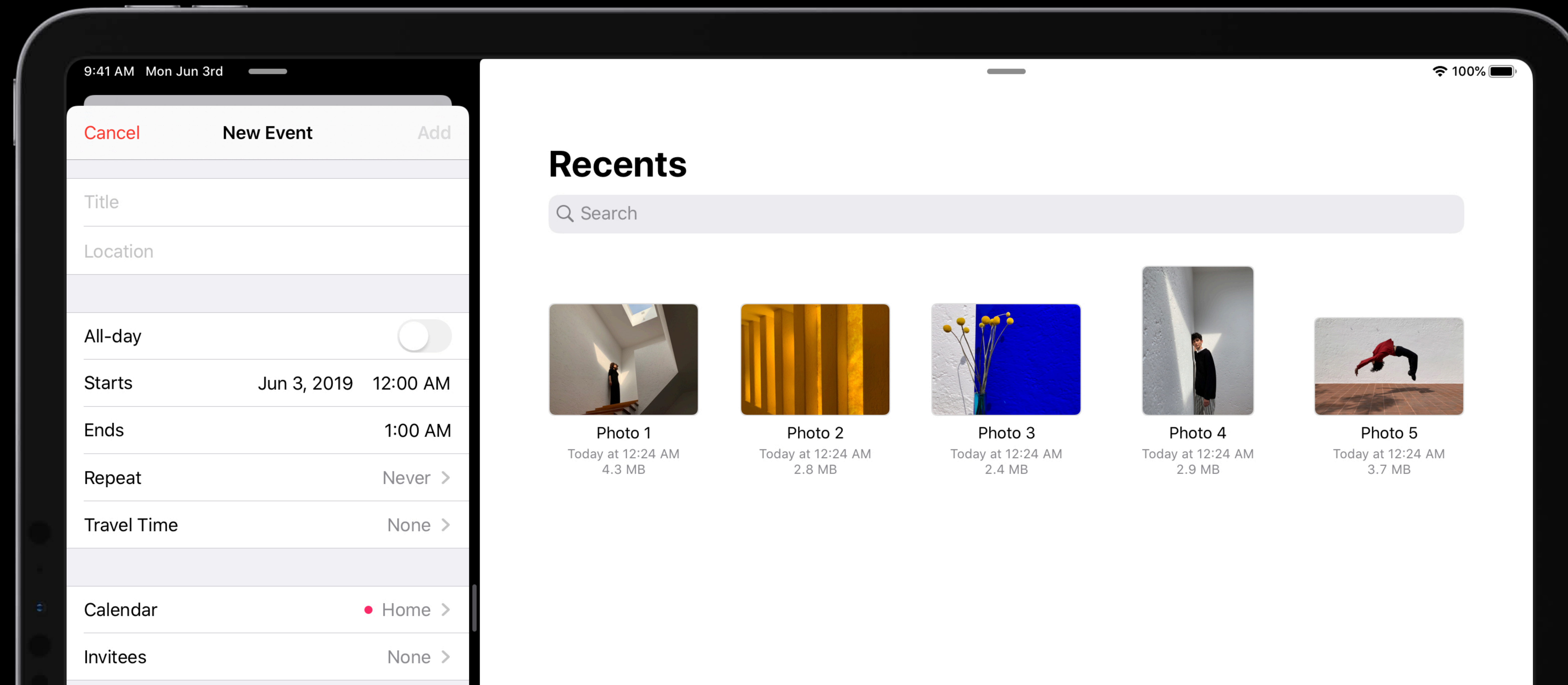


Photo 5
Today at 12:24 AM
3.7 MB


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




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        let optionsVC = MyOptionsViewController()  
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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


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To: Kat Dawson >

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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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Cc/Bcc:

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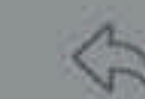
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Jane Appleseed

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Re: Photo Shoot



To: Jane Appleseed



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Subject: Re: Photo Shoot

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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
```

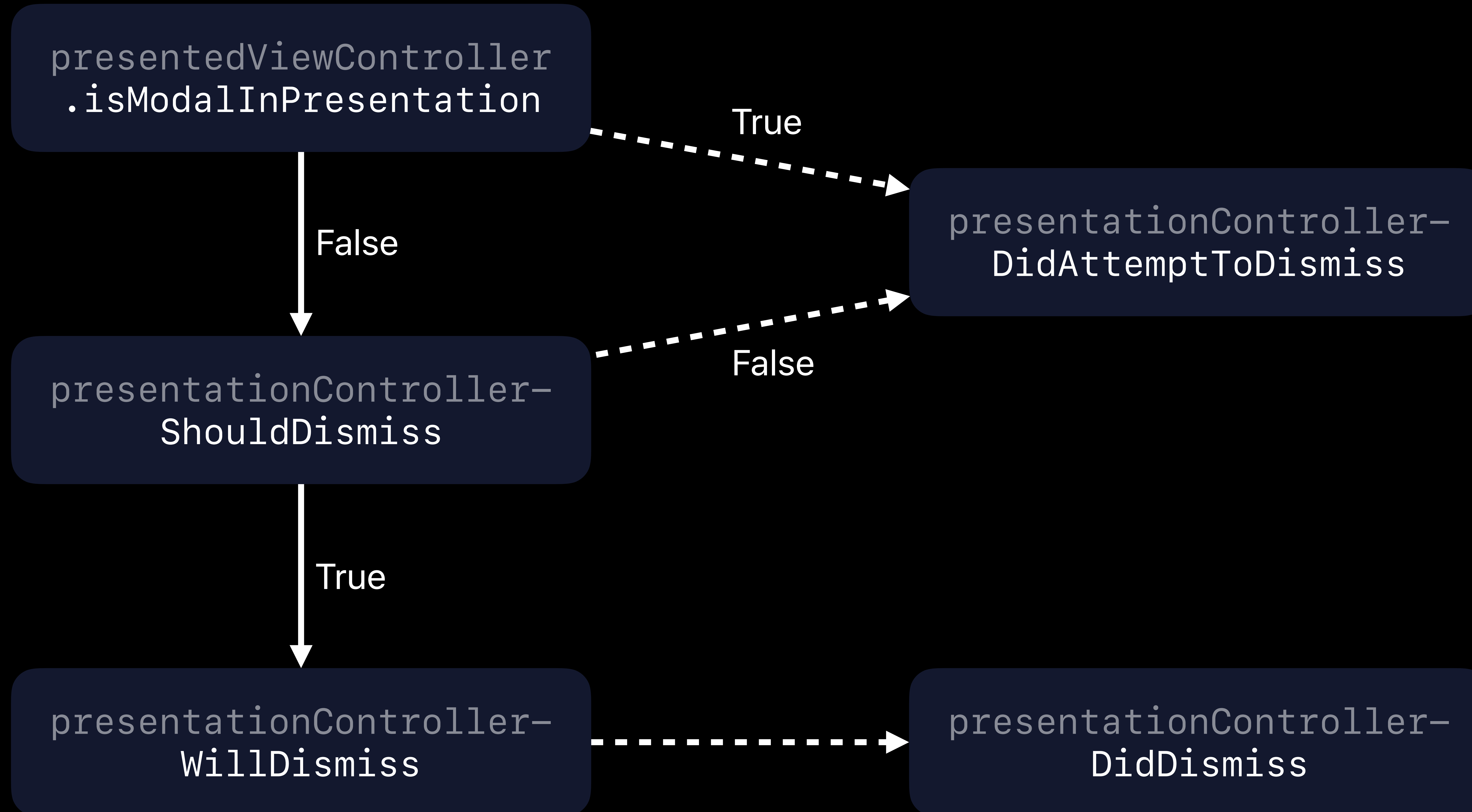
True

User Releases with Intent

```
presentationController-  
DidAttemptToDismiss
```

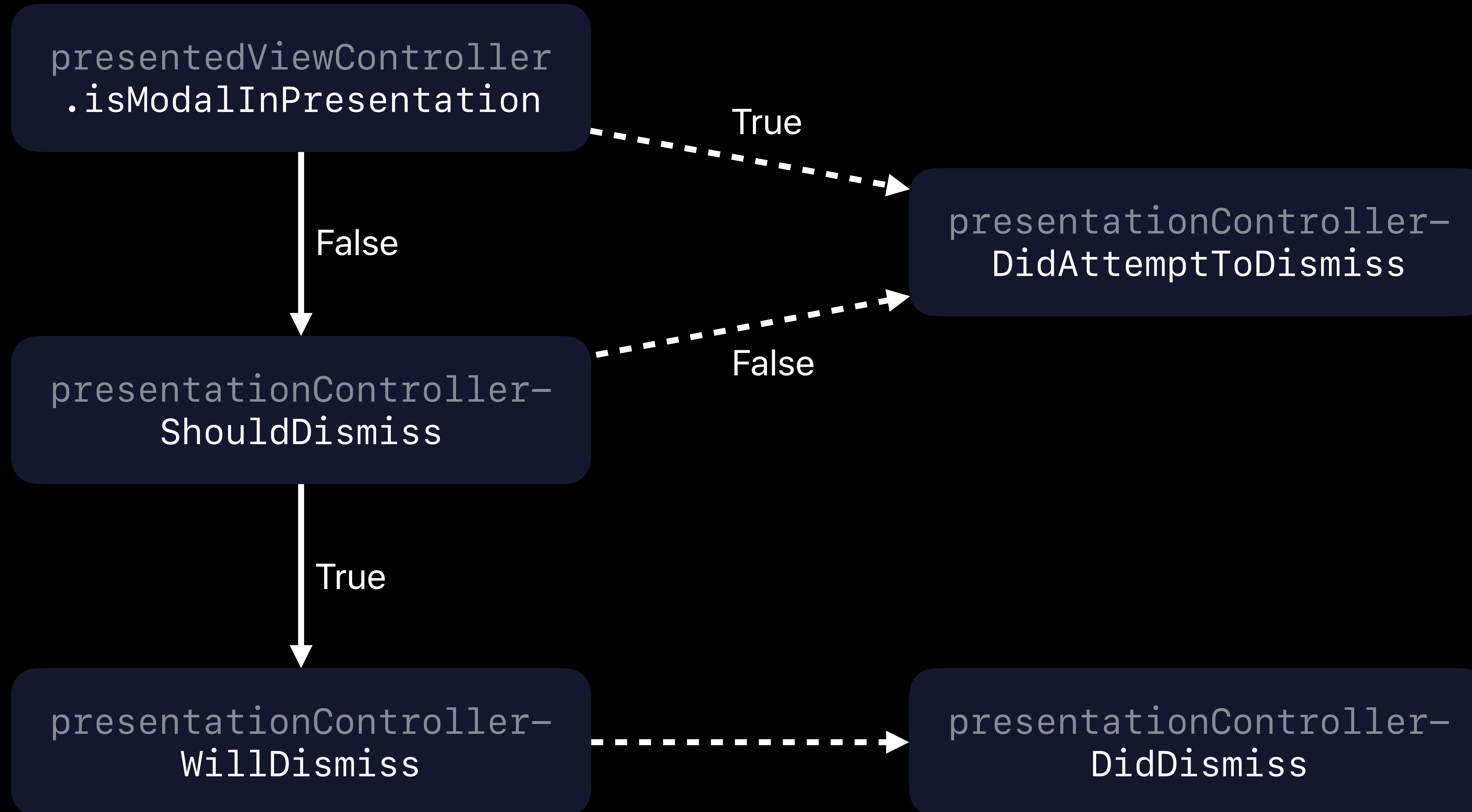
User Begins Pulling

User Releases with Intent



User Begins Pulling

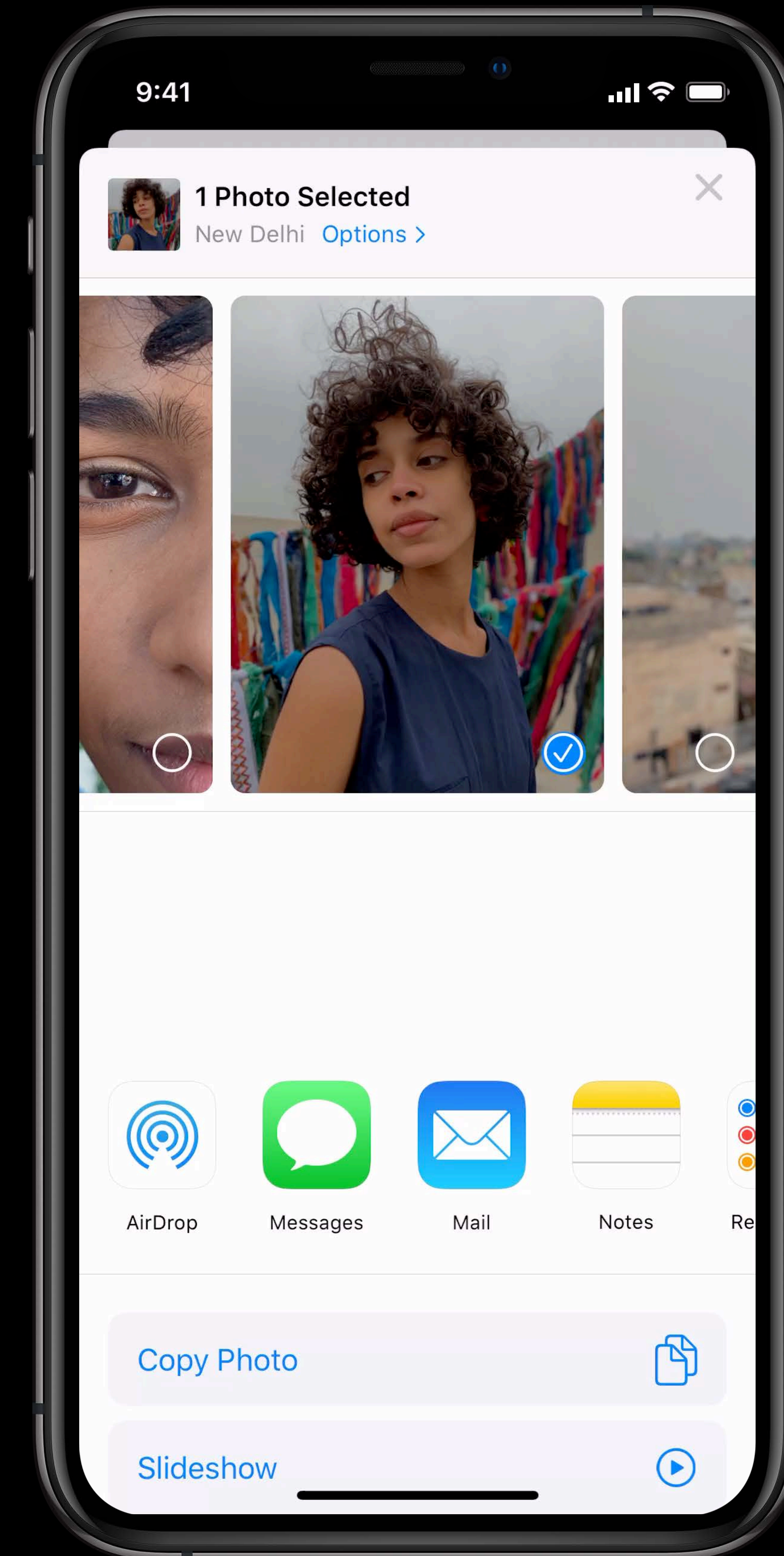
User Releases with Intent



Share Extensions

Principal View Controller

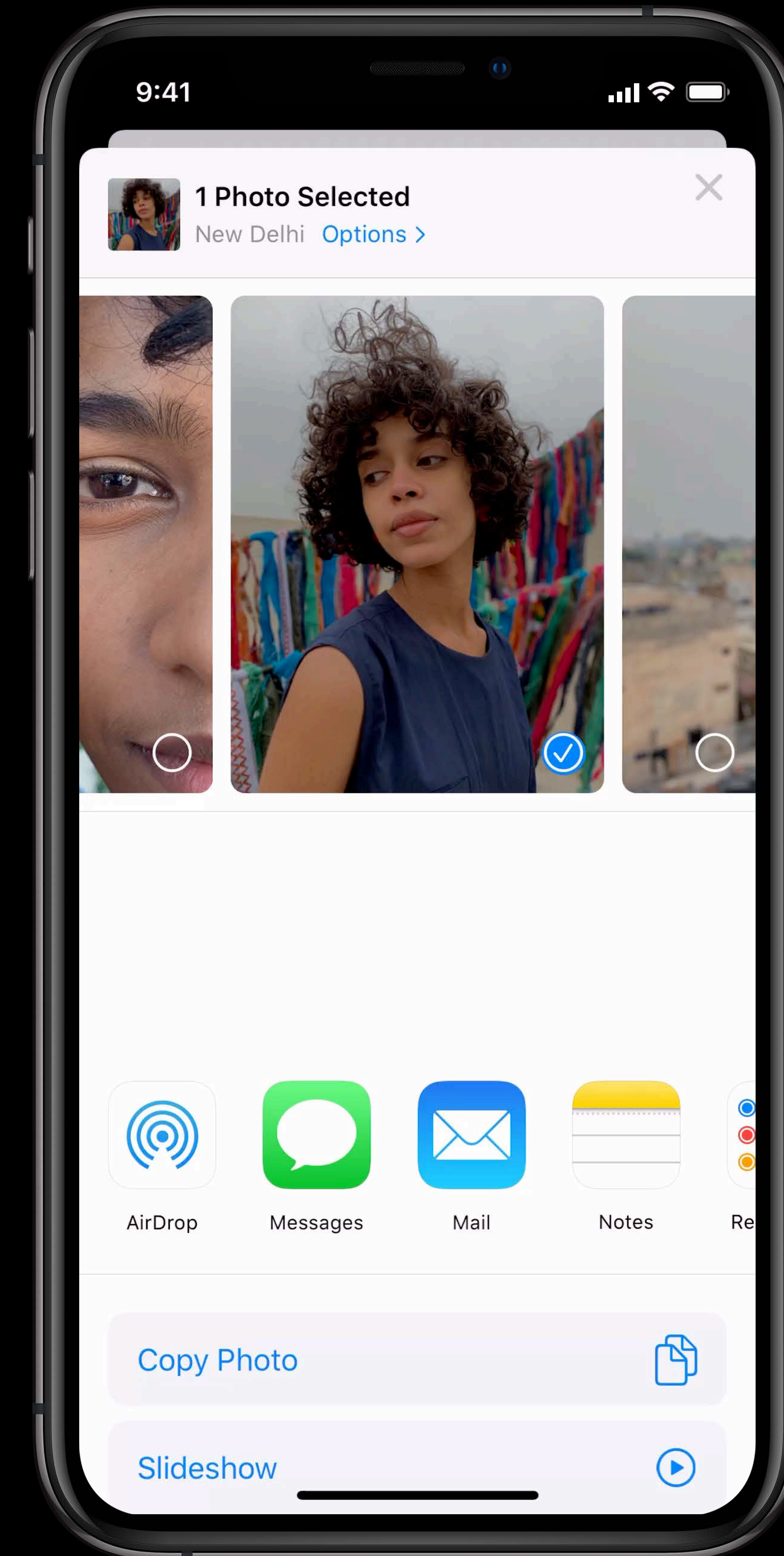
- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`



Share Extensions

Principal View Controller

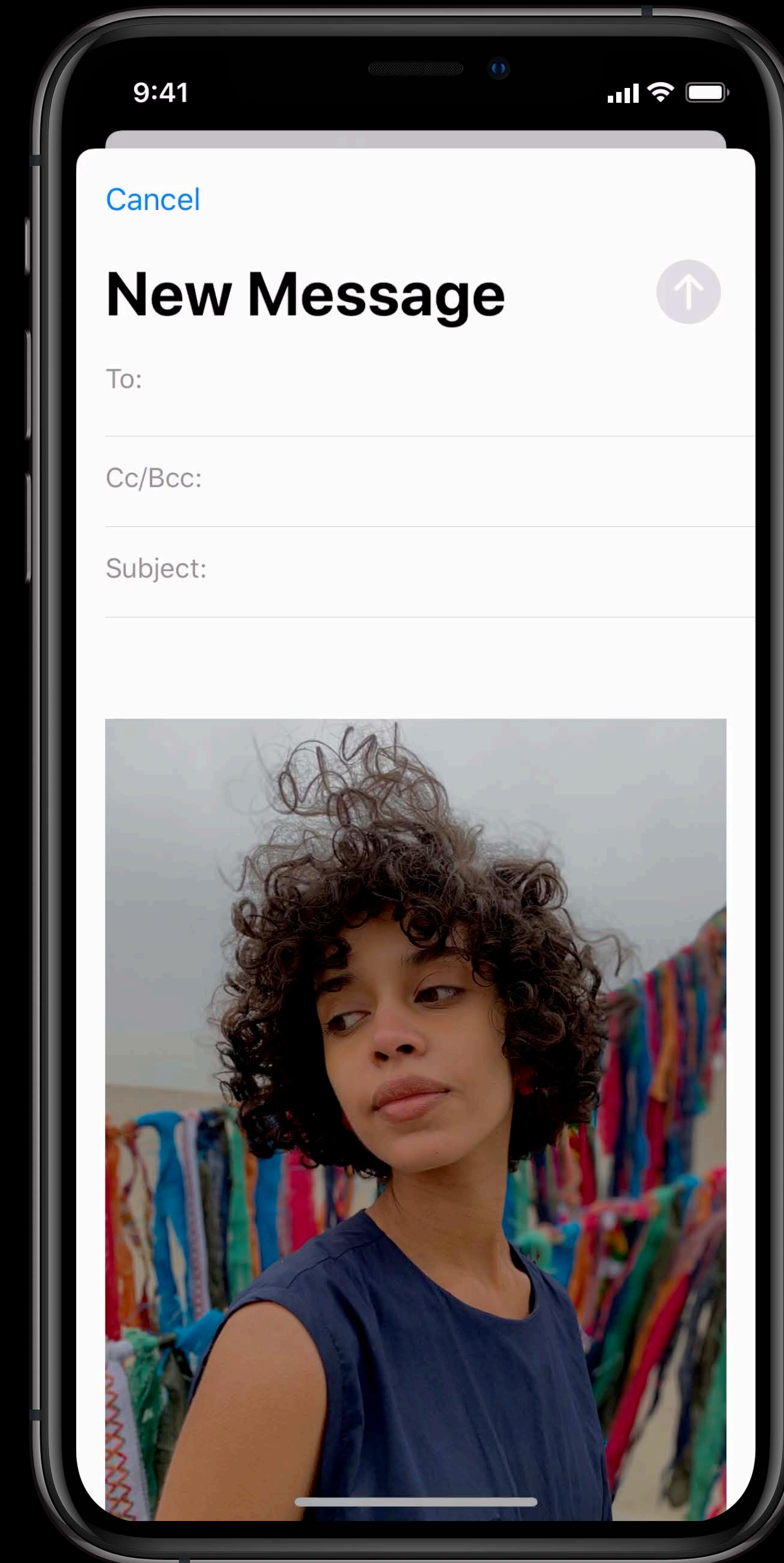
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- Respond to `presentationControllerDidAttemptToDismiss`



Share Extensions

Principal View Controller

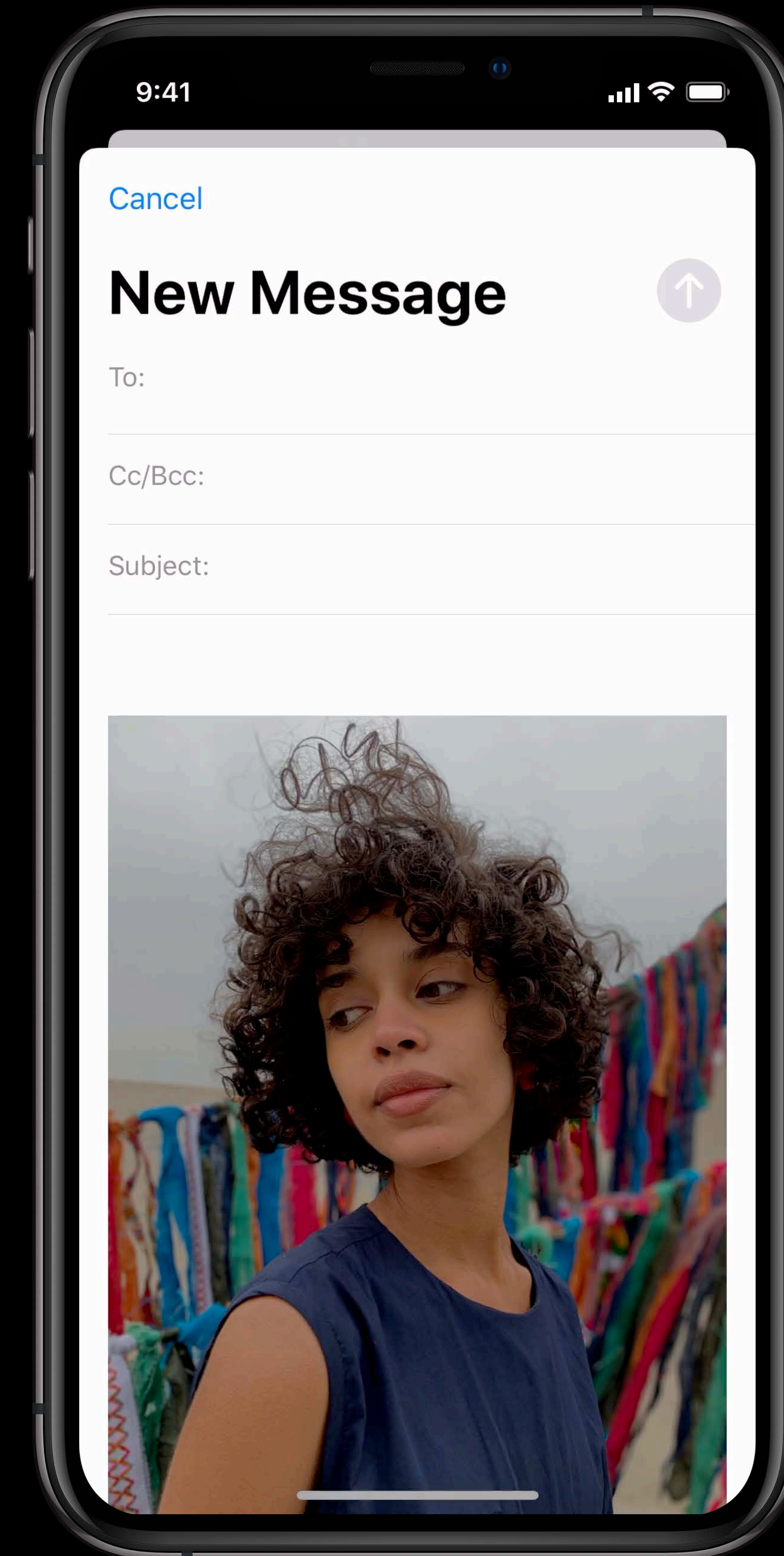
- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`



Share Extensions

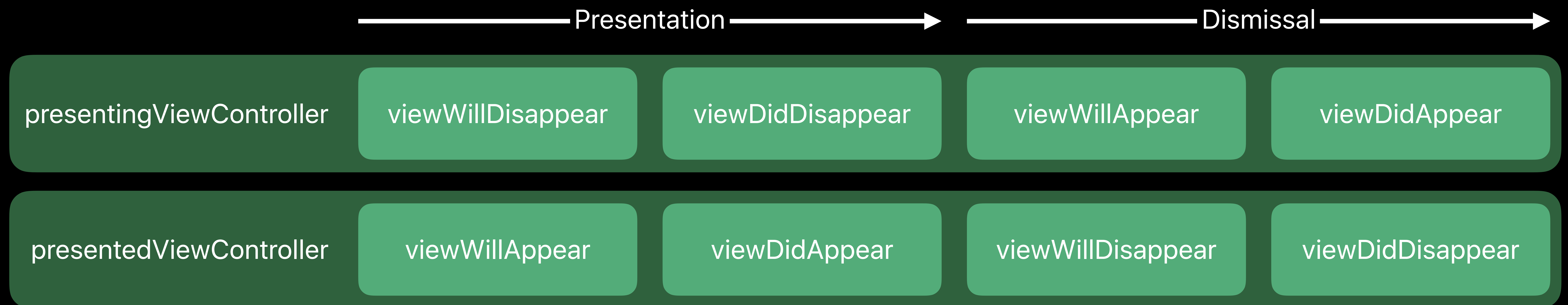
Principal View Controller

- Set `isModalInPresentation`
- Respond to `presentationControllerDidAttemptToDismiss`



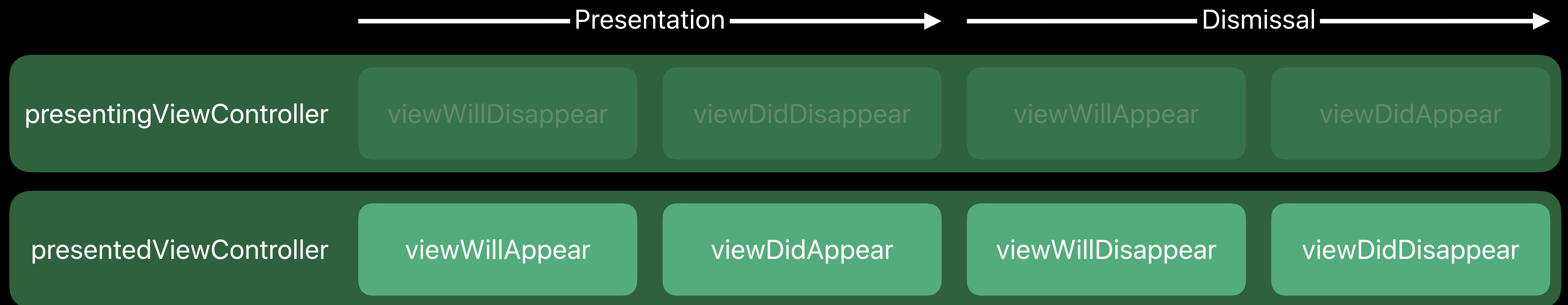
Appearance Callbacks

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

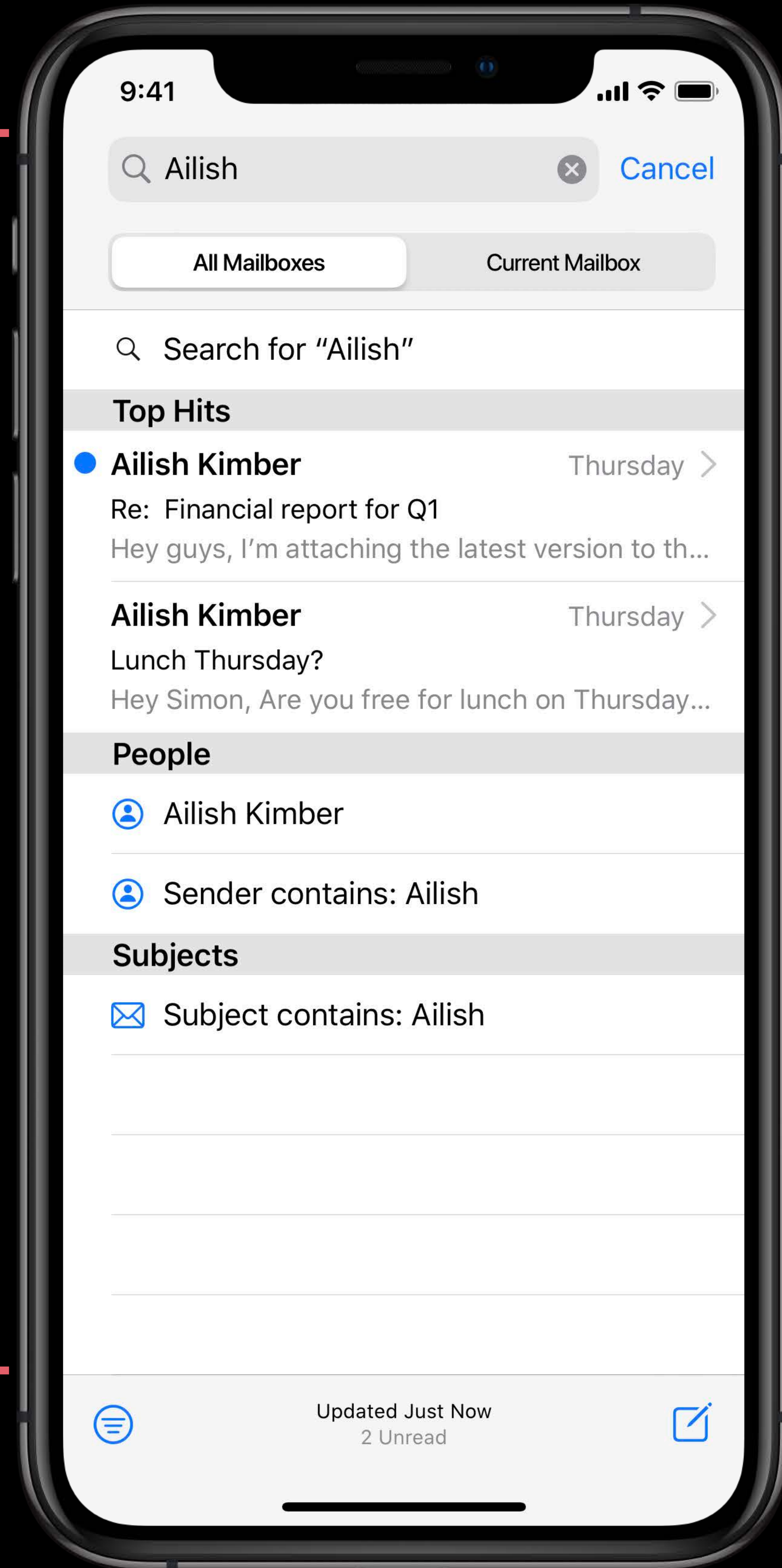
- ✉ Subject contains: Ailish



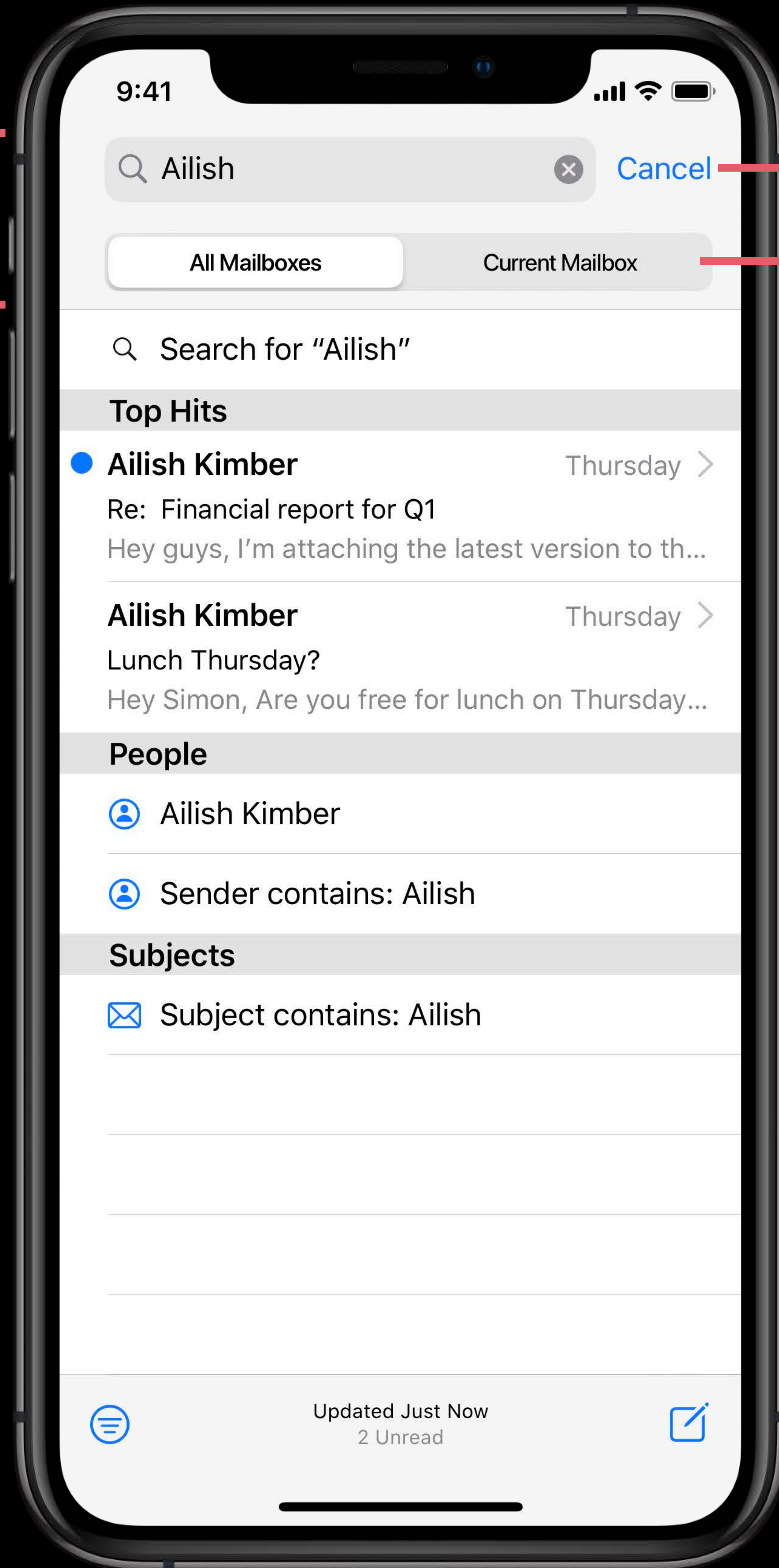
Updated Just Now
2 Unread



UISearchController



UISearchBar

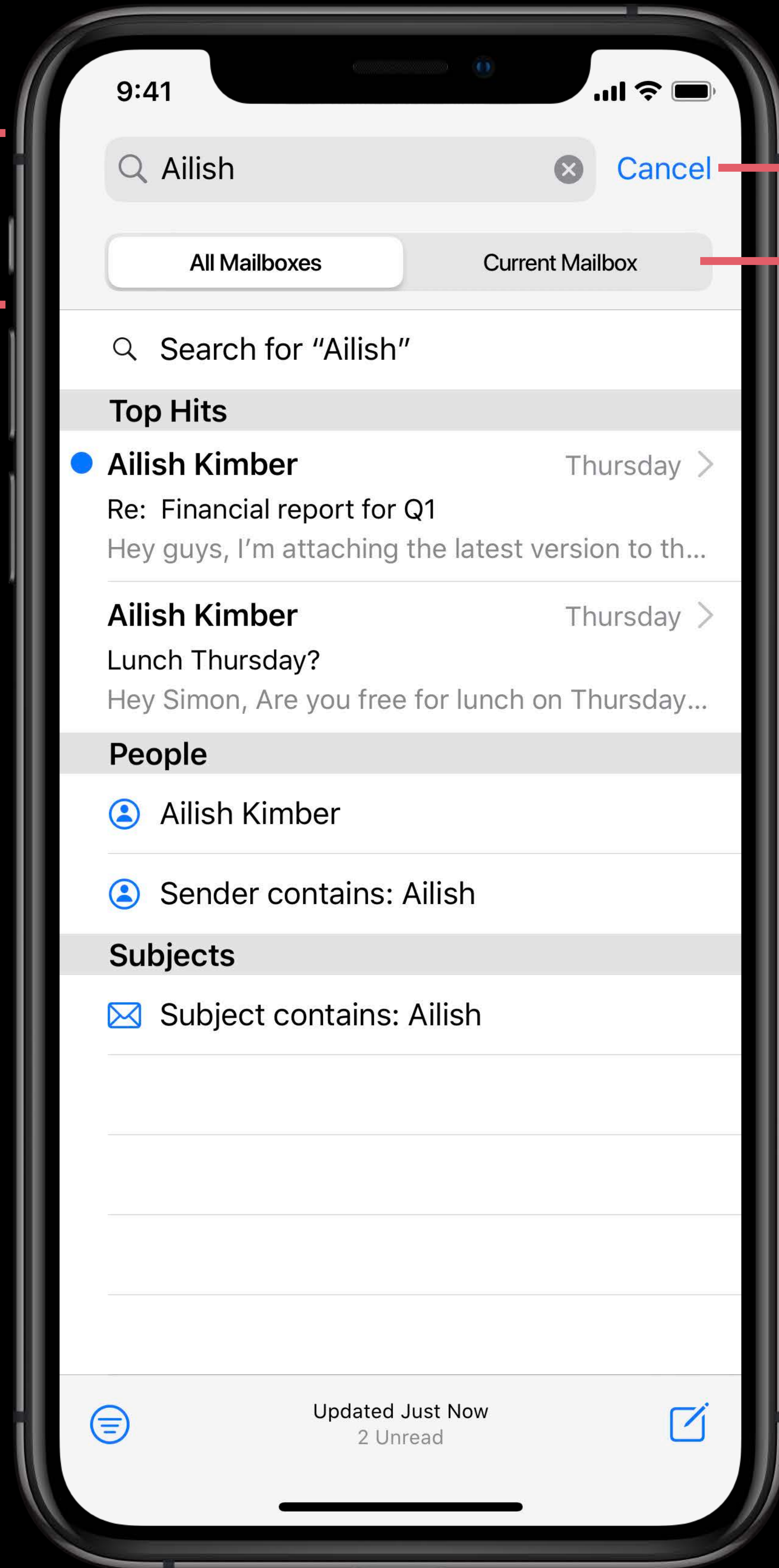


Cancel Button

Scope Bar



UISearchBar



Cancel Button

Scope Bar

9:41

Ailish

Cancel

All Mailboxes

Current Mailbox

Search for "Ailish"

Top Hits

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- Ailish Kimber
- Sender contains: Ailish

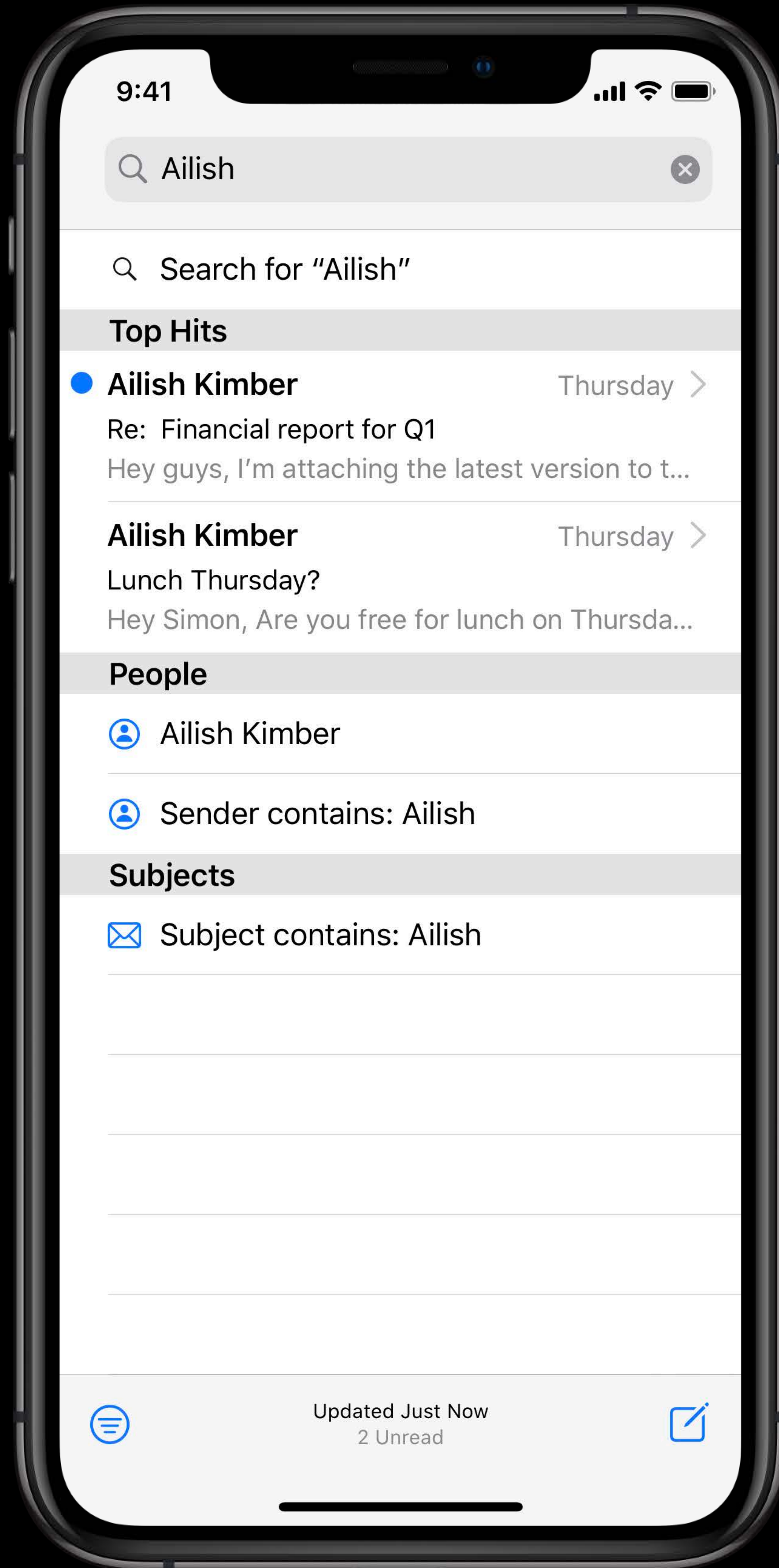
Subjects

- Subject contains: Ailish



Updated Just Now
2 Unread





NEW

9:41



🔍 Ailish ✕

🔍 Search for "Ailish"

Top Hits

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People

👤 Ailish Kimber

👤 Sender contains: Ailish

Subjects

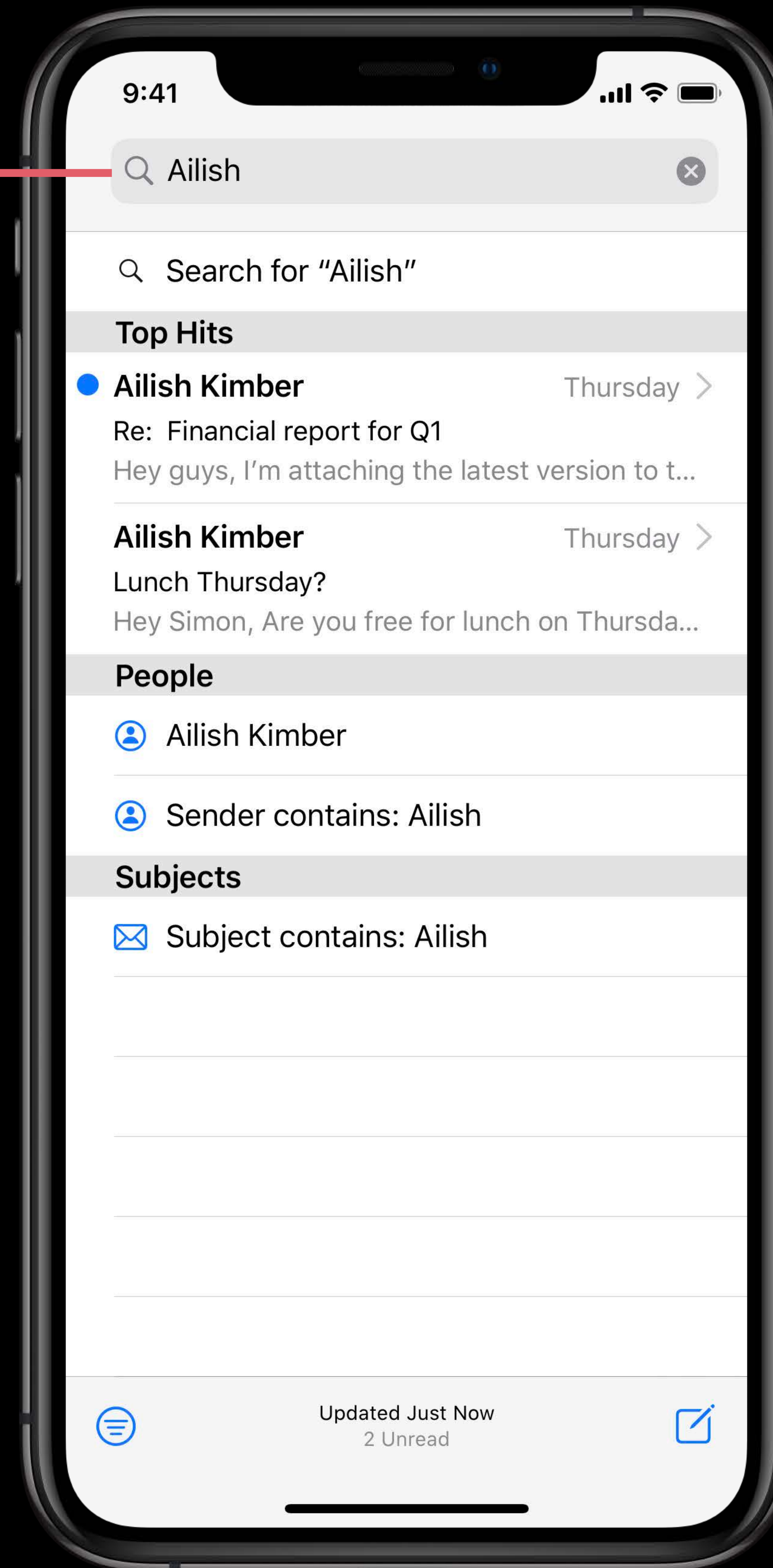
✉ Subject contains: Ailish



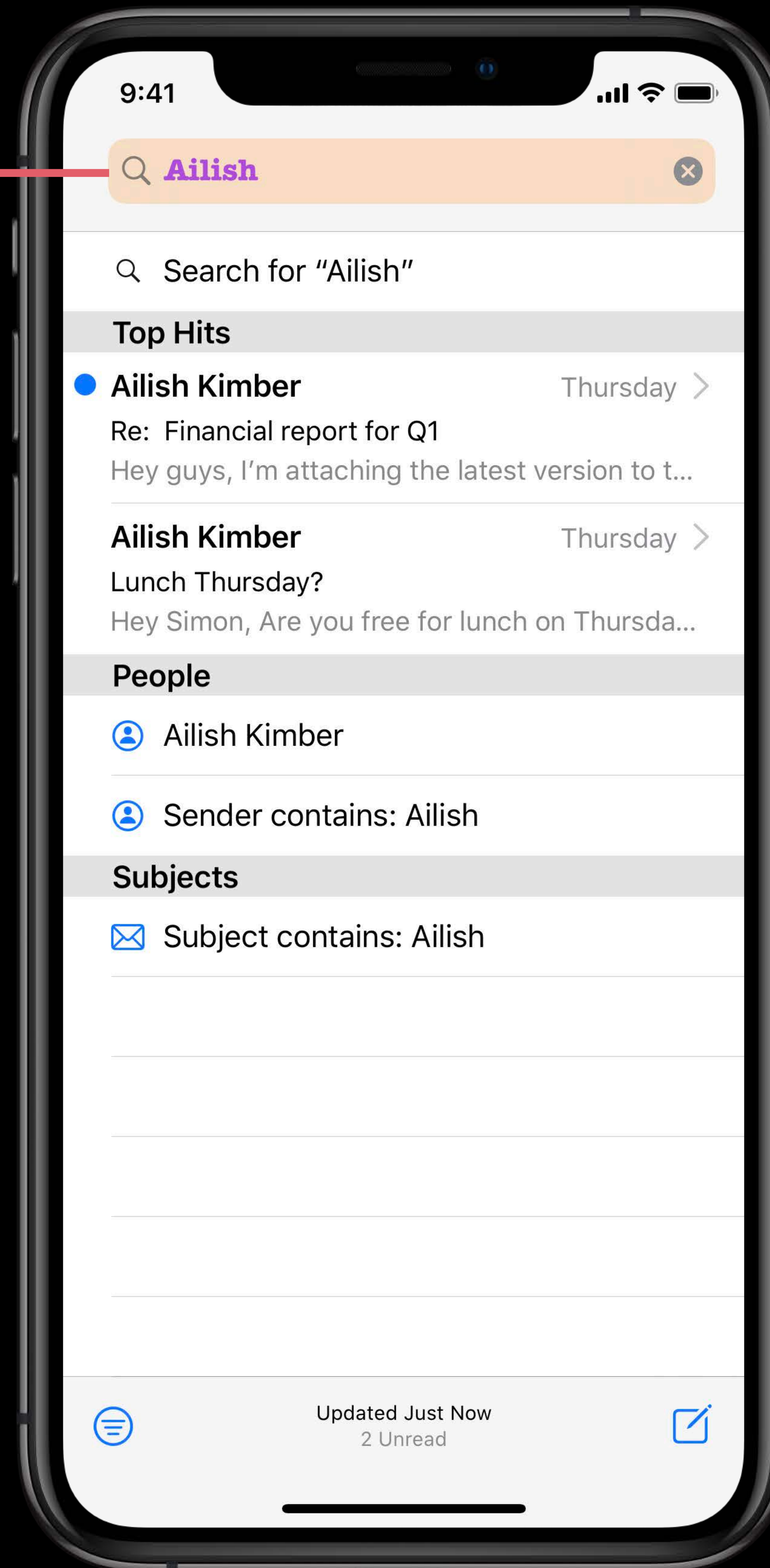
Updated Just Now
2 Unread



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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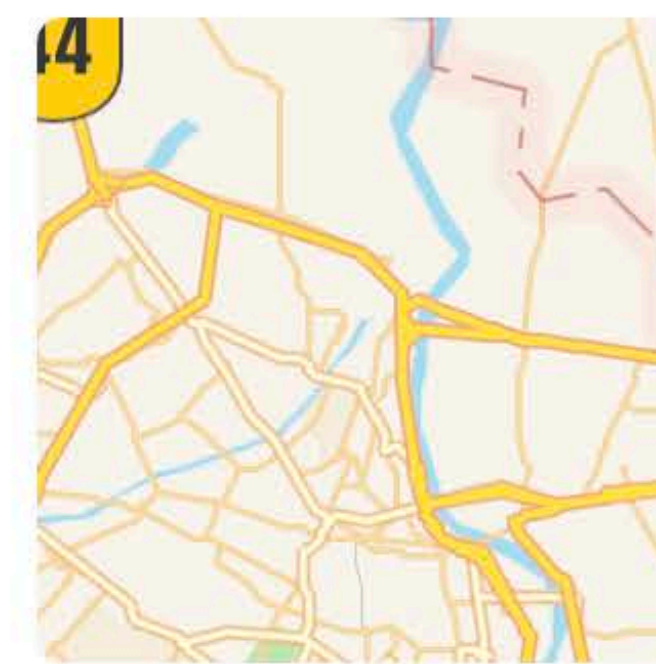

9:41



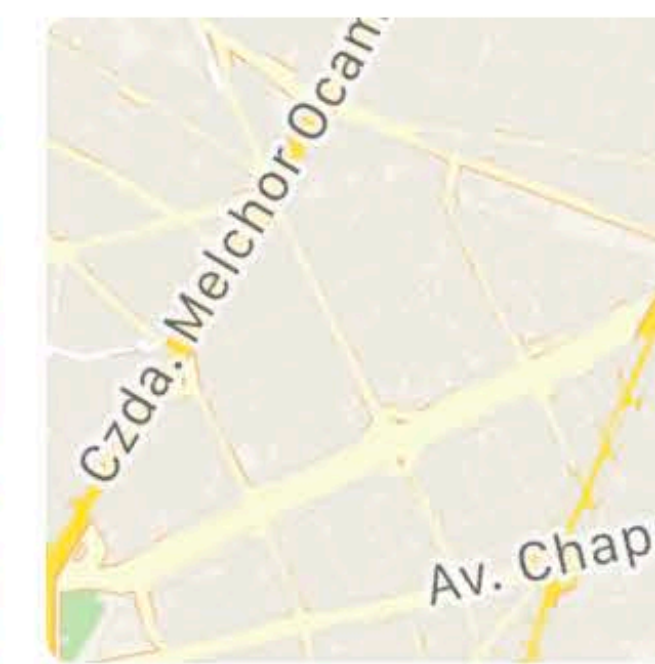
Search

🔍 Photos, People, Places...

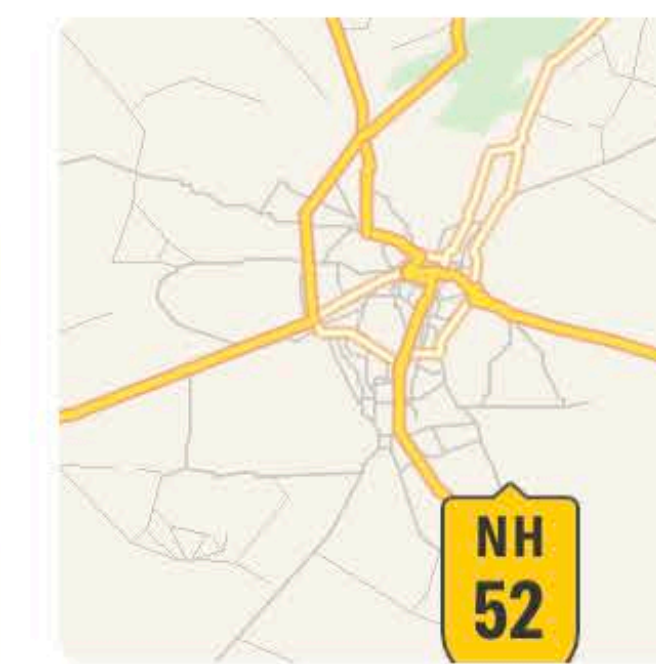
Places



New Delhi

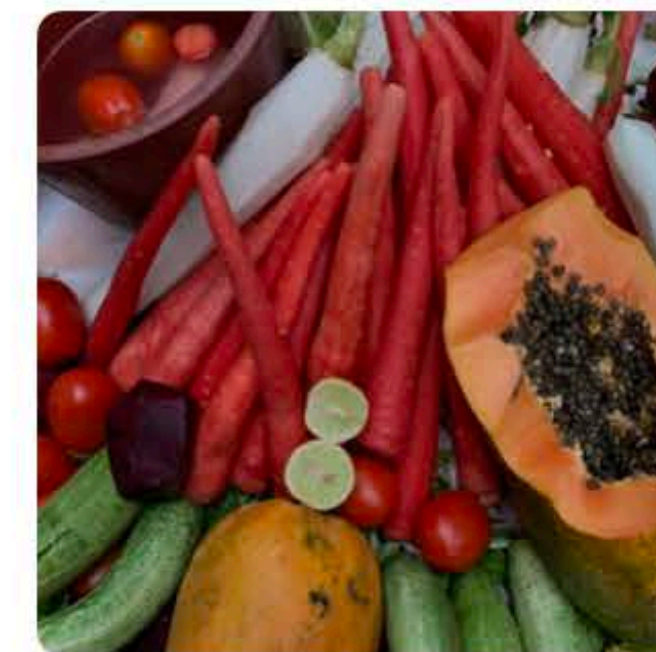


Mexico City

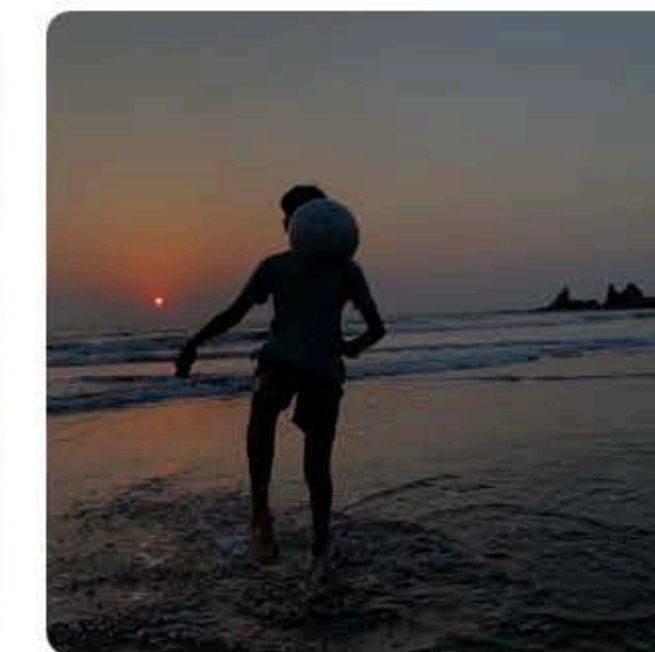


Jaipur

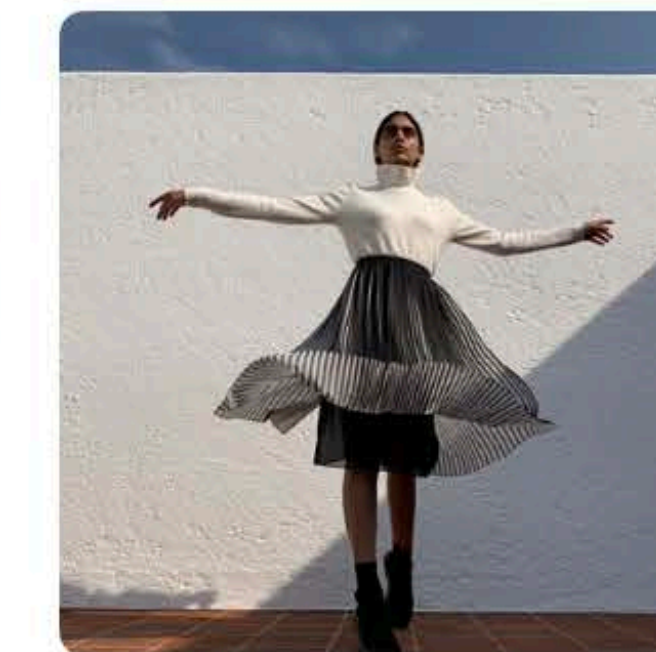
Categories



Food



Beaches



Performances



Photos



For You



Albums



Search

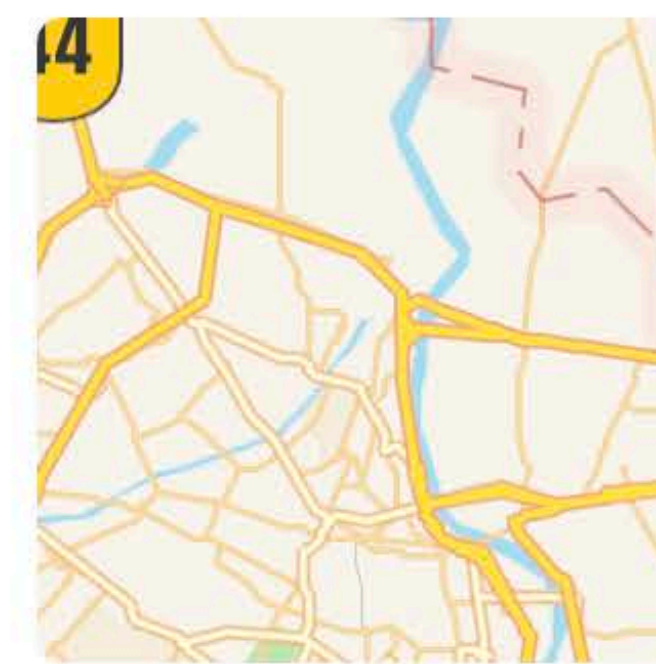
9:41



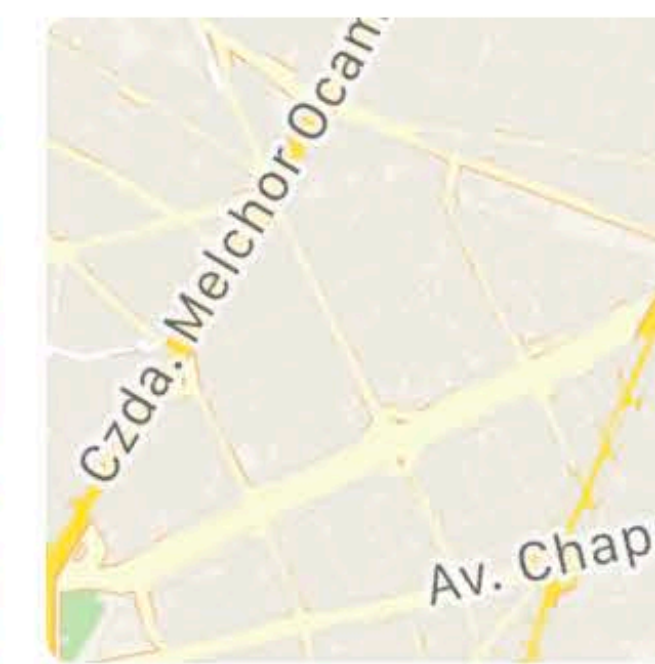
Search

🔍 Photos, People, Places, Moments, Videos

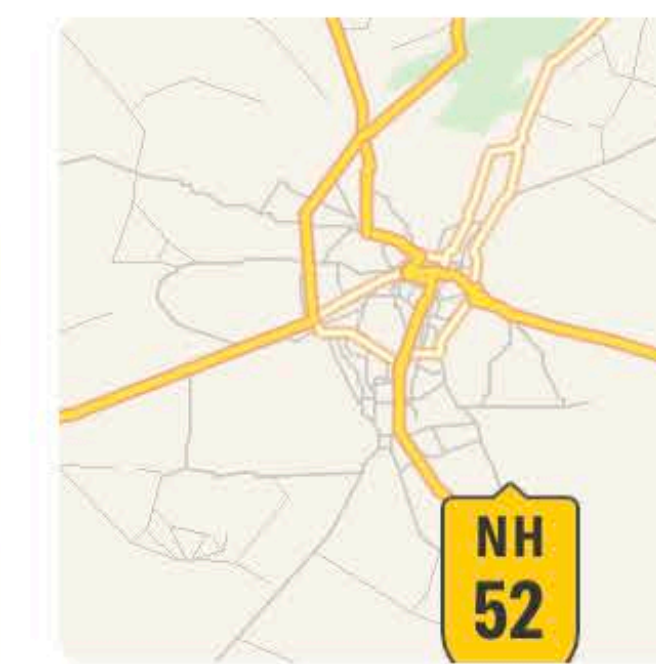
Places



New Delhi

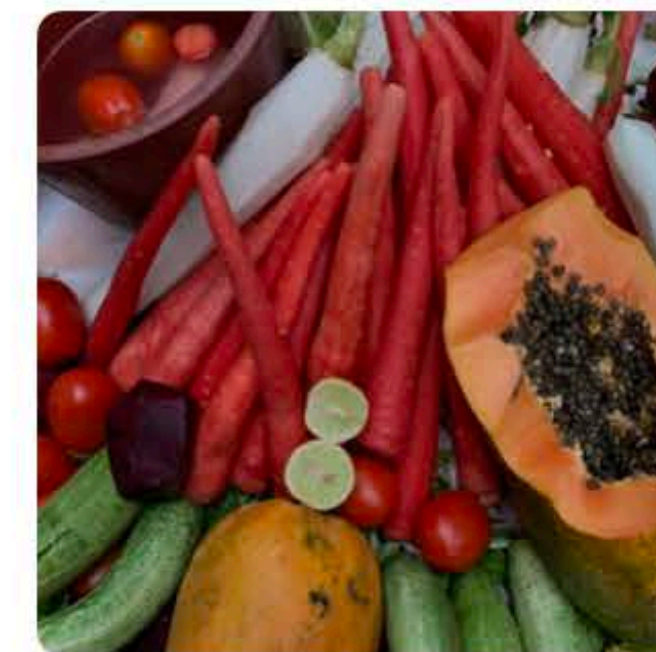


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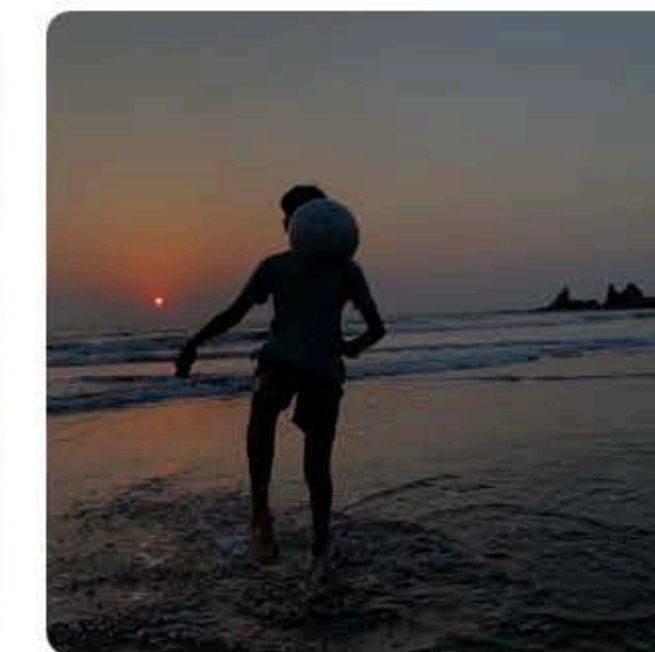


Jaipur

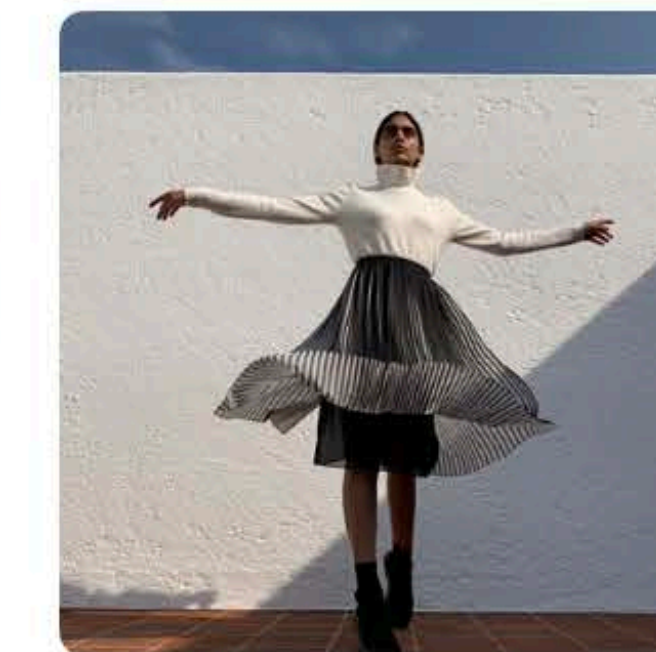
Categories



Food



Beaches



Performances



Photos



For You



Albums



Search

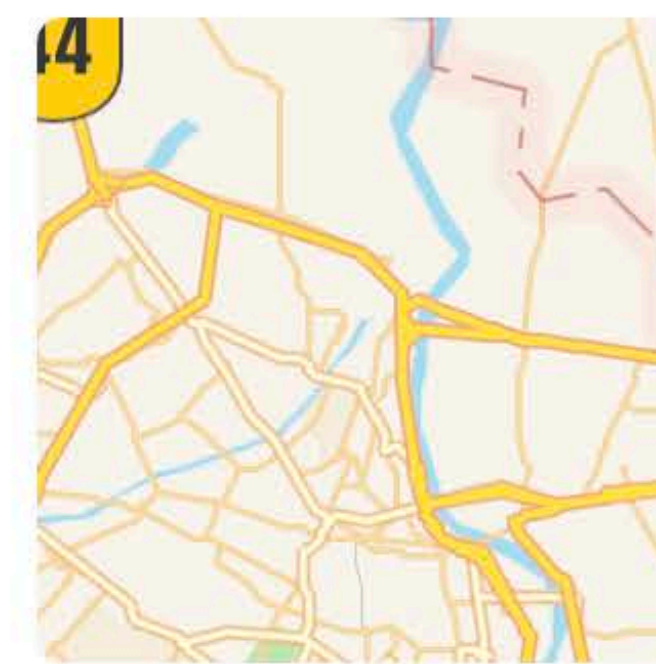
9:41



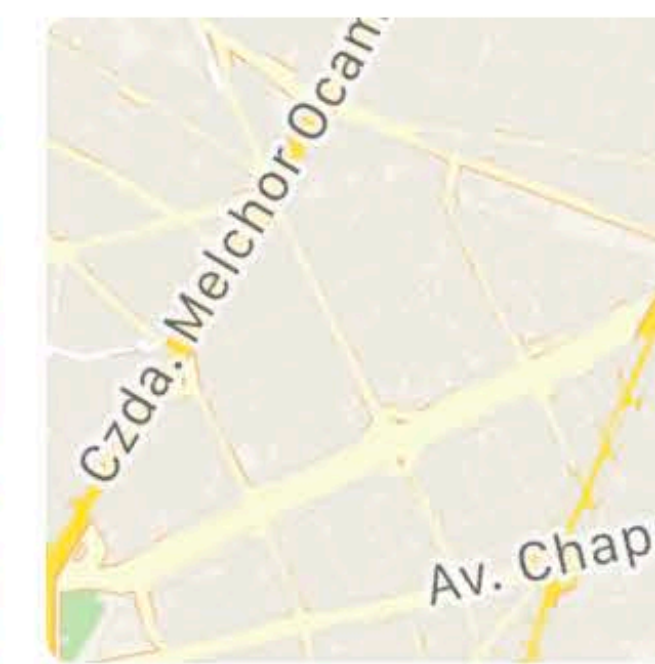
Search

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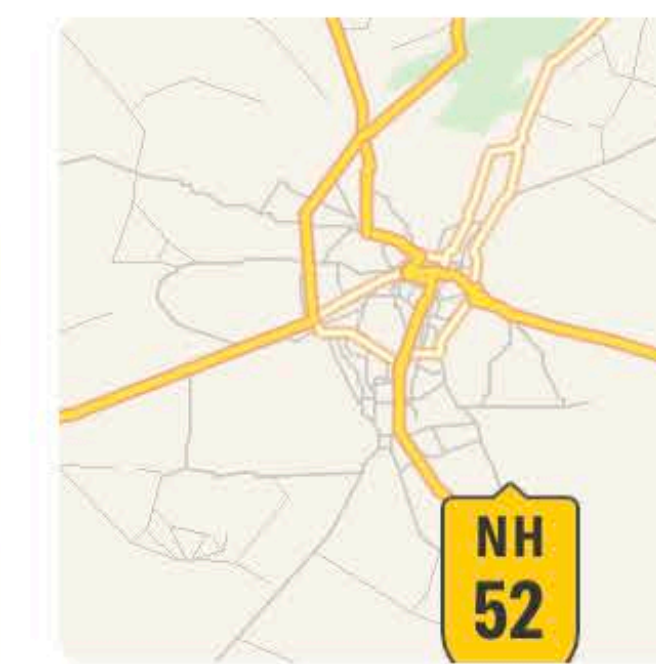
Places



New Delhi

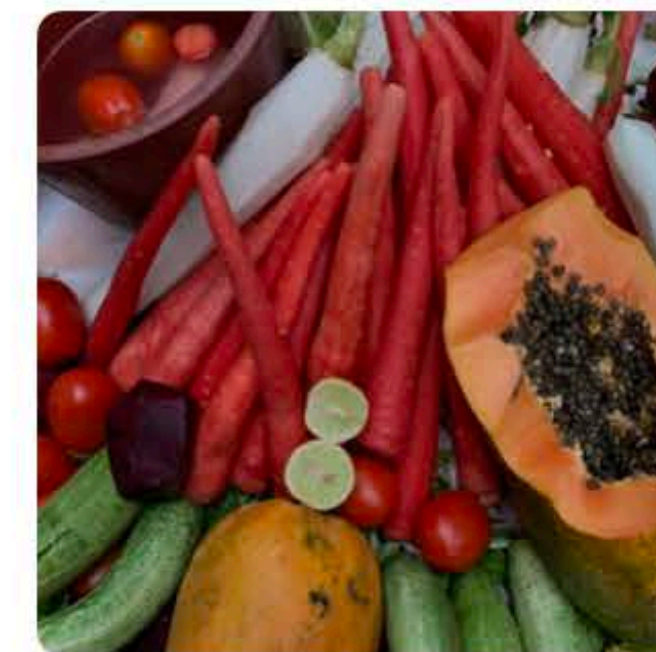


Mexico City

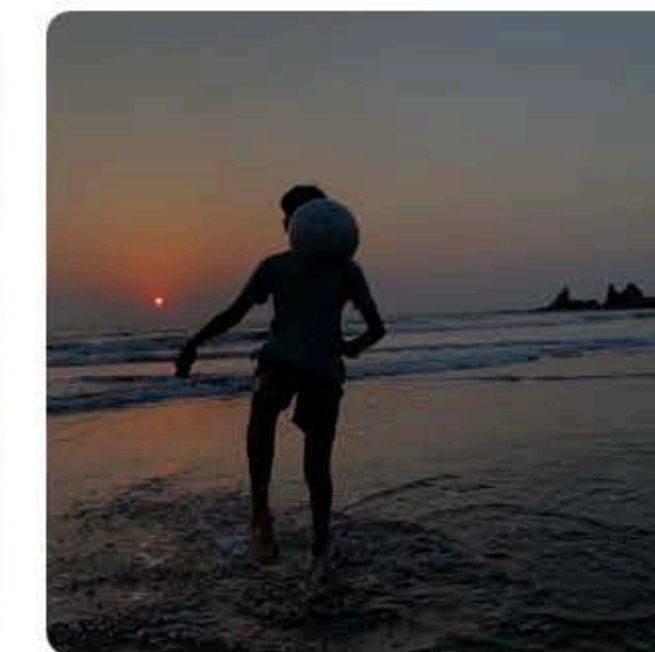


Jaipur

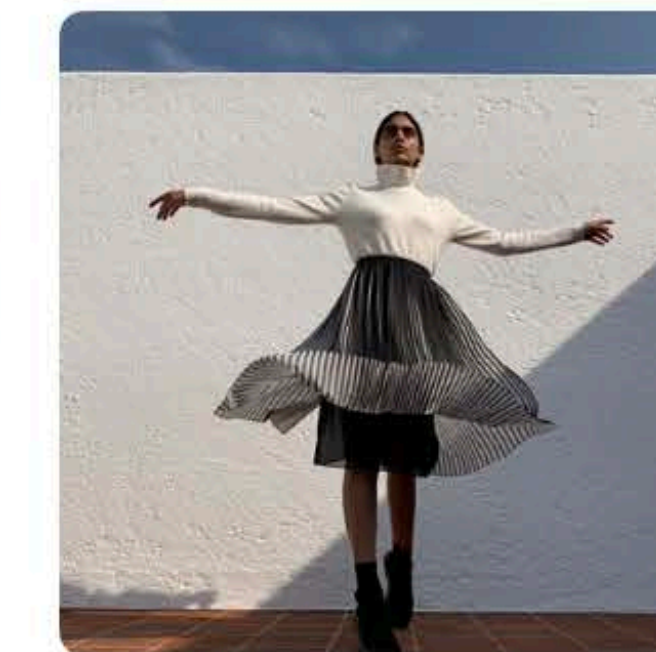
Categories



Food



Beaches



Performances



Photos



For You



Albums



Search

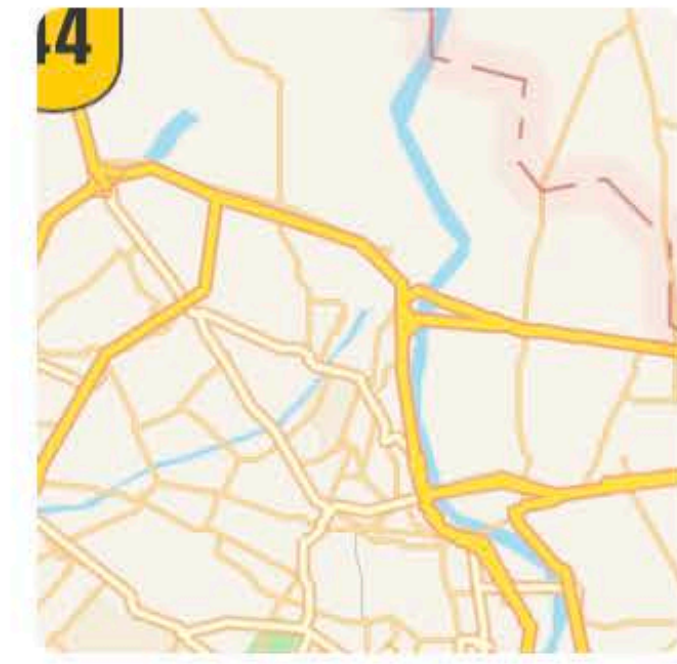
9:41



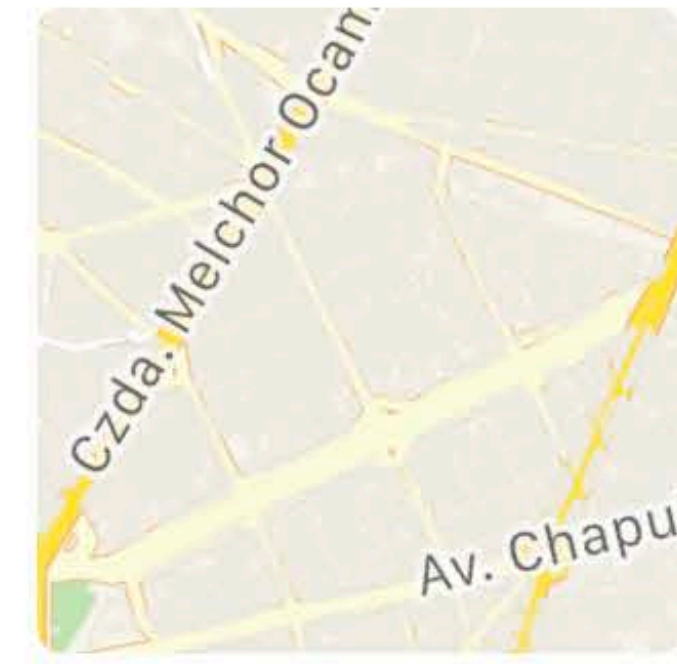
Q Photos, People, Places...

Cancel

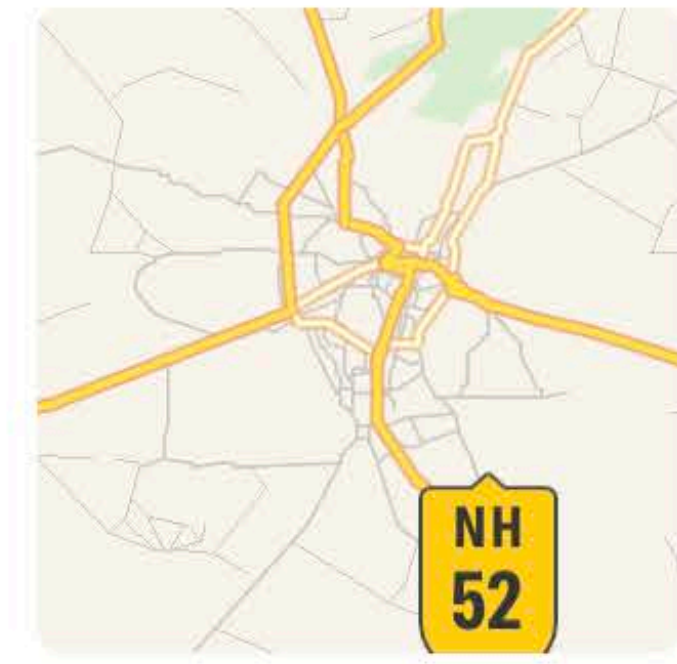
Places



New Delhi



Mexico City

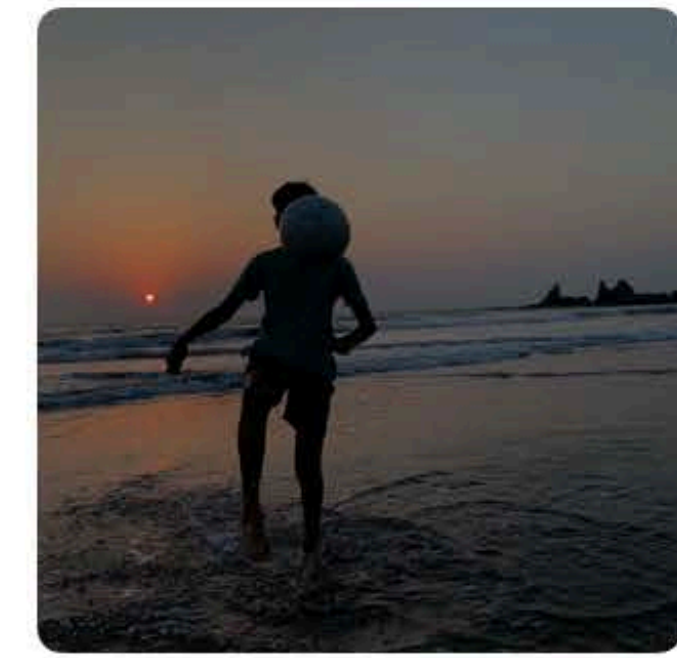


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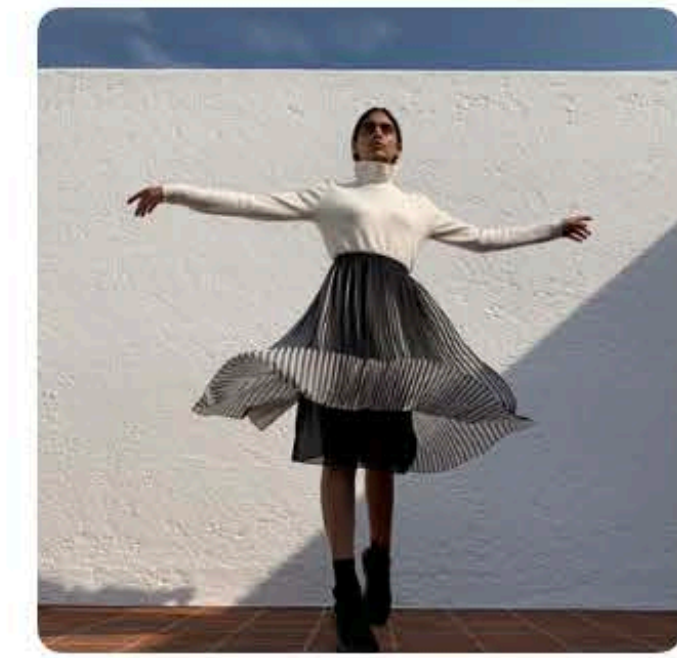
Categories



Food



Beaches



Performances



9:41



Q Mex × Cancel

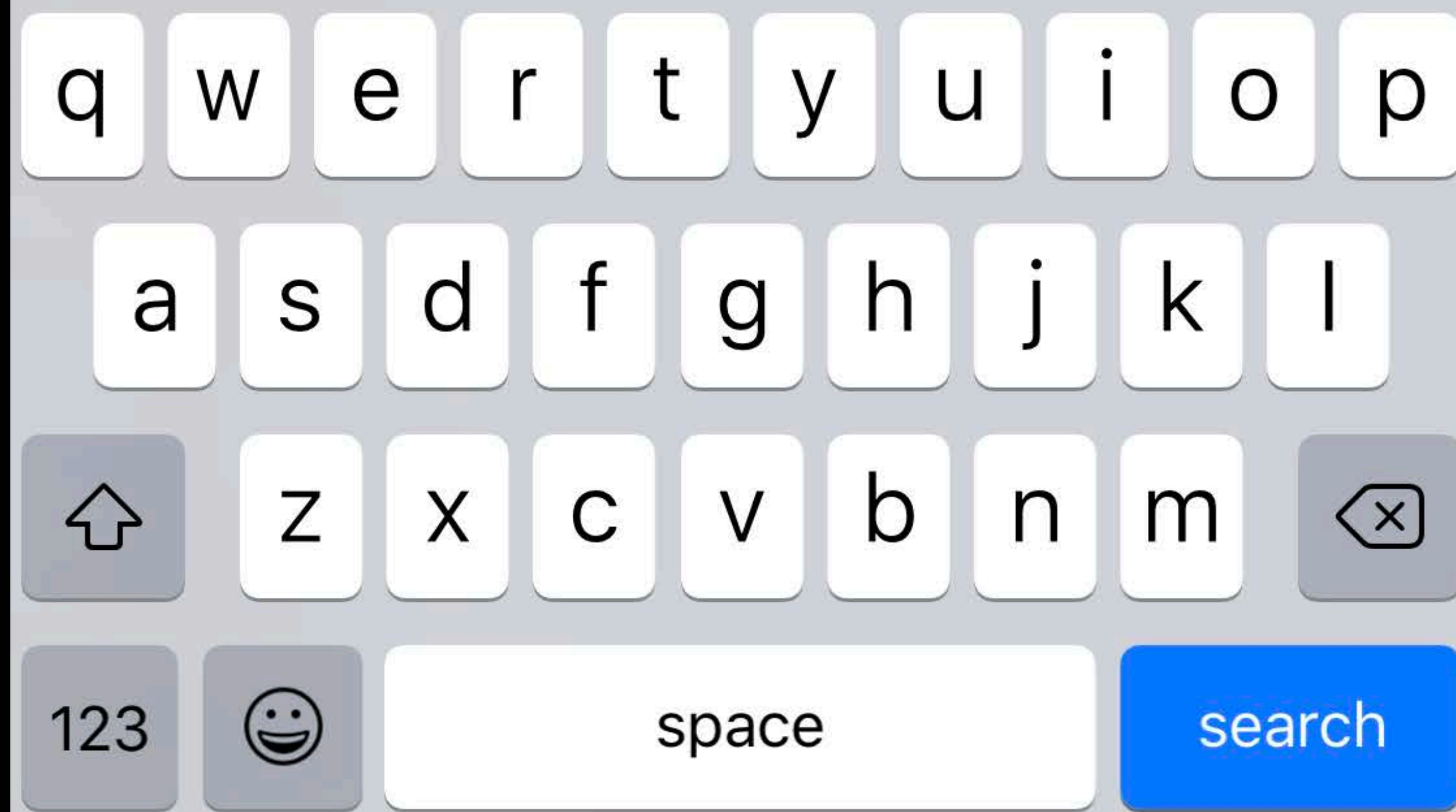
Q Mexico 14

📍 Mexico City 14

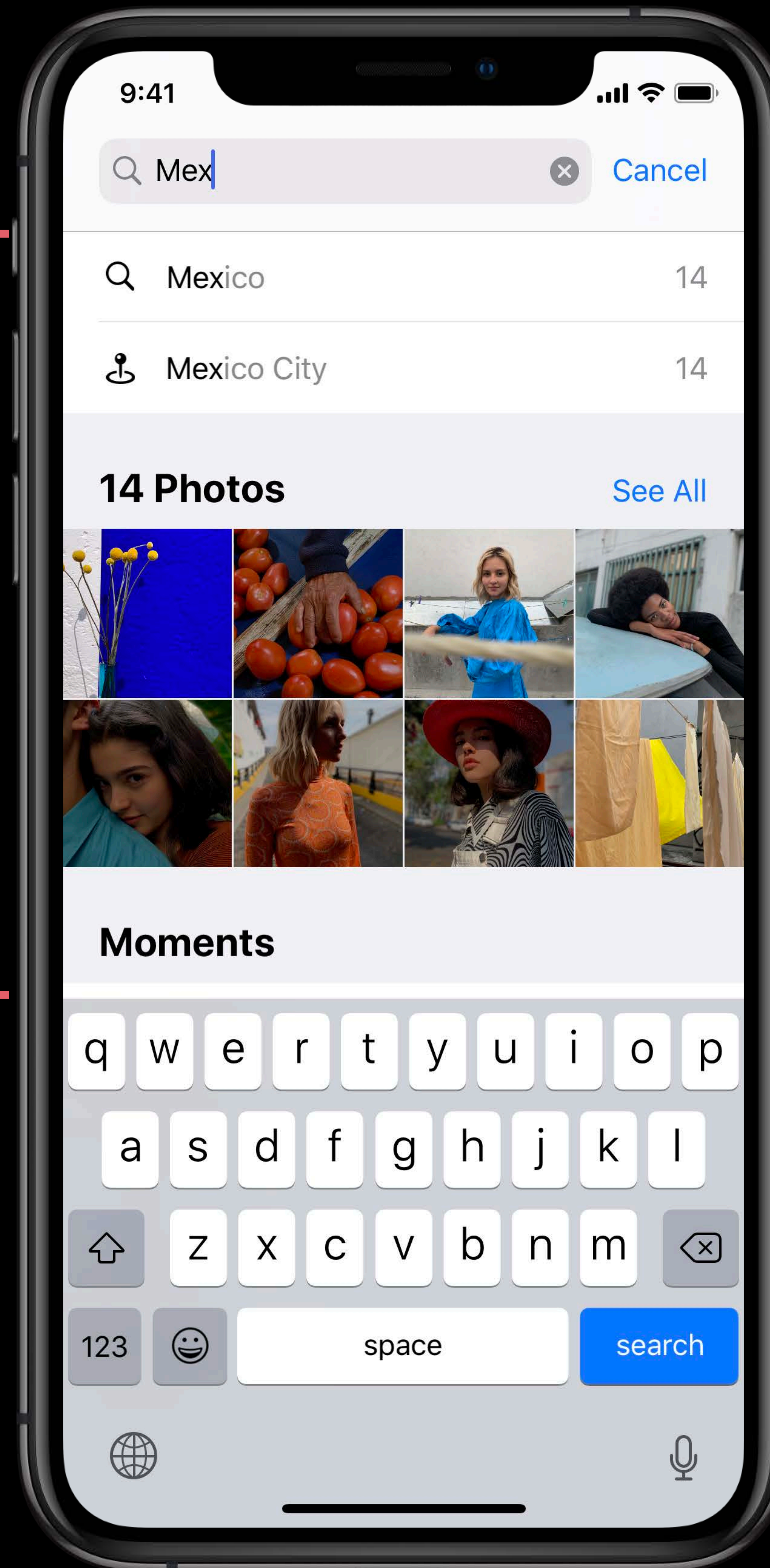
14 Photos [See All](#)



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

Inbox

🔍 Search

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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

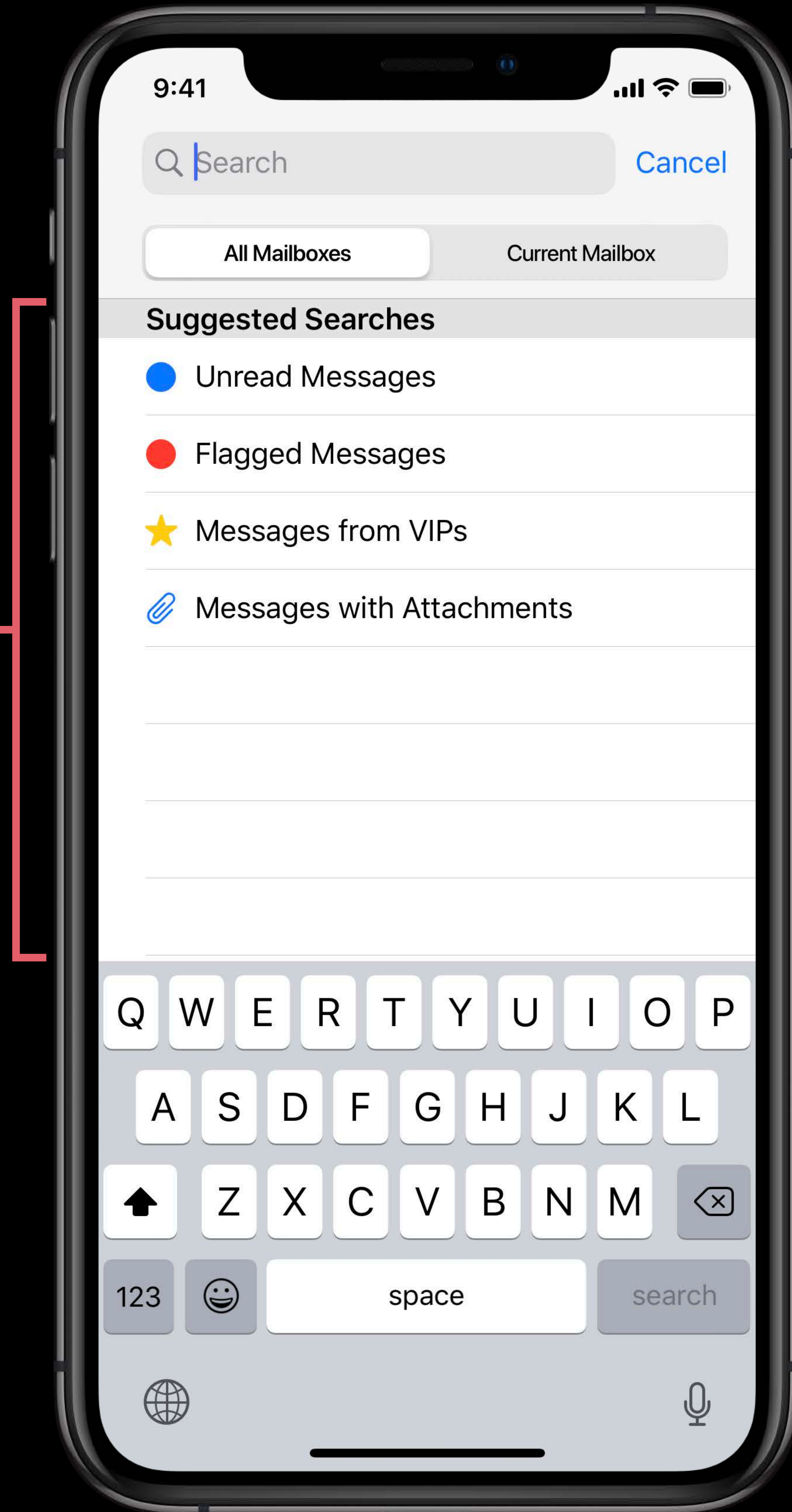
↑ Z X C V B N M ↵

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: /*...*/)  
  
    // Show the search results controller as soon as search is activated  
    searchController.showsSearchResultsController = true  
  
    self.navigationItem.searchController = searchController  
  
    /* ... */  
}
```

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



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



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



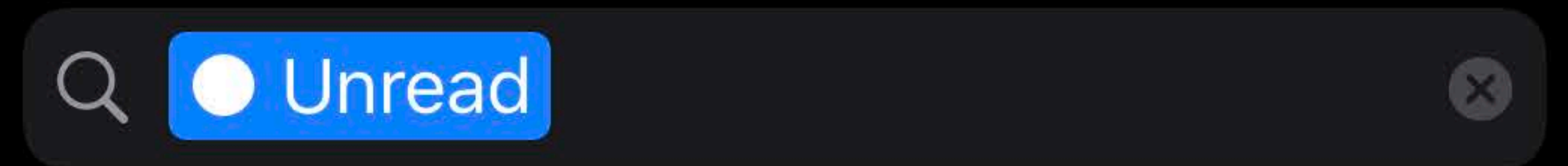
Search Tokens

NEW

Available on any UISearchBarTextField

Copy, Paste

Drag and Drop



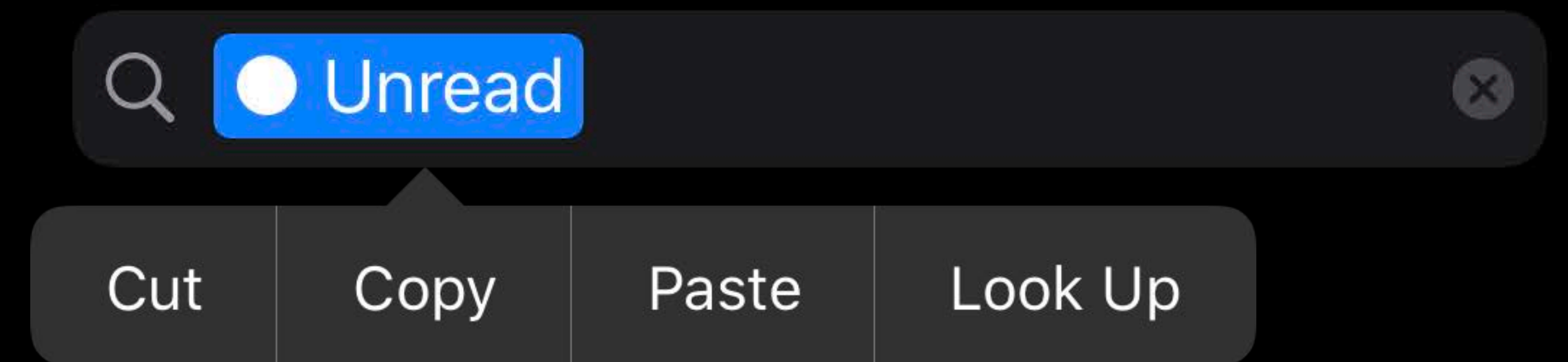
Search Tokens

NEW

Available on any UISearchBarTextField

Copy, Paste

Drag and Drop



9:41



🔍 North Goa bea ✕ Cancel

📍 Sweet Lake Beach 1

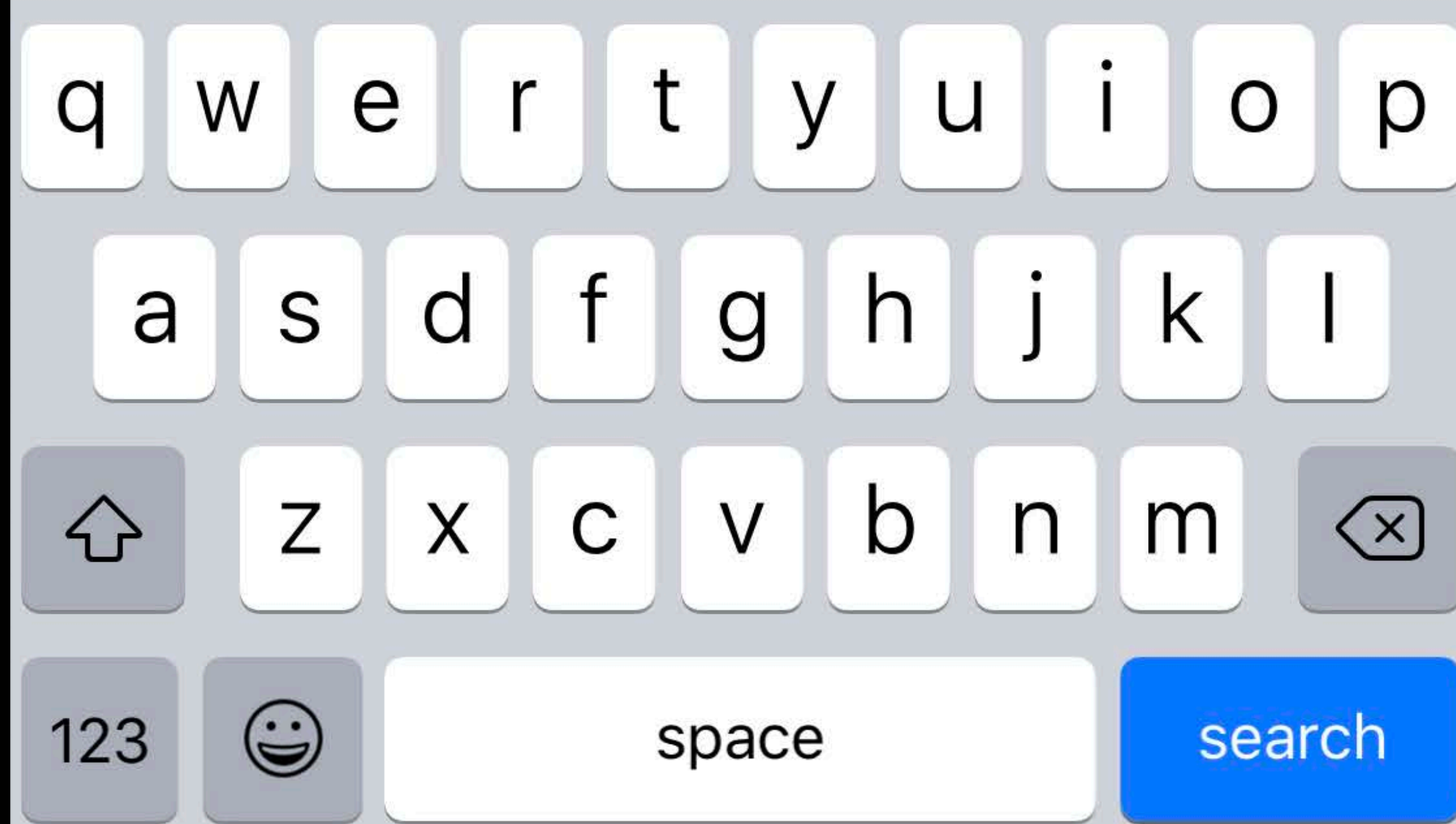
🔍 Beach 1

1 Photo [See All](#)



Moments

 North Goa 5 >
Feb 21



9:41



🔍 North Goa bea ✕ Cancel

📍 Sweet Lake Beach 1

🔍 Beach 1

1 Photo

[See All](#)

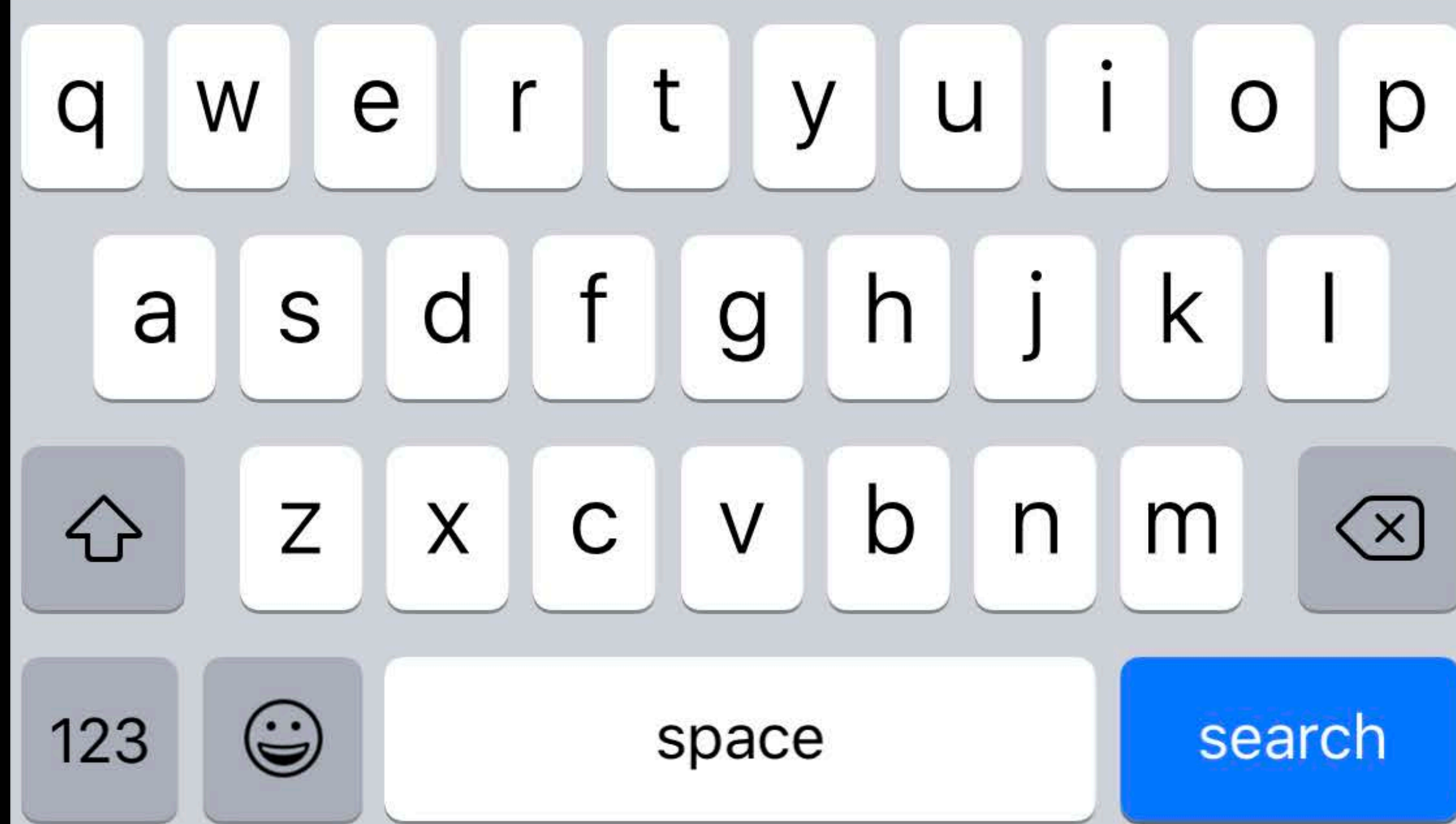


Moments



North Goa
Feb 21

5 >



9:41



🔍 North Goa Beach ✕ Cancel

1 Photo

[See All](#)



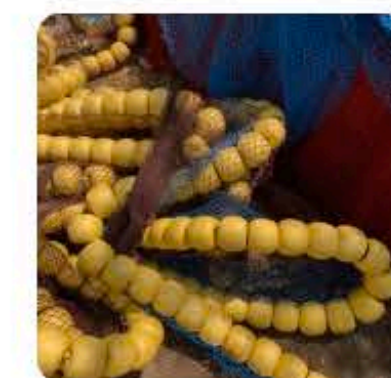
Moments



North Goa

Feb 21

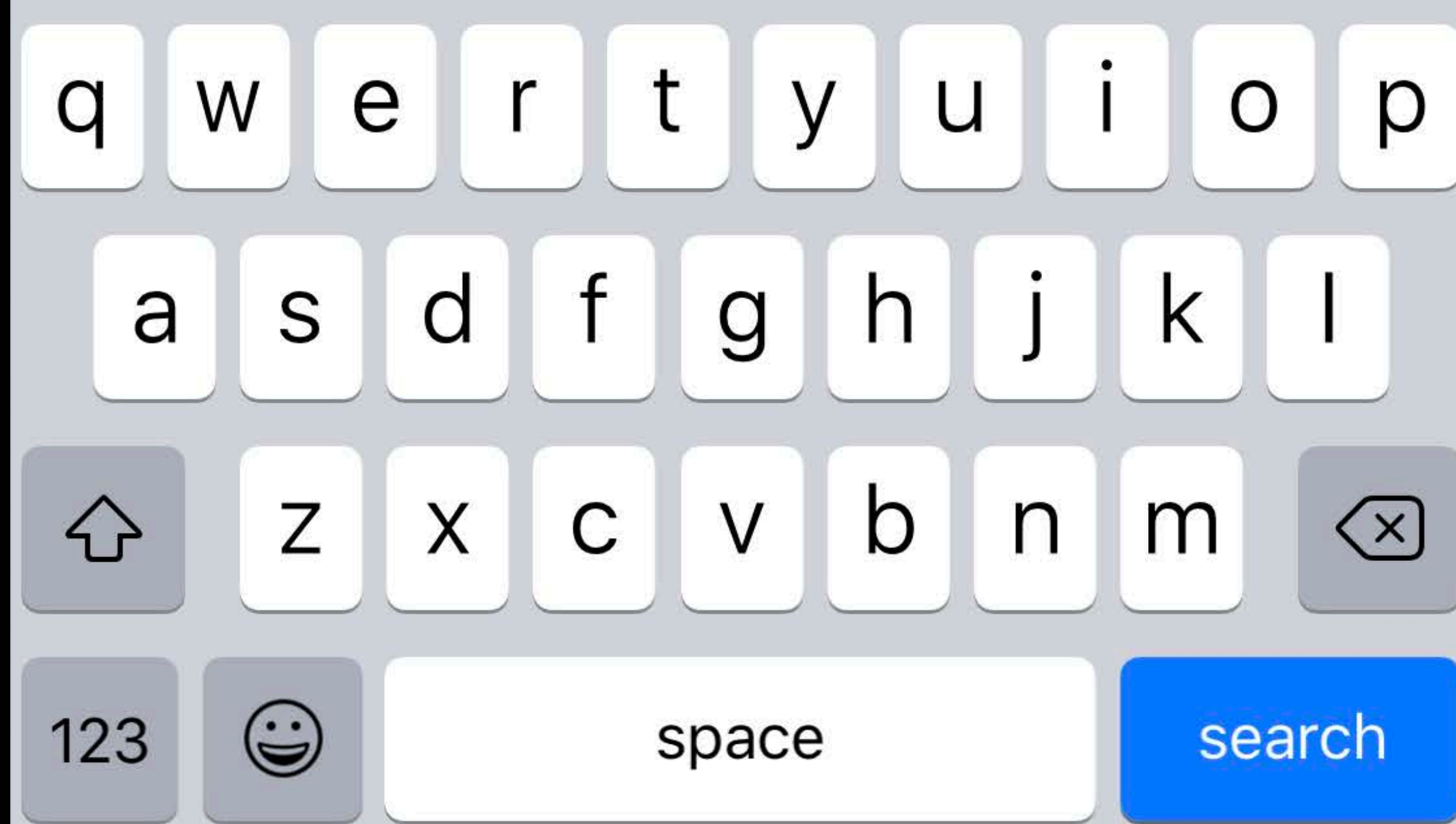
5 >



North Goa

Feb 19

6 >

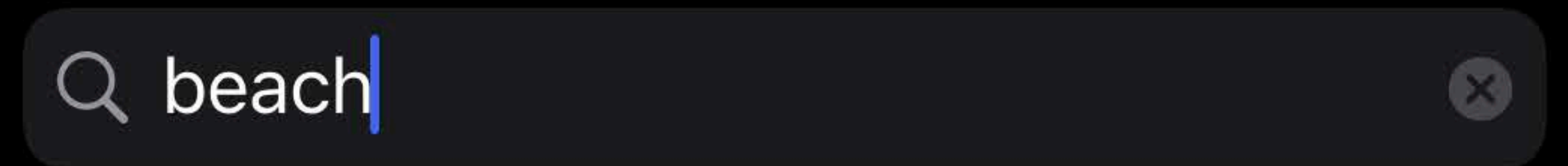


Tokens and Text

Tokens always precede text

Can be selected and deleted

Mixed selections allowed

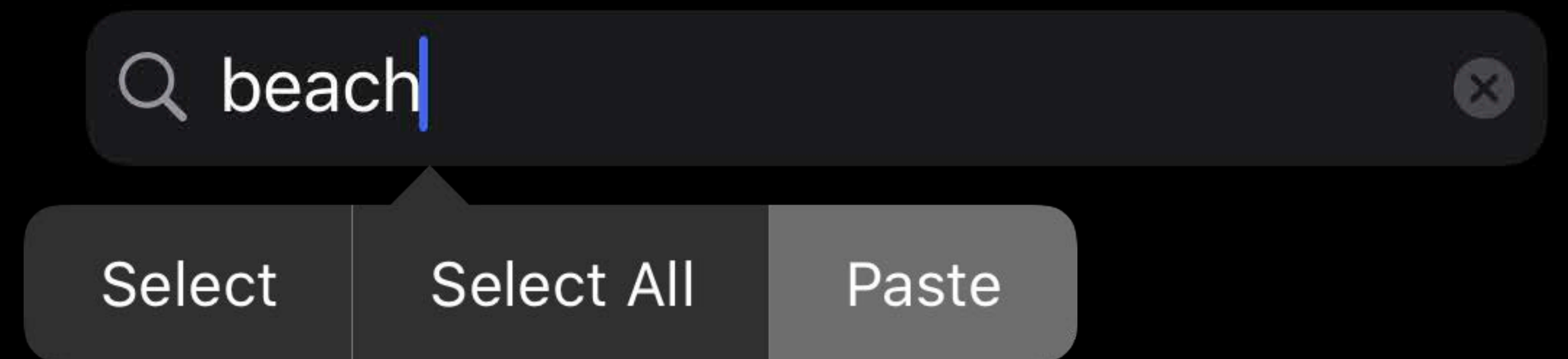


Tokens and Text

Tokens always precede text

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Mixed selections allowed

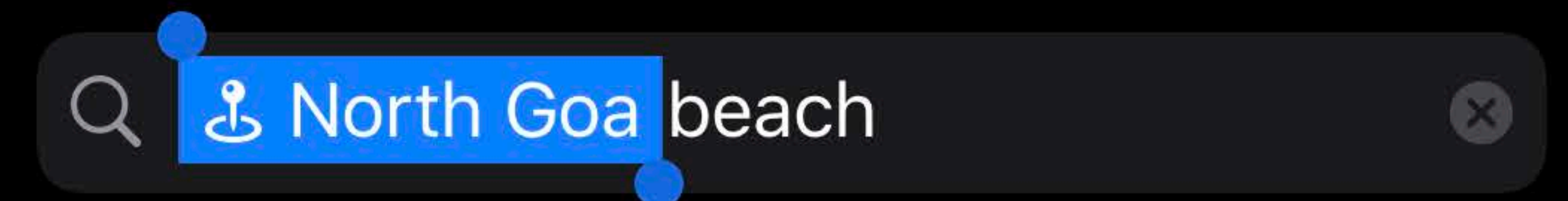


Tokens and Text

Tokens always precede text

Can be selected and deleted

Mixed selections allowed

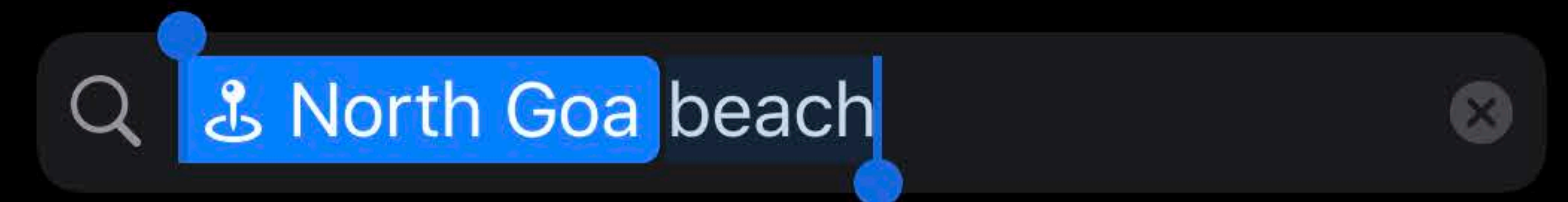


Tokens and Text

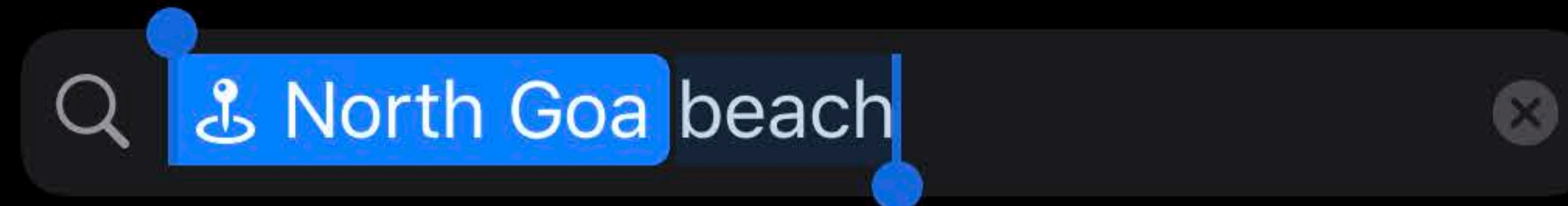
Tokens always precede text

Can be selected and deleted

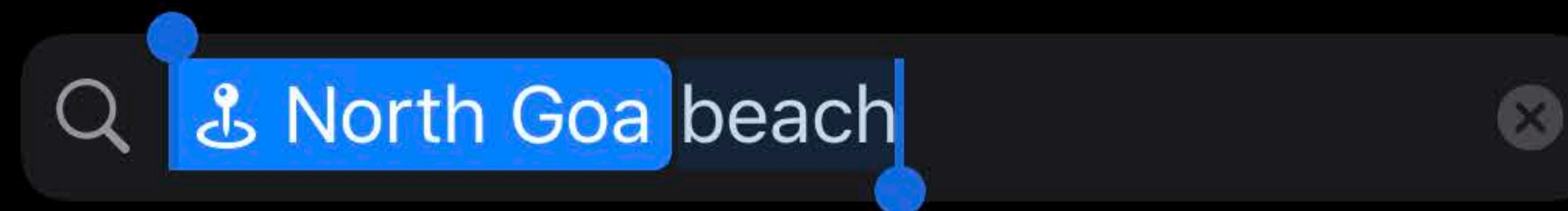
Mixed selections allowed



Creating Tokens

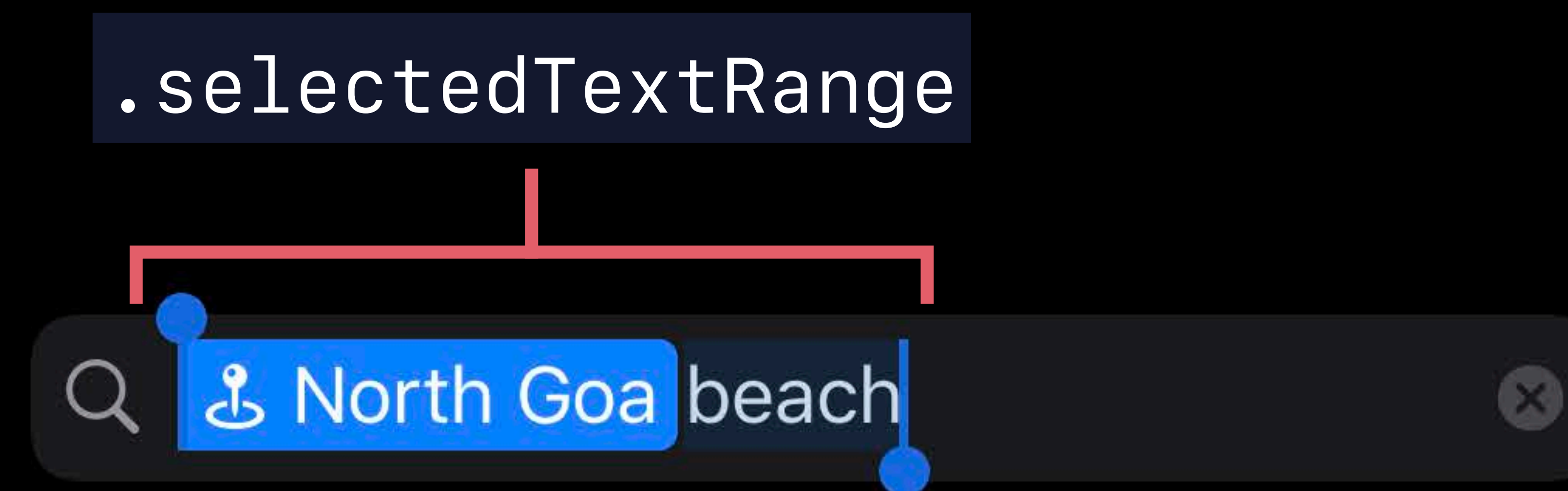


Creating Tokens



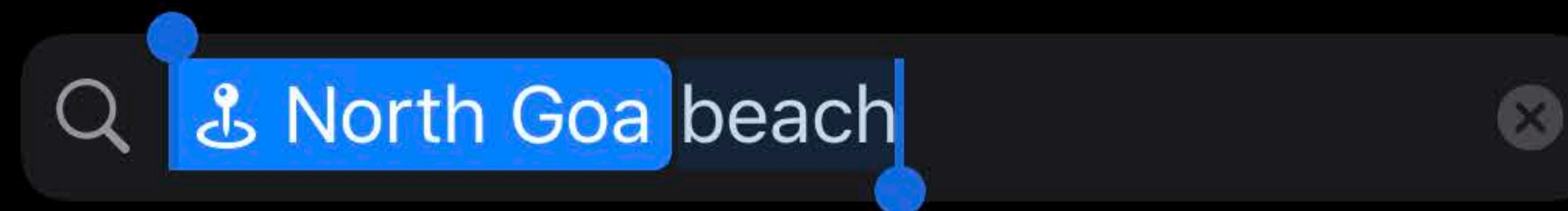
```
let selectedText = field.textIn(field.selectedTextRange) // "beach"
let token = UISearchToken(icon: nil, text: selectedText)
field.replaceTextualPortion(of: field.selectedTextRange, with: token, at: field.tokens.count)
```

Creating Tokens



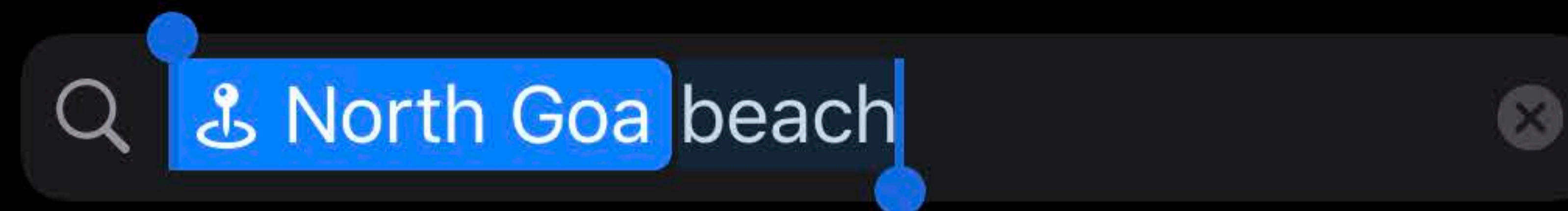
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Creating Tokens



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Creating Tokens



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Creating Tokens



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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

🔍 beach



Ranges and Positions

UITextPosition



Ranges and Positions

UITextPosition



Ranges and Positions

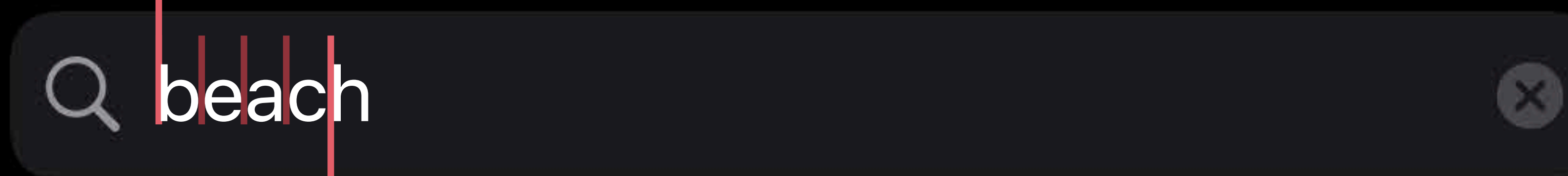
`.beginningOfDocument`

🔍 beach ✕

`.endOfDocument`

Ranges and Positions

`.beginningOfDocument`



`.endOfDocument`

Ranges and Positions

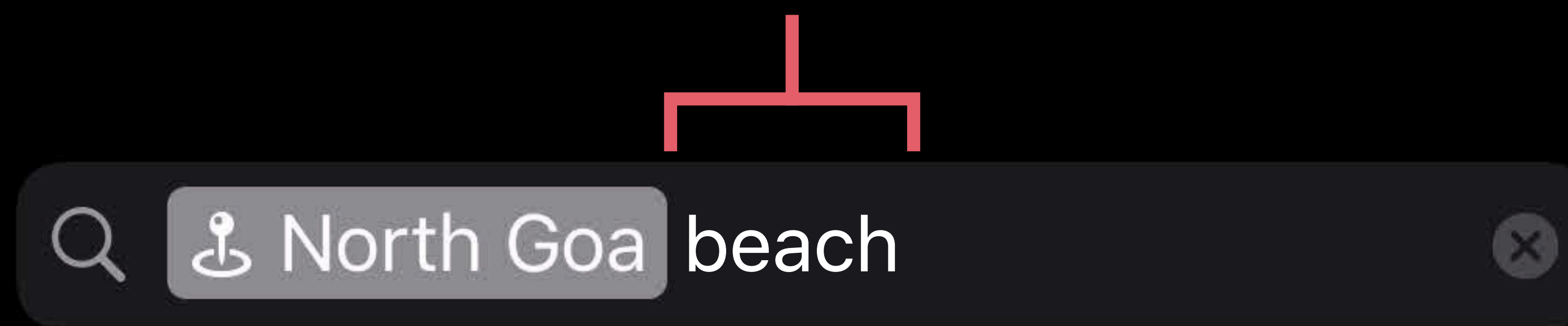
`.beginningOfDocument`



`.endOfDocument`

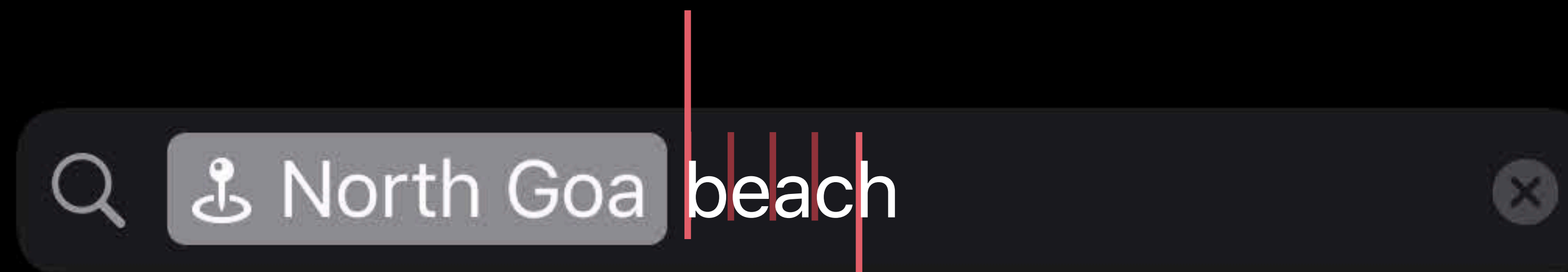
Ranges and Positions

`.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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↑ Z X C V B N M ↵

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

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...

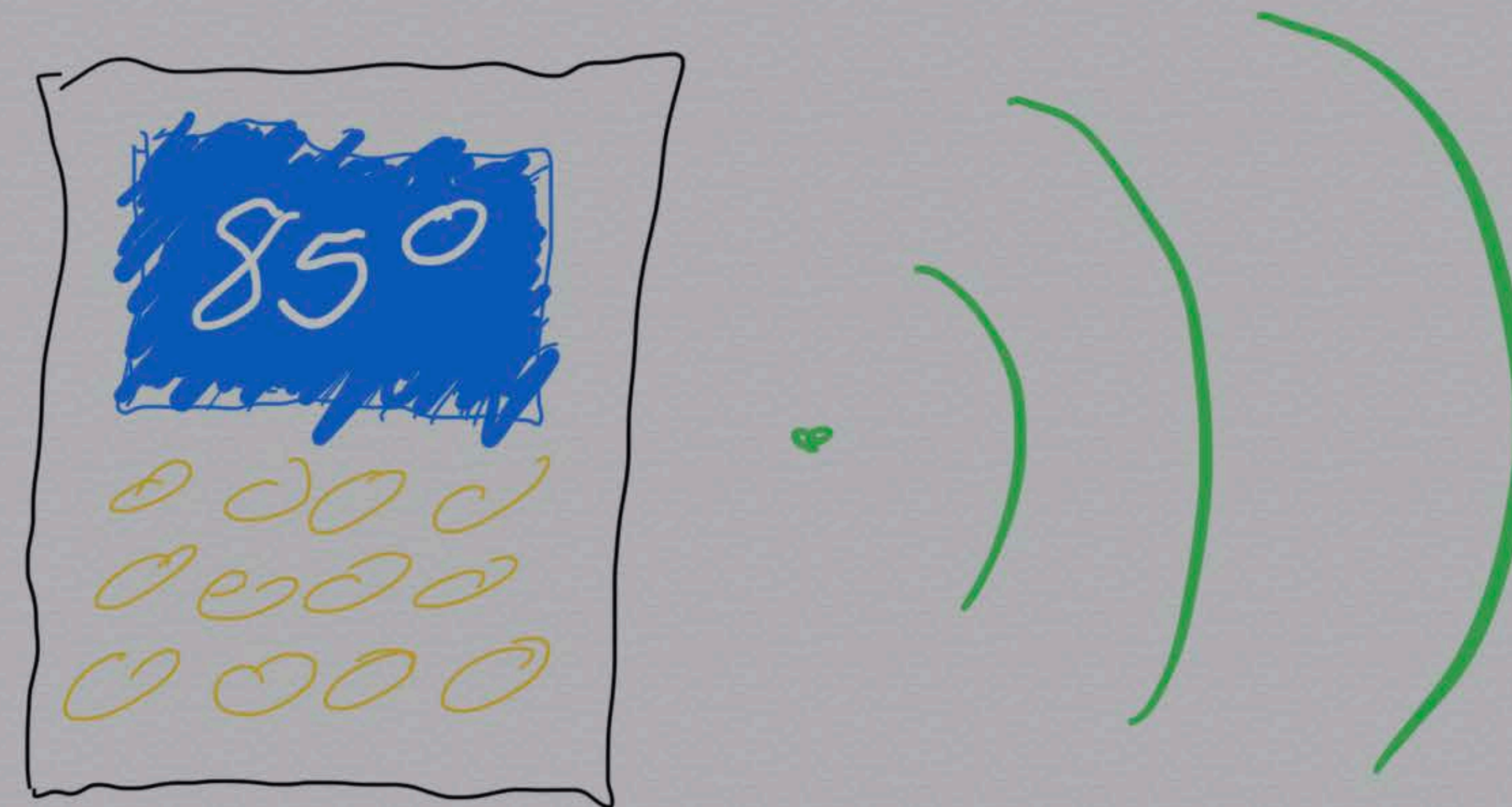
Delete

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



Browse

Locations

- On My iPad
- iCloud Drive
- System Files
- Recently Deleted

Favorites

- Downloads

Tags













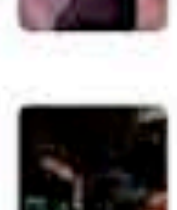
- Red
- Yellow
- Orange
- Green
- Blue
- Purple
- Gray
- Work

< 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

Recents

Browse

Browse

Locations

- On My iPad
- iCloud Drive
- System Files
- Recently Deleted

Favorites

- Downloads

Tags













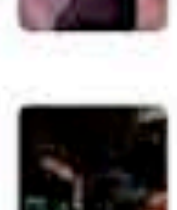
- Red
- Yellow
- Orange
- Green
- Blue
- Purple
- Gray
- Work

< Work

Work

Select

Search

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	Crosswalk	Jan 22, 2019 at 4:08 PM	8.2 MB
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Recents

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Browse

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- Gray
- Work

< Work

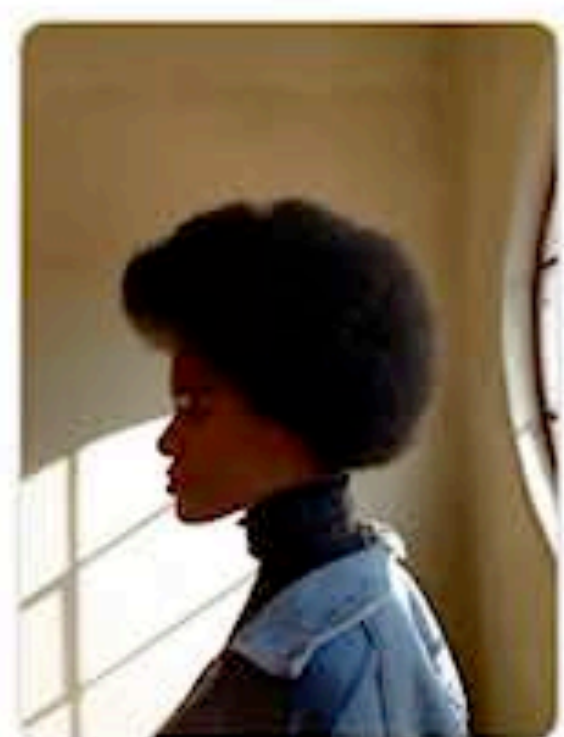
Work

Select

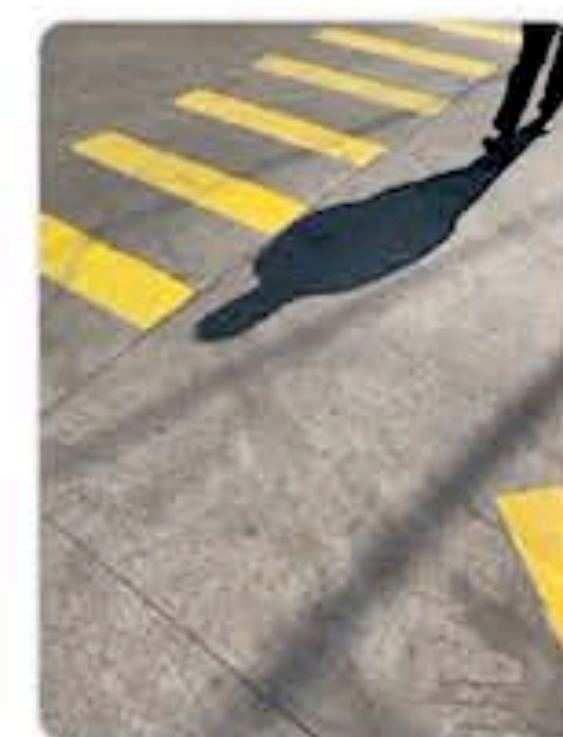
Search



Name Date Size Kind Tags



By the Window
Apr 16, 2019 at 10:43 AM
1.8 MB



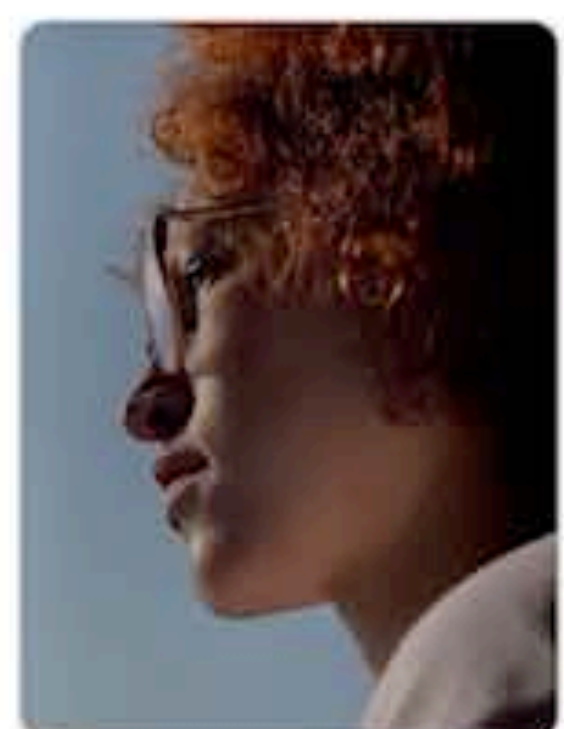
Crosswalk
Jan 22, 2019 at 4:08 PM
8.2 MB



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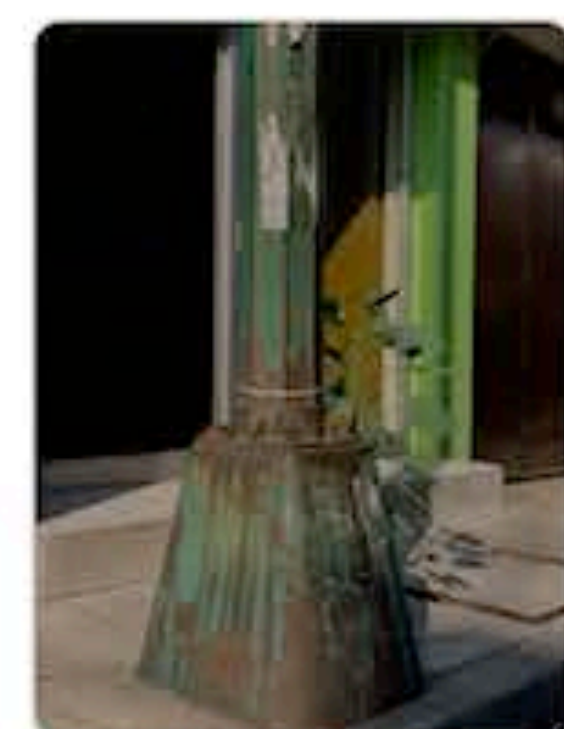
Fashion Proto
Apr 16, 2019 at 11:01 AM
2.2 MB



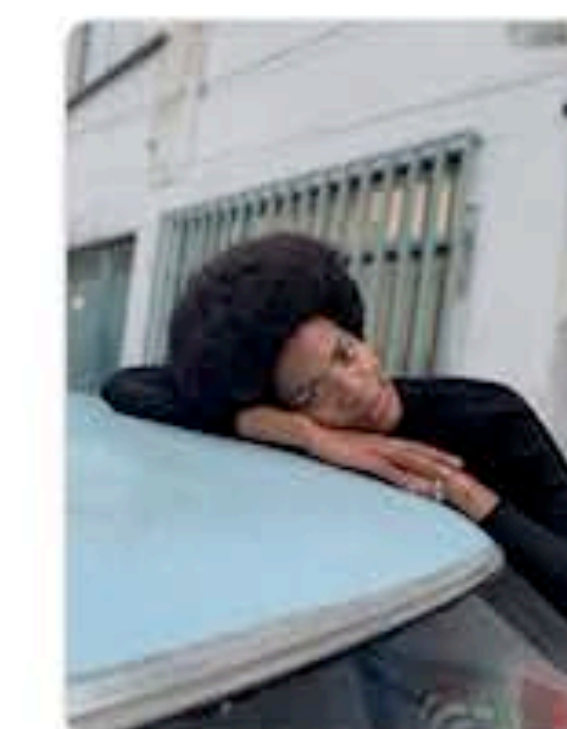
Glasses
Jan 21, 2019 at 3:09 PM
4.1 MB



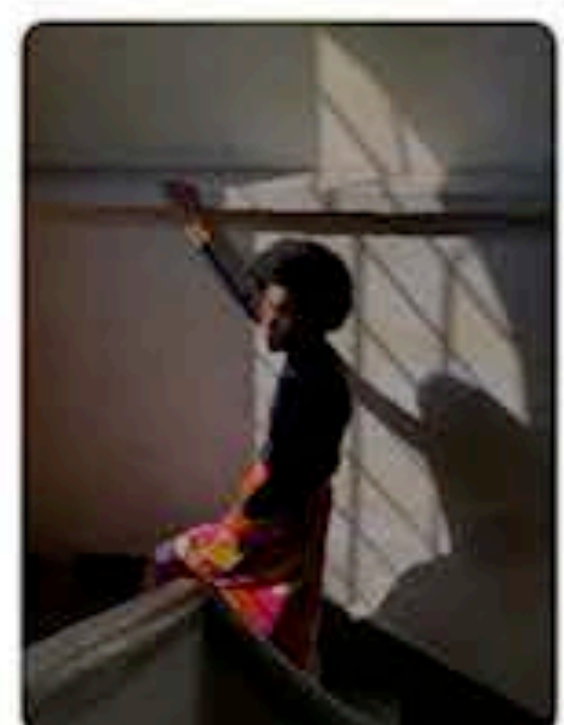
Graduation Speech
May 28, 2019 at 3:41 PM
930 bytes



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



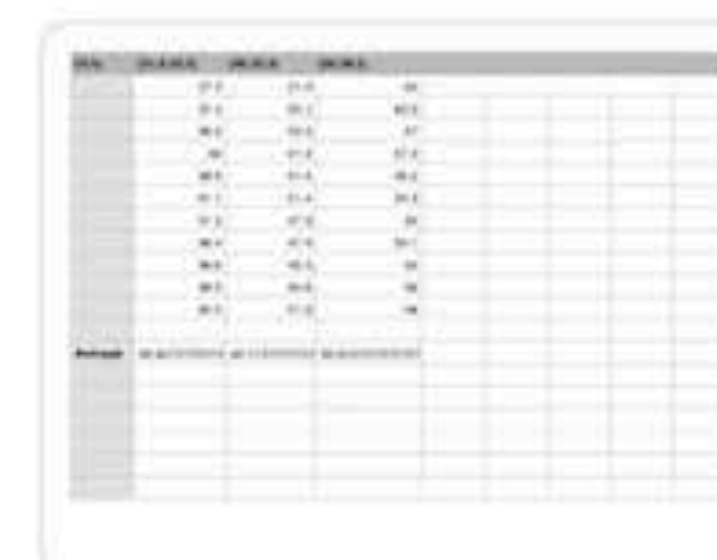
On a Vintage Car
Apr 16, 2019 at 10:43 AM
1.7 MB



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Apr 16, 2019 at 11:23 AM
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PFCs
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132 KB



Pink Background
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Recents

Browse

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

< Work

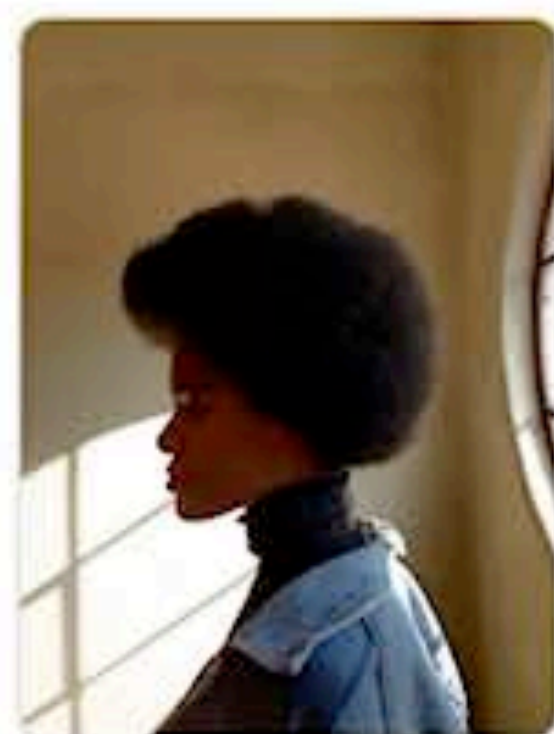
Work

Select

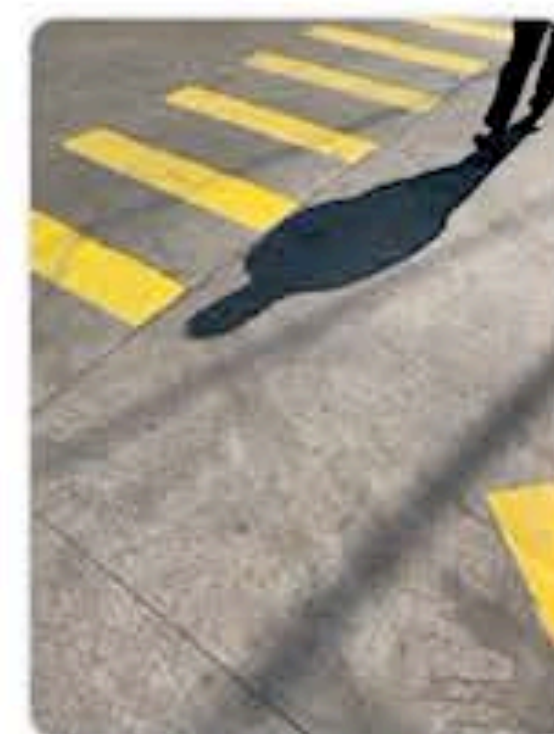
Search



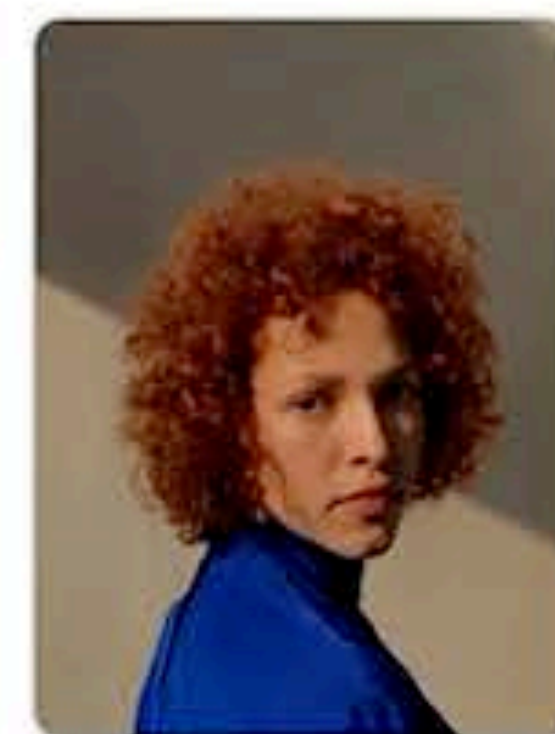
Name Date Size Kind Tags



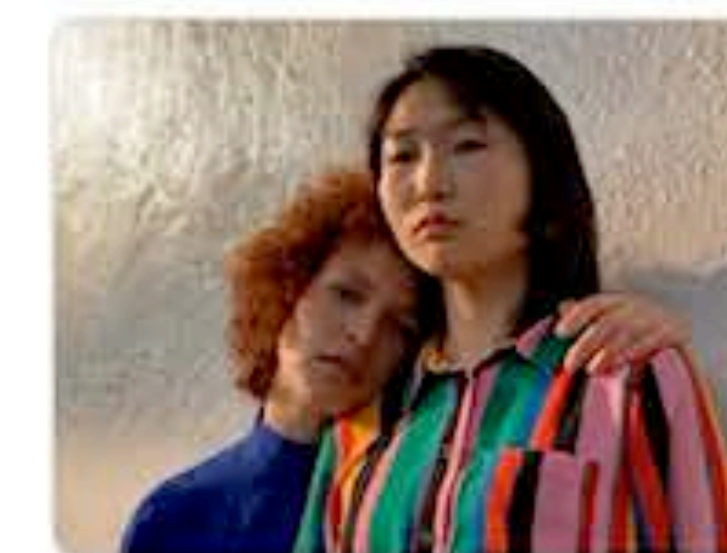
By the Window
Apr 16, 2019 at 10:43 AM
1.8 MB



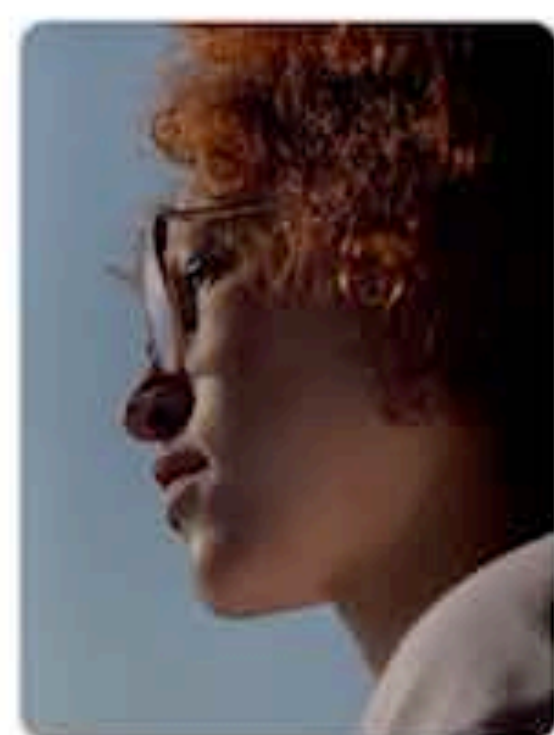
Crosswalk
Jan 22, 2019 at 4:08 PM
8.2 MB



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Apr 16, 2019 at 11:01 AM
1.8 MB



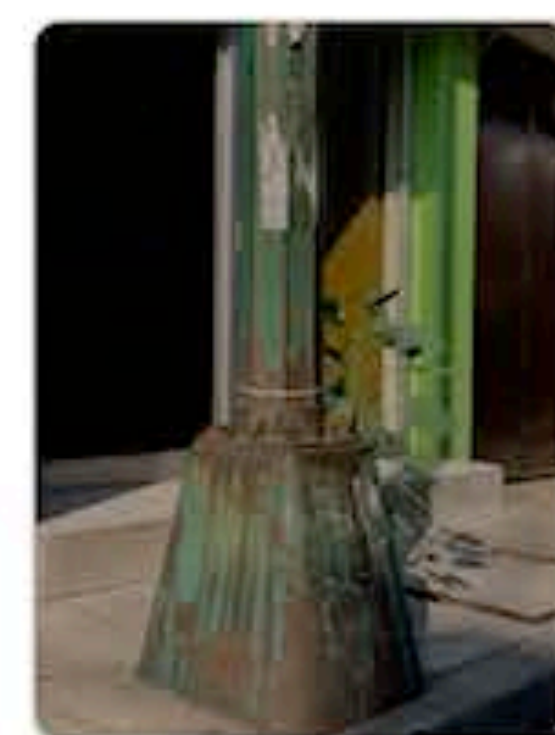
Fashion Proto
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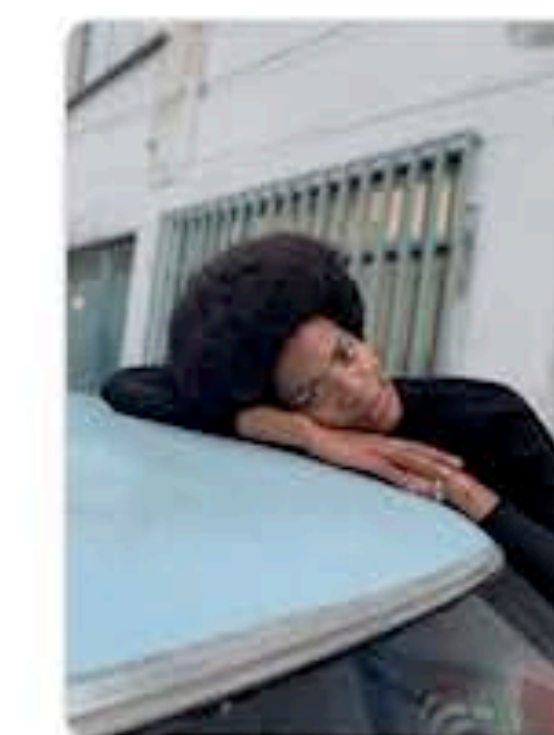
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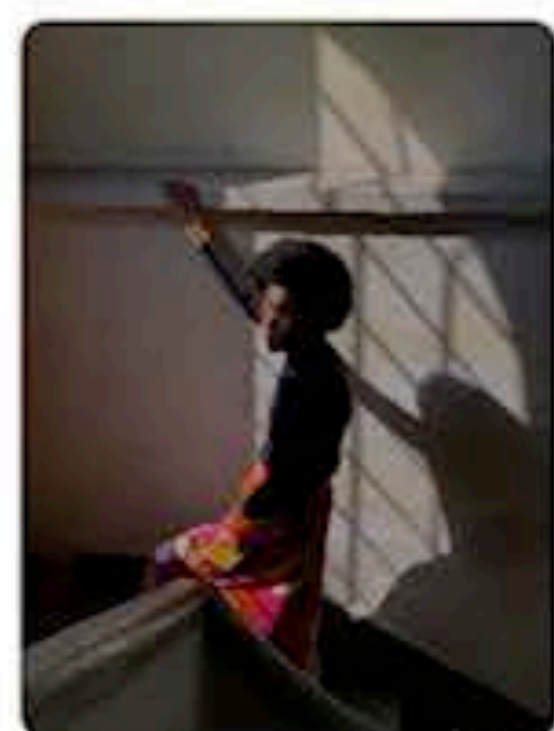
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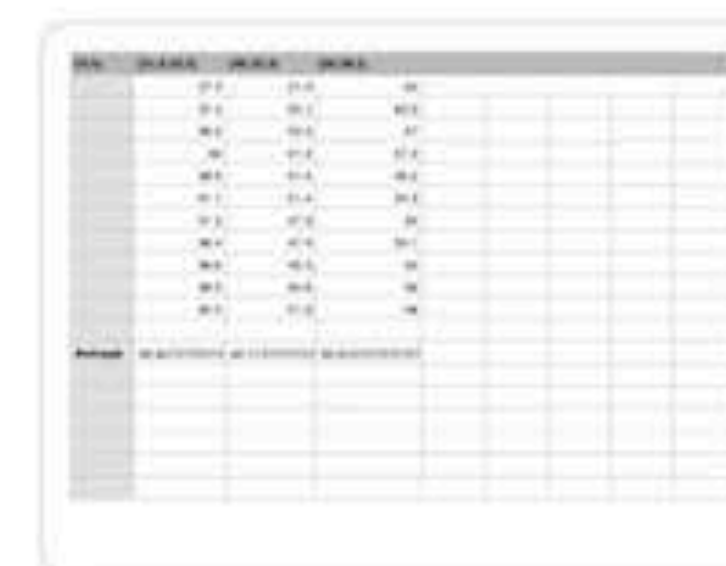
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Jan 21, 2019 at 3:28 PM
4.5 MB

Recents

Browse

Browse

Locations

- On My iPad
- iCloud Drive
- System Files
- Recently Deleted

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 Move Delete More

Browse

Locations

- On My iPad
- iCloud Drive
- System Files
- Recently Deleted

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

Move

Delete

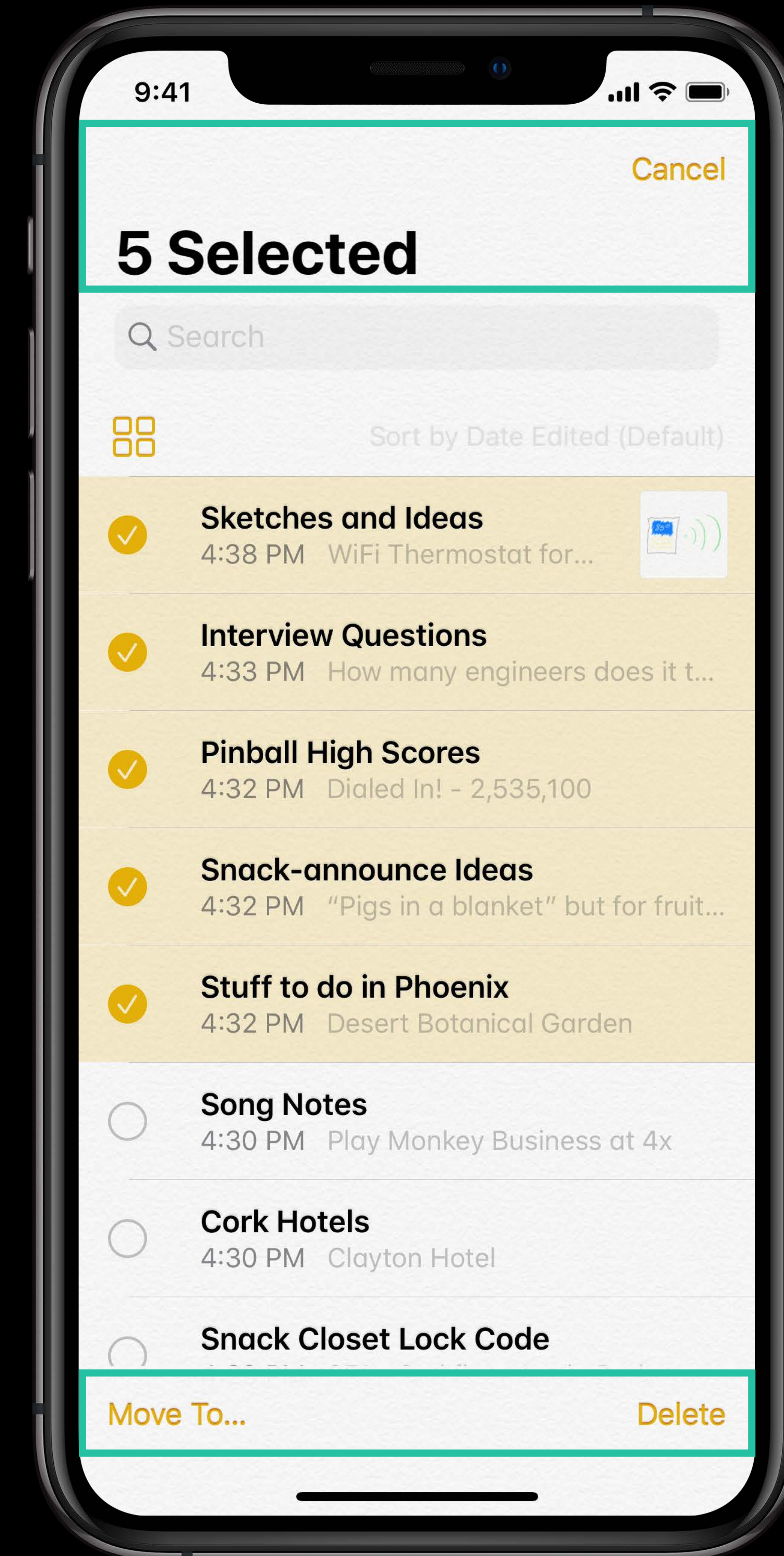
More

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

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

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)
```

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

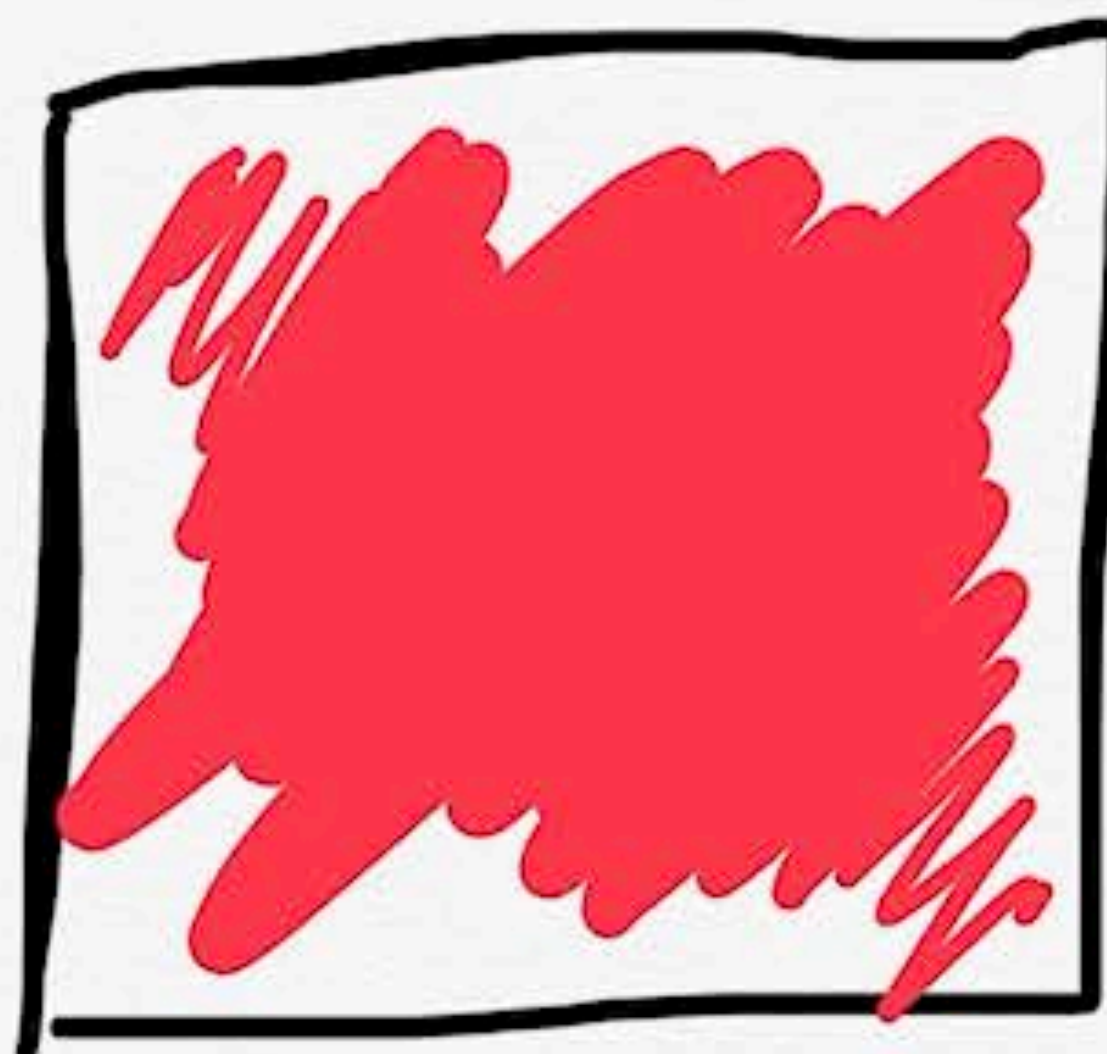
Tuesday Play Monkey Business at 4x

Cork Hotels

Tuesday Clayton Hotel

server

Connects to command and control server for remote access



8 Notes





Done

Projects

Q Search



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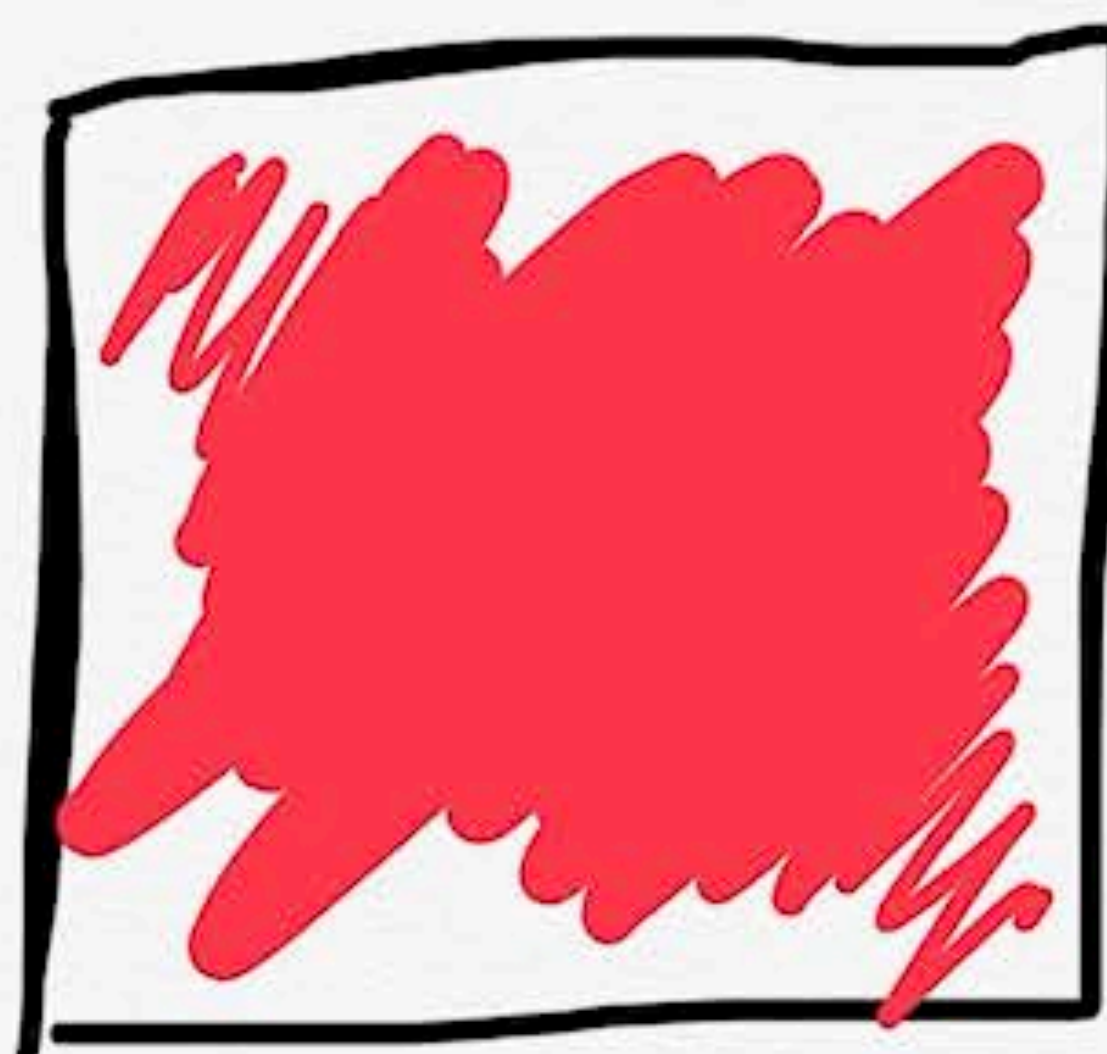
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Tuesday Clayton Hotel

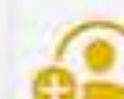
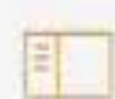
server

Connects to command and control server for remote access



8 Notes





Projects

Q Search



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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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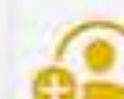
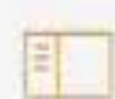


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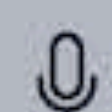
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Editing Gestures in iOS 13

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

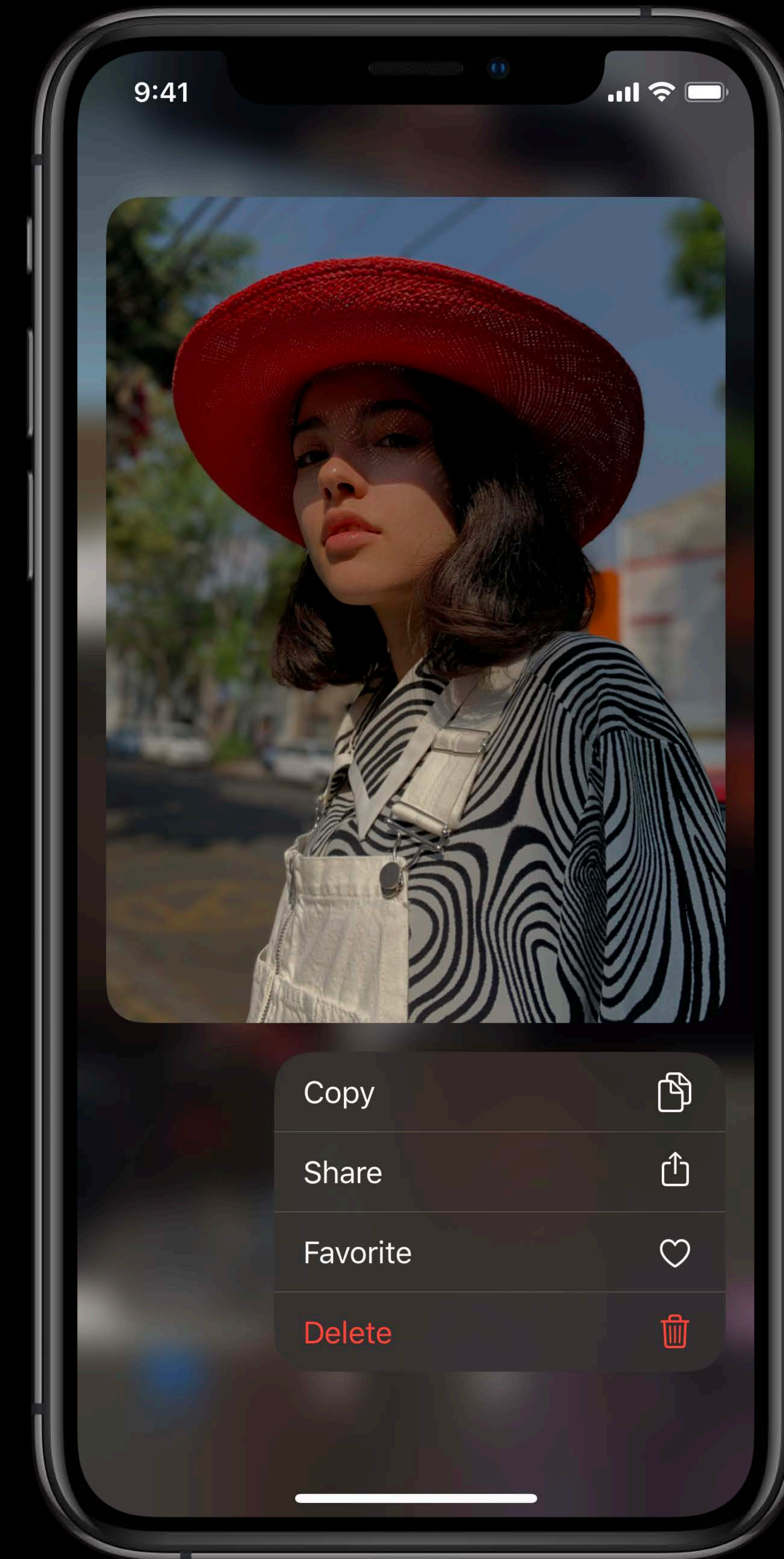
UIContextMenuInteraction

Rich previews

Complex hierarchies

Nested sub-menus

In-line sections



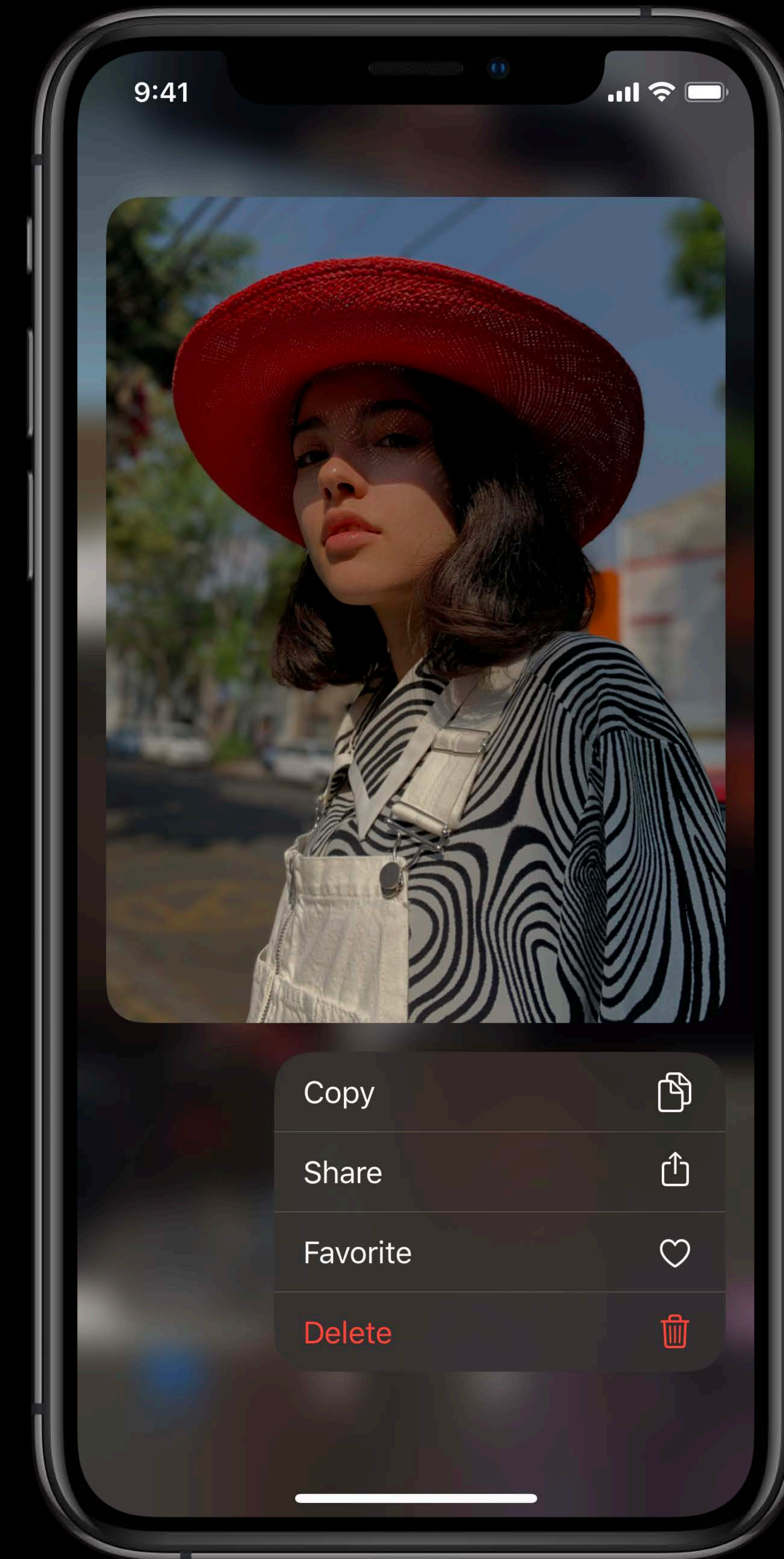
UIContextMenuInteraction

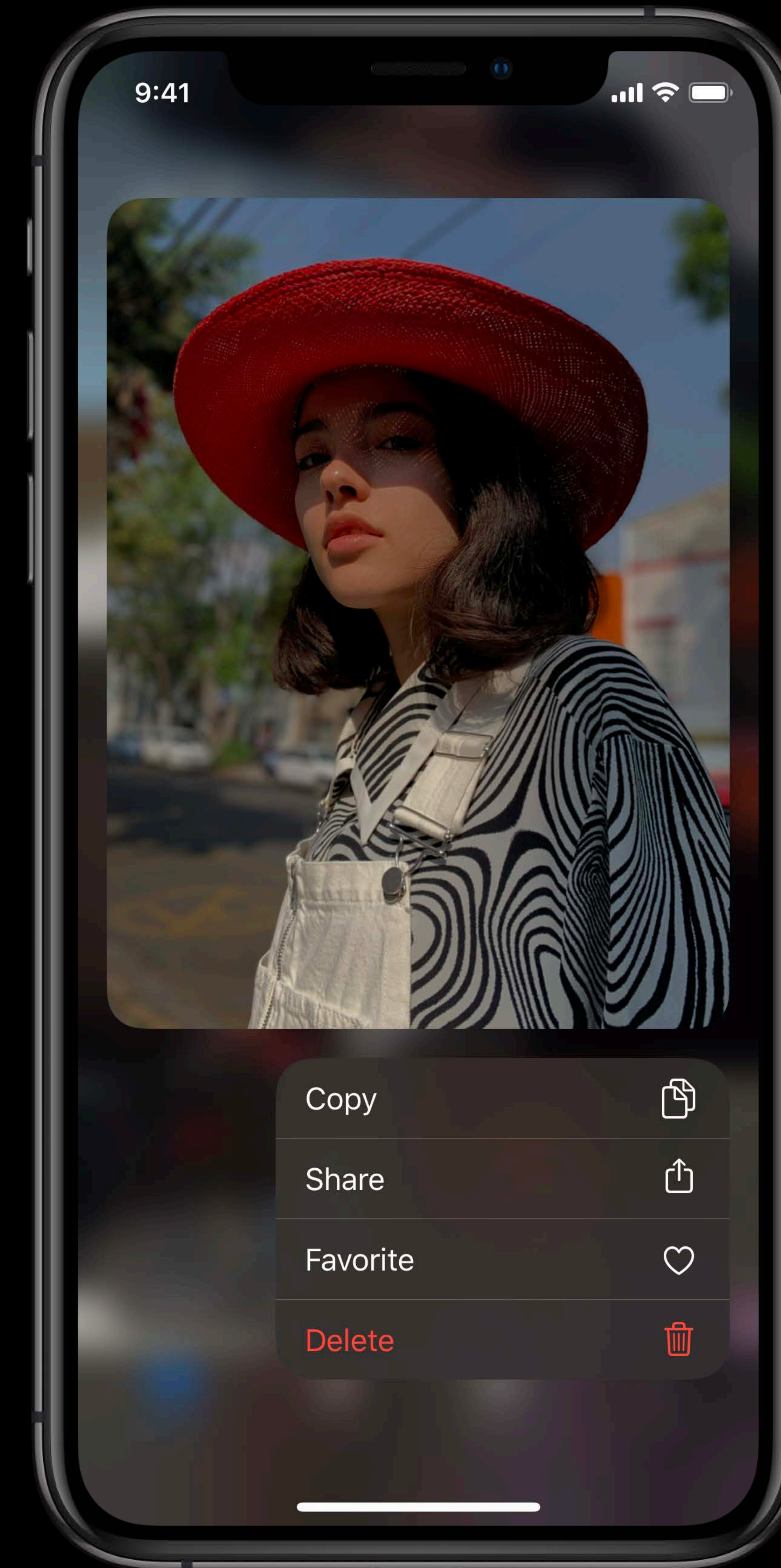
Rich previews

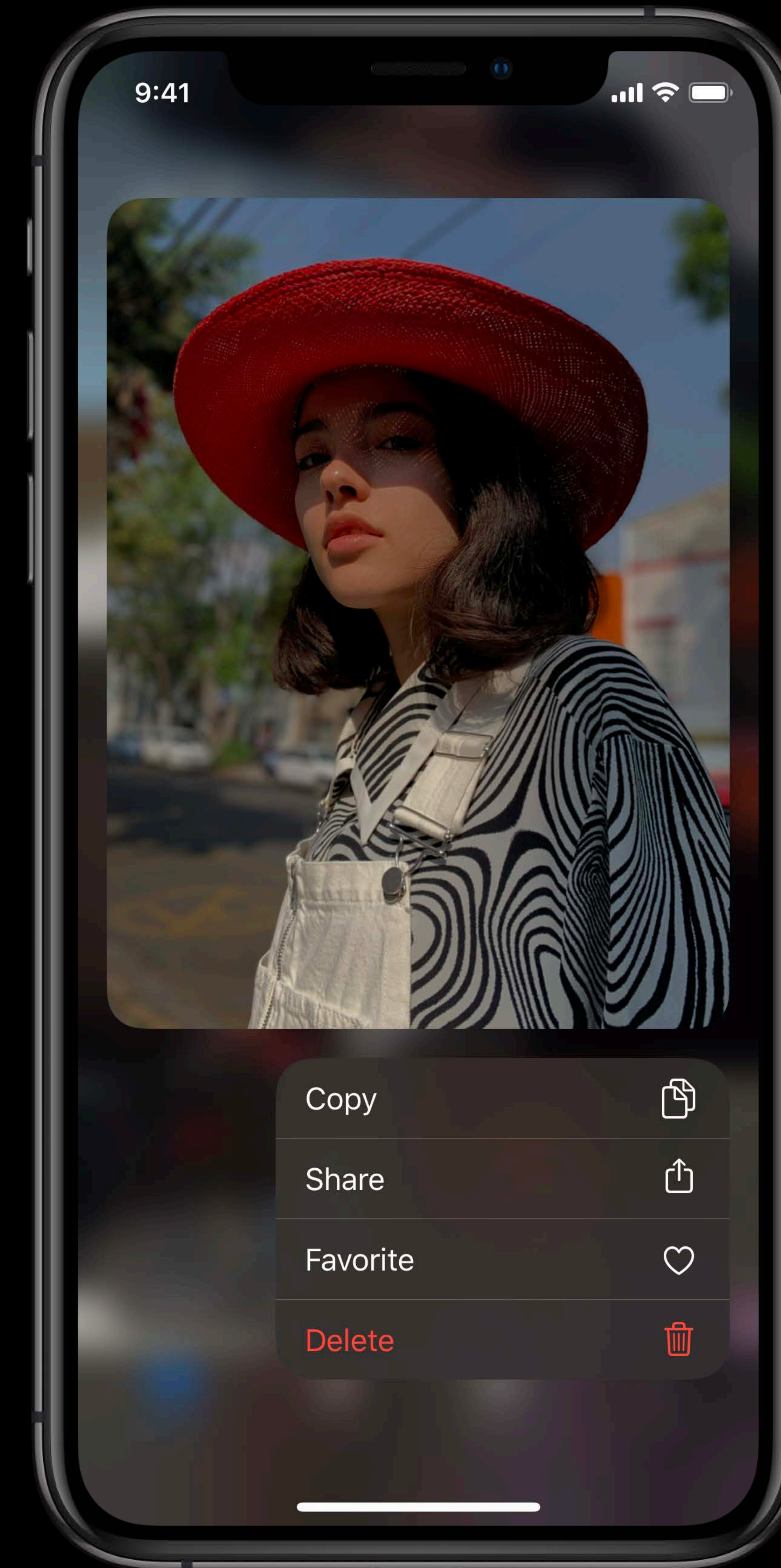
Complex hierarchies

Nested sub-menus

In-line sections





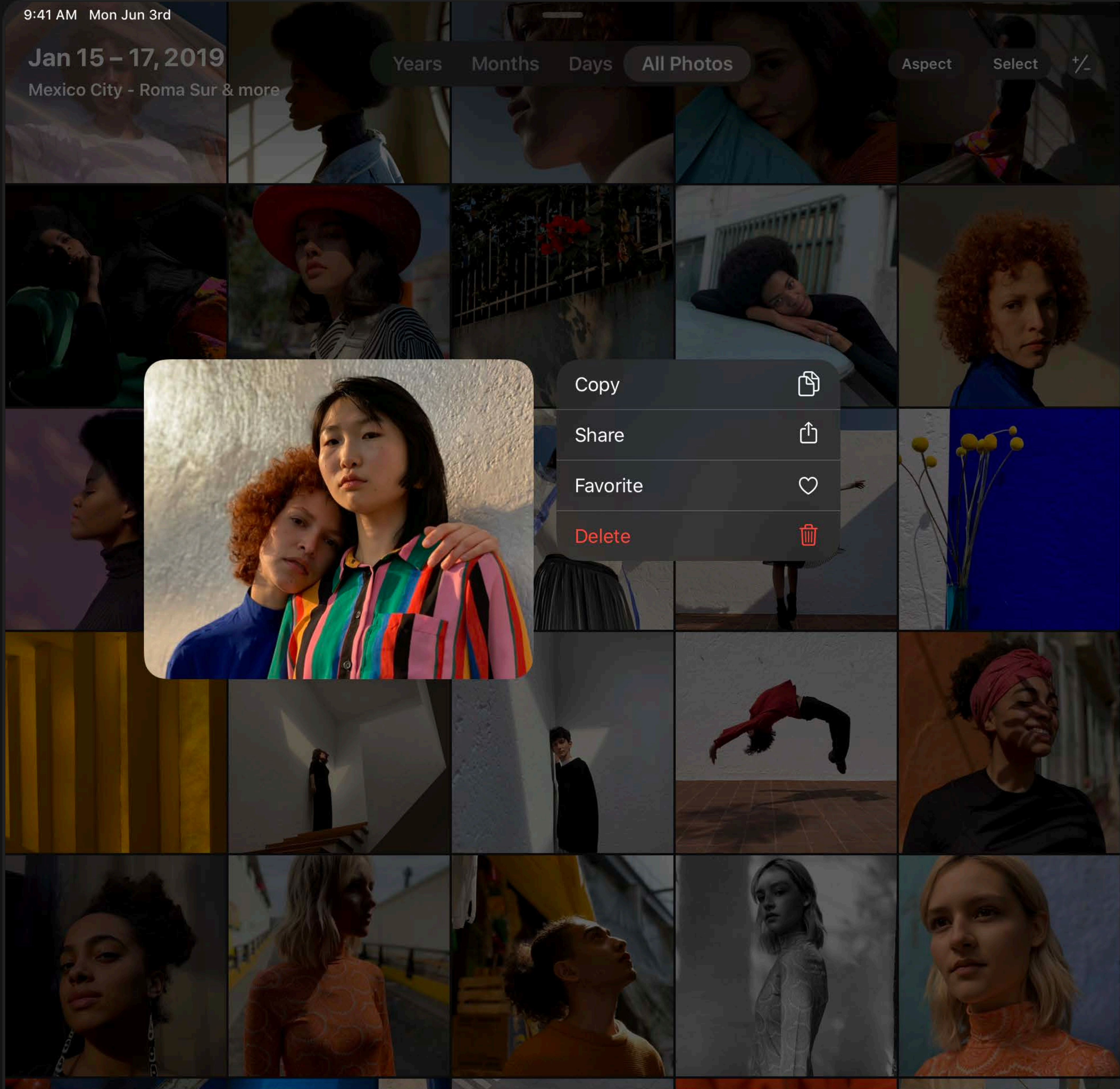


9:41 AM Mon Jun 3rd

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

Years Months Days All Photos

Aspect Select +/-

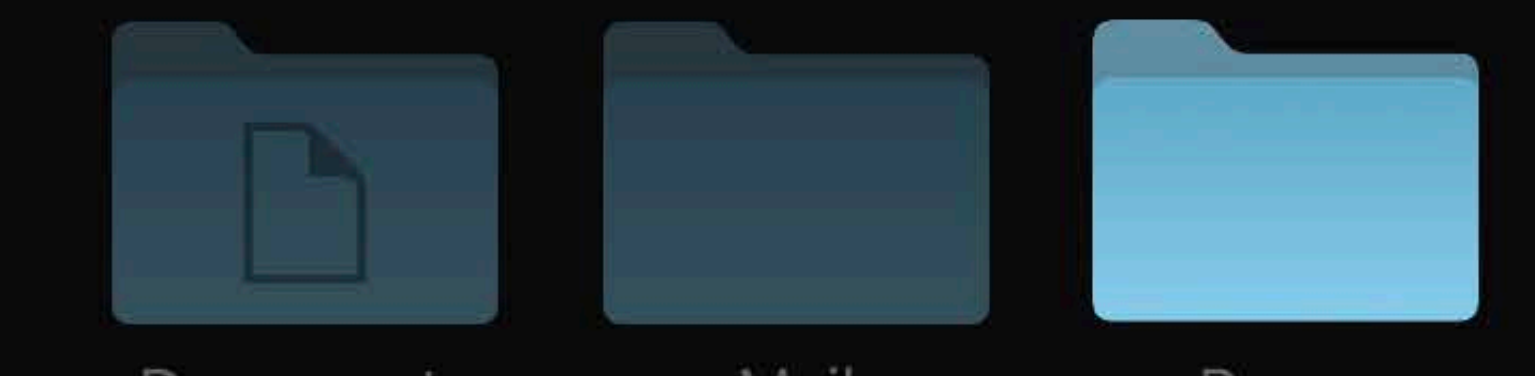


- Copy
- Share
- Favorite
- Delete

100%

Locations iCloud Drive Select

Search



- Documents 0 items
- Copy
- Duplicate
- Move
- Delete
- Info
- Quick Look
- Tags
- Rename
- Favorite
- Share
- Compress
- Download
- Pin

Photo 1
12:24 AM
4.3 MB

Photo 4
12:24 AM
2.9 MB

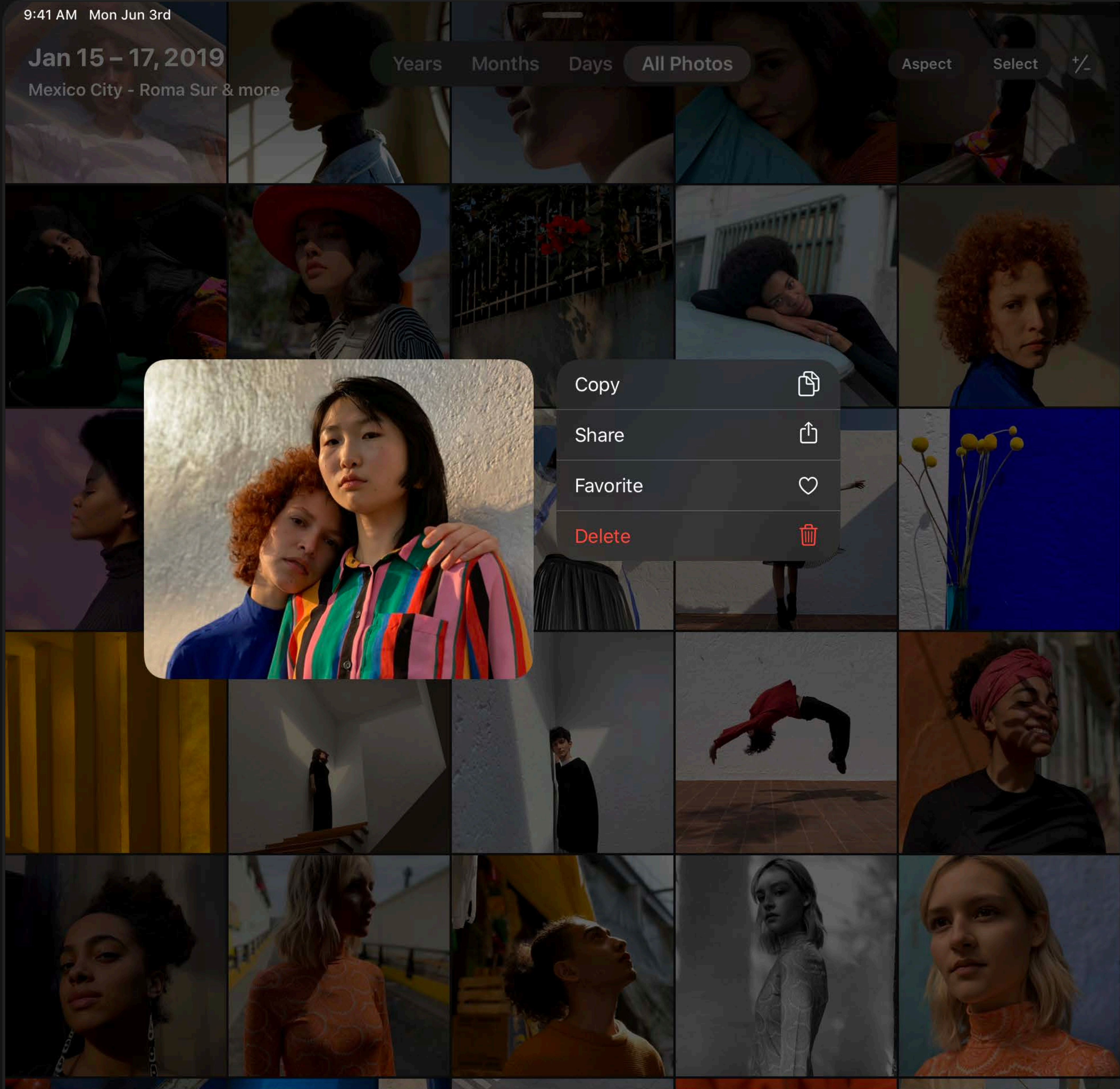
9 items, 3.08 GB available on iCloud

9:41 AM Mon Jun 3rd

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

Years Months Days All Photos

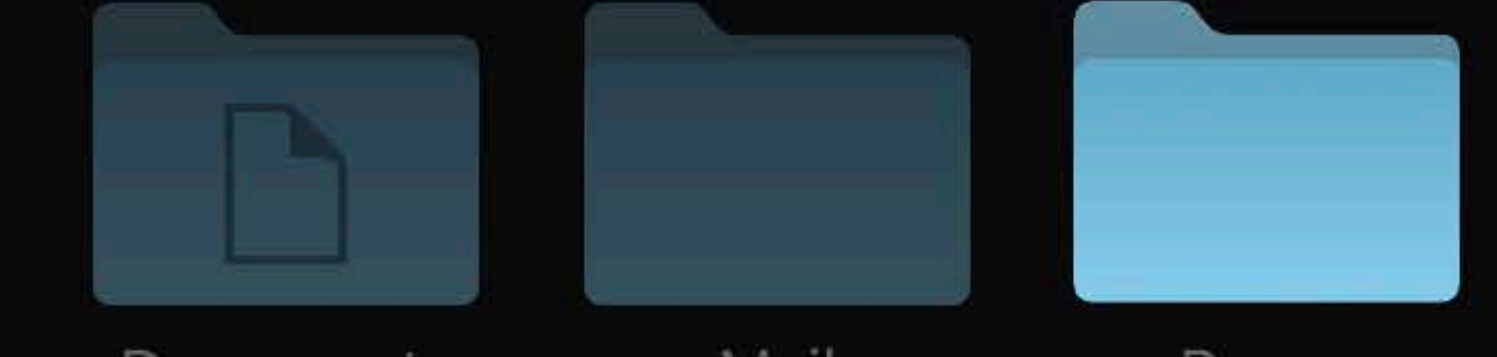
Aspect Select +/-



- Copy
- Share
- Favorite
- Delete

Locations iCloud Drive Select

Search



Documents 0 items Mail Pages

- Copy
- Duplicate
- Move
- Delete
- Info
- Quick Look
- Tags
- Rename
- Favorite
- Share
- Compress
- Download
- Pin

Photo 1
12:24 AM
4.3 MB

Photo 4
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2.9 MB

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Photos

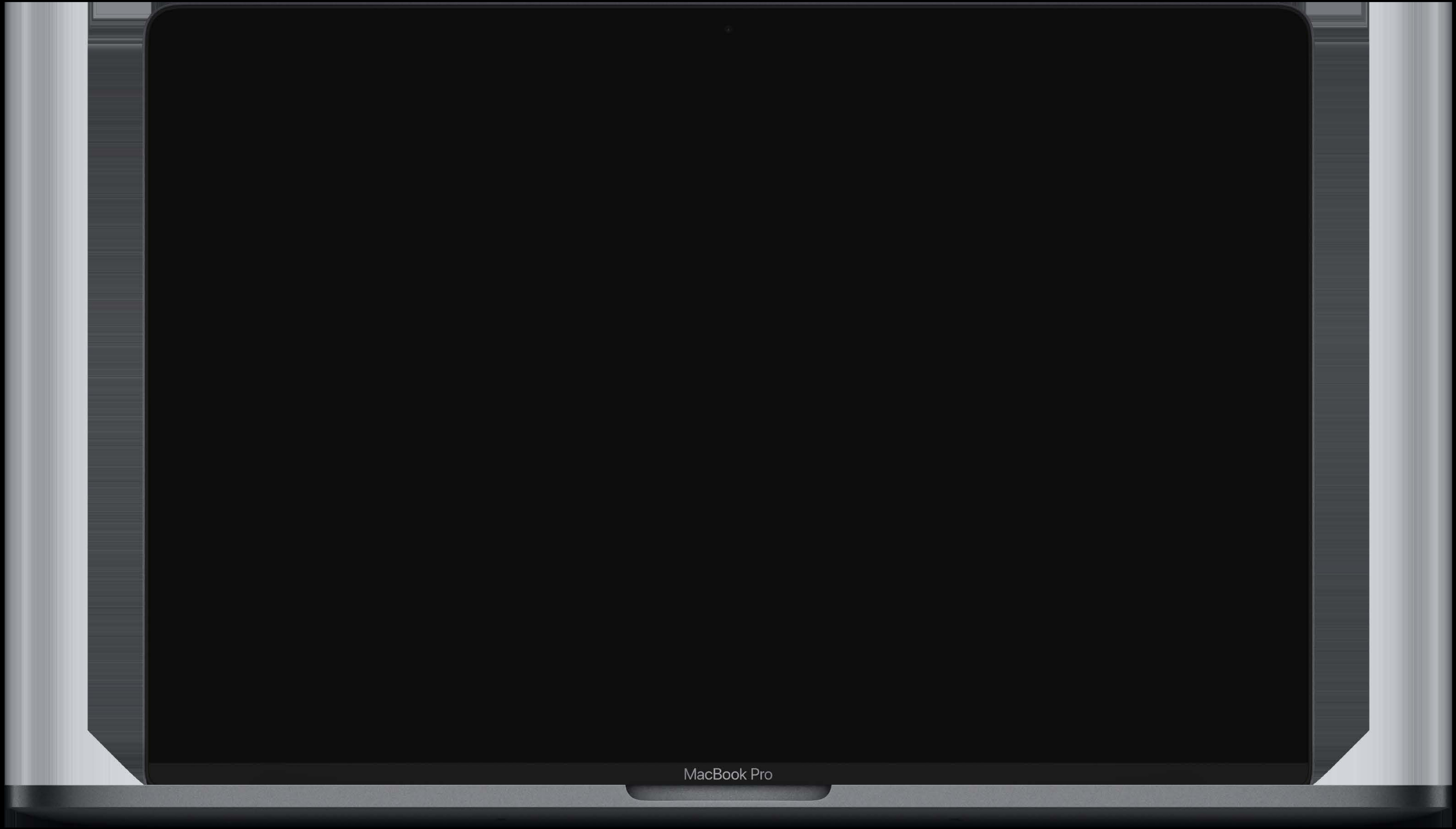
For You

Albums

Search

Recents

Browse



MacBook Pro

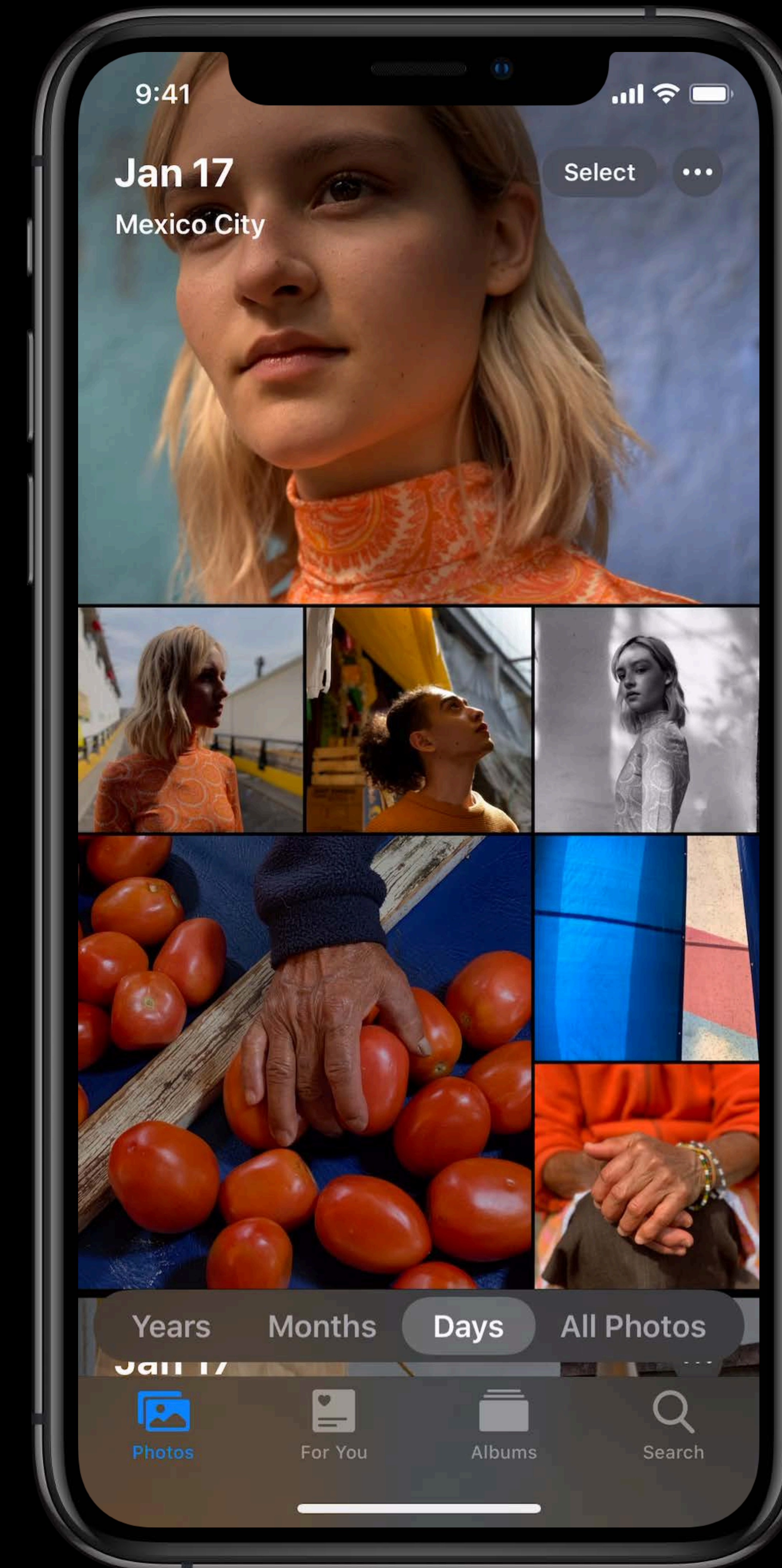
Consistent Gestures

3D Touch

Haptic Touch

Long press

Secondary click



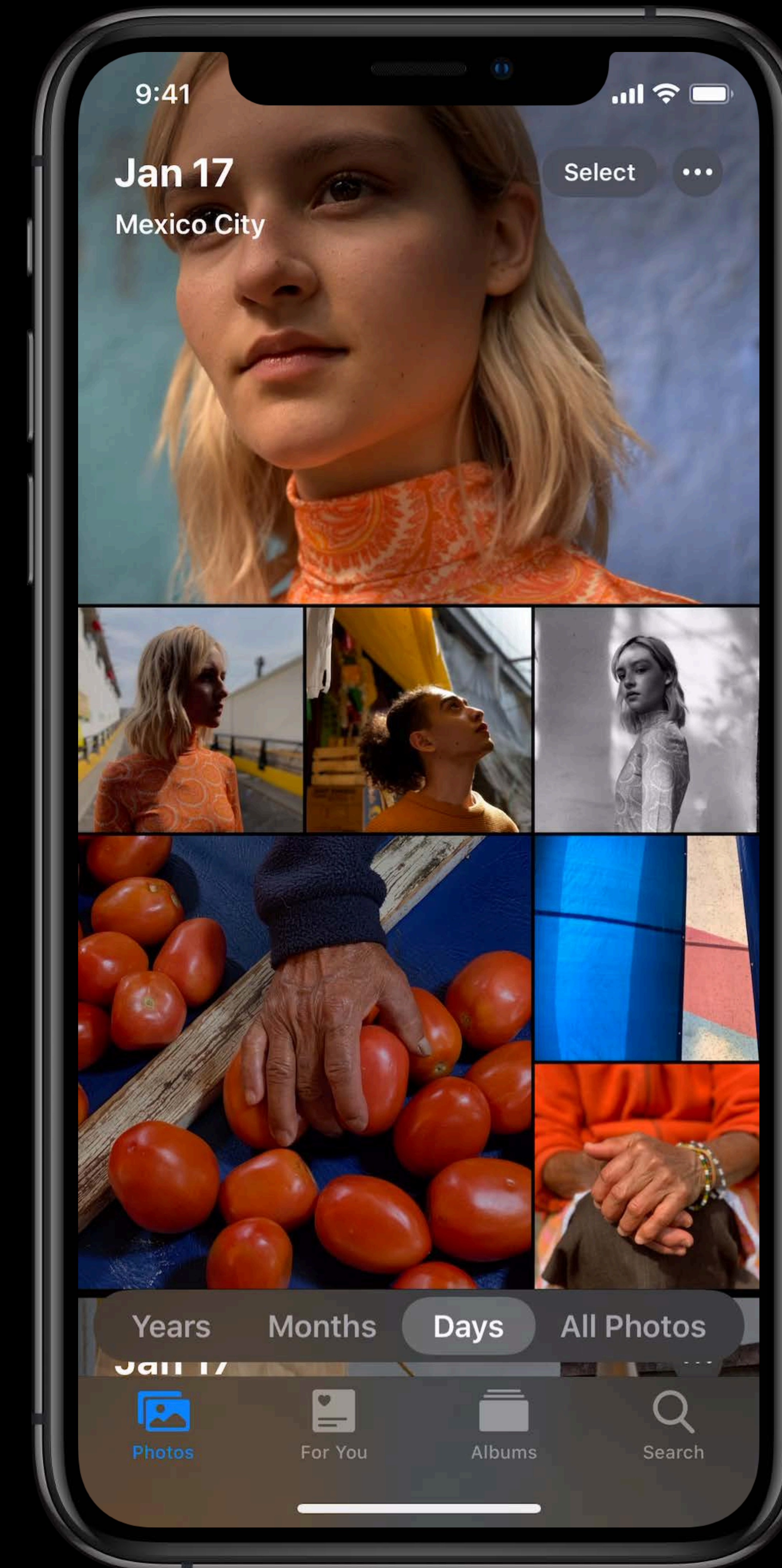
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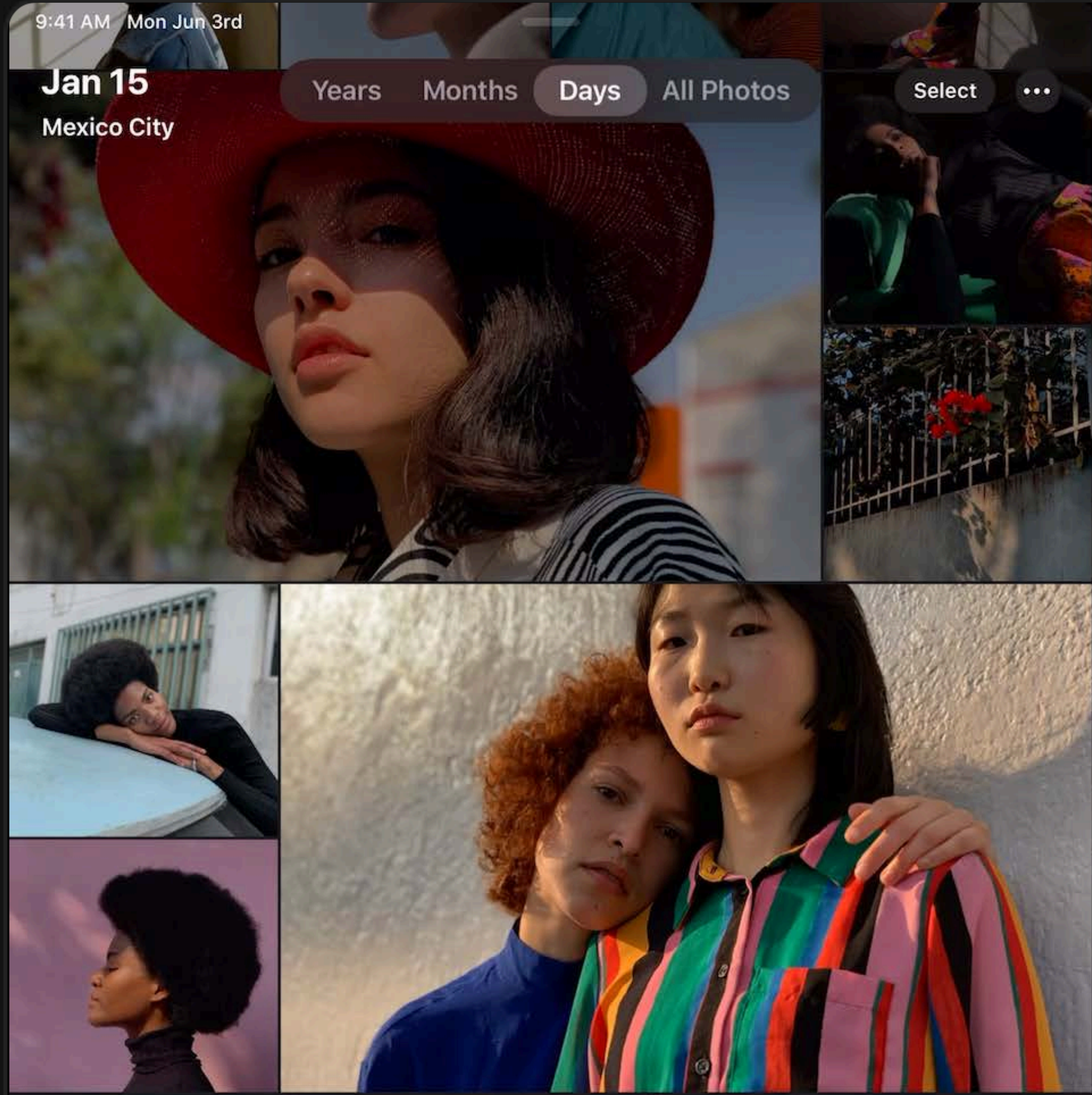


9:41 AM Mon Jun 3rd

Jan 15
Mexico City

Years Months Days All Photos

Select ...



Jan 16
Mexico City

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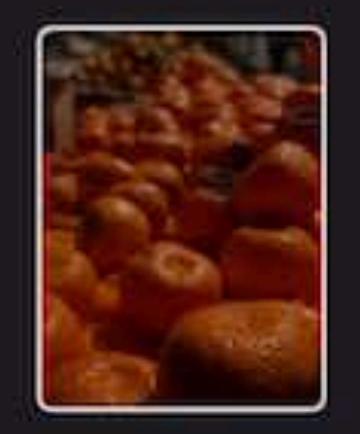
Photos For You Albums Search

On My iPad

Mexico Trip

Select

Search



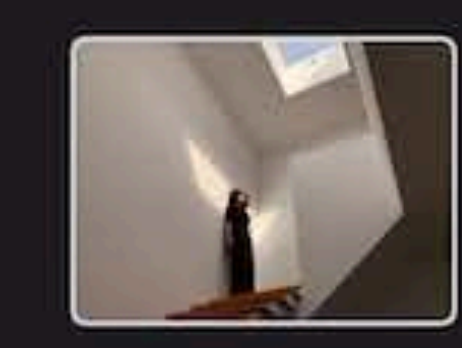
At the Market
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1.7 MB



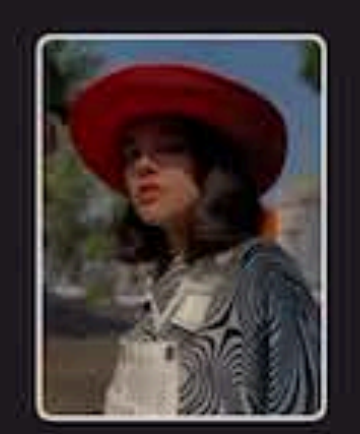
FLIPS
Today at 2:55 PM
3.7 MB



In the corner
Today at 2:55 PM
2.9 MB



On the Stairs
Today at 2:55 PM
4.3 MB



Red Hat
Today at 2:55 PM
1.5 MB



Sheets
Today at 2:55 PM
2.4 MB

6 items, 1 TB available

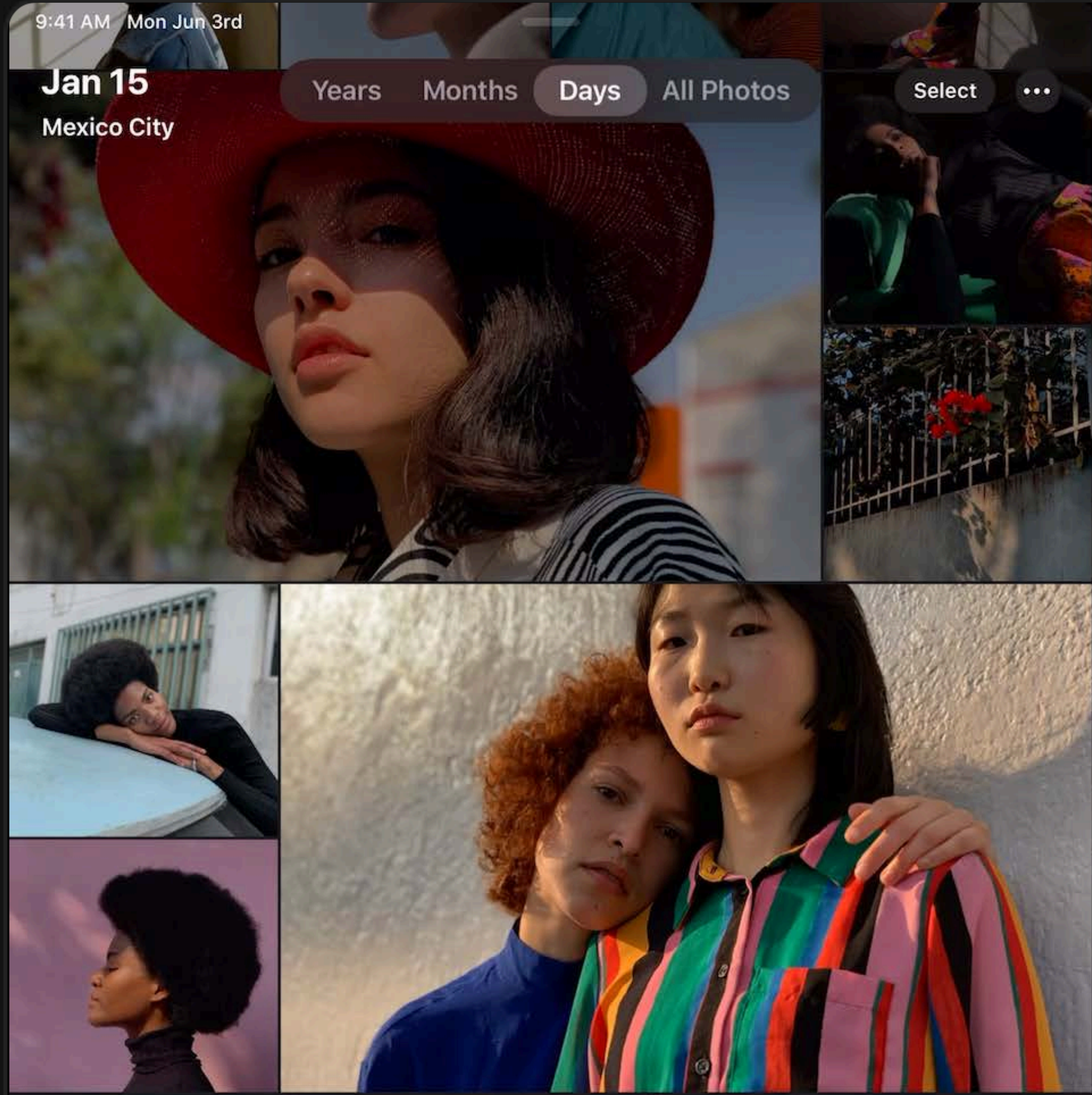
Recents Browse

9:41 AM Mon Jun 3rd

Jan 15
Mexico City

Years Months Days All Photos

Select ...



Jan 16
Mexico City

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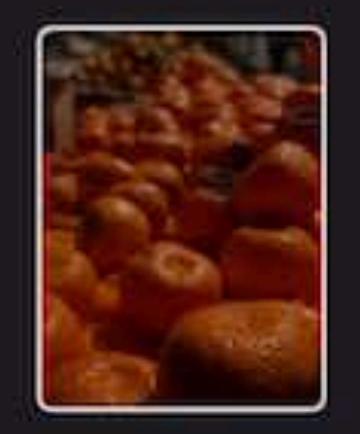
Photos For You Albums Search

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Mexico Trip

Select

Search



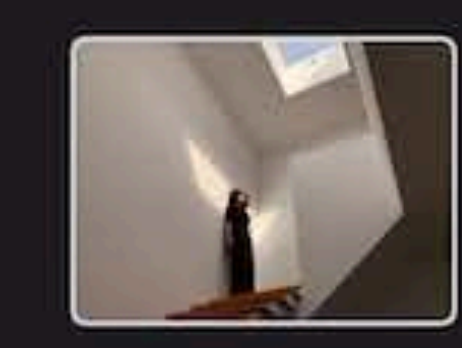
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Today at 2:55 PM
1.7 MB



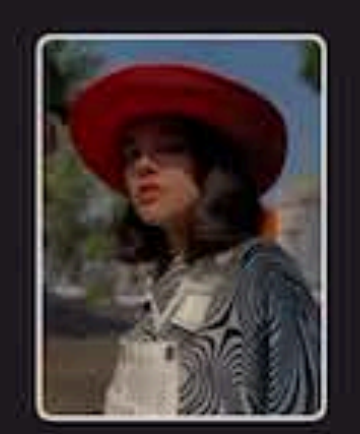
FLIPS
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Red Hat
Today at 2:55 PM
1.5 MB



Sheets
Today at 2:55 PM
2.4 MB

6 items, 1 TB available

Recents Browse



- 190115_iPhoneXS_Demo-...041681 Today at 3:53 PM 2.2 MB
- At the Market Today at 2:55 PM 1.7 MB
- FLIPS Today at 2:55 PM 3.7 MB
- In the corner Today at 2:55 PM 2.9 MB
- On the Stairs Today at 2:55 PM 4.3 MB
- Red Hat Today at 2:55 PM 1.5 MB
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- 190115_iPhoneXS_Demo-...041681 Today at 3:53 PM 2.2 MB
- At the Market Today at 2:55 PM 1.7 MB
- FLIPS Today at 2:55 PM 3.7 MB
- In the corner Today at 2:55 PM 2.9 MB
- On the Stairs Today at 2:55 PM 4.3 MB
- Red Hat Today at 2:55 PM 1.5 MB
- Sheets Today at 2:55 PM 2.4 MB

7 items, 1 TB available

UIMenu and UIAction

UIMenu and UIAction

Hierarchical menu construction system

UIMenus are composable

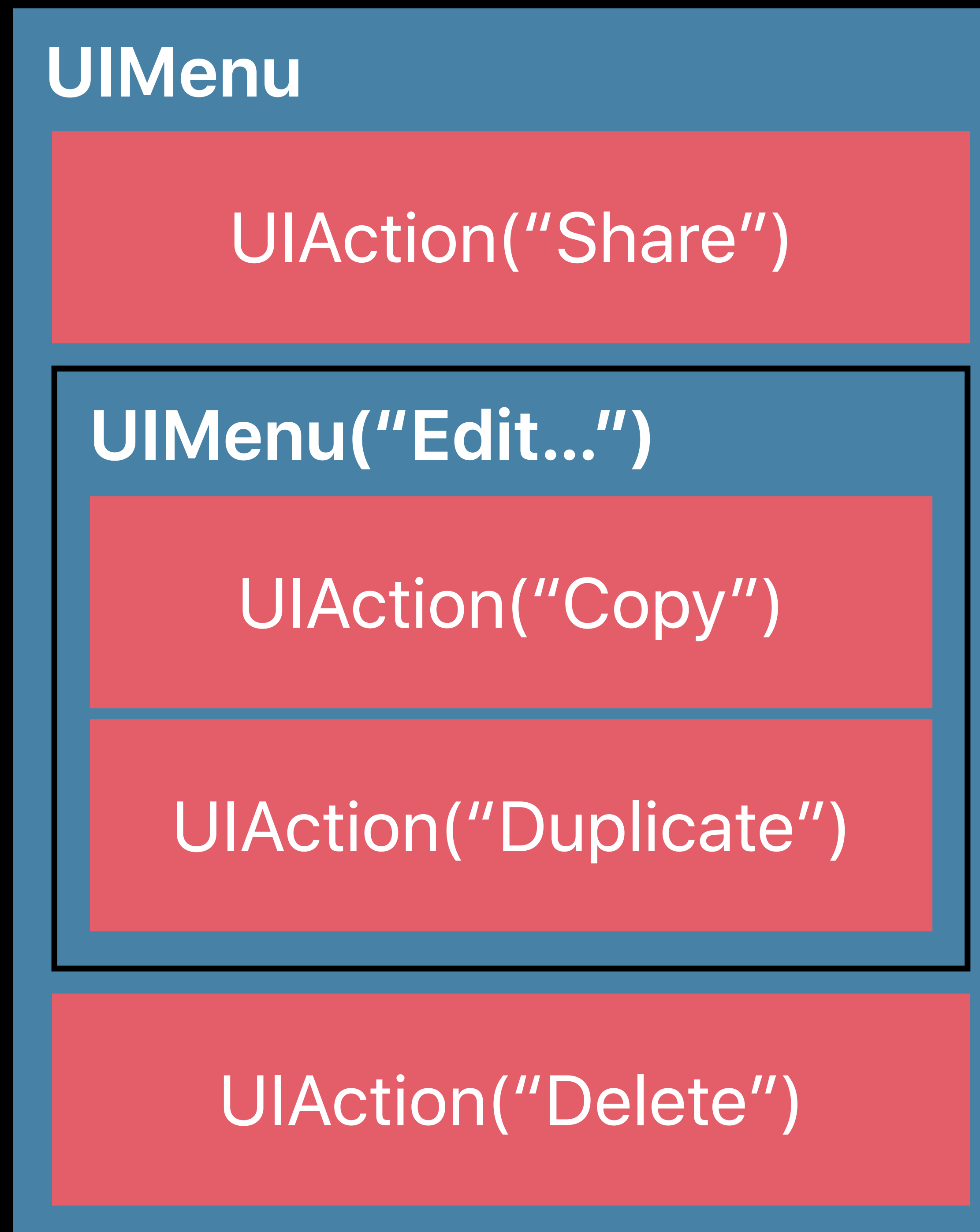
UIMenu and UIAction

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") { ... },  
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```

```
}
```

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

```
let actionProvider = (suggestedActions: [UIMenuElement]) -> UIMenu? {  
  
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    ])  
  
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        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: [  
        UIAction(title: "Share") { ... },  
        editMenu,  
        UIAction(title: "Delete", style: .destructive) { ... }  
    ])  
}
```

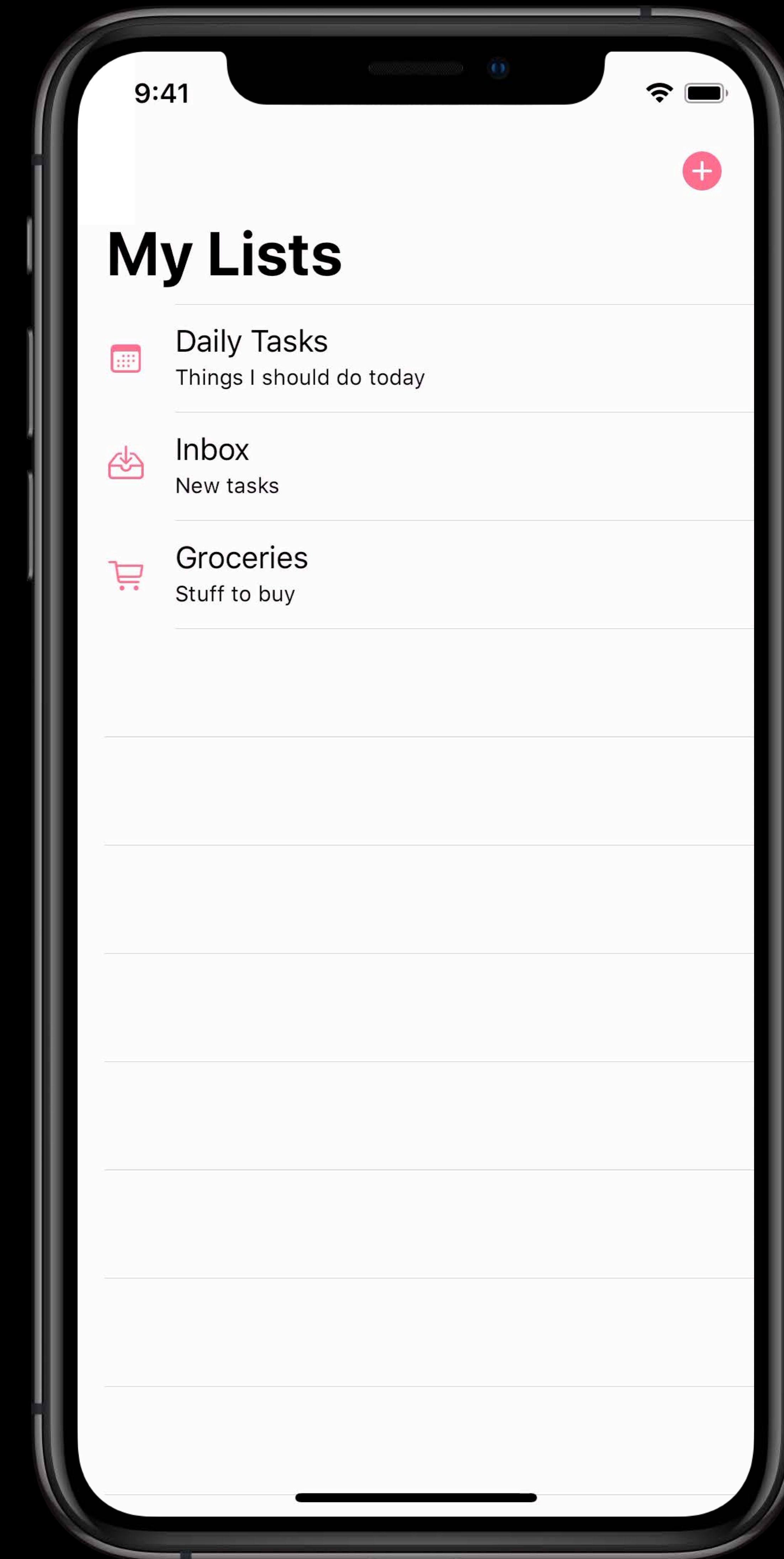
```
return UIContextMenuConfiguration(identifier: "unique-ID" as NSCopying,  
    previewProvider: nil,  
    actionProvider: actionProvider)
```

Above and Beyond

Animation customization

Set source and destination

UITargetedPreview and UITargetedDragPreview

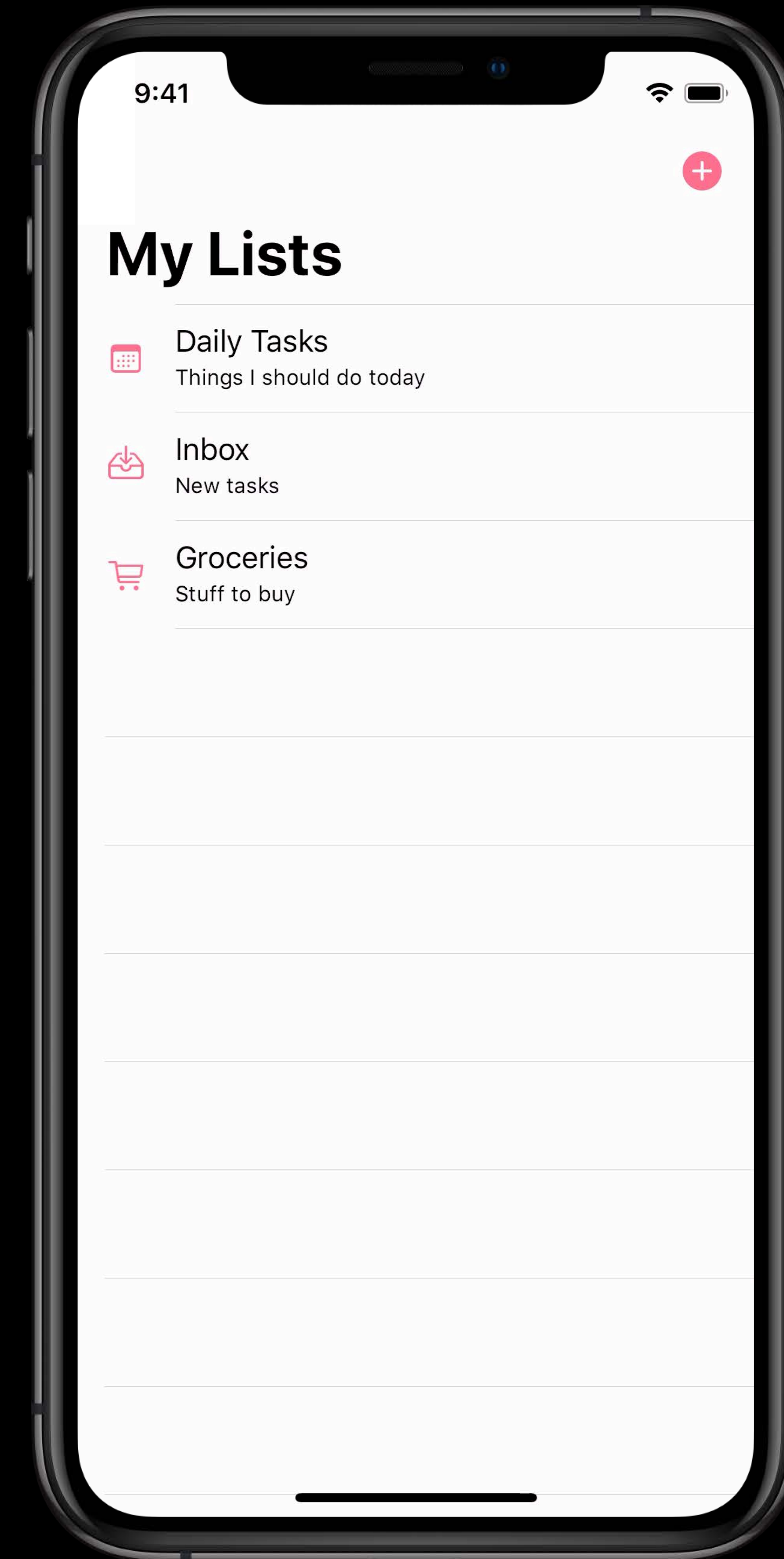


Above and Beyond

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

 WWDC19