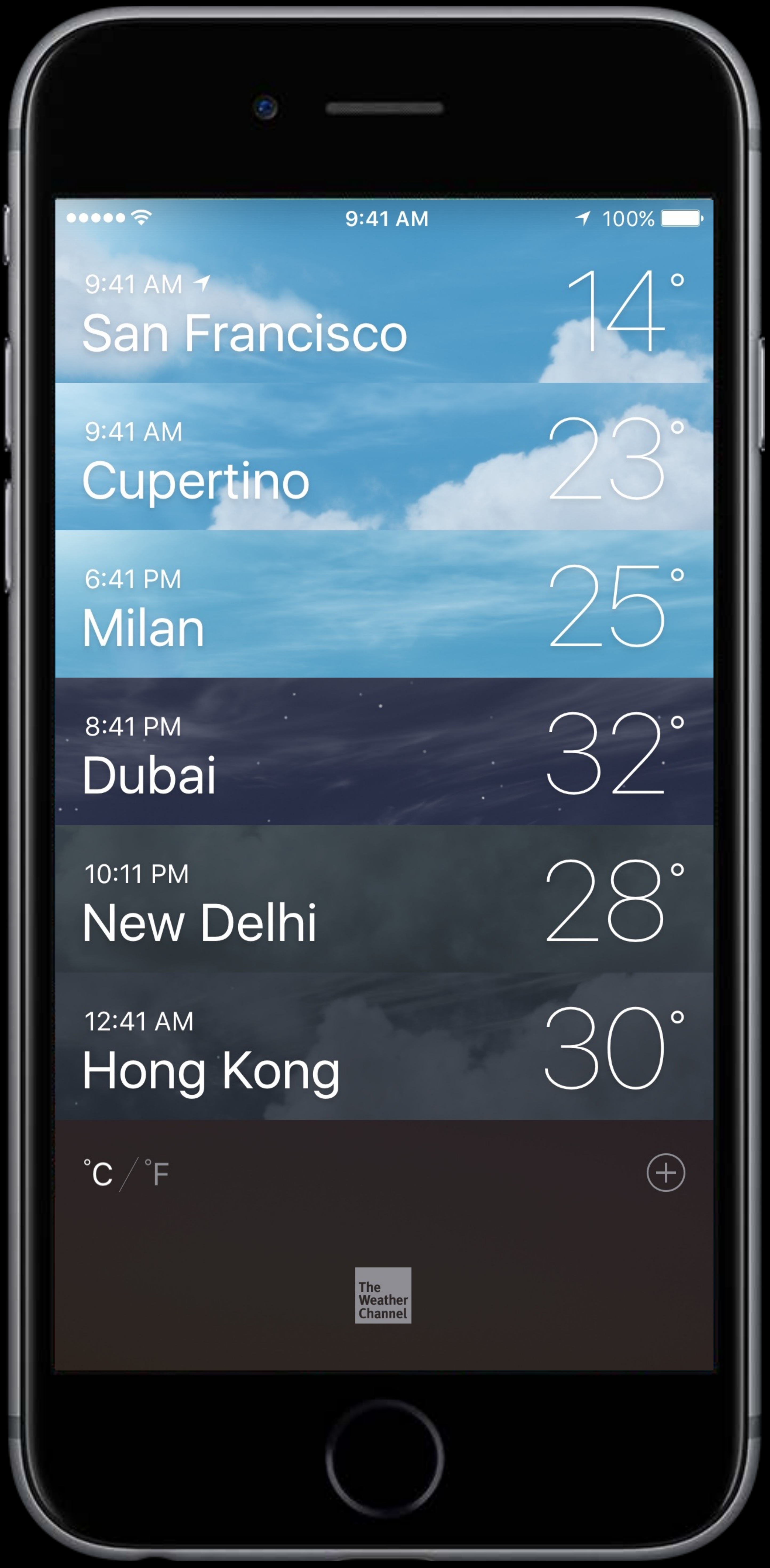
App Frameworks

#WWDC16

Internationalization Best Practices

Session 201

Karan Miśra Internationalization Software Engineer



9:41 AM
San Francisco 14°

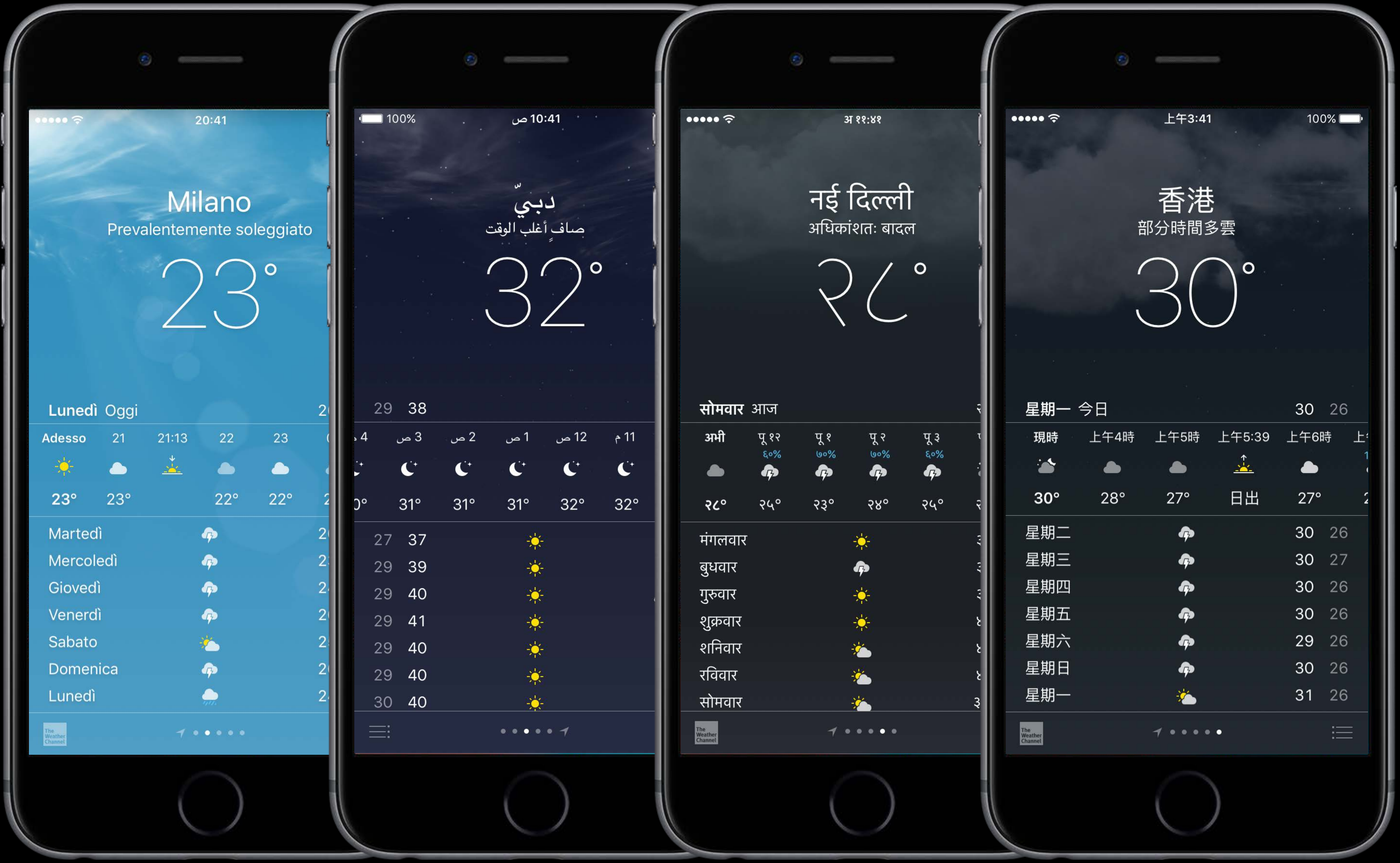
9:41 AM
Cupertino 23°

6:41 PM
Milan 25°

8:41 PM
Dubai 32°

10:11 PM
New Delhi 28°

12:41 AM
Hong Kong 30°



20:41

Milano

Prevalentemente soleggiato

23°

Lunedì Oggi

Adesso 21 21:13 22 23

23° 23° 22° 22°

Martedì

Mercoledì

Giovedì

Venerdì

Sabato

Domenica

Lunedì

100% ص 10:41

دبيّ

صافٍ أغلب الوقت

32°

29 38

11 م 12 ص 1 ص 2 ص 3 ص

32° 32° 31° 31° 31°

27	37
29	39
29	40
29	41
29	40
29	40
30	40

अ ११:४१

नई दिल्ली

अधिकांशत: बादल

२८°

सोमवार आज

अभी	पू १२	पू १	पू २	पू ३
	६०%	७०%	७०%	६०%
२८°	२५°	२३°	२४°	२५°

मंगलवार

बुधवार

गुरुवार

शुक्रवार

शनिवार

रविवार

सोमवार

上午3:41 100%

香港

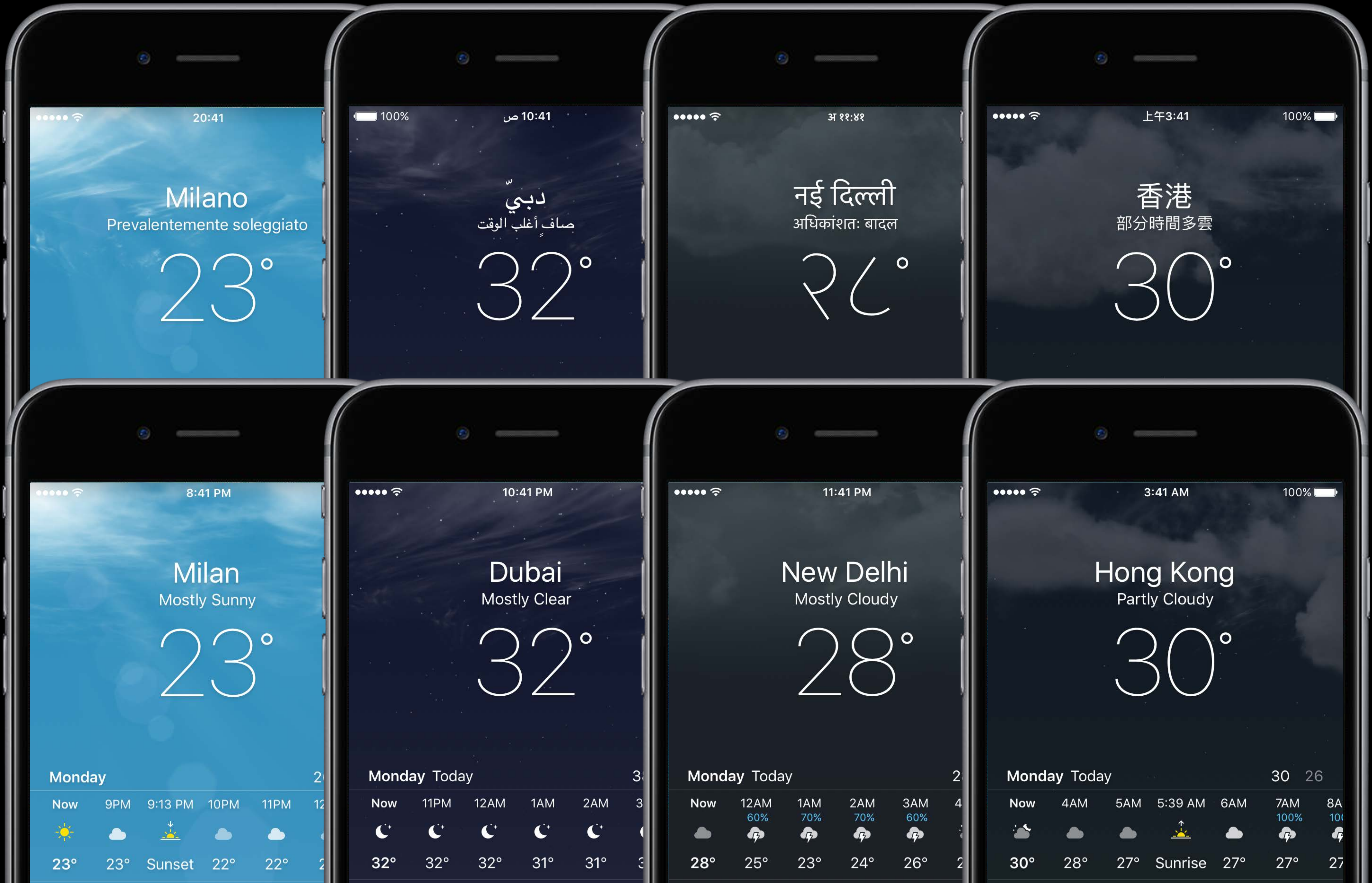
部分時間多雲

30°

星期一 今日 30 26

現時	上午4時	上午5時	上午5:39	上午6時
30°	28°	27°	日出	27°

星期二	30	26
星期三	30	27
星期四	30	26
星期五	30	26
星期六	29	26
星期日	30	26
星期一	31	26



20:41

Milano

Prevalentemente soleggiato

23°

100% ص 10:41

دبيّ

صافٍ أغلب الوقت

32°

अ ११:४१

नई दिल्ली

अधिकांशत: बादल

२८°

上午3:41 100%

香港

部分時間多雲

30°

8:41 PM

Milan

Mostly Sunny

23°

Monday 2

Now 9PM 9:13 PM 10PM 11PM 12

23° 23° Sunset 22° 22° 2

10:41 PM

Dubai

Mostly Clear

32°

Monday Today 3

Now 11PM 12AM 1AM 2AM 3

32° 32° 32° 31° 31° 3

11:41 PM

New Delhi

Mostly Cloudy

28°

Monday Today 2

Now 12AM 1AM 2AM 3AM 4

60% 70% 70% 60%

28° 25° 23° 24° 26° 2

3:41 AM 100%

Hong Kong

Partly Cloudy

30°

Monday Today 30 26

Now 4AM 5AM 5:39 AM 6AM 7AM 8A

100% 10

30° 28° 27° Sunrise 27° 27° 27

Outline

Outline

What’s New

Outline

What's New

Fundamentals

Outline

What's New

Fundamentals

Quick Fixes

Outline

What's New

Fundamentals

Quick Fixes

Getting World-Ready

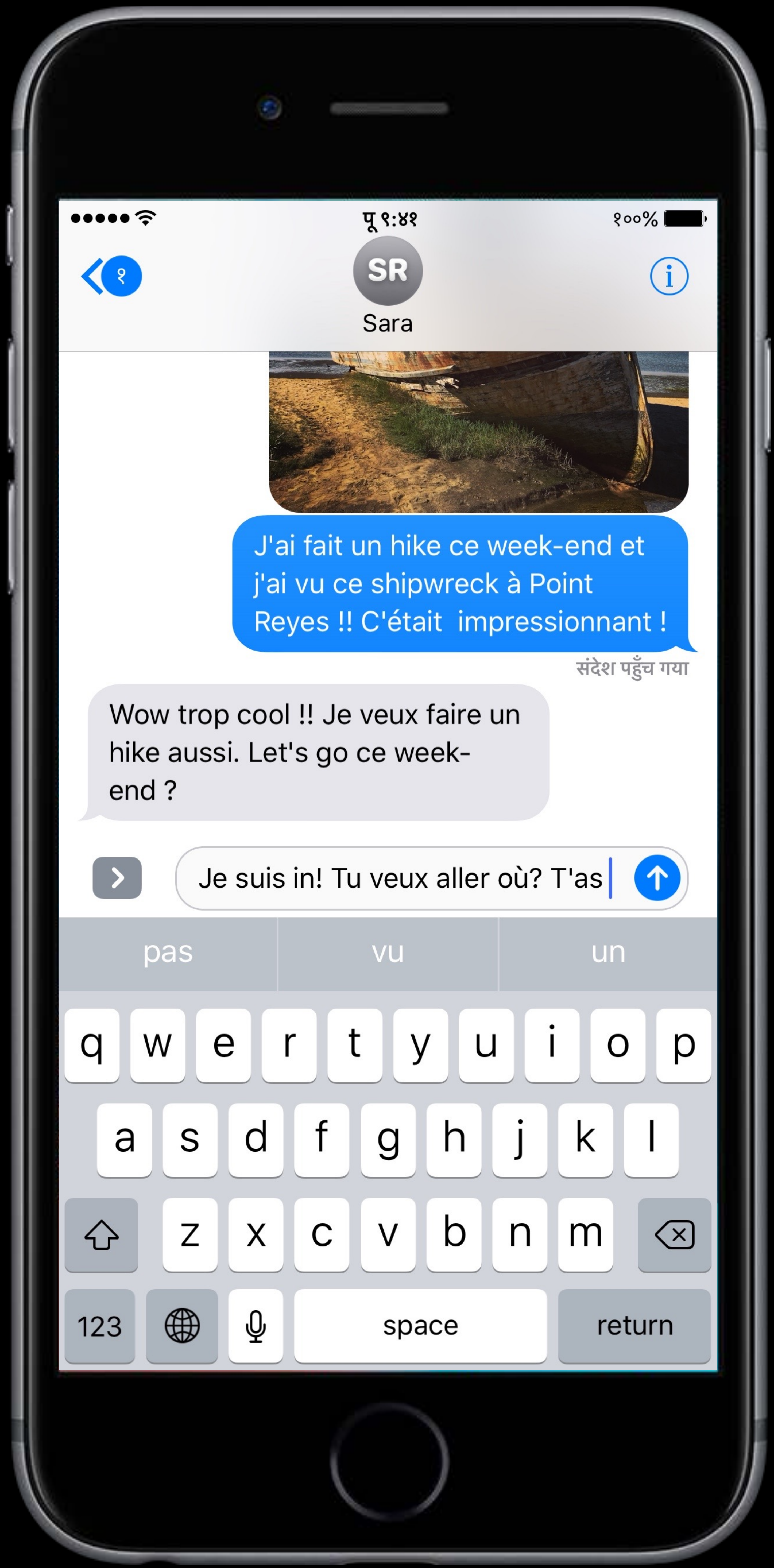
What’s New

Language Support

Multilingual Keyboards

NEW

English	🇺🇸 🇨🇦 🇬🇧 🇦🇺 🇮🇳 🇸🇬
French	🇫🇷 🇨🇦 🇨🇭 🇧🇪
German	🇩🇪 🇦🇹 🇨🇭
Spanish	🇲🇽 🇪🇸
Portuguese	🇧🇷 🇵🇹
Italian	🇮🇹



J'ai fait un hike ce week-end et j'ai vu ce shipwreck à Point Reyes !! C'était impressionnant !

संदेश पहुँच गया

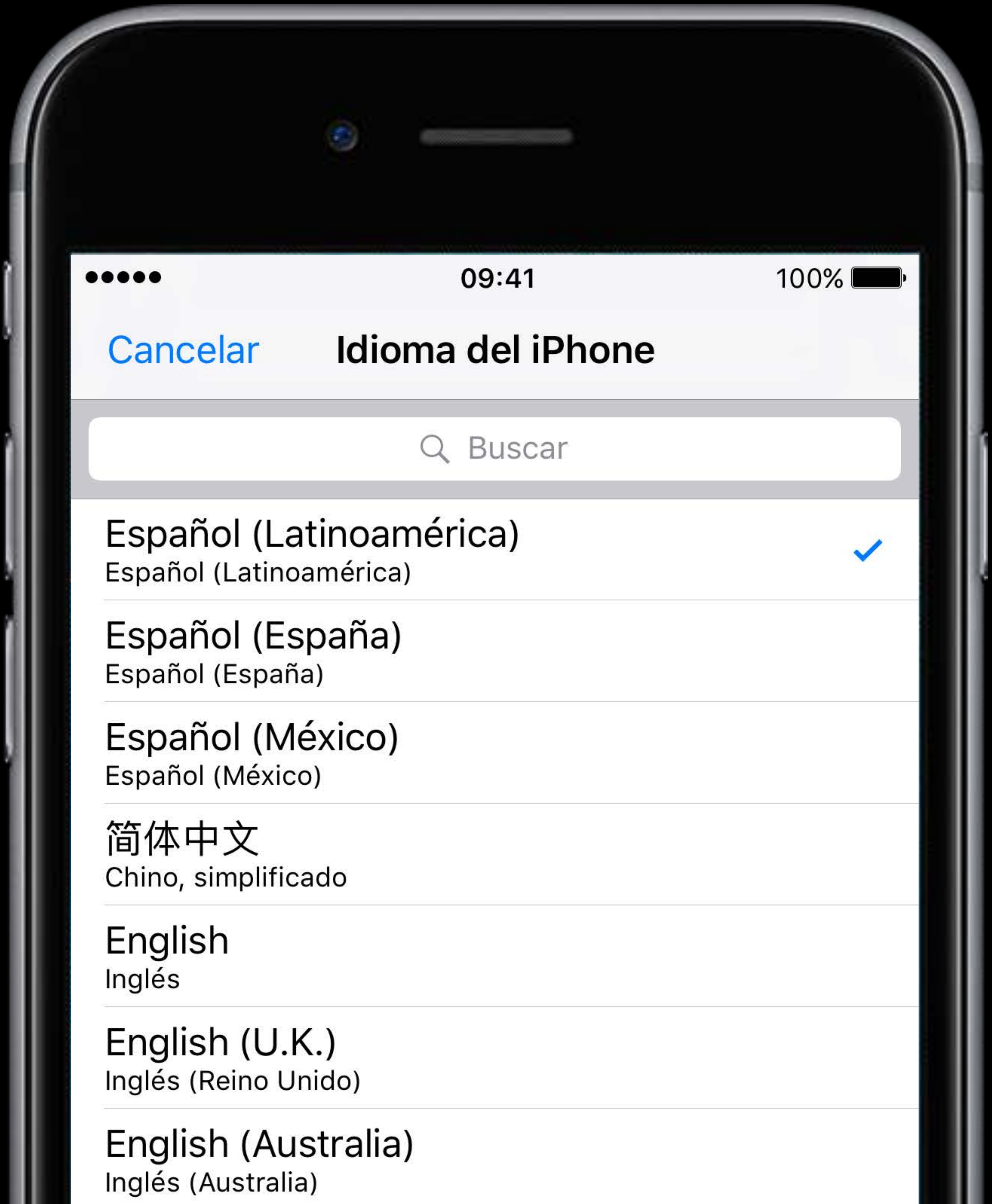
Wow trop cool !! Je veux faire un hike aussi. Let's go ce week-end ?

Je suis in! Tu veux aller où? T'as

Language Support

Latin American Spanish

NEW



Idioma del iPhone

Español (Latinoamérica) ✓
Español (Latinoamérica)

Español (España)
Español (España)

Español (México)
Español (México)

简体中文
Chino, simplificado

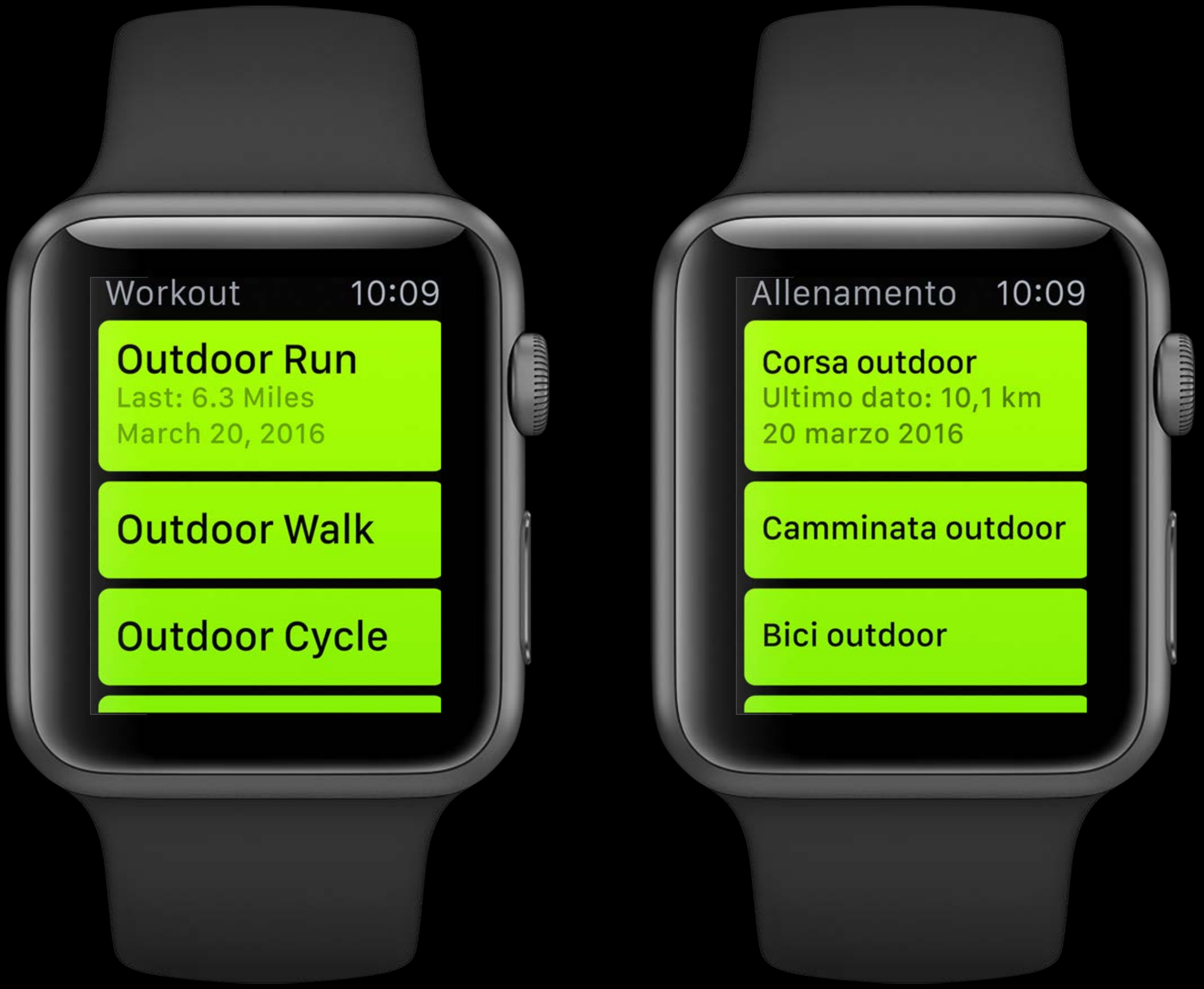
English
Inglés

English (U.K.)
Inglés (Reino Unido)

English (Australia)
Inglés (Australia)

Measurement Formatter

NEW



Workout 10:09

Outdoor Run
Last: 6.3 Miles
March 20, 2016

Outdoor Walk

Outdoor Cycle

Allenamento 10:09

Corsa outdoor
Ultimo dato: 10,1 km
20 marzo 2016

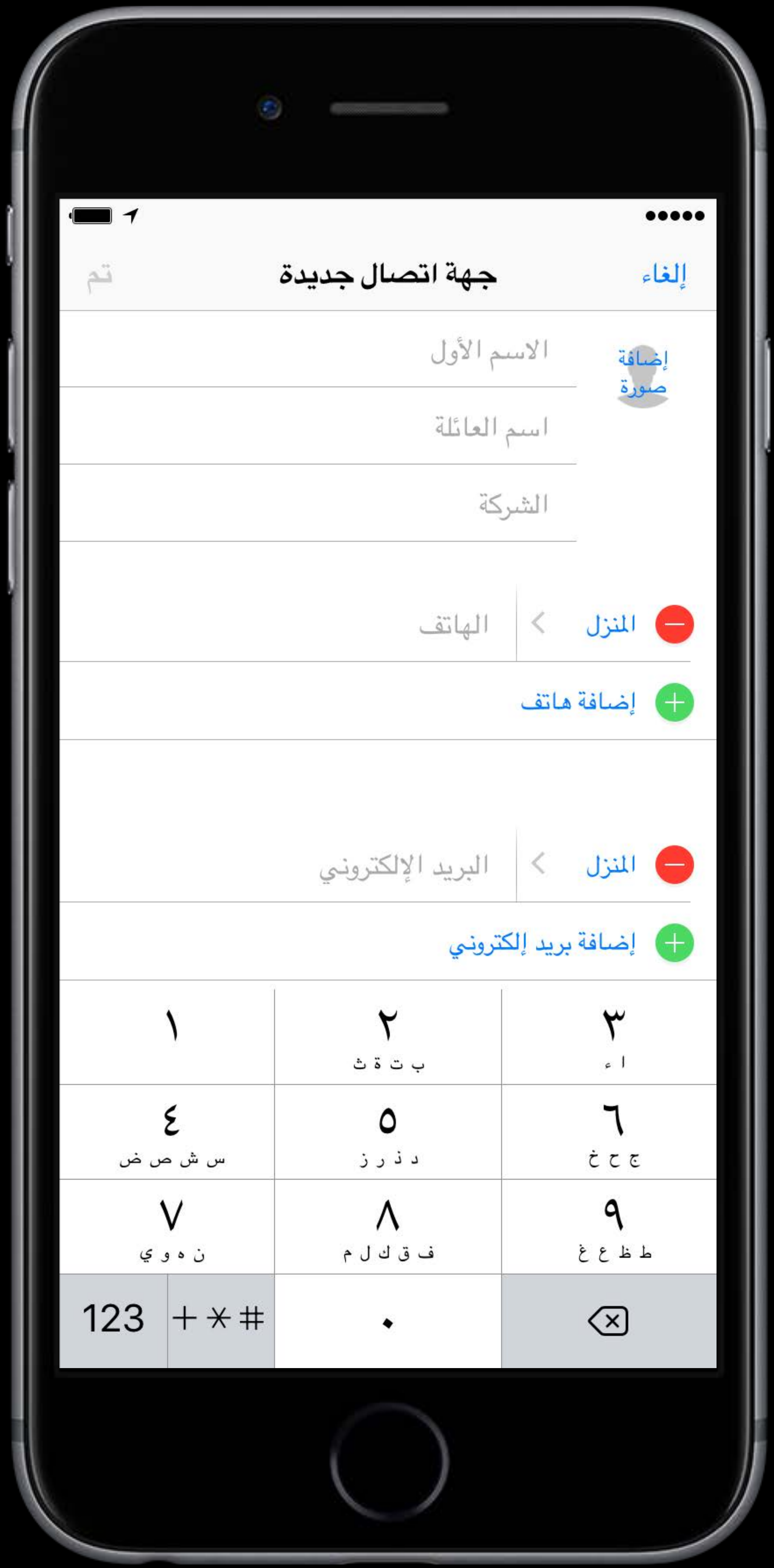
Camminata outdoor

Bici outdoor

Measurements and Units | Presidio | Friday 4:00PM

Keyboard Number Pads

NEW



إلغاء جهة اتصال جديدة تم

إضافة صورة

الاسم الأول

اسم العائلة

الشركة

المنزل الهاتف

إضافة هاتف

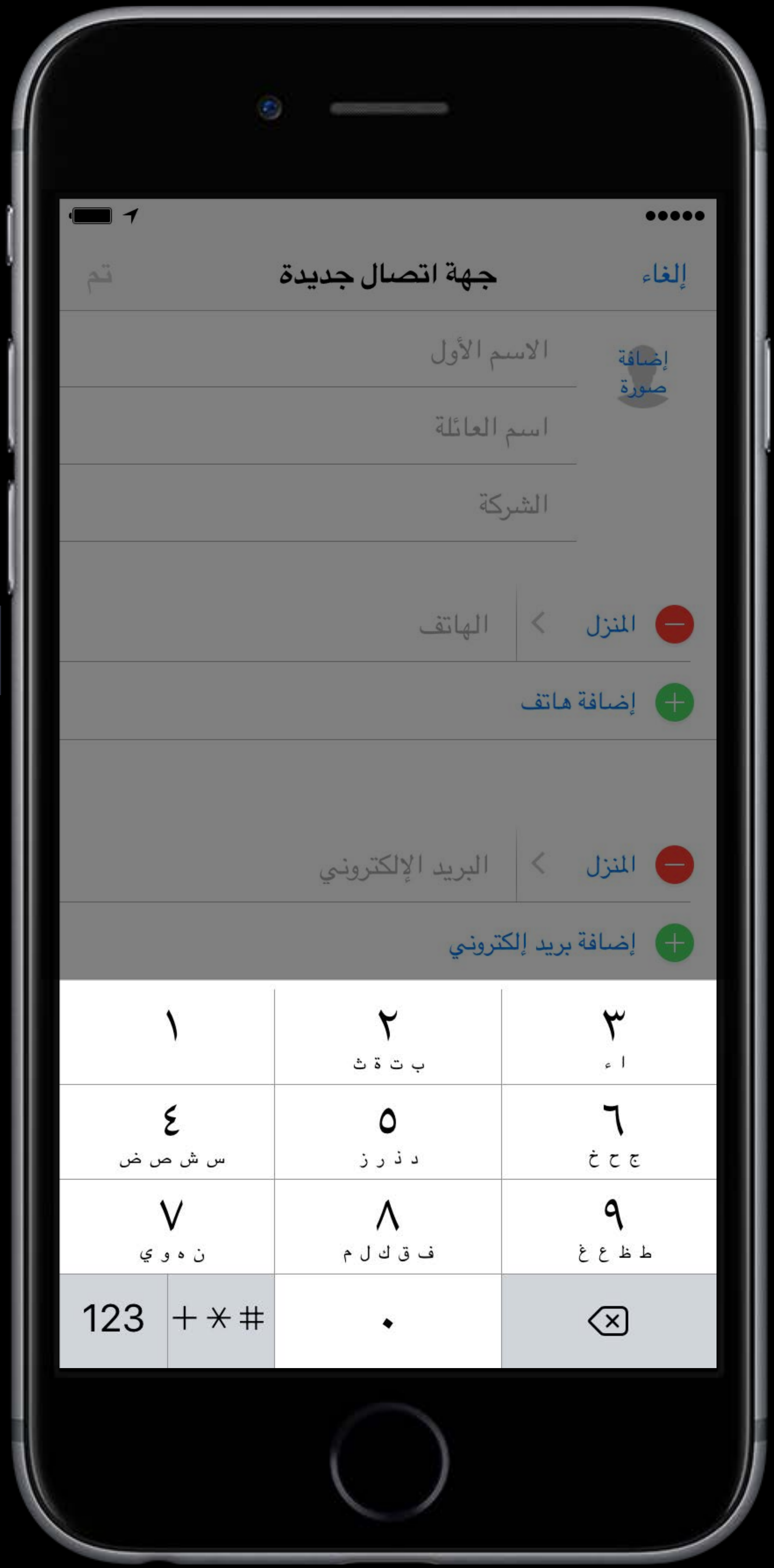
المنزل البريد الإلكتروني

إضافة بريد إلكتروني

Keyboard Number Pads

NEW

Supports localized digits for all iOS keyboards when using `UIKeyboardTypeNumberPad`



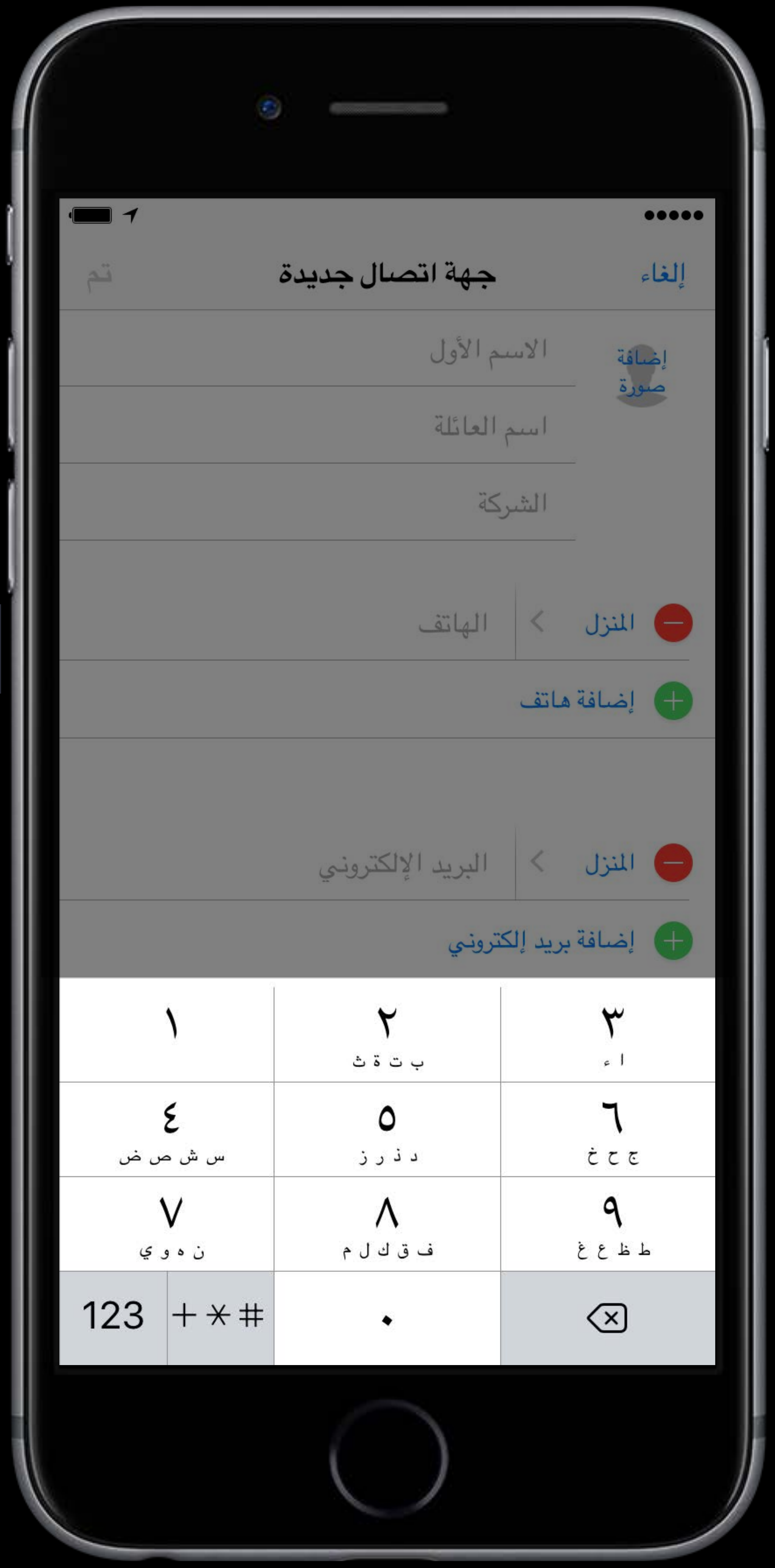
Keyboard Number Pads

NEW

Supports localized digits for all iOS keyboards when using

`UIKeyboardTypeNumberPad`

“123” key to switch between different numbering systems



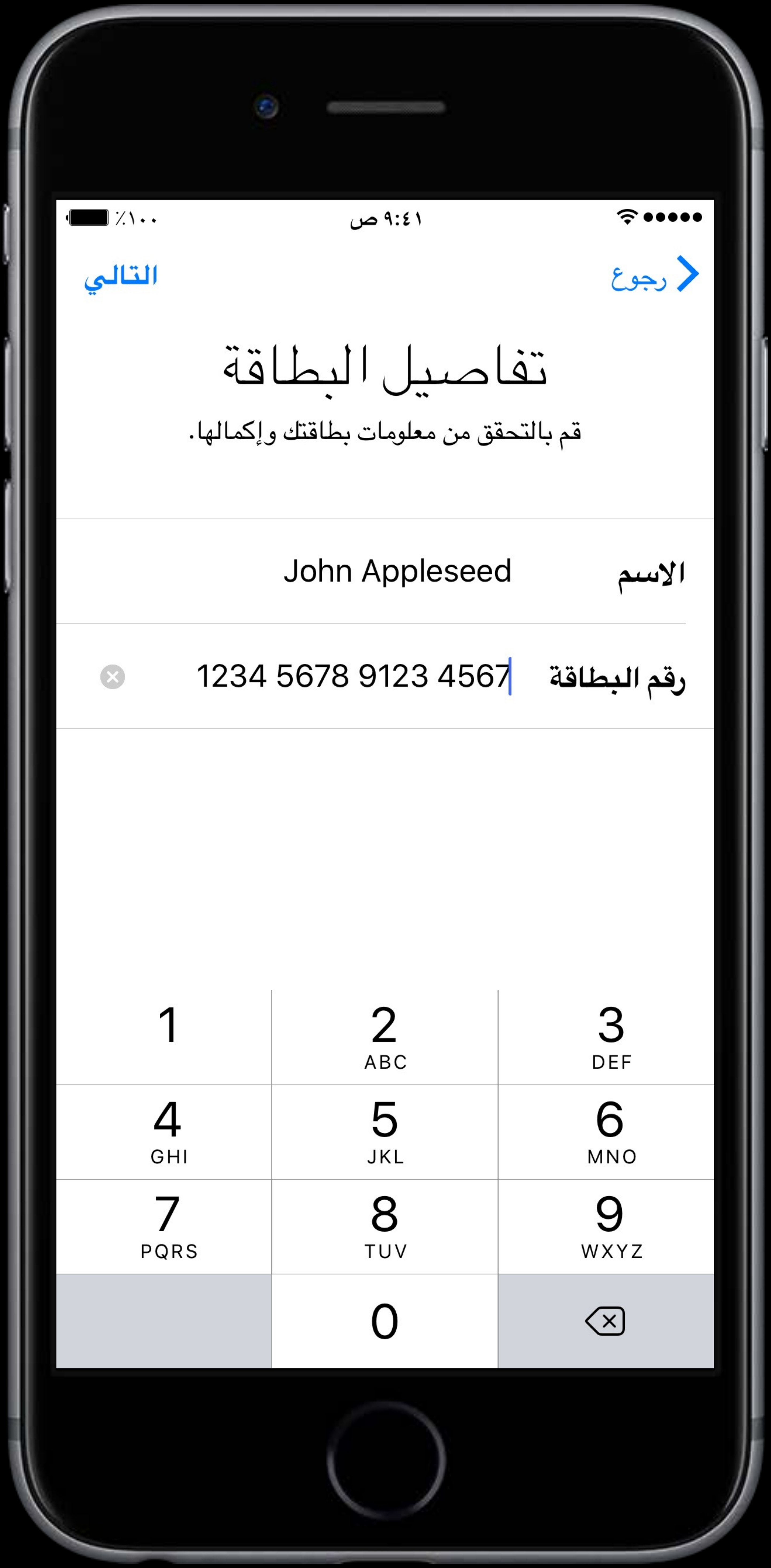
Keyboard Number Pads

NEW

Supports localized digits for all iOS keyboards when using `UIKeyboardTypeNumberPad`

“123” key to switch between different numbering systems

Use `UIKeyboardTypeASCIICapableNumberPad` where ASCII-only number entry is required, such as credit card numbers, IP addresses, etc.



٪١٠٠ ٩:٤١ ص

التالي رجوع

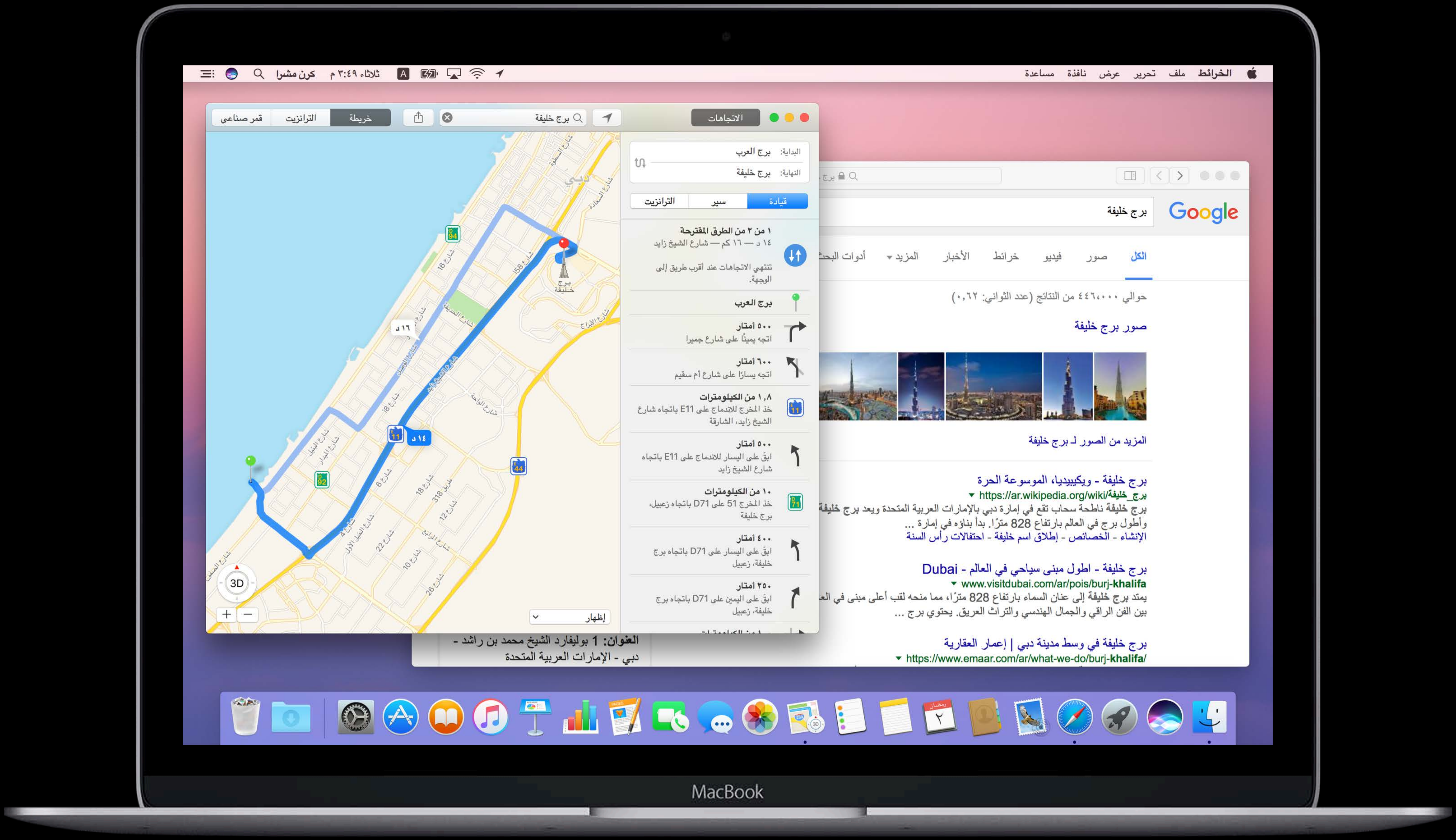
تفاصيل البطاقة

قم بالتحقق من معلومات بطاقتك وإكمالها.

John Appleseed الاسم

1234 5678 9123 4567 رقم البطاقة

NEW



البداية: برج العرب

النهاية: برج خليفة

قيادة | سير | الترانزيت

١ من ٢ من الطرق المقترحة
١٤ د — ١٦ كم — شارع الشيخ زايد

تنتهي الاتجاهات عند أقرب طريق إلى الوجهة.

برج العرب

٥٠٠ أمتار
اتجه يمينًا على شارع جميرا

٦٠٠ أمتار
اتجه يسارًا على شارع أم سقيم

١٫٨ من الكيلومترات
خذ المخرج للاندماج على E11 باتجاه شارع الشيخ زايد، الشارقة

٥٠٠ أمتار
ابقَ على اليسار للاندماج على E11 باتجاه شارع الشيخ زايد

١٠ من الكيلومترات
خذ المخرج 51 على D71 باتجاه زعبيل، برج خليفة

٤٠٠ أمتار
ابقَ على اليسار على D71 باتجاه برج خليفة، زعبيل

٢٥٠ أمتار
ابقَ على اليمين على D71 باتجاه برج خليفة، زعبيل

العنوان: 1 بوليفارد الشيخ محمد بن راشد - دبي - الإمارات العربية المتحدة

حوالي ٤٤٦،٠٠٠ من النتائج (عدد الثواني: ٠٫٦٢)

صور برج خليفة

المزيد من الصور لـ برج خليفة

برج خليفة - ويكيبيديا، الموسوعة الحرة
https://ar.wikipedia.org/wiki/برج_خليفة
برج خليفة ناطحة سحاب تقع في إمارة دبي بالإمارات العربية المتحدة ويعد **برج خليفة**
وأطول برج في العالم بارتفاع 828 مترًا. بدأ بناؤه في إمارة ...
الإنشاء - الخصائص - إطلاق اسم خليفة - احتفالات رأس السنة

برج خليفة - اطول مبنى سياحي في العالم - Dubai
www.visitdubai.com/ar/pois/burj-**khalifa**
يمتد برج **خليفة** إلى عنان السماء بارتفاع 828 مترًا، مما منحه لقب أعلى مبنى في الع
بين الفن الراقي والجمال الهندسي والتراث العريق. يحتوي برج ...

برج خليفة في وسط مدينة دبي | إعمار العقارية
https://www.emaar.com/ar/what-we-do/burj-**khalifa**/

الاتجاهات

البداية: برج العرب

النهاية: برج خليفة

قيادة | سير | الترانزيت

١ من ٢ من الطرق المقترحة
١٤ د — ١٦ كم — شارع الشيخ زايد

تنتهي الاتجاهات عند أقرب طريق إلى الوجهة.

برج العرب

٥٠٠ أمتار
اتجه يمينًا على شارع جميرا

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اتجه يسارًا على شارع أم سقيم

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خذ المخرج للاندماج على E11 باتجاه شارع الشيخ زايد، الشارقة

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١٠ من الكيلومترات
خذ المخرج 51 على D71 باتجاه زعبيل، برج خليفة

٤٠٠ أمتار
ابقَ على اليسار على D71 باتجاه برج خليفة، زعبيل

٢٥٠ أمتار
ابقَ على اليمين على D71 باتجاه برج خليفة، زعبيل

العنوان: 1 بوليفارد الشيخ محمد بن راشد - دبي - الإمارات العربية المتحدة

إلى برج العرب
من برج خليفة

١٤ د
٩٫٣ ميل · شارع جميرا
أسرع طريق · مطلوب رسوم
التفاصيل

١٥ د

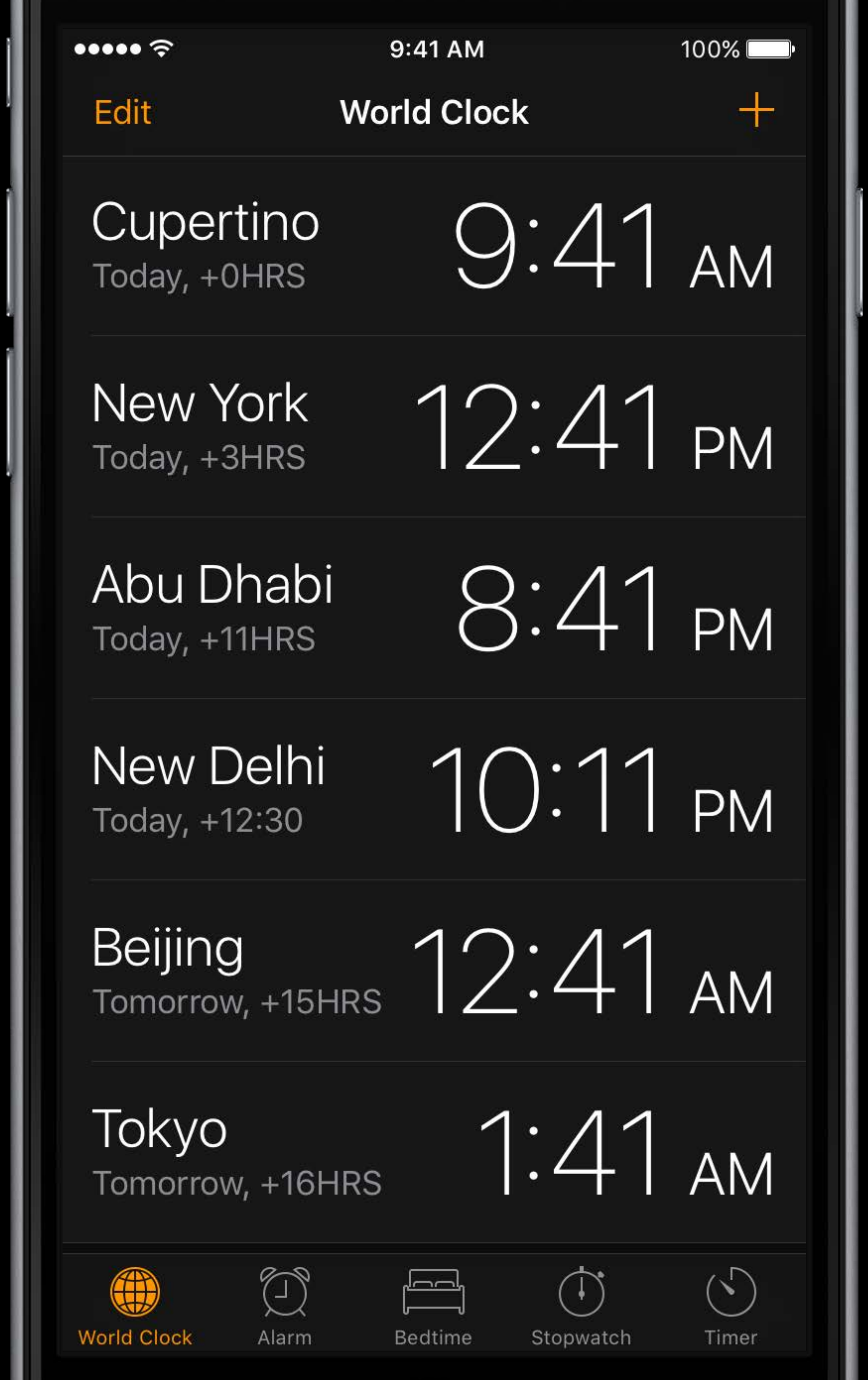
تنتهي الاتجاهات عند أقرب طريق إلى الوجهة.

What’s New in International User Interfaces

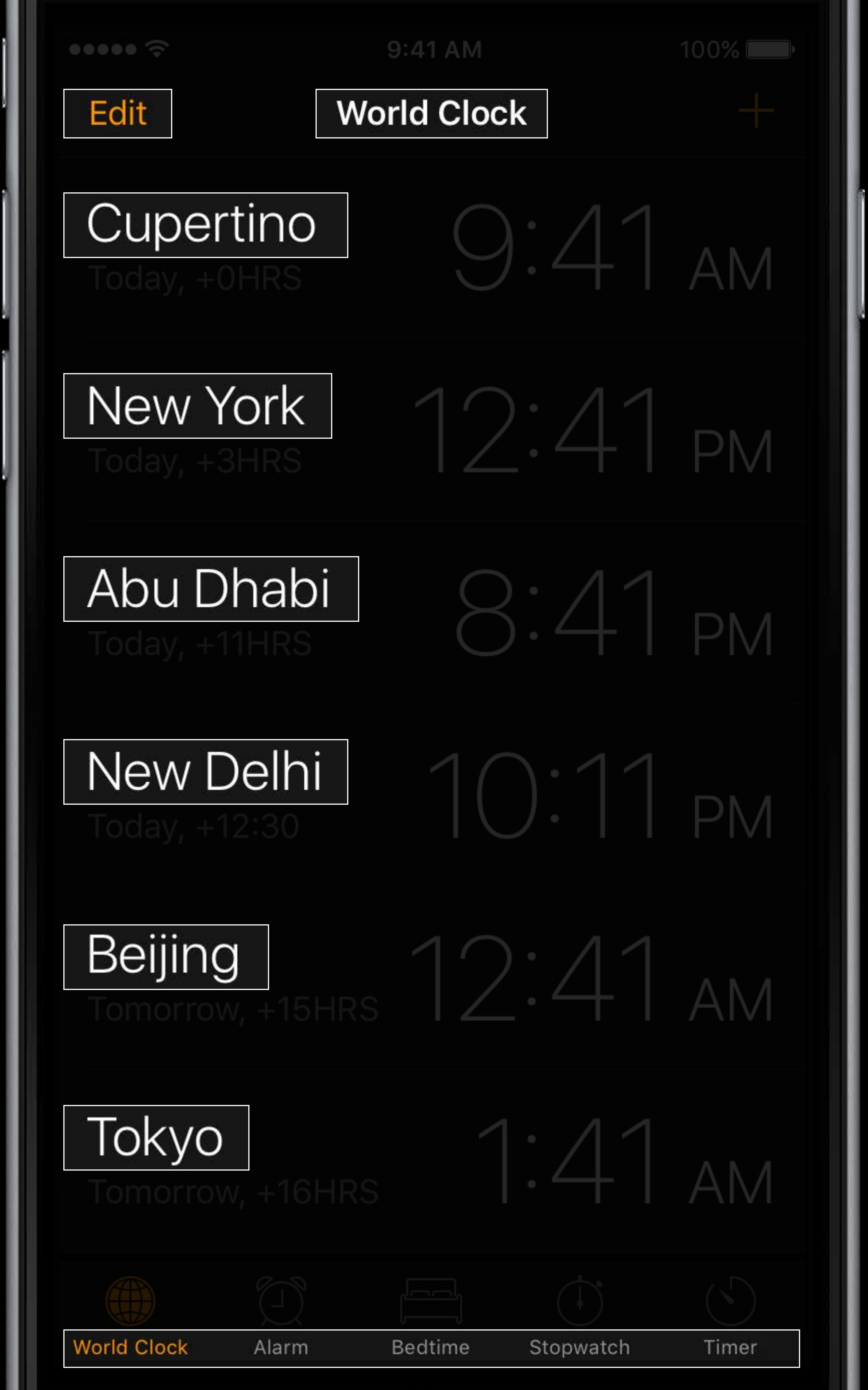
Nob Hill

Friday 9:00AM

Fundamentals



Cupertino Today, +0HRS	9:41 AM
New York Today, +3HRS	12:41 PM
Abu Dhabi Today, +11HRS	8:41 PM
New Delhi Today, +12:30	10:11 PM
Beijing Tomorrow, +15HRS	12:41 AM
Tokyo Tomorrow, +16HRS	1:41 AM



9:41 AM 100%

Edit

World Clock

Cupertino
Today, +0HRS
9:41 AM

New York
Today, +3HRS
12:41 PM

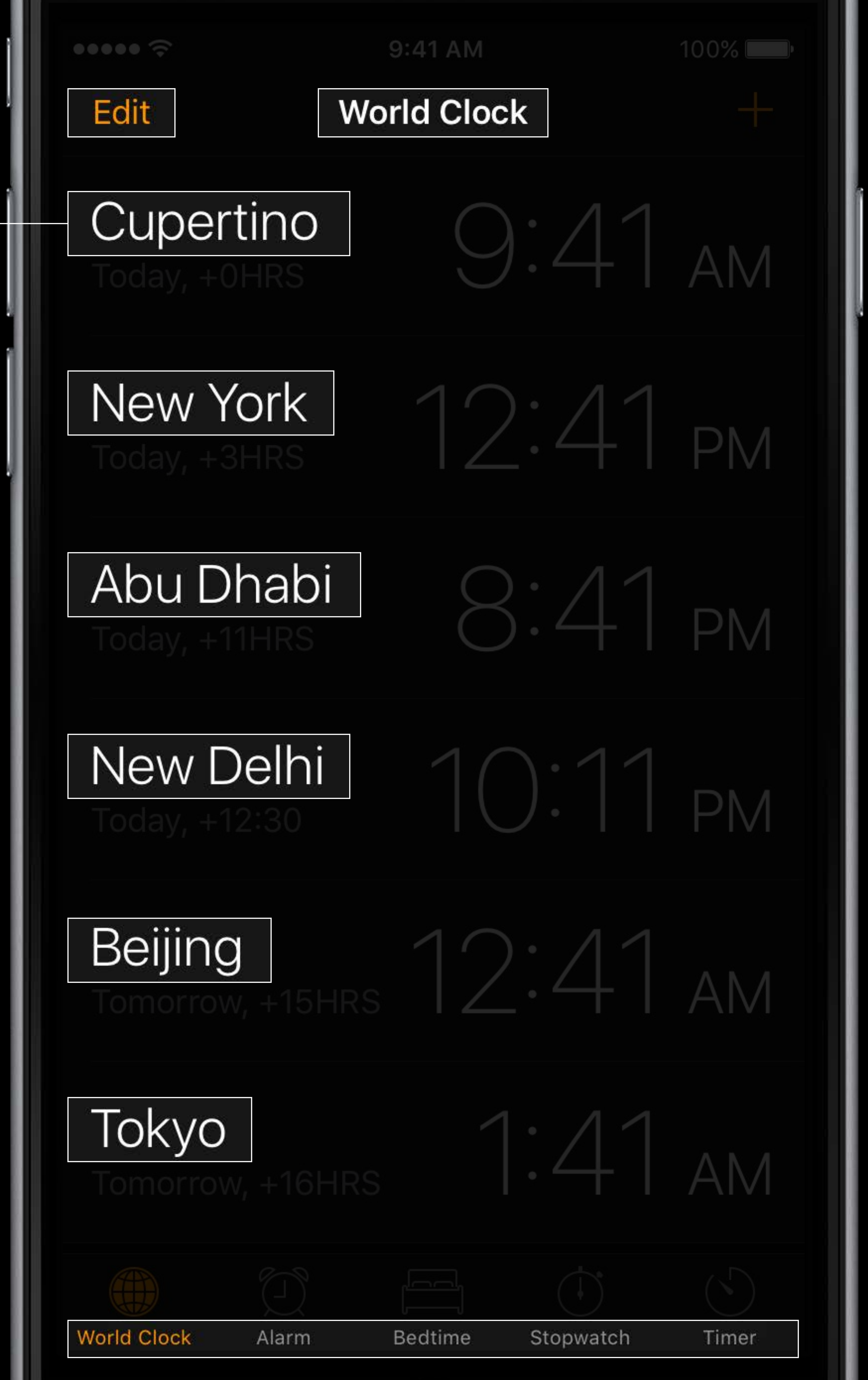
Abu Dhabi
Today, +11HRS
8:41 PM

New Delhi
Today, +12:30
10:11 PM

Beijing
Tomorrow, +15HRS
12:41 AM

Tokyo
Tomorrow, +16HRS
1:41 AM

Localized Strings



●●●●● 9:41 AM 100%

Edit World Clock +

Cupertino
Today, +0HRS
9:41 AM

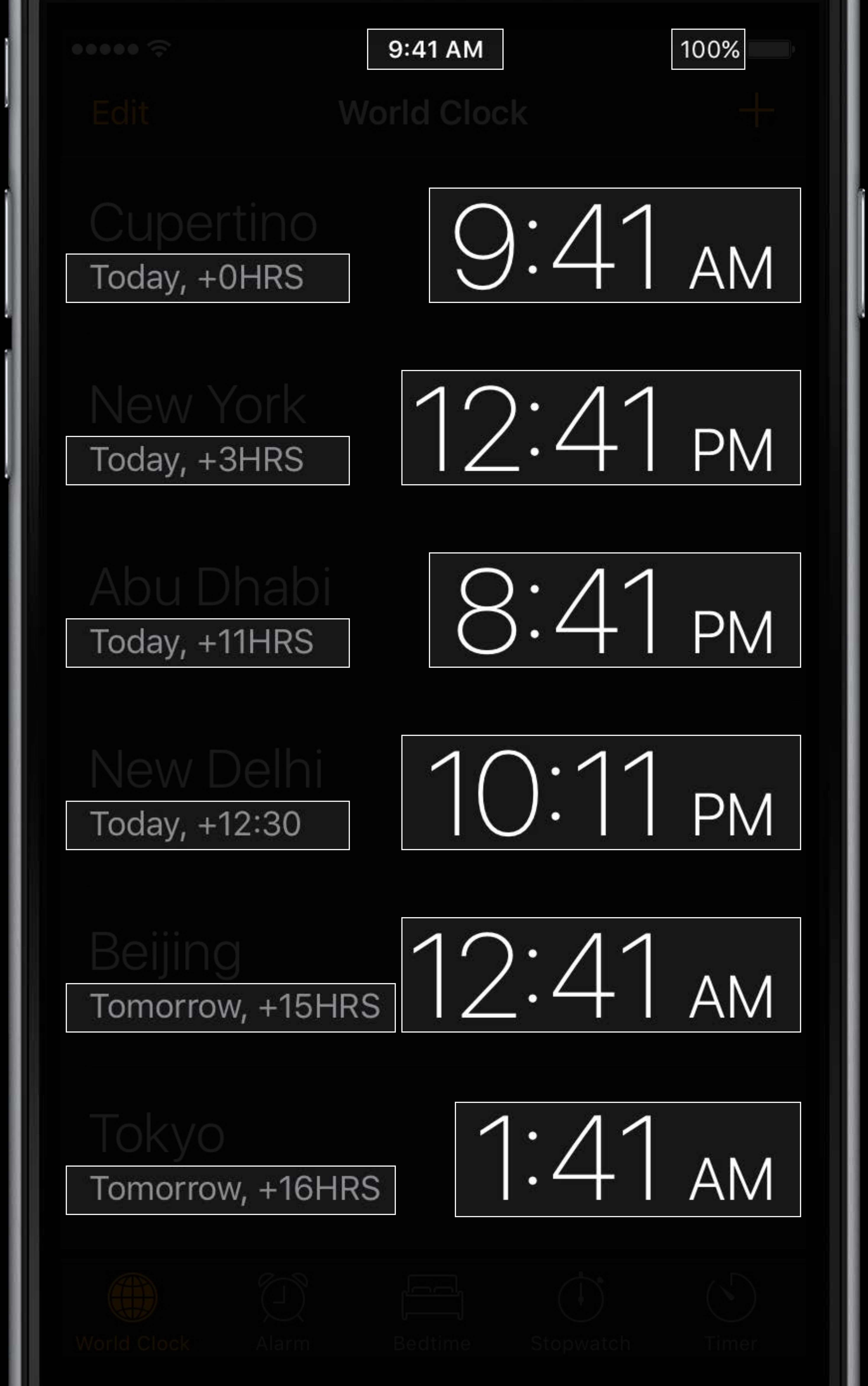
New York
Today, +3HRS
12:41 PM

Abu Dhabi
Today, +11HRS
8:41 PM

New Delhi
Today, +12:30
10:11 PM

Beijing
Tomorrow, +15HRS
12:41 AM

Tokyo
Tomorrow, +16HRS
1:41 AM



World Clock

Cupertino
Today, +0HRS
9:41 AM

New York
Today, +3HRS
12:41 PM

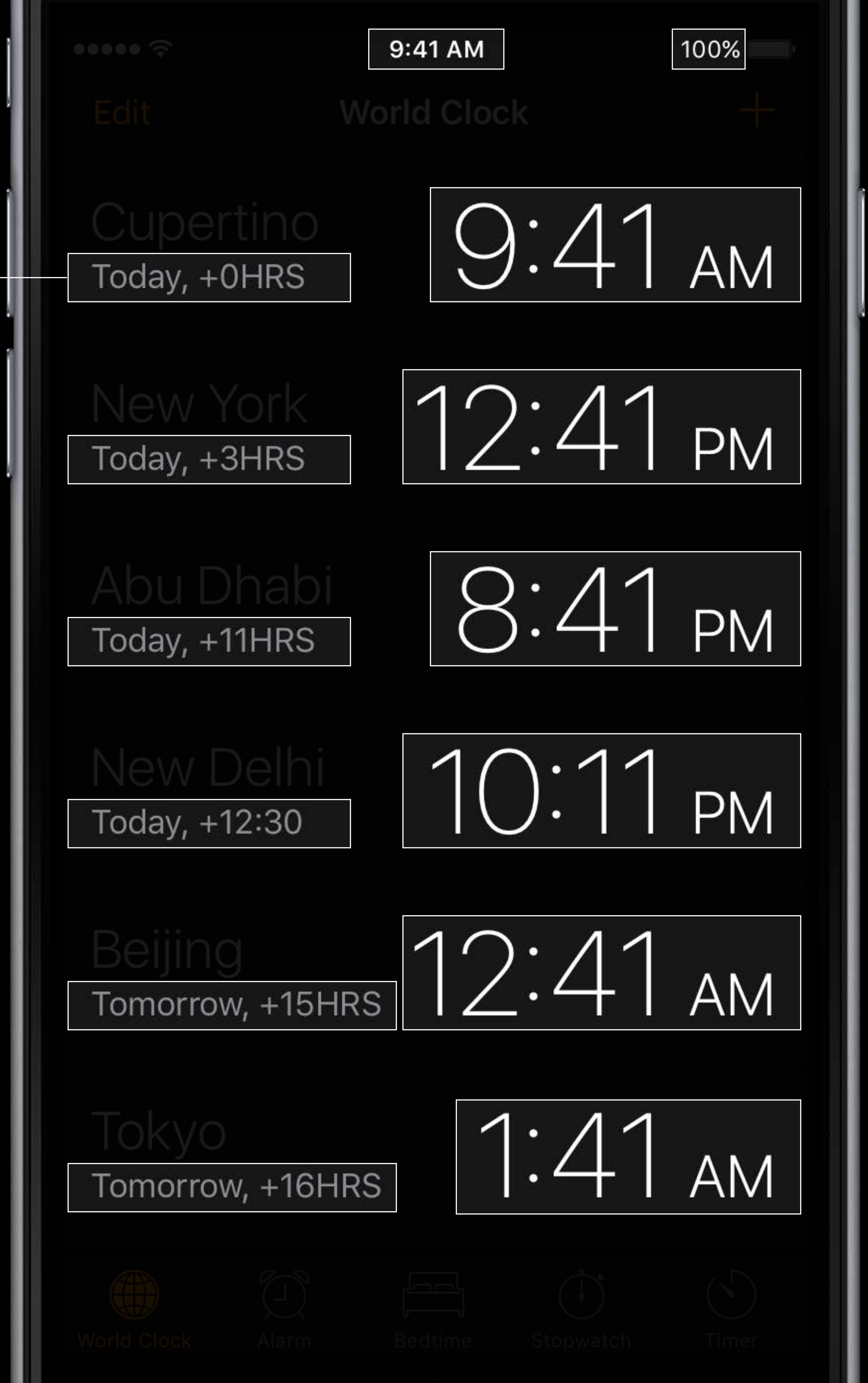
Abu Dhabi
Today, +11HRS
8:41 PM

New Delhi
Today, +12:30
10:11 PM

Beijing
Tomorrow, +15HRS
12:41 AM

Tokyo
Tomorrow, +16HRS
1:41 AM

Formatted Strings



9:41 AM

100%

Edit World Clock +

Cupertino
Today, +0HRS
9:41 AM

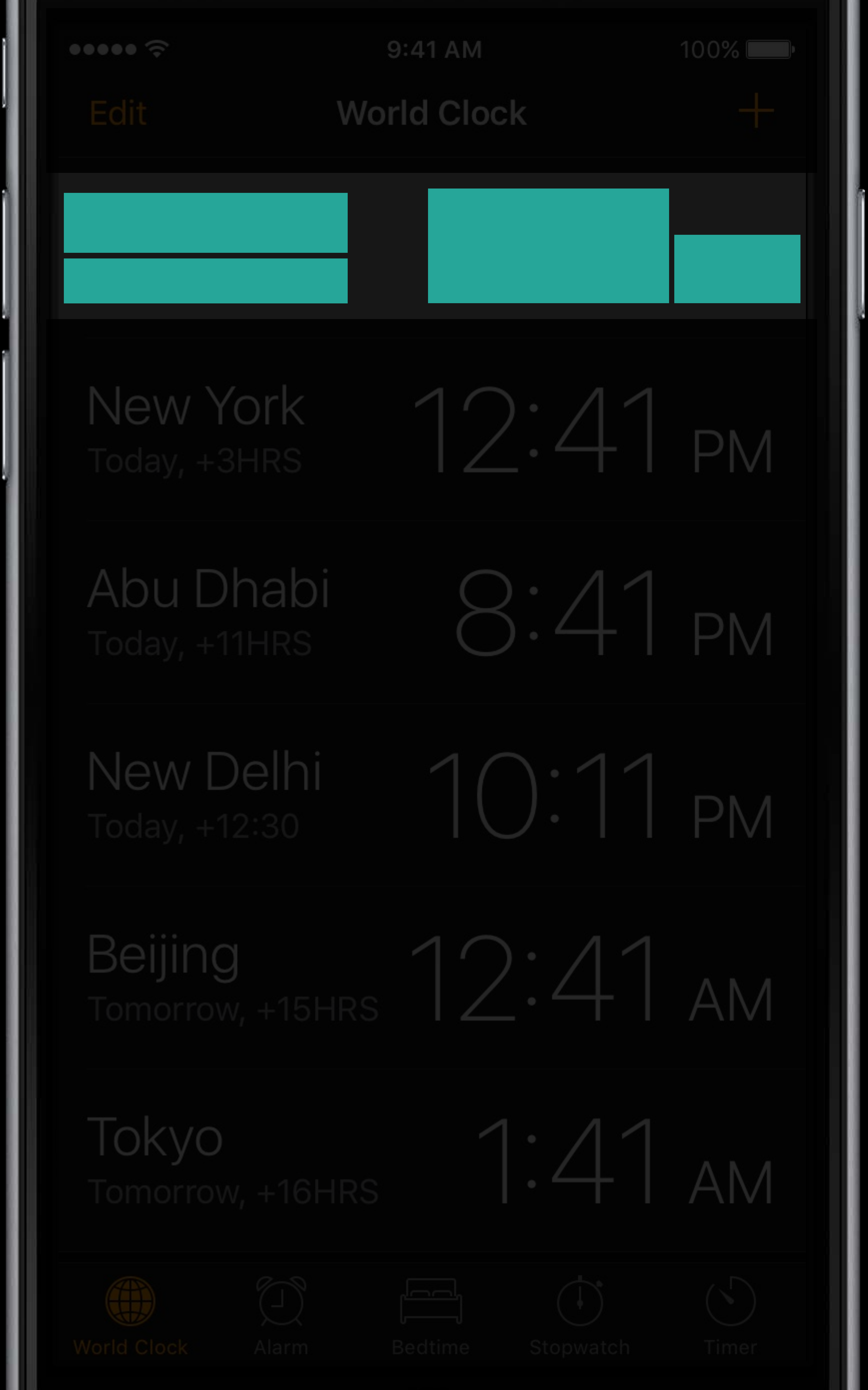
New York
Today, +3HRS
12:41 PM

Abu Dhabi
Today, +11HRS
8:41 PM

New Delhi
Today, +12:30
10:11 PM

Beijing
Tomorrow, +15HRS
12:41 AM

Tokyo
Tomorrow, +16HRS
1:41 AM



New York
Today, +3HRS
12:41 PM

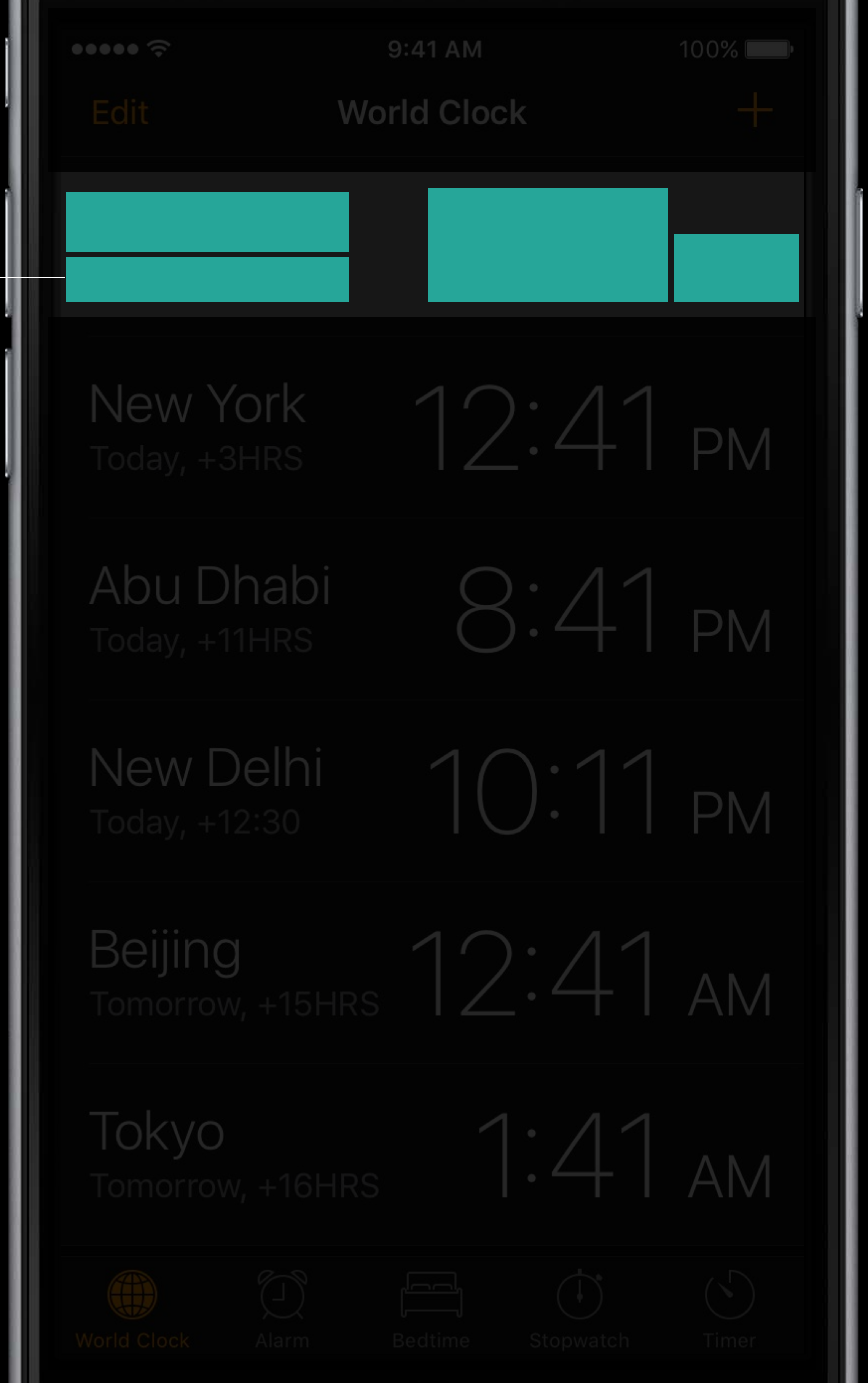
Abu Dhabi
Today, +11HRS
8:41 PM

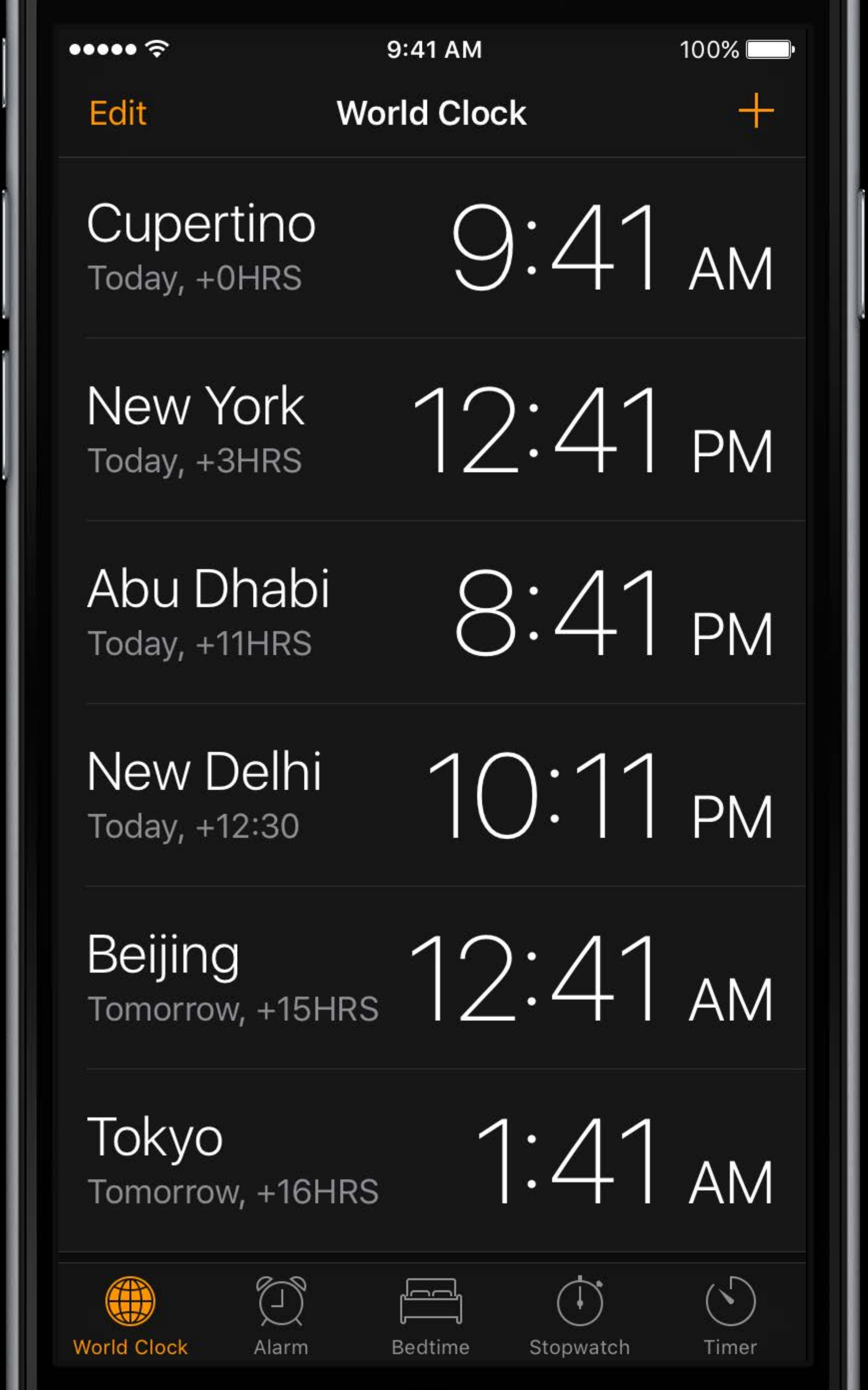
New Delhi
Today, +12:30
10:11 PM

Beijing
Tomorrow, +15HRS
12:41 AM

Tokyo
Tomorrow, +16HRS
1:41 AM

Layout


9:41 AM
100%
Edit
World Clock
+
New York
Today, +3HRS
12:41 PM
Abu Dhabi
Today, +11HRS
8:41 PM
New Delhi
Today, +12:30
10:11 PM
Beijing
Tomorrow, +15HRS
12:41 AM
Tokyo
Tomorrow, +16HRS
1:41 AM
World Clock
Alarm
Bedtime
Stopwatch
Timer



World Clock

Cupertino Today, +0HRS	9:41 AM
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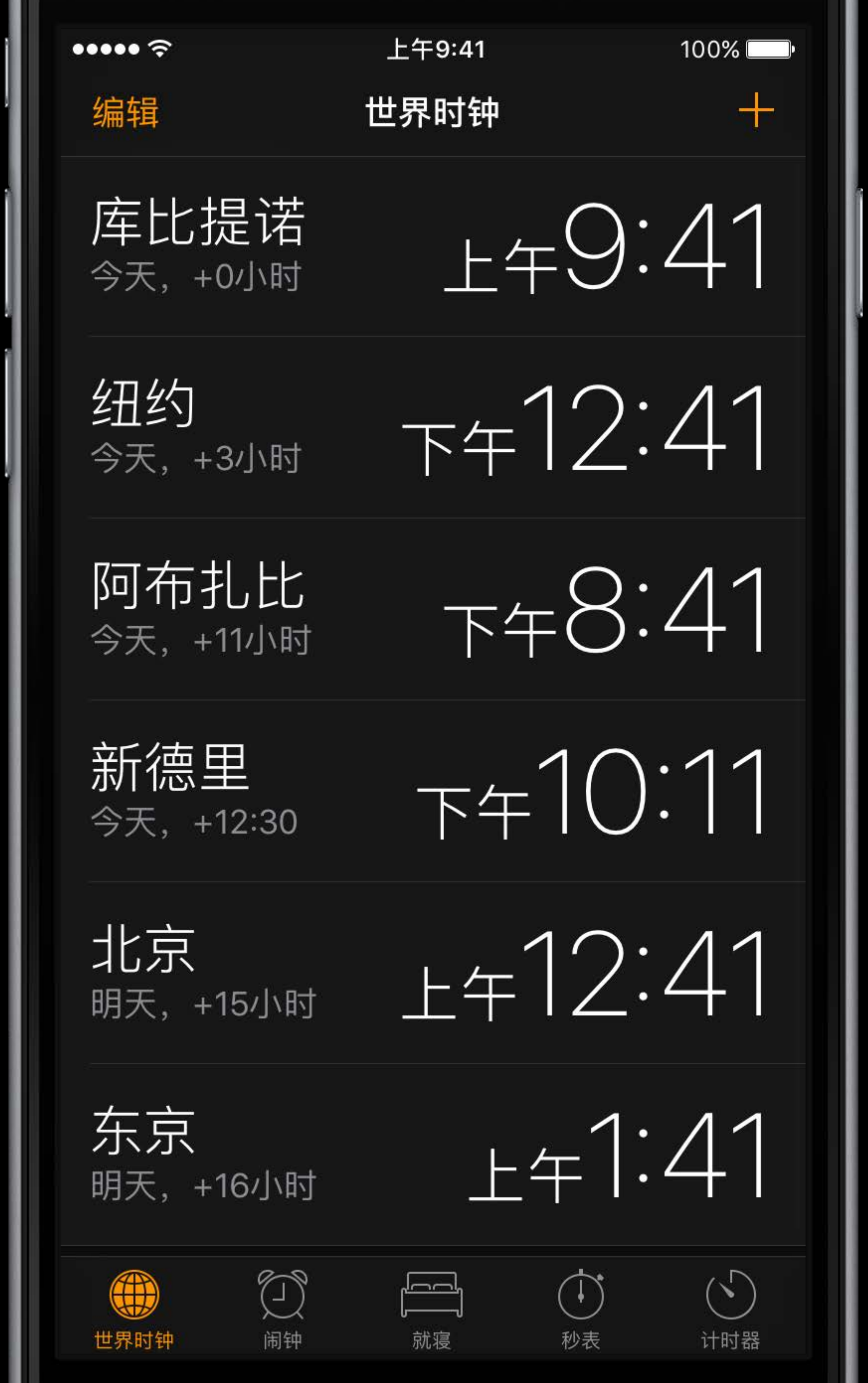


库比提诺
今天，+0小时
上午9:41

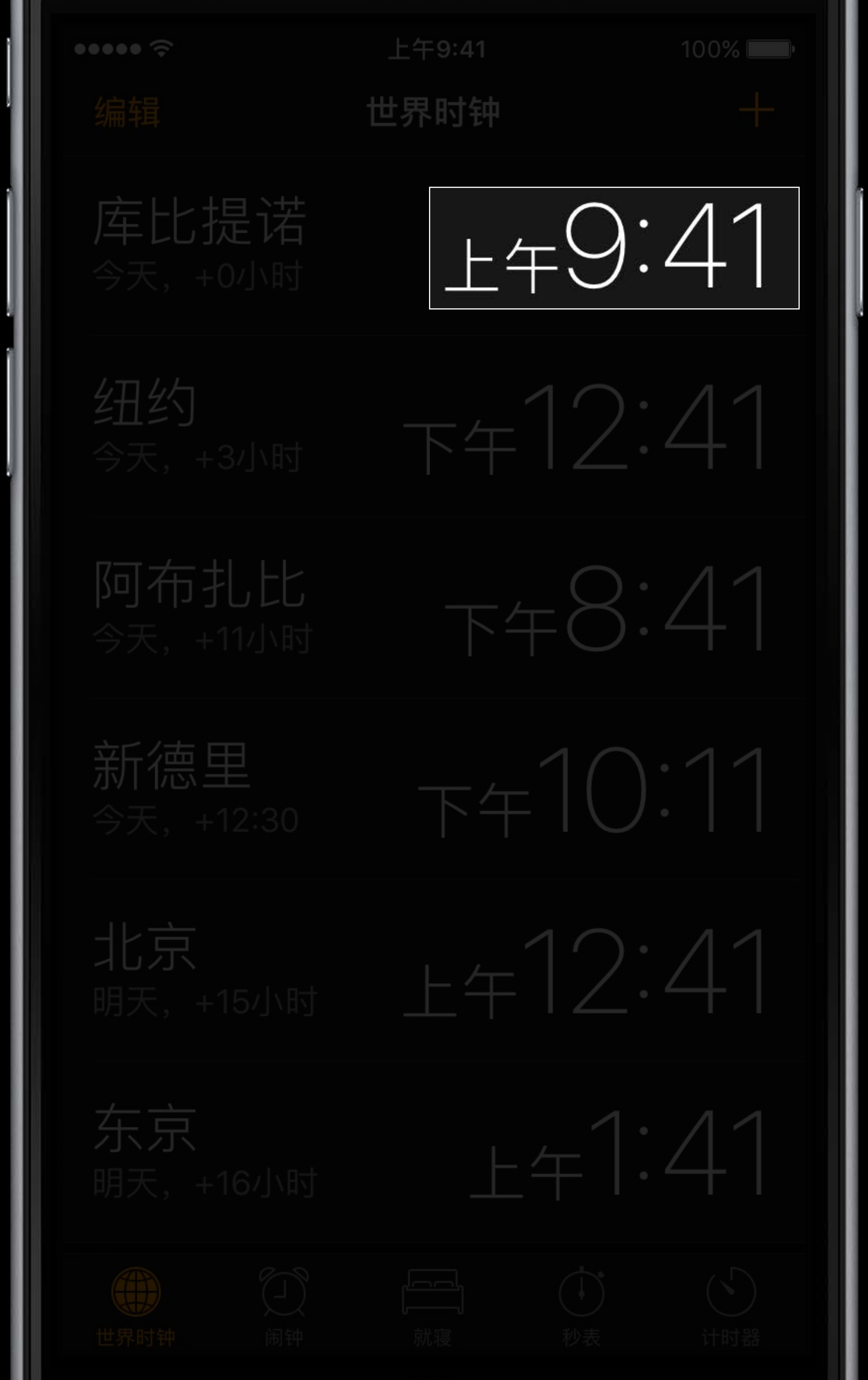
纽约
今天，+3小时
下午12:41

阿布扎比
今天，+11小时
下午8:41

新德里
今天，+12:30
下午10:11

北京
明天，+15小时
上午12:41

东京
明天，+16小时
上午1:41



世界时钟

库比提诺
今天，+0小时
上午9:41

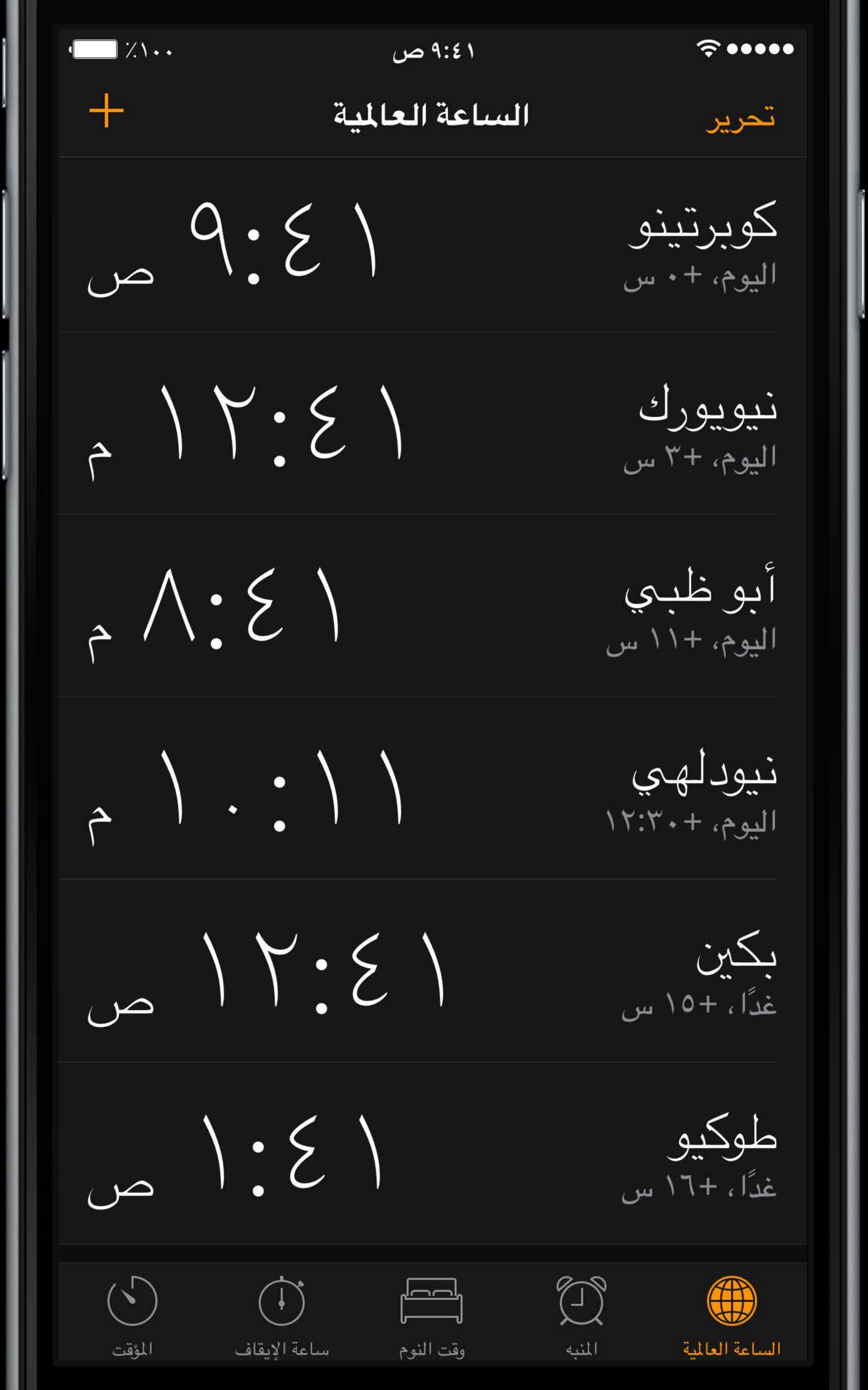
纽约
今天，+3小时
下午12:41

阿布扎比
今天，+11小时
下午8:41

新德里
今天，+12:30
下午10:11

北京
明天，+15小时
上午12:41

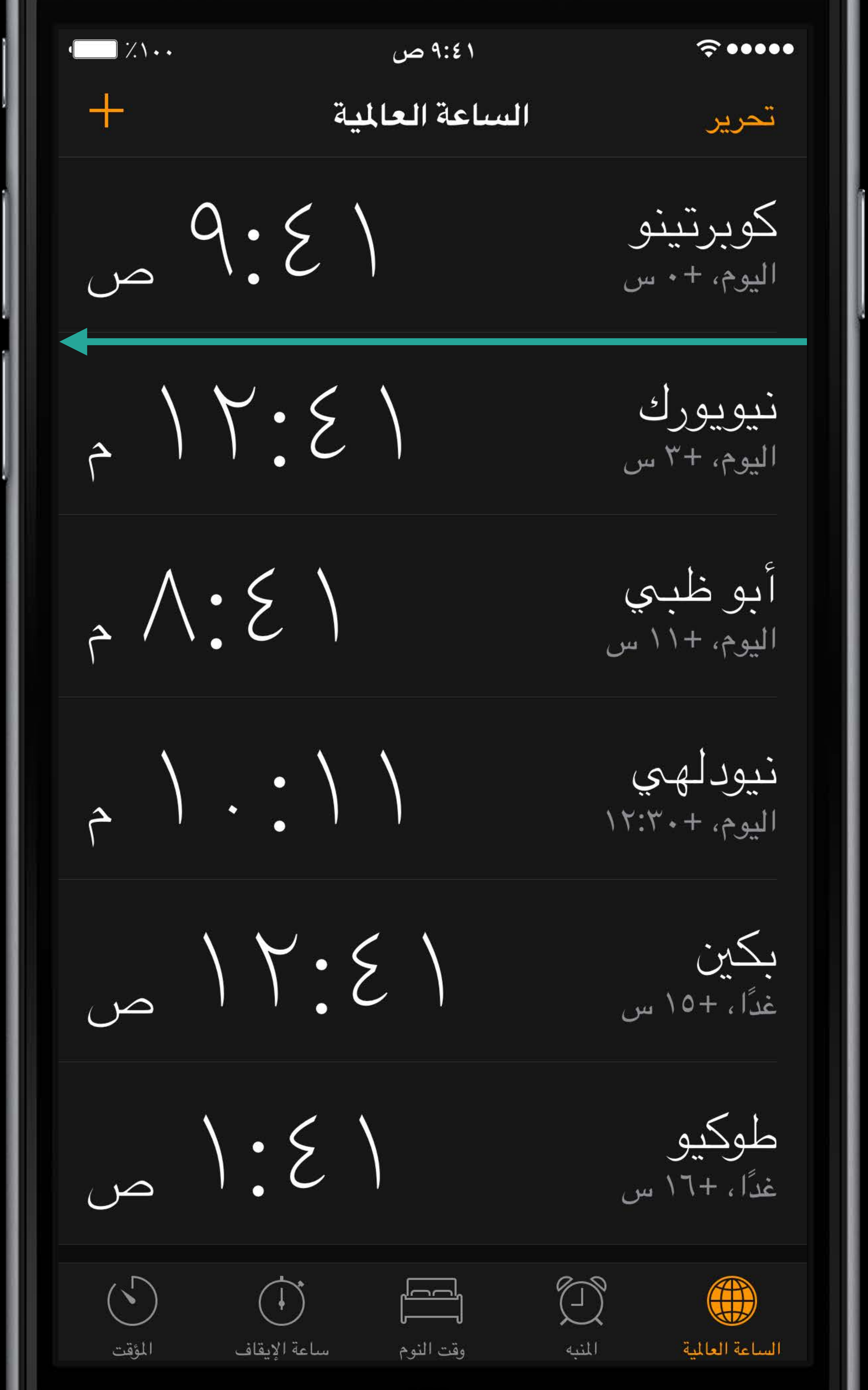
东京
明天，+16小时
上午1:41



٩:٤١ ص ٪١٠٠

تحرير **الساعة العالمية** +

كوبرتينو	اليوم، +٠ س	٩:٤١ ص
نيويورك	اليوم، +٣ س	١٢:٤١ م
أبو ظبي	اليوم، +١١ س	٨:٤١ م
نيودلهي	اليوم، +١٢:٣٠	١٠:١١ م
بكين	غدًا، +١٥ س	١٢:٤١ ص
طوكيو	غدًا، +١٦ س	١:٤١ ص



الساعة العالمية

كوبرتينو
اليوم، +٠ س
٩:٤١ ص

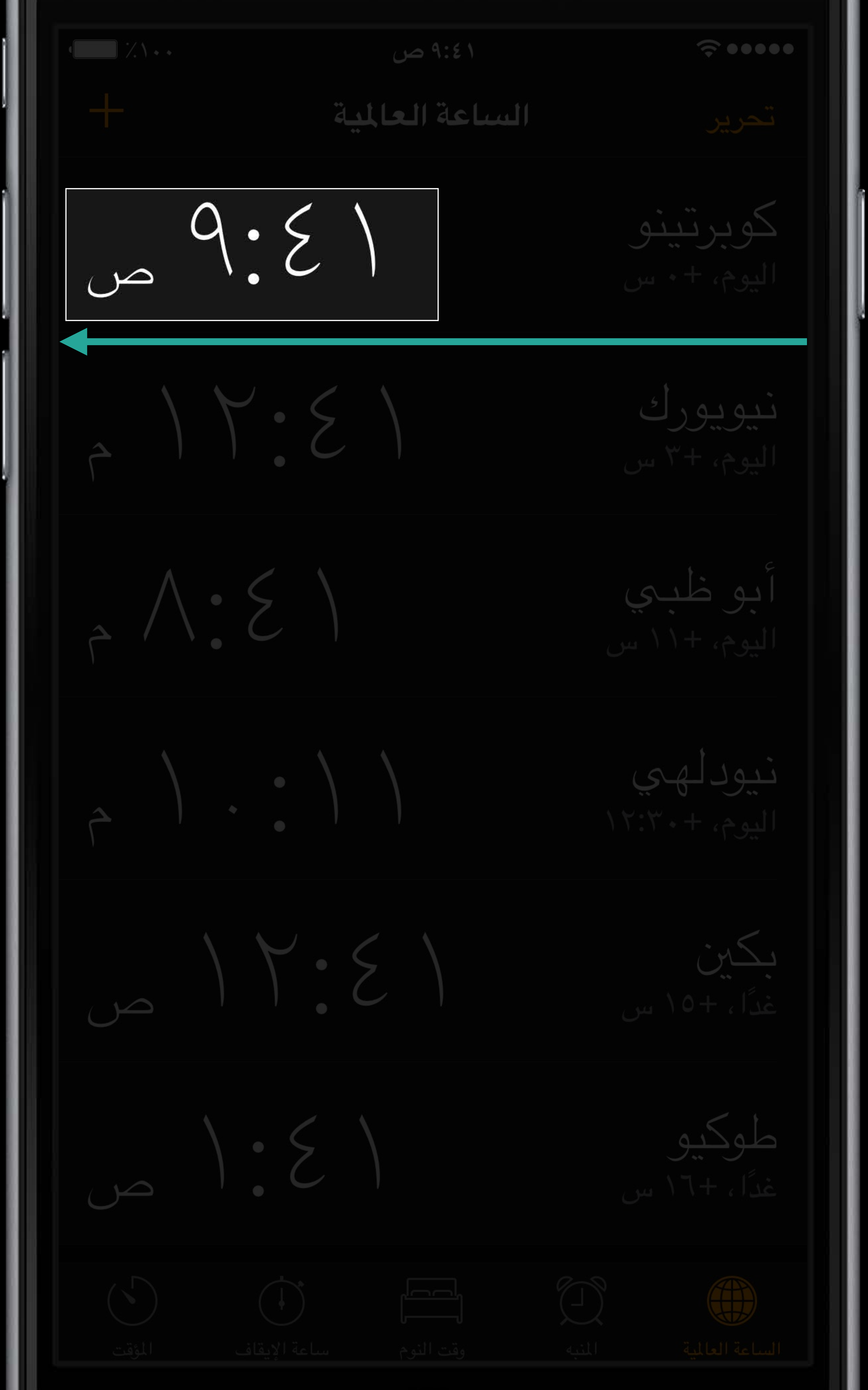
نيويورك
اليوم، +٣ س
١٢:٤١ م

أبو ظبي
اليوم، +١١ س
٨:٤١ م

نيودلهي
اليوم، +١٢:٣٠
١٠:١١ م

بكين
غدًا، +١٥ س
١٢:٤١ ص

طوكيو
غدًا، +١٦ س
١:٤١ ص



الساعة العالمية

كوبرتينو
اليوم، +٠ س
٩:٤١ ص

نيويورك
اليوم، +٣ س
١٢:٤١ م

أبو ظبي
اليوم، +١١ س
٨:٤١ م

نيودلهي
اليوم، +١٢:٣٠
١٠:١١ م

بكين
غدًا، +١٥ س
١٢:٤١ ص

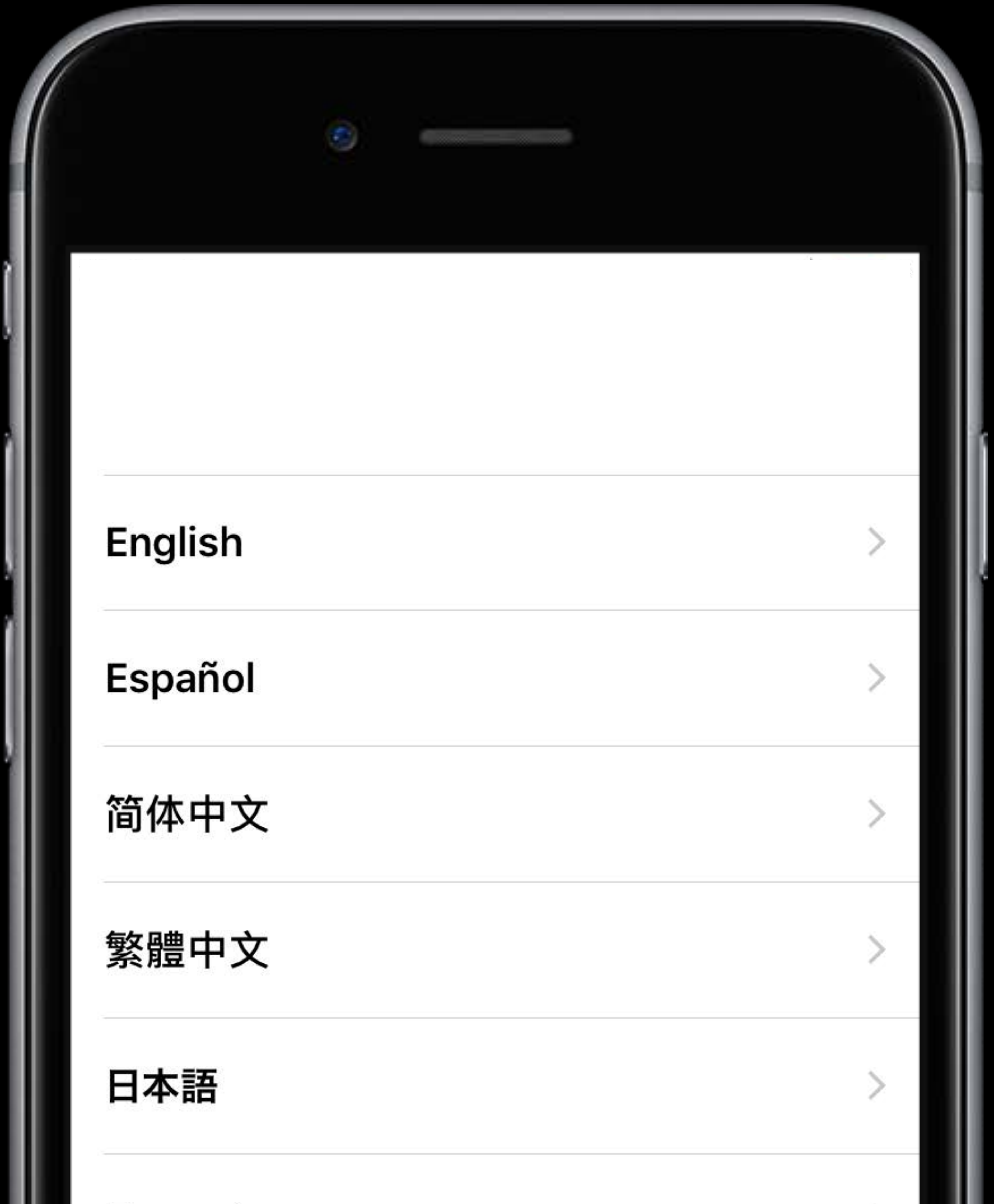
طوكيو
غدًا، +١٦ س
١:٤١ ص

Fundamentals

Language Selection

Fundamentals

Language Selection



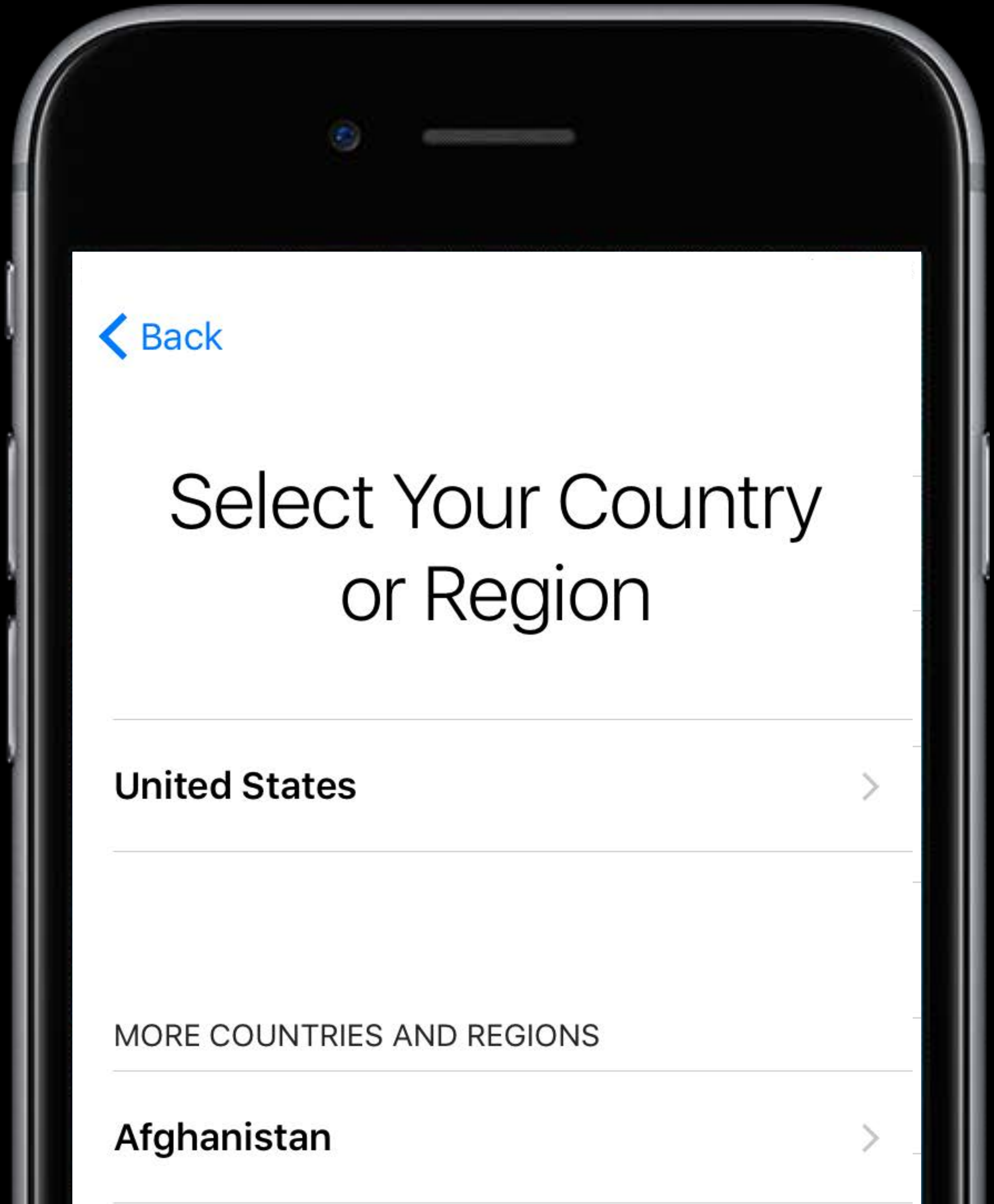
English

Español

简体中文

繁體中文

日本語



Select Your Country or Region

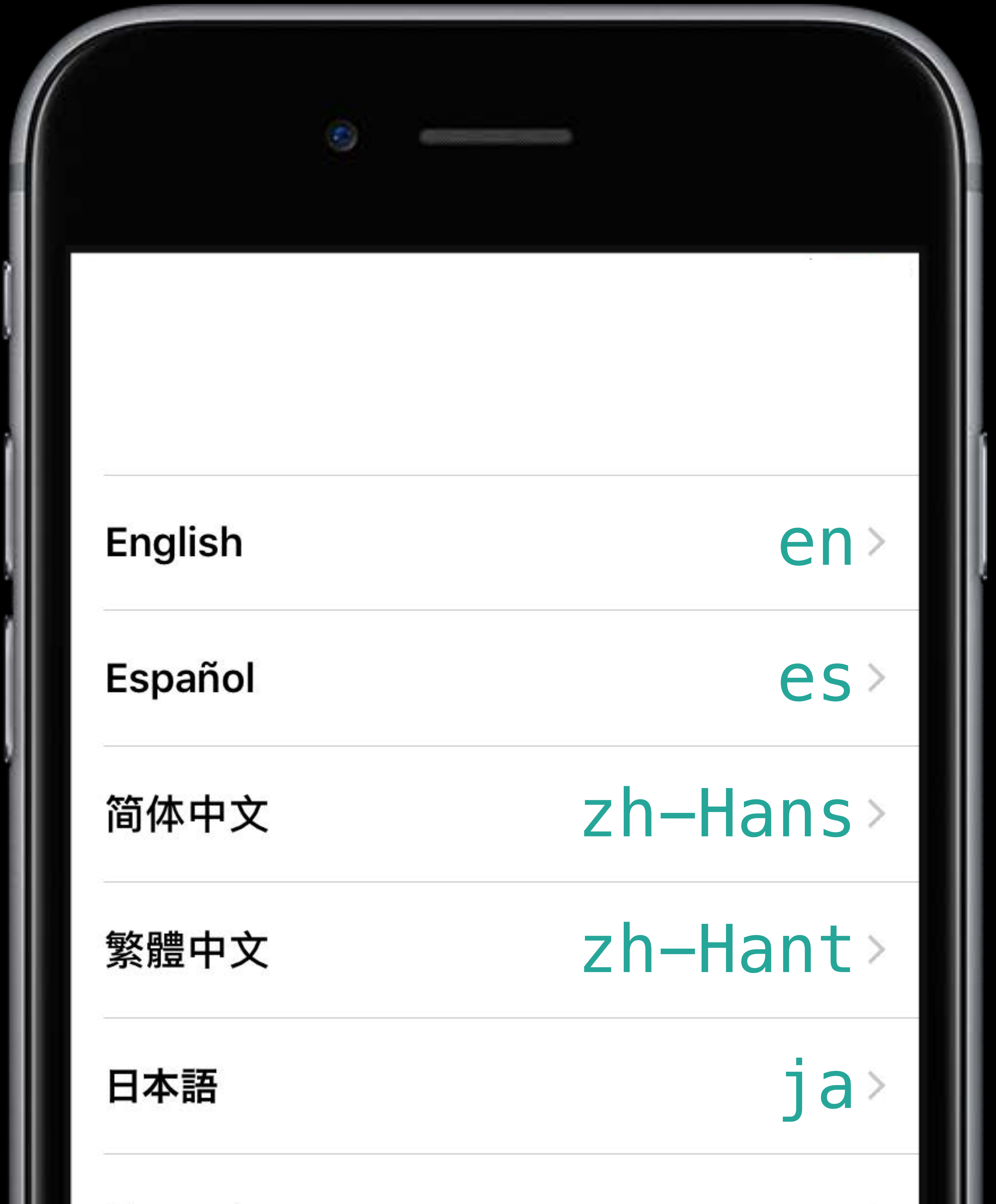
United States

MORE COUNTRIES AND REGIONS

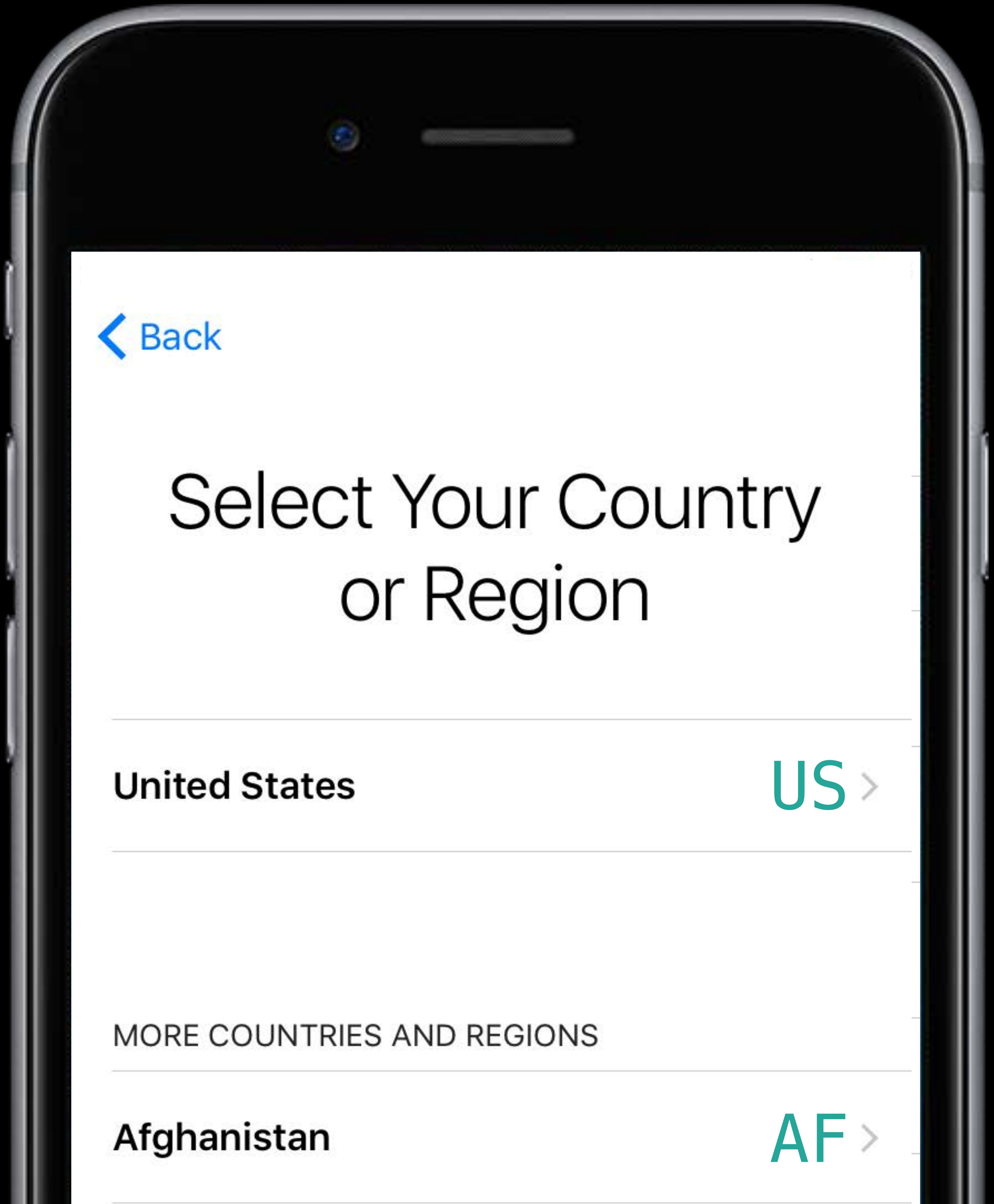
Afghanistan

Fundamentals

Language Selection



English	en
Español	es
简体中文	zh-Hans
繁體中文	zh-Hant
日本語	ja



Select Your Country or Region

United States	US

MORE COUNTRIES AND REGIONS

Afghanistan	AF

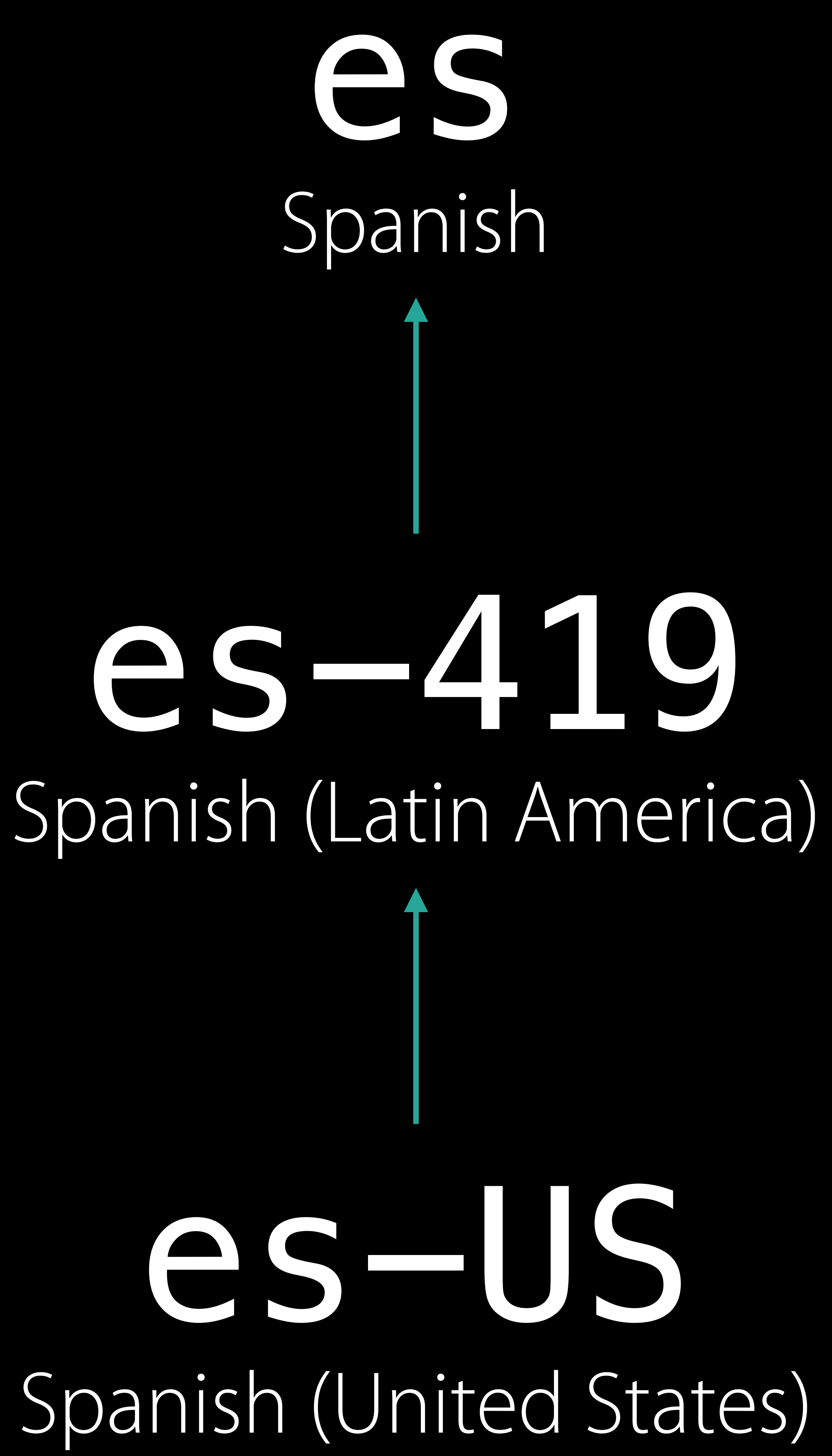
Fundamentals

Language Selection

`es-US`

Fundamentals

Language Selection



es

Spanish

es-419

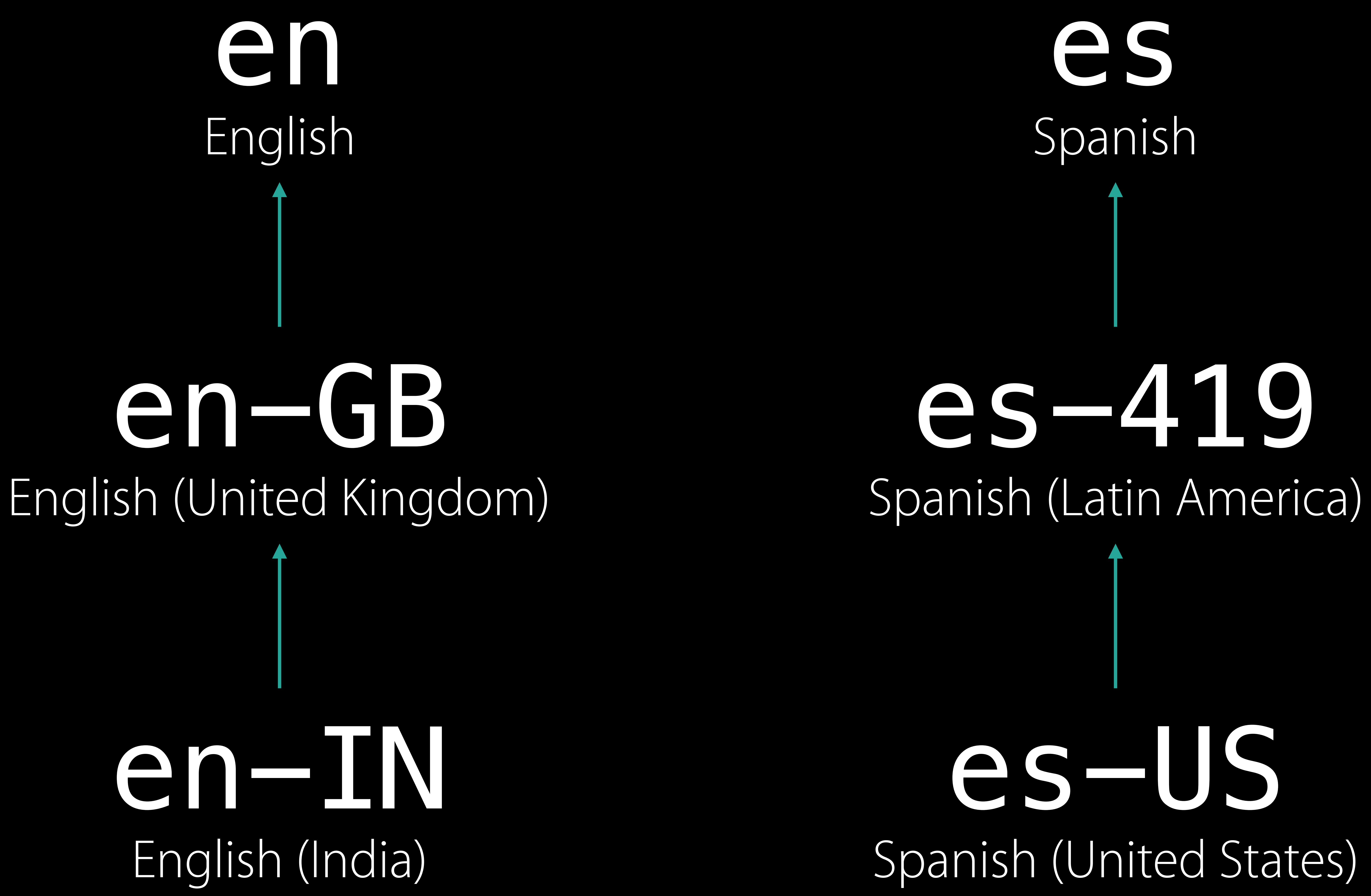
Spanish (Latin America)

es-US

Spanish (United States)

Fundamentals

Language Selection



en
English

en-GB
English (United Kingdom)

en-IN
English (India)

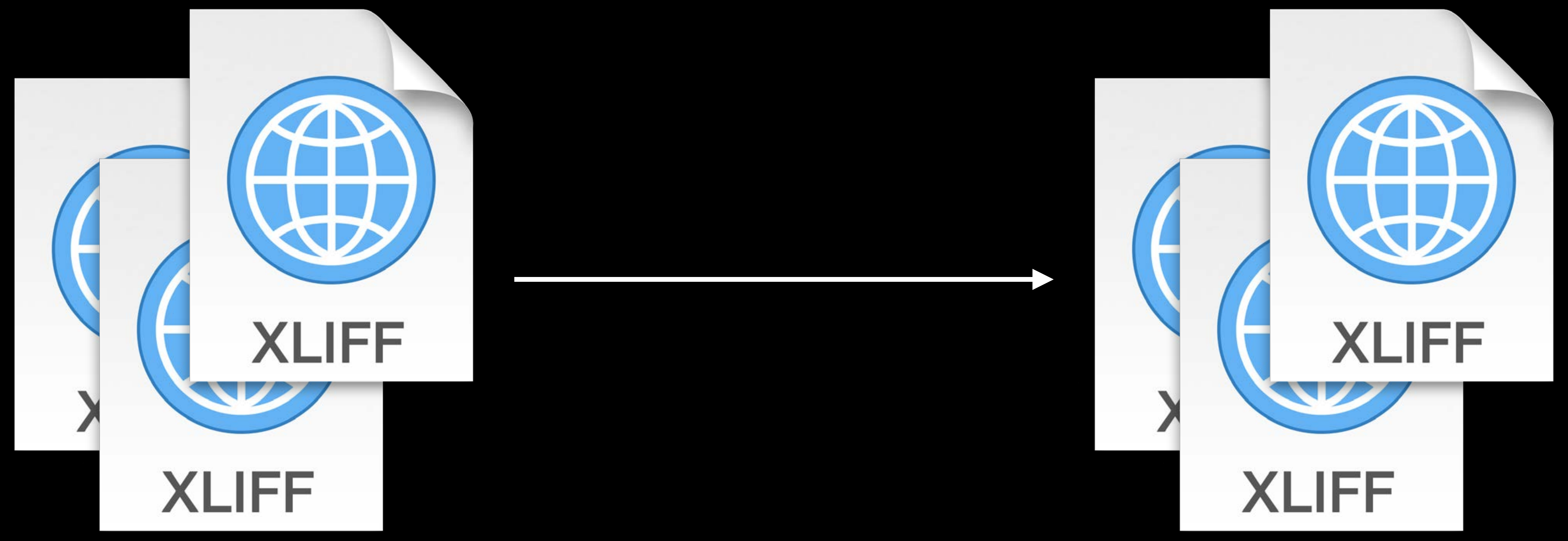
es
Spanish

es-419
Spanish (Latin America)

es-US
Spanish (United States)

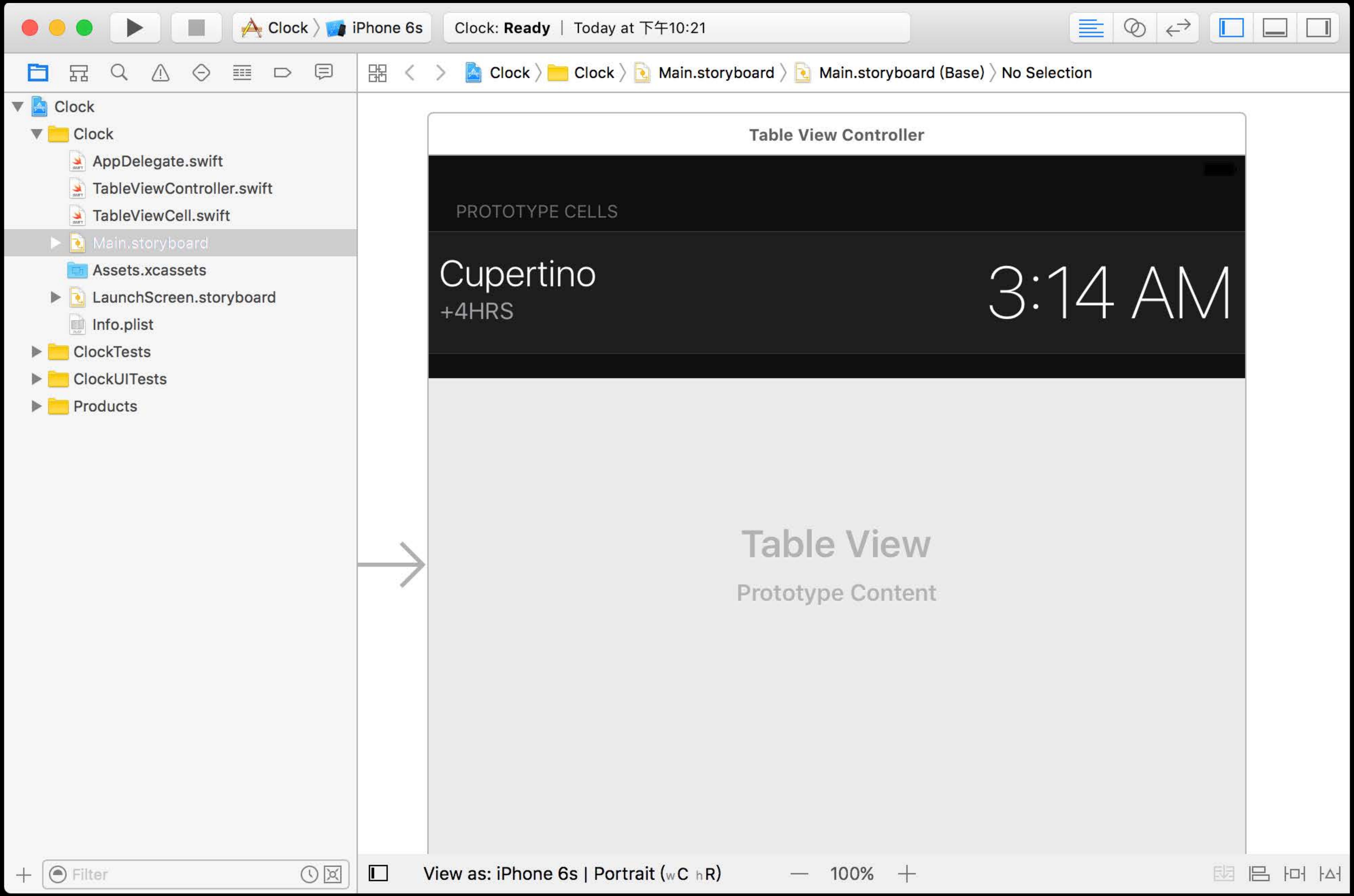
Quick Fixes

Localize Strings



Localize Strings

Localized strings loaded automatically when using Base Internationalization with storyboards



Localize Strings

Load strings for views created in code using `NSLocalizedString`, which uses `Bundle`'s language matching logic

```
// Set localized string to label
label.text = NSLocalizedString("World Clock", comment: "Title text")
```

Localize Strings

When fetching strings from a server, use the language your app is launched in by calling `preferredLocalizations`,which uses `Bundle`’s language matching logic

```
// Get the localization the app is currently launched in
let currentLocalization = Bundle.main().preferredLocalizations.first
```

Localize Strings

Get the best matched localization from a list of available localizations by calling `preferredLocalizations`, which uses `Bundle`’s language matching logic

```swift
// Get best localization match from a list of available localizations
let matchedLocalization = Bundle.preferredLocalizations(from: available).first
```

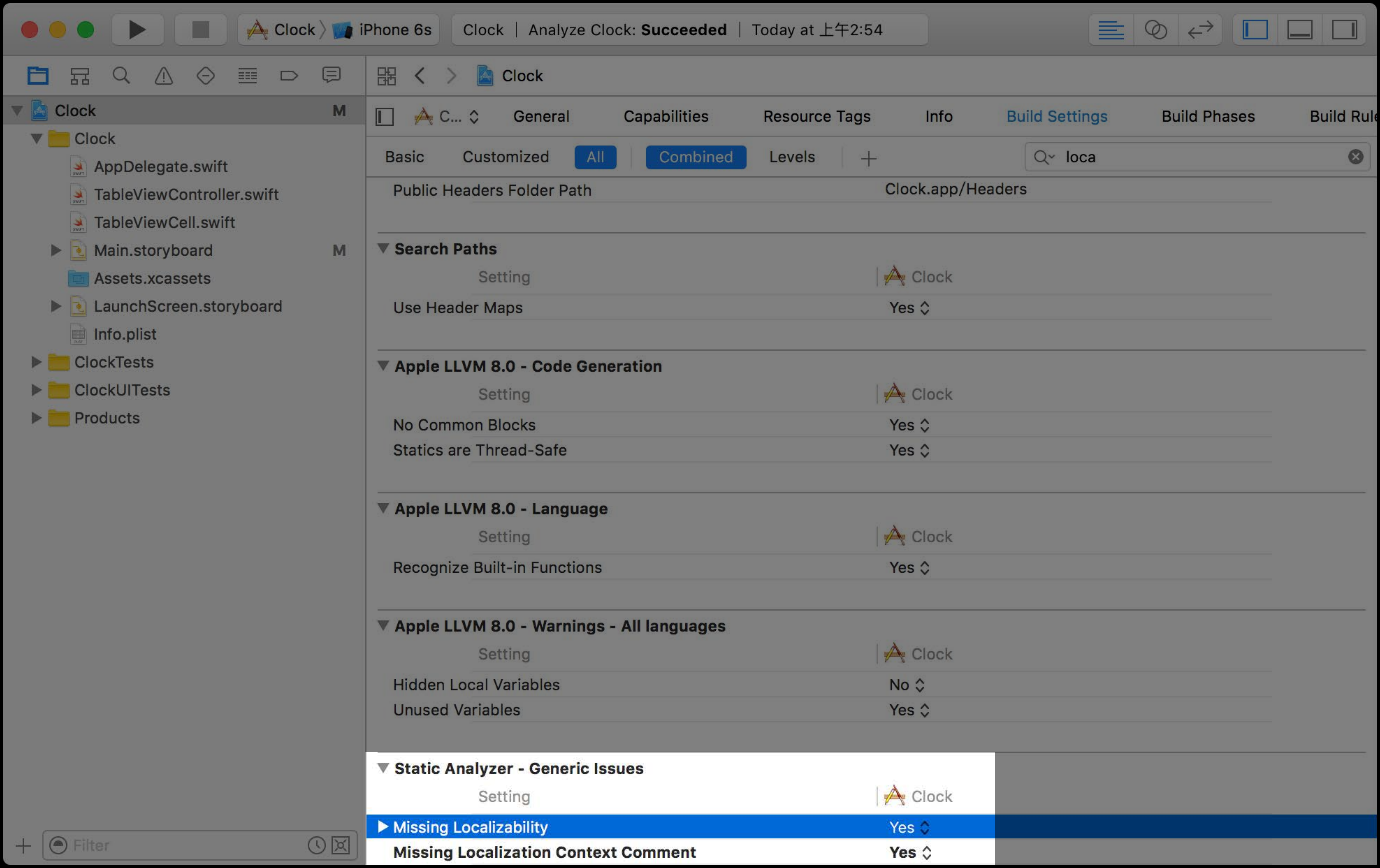
Localize Strings

Bundle's language matching logic

`Bundle` performs complex language matching under the hood so you don't have to!

`Locale.preferredLanguages`	`bundle.localizations`	`bundle.preferredLocalizations`
en-US	en, en-GB, es-ES, es-419, zh-Hans	en
en-IN	en, en-GB, es-ES, es-419, zh-Hans	en-GB
es-MX	en, en-GB, es-ES, es-419, zh-Hans	es-419
zh-CN	en, es, fr, ja, ko, zh-Hans, zh-Hant	zh-Hans
zh-HK	en, es, fr, ja, ko, zh-Hans, zh-Hant	zh-Hant

NEW



Public Headers Folder Path Clock.app/Headers

Search Paths

Setting	Clock
Use Header Maps	Yes ⌃⌄

Apple LLVM 8.0 - Code Generation

Setting	Clock
No Common Blocks	Yes ⌃⌄
Statics are Thread-Safe	Yes ⌃⌄

Apple LLVM 8.0 - Language

Setting	Clock
Recognize Built-in Functions	Yes ⌃⌄

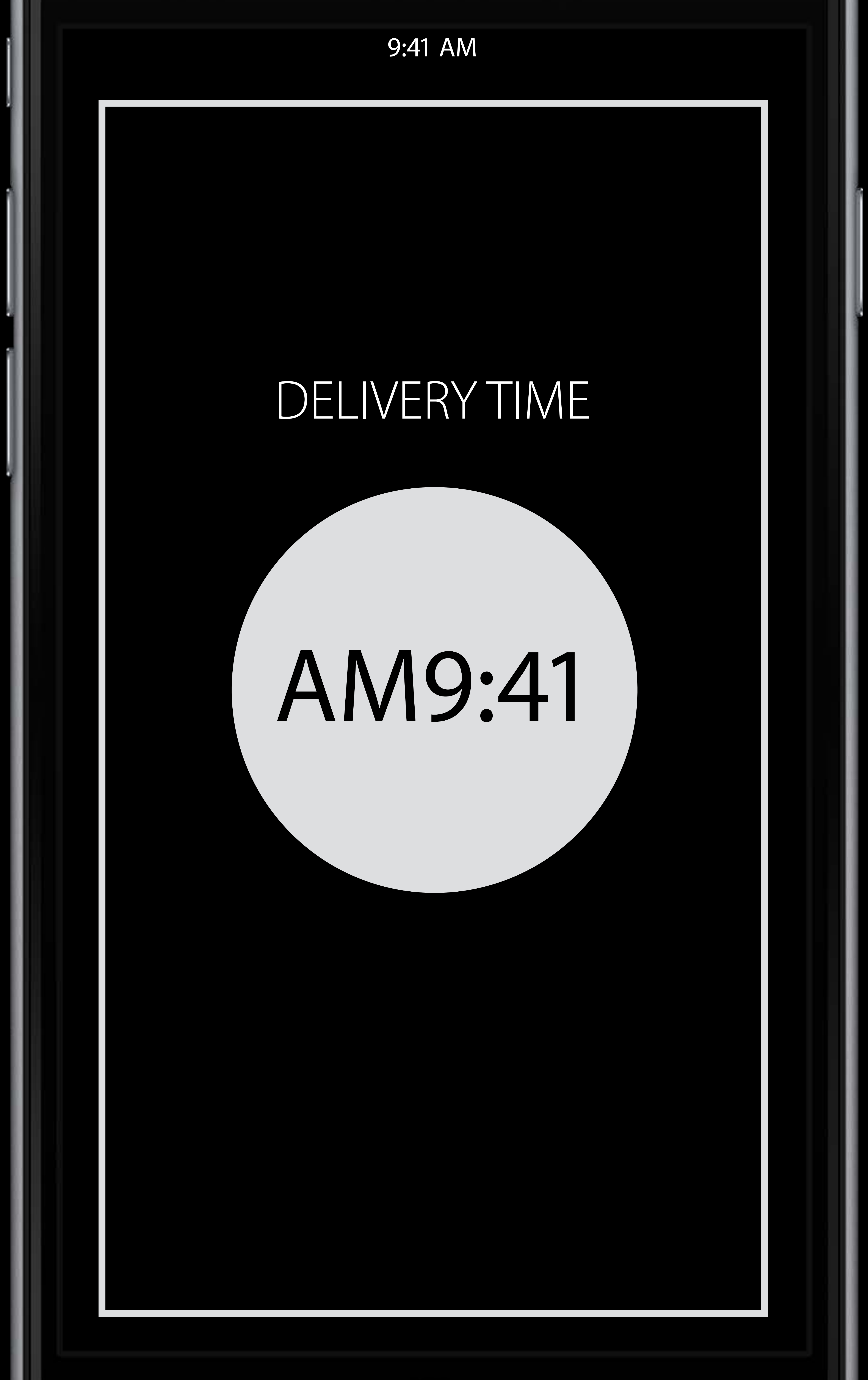
Apple LLVM 8.0 - Warnings - All languages

Setting	Clock
Hidden Local Variables	No ⌃⌄
Unused Variables	Yes ⌃⌄

Static Analyzer - Generic Issues

Setting	Clock
Missing Localizability	Yes ⌃⌄
Missing Localization Context Comment	**Yes** ⌃⌄

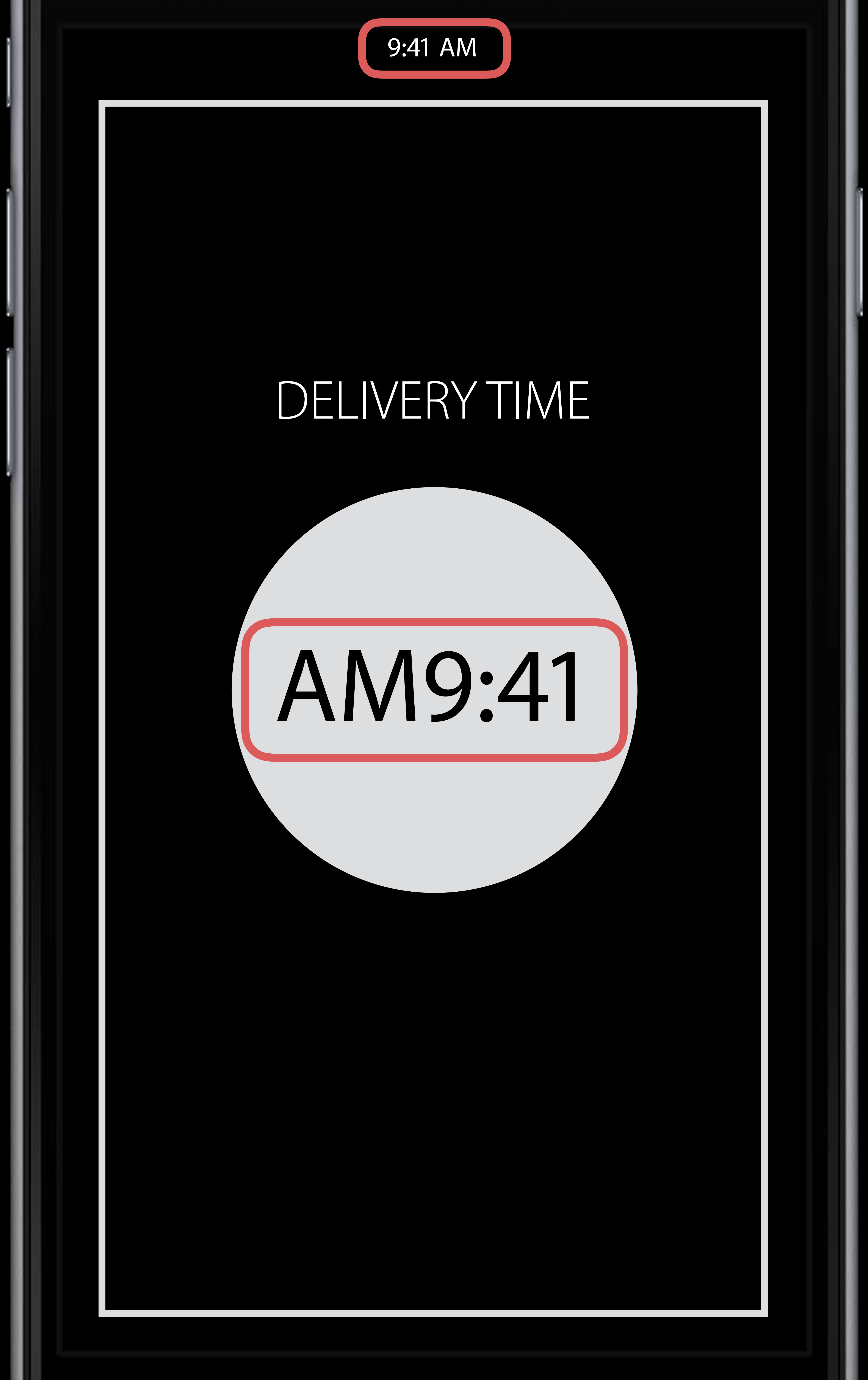
Formatters

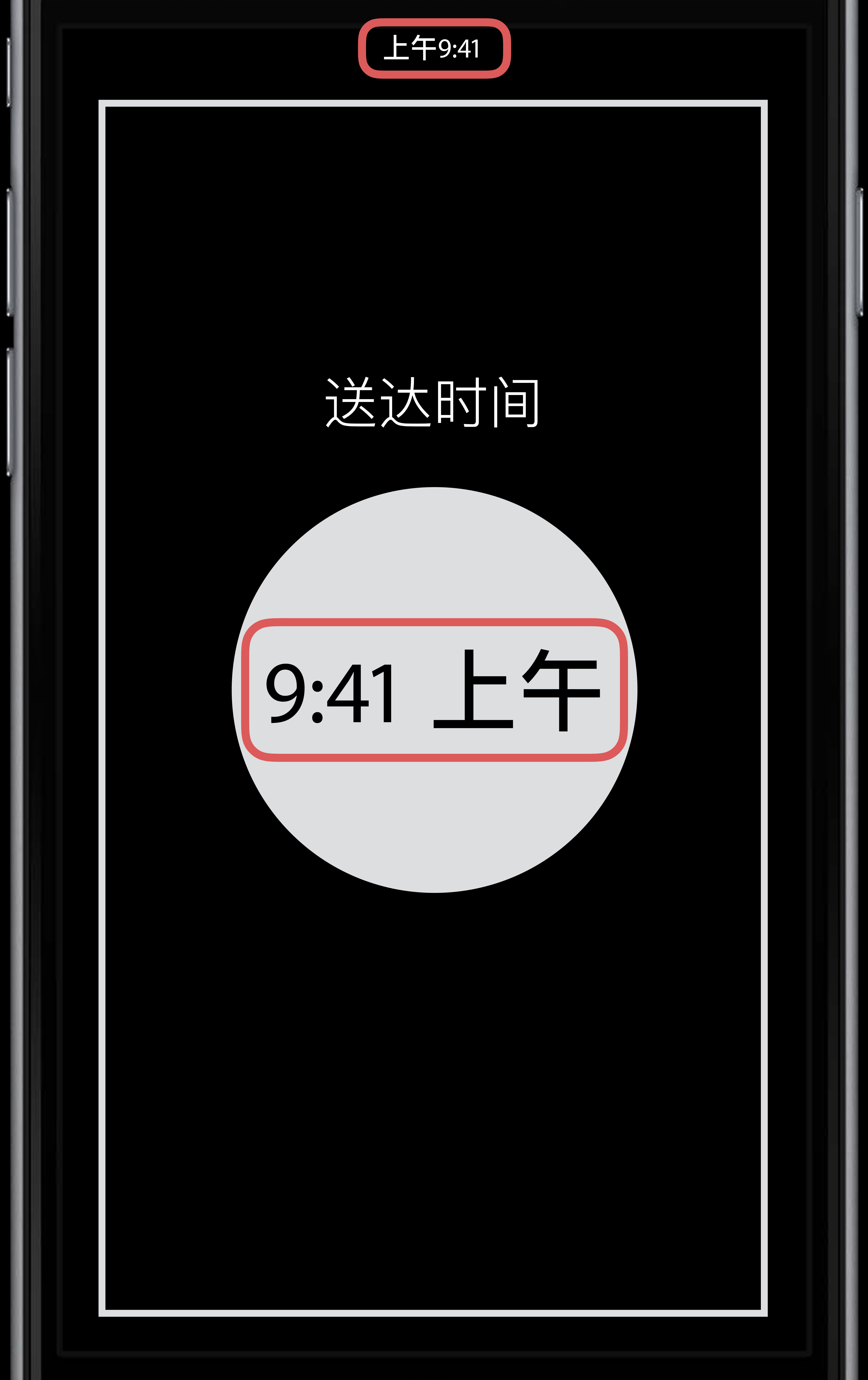


9:41 AM

DELIVERY TIME

AM9:41


9:41 AM
DELIVERY TIME
AM9:41



上午9:41

送达时间

9:41 上午

```swift
// FORMATTERS
// Date & Time

var formatter = DateFormatter()
formatter.dateFormat = "hh:mm a"
let str = formatter.string(from: date) // 9:41 AM for English (U.S.)
```

```
// FORMATTERS
// Date & Time
```

⊗

```swift
var formatter = DateFormatter()
formatter.dateFormat = "hh:mm a"
let str = formatter.string(from: date) // 9:41 AM for English (U.S.)
```

```
// FORMATTERS
// Date & Time

var formatter = DateFormatter()
formatter.dateFormat = "hh:mm a"
let str = formatter.string(from: date) // 9:41 上午 for Simplified Chinese
```

✓

```swift
// FORMATTERS
// Date & Time

var formatter = DateFormatter()
formatter.timeStyle = .shortStyle
let str = formatter.string(from: date) // 9:41 AM for English (U.S.)
```

✓

```swift
// FORMATTERS
// Date & Time

var formatter = DateFormatter()
formatter.timeStyle = .shortStyle
let str = formatter.string(from: date) // 上午9:41 for Simplified Chinese
```

```swift
// FORMATTERS
// Built-in time styles

var formatter = NSDateFormatter()

formatter.timeStyle = .shortStyle
let str = formatter.string(from: date) // 9:41 AM

formatter.timeStyle = .mediumStyle
let str = formatter.string(from: date) // 9:41:19 AM

formatter.timeStyle = .longStyle
let str = formatter.string(from: date) // 9:41:19 AM PDT

formatter.timeStyle = .fullStyle
let str = formatter.string(from: date) // 9:41:19 AM Pacific Daylight Time
```

```
// FORMATTERS
// Built-in time styles

var formatter = NSDateFormatter()

formatter.timeStyle = .shortStyle
let str = formatter.string(from: date) // 9:41 AM

formatter.timeStyle = .mediumStyle
let str = formatter.string(from: date) // 9:41:19 AM

formatter.timeStyle = .longStyle
let str = formatter.string(from: date) // 9:41:19 AM PDT

formatter.timeStyle = .fullStyle
let str = formatter.string(from: date) // 9:41:19 AM Pacific Daylight Time
```

```
// FORMATTERS
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var formatter = NSDateFormatter()

formatter.timeStyle = .shortStyle
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formatter.timeStyle = .mediumStyle
let str = formatter.string(from: date) // 9:41:19 AM

formatter.timeStyle = .longStyle
let str = formatter.string(from: date) // 9:41:19 AM PDT

formatter.timeStyle = .fullStyle
let str = formatter.string(from: date) // 9:41:19 AM Pacific Daylight Time
```

```
// FORMATTERS
// Built-in time styles

var formatter = NSDateFormatter()

formatter.timeStyle = .shortStyle
let str = formatter.string(from: date) // 9:41 AM

formatter.timeStyle = .mediumStyle
let str = formatter.string(from: date) // 9:41:19 AM

formatter.timeStyle = .longStyle
let str = formatter.string(from: date) // 9:41:19 AM PDT

formatter.timeStyle = .fullStyle
let str = formatter.string(from: date) // 9:41:19 AM Pacific Daylight Time
```

```
// FORMATTERS
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var formatter = NSDateFormatter()

formatter.timeStyle = .shortStyle
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formatter.timeStyle = .mediumStyle
let str = formatter.string(from: date) // 9:41:19 AM

formatter.timeStyle = .longStyle
let str = formatter.string(from: date) // 9:41:19 AM PDT

formatter.timeStyle = .fullStyle
let str = formatter.string(from: date) // 9:41:19 AM Pacific Daylight Time
```

```
// FORMATTERS
// Built-in time styles

var formatter = NSDateFormatter()

formatter.timeStyle = .shortStyle
let str = formatter.string(from: date) // 9:41 AM

formatter.timeStyle = .mediumStyle
let str = formatter.string(from: date) // 9:41:19 AM

formatter.timeStyle = .longStyle
let str = formatter.string(from: date) // 9:41:19 AM PDT

formatter.timeStyle = .fullStyle
let str = formatter.string(from: date) // 9:41:19 AM Pacific Daylight Time
```

```
// FORMATTERS
// Built-in date styles

var formatter = NSDateFormatter()

formatter.dateStyle = .shortStyle
let str = formatter.string(from: date) // 6/14/16

formatter.dateStyle = .mediumStyle
let str = formatter.string(from: date) // Jun 14, 2016

formatter.dateStyle = .longStyle
let str = formatter.string(from: date) // June 14, 2016

formatter.dateStyle = .fullStyle
let str = formatter.string(from: date) // Tuesday, June 14, 2016
```

```
// FORMATTERS
// Custom date and time formats

var formatter = NSDateFormatter()

formatter.setLocalizedDateFormatFromTemplate("yMd")
let str = formatter.string(from: date) // 6/14/2016

formatter.setLocalizedDateFormatFromTemplate("dM")
let str = formatter.string(from: date) // 6/14

formatter.setLocalizedDateFormatFromTemplate("dMMM")
let str = formatter.string(from: date) // Jun 14

formatter.setLocalizedDateFormatFromTemplate("EdMMM")
let str = formatter.string(from: date) // Tue, Jun 14
```

```swift
// FORMATTERS
// Date components and date intervals

var components = DateComponents()
components.hour = 4
components.minute = 25
var formatter = DateComponentsFormatter()
formatter.unitsStyle = .brief
let str = formatter.string(from: components) // 4hr 25min

var components = DateInterval(start: date, duration: 3600)
var formatter = DateIntervalFormatter()
formatter.dateStyle = .none
formatter.timeStyle = .short
let str = formatter.string(from: components) // 9:00 – 9:40 AM
```

```
// FORMATTERS
// Date components and date intervals
```

```
var components = DateComponents()
components.hour = 4
components.minute = 25
var formatter = DateComponentsFormatter()
formatter.unitsStyle = .brief
let str = formatter.string(from: components) // 4hr 25min
```

```
var components = DateInterval(start: date, duration: 3600)
var formatter = DateIntervalFormatter()
formatter.dateStyle = .none
formatter.timeStyle = .short
let str = formatter.string(from: components) // 9:00 – 9:40 AM
```

```
// FORMATTERS
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var components = DateComponents()
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formatter.unitsStyle = .brief
let str = formatter.string(from: components) // 4hr 25min
```

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var components = DateInterval(start: date, duration: 3600)
var formatter = DateIntervalFormatter()
formatter.dateStyle = .none
formatter.timeStyle = .short
let str = formatter.string(from: components) // 9:00 – 9:40 AM
```

```swift
// FORMATTERS
// Date components and date intervals

var components = DateComponents()
components.hour = 4
components.minute = 25
var formatter = DateComponentsFormatter()
formatter.unitsStyle = .brief
let str = formatter.string(from: components) // 4hr 25min

var components = DateInterval(start: date, duration: 3600)
var formatter = DateIntervalFormatter()
formatter.dateStyle = .none
formatter.timeStyle = .short
let str = formatter.string(from: components) // 9:00 – 9:40 AM
```

Formatters

Names

Formatters

Names

Formatters

Names

AppleseedJohn

士睿 闵

Formatters

Names

AppleseedJohn

士睿 闵

⊗

Formatters

Names

AppleseedJohn	John Appleseed
士睿 闵	闵士睿
✗	✓

```swift
var components = PersonNameComponents()
components.givenName = "John"
components.middleName = "Adam"
components.familyName = "Appleseed"

let formatter = PersonNameComponentsFormatter()
formatter.style = .long
let str = formatter.string(from: components) // John Adam Appleseed

formatter.style = .medium
let str = formatter.string(from: components) // John Appleseed

formatter.style = .short
let str = formatter.string(from: components) // John

formatter.style = .abbreviated
let str = formatter.string(from: components) // JA
```

```swift
var components = PersonNameComponents()
components.givenName = "John"
components.middleName = "Adam"
components.familyName = "Appleseed"

let formatter = PersonNameComponentsFormatter()
formatter.style = .long
let str = formatter.string(from: components) // John Adam Appleseed

formatter.style = .medium
let str = formatter.string(from: components) // John Appleseed

formatter.style = .short
let str = formatter.string(from: components) // John

formatter.style = .abbreviated
let str = formatter.string(from: components) // JA
```

```swift
var components = PersonNameComponents()
components.givenName = "John"
components.middleName = "Adam"
components.familyName = "Appleseed"

let formatter = PersonNameComponentsFormatter()
formatter.style = .long
let str = formatter.string(from: components) // John Adam Appleseed

formatter.style = .medium
let str = formatter.string(from: components) // John Appleseed

formatter.style = .short
let str = formatter.string(from: components) // John

formatter.style = .abbreviated
let str = formatter.string(from: components) // JA
```

```swift
var components = PersonNameComponents()
components.givenName = "士睿"
components.familyName = "闵"
components.nickname = "阿睿"

let formatter = PersonNameComponentsFormatter()
formatter.style = .long
let str = formatter.string(from: components) // 闵士睿

formatter.style = .medium
let str = formatter.string(from: components) // 闵士睿

formatter.style = .short
let str = formatter.string(from: components) // 阿睿

formatter.style = .abbreviated
let str = formatter.string(from: components) // 闵
```

NEW

```swift
// FORMATTERS
// Name Parsing

let formatter = PersonNameComponentsFormatter()

if let components = formatter.personNameComponents(from: "John Appleseed") {
    print(components.givenName) // John
    print(components.familyName) // Appleseed
}

if let components = formatter.personNameComponents(from: "Appleseed John") {
    print(components.givenName) // John
    print(components.familyName) // Appleseed
}
```

NEW

```swift
// FORMATTERS
// Name Parsing

let formatter = PersonNameComponentsFormatter()

if let components = formatter.personNameComponents(from: "John Appleseed") {
    print(components.givenName) // John
    print(components.familyName) // Appleseed
}

if let components = formatter.personNameComponents(from: "Appleseed John") {
    print(components.givenName) // John
    print(components.familyName) // Appleseed
}
```

NEW

```swift
// FORMATTERS
// Name Parsing

let formatter = PersonNameComponentsFormatter()

if let components = formatter.personNameComponents(from: "John Appleseed") {
    print(components.givenName) // John
    print(components.familyName) // Appleseed
}

if let components = formatter.personNameComponents(from: "Appleseed John") {
    print(components.givenName) // John
    print(components.familyName) // Appleseed
}
```

NEW

```swift
// FORMATTERS
// Name Parsing

if let components = formatter.personNameComponents(from: "闵士睿") {
    print(components.givenName) // 士睿
    print(components.familyName) // 闵
}

if let components = formatter.personNameComponents(from: "José Ramiro Martin González de Rivera") {
    print(components.givenName) // José
    print(components.middleName) // Ramiro
    print(components.familyName) // Martin González de Rivera
}
```

```
// FORMATTERS
// Summary

ByteCountFormatter
DateFormatter
DateComponentsFormatter
DateIntervalFormatter
NumberFormatter
PersonNameComponentsFormatter
MeasurementFormatter
```

```
// FORMATTERS
// Summary

ByteCountFormatter
DateFormatter
DateComponentsFormatter
DateIntervalFormatter
NumberFormatter
PersonNameComponentsFormatter
MeasurementFormatter
```

```
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PersonNameComponentsFormatter
MeasurementFormatter
```

```
// FORMATTERS
// Summary

ByteCountFormatter
DateFormatter
DateComponentsFormatter
DateIntervalFormatter
NumberFormatter
PersonNameComponentsFormatter
MeasurementFormatter
```

NEW

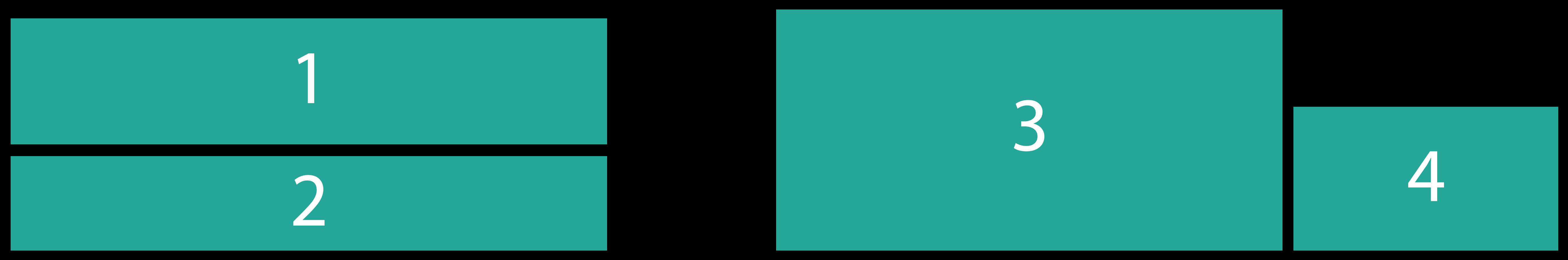
Measurements and Units Presidio Friday 4:00PM

Layout

Part 1: Horizontal Flexibility

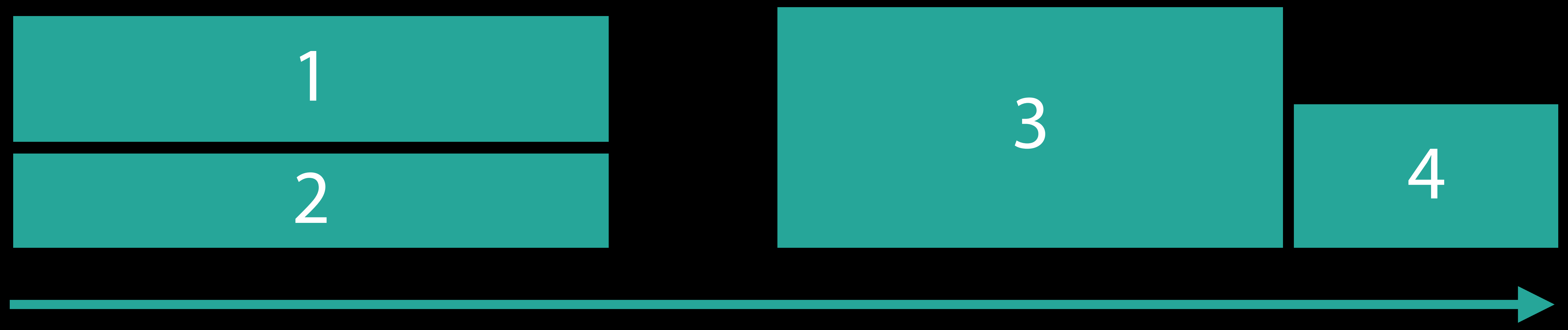
Layout

Use Auto Layout



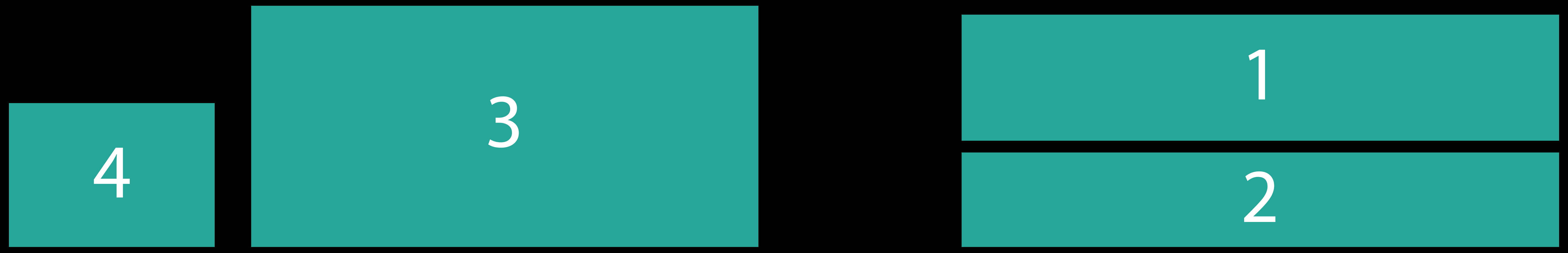
Layout

Use Auto Layout



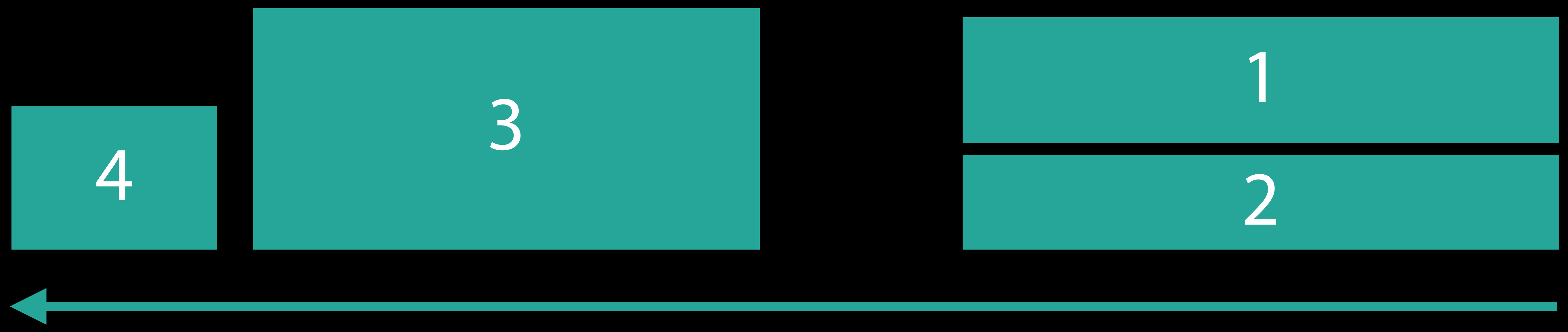
Layout

Use Auto Layout



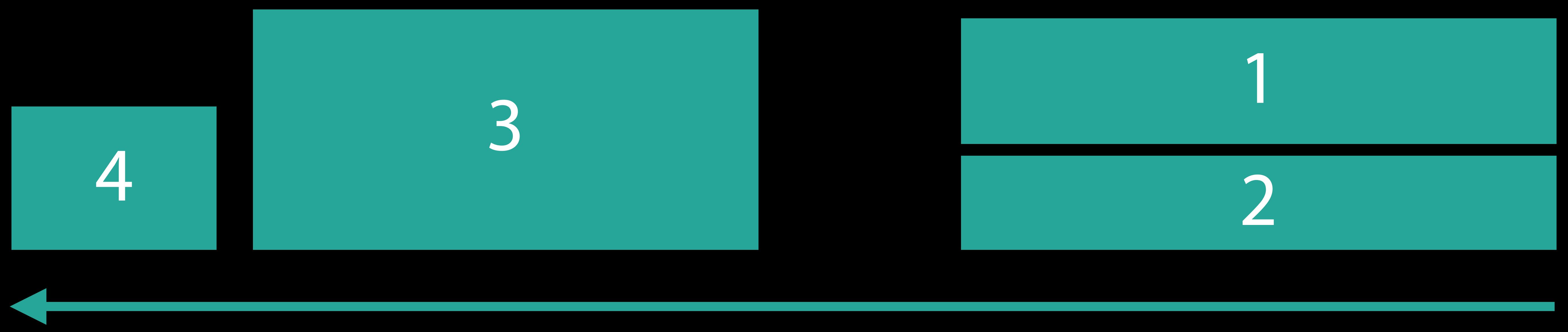
Layout

Use Auto Layout



Layout

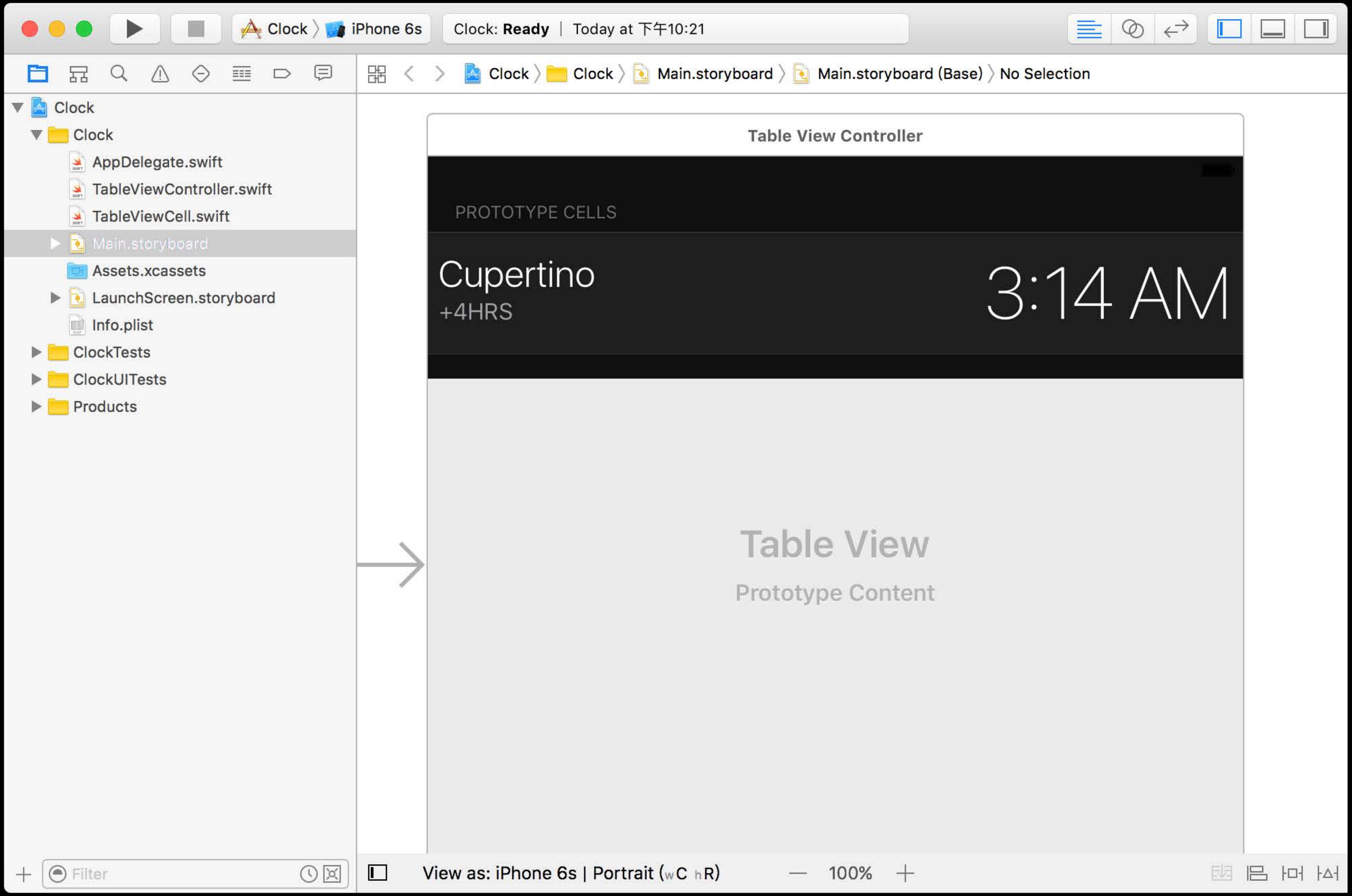
Use Auto Layout

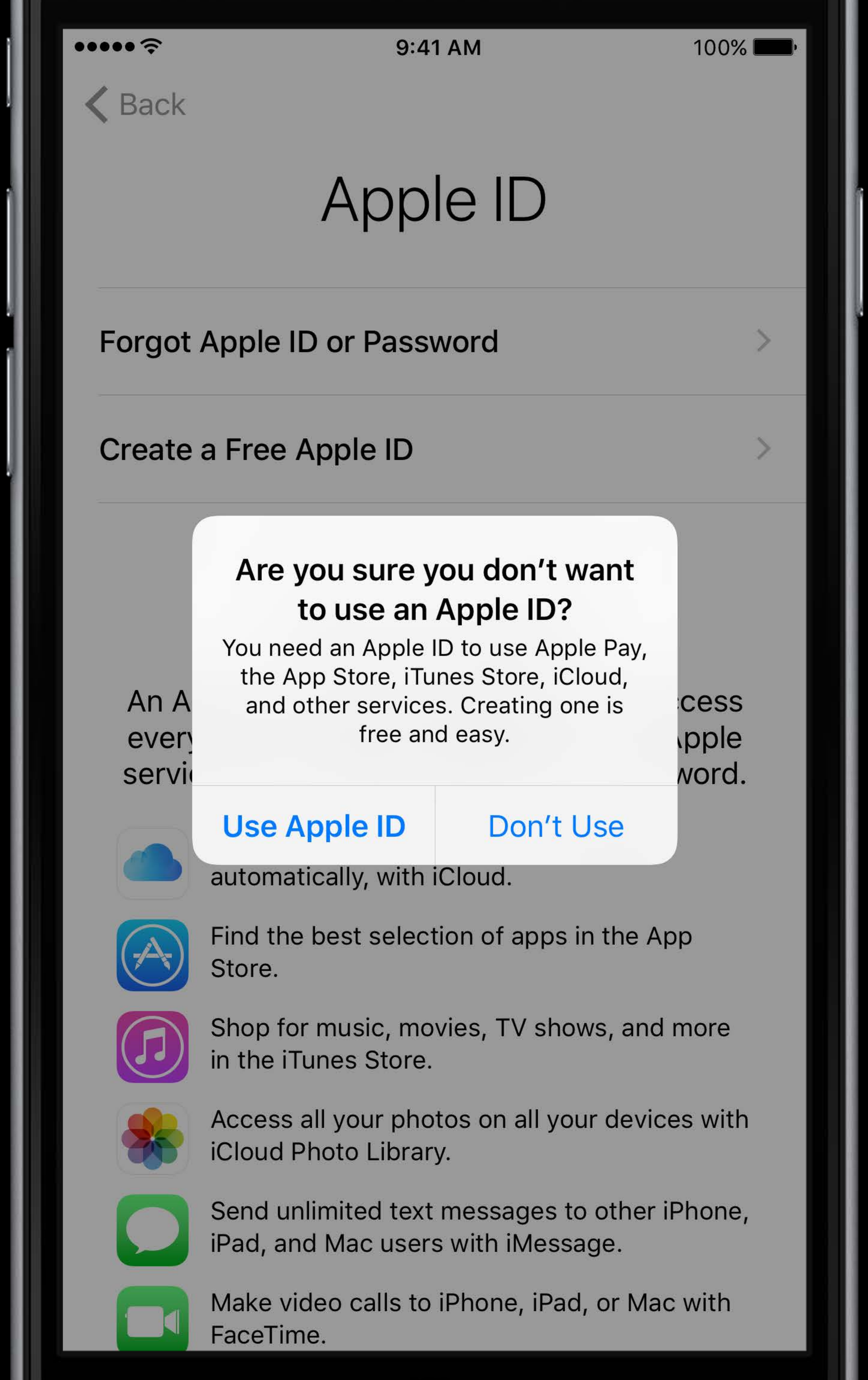


What's New in Auto Layout	Presidio	Friday 3:00PM
Mysteries of Auto Layout, Part 1		WWDC 2015

Layout

Use UIStackView & NSStackView





Apple ID

Forgot Apple ID or Password

Create a Free Apple ID

Are you sure you don’t want to use an Apple ID?

You need an Apple ID to use Apple Pay, the App Store, iTunes Store, iCloud, and other services. Creating one is free and easy.

An A ccess
every pple
servi word.

automatically, with iCloud.

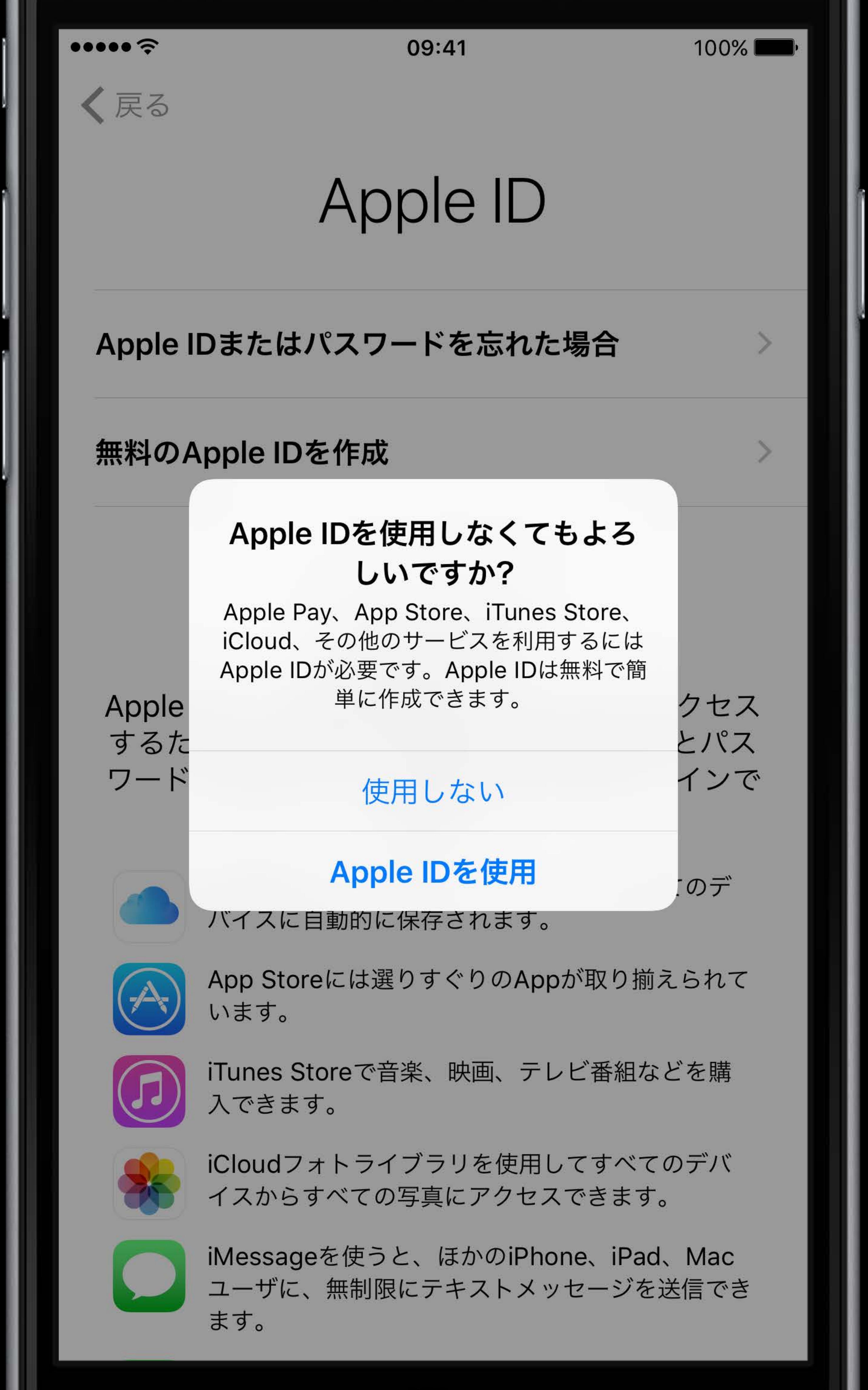
Find the best selection of apps in the App Store.

Shop for music, movies, TV shows, and more in the iTunes Store.

Access all your photos on all your devices with iCloud Photo Library.

Send unlimited text messages to other iPhone, iPad, and Mac users with iMessage.

Make video calls to iPhone, iPad, or Mac with FaceTime.



Apple ID

Apple IDまたはパスワードを忘れた場合

無料のApple IDを作成

Apple　クセス
するた　とパス
ワード　インで

Apple IDを使用しなくてもよろしいですか?

Apple Pay、App Store、iTunes Store、iCloud、その他のサービスを利用するにはApple IDが必要です。Apple IDは無料で簡単に作成できます。

のデ
バイスに自動的に保存されます。

App Storeには選りすぐりのAppが取り揃えられています。

iTunes Storeで音楽、映画、テレビ番組などを購入できます。

iCloudフォトライブラリを使用してすべてのデバイスからすべての写真にアクセスできます。

iMessageを使うと、ほかのiPhone、iPad、Macユーザに、無制限にテキストメッセージを送信できます。

Layout

Part 2: Vertical Flexibility

Layout

Vertical Flexibility – Tall Scripts

Ẳng ลูกน้ำ ثوانٍ लड्डू

Vietnamese Thai Arabic Hindi

Layout

Vertical Flexibility – Tall Scripts

Ắng ลูกน้ำ ثوان लड्डू

```
// Default is false, but is often erroneously set to true
label.clipsToBounds = true
```

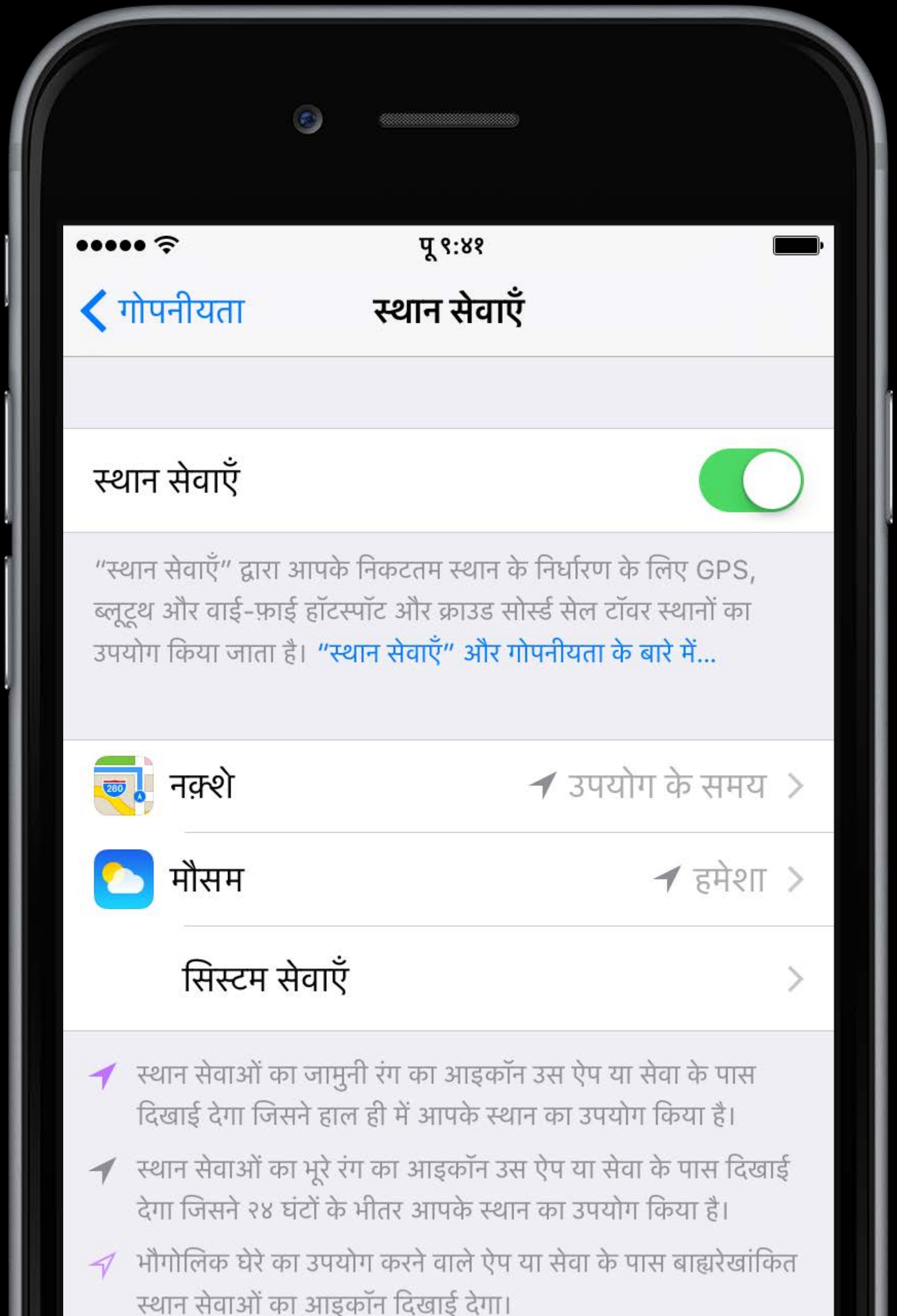
Layout

Vertical Flexibility – Tall Scripts

✓

Ẳng ลูกน้ำ ثوانٍ लड्डू

```
// Default is false, but is often erroneously set to true
label.clipsToBounds = false
```



पू ९:४१

गोपनीयता

स्थान सेवाएँ

स्थान सेवाएँ

"स्थान सेवाएँ" द्वारा आपके निकटतम स्थान के निर्धारण के लिए GPS, ब्लूटूथ और वाई-फ़ाई हॉटस्पॉट और क्राउड सोर्स्ड सेल टॉवर स्थानों का उपयोग किया जाता है। "स्थान सेवाएँ" और गोपनीयता के बारे में...

नक़्शे उपयोग के समय

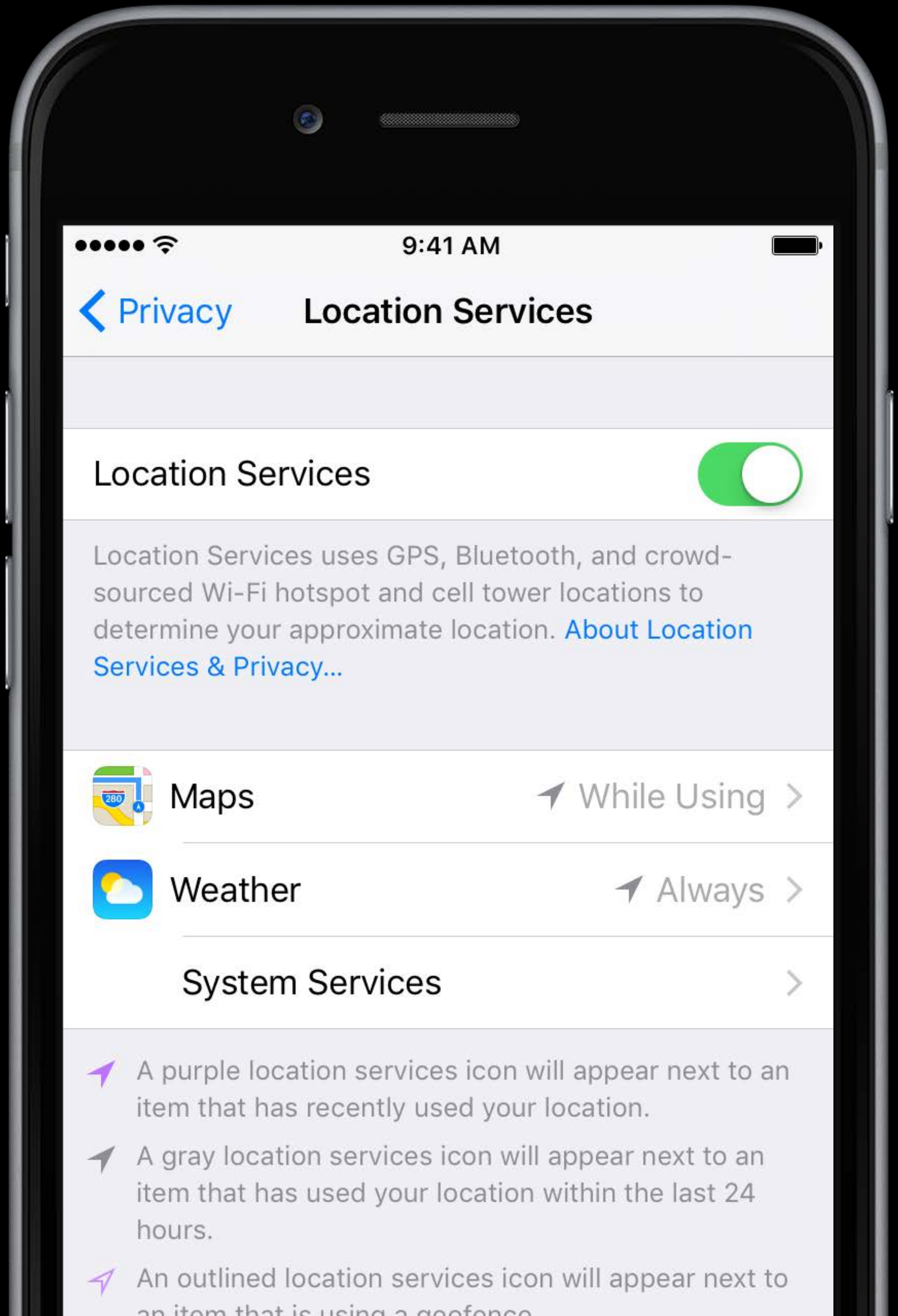
मौसम हमेशा

सिस्टम सेवाएँ

स्थान सेवाओं का जामुनी रंग का आइकॉन उस ऐप या सेवा के पास दिखाई देगा जिसने हाल ही में आपके स्थान का उपयोग किया है।

स्थान सेवाओं का भूरे रंग का आइकॉन उस ऐप या सेवा के पास दिखाई देगा जिसने २४ घंटों के भीतर आपके स्थान का उपयोग किया है।

भौगोलिक घेरे का उपयोग करने वाले ऐप या सेवा के पास बाह्यरेखांकित स्थान सेवाओं का आइकॉन दिखाई देगा।



9:41 AM

Privacy

Location Services

Location Services

Location Services uses GPS, Bluetooth, and crowd-sourced Wi-Fi hotspot and cell tower locations to determine your approximate location. About Location Services & Privacy...

Maps While Using

Weather Always

System Services

A purple location services icon will appear next to an item that has recently used your location.

A gray location services icon will appear next to an item that has used your location within the last 24 hours.

An outlined location services icon will appear next to an item that is using a geofence.

Layout

Vertical Flexibility – Multi-Line Labels

English

Latin Script

A geofence is a virtual perimeter around a location. Apps use geofencing to notify you when you arrive at or leave these locations.

Hindi

Devanagari Script

भौगोलिक घेरा किसी स्थान के चारों ओर का आभासी परिमाप होता है। ऐप्स भौगोलिक घेरों का उपयोग करते हैं ताकि वे आपको सूचित कर सकें जब आप किसी स्थान पर पहुँचते हैं या वहाँ से निकलते हैं।

Layout

Vertical Flexibility – Multi-Line Labels

✕

English

Latin Script

A geofence is a virtual perimeter
around a location. Apps use
geofencing to notify you when you
arrive at or leave these locations.

Hindi

Devanagari Script

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करते हैं ताकि वे आपको सूचित कर सकें जब आप
किसी स्थान पर पहुँचते हैं या वहाँ से निकलते हैं।

Layout

Vertical Flexibility – Multi-Line Labels

✓

English Latin Script	Hindi Devanagari Script
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Layout

Vertical Flexibility – Multi-Line Labels

Dynamic Type will ensure script-appropriate line spacing

Use predefined text styles to get Dynamic Type for free

```
// Getting the preferred font for predefined text styles ensures appropriate font weight and
line height adjustments for different languages
label.font = UIFont.preferredFont(forTextStyle: UIFontTextStyleBody)
```

Layout

Vertical Flexibility – Multi-Line Labels

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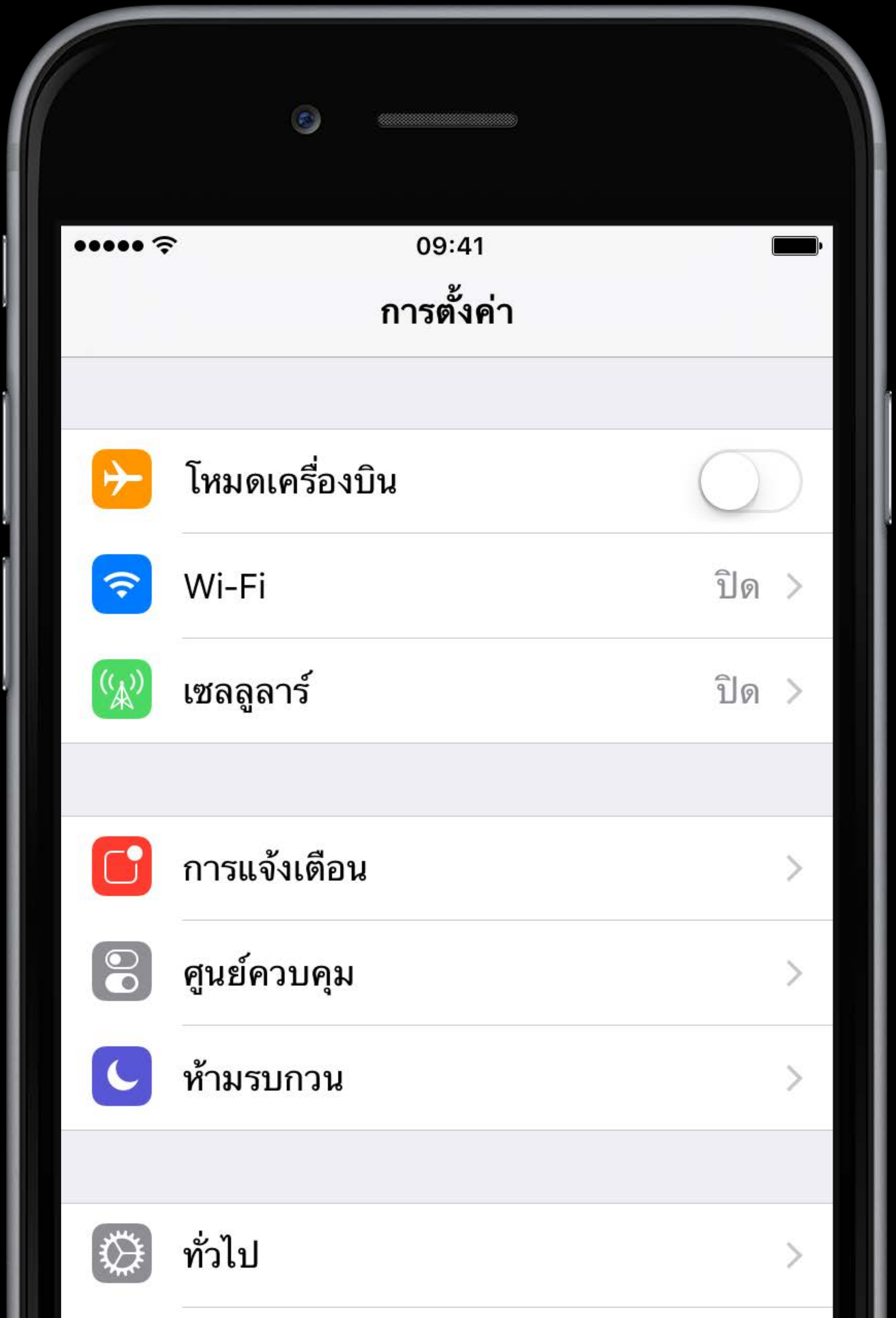
Fonts and Typography Presidio Wednesday 9:00AM



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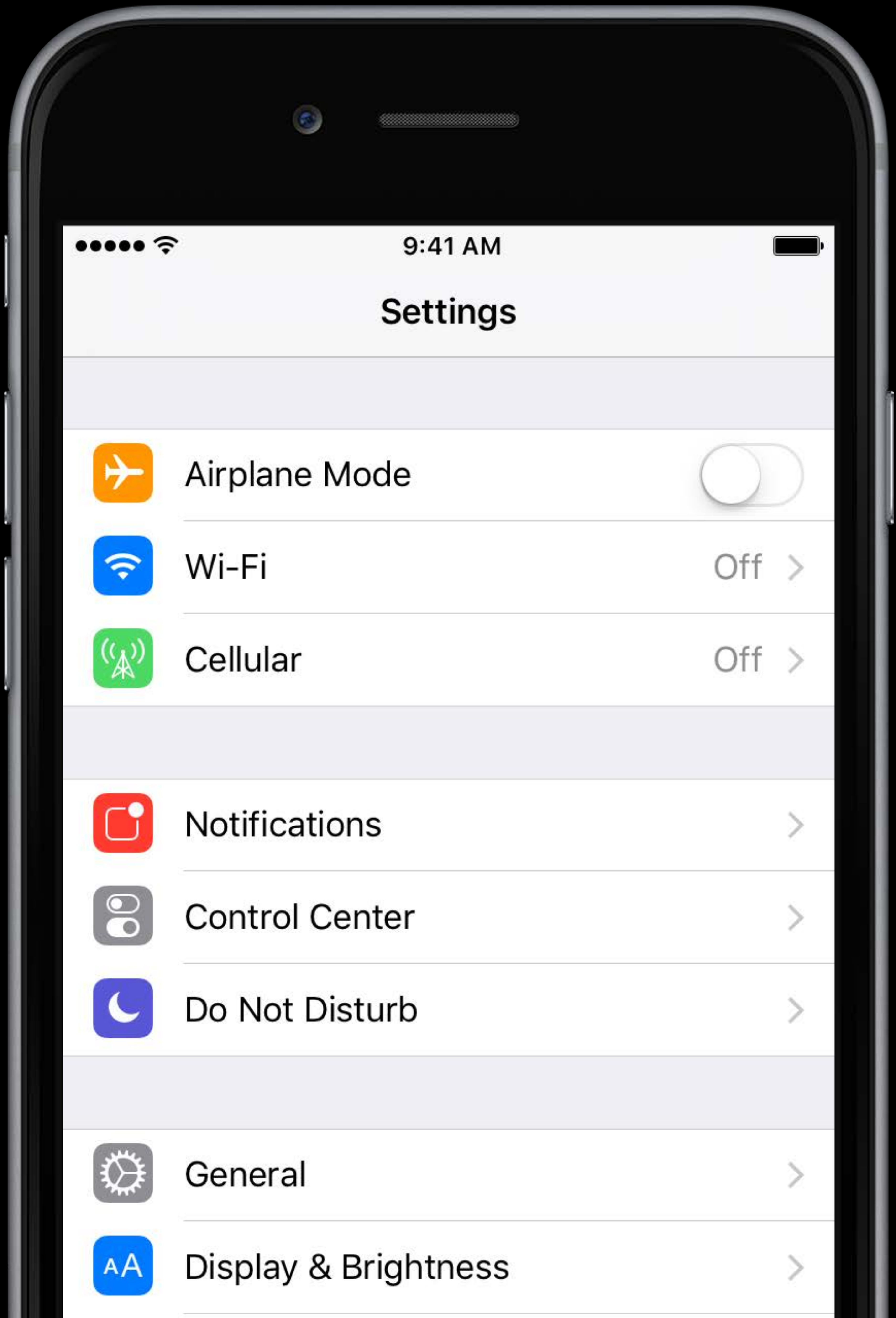
การตั้งค่า

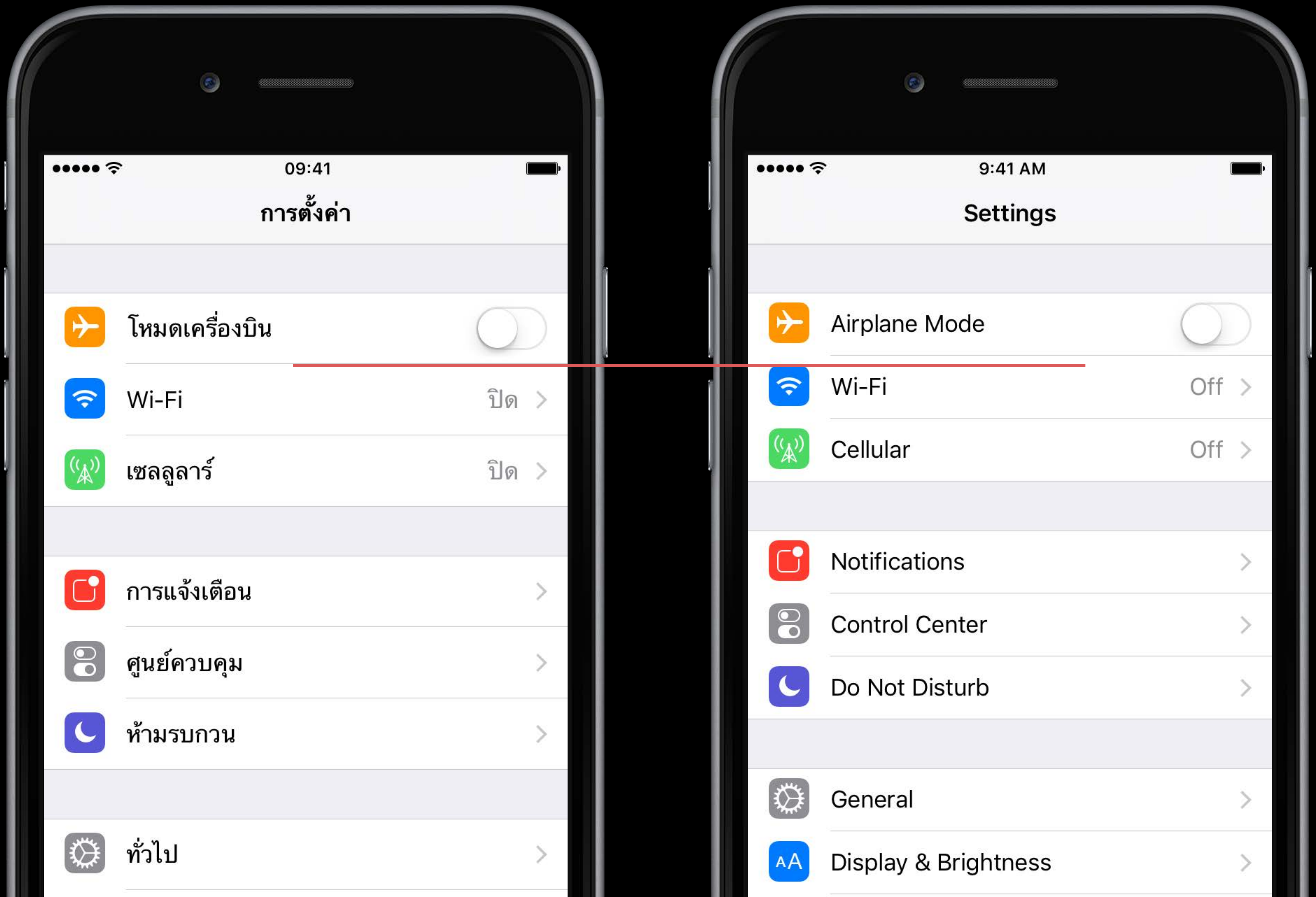
- โหมดเครื่องบิน ○
- Wi-Fi ปิด >
- เซลลูลาร์ ปิด >
- การแจ้งเตือน >
- ศูนย์ควบคุม >
- ห้ามรบกวน >
- ทั่วไป >



●●●●● 9:41 AM

Settings

- Airplane Mode ○
- Wi-Fi Off >
- Cellular Off >
- Notifications >
- Control Center >
- Do Not Disturb >
- General >
- Display & Brightness >



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การตั้งค่า

- โหมดเครื่องบิน ○
- Wi-Fi ปิด >
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- ศูนย์ควบคุม >
- ห้ามรบกวน >

- ทั่วไป >

●●●●● 9:41 AM

Settings

- Airplane Mode ○
- Wi-Fi Off >
- Cellular Off >

- Notifications >
- Control Center >
- Do Not Disturb >

- General >
- Display & Brightness >

Layout

Vertical Flexibility – Table Views

Use built-in table view styles

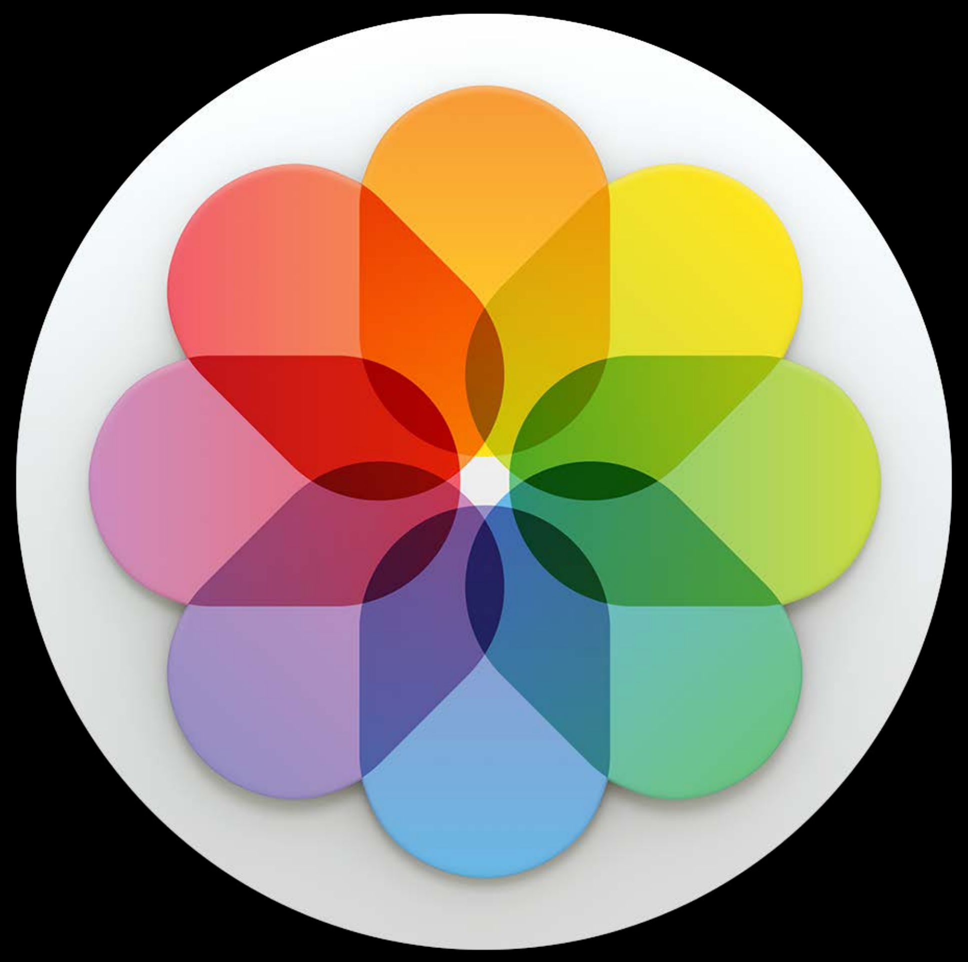
`UITableViewCell` is highly customizable

```
public enum UITableViewCellStyle : Int {
  case `default`
  case value1
  case value2
  case subtitle
}
```

Getting World-Ready

Iconography

Avoid words and numbers in icons



Photos

Iconography

Avoid words and numbers in icons

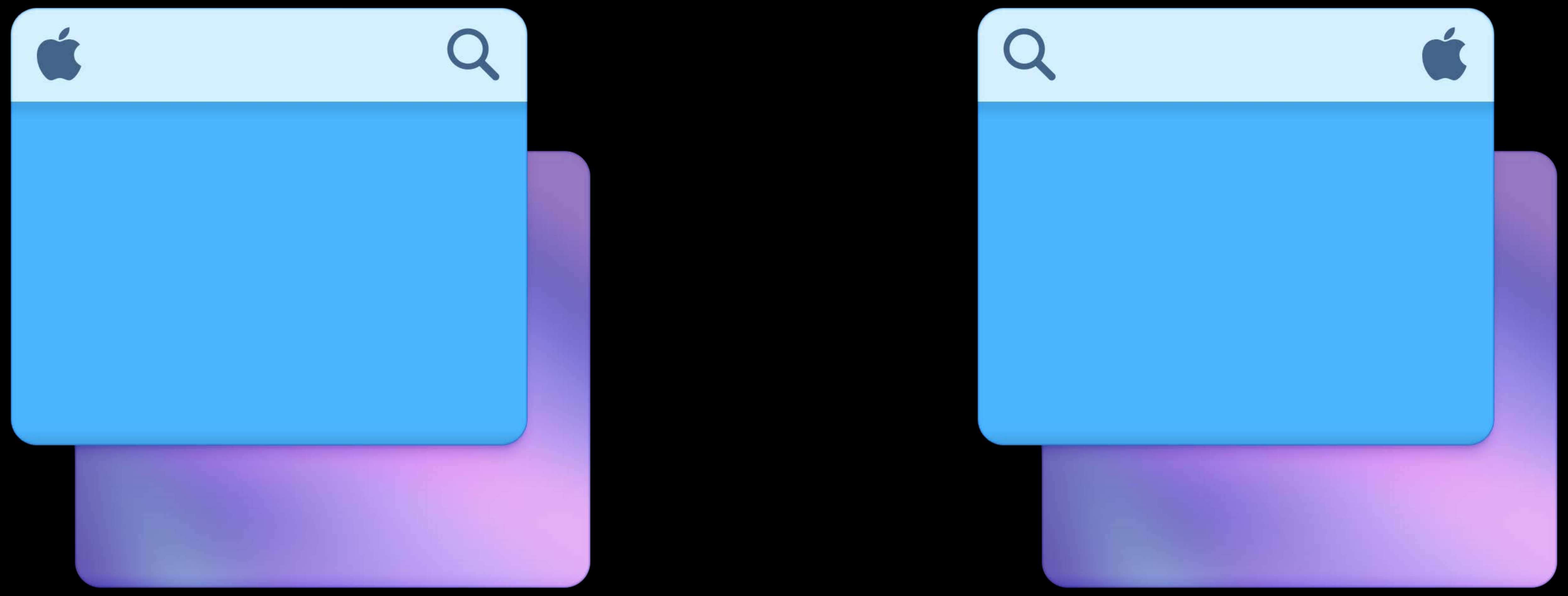
写真

Photos

الصور

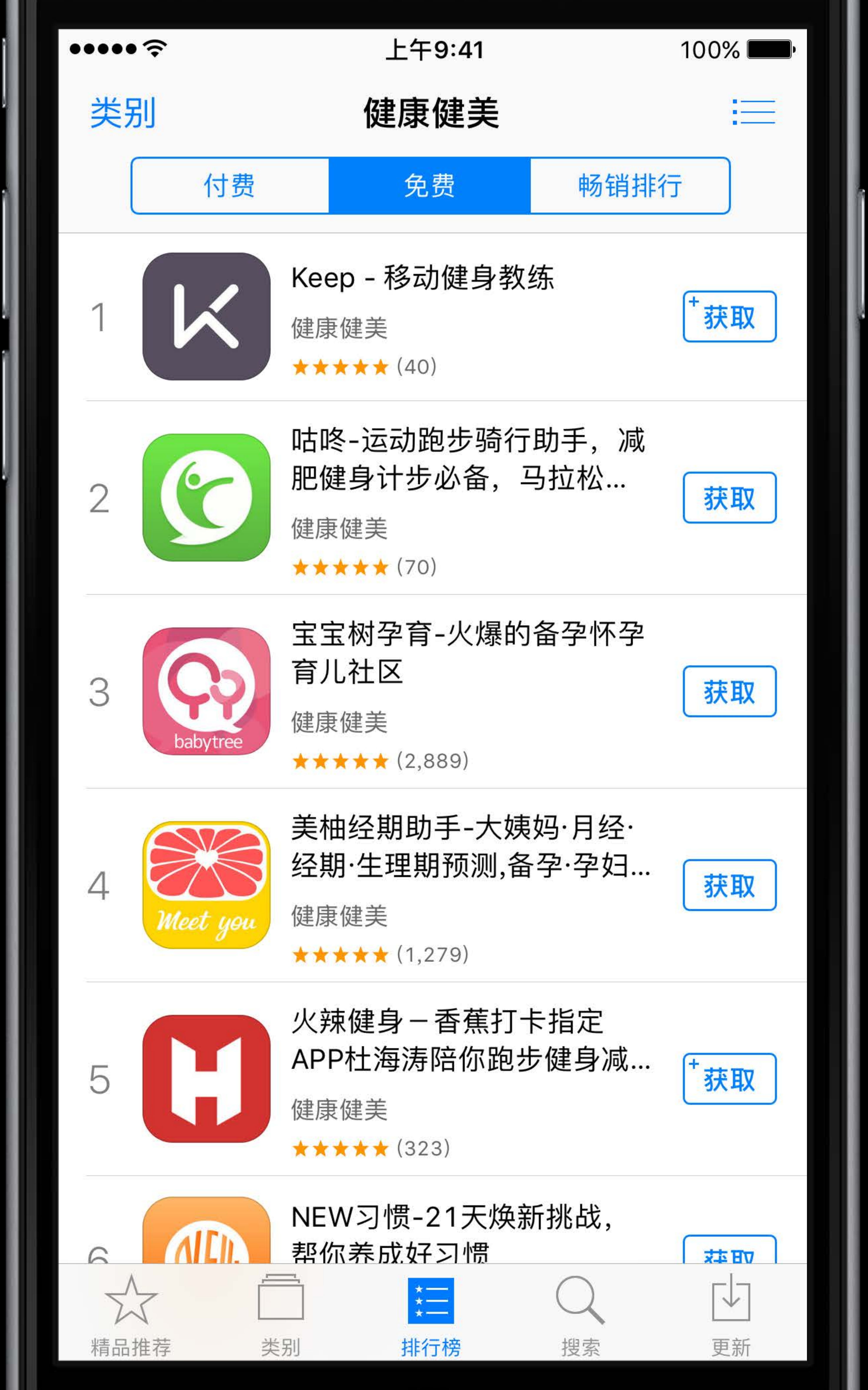
Iconography

Flip directional art for right-to-left languages



What's New in International User Interfaces | Nob Hill | Friday 9:00AM

App Name



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1 Keep - 移动健身教练
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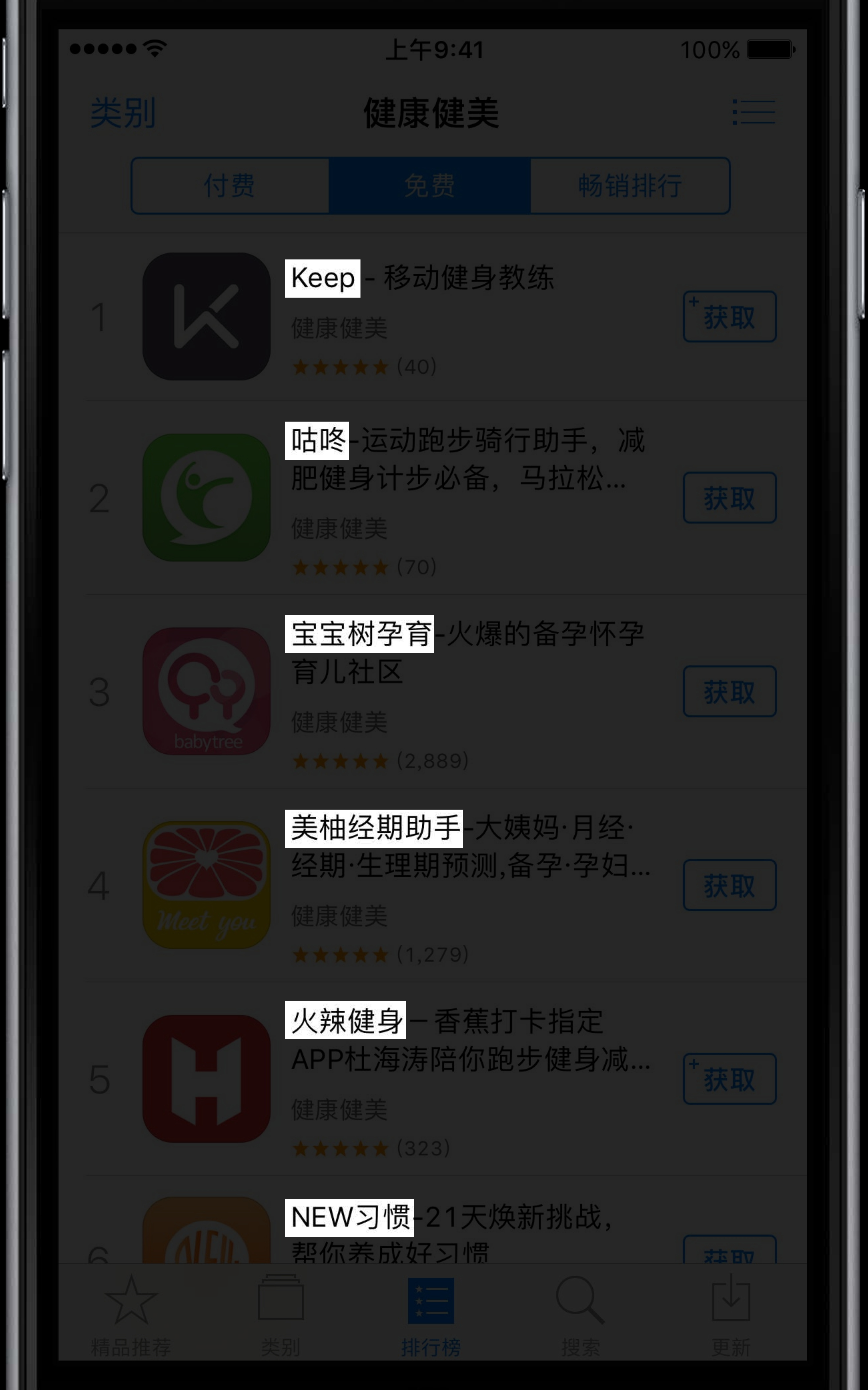

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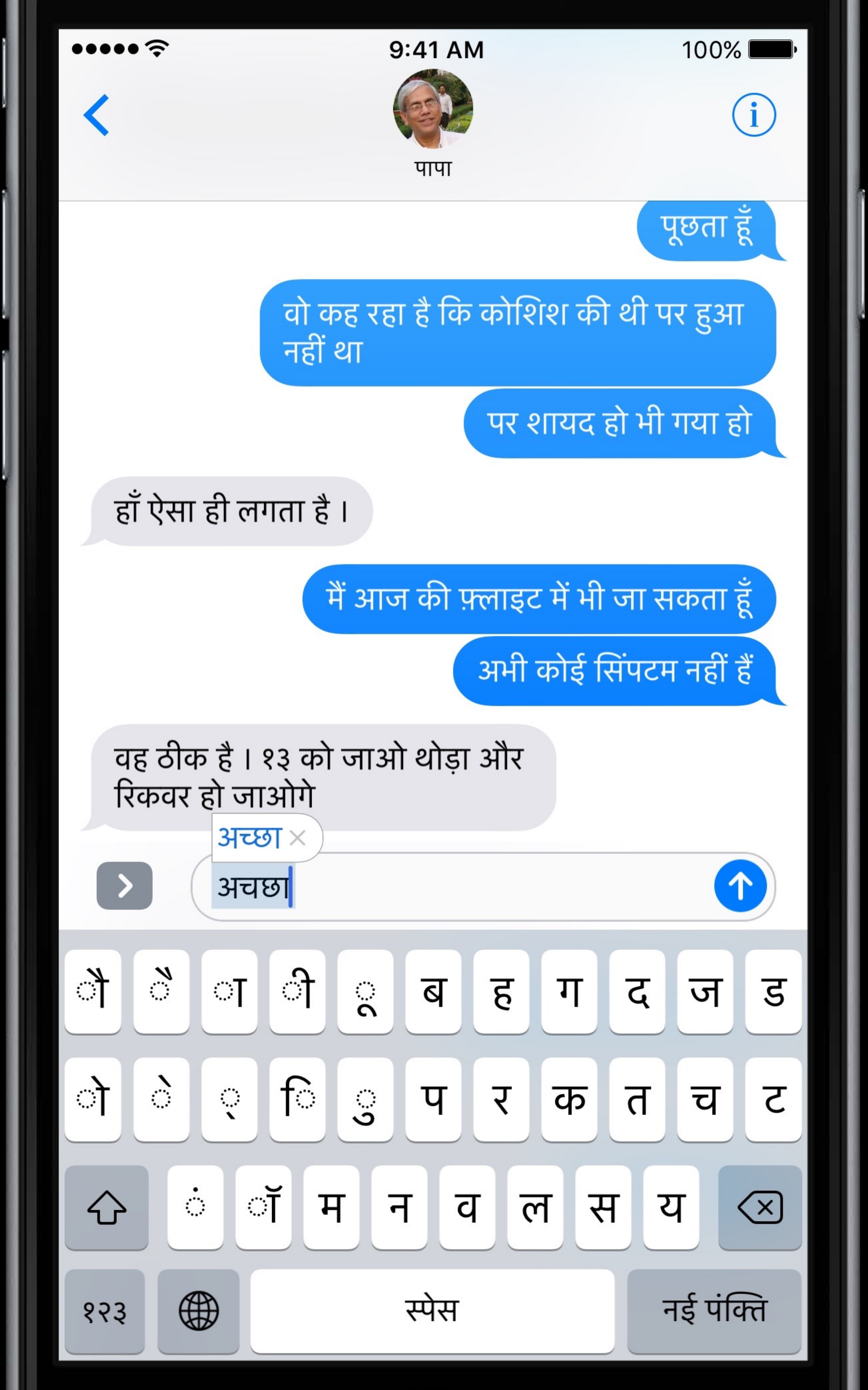
Multilingual



पूछता हूँ

वो कह रहा है कि कोशिश की थी पर हुआ नहीं था

पर शायद हो भी गया हो

हाँ ऐसा ही लगता है।

मैं आज की फ़्लाइट में भी जा सकता हूँ

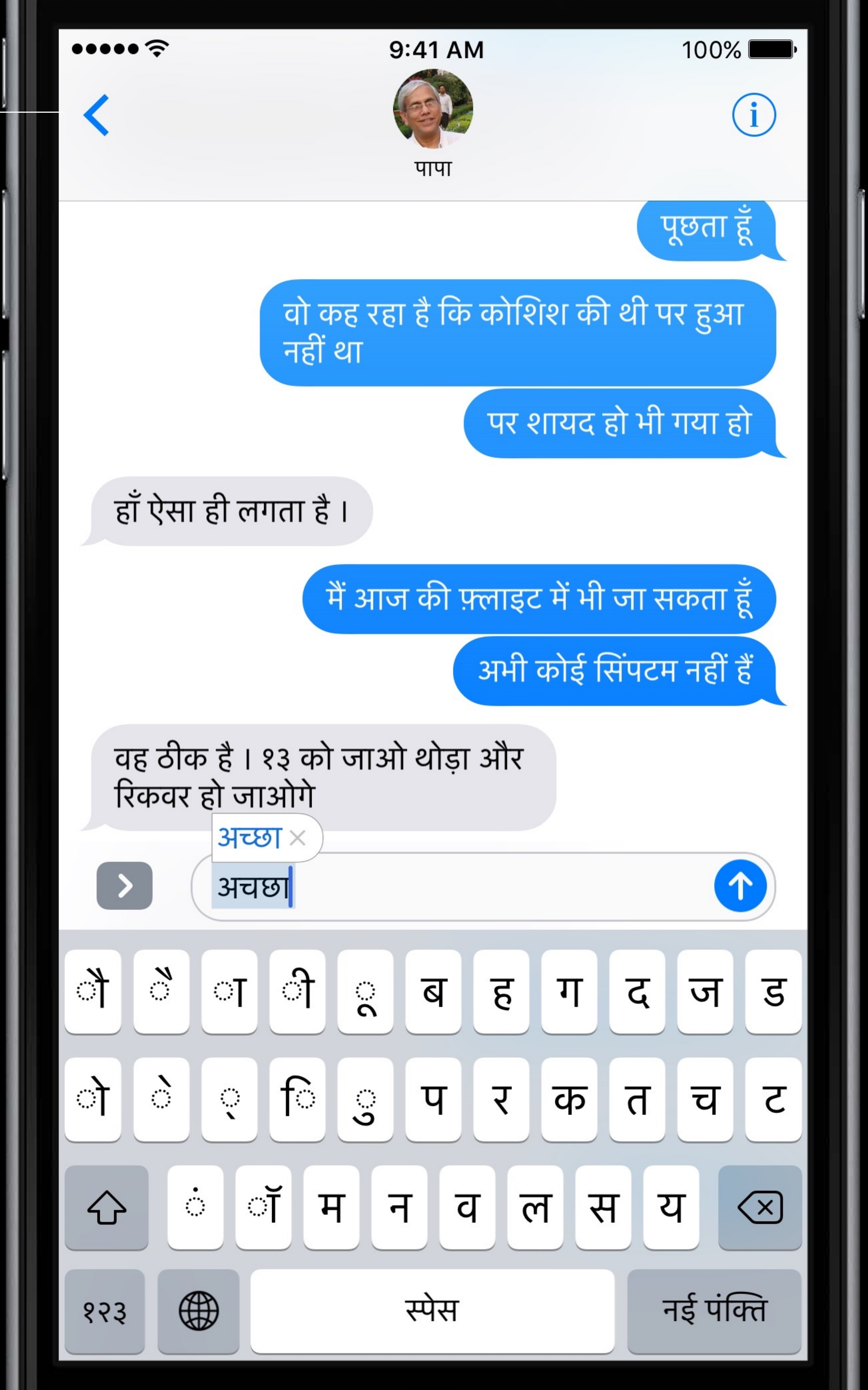
अभी कोई सिंपटम नहीं हैं

वह ठीक है। १३ को जाओ थोड़ा और रिकवर हो जाओगे

अच्छा ×

अचछा

English UI



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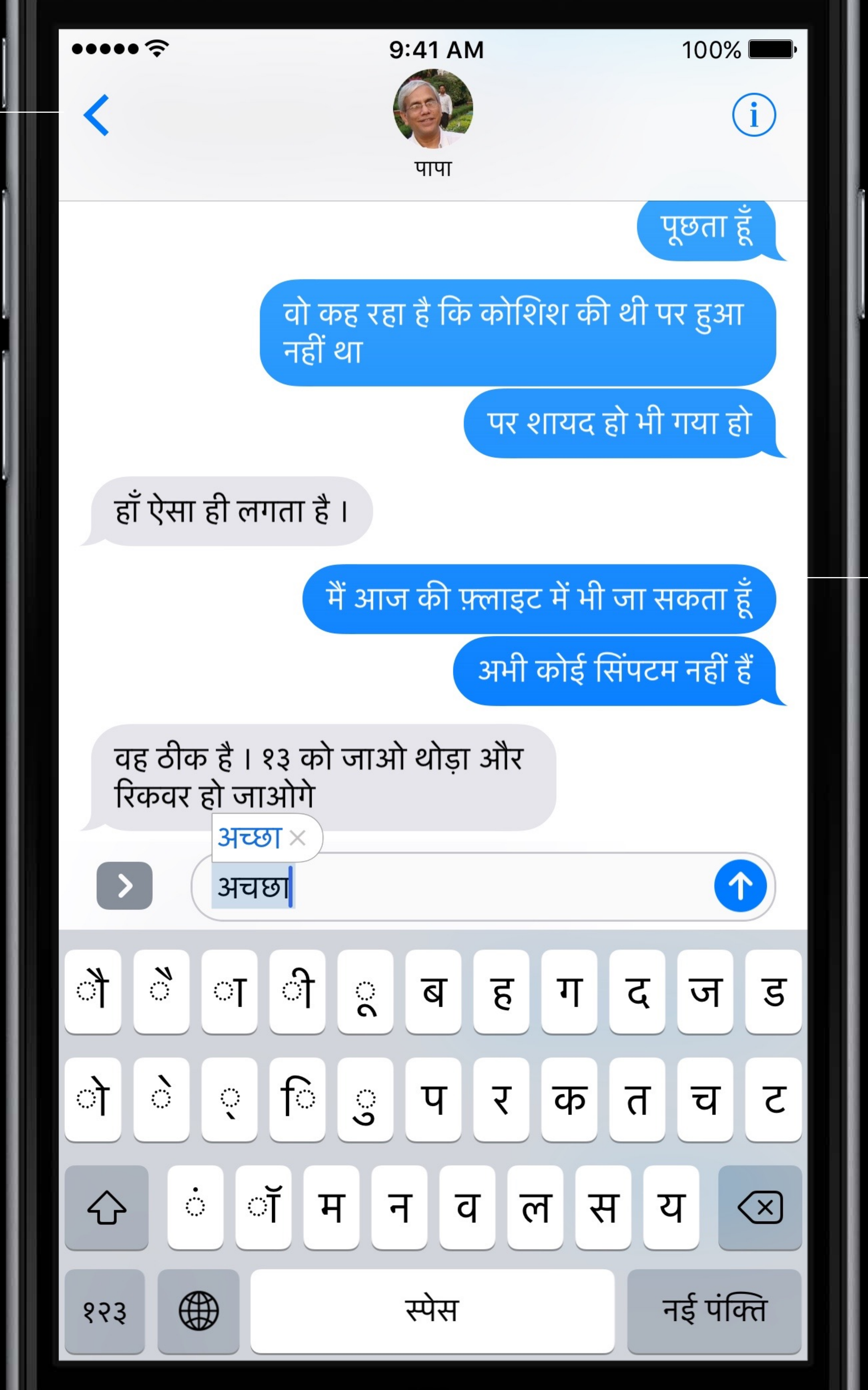
अच्छा ×

अचछा



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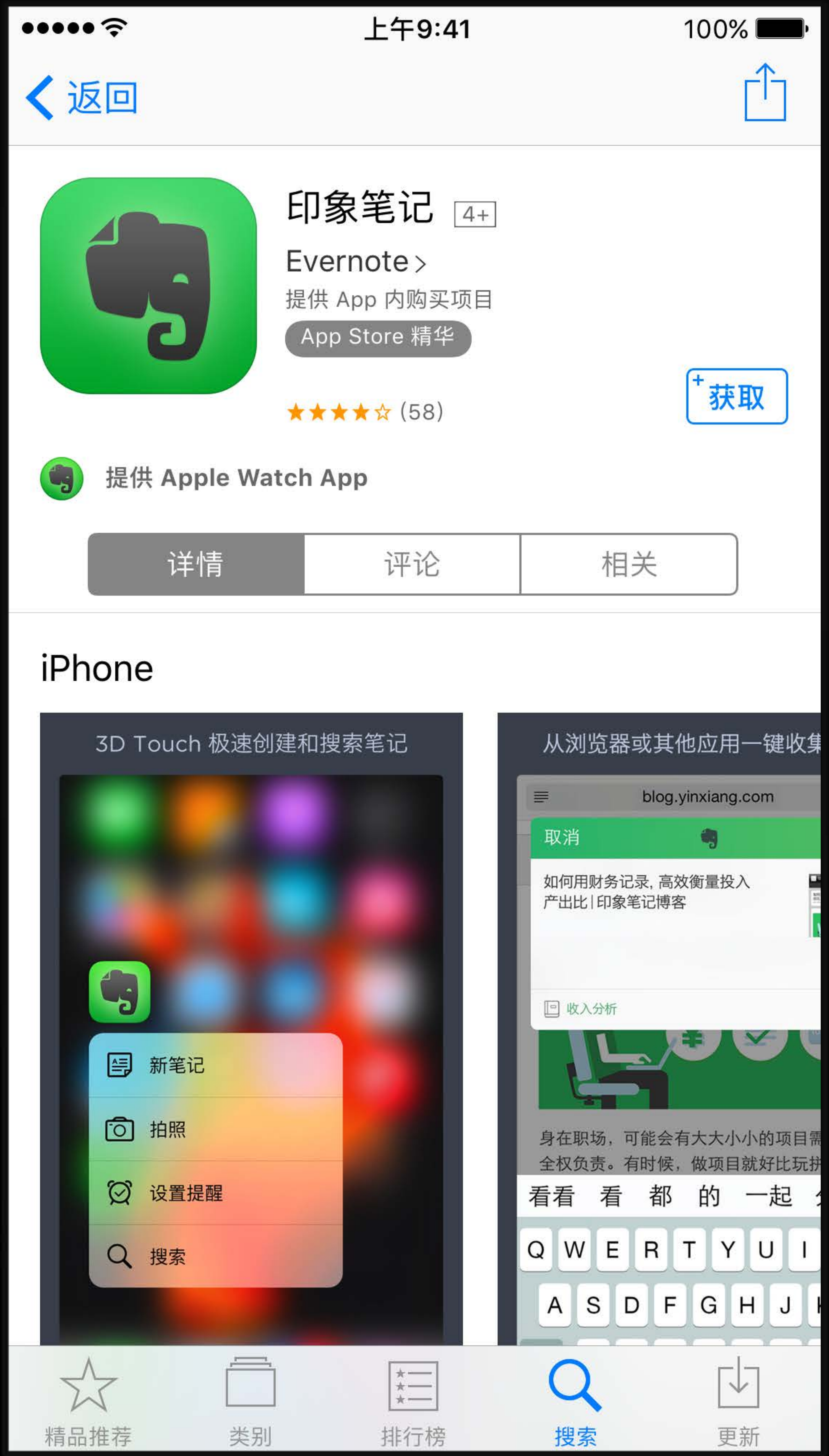
अच्छा ×

अचछा

English UI

Hindi Content



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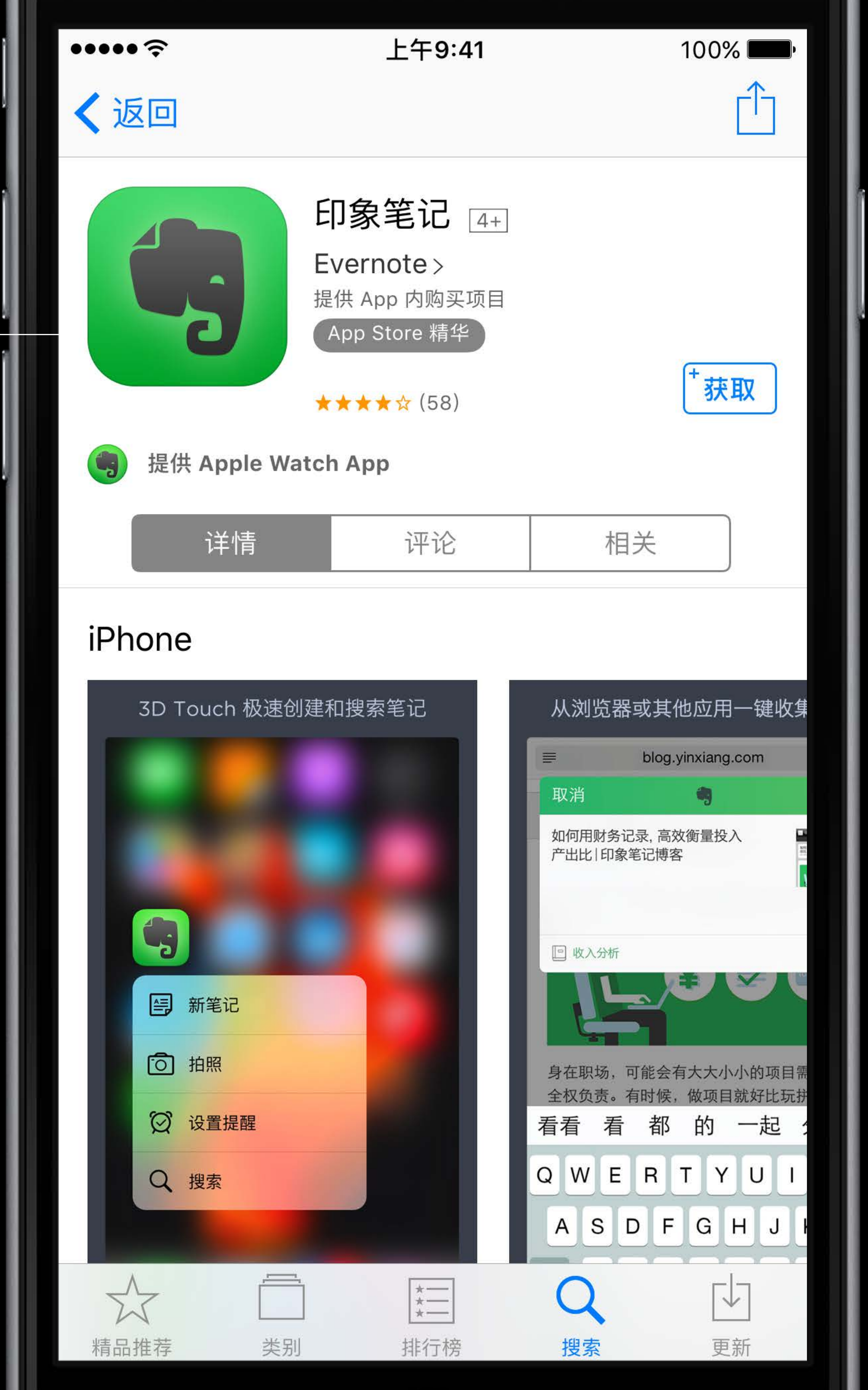
排行榜
搜索
更新

App Icon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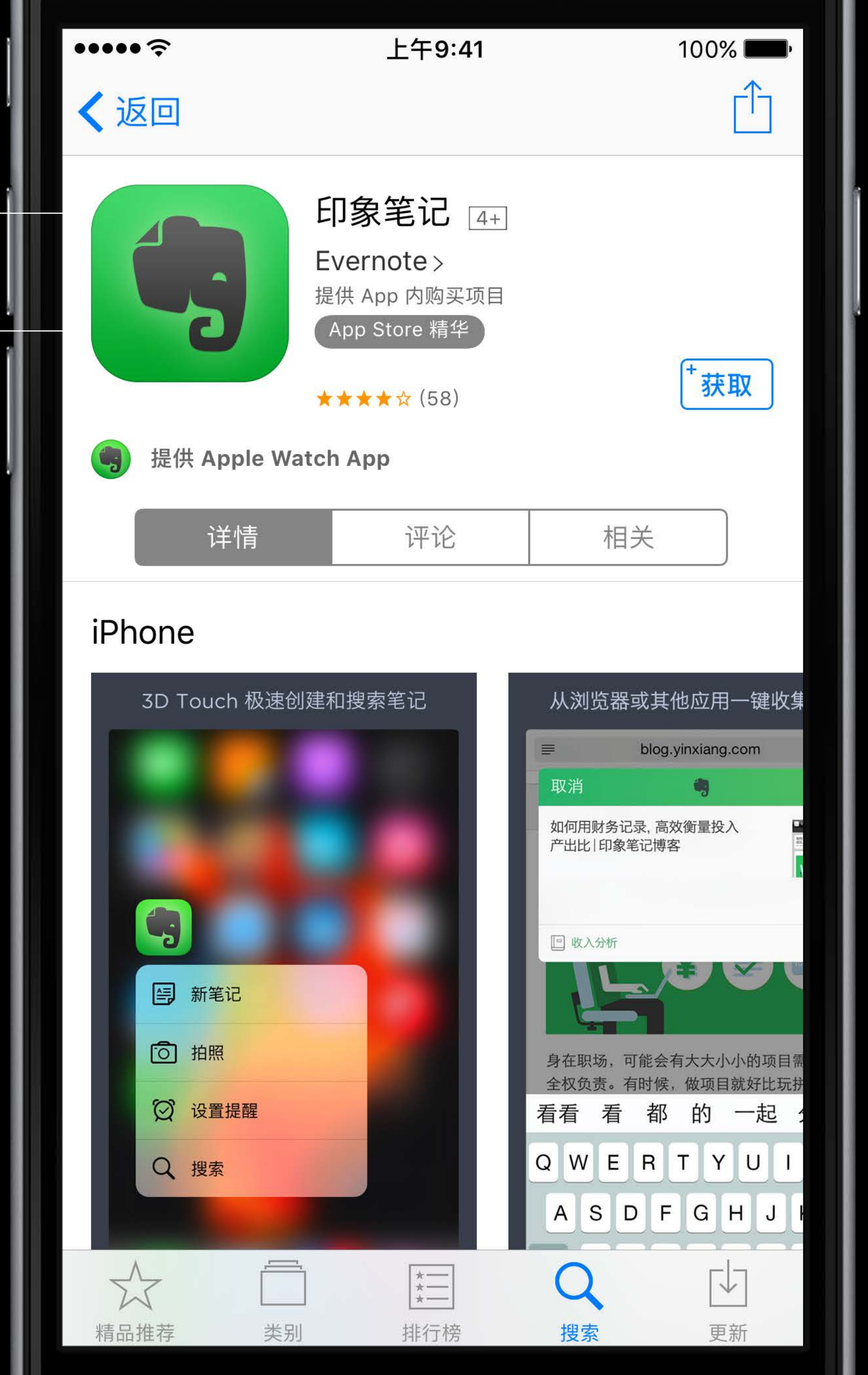

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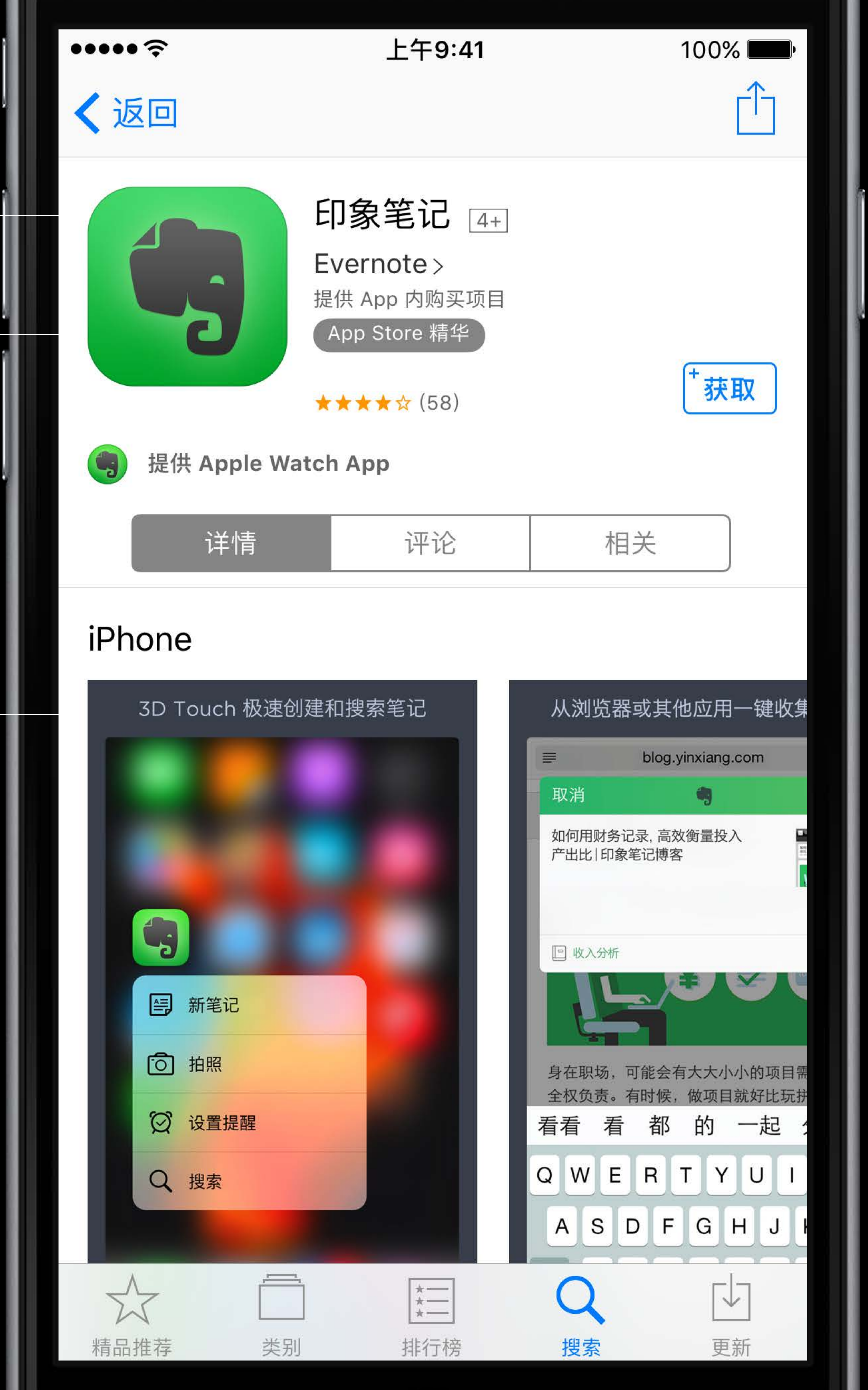
App Name

App Icon

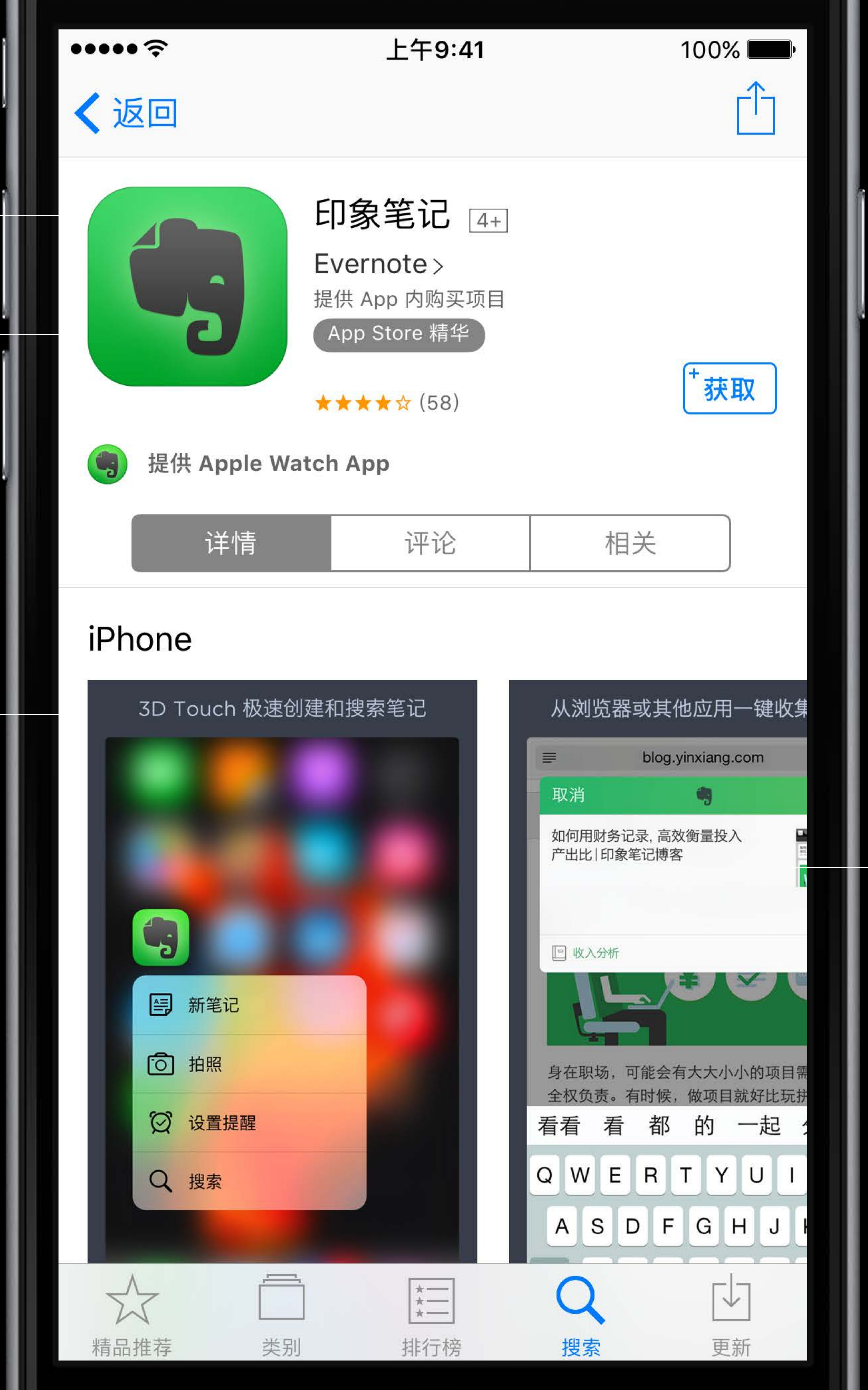
Localized Screenshots



App Name

App Icon

Localized Screenshots



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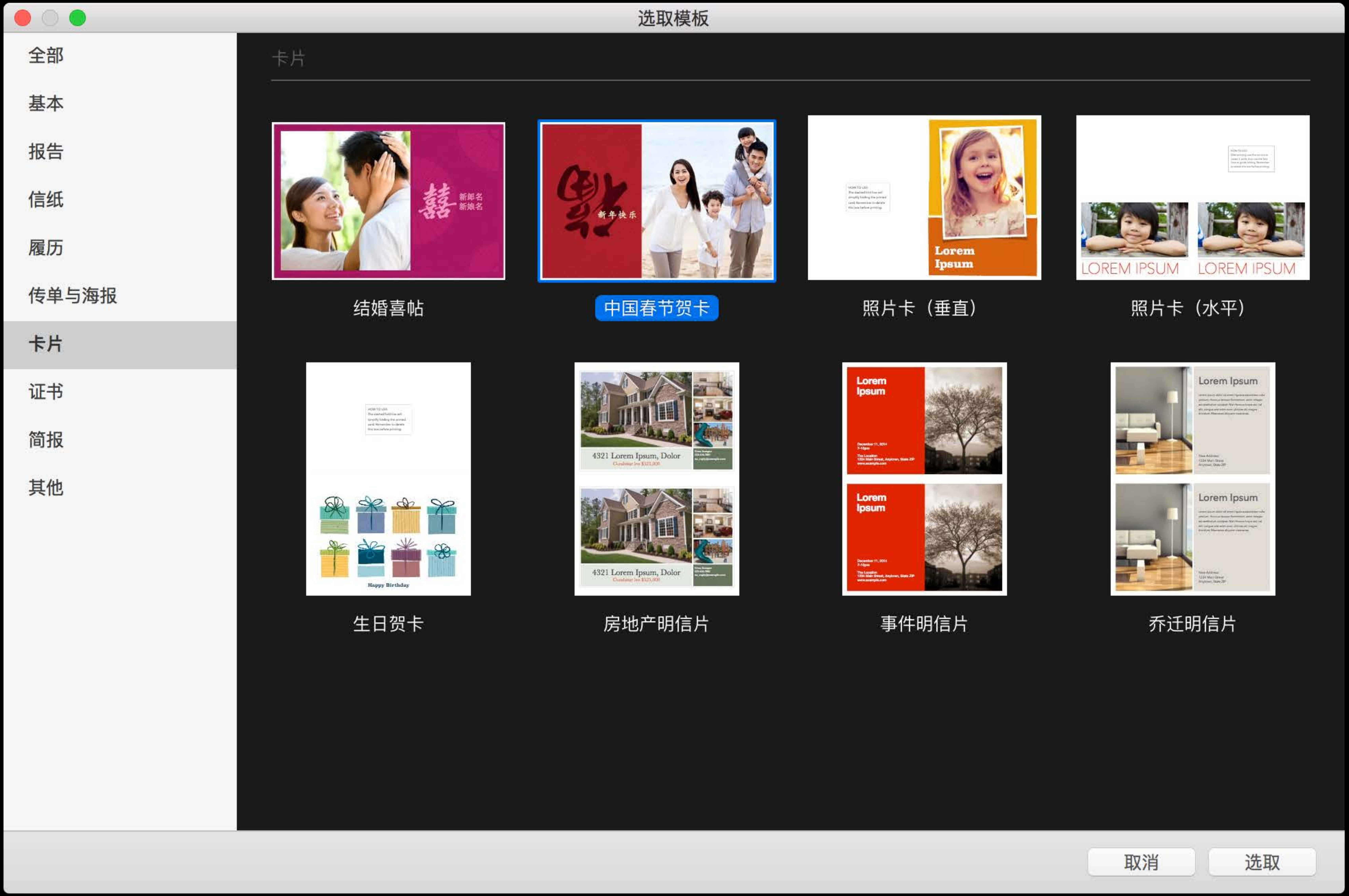
Localized Content & Keyboard

Surprise and Delight

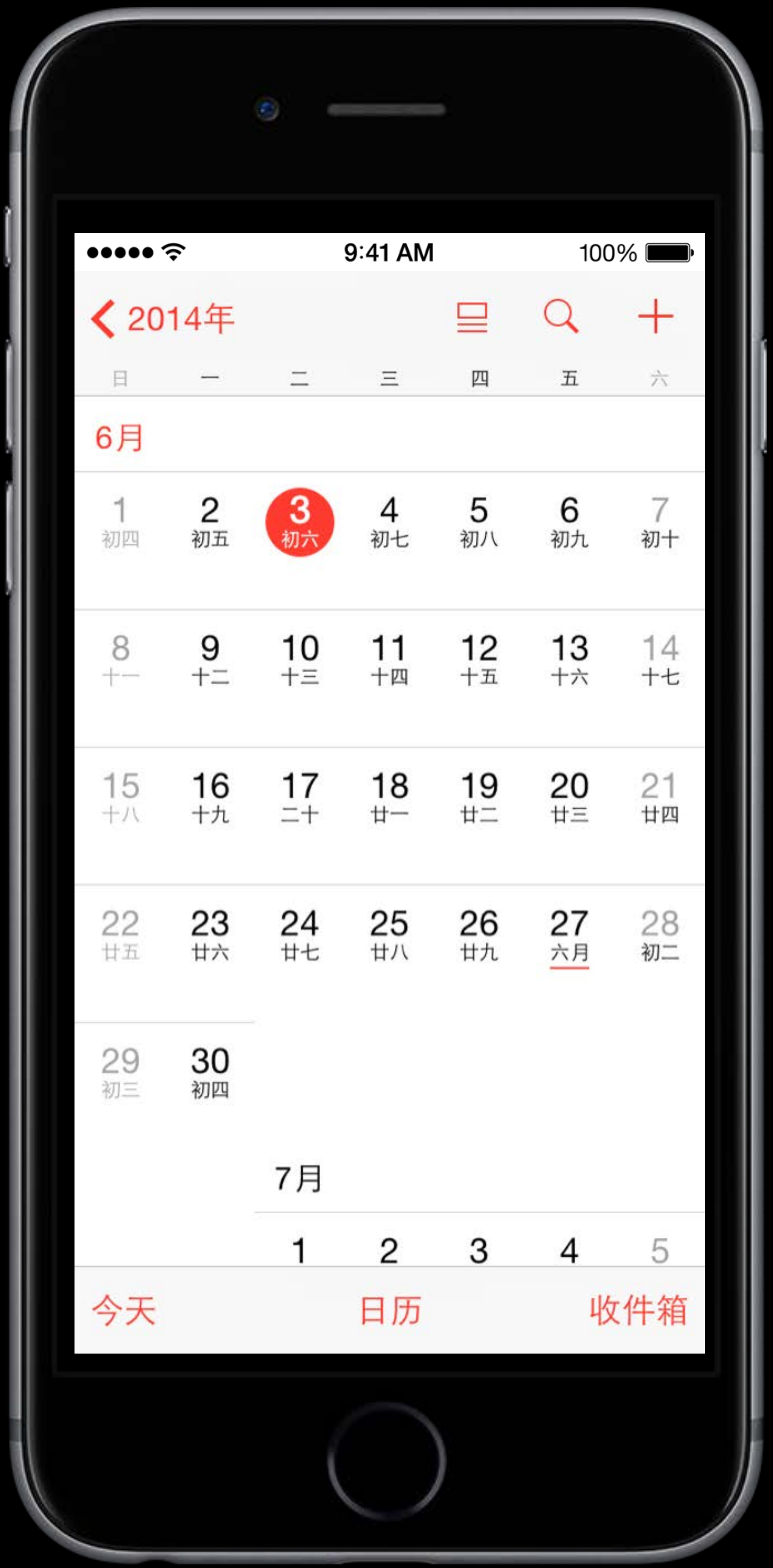
Custom Features

Example: Pages Templates



Custom Features

Example: Lunar Calendar



2014年

6月

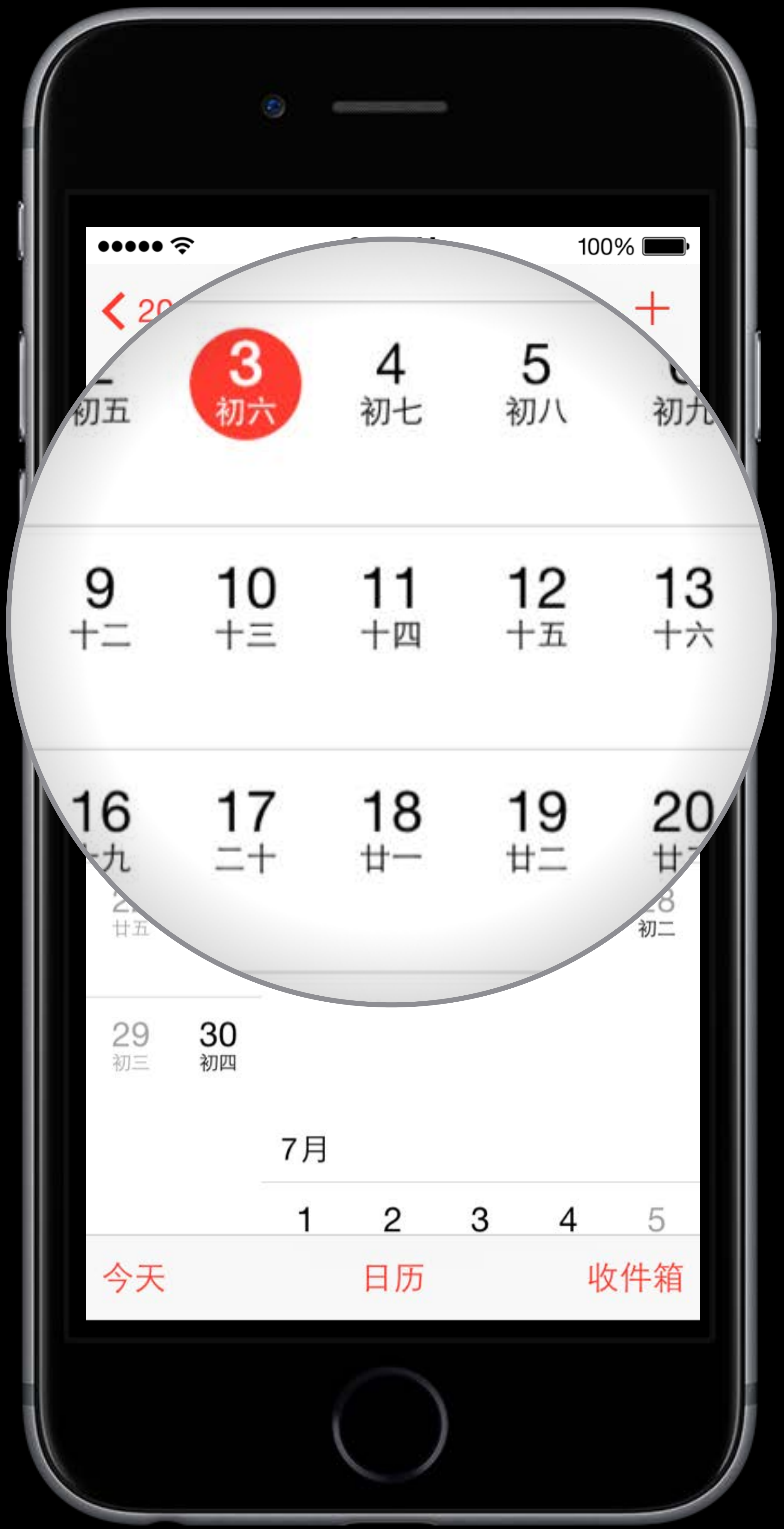
日	一	二	三	四	五	六
1 初四	2 初五	3 初六	4 初七	5 初八	6 初九	7 初十
8 十一	9 十二	10 十三	11 十四	12 十五	13 十六	14 十七
15 十八	16 十九	17 二十	18 廿一	19 廿二	20 廿三	21 廿四
22 廿五	23 廿六	24 廿七	25 廿八	26 廿九	27 六月	28 初二
29 初三	30 初四					

7月

		1	2	3	4	5

Custom Features

Example: Lunar Calendar



Summary

Summary

Localize your app to reach a wider audience

Summary

Localize your app to reach a wider audience

Use Bundle and Formatter APIs

Summary

Localize your app to reach a wider audience

Use Bundle and Formatter APIs

Flexible layout to accommodate taller and wider languages

Summary

Localize your app to reach a wider audience

Use Bundle and Formatter APIs

Flexible layout to accommodate taller and wider languages

Design world-ready iconography

Summary

Localize your app to reach a wider audience

Use Bundle and Formatter APIs

Flexible layout to accommodate taller and wider languages

Design world-ready iconography

Localize your app’s name and screenshots!

More Information

https://developer.apple.com/wwdc16/201

Related Sessions

What’s New in International User Interfaces	Nob Hill	Friday 9:00AM
What’s New in Cocoa	Nob Hill	Tuesday 11:00AM
What’s New in Auto Layout	Presidio	Friday 3:00PM
Measurements and Units	Presidio	Friday 4:00PM
Inclusive App Design	Pacific Heights	Tuesday 10:00AM
Fonts and Typography	Presidio	Wednesday 9:00AM
Localizing with Xcode 6		WWDC 2014

Labs

Internationalization Lab	Frameworks Lab B	Tuesday 10:00AM
Internationalization Lab	Frameworks Lab C	Friday 2:00PM
Text and Fonts Lab	Frameworks Lab B	Thursday 2:00PM
Interface Builder and Auto Layout Lab	Developer Tools Lab C	Tuesday 3:00PM
Interface Builder and Auto Layout Lab	Developer Tools Lab B	Thursday 3:00PM
Interface Builder and Auto Layout Lab	Developer Tools Lab C	Friday 9:00AM

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