

#WWDC19

Introducing Desktop-class Browsing on iPad

Charles Ying, Safari and WebKit Engineer

Wenson Hsieh, Safari and WebKit Engineer

Beth Dakin, Safari and WebKit Engineer

Desktop-class Browsing

iCloud

👤 Johnny | ?



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Photos



iCloud Drive



Notes



Reminders



Pages



Numbers



Keynote



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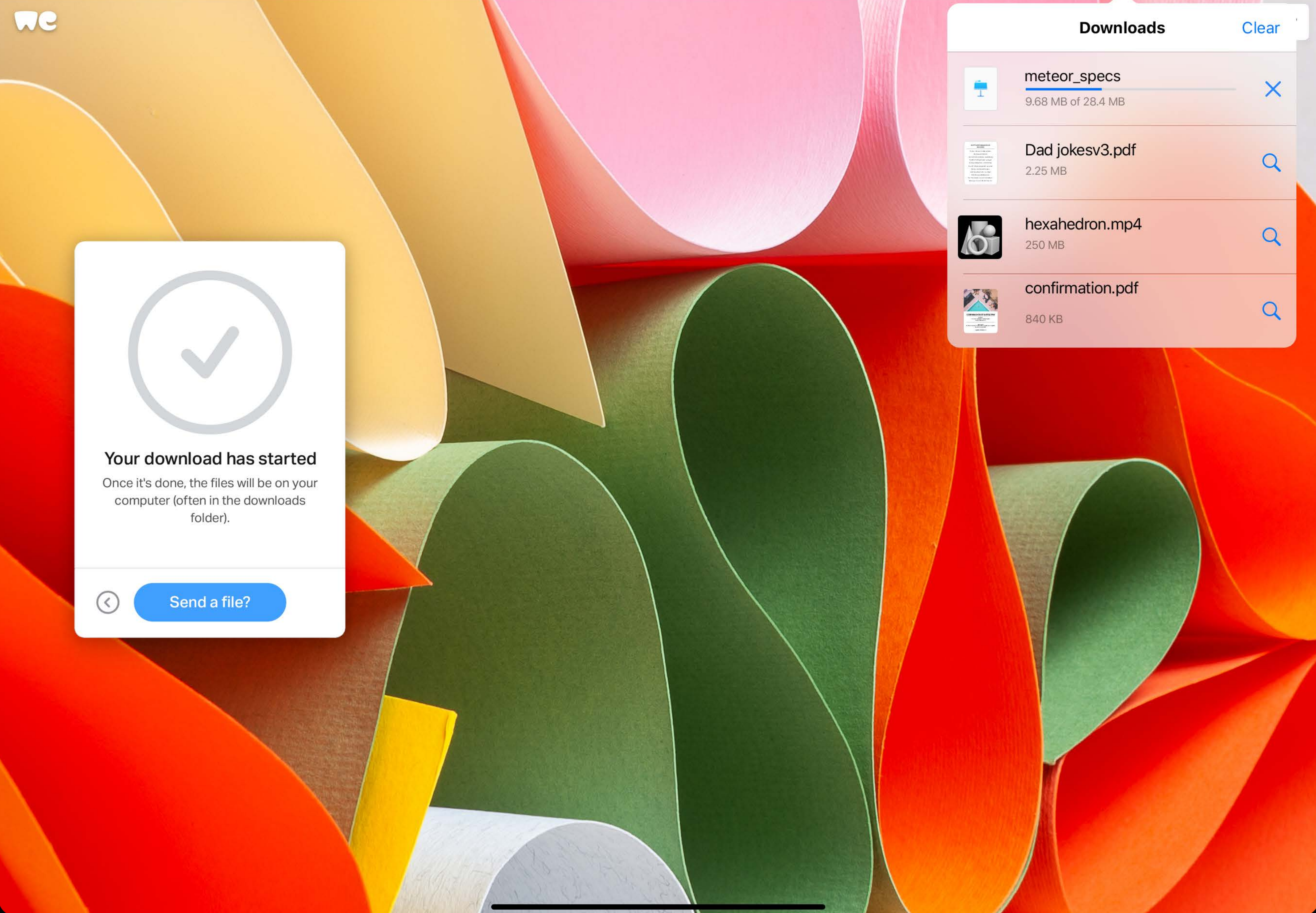



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- [Main page](#)
- [Contents](#)
- [Featured content](#)
- [Current events](#)
- [Random article](#)
- [Donate to Wikipedia](#)
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- [Help](#)
- [About Wikipedia](#)
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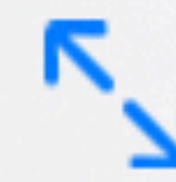


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Apple F

(AFS), the service implementing the *Apple Filing Protocol* (AFP).
 system for macOS High Sierra (10.13) and later, iOS 10.3 and later, tvOS
 and watchOS 3.2 and later,^[7] developed and deployed by Apple Inc.^{[8][9]} It aims to fix core problems of HFS+ (also called
 Extended), APFS's predecessor on these operating systems. Apple File System is optimized for flash and solid-state drives
 primary focus on encryption.^{[10][11]}

Contents [hide]

- 1 History
- 2 Design
 - 2.1 Clones
 - 2.2 Snapshots



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- Main page
- Contents
- Featured content
- Current events
- Random article
- Donate to Wikipedia
- Wikipedia store

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- Help
- About Wikipedia
- Community portal
- Recent changes

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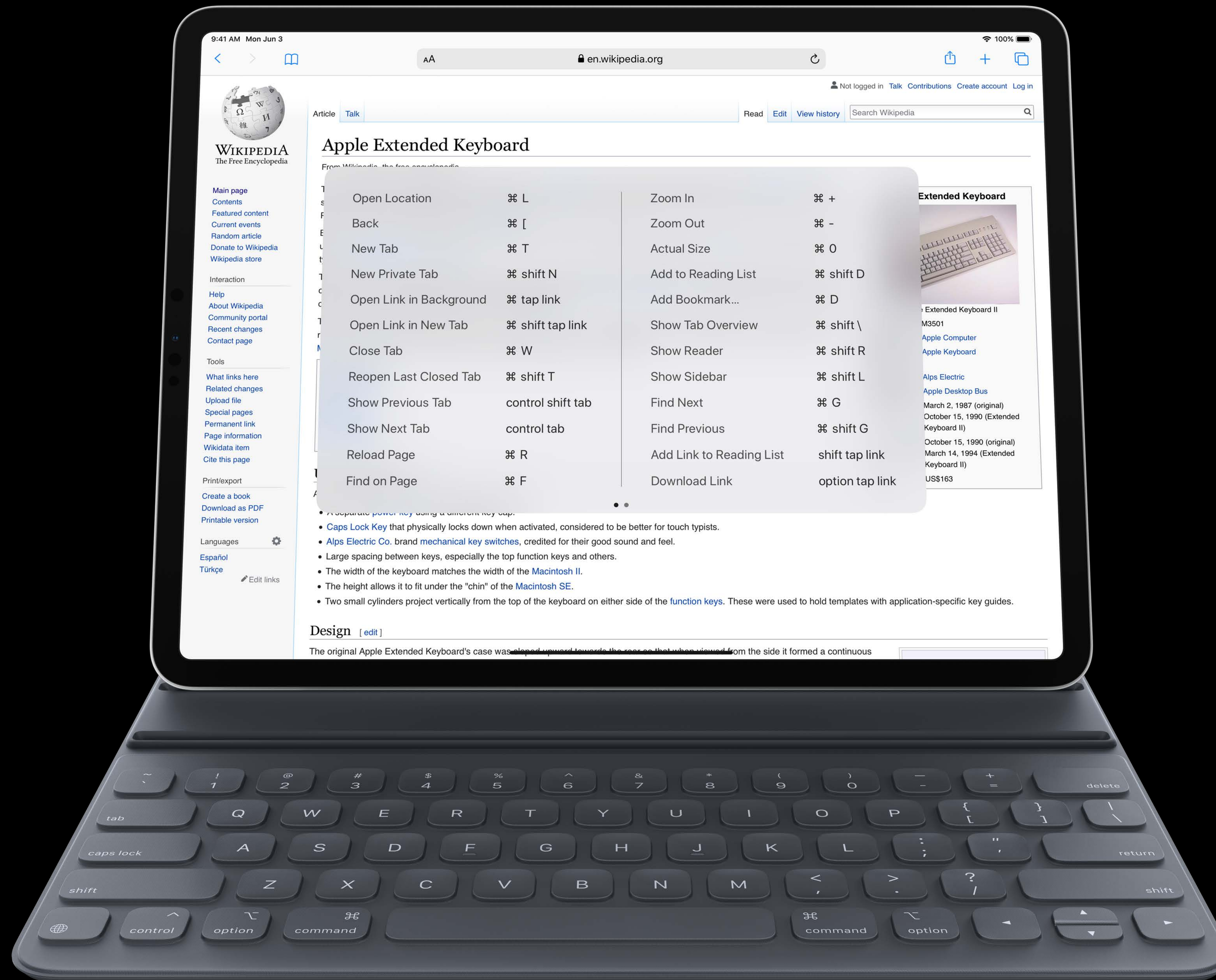
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Apple Extended Keyboard

Open Location	⌘ L	Zoom In	⌘ +
Back	⌘ [Zoom Out	⌘ -
New Tab	⌘ T	Actual Size	⌘ 0
New Private Tab	⌘ shift N	Add to Reading List	⌘ shift D
Open Link in Background	⌘ tap link	Add Bookmark...	⌘ D
Open Link in New Tab	⌘ shift tap link	Show Tab Overview	⌘ shift \
Close Tab	⌘ W	Show Reader	⌘ shift R
Reopen Last Closed Tab	⌘ shift T	Show Sidebar	⌘ shift L
Show Previous Tab	control shift tab	Find Next	⌘ G
Show Next Tab	control tab	Find Previous	⌘ shift G
Reload Page	⌘ R	Add Link to Reading List	shift tap link
Find on Page	⌘ F	Download Link	option tap link

- Caps Lock Key that physically locks down when activated, considered to be better for touch typists.
- Alps Electric Co. brand mechanical key switches, credited for their good sound and feel.
- Large spacing between keys, especially the top function keys and others.
- The width of the keyboard matches the width of the Macintosh II.
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- Two small cylinders project vertically from the top of the keyboard on either side of the function keys. These were used to hold templates with application-specific key guides.

Design [edit]
The original Apple Extended Keyboard's case was designed to be placed on the side of the Macintosh II, from the side it formed a continuous

Desktop Websites



The New York Times

Saturday, January 12, 2008 Last Update: 12:32 AM ET

- JOB REAL ESTATE
- ALL CLASSIFIED
- WORLD
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- HEALTH
- OPINION
- ARTS
- STYLE
- TRAVEL
- BLISS
- CLASSIFIEDS
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- FOOD
- LEARNING
- NETWORK
- MULTIMEDIA
- NYC GUIDE
- OBITUARIES
- PROFILES
- PUBLIC EDITOR
- SERVICES
- MY AVARS
- NYT MOBILE
- NYT STORE
- TIMES FILE
- TIMES READER
- NEWSPAPER
- DELIVERY
- CUSTOMER CARE
- ELECTRONIC EDITION
- COMMUNITY
- ALPHABET
- EVENTS

Bush and Congress Seen Pushing for Stimulus Plan

By STEVEN A. WEISSMAN and DAVID H. JOHNSON
 Concern about a possible recession is bringing the president and lawmakers closer to agreeing that an economic stimulus package is needed soon, officials said.

No Small Preparation for Hitting Big Waves

By JAMES HAMILTON
 Defying the image of bronzed slackers in board shorts, big-wave surfers study oceanography and the weather to help them ride waves that can be more than 50 feet high.

Inquiry Focuses on Withholding of Data on Loans

By JAMES BURNETT and JENNY ROSENBERG
 New York State prosecutors are investigating whether Wall Street banks withheld information about the risks posed by investments linked to subprime mortgages.

Iran Encounter Grimly Echoes '02 War Game

By THOMAS BRANDEGER
 In a military simulation, small speedboats like those used by Iran in an incident last weekend were able to inflict devastating damage on more powerful warships.

Suitcase of Cash Entangles U.S. and a Latin Nations

By JAMES BURNETT and JENNY ROSENBERG
 A spy mystery and diplomatic imbroglio began with the discovery of nearly \$500,000 at a Buenos Aires airport.

Obama Giving Clinton a Race in Her Backyard

By DAN ROBERTS
 New York's Democratic presidential primary on Feb. 5 is shaping up as the state's most competitive since 1992.

Awards Season, and the Swag Goes to ... Few

By BROOKS BARNETT
 The Hollywood writers' strike is threatening a beloved Tineltown institution: the swag bag of free luxury items.

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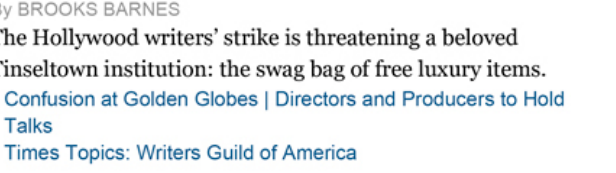
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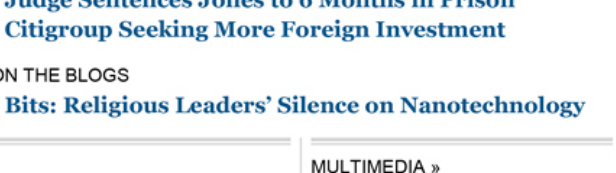
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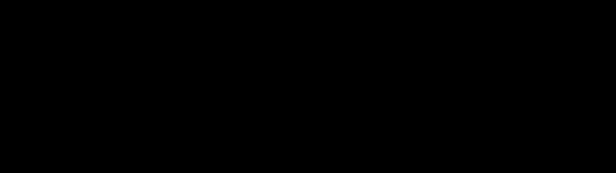
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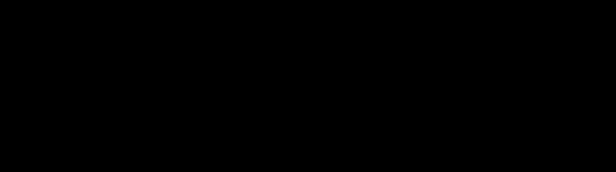
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Take the Kids, and Don't Feel Guilty

What exactly is a family film?
 The rating doesn't always say.

The Carpetbagger

David Carr reports on the A.C.E. Award nominees.
 Video: New York Film Critics Circle Awards

Need Your Foulth Way

"First Sunday" faces humor with a message of redemption.

OPINION

Krugman: Europe Is O.K.
 Brooks: Tax Cuts
 Edwards: The Homeland
 Comments

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 SPX 1,201.34 -12.71 -1.05%
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 Quotes

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The WebKit Open Source Project

Welcome to the website for the WebKit Open Source Project!
 WebKit is an open source web browser engine. WebKit is also the name of the Mac OS X system framework version of the engine that's used by Safari, Dashboard, Mail, and many other OS X applications. WebKit's HTML and JavaScript code began as a branch of the KHTML and KJS libraries from KDE. This website is also the home of S60's S60 WebKit development.

Getting involved
 There are many ways to get involved. You can:

- download the latest nightly build
- install developer tools and then check out and build the source code

Once you have either of these, you can help by:

- reporting bugs you find in the software
- providing reductions to bugs
- submitting patches for review

More info
 More information about WebKit can be found on its wiki. You can help here too, by adding information that can help others learn about WebKit. If you have more questions, [contact us](#).

Projects
 There are many exciting (new) projects that you can contribute to:

9:41

webkit.org



WebKit



A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

Web developers can [follow development](#), [check feature status](#), [download Safari Technology Preview](#) to try out the latest web technologies, and [report bugs](#).





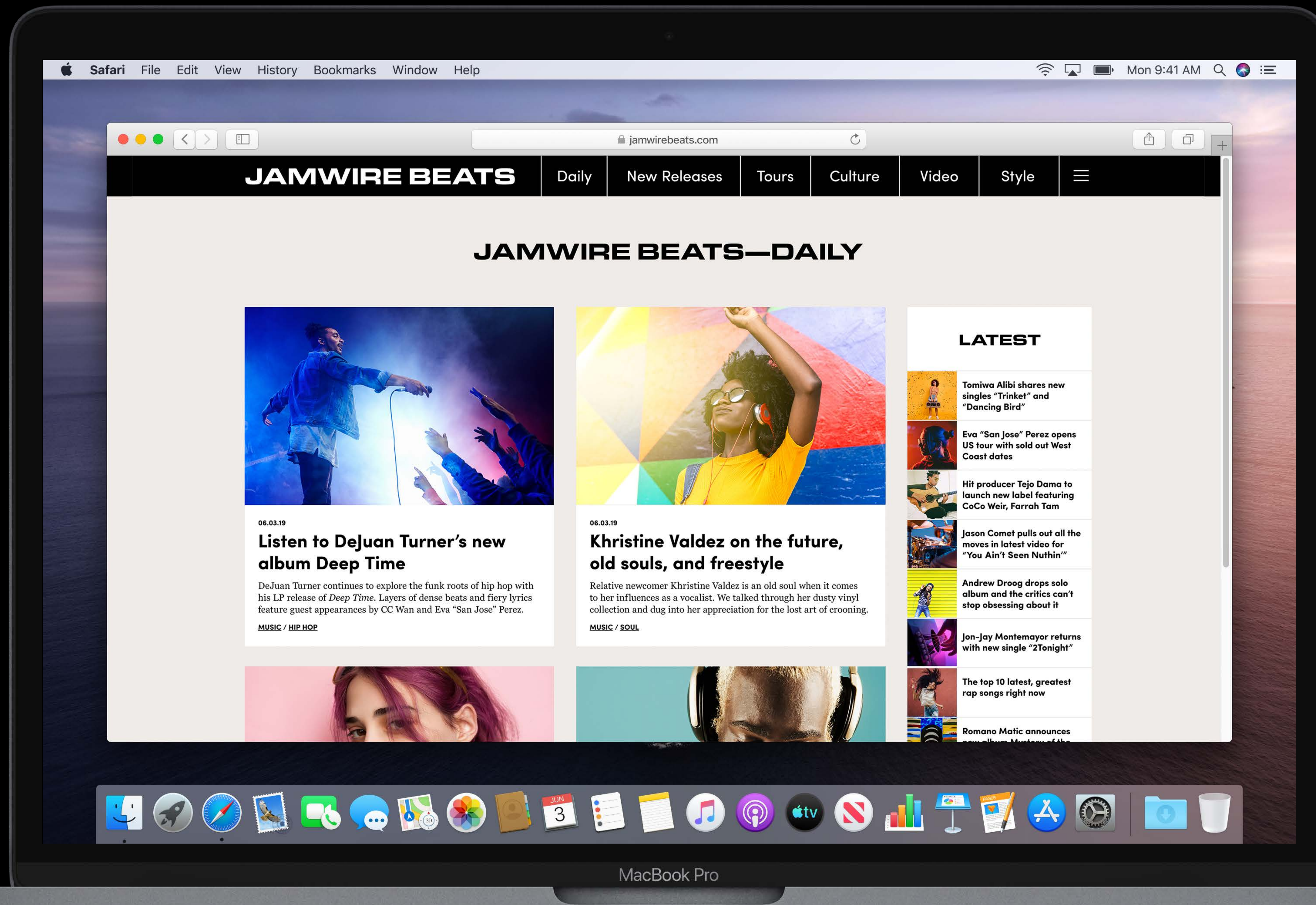
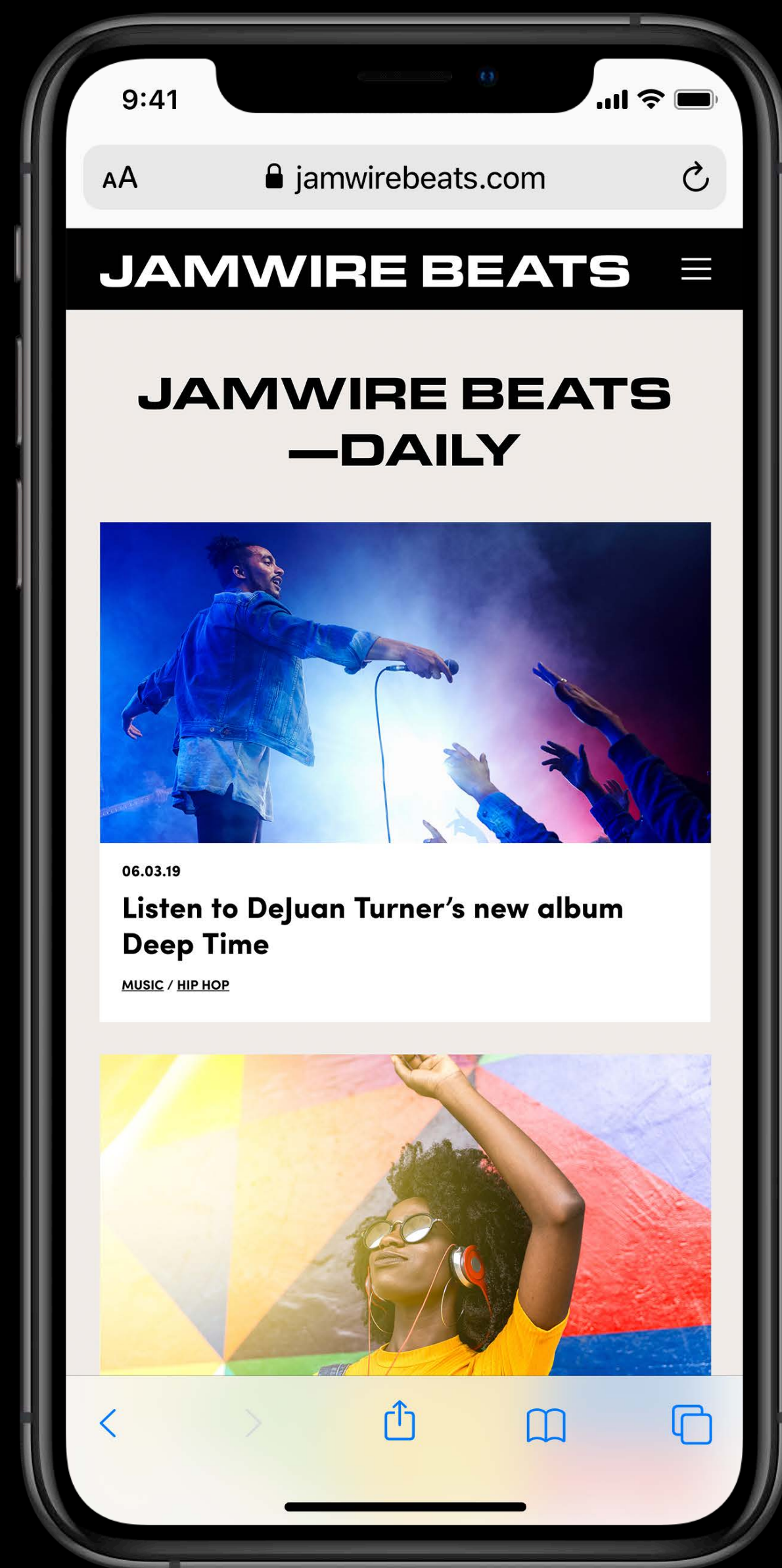
A fast, open source web browser engine.

WebKit is the [web browser engine](#) used by Safari, Mail, App Store, and many other apps on macOS, iOS, and Linux. [Get started contributing code](#), or [reporting bugs](#).

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06.03.19

Listen to DeJuan Turner's new album *Deep Time*

DeJuan Turner continues to explore the funk roots of hip hop with his LP release of *Deep Time*. Layers of dense beats and fiery lyrics feature guest appearances by CC Wan and Eva "San Jose" Perez.

[MUSIC](#) / [HIP HOP](#)

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-  Tomiwa Alibi shares new singles "Trinket" and "Dancing Bird"
-  Eva "San Jose" Perez opens US tour with sold out West Coast dates
-  Hit producer Tejo Dama to launch new label featuring CoCo Weir, Farrah Tam
-  Jason Comet pulls out all the moves in latest video for "You Ain't Seen Nuthin"
-  Andrew Droog drops solo album and the critics can't stop obsessing about it
-  Jon-Jay Montemayor returns with new single "2Tonight"
-  The top 10 latest, greatest rap songs right now

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Code Pull requests 536 Security Insights

Merge pull request #24457 from Catfish-Man/two-by-two-length-of-blue

Fix bounds check in bridged ASCII String comparison

master (#24457) swift-DEVELOPMENT-SNAPSHOT-2019-05-26-a swift-DEVELOPMENT-SNAPSHOT-2019-05-06-a

Catfish-Man committed 26 days ago Verified 2 parents 001c0dd + 008699e commit 1192b914d2a1aae9667346789aca8d3049f2cfc3

Showing 3 changed files with 71 additions and 6 deletions. Unified Split

```
22 ■■■■ stdlib/public/core/StringStorage.swift
@@ -21,7 +21,7 @@ internal protocol _AbstractStringStorage : _NSCopying {
21     var count: Int { get }
22     var isASCII: Bool { get }
23     var start: UnsafePointer<UInt8> { get }
24 - var length: Int { get } // In UTF16 code units.
25 }
26
27 internal let _cocoaASCIIEncoding:UInt = 1 /* NSASCIIEncoding */
@@ -141,16 +141,26 @@ extension _AbstractStringStorage {
141 }
142 // At this point we've proven that it is an NSString of some sort, but not
143 // one of ours.
144 - if length != _stdlib_binary_CFStringGetLength(other) {
145 -     return 0
146 - }
147     defer { _fixLifetime(other) }
148 // CFString will only give us ASCII bytes here, but that's fine.
21     var count: Int { get }
22     var isASCII: Bool { get }
23     var start: UnsafePointer<UInt8> { get }
24 + var UTF16Length: Int { get }
25 }
26
27     internal let _cocoaASCIIEncoding:UInt = 1 /* NSASCIIEncoding */
141 }
142 // At this point we've proven that it is an NSString of some sort, but not
143 // one of ours.
144 +
145     defer { _fixLifetime(other) }
146 +
147 +     let otherUTF16Length = _stdlib_binary_CFStringGetLength(other)
148 +
149 // CFString will only give us ASCII bytes here, but that's fine.
```



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Merge pull request #24457 from Catfish-Man/two-by-two-length-of-blue

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Fix bounds check in bridged ASCII String comparison

master (#24457) swift-DEVELOPMENT-SNAPSHOT-2019-05-12-a ... swift-DEVELOPMENT-SNAPSHOT-2019-05-06-a

Catfish-Man committed 10 days ago Verified 2 parents 001c0dd + 008699e commit 1192b914d2a1aae9667346789aca8d3049f2cfc3

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Unified Split

22 stdlib/public/core/StringStorage.swift

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```



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Fix bounds check in bridged ASCII String comparison

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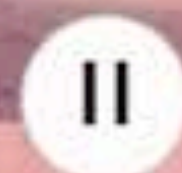
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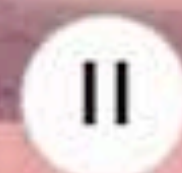
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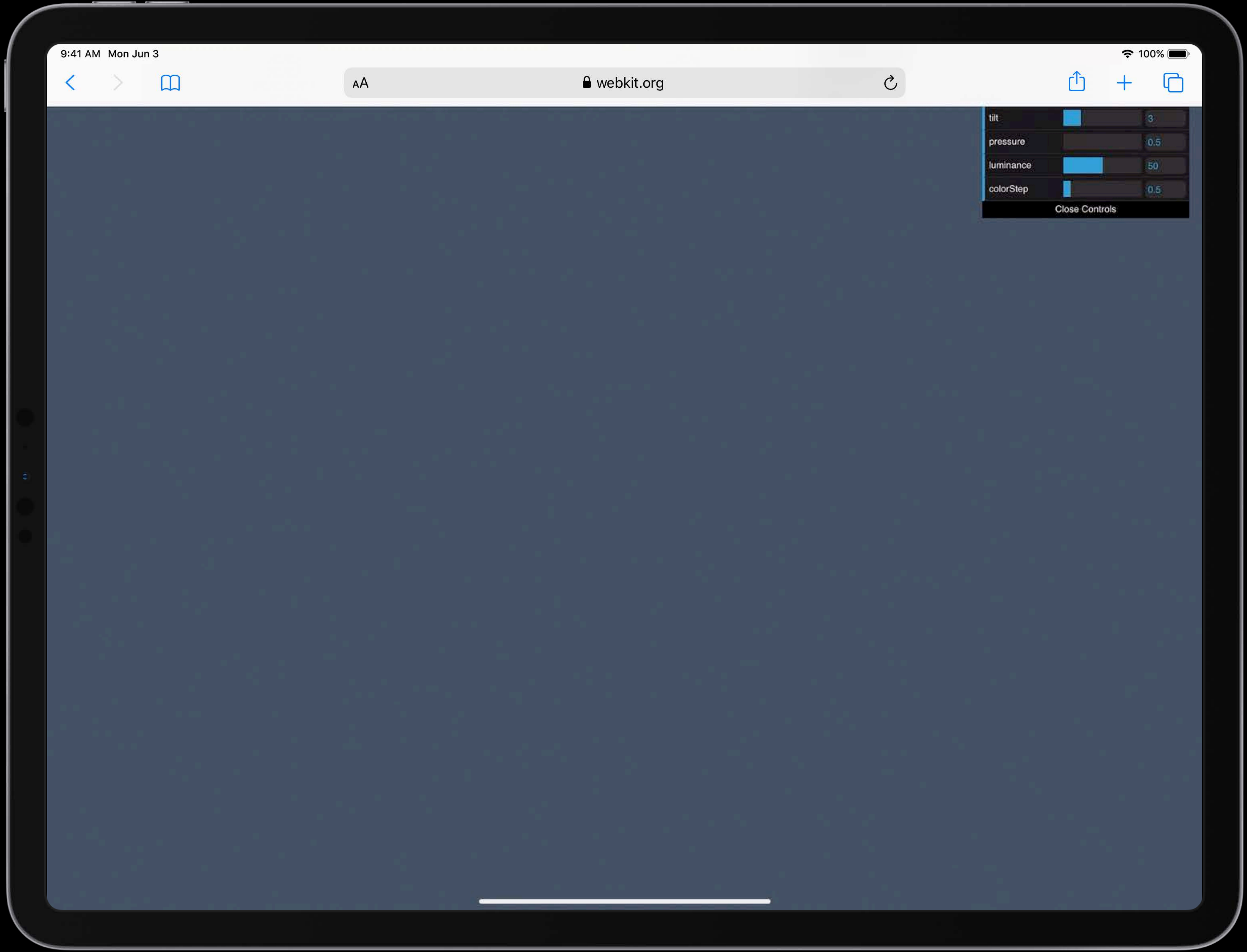
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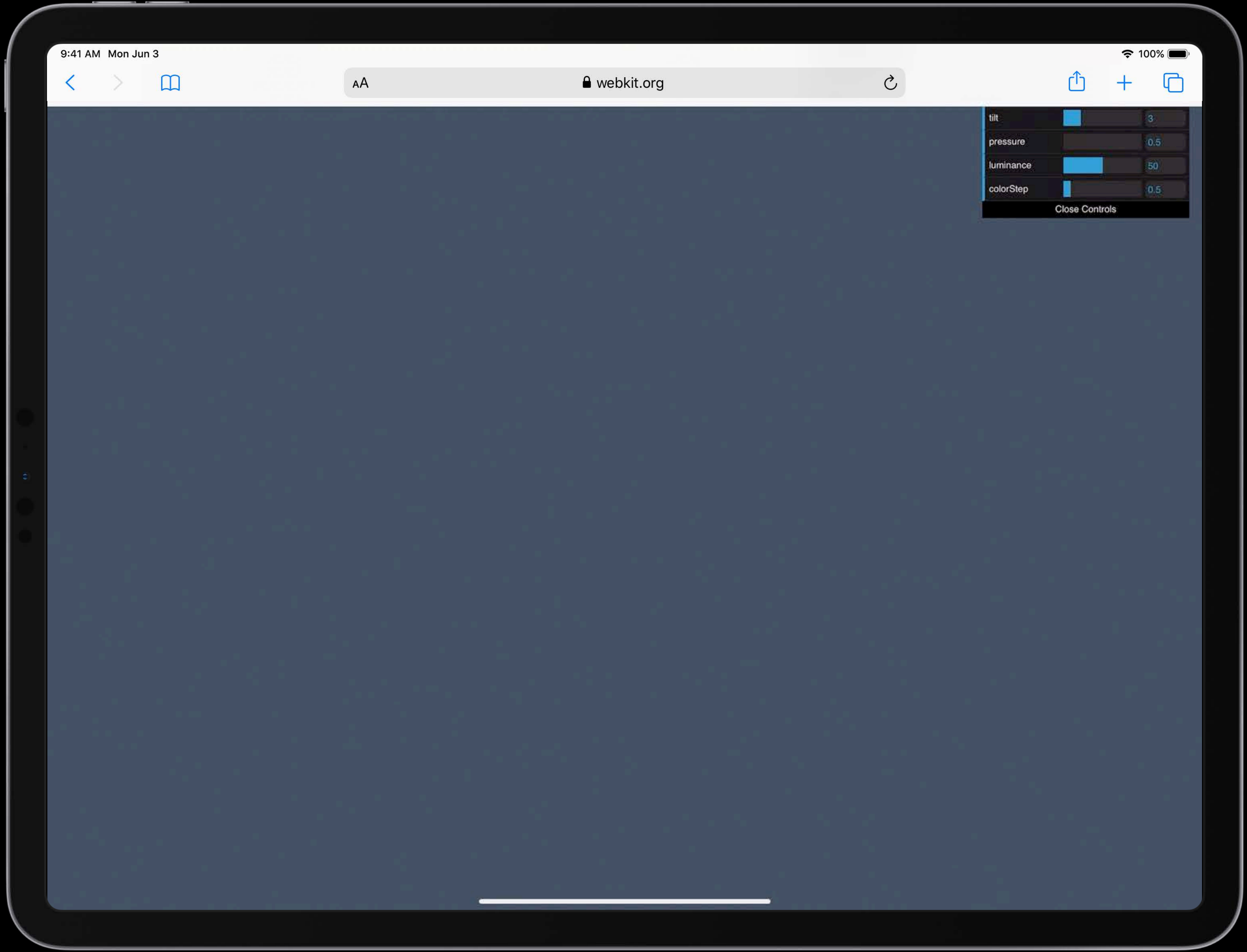
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Developing Websites For iPad

Desktop-class Browsing in Your App

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[Contents](#)
[Featured content](#)
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[Help](#)
[About Wikipedia](#)
[Community portal](#)
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Apple Extended Keyboard

From Wikipedia, the free encyclopedia

The **Apple Extended Keyboard** (**AEK**, model M0115) is a [keyboard](#) that was first sold separately alongside the [Macintosh II](#) and [SE](#) starting in 1987. It was replaced in 1990 by the **Apple Extended Keyboard II** (**AEKII**, model M3501) which was pre-packaged with Apple Professional Desktops starting with the [Macintosh IIsx](#).

Both versions were very similar, differing primarily with the addition of adjustable height legs in the AEKII and other minor changes. Both used [Apple Desktop Bus](#) (ADB) to connect to the host computer, with ports on either side to allow [daisy chaining](#) of another input device, typically a [computer mouse](#) or [trackball](#).

The keyboards are widely considered by enthusiasts to represent the golden era of Macintosh keyboards. Numerous reviews by users consider it to be the best keyboard ever, even better than the famous [IBM Model M keyboard](#).^{[1][2]} Retrospective articles credit the success of the product to a combination of sound, feel, and durability.^[3]

The move to [USB](#) connections starting with the original [iMac](#) led to the introduction of new keyboard designs using rubber dome switches rather than Alps Electric switches. This, in turn, has led to a market for 3rd party keyboards that replicate some of the AEK feel, with [Matias'](#) line of Tactile Pro and Quiet Pro keyboards perhaps being the most notable.

Contents [hide]

- [Unique features](#)
- [Design](#)
- [See also](#)
- [References](#)
- [External links](#)

Unique features [edit]

Among the features that make this keyboard unique are:

- A separate [power key](#) using a different key cap.
- [Caps Lock Key](#) that physically locks down when activated, considered to be better for touch typists.
- [Alps Electric Co.](#) brand [mechanical key switches](#), credited for their good sound and feel.
- Large spacing between keys, especially the top function keys and others.
- The width of the keyboard matches the width of the [Macintosh II](#).
- The height allows it to fit under the "chin" of the [Macintosh SE](#).
- Two small cylinders project vertically from the top of the keyboard on either side of the [function keys](#). These were used to hold templates with application-specific key guides.

Design [edit]

The original Apple Extended Keyboard's case was sloped upward towards the rear so that when viewed from the side it formed a continuous

Apple Extended Keyboard



Apple Extended Keyboard II

Model no.	M3501
Manufacturer	Apple Computer
Product family	Apple Keyboard
Keyswitches	Alps Electric
Interface	Apple Desktop Bus
Introduced	March 2, 1987 (original) October 15, 1990 (Extended Keyboard II)
Discontinued	October 15, 1990 (original) March 14, 1994 (Extended Keyboard II)
Price	US\$163



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- Main page
- Contents
- Featured content
- Current events
- Random article
- Donate to Wikipedia
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- Interaction
- Help
- About Wikipedia
- Community portal
- Recent changes
- Contact page

- Tools
- What links here
- Related changes
- Upload file
- Special pages
- Permanent link
- Page information
- Wikidata item
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Dog

From Wikipedia, the free encyclopedia

This article is about the domestic dog. For related species known as "dogs", see Canidae. For other uses, see Dog (disambiguation).

The **domestic dog** (*Canis lupus familiaris* when considered a subspecies of the wolf or *Canis familiaris* when considered a distinct species)^[5] is a member of the genus *Canis* (canines), which forms part of the wolf-like canids,^[6] and is the most widely abundant terrestrial carnivore.^{[7][8][9][10][11]} The dog and the extant gray wolf are sister taxa^{[12][13][14]} as modern wolves are not closely related to the wolves that were first domesticated,^{[13][14]} which implies that the direct ancestor of the dog is extinct.^[15] The dog was the first species to be domesticated^{[14][16]} and has been selectively bred over millennia for various behaviors, sensory capabilities, and physical attributes.^[17]

Their long association with humans has led dogs to be uniquely attuned to human behavior^[18] and they are able to thrive on a starch-rich diet that would be inadequate for other canid species.^[19] Dogs vary widely in shape, size and colors.^[20] They perform many roles for humans, such as hunting, herding, pulling loads, protection, assisting police and military, companionship and, more recently, aiding disabled people and therapeutic roles. This influence on human society has given them the sobriquet of "man's best friend".

Contents [hide]

- 1 Terminology
- 2 Taxonomy
- 3 Origin
- 4 Biology
 - 4.1 Anatomy
 - 4.1.1 Size and weight
 - 4.1.2 Senses
 - 4.1.3 Coat
 - 4.1.4 Tail
 - 4.1.5 Differences from wolves
 - 4.2 Health
 - 4.2.1 Lifespan
 - 4.3 Reproduction
 - 4.3.1 Neutering
 - 4.4 Inbreeding depression
- 5 Intelligence, behavior, and communication
 - 5.1 Intelligence
 - 5.2 Behavior
 - 5.3 Communication
- 6 Ecology
 - 6.1 Population
 - 6.2 Competitors and Predators
 - 6.3 Diet
 - 6.4 Range
- 7 Breeds
- 8 Roles with humans
 - 8.1 Early roles
 - 8.2 As pets
 - 8.3 Work
 - 8.4 Sports and shows
 - 8.5 As food
 - 8.6 Health risks to humans

Domestic dogs

Temporal range: At least 14,200 years ago - present^[2]



Selection of the different breeds of dog

Conservation status

Domesticated

Scientific classification ✎

Kingdom: Animalia

Phylum: Chordata

Class: Mammalia

Order: Carnivora

Family: Canidae

Genus: *Canis*

Species: *C. lupus*

Subspecies: *C. l. familiaris*^[1]

Trinomial name

Canis lupus familiaris^[1]

Linnaeus, 1758

Synonyms

Canis familiaris Linnaeus, 1758^{[3][4]}



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Dog

From Wikipedia, the free encyclopedia

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 - 6.2 Competitors and predators
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 - 6.4 Range
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 - 8.1 Early roles

Domestic dogs

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Linnaeus, 1758

Synonyms

Canis familiaris Linnaeus, 1758^{[3][4]}



Dogs show great morphological variation

Dog


🔍 ⭐ 📝

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Domestic dogs
Temporal range: At least 14,200 years ago – present^[2]



Selection of the different breeds of dog

Conservation status
Domesticated

Scientific classification ✎

☰ Contents ▾

^ Terminology



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- Main page
- Contents
- Featured content
- Current events
- Random article
- Donate to Wikipedia
- Wikipedia store

- Interaction
- Help
- About Wikipedia
- Community portal
- Recent changes
- Contact page

- Tools
- What links here
- Related changes
- Upload file
- Special pages
- Permanent link
- Page information
- Wikidata item
- Cite this page

- Print/export
- Create a book
- Download as PDF
- Printable version

- In other projects
- Wikimedia Commons

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Strawberry Creek

From Wikipedia, the free encyclopedia

Strawberry Creek is the principal watercourse running through the city of Berkeley, California. Two forks rise in the Berkeley Hills of the California Coast Ranges, and form a confluence at the campus of the University of California, Berkeley. The creek then flows westward across the city to discharge into San Francisco Bay.

The north fork has also been called "Blackberry Creek",^[2] a name which has also been applied to another small creek in Berkeley, a portion of which has been daylighted through Thousand Oaks School Park. The canyon in which the north fork of Strawberry Creek runs is called "Blackberry Canyon".

Strawberry Creek serves as a significant marker for the movement of the Hayward Fault. The creek is offset at the mouth of Strawberry Canyon, precisely at the locus of California Memorial Stadium. The filled-in middle forks located in the middle of the UC campus are thought to represent remnants of the former course of the south (main) fork of the creek, which have moved northward by fault action.

- 1 History
- 2 Daylighting proposals
- 3 Mouth
- 4 See also
- 5 References
- 6 External links

History

Strawberry Creek was the first surface water source for the University and parts of the city of Berkeley. A reservoir was constructed in the late 19th century in Strawberry Canyon, above the site of California Memorial Stadium. The reservoir was replaced in the early 20th century by the system of the East Bay Municipal Utility District whose source reservoir is located in the Sierra Nevada. Construction of the stadium removed a waterfall and



Location	
Country	United States
State	California
Region	Alameda County
City	Berkeley
Physical characteristics	
Source	Berkeley Hills
- location	Oakland
- coordinates	37°52′51″N 122°13′54″W﻿ / ﻿37.881°N 122.232°W﻿ / 37.881; -122.232
Mouth	San Francisco Bay



The map displays the city of Berkeley, California, with Strawberry Creek highlighted in yellow. Key landmarks include the University of California, Berkeley campus with buildings like Hearst Memorial Mining Building, Cory Hall, and Hearst Greek Theatre UC Berkeley. Major roads such as Hearst Ave, University Dr, and Bancroft Way are visible. Other points of interest include La Val's Pizza, Celia's Mexican Restaurant, and various libraries and schools.

Strawberry Creek



Strawberry Creek is the principal **watercourse** running through the city of **Berkeley, California**. Two forks rise in the **Berkeley Hills** of the **California Coast Ranges**, and form a **confluence** at the campus of the **University of California, Berkeley**. The creek then flows westward across the city to discharge into **San Francisco Bay**.

Strawberry Creek



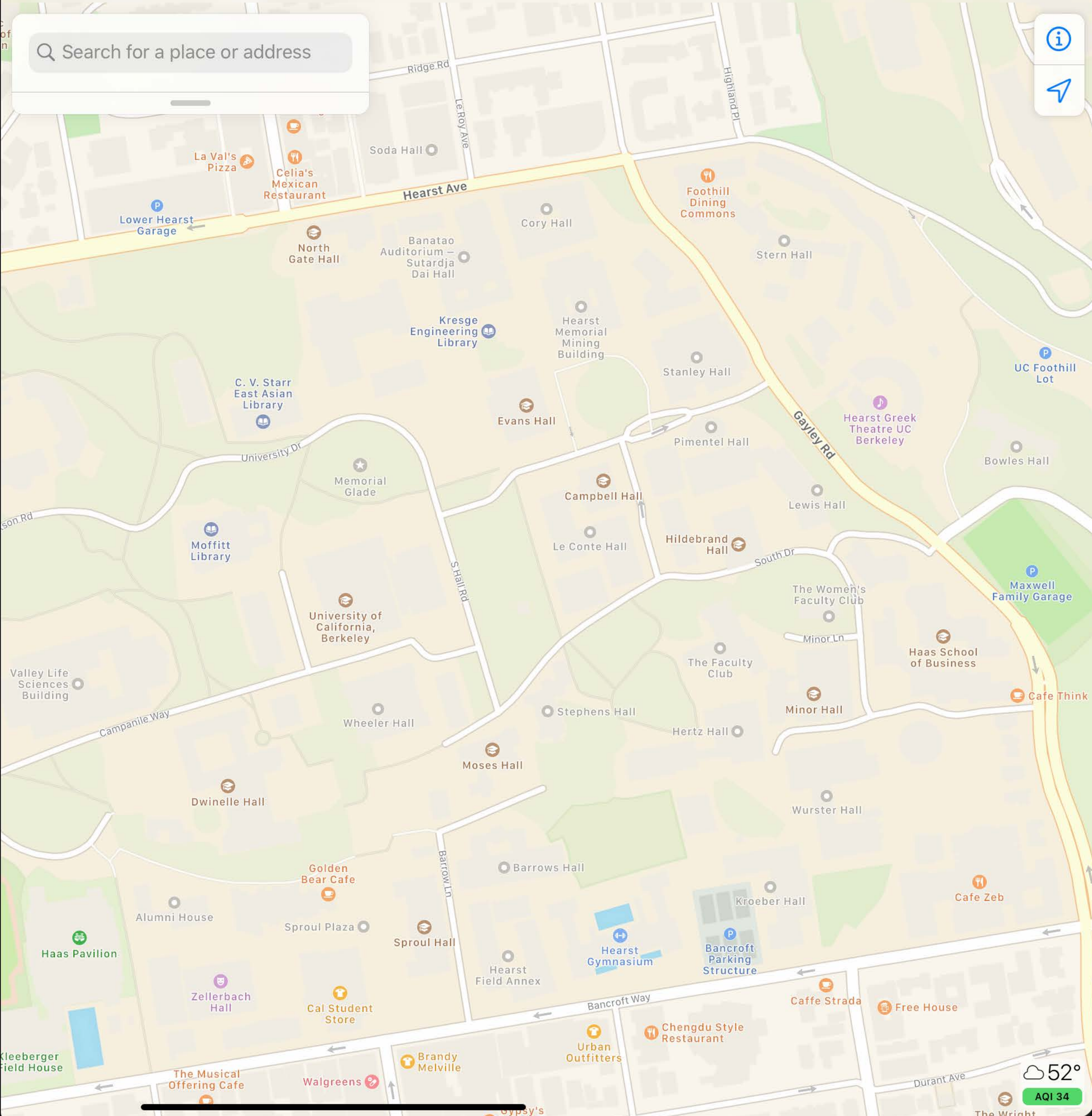
Location

Country	United States
State	California
Region	Alameda County
City	Berkeley

Physical characteristics

Source: **Berkelev Hills**

Search for a place or address



Web Views in Your App

Link following

Web browser

Hybrid app

Authentication

Web Views in Your App

Link following

Web browser

Hybrid app

Authentication

Enabling Desktop-class Browsing in WKWebView

Enabling Desktop-class Browsing in WKWebView

Build with iOS 13 SDK

Enabling Desktop-class Browsing in WKWebView

Build with iOS 13 SDK

Use `applicationNameForUserAgent`

```
webViewConfiguration.applicationNameForUserAgent = "Version/1.0 MyBrowser/1.0"
```

```
// Set a preferred content browsing mode
```

```
class WKWebpagePreferences : NSObject {  
    var preferredContentMode : ContentMode  
}
```



NEW


```
// Set a preferred content browsing mode

class WKWebpagePreferences : NSObject {
    enum ContentMode : Int {
        case recommended
        case mobile
        case desktop
    }
    var preferredContentMode : ContentMode
}
```



NEW



NEW

```
// Set a preferred content browsing mode

class WKWebpagePreferences : NSObject {
    enum ContentMode : Int {
        case recommended
        case mobile
        case desktop
    }
    var preferredContentMode : ContentMode
}
```

Advanced Features in Web Browsers

Request mobile website

Per website preferences

```
// WKNavigationDelegate – set a content mode preference at navigation time

func webView(_ webView: WKWebView, decidePolicyFor navigationAction: WKNavigationAction,
             decisionHandler: @escaping (WKNavigationActionPolicy) -> Void)
```



NEW

```
// WKNavigationDelegate – set a content mode preference at navigation time
```

```
func webView(_ webView: WKWebView, decidePolicyFor navigationAction: WKNavigationAction,  
             preferences: WKWebpagePreferences,  
             decisionHandler: @escaping (WKNavigationActionPolicy, WKWebpagePreferences) -> Void)
```

Web Views in Your App

Link following

Web browser

Hybrid app

Authentication

Web Views in Your App

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Authentication

Hybrid Apps Using WKWebView

Hybrid Apps Using WKWebView

NEW

Build with iOS 13 SDK

Hybrid Apps Using WKWebView

NEW

Build with iOS 13 SDK

Test your app

Hybrid Apps Using WKWebView

NEW

Build with iOS 13 SDK

Test your app

Use mobile mode if needed

```
webViewConfiguration.defaultWebpagePreferences.preferredContentMode = .mobile
```

Web Views in Your App

Link following

Web browser

Hybrid app

Authentication

Web Views in Your App

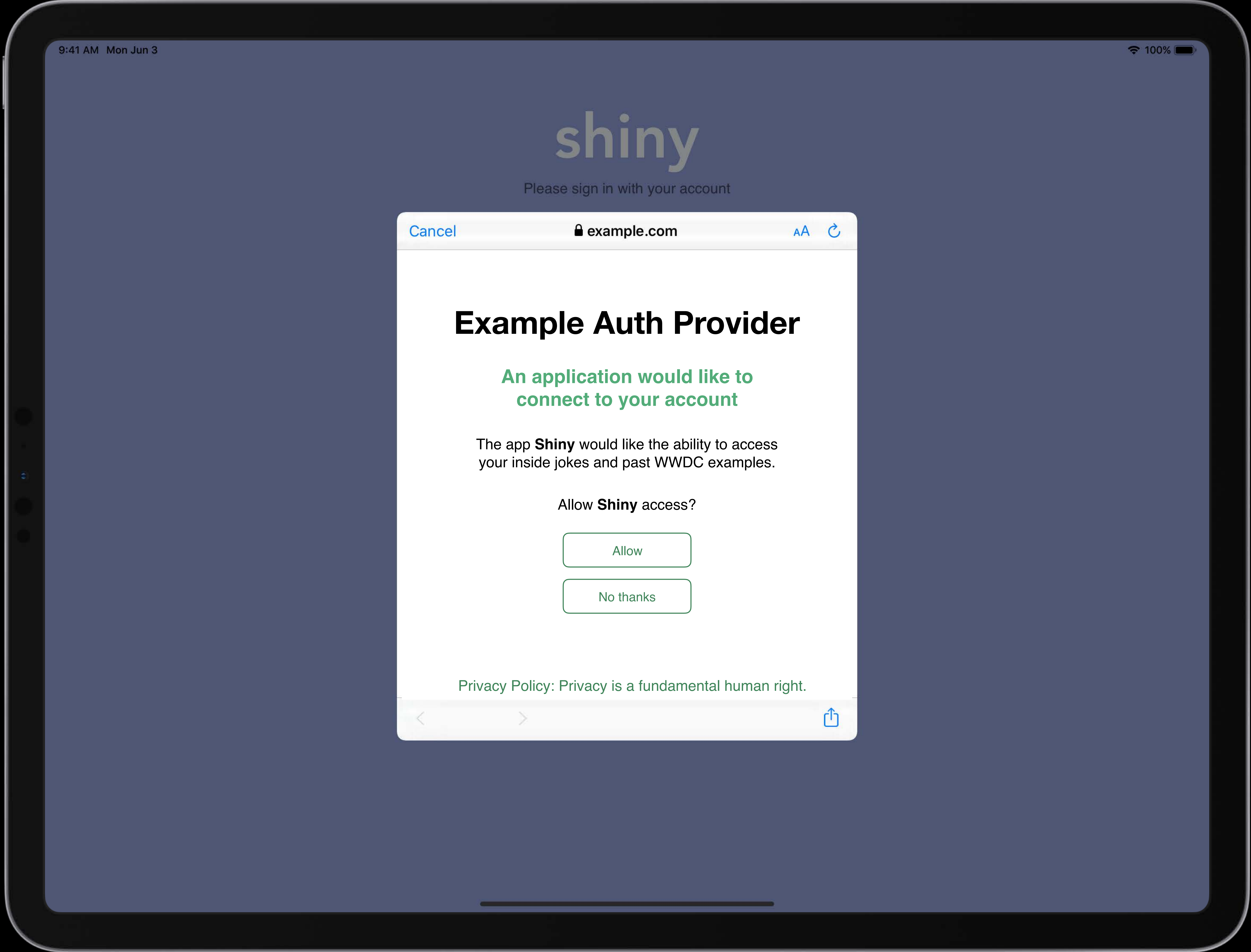
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Web browser

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Authentication

ASWebAuthenticationSession



Web Views in Your App

Link following

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Hybrid app

Authentication

Demo

Wenson Hsieh, Safari and WebKit Engineer

Developing Websites for iPad

Beth Dakin, Safari and WebKit Engineer

Pointer Events

Hover

Accelerated Scrolling

Viewport and Text Sizing

Visual Viewport API

Streaming Video

Pointer Events

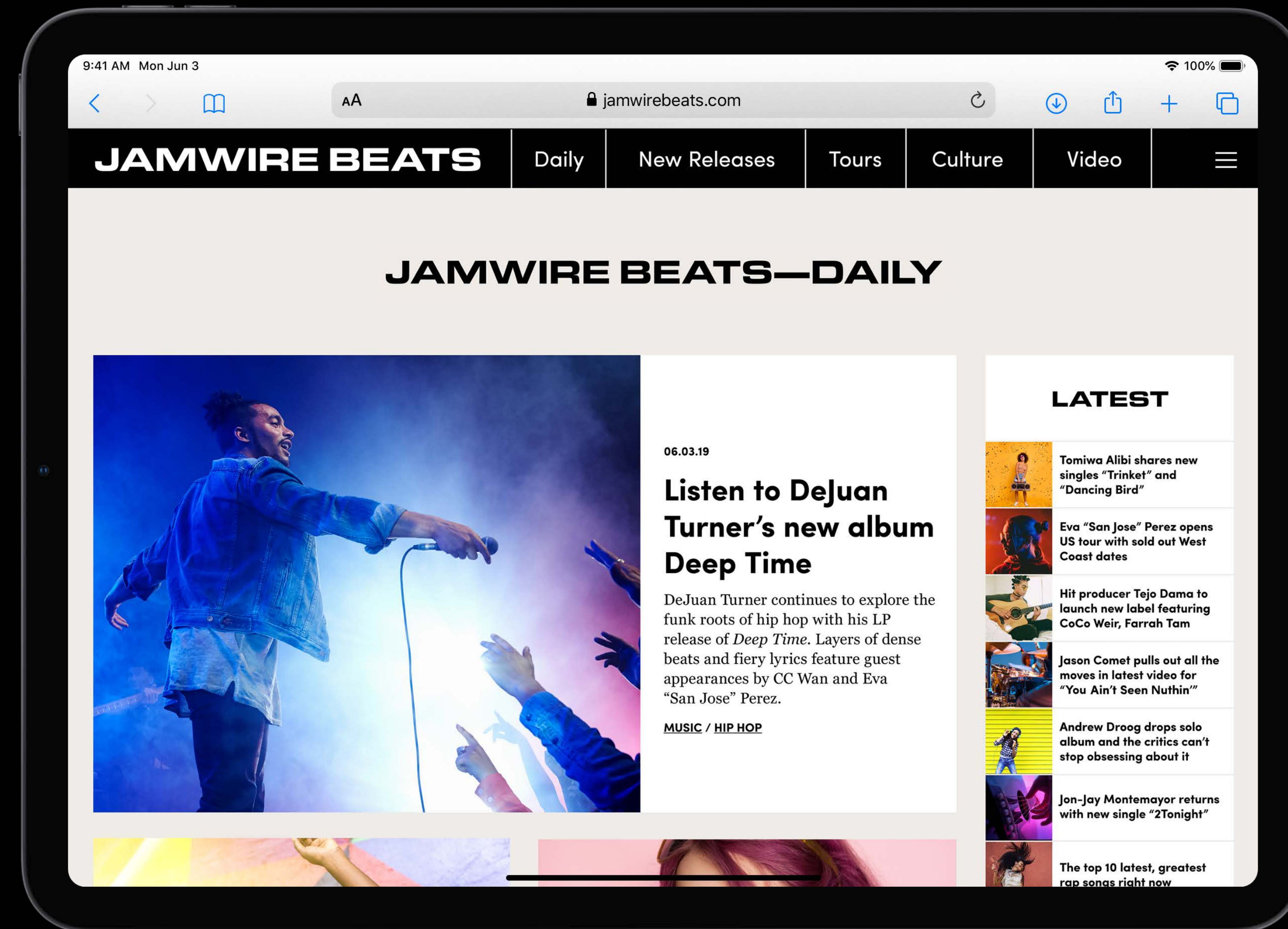
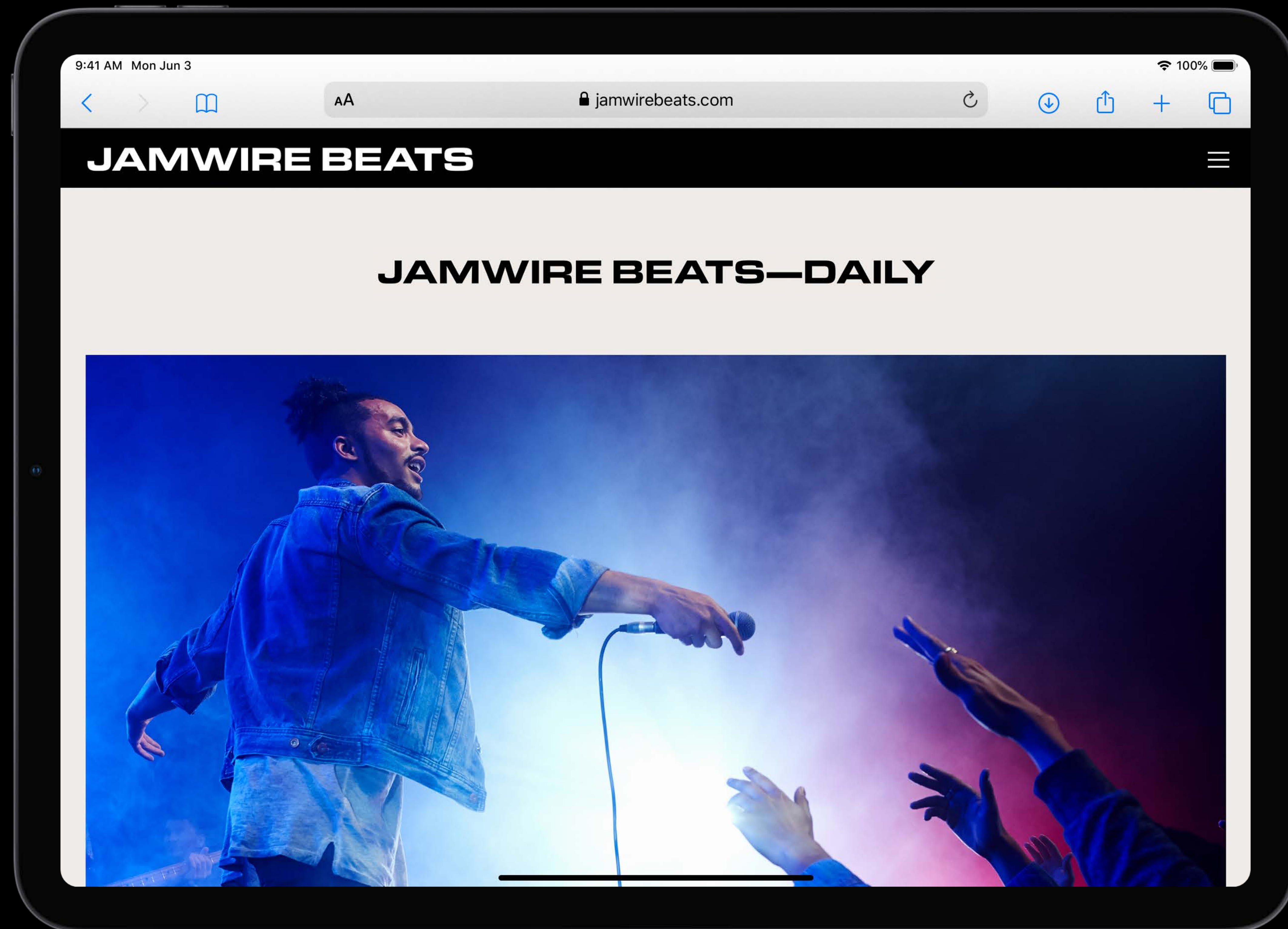
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JAMWIRE BEATS—DAILY










06.03.19

Listen to DeJuan Turner's new album *Deep Time*

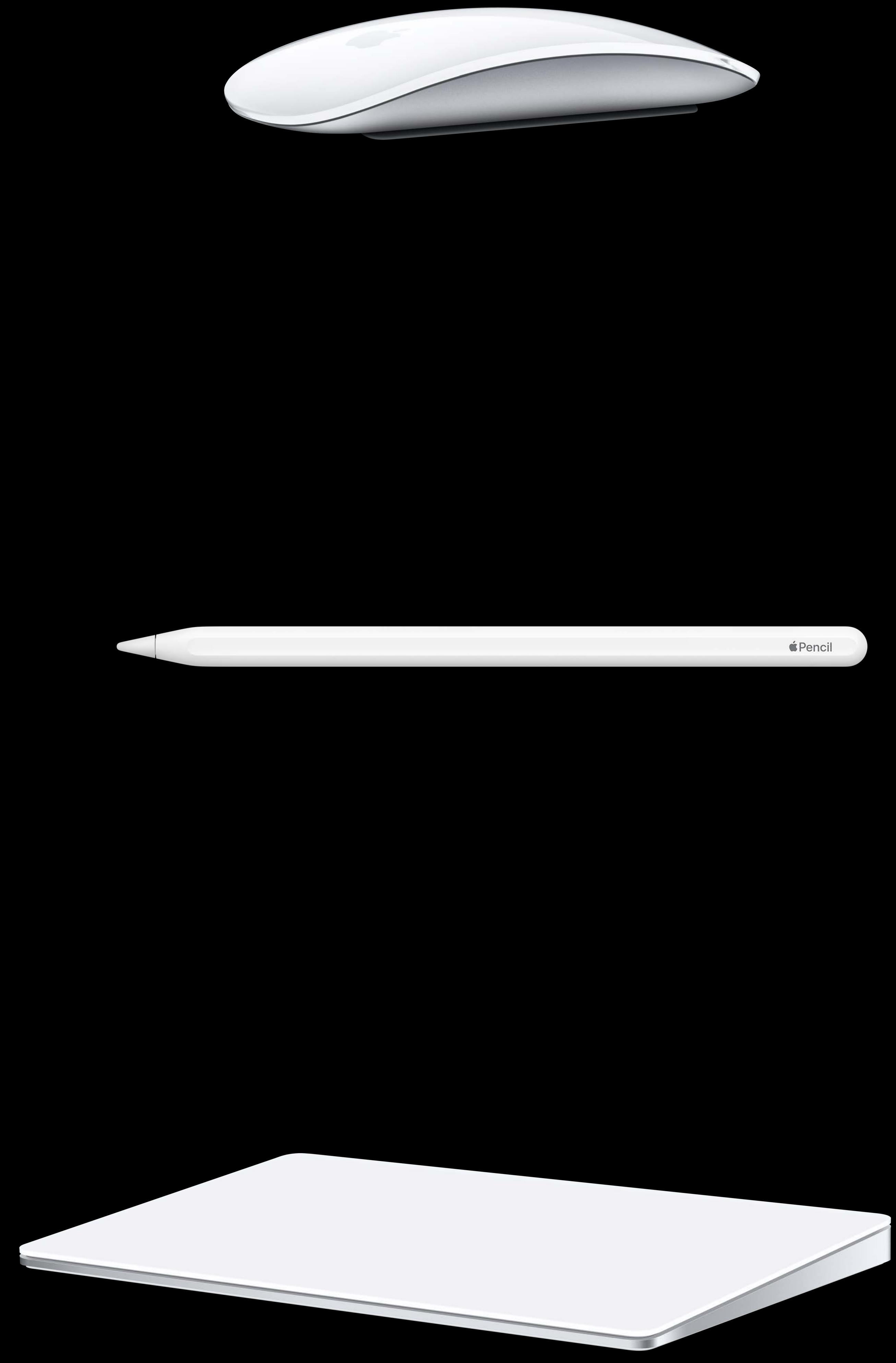
DeJuan Turner continues to explore the funk roots of hip hop with his LP release of *Deep Time*. Layers of dense beats and fiery lyrics feature guest appearances by CC Wan and Eva "San Jose" Perez.

[MUSIC / HIP HOP](#)

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-  Eva "San Jose" Perez opens US tour with sold out West Coast dates
-  Hit producer Tejo Dama to launch new label featuring CoCo Weir, Farrah Tam
-  Jason Comet pulls out all the moves in latest video for "You Ain't Seen Nuthin'"
-  Andrew Droog drops solo album and the critics can't stop obsessing about it
-  Jon-Jay Montemayor returns with new single "2Tonight"
-  The top 10 latest, greatest rap songs right now





```
element.addEventListener("mousemove", updateInteraction);
```


NEW

```
element.addEventListener("pointermove", updateInteraction);
```



```
if (window.PointerEvent)
    element.addEventListener("pointermove", updateInteraction);
else
    element.addEventListener("mousemove", updateInteraction);
```



```
if (window.PointerEvent)
    element.addEventListener("pointermove", updateInteraction);
```

```
if (window.MouseEvent)
    element.addEventListener("mousemove", updateInteraction);
```

```
// Use pointerType to support different behaviors
// for different input types.
```

```
switch (event.pointerType) {
case "mouse":
    updateMouseInteraction();
    break;
case "touch":
    updateTouchInteraction();
    break;
case "pen":
    updatePencilInteraction();
    break;
}
```

```
function updateInteraction(event) {  
    event.preventDefault();  
    ...  
}
```

```
/* Prevent default browser behaviors on macOS and iOS. */
```

```
<style>
```

```
#interactive-canvas {
```

```
  touch-action: none;
```

```
}
```

```
</style>
```

```
<script>
```

```
function updateInteraction(event) {
```

```
  event.preventDefault();
```

```
  ...
```

```
}
```

```
</script>
```

Pointer Events

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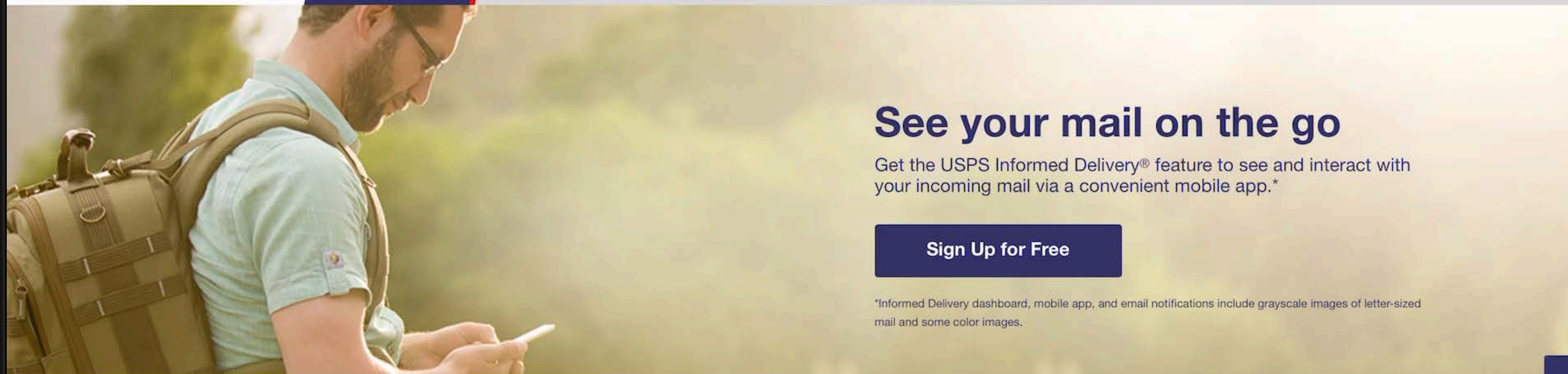
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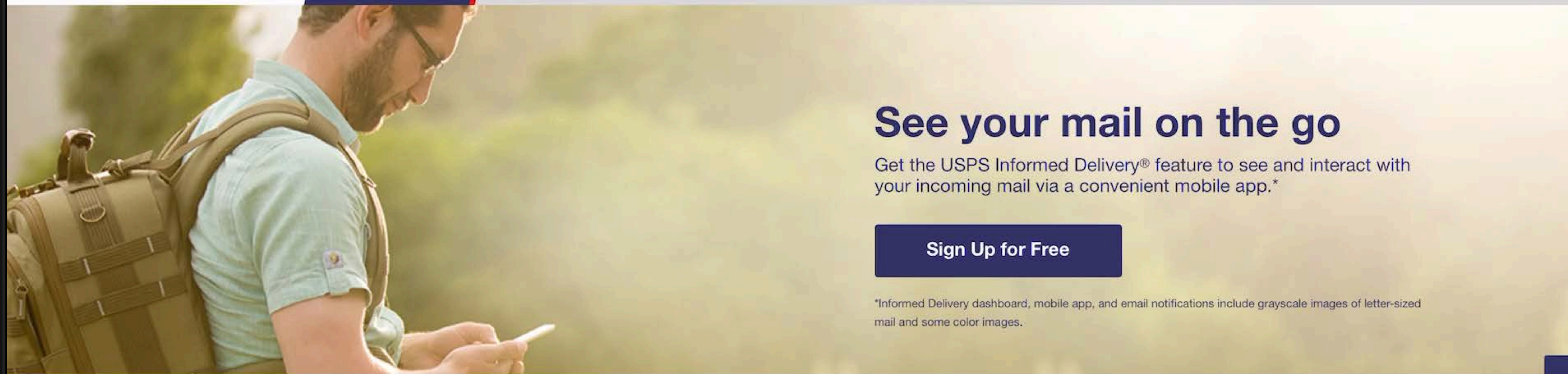
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Search or Enter a Tracking Number



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Shipping & Mailing with USPS



Best Practices for Mouse Hover

Best Practices for Mouse Hover

Provide another way to access hover content

Best Practices for Mouse Hover

Provide another way to access hover content

Avoid two taps for common interactions

Best Practices for Mouse Hover

Provide another way to access hover content

Avoid two taps for common interactions

Keep hover snappy

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No description

Add title to make the fiddle visible on your profile page

Resources URL cdnjs

Async requests

Other (links, license)

```
HTML  
1 <div class="iframe-container">  
2 <iframe src="https://docs.jsfiddle.net/getting-started/"  
3 </div>
```

```
JavaScript + No-Library (pure JS)  
1
```

```
CSS  
1 .iframe-container iframe {  
2 border: 0;  
3 height: 100%;  
4 width: 100%;  
5 left: 0;  
6 top: 0;  
7 position: absolute;  
8 }  
9  
10  
11  
12  
13 .iframe-container {  
14 overflow: hidden;  
15 position: relative;
```

Getting started

How to get started with JSFiddle.

New fiddle or a Boilerplate

Opening an empty fiddle will give you the option to start fresh or create a fiddle from our boilerplates:

Entering and running code

JSFiddle has the notion of panels (or tabs if you switch into the tabbed layout), there are 4 panels, 3 where you can enter code, and 1 to see the result.



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```
1
```

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4 width: 100%;  
5 left: 0;  
6 top: 0;  
7 position: absolute;  
8 }  
9  
10  
11  
12  
13 .iframe-container {  
14 overflow: hidden;  
15 position: relative;
```

JSFiddle Docs

Getting started

How to get started with JSFiddle.

New fiddle or a Boilerplate

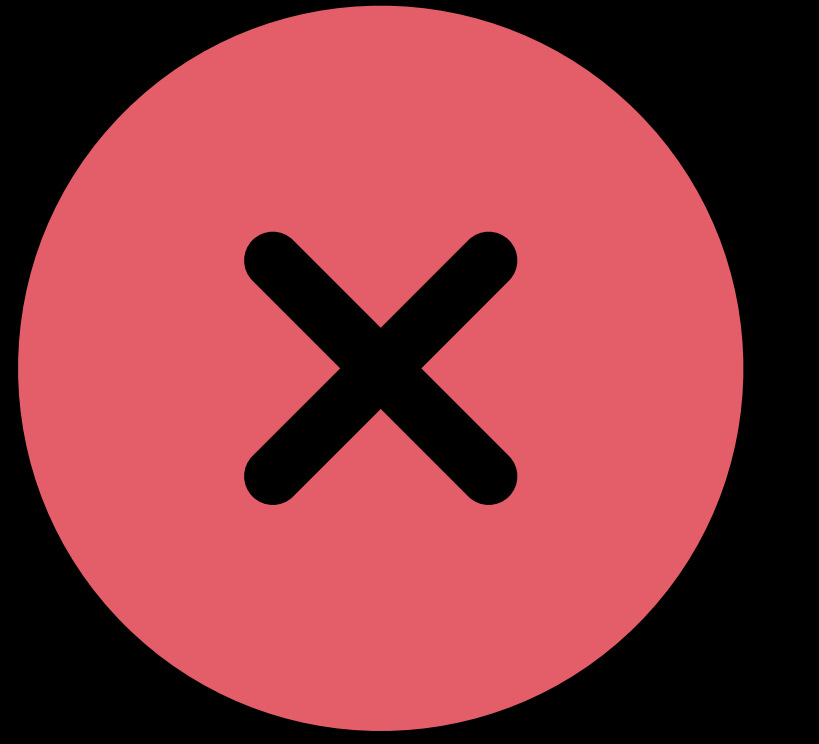
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Old Techniques for Fast Scrolling



```
-webkit-overflow-scrolling: touch;
```

TouchEvent to emulate fast scrolling

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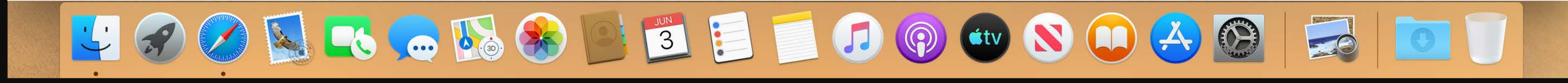
Viewport and Text Sizing

Visual Viewport API

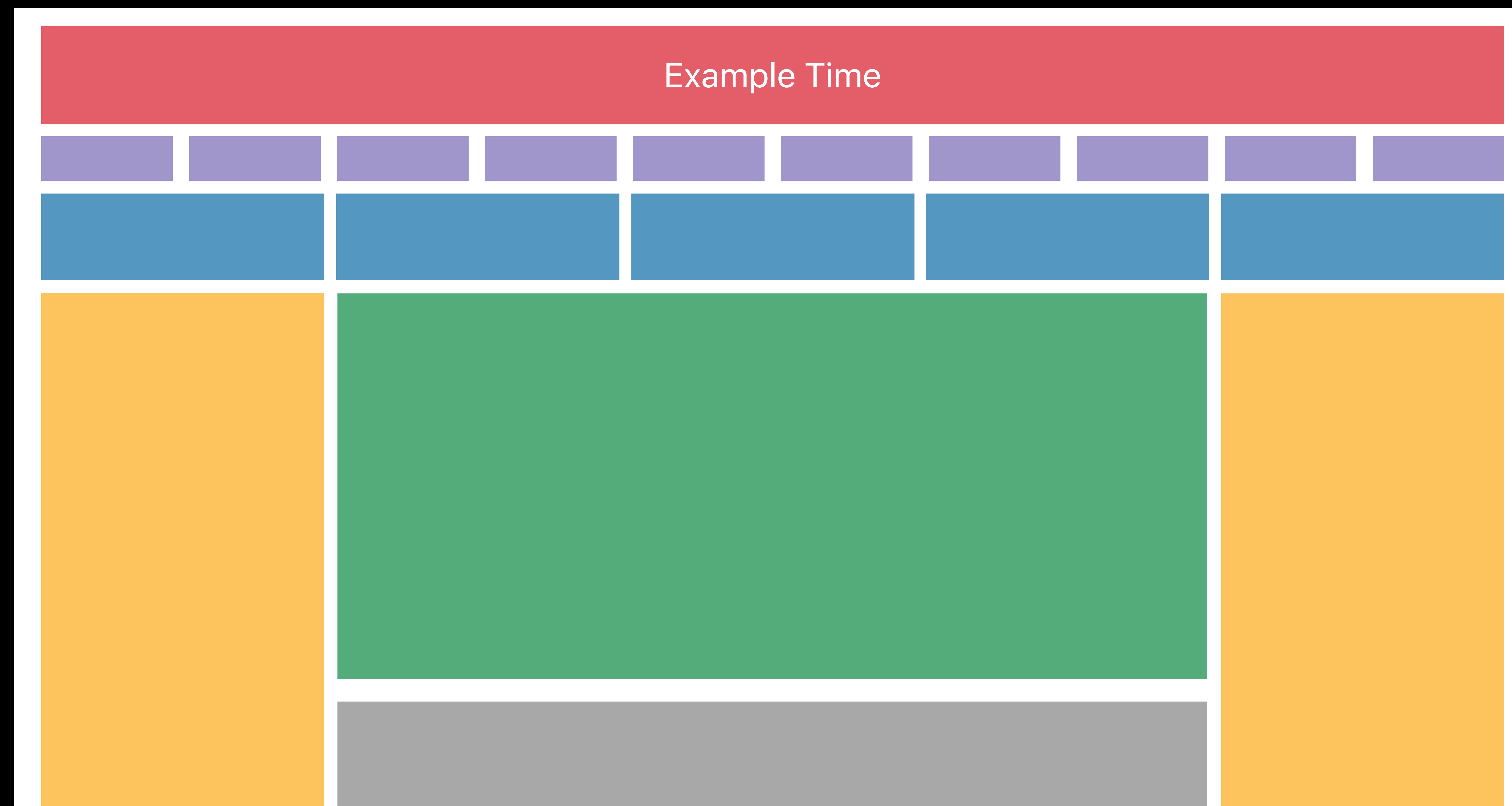
Streaming Video

Web pages should fit with legible text.

Example Time



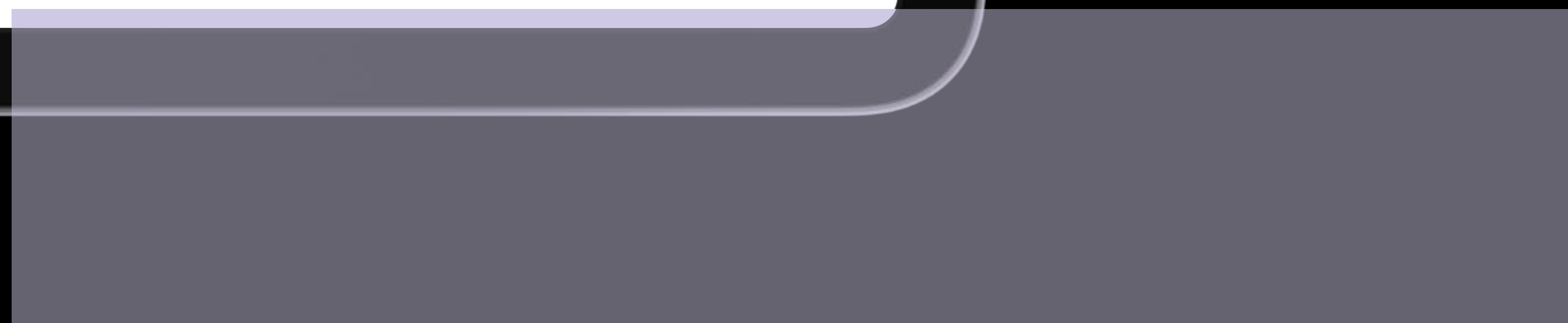
MacBook Pro



```
<meta name="viewport" content="width=device-width, initial-scale=1.0">
```




Example Time

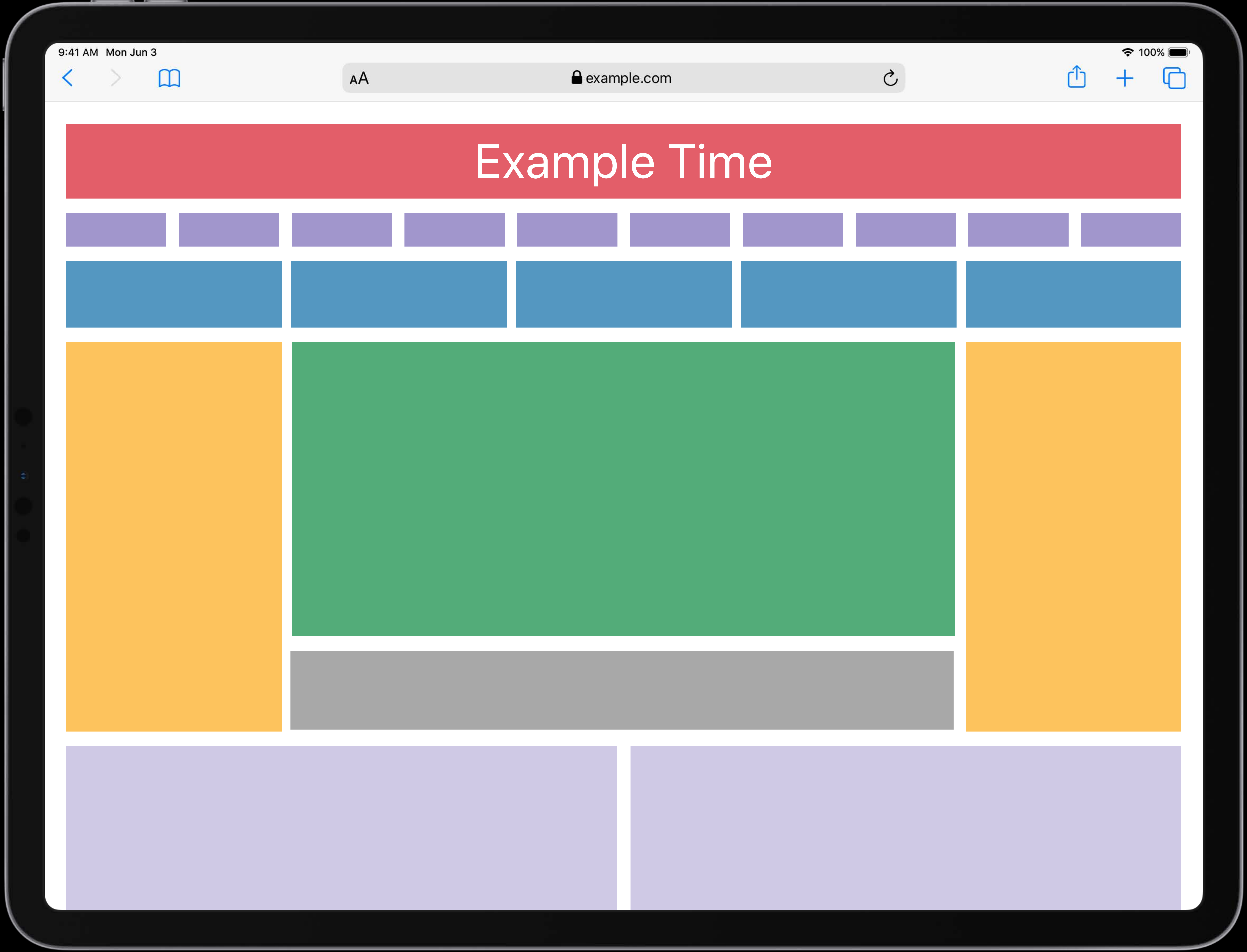




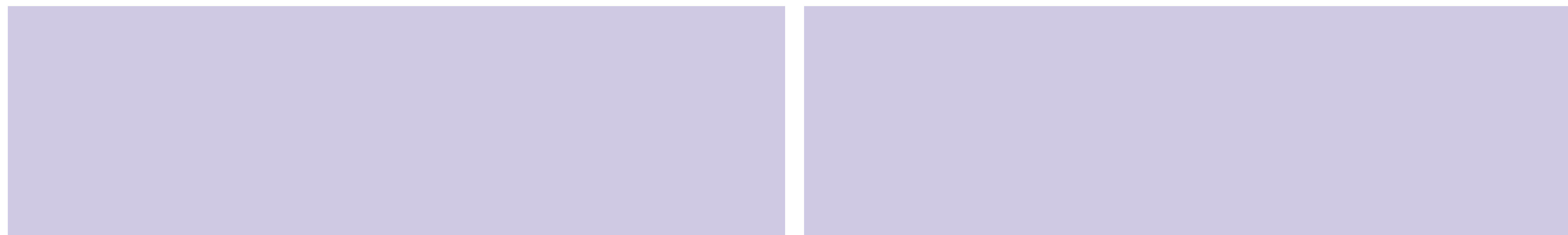
Example Time

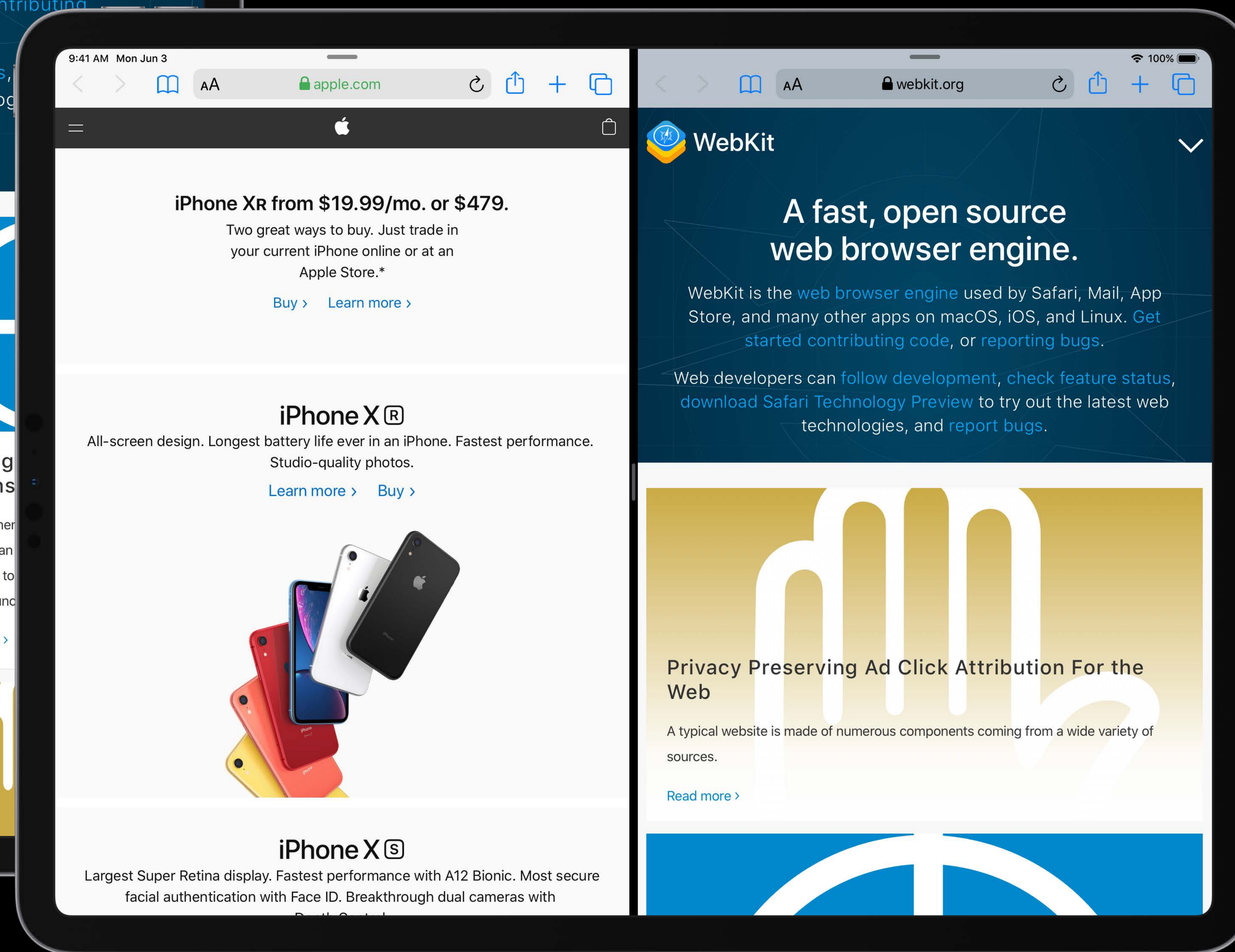
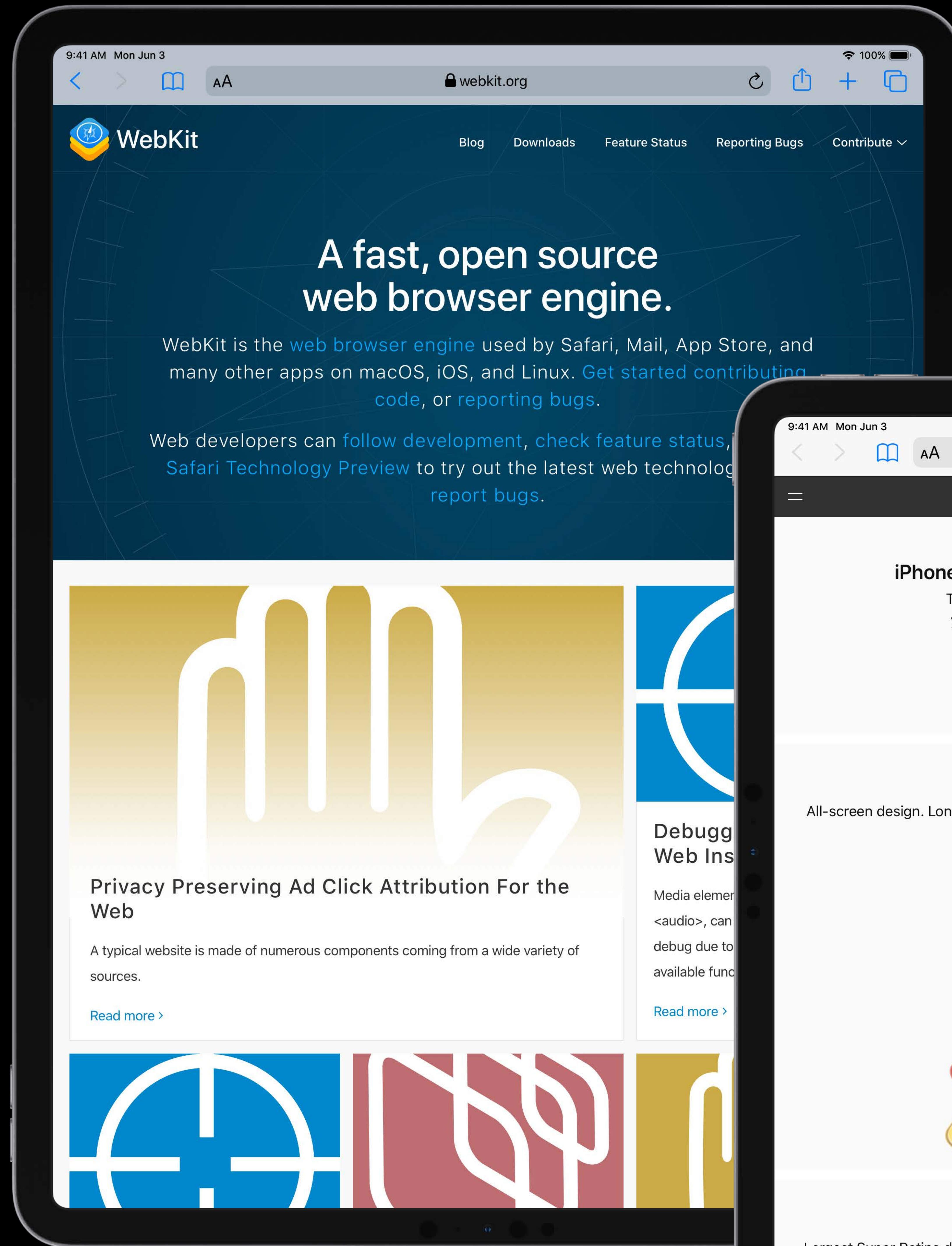


NEW



Example Time





Pointer Events

Hover

Accelerated Scrolling

Viewport and Text Sizing

Visual Viewport API

Streaming Video

Pointer Events

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Accelerated Scrolling

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Privacy Preserving Ad Click Attribution For the Web

A typical website is made of numerous components coming from a wide variety of sources.

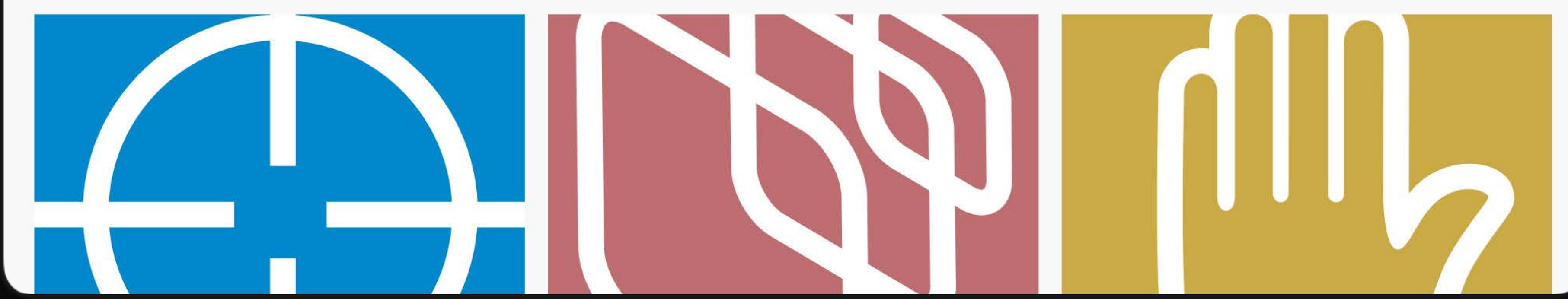
[Read more >](#)



Debugging Media in Web Inspector

Media elements, such as `<video>` and `<audio>`, can sometimes be tricky to debug due to the sheer flexibility of the available functionality.

[Read more >](#)





AA

example.com



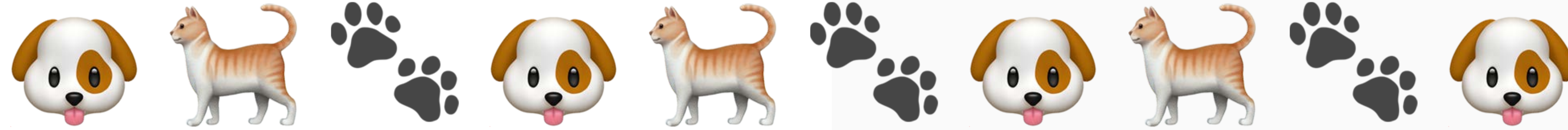
Name

Address

Donation Amount

Donate now!





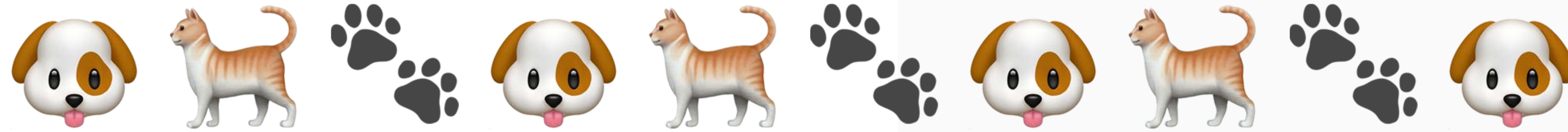
~ ` 1 2 3 4 5 6 7 8 9 0 - = delete

tab q w e r t y u i o p { } | \

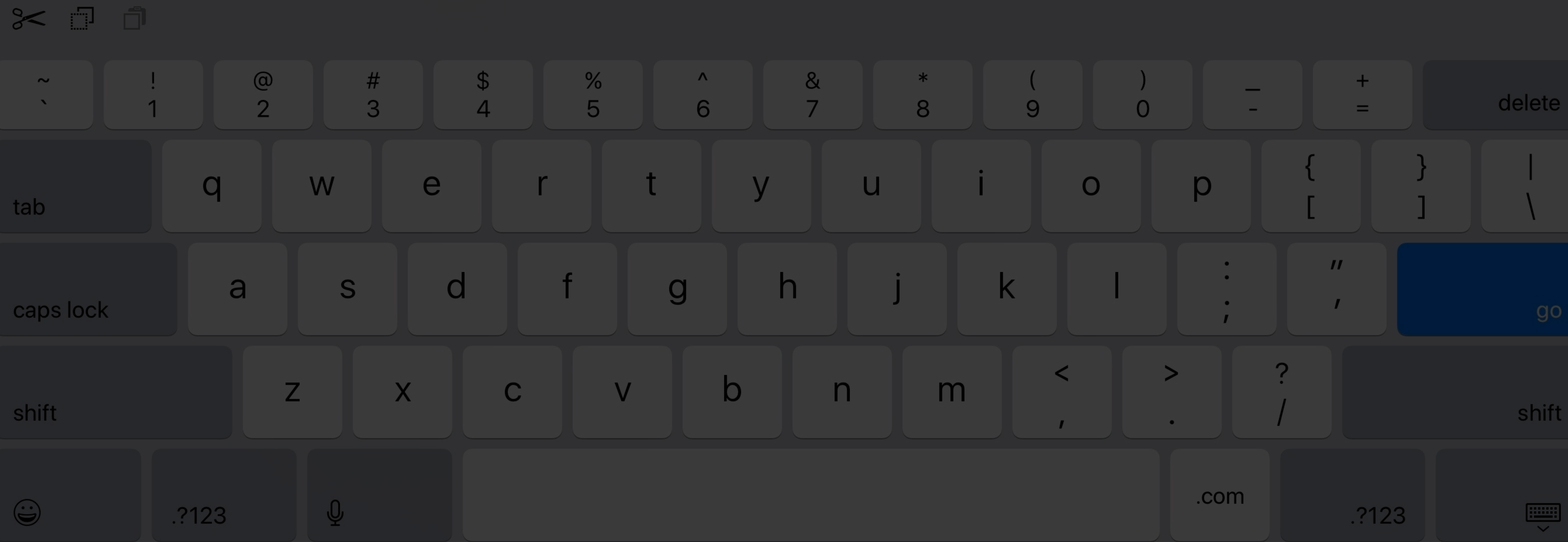
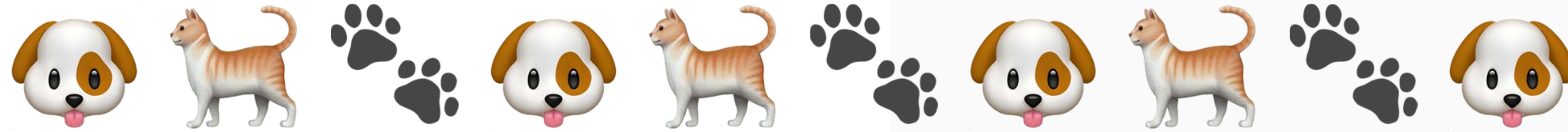
caps lock a s d f g h j k l ; ' go

shift z x c v b n m < > ? / shift

😊 .?123 🗣️ .com .?123 📄



Virtual keyboard interface with various keys including numbers, letters, and a blue 'go' button.



NEW

```
if (window.visualViewport)
  visualViewport.addEventListener("resize", visualSizeChanged);
```



Donate now!



Virtual keyboard with keys: ~, !1, @2, #3, \$4, %5, ^6, &7, *8, (9,)0, -, =, delete, tab, q, w, e, r, t, y, u, i, o, p, {, }, |, \, caps lock, a, s, d, f, g, h, j, k, l, :, ";", ", ", go, shift, z, x, c, v, b, n, m, <, >, ?, /, shift, emoji, .?123, microphone, .com, .?123, keyboard icon.

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Streaming Video

Pointer Events

Hover

Accelerated Scrolling

Viewport and Text Sizing

Visual Viewport API

Streaming Video

HTTP Live Streaming





Media Source Extensions

NEW



Pointer Events

Hover

Accelerated Scrolling

Viewport and Text Sizing

Visual Viewport API

Streaming Video

Pointer Events

Hover

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Apple NewsNewsSearch

Apple News

- Today
- News+
- Saved
- History

Channels & Topics

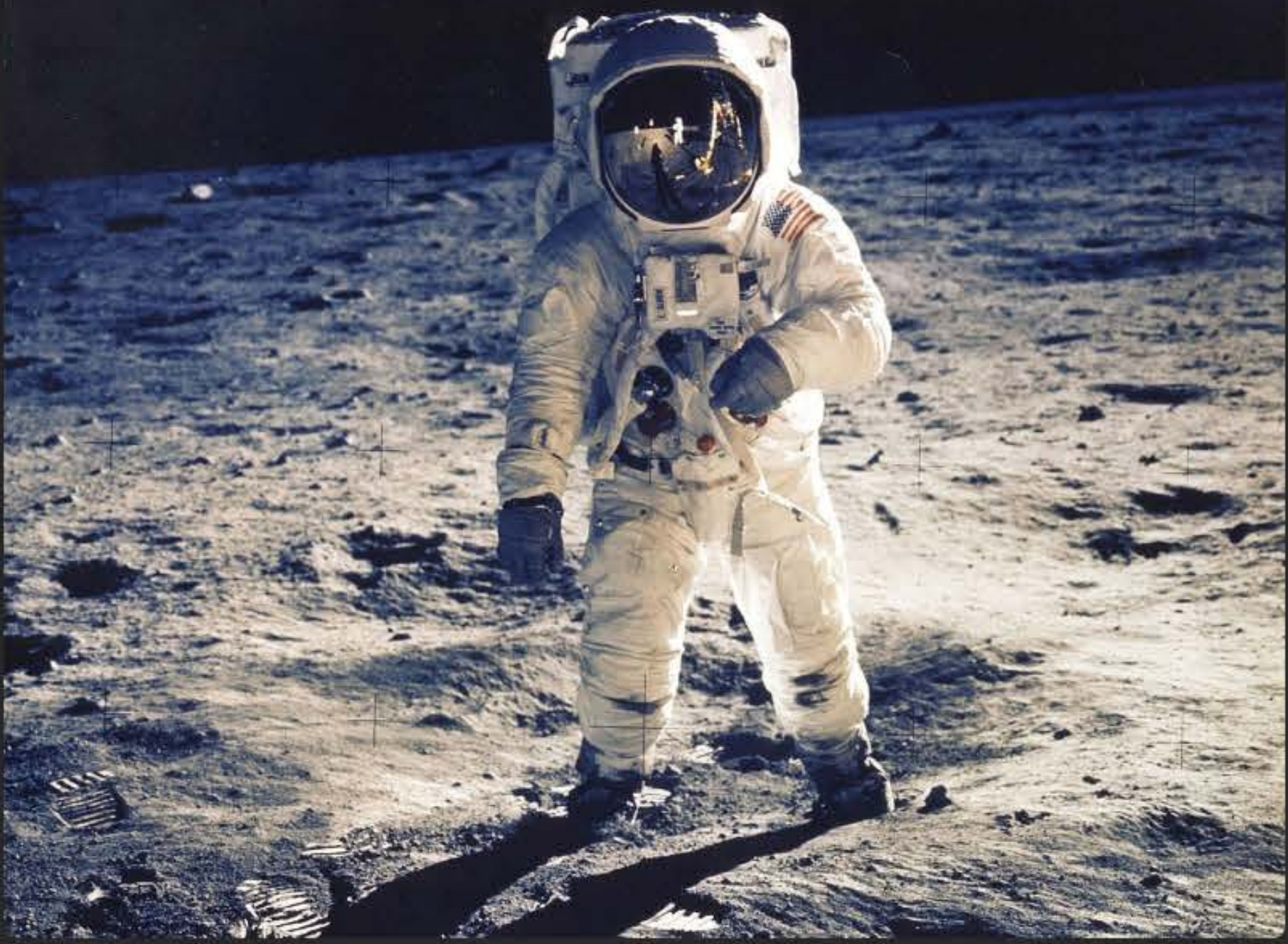
- Los Angeles Times
- HuffPost
- WSJ
- Vox
- Automobile
- Bleacher Report
- CNN
- ESPN
- InStyle
- NBC
- Politico
- The Atlantic
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- TIME
- Vanity Fair

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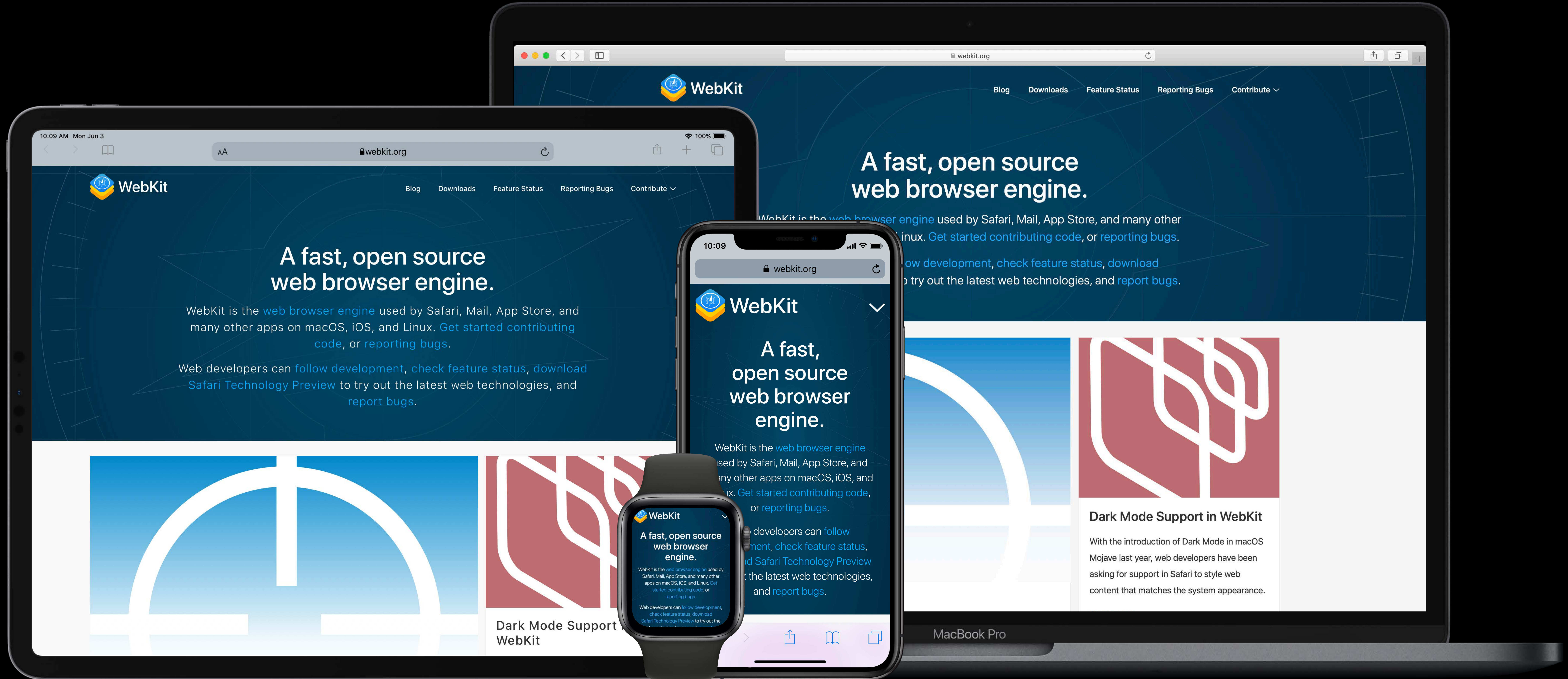
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Dark Mode Support in WebKit

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With the introduction of Dark Mode in macOS Mojave last year, web developers have been asking for support in Safari to style web content that matches the system appearance.

Best Practices for Web Developers

Build one responsive website

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Don't use Flash

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Let users decide if they want audio

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Remember that some desktop browsers don't have mice

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Demo

Wenson Hsieh, Safari and WebKit Engineer

Summary

Summary

Build one responsive website

Summary

Build one responsive website

Let our APIs do the work for you

Summary

Build one responsive website

Let our APIs do the work for you

Test your app

Summary

Build one responsive website

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Test your app

Send us feedback

More Information

developer.apple.com/wwdc19/203

Safari & WebKit Lab

Tuesday, 1:00

What's New in Authentication, Safari, and WebKit

Thursday, 11:00

Safari & WebKit Lab

Thursday, 12:00

