

Auditing Your Apps for Accessibility

Making your apps accessible with greater ease

Session 407

Susumu Harada *Accessibility Engineer*

Patti Hoa *Accessibility Engineer*

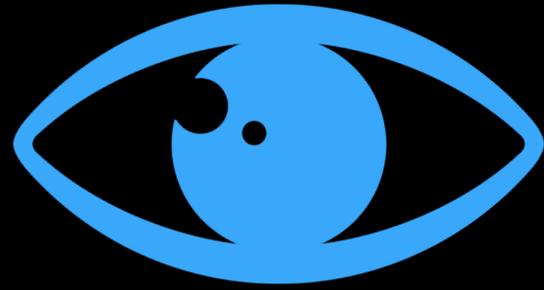








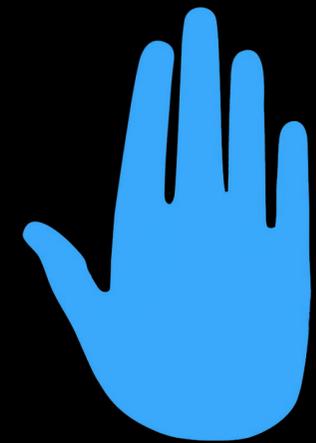




Vision



Hearing



Physical and
motor skills



Learning and
literacy



VoiceOver Reduce transparency On/Off labels Grayscale Audio descriptions

Word prediction Mono audio AssistiveTouch Button shapes Speak screen

Gliding cursor speed Subtitles Captioning Closed captions

Switch control Larger text Speech Increase contrast

Invert colors Cursor color Dictation Siri Bold text

Larger cursor Zoom Reduce motion Hearing aids Sticky keys Gestures

Auto scanning Safari reader Guided access Slow Keys Touch accommodations



macOS

iOS

watchOS

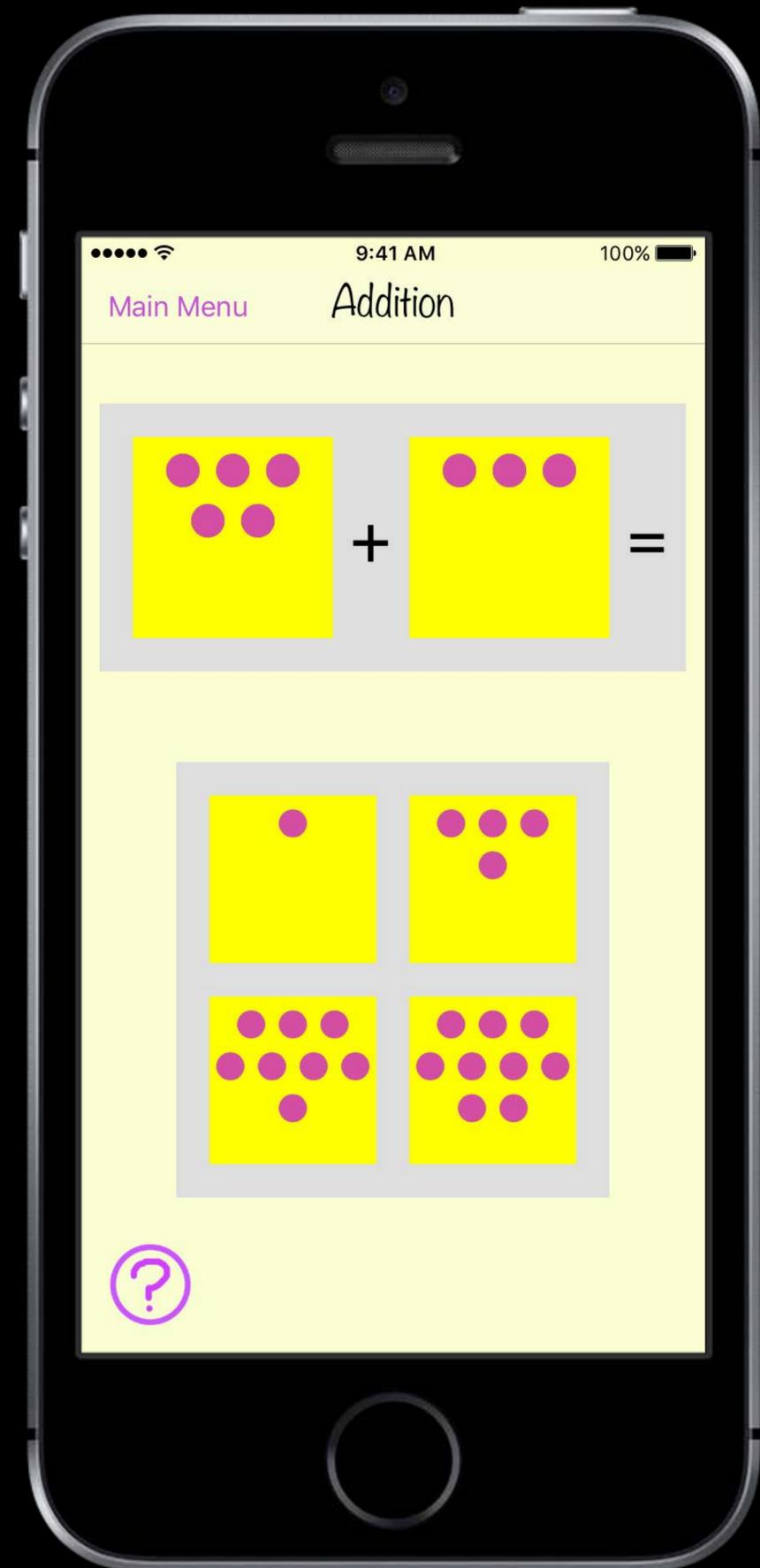
tvOS





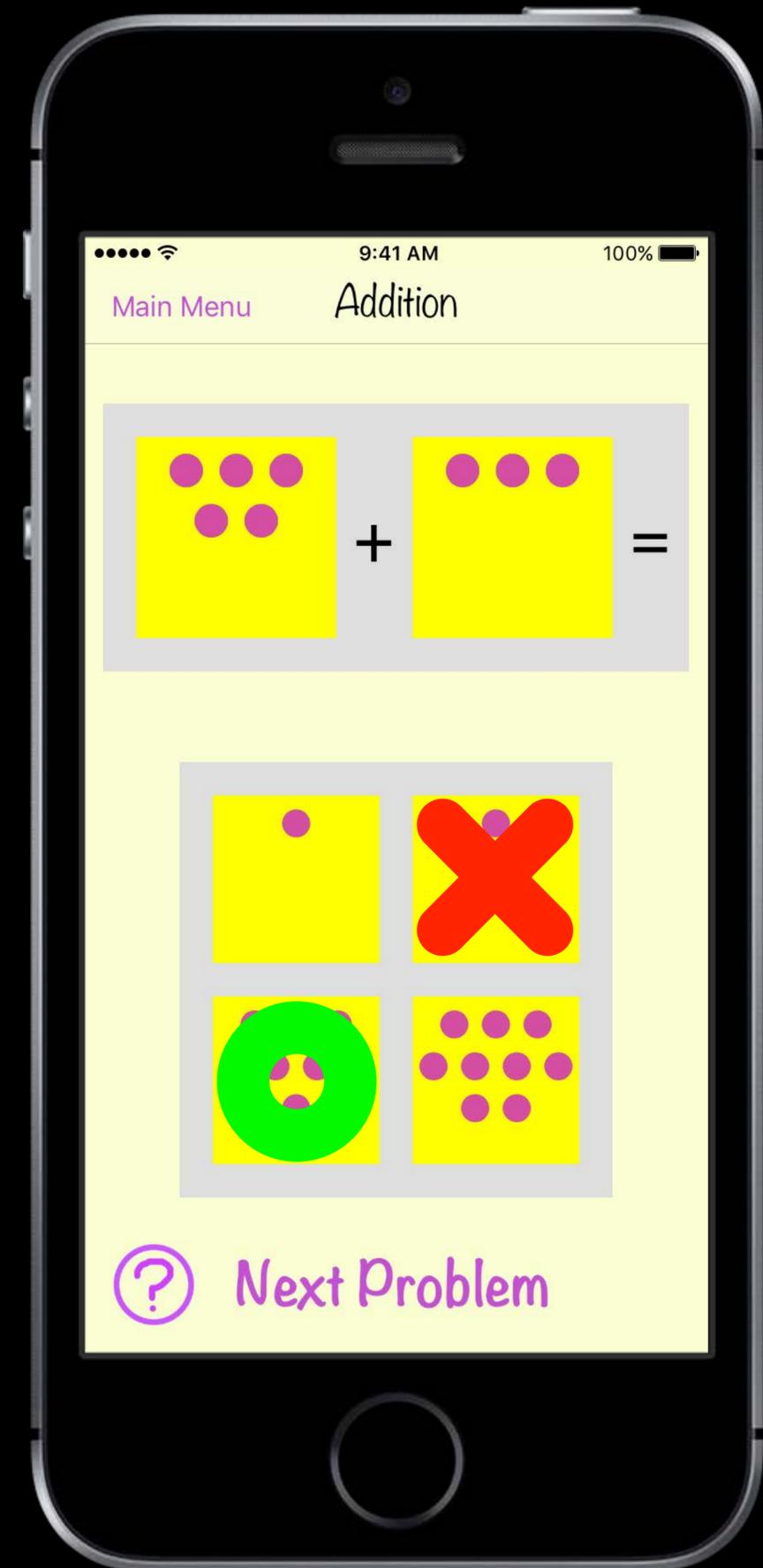
Example App

Math Learner



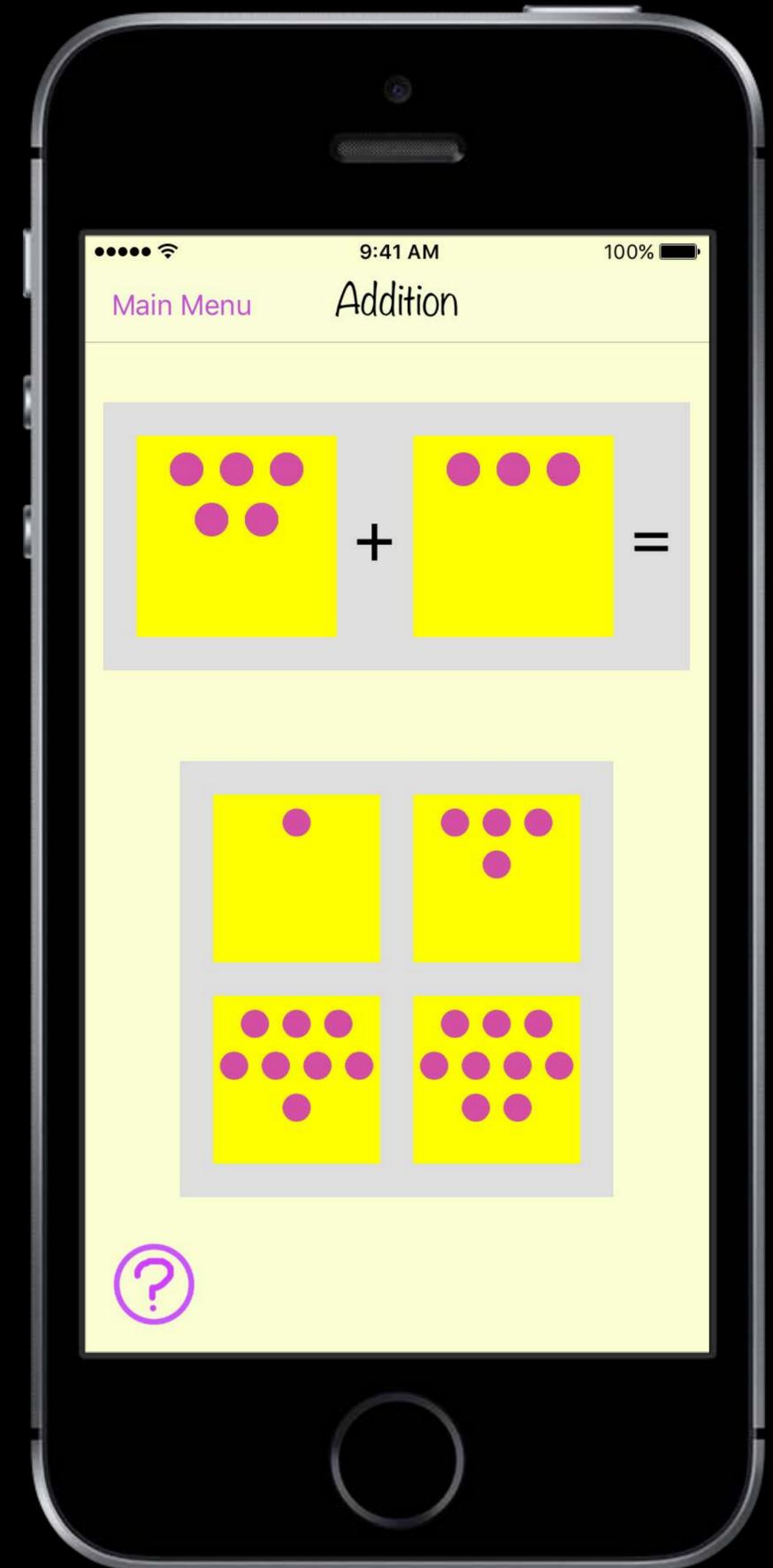
Example App

Math Learner



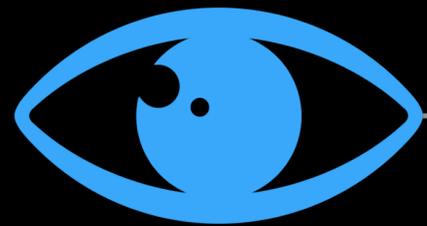
Example App

Math Learner



Example App

Math Learner

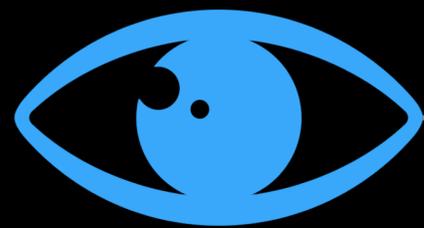


Vision



Example App

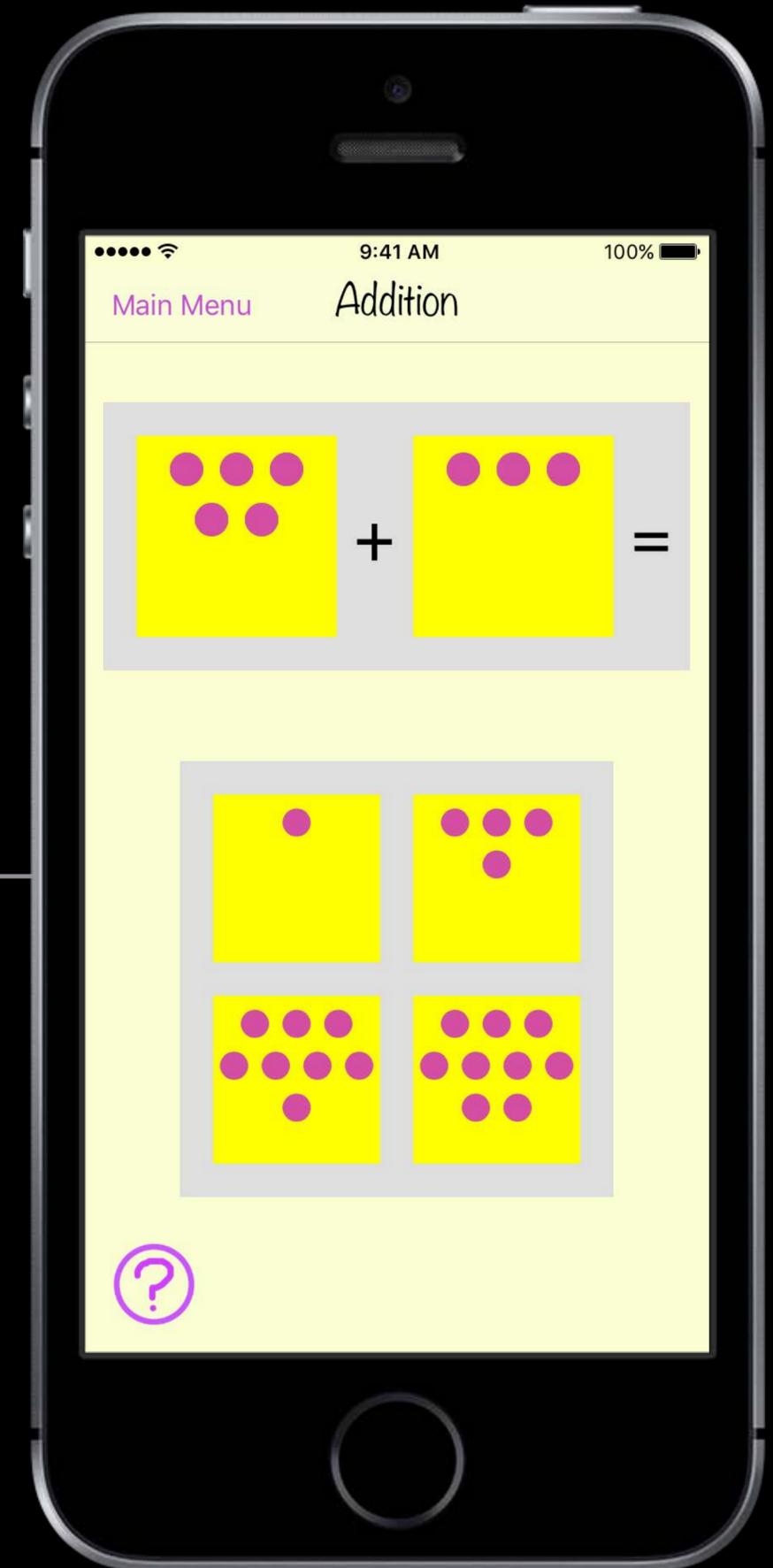
Math Learner



Vision

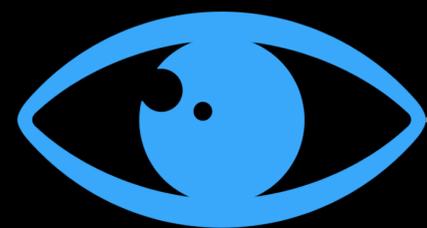


VoiceOver



Example App

Math Learner

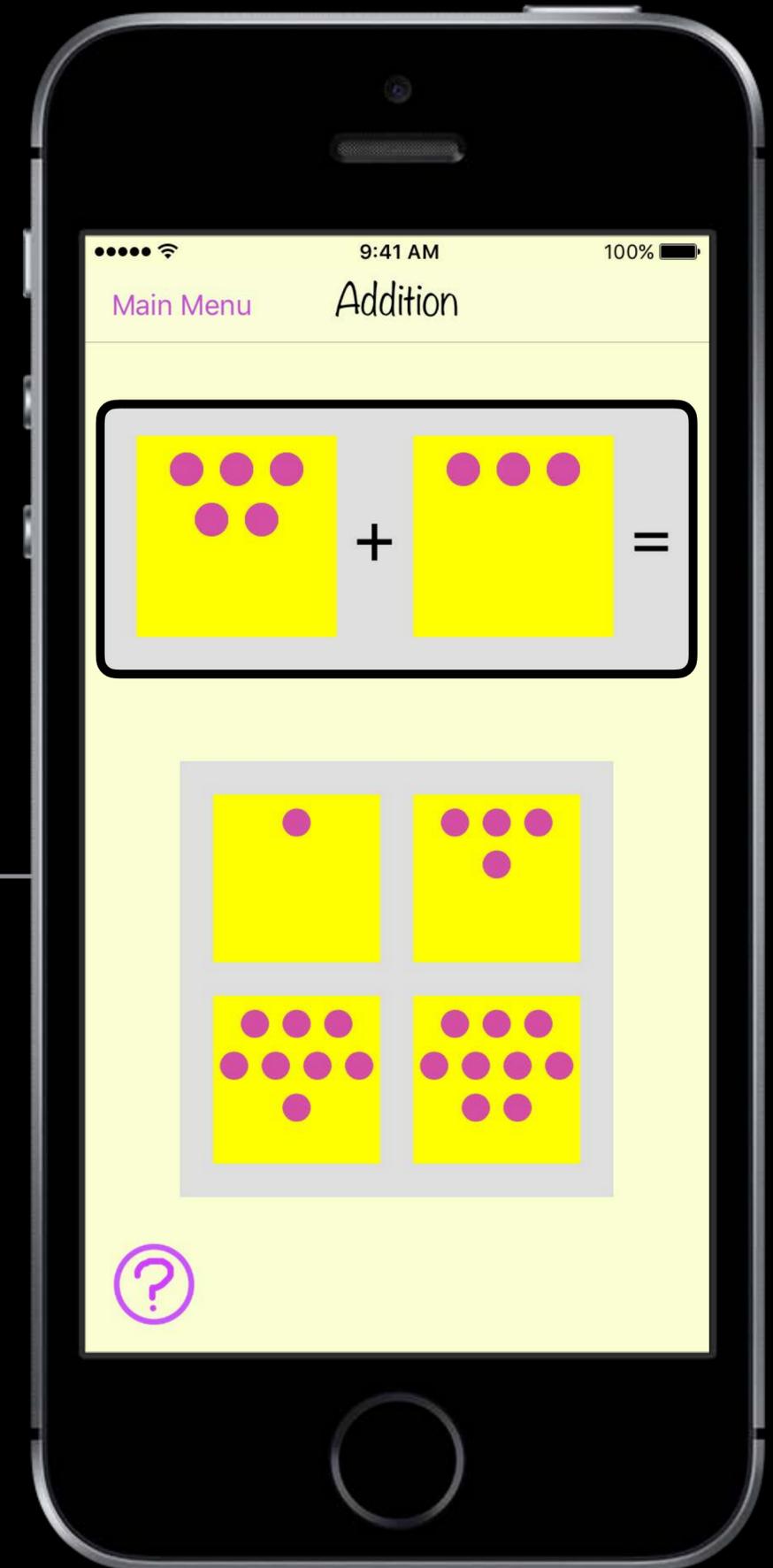


Vision



VoiceOver

"Five plus three equals"

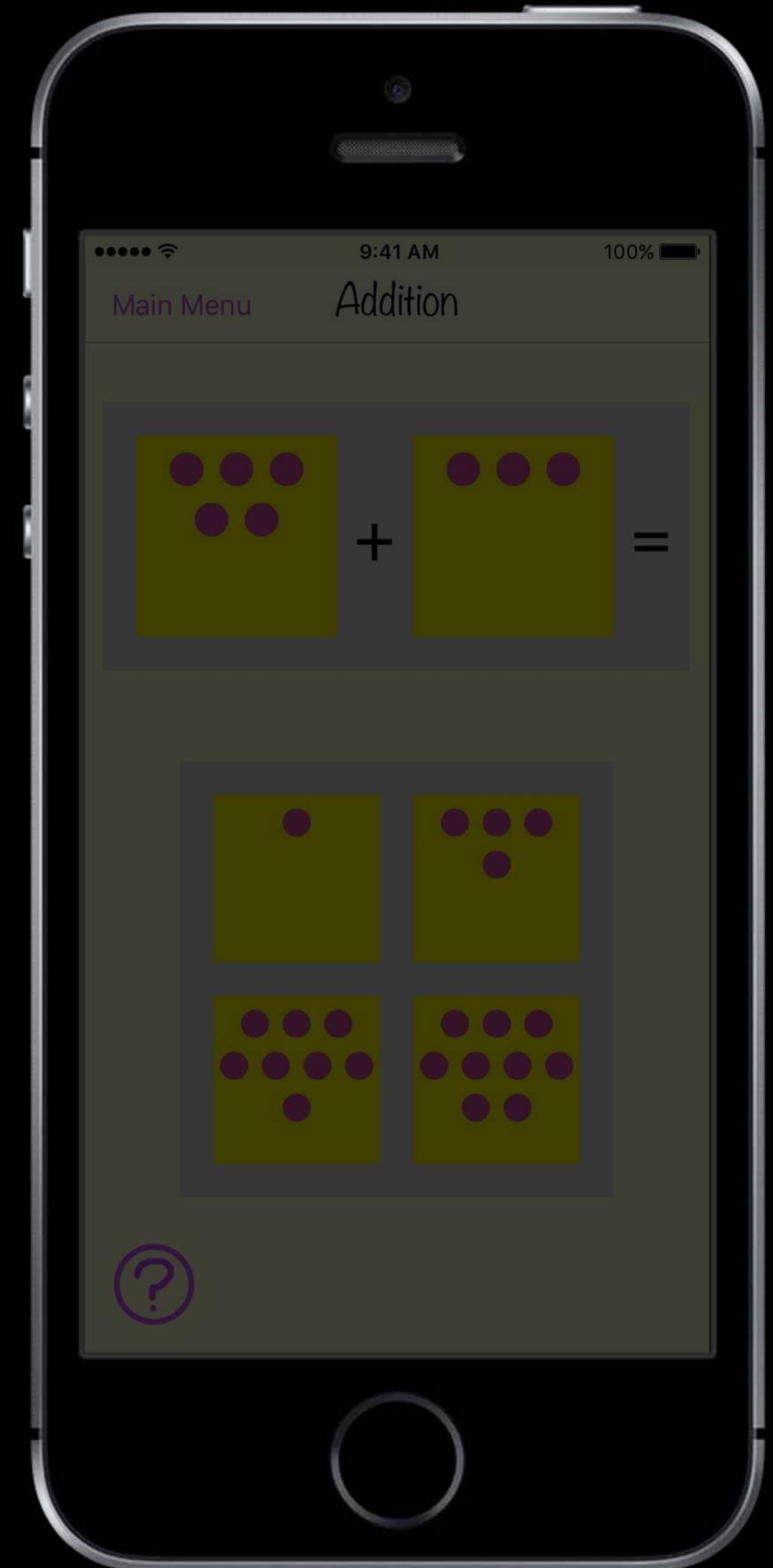


Example App

Math Learner



VoiceOver



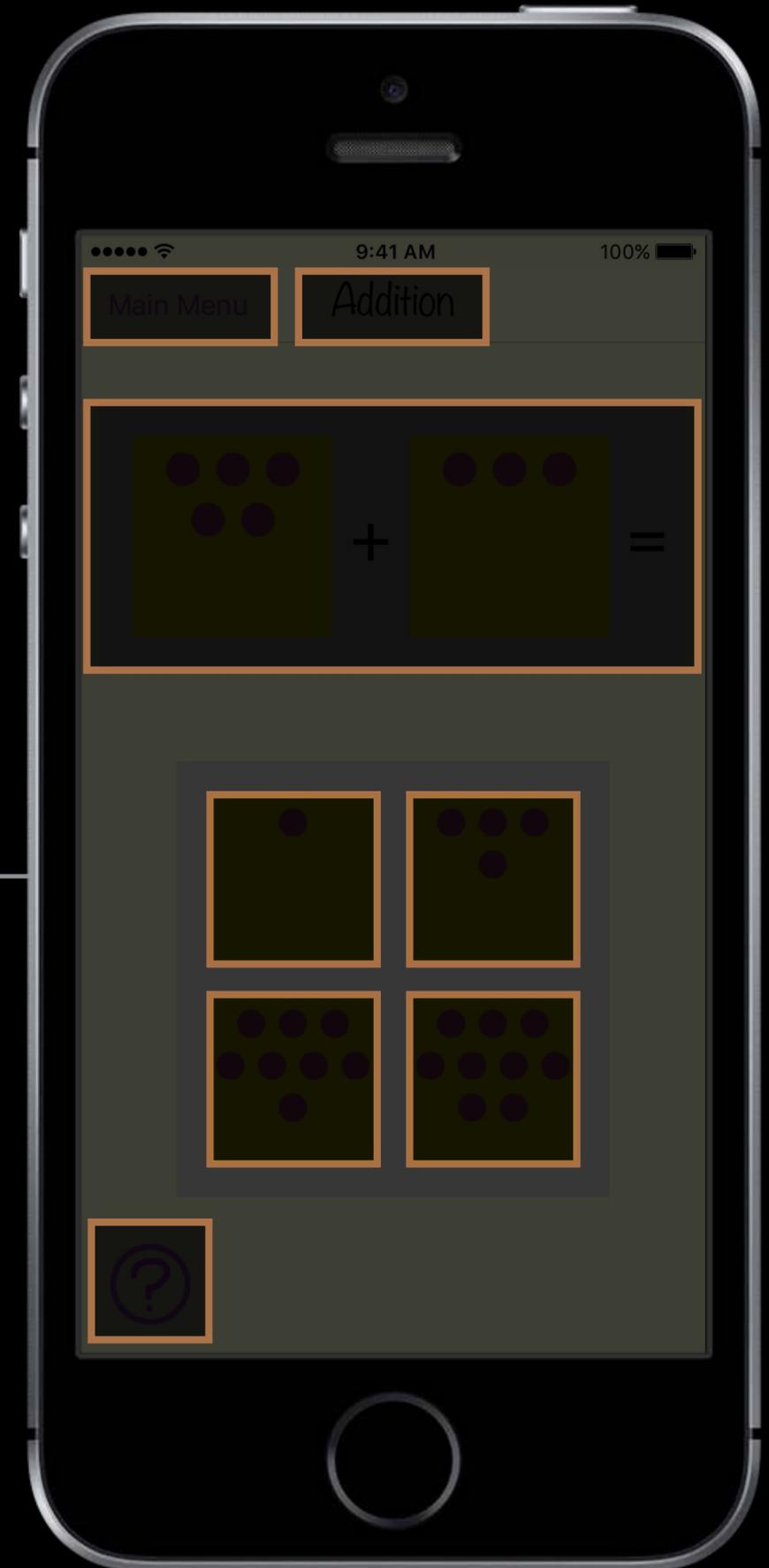
Example App

Math Learner



VoiceOver

Element **locations**



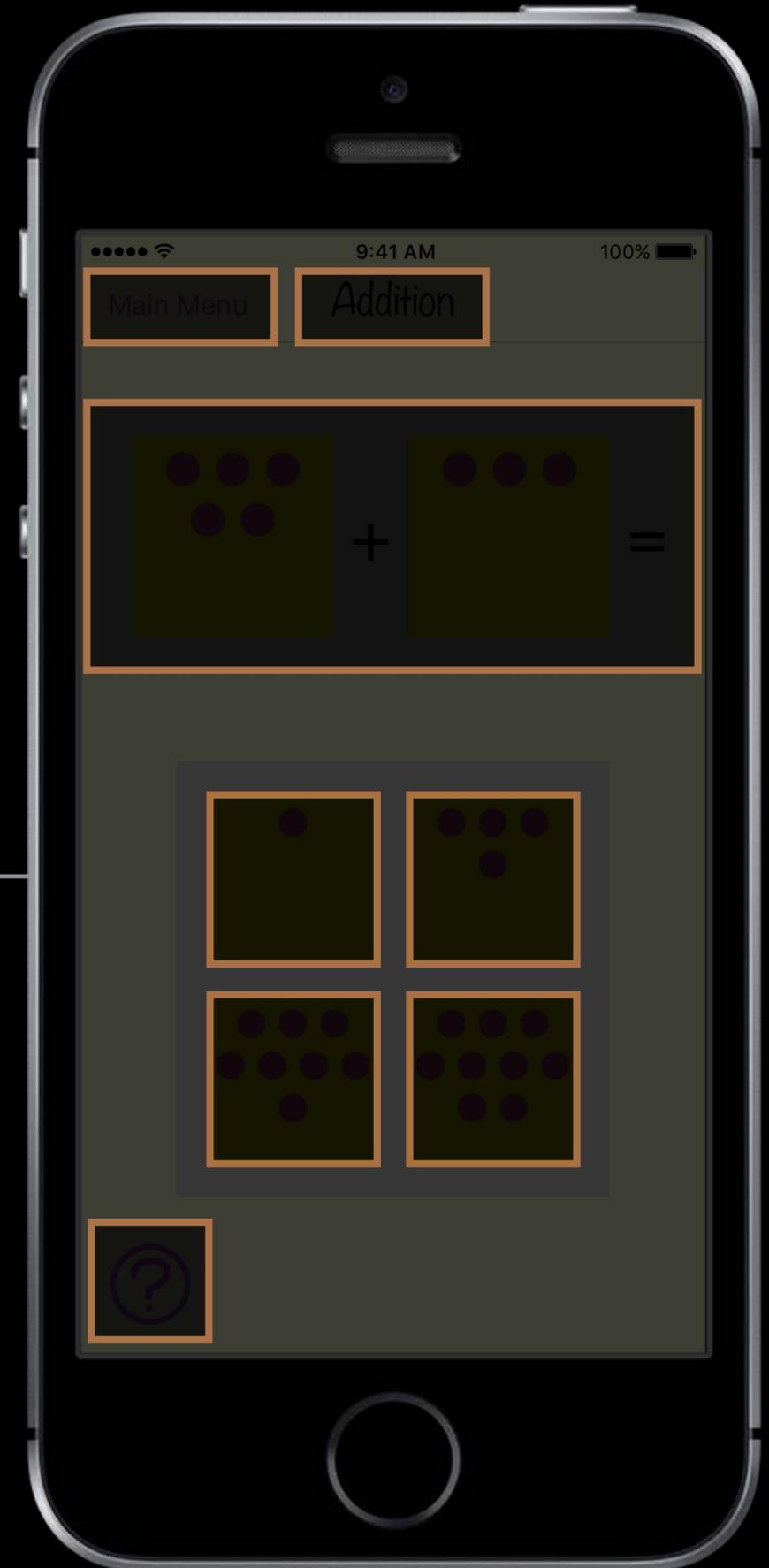
Example App

Math Learner



VoiceOver

Element traits



Example App

Math Learner



VoiceOver

Element traits



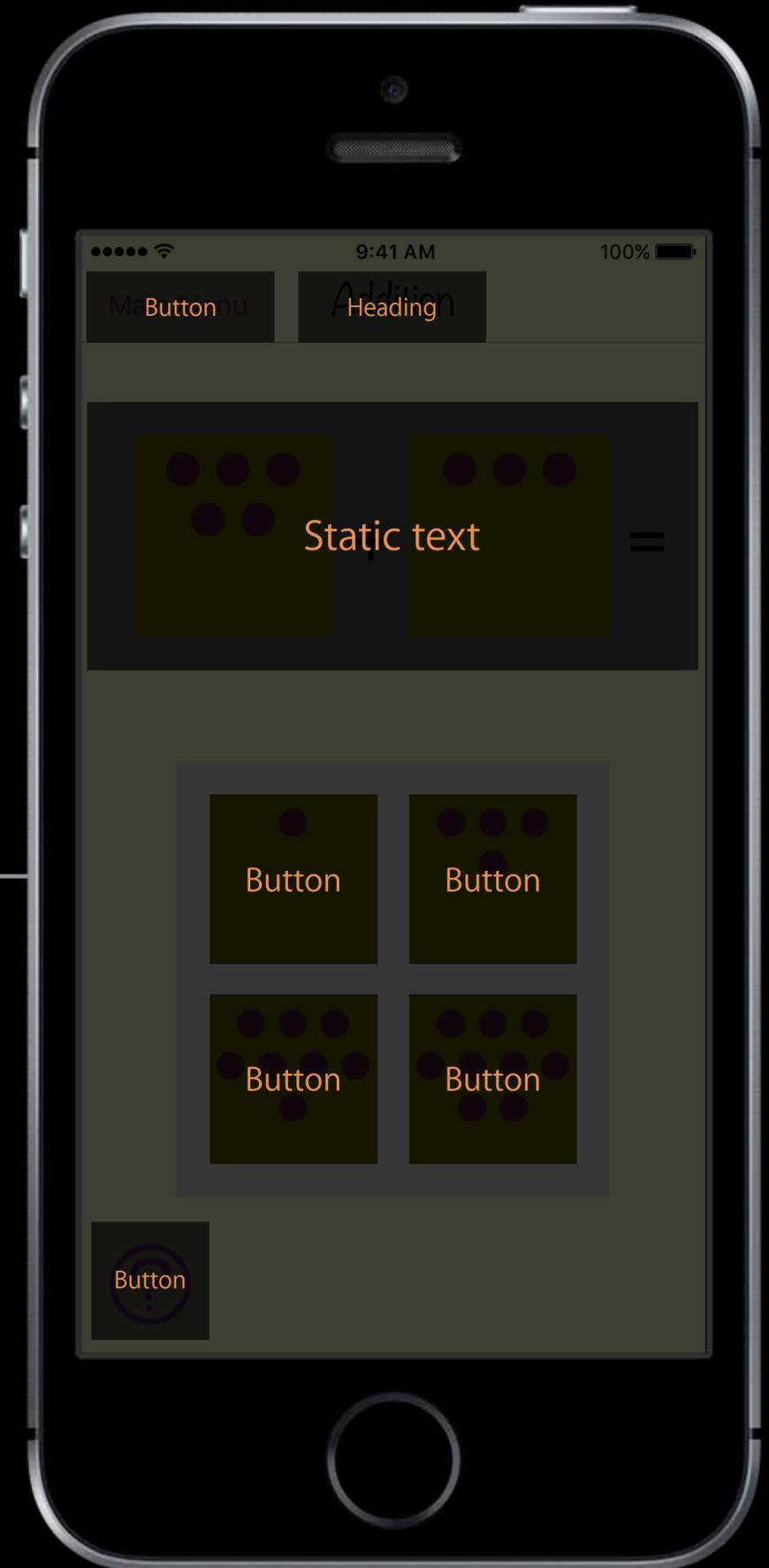
Example App

Math Learner



VoiceOver

Element labels



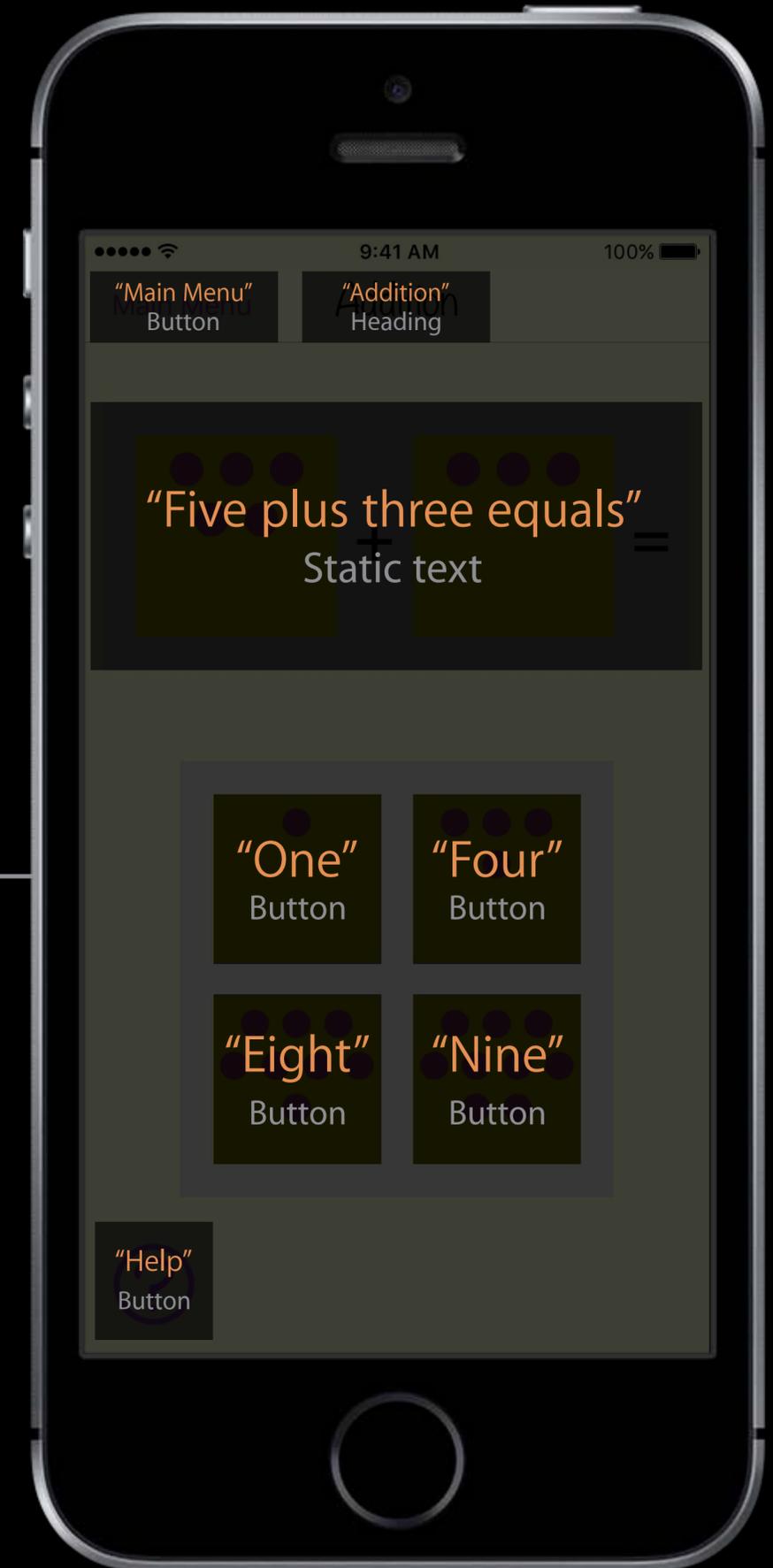
Example App

Math Learner



VoiceOver

Element labels

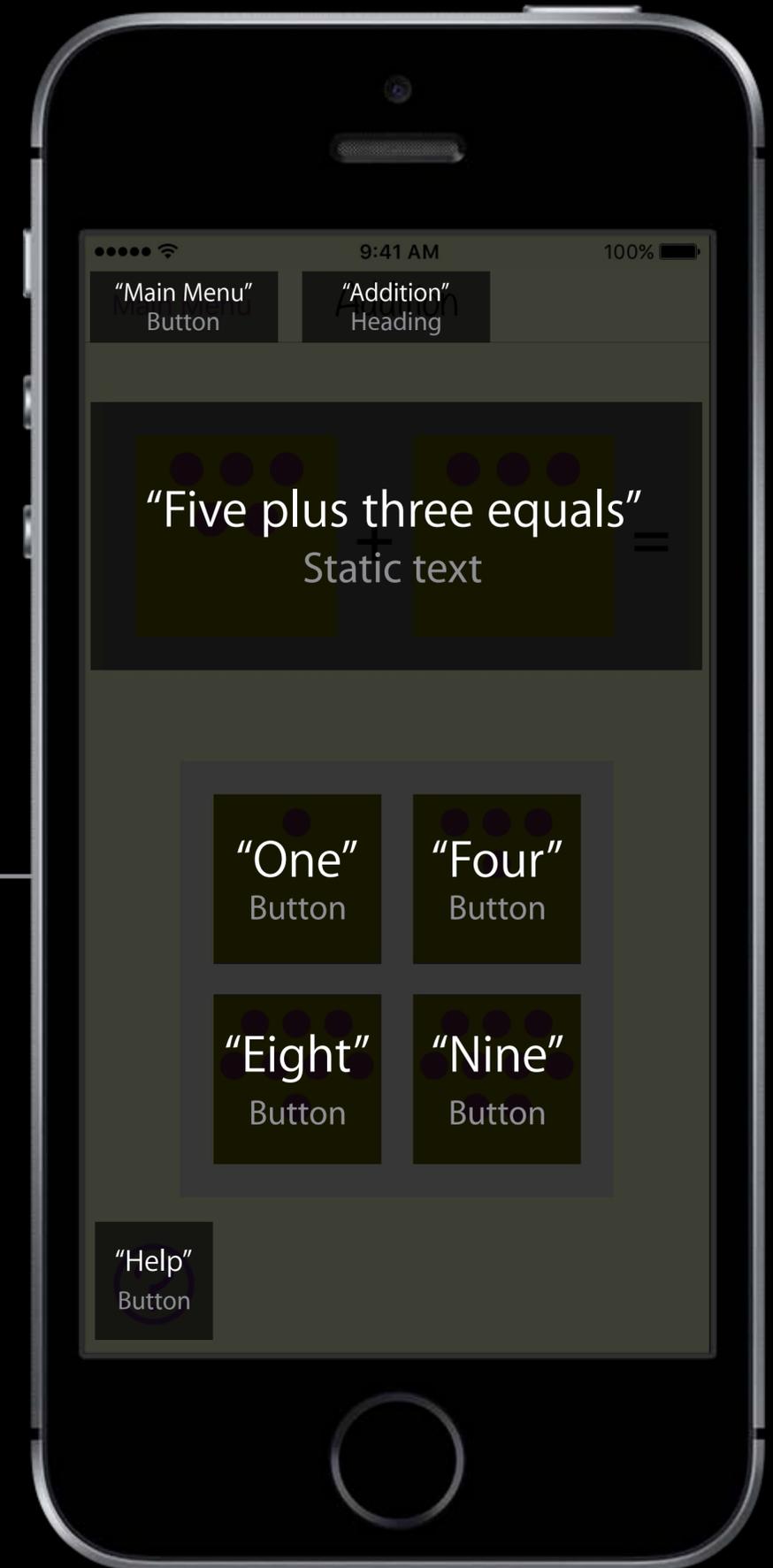


Example App

Math Learner



VoiceOver



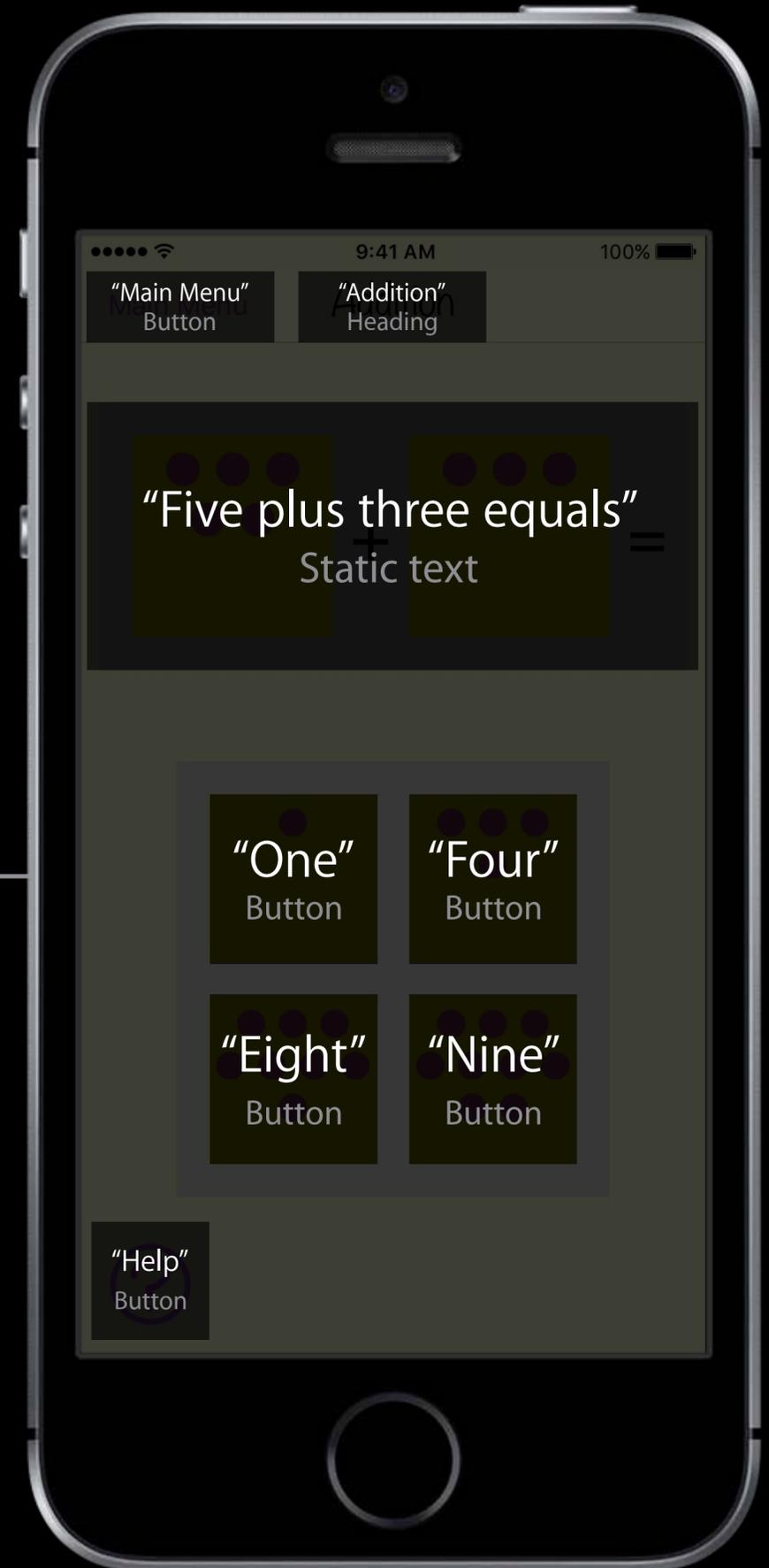
Example App

Math Learner



VoiceOver

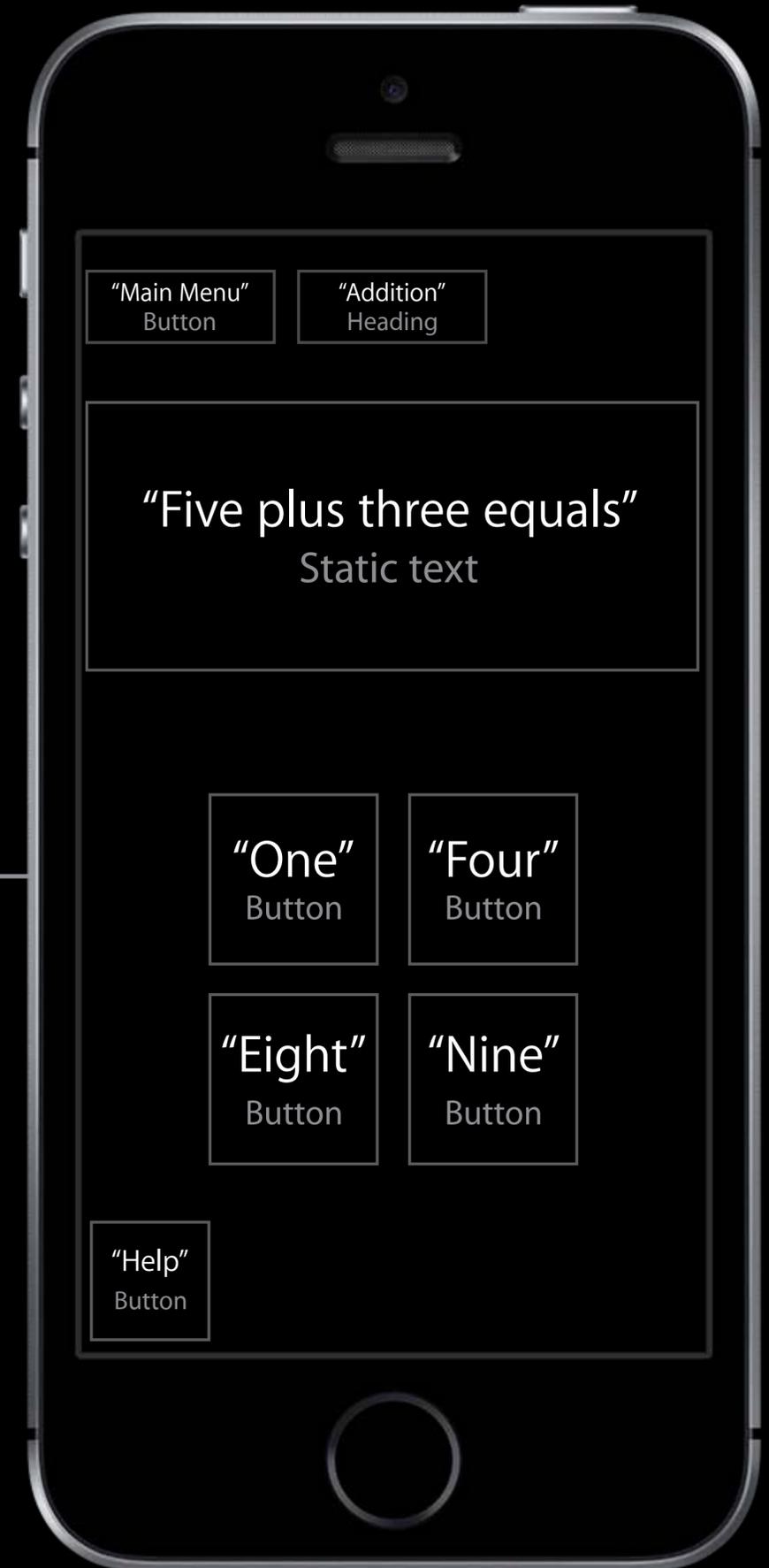
Accessibility API



When the App Is Inaccessible



VoiceOver



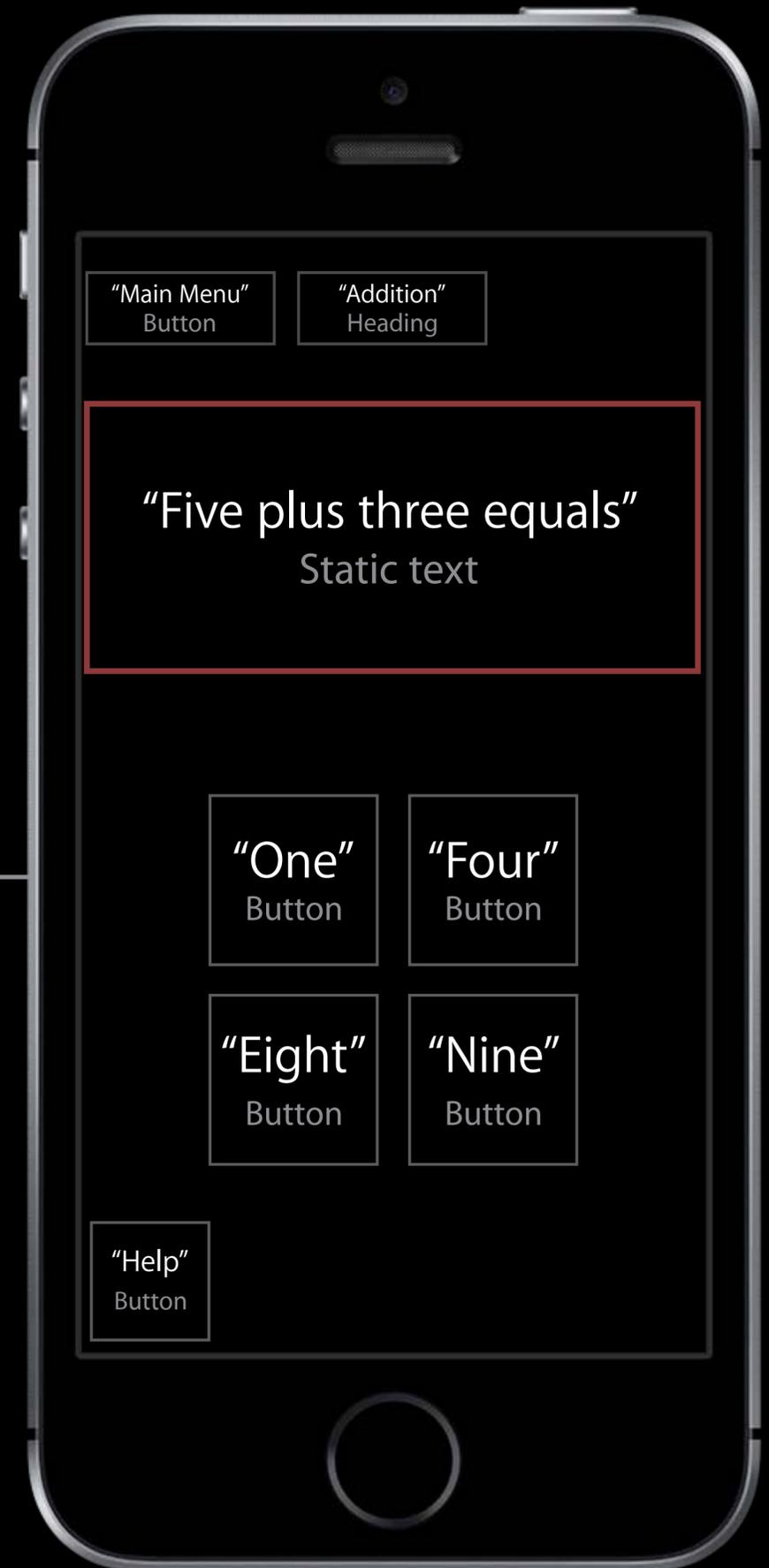
When the App Is Inaccessible



VoiceOver



Element locations



When the App Is Inaccessible



VoiceOver

⊗ Element locations

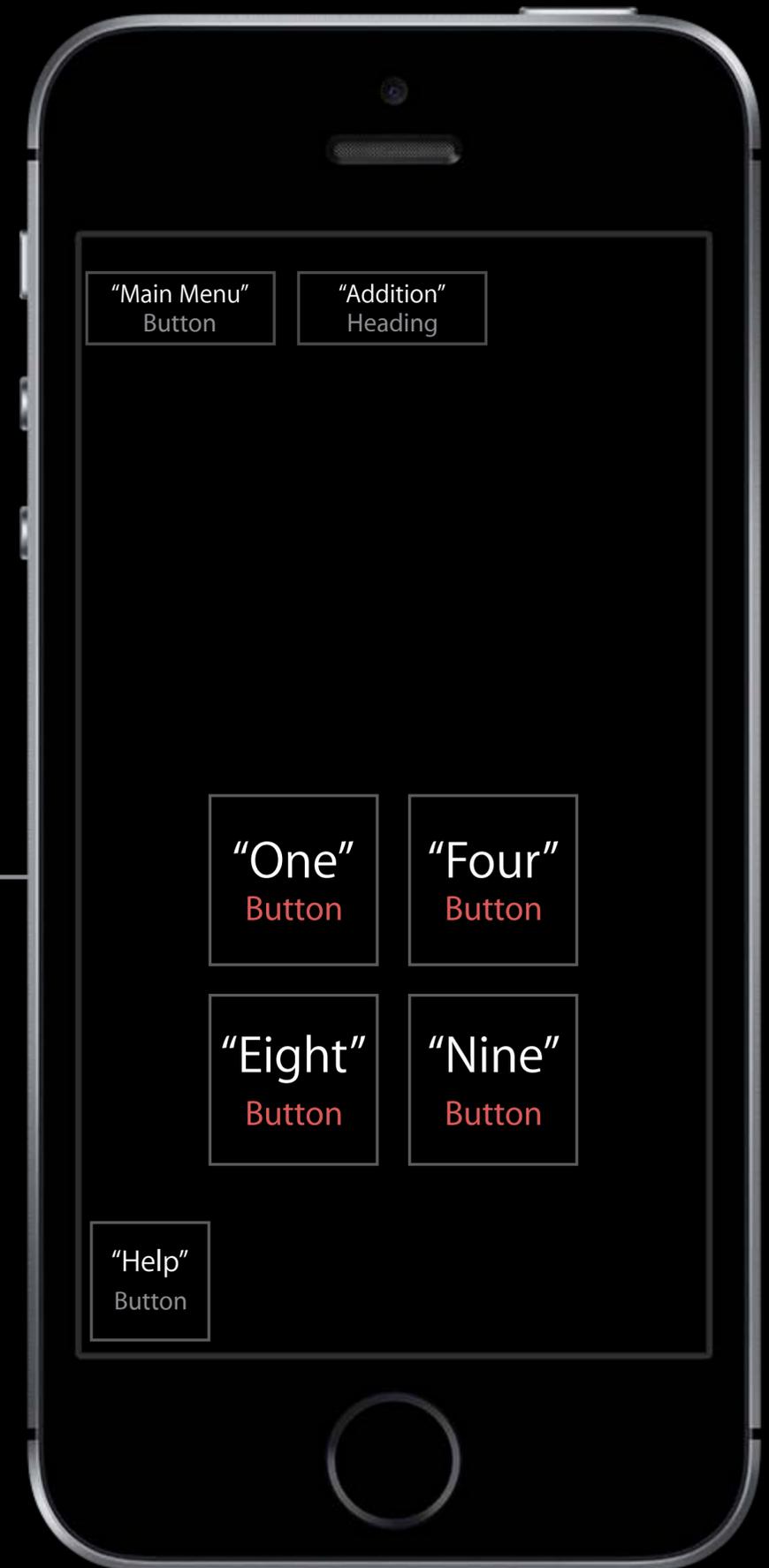


When the App Is Inaccessible



VoiceOver

⊗ Element traits



When the App Is Inaccessible



VoiceOver

⊗ Element traits



When the App Is Inaccessible



VoiceOver

⊗ Element labels



When the App Is Inaccessible

Unusable by VoiceOver user



VoiceOver



Added Benefit of Accessibility



Added Benefit of Accessibility

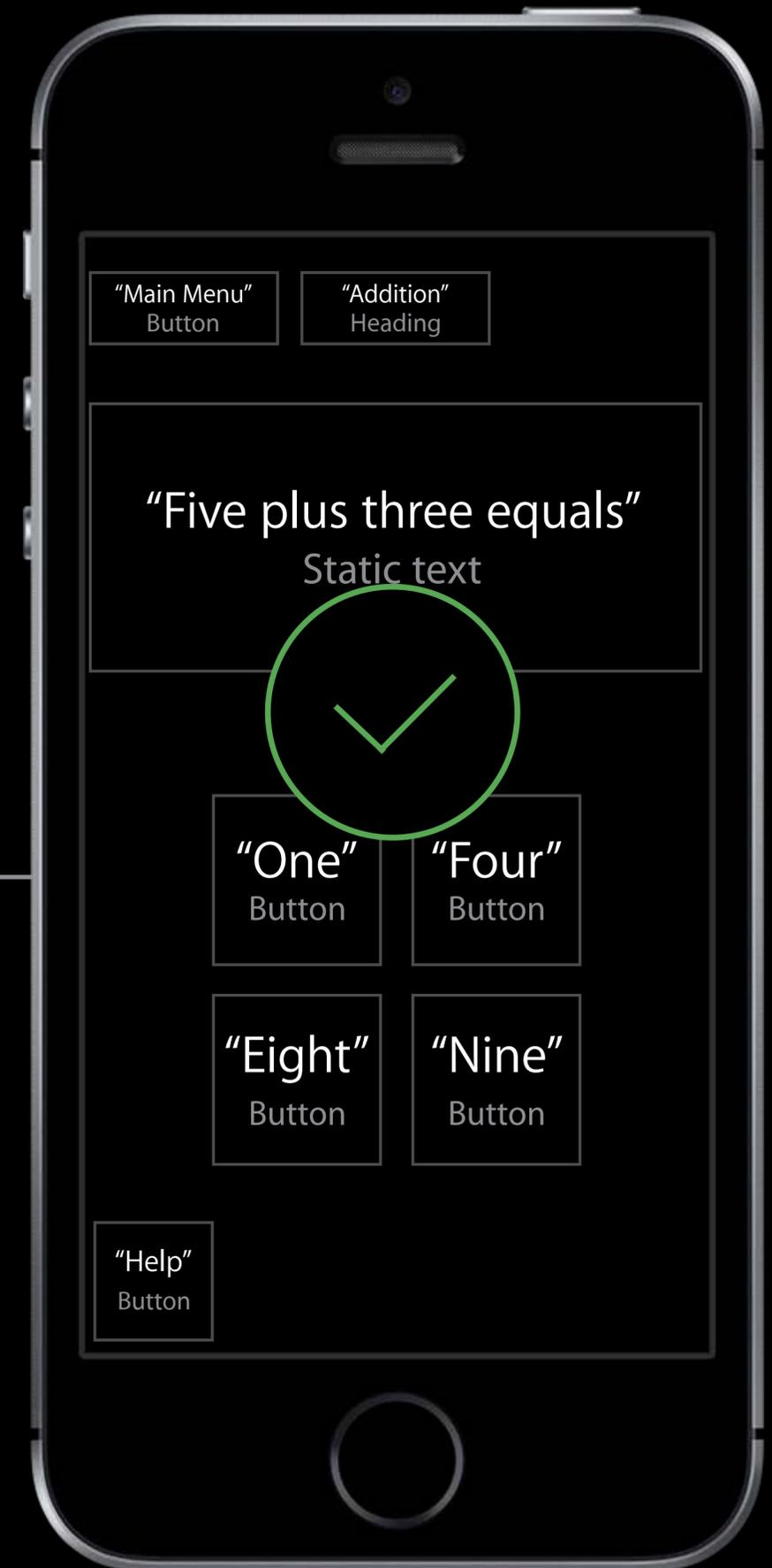


Added Benefit of Accessibility

Makes your app testable via Xcode UI testing



Xcode UI Testing



Auditing for Accessibility



Auditing for Accessibility

Using assistive technologies

Mirrors actual user experience

Can catch usability issues



VoiceOver



Auditing for Accessibility

Using the new Accessibility Inspector



Accessibility Inspector



Introducing the New Accessibility Inspector



Introducing the New Accessibility Inspector

Automatic accessibility audits



Introducing the New Accessibility Inspector

Automatic accessibility audits

Interactive inspection modes



Introducing the New Accessibility Inspector

Automatic accessibility audits

Interactive inspection modes

Accessibility settings live preview



Introducing the New Accessibility Inspector

Automatic accessibility audits

Interactive inspection modes

Accessibility settings live preview

Support for all platforms



Introducing the New Accessibility Inspector

macOS

iOS

watchOS

tvOS

The New Accessibility Inspector

Patti Hoa

Accessibility Engineer

NEW

The New Accessibility Inspector

Patti Hoa

Accessibility Engineer

Apple **Xcode** File Edit View Find Navigate Editor Product Debug

- About Xcode
- Preferences... ⌘,
- Behaviors ▶
- Toolchains ▶
- Open Developer Tool** ▶
- Services ▶
- Hide Xcode ⌘H
- Hide Others ⇧⌘H
- Show All
- Quit Xcode ⌘Q

-  Instruments
-  Simulator
-  Simulator (Watch)
-  Accessibility Inspector**
-  FileMerge
-  Application Loader
- More Developer Tools...

Accessibility Inspector

iPhone 6

Quicklook

help < >

Basic

Label help

Value <nil>

Traits Button

Actions

Activate Perform

Element

Class UIButton

Address 0x100c1dfa0

Controller <nil>

Hierarchy

- ▼ MathLearner
 - ▼ <UIWindow>
 - ▼ <UITransitionView>
 - ▼ <UIView>
 - ⦿ help Button
 - <UINavigationBar>
 - <UIView>
 - <UIView>

⌘ Space toggles inspection pointer





Accessibility Inspector

- ✓  iPhone 6
-  iPad Pro
-  MacBook Pro ▶
-  Watch
-  AppleTV
-  Simulator - iOS

Targeting icons:    











Inspection

- Debug and analyze accessibility state



Inspection

- Debug and analyze accessibility state

Audit

- Find and report accessibility issues



Inspection

- Debug and analyze accessibility state

Audit

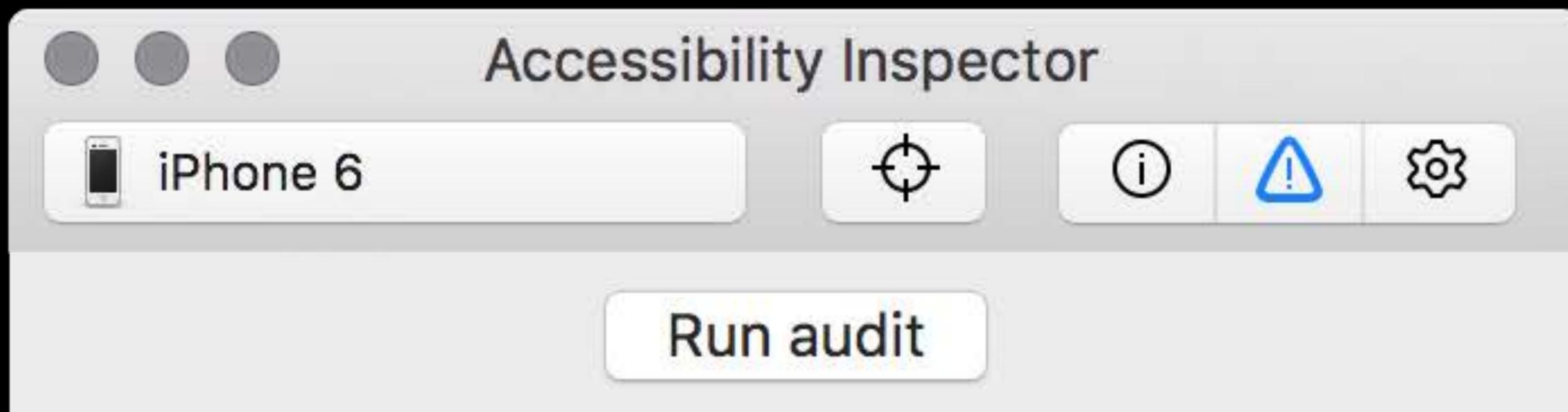
- Find and report accessibility issues

Settings

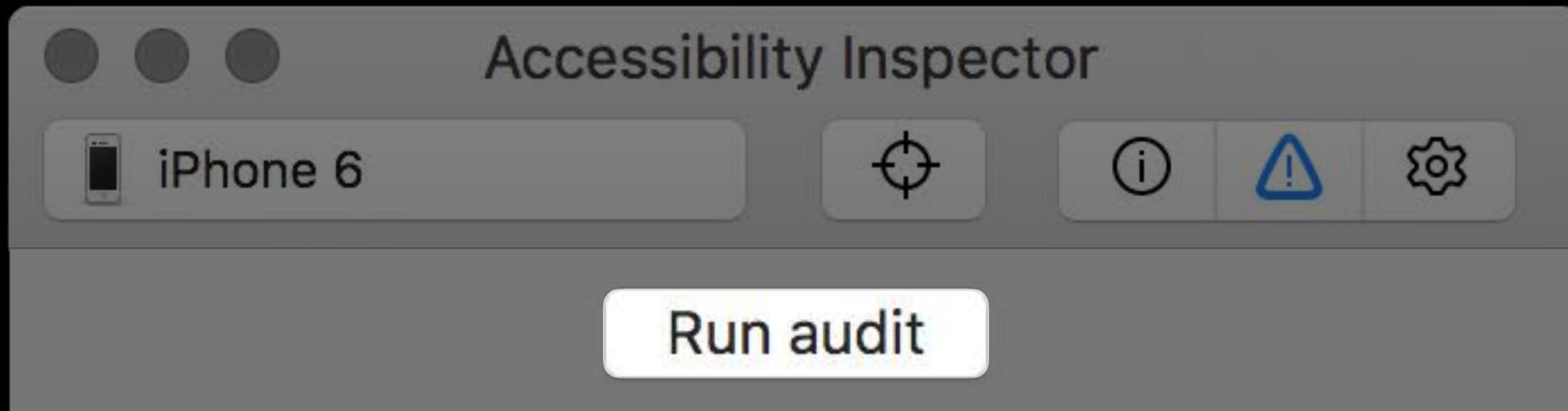
- Test impact of accessibility setting change



Audit







Demo

Audit

Patti Hoa

Accessibility Engineer

Manual Audit

Manual Audit Example



Manual Audit Example



Button Action

`self.send()`

Button Icon



Accessibility Label

Send mail

Manual Audit Example



Button Action

`self.send()`

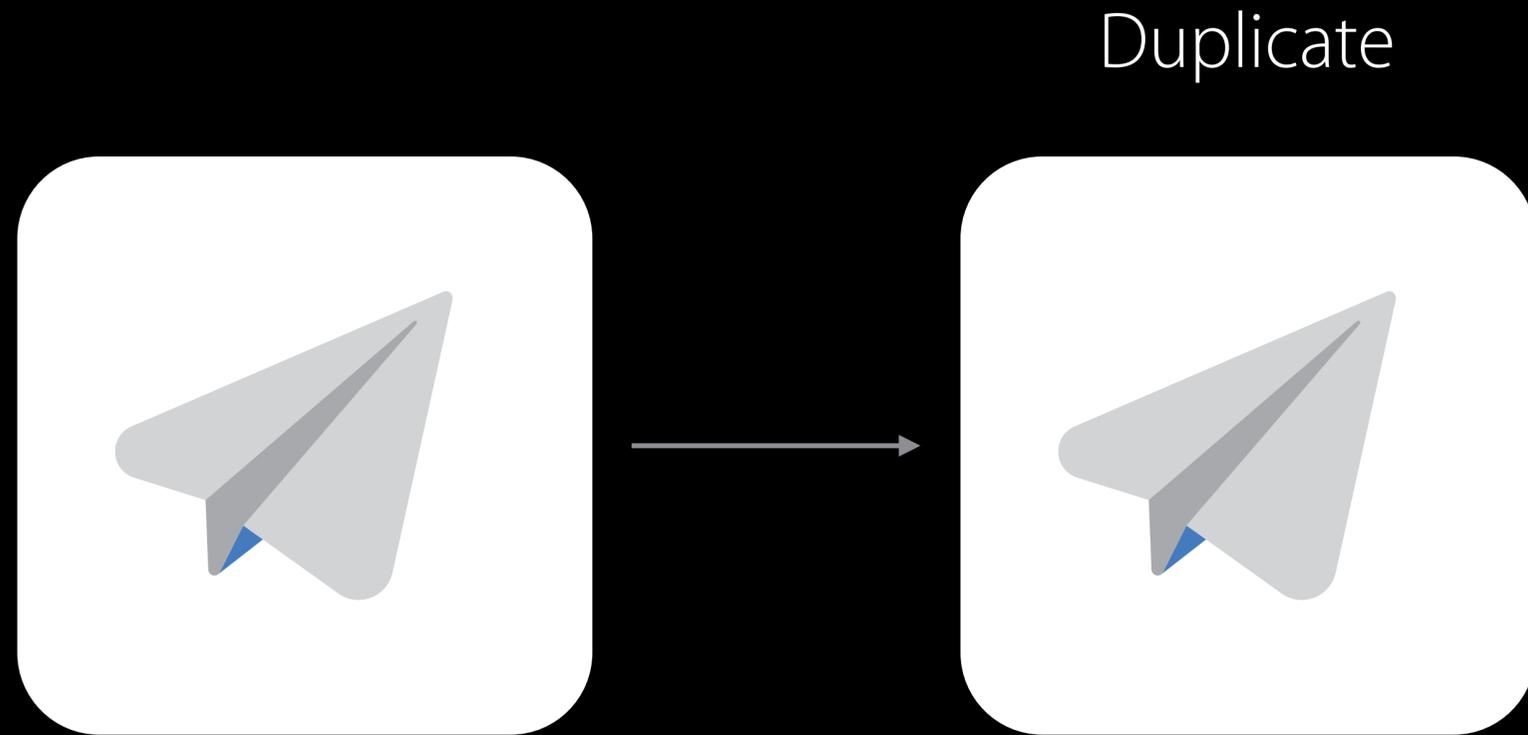
Button Icon



Accessibility Label

Send mail

Manual Audit Example



Button Action

`self.send()`

`self.send()`

Button Icon



Accessibility Label

Send mail

Send mail

Manual Audit Example



Button Action

`self.send()`

`self.send()`

Button Icon



Accessibility Label

Send mail

Send mail

Manual Audit Example



Button Action

`self.send()`

`self.delete()`

Button Icon



Accessibility Label

Send mail

Send mail

Manual Audit Example



Button Action

`self.send()`

`self.delete()`

Button Icon



Accessibility Label

Send mail

Send mail

Perceived by Accessibility Clients

“Send mail”

“Send mail”

Button Action

`self.send()`

`self.delete()`

Button Icon

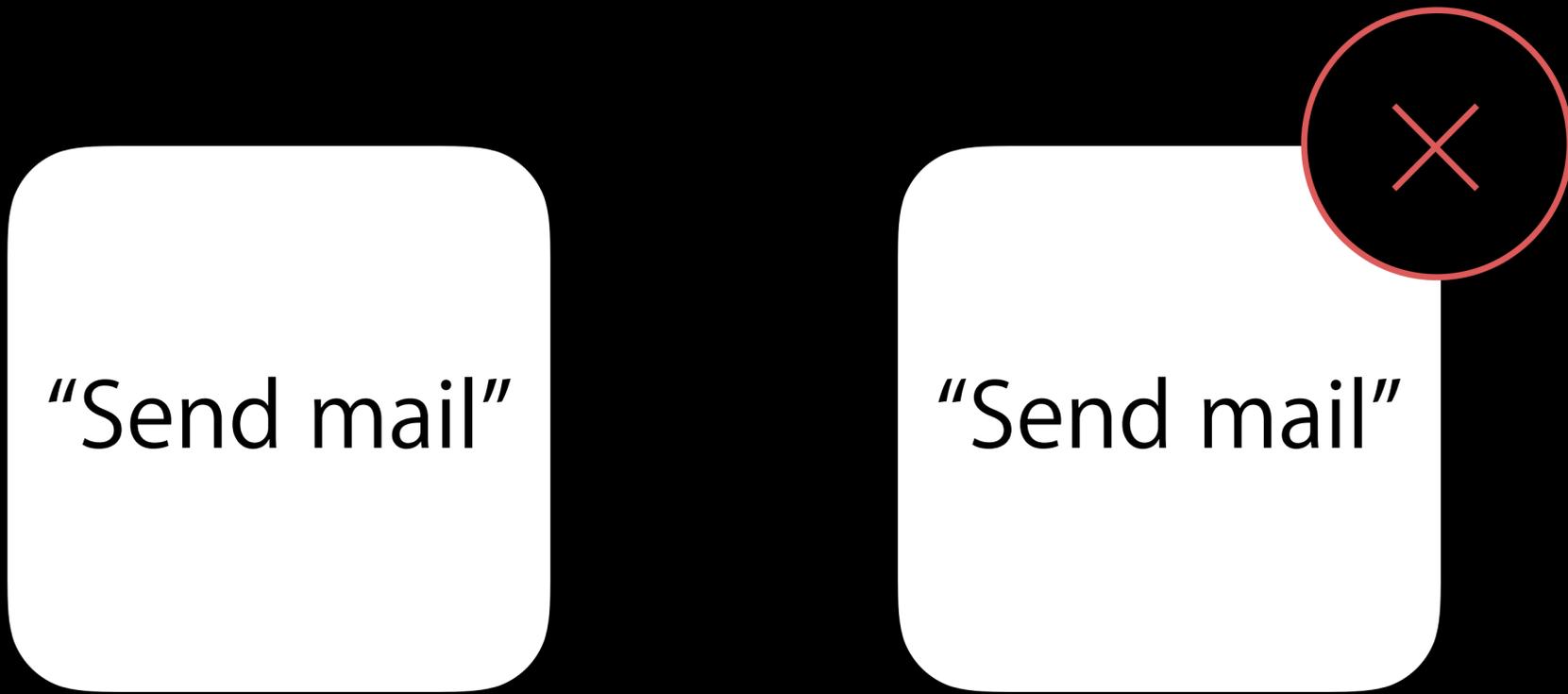


Accessibility Label

Send mail

Send mail

Perceived by Accessibility Clients



Button Action

`self.send()`

`self.delete()`

Button Icon



Accessibility Label

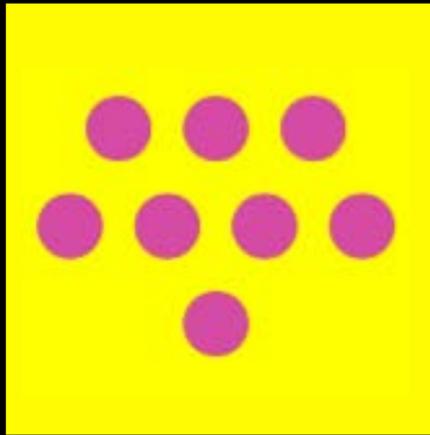
Send mail

Send mail

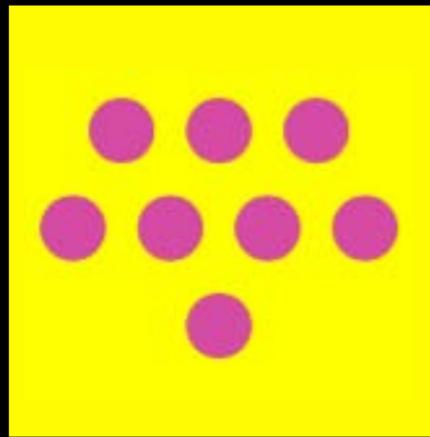


Inspection

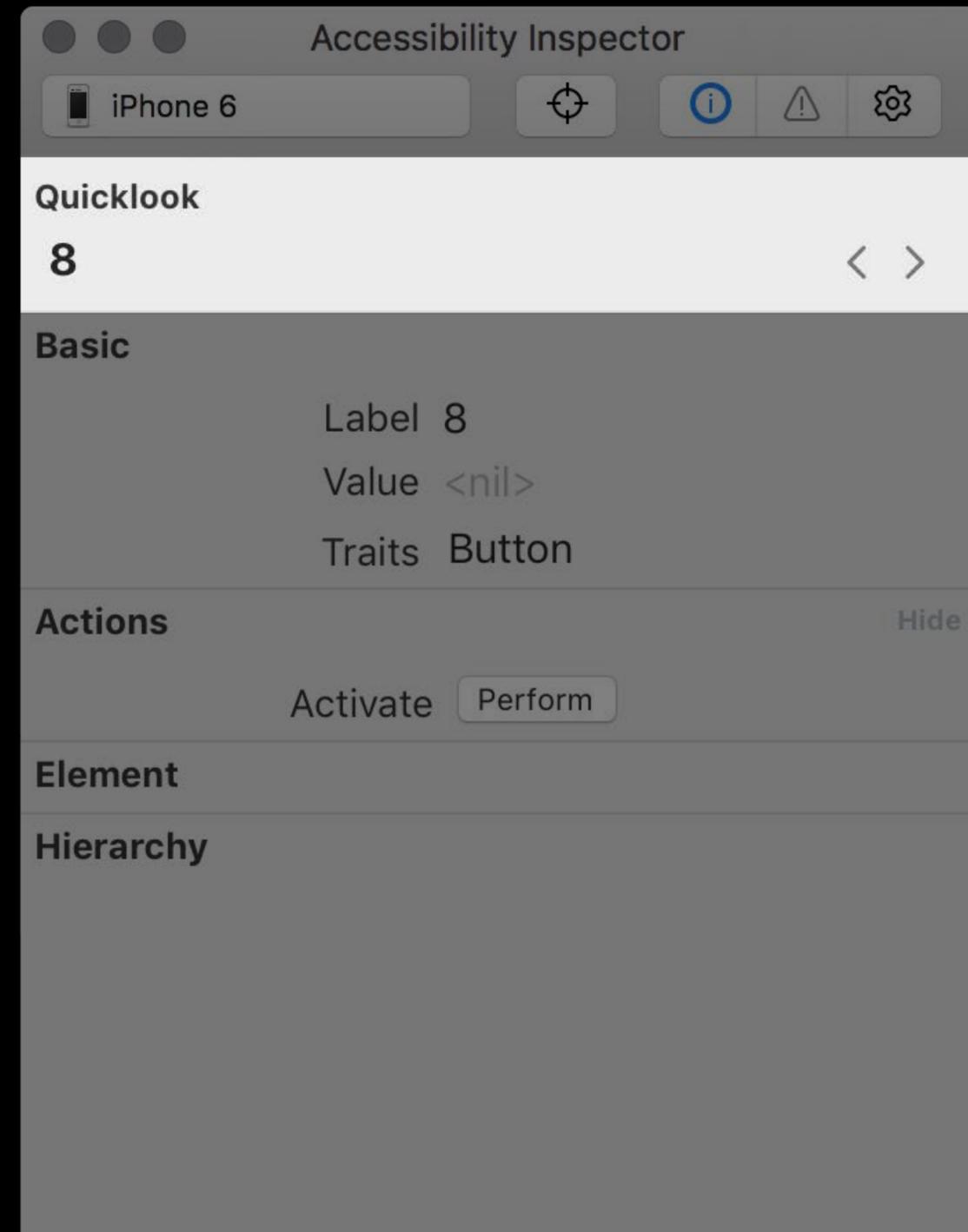
Inspection Feature



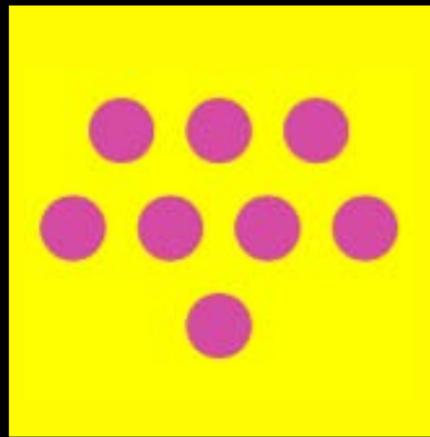
Inspection Feature



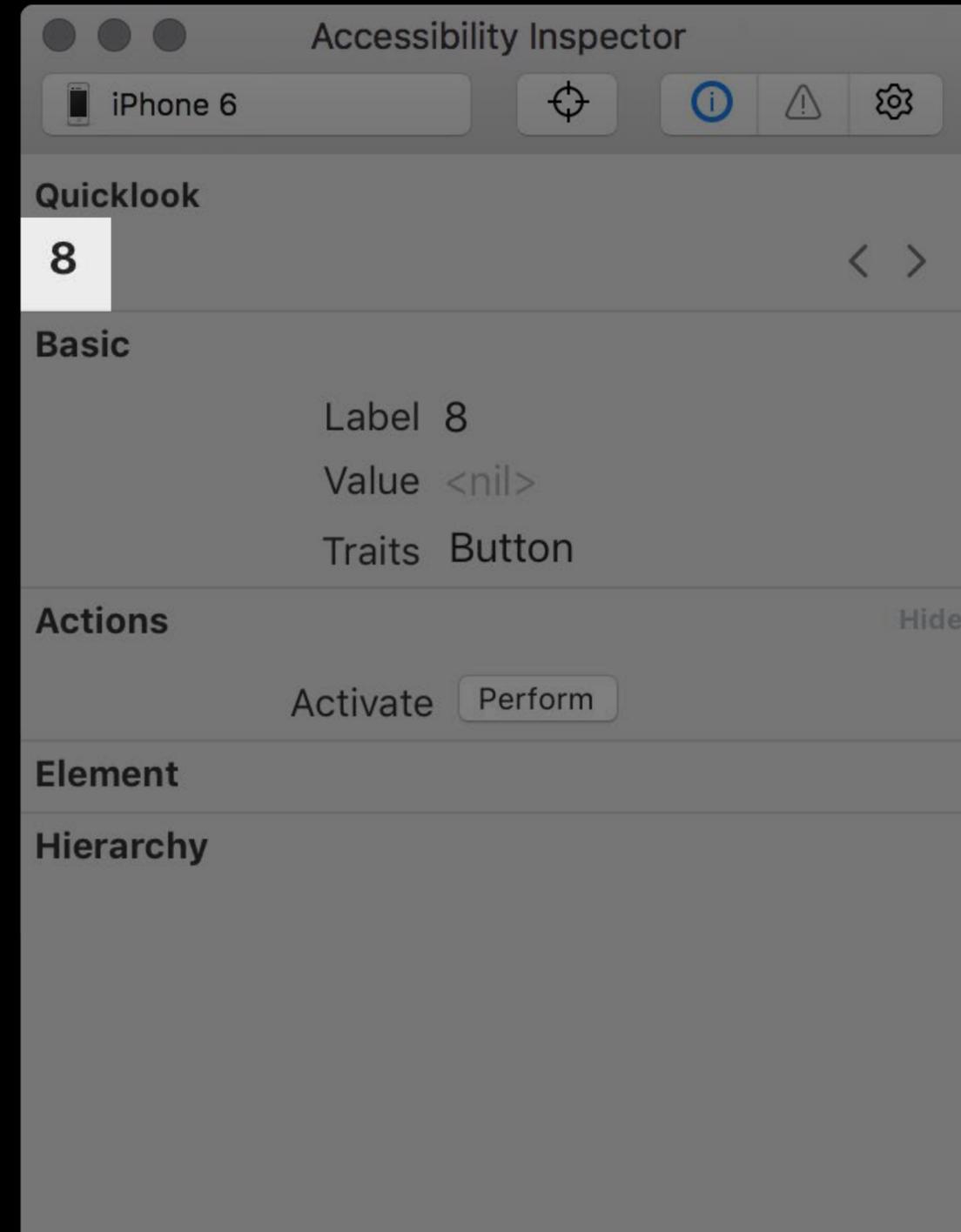
Inspect



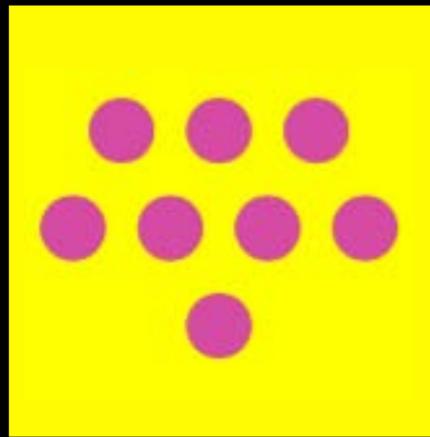
Inspection Feature



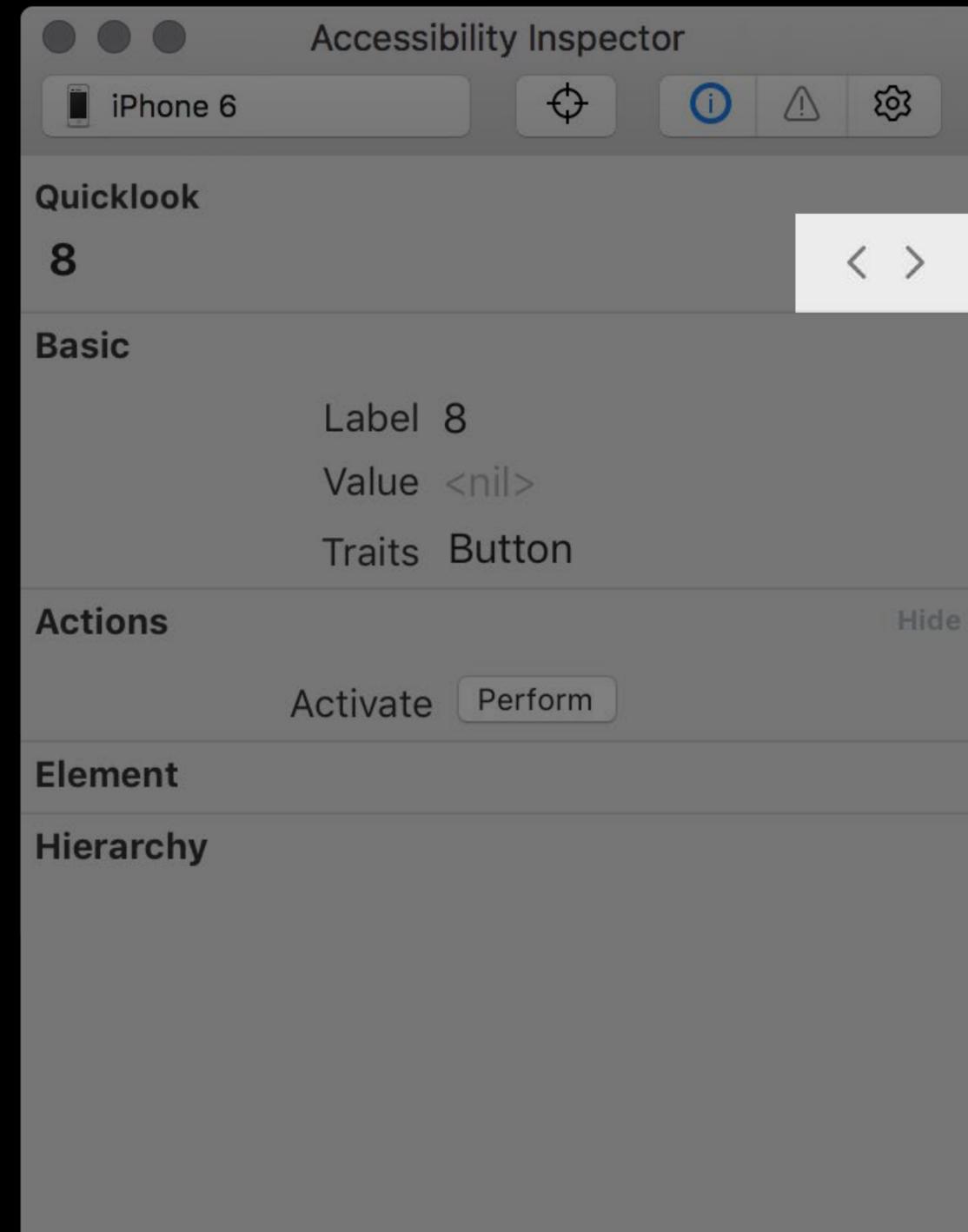
Inspect



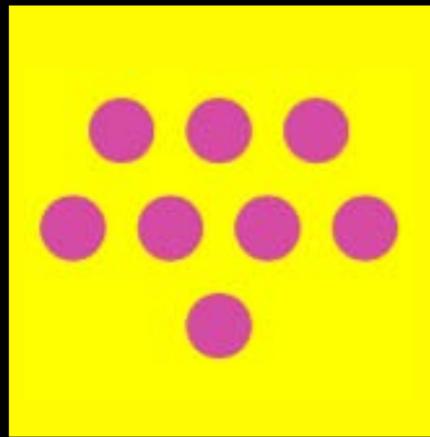
Inspection Feature



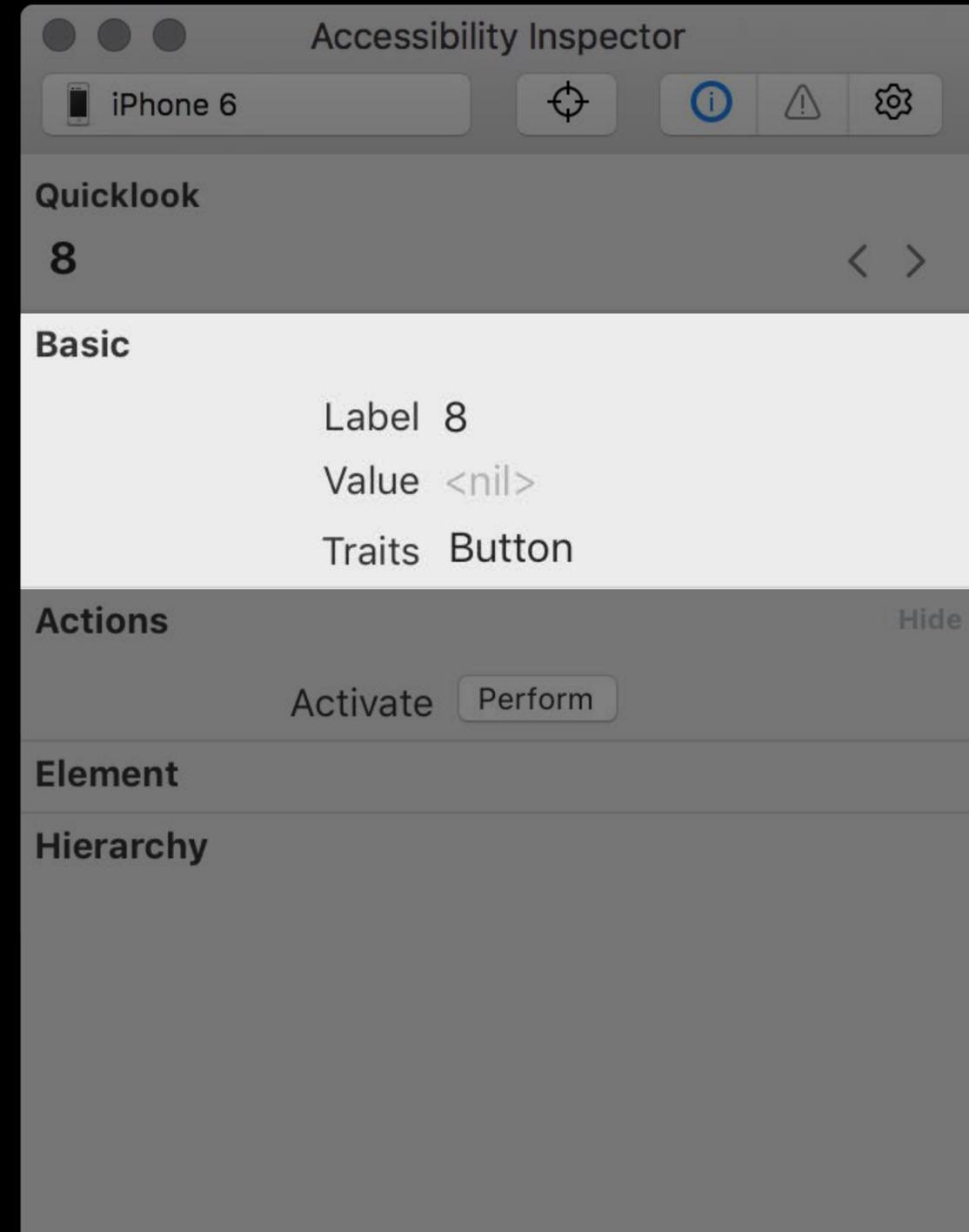
Inspect



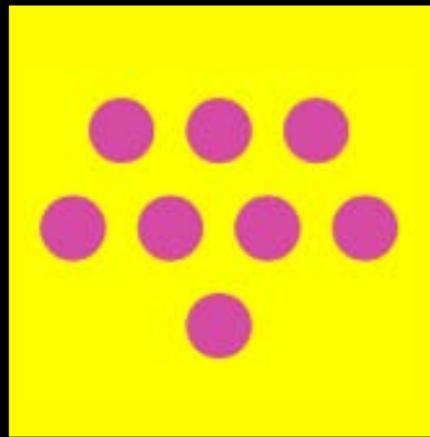
Inspection Feature



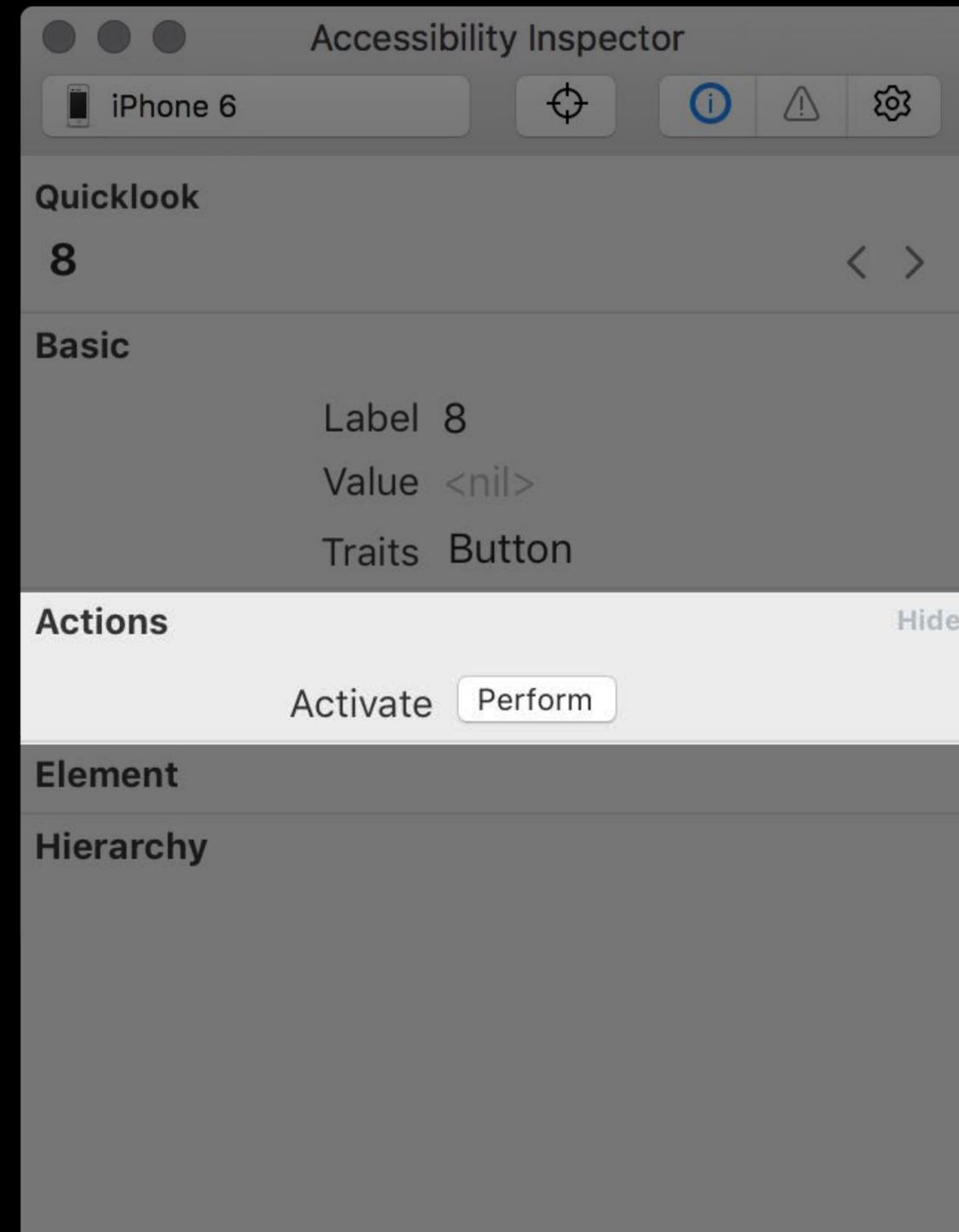
Inspect



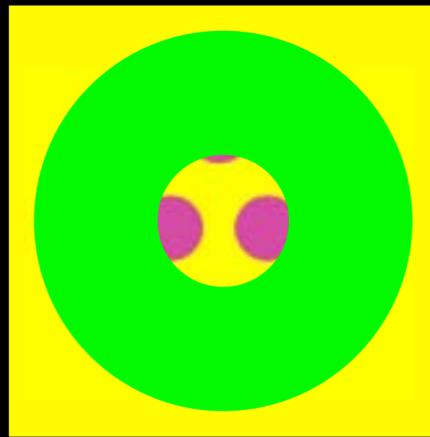
Inspection Feature



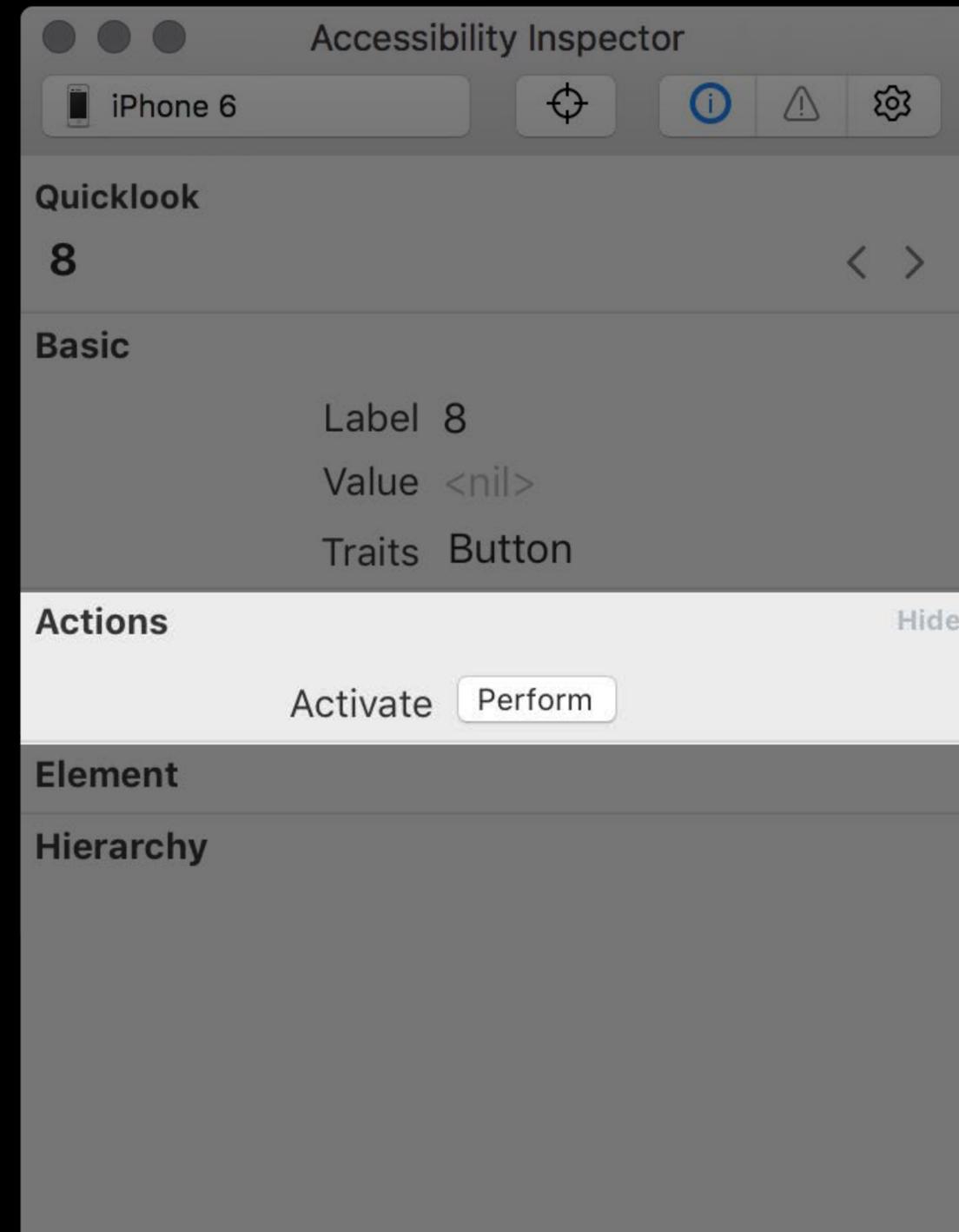
Inspect



Inspection Feature



Inspect



Demo

Inspection

Patti Hoa

Accessibility Engineer



Settings



9:41 AM



Messages



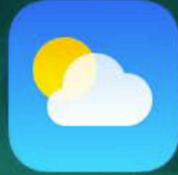
Calendar



Photos



Camera



Weather



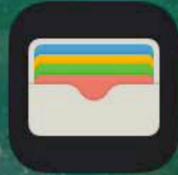
Clock



Maps



News



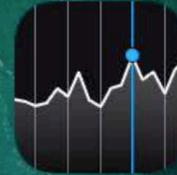
Wallet



Notes



Reminders



Stocks



Videos



iBooks



iTunes Store



App Store



Home



Health



Music



Phone



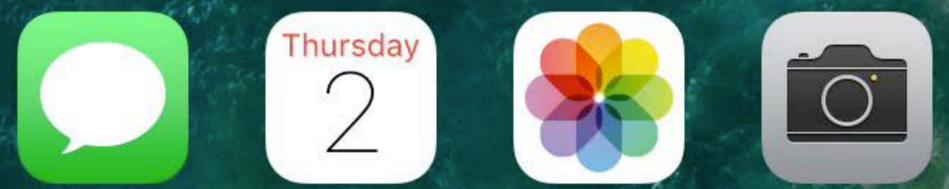
Safari



Settings



MathLearner



Messages Calendar Photos Camera



Weather Clock Maps News



Wallet Notes Reminders Stocks



Videos iBooks iTunes Store App Store



Home Health Music



Phone Safari Settings MathLearner



Accessibility Inspector



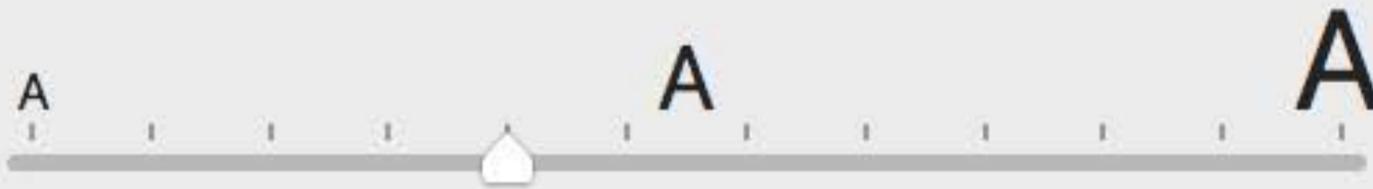
iPhone 6



Common accessibility options to test in an App:

- Invert colors
- Reduce transparency
- Reduce motion

Font size



Math Learner

Addition

Subtraction

Multiplication

Division

Accessibility Inspector

iPhone 6

Common accessibility options to test in an App:

- Invert colors
- Reduce transparency
- Reduce motion

Font size



Restore Defaults

Math Learner

Addition

Subtraction

Multiplication

Division

Accessibility Inspector

iPhone 6

Common accessibility options to test in an App:

- Invert colors
- Reduce transparency
- Reduce motion

Font size

A ————— A ————— A

Restore Defaults

Accessibility Inspector Features

Accessibility Inspector Features



Audit

Find and report accessibility issues

Accessibility Inspector Features



Audit

Find and report accessibility issues



Inspection

Debug and analyze accessibility state

Accessibility Inspector Features



Audit

Find and report accessibility issues



Inspection

Debug and analyze accessibility state



Settings

Test impact of accessibility setting change

Summary



Summary



Keep users of all abilities in mind

Summary



Keep users of all abilities in mind

Use the new Accessibility Inspector to identify potential accessibility issues

Summary



Keep users of all abilities in mind

Use the new Accessibility Inspector to identify potential accessibility issues

Easily inspect apps on all Apple platforms

Summary



Keep users of all abilities in mind

Use the new Accessibility Inspector to identify potential accessibility issues

Easily inspect apps on all Apple platforms

macOS

iOS

watchOS

tvOS

More Information

<https://developer.apple.com/wwdc16/407>

Feedback is Welcome

Related Sessions

What's New in Accessibility

Pacific Heights

Tuesday 9:00AM

Inclusive App Design

Pacific Heights

Tuesday 10:00AM

Accessible Technology and Inclusive Design

Buena Vista Park

Wednesday 6:15PM

Labs

Accessibility User Interface by Appointment Lab

User Interface
Design Lab B

Wednesday 9:00AM

Accessibility and Speech Lab

Frameworks
Lab C

Wednesday 2:30PM



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