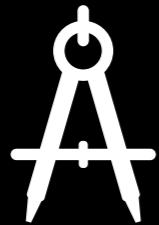


SWIFT DELHI, MEETUP 10

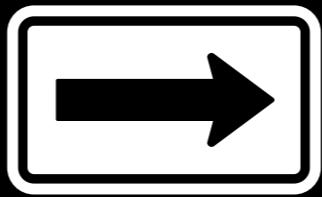
Introduction to User Interface Design

Vudit Bhargava

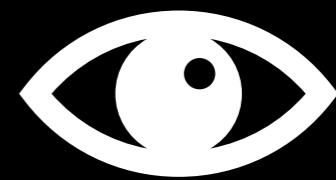
Today's Discussion



Consistency



Navigation



Clarity

Aa

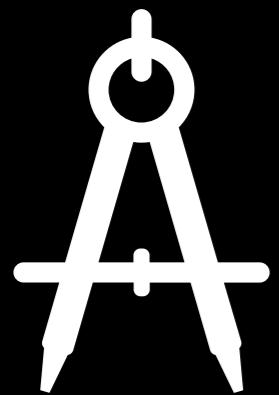


Typography



Glyphs

Errors



Consistency



How would you interact with it?



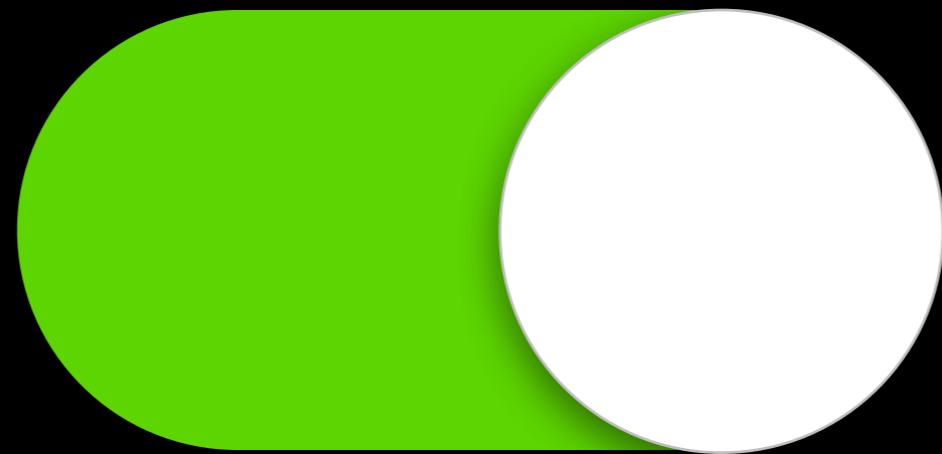
“*Twist the dial*”



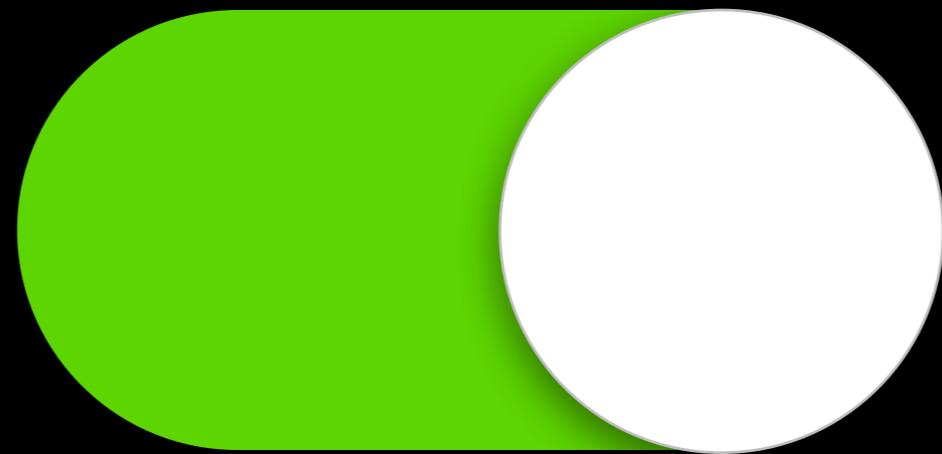
How do I go back to the Home Screen?



“Press the Home Button”



Is this state on or off?



“Obviously, it’s on”

MENTAL MODELS

Users develop an **understanding** of how different devices work, by using them over a period of time.



What if users had to *push* the dial
inwards to change the value?



What if users had to *push* the dial
inwards to change the value?

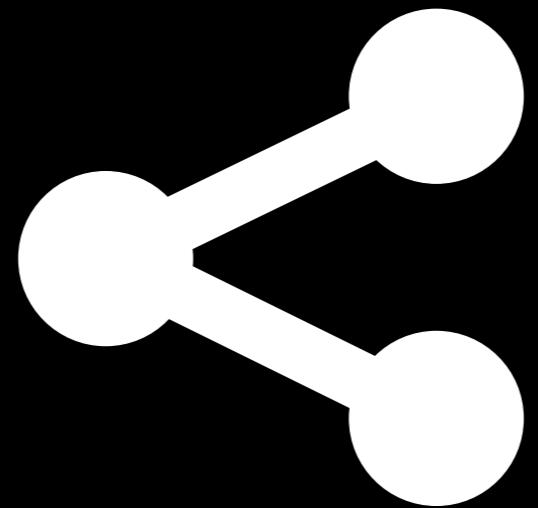
Would users ever figure it out?

Chances are, they'd consider it
broken and not use it.

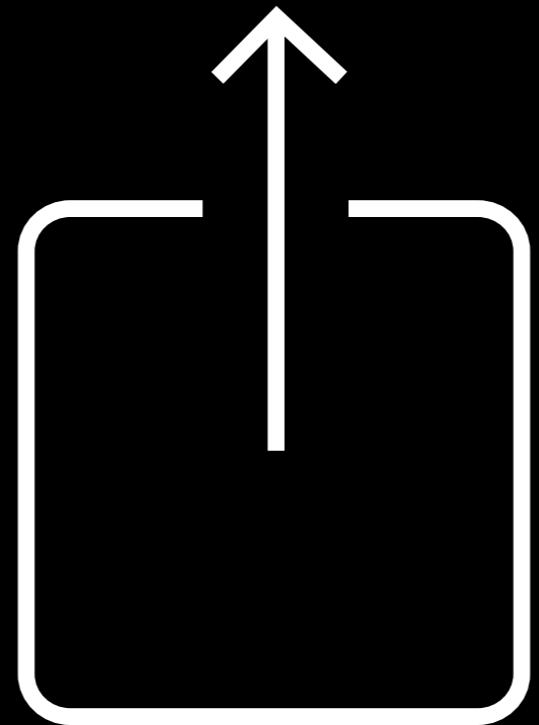
FOLLOWING PLATFORM CONVENTIONS

System apps develop a user's mental model on how to use them.

Challenging these models can lead to unintuitive and frustrating experiences.



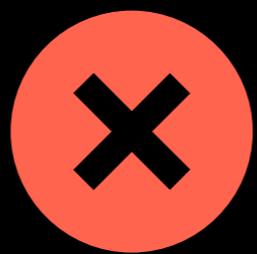
How would an iOS user figure out
the purpose of this icon?



When all apps use this icon instead.



Back buttons are on top left corner
and always work with a swipe gesture.



Accounts

< Back



Mudit Bhargava



TODAY



Allow “Calendar” to access
your location while you use
the app?

Your location is used to estimate travel
times to events and improve location
searches.

[Don't Allow](#)

[Allow](#)

Positive actions are always on the right in an
alert window, **negative actions** are on the left.

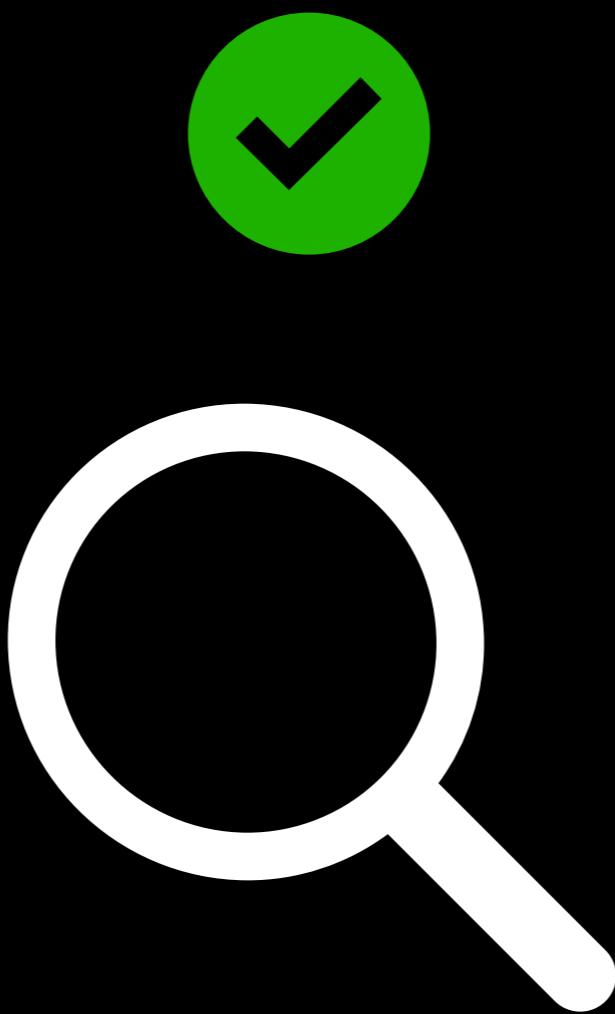


Allow “Calendar” to access
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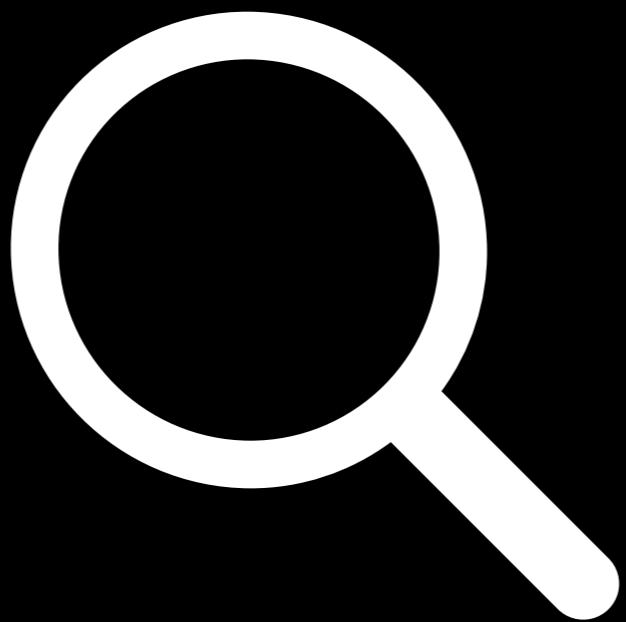
[Allow](#)

[Don't Allow](#)



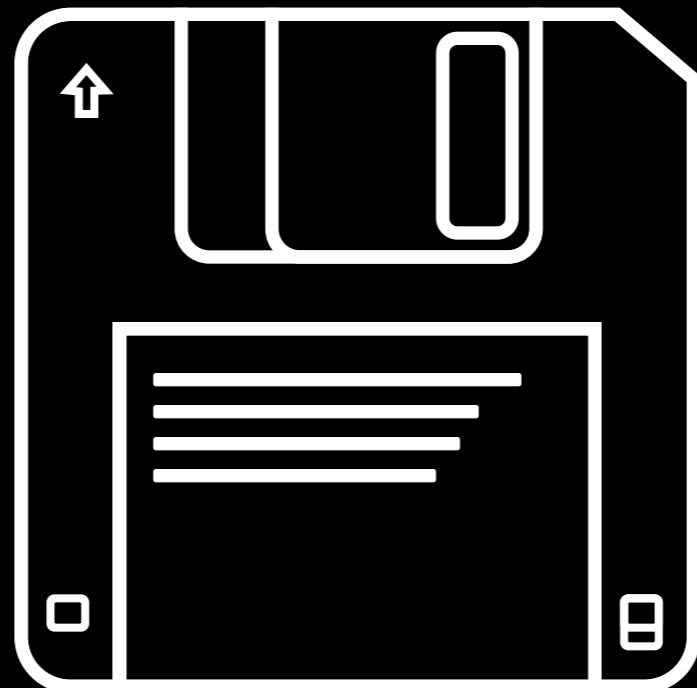
Search

This icon means “Search” on iOS

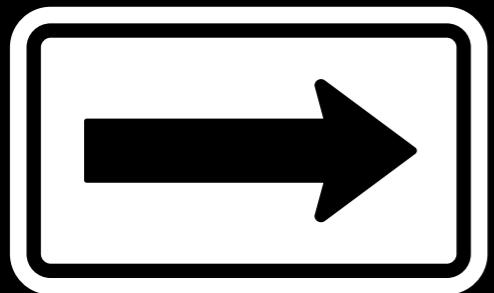


Magnify

iOS apps have Auto Save.



This 40 year old artefact doesn't
need to be in the navigation bar.



Navigation

Every app has features.

It's important for each feature to
be easy to discover and access.

Good navigation answers these questions properly:

Where am I?

Where can I go?

What will I find, when I reach there?

Welcome to Dwarka
द्वारका में आपका हार्दिक स्वागत है

Where am I?

Welcome to Dwarka

द्वारका में आपका हार्दिक स्वागत है

**Netaji Subhas Institute
of Technology**

नेताजी सुभाष इंस्टिटूट ऑफ
टेक्नोलॉजी



400m



**Indira Gandhi
International Airport**

इंदिरा गांधी अंतर्राष्ट्रिय
हवाई अड्डा



4 km

Where can I go?

Netaji Subhas Institute
of Technology

नेताजी सुभाष इंस्टिटूट ऑफ
टेक्नोलॉजी



400m



Indira Gandhi
International Airport

इंदिरा गांधी अंतर्राष्ट्रीय
हवाई अड्डा



4 km

What will I find, when I reach there?

Netaji Subhas Institute
of Technology

नेताजी सुभाष इन्स्टिटूट ऑफ
टेक्नोलॉजी



400m



Indira Gandhi
International Airport

इंदिरा गांधी अंतर्राष्ट्रीय
हवाई अड्डा



4 km

 iCloud

Mailbox

< iCloud

Mailbox

Where am I?



Mailbox

Where can I go?



Mailbox

What will I find, when I reach there?



Discover



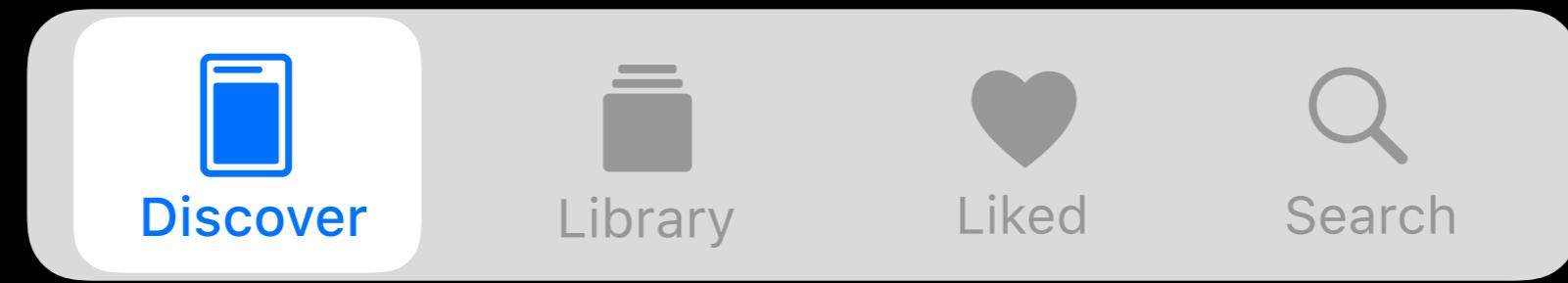
Library



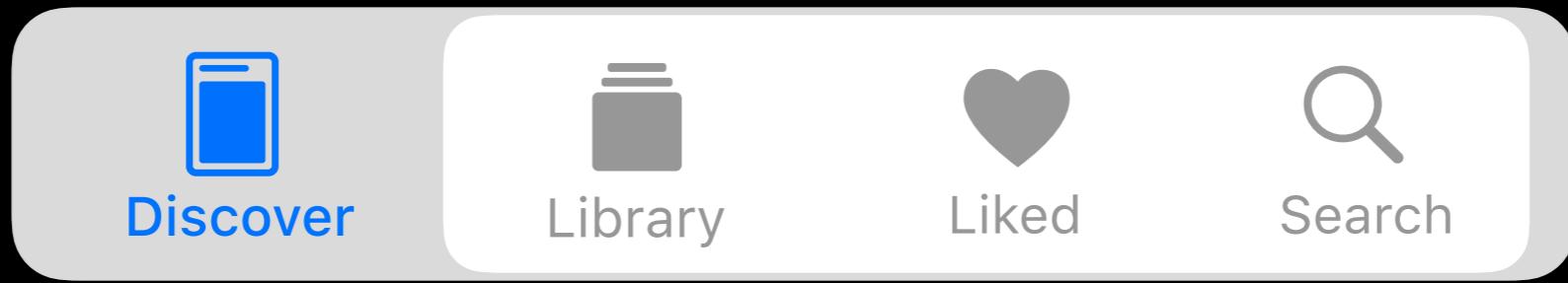
Liked



Search



Where am I?



Where can I go?



What will I find, when I reach there?



Where am I?



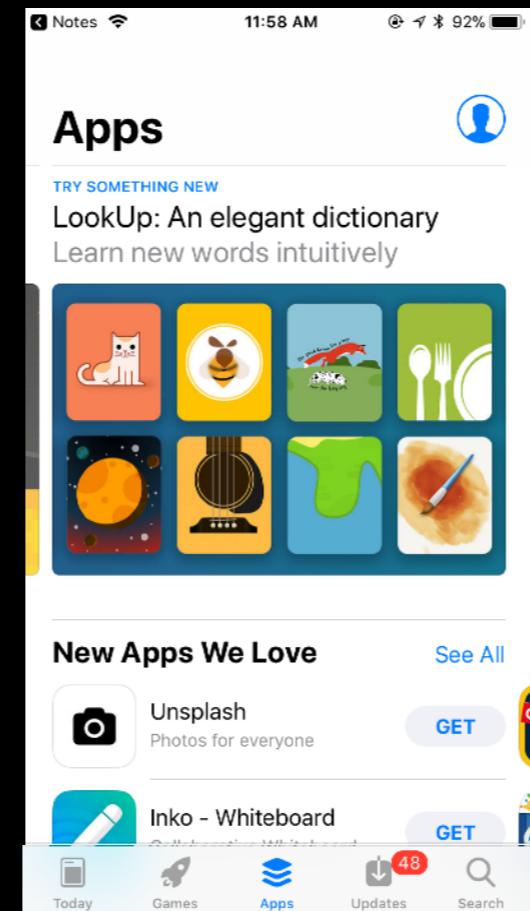
Where can I go?



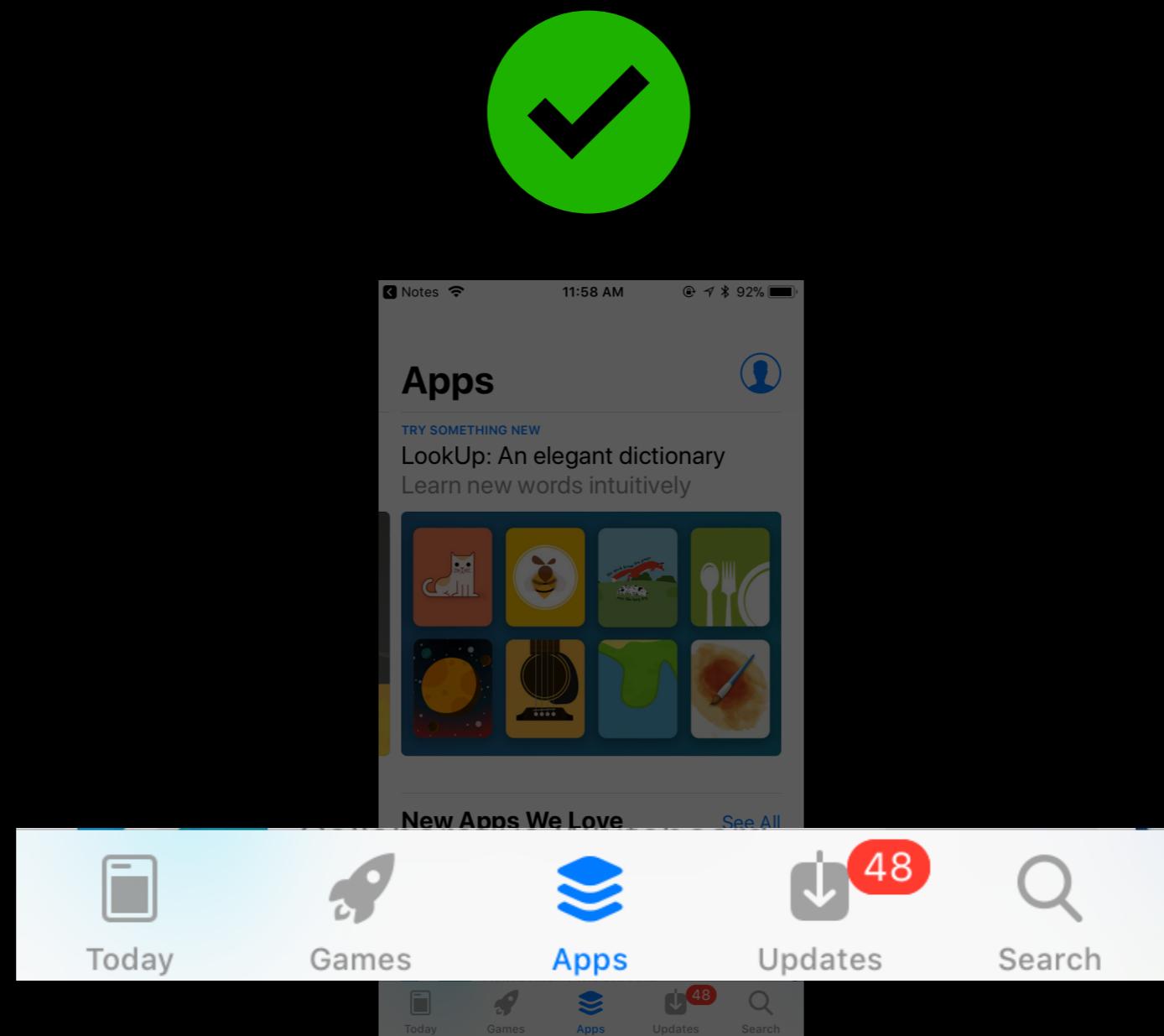
What will I find, when I reach there?



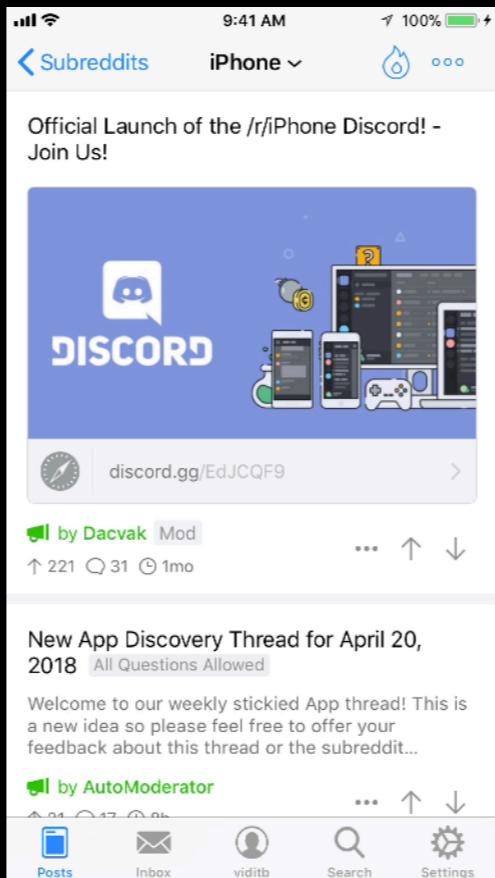
What are the alternatives?



Tab Bars

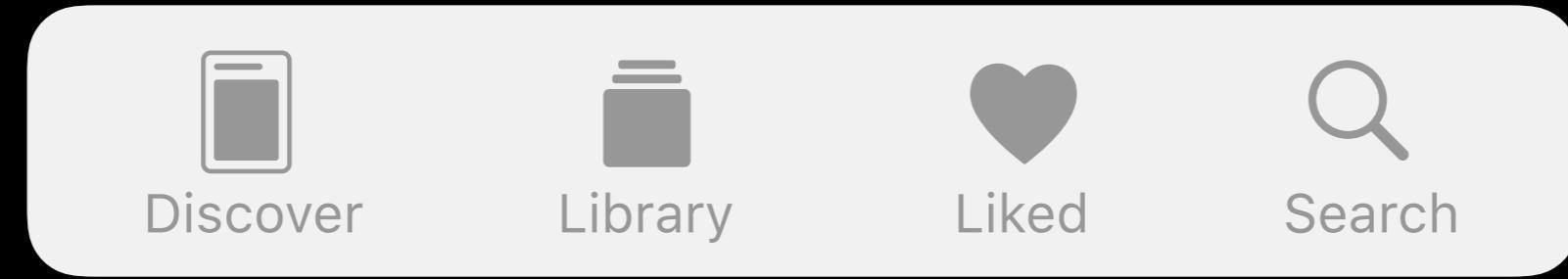


Tab Bars

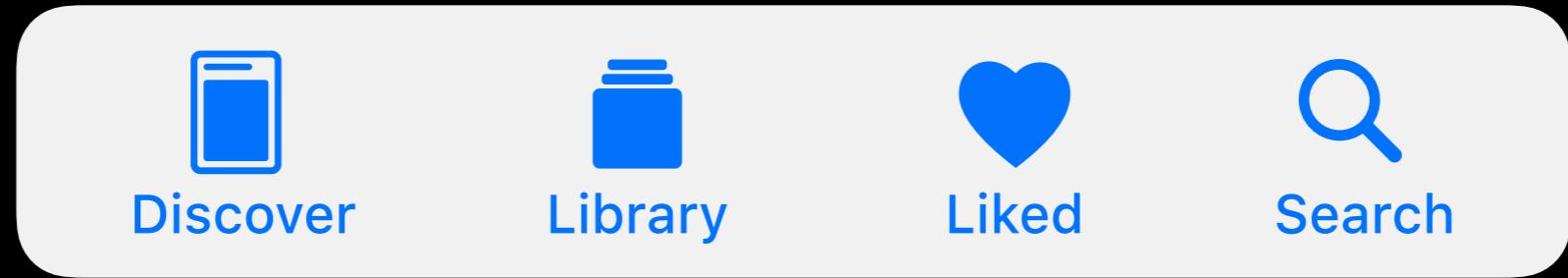


Split View Controller

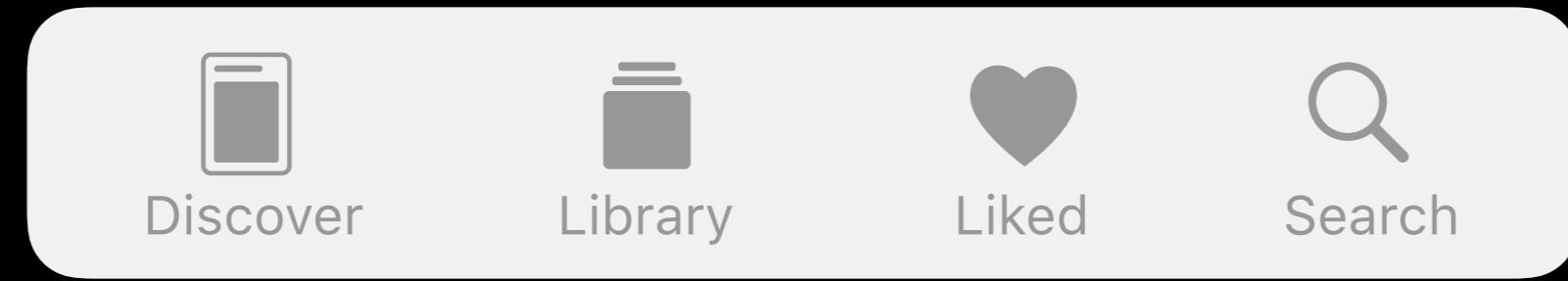
Good Tab Bar Practices



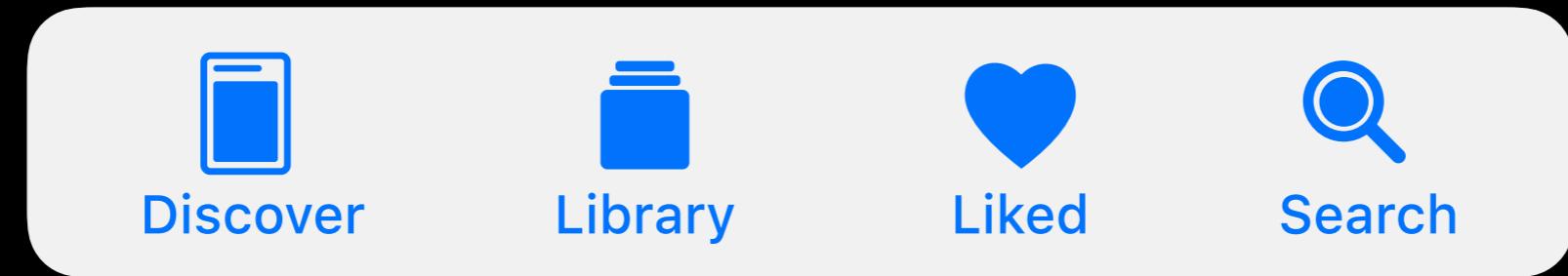
Selected and Unselected States



Selected and Unselected States



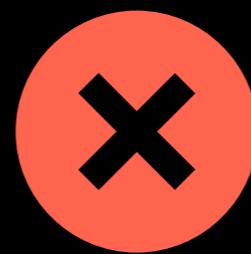
Selected and Unselected States



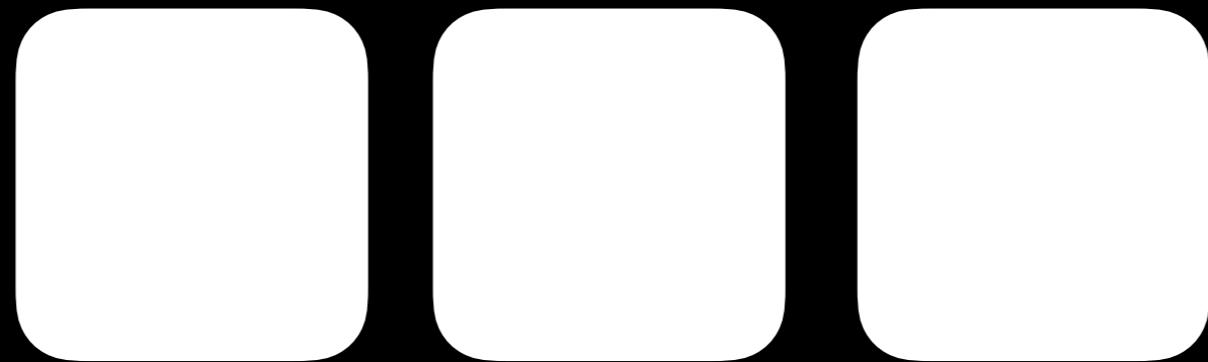
Preserve the context

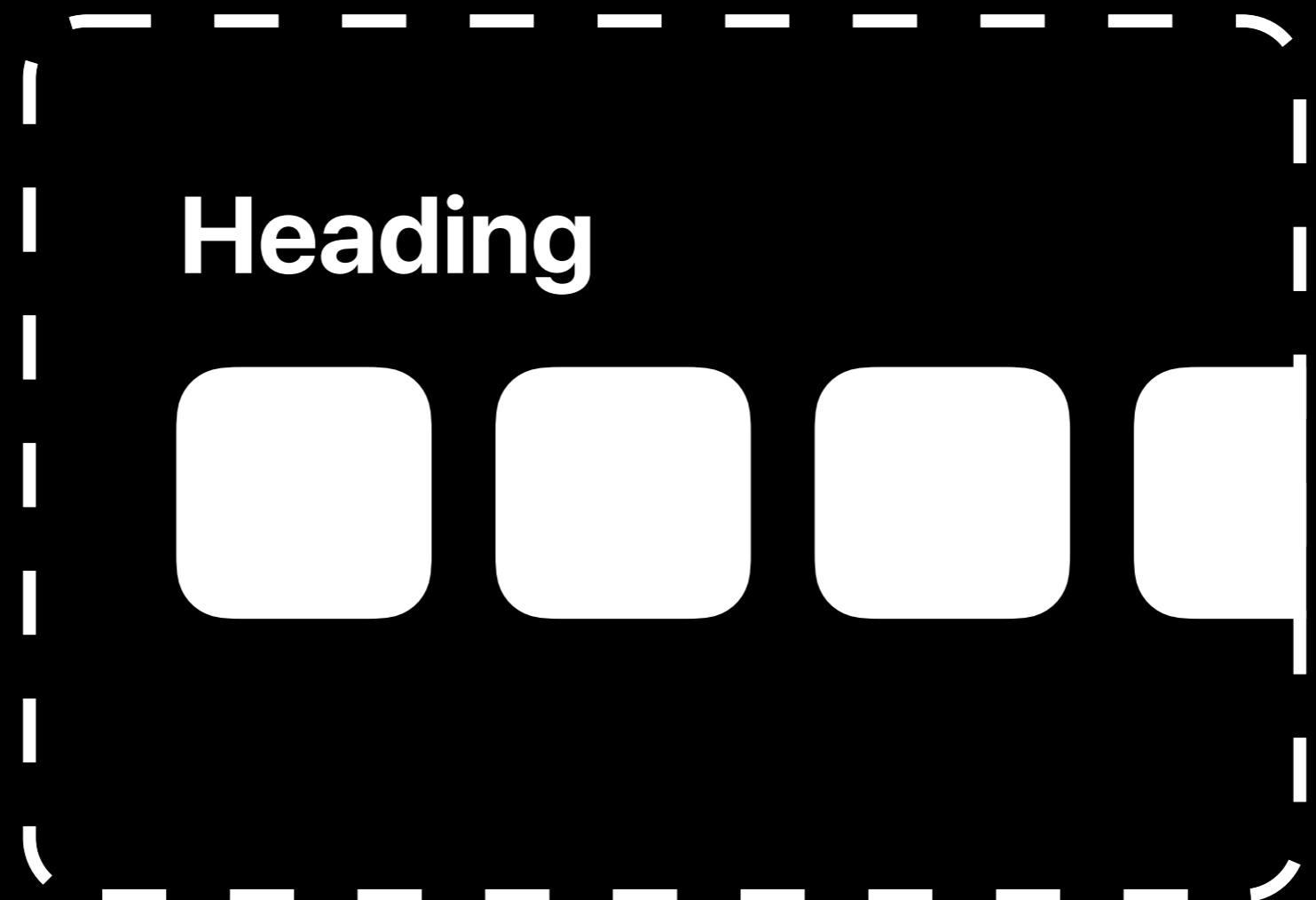
TIP

Horizontal Collection Views



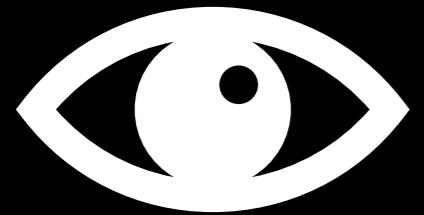
Heading





Horizontal Collection Views

- ① Use `UICollectionViewDelegateFlowLayout` to create the layout programmatically.
- ② Provide left and right section insets to match the margins of the layout.
- ③ CollectionView width should be equal to the superview's width.



Clarity

Well designed apps are easy
to use and understand.

Using easy to understand
language

pneumonoultramicroscopicsilicovolcanoconiosis



pneumonoultramicroscopicsilicovolcanoconiosis

No big words



802.11ac WLAN with MIMO





802.11ac WLAN with MIMO



Avoid Jargon



Avoid Jargon

Providing Feedback

**Mudit Bhargava**

10:42 AM>

LookUp Roadmap

Hey! How's the progress on your latest update for LookUp going? Excited to try out all the new features! Good Luck!



● **Mudit Bhargava** 10:42 AM>
LookUp Roadmap
Hey! How's the progress on your latest update
for LookUp going? Excited to try out all the new
features! Good Luck!

Use Indicators



Mudit Bhargava

10:42 AM >

LookUp Roadmap

Hey! How's the progress on your latest update
for LookUp going? Excited to try out all the new
features! Good Luck!



● **Mudit Bhargava**

10:42 AM >

LookUp Roadmap

Hey! How's the progress on your latest update
for LookUp going? Excited to try out all the new
features! Good Luck!

Avoid Blinkers



● **Mudit Bhargava**

LookUp Roadmap

Hey! How's the progress on your latest update
for LookUp going? Excited to try out all the new
features! Good Luck!

10:42 AM >



● **Mudit Bhargava**

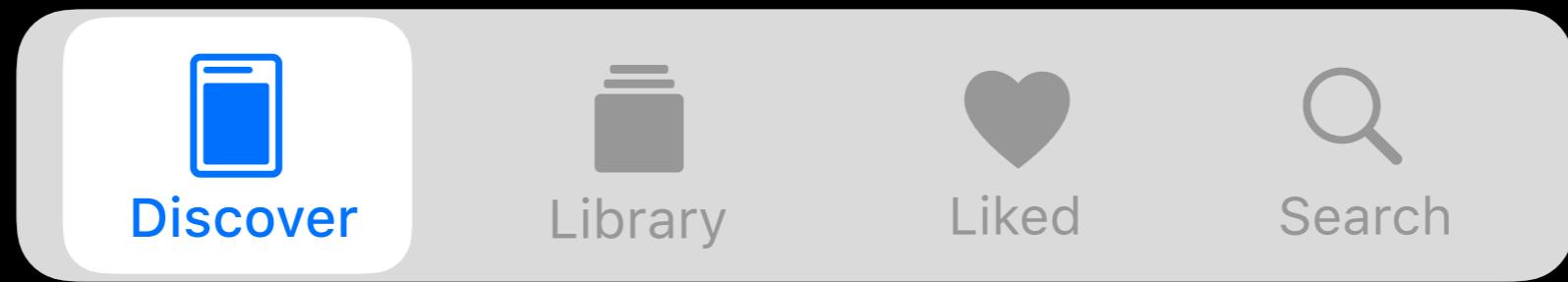
LookUp Roadmap

Hey! How's the progress on your latest update
for LookUp going? Excited to try out all the new
features! Good Luck!

10:42 AM >

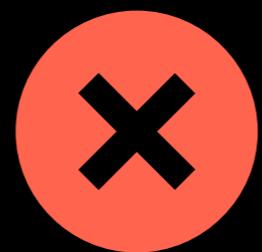
Avoid Shine Effects

Showing System Status



Show Selected States





Activity Indicators are ideal only for **very short** wait times.





Use Progress bars for longer wait times

Provide Meaningful Choices



**Would you like to cancel
your subscription?**

You will no longer be able to
access the movies and tv shows
available on this app.

Cancel

OK



**Would you like to cancel
your subscription?**

You will no longer be able to
access the movies and tv shows
available on this app.

[Don't Cancel](#)

[Cancel](#)

Typography

*Which font should I use for
my app?*

Avenir ?

Futura ?

Helvetica ?

San Francisco ?

San Francisco ?

Which one?

In most cases, the **system font** is the best option.

.systemFont

.systemFont

Takes care of the different San Francisco Fonts.
Updates fonts automatically

.preferredFont(forTextStyle:)

```
.preferredFont(forTextStyle:)
```

Takes care of the font sizes.
Helps in supporting dynamic type

Typography Best Practices

Use a single font family whenever possible

Using multiple fonts may seem cool, but can also make your app feel fragmented and show a lack of consistency in your app.

Use a single font family whenever possible

Using multiple fonts may seem cool, but can also make your app feel fragmented and show a lack of consistency in your app.

Use Emphasis to establish visual hierarchy.

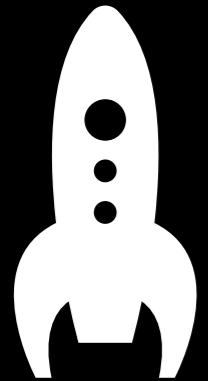
Use different weights, sizes and colour to emphasise important information and develop a visual hierarchy, bringing together what's related, and separating the un-related.

Use legible text sizes

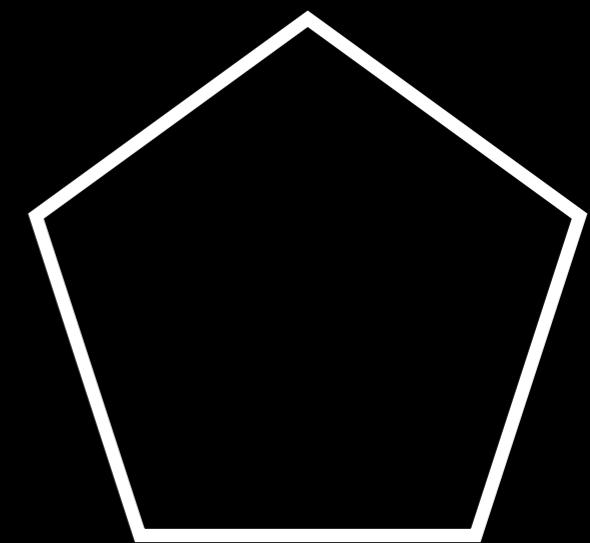
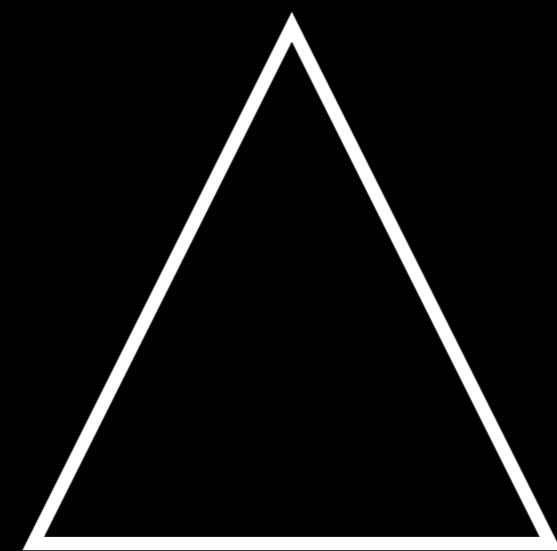
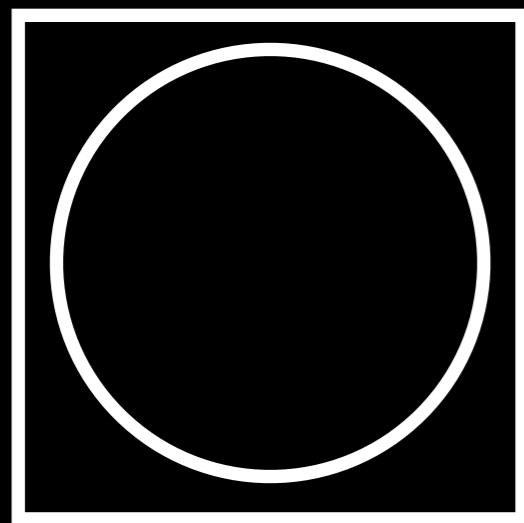
Extremely small fonts and low contrast colours hamper the legibility of the text. Use the preferred text styles to ensure that your text is easy to read. Enable dynamic type to make it legible for everyone.

Use proper line spacing

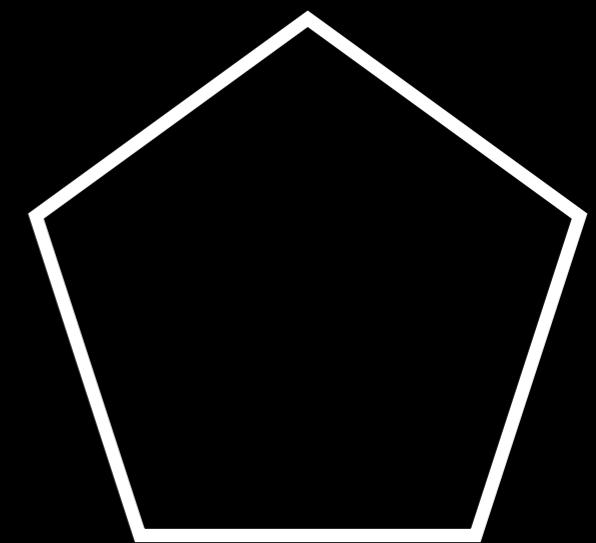
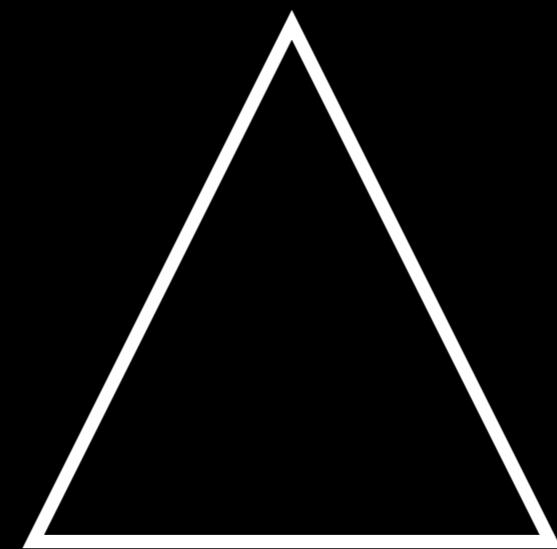
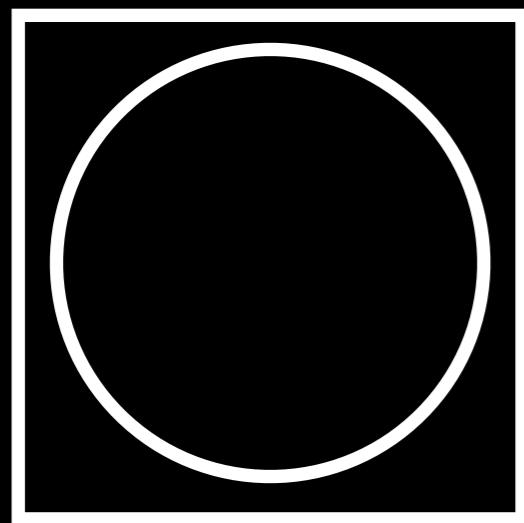
Extremely tight or Extremely wide line spacing can make it difficult to read text. Ideally line spacing should be between 1.2 to 1.5 times the font size.



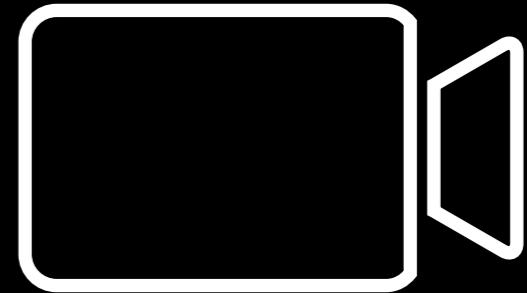
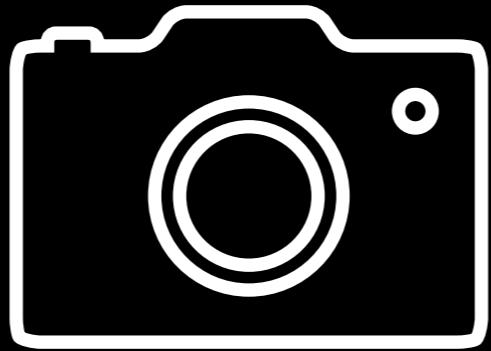
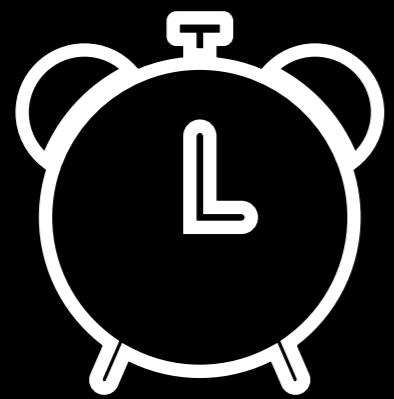
Glyphs



What do these mean?



No Idea! 🤔

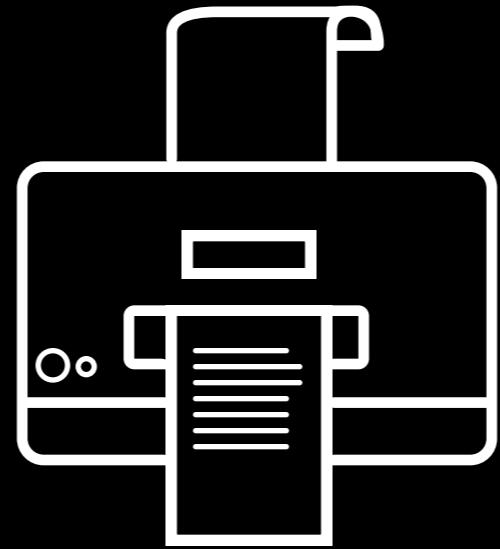


Self Explanatory

Glyphs are

1

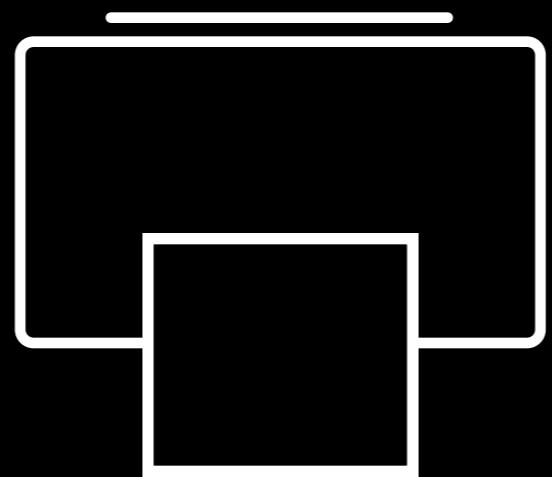
Universally Understood



@642x



@1x



@642x



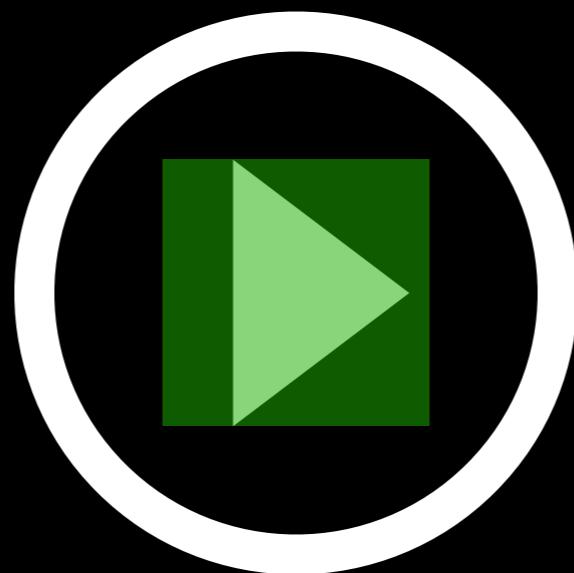
@1x

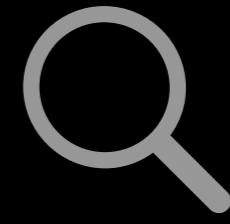
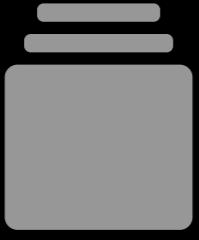
Glyphs are

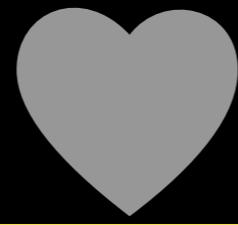
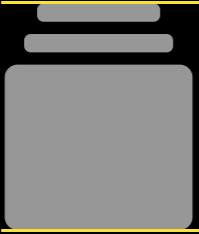
- 1** Universally Understood
- 2** Simple

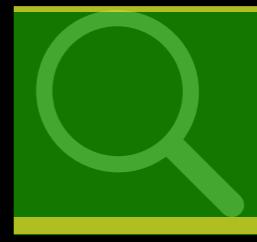
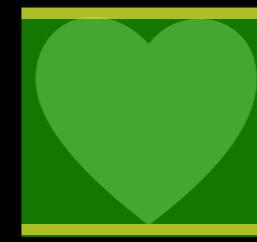








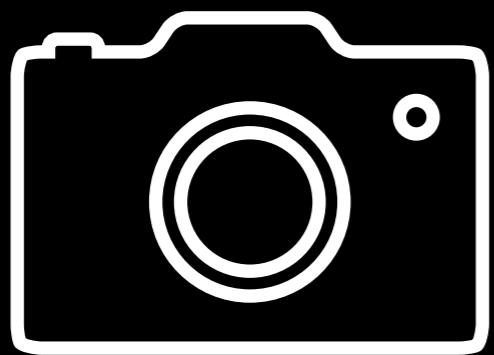




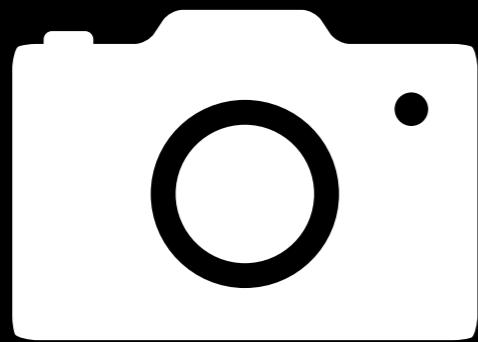
Ask your designers to generate
optically centred glyphs, with
the required padding.

Glyphs are

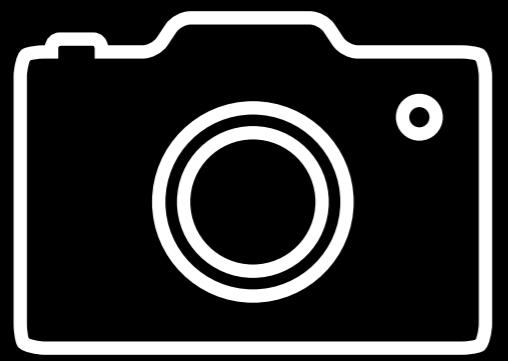
- 1** Universally Understood
- 2** Simple
- 3** Optically Balanced



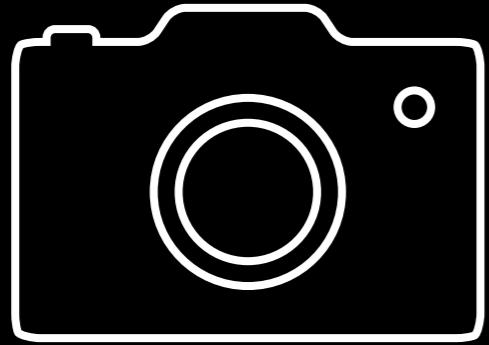
Camera

A white camera icon with a black outline, positioned to the left of the word "Camera".

Camera



Camera



Camera

Glyphs are

- 1** Universally Understood
- 2** Simple
- 3** Optically Balanced
- 4** Contextually Aware



Glyphs are

- 1** Universally Understood
- 2** Simple
- 3** Optically Balanced
- 4** Contextually Aware



Glyphs are

- ① Universally Understood
- ② Simple
- ③ Optically Balanced
- ④ Contextually Aware

Standard Glyph Sizes

Attribute	Regular Tab Bar	Compact Tab Bar
Circular Glyphs	25pt	18pt
Square Glyphs	23pt	17pt
Wide Glyphs	31pt	23pt
Tall Glyphs	28pt	20pt

All Icons to be exported at 2x & 3x

Source: Apple Human Interface Guidelines



Errors

OSCARS

"MOONLIGHT"
ADELE ROMANSKI, DEBÉ GARDNER
AND JEREMY KLEIN, PRODUCERS



Warren Beatty received the wrong card for the Best Picture announcement, and that resulted in the infamous Oscars fiasco of 2017

Who's fault?

“ROOT CAUSE ANALYSIS”

The accountant from PwC was found responsible for the mistake. He gave the wrong card.

“ROOT CAUSE ANALYSIS”

**But why couldn’t Beatty figure
out that the card he received
wasn’t for the Best Picture?**

OSCARS

"MOONLIGHT"
ADELE ROMANSKI, DEBÉ GARDNER
AND JEREMY KLEIN, PRODUCERS





EMMA STONE
"LA LA LAND"

Best Actress

ACTRESS IN A LEADING ROLE

Root Cause Analysis

- ① “Best Actress” is too far down on the card
- ② It is written in low contrast and low point size text
- ③ Text on the envelope is also written in low contrast.
- ④ The text probably wasn’t legible to Beatty

Thankfully, The Academy did
make a change.

BEST PICTURE

THE SHAPE OF WATER

GUILLERMO DEL TORO *and*
J. MILES DALE. *Production*



A Better Design

- ① “Best Picture” is at the top and in a legible font
- ② Fonts for the winner and details are different
- ③ The envelope’s black now.
- ④ Emphasis on the right elements ensured there was no fiasco this year.



EMERGENCY ALERTS



Emergency Alert

BALLISTIC MISSILE THREAT INBOUND TO HAWAII. SEEK IMMEDIATE SHELTER. THIS IS NOT A DRILL.

While in this particular case, the worker heard an erroneously played recording, it's still worth looking at the UI for issuing this alert.

Amber Alert (CAE) - Kauai County Only

Amber Alert (CAE) Statewide

1. TEST Message

PACOM (CDW) - STATE ONLY

Tsunami Warning (CEM) - STATE ONLY

DRILL - PACOM (CDW) - STATE ONLY

Landslide - Hana Road Closure

Amber Alert DEMO TEST

High Surf Warning North Shores

Root Cause Analysis

- ① The messages for drills and alerts are in the same drop down link.
- ② There's no visual differentiation between the different options.
- ③ Important warnings and alerts are mixed with less important messages.
- ④ There's no way to “undo” your actions.

A Solution

Test Messages



[Amber Alert Test](#)



[Tsunami Warning Test](#)

Drills



[PACOM Drill - State](#)

Alerts and Warnings



[Tsunami Warning - State](#)



[High Surf Warning - Shore](#)



[PACOM - State](#)



[Landslide - Road Closure](#)



[AMBER Alert - Kauai County](#)



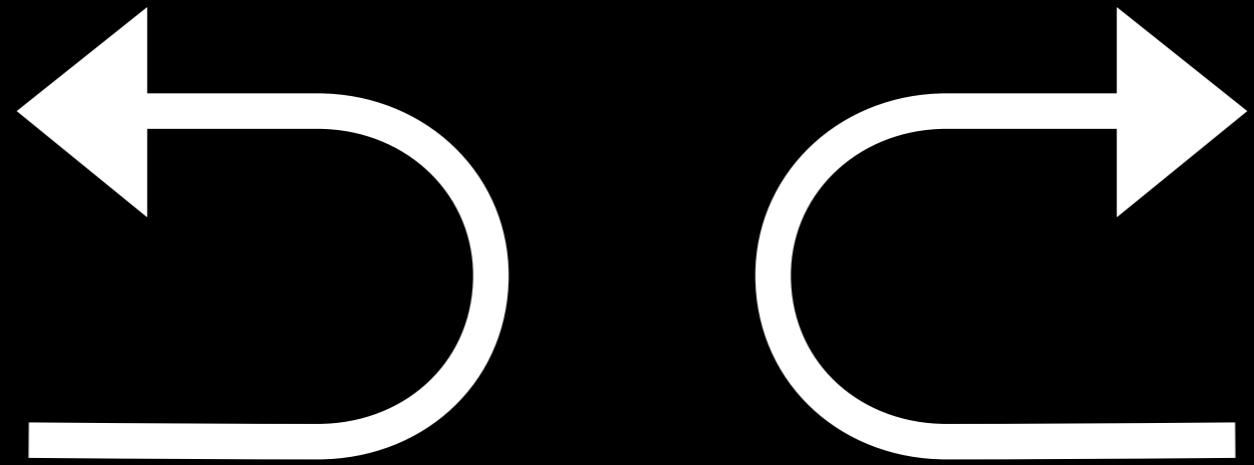
[AMBER Alert - State](#)

False Alarm

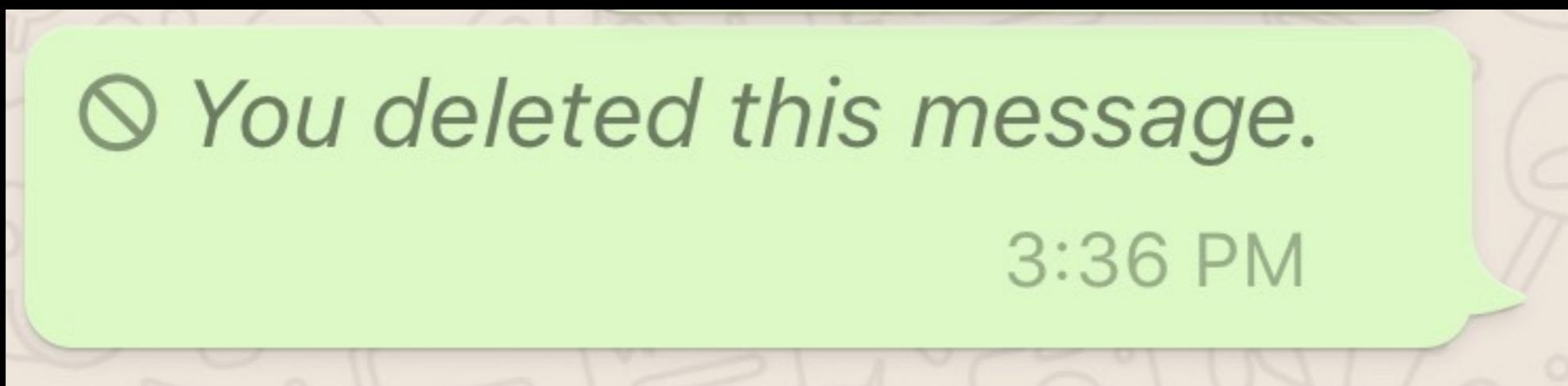
Human Error is rarely caused *solely*
by humans.

The design of the object plays a big
role in helping those errors happen.

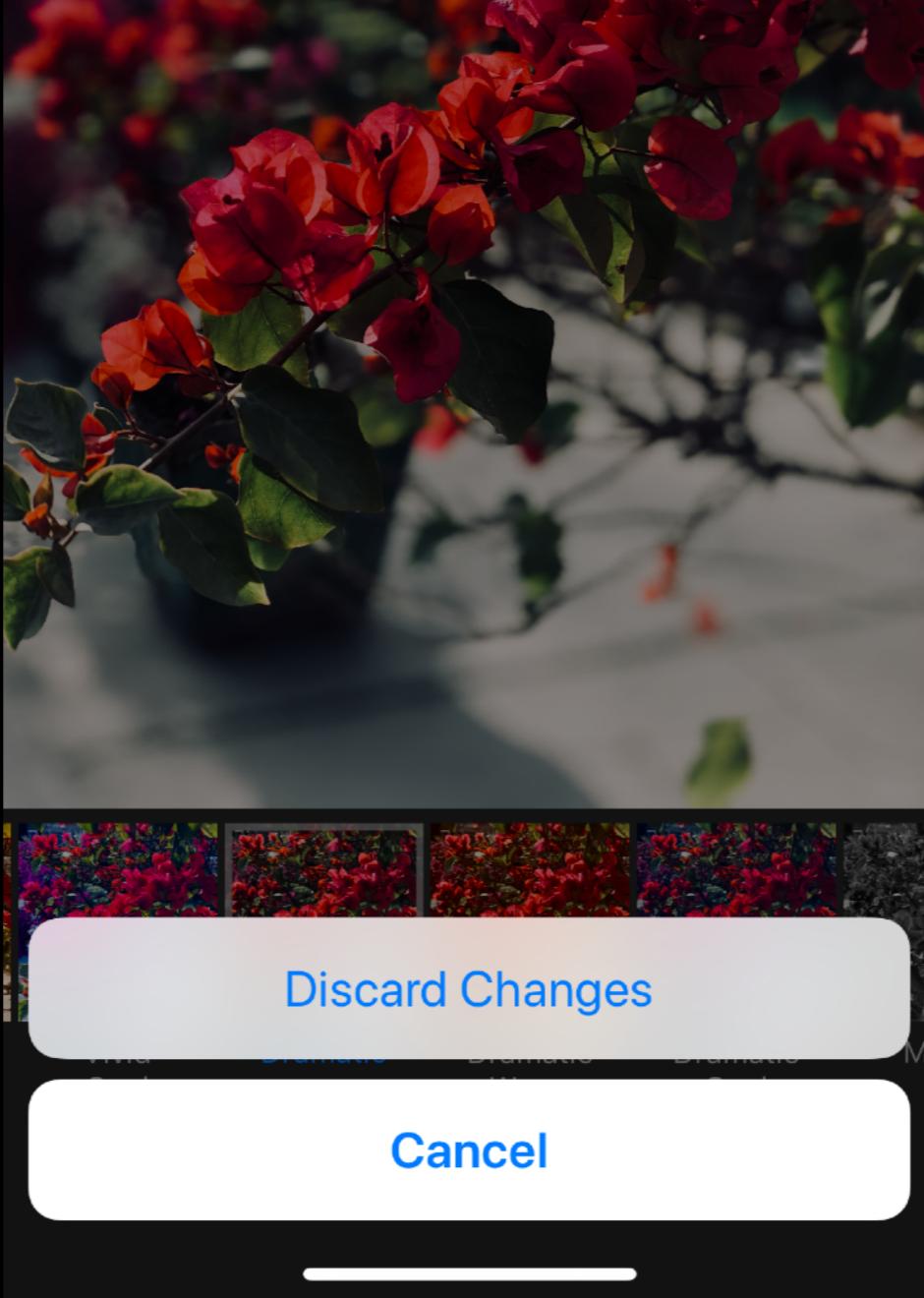
**Best Practices to help
prevent human errors**



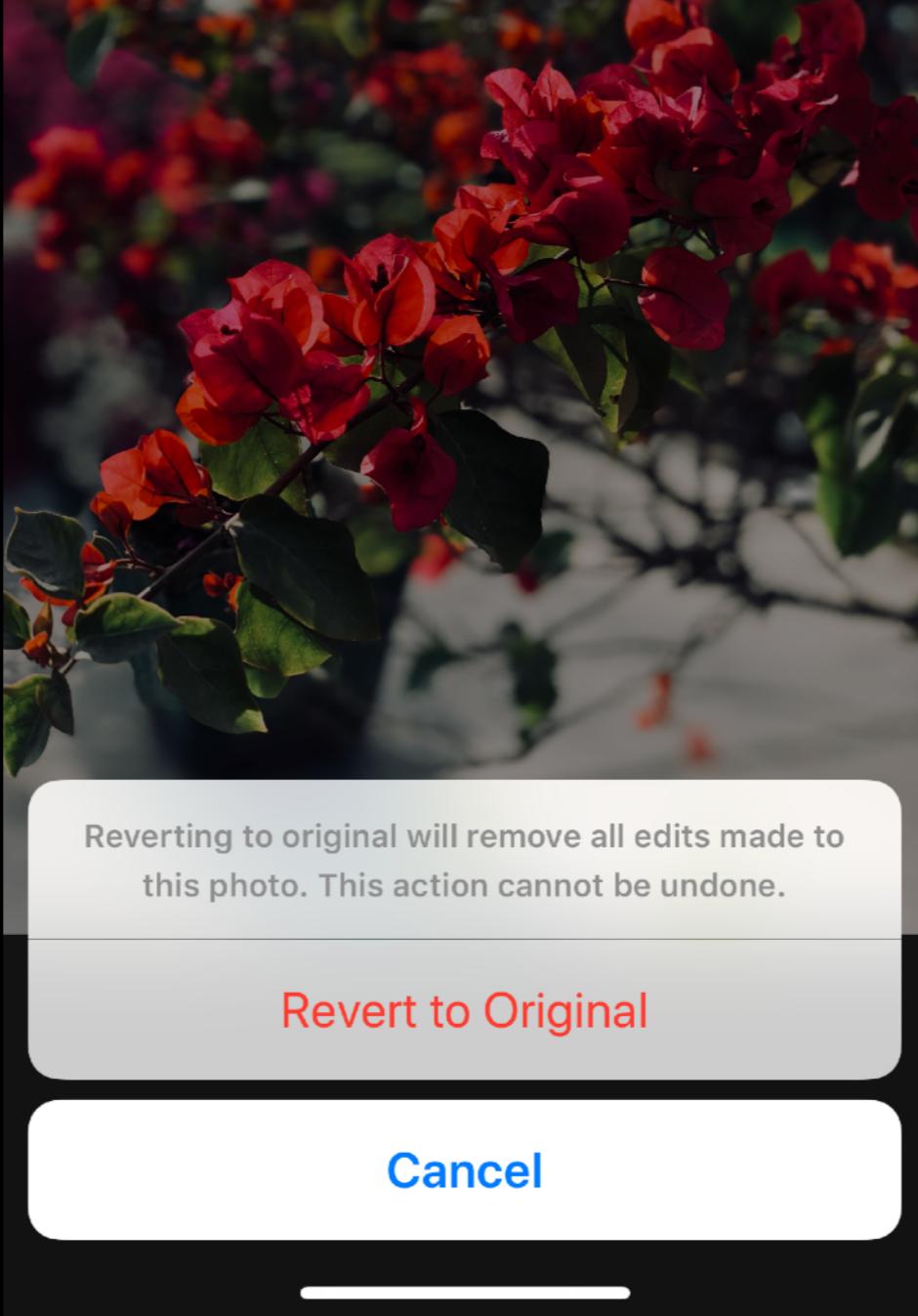
Allow users to undo and redo
their actions



Deleting Messages in WhatsApp



Support **non-destructive** editing wherever possible.



Ask before permanently deleting important information

Set a reminder for tomorrow
evening to charge my iPod

Tap to Edit >

**Just to be clear... did you mean
20th April, Friday, or 21st April,
Saturday?**

20th April, Friday

21st April, Saturday

Resolve Ambiguities



Proceed

 Clear All

Respect Mental Models

**What if, the system fails to
perform a task correctly?**

Handling Errors

Provide meaningful
information with options to
help resolve the error

Unknown error. Such is life! Sorry.

Cancel

Unknown error. Such is life! Sorry.
Yes, it's a real error message
from an Apple TV app.



No relevant information.

Unknown error. Such is life! Sorry.

Creates a dead end with no possible action

Cancel

Attaching a “Cancel” Label attached to a button that takes you back to the previous screen doesn’t provide any meaningful way to resolve the error.

Snarky Remarks rub salt to the wound.



An SSL error has occurred and
a secure connection to the
server cannot be made.

OK

Avoid Jargon



An unexpected error
has occurred.

ErrorCode = 42

OK

Avoid Error Codes



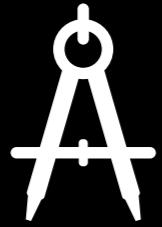
Tracking Limited

Point the device at an area with visible surface detail, or improve lighting conditions.

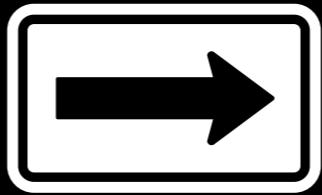
Help users in resolving the error

Handling Errors

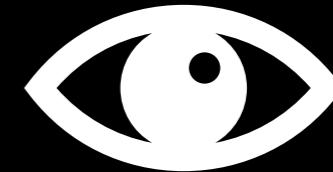
- ① Provide humanly readable and informative error messages.
- ② Point out the problem precisely and clearly.
- ③ Help the user resolve the error.
- ④ Provide meaningful choices whenever possible.



Consistency



Navigation



Clarity

Aa

Typography



Glyphs



Errors

Good Design

- 1** Delights users
- 2** Moves out of the way
- 3** Fights the user's battles.

Resources

Apple Human Interface Guidelines

<https://developer.apple.com/ios/human-interface-guidelines>

WWDC Design Sessions

<https://developer.apple.com/videos/design/>

Design of Everyday Things - Don Norman

<https://www.amazon.in/Design-Everyday-Things-Don-Norman/dp/0465050654>