

Design

#WWDC15

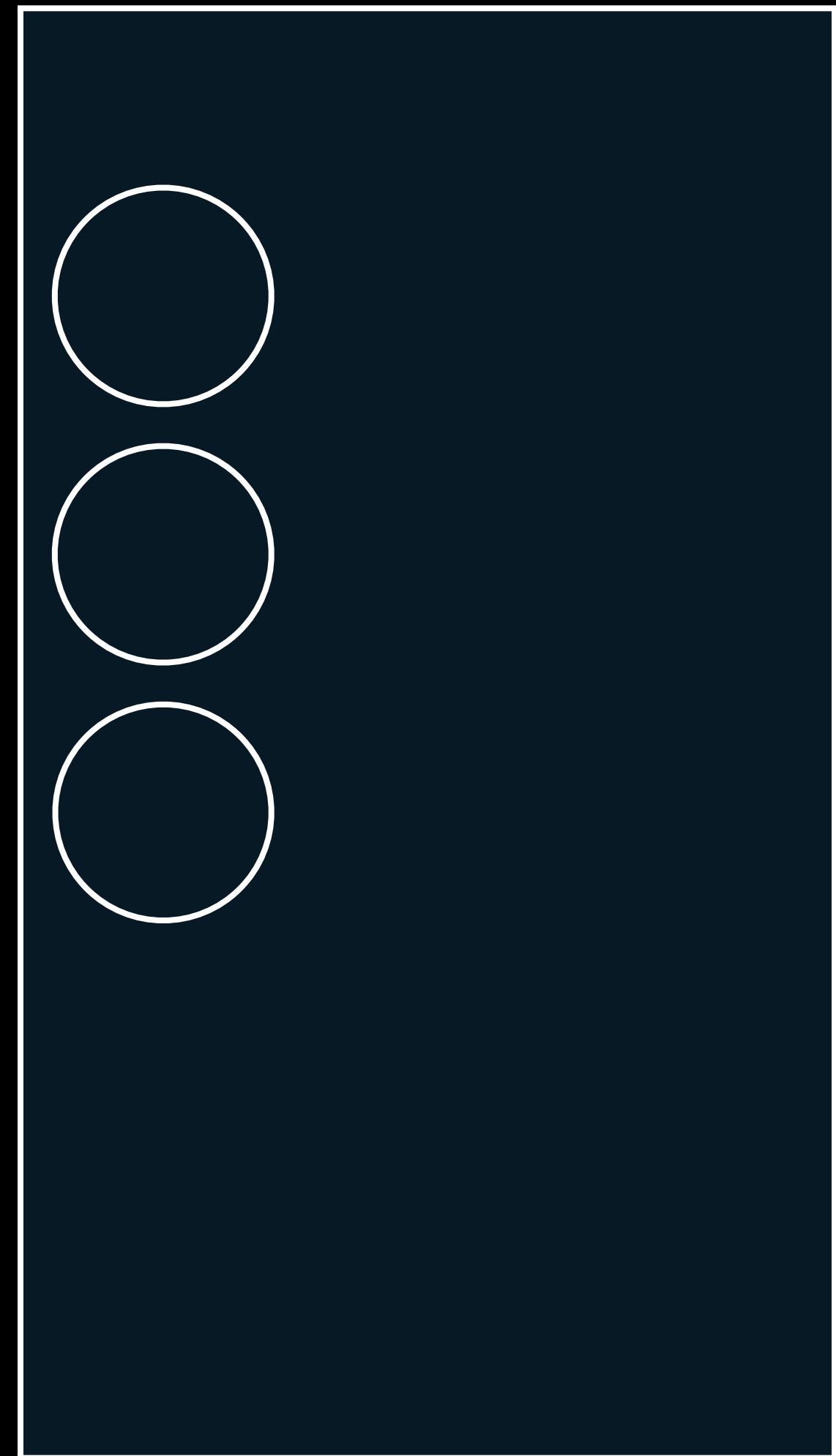
# Designing with Animation

Session 803

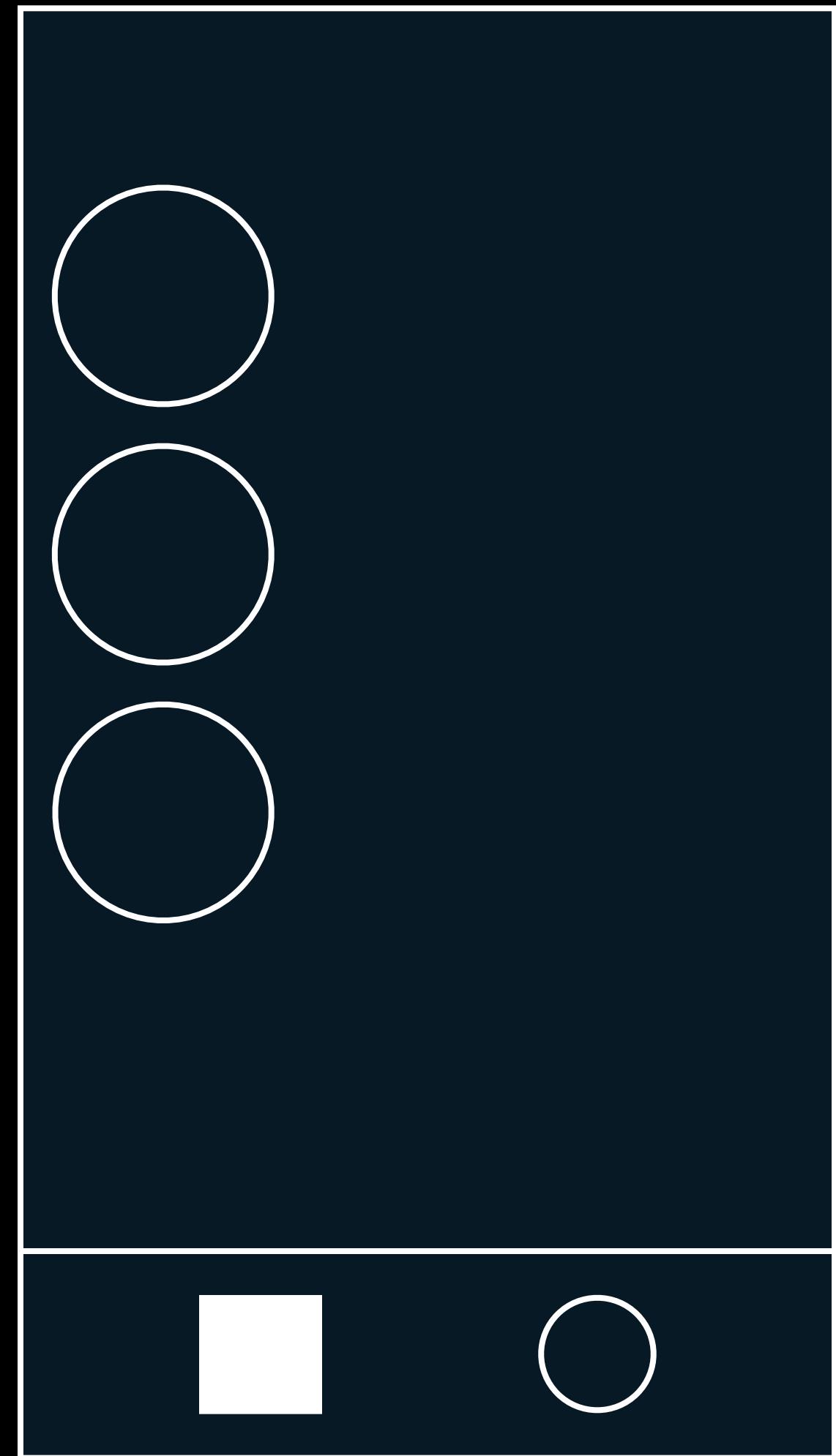
Julian Missig

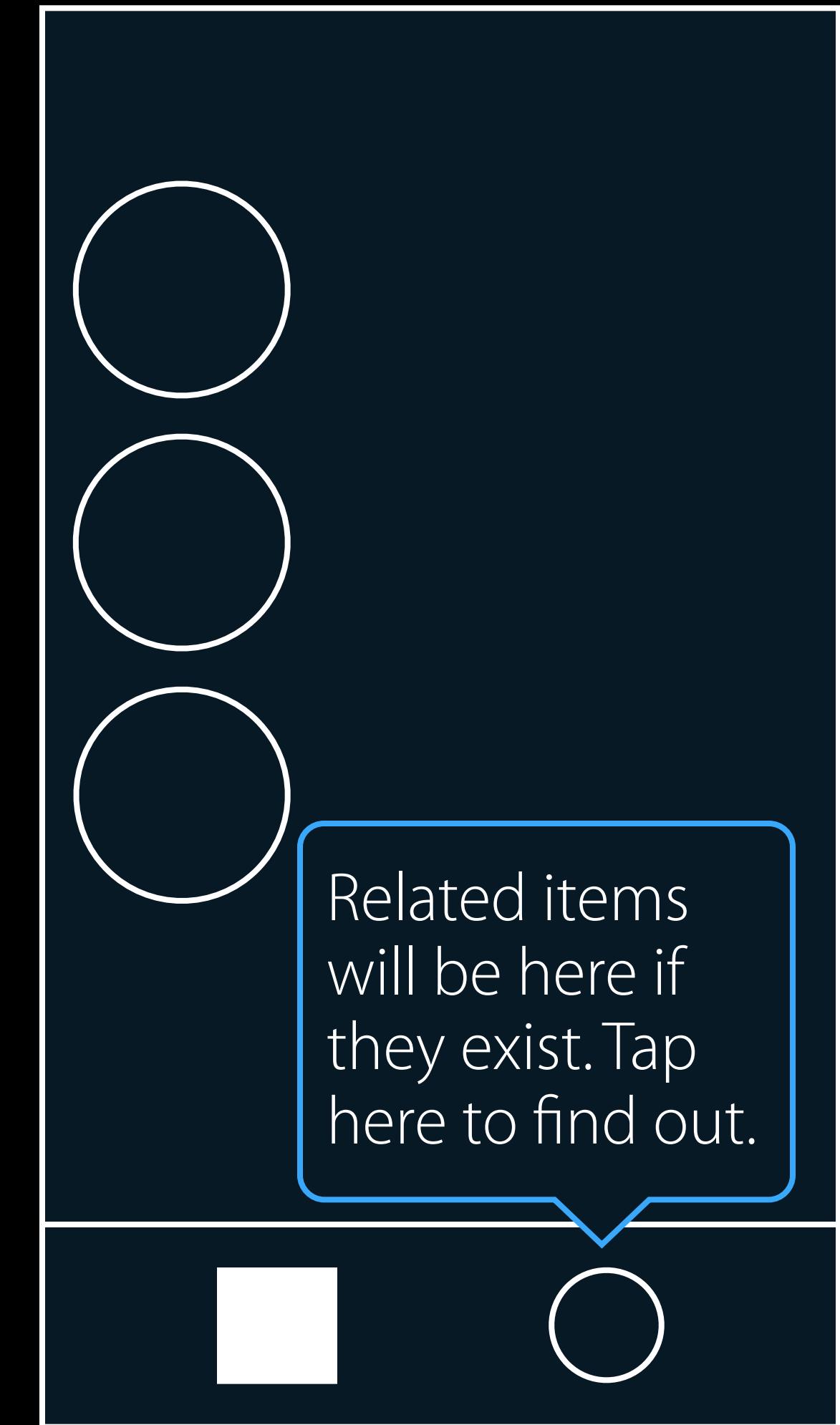
Joe Malia

Marek Bereza

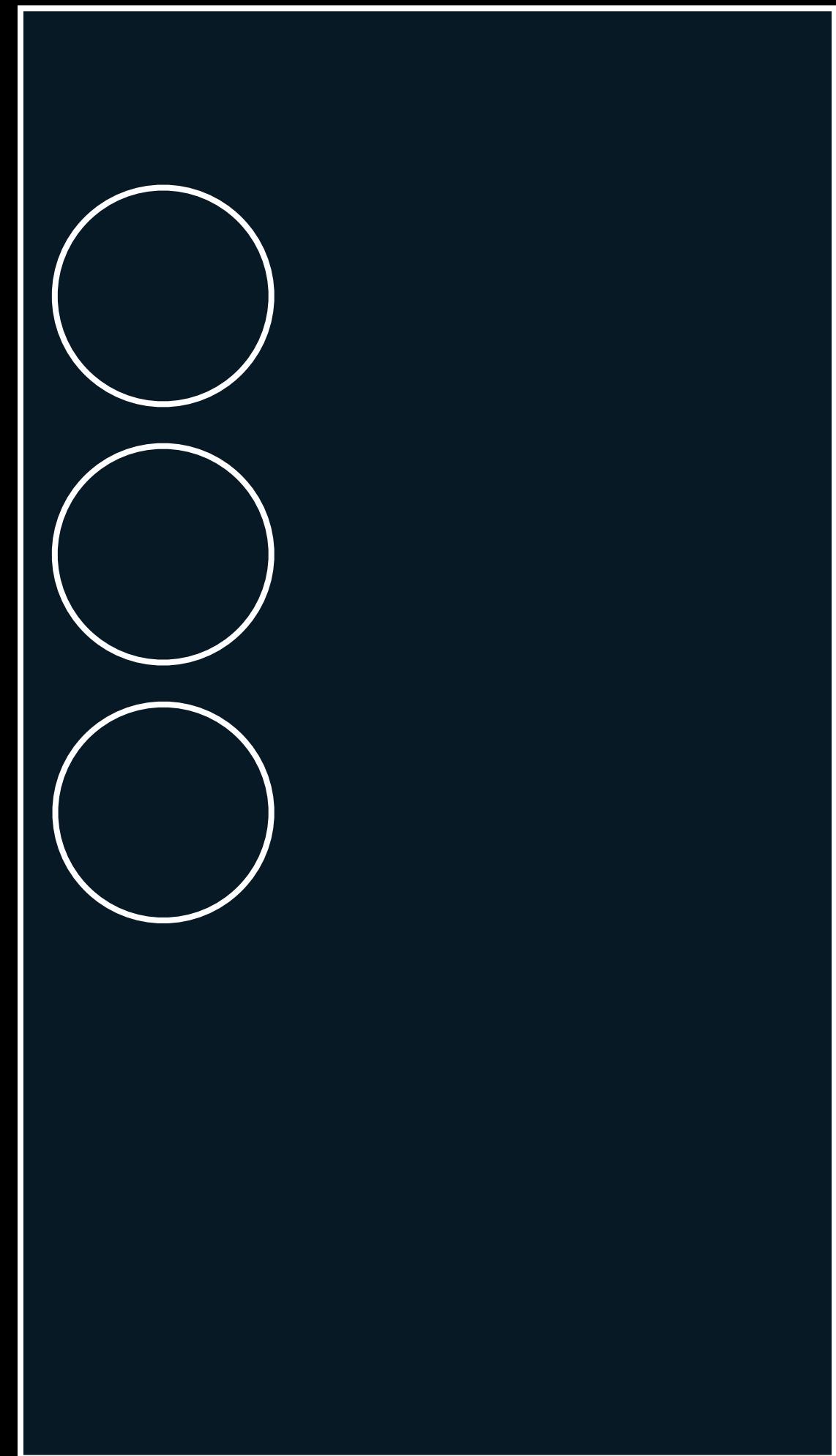


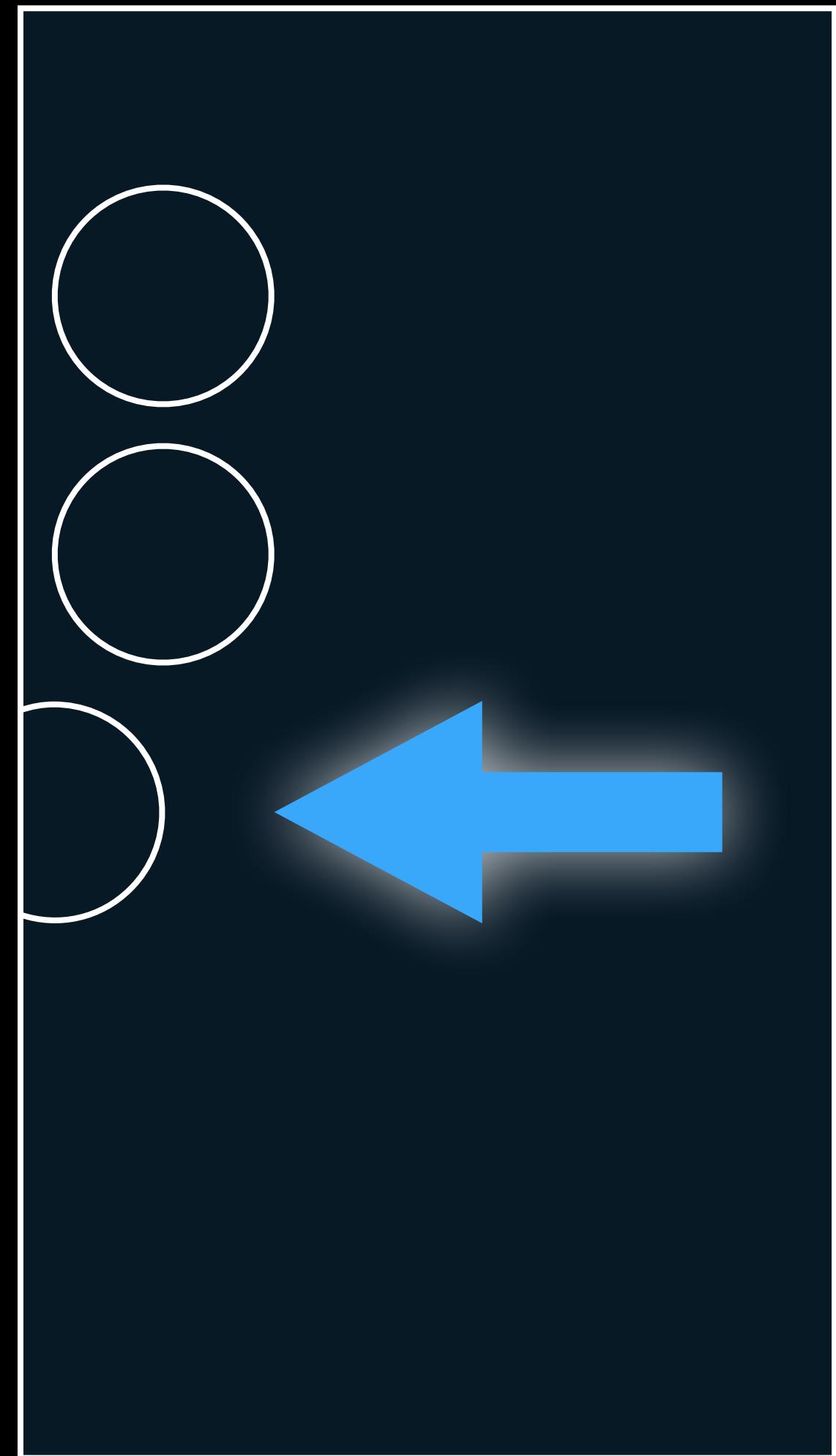


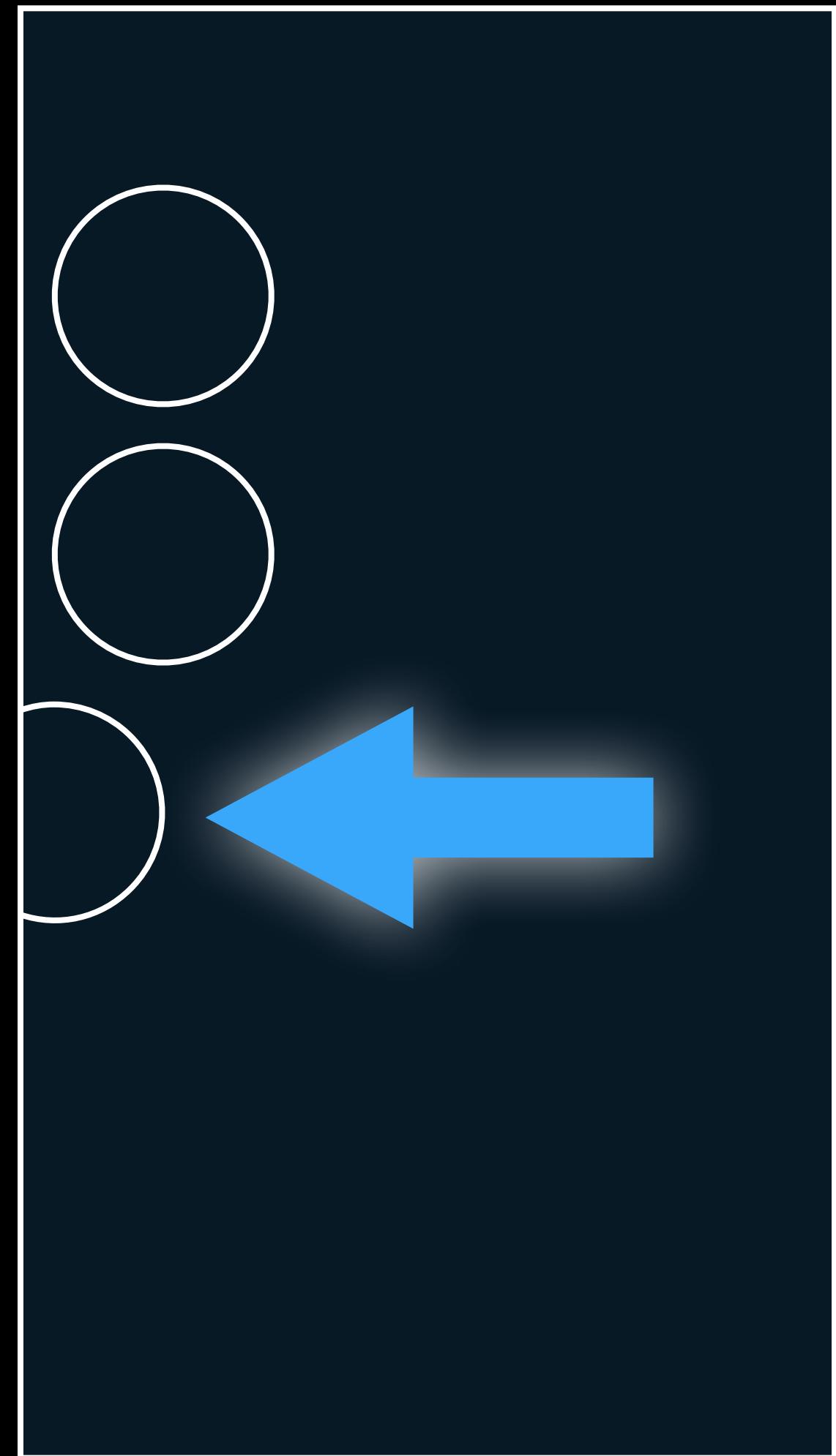




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will be here if  
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here to find out.

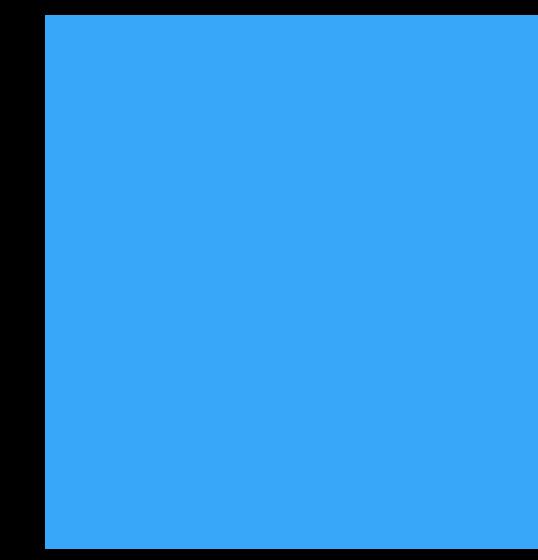
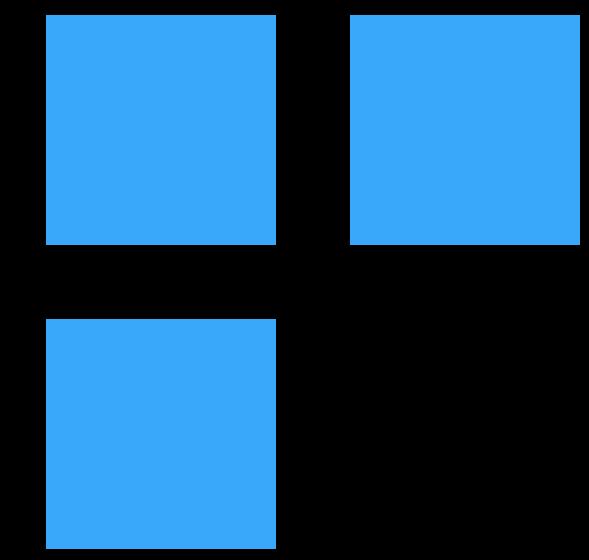


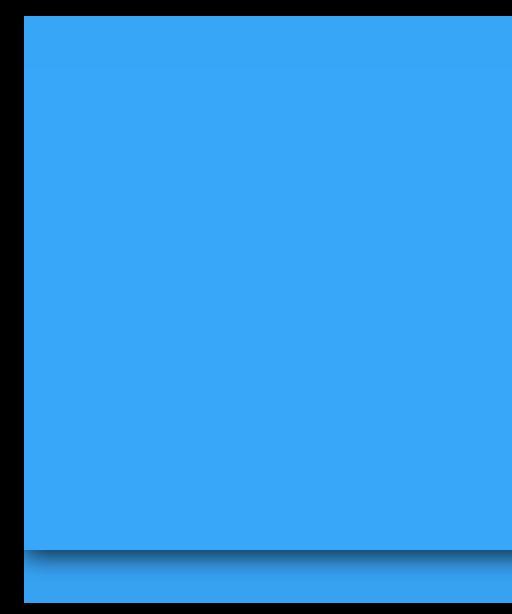
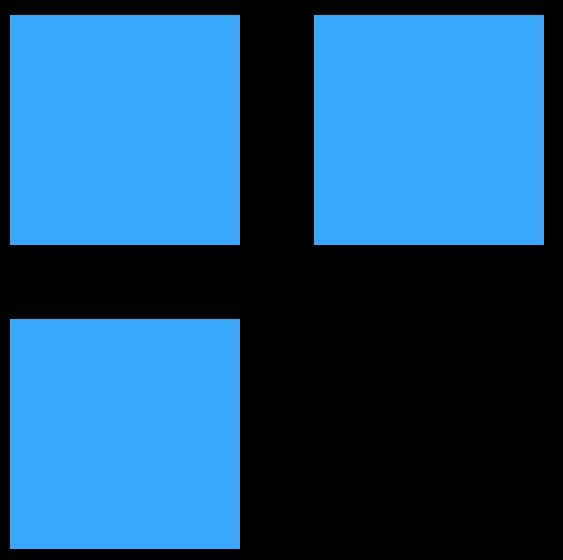












# Who Are We?

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Team of inventors, designers, prototypers

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Team of inventors, designers, prototypers

Explore new interfaces across all of Apple's products

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Team of inventors, designers, prototypers

Explore new interfaces across all of Apple's products

We make animated and interactive prototypes

# The Plan

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Ease in to the what, why, and how of animation

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Ease in to the what, why, and how of animation

Communicate an idea by animating it

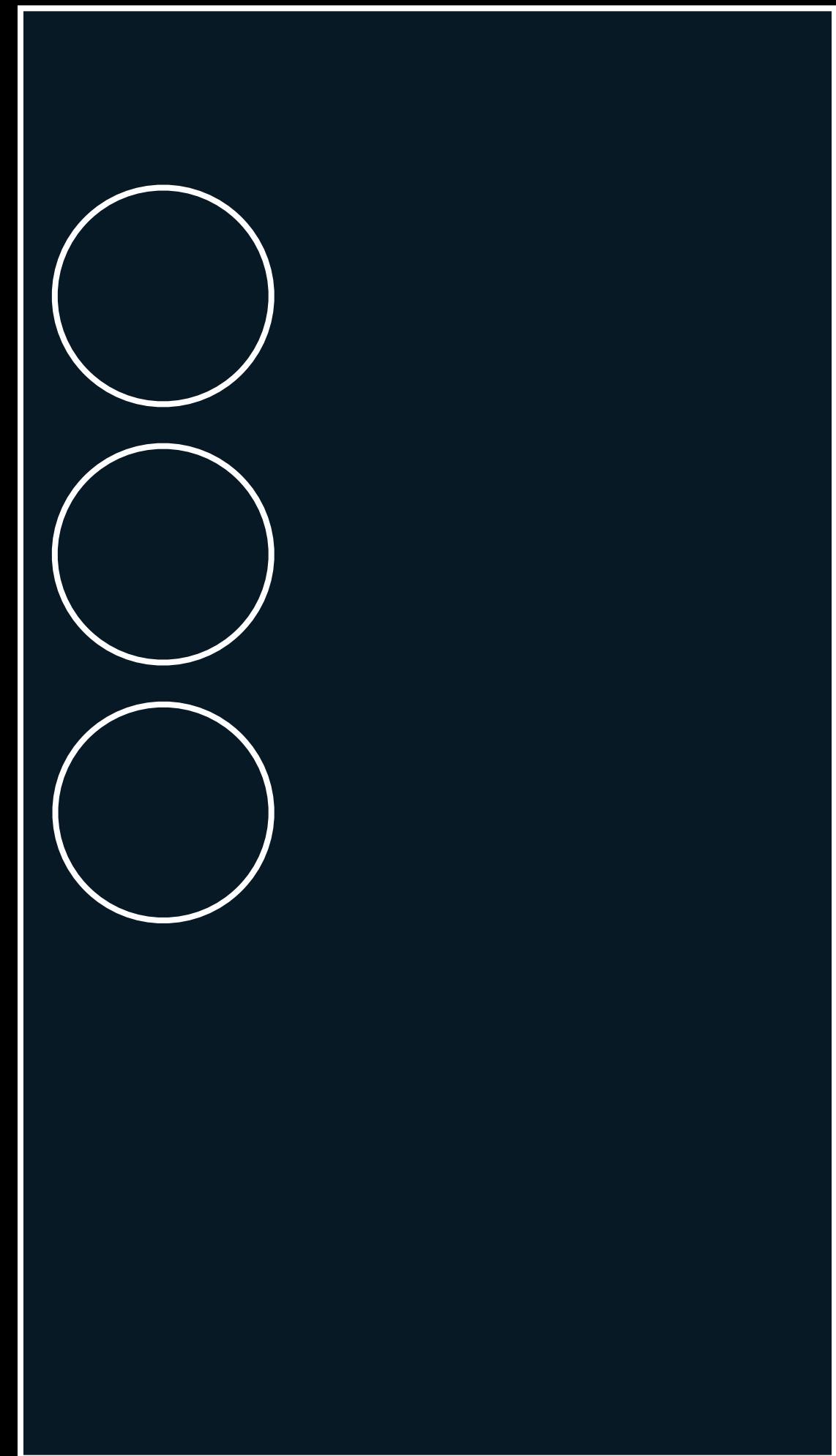
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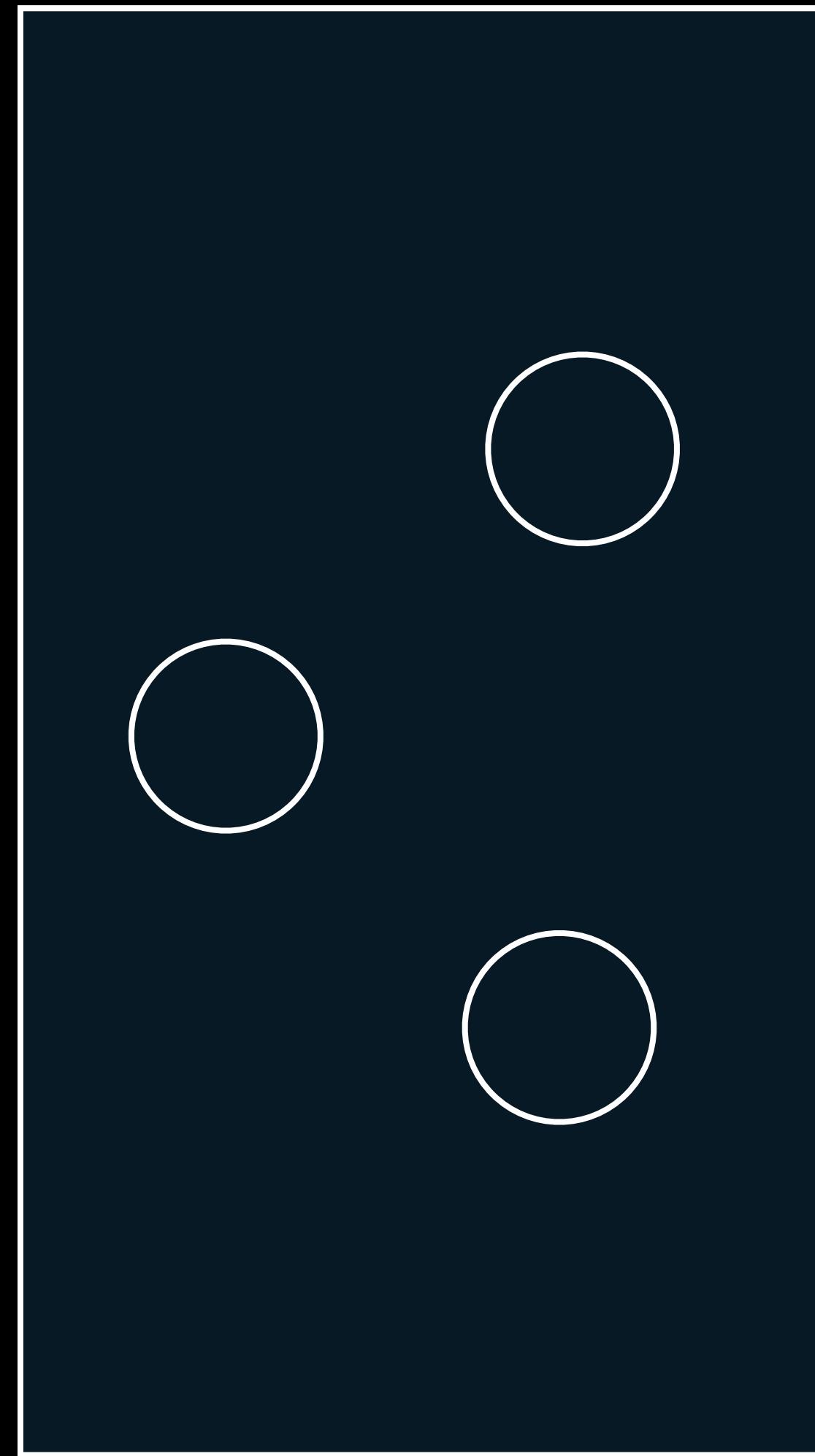
Ease in to the what, why, and how of animation

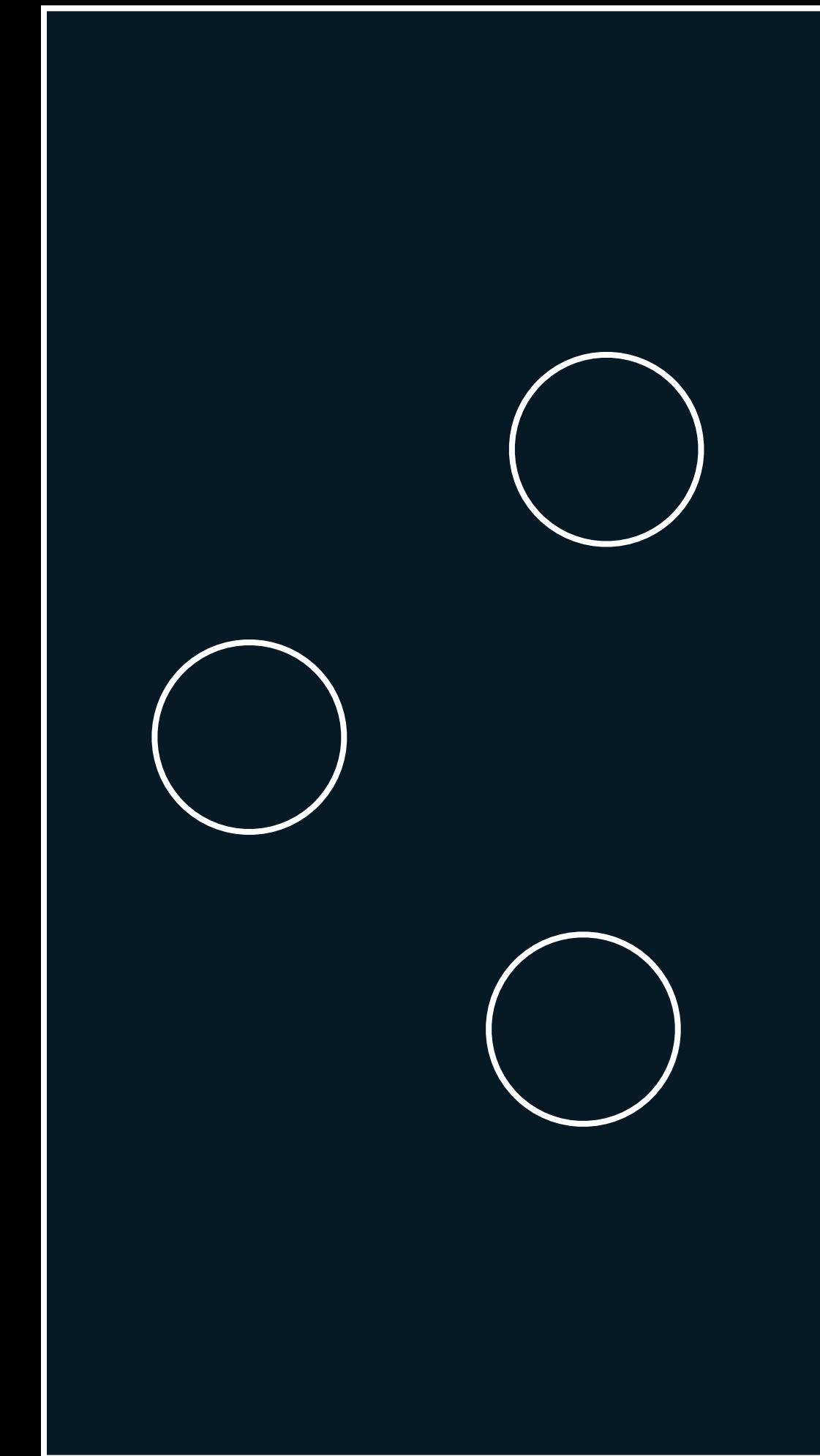
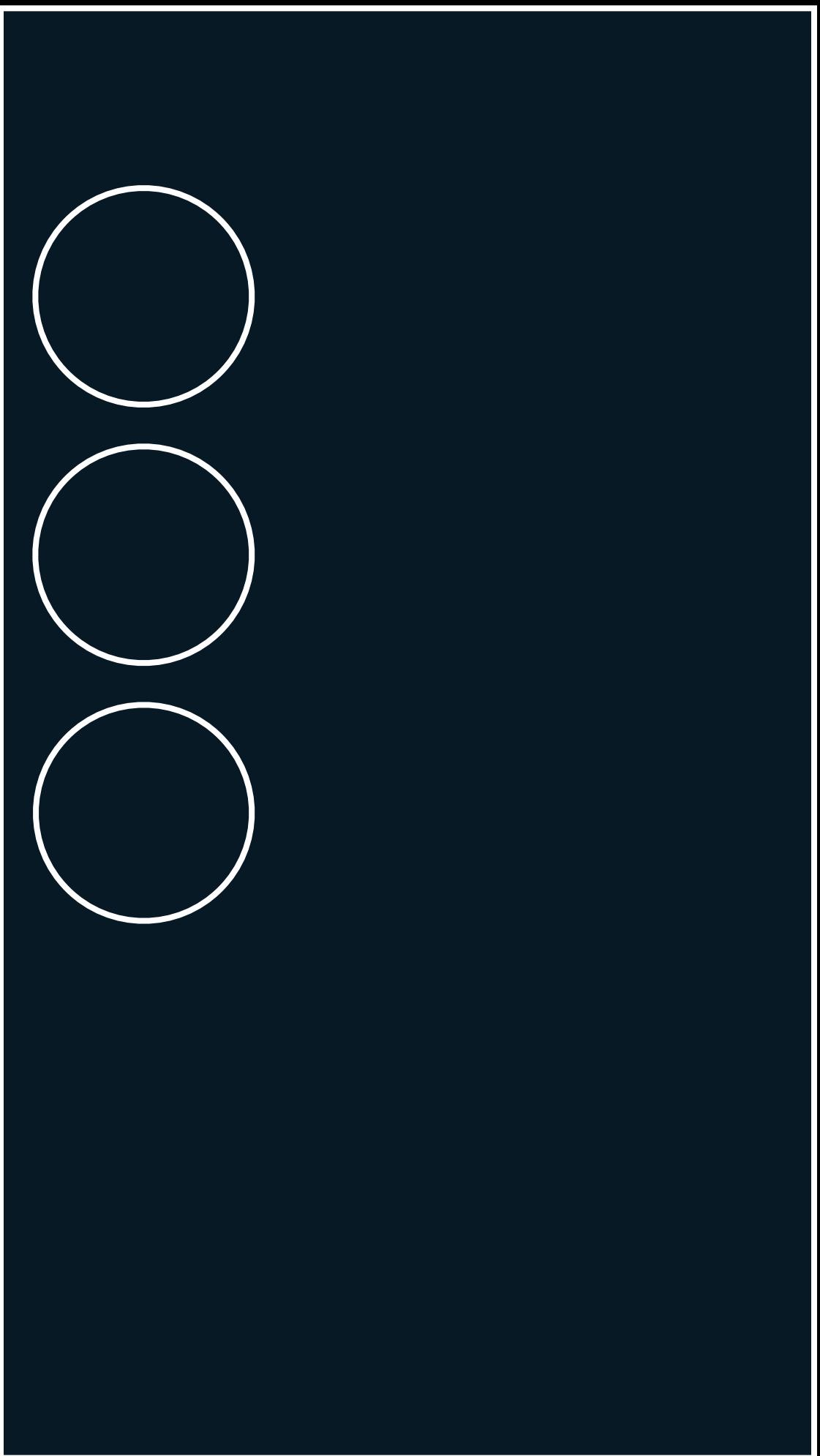
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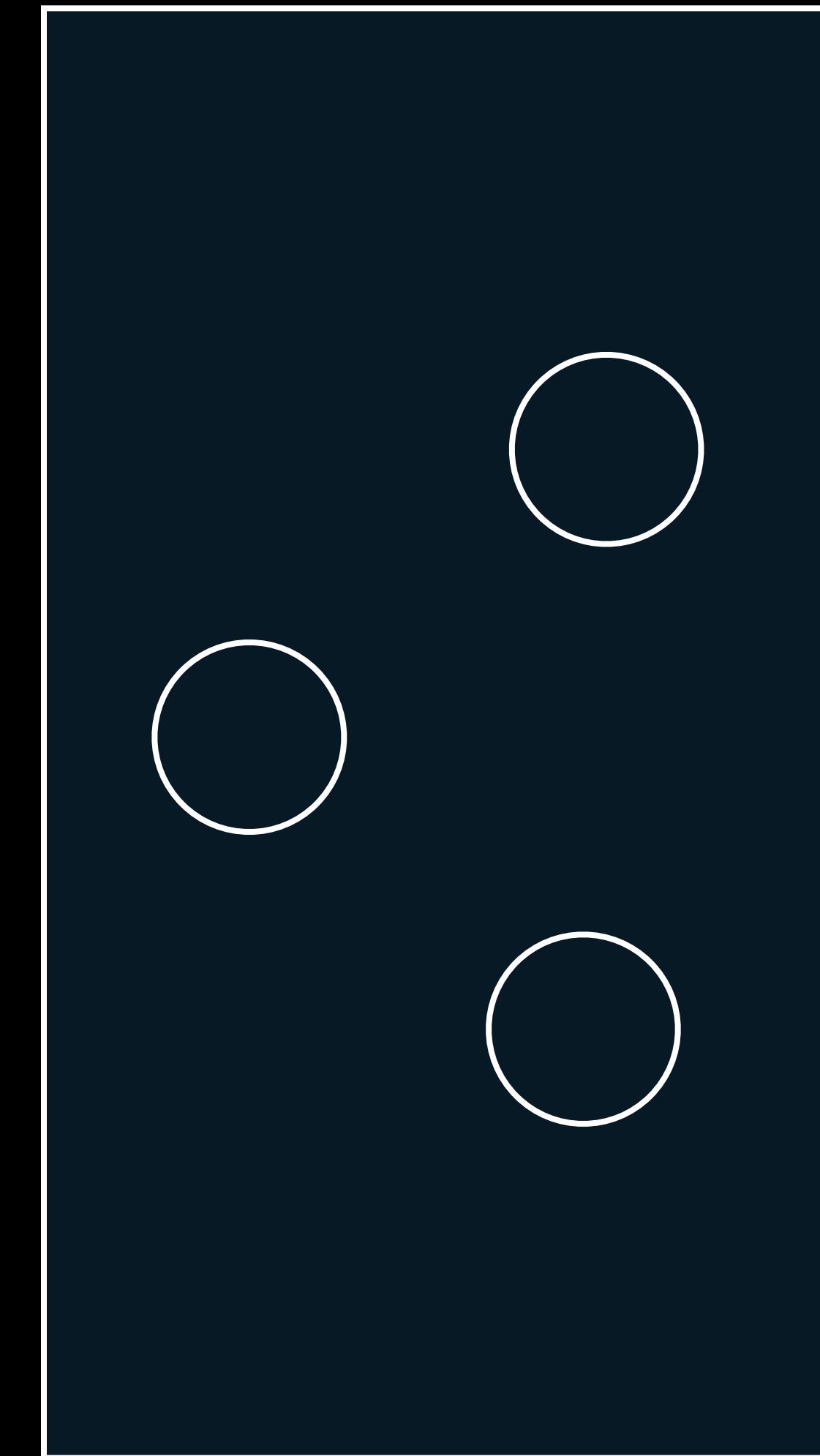
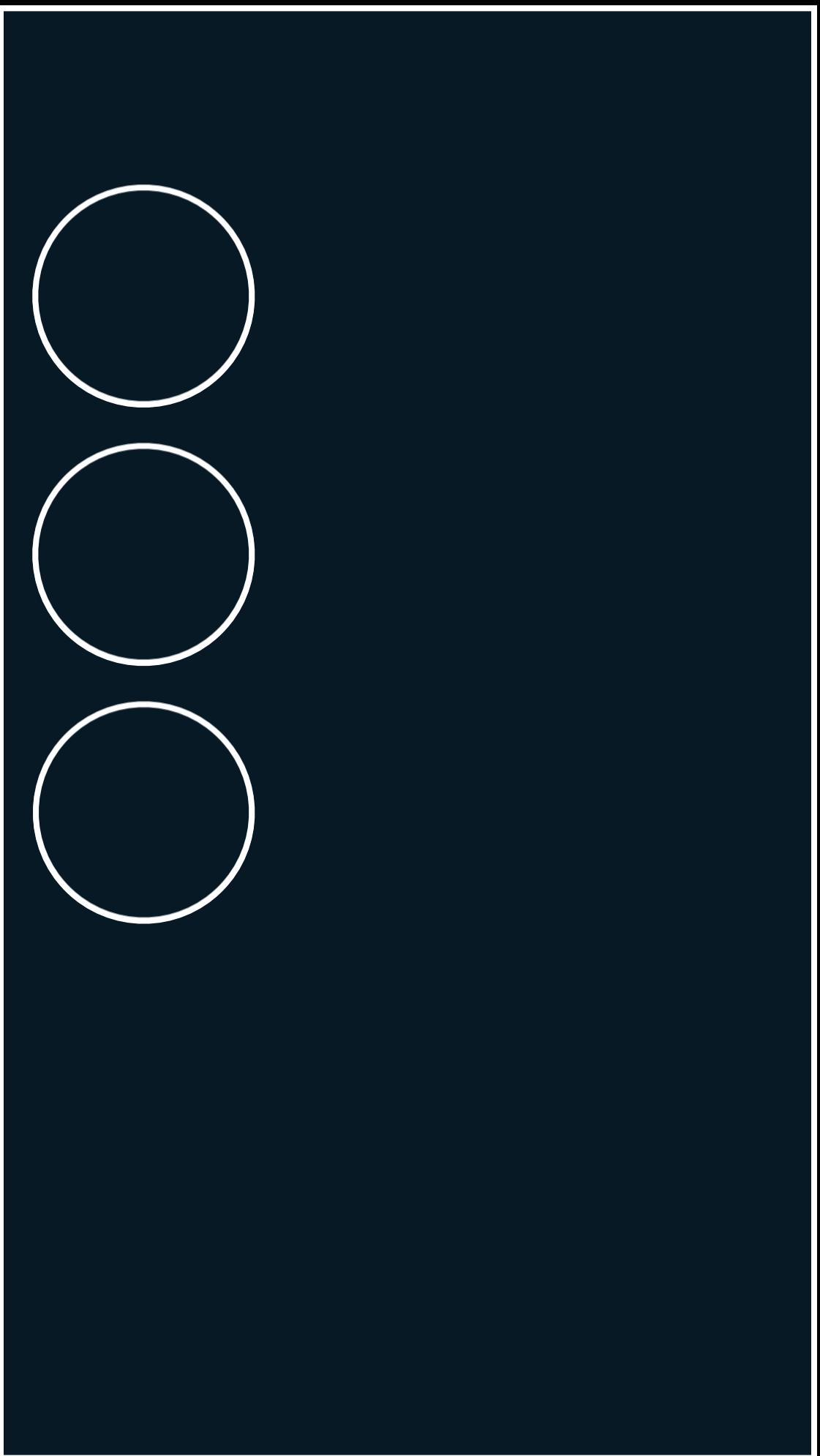
Learn how animation and interaction are intertwined

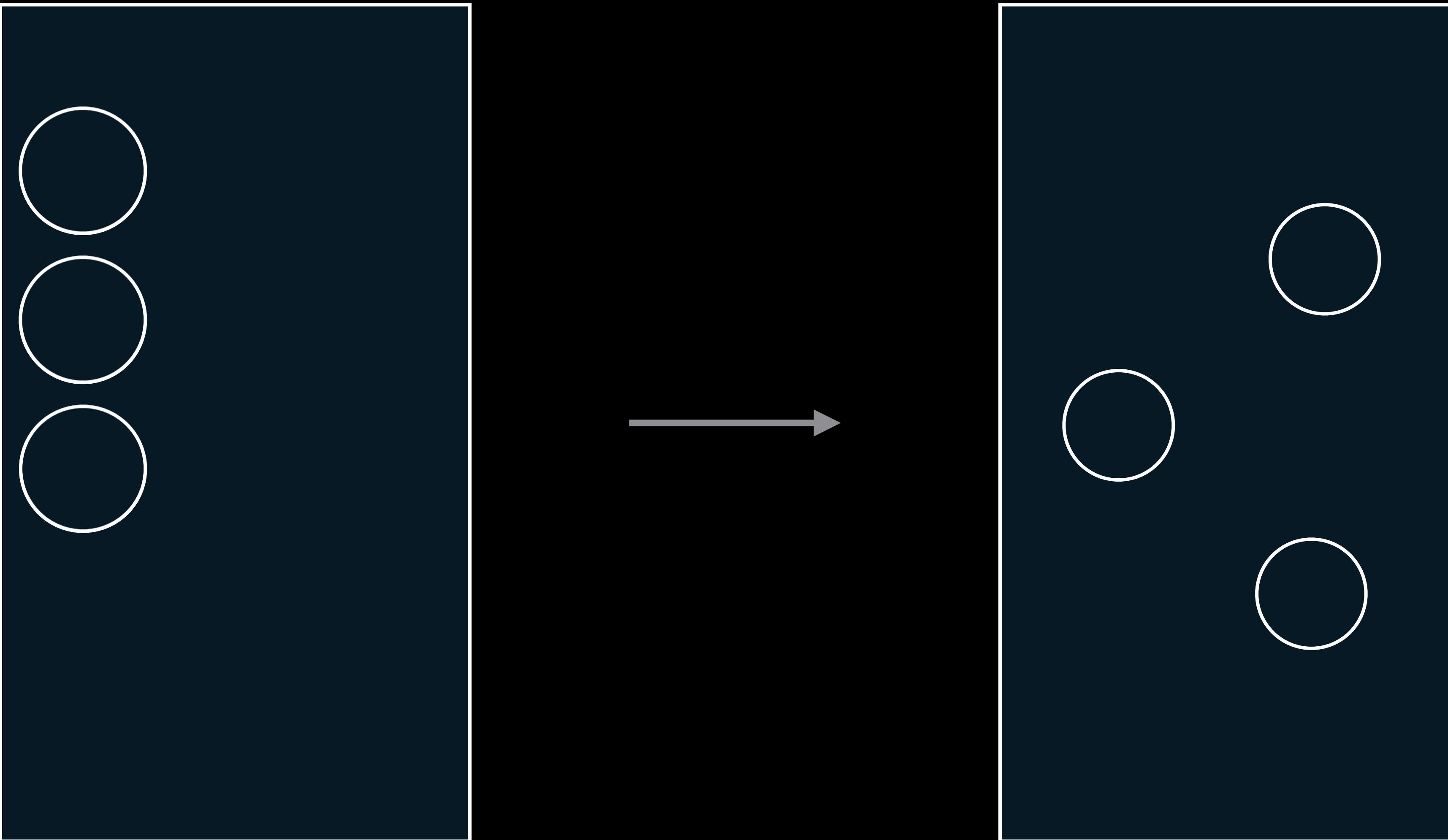
# What Is Animation?

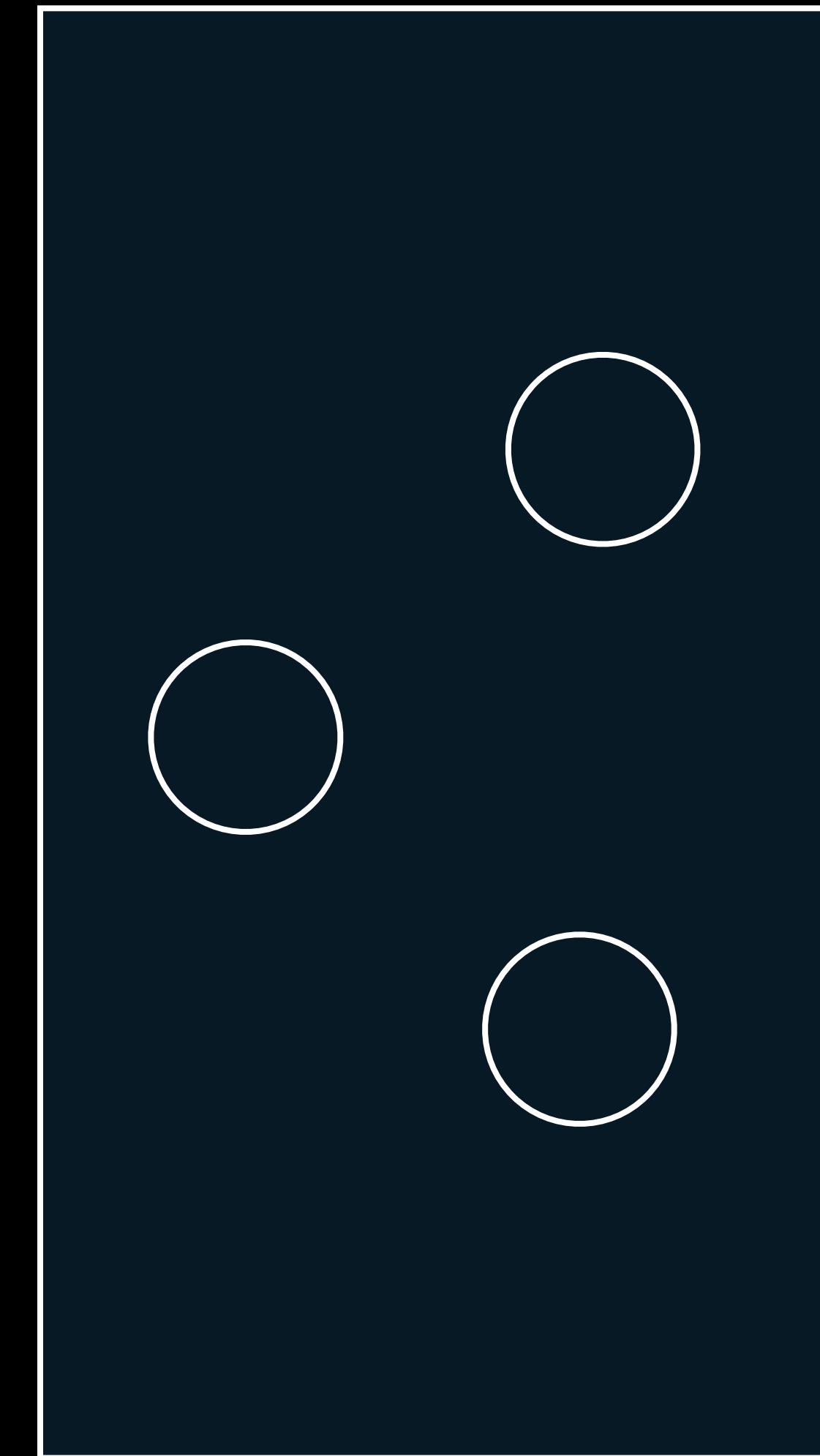
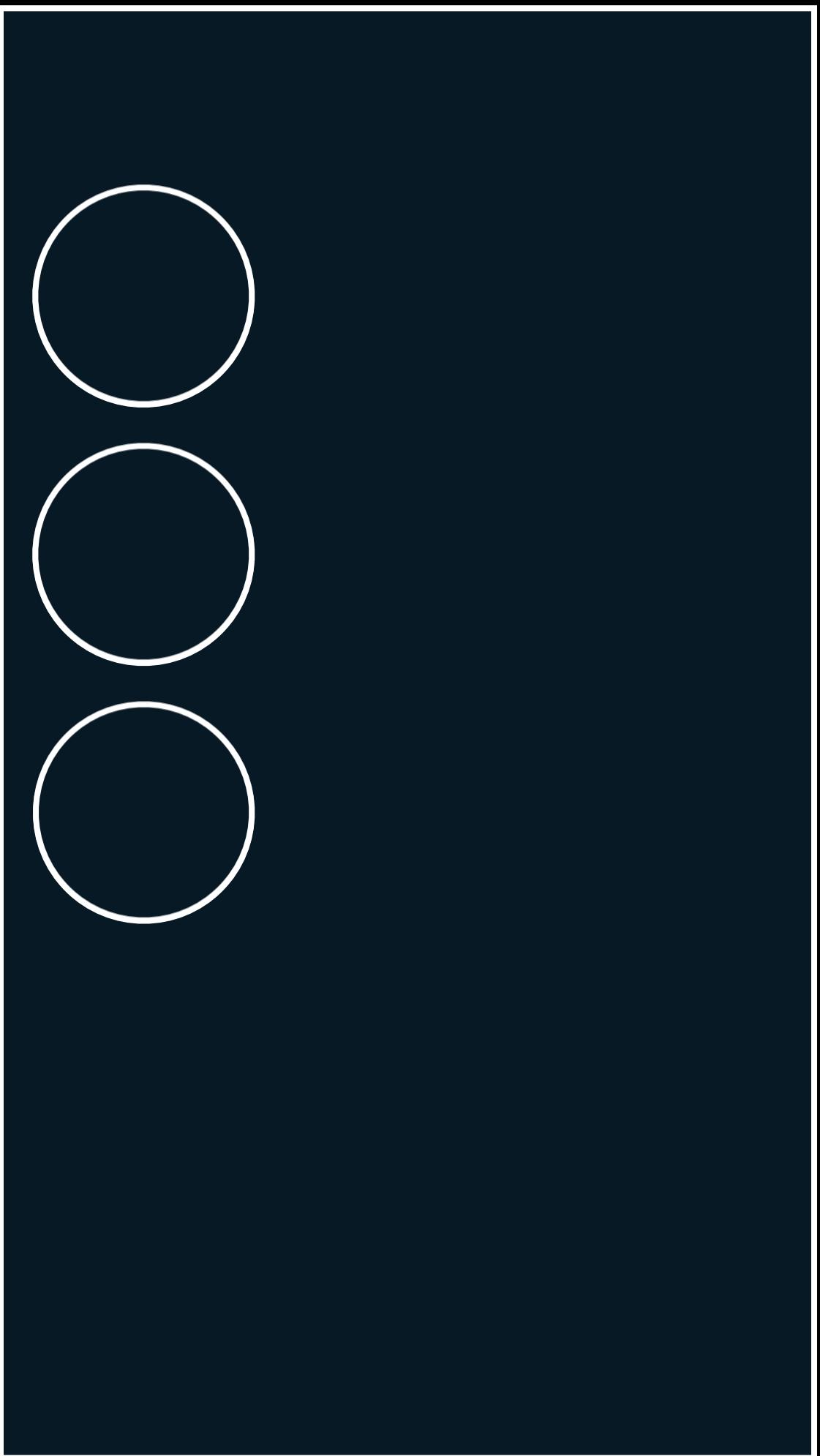


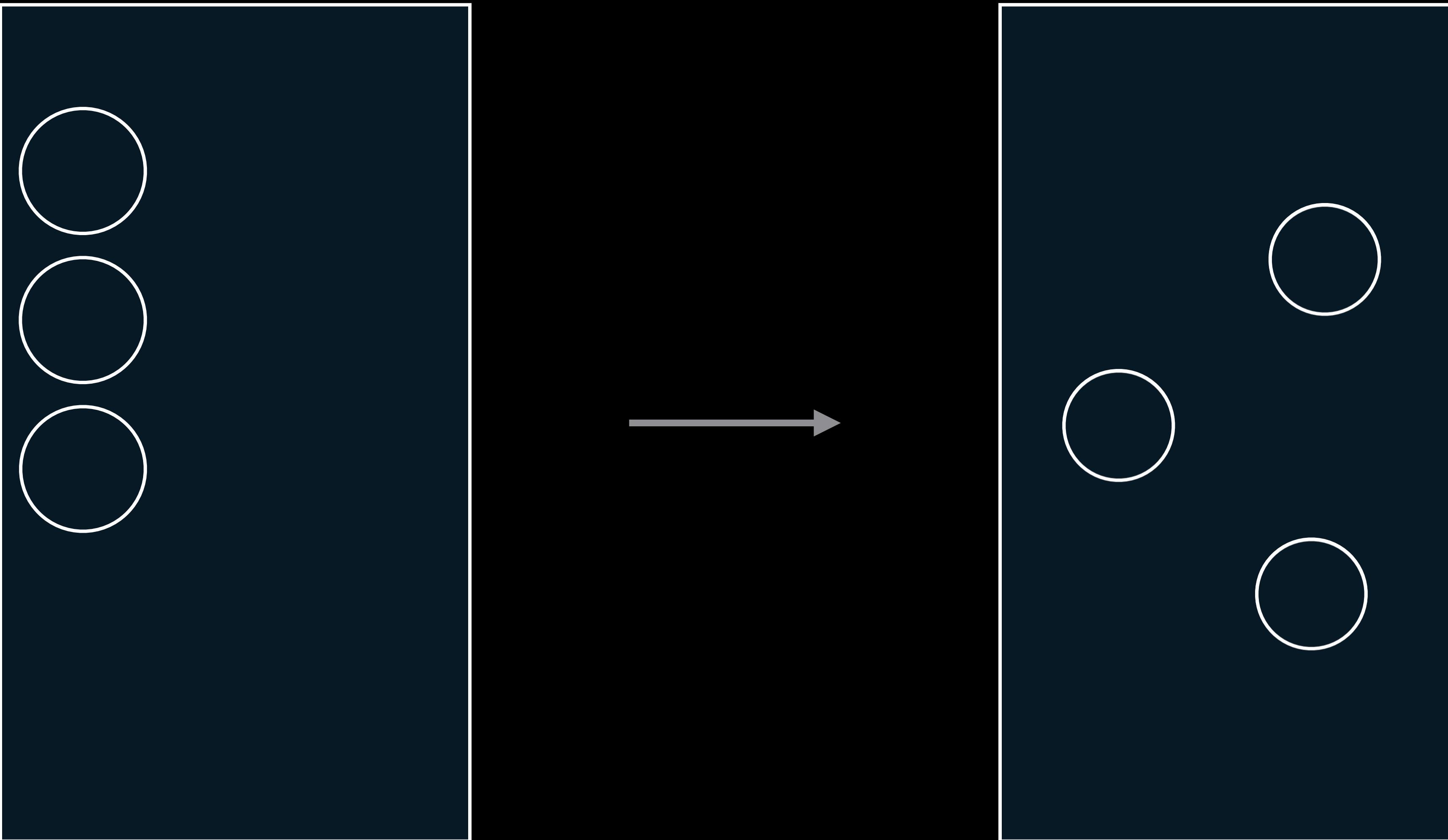












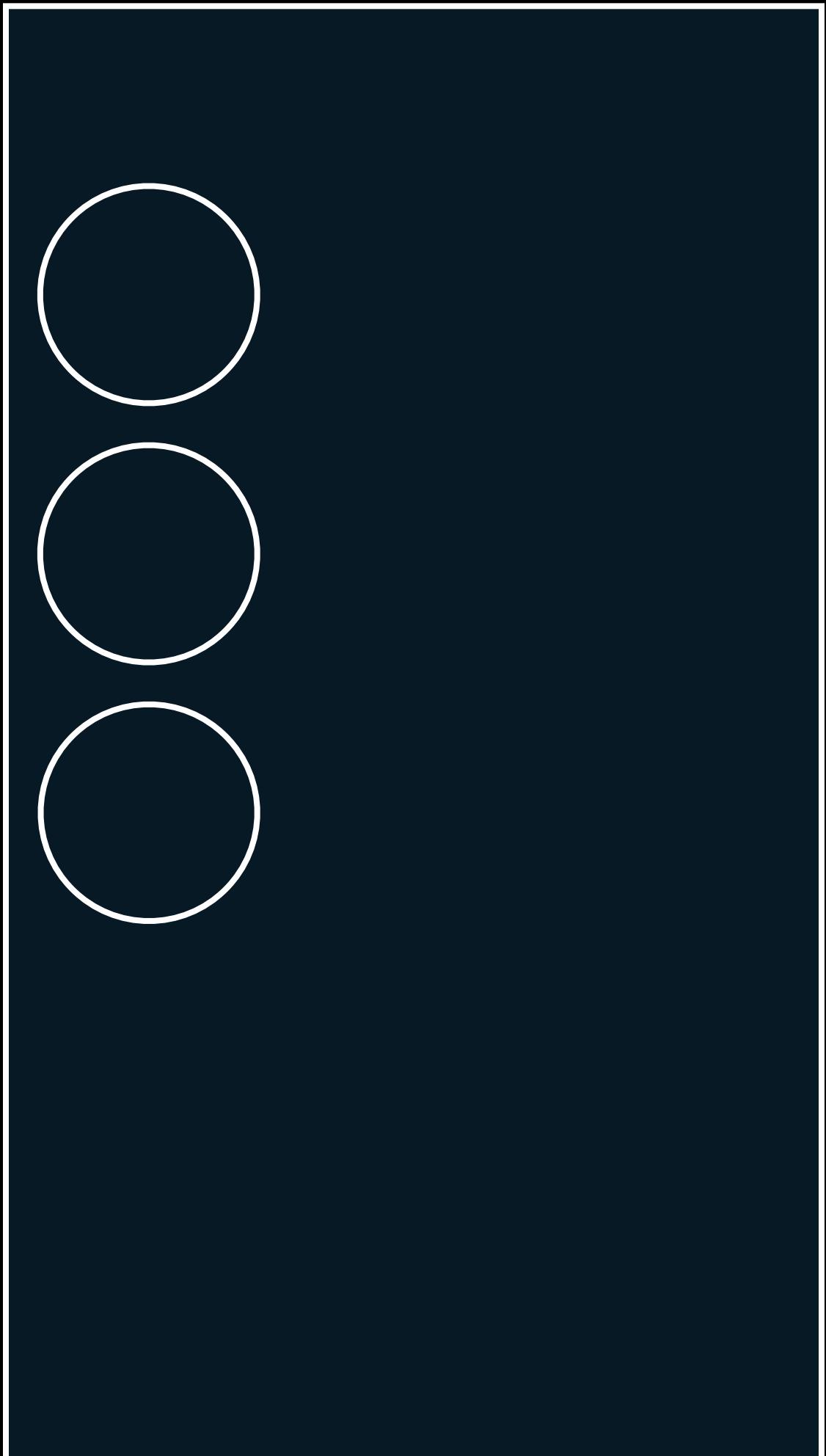
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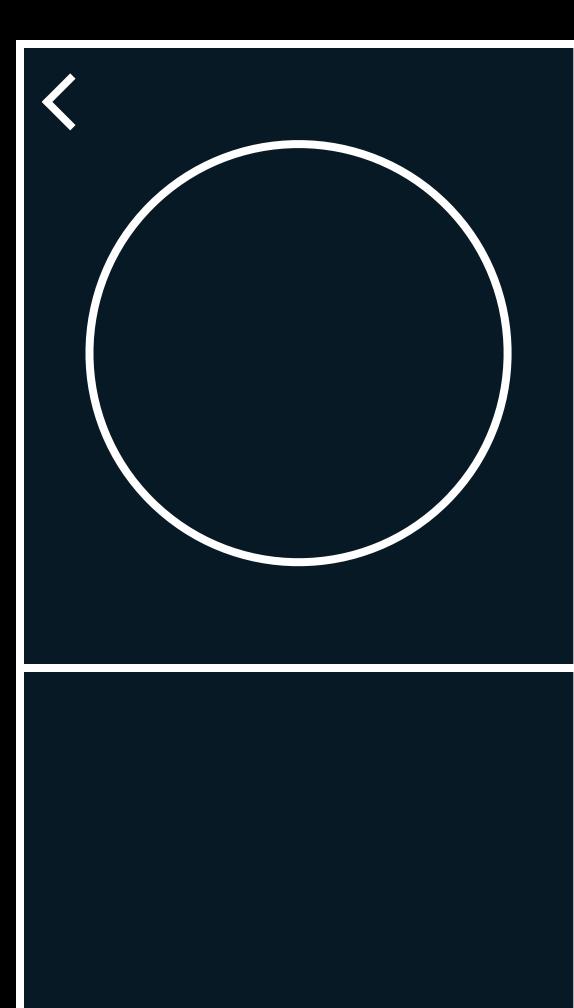
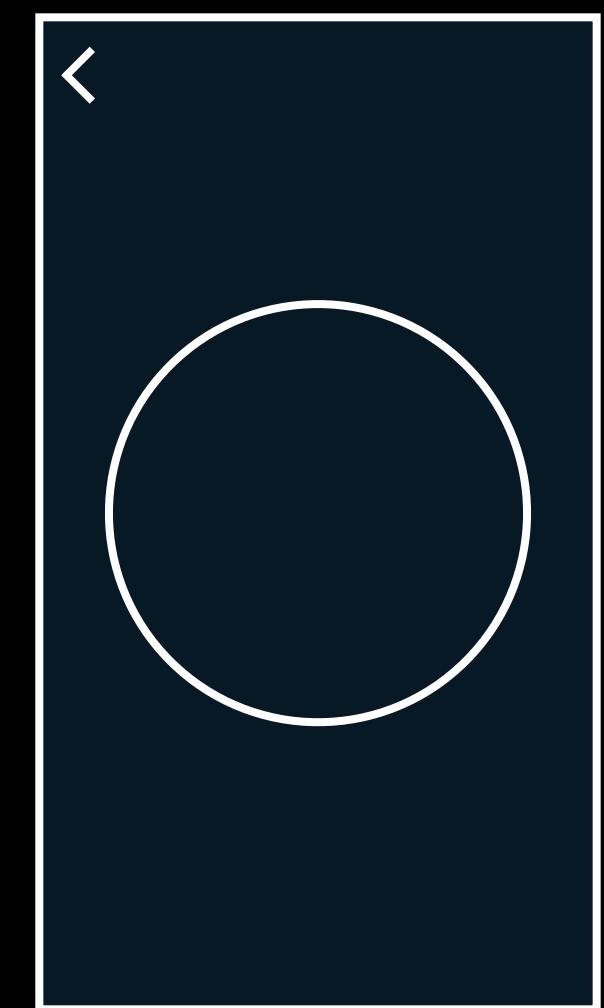
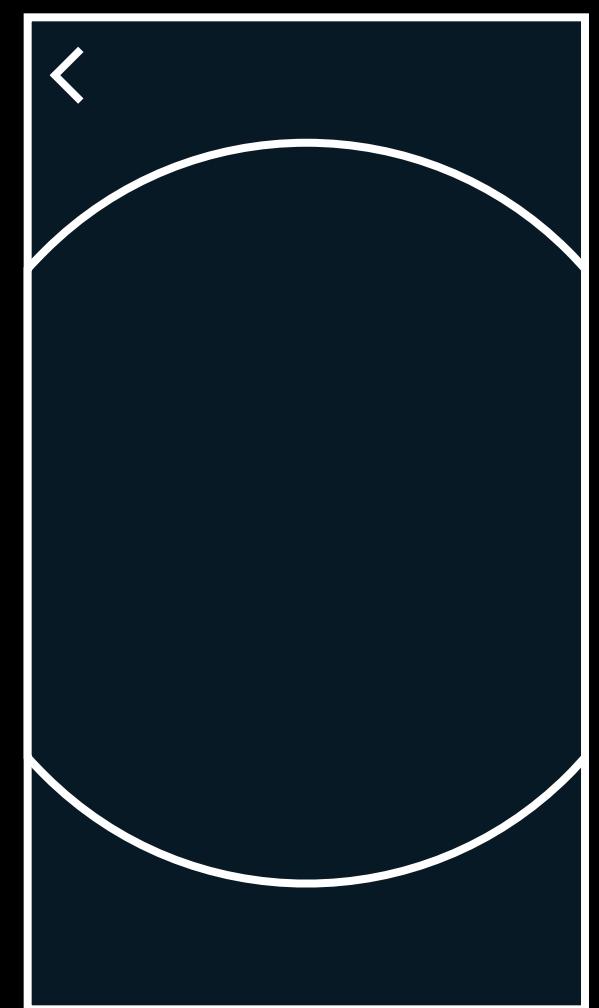
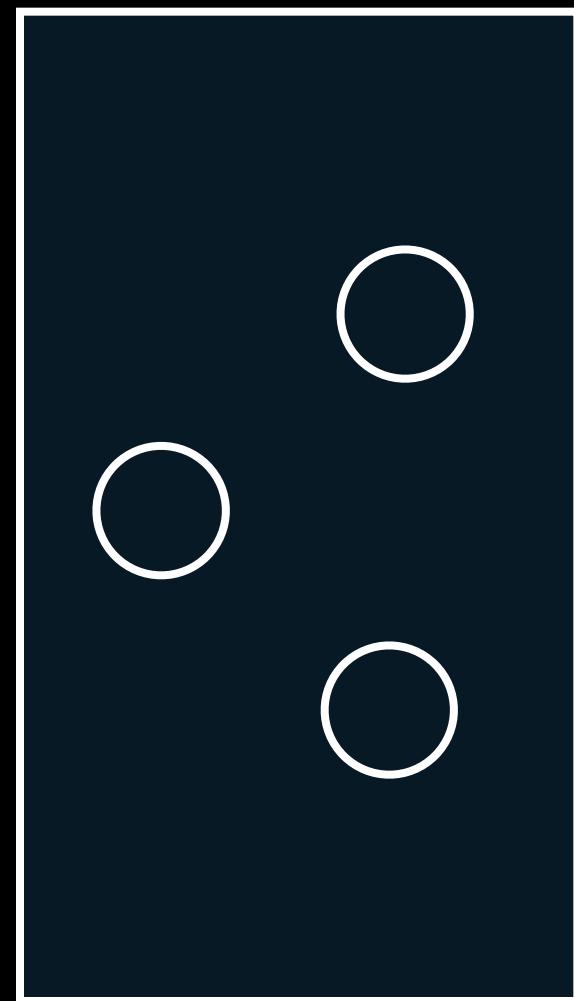
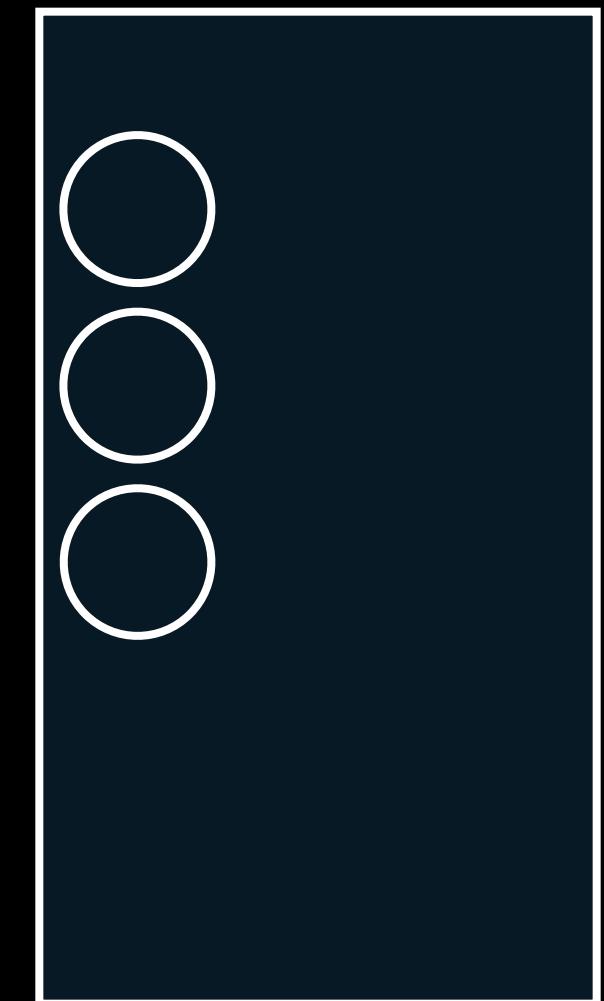
Change over time

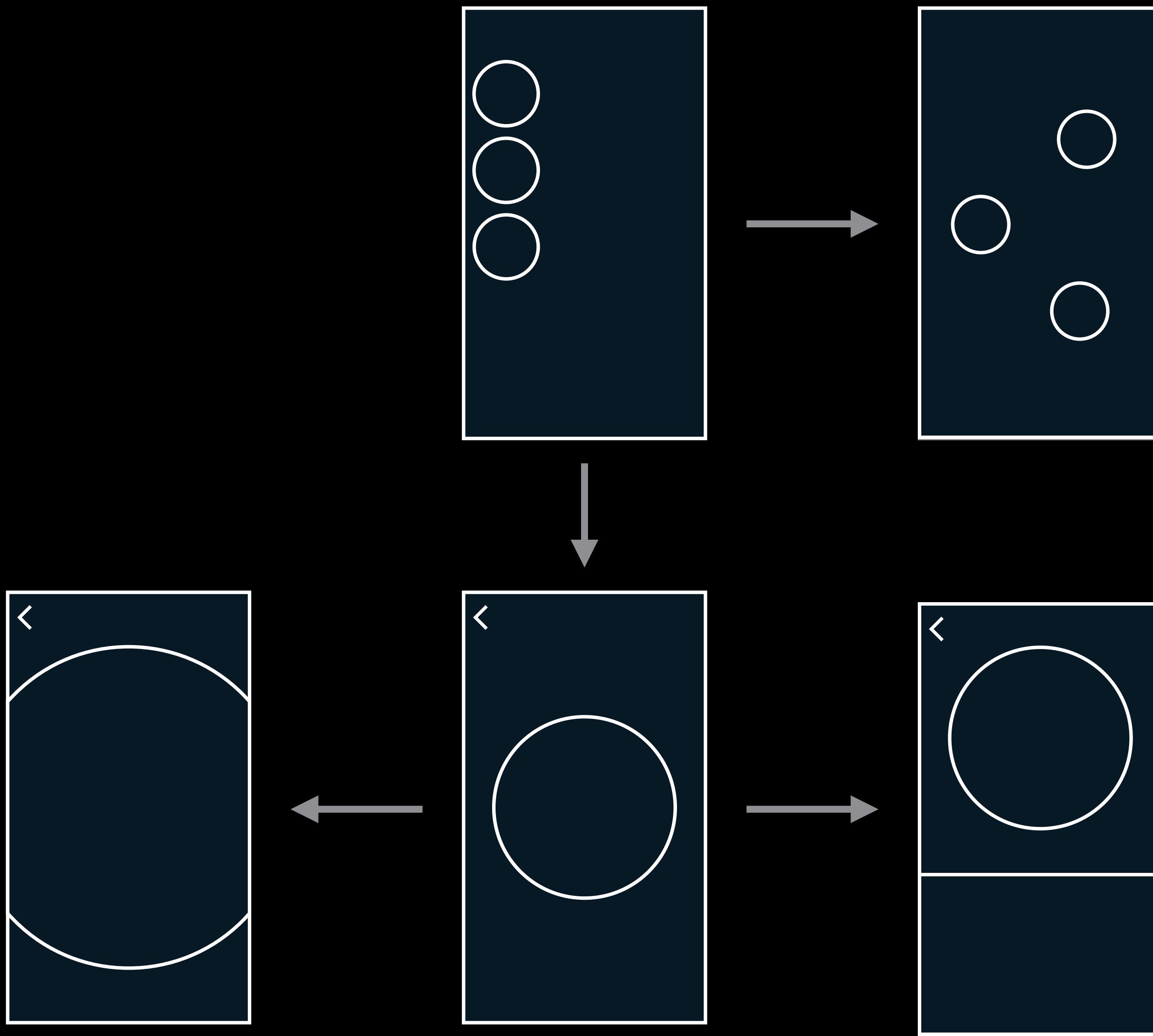
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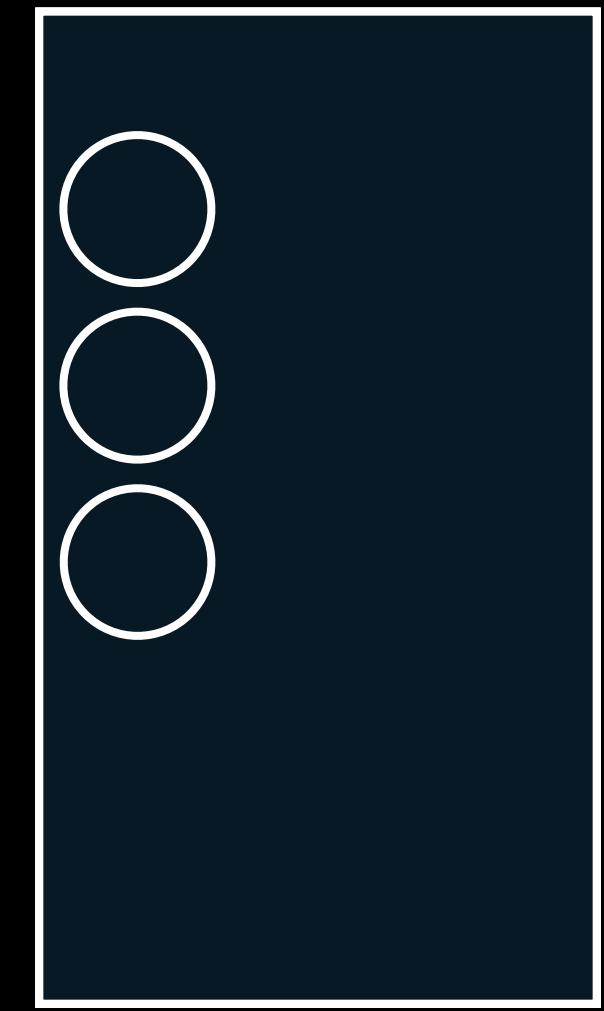
Change over time

Not a replacement for screen layout and hierarchy







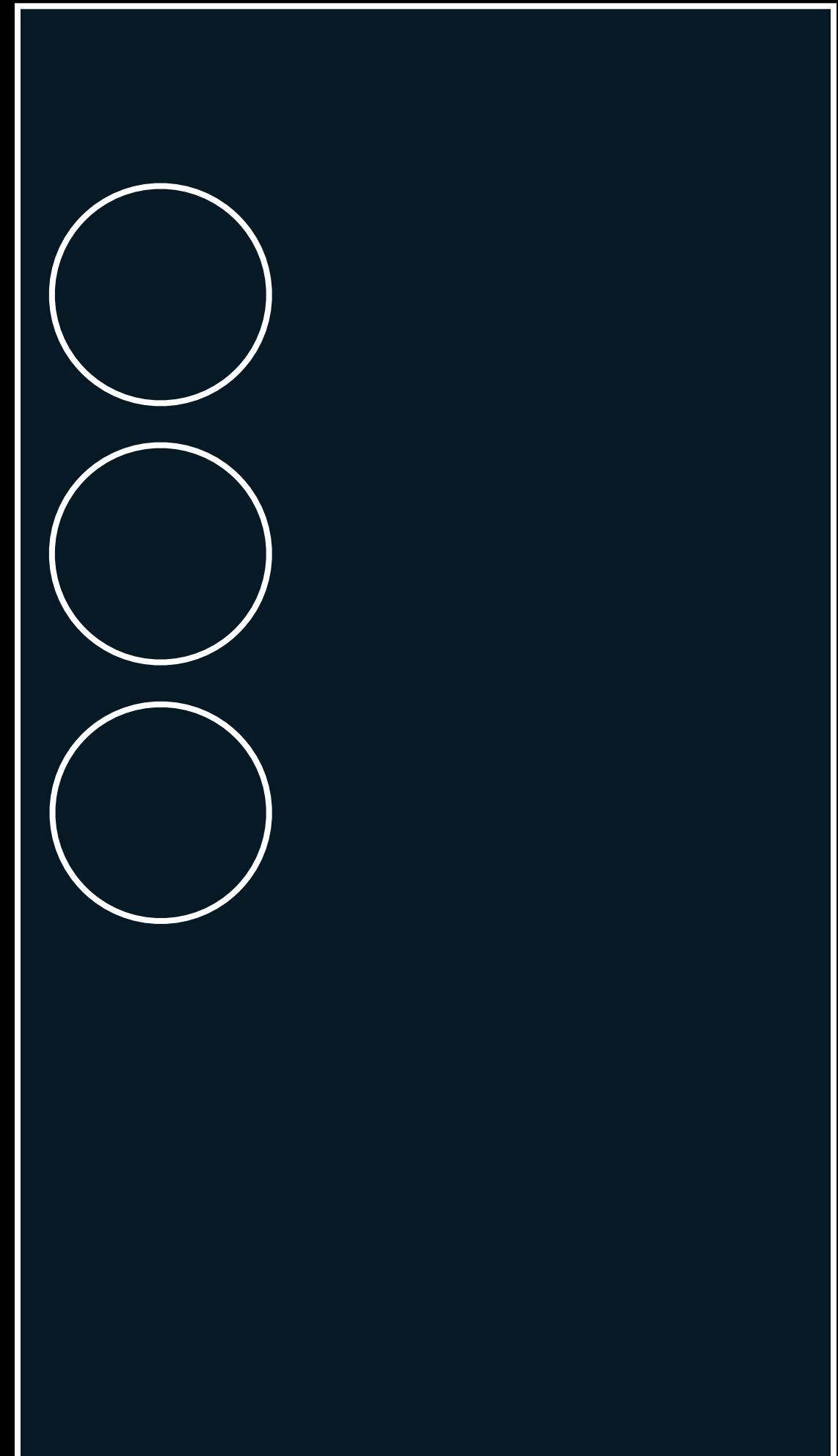


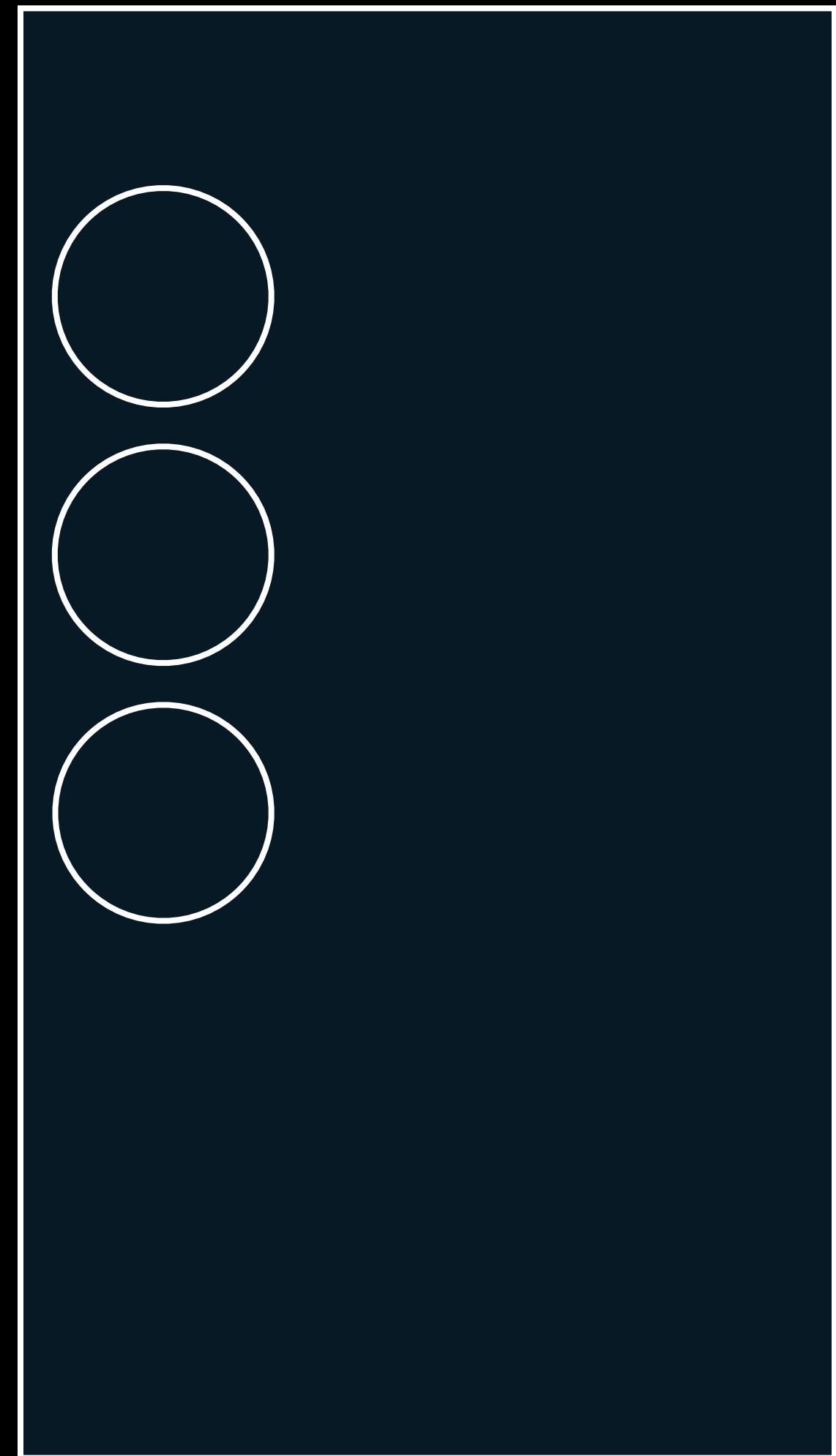
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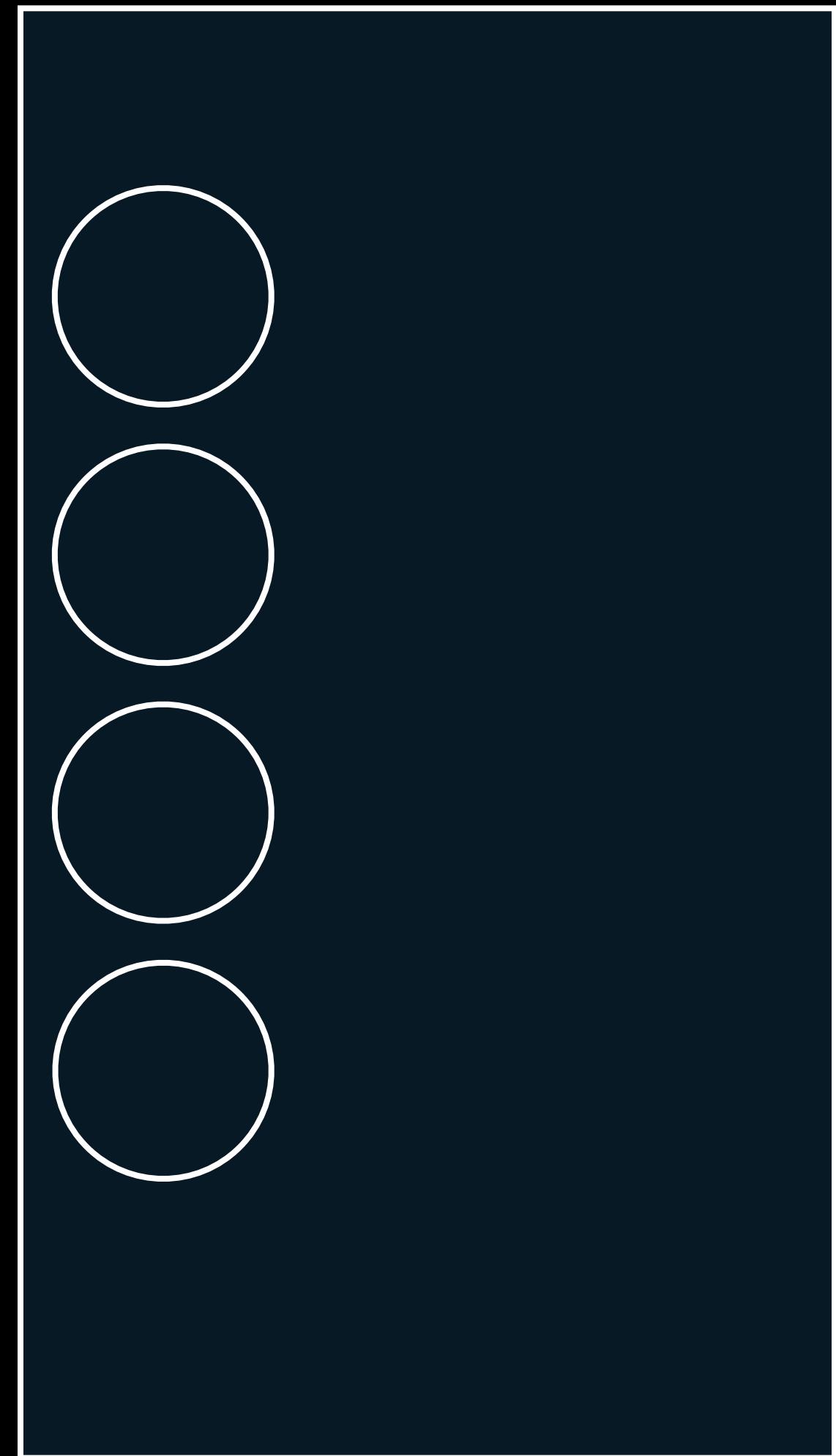
Change over time

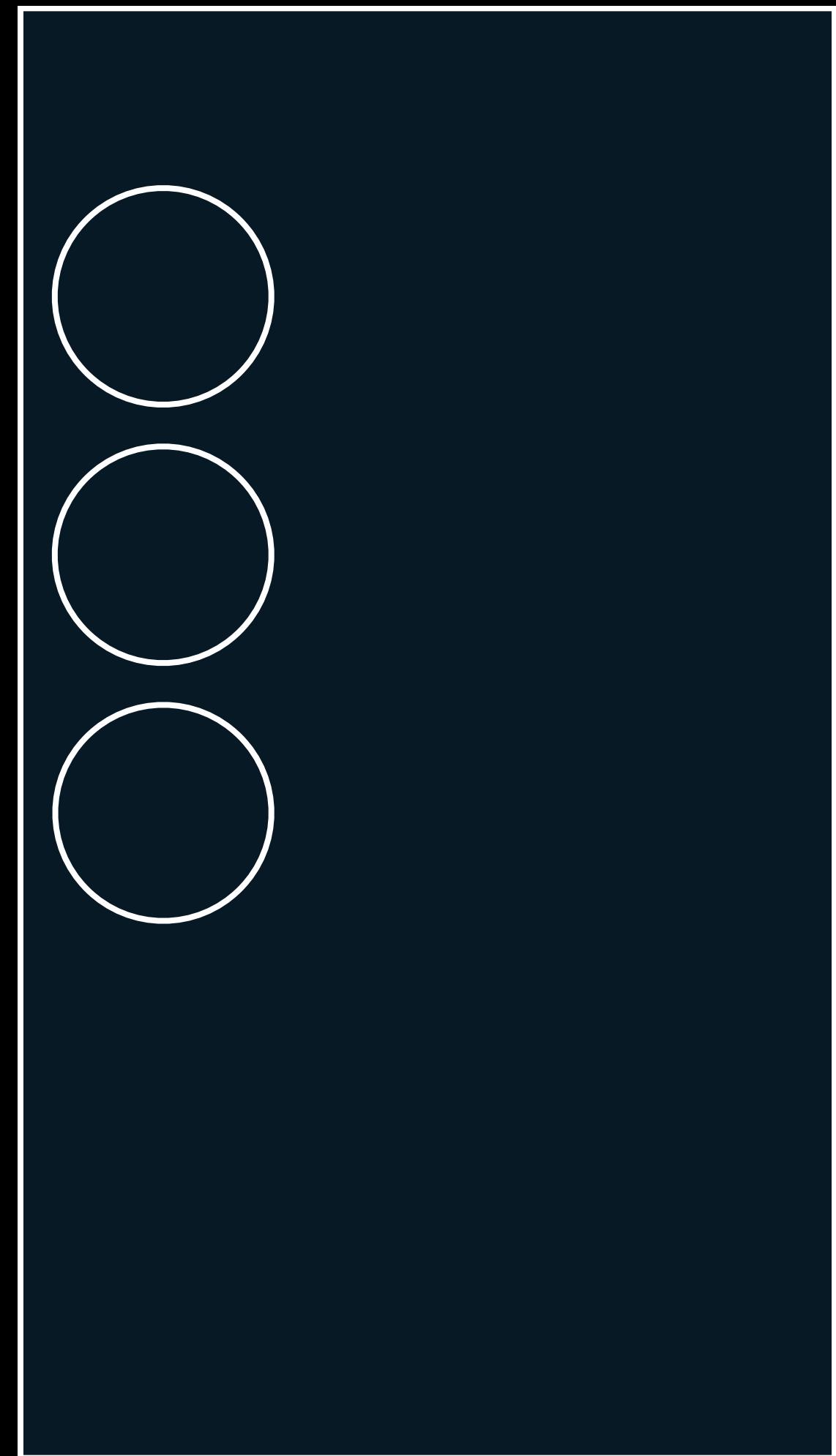
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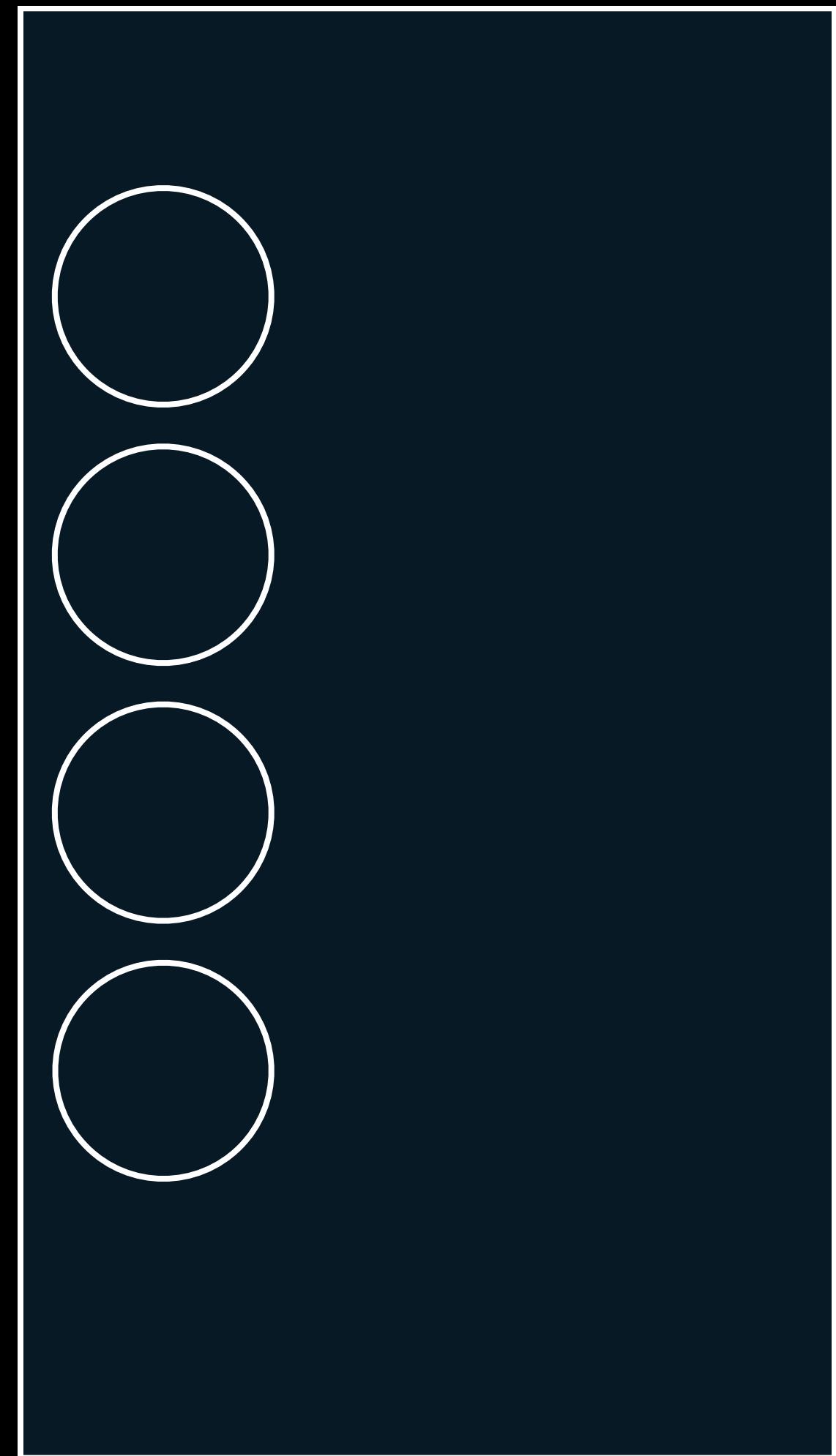
Practical—how all the bits of your app **fit together**











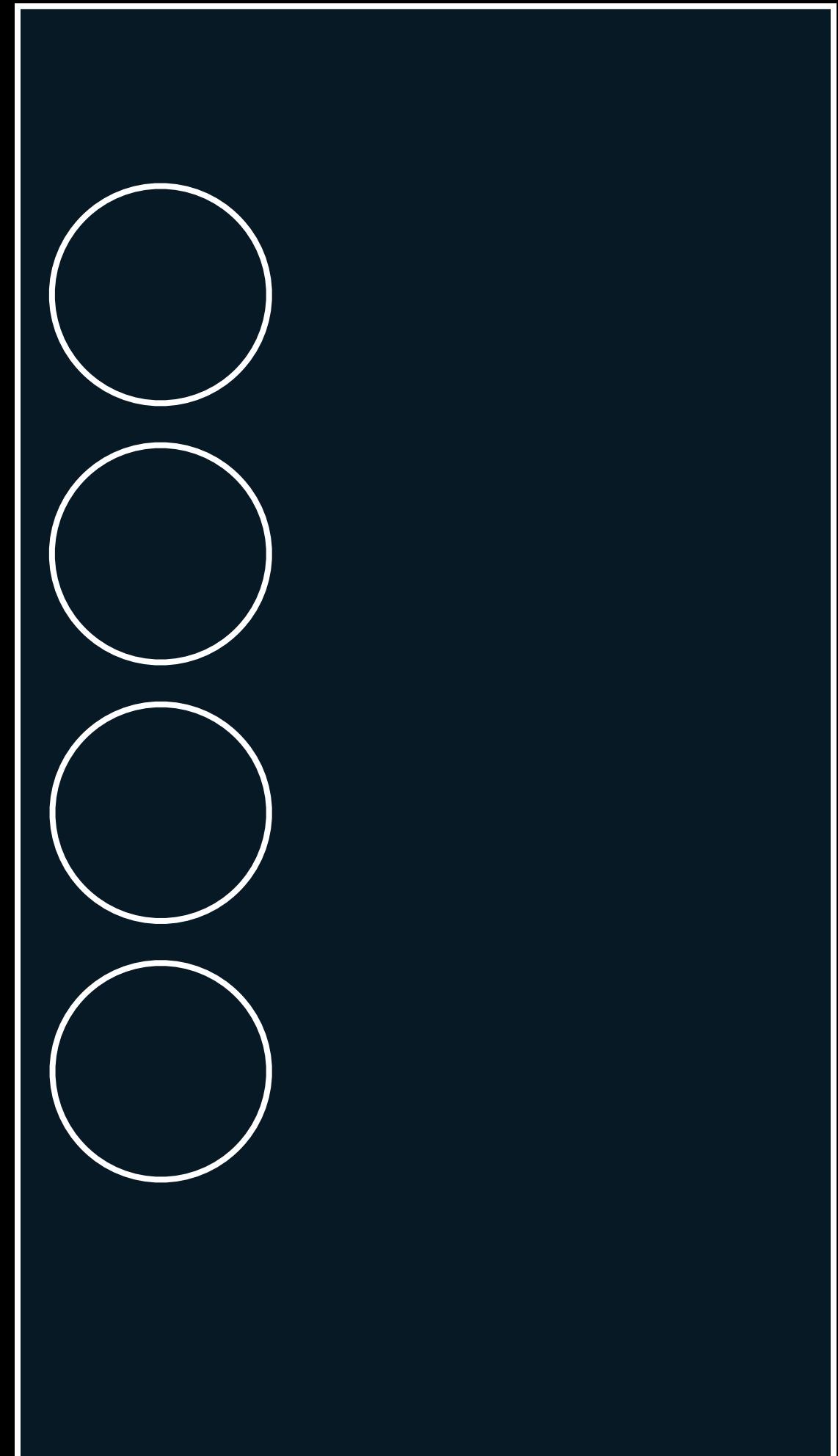
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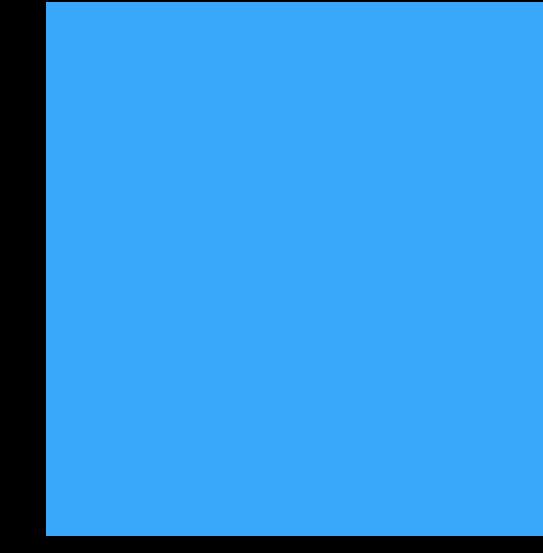
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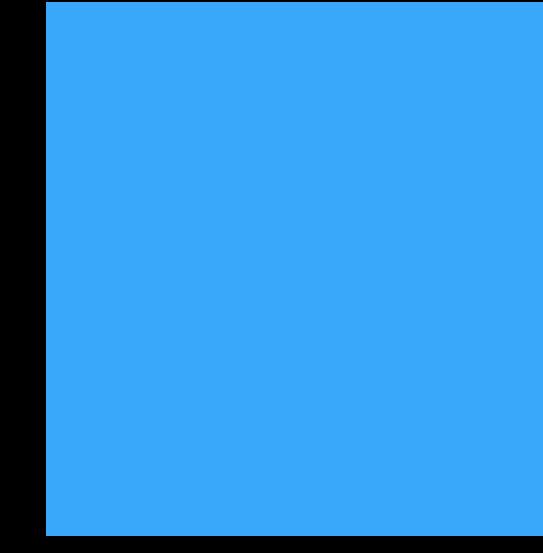
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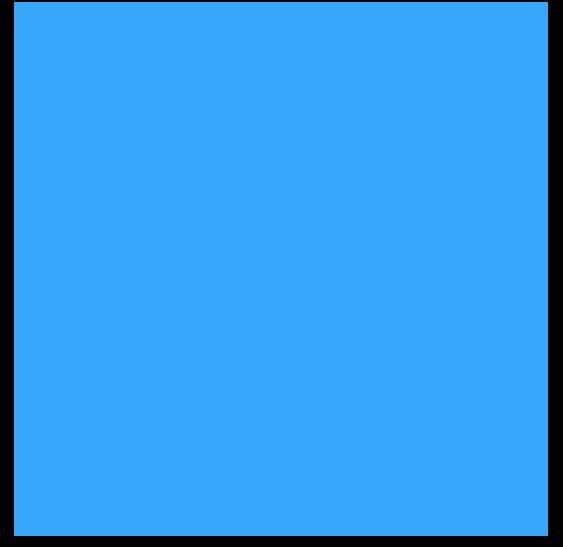
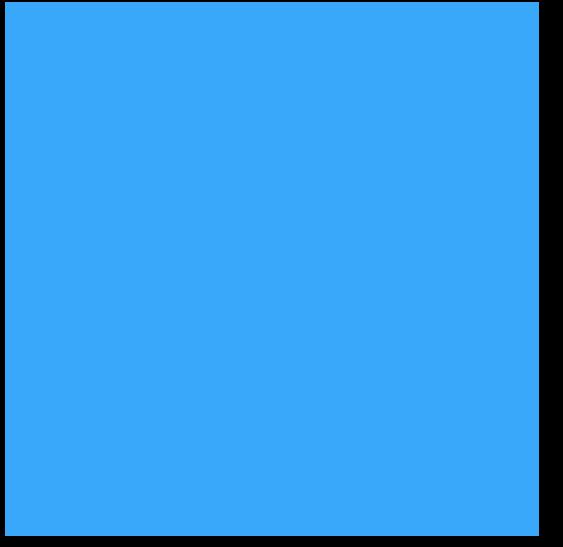
Artful—how your app **feels**



# Why Animate?







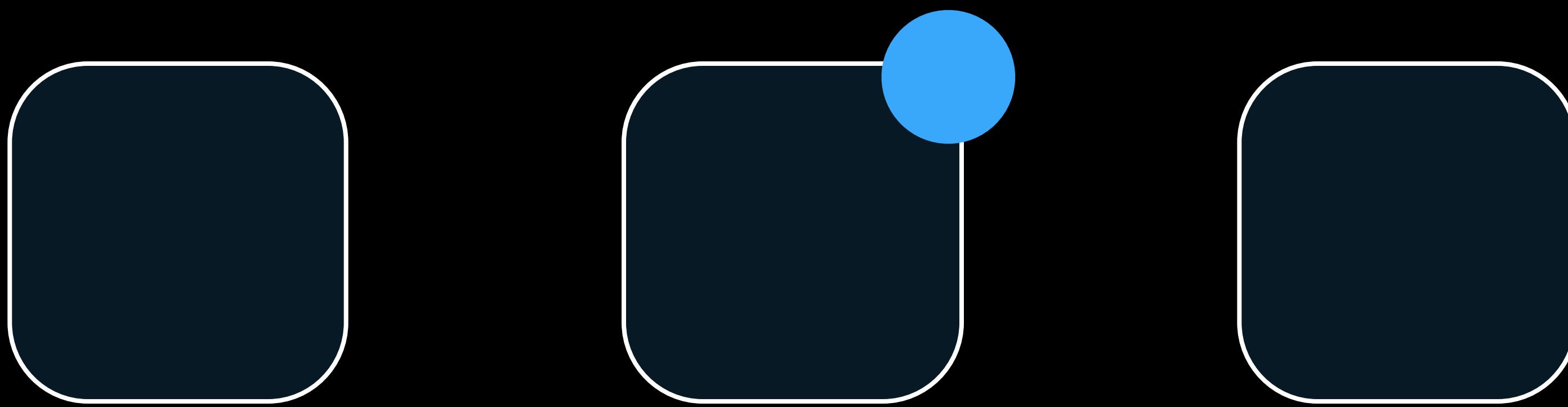
Direct attention

# Direct Attention

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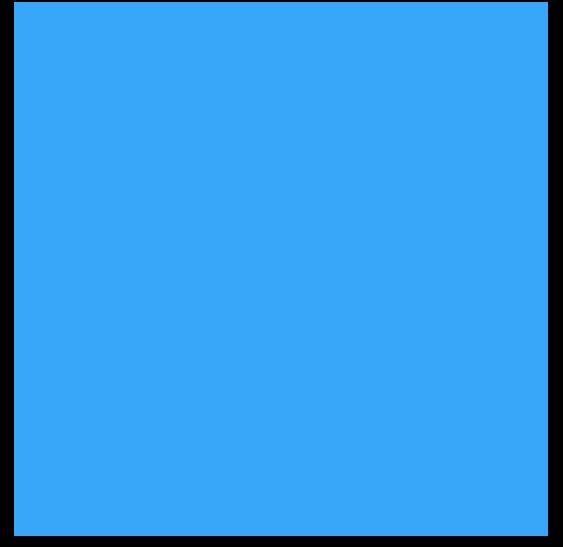
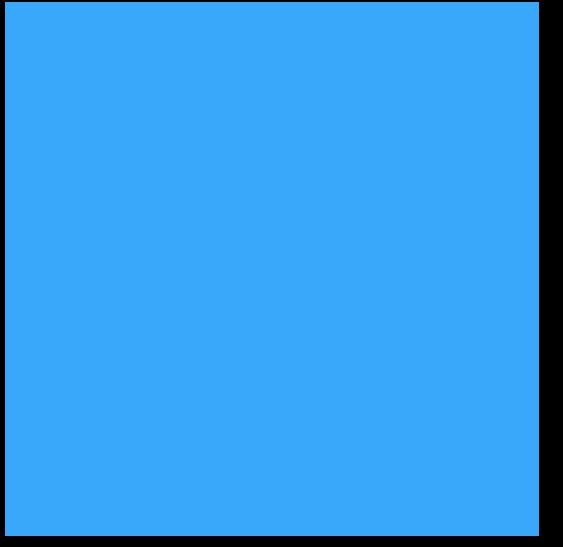
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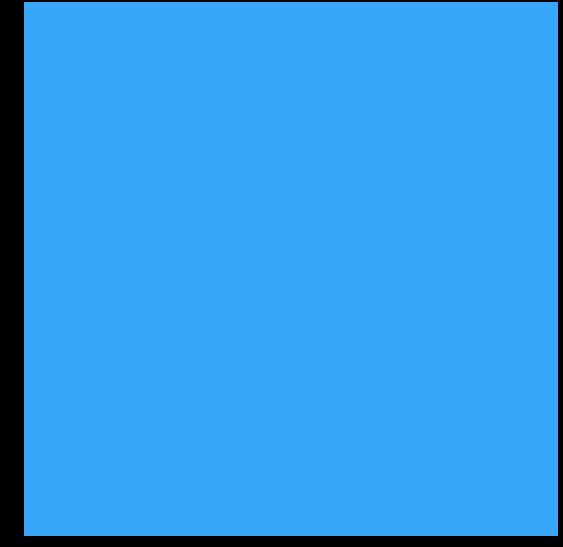
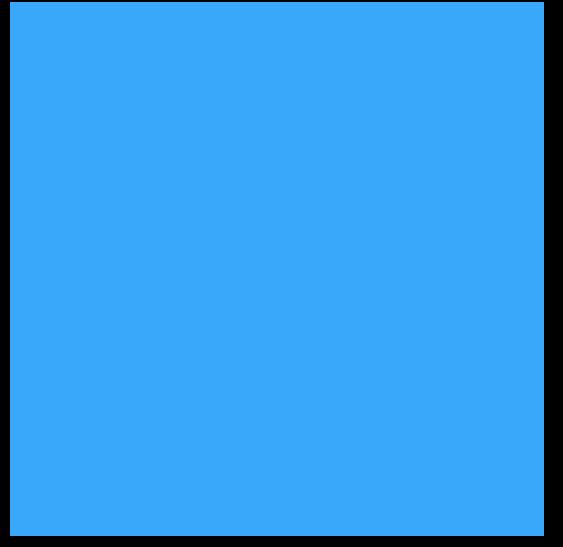
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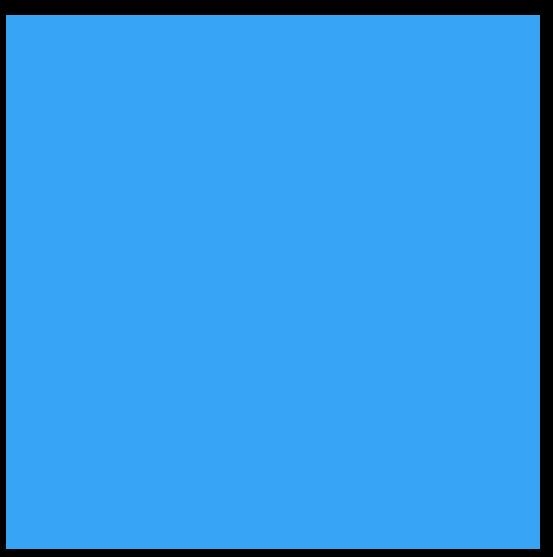
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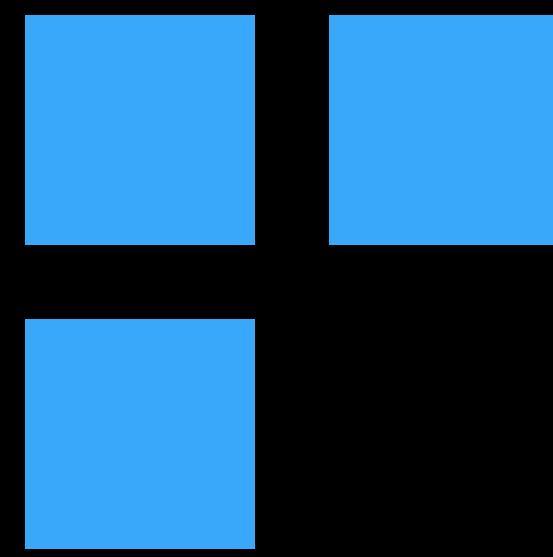
Direct attention



Direct attention



Direct attention



Keep oriented

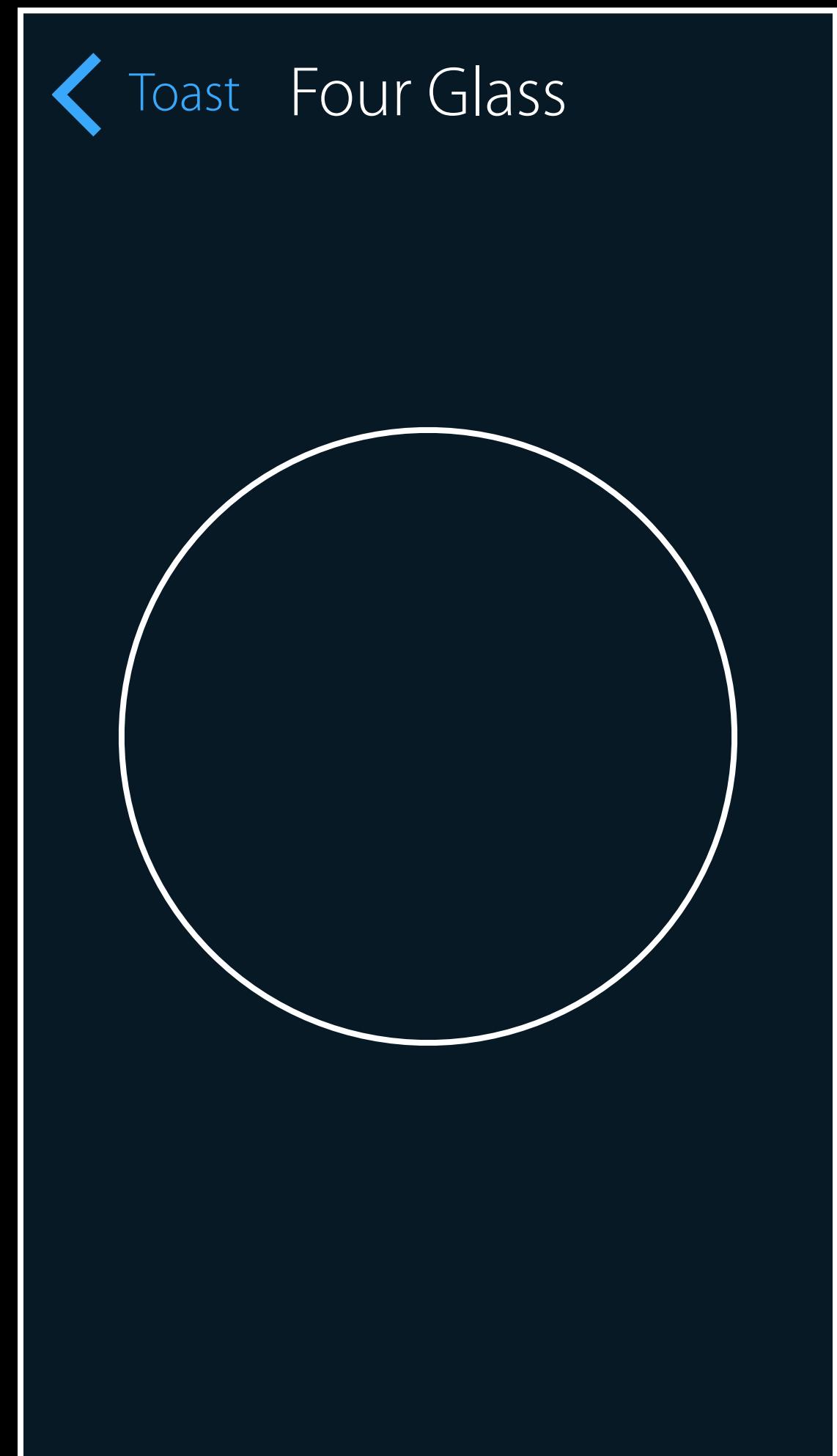




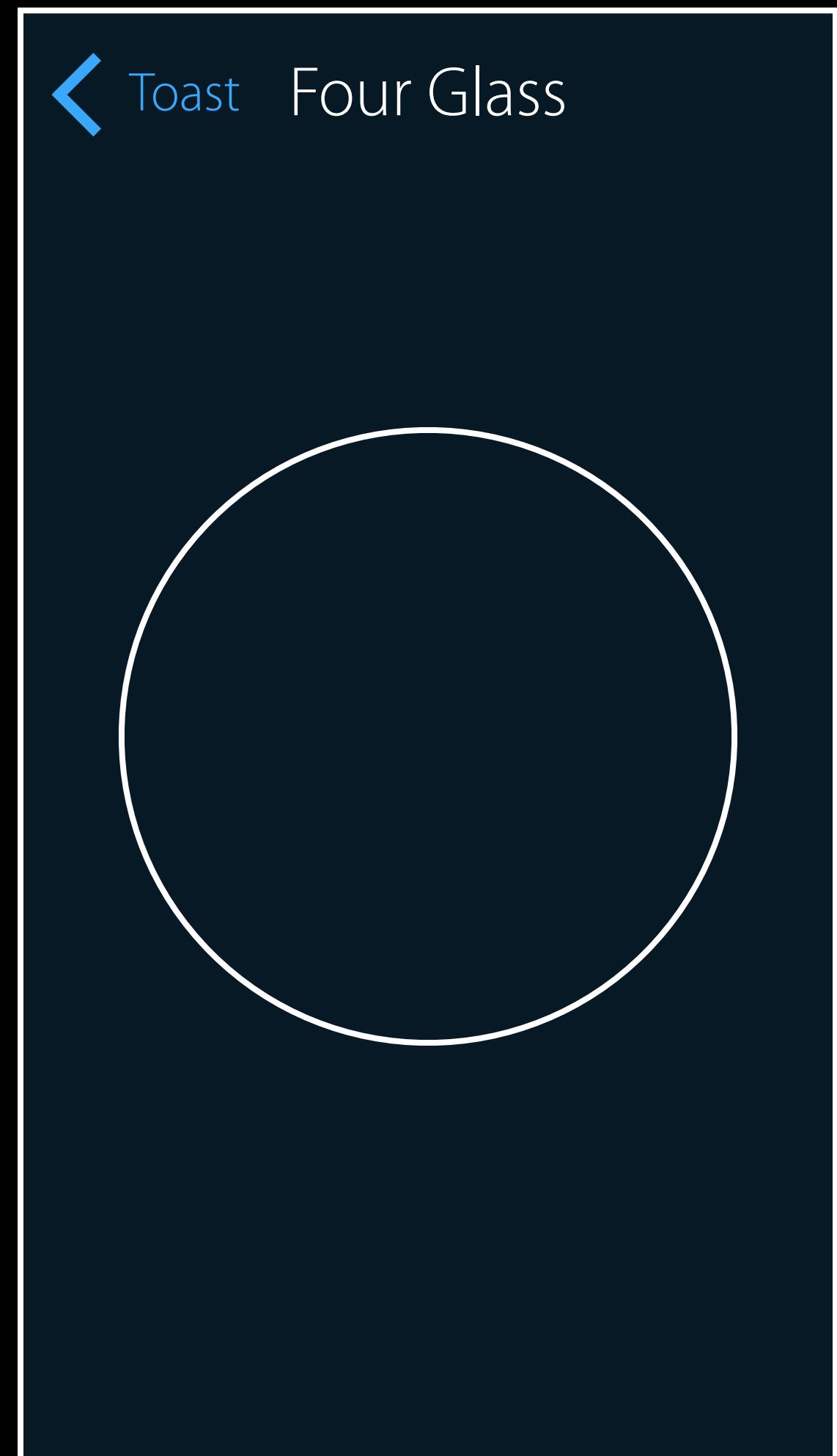
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- Julian Missig Tuesday >  
Restaurant recommendation  
Betsy, I remember you mentioning a great place to get some artisanal toast in Pittsburgh....
- jeffrey traer bernstein Tuesday >  
math homework  
Hi Betsy, Can you help me with my math homework? I don't understand how to solve th...
- Matthaeus Krenn Tuesday >  
Pants  
Hey Betsy, Remember the pants you told me about? I was at the store yesterday but couldn...
- Joe Malia Tuesday >  
Vacation  
Hi Betsy, Just got back from a lovely vacation to Texas. I saw lots of huge things, as you mig...
- Marek Bereza Tuesday >  
check out this new app!  
It's called porridge pro. Download it here:  
[http://www.porridgeapp.com/.](http://www.porridgeapp.com/)
- Popular in your network Monday >
- Updated Just Now 

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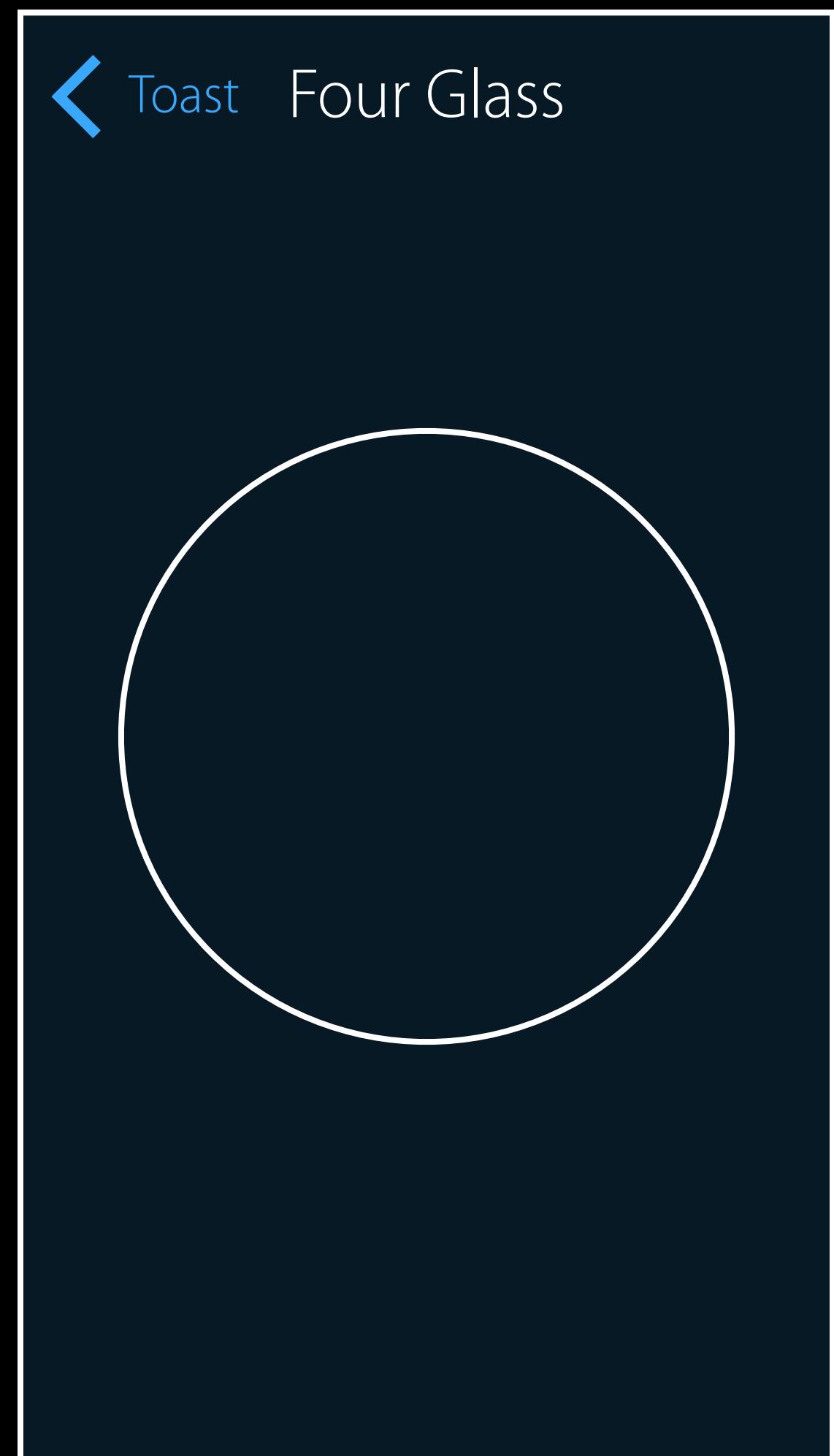
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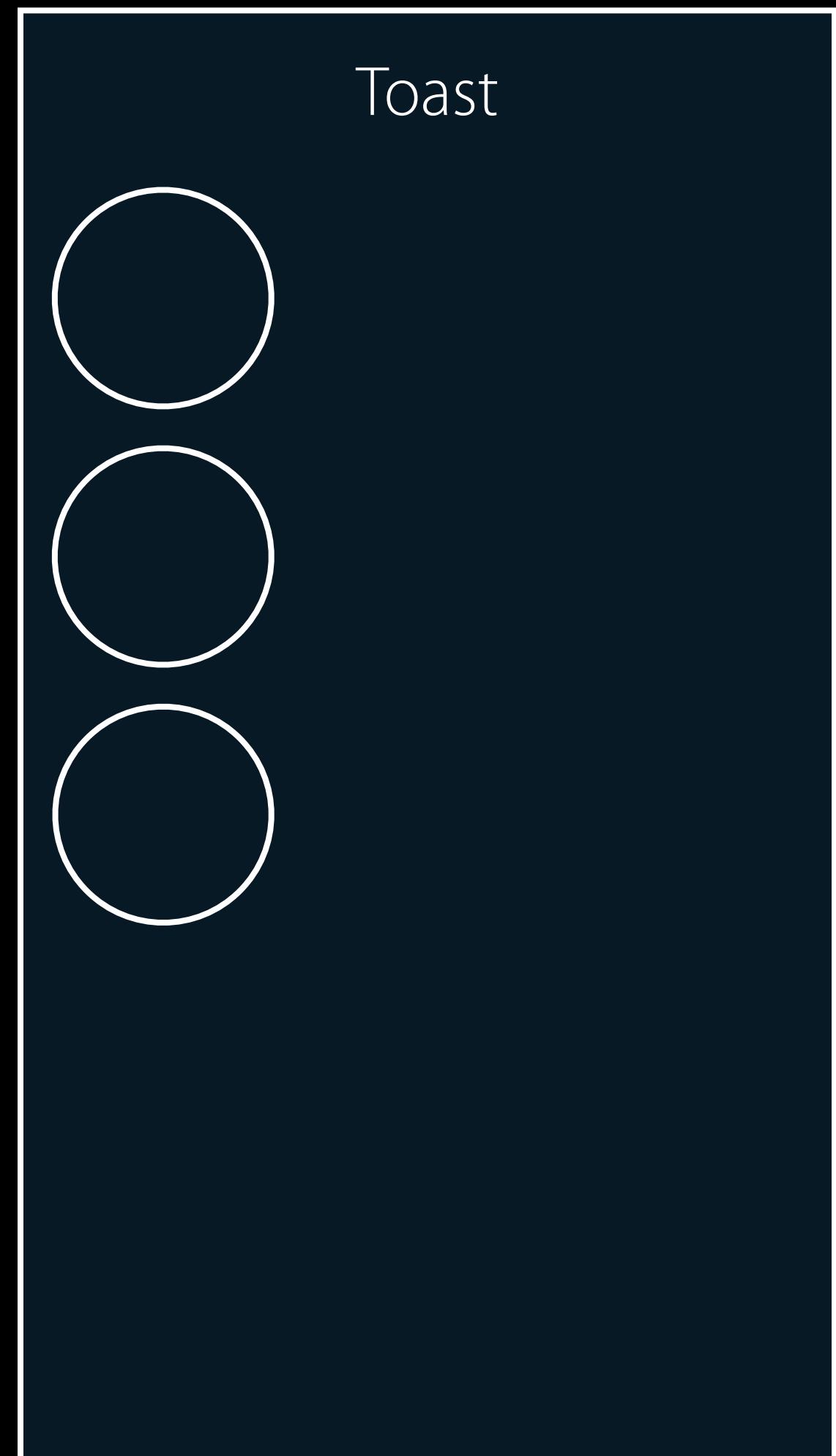
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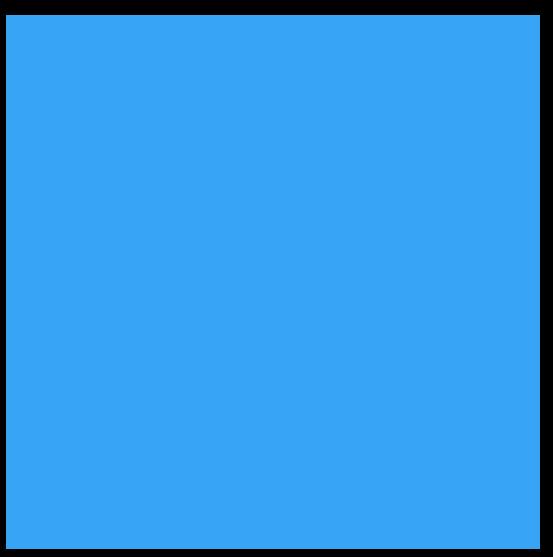
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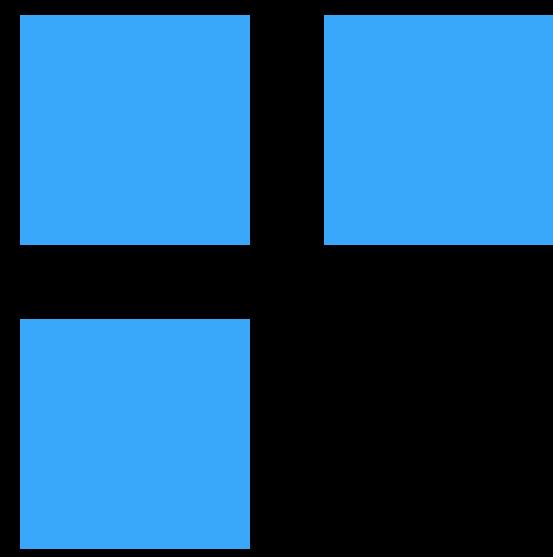
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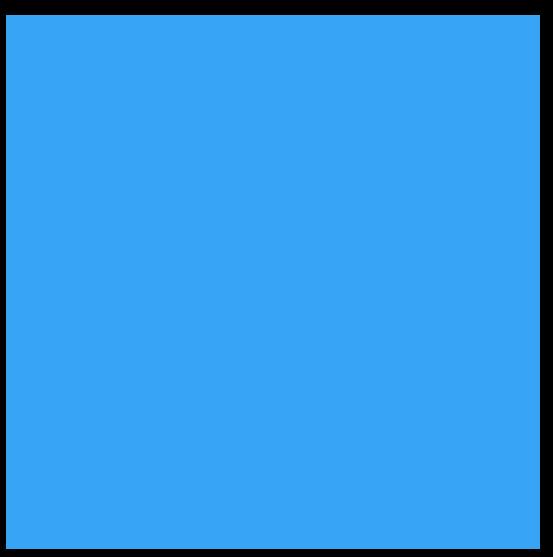


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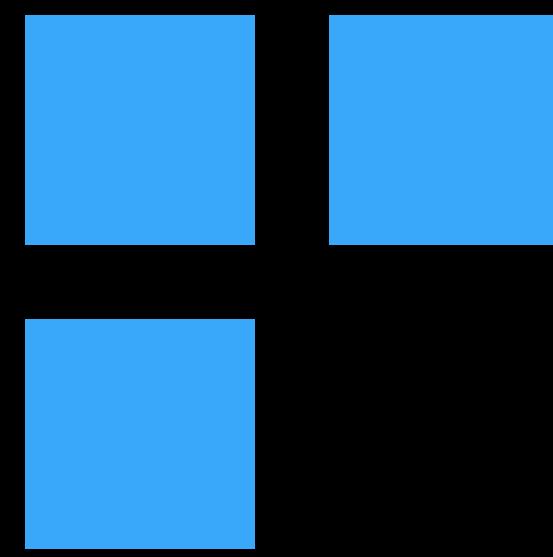


Keep oriented



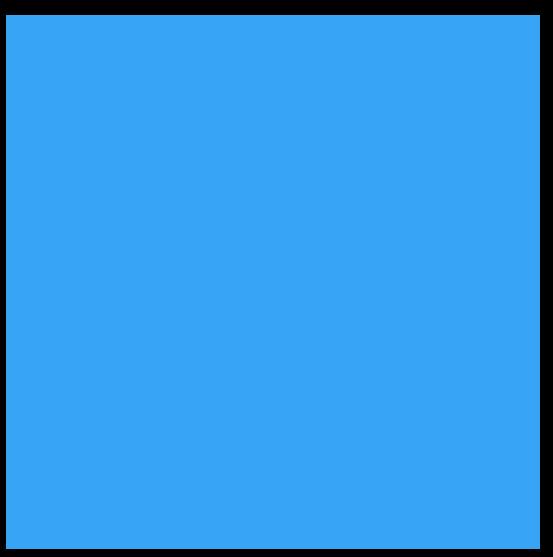


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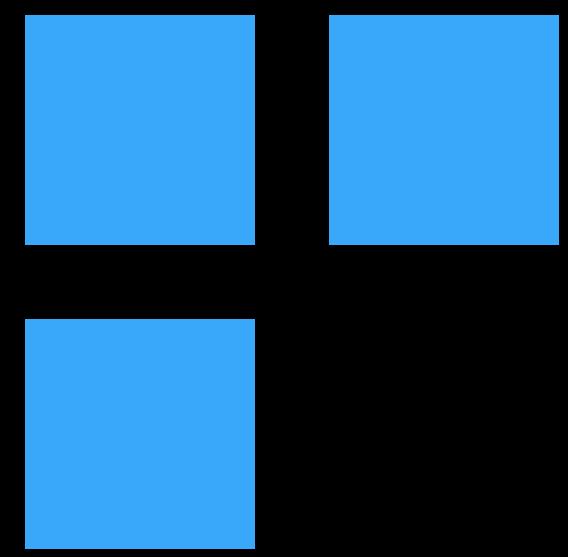


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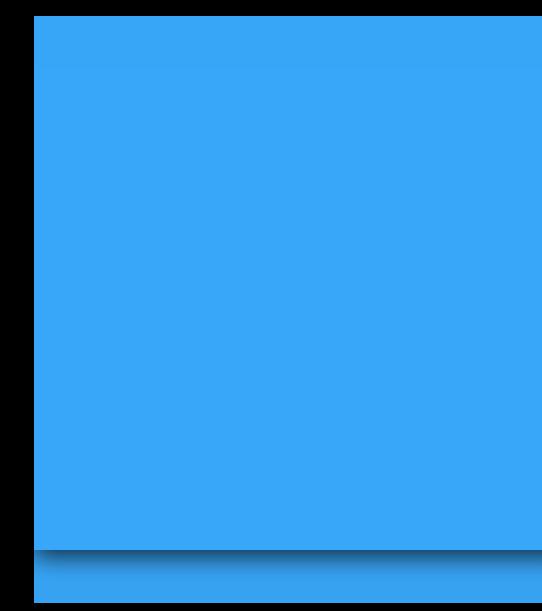


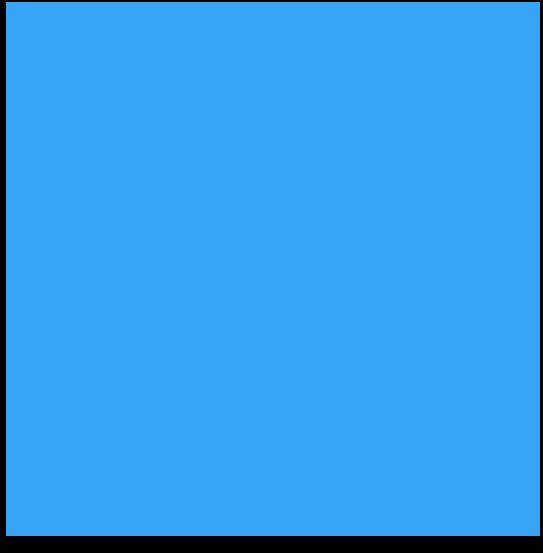


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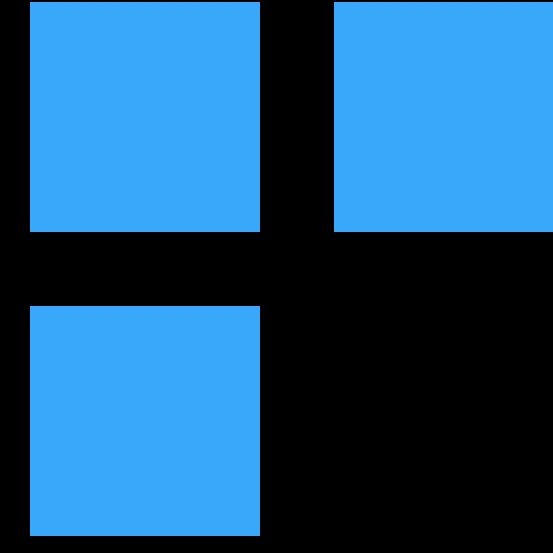


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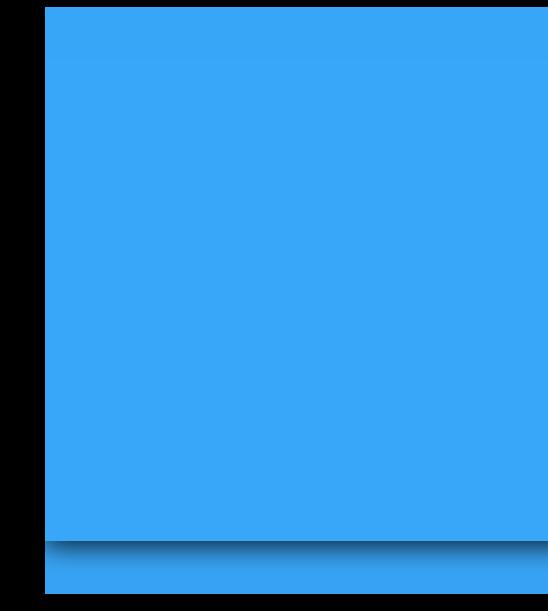




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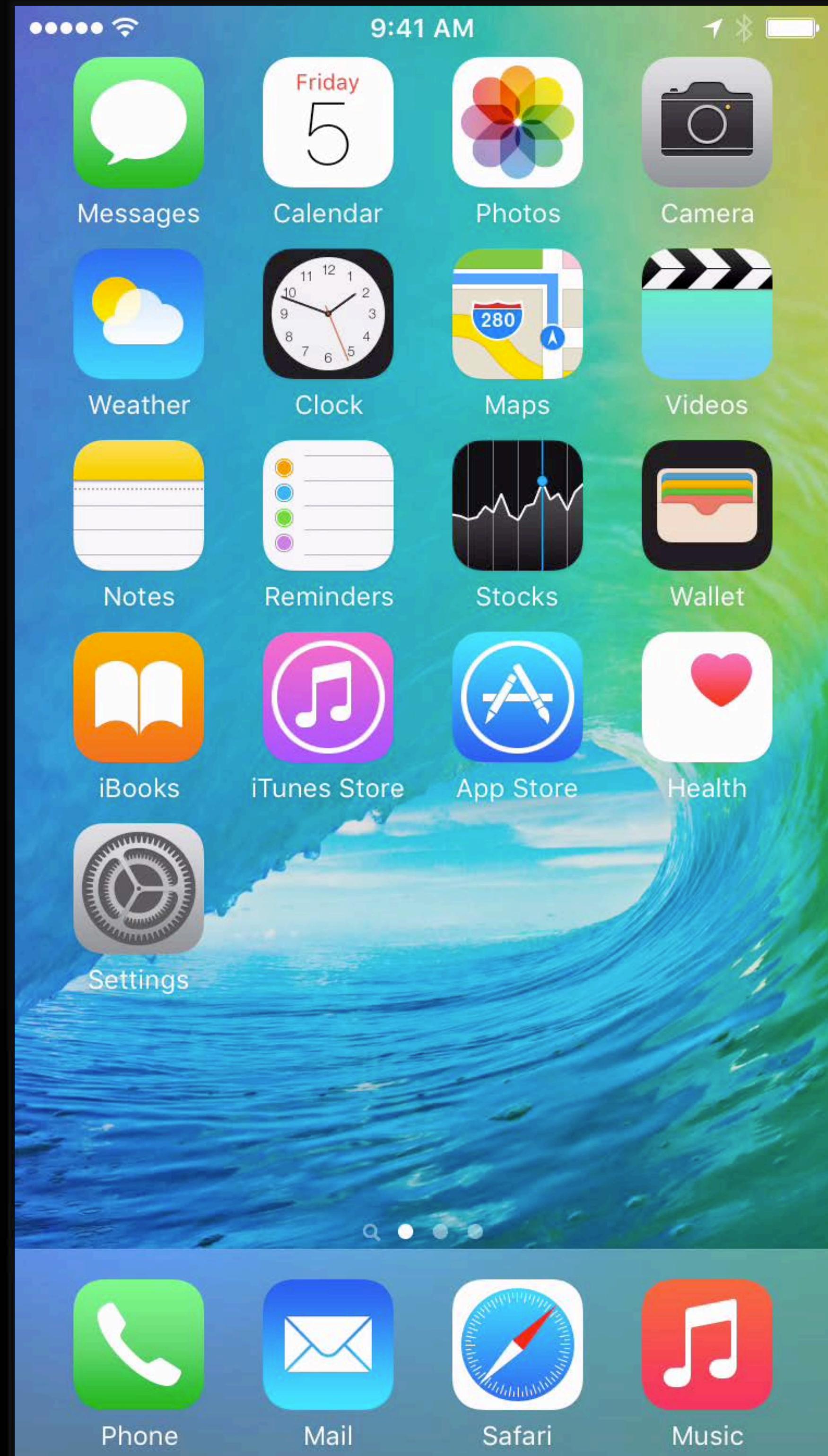


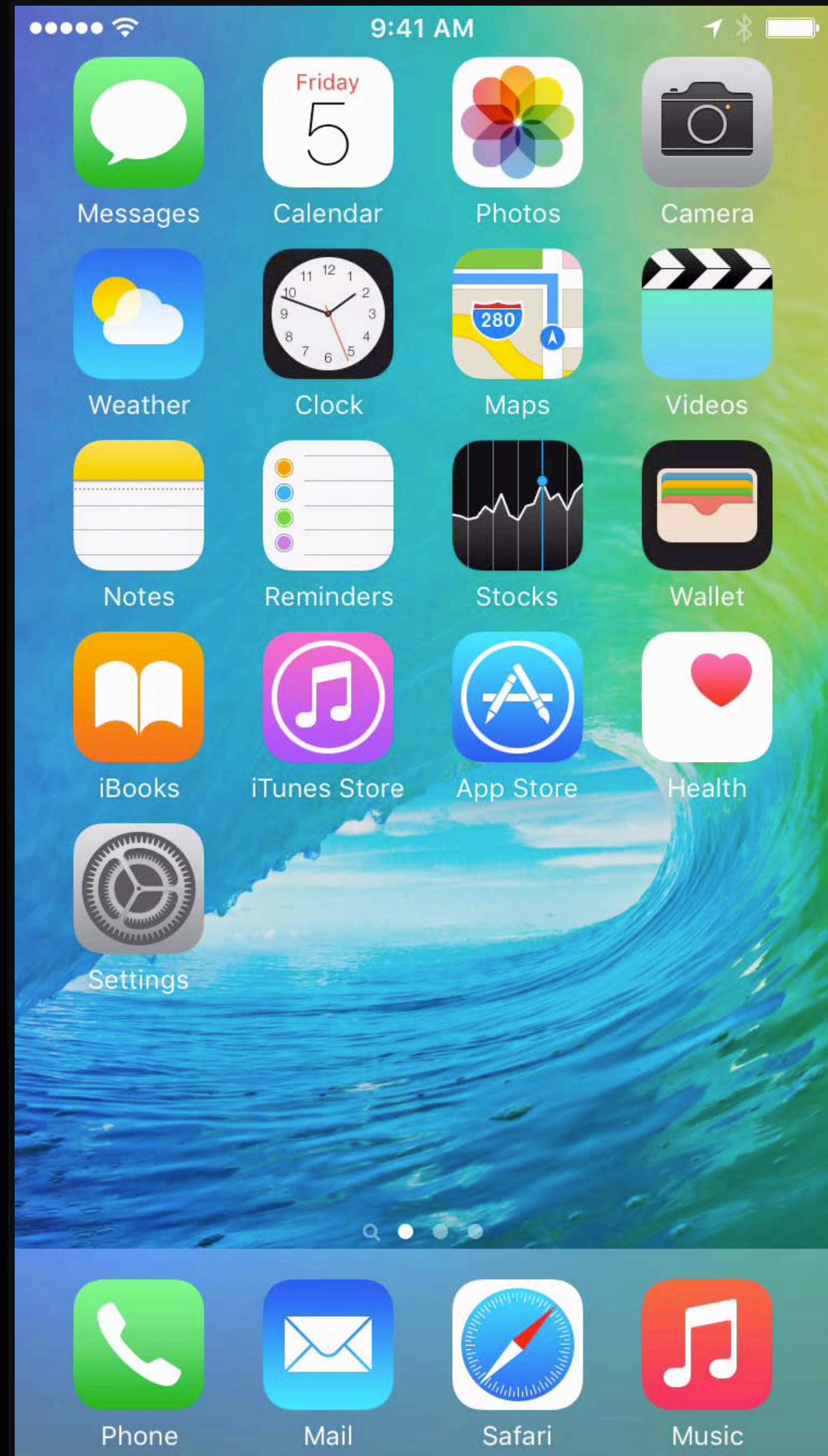
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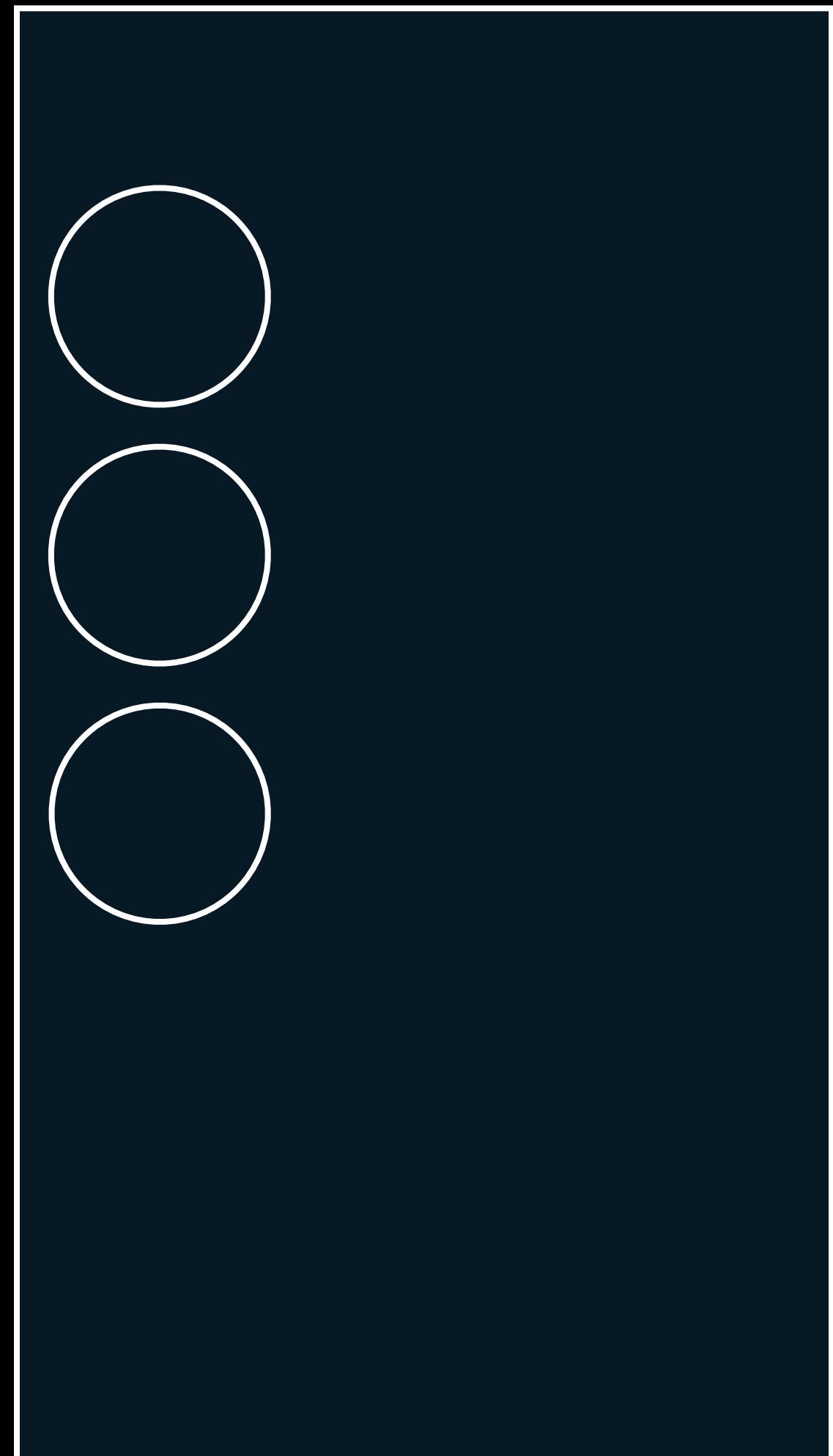
Connect behavior





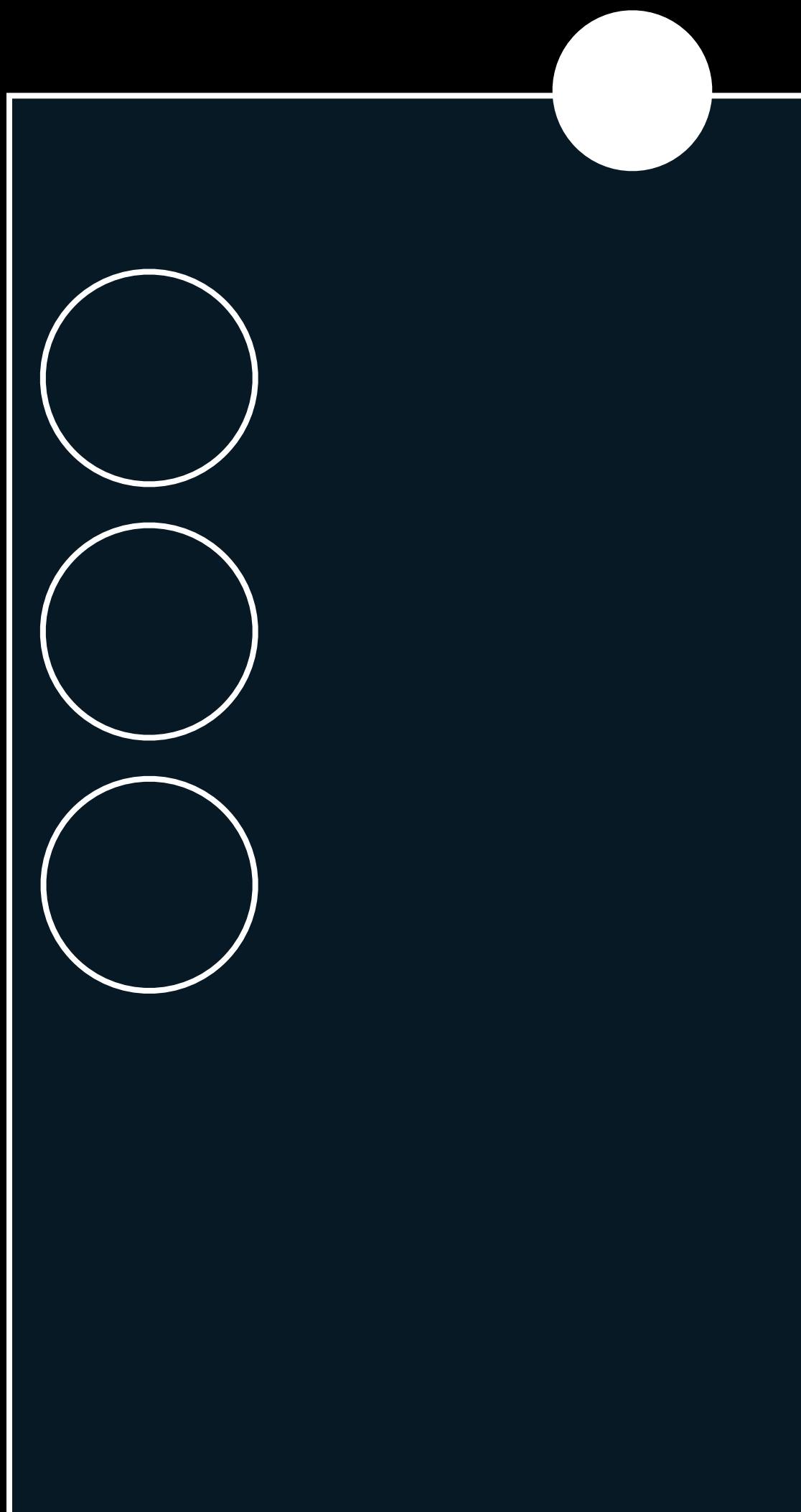


# Connect Behavior



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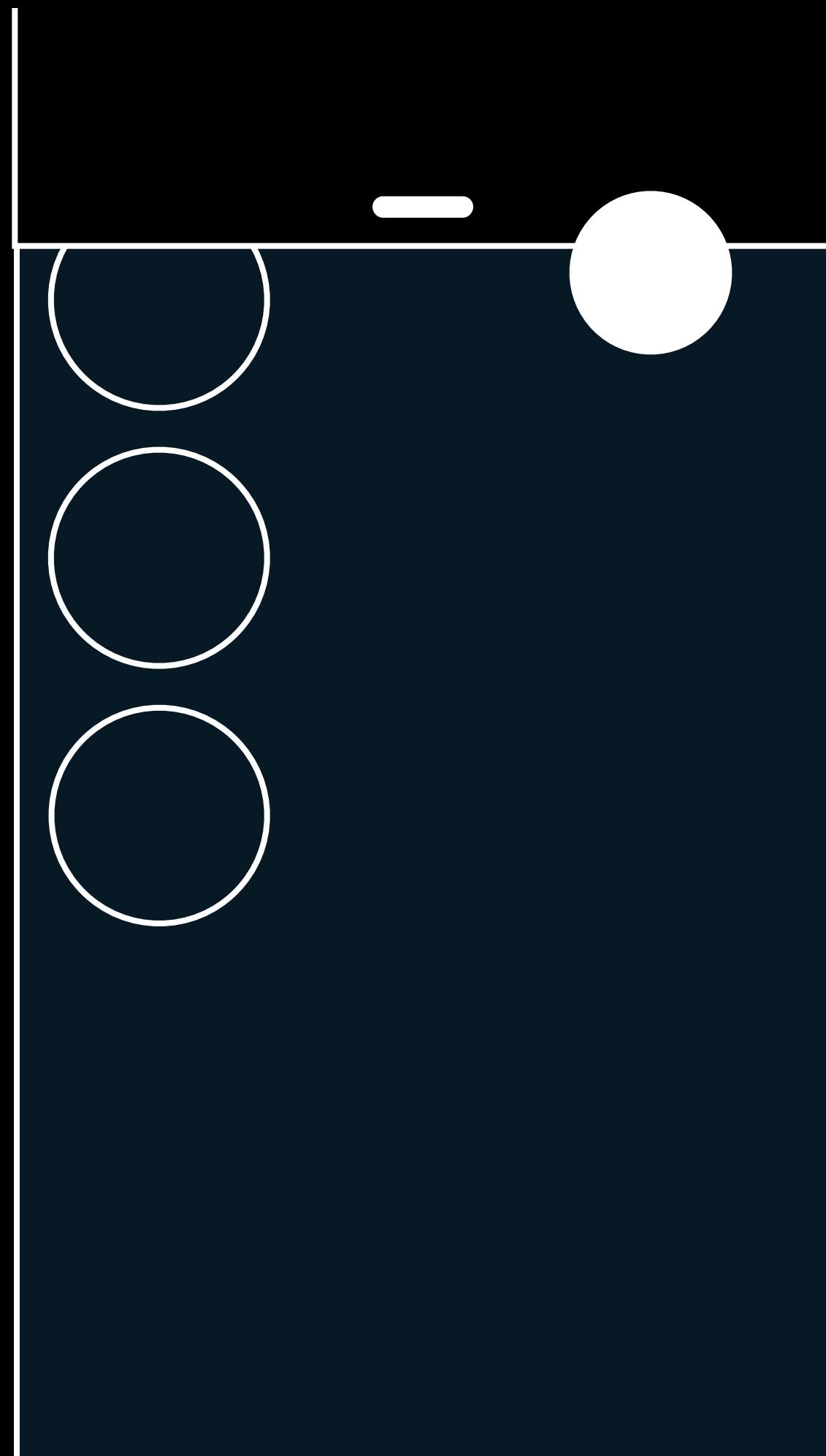
Start



# Connect Behavior

Start

Change

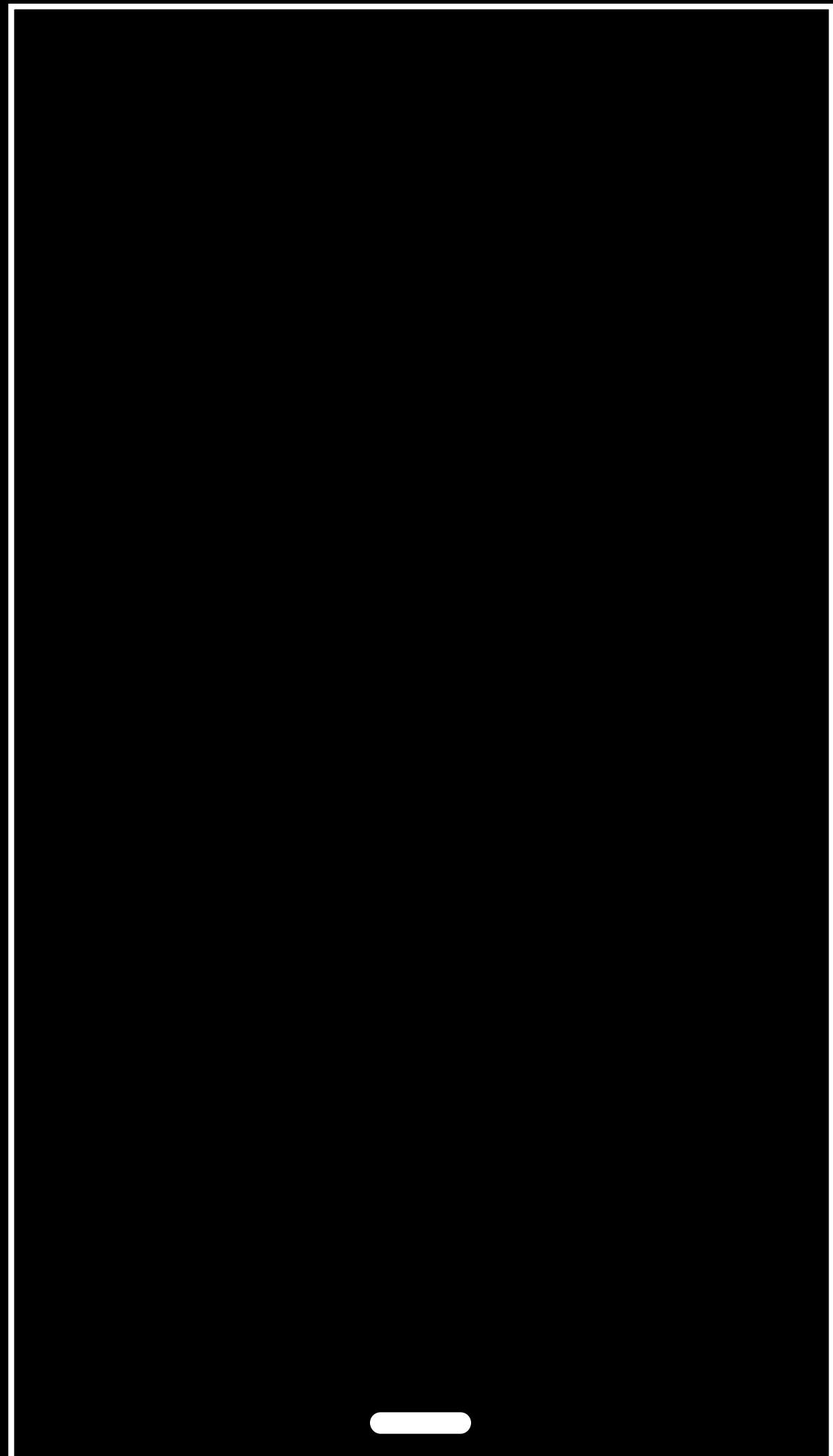


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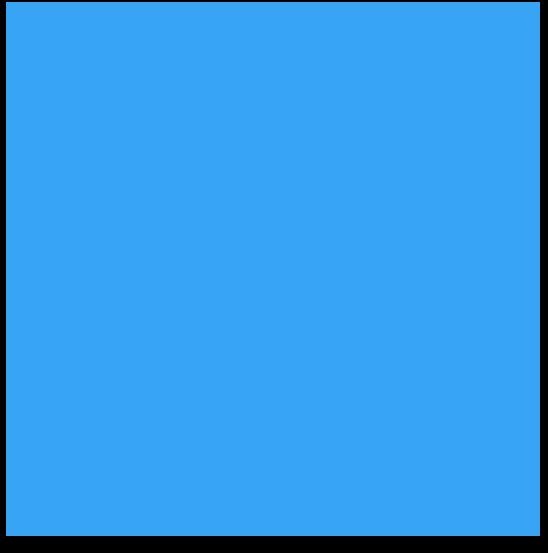
Start

Change

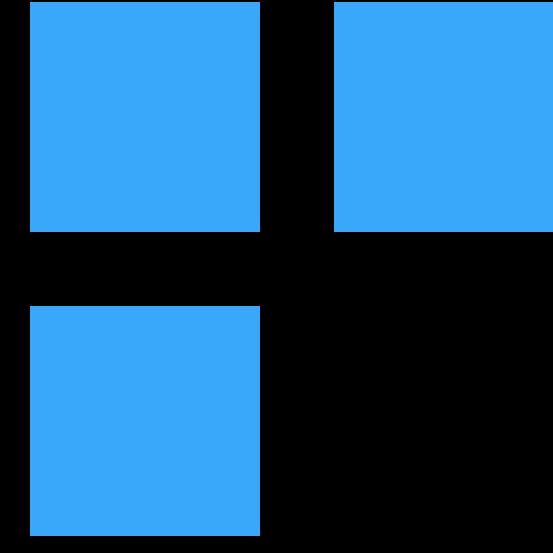
Complete



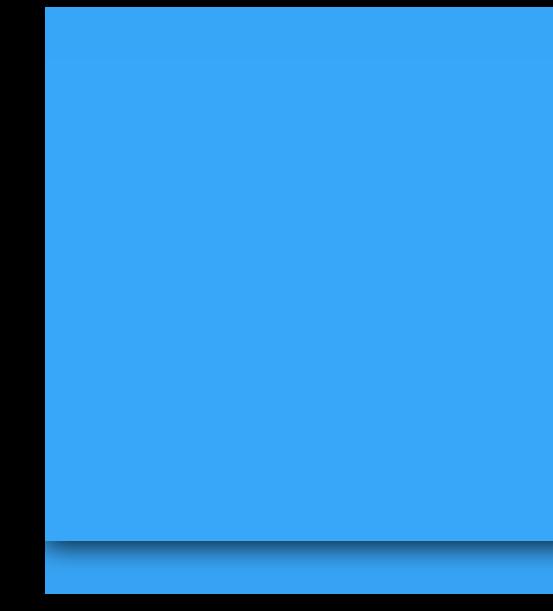
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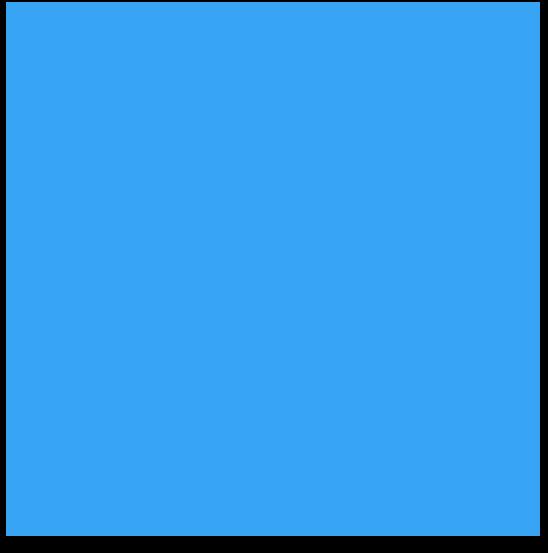
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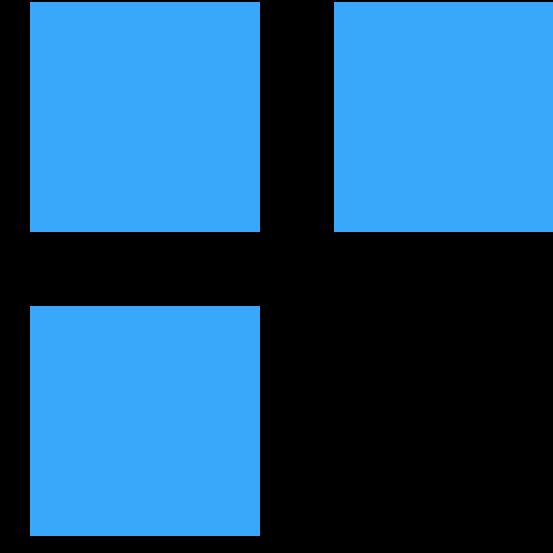
Keep oriented



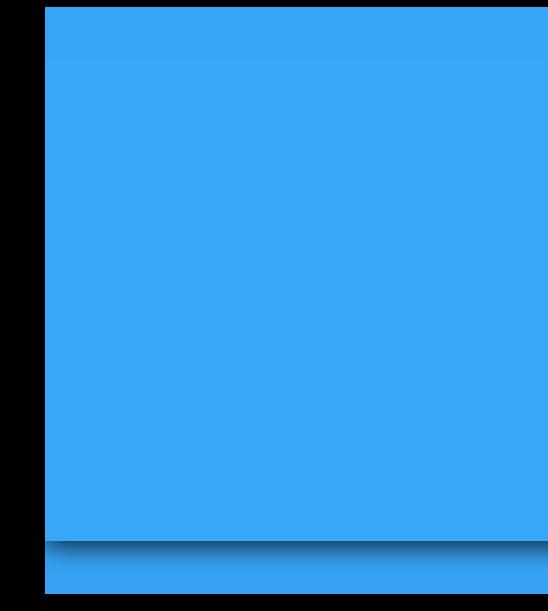
Connect behavior



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Connect behavior

# How Do We Try Animation?

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Screenshots show too little

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Screenshots show too little

Apps show too much

# How Do We Try Animation?

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Make animated experiments

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Make animated experiments

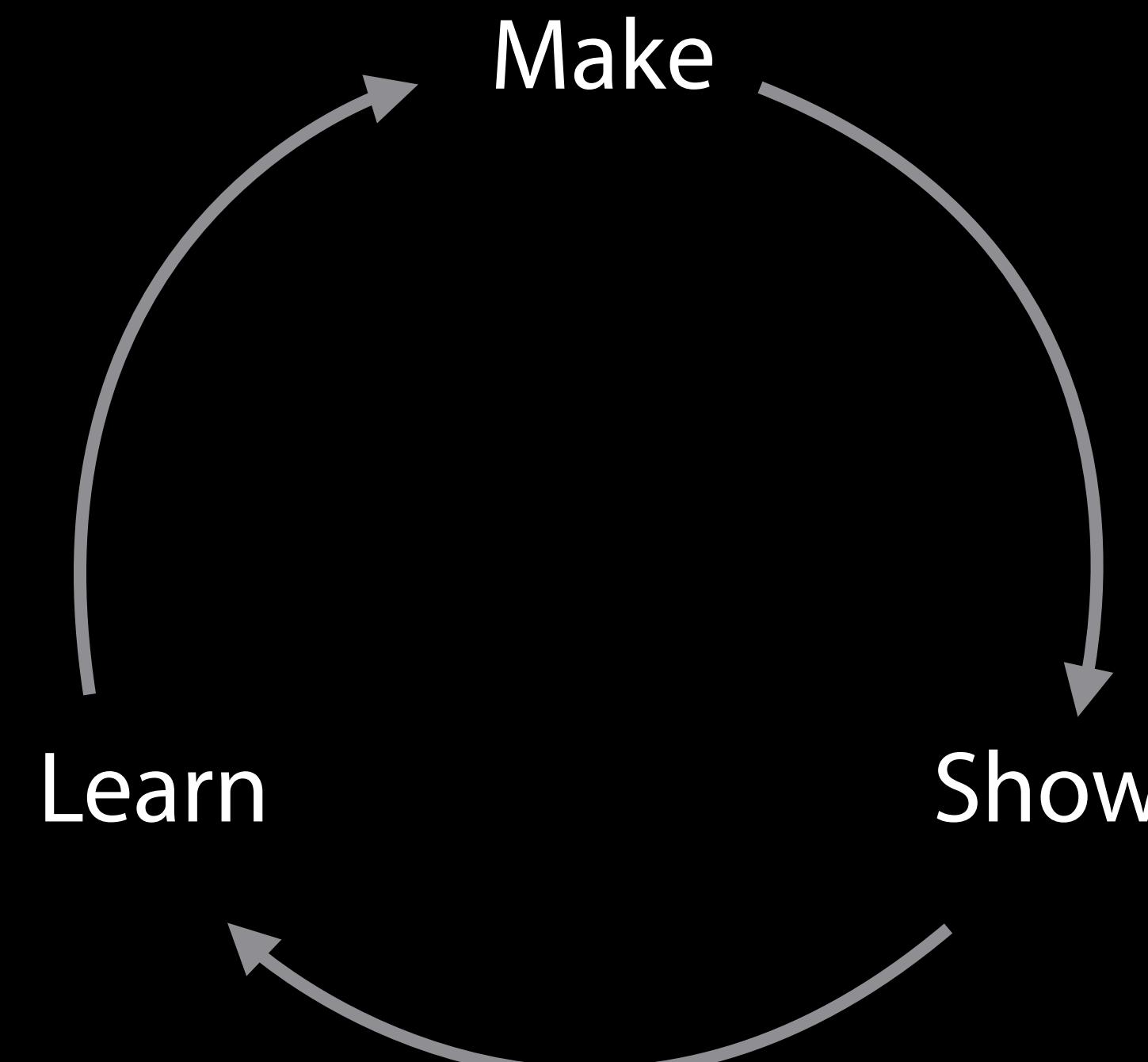
Compare built-in iOS animations to custom animations

# How Do We Try Animation?

Make animated experiments

Compare built-in iOS animations to custom animations

Make prototypes, show people, learn from their feedback



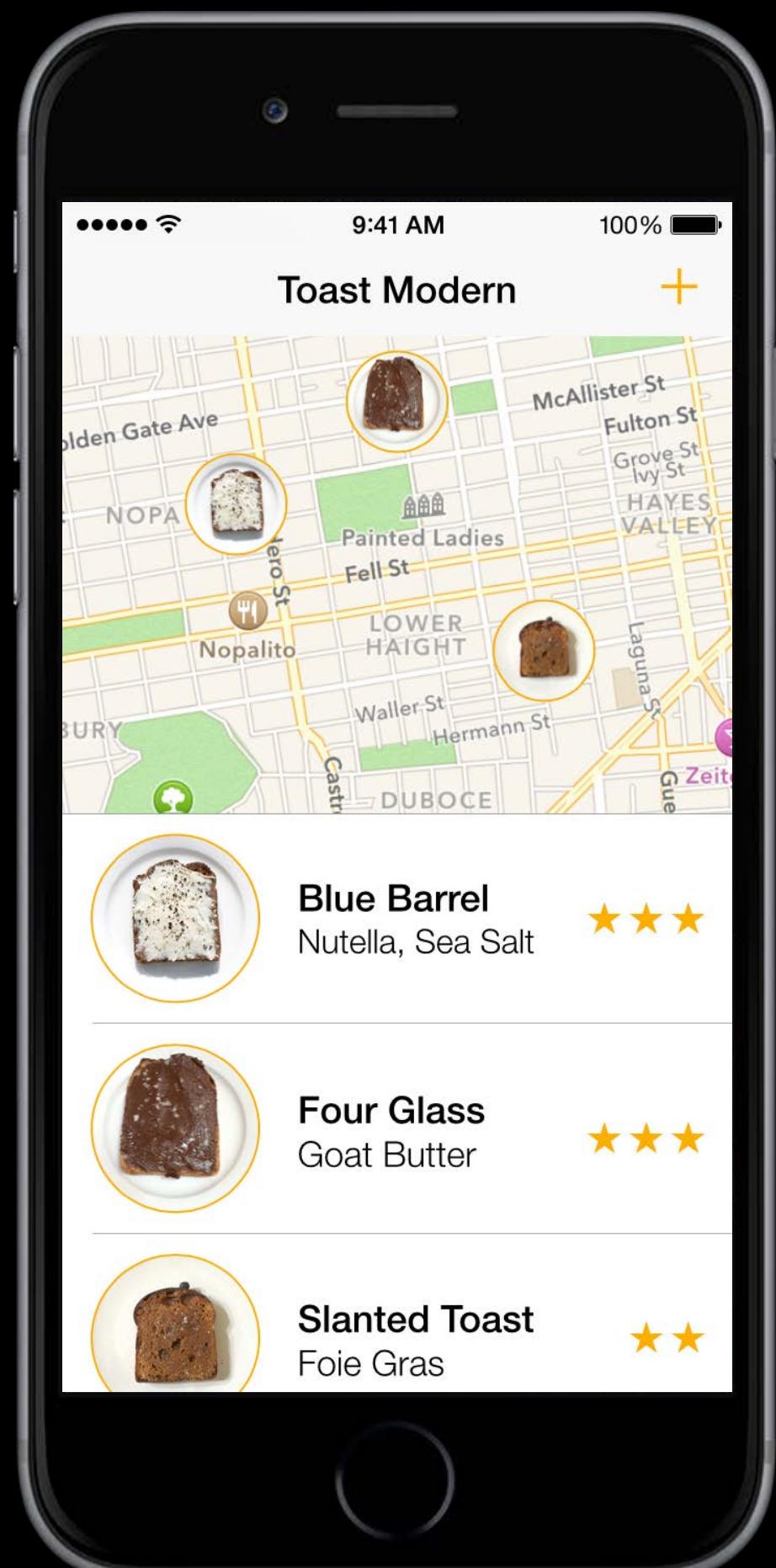




# What's New in Toast Modern?

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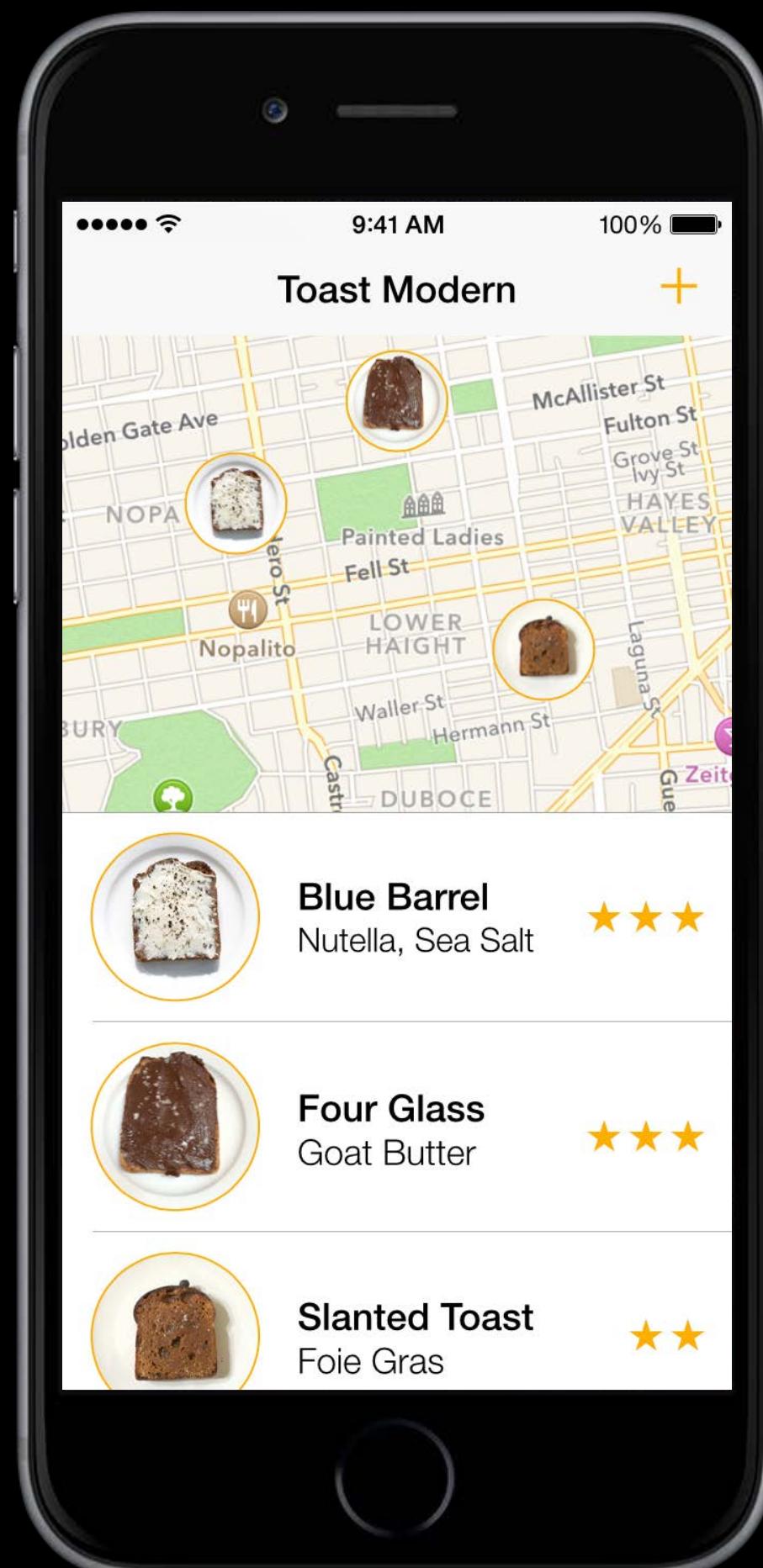
See local toast



# What's New in Toast Modern?

See local toast

Share toast

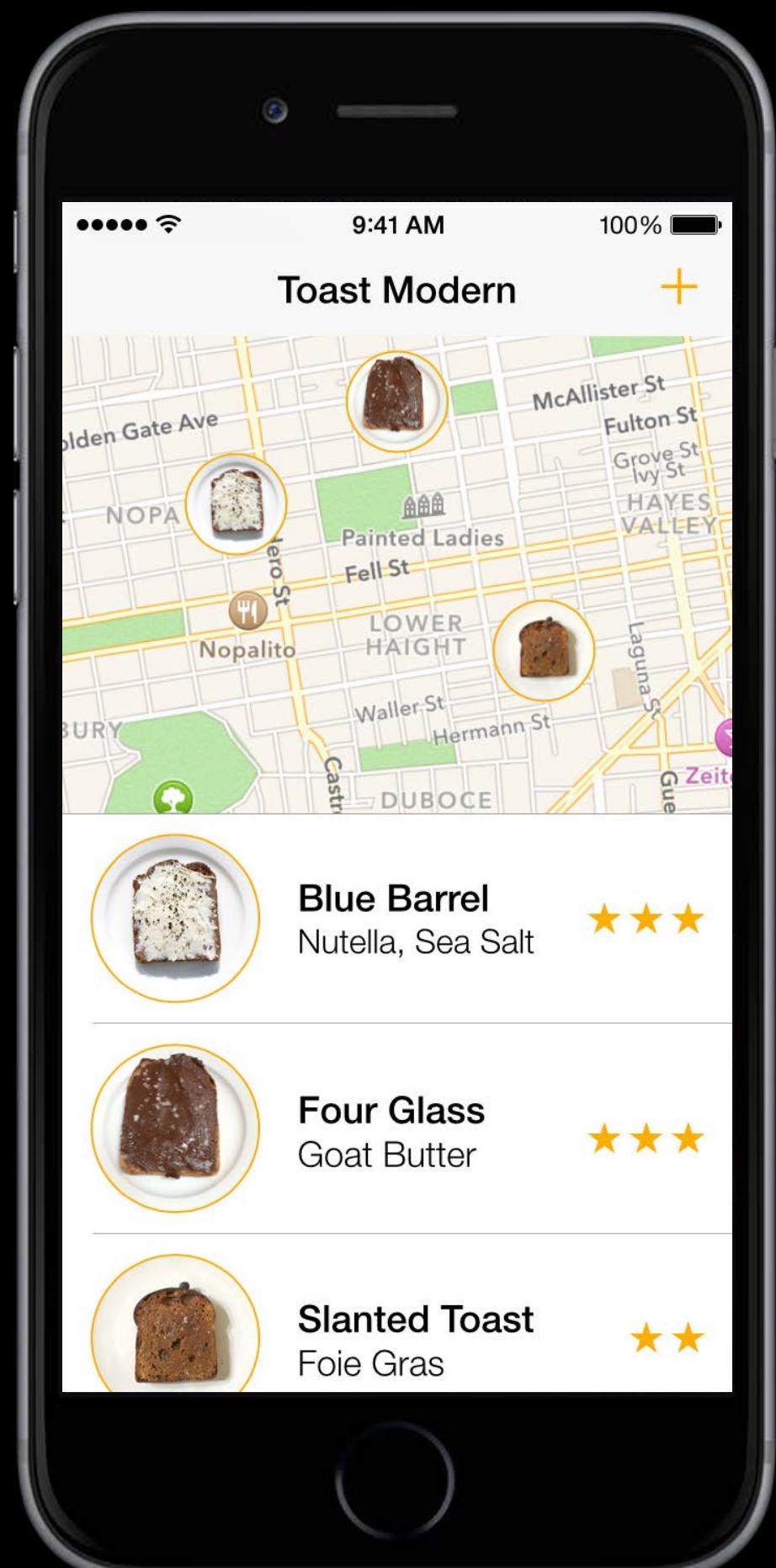


# What's New in Toast Modern?

See local toast

Share toast

Comment on toast



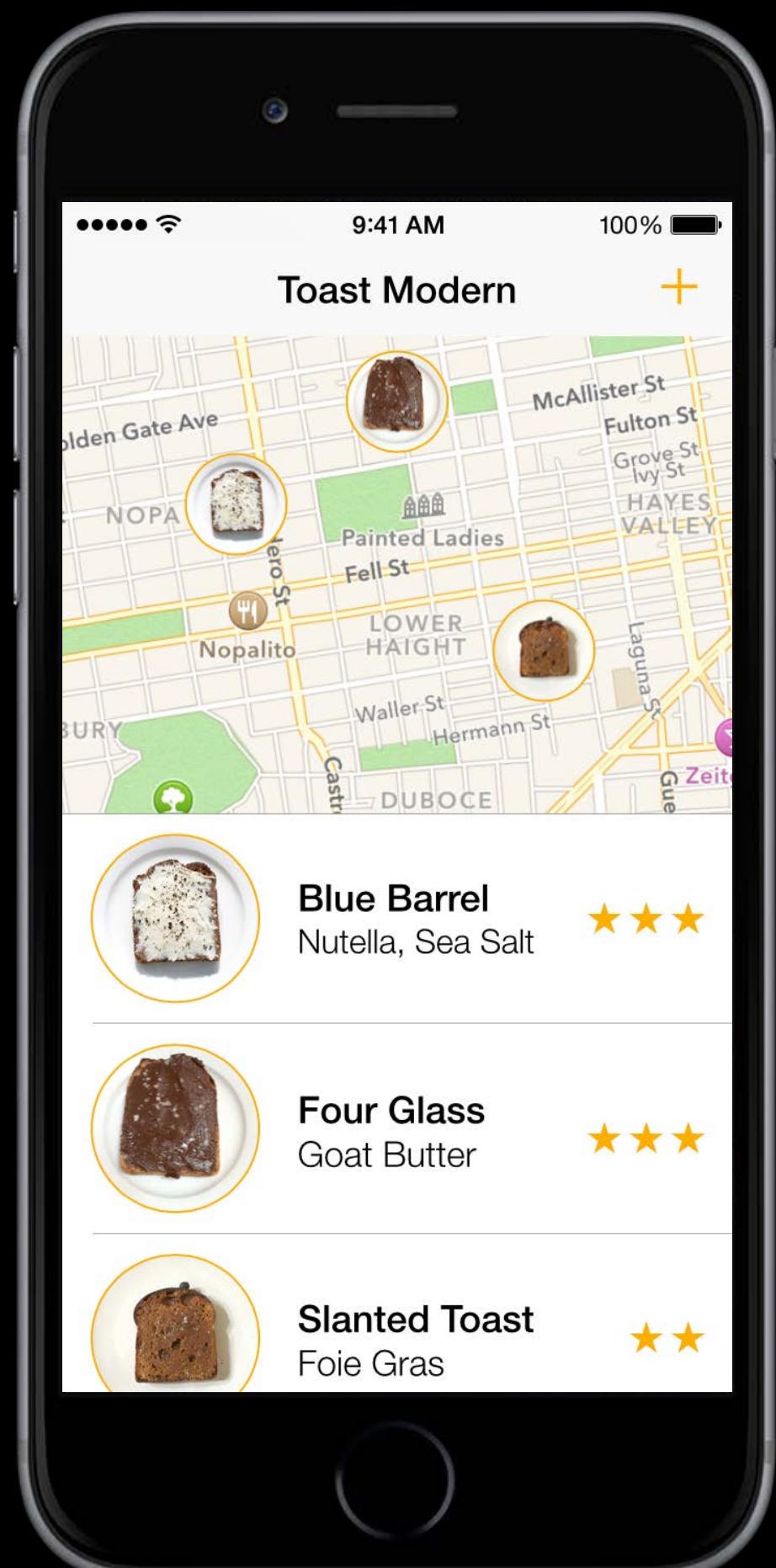
# What's New in Toast Modern?

See local toast

Share toast

Comment on toast

Connected to Toastal Service



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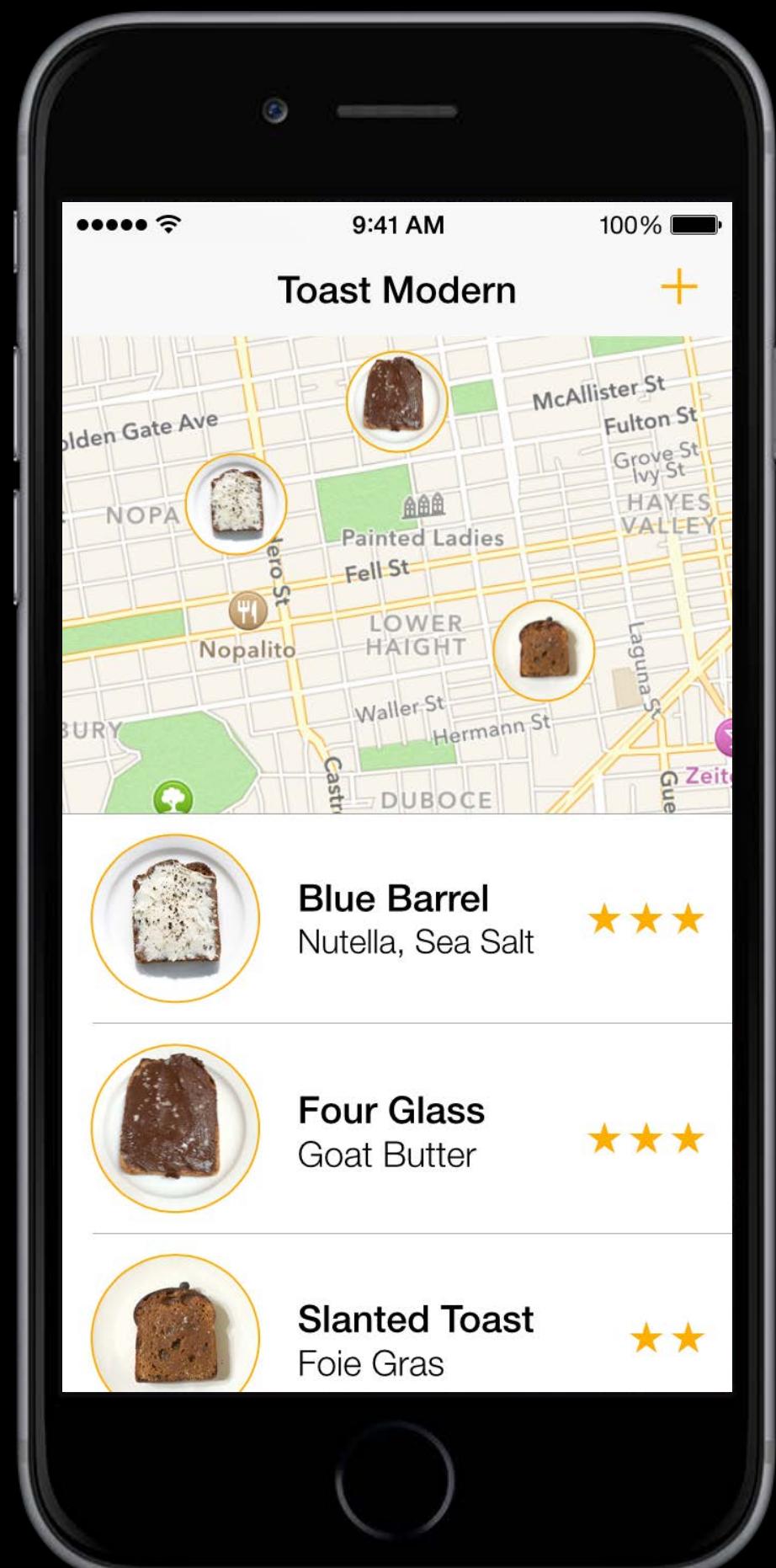
See local toast

Share toast

Comment on toast

Connected to Toastal Service

See my toast



# What's New in Toast Modern?

See local toast

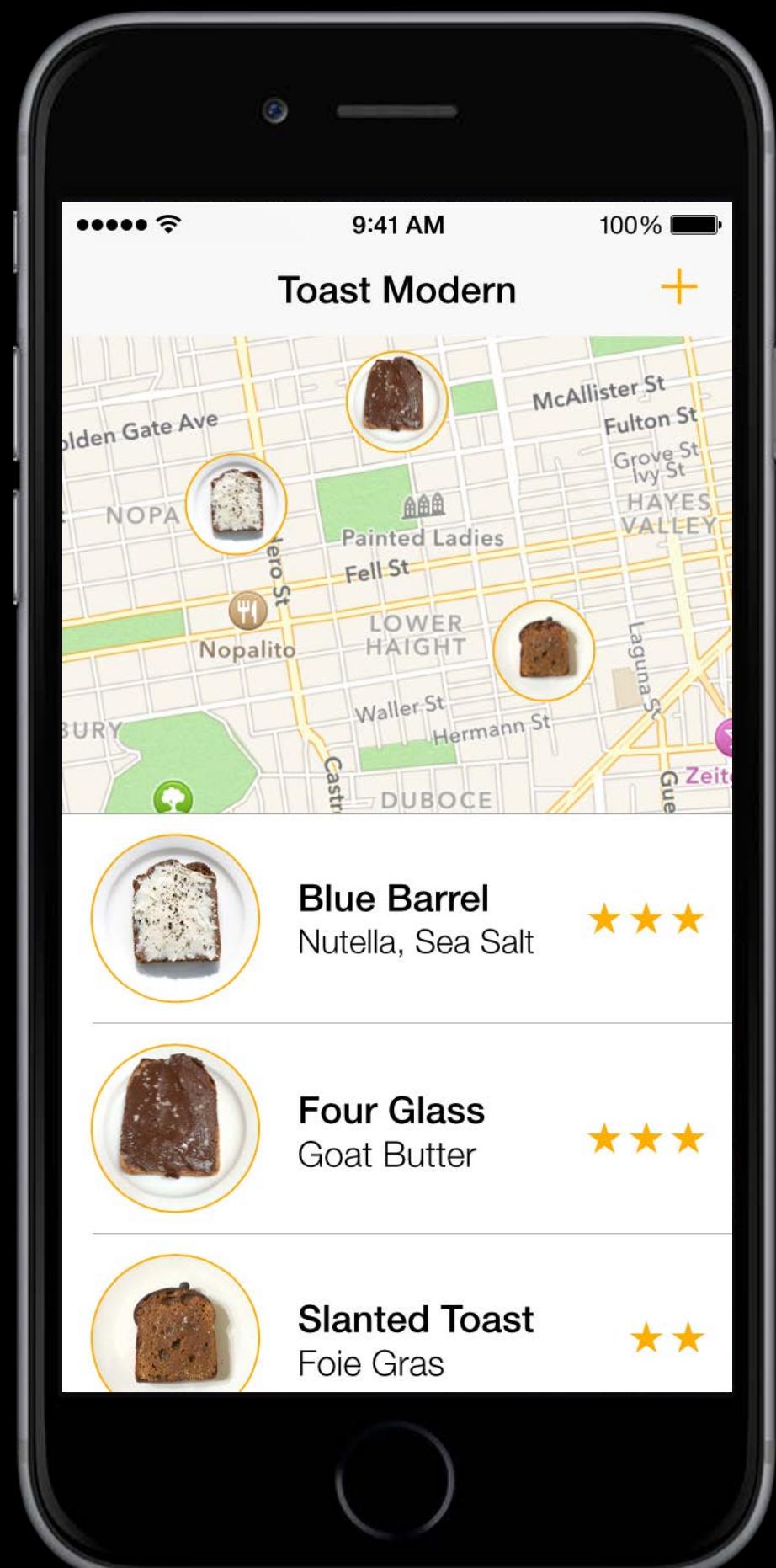
Share toast

Comment on toast

Connected to Toastal Service

See my toast

See my friend's toast



# What's New in Toast Modern?

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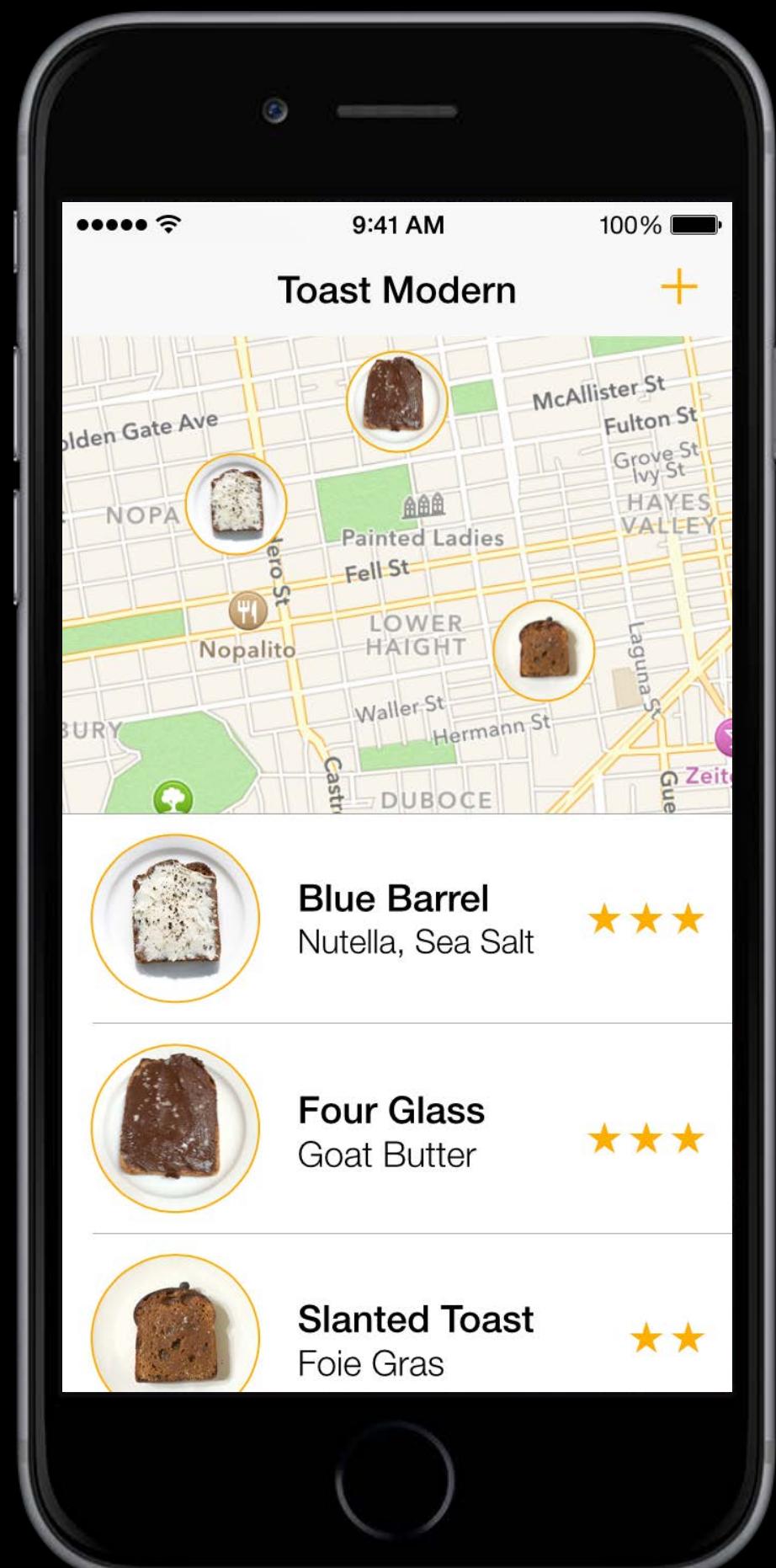
Comment on toast

Connected to Toastal Service

See my toast

See my friend's toast

Get overwhelmed by toast



# Goal

# Goal

Slice through all the toast to find our favorites

# Animate Without code

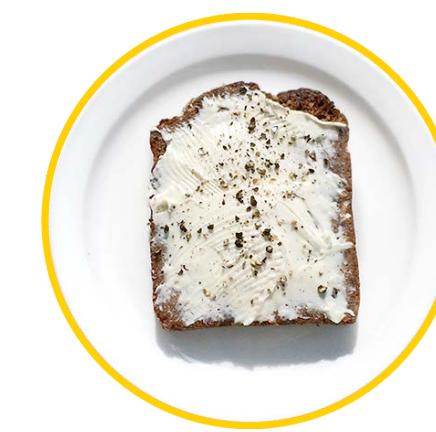
Joe Malia





Favorites

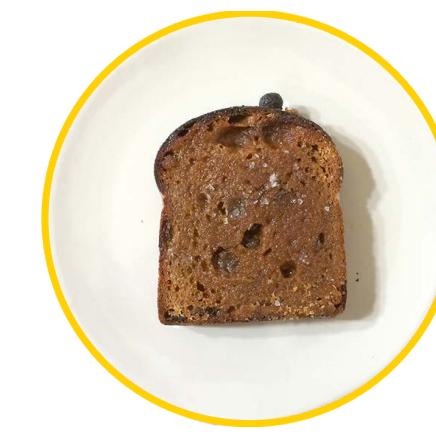
## **Toast Modern**



**Blue Barrel**  
Goat Butter



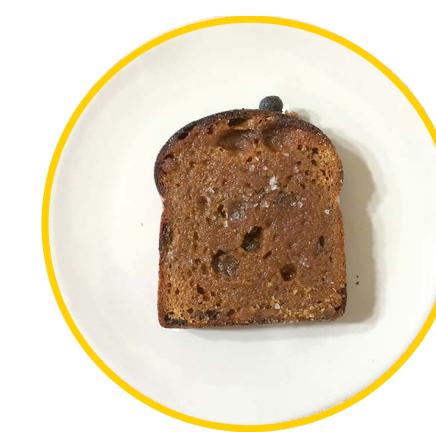
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout

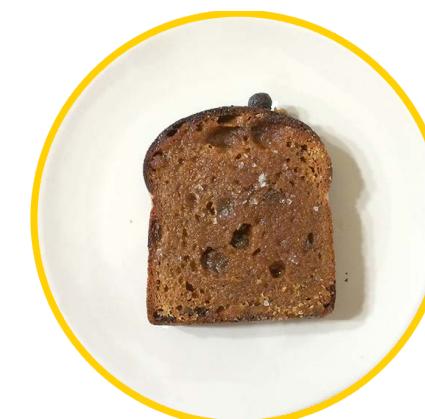
## **Toast Modern**



**Blue Barrel**  
Goat Butter



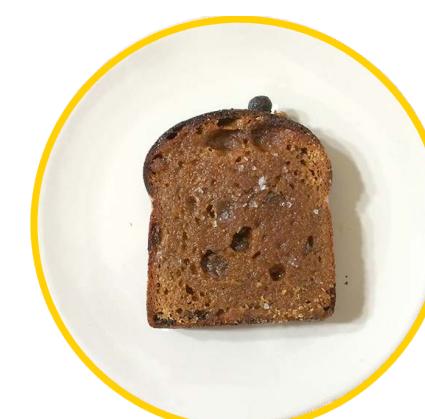
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout

[All Inboxes](#)



From: **Toast Modern CEO**

To: [Joe Malia](#)



Hi Joe,

After some deep meditation in my yurt, some revolutionary new ideas for our app came into focus for me:

1. People need to know the new favorite button is there.
2. People should be able to find the toast they've favorited.
3. Using the favorite button should be simple and elegant – people should be able to use it from the first touch.

No rush, just send me something to try out in the next



[All Inboxes](#)



To: Joe Malia



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Namaste



# Prototyping Animation

# Prototyping Animation

AfterEffects, Quartz Composer

# Prototyping Animation

AfterEffects, Quartz Composer

Swift, HTML/CSS

# Prototyping Animation

AfterEffects, Quartz Composer

Swift, HTML/CSS

Keynote

Direct attention

People need to know the new favorite button is there

Keep oriented

People should be able to find the toast they've favorited

Connect behavior

People should be able to use the favorite button from the first touch

Direct attention

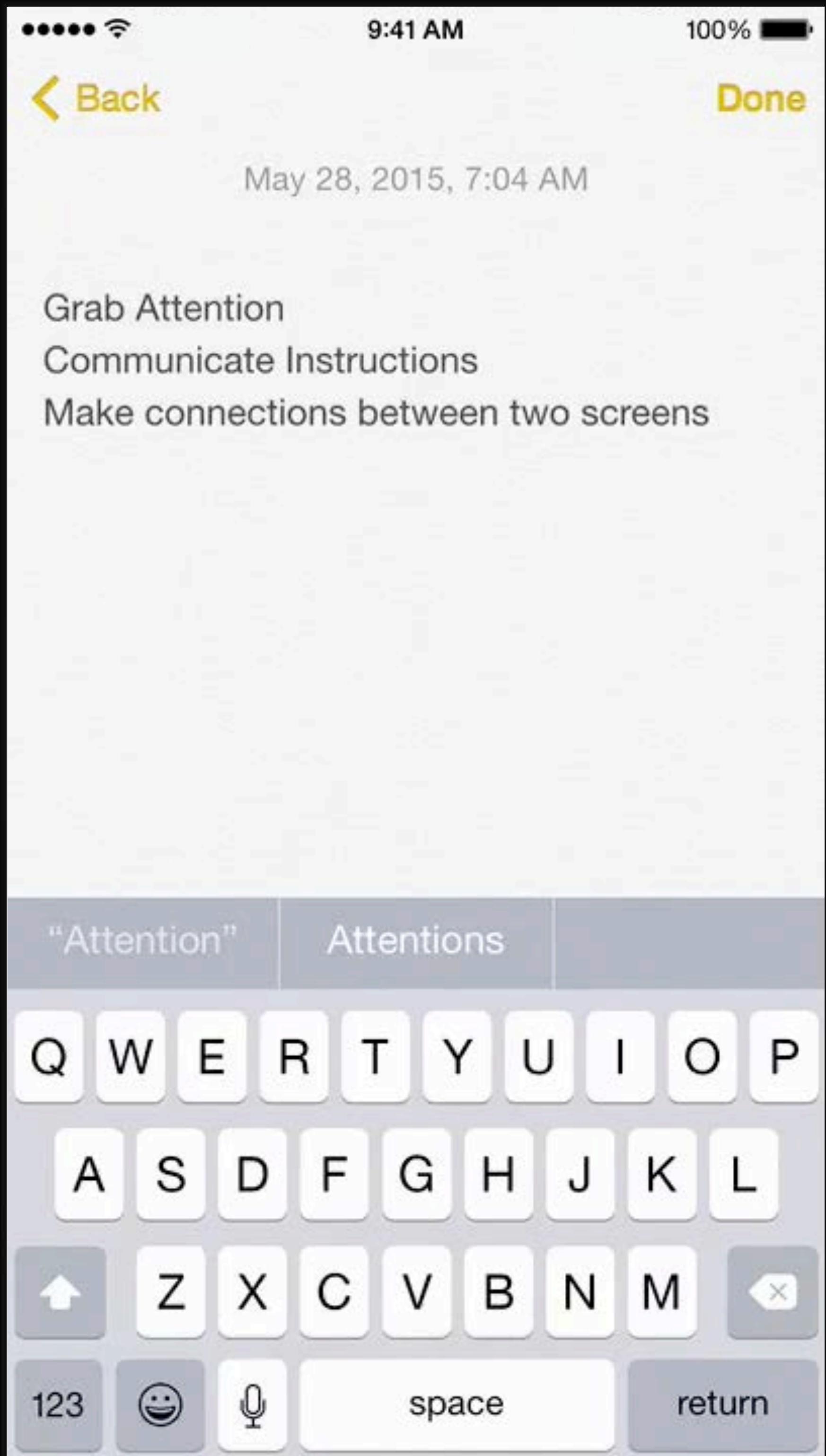
People need to know the new favorite button is there

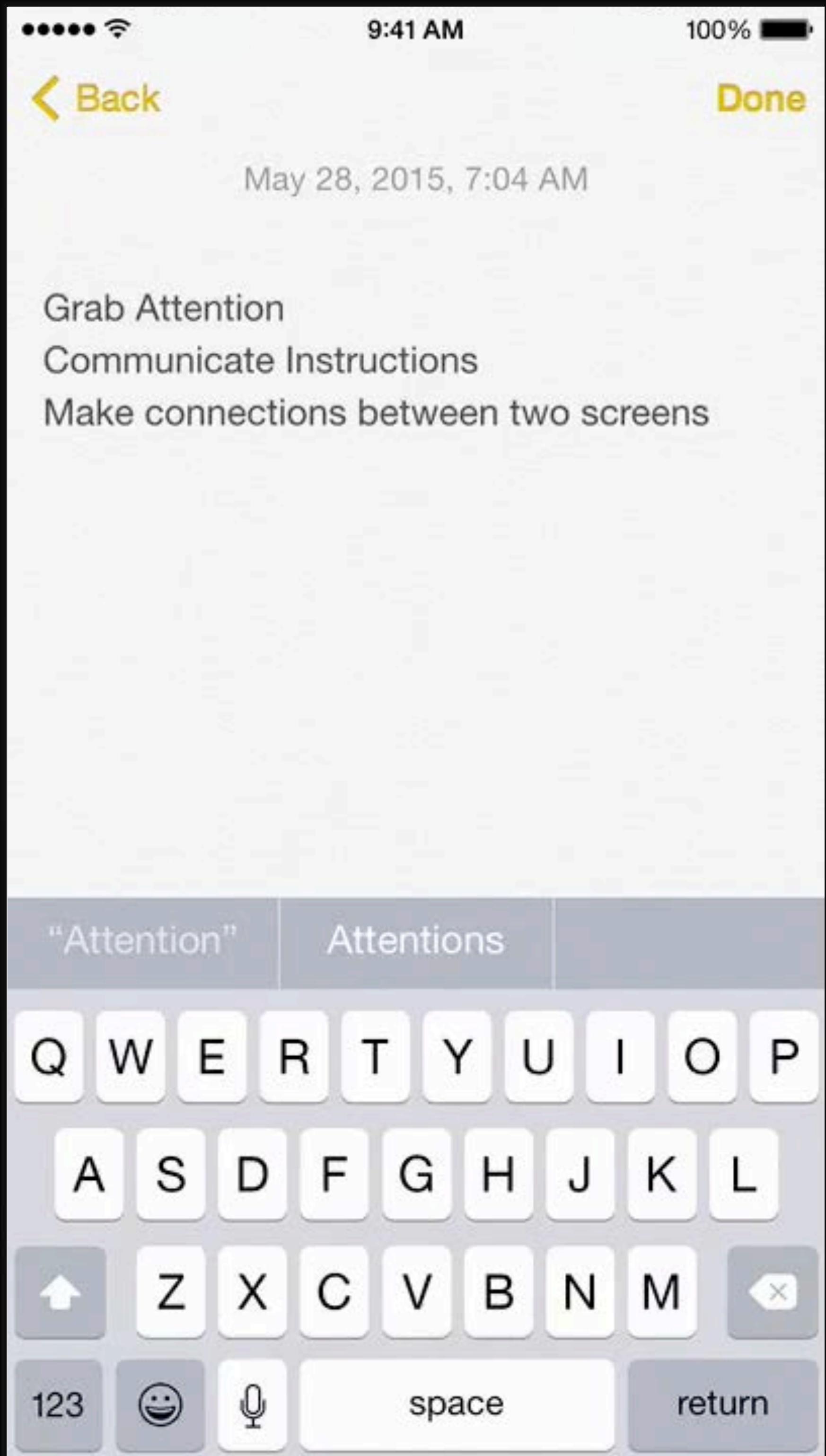
Keep oriented

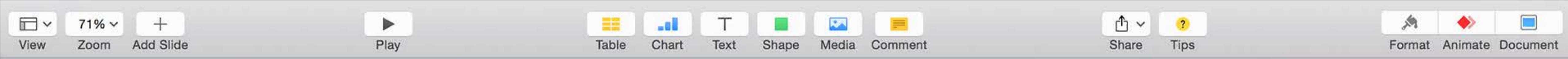
People should be able to find the toast they've favorited

Connect behavior

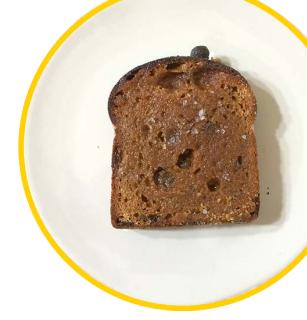
People should be able to use the favorite button from the first touch

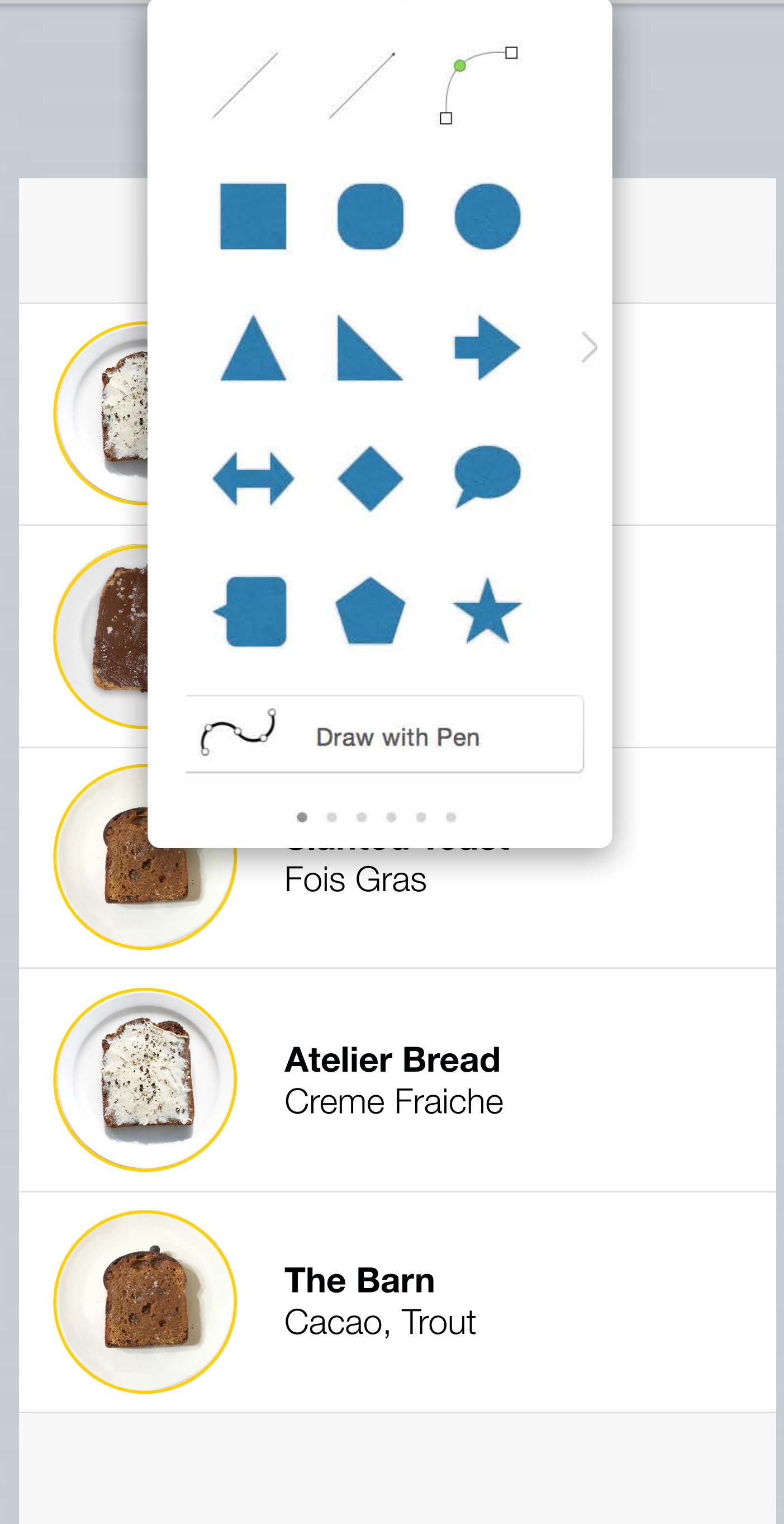






## Toast Modern

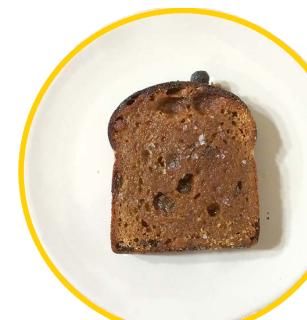
	<b>Blue Barrel</b> Goat Butter
	<b>Four Glass</b> Nutella Sea Salt
	<b>Slanted Toast</b> Fois Gras
	<b>Atelier Bread</b> Creme Fraiche
	<b>The Barn</b> Cacao, Trout



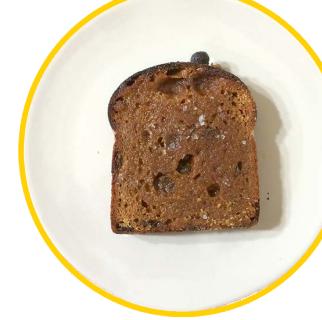
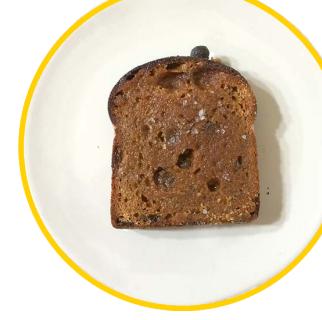
## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
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## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
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## Toast Modern

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## Toast Modern

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## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
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	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fair Trade**



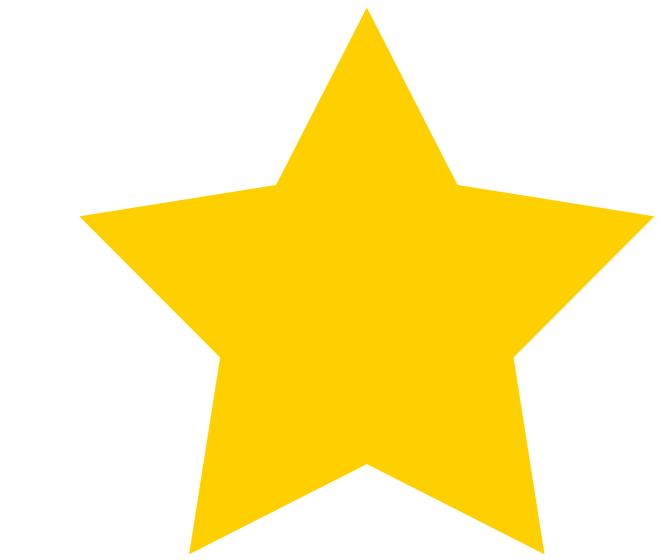
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





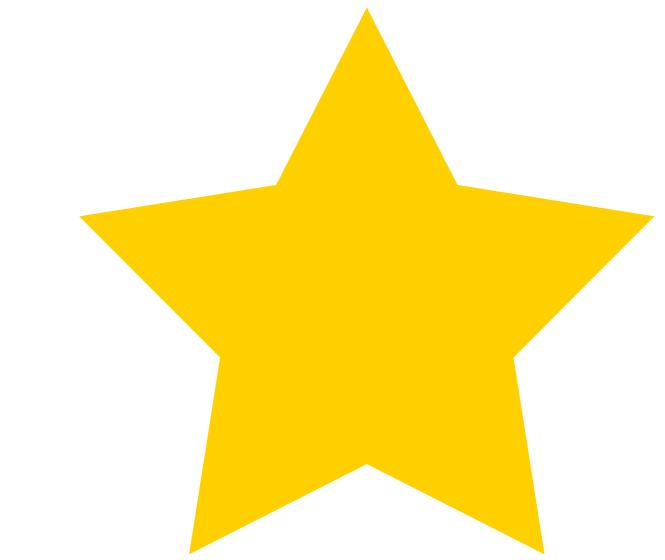
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





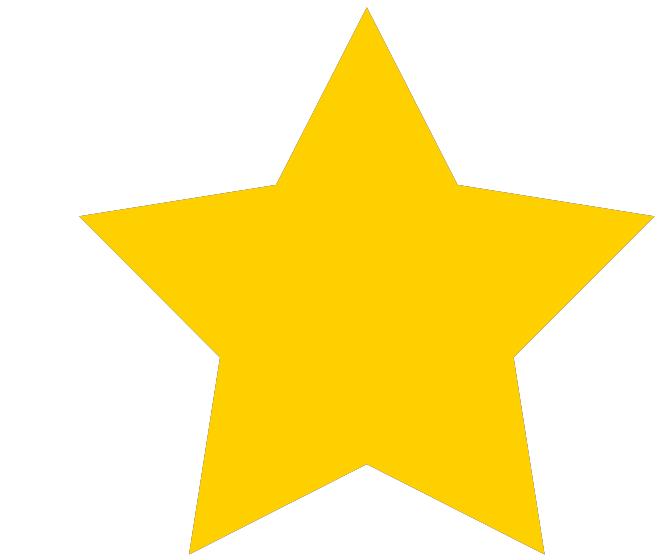
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





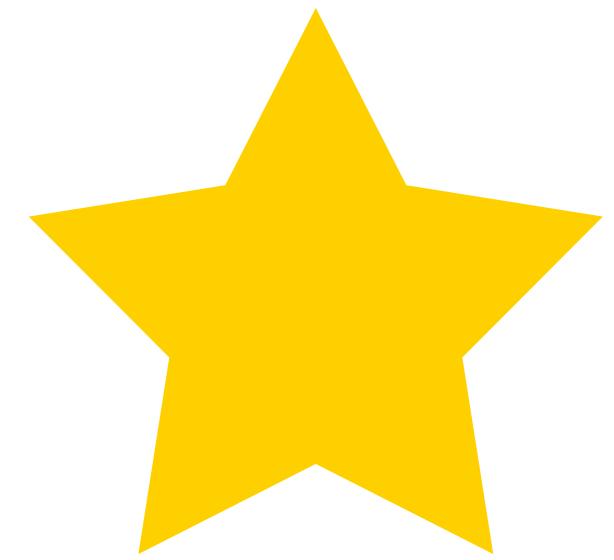
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





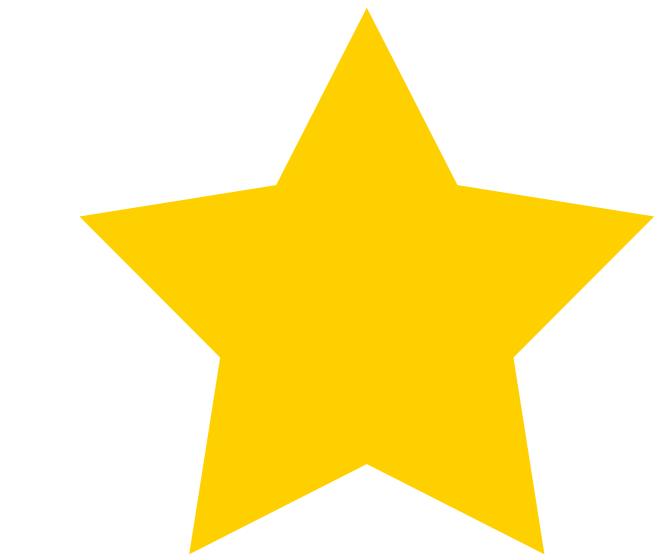
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

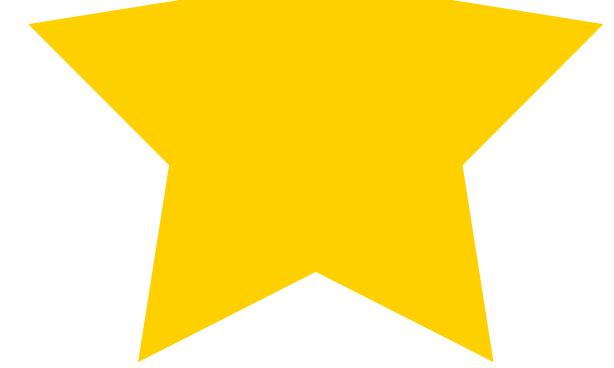
## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

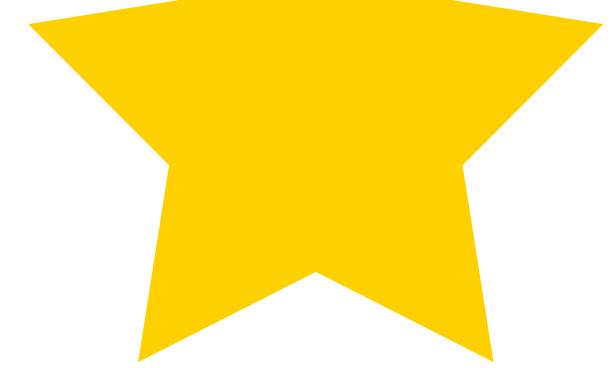
## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





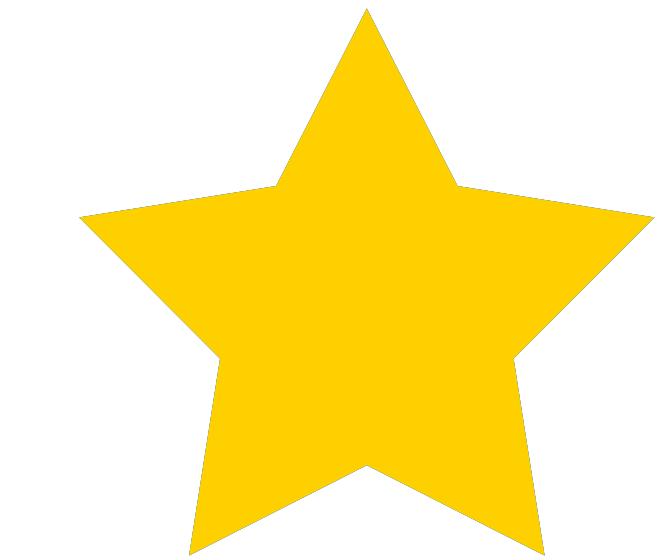
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





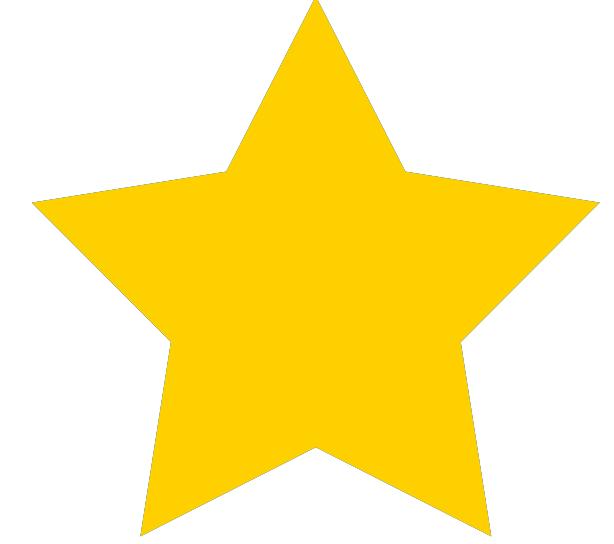
# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter Goat Butter**



# **Four Glass Nutella Sea Salt**



# **Slanted Toast**



## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	

## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
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## Toast Modern

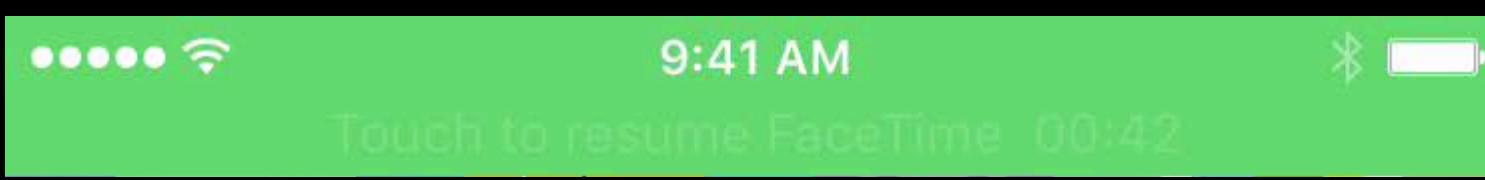
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	<b>Slanted Toast</b> Fois Gras	
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	<b>The Barn</b> Cacao, Trout	

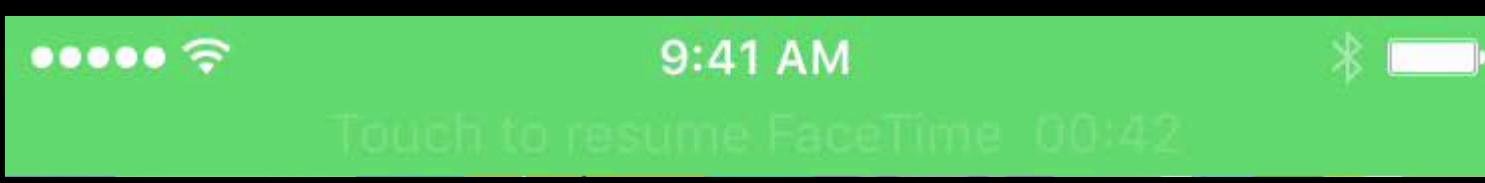


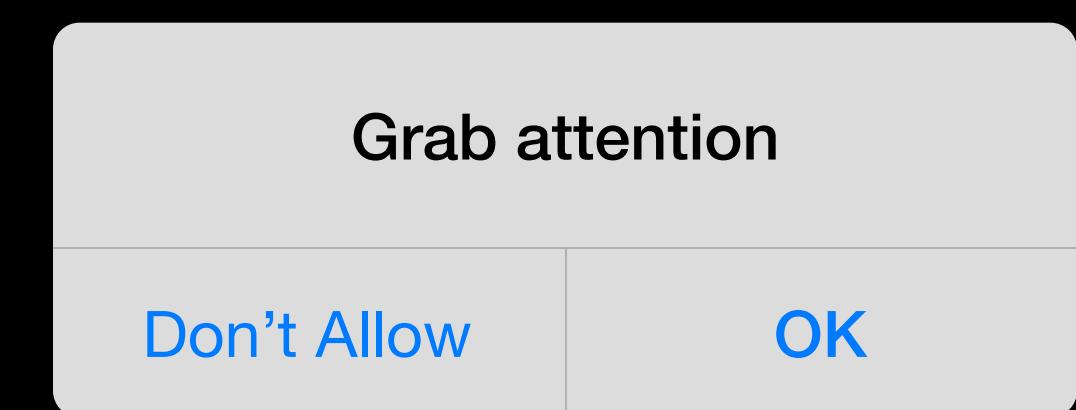
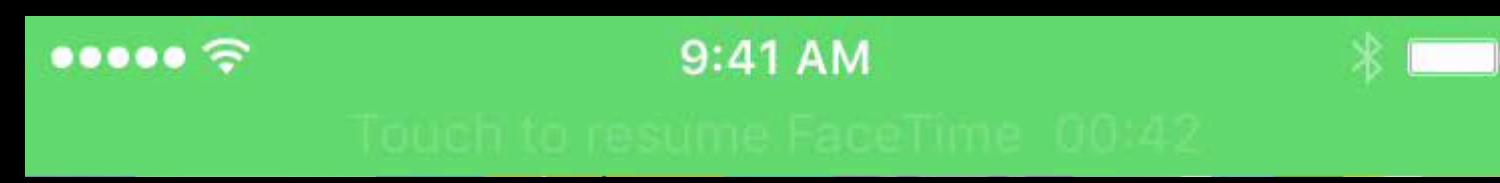


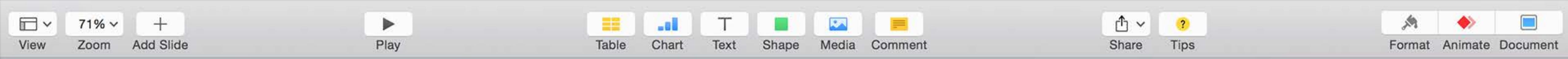












## Toast Modern

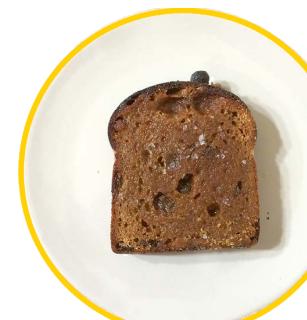
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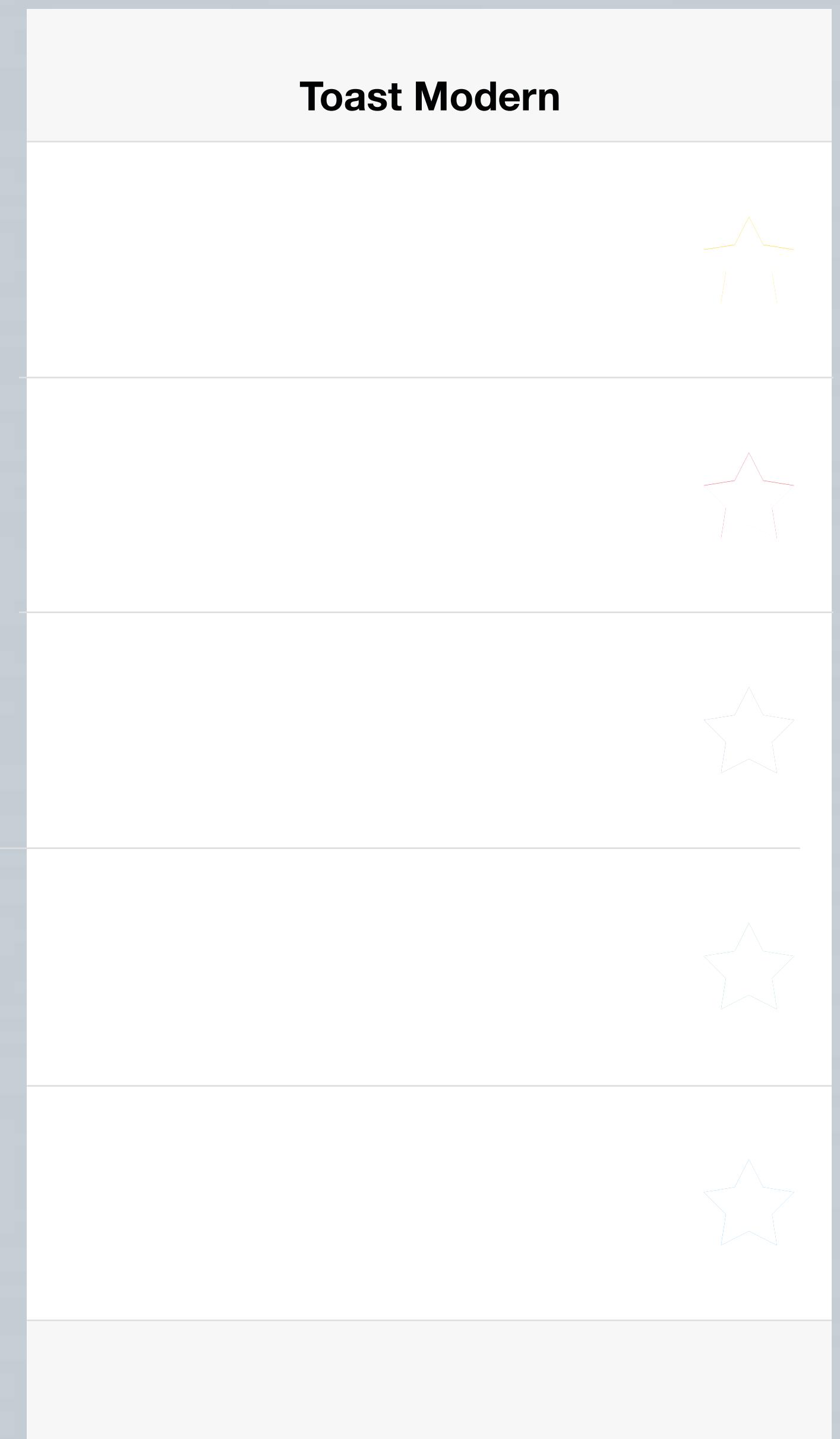
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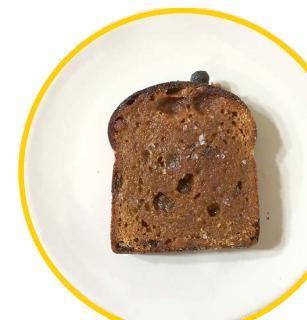
## Toast Modern

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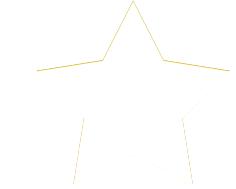
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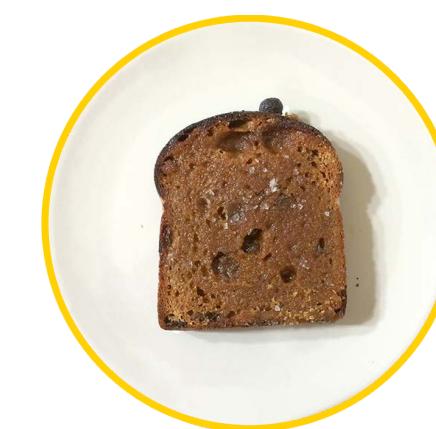
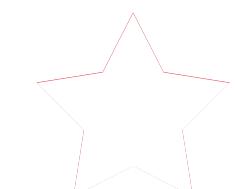
## Toast Modern



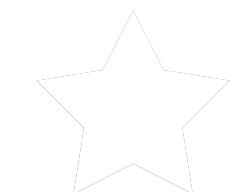
**Blue Barrel**  
Goat Butter



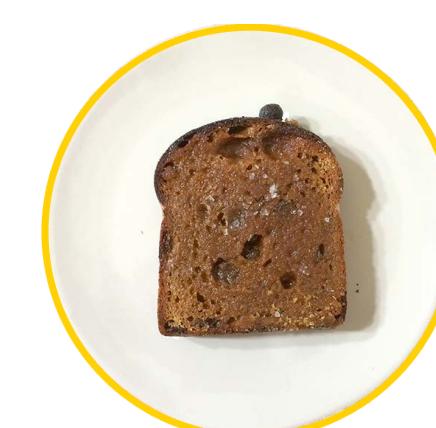
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Crème Fraîche



**The Barn**  
Cacao, Trout



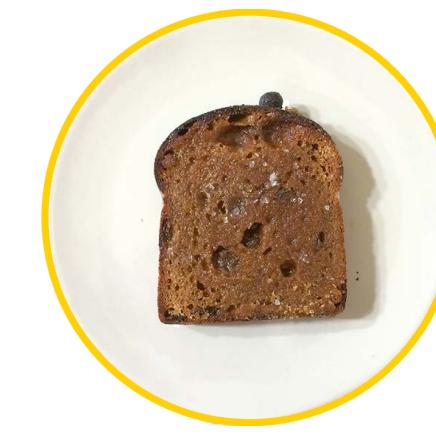
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Goat Butter



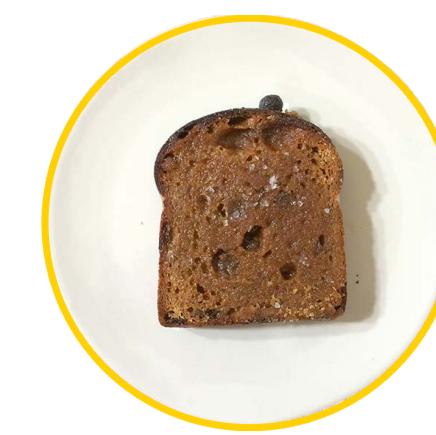
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



Direct attention

People need to know the new favorite button is there

Keep oriented

People should be able to find the toast they've favorited

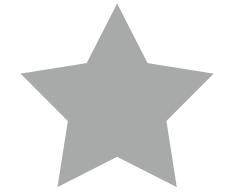
Connect behavior

People should be able to use the favorite button from the first touch

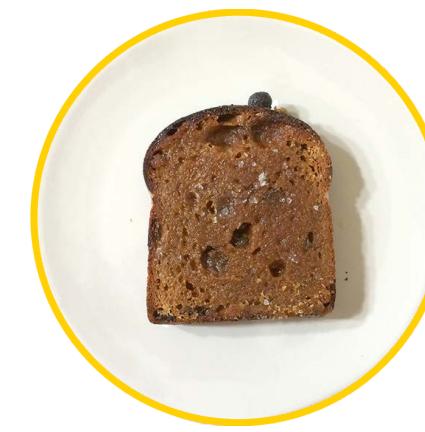
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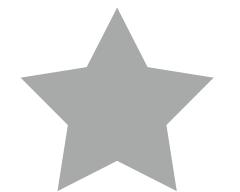
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**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



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Goat Butter



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Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



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Creme Fraiche



**The Barn**  
Cacao, Trout



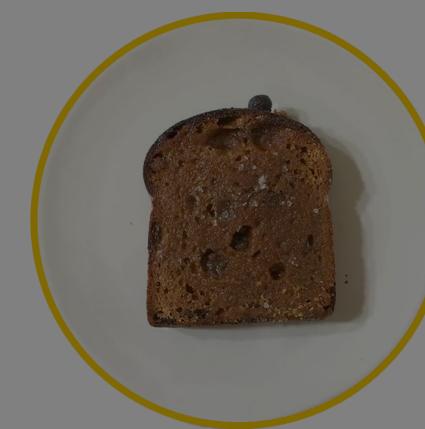
## Toast Modern



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Goat Butter



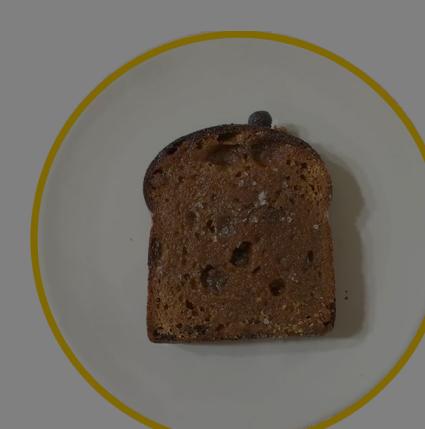
**Four Glass**  
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Fois Gras



**Atelier Bread**  
Creme Fraiche



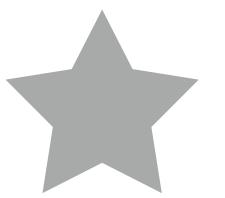
**The Barn**  
Cacao, Trout



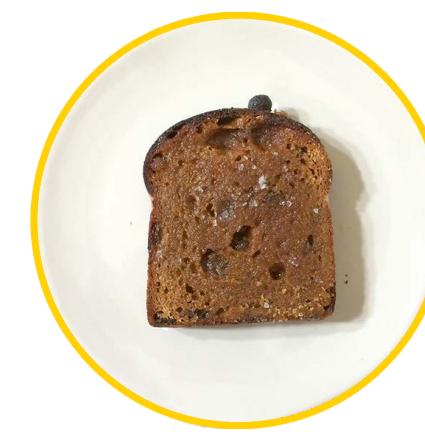
## Toast Modern



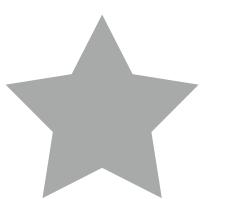
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Goat Butter



**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



## Favorites



**Four Glass**  
Nutella Sea Salt



## Toast Modern



**Blue Barrel**  
Goat Butter



**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



## Favorites



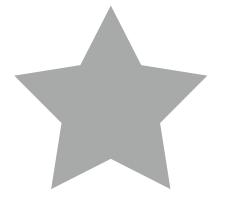
**Four Glass**  
Nutella Sea Salt



## Favorites



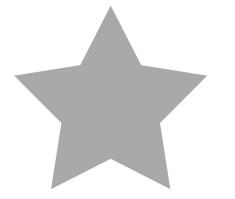
**Four Glass**  
Nutella Sea Salt



## Favorites



**Four Glass**  
Nutella Sea Salt



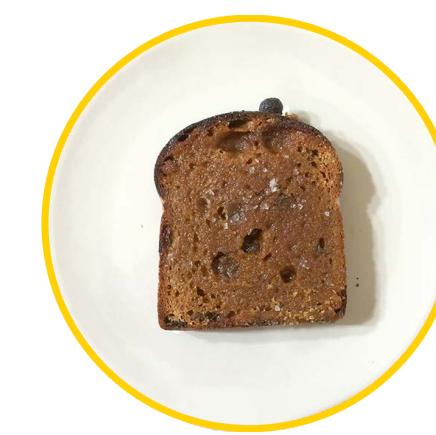
## Toast Modern



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Goat Butter



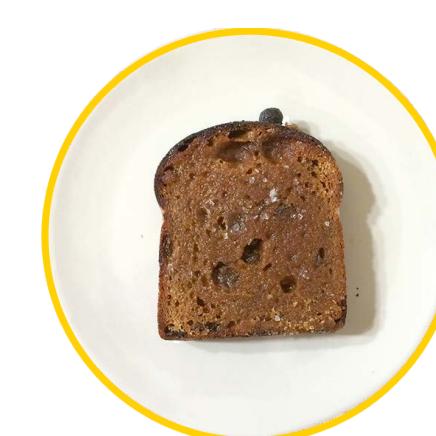
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout









Hello













fello

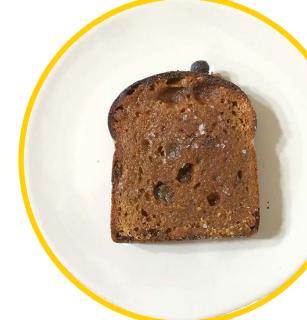


fello

## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		
		

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	<b>Atelier Bread</b> Creme Fraiche	
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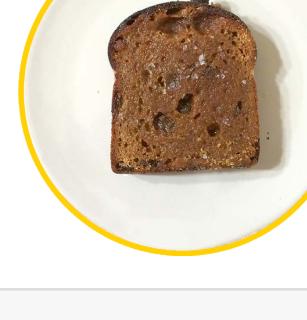
## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		

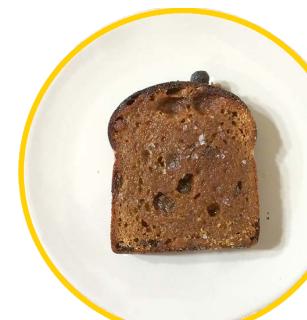
## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
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	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
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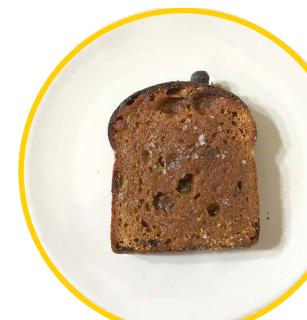
## Toast Modern

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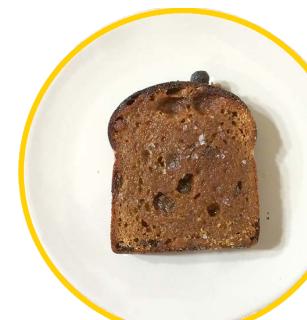
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<input type="radio"/>		

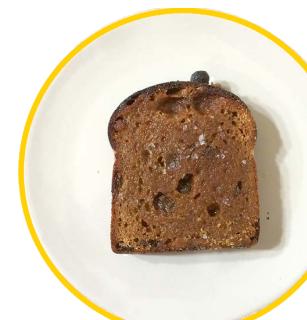
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	<b>Blue Barrel</b> Goat Butter	
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<input type="radio"/>		

Direct attention

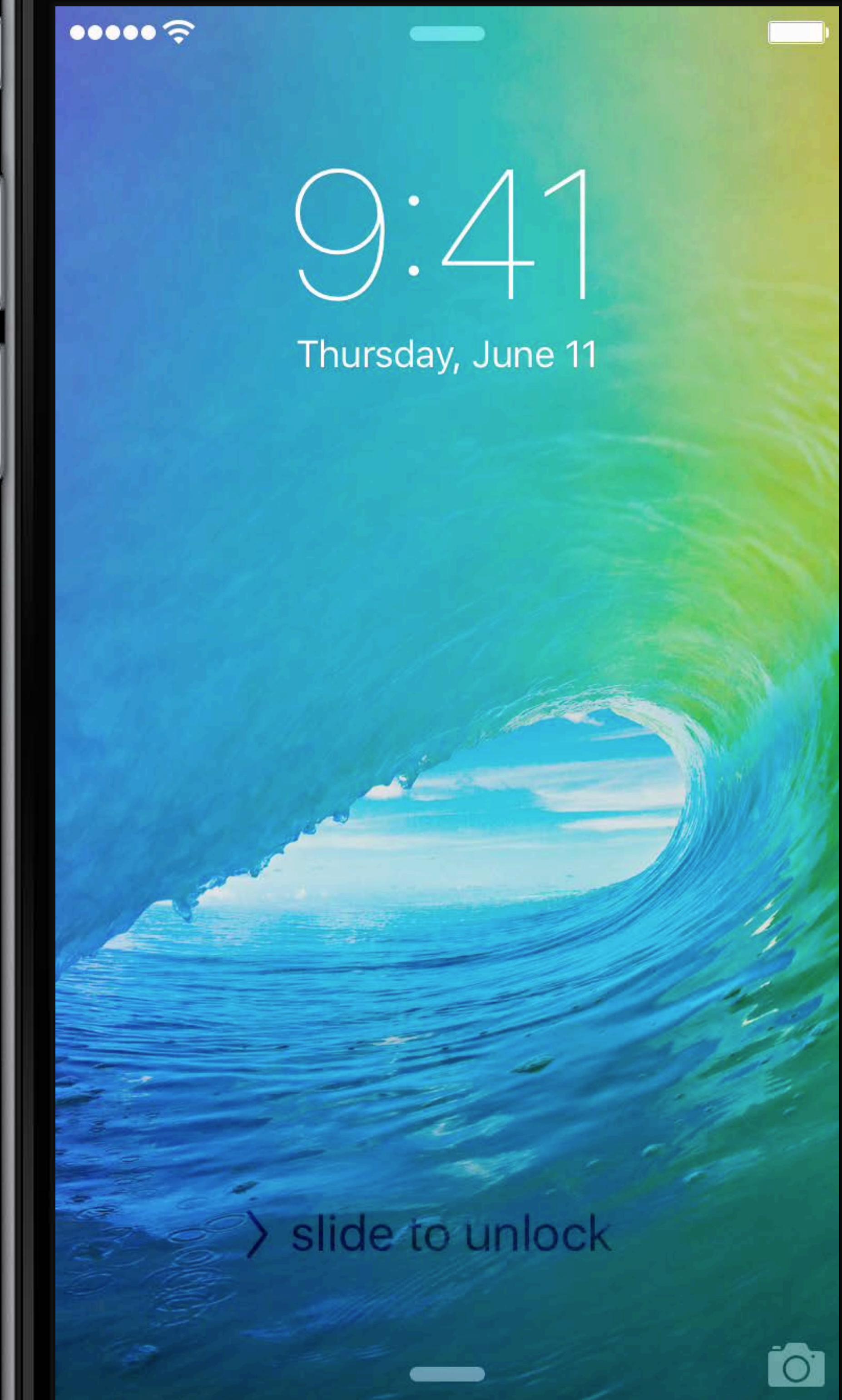
People need to know the new favorite button is there

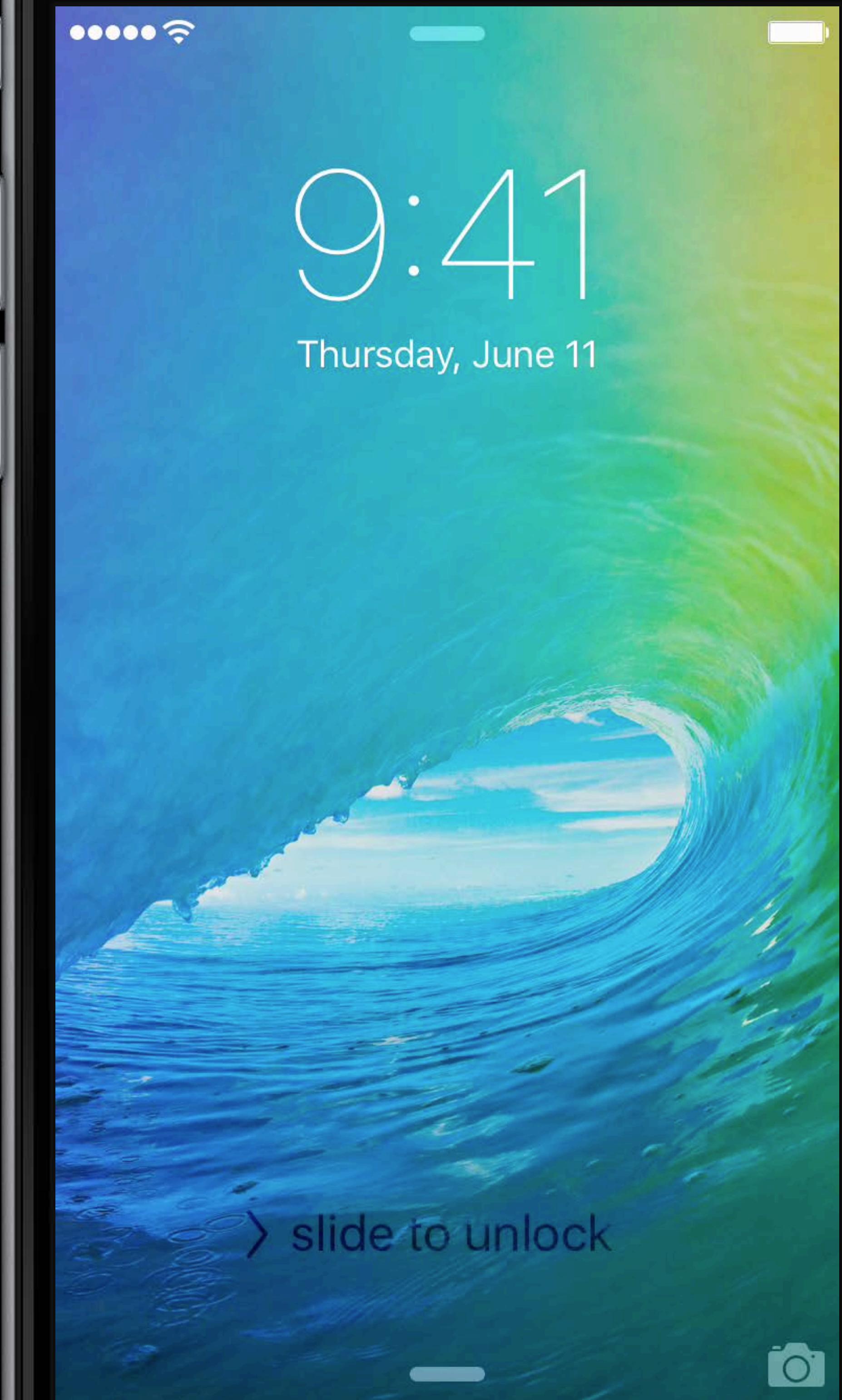
Keep oriented

People should be able to find the toast they've favorited

Connect behavior

People should be able to use the favorite button from the first touch





## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
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	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fois Gras**



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fois Gras**



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fois Gras**



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fois Gras**



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fair Trade**



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**



## **Fair Trade**



# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter**

## **Goat Butter**



# **Four Glass**

## **Nutella Sea Salt**



# **Slanted Toast**

## **Fois Gras**





# **Blue Butter Goat Butter**



# **Four Glass Nutella Sea Salt**



# **Slanted Toast**



## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	

## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
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	<b>Blue Barrel</b> Goat Butter	
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	<b>Blue Barrel</b> Goat Butter	
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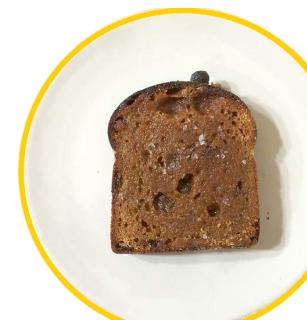
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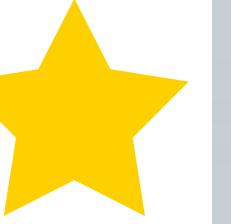
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	<b>Blue Barrel</b> Goat Butter	
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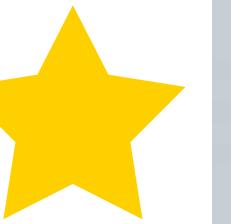
## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
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	<b>Blue Barrel</b> Goat Butter	
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	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		



QuickTime Player

File Edit View Window Help

New Movie Recording ⌘⌥N

New Audio Recording ⌘⌥⇧N

New Screen Recording ⌘⌘N

Open File... ⌘O

Open Location... ⌘L

Open Recent ►

Close ⌘W

Save... ⌘S

Duplicate ⌘⇧S

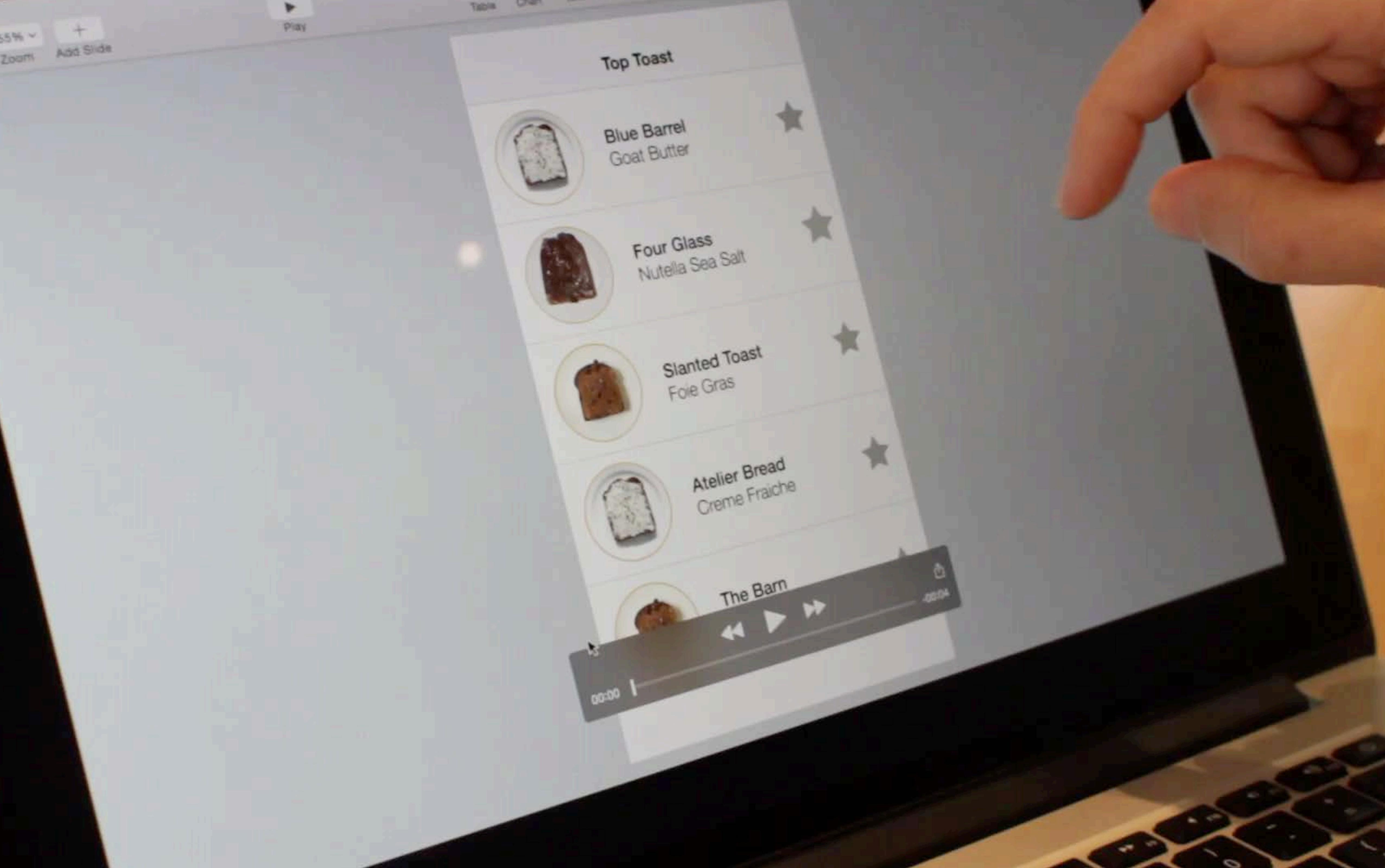
Rename...

Move To...

Export ►

Revert To ►

Share ►



## Top Toast

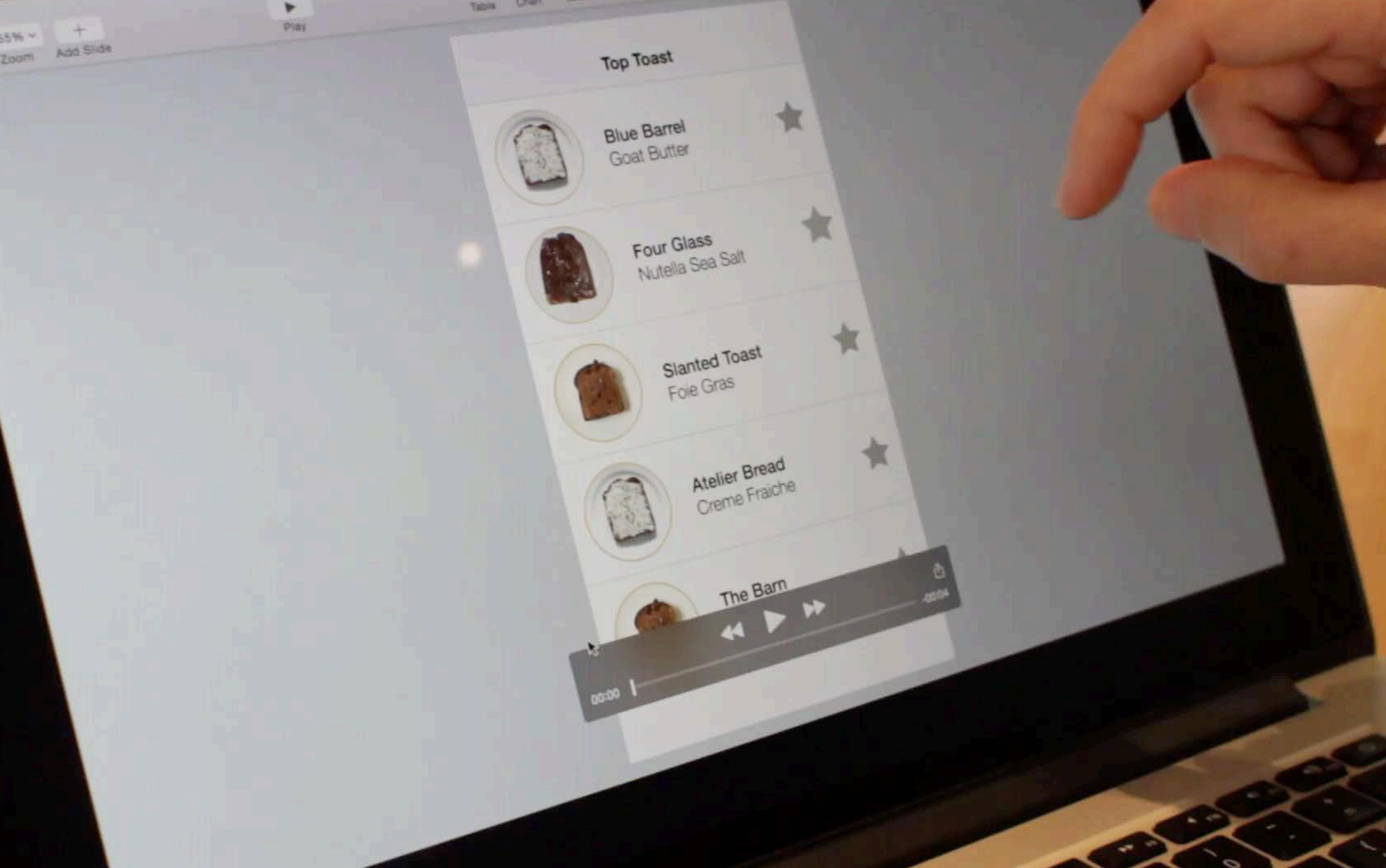
Blue Barrel  
Goat Butter

Four Glass  
Nutella Sea Salt

Slanted Toast  
Foie Gras

Atelier Bread  
Creme Fraiche

The Barn



## Top Toast

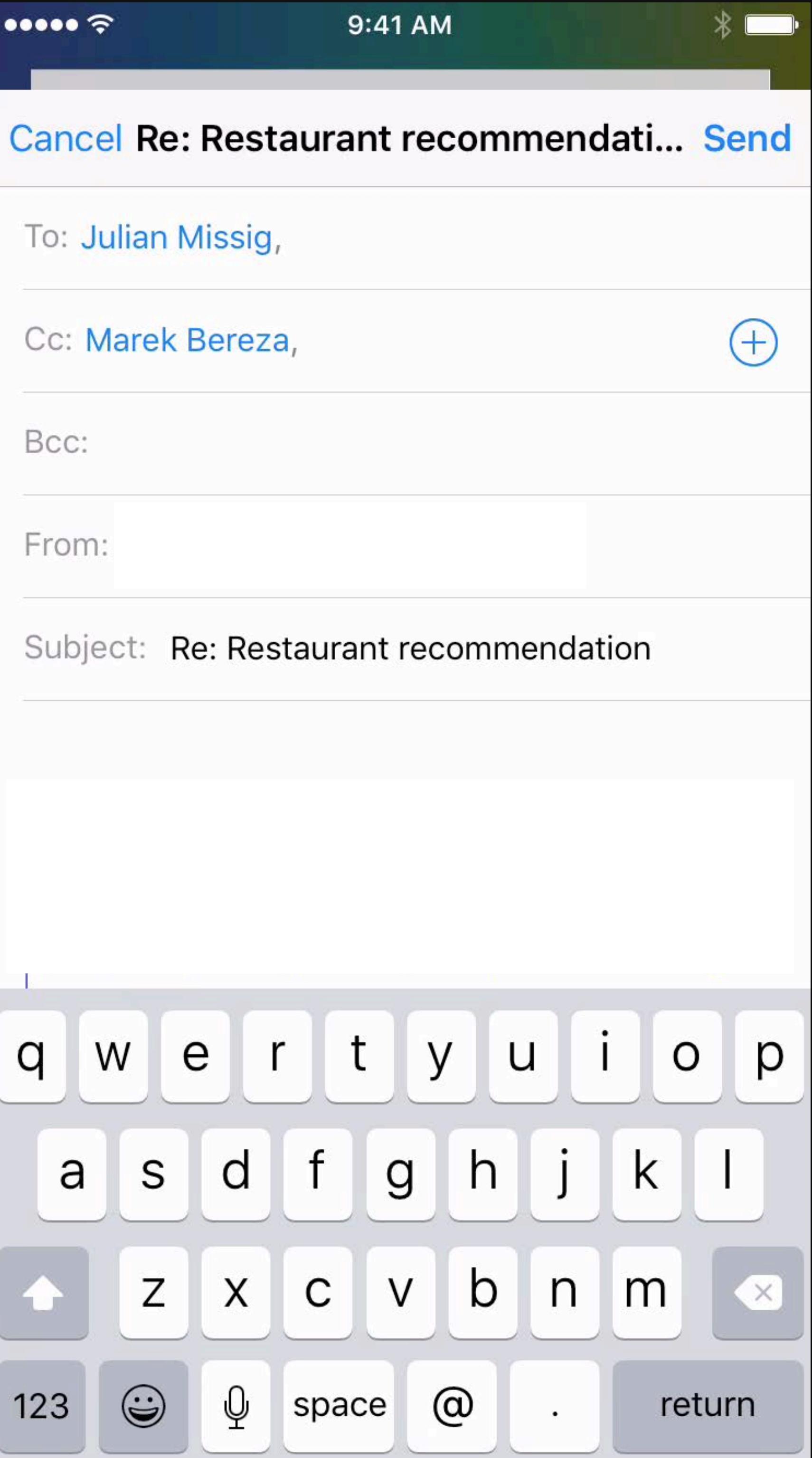
Blue Barrel  
Goat Butter

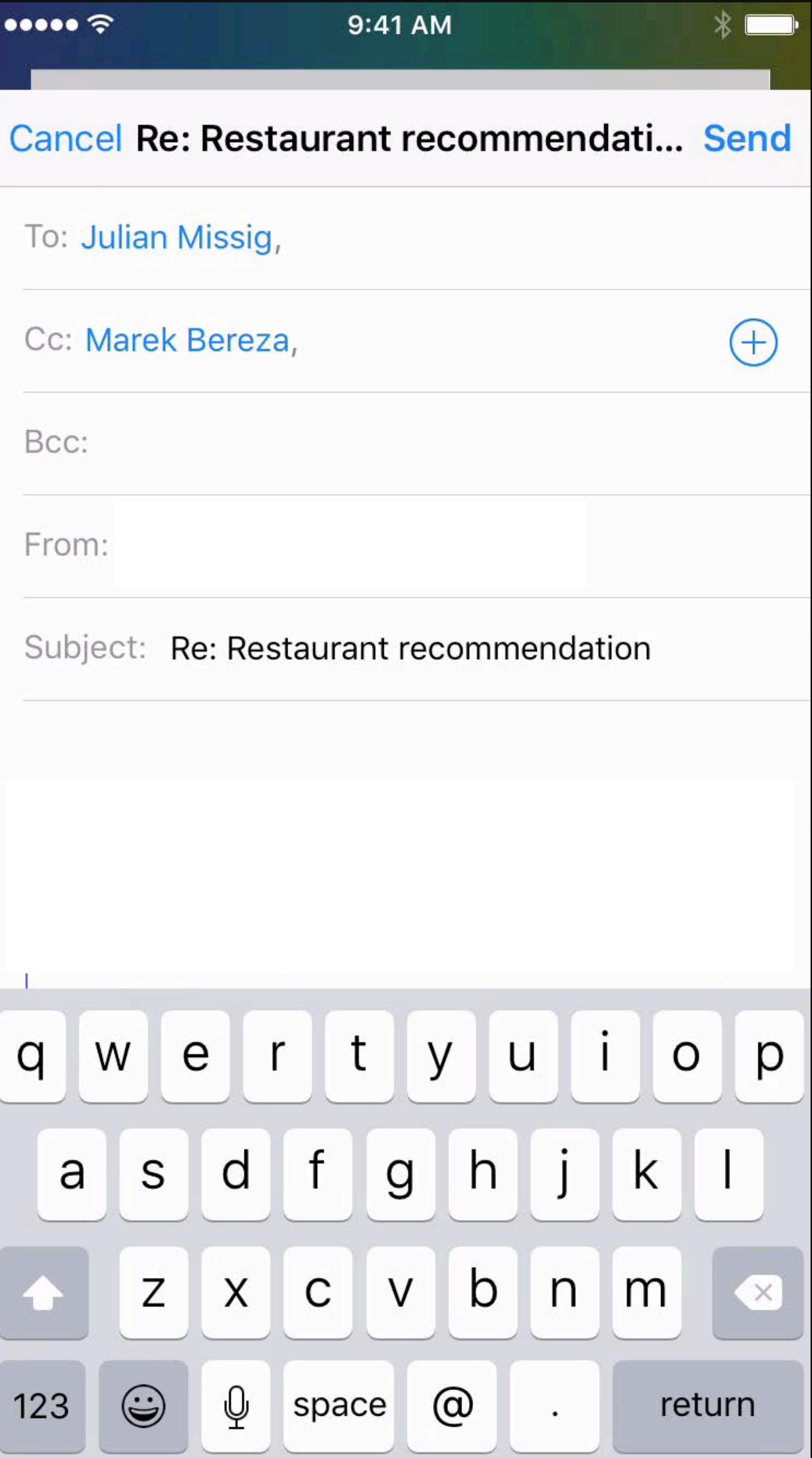
Four Glass  
Nutella Sea Salt

Slanted Toast  
Foie Gras

Atelier Bread  
Creme Fraiche

The Barn





## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		

## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		

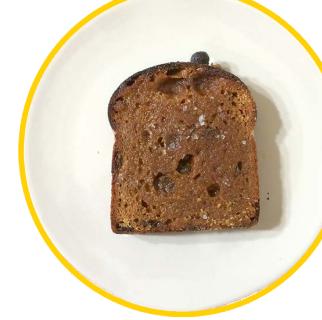
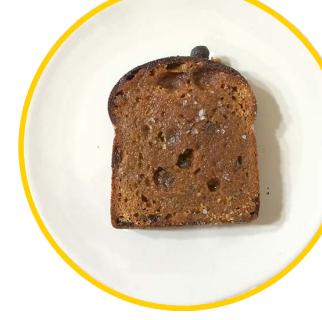
## Toast Modern

	<b>Blue Barrel</b> Goat Butter	
	<b>Four Glass</b> Nutella Sea Salt	
	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		

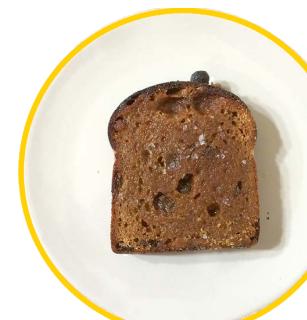
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	<b>Blue Barrel</b> Goat Butter	
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	<b>Atelier Bread</b> Creme Fraiche	
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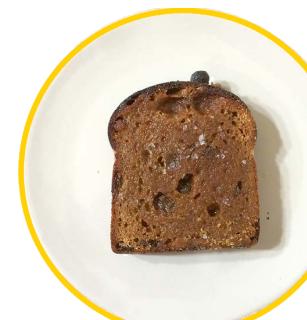
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	<b>Blue Barrel</b> Goat Butter	
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	<b>Blue Barrel</b> Goat Butter	
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	<b>Slanted Toast</b> Fois Gras	
	<b>Atelier Bread</b> Creme Fraiche	
	<b>The Barn</b> Cacao, Trout	
		

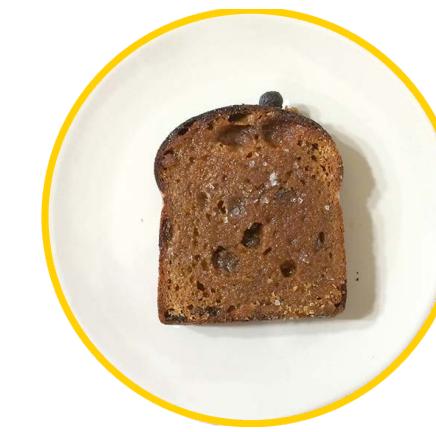
## Toast Modern



**Blue Barrel**  
Goat Butter



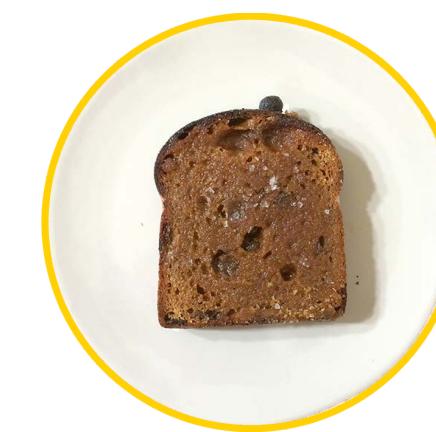
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Crème Fraîche



**The Barn**  
Cacao, Trout



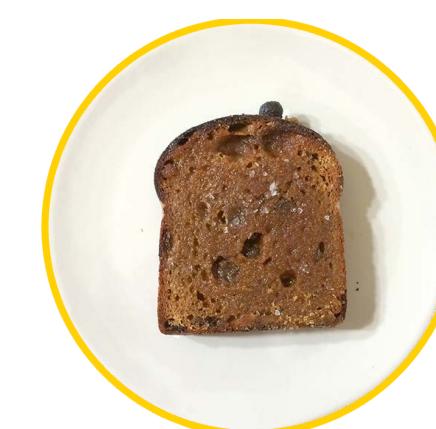
## Toast Modern



**Blue Barrel**  
Goat Butter



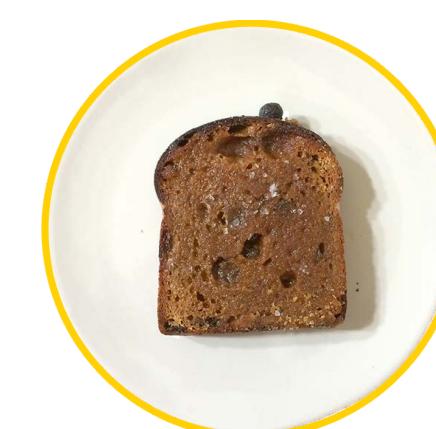
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



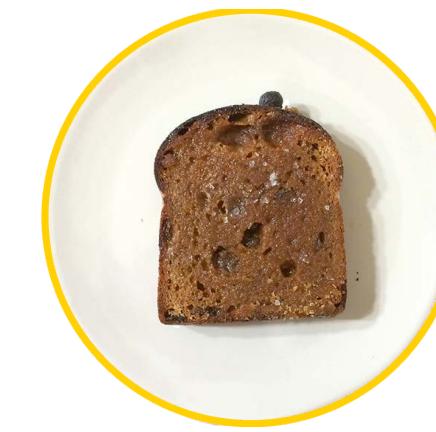
## Toast Modern



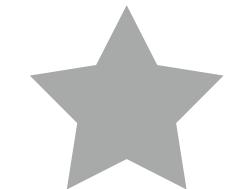
**Blue Barrel**  
Goat Butter



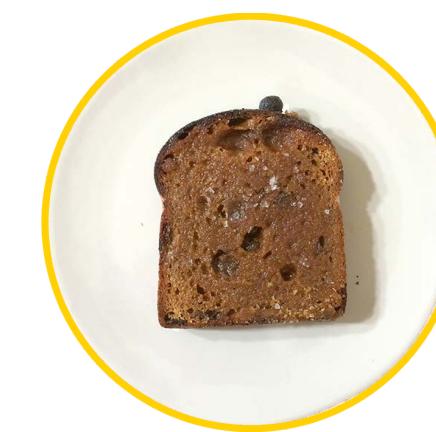
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



Direct attention

People need to know the new favorite button is there

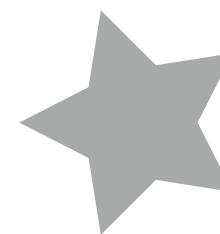
Keep oriented

People should be able to find the toast they've favorited

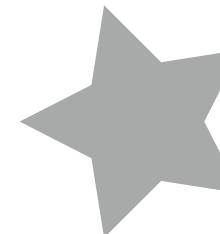
Connect behavior

People should be able to use the favorite button from the first touch

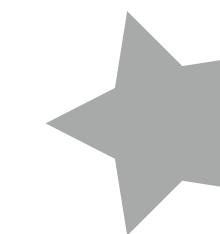
## Toast Modern



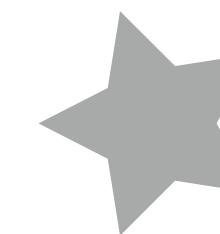
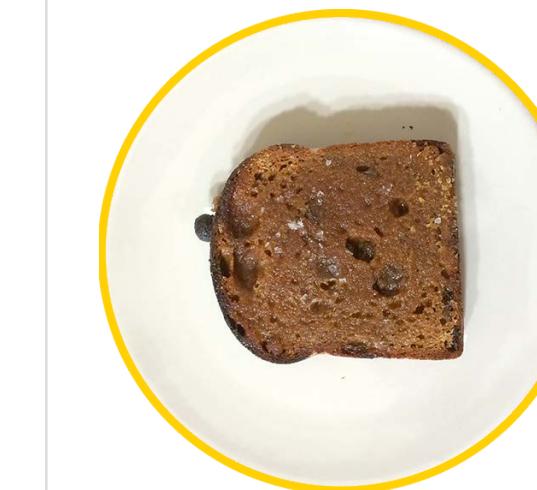
**Blue Barrel**  
Goat Butter



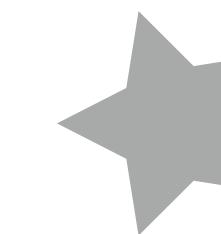
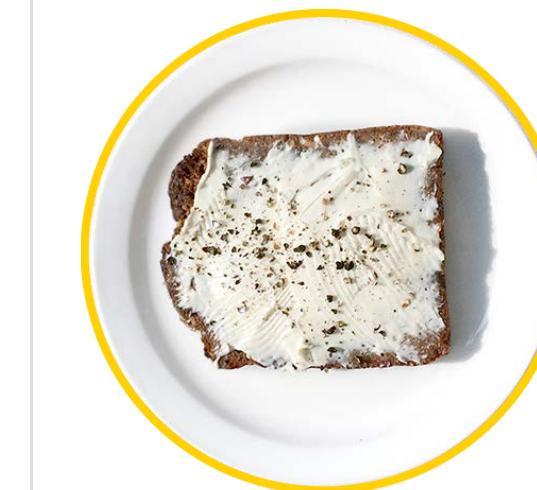
**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras

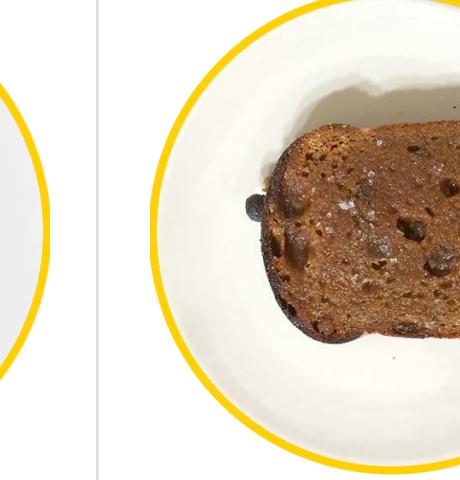
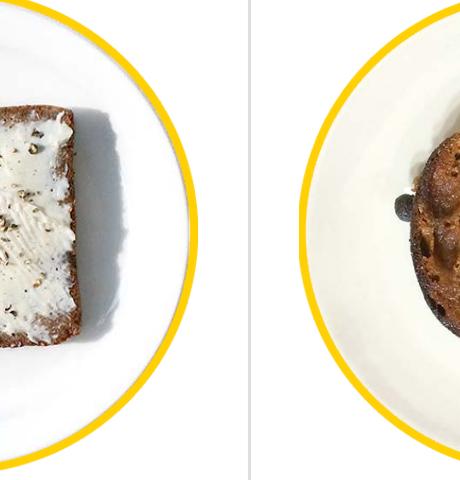
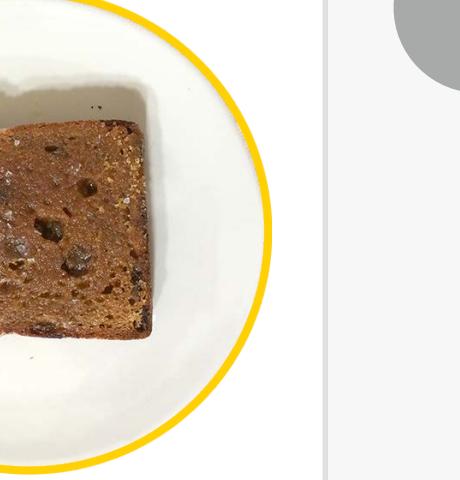


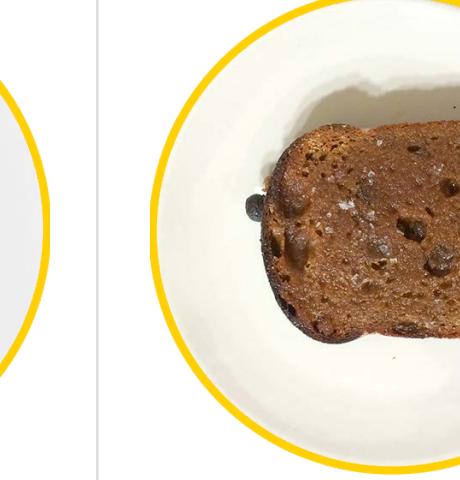
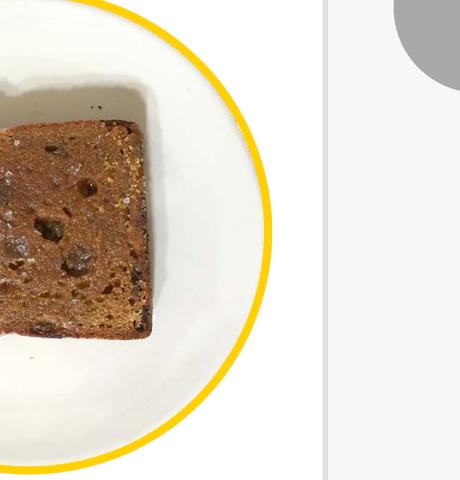
**Atelier Bread**  
Creme Fraiche

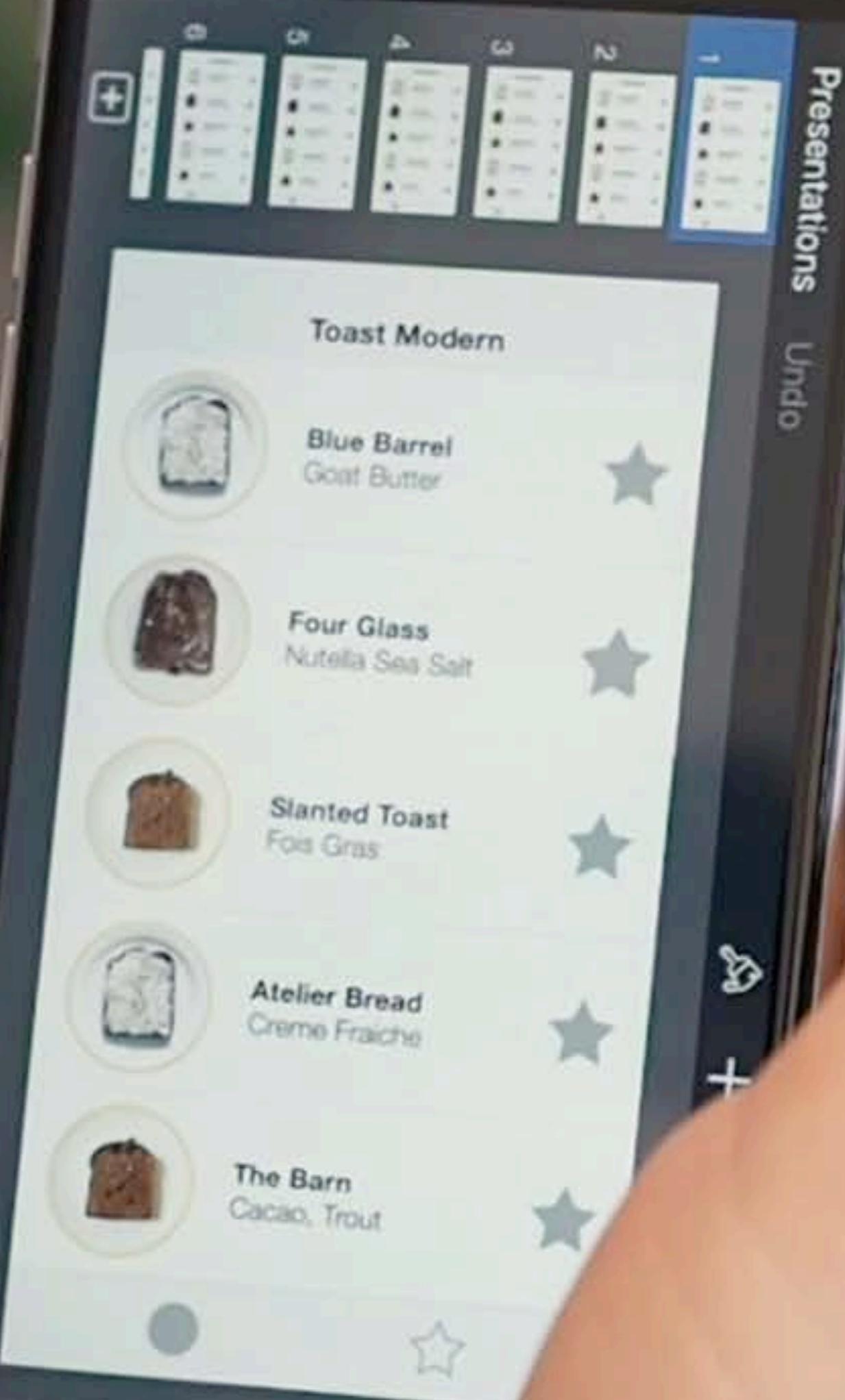


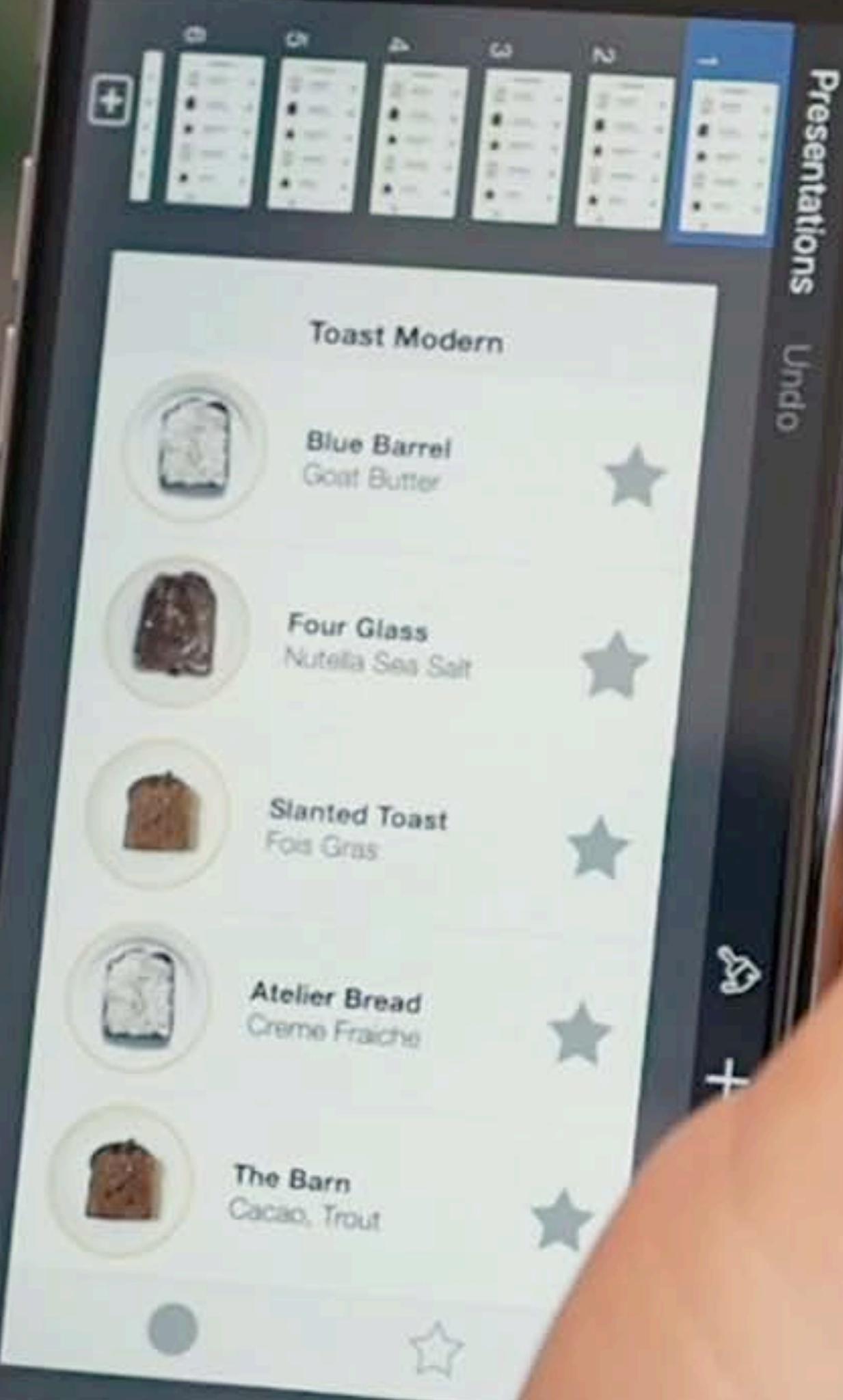
**The Barn**  
Cacao, Trout

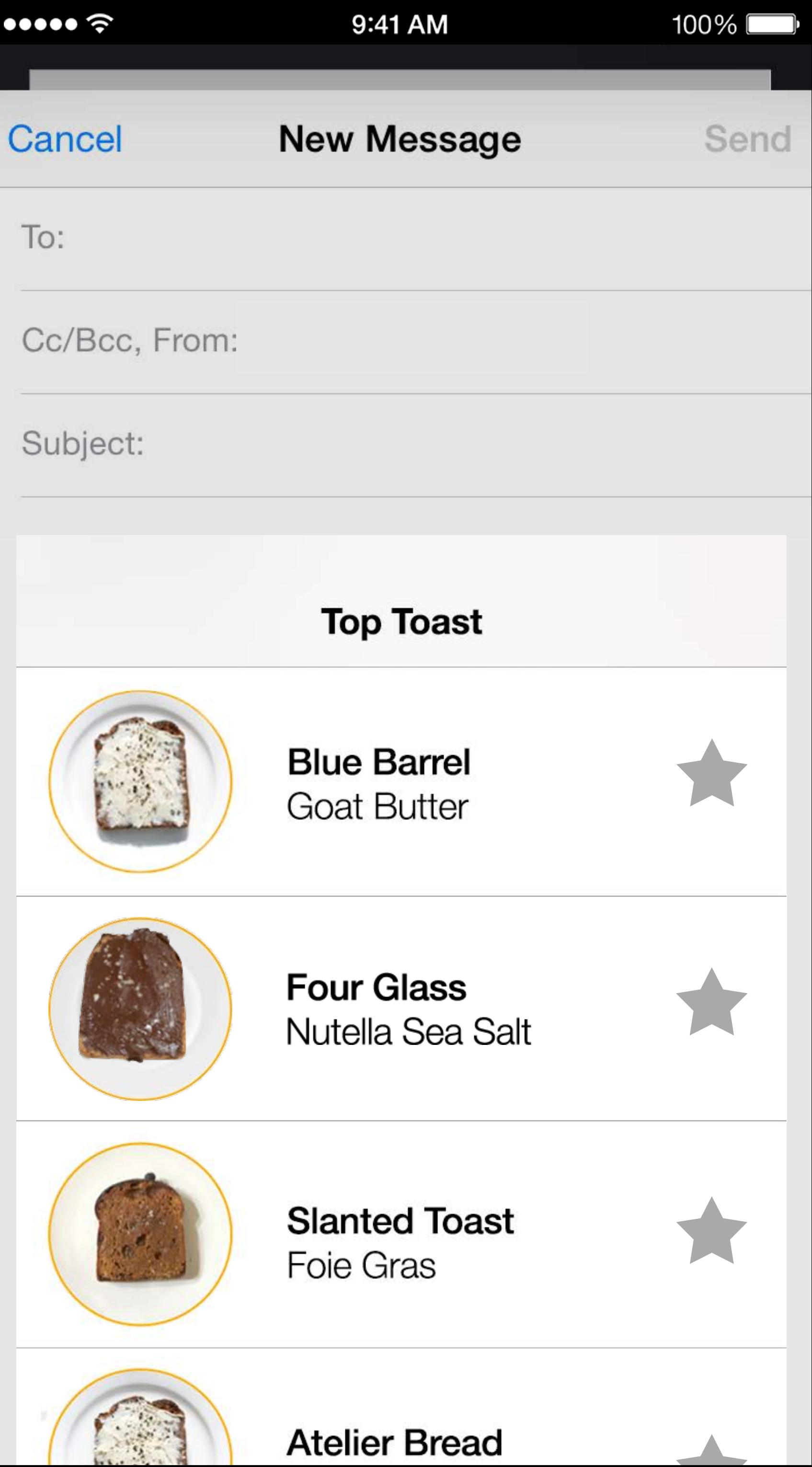


Toast Modern	Blue Barrel Goat Butter	Four Glass Nutella Sea Salt	Slanted Toast Fois Gras	Atelier Bread Creme Fraiche	The Barn Cacao, Trout	
						

Toast Modern	Blue Barrel Goat Butter	Four Glass Nutella Sea Salt	Slanted Toast Fois Gras	Atelier Bread Creme Fraiche	The Barn Cacao, Trout	
						







# Interact

Control time

Marek Bereza

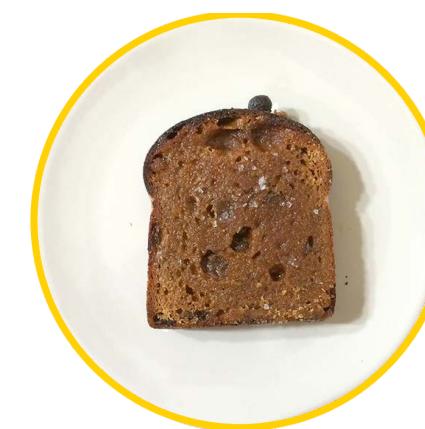
## Toast Modern



**Blue Barrel**  
Goat Butter



**Four Glass**  
Nutella Sea Salt



**Slanted Toast**  
Fois Gras



**Atelier Bread**  
Creme Fraiche



**The Barn**  
Cacao, Trout



# Interactive Prototypes

# Interactive Prototypes

Get a feel for it

# Interactive Prototypes

Get a feel for it

Does it work?

# Interactive Prototypes

Get a feel for it

Does it work?

What doesn't work?

# Interactive Prototypes

Get a feel for it

Does it work?

What doesn't work?

Why doesn't it work?

# Interactive Prototypes

Get a feel for it

# Interactive Prototypes

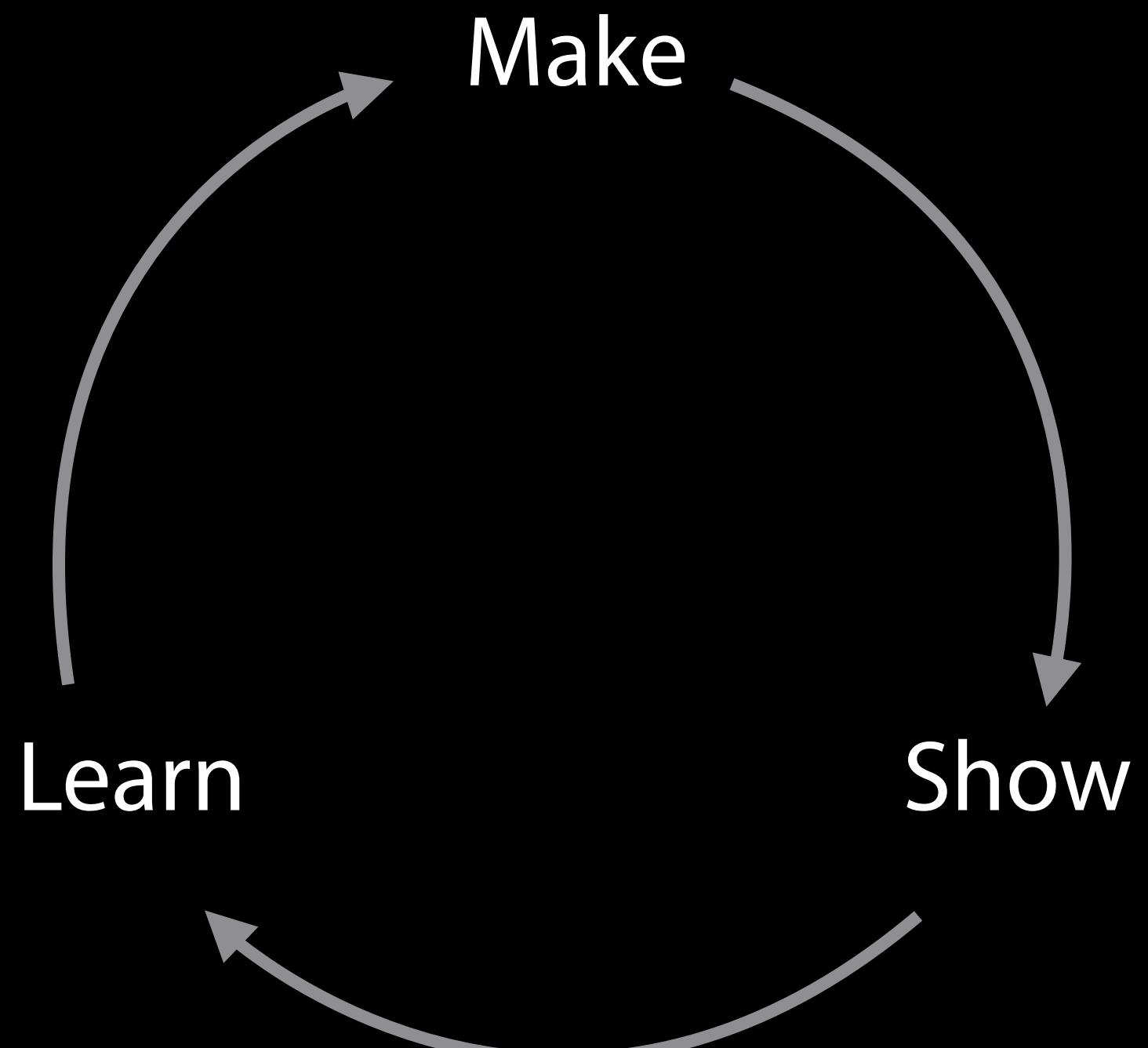
Get a feel for it

Let others try it

# Interactive Prototypes

Get a feel for it

Let others try it



# Interactive Prototypes

Get a feel for it

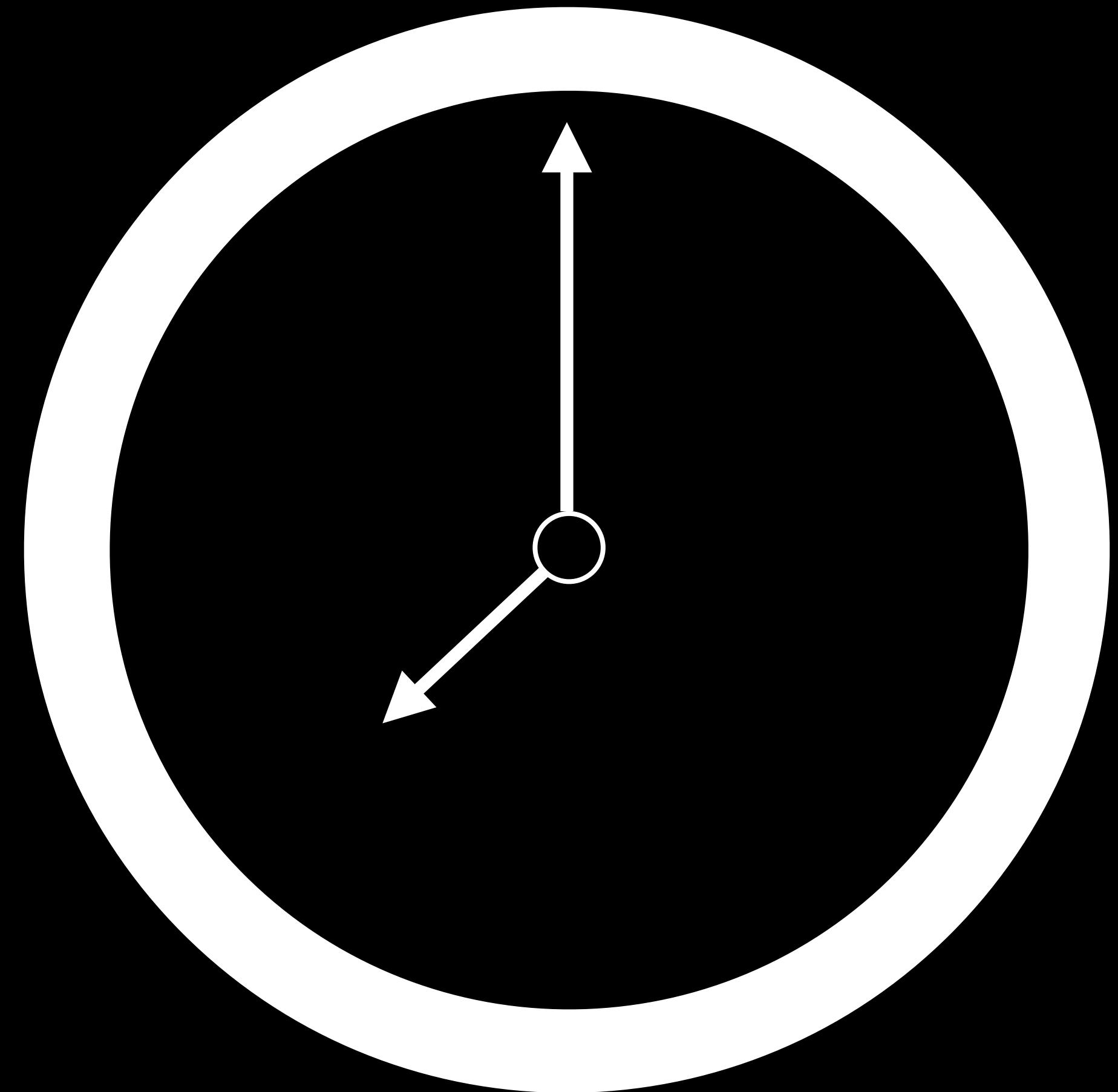
Let others try it

# Interactive Prototypes

Get a feel for it

Let others try it

Easily make changes



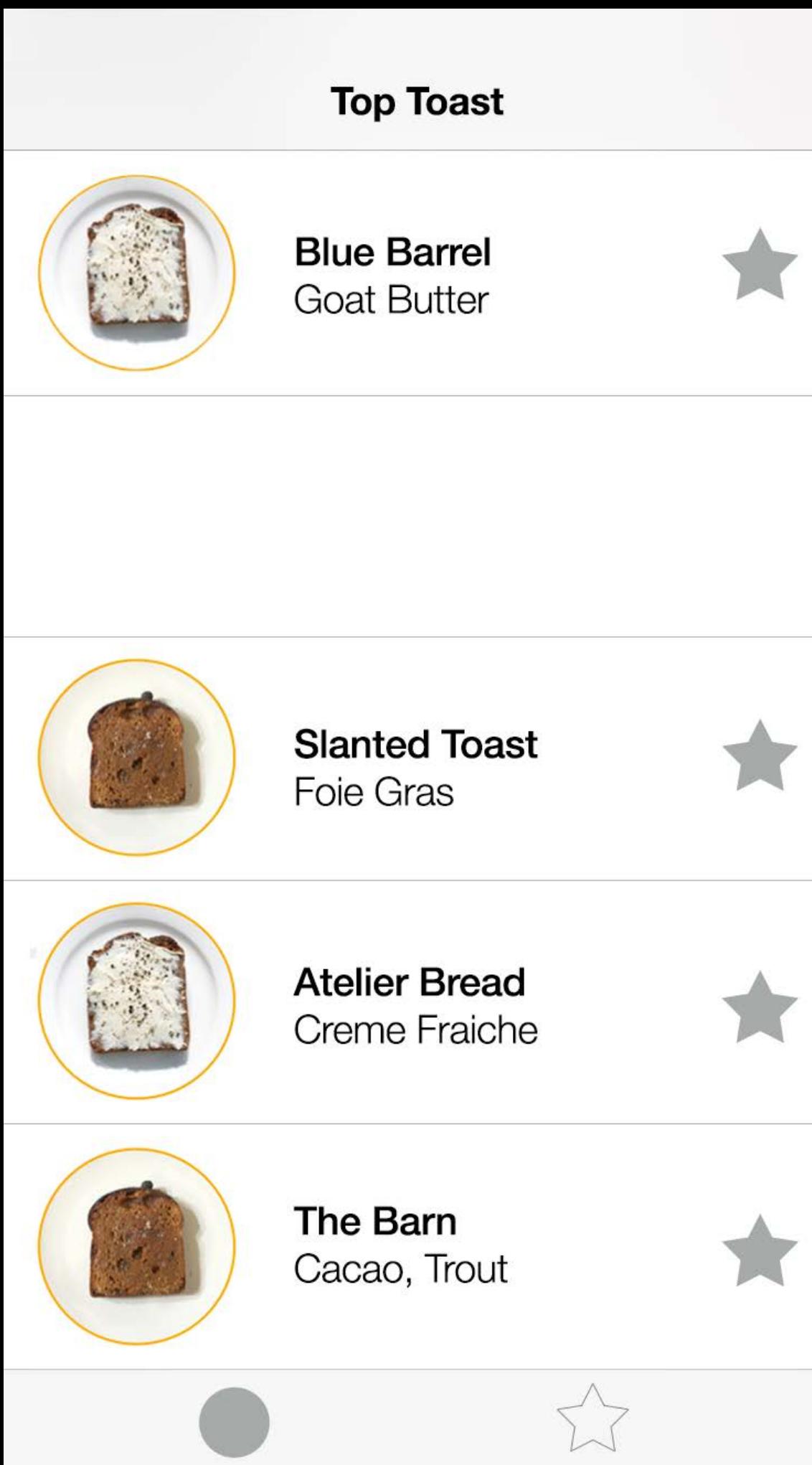


# Interactive Prototype

Interactive Prototype = Illusion

Interactive Prototype = Illusion

# The Image Files



app.png



toastRow.png



favoritedRow.png

# The Code

```
class ViewController: UIViewController {

    let appImage = Layer(image: "app.png")
    let toastRow = Layer(image: "toastRow.png")
    let favoritedRow = Layer(image: "favoritedRow.png")

    override func viewDidLoad() {
        super.viewDidLoad()

        view.addSubview(appImage)
        view.addSubview(favoritedRow)
        view.addSubview(toastRow)

        toastRow.y = 176
        favoritedRow.y = 176
    }

    override func touchesEnded(touches: NSSet, withEvent: UIEvent) {
        favoritedRow.scale = 0.8
        UIView.animateWithDuration(0.4) {
            toastRow.x = screenWidth
            favoritedRow.scale = 1
        }
    }
}
```

# Load the Images

```
class ViewController: UIViewController {

    let appImage = Layer(image: "app.png")
    let toastRow = Layer(image: "toastRow.png")
    let favoritedRow = Layer(image: "favoritedRow.png")

    override func viewDidLoad() {
        super.viewDidLoad()

        view.addSubview(appImage)
        view.addSubview(favoritedRow)
        view.addSubview(toastRow)

        toastRow.y = 176
        favoritedRow.y = 176
    }

    override func touchesEnded(touches: NSSet, withEvent: UIEvent) {
        favoritedRow.scale = 0.8
        UIView.animateWithDuration(0.4) {
            toastRow.x = screenWidth
            favoritedRow.scale = 1
        }
    }
}
```

# Add Them to the Main View

```
class ViewController: UIViewController {

    let appImage = Layer(image: "app.png")
    let toastRow = Layer(image: "toastRow.png")
    let favoritedRow = Layer(image: "favoritedRow.png")

    override func viewDidLoad() {
        super.viewDidLoad()

        view.addSubview(appImage)
        view.addSubview(favoritedRow)
        view.addSubview(toastRow)

        toastRow.y = 176
        favoritedRow.y = 176
    }

    override func touchesEnded(touches: NSSet, withEvent: UIEvent) {
        favoritedRow.scale = 0.8
        UIView.animateWithDuration(0.4) {
            toastRow.x = screenWidth
            favoritedRow.scale = 1
        }
    }
}
```

# Animate on Touch

```
class ViewController: UIViewController {

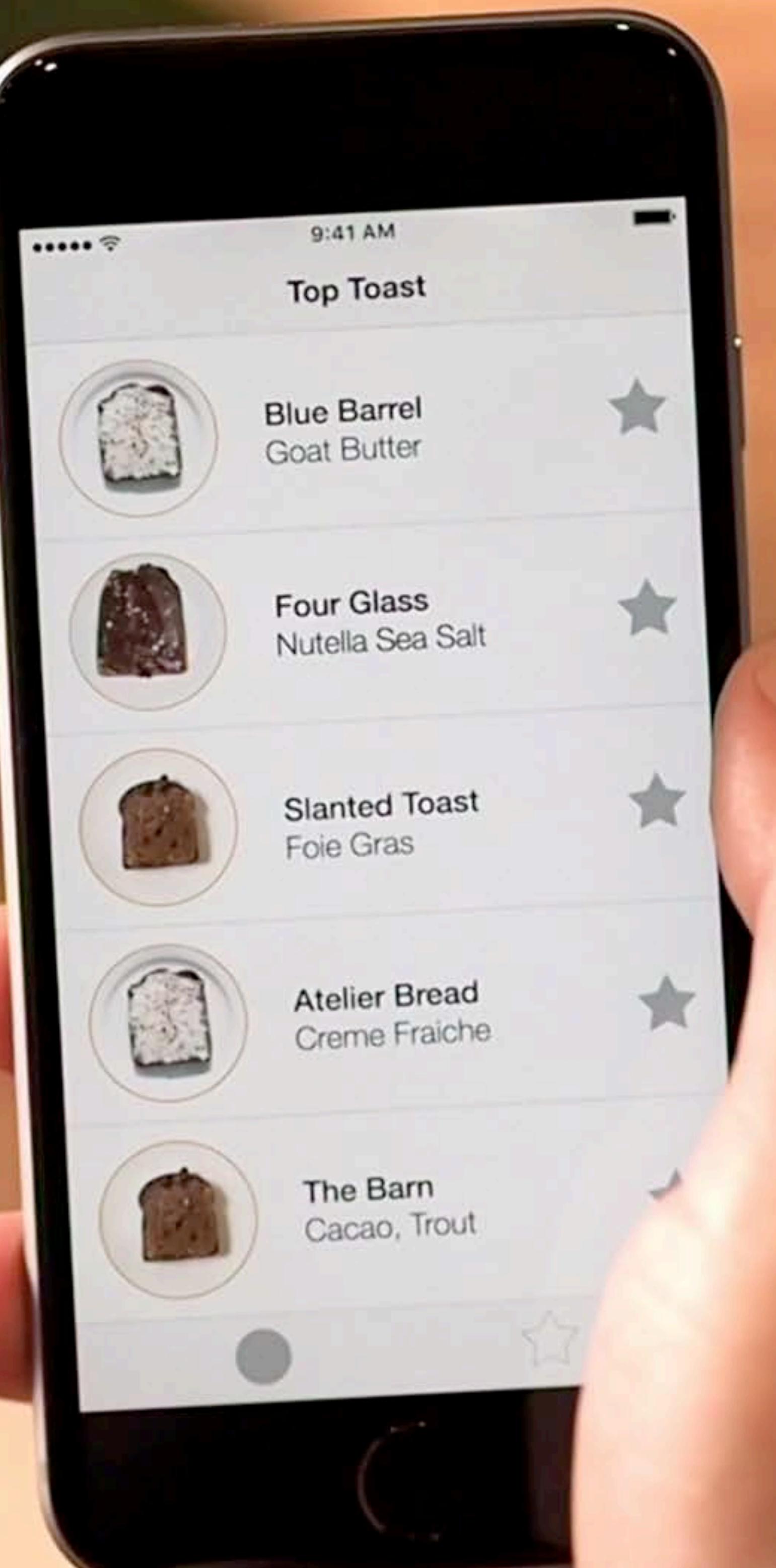
    let appImage = Layer(image: "app.png")
    let toastRow = Layer(image: "toastRow.png")
    let favoritedRow = Layer(image: "favoritedRow.png")

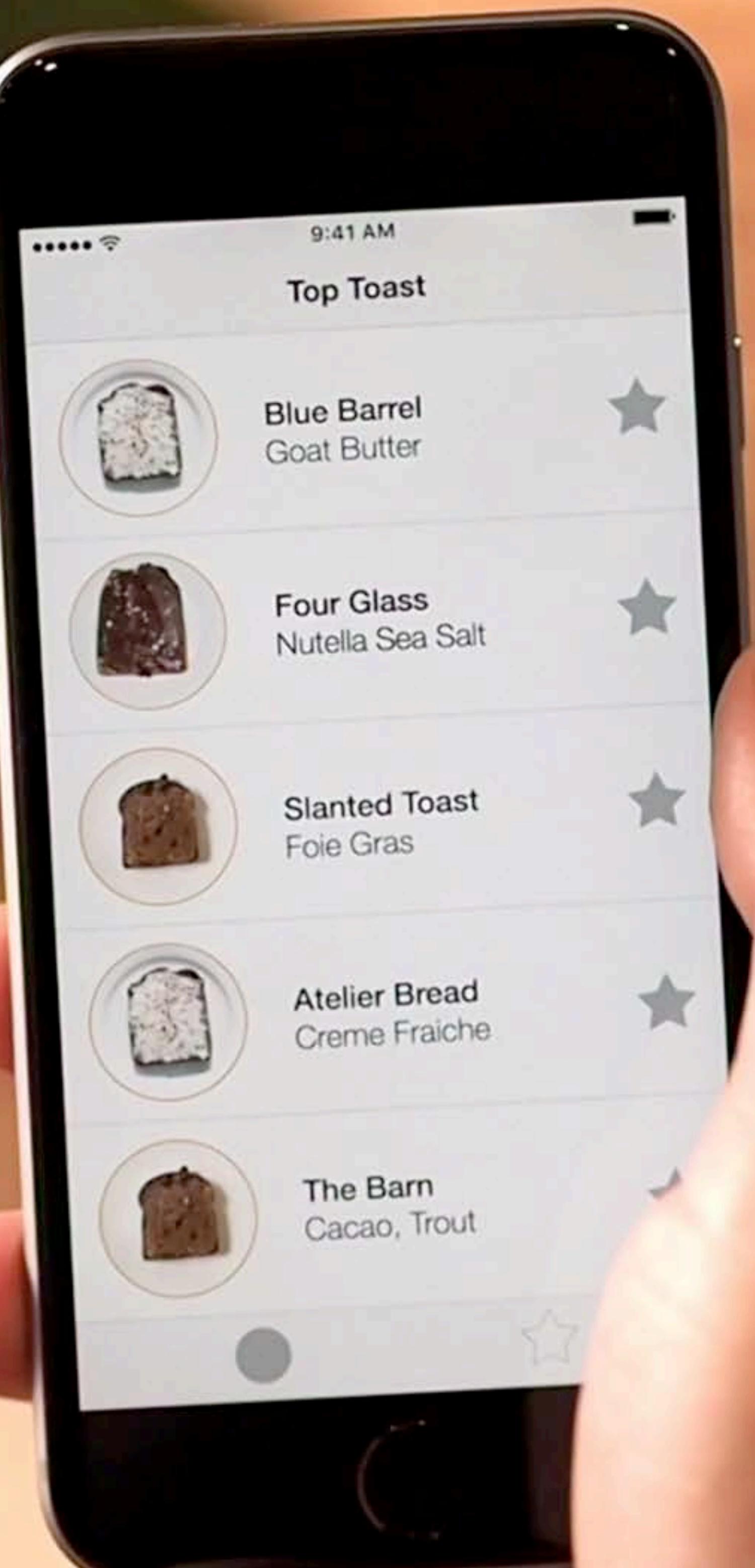
    override func viewDidLoad() {
        super.viewDidLoad()

        view.addSubview(appImage)
        view.addSubview(favoritedRow)
        view.addSubview(toastRow)

        toastRow.y = 176
        favoritedRow.y = 176
    }

    override func touchesEnded(touches: NSSet, withEvent: UIEvent) {
        favoritedRow.scale = 0.8
        UIView.animateWithDuration(0.4) {
            toastRow.x = screenWidth
            favoritedRow.scale = 1
        }
    }
}
```





What's wrong?





Break down the interaction



Start

Start ————— Change

Start —————> Change —————> Complete

Each stage is an opportunity

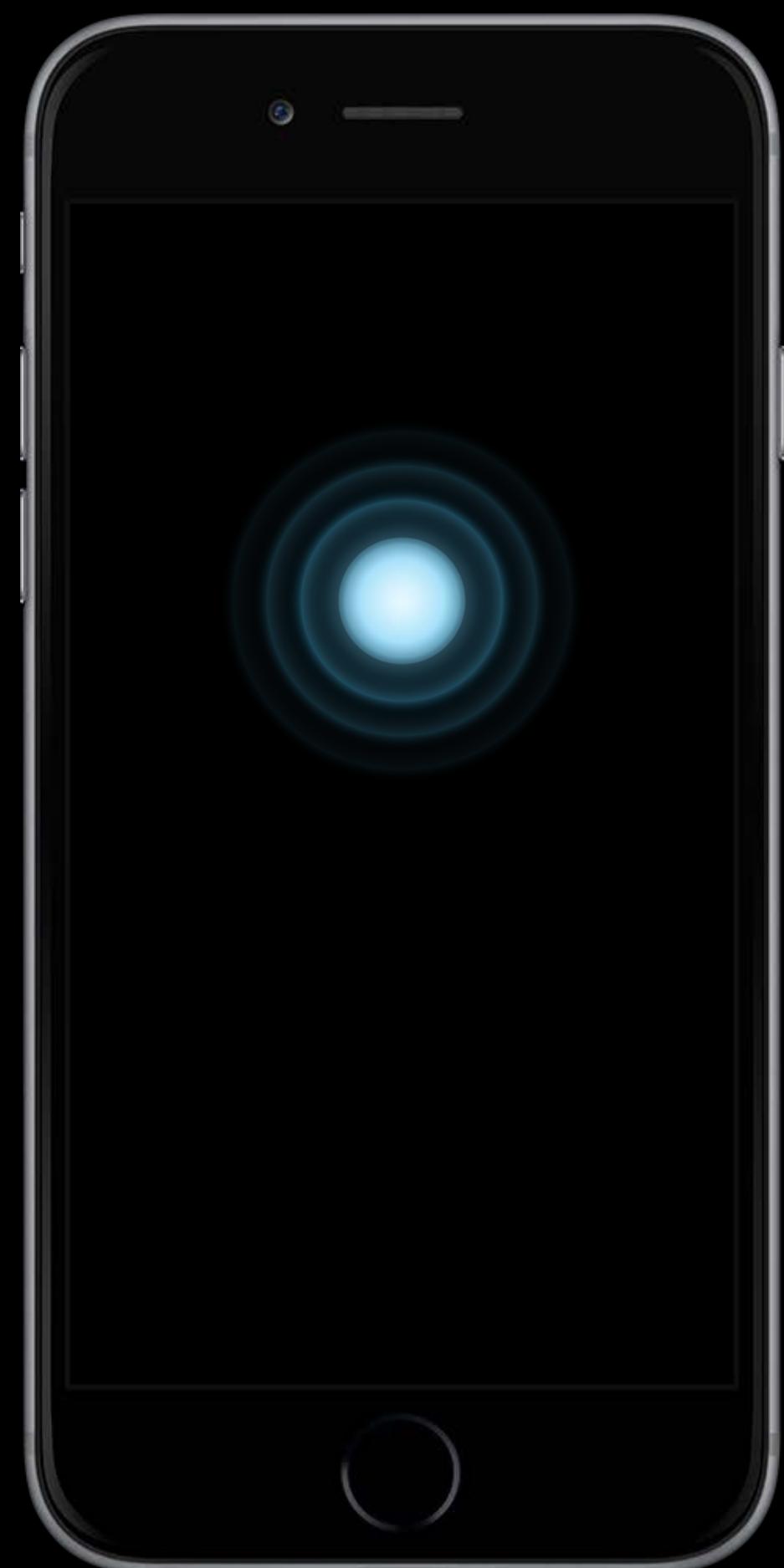
# Stages of Touch

Start → Change → Complete



Start → Change → Complete

Touch Down



Start → Change → Complete

Touch Down

Touch Moved



Start → Change → Complete

Touch Down

Touch Moved

Touch Up



Start → Change → Complete

Touch Down

Touch Moved

Touch Up

**touchesBegan()**



Start → Change → Complete

Touch Down

Touch Moved

Touch Up

`touchesBegan()`

`touchesMoved()`



Start → Change → Complete

Touch Down

`touchesBegan()`

Touch Moved

`touchesMoved()`

Touch Up

`touchesEnded()`





**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt



# The Code

class

}

}

}

}

# The Code

class

Hack it together

}

}

}

}

# The Code

class

Hack it together

Use images for everything

}

}

}

}

# The Code

class

Hack it together

Use images for everything

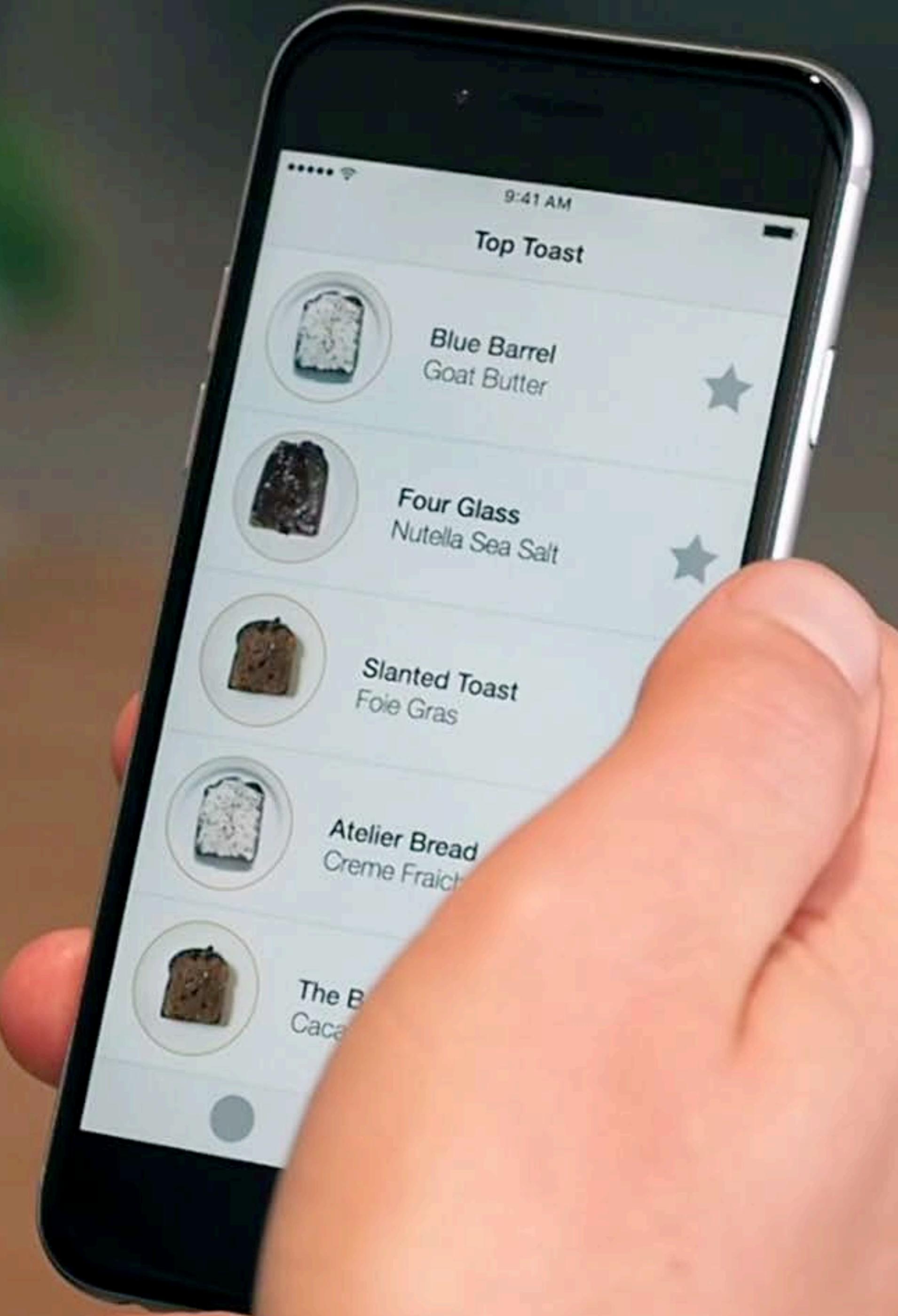
Animate with UIView.animateWithDuration

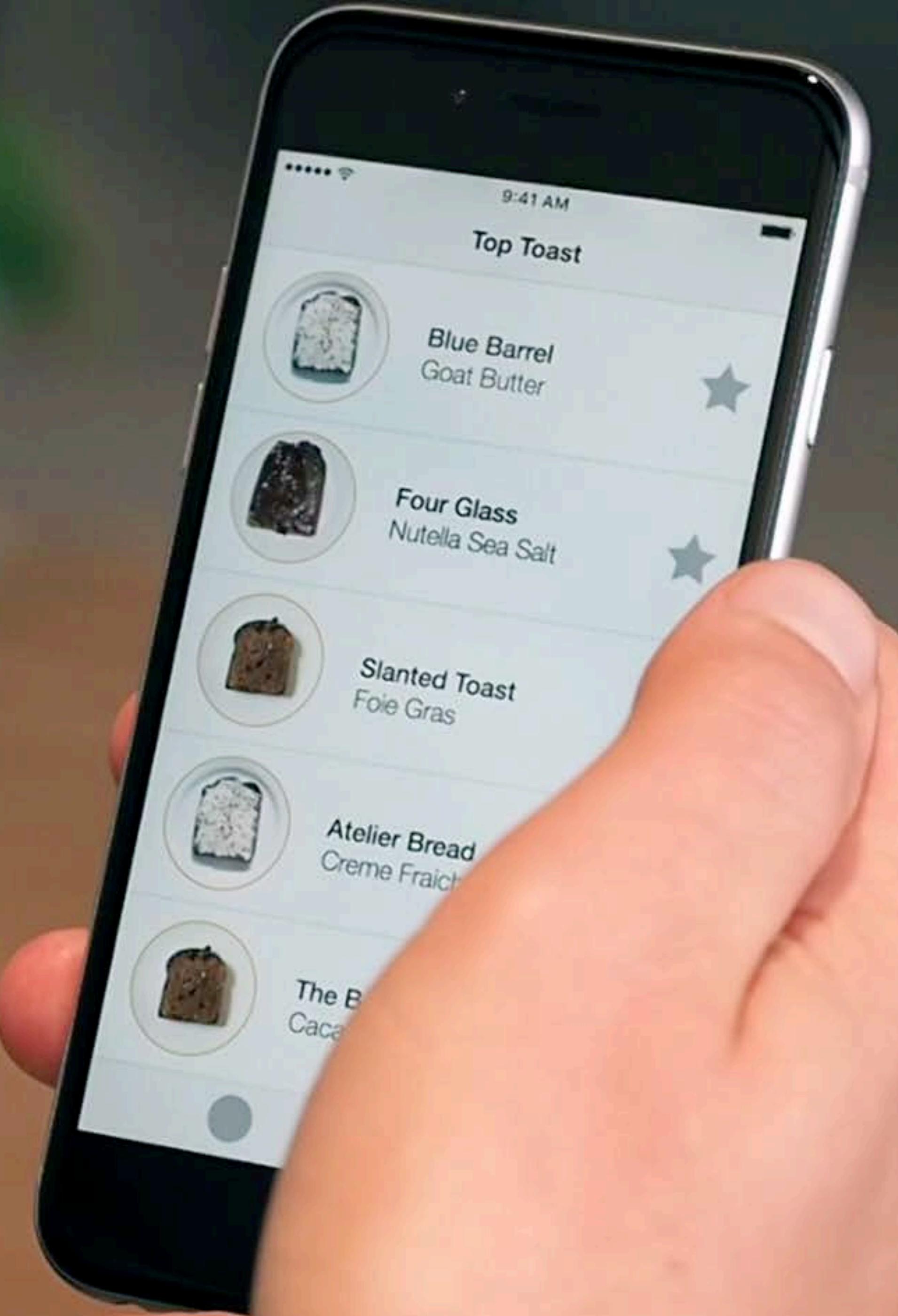
}

}

}

}





Let others try it

*"I really liked how it felt, but surely,  
shouldn't it be a swipe?"*

- Neighbor





# Swipe Gesture

# Swipe Gesture

Start → Change → Complete



**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt





**Four Glass**  
Nutella Sea Salt



**Four Glass**  
Nutella Sea Salt



**Four Glass**  
Nutella Sea Salt

Favorite >

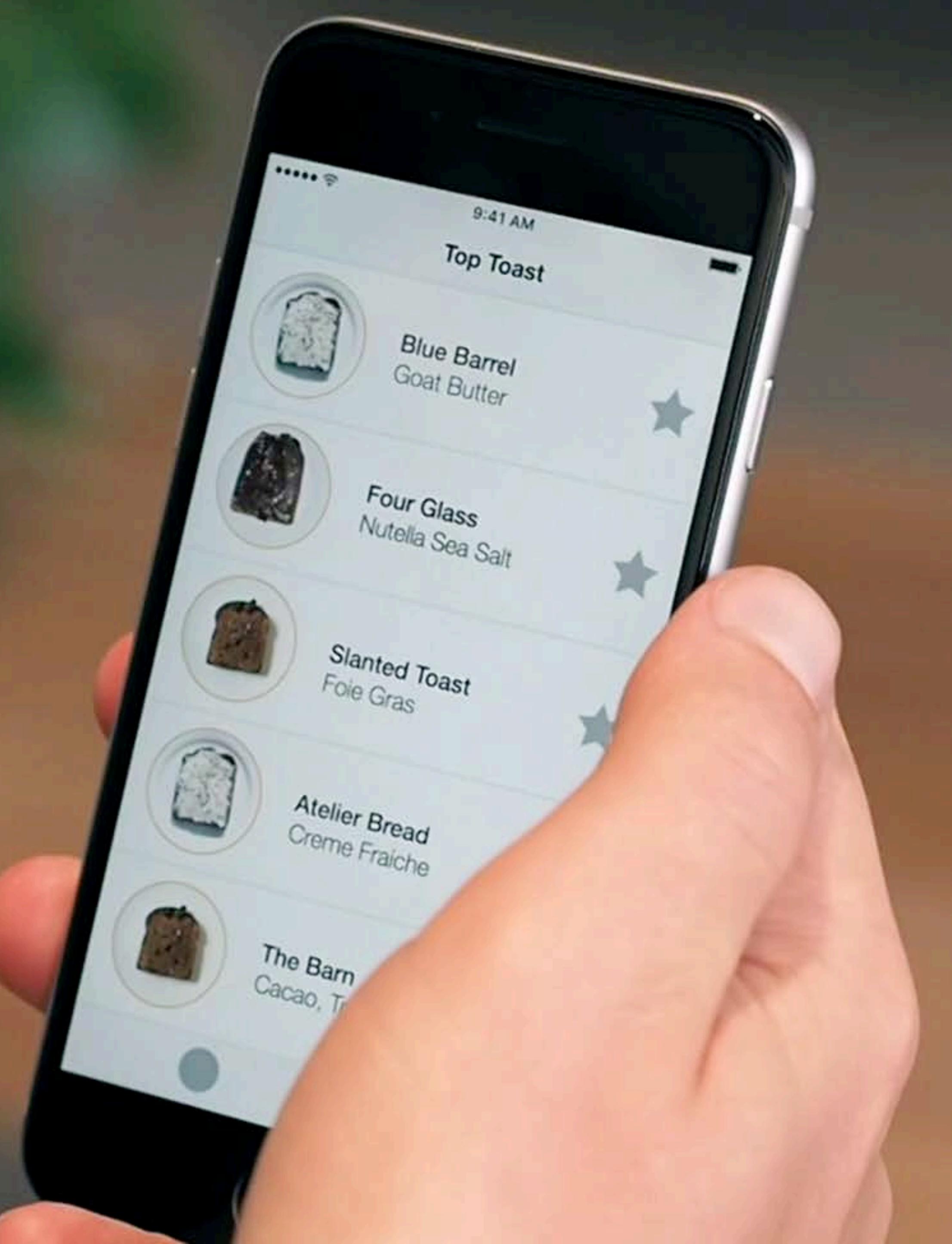


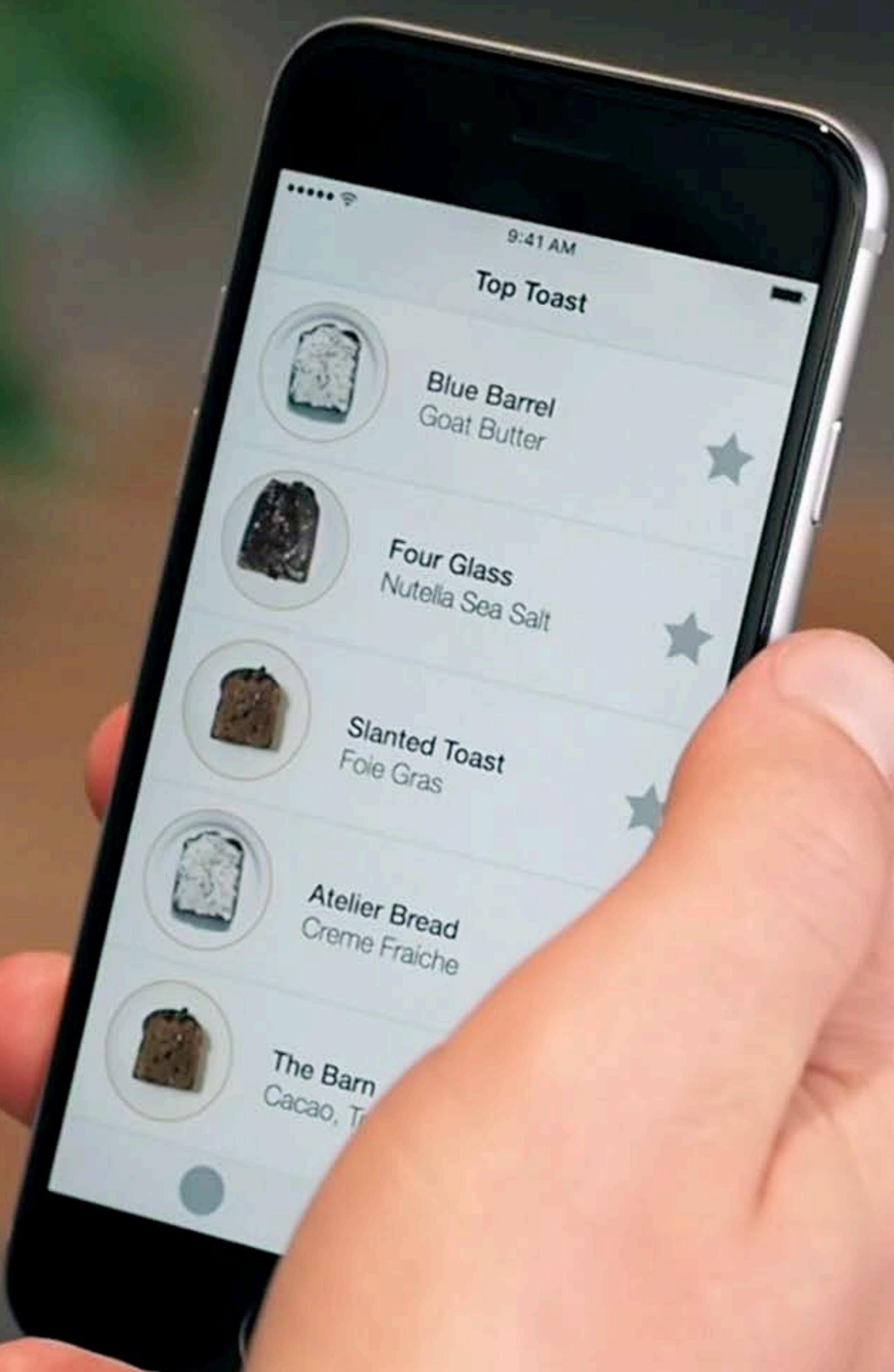
**Four Glass**  
Nutella Sea Salt



**Four Glass**  
Nutella Sea Salt







Favorite >



**Four Glass**  
Nutella Sea Salt

Favorite >

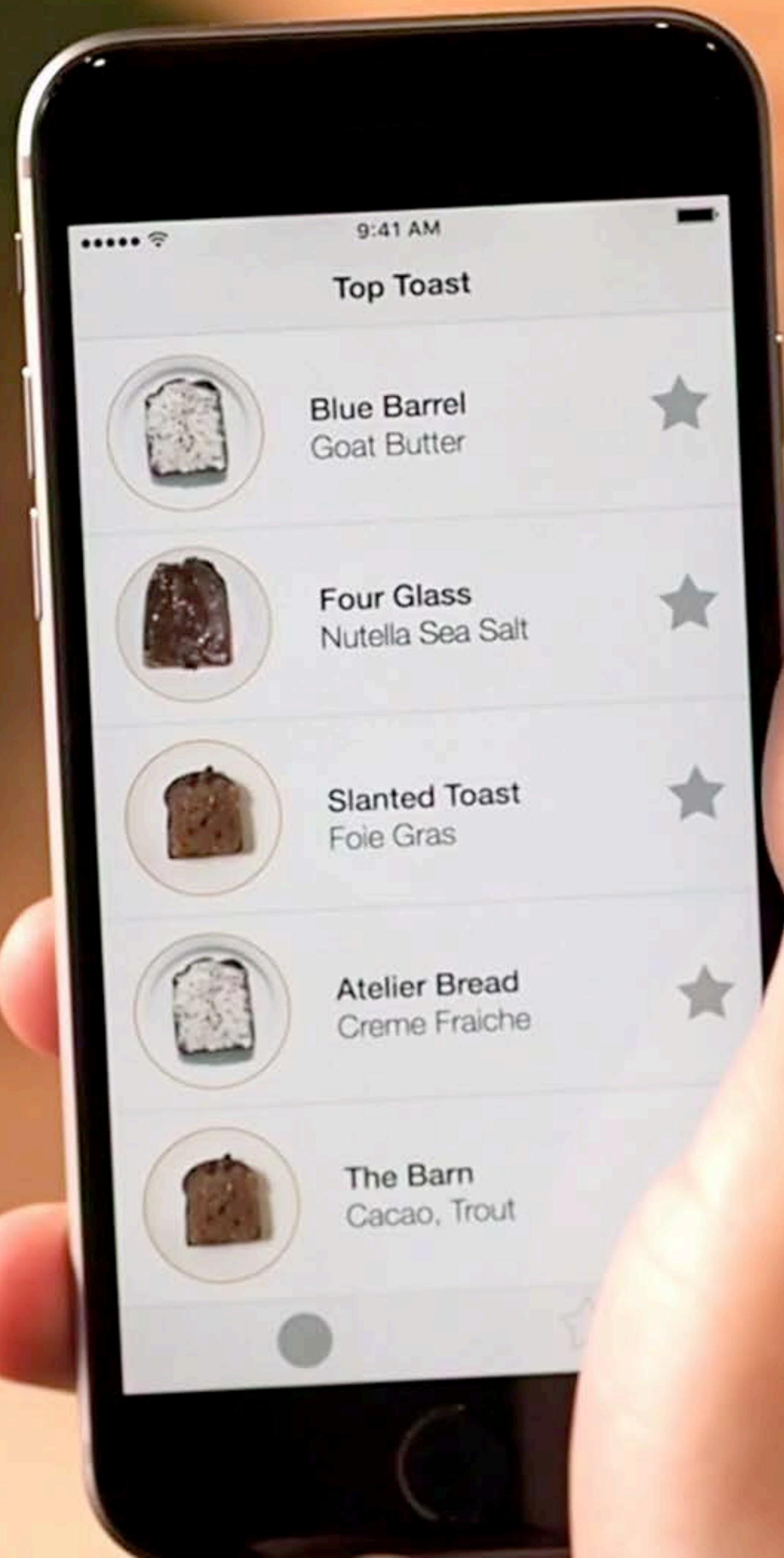


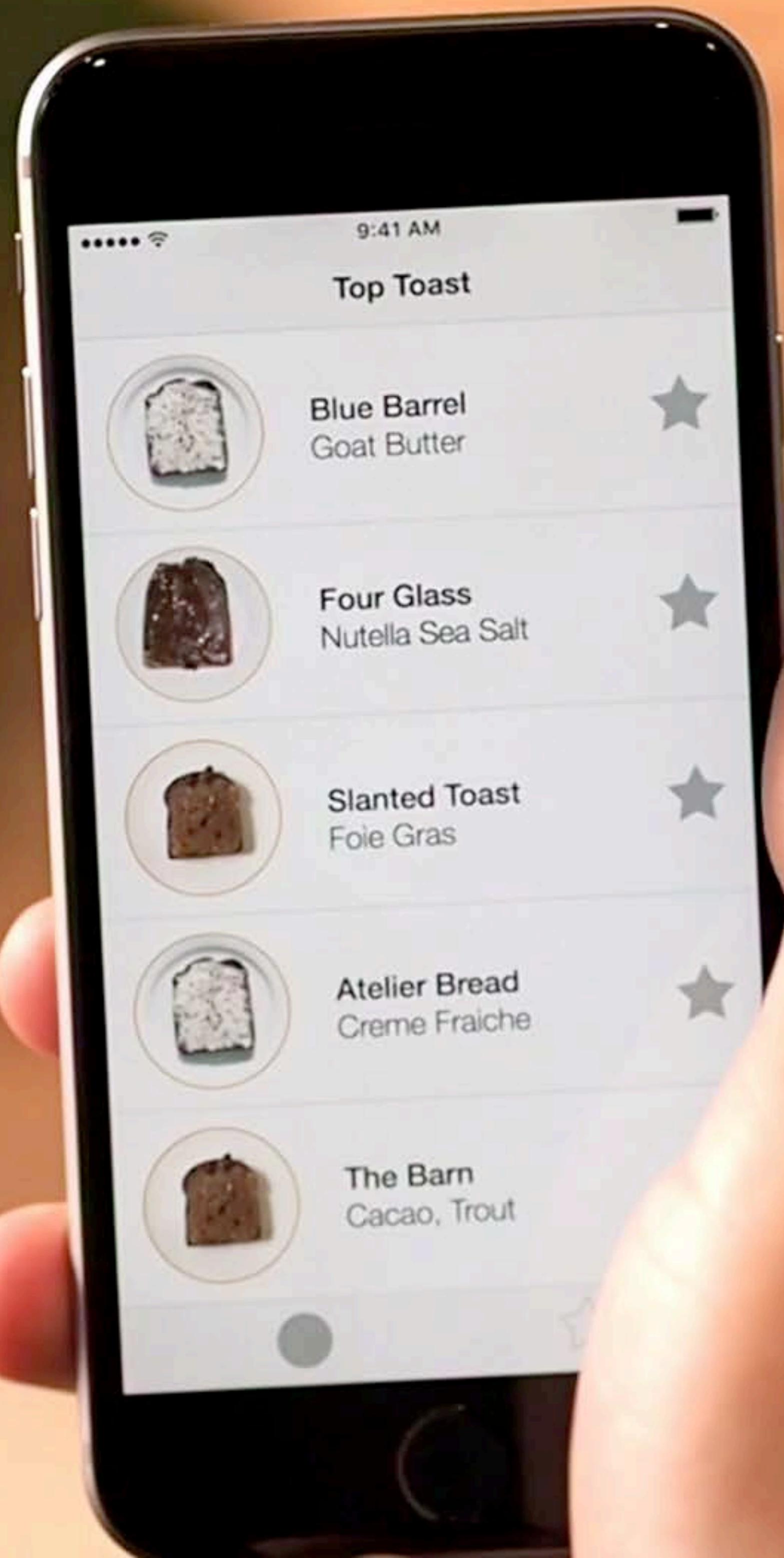
Four Glass  
Nutella Sea

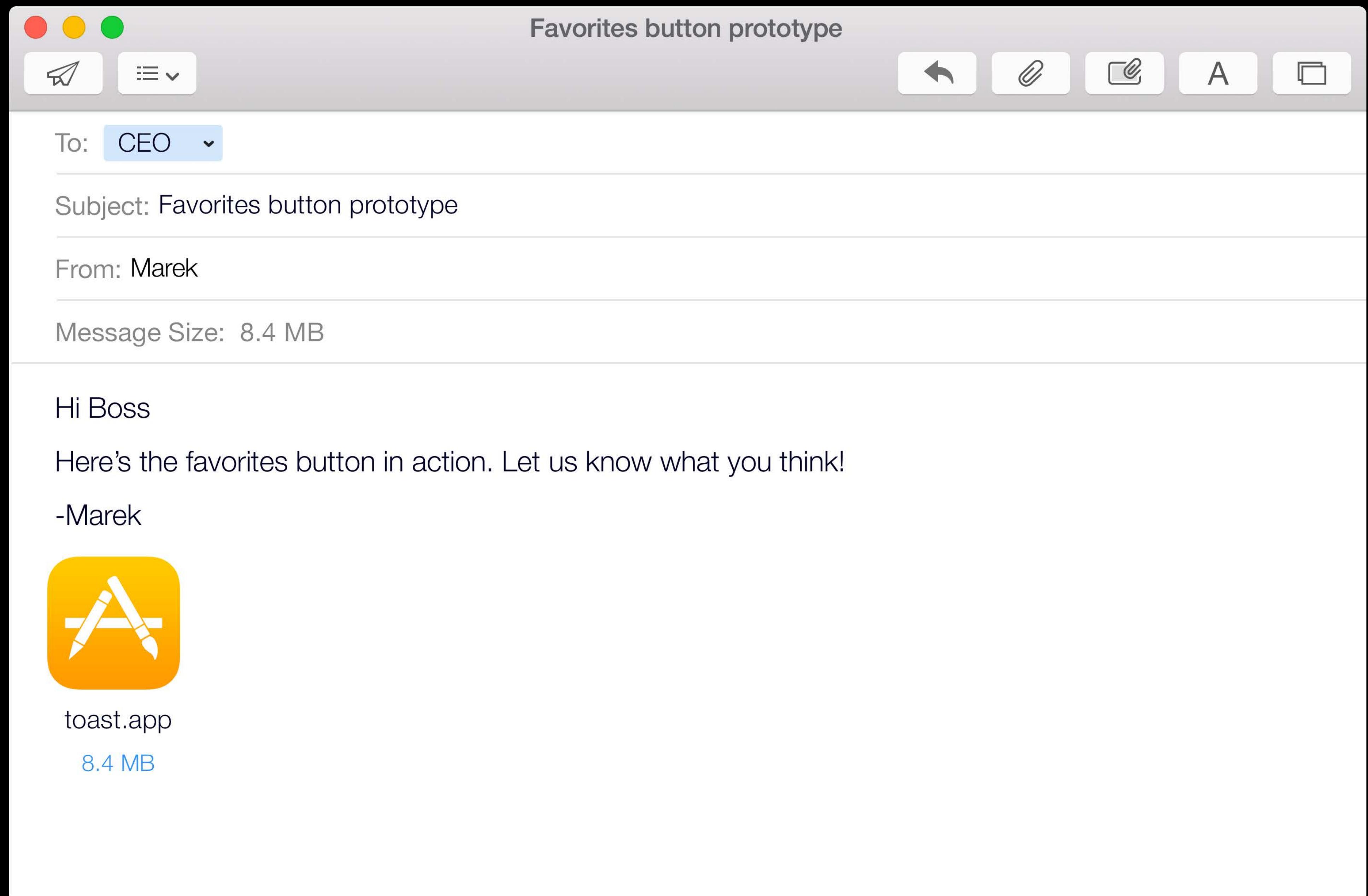


**Four Glass**  
Nutella Sea Salt















Favorites button prototype

CEO To: Marek Re: Favorites button prototypes Today at 9:41AM 

---

Hi Marek

30 seconds ago I decided to turn my life around and switch to a gluten-free paleo diet. I feel better already. The future is drinkable meal replacements. Now I don't even need to leave my standing desk to eat.

I need a prototype in 45 minutes.

Have a great weekend!

Jeffery Traer Barnstein III  
CEO  
Toast Modern  
Mid-Market, San Francisco

# Interactive Prototypes

# Recap

## Toast mortem

Julian Missig

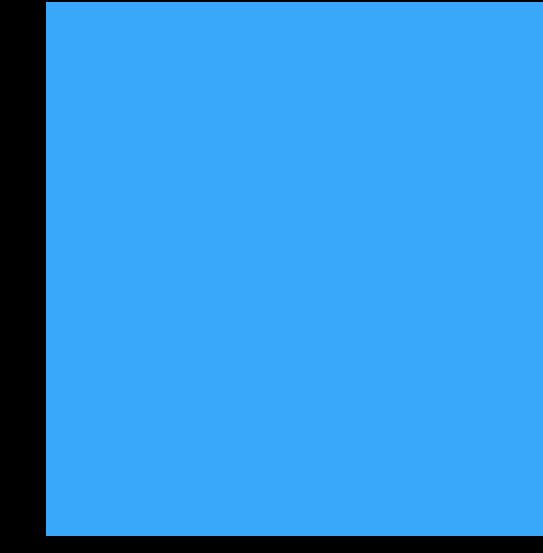
# What Is Animation?

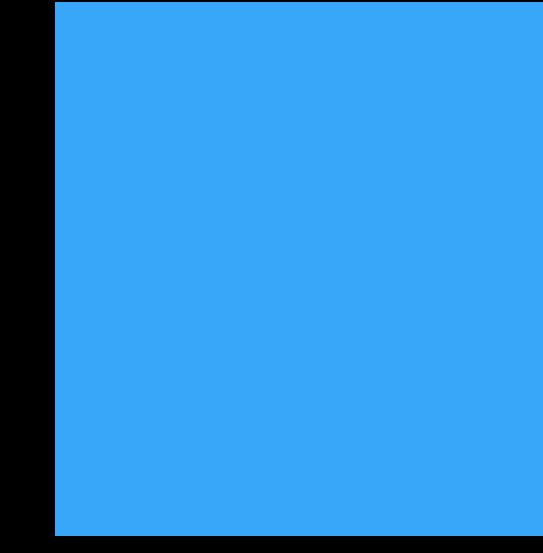
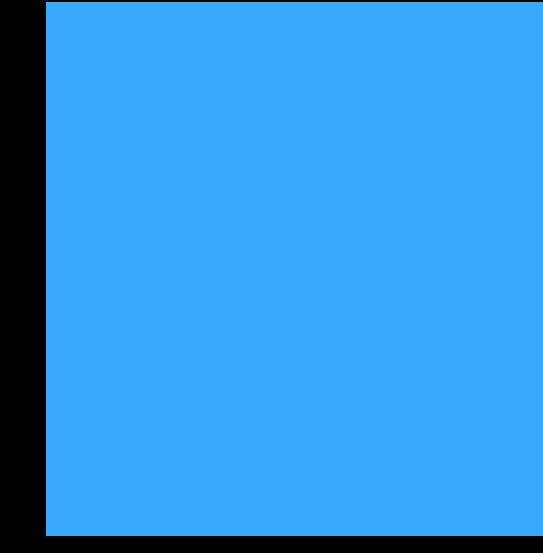
Change over time

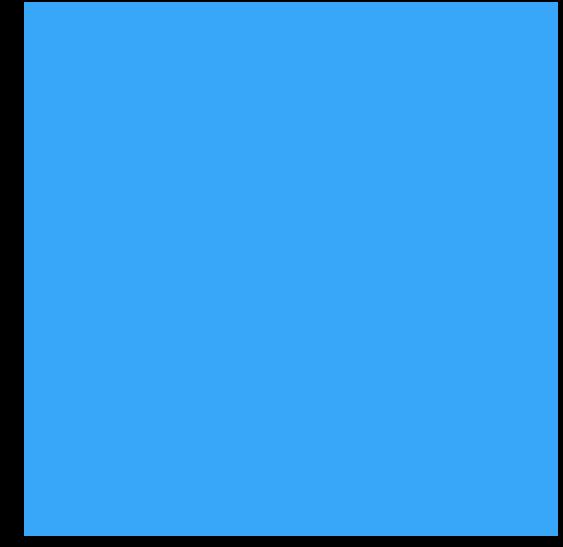
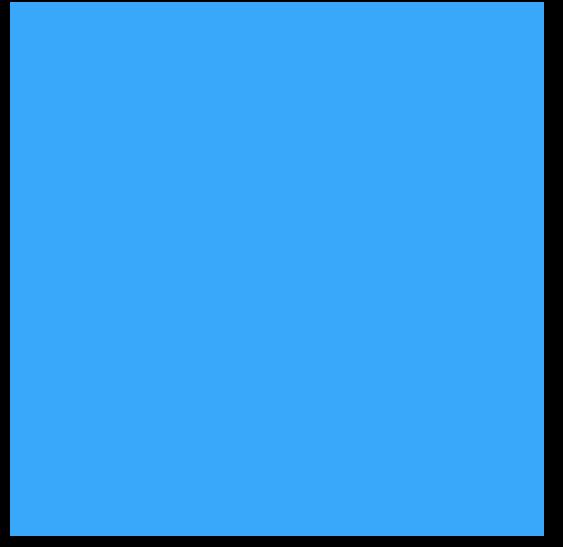
Not a replacement for screen layout and hierarchy

Practical—how all the bits of your app **fit together**

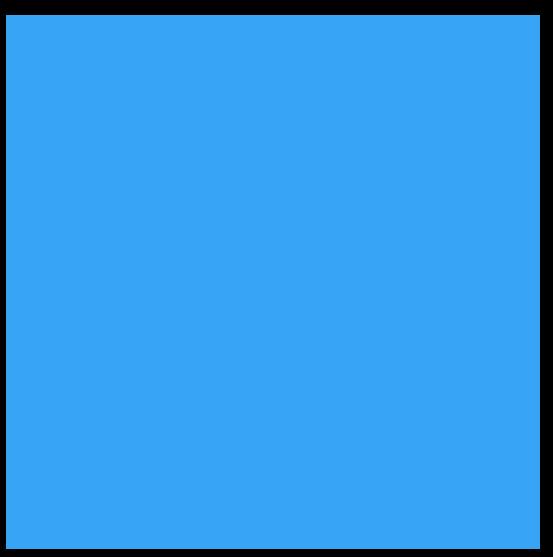
Artful—how your app **feels**



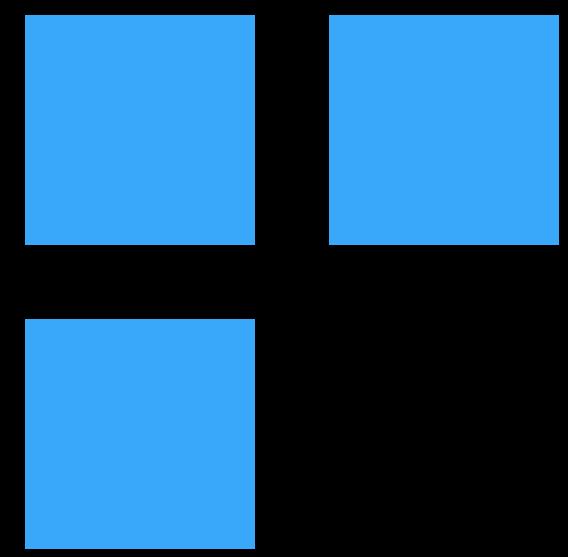




Direct attention

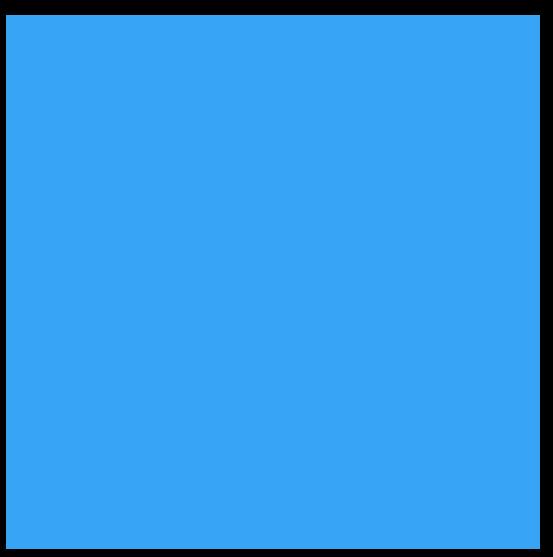


Direct attention

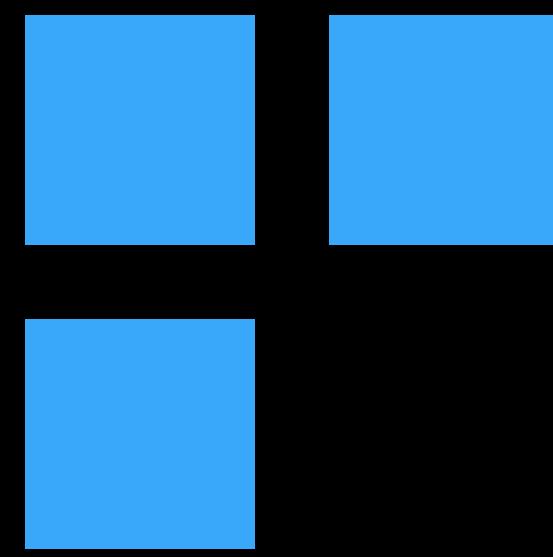


Keep oriented



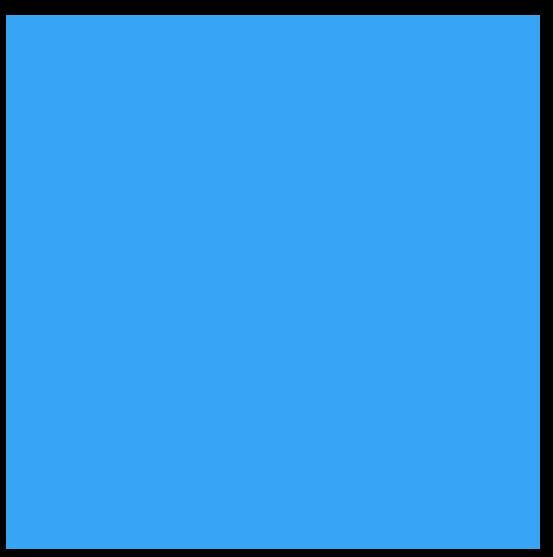


Direct attention

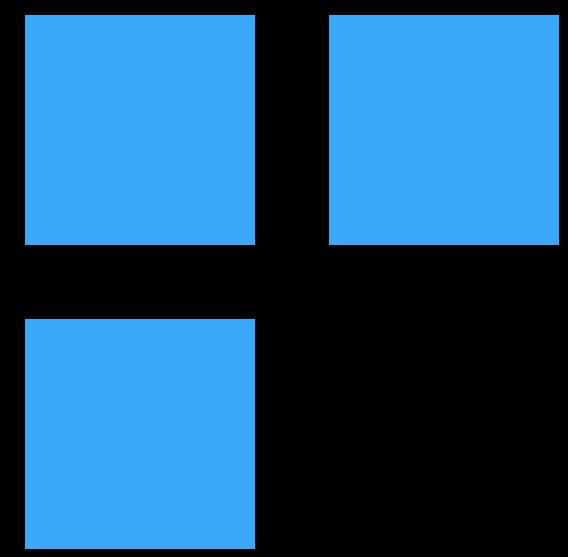


Keep oriented

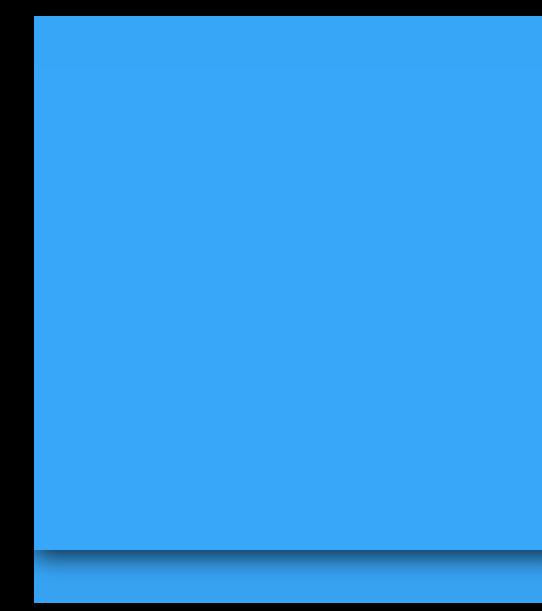


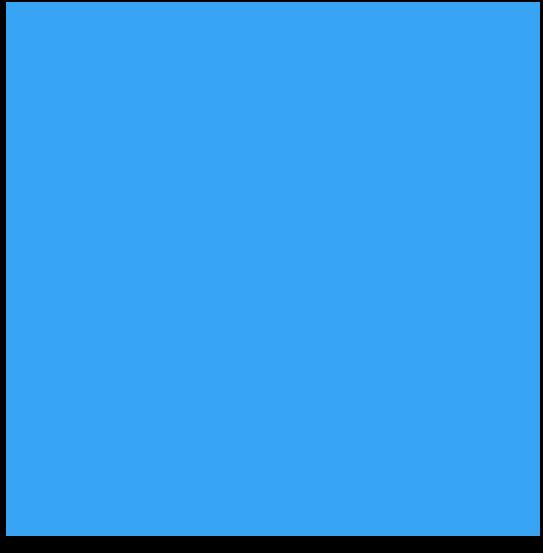


Direct attention

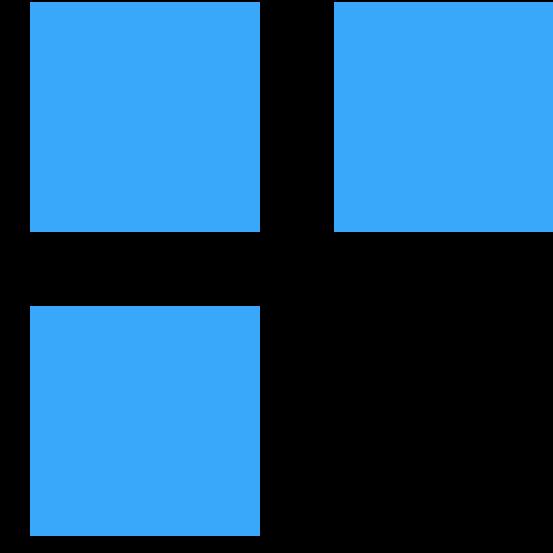


Keep oriented

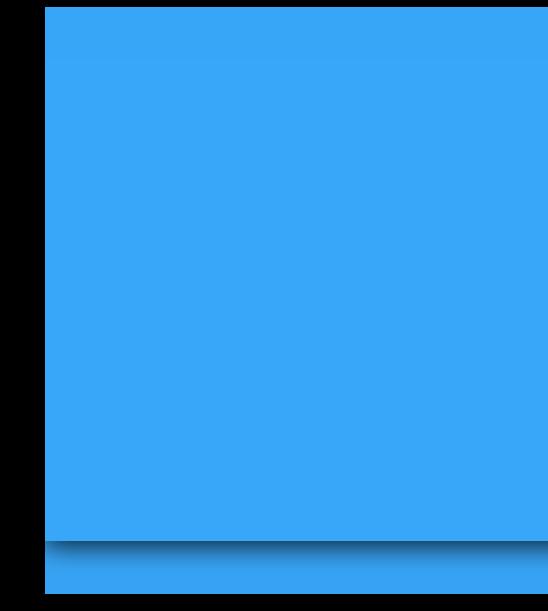




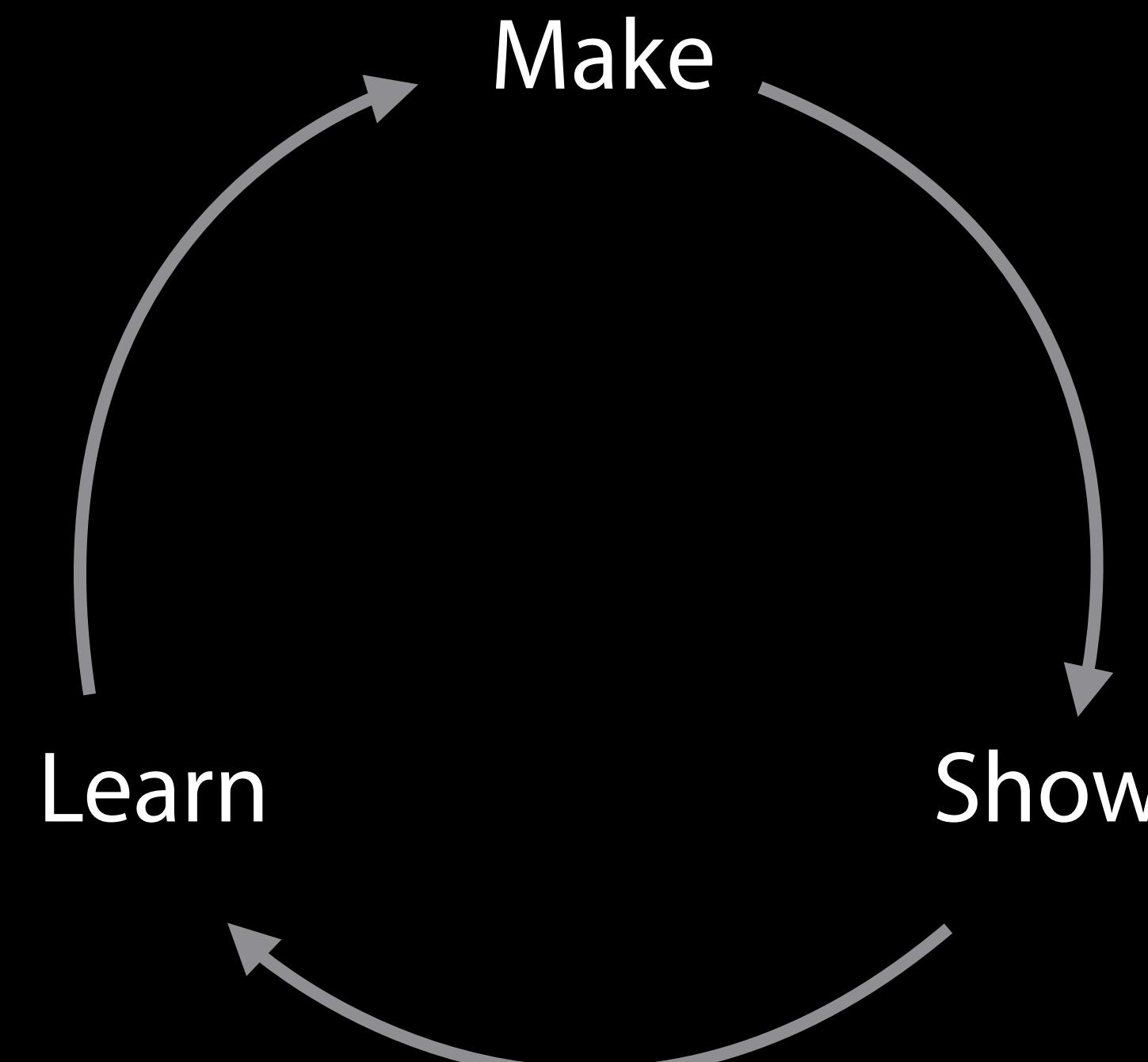
Direct attention



Keep oriented



Connect behavior



# Related Sessions

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Designing for Future Hardware	Presidio	Wednesday 2:30 PM
Designing for Apple Watch	Presidio	Wednesday 4:30 PM
Apple Watch Design Tips and Tricks	Presidio	Friday 3:30 PM
Prototyping: Fake It 'Til You Make It		WWDC 2014
Designing Intuitive User Experiences		WWDC 2014
Making a Great First Impression With Strong Onboarding Design		WWDC 2014

---

# Animate

# Animate

Animate  
thoughtfully.

# More Information

Keynote Animations Shown Today

<http://developer.apple.com/sample-code/wwdc/2015/downloads/Designing-with-Animation.zip>

Designing Great Apps

<http://developer.apple.com/design>

Rachel Roth

User Interface Evangelist

[rroth@apple.com](mailto:rroth@apple.com)

 **WWDC 15**