



DESIGNING MULTIPLE COORDINATED VISUALIZATIONS FOR TABLETS

RAMIK SADANA AND JOHN STASKO

GEORGIA TECH



Dashboard Forecast Wert - Kontak

DIGITAL RATIO
Konstant bessere Entscheidung

Ausgangstatus Filter aufhebe

Auswahlstatus

Deutschland Österreich Schweiz

Bayern	Salzburg
Bern	Steiermark
Genève	Wien
Hessen	Zürich
Nordrhein-Westfalen	

Mitarbeiter

Helmuth Klein	Klaus Deum
Alfred Neumann	Herman Schlusse
Lars Saalbach	Herbert Bernstorf
Dieter Köln	Carl Perry
George Essen	

Produktlinie

Kopfhörer	Autoradio
Kamera & Camcorder	Computer
Fernsehen & Heimkino	Home Audio

Produktgruppe (19/19)

- Autoradios
- Bluetooth
- Camcorder
- Computer-Systeme Koplett

Category

- (All)
- Complaint
- Customer
- Divergence
- Equipment
- Injury
- Security
- Spill
- Transport

Site

- (All)
- Acton
- Bolton
- Concord
- Hudson
- Lincoln
- Maynard
- Shirley
- Weston

Month

- (All)
- Jan
- Feb
- Mar
- Apr
- May
- Jun
- Jul
- Aug
- Sep
- Oct
- Nov
- Dec

Cause

- Design
- Equipment
- External
- Managem.
- Material
- Personnel
- Procedure
- Training

Year

- (All)
- 2007
- 2008
- 2009

Status

- (All)
- Closed
- Open

Count

517.0

Dashboard | Forecast Wert - Kontakte | Forecast Wert - Leads | Wert - Auftragseingang | Regionale Analyse

2011 | 2012 | Jan | Feb | Mar | Apr | Ma | Jun | Jul | Aug | Sep | Okt | Nov | Dez

DIGITAL RATIO
Kontakt- und Service-Erfahrungen

Kontakte

96% YTD

91% YTD

85% YTD

Leads

Auftragseingang (AE)

Deutschland | Österreich | Schweiz

Bayern | Sachsen
Bav. | Steiermark
Genève | Wien
Hessen | Zürich
Nordrhein-Westfalen

Mitarbeiter

Helmut Klein	Klaus Deutz
Alfred Neumann	Hermann Schloote
Lars Saalbach	Herbert Bernotat
Dieter Kish	Carl Perry
George Essen	

Produktlinien

Kopfhörer	Autarado
Kameras & Camcorder	Computer
Fernseher & Heimkino	Home Audio

Produktgruppen (19/10)

Autarados
Bluetooth
Camcorder
Computer-Systeme Komplett

Actions

DrillDown | Reset | Mark

Buttons above allow Drill-down (warning icon usually rectangle drawn by mouse over)

By Income and Home Ownership

Sum(Buyer)

Monthly Trends, by Income

Sum(Buyer)



Category
 (All)
 Complaint
 Customer
 Divergence
 Equipment
 Injury
 Security
 Spill
 Transport

Site
 (All)
 Acton
 Concord
 Hudson
 Lincoln
 Maynard
 Shirley
 Weston

Month
 (All)
 Jan
 Feb
 Mar
 Apr
 May
 Jun
 Jul
 Aug
 Sep
 Oct
 Nov
 Dec

Cause
 Design
 Equipment
 External
 Managem.
 Material
 Personnel
 Procedure
 Training

Severity
 Critical
 Major
 Medium
 Near Miss

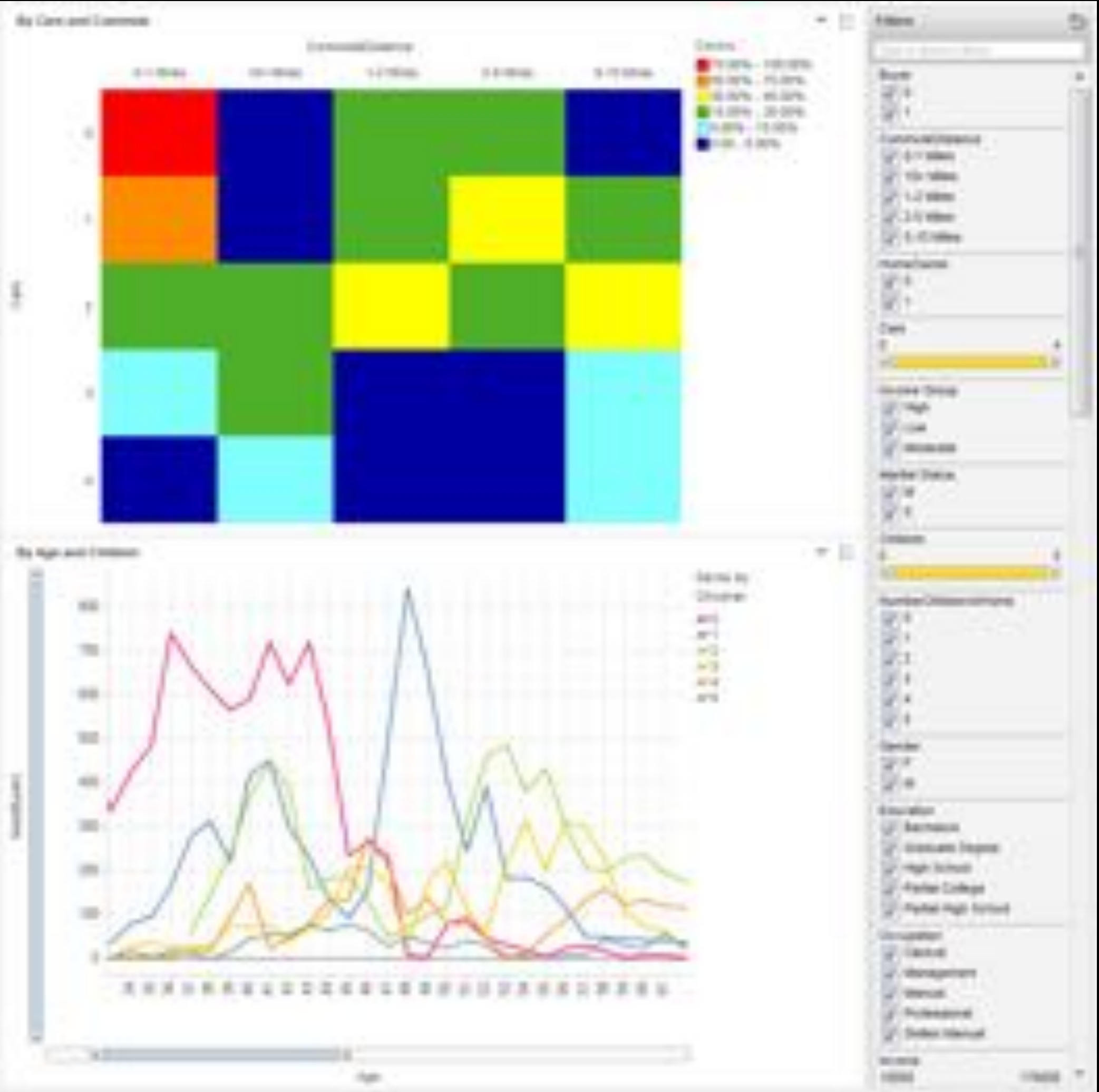
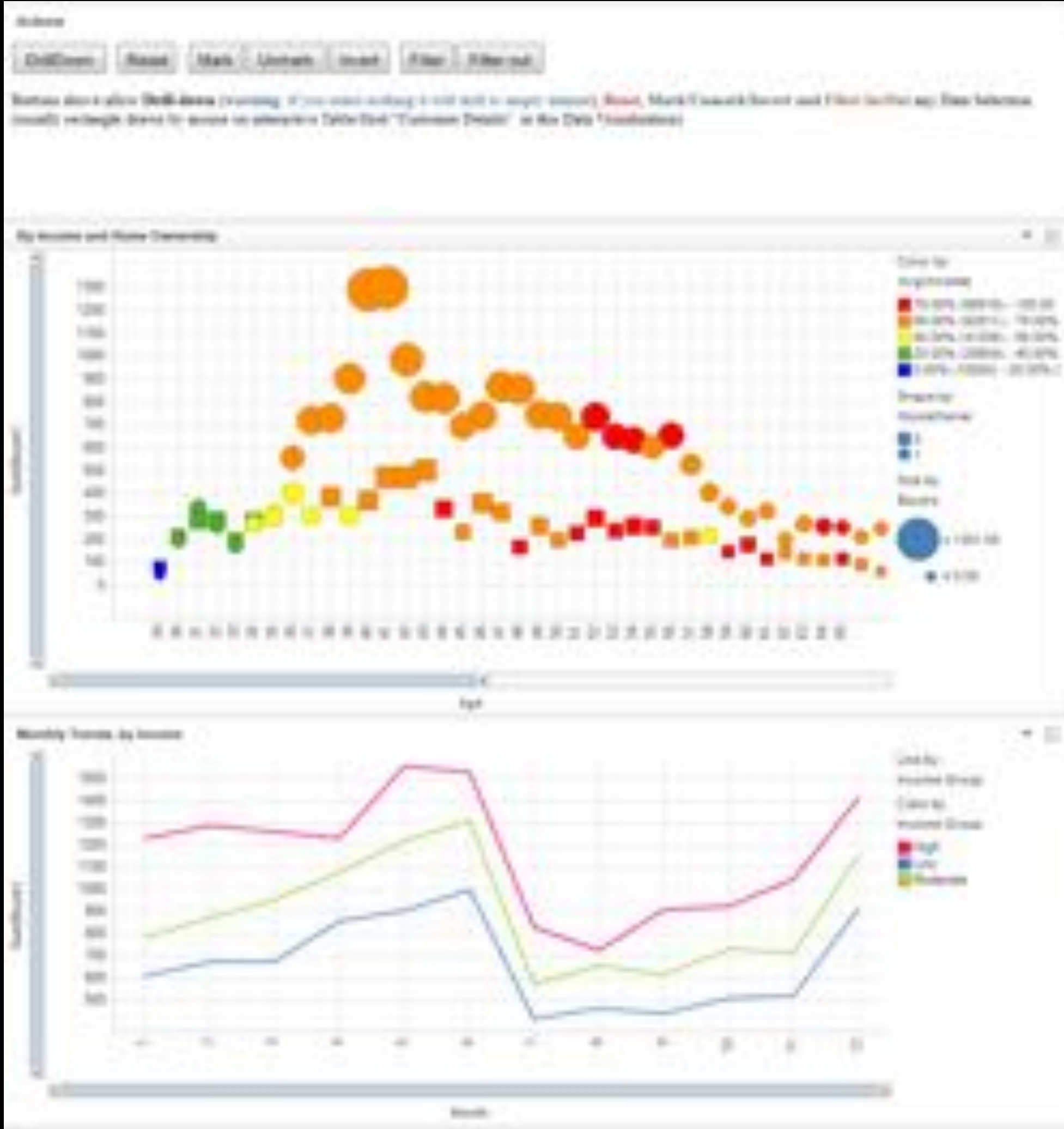
Status
 (All)
 Closed
 Open

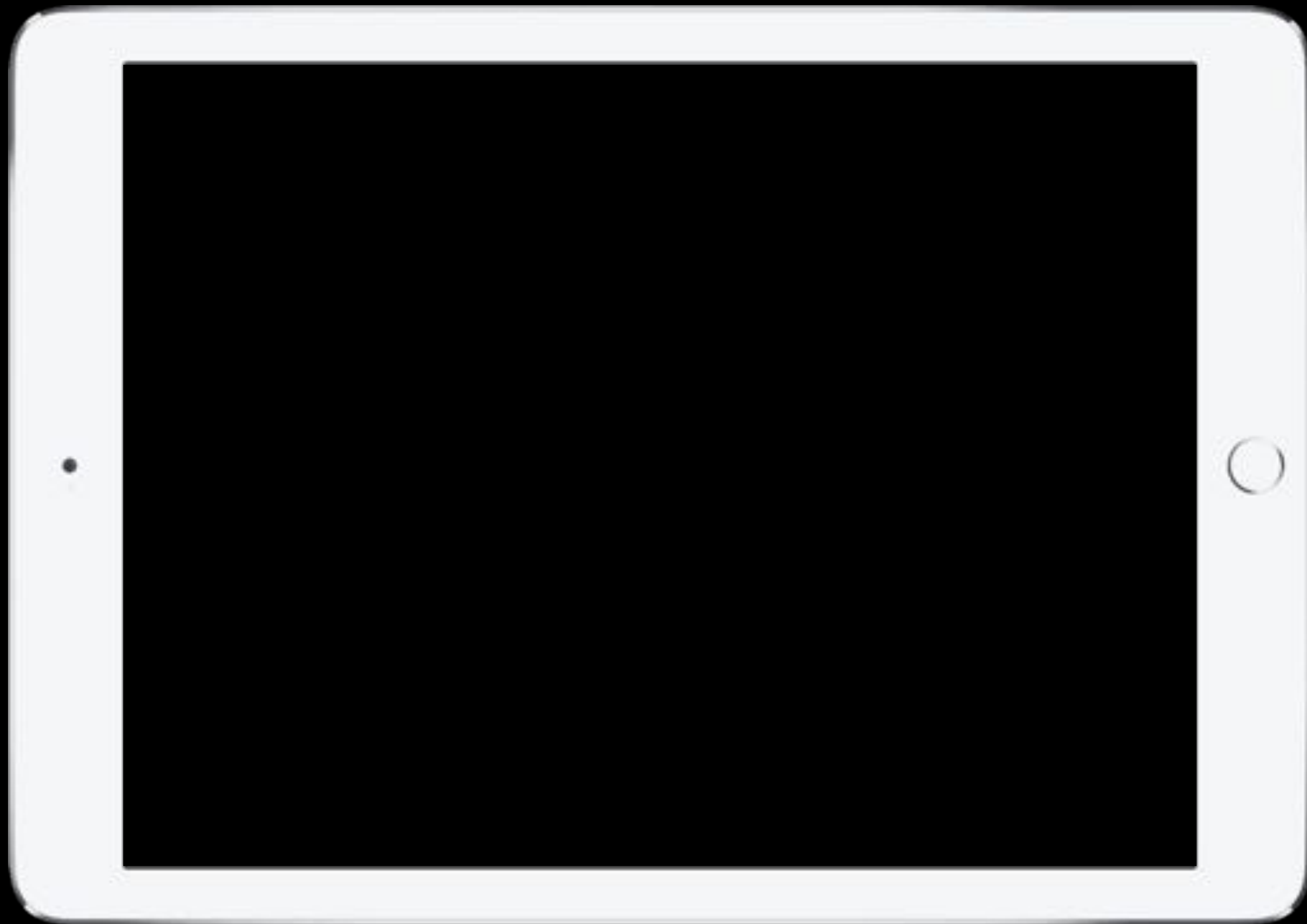
Count
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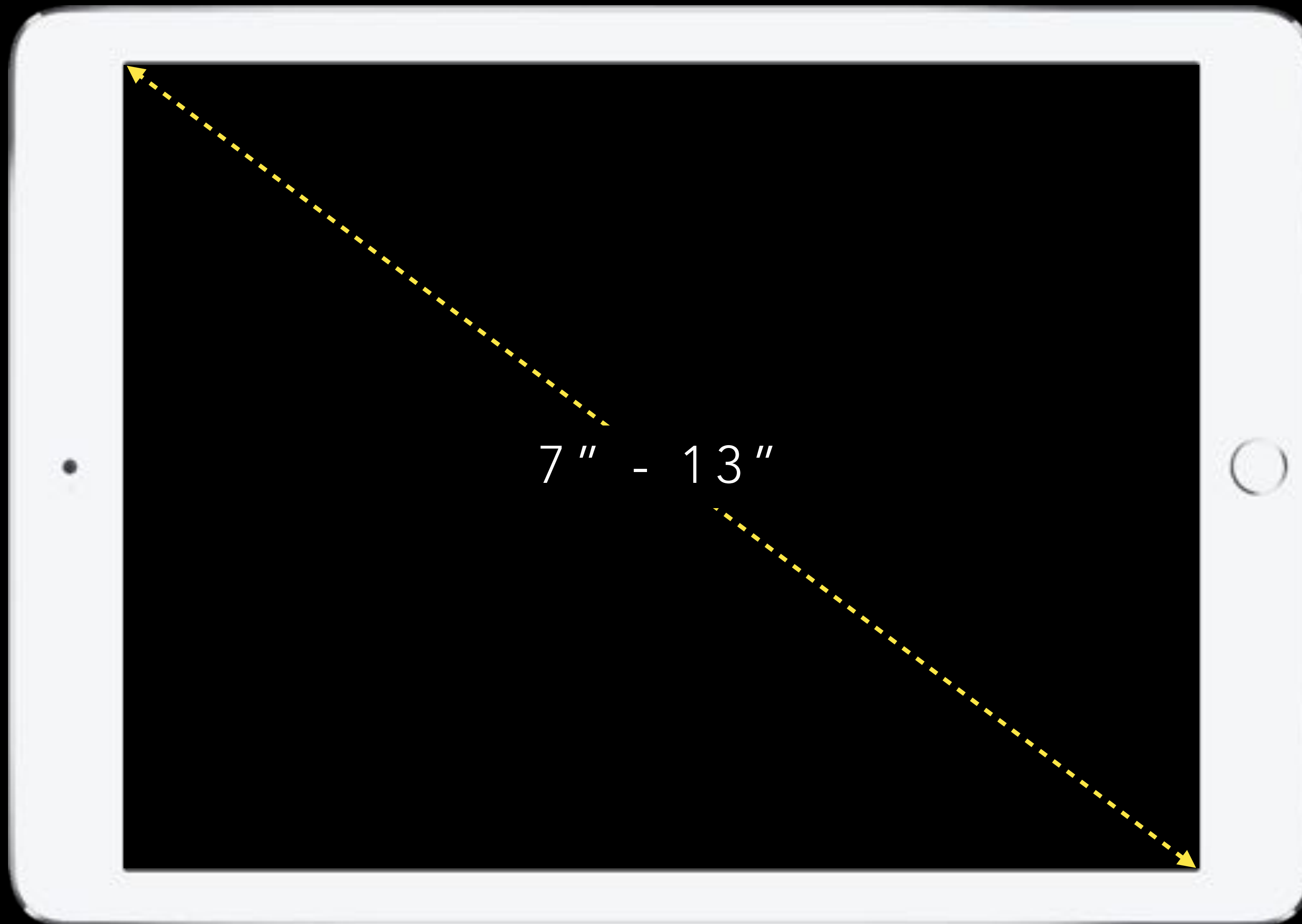
96% YTD
 >> Kontakte Details

91% YTD
 >> AE Details

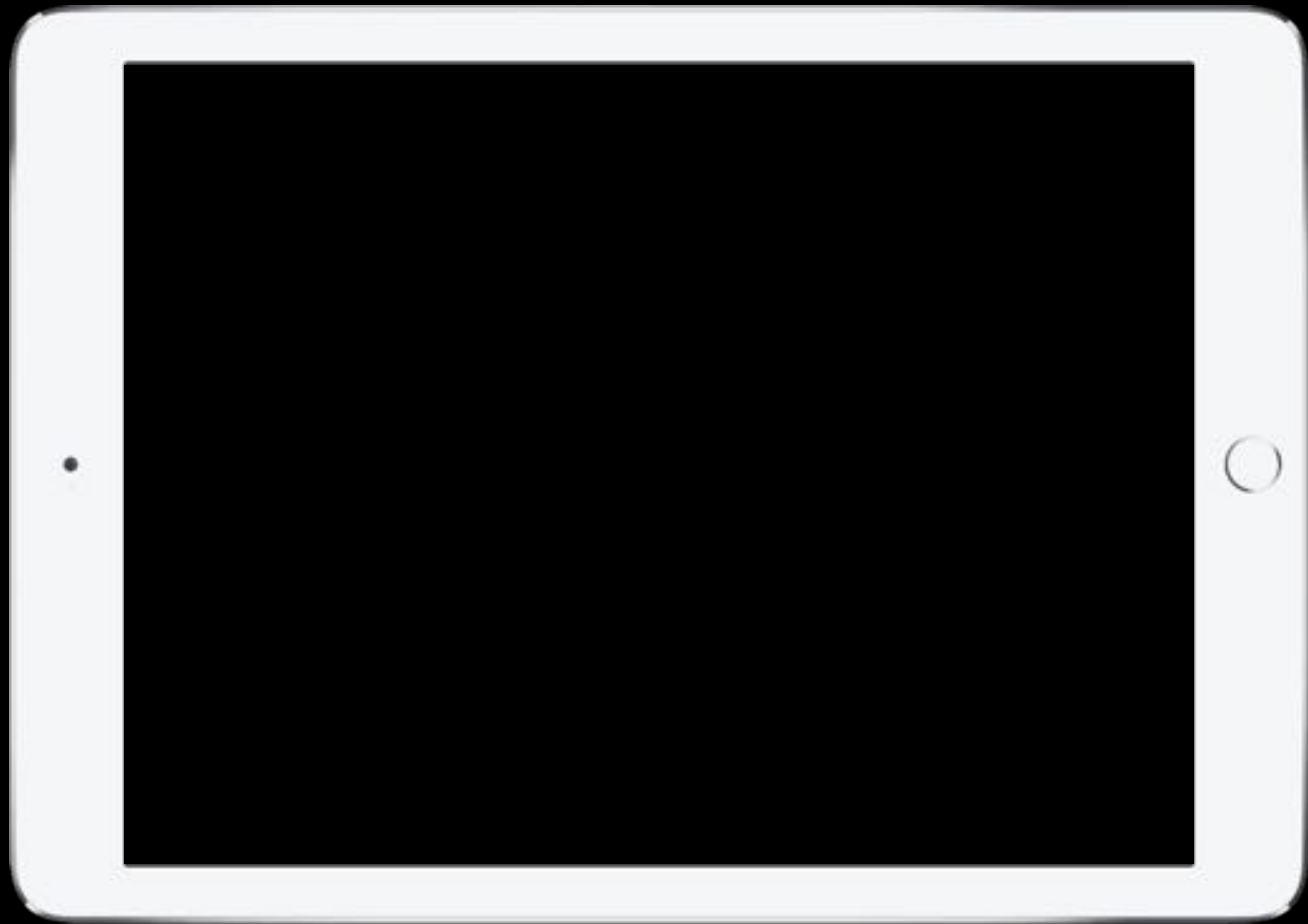
85% YTD
 >> AE Details







7" - 13"

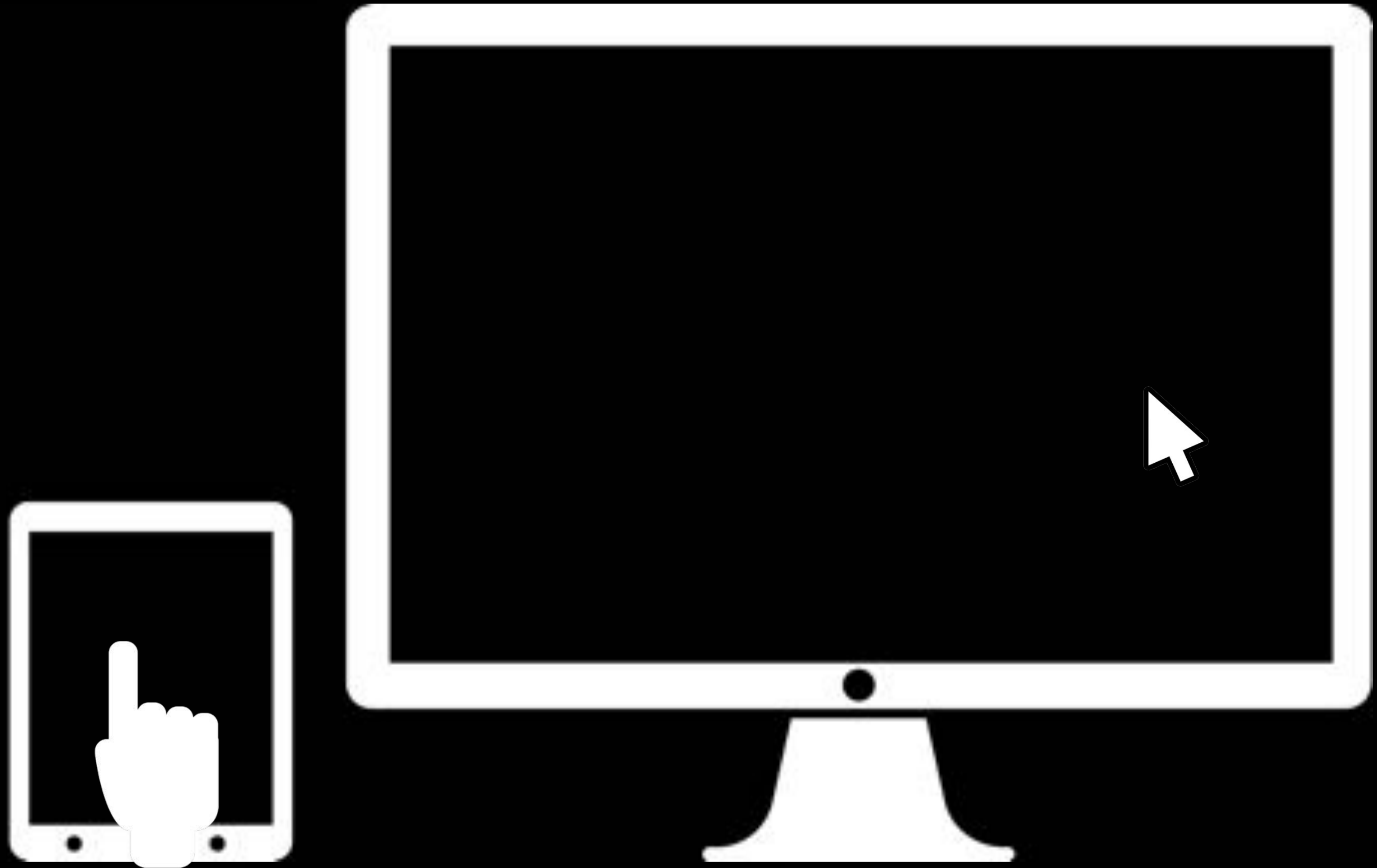


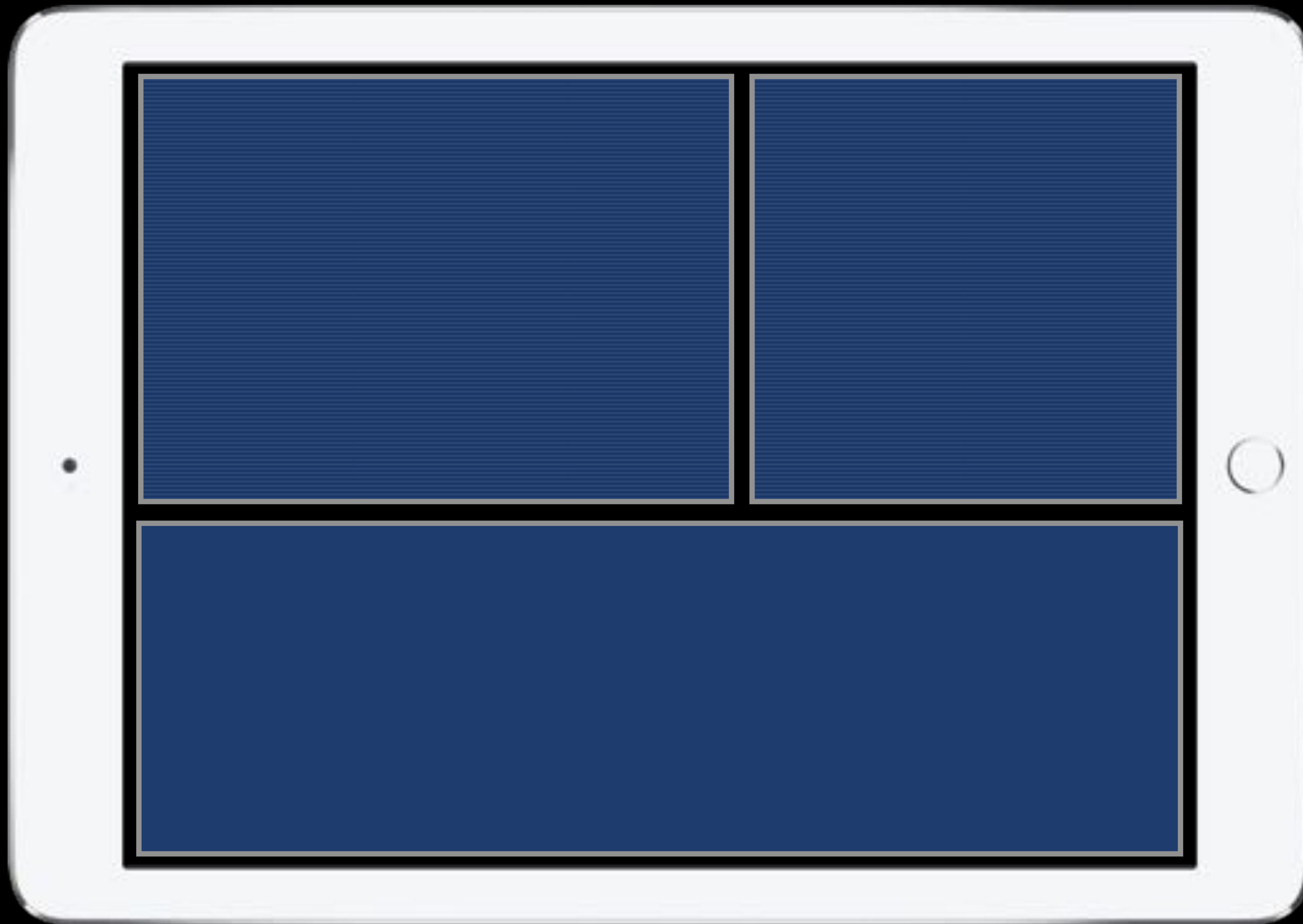


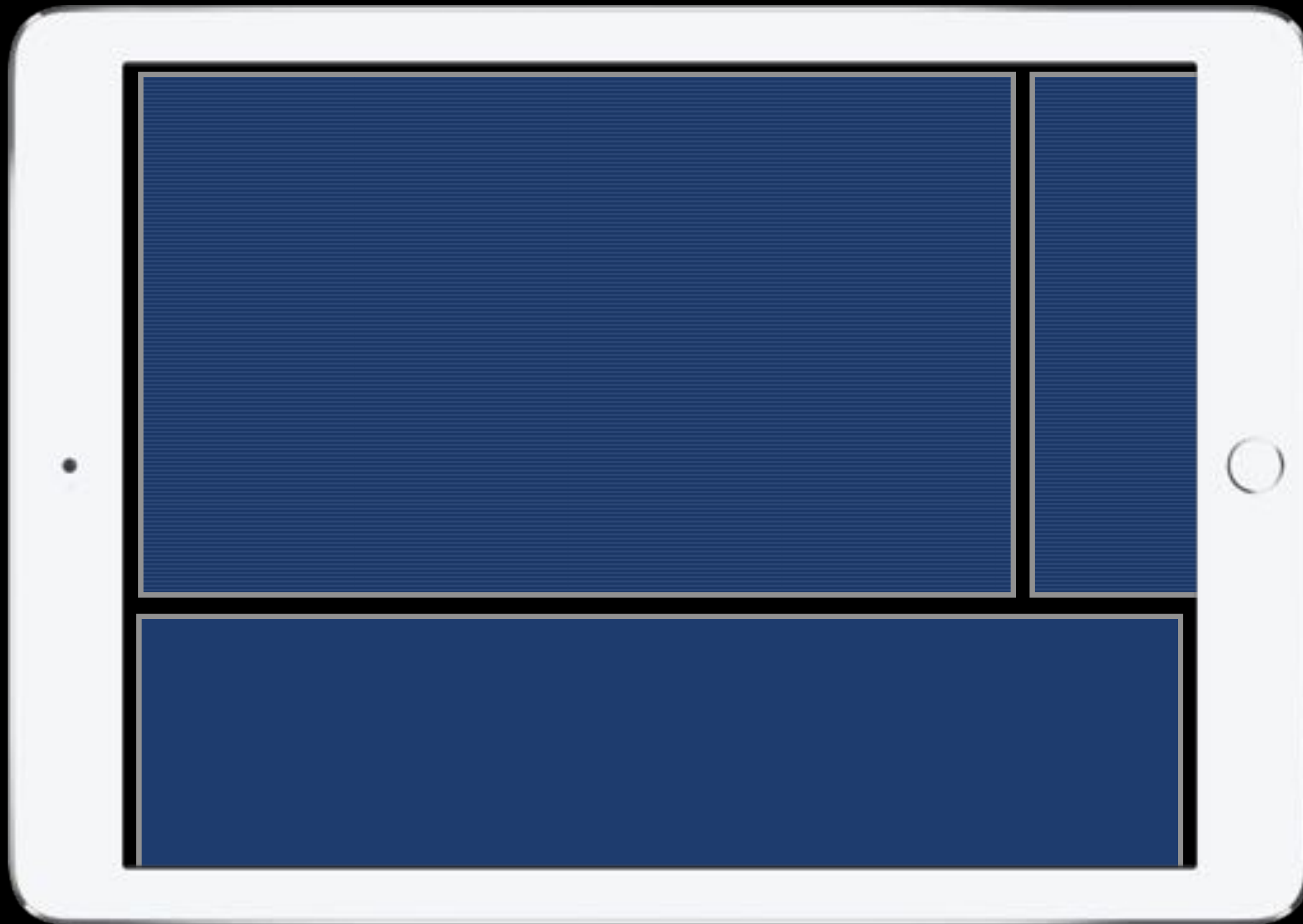


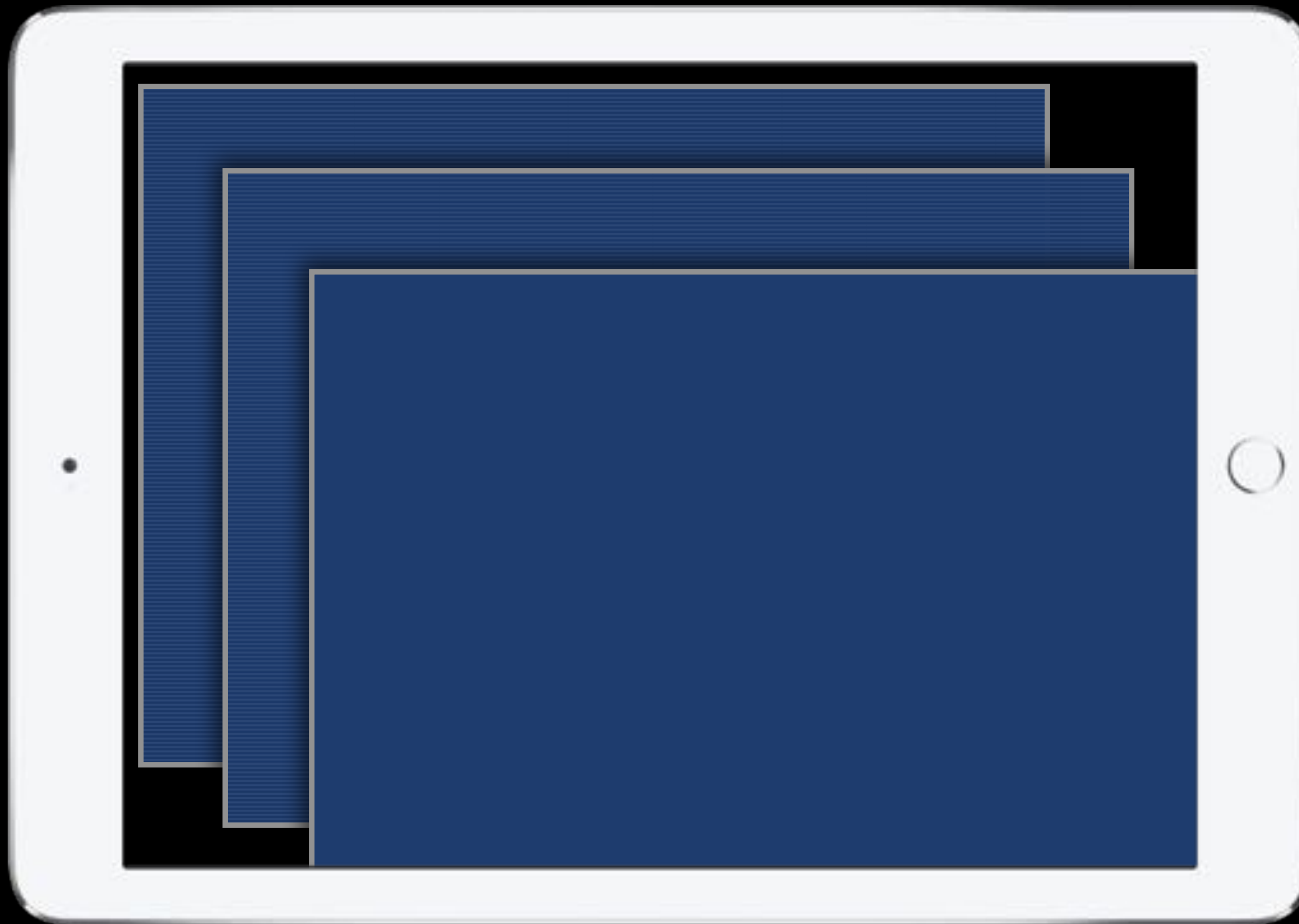


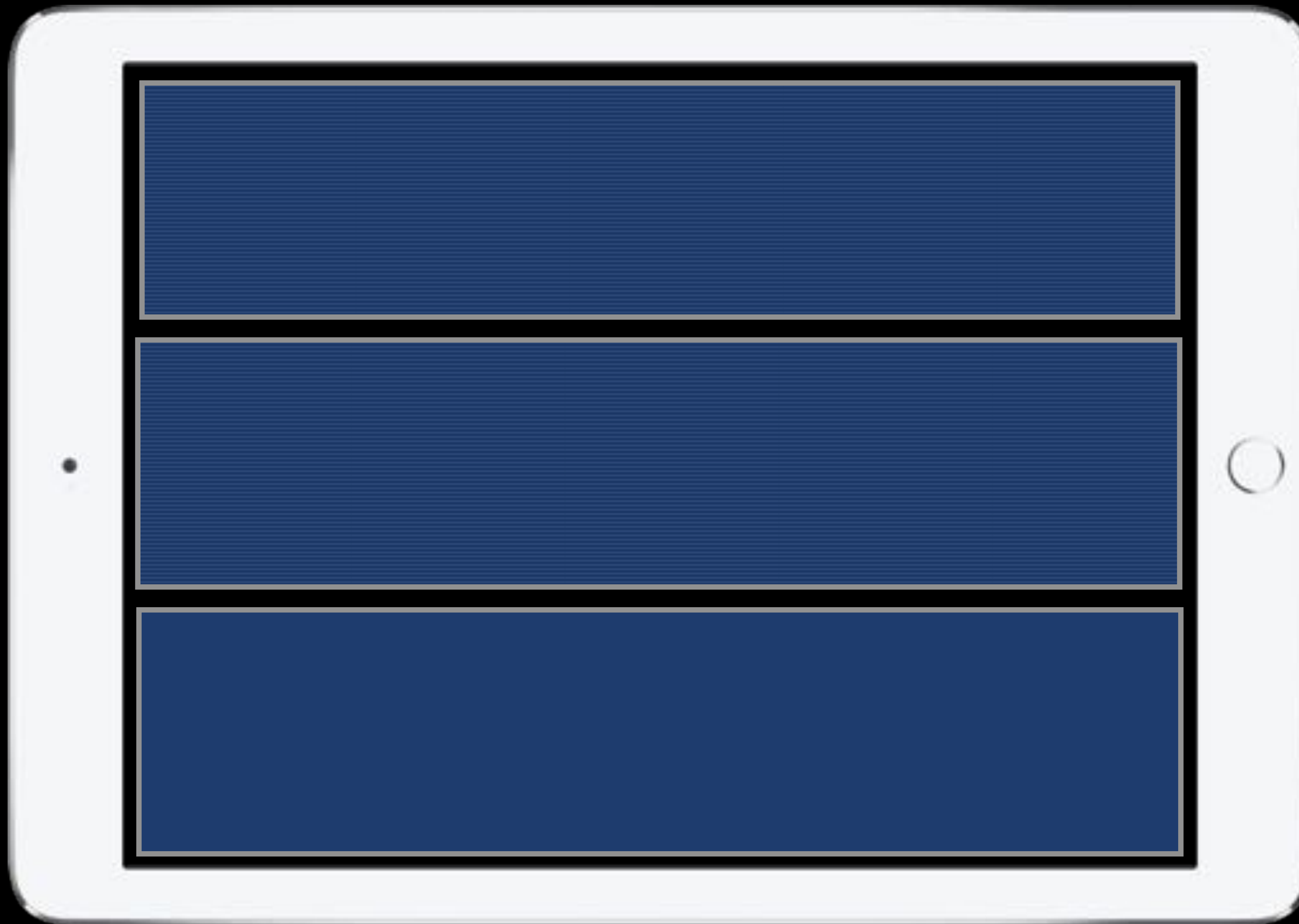
CHALLENGES WITH TABLETS











SCATTERPLOT
BARCHART
LINECHART
PARALLEL COORDINATES
TREEMAP
NODE-LINK DIAGRAMS
WORD CLOUD
MAPS
SPLOM
...

SELECT
ENCODE
FILTER
ZOOM
SORT
RECONFIGURE
CHANGE SCALE
SHOW DETAILS
CLUSTER
...

RELATED WORK



Designing and Implementing an Interactive Scatterplot Visualization for a Tablet Computer

Ramik Sadana, John Stasko

AVI 2014



Kinetica: Naturalistic multi-touch data visualization

Jeff Rzeszutarski, Aniket Kittur.

CHI 2014



vizible

by  tableau®

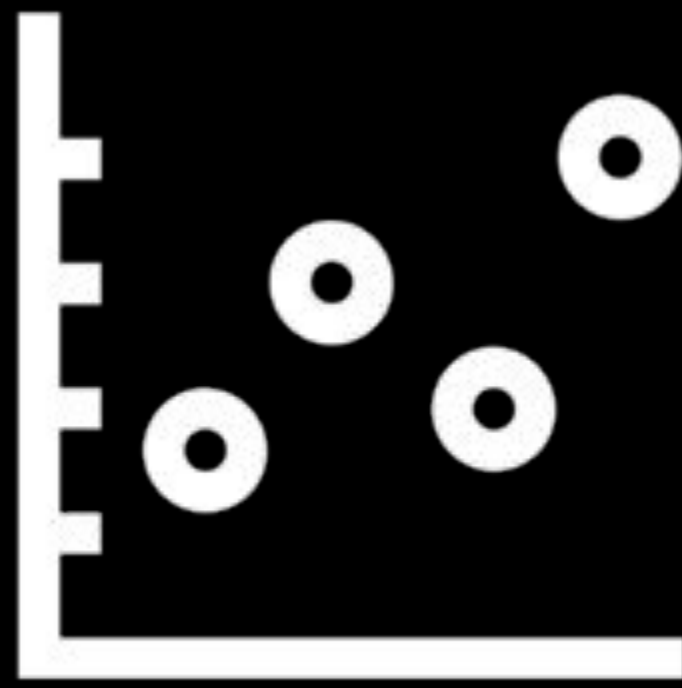
MCV GOALS

MCV GOALS

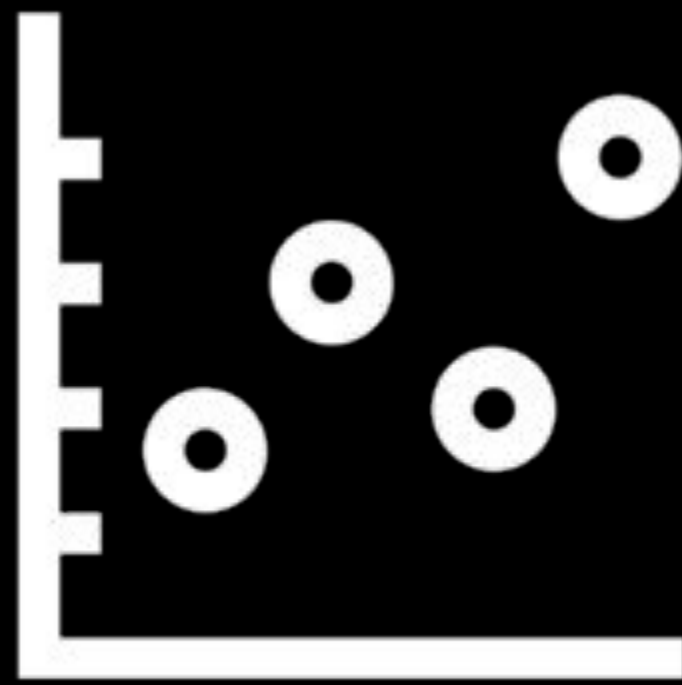
1. MULTIPLE TECHNIQUES
2. CONCURRENT & COORDINATED
3. BRUSHING & LINKING
4. INTERACTION
5. LAYOUT
6. SCALABILITY

COMPONENTS

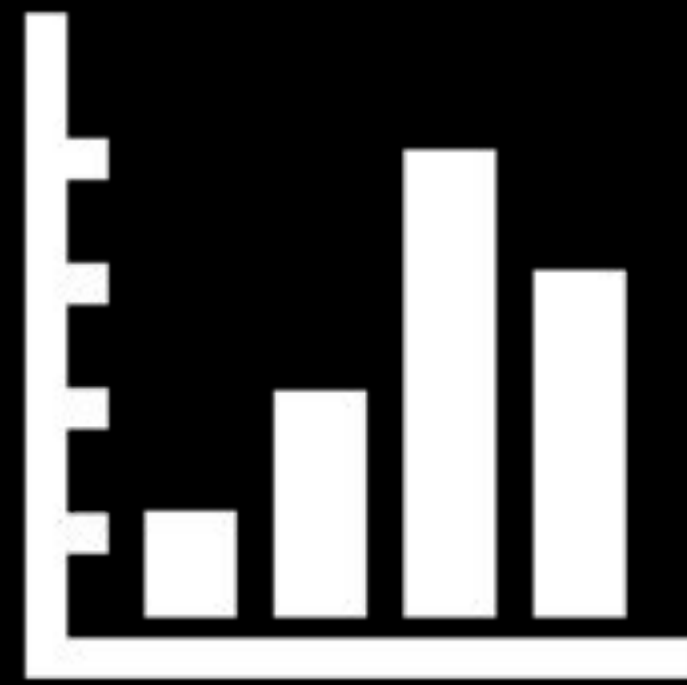
TECHNIQUES



SCATTERPLOT



SCATTERPLOT



BAR CHART



LINE CHART

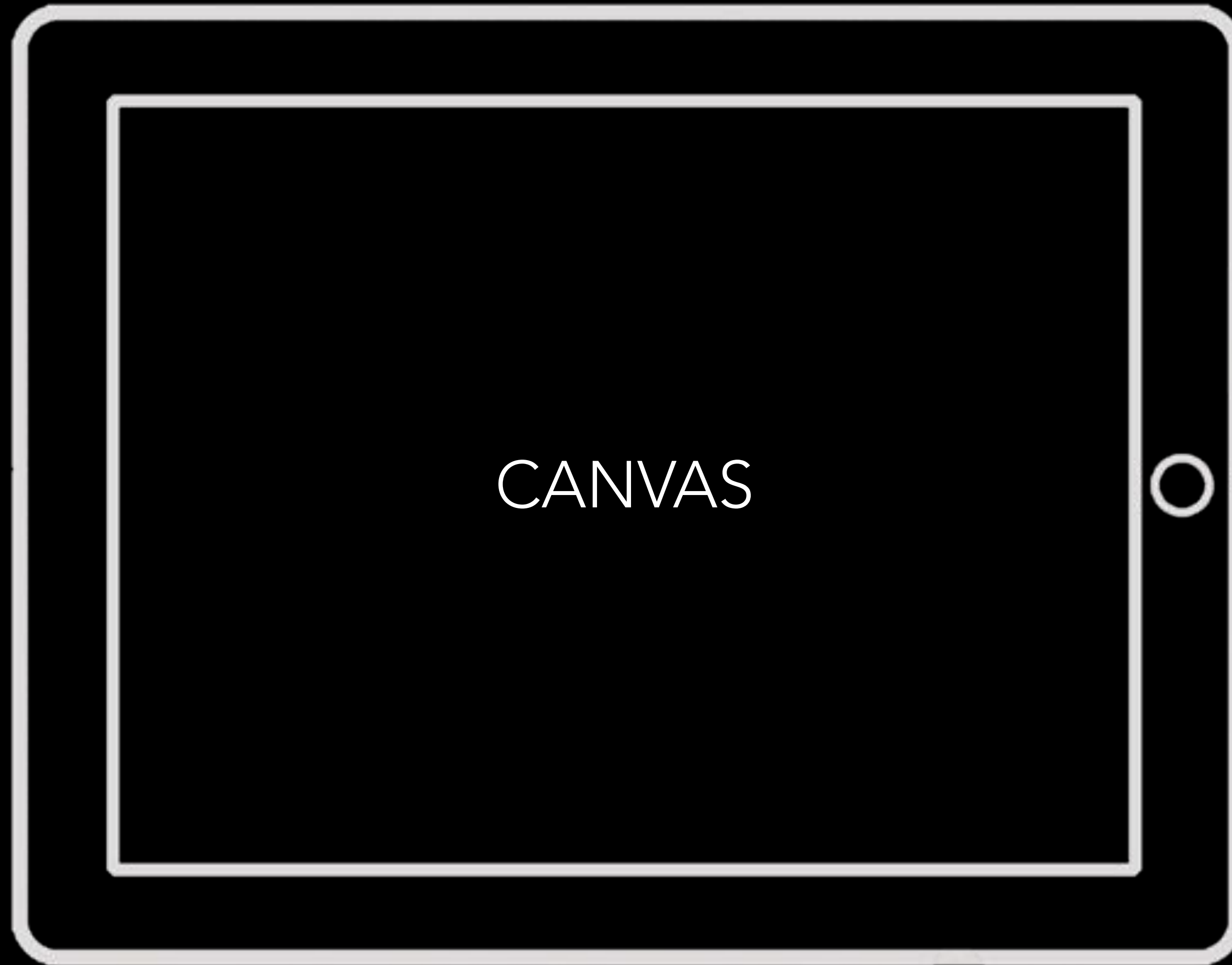


PARALLEL
COORDINATES

COMPONENTS

VIEWS

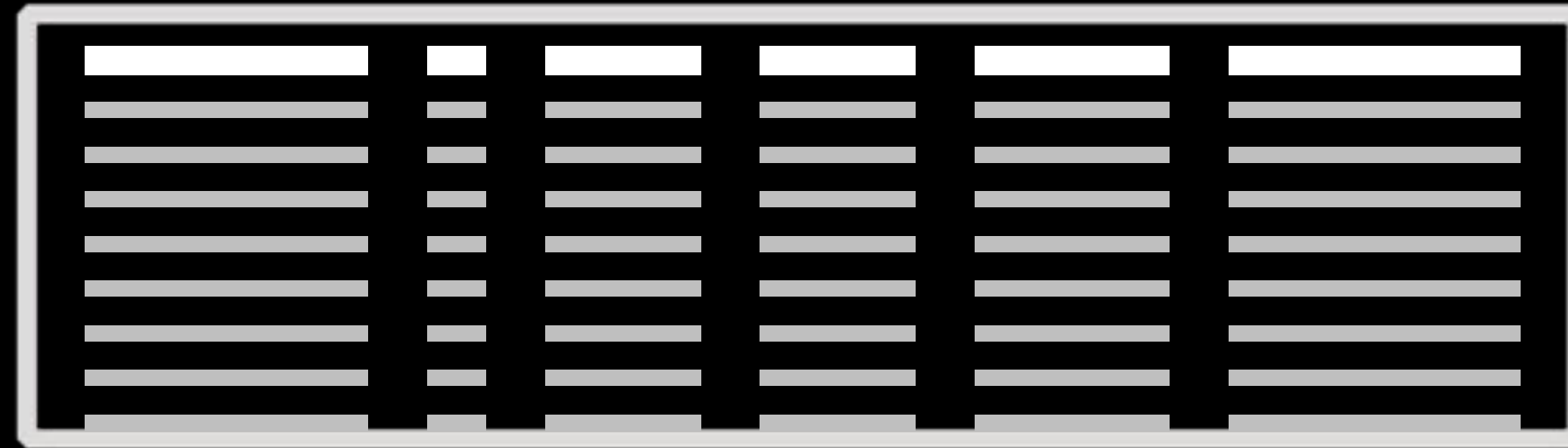
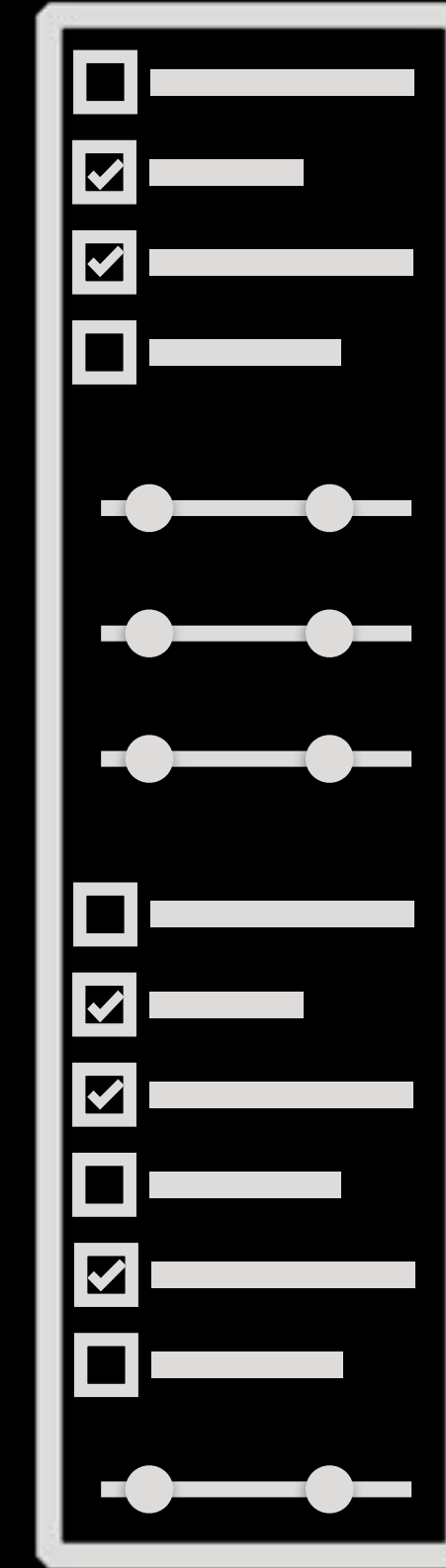
VIEW
GALLERY



CANVAS



TOOLS

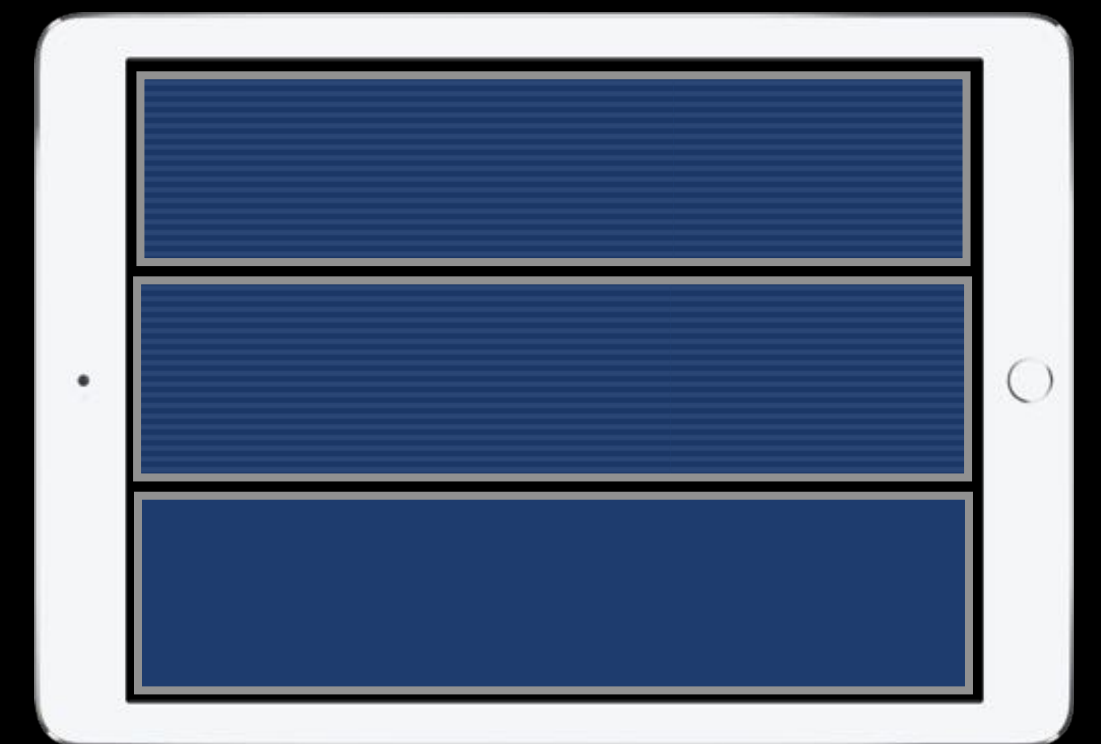
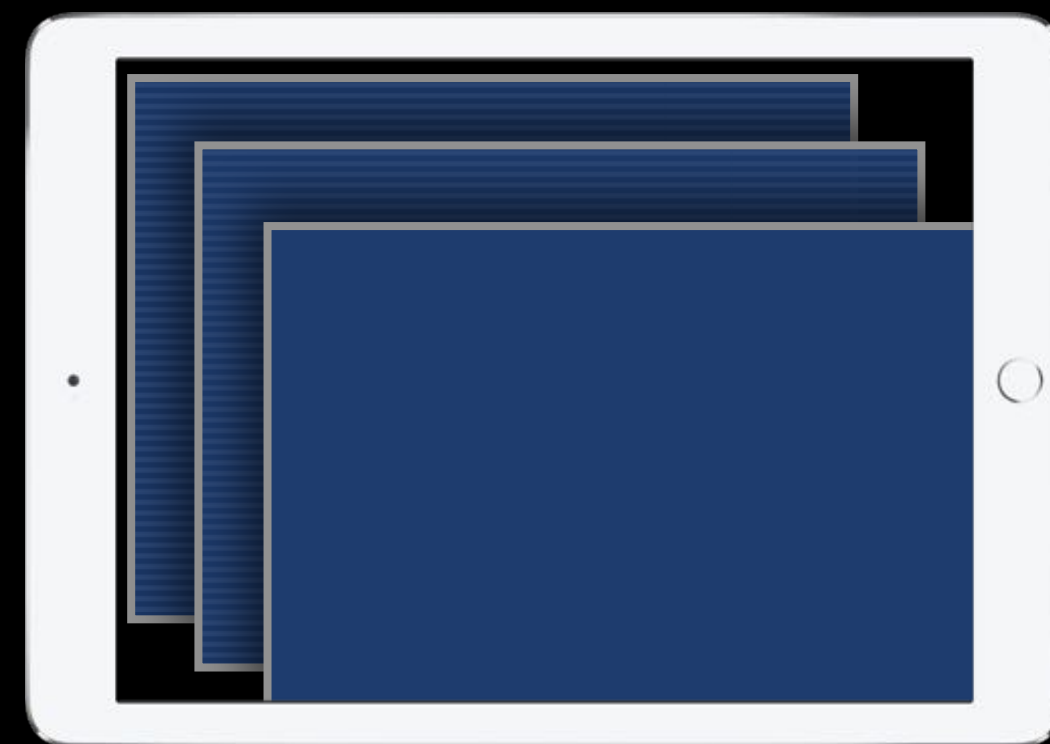
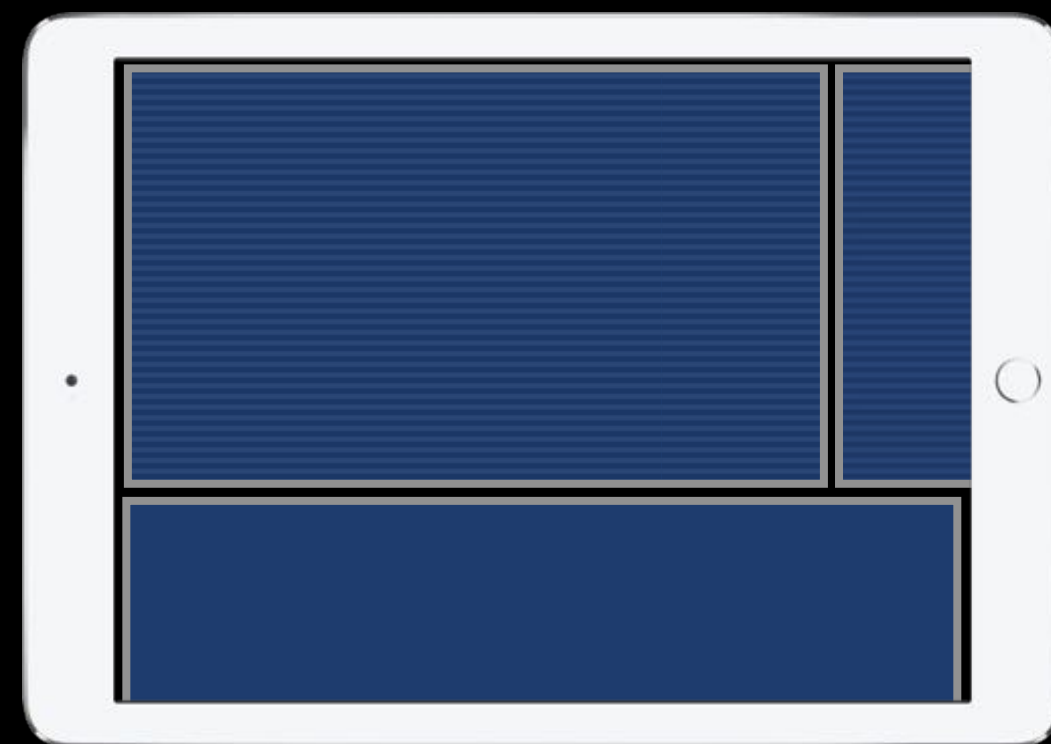
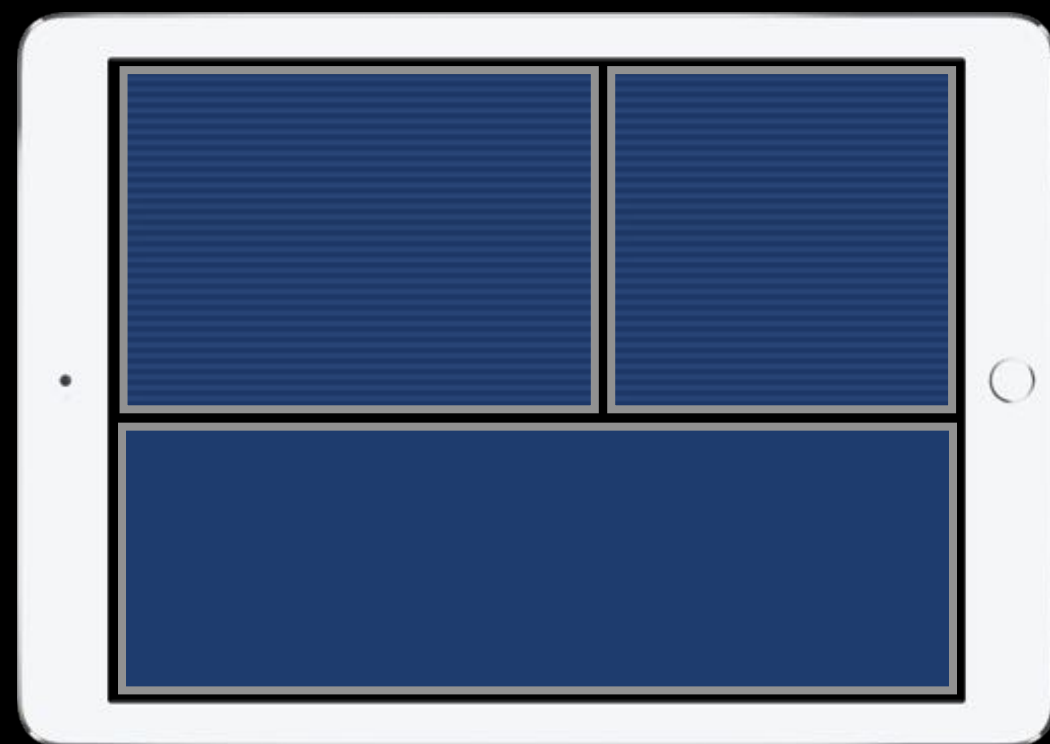


DETAILS-ON-DEMAND

VIEW LAYOUT AND MANAGEMENT

VIEW LAYOUT AND MANAGEMENT

simplicity

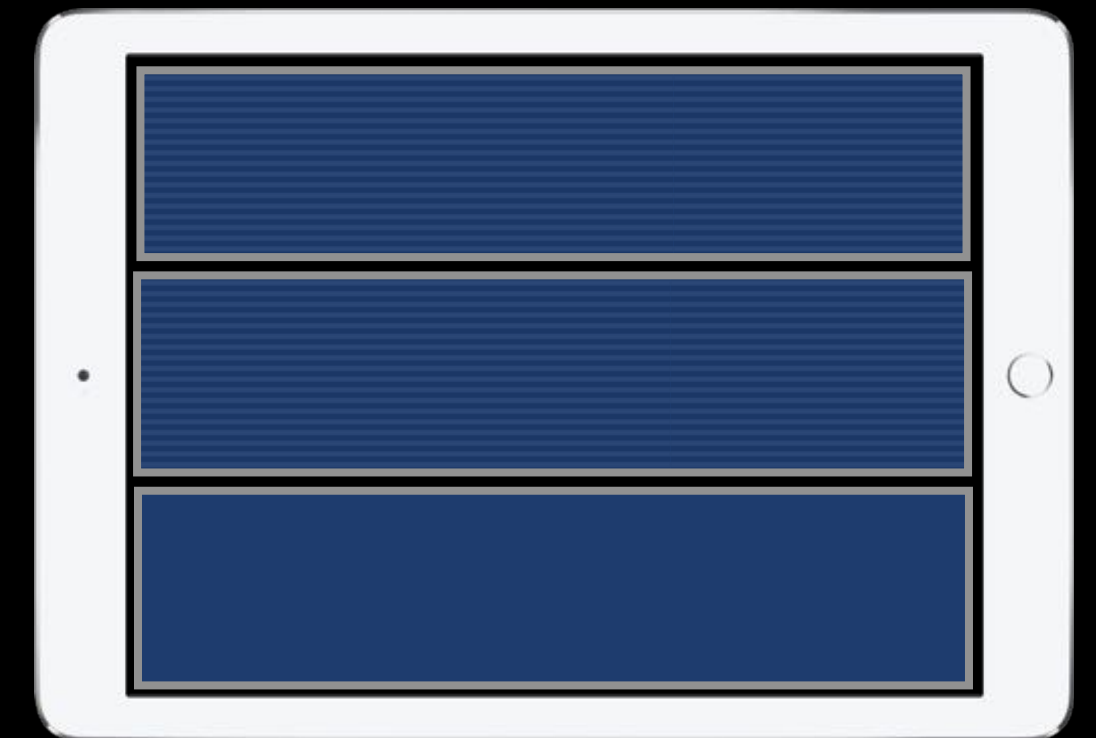
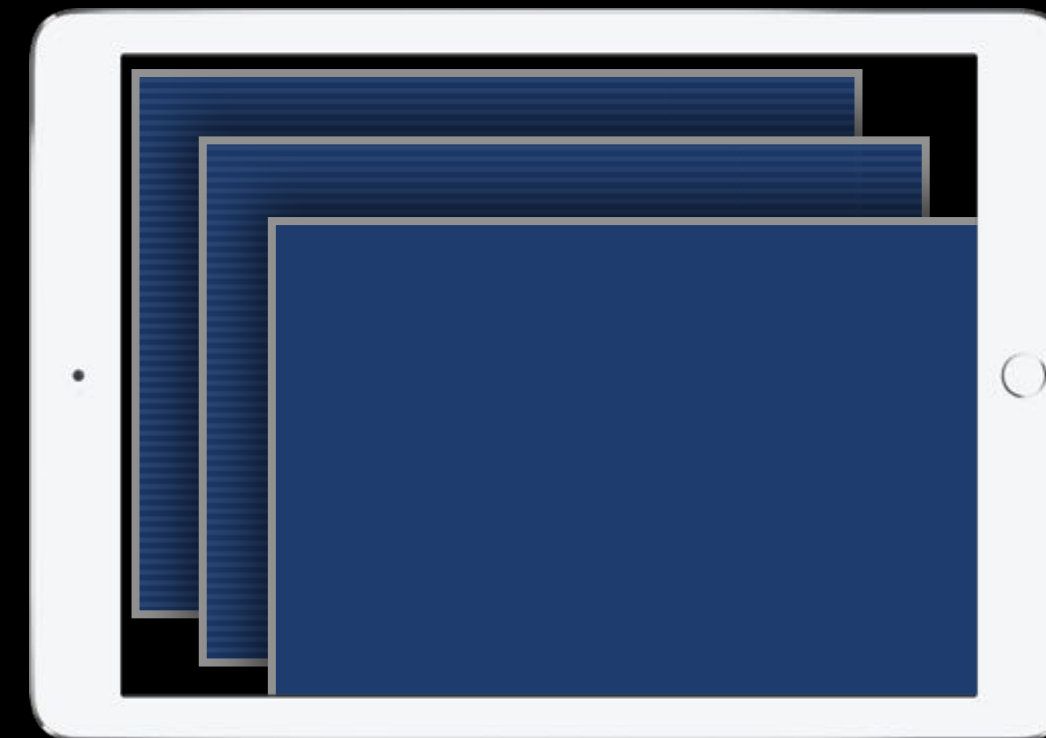
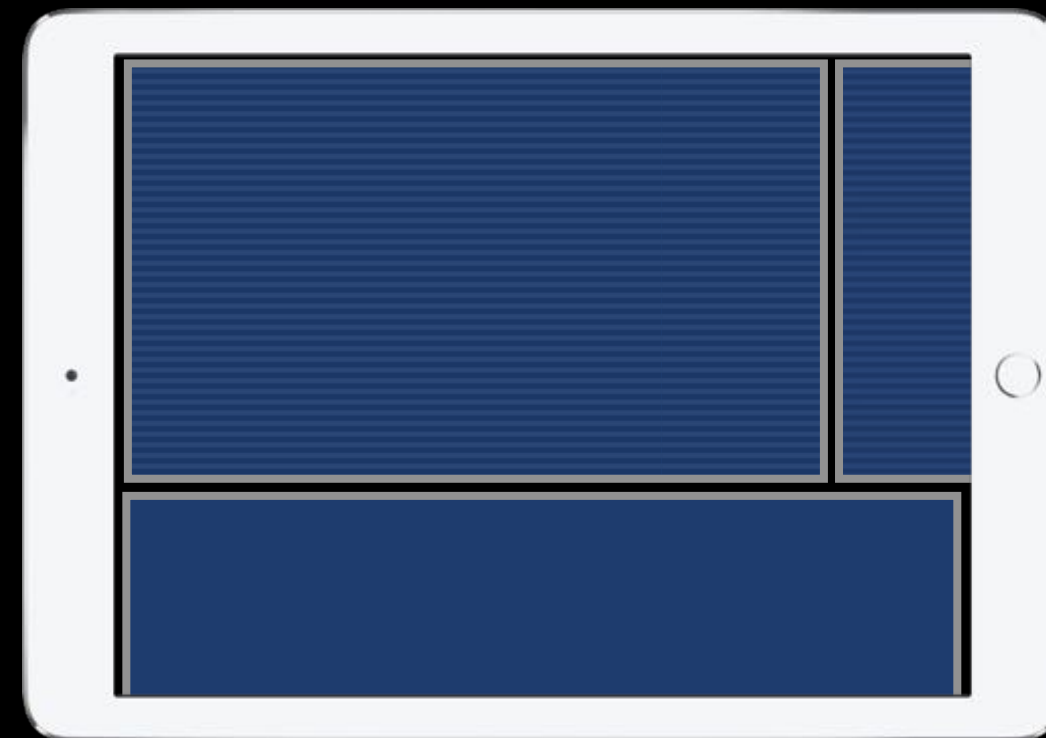
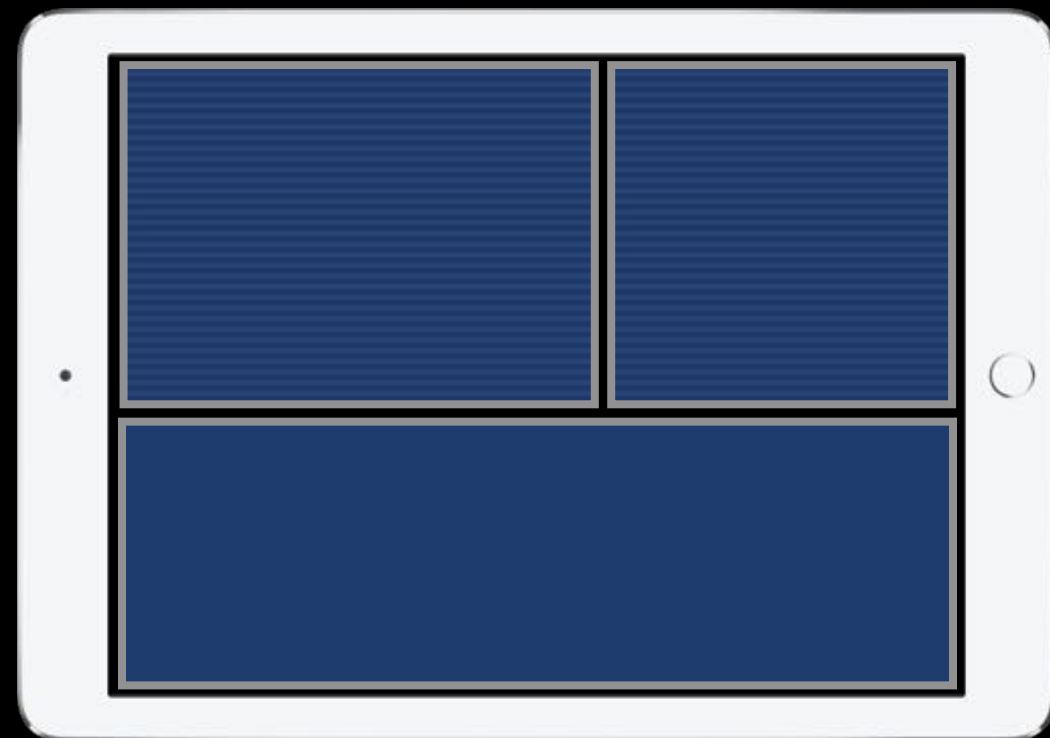


LAYOUT GOALS

1. STRIVE TO KEEP ALL VISUALIZATIONS IN VIEW
(PREVENT SCROLL, PAGINATION, OR TABS)

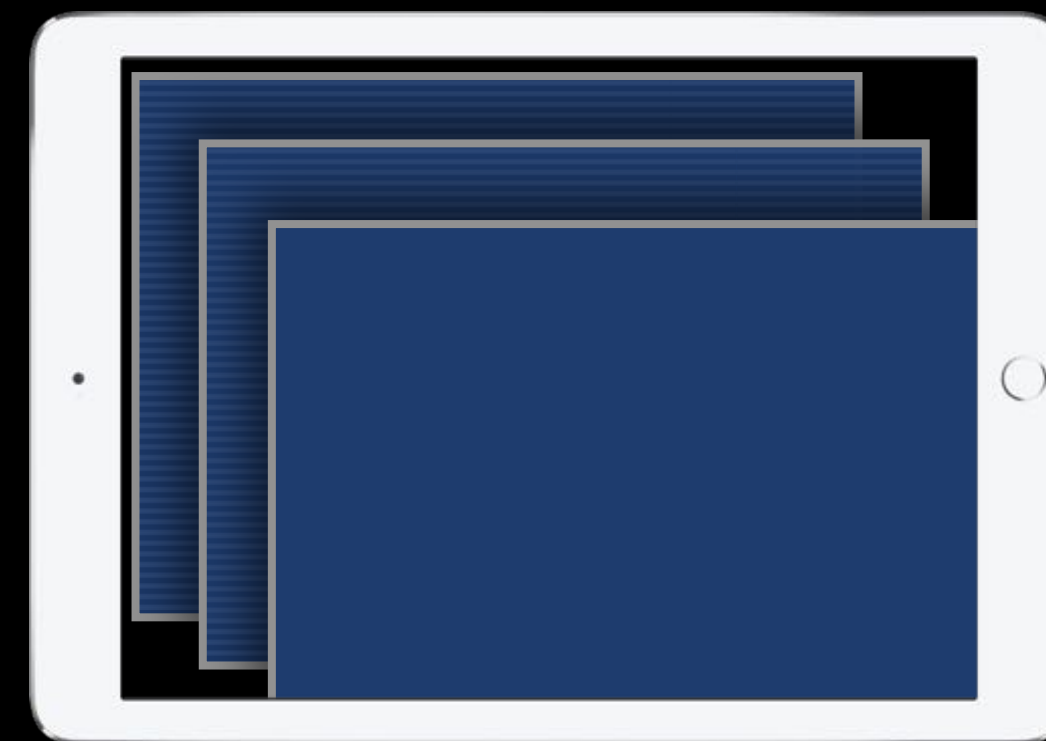
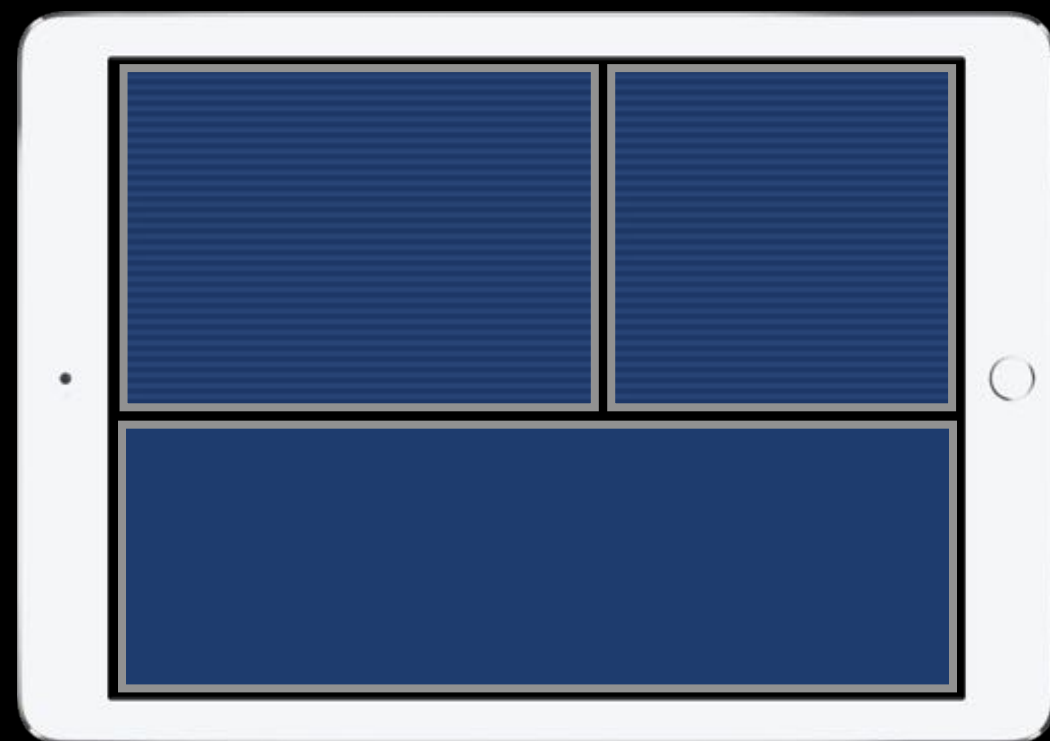
LAYOUT GOALS

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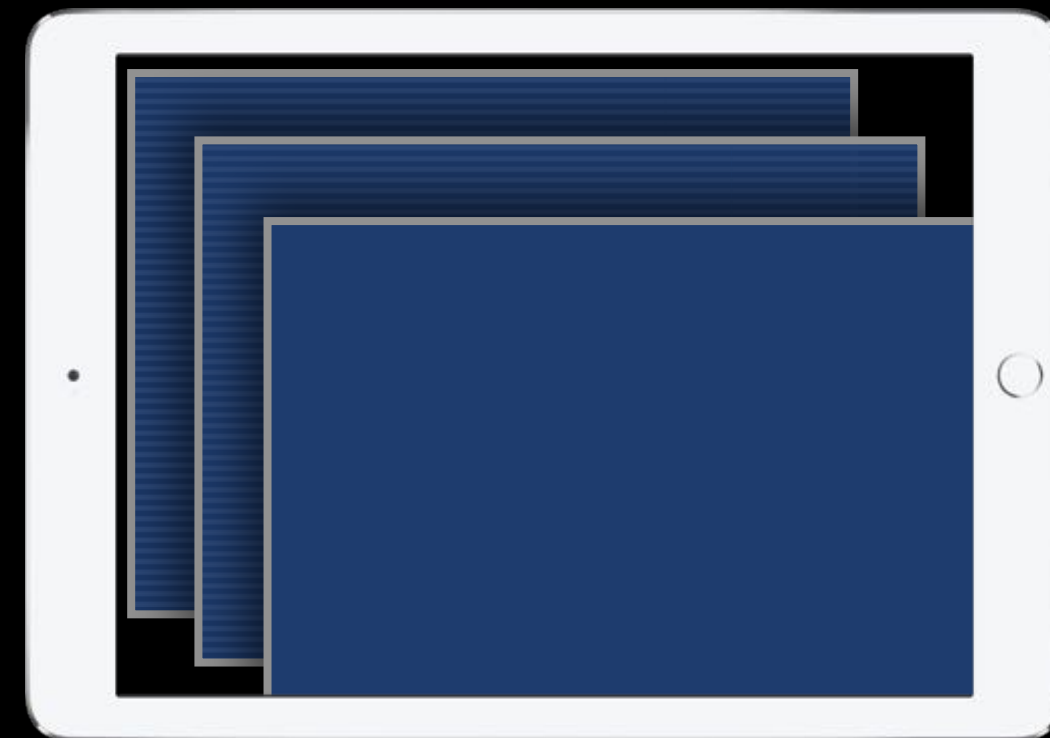
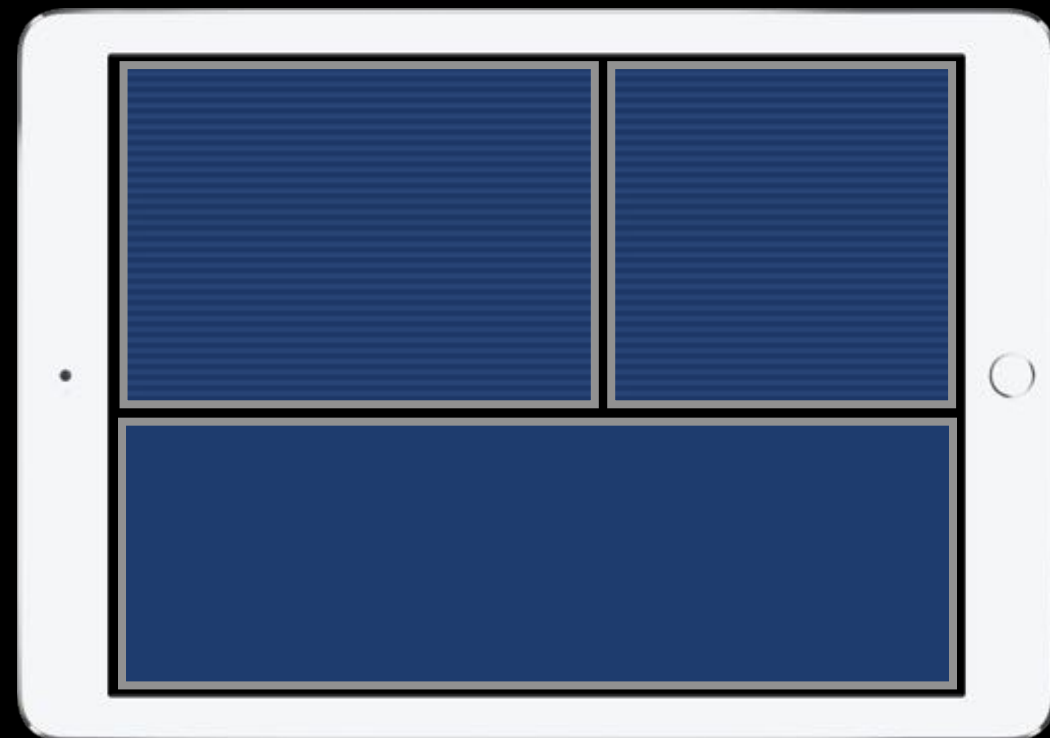
LAYOUT GOALS

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(PREVENT SCROLL, PAGINATION, OR TABS)



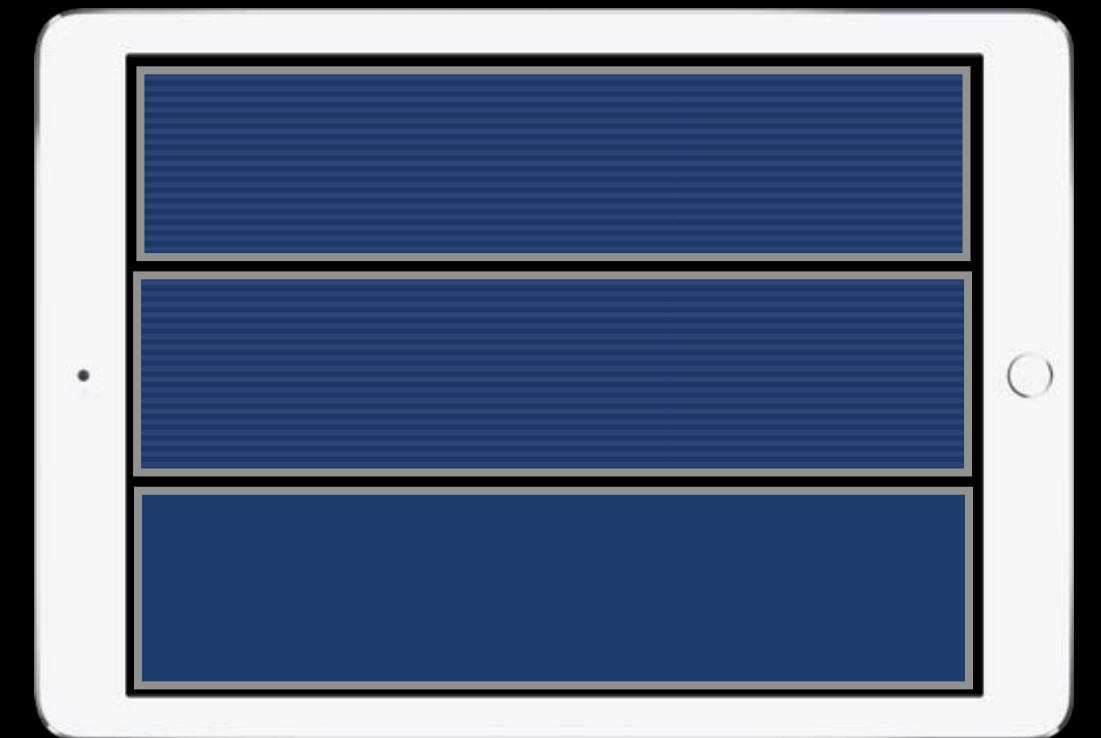
LAYOUT GOALS

2. EXCLUDE ANY NEED FOR END-USER CUSTOMIZATION OF LAYOUTS

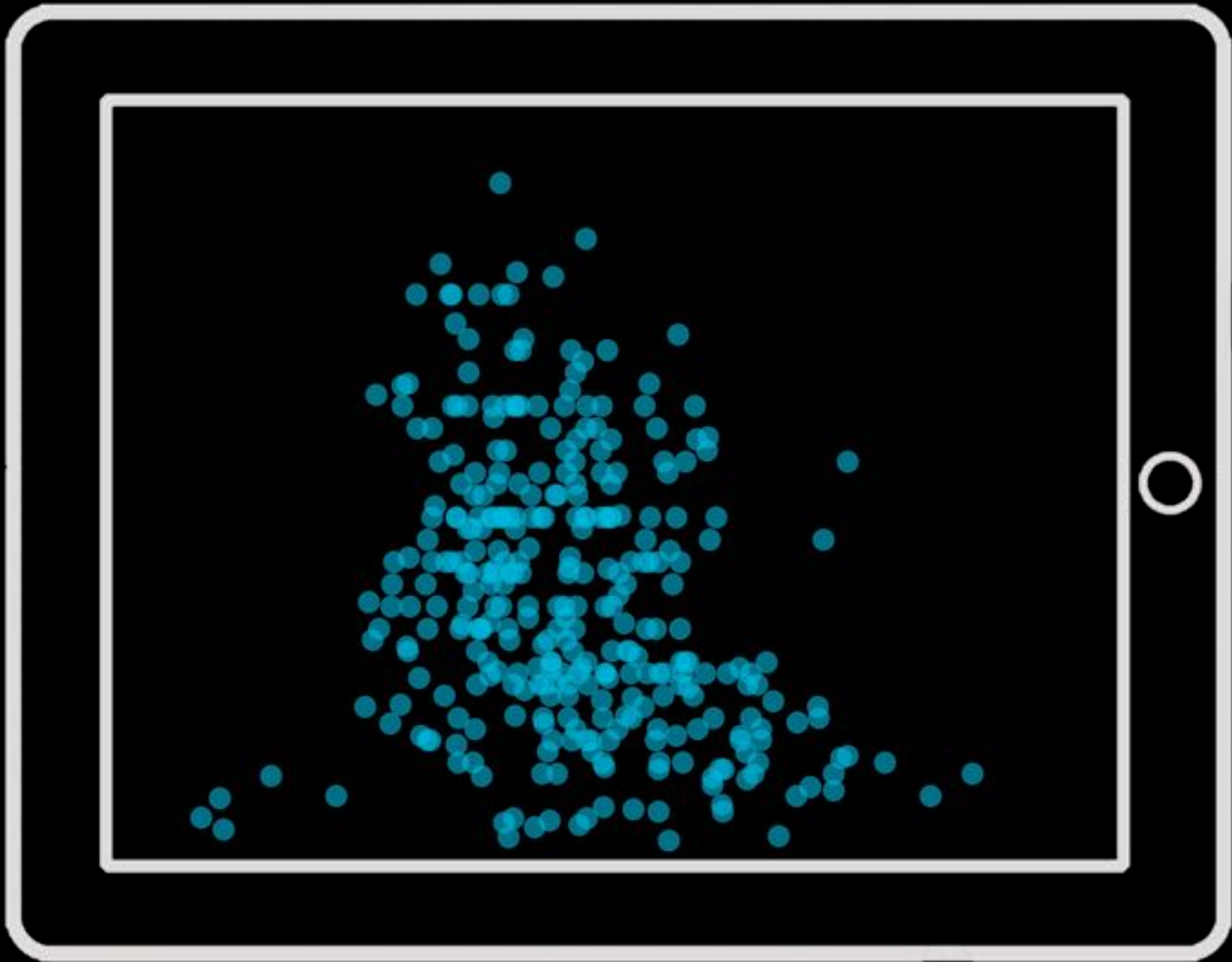


LAYOUT GOALS

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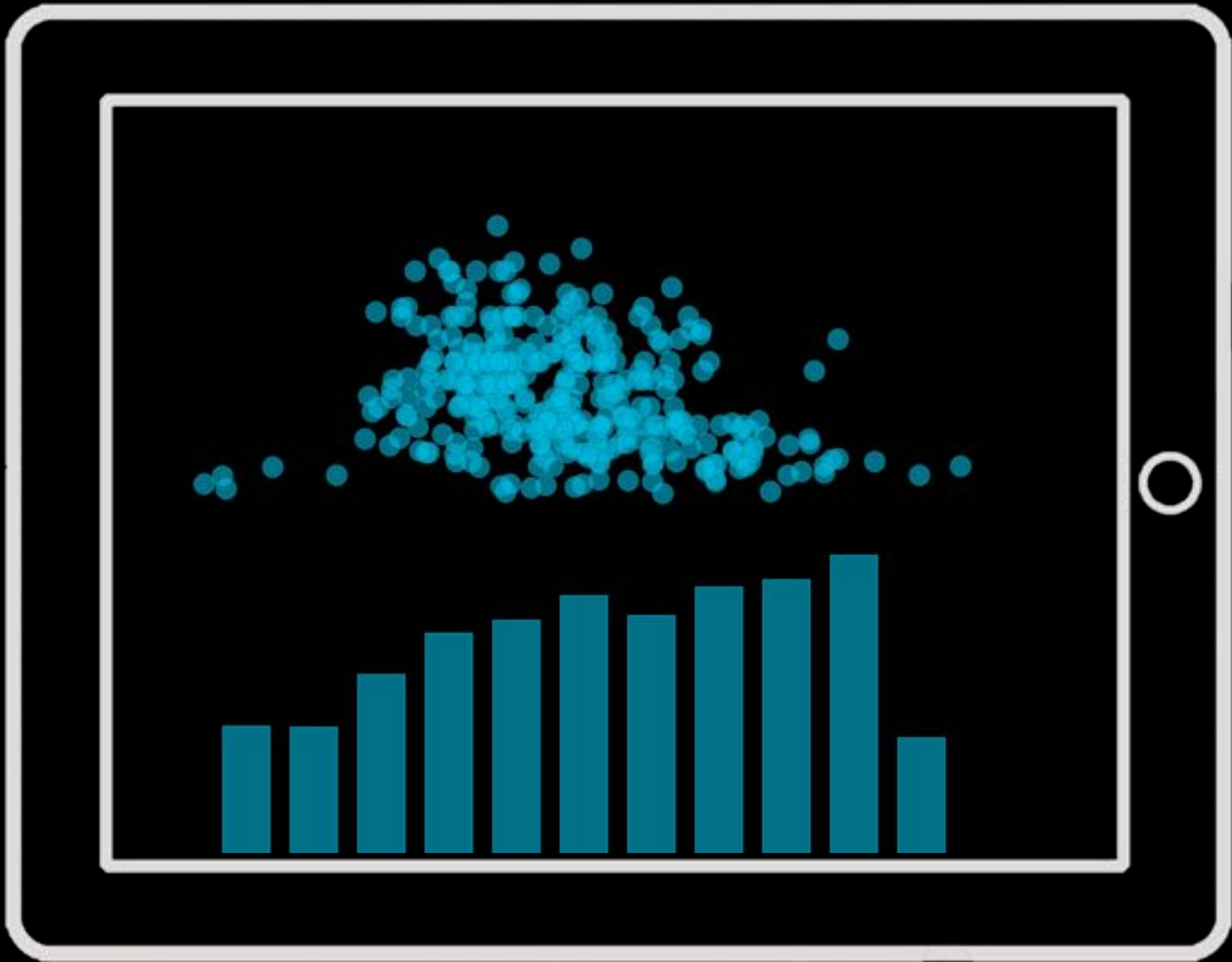
SCATTERPLOT



CANVAS

SCATTERPLOT

BARCHART

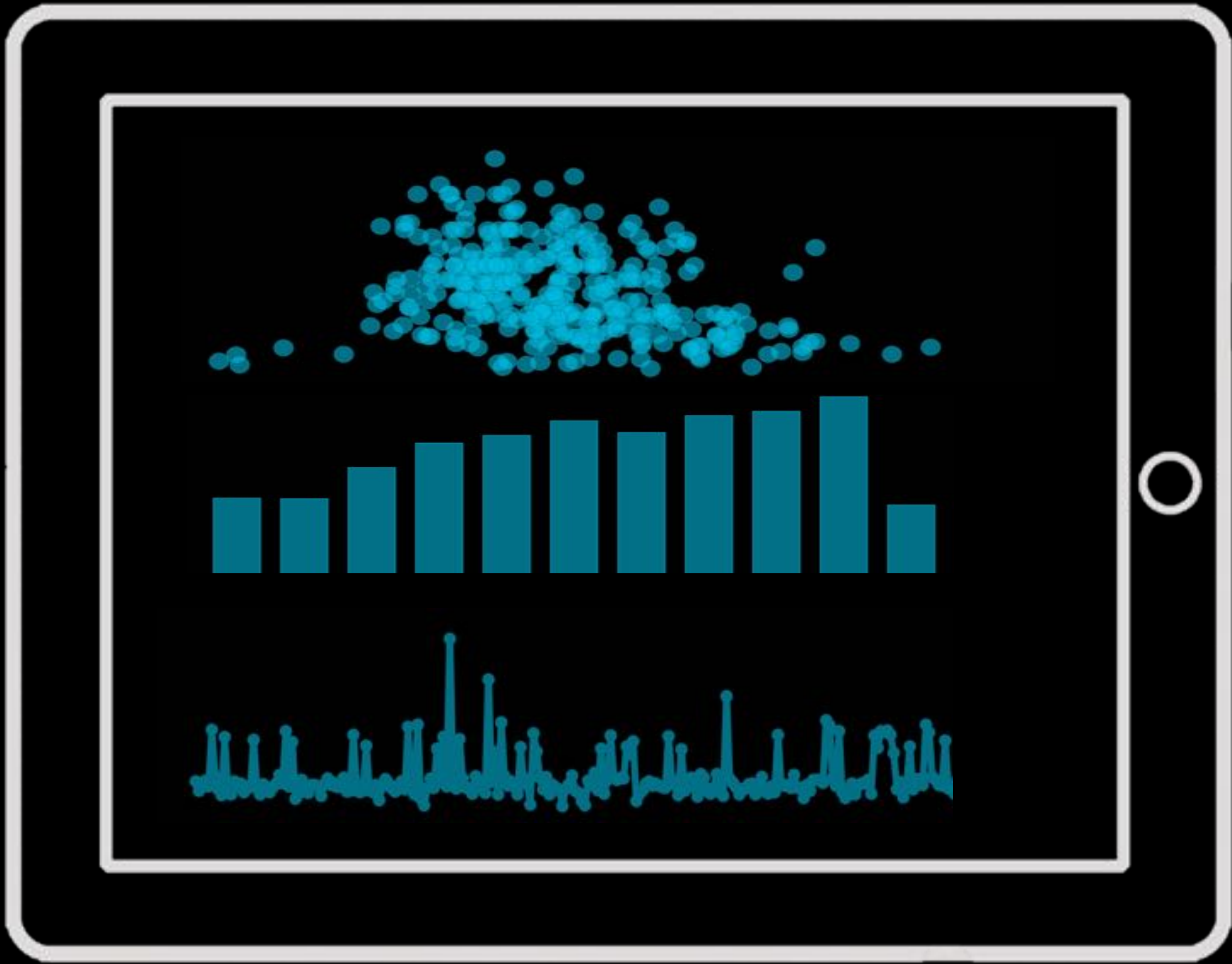


CANVAS

SCATTERPLOT

BARCHART

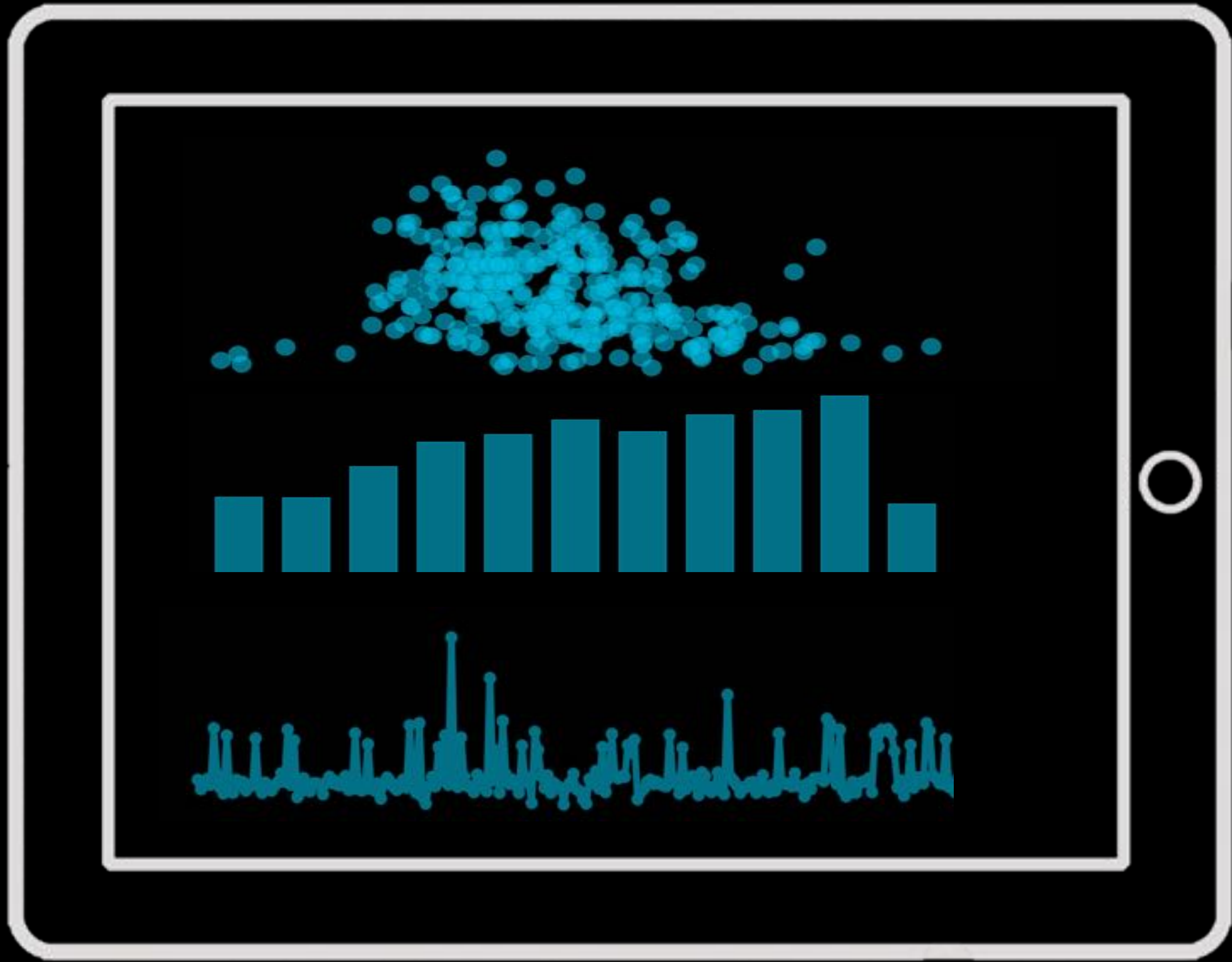
LINECHART



CANVAS

SCATTERPLOT

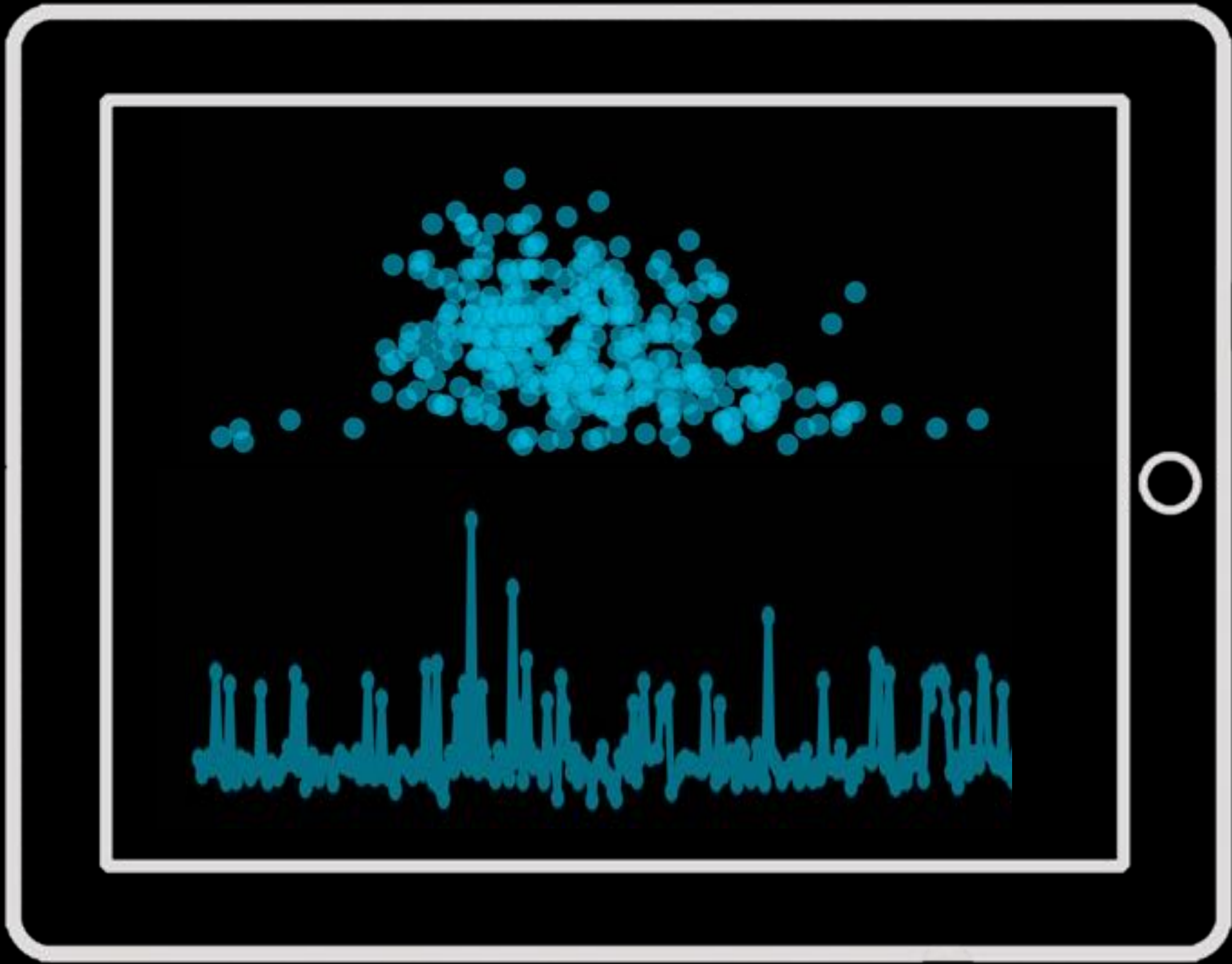
LINECHART



CANVAS

SCATTERPLOT

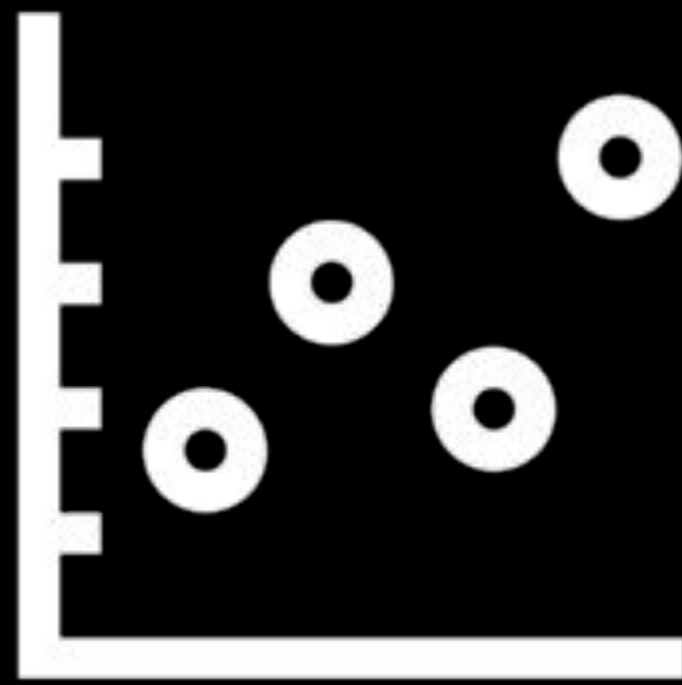
LINECHART



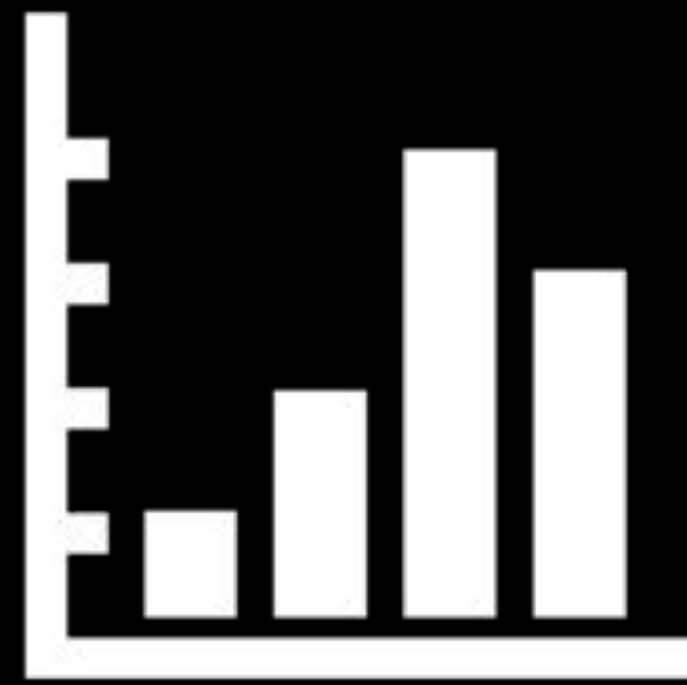
CANVAS

INTERACTIONS

CONSISTENCY



SCATTERPLOT



BAR CHART



LINE CHART



PARALLEL
COORDINATES

Operation	Interaction
Select	Tap To Select One Glyph Lasso To Select Multiple Glyphs Swipe On Axis To Select Glyphs Between A Range Of Values
Zoom	Pinch On View For Fixed-Aspect Ratio Zoom Pinch On An Axis For Zooming In One Direction
Filter	Select Glyphs, Then Tap "Keep-Only" Or "Remove" Button
View Data	Select Glyphs, Then Drag Table From Below

SELECT



ZOOM



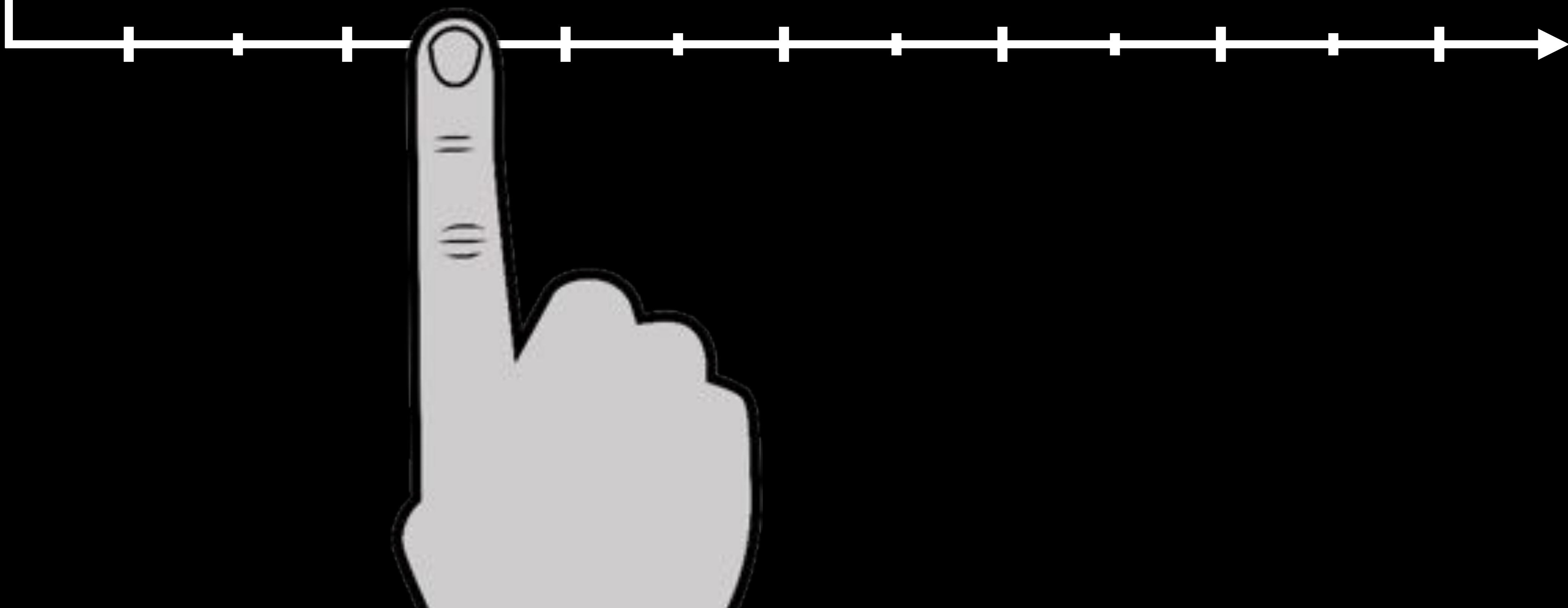
SORT

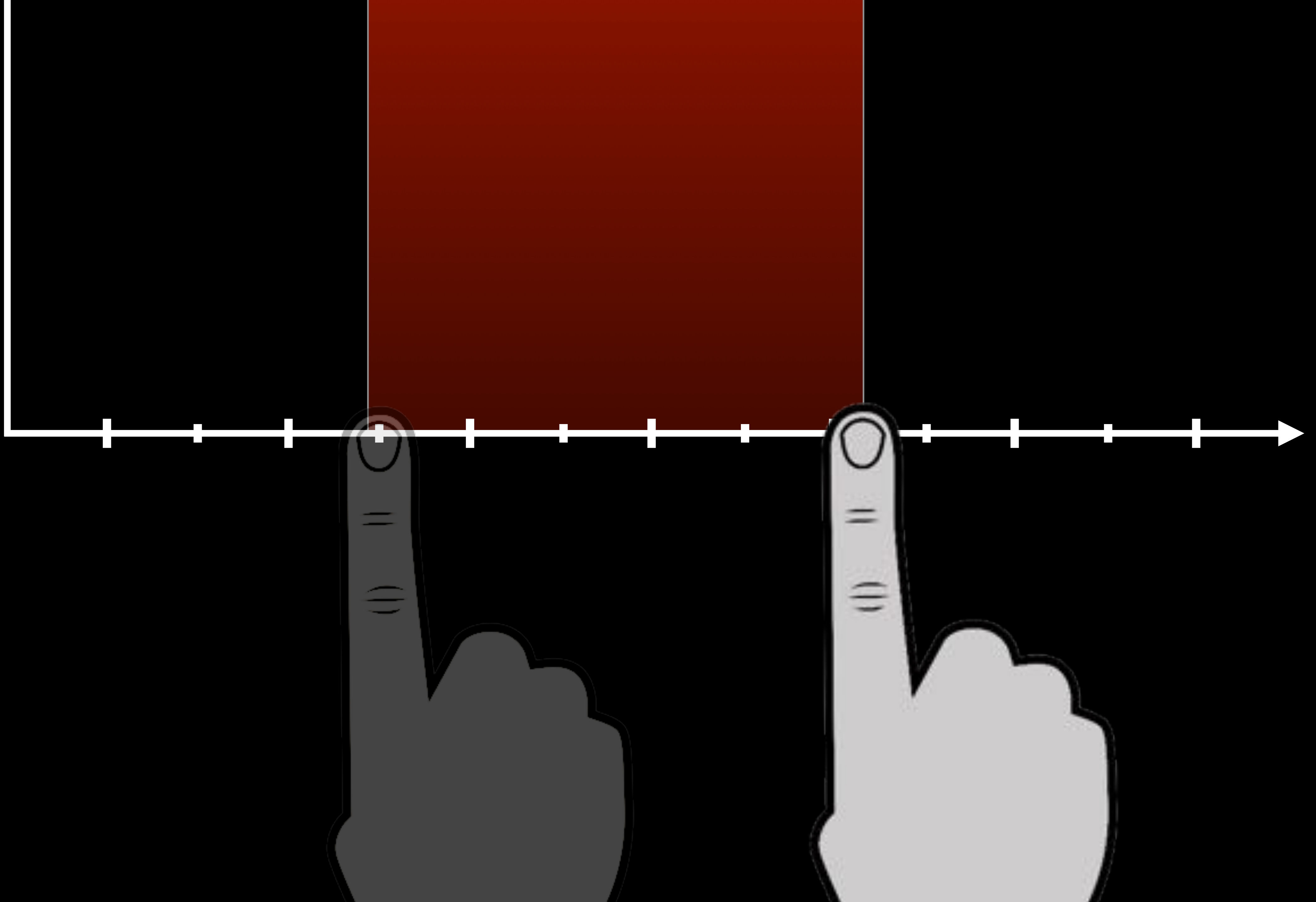


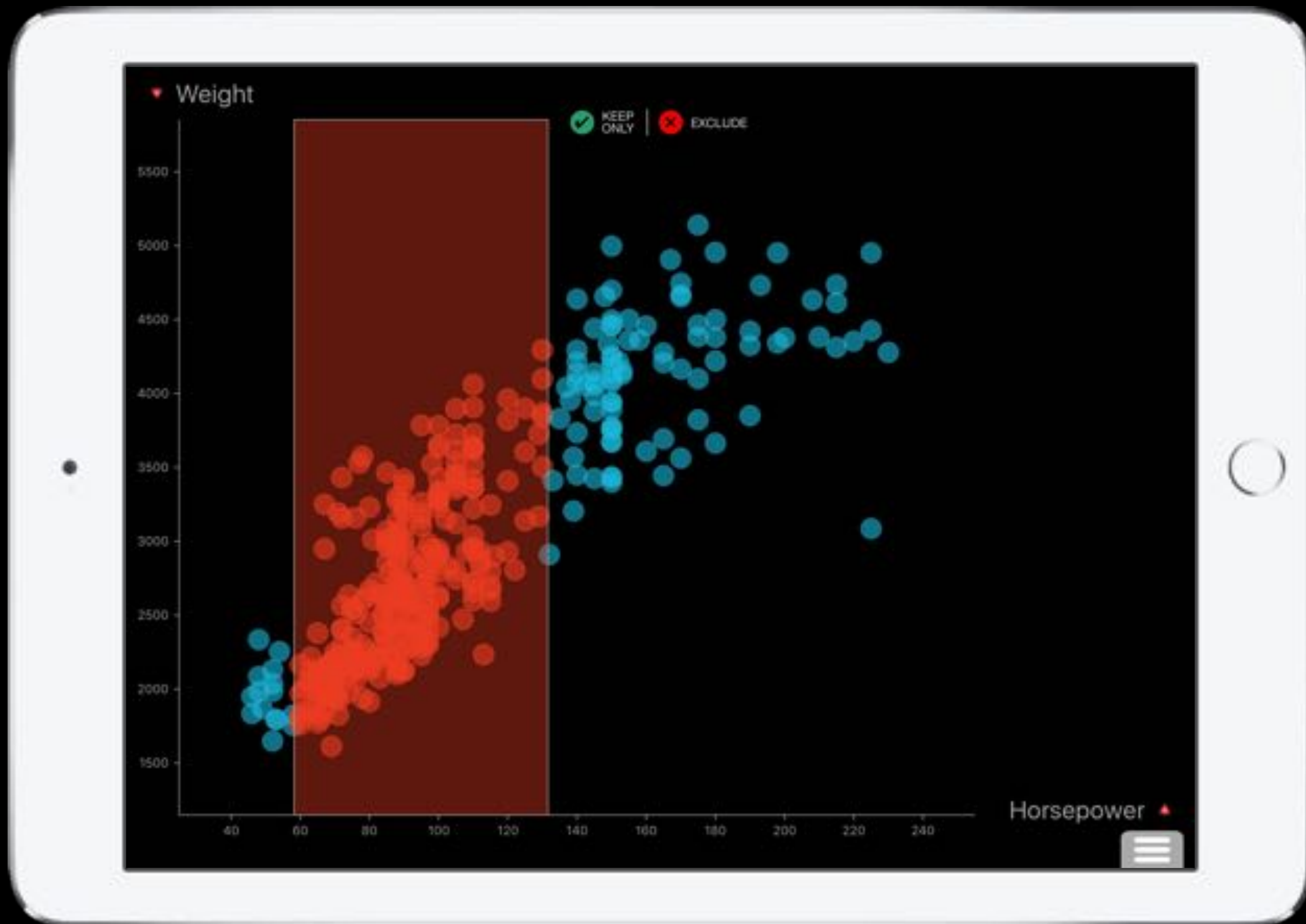




OCCLUSION





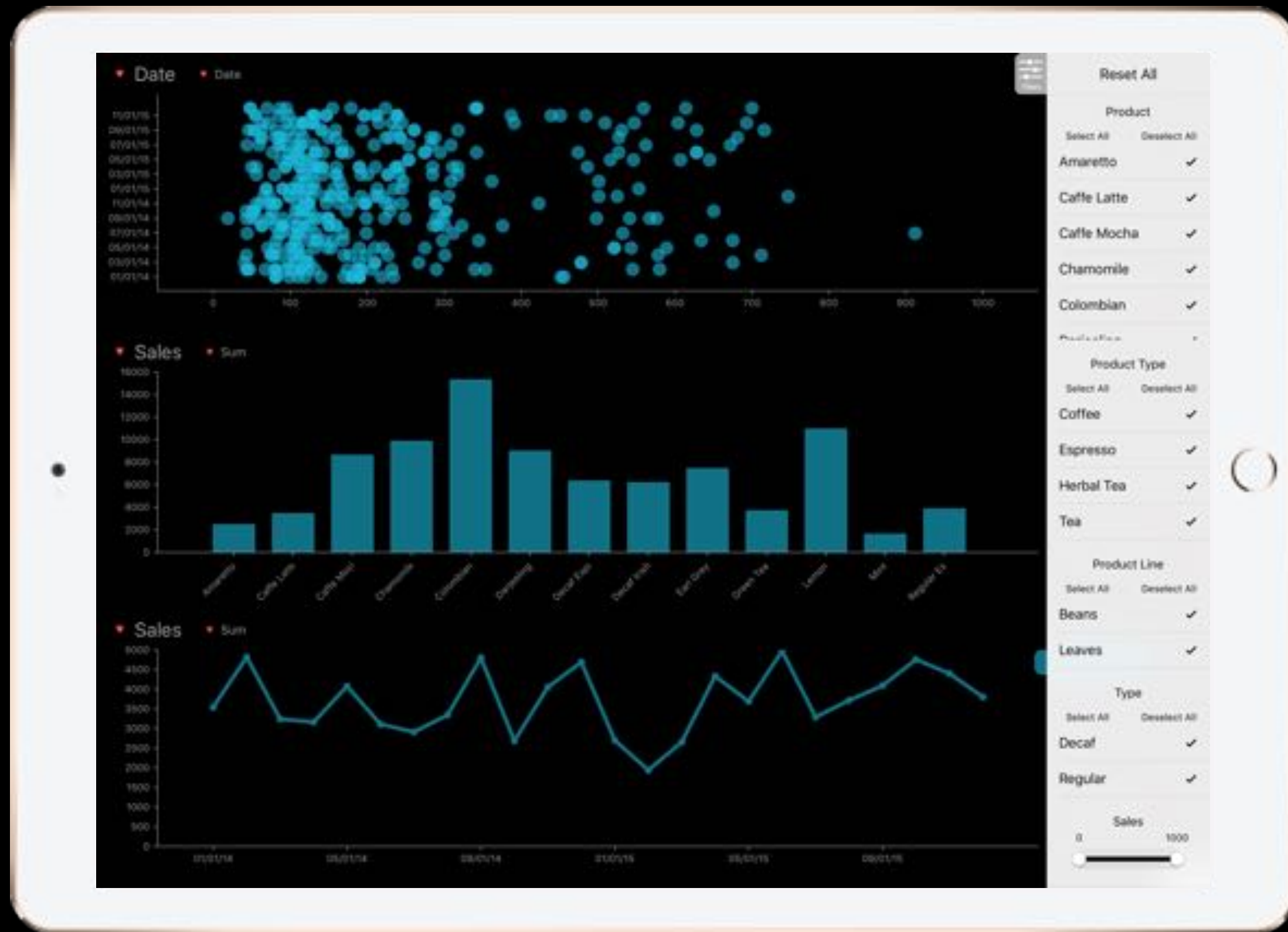




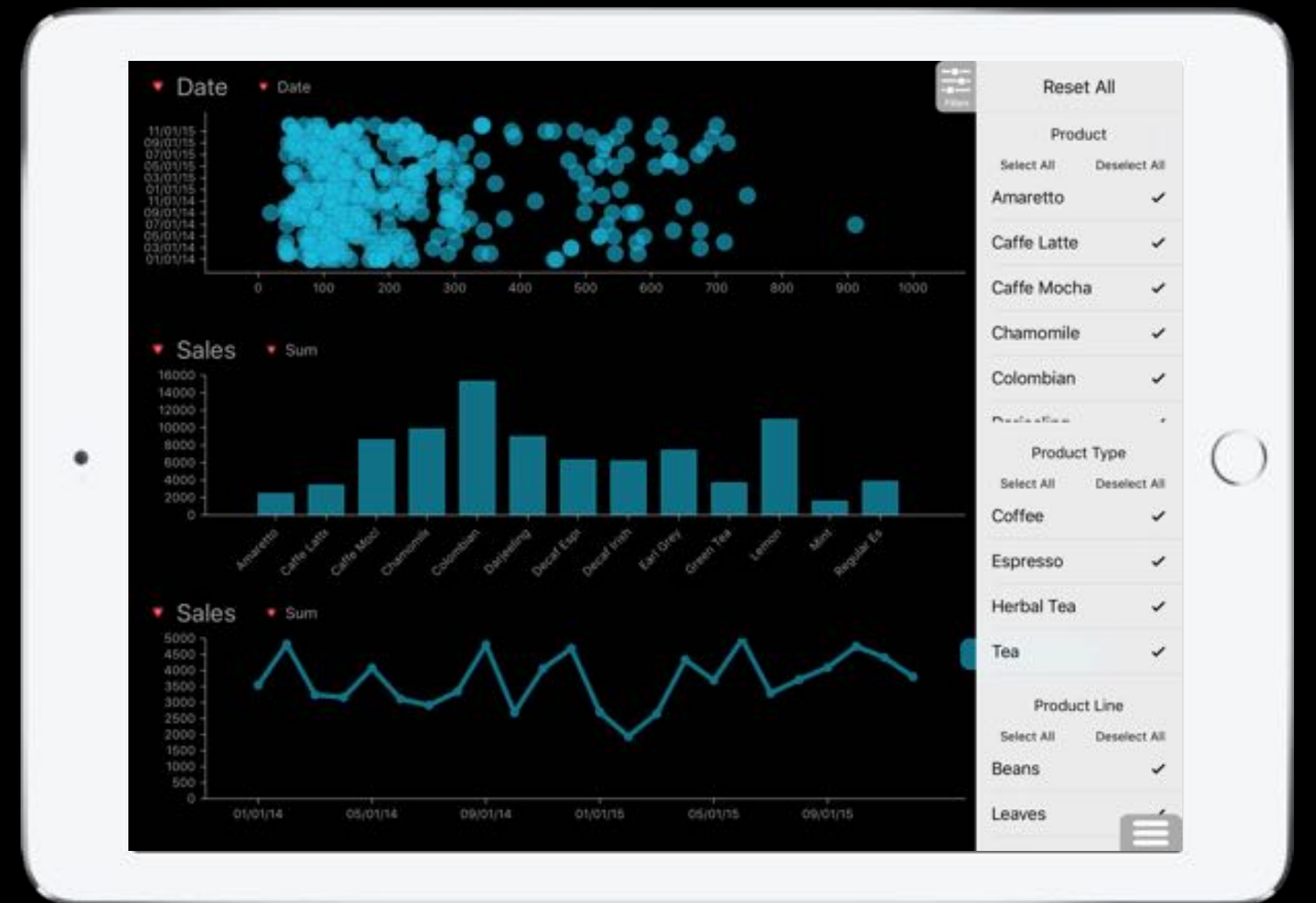


DISCUSSION

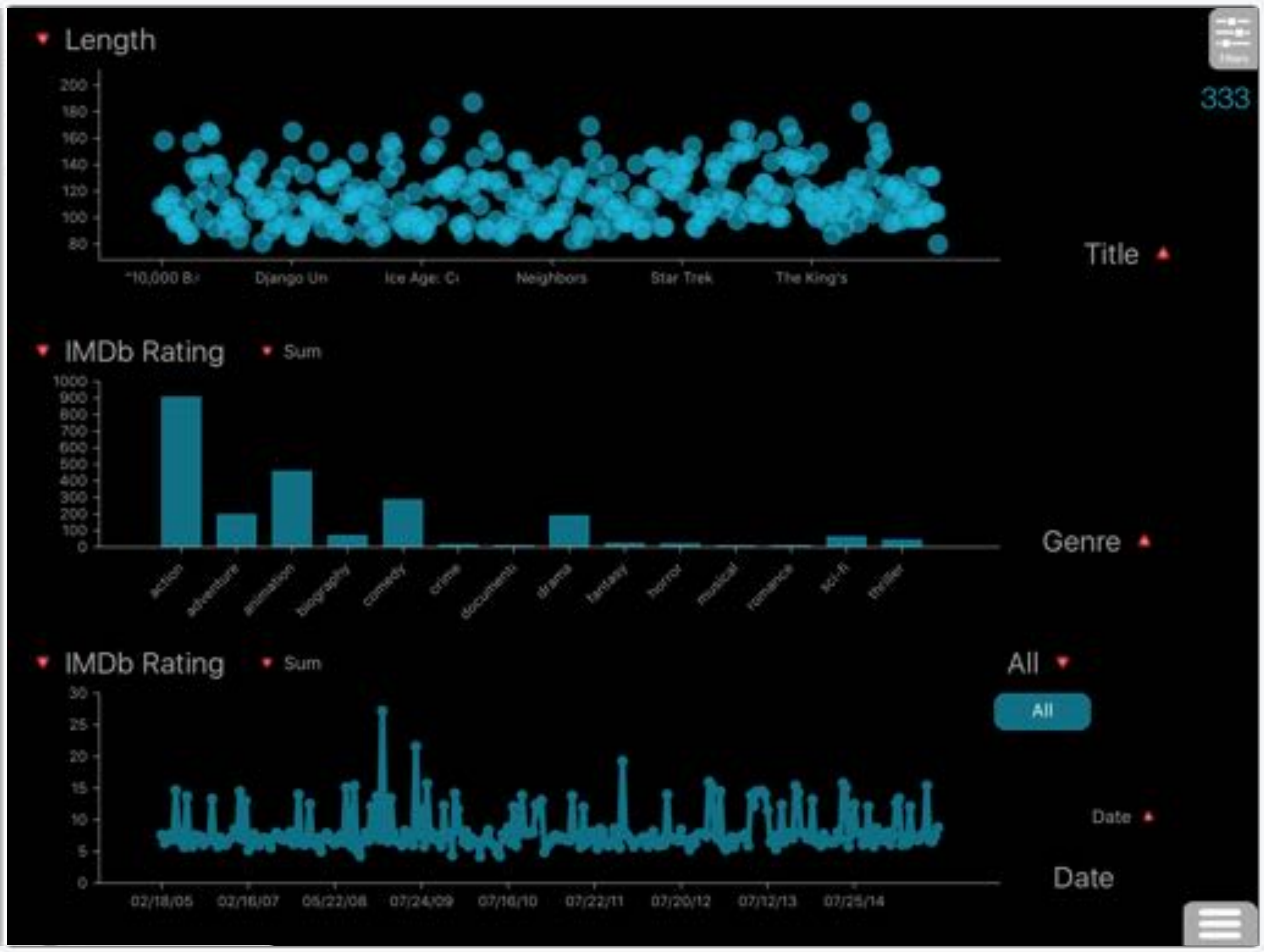


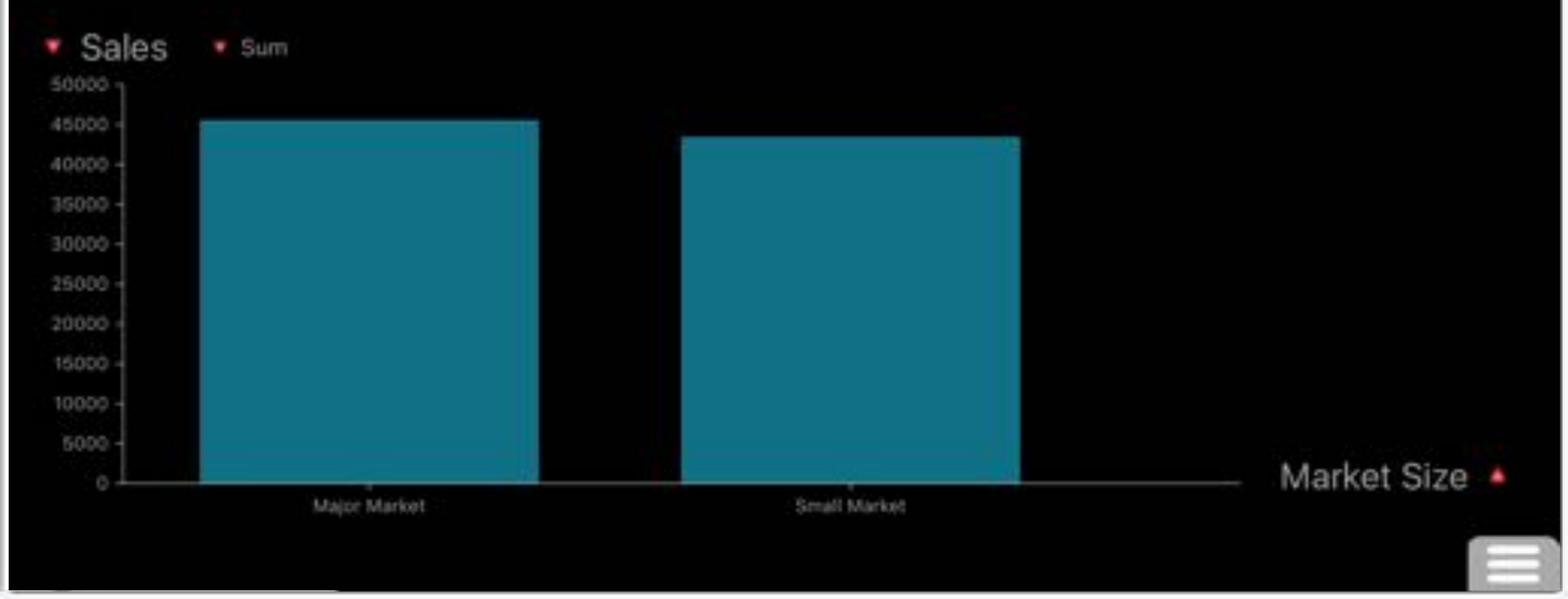
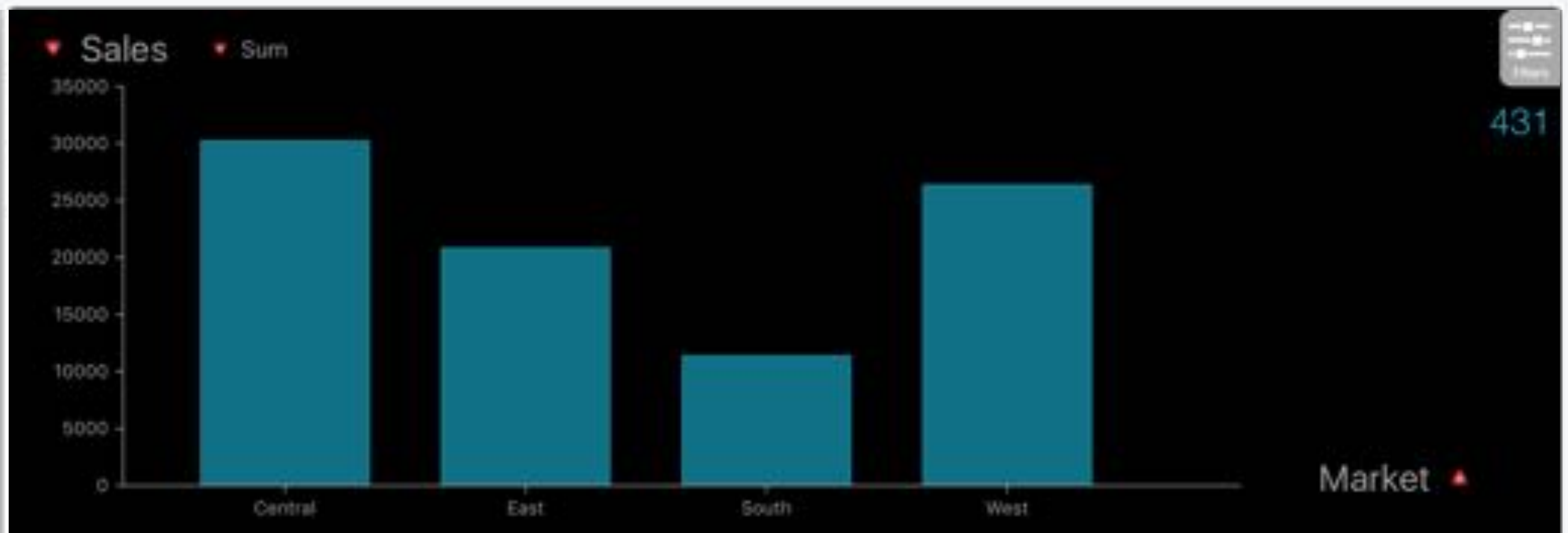


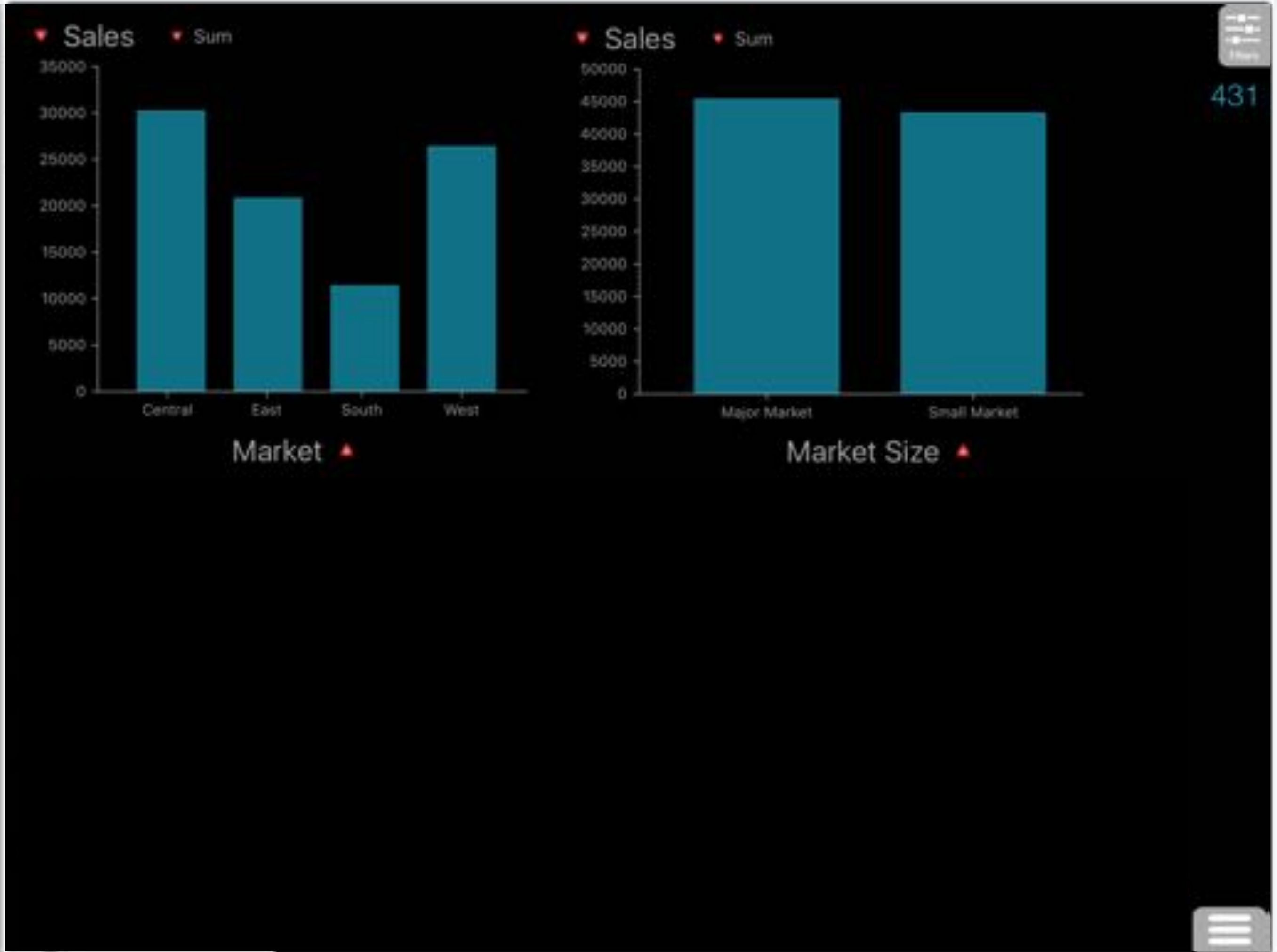
13"

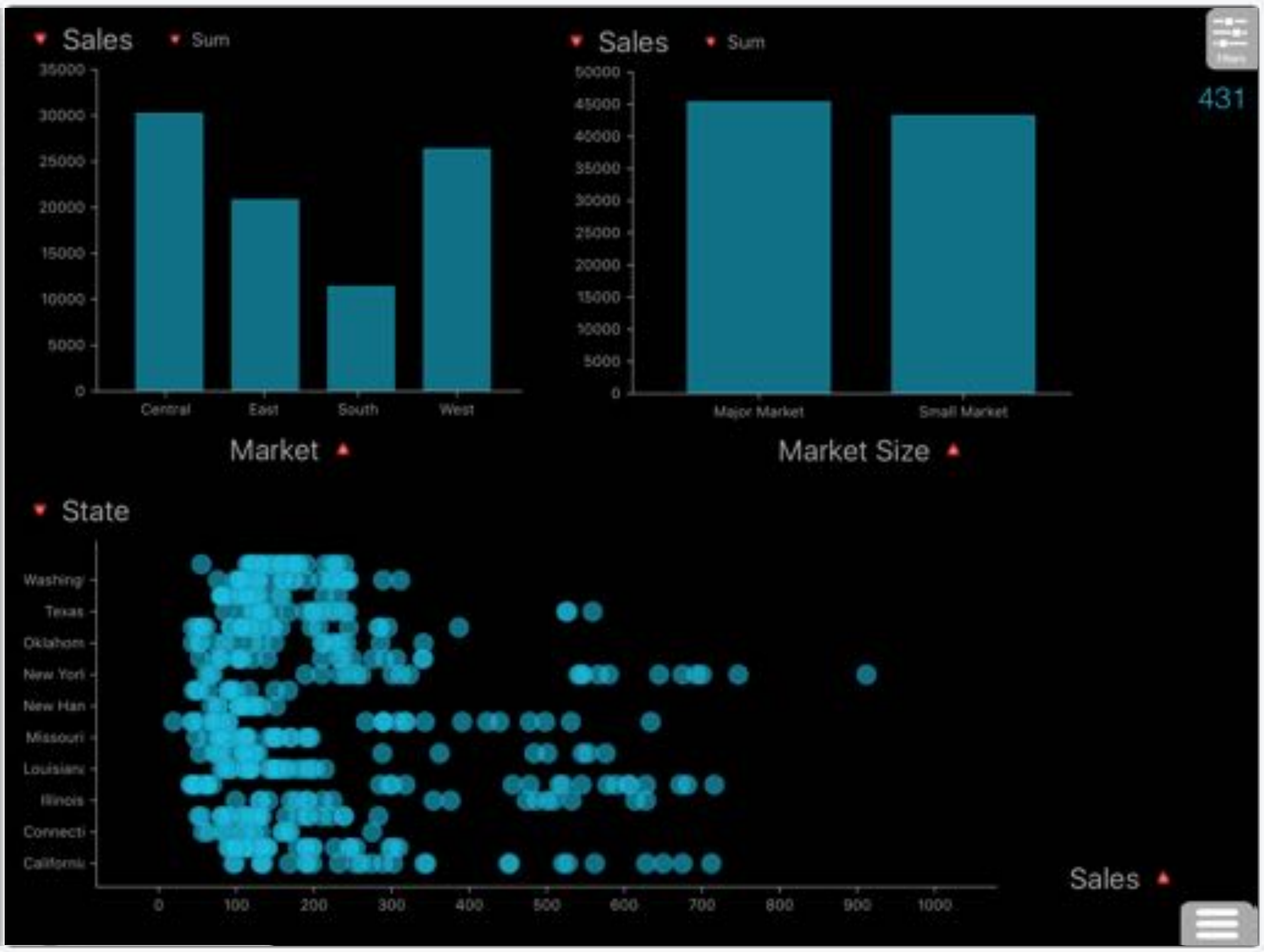


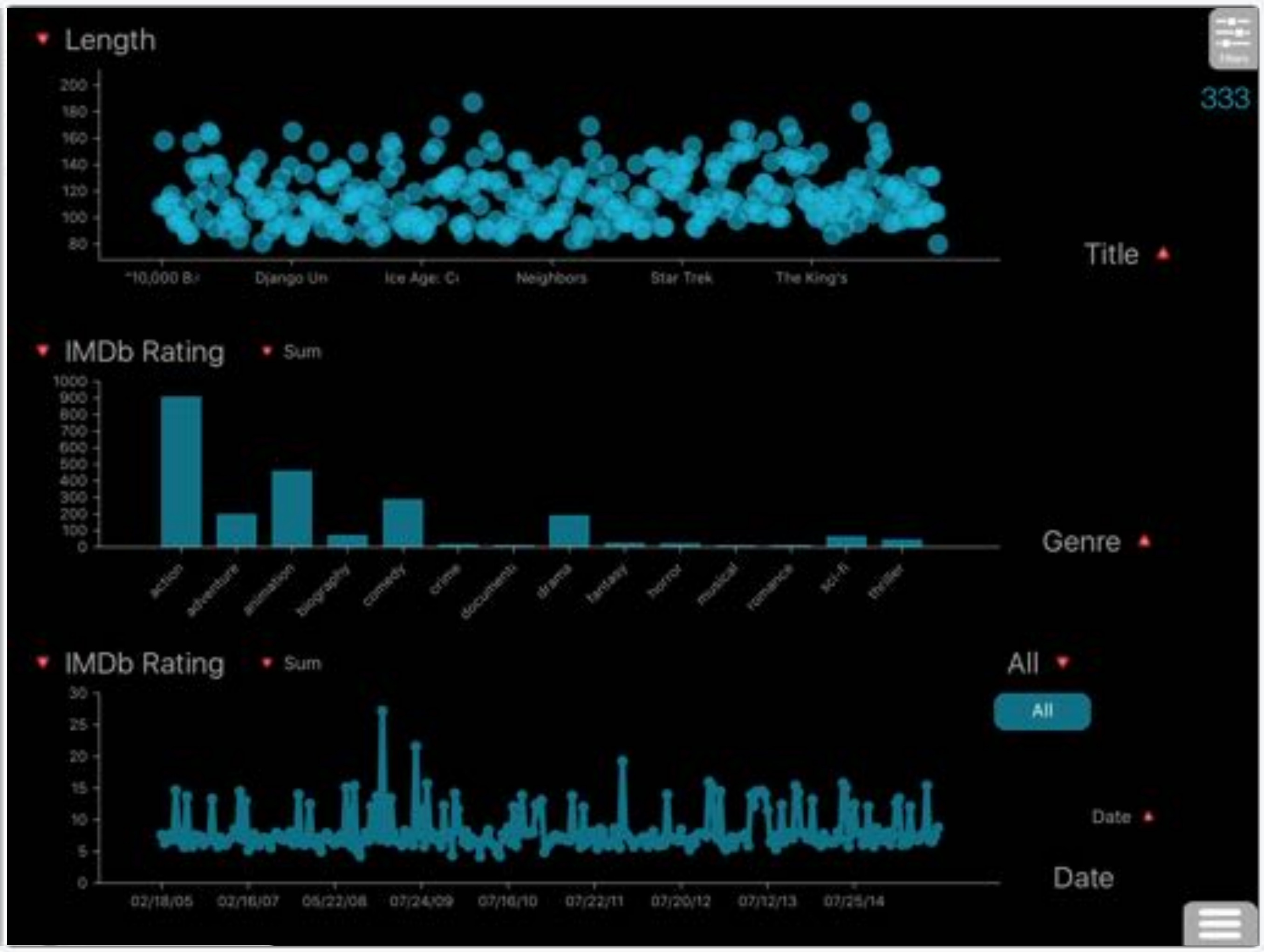
10"











FUTURE WORK

1. ADVANCED LAYOUT MECHANISMS
2. RICHER INTERACTIONS
3. EVALUATION

~ THANKS ~

Ramik Sadana
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John Stasko
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