



Looker Bootcamp:

Analyzing and Visualizing

Data with Looker

Dr. Ernesto Lee, CIO

September 9, 2024

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TriveraTech.com



Welcome!

Trivera Technologies: Quick View

- Trained 125,000+ students worldwide since 1999
- Offer hundreds of skills-focused, expert led courses and programs in AppDev, coding, web and mobile development, software engineering, data, AI & machine learning, data science & analytics, security, business skills and a wide range of tools and tech
- Offer an extensive Public Schedule
- Federally Certified Women Owned Small Business / WOSB
- Not a Reseller! We are the Delivery Team focused on your success. Many partner firms resell our services.

We Deliver Skills Programs to...

- **Individuals:** Public schedule and coaching.
- **Teams:** Small group private courses, programs, and camps.
- **Enterprise Solutions:** Scalable solutions for end-to-end business transformation, upskilling, reskilling, boot camps, coaching, new hires, etc.

We're Flexible!

- We deliver training Online, Onsite in-person, Blended, Self-Paced. Whatever suits you best.
- Flexible hours and delivery solutions, all tailored to the needs of your team or organization
- Collaborative services tailored to your needs, goals and desired skills

About Me

- **Dr. Ernesto Lee**, Chief Innovation Officer, Trivera Technologies; Professor Data Analytics at Miami Dade College
- Dr.Lee@triveratech.com or LearnAI@triveratech.com

What We'll Touch On Today

- Discover the power of data analytics and visualization with our hands-on, two-day introductory course Looker Bootcamp:
- Analyzing and Visualizing Data with Looker.Q&A, or please send questions to LearnAI@triveratech.com
- Hand-Out / Tip Guide: **AI for All: Ensuring Safe Use in Your Workplace**



LEARNING SERVICES





Our Focus

At Trivera, **Experience is Everything.**

Our mission is to provide our students with hands-on, practical experiences that truly make a difference. We partner closely with our clients and students to ensure they gain the job-ready skills needed to thrive by the end of our classes. Our courses are guided by highly-experienced, enthusiastic experts who focus on teaching valuable skills and practical problem-solving techniques, coaching students to success every step of the way. We want every student to exit our classes feeling confident, skilled, and excited about the next steps in their project, role or career.

3

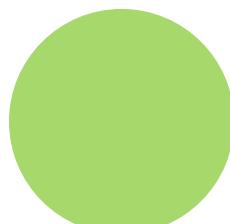
Kim Morello
CEO, Trivera Technologies

<https://github.com/fenago/looker-bootcamp>

Location of all Lab Guides and Lab Files

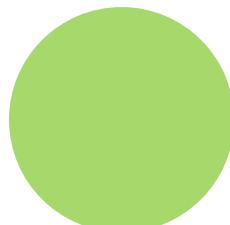


Everyday AI on the Job: How AI is Enhancing our Work Lives



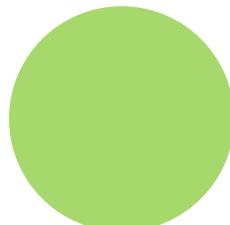
Automating Routine Tasks

AI tools like RPA (Robotic Process Automation) streamline repetitive tasks, freeing up time for more strategic work.



Enhancing Customer Service

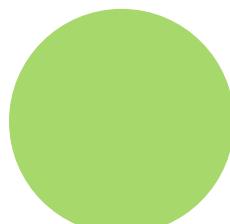
AI chatbots and virtual assistants handle customer inquiries efficiently, providing instant support and improving satisfaction.



Data Analysis and Insights

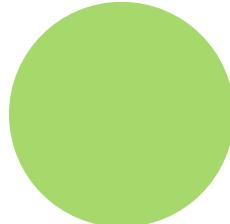
AI algorithms process large datasets quickly, uncovering trends and insights that inform business decisions.

5



Content Creation

AI-powered tools assist in writing, editing, and generating creative content, making marketing and communication more efficient.



Personalizing Marketing Efforts

AI analyzes customer data to tailor marketing campaigns, increasing engagement and conversion rates.

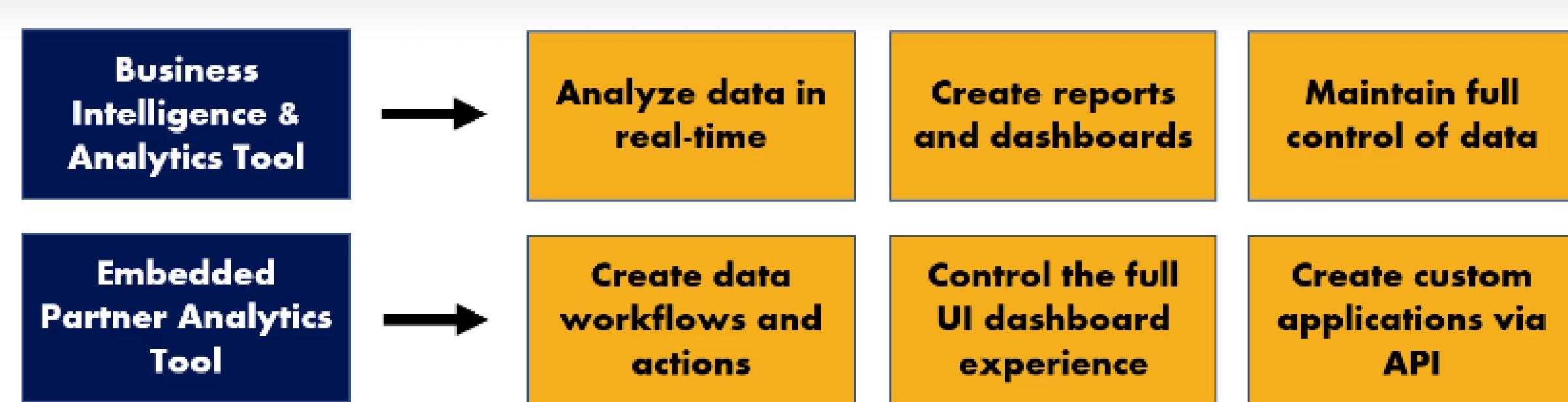




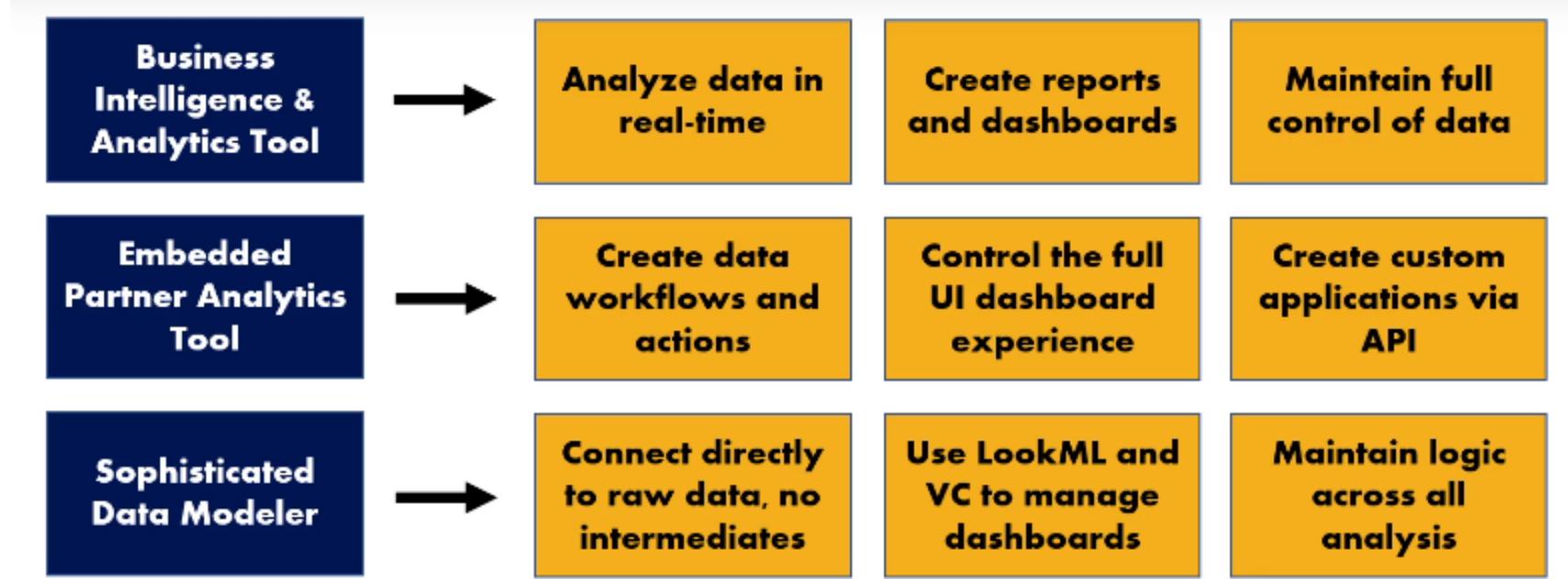
1. GETTING STARTED WITH LOOKER



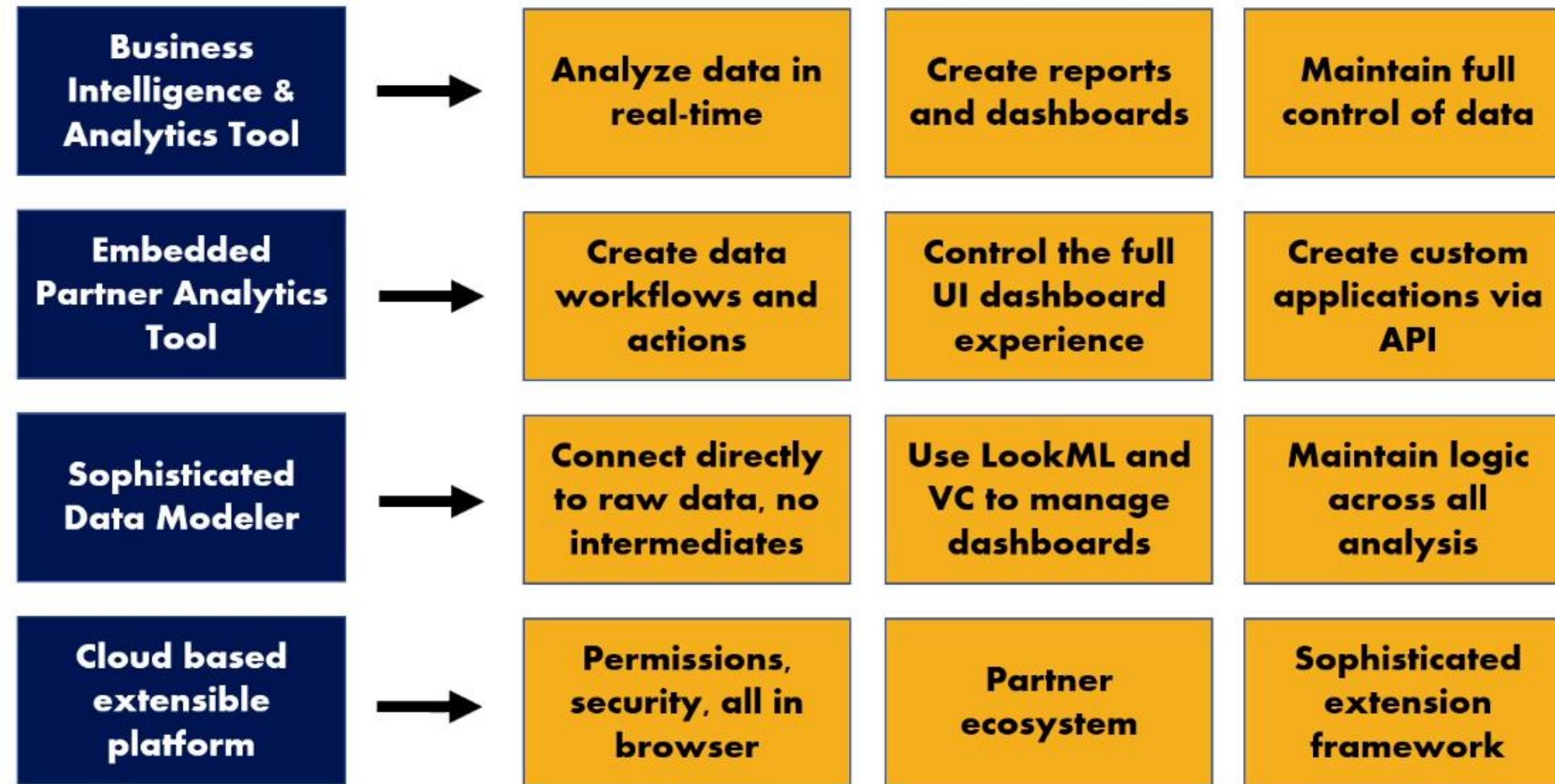
What is Looker?



What is Looker?



What is Looker?





What is Looker

Cloud based

Workflows and delivery

Partner network

Supports multi-DB

Data model / LookML

No-code, curative and user-friendly

Unified and governed metrics

24/7 DB connected

Google

Features

Tableau

- **No desktop software required**
- **Optimized for the cloud**
- **A trusted data model**
- **API enabled data experiences**
- **Modern in-product live support**

<https://looker.com/compare/looker-vs-tableau>

What Else is
out there?

13

Power BI

- **Modern multicloud data platform**
- **Power SQL-based modeling language**
- **Seamless 100% web-based experience**
- **Trusted data**
- **Live support with Looker experts**

<https://looker.com/compare/looker-vs-power-bi>

What Else is
Out There?

14

**Business intelligence,
analytics, insightful,
drive smarter outcomes
in your organization**

**Improve your analytics
toolkit and get [REDACTED]**

We can help 2000+ companies find true power and choice in their data

moderna

Using the right dose of data



Raising their customer retention game

twilio

Developing a single source of truth

AVANT

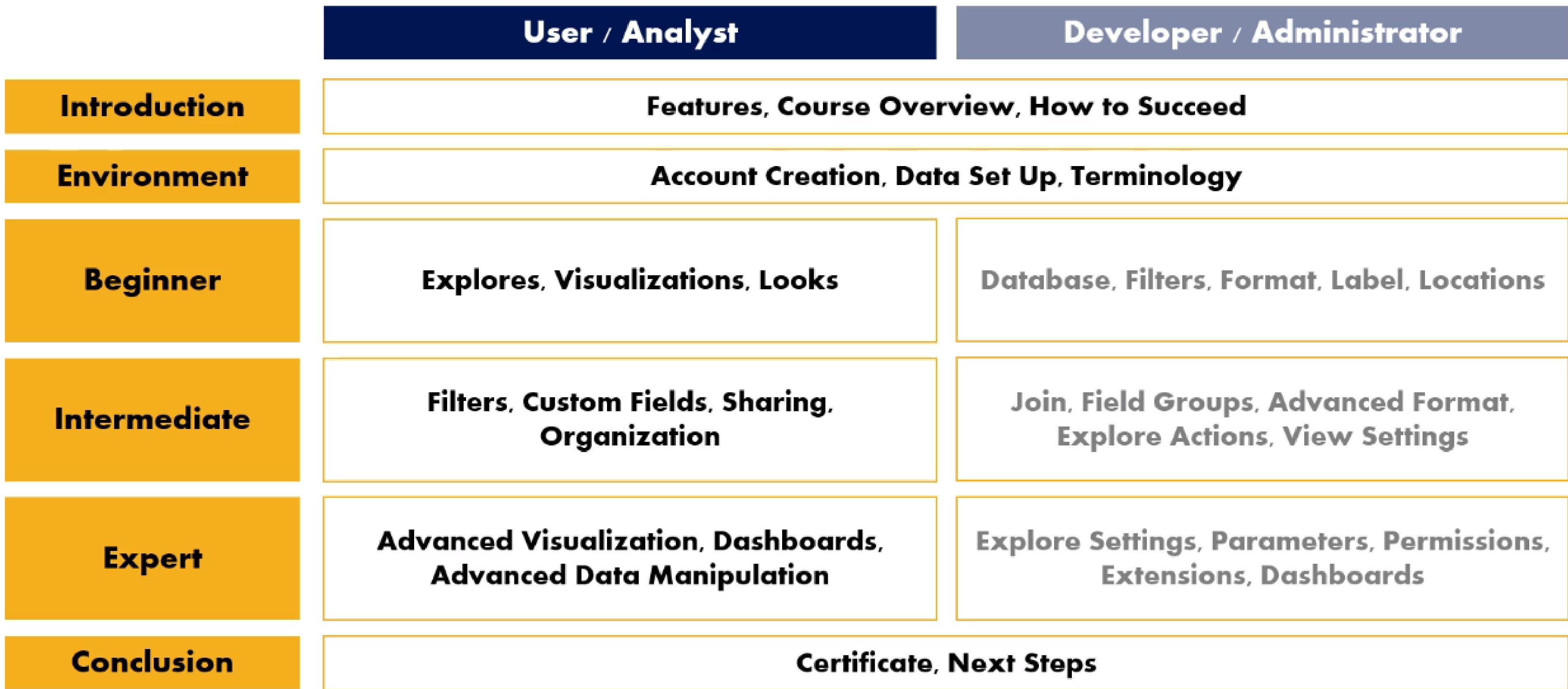
Spending more time on true on

Google closes \$2.6B Looker acquisition

By Sean Miller | apron_miller / 11:35 AM EST • February 13, 2020

Is it Worth It?

Our Path



Keys To Success

Do, don't watch

Ask questions / get involved!

Explore



C1 : X ✓ fx customer_type

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	customer	customer_company_name	customer_type														
2	1	Trashly	Long Haul														
3	2	FreightPark	Short Haul														
4	3	BumperTruck	Medium Haul														
5	4	SuperRig	Medium Haul														
6	5	Sucket	Long Haul														
7	6	Tractore	Short Haul														
	7	Pdump	Long Haul														
	8	Motore	Short Haul														
	9	Fliner	Long Haul														
	10	Mudcab	Long Haul														
	11	Stacket	Medium Haul														
	12	BullHome	Long Haul														
	13	Shover	Long Haul														
	14	Bucker	Medium Haul														
	15	Suppler	Short Haul														
	16	DriveDock	Medium Haul														
	17	GoHaul	Long Haul														
	18	SandHaul	Long Haul														
	19	DumpSpot															
	20	Blaster															
21																	
22																	

Data Walkthrough

Lab 0: Stand up your Looker Environment

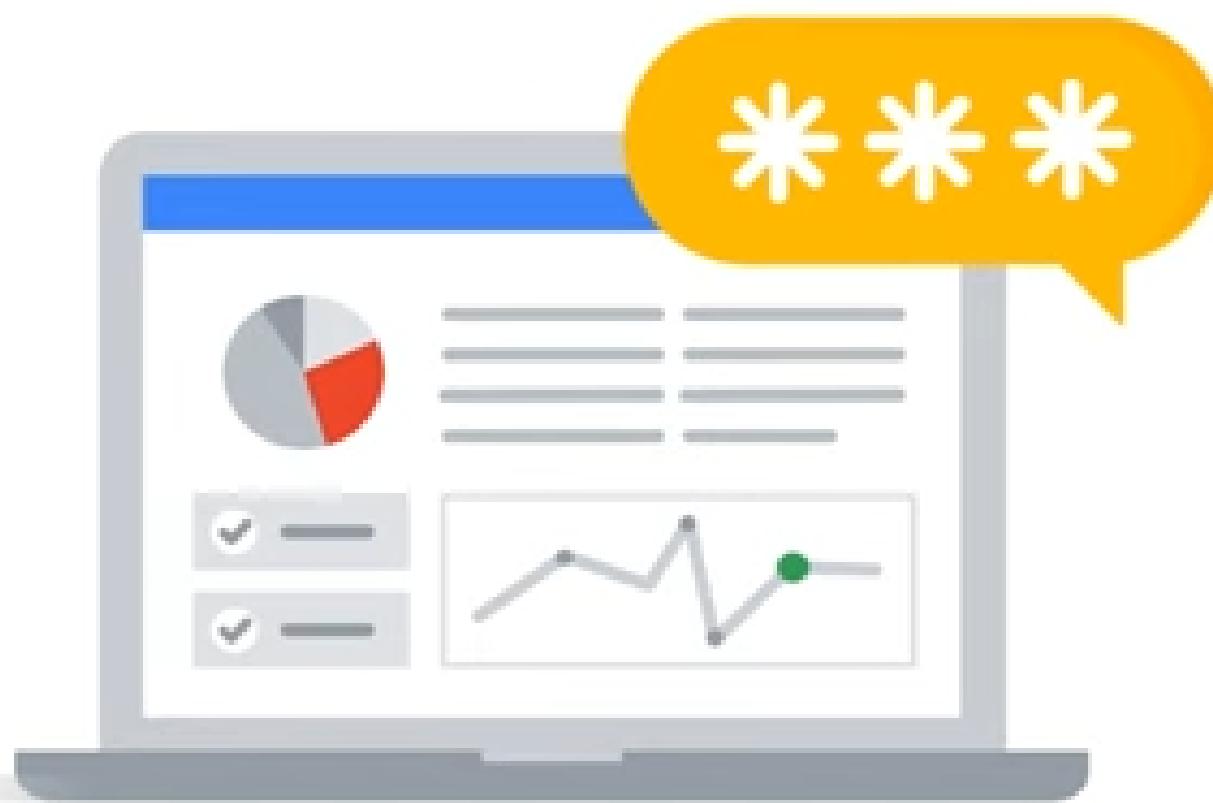
<https://github.com/fenago/looker-bootcamp/blob/main/md/lab0.md>

Lab 1_1, 1_2, 1_3

20

Lab 1: Loading Data into Looker

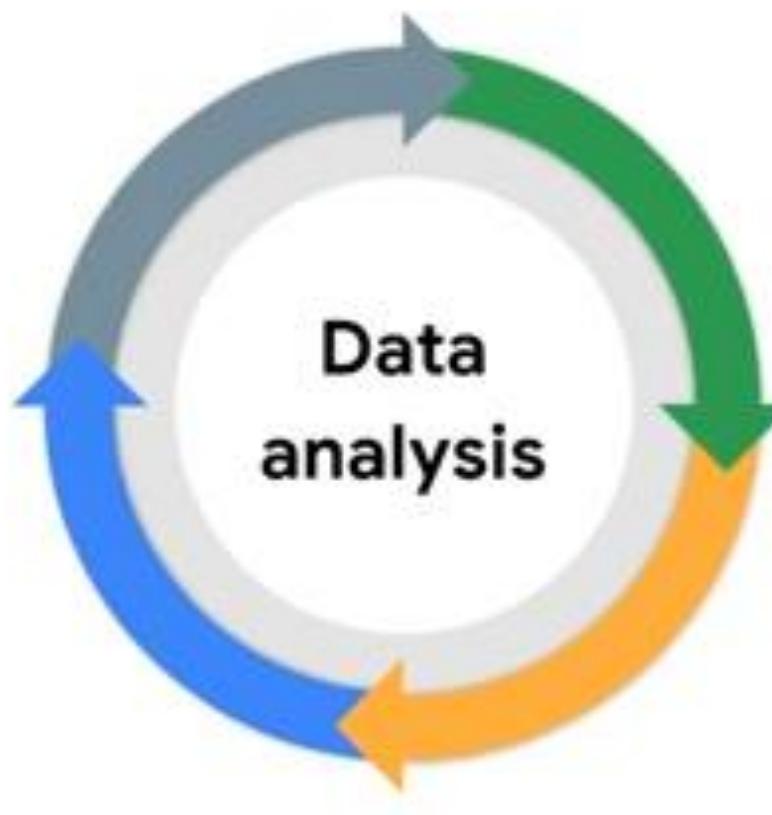
What is Looker?



Looker can help you...

- See the data that your company collects.
- Answer questions as you have them.
- Stay up to date with the status of your business.
- Use data for daily decisions instead of waiting for reports.

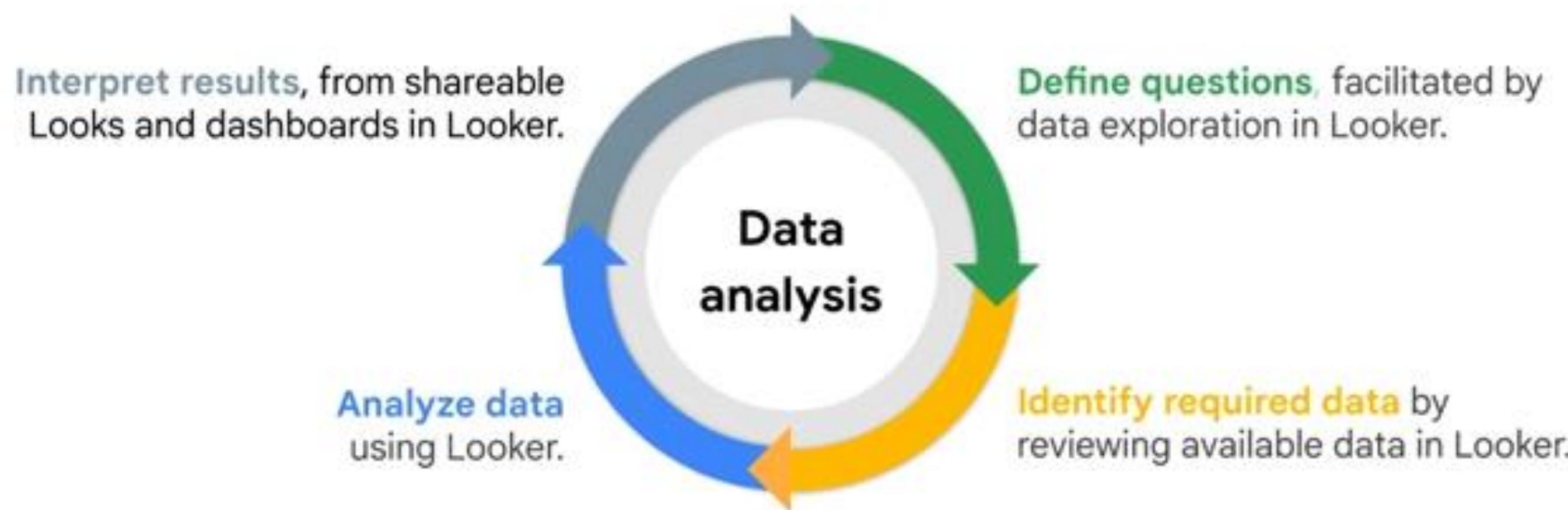
The role of Looker in the data analysis process



To consider how Looker can support your data workflows, let's examine the overall data analysis process and the role of Looker in this process.

When working with data, it's important to have clear objectives. We suggest a data analysis process that includes the following components:

The role of Looker in the data analysis process



Google Cloud

Looker login screen



Log In

Email

Password

LOG IN

Stay logged in. This is a trusted computer.

[Forgot your password?](#)

[Explore](#)[Develop](#)[Admin](#)[Shared folders](#)[Recently Viewed](#)[Favorites](#)[Boards](#)[Lab exercises](#)[Folders](#)[Blocks](#)[Applications](#)[Development Mode](#)

Your organization's folders

[New](#)

Folders

[Sort by Name](#)[Customer Metrics](#)[Example Folder](#)[Human Resources](#)

Dashboards

[Sort by Name](#)[Name](#)[Favorite](#)[Business Pulse](#)

64 Views, Created by

[Business Pulse '21](#)

34 Views, Created by

[Citi bike stations with more than thirty bikes](#)

13 Views, 1 Favorite, Created by

Shared

Business Pulse '21

4m ago

Date

State

City

Brand

is in the year 2018

is any value

is any value

is any value

0

New Users Acquired

0% of 10,000 Goal

∅

Average Order Sale Price

\$45.69

Average Spend Per User

100,976

Orders This Year

∅ from this time last year

Orders by Day and Category



Shared

Business Pulse '21

2m ago

Date State City Brand

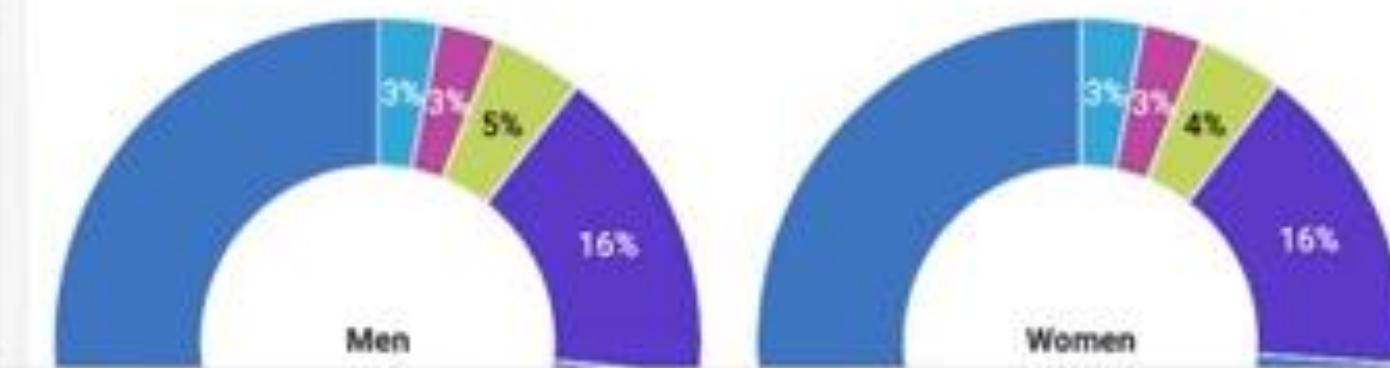
is in the year 2018 is any value is any value is any value



Brand Sales

Brand	Order Count	Average Spend per User	Users
1 Example Brand 1	1,413	\$32.13	1,369
2 Example Brand 2	1,317	\$32.33	1,288
3 Example Brand 92	971	\$62.96	939
4 Example Brand 3	741	\$44.05	730
5 Example Brand 4	682	\$44.02	674

Marketing Channel by User Demographic



Shared

Business Pulse '21

4m ago

Date State City Brand

is in the year 2018 is any value is any value is any value

0

New Users Acquired

0% of 10,000 Goal

∅

Average Order Sale Price

\$45.69

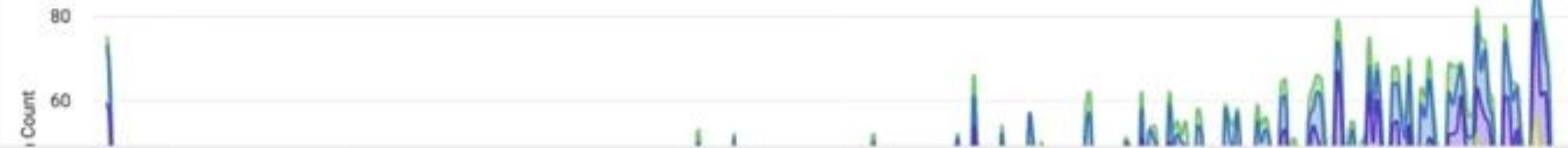
Average Spend Per User

100,976

Orders This Year

∅ from this time last year

Orders by Day and Category



Looker

Average Spend Per User

ORDER ITEMS (4 Filters) ▾

ID

1	10
2	70
3	77
4	170
5	221
6	393
7	426
8	489
9	595
10	614
11	621
12	728
13	738
14	746
15	911
16	921
...	...

Development mode ⓘ

Count 60

Explore Download X



Explore

500 rows · from cache · 1m ago

Run



Order Items



Find a Field

Start typing to search

All Fields

In Use

+ Custom Fields

+ Add

+ Distribution Centers

+ Inventory Items

+ Order Items 2

+ Products 1

+ Users 2

No filters

Filter by I.D.

+ Filters (4)

Order Items Created Date in the year 2018

Products Brand is any value

Users City is any value

Users State is any value

+ Visualization

▼ Data

Results

SQL

Add calculation

Row Limit 500

Totals

Order Items ID

1	10
2	70
3	77
4	170
5	221
6	393
7	426
8	489
9	595
10	614
11	621
12	728
13	738
14	746
15	911

lore

500 rows · from cache · 2m ago

Run



Order Items



Field

Start typing to search

All Fields

In Use

rs

2

DIMENSIONS

Age

Age Tier

City



Country

Created Date

Email

First Name

Gender

ID

Go to LookML

Filters (4) Order Items Created Date in the year 2018 Products Brand is any value Users City is any value Users State is any value

Visualization

Data

Results

SQL

Add calculation

Row Limit 500

 Totals

Order Items ID

1	10
2	70
3	77
4	170
5	221
6	393
7	426
8	489
9	595
10	614
11	621
12	728
13	738
14	746
15	911

lore

500 rows · from cache · 3m ago

Run



Order Items

Field

Start typing to search

All Fields

In Use

Common Fields

+ Add

Distribution Centers

Inventory Items

Order Items

2

DIMENSIONS

Created Date

Delivered Date

3

Inventory Item ID

Is Returned (Yes / No)

Go to LookML

Filters (4)

 Custom Filter

Order Items Created Date

is in the year

2018

X +

Products Brand

is equal to

X +

Visualization

Data

Results

SQL

Add calculation

Row Limit 500

 Totals

Order Items ID

1	10
2	70
3	77
4	170
5	221
6	393
7	426
8	489
9	595



plore

500 rows · from cache · 3m ago

Run



Order Items

1 a Field

Start typing to search

All Fields

In Use

Custom Fields

+ Add

Distribution Centers

Inventory Items

Order Items

2

DIMENSIONS

Created Date

Delivered Date

ID

Inventory Item ID

Is Returned (Yes / No)

ds

Go to LookML

Filters (4)

Order Items Created Date

is in the year

2018

Products Brand

is equal to

Visualization

Data

Results

SQL

Add calculation

Order Items ID

1

2

3

4

5

6

7

8

9

Save...

Download

0.3EL

Open in Data Studio

Send

~95

Save and schedule

~165

Share

36U

Get LookML

~36A

Merge results

Remove fields and filters

36K

Clear cache and refresh

0.36 →

595



▶ Favorites

▼ Boards +

▶ Lab exercises

▼ Folders

My folder

▶ Shared folders

▶ People

LookML dashboards

Unused content

Trash

▶ Blocks

▶ Applications

Development Mode

Your organization's folders

New



Folders contain Dashboards and Looks for specific groups of people. You can copy, move, or save Dashboards and Looks to a folder.

13 Views, Created by

Looks

Sort by Name

	Name	Last Updated	Favorite	
	Example Sankey 12 Views,	27 months ago		
	Improved Tile for NYC Taxi 2 Views, Created by	12 months ago		
	Yearly Revenue 44 Views,	21 months ago		

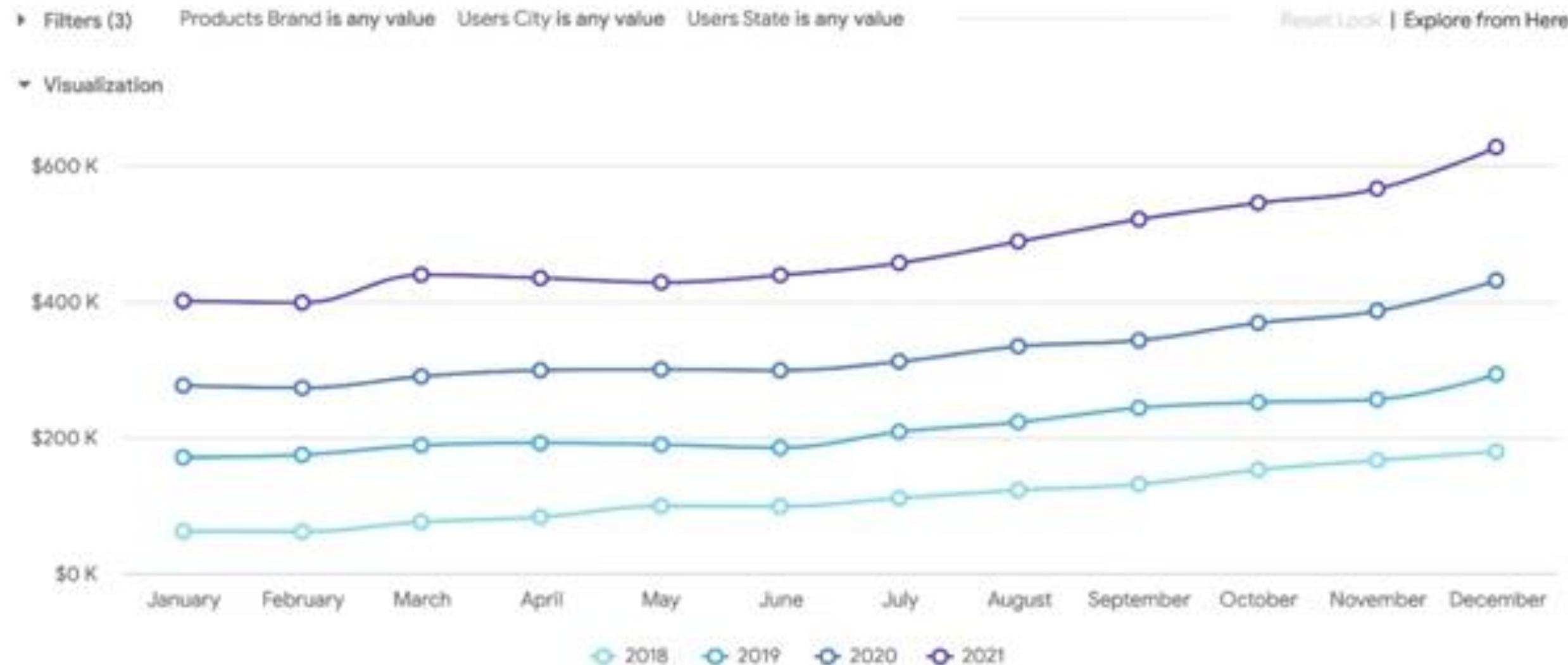
Shared

Yearly Revenue

12 rows · 1s · just now

Run

Edit



Details

Description
NoneScheduled
NoOn Dashboards
No

Create Sched

Add To Dashb

[Explore](#)[Develop](#)[Admin](#)

Shared folders

[Recently Viewed](#)[Favorites](#)[Boards](#) +[Lab exercises](#)[Folders](#)[Blocks](#)[Applications](#)[Development Mode](#)

Your organization's folders

[New](#)

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Folders

[Sort by Name](#) [Customer Metrics](#)[Example Folder](#)[Human Resources](#)

Dashboards

[Sort by Name](#) [Favorite](#)[Business Pulse](#)

64 Views, Created by

[Business Pulse '21](#)

34 Views, Created by

[Citi bike stations with more than thirty bikes](#)

13 Views, 1 Favorite, Created by



Organizing Content with Folders



- ▶ Favorites

- ▶ Boards +

- ▶ Lab exercises

- ▶ Folders

- My folder

- ▶ Shared folders

- ▶ People

- LookML dashboards

- Unused content

- Trash

- ▶ Blocks

- ▶ Applications

Development Mode

All folders

Access your content from where it is saved within the folder system.

- My folder

- Shared folders

- LookML dashboards

- People



Explore

Develop

Admin

Shared folders

Recently Viewed

Favorites

Boards

Lab exercises

Folders

My folder

Shared folders

Development Mode

Your organization's folders

Folders contain Dashboards and Looks for specific groups of people. You can copy, move, or save Dashboards and Looks to a folder. [?](#)

New

Folder

Dashboard

Sort by Name

Folders

Customer Metrics

Example Folder

Human Resources

Dashboards

Sort by Name

Favorite

Name



Business Pulse

65 Views, Created by



Business Pulse '21

35 Views, Created by



Citi bike stations with more than thirty bikes

13 Views, 1 Favorite, Created by



[Explore](#)[Develop](#)[Admin](#)[Shared folders](#)[Recently Viewed](#)[Favorites](#)[Boards](#)[Lab exercises](#)[Folders](#)[My folder](#)[Shared folders](#)[Development Mode](#)

Your organization's folders

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[New](#)[Folder](#)[Dashboard](#)[Sort by Name](#)

Folders

[Customer Metrics](#)[Example Folder](#)[Human Resources](#)

Dashboards

[Name](#)[Favorite](#)[Business Pulse](#)

65 Views, Created by

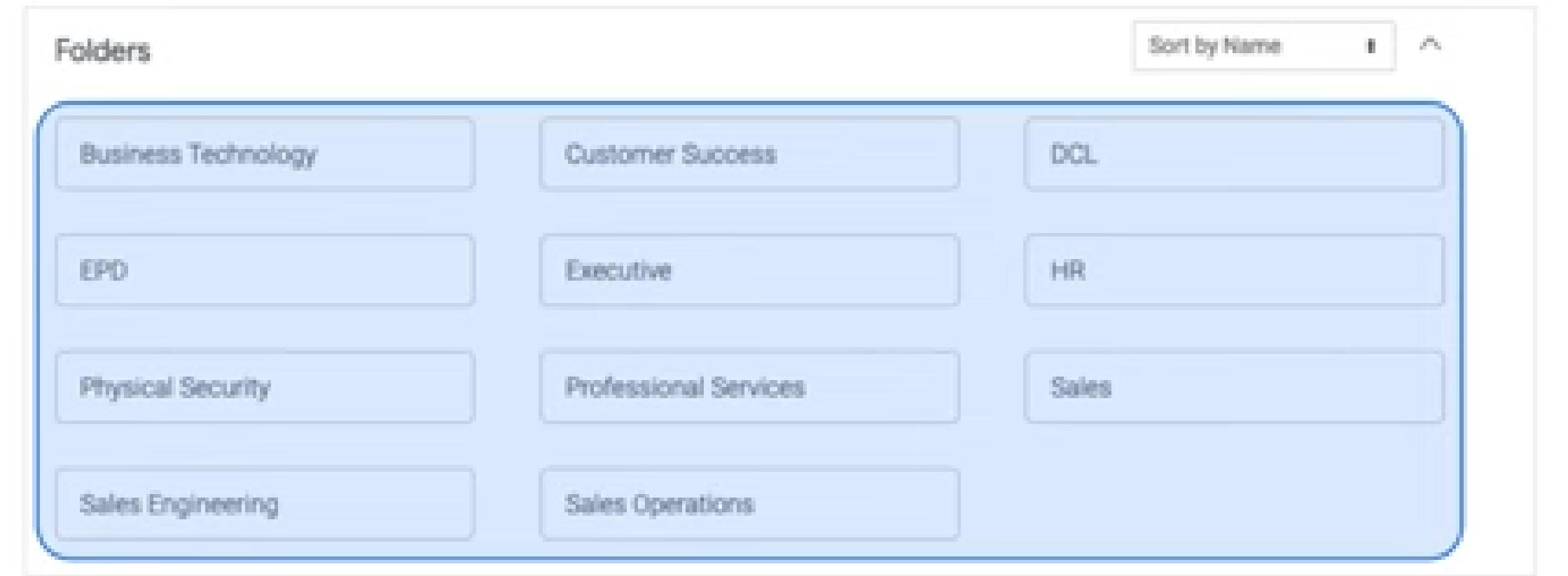
[Business Pulse '21](#)

35 Views, Created by

[Citi bike stations with more than thirty bikes](#)

13 Views, 1 Favorite, Created by





Store dashboards and L
intuitive folder structure
navigate and browse.

Explore

Develop

Admin

Shared folders

Recently Viewed

Favorites

Boards

Lab exercises

Folders

My folder

Shared folders

Development Mode

People >

's folder

New



Dashboards

Sort by Name

	Name	Favorite
	Business Pulse 4 Views, Created by	
	New York Taxi (Brian) 1 View, Created by	
	Order data by product category 1 View, 1 Favorite, Created by	

Looks

Sort by Name

	Name	Last Updated	Favorite



▶ Favorites

▶ Boards +

▶ Lab exercises

▶ Folders

My folder

▶ Shared folders

▶ People

LookML dashboards

Unused content

Trash

▶ Blocks

▶ Applications

Development Mode

Your organization's folders

New



Folders

Sort by Name

Customer Metrics

Example Folder

Human Resources

Dashboards

Sort by Name

Name

Favorite



Business Pulse

65 Views, Created by



Business Pulse '21

35 Views, Created by



Citi bike stations with more than thirty bikes

13 Views, 1 Favorite, Created by



Building Blocks

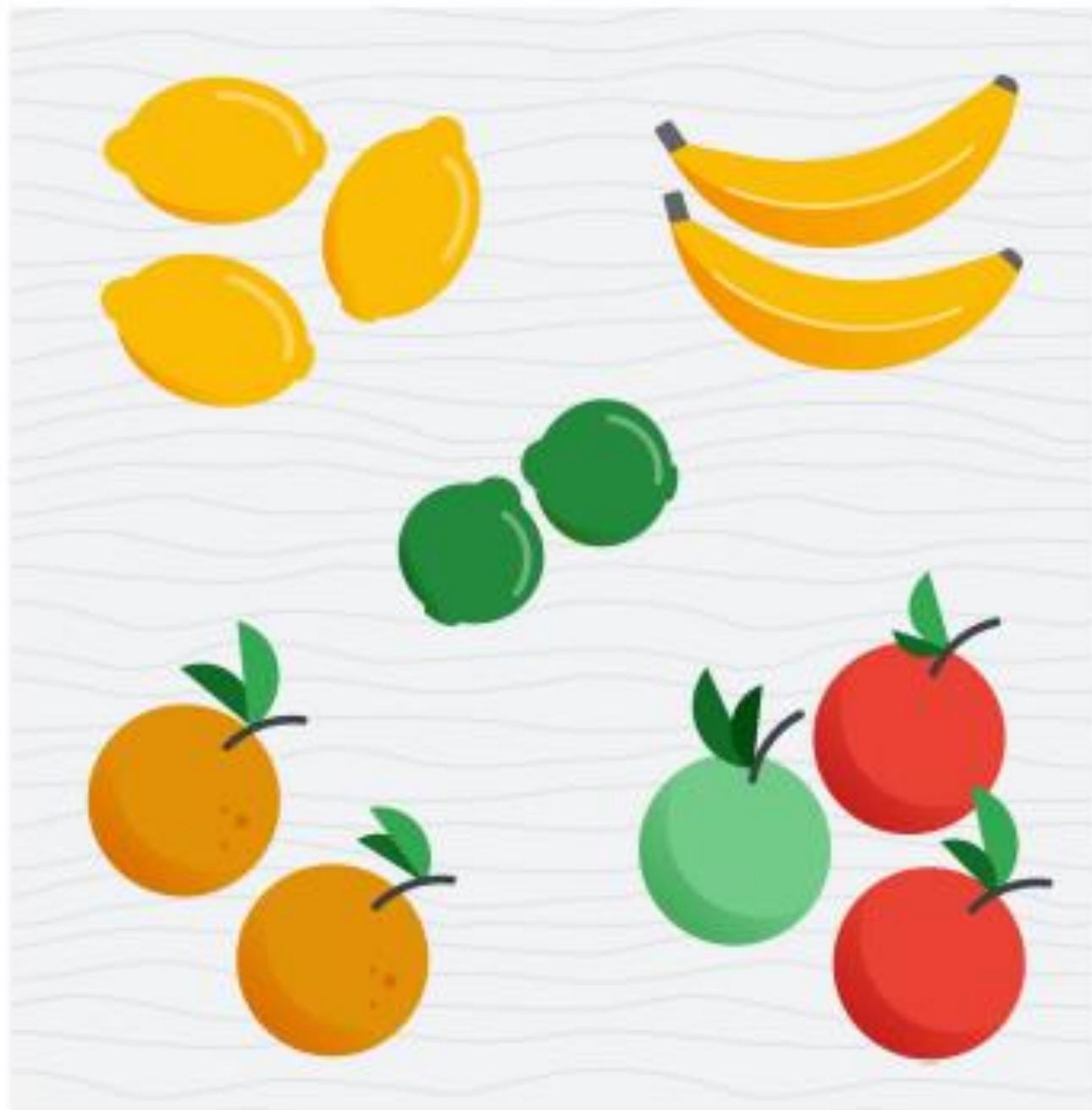
Dimensions

Practice dataset

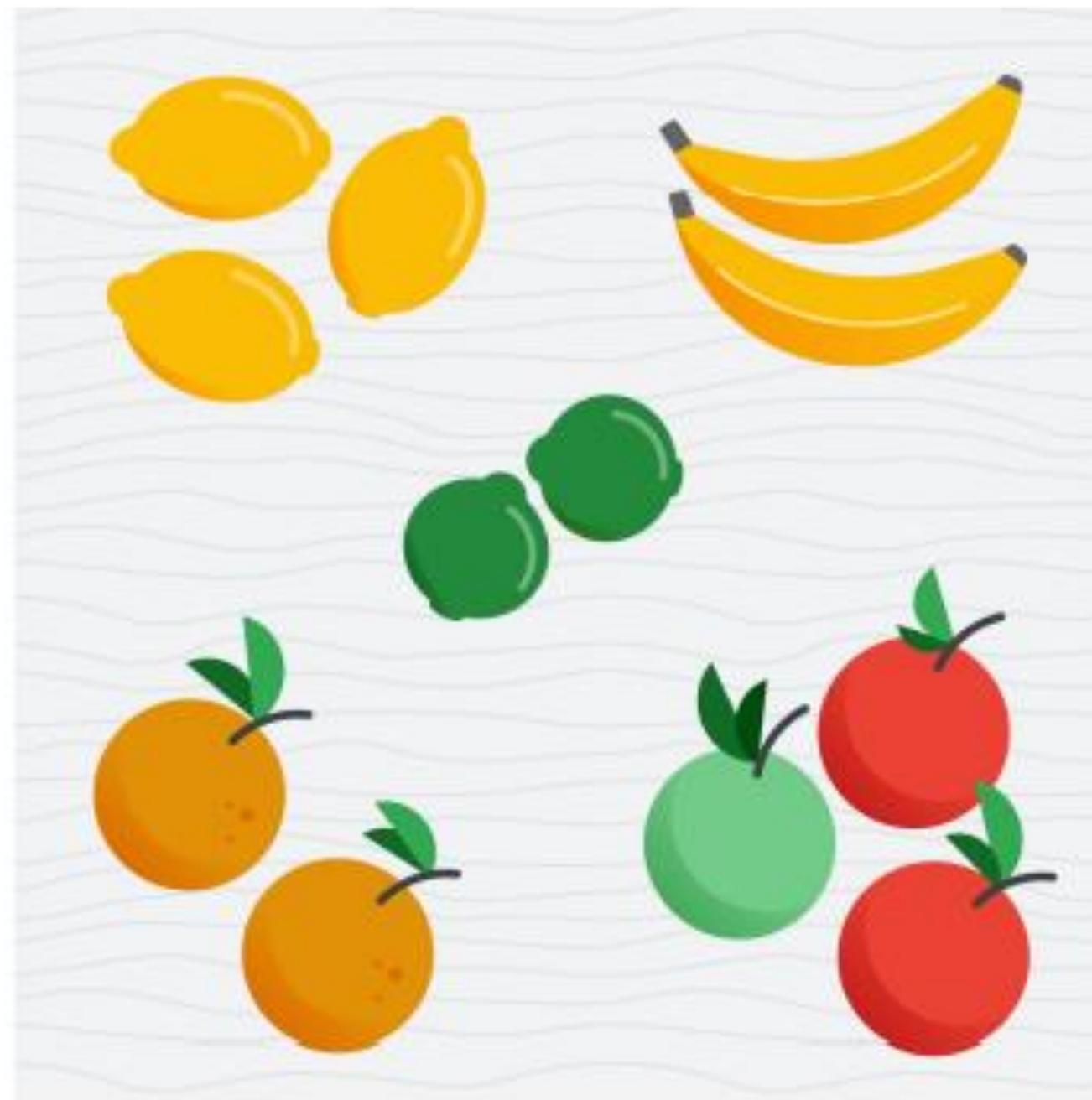


Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
orange	orange	yes	\$1.45	0.5	\$0.73
orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

What types of fruit are in
the basket?



Fruit type dimension returns unique names



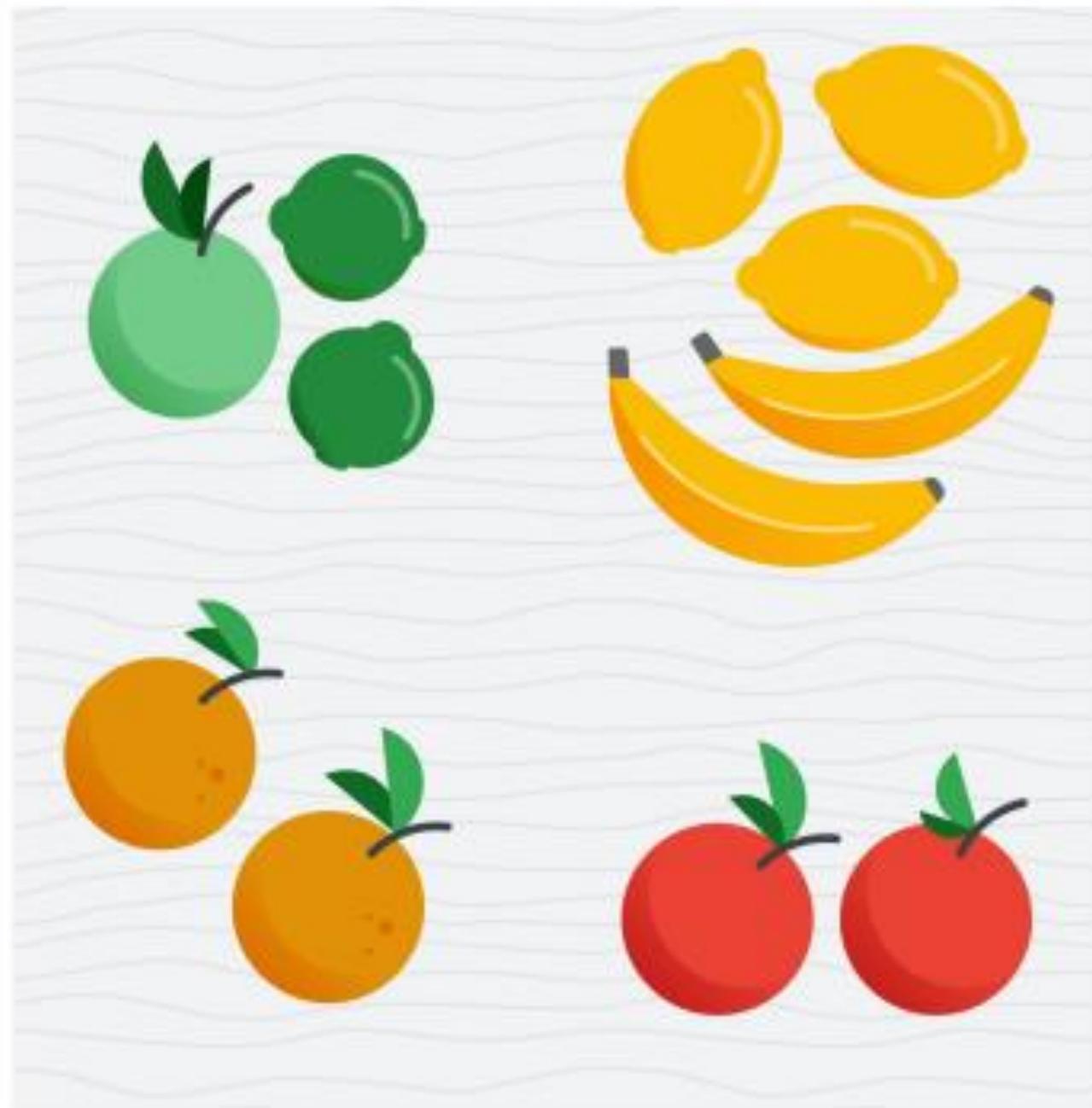
Looker

Fruit Basket [Fruit Type](#)

- | | |
|---|--------|
| 1 | orange |
| 2 | apple |
| 3 | banana |
| 4 | lemon |
| 5 | lime |

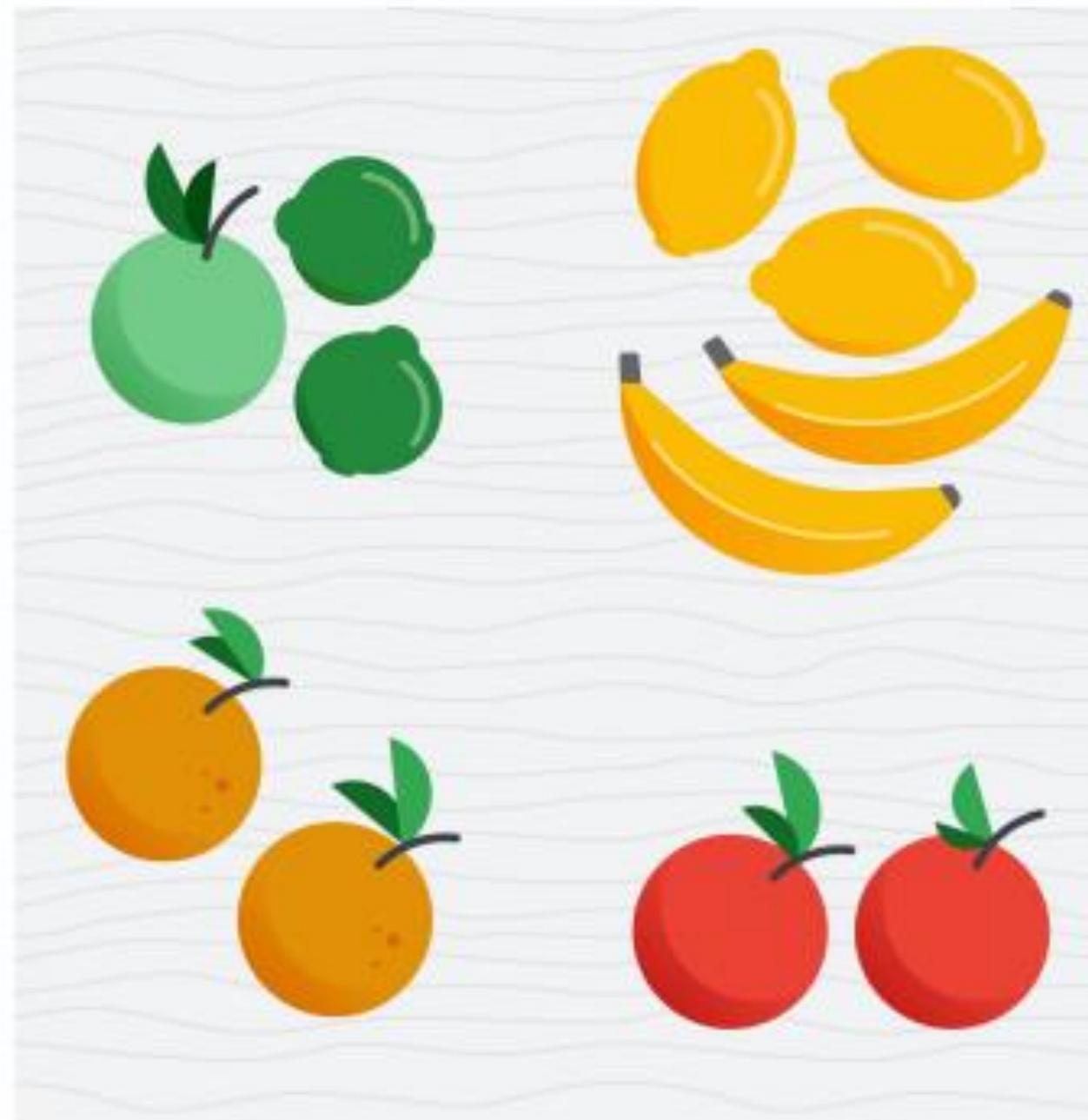
5

**What fruit colors are in
the fruit basket?**



?

What fruit colors are in
the fruit basket?



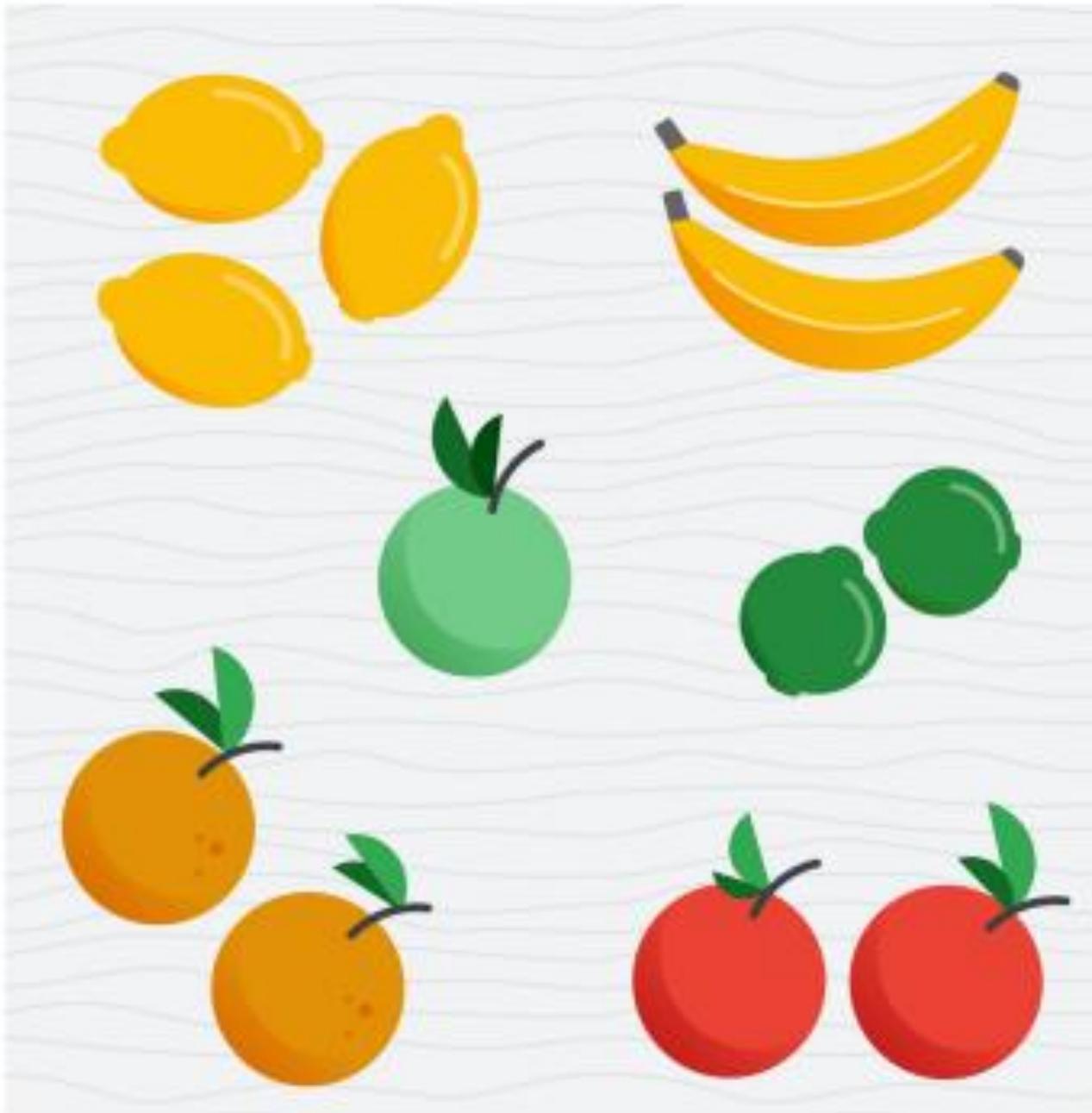
Looker

Fruit Basket Color

- 1 yellow
- 2 red
- 3 orange
- 4 green

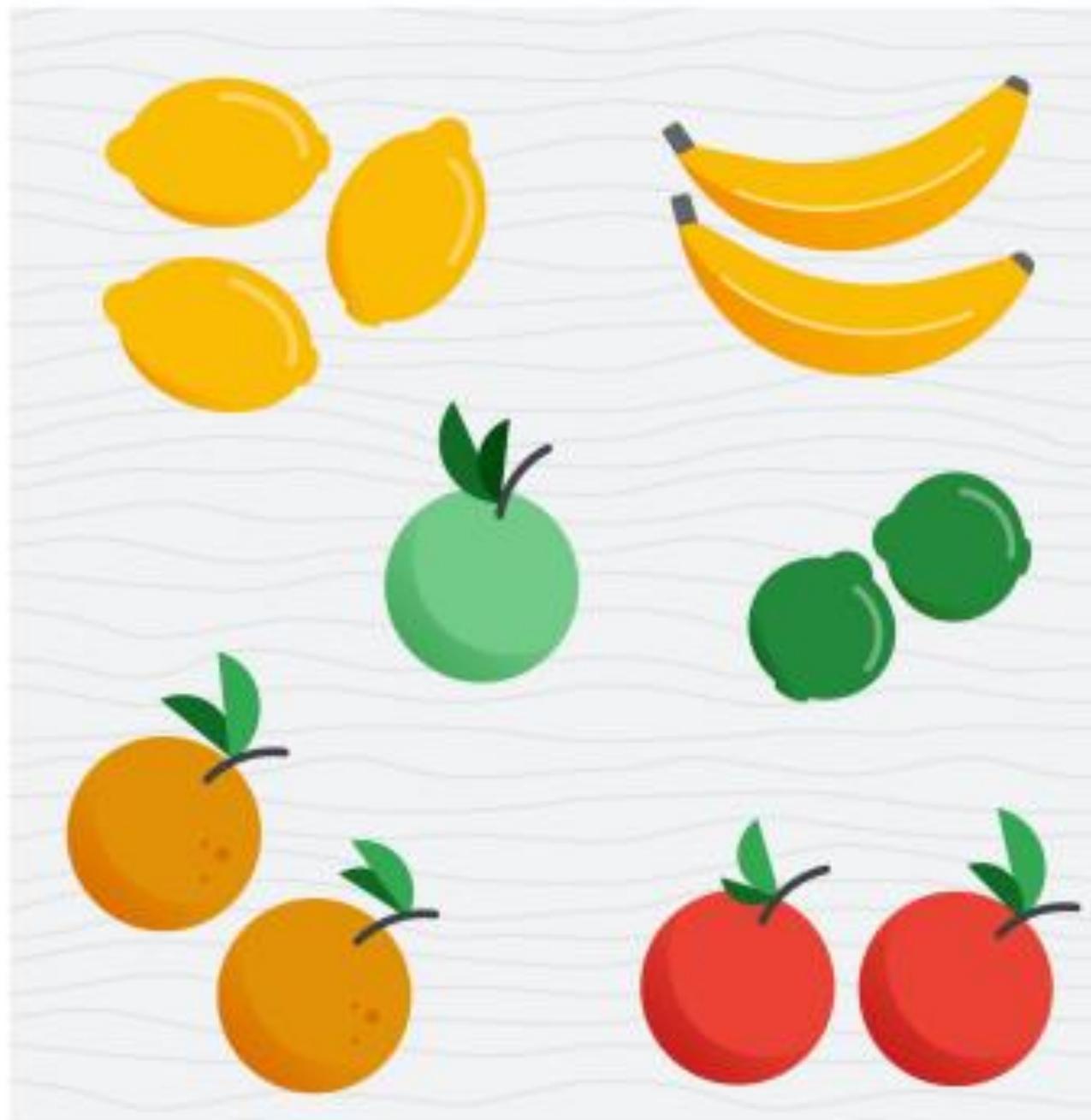
4

What combinations
of fruit types & colors exist?



?

Fruit type + Color dimensions



Looker

Fruit Basket [Fruit Type](#) | [Fruit Basket Color](#)

1	apple	red
2	lemon	yellow
3	orange	orange
4	banana	yellow
5	lime	green
6	apple	green

6

Practice dataset



Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
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lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

Building Blocks

Measures

Practice dataset



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lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

**How many pieces of fruit
are in the basket?**



The Count measure



Looker

Fruit Basket **Count**

1 12

12

**How much does the
basket of fruit weigh?**



The Total Weight measure



Looker

Fruit Basket **Total Weight**

1 4.91

4.91

Practice database



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apple	red	yes	\$1.25	0.6	\$0.75
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Example Walkthrough

Measures

Determine total number of users, and show that number as a single-value visualization.

← Explore

Your organization's folders

[New](#) Find an Explore

- E-Commerce

Inventory Items

Order Items

Products

Users

+ E-Commerce Training

+ E-commerce Training Advanced

+ Ecommerce Analytics

+ FAA

+ Google Cloud Billing

 Development Mode

Folders

Sort by Name

Customer Metrics

Example Folder

Human Resources

Dashboards

Sort by Name

 Name

Favorite



Business Pulse

65 Views, Created by



...



Business Pulse '21

35 Views, Created by



...



Citi bike stations with more than thirty bikes

13 Views, 1 Favorite, Created by



...



Explore

Run



Selected Items

a Field

Start typing to search

All Fields

In Use

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

Count

Is

Go to LookML

▶ Filters

▶ Visualization

▼ Data

Results

SQL

Add calculation

Row Limit 500

Totals



Select some dimensions or measures.

Explore

1 row · 1s · just now



Order Items



Find a Field

 Start typing to search All Fields In Use

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

Count

00 Analys

Custom available

 Filters Visualization Data Results SQL Add calculationRow Limit 500 Totals

Users Count

1

145,255

Explore

1 row · 1s · 3m ago

[Run](#)

Order Items



Find a Field

 Start typing to search[All Fields](#)[In Use](#)

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

Count

98 fields

[Go to LookML](#)

▶ Filters

▼ Visualization

[Forecast](#)[Edit](#)

145,255

▼ Data

Results

SQL

Add calculation

Row Limit Totals

Users Count



1

145,255

Data
table

Bar
chart

Line
chart

Pie
chart

Single
value



Column
chart

Scatter
plot

Area
graph

Google
Maps

Explore

1 row · 1s · 13m ago

Run



Order Items

Find a Field

Start typing to search

[All Fields](#)[In Use](#)

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

Count

98 fields

[Go to LookML](#)

Filters

Visualization



Edit

Forecast

Edit

Style

Comparison

Formatting

Collection

Boardwalk

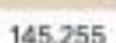
Value Color



Palettes

Custom

Select Color From Palette

Row Limit 500 Totals

145,255

145,255

Data

Results

SQL

Add calculation

Users Count

1

Explore

1 row · 1s · 15m ago

Run



Other Items

Field

Start typing to search

All Fields

In Use

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

Count

Go to LookML

Filters

Visualization



Edit

Forecast

Edit

Style

Comparison

Formatting

 Show Title

Title Override

Total number of users

Value Format

Spreadsheet-style format code

Data

Results

SQL

Add calculation

Row Limit 500

Totals

Users Count

1

145,255



lore

1 row · 1s · 18m ago

Run



Filter Items



Field

Start typing to search

All Fields

In Use

version

)

last Name

atitude

ongitude

lap Location

tate

raffic Source

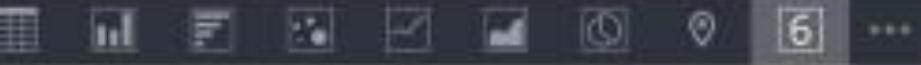
ip

MEASURES

ount

Filters

▼ Visualization



Forecast

Edit

145,255

Total number of users

▼ Data

Results

SQL

Add calculation

Row Limit 500

Totals

Users Count

1

145,255

Go to LookML

Using Dimensions and Measures

Practice dataset



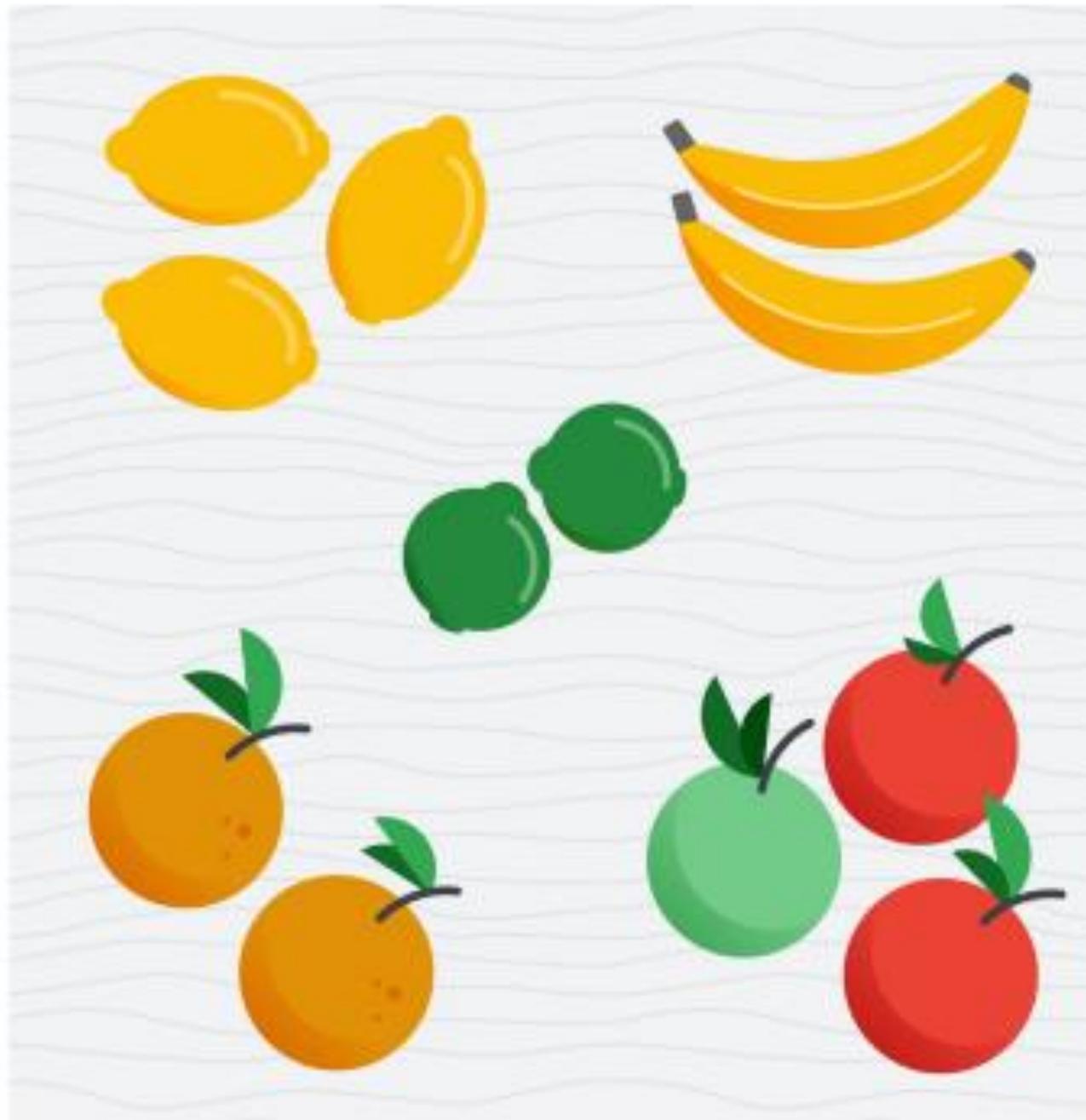
Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
orange	orange	yes	\$1.45	0.5	\$0.73
orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

How many pieces of
each fruit type?



?

Fruit Type dimension + Count measure



Looker

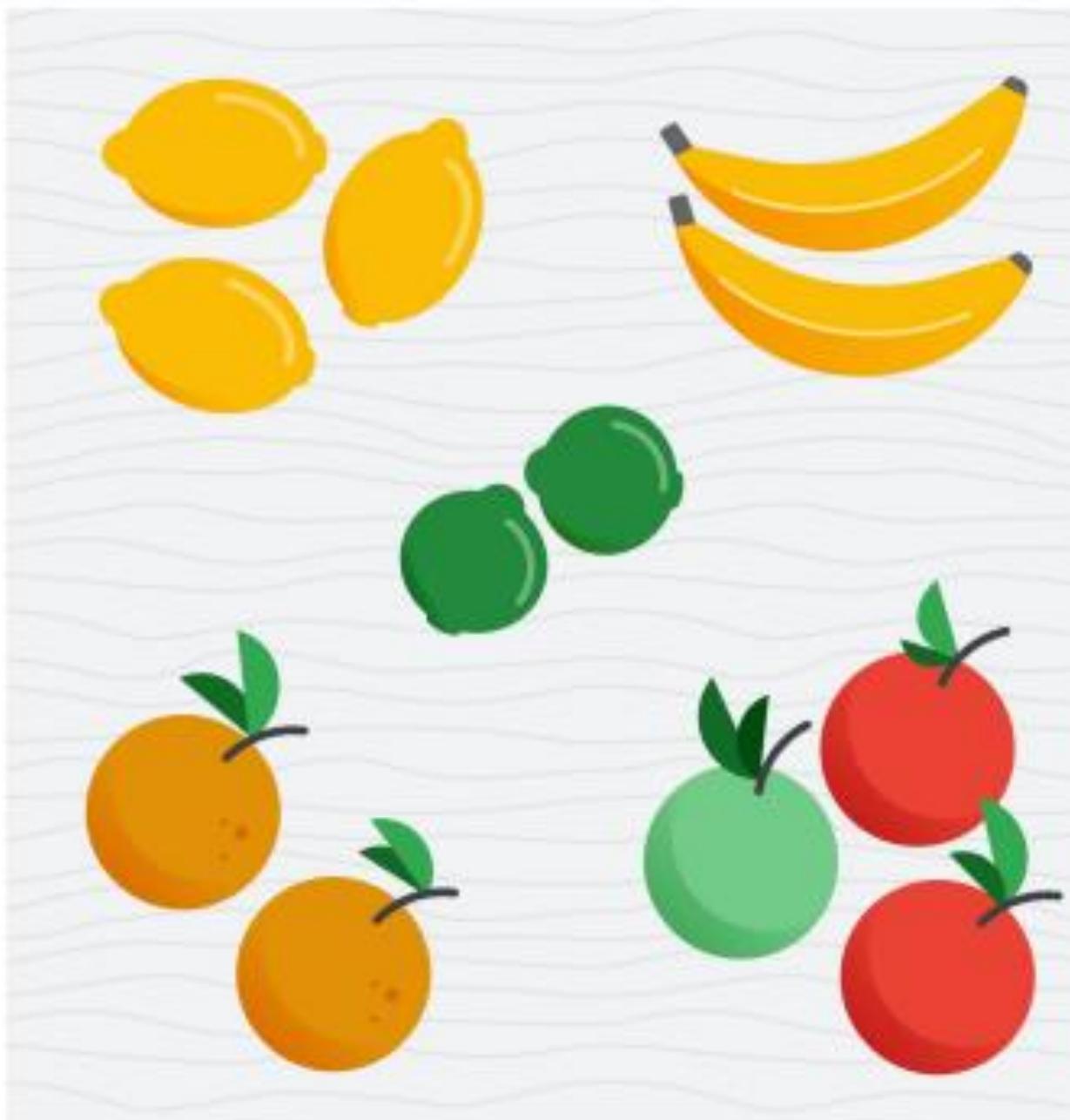
Fruit Basket **Fruit Type** | Fruit Basket **Count**

1	apple	3
2	lemon	3
3	lime	2
4	banana	2
5	orange	2

What is the total cost of each fruit type?



What is the total cost of each fruit type?



Looker

Fruit Basket [Fruit Type](#) | Fruit Basket [Total Price](#)

1	apple	\$1.90
2	lemon	\$1.38
3	lime	\$0.84
4	banana	\$1.09
5	orange	\$1.38

Practice dataset



Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
orange	orange	yes	\$1.45	0.5	\$0.73
orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

Using Dimensions and Measures

Example Walk through

Identify the top 10 cities with the most users, and display the results as a column chart.



Explore

Find an Explore

▼ E-Commerce

Inventory Items

Order Items

Products

Users

▶ E-Commerce Training

▶ E-commerce Training Advanced

▶ Ecommerce Analytics

▶ FAA

▶ Google Cloud Billing

Development Mode



Your organization's folders

New



Folders

Sort by Name

Customer Metrics

Example Folder

Human Resources

Dashboards

Sort by Name

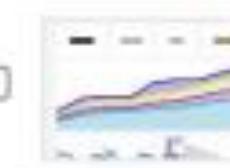


Favorite



Business Pulse

65 Views, Created by



Business Pulse '21

35 Views, Created by



Citi bike stations with more than thirty bikes

13 Views, 1 Favorite, Created by



≡  Looker

Explore

Order Items

Find a Field

Start typing to search

All Fields In Use

Users

DIMENSIONS

- Age
- Age Tier
- City
- Country

Created Date

- Email
- First Name
- Gender
- ID

99 fields [Go to LookML](#)

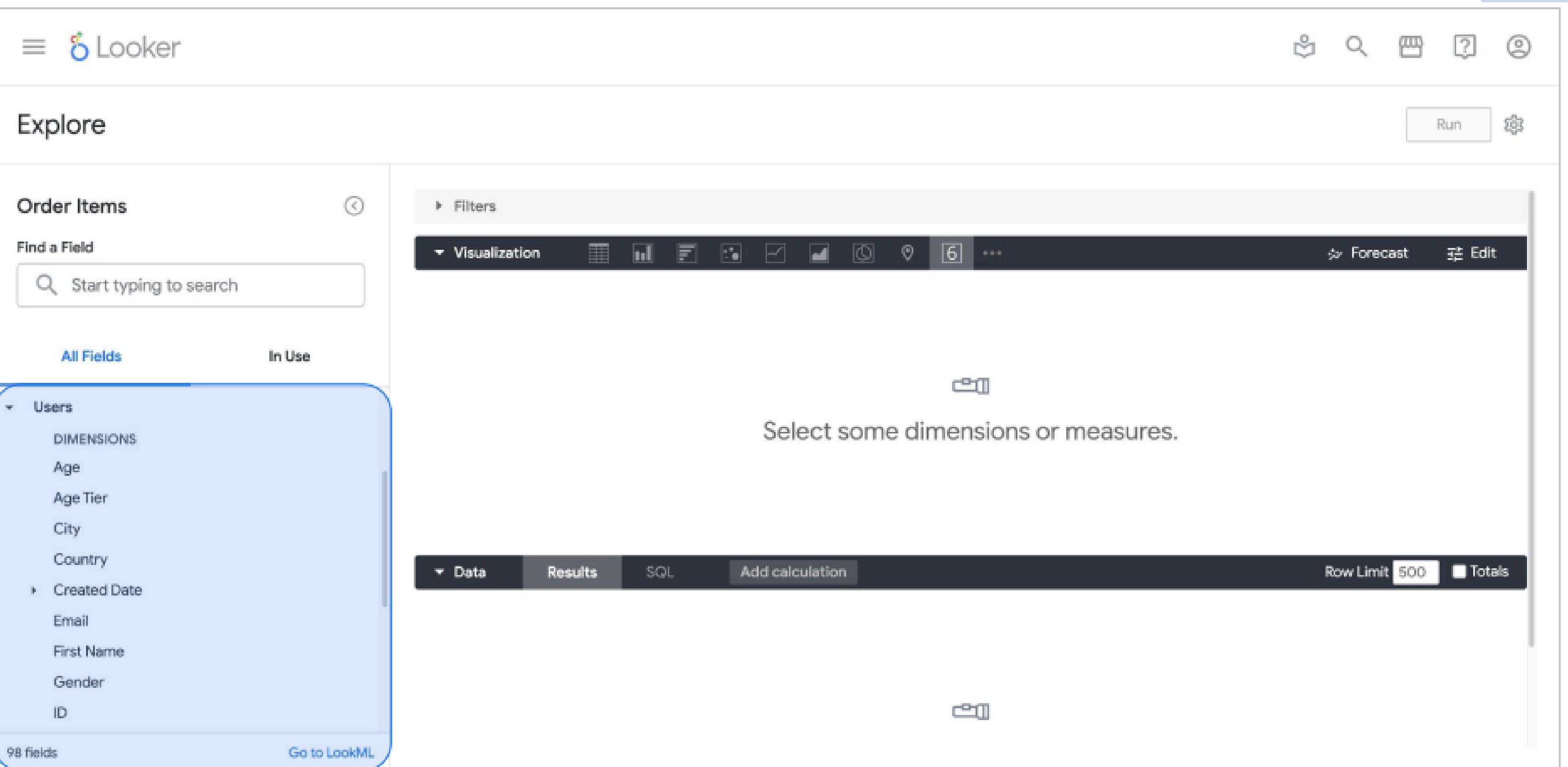
▶ Filters

▼ Visualization          ...

Forecast Edit

Select some dimensions or measures.

Data Results SQL Add calculation Row Limit 500 Totals



≡  Looker

Explore

Will process 5.54 MB Run 

Order Items 

Find a Field

All Fields In Use

- Users 1
 - DIMENSIONS
 - Age
 - Age Tier
 - City**
 - Country
 - Created Date
 - Email
 - First Name
 - Gender
 - ID

98 Fields [Go to LookML](#)

» Filters

» Visualization

Data Results SQL Add calculation Row Limit 500 Totals

Users City 

1 



Explore

Will fetch 10 rows from cache

Run



Order Items

Find a Field

Start typing to search

All Fields

In Use

ID
Last Name
Latitude
Longitude
Map Location
State
Traffic Source
Zip

MEASURES

Count

98 fields

Go to LookML

▶ Filters

▶ Visualization

▼ Data

Results

SQL

Add calculation

Row Limit 10

Totals

Users City

Users Count

Press "Run" to explore this data.

≡  Looker

Explore

10 rows · from cache · 5m ago Run ⚙️

Order Items ◀

Find a Field

All Fields In Use

ID
Last Name
Latitude
Longitude
Map Location
State
Traffic Source
Zip

MEASURES

Count

Filters

Visualization

Data Results SQL Add calculation Row Limit 10 Totals

Users City	Users Count ↓
1 New York	5,707
2 Los Angeles	2,598
3 Chicago	1,847
4 Houston	1,511
5 Philadelphia	1,114
6 Phoenix	1,061
7 San Diego	939
8 San Antonio	902
9 Dallas	850
10 Columbus	783

≡  Looker

Explore

10 rows · from cache · 5m ago Run ⚙️

Order Items 🕒

Find a Field

All Fields In Use

ID
Last Name
Latitude
Longitude
Map Location
State
Traffic Source
Zip

MEASURES
Count

98 Fields [Go to LookML](#)

▶ Filters

▼ Visualization grid list filter line area map location 6 ... Forecast Edit



A bar chart titled "Users" showing the number of users for various cities. The y-axis represents "Users" from 0 to 5,000. The x-axis lists cities: New York, Los Angeles, Chicago, Houston, Philadelphia, Phoenix, San Diego, San Antonio, Dallas, and Columbus. New York has the highest user count at approximately 5,707.

City	Users Count
New York	5,707
Los Angeles	2,598
Chicago	1,847
Houston	1,511
Philadelphia	1,118
Phoenix	1,081
San Diego	1,073
San Antonio	1,062
Dallas	1,050
Columbus	1,048

▼ Data Results SQL Add calculation Row Limit 10 Totals

Users City	Users Count ↓
1 New York	5,707
2 Los Angeles	2,598
3 Chicago	1,847
4 Houston	1,511
5 Philadelphia	1,118
6 Phoenix	1,081
7 San Diego	1,073
8 San Antonio	1,062
9 Dallas	1,050
10 Columbus	1,048

Explore

10 rows · from cache · 8m ago

Run



Order Items

Find a Field

Start typing to search

All Fields

In Use

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

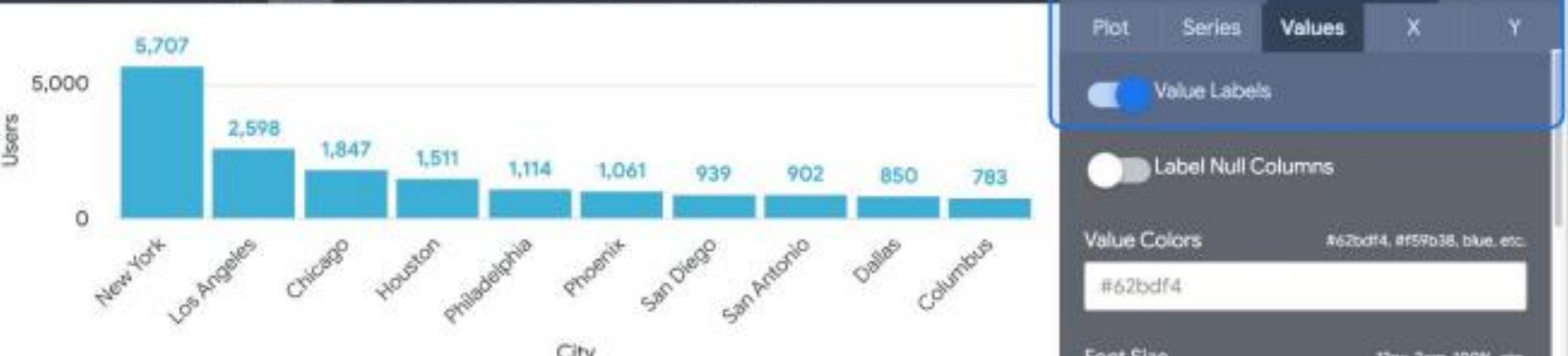
Count

98 fields

Go to LookML

Filters

Visualization

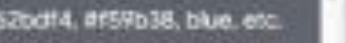


Edit  Forecast  Edit 

Plot Series Values X Y

Value Labels

Label Null Columns

Value Colors  #62bdf4, #f59b38, blue, etc.

#62bdf4

Font Size 12px, 2em, 100%, etc.

Data Results SQL Add calculation

Row Limit 10

 Totals

Users City

Users Count ↓

1	New York	5,707
2	Los Angeles	2,598
3	Chicago	1,847
4	Houston	1,511
5	Philadelphia	1,114

Explore

10 rows · from cache · 11m ago

[Run](#)

Order Items



Find a Field

 Start typing to search[All Fields](#)[In Use](#)

ID

Last Name

Latitude

Longitude

Map Location

State

Traffic Source

Zip

MEASURES

Count

98 fields

[Go to LookML](#)

↳ Filters

Visualization



Forecast

Edit



↳ Data

Filtering Dimensions

Practice dataset



Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
orange	orange	yes	\$1.45	0.5	\$0.73
orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

Filtering a dimension removes raw data rows



Looker

Fruit Basket Is Round

is equal to yes

**How many round fruits
only in the basket?**



Dimension filter applied
first, then data aggregated



Looker

Fruit Basket Is Round

is equal to yes

Fruit Basket Is Round

1	apple	3
5	orange	2



How many of each type
of orange and red fruits?



Dimension filter applied
first, then data aggregated



Looker

Fruit Basket Color

is equal to orange red

Fruit Basket Fruit Type | Fruit Basket Count

	Fruit Type	Fruit Basket Count
1	apple	2
5	orange	2

Practice dataset



Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
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orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

Filtering Measures

Practice dataset



Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
orange	orange	yes	\$1.45	0.5	\$0.73
orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

Dimension filter applied
first, then data aggregated



Looker

Fruit Basket [Color](#)

is equal to [orange](#) [red](#)

Fruit Basket [Fruit Type](#) | [Fruit Basket Count](#)

1	apple	2
5	orange	2

What types of fruit have
exactly two pieces?



**Measure filtering removes
rows from result set**

Looker

Fruit Basket Count

is equal to 2

Fruit Basket | Fruit Type | Fruit Basket Count

1	apple	3
2	banana	2
3	lemon	3
4	lime	2
5	orange	2

Left with all rows in result set that fit filter logic

Looker

Fruit Basket Count

is equal to 2

Fruit Basket | Fruit Type | Fruit Basket Count

1	banana	2
2	lime	2
3	orange	2

What fruit types have an average price of < \$0.50?



First, calculate average price for all fruit types

Looker

Fruit Basket Average Price

Is less than 0.50

Fruit Basket | Fruit Type | Fruit Basket Average Price

1	apple	\$0.63
2	banana	\$0.55
3	lemon	\$0.46
4	lime	\$0.42
5	orange	\$0.69

Only displays what meets
the filter criteria

Looker

Fruit Basket Average Price

Is less than

0.50

Fruit Basket | Fruit Type | Fruit Basket Average Price

1	lemon	\$0.46
2	lime	\$0.42

Practice dataset



Fruit Type	Color	Is Round	Price per Pound	Weight	Price
apple	red	yes	\$1.25	0.6	\$0.75
apple	red	yes	\$1.25	0.55	\$0.69
apple	green	yes	\$1.15	0.4	\$0.46
banana	yellow	no	\$0.75	0.7	\$0.53
banana	yellow	no	\$0.75	0.75	\$0.56
orange	orange	yes	\$1.45	0.5	\$0.73
orange	orange	yes	\$1.45	0.45	\$0.65
lemon	yellow	no	\$2.25	0.2	\$0.45
lemon	yellow	no	\$2.25	0.22	\$0.50
lemon	yellow	no	\$2.25	0.19	\$0.43
lime	green	no	\$2.40	0.18	\$0.43
lime	green	no	\$2.40	0.17	\$0.41

Filtering with Measures Example

Walkthrough

Create a line chart that displays the total number of items sold each month in 2019

← Explore

 Find an Explore

- E-Commerce

Inventory Items

Order Items

Products

Users

▶ E-Commerce Training

▶ E-commerce Training Advanced

▶ Ecommerce Analytics

▶ FAA

▶ Google Cloud Billing

 Development Mode

Your organization's folders

[New](#)

Folders

Sort by Name

Customer Metrics

Example Folder

Human Resources

Dashboards

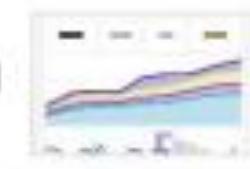
Sort by Name

Favorite

 Name

Business Pulse

65 Views, Created by



Business Pulse '21

35 Views, Created by



Citi bike stations with more than thirty bikes

13 Views, 1 Favorite, Created by





Explore

Will process 0.0 bytes

Run



Order Items

Find a Field

Start typing to search

All Fields

In Use

User ID

MEASURES

Average Sale Price

Average Spend per User

Order Count

Order Item Count

▶ Filters

▶ Visualization

▼ Data

Results

SQL

Add calculation

Row Limit 500

Totals

Order Items Order Item Count



Press "Run" to explore this data.

▶ Products

▶ Users

98 fields

Go to LookML

≡  Looker

Explore

Will process 2.24 MB Run ⚙️

Order Items 🕒

Find a Field 🔍 Start typing to search

All Fields In Use

▶ Filters ▶ Visualization

▼ Data Results SQL Add calculation Row Limit 500 Totals

Order Items Created Month ⬇️ Order Items Order Item Count ⚙️

▶ Inventory Items

- Order Items 2

DIMENSIONS

- Created Date

Date

Month ⬇️ = ⓘ ⏹

Month Name

Quarter

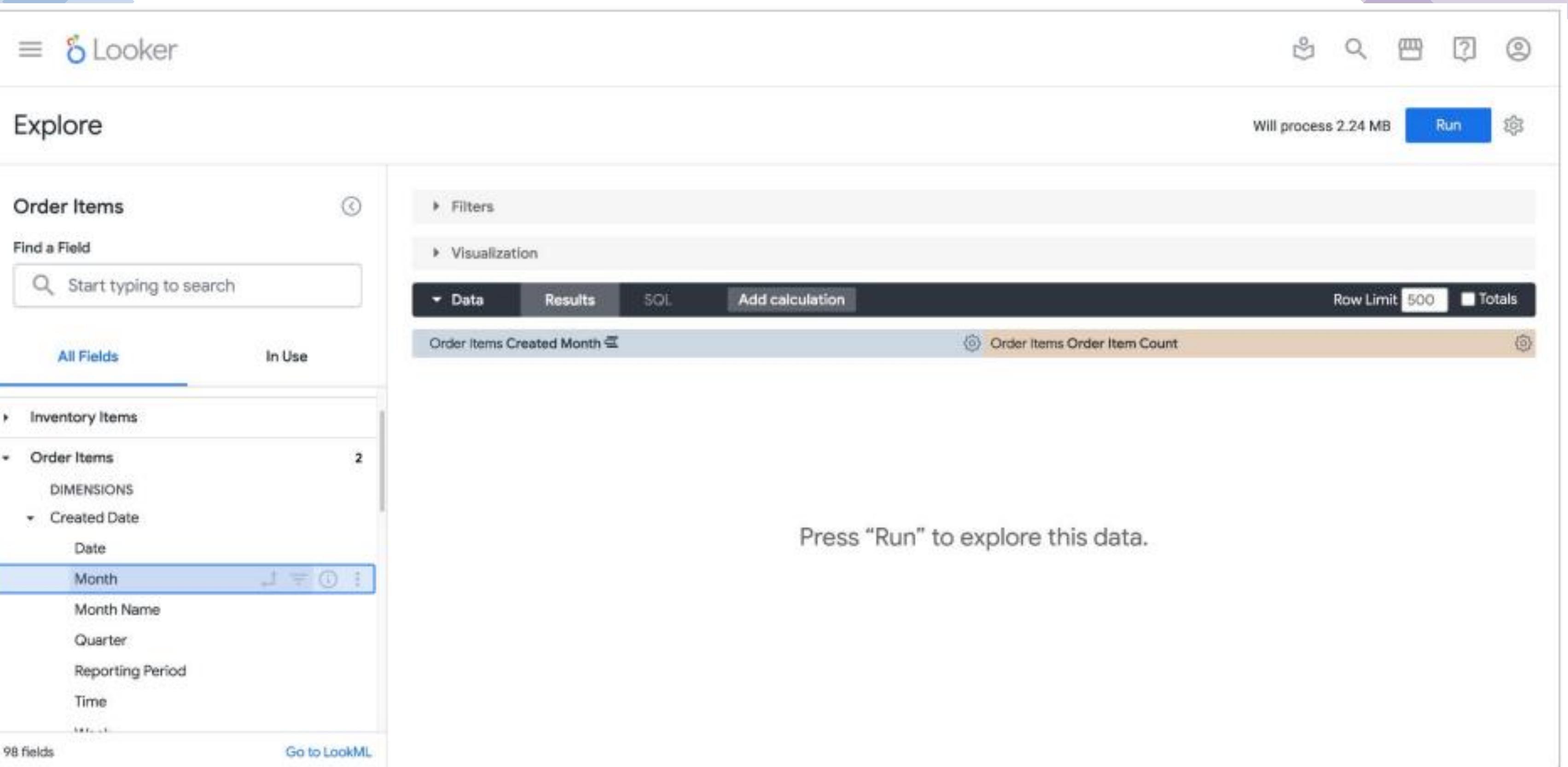
Reporting Period

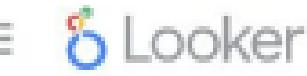
Time

...

98 fields Go to LookML

Press “Run” to explore this data.



≡  Looker

Explore

Will process 2.24 MB Run

Order Items ?

Find a Field Start typing to search

All Fields In Use

▼ **Created Date**

- Date
- Month
- Month Name
- Quarter
- Reporting Period
- Time
- Week
- Year

▼ **Delivered Date**

- ID

98 fields [Go to LookML](#)

▼ **Filters (1)** Custom Filter

Order Items Created Year is in the year 2019 X +

▼ **Visualization**

Data Results SQL Add calculation Row Limit Totals

Order Items Created Month Order Items Order Item Count @

Press “Run” to explore this data.

Explore

12 rows · 1s · just now

Run



Order Items



Find a Field

 Start typing to search

All Fields

In Use

Created Date

Date

Month

Month Name

Quarter

Reporting Period

Time

Week

Year



Delivered Date

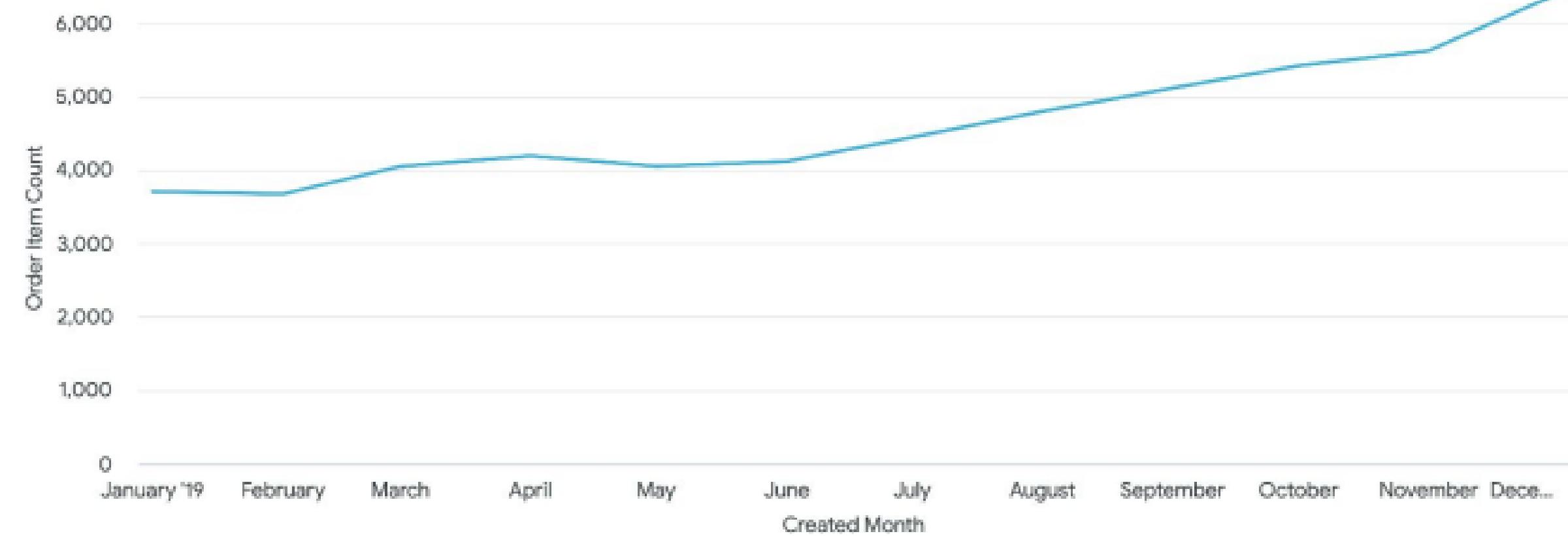
ID

98 fields

Go to LookML

▶ Filters (1) Order Items Created Year in the year 2019

▼ Visualization



▶ Data

Explore

12 rows · 1s · 3m ago

Run



Order Items

Find a Field

Start typing to search

All Fields

In Use

Created Date

Date

Month

Month Name

Quarter

Reporting Period

Time

Week

Year



Delivered Date

ID

98 fields

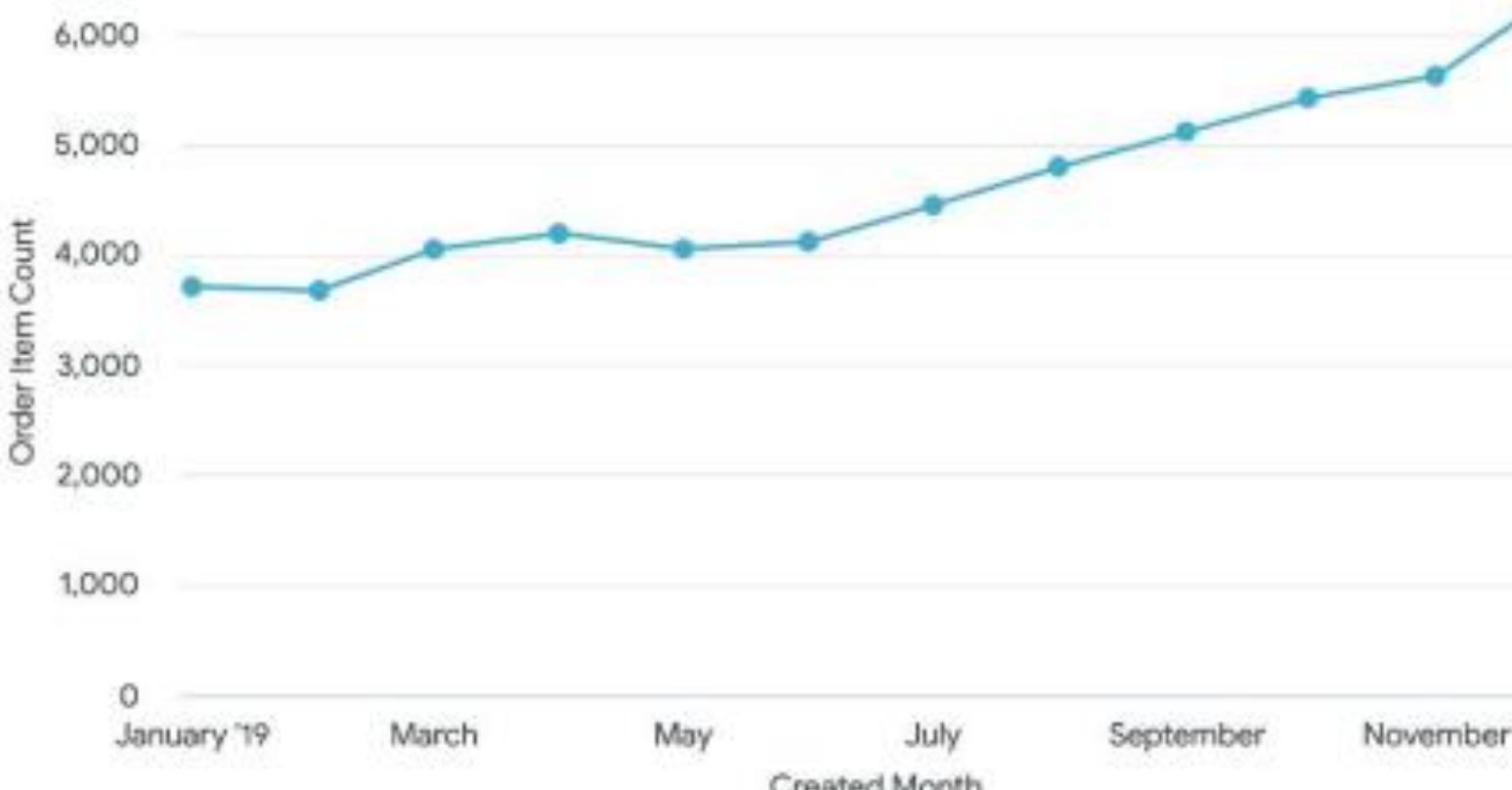
Go to LookML

Filters (1) Order Items Created Year in the year 2019

Visualization



Order Item Count



Edit

Plot

Series

Values X Y

Collection

Boardwalk

Palette



Labels

 Show Full Field Name

Points

Point Style

 None Filled Outline

Data

Explore

12 rows · 1s · 5m ago

Run



Order Items

Find a Field

Start typing to search

All Fields

In Use

Created Date

Date

Month

Month Name

Quarter

Reporting Period

Time

Week

Year



Delivered Date

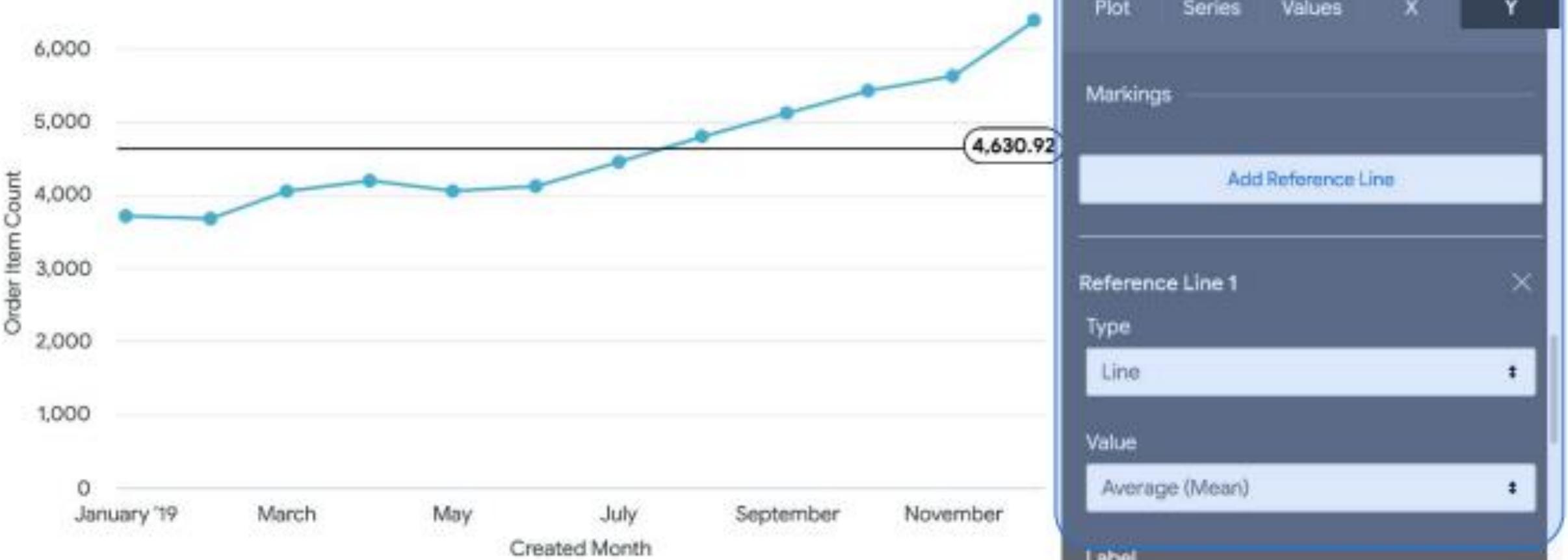
ID

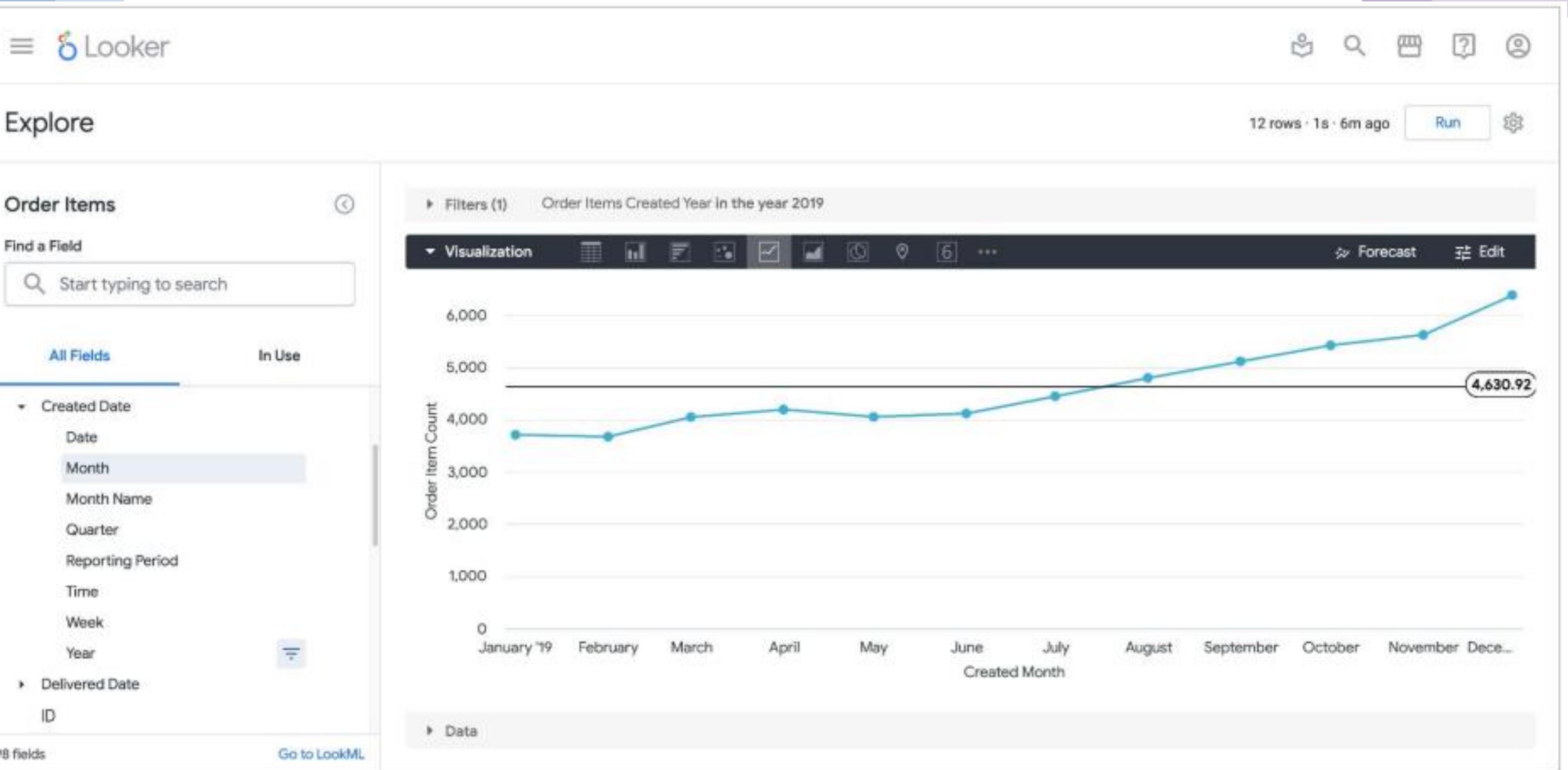
98 fields

Go to LookML

▶ Filters (1) Order Items Created Year in the year 2019

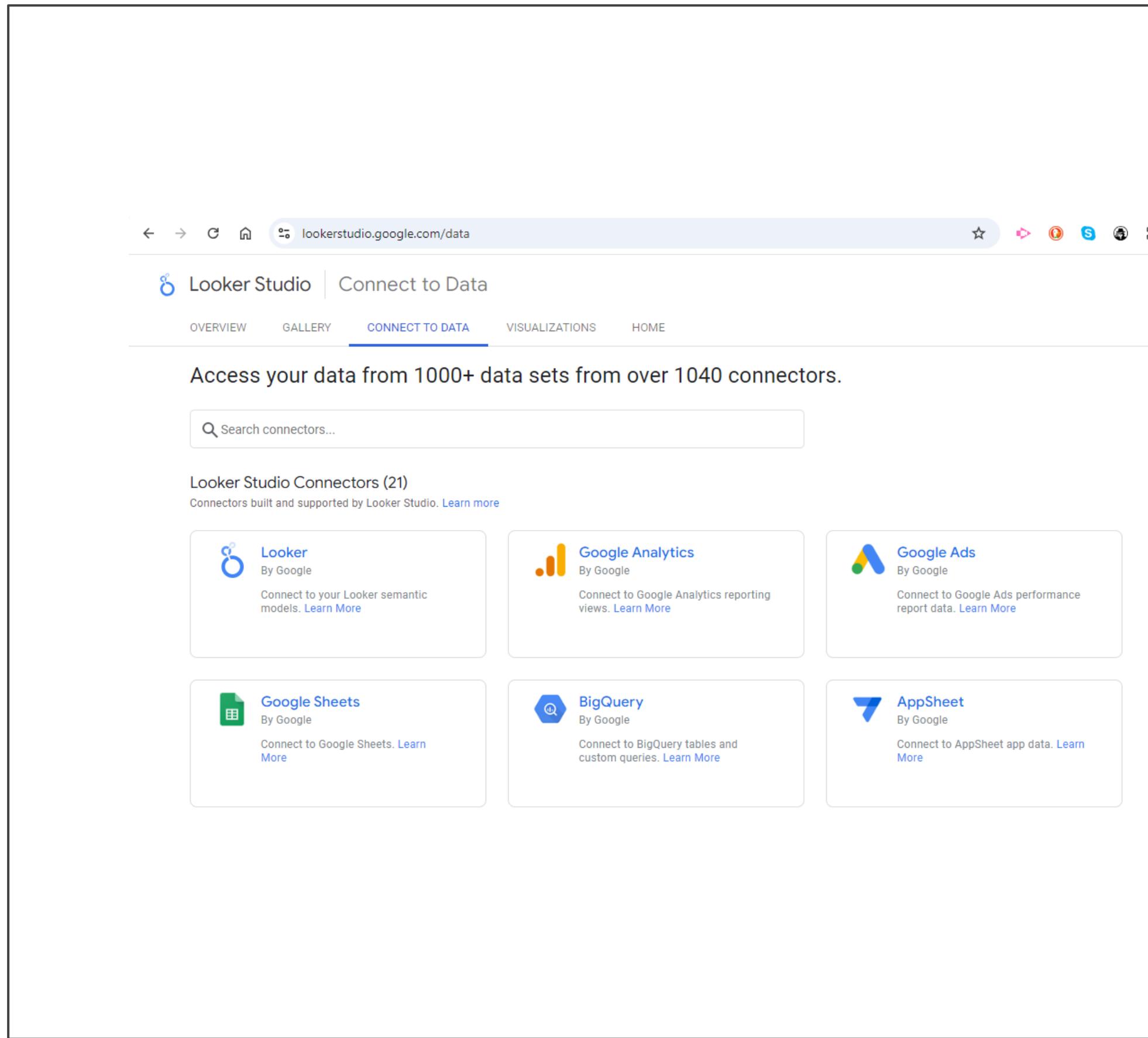
Visualization





2. CONNECTING TO DATA SOURCES

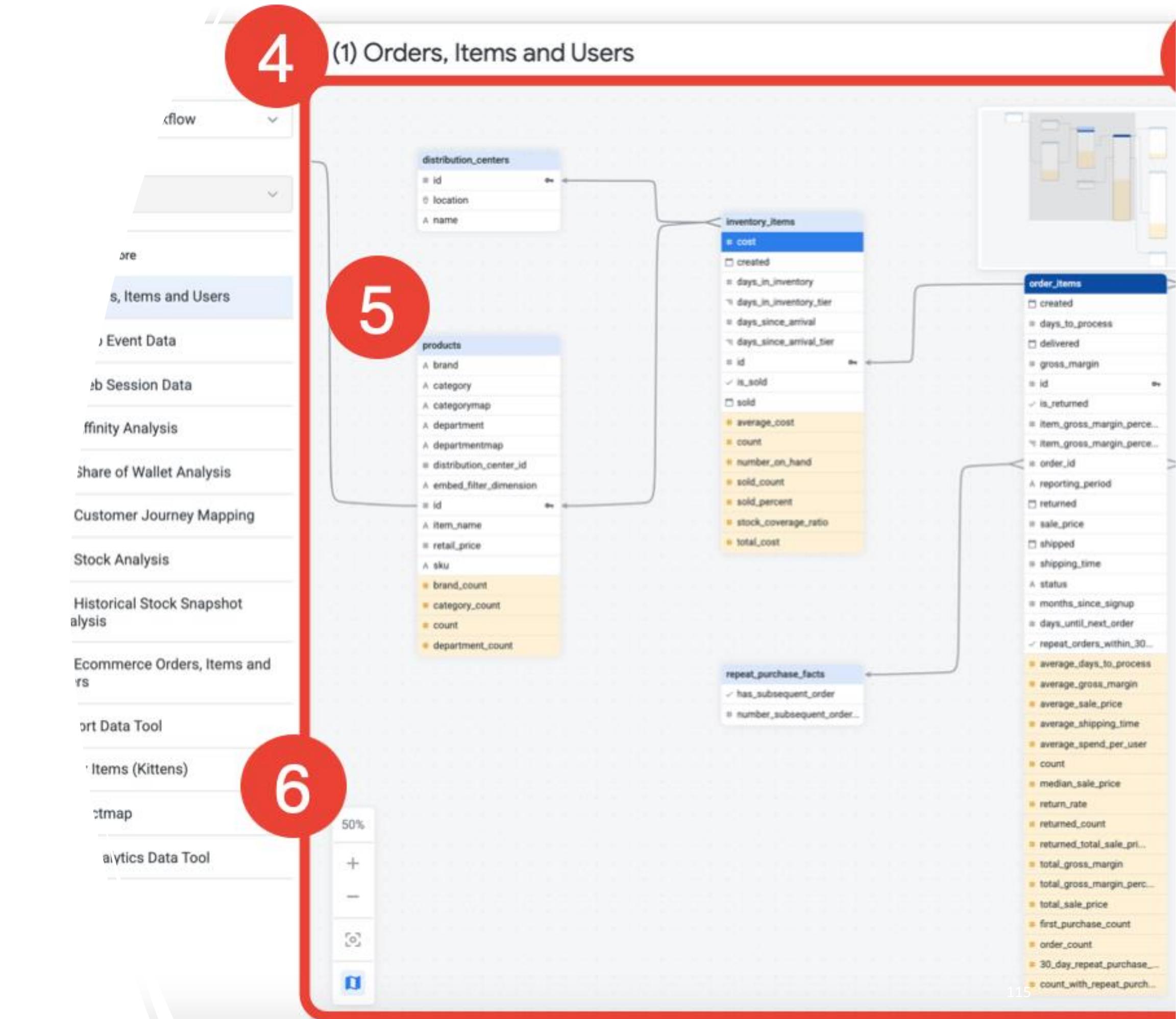
Setting up and Managing Data Connections in Google Looker



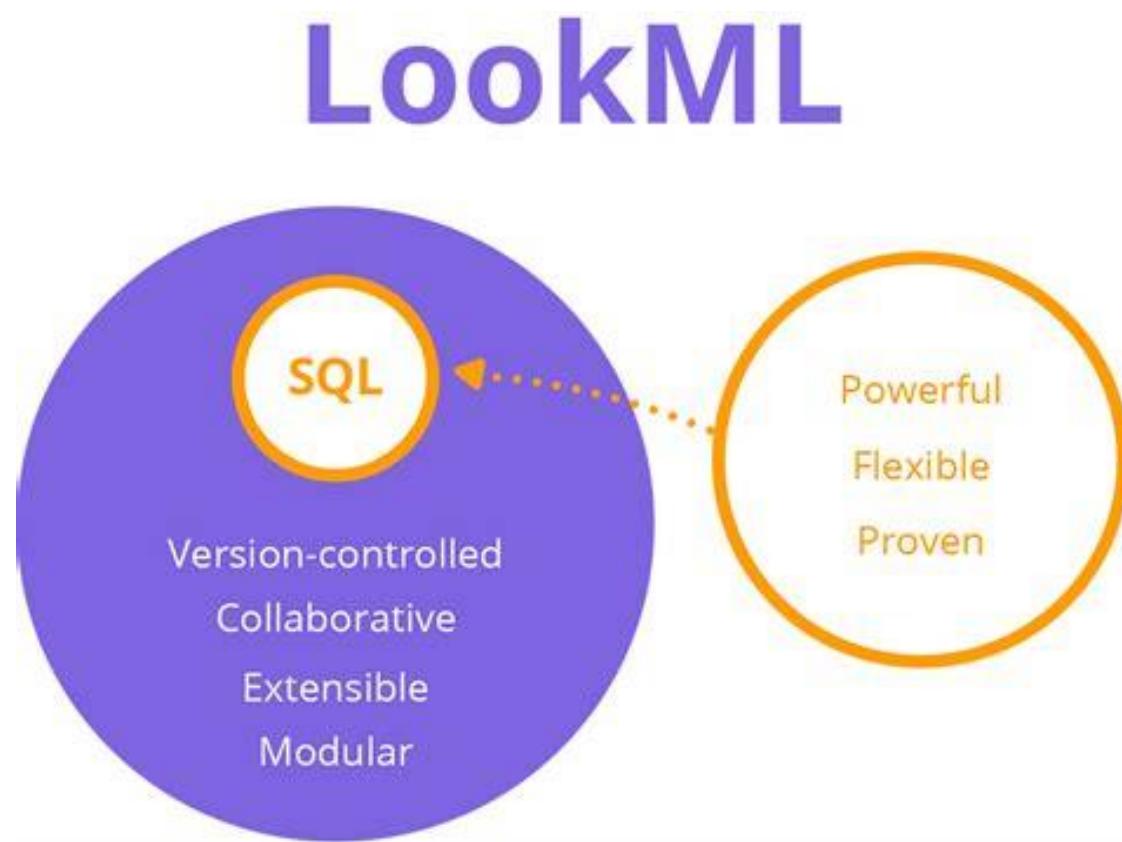
114

Exploring Database Schemas in Google Looker

- Understanding the structure of database schemas in Looker
- Using Looker's explore mode to visually analyze data
- Creating custom views of data for specific use cases



Understanding LookML: Looker's Data Modeling Language



- Creating new models using LookML
- Customizing views and dashboards with LookML
- Writing efficient and performant LookML code

3. CREATING AND CUSTOMIZING EXPLORES

Speak Looker

Fields vs. Dimensions vs. Measures

	Office	Office Name	Customer	Customer Company Name	Sales	Total Hours ↓	Sales	Total Sales	Sales	Count
1	Detroit		SandHaul			443		\$784,244		7
2	Seattle		Pdump			357		\$536,643		6
3	Orlando		Trashly			323		\$539,560		5
4	Orlando		Blastine			321		\$439,138		5
5	Seattle		BumperTruck			307		\$515,276		6
6	Detroit		Trashly			301		\$529,913		4
7	San Francisco		Suppler			296		\$486,367		5
8	Houston		Bucker			265		\$360,133		6
9	Houston		DumpSpot			261		\$416,139		3
10	Los Angeles		Trashly			251		\$349,327		4
11	Dallas		Sucket			250		\$414,972		3
12	Detroit		Motore			247		\$455,394		4
13	Miami		Tractore			246		\$399,903		3
14	New York City		Shovel			244		\$460,107		5

Speak MORE Looker

Explores vs. Looks vs. Dashboards

Explore

10 rows · 1.8s · just now Run

Custom Filter

Sales ① ④

Search

All Fields In Use

+ Add

Custom Fields

Customer Customer Company Name

Customer Company Name is equal to X +

Visualization ④ ⑤ ⑥ ... Edit ②

Total Sales

Office Name

DIMENSIONS

Customer Company Name

Customer ID

Customer Type

Office

DIMENSIONS

Office ID

Office Name

Office Zip Code

Product

Sales

DIMENSIONS

Customer ID

Hours

Office ID

Sales

Salesperson ID

State

Transaction Date

Transaction ID

Data Results SQL Row Limit 500 Totals

Office	Office Name	Sales
1	Detroit	\$4,089,204
2	Seattle	\$3,590,934
3	New York City	\$3,332,495
4	Houston	\$3,309,836
5	Orlando	\$3,278,829
6	San Francisco	\$3,169,788
7	Austin	\$3,144,345
8	Miami	\$3,059,605
9	Los Angeles	\$2,917,372
10	Dallas	\$2,511,358

Boards vs. Folders

The screenshot illustrates the Looker interface, showing two main views: 'All folders' and a detailed view of a specific folder.

All folders View:

- Left Sidebar:** Includes links for Explore, Develop, Shared folders, Recently Viewed, Favorites, Boards (selected), Sales Data, and Salesperson Performance.
- Top Bar:** Buttons for My folder, Shared folders, LookML dashboards, and People.
- Content Area:** A message: "Access your content from where it is saved within the folder system." Below this are four buttons: My folder, Shared folders, LookML dashboards, and People.

Selected Folder View:

- Left Sidebar:** Shows the current folder path: People > Developer Student's folder. It also includes links for Folders (selected) and Blocks.
- Top Bar:** Buttons for Explore, Develop, and Manage Access (with a cursor icon).
- Content Area:** A message: "This is your personal folder where you can save Dashboards and Looks." Below this is a table listing five Looks:

Name	Last Updated	Model	Favorite
Hours and Sales by Customer	13 minutes ago	Explore From Here	Looker Basics
Monthly Sales	13 minutes ago	Explore From Here	Looker Basics
Sales by Office	14 minutes ago	Explore From Here	Looker Basics
Salesperson Performance Overview	10 minutes ago	Explore From Here	Looker Basics
Salesperson Report	12 minutes ago	Explore From Here	Looker Basics

Boards vs. Folders

Sales Data

Monthly Reports Add description...


Sales by Office
By Developer Student


Monthly Sales
1 View, By Developer Stud...

Adhoc Reports Add description...


Hourly Sales by C...
By Developer Student



LookML versus SQL

LookML vs. SQL

SQL

SQL is a language that lets you access, retrieve, and manipulate data in a SQL-supported database (95% of databases use some flavour of SQL in my opinion)

LookML

LookML is a language for describing dimensions, aggregates, calculations, and data relationships in a SQL database.

Looker uses a model written in LookML to construct SQL queries against a particular database

```
Select office, sum(sales) as total_sales  
from sales_data  
group by office
```

```
View: sales /  
derived_table: sales_data
```

```
Dimension: office /  
type: string  
sql: office;;  
/
```

```
measure: total_sales /  
type: sum  
sql: sales  
/
```

You are in Development Mode.

Exit Development Mode

≡  Looker

Explore

Develop

Shared folders

Recently Viewed

Favorites

Boards

No boards added yet

Folders

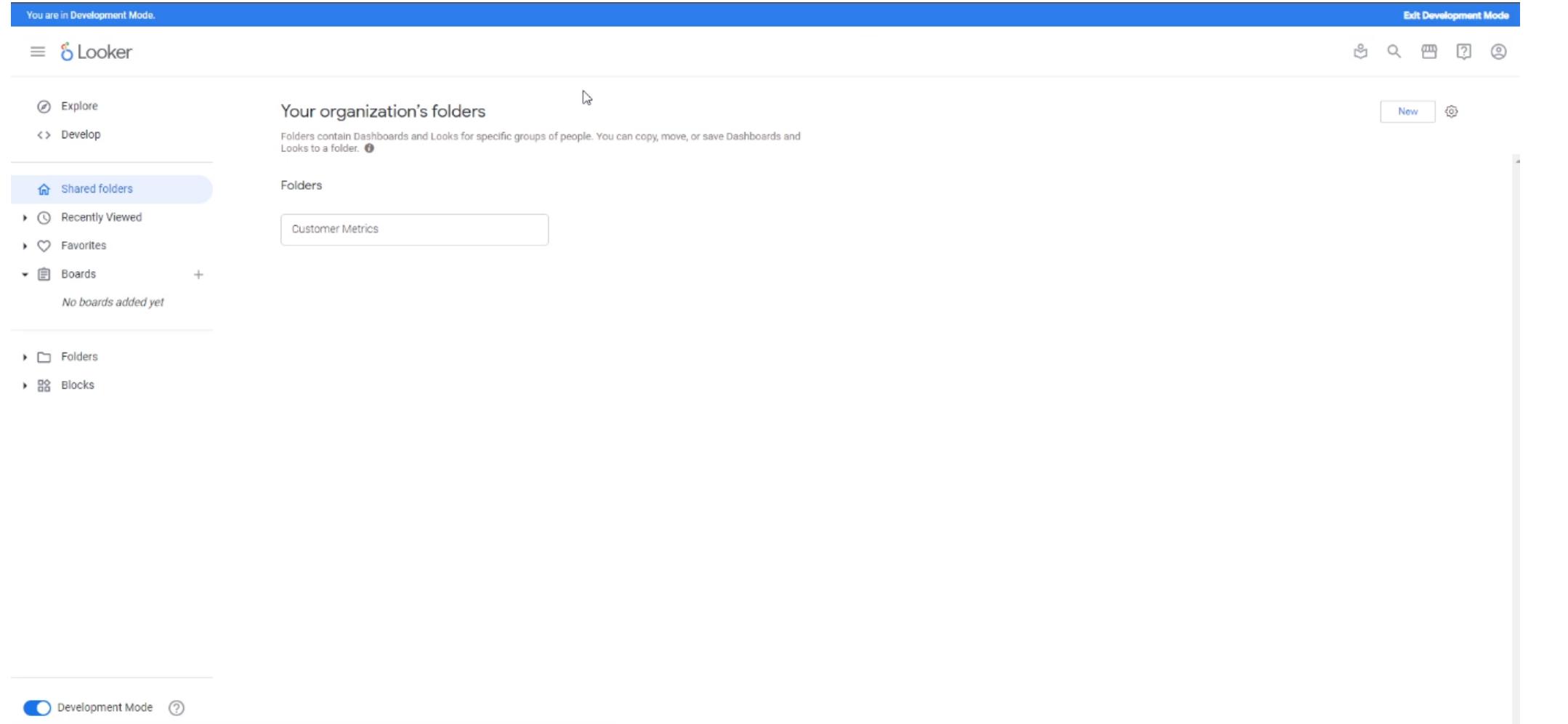
Customer Metrics

New

Your organization's folders

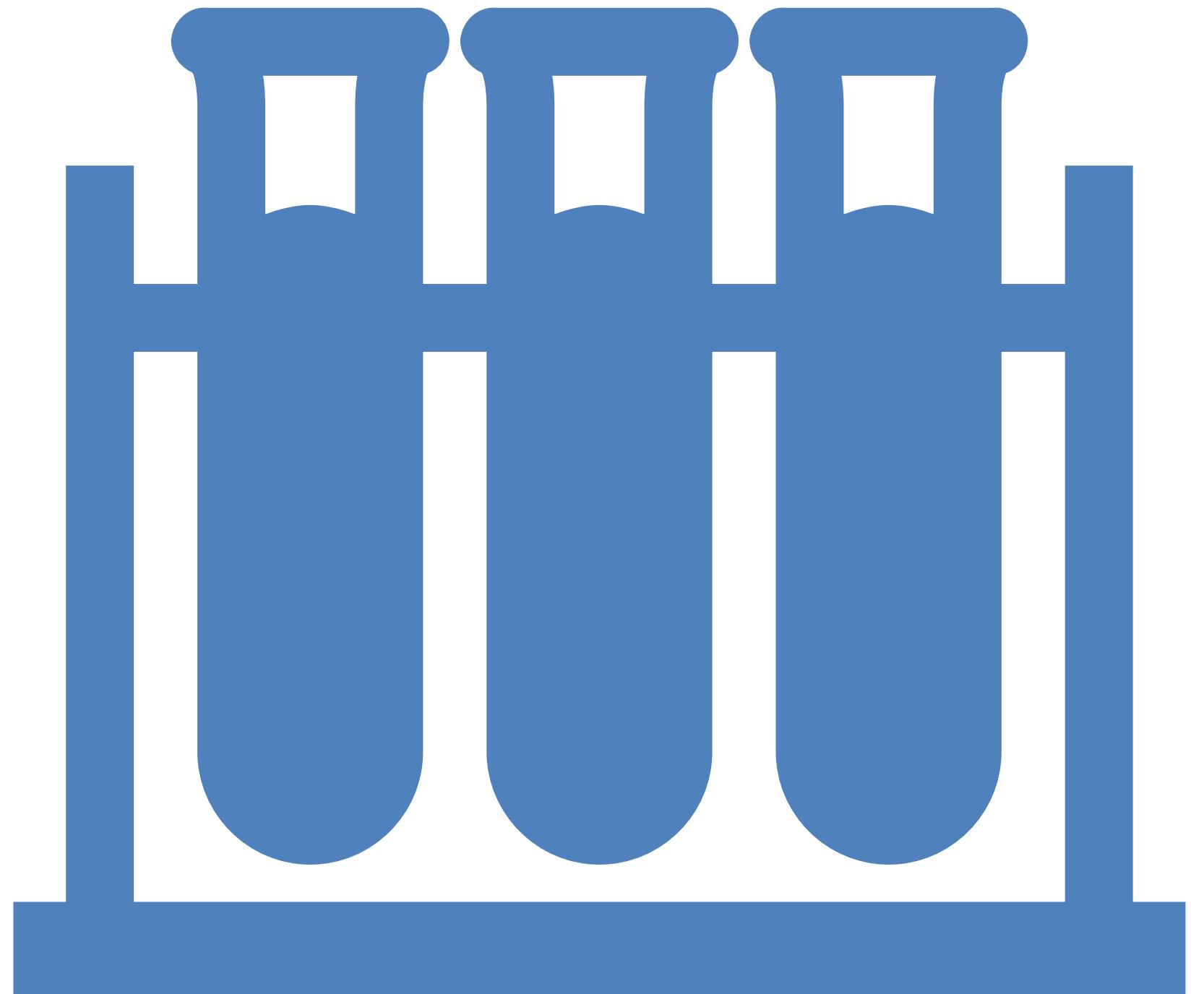
Folders contain Dashboards and Looks for specific groups of people. You can copy, move, or save Dashboards and Looks to a folder. 

Development Mode 



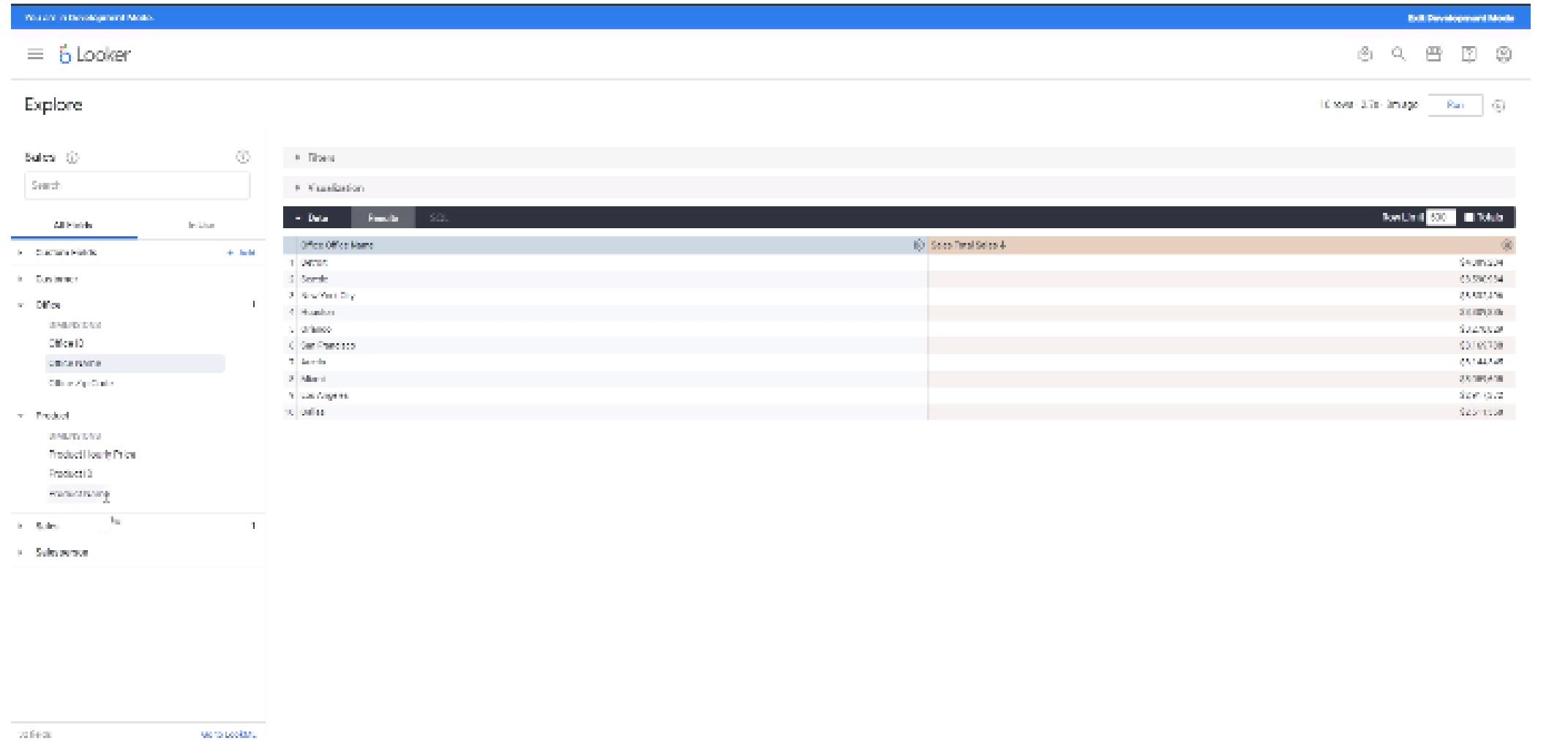
Menu Navigation

123



Lab 2: Menu Navigation

124



Dimensions and Fields

125

You are in Development Mode. [Exit Development Mode](#)

 Looker

Explore

Sales [?](#)

All Fields In Use

Office Zip Code

Product

DIMENSIONS

Product Hourly Price

Product ID

Product Name

Sales

DIMENSIONS

Customer ID

Office ID

Salesperson ID

State

Transaction Date

Transaction ID

MEASURES

Average Hours

Average Sales

Count

Hourly Price

Total Hours

Total Sales

Salesperson

Go to LookML

Filters

Visualization

Data Results SQL

Row Limit 500 Totals Subtotals

109 rows · 2.9s · just now [Run](#) [⚙️](#)

Office Office Name	Product Product Name	Sales Total Sales ↓	Sales Count
1 Houston	Excavator	\$777,747	6
2 San Francisco	Scraper	\$732,978	7
3 Detroit	Crawler	\$659,300	7
4 Seattle	Excavator	\$619,427	4
5 Orlando	Skid-Steer	\$591,858	6
6 Los Angeles	Excavator	\$562,036	5
7 Houston	Scraper	\$553,048	6
8 San Francisco	Excavator	\$548,183	7
9 Detroit	Excavator	\$548,183	4
10 New York City	Back Truck	\$529,864	10
11 Los Angeles	Trencher	\$514,791	7
12 New York City	Crawler	\$513,560	4
13 Detroit	Compactor	\$508,368	4
14 Houston	Bulldozer	\$501,811	4
15 Orlando	Dragline	\$501,331	6
16 Miami	Skid-Steer	\$496,980	7
17 Miami	Scraper	\$469,712	5
18 Austin	Excavator	\$463,086	3
19 Austin	Bulldozer	\$460,653	6
20 Seattle	Crawler	\$458,040	4
21 Seattle	Dump Truck	\$453,884	5
22 Detroit	Dragline	\$452,341	6
23 Detroit	Bulldozer	\$446,406	5
24 Detroit	Dump Truck	\$440,248	4
25 Miami	Crawler	\$430,280	4
26 New York City	Skid-Steer	\$424,692	5
27 New York City	Trencher	\$418,648	6
28 San Francisco	Crawler	\$418,135	5
29 Dallas	Crawler	\$416,400	5

126

The screenshot shows the Looker Explore interface. On the left, the sidebar displays various dimensions and measures under the Sales model. The 'Office' dimension is currently selected, with its fields (Office ID, Office Name, Office Zip Code) listed. The 'Sales' dimension is also expanded, showing Customer ID, Office ID, Salesperson ID, State, Transaction Date, Transaction ID, and Average Hours. The main area shows a table titled 'Sales' with columns: Office, Office Name, Sales Total Sales (sorted descending), and Sales Count. The table lists 10 offices with their respective sales totals and counts. The total sales for all offices combined is \$4,089,204.

Office	Office Name	Sales Total Sales	Sales Count
1	Detroit	\$4,089,204	48
2	Seattle	\$3,590,934	42
3	New York City	\$3,332,496	44
4	Houston	\$3,309,836	38
5	Orlando	\$3,276,829	41
6	San Francisco	\$3,169,788	37
7	Austin	\$3,144,345	41
8	Miami	\$3,059,605	37
9	Los Angeles	\$2,917,372	34
10	Dallas	\$2,511,358	36

Remove Fields

127

Sorting and Adding

Looker

Explore

Will fetch 44 rows from cache

Run

Sales

Search

All Fields In Use

DIMENSIONS

Customer ID

Office ID

Salesperson ID

State

Transaction Date

Transaction ID

MEASURES

Average Hours

Average Sales

Count

Hourly Price

Total Hours

Total Sales

Salesperson

DIMENSIONS

Office ID

Salesperson Age

Salesperson First Name

Salesperson Function

Salesperson ID

Filters

Visualization

Data Results SQL

Row Limit 500 Totals

	Sales Total Sales ↓	Sales Average Sales
16 District of Columbia	\$647,886	\$58,899
17 Nebraska	\$573,466	\$81,924
18 Georgia	\$540,867	\$67,608
19 Michigan	\$537,127	\$76,732
20 South Carolina	\$509,146	\$101,829
21 North Carolina	\$492,925	\$84,769
22 Massachusetts	\$482,218	\$80,370
23 Indiana	\$475,165	\$95,033
24 Tennessee	\$419,917	\$69,986
25 Maryland	\$394,137	\$78,827
26 Louisiana	\$385,283	\$77,057
27 Iowa	\$305,164	\$76,291
28 Kentucky	\$279,704	\$69,926
29 Kansas	\$274,439	\$137,220
30 Wisconsin	\$246,171	\$49,234
31 Mississippi	\$234,977	\$78,326
32 Nevada	\$211,394	\$52,849
33 Minnesota	\$196,315	\$39,263
34 New Hampshire	\$179,058	\$89,529
35 Idaho	\$172,977	\$86,489
36 West Virginia	\$153,551	\$153,551
37 South Dakota	\$139,304	\$139,304
38 Arkansas	\$116,880	\$116,880
39 Rhode Island	\$111,300	\$111,300
40 North Dakota	\$109,046	\$54,523
41 New Jersey	\$106,145	\$106,145
42 Connecticut	\$104,096	\$34,699
43 New Mexico	\$94,992	\$94,992

You are in Development Mode.

Looker

Main menu

Explore

Inventory

Search

All Fields

In Use

+ Add

- Custom Fields
- Inventory
- Office
- Product

Quick Start

Explore from a prebuilt analysis in Inventory or select fields from the field list.

Count by Status

Count of Products by Status

The screenshot shows the Looker interface in Development Mode. The left sidebar includes a 'Main menu' button, 'Explore' link, and a search bar. Below these are sections for 'All Fields' and 'In Use', with a '+ Add' button. A list of fields is provided: Custom Fields, Inventory, Office, and Product. The main content area is titled 'Quick Start' and contains a sub-section titled 'Count by Status' which displays 'Count of Products by Status'. The overall layout is clean and modern, typical of business intelligence tools.

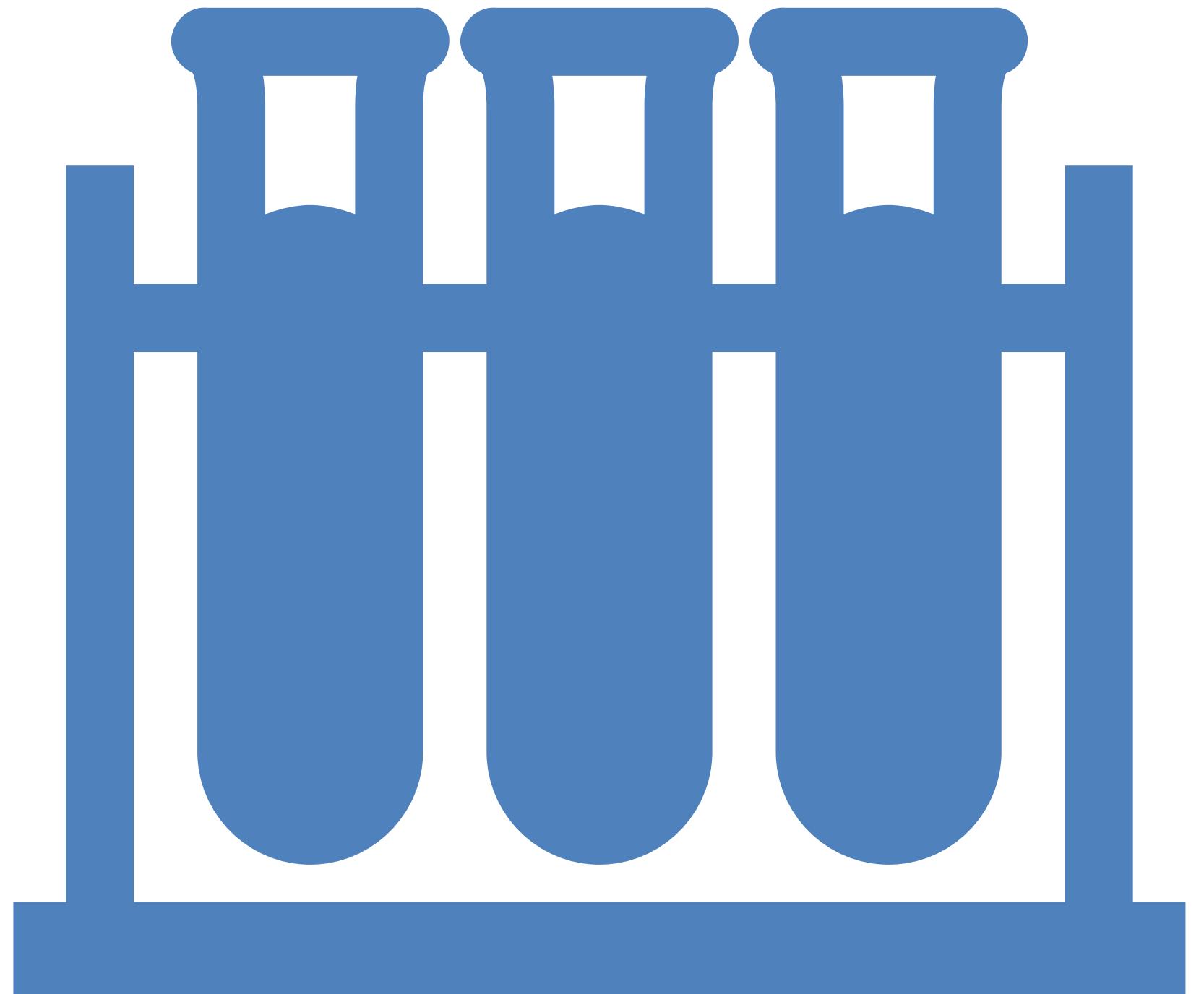
Quick Start Analysis

129

The screenshot shows the Looker Explore interface. At the top, there's a navigation bar with the Looker logo, a search bar, and various icons. Below it is a header with sections for 'Filters' and 'Visualization'. The main area is titled 'Sales' and contains a sidebar with a tree view of fields. Under 'All Fields', 'Custom Fields' is expanded, showing 'Customer', 'Office', and 'Product'. 'Product' is further expanded to show 'Dimensions' like 'Product Hourly Price', 'Product ID', and 'Product Name'. Under 'Sales', 'Dimensions' like 'Customer ID', 'Office ID', 'Salesperson ID', 'State', 'Transaction Date', and 'Transaction ID' are listed. 'Measures' like 'Average Hours', 'Average Sales', 'Count', 'Hourly Price', and 'Total Hours' are also listed. A message in the center says 'Select some dimensions or measures.'

Pivot Field

130



Lab 3: Dimensions and Fields

131

Explores Revisited (Demo)

Explorer as a Starting Point: The Explorer is where users begin analyzing datasets before saving a Look or Dashboard.

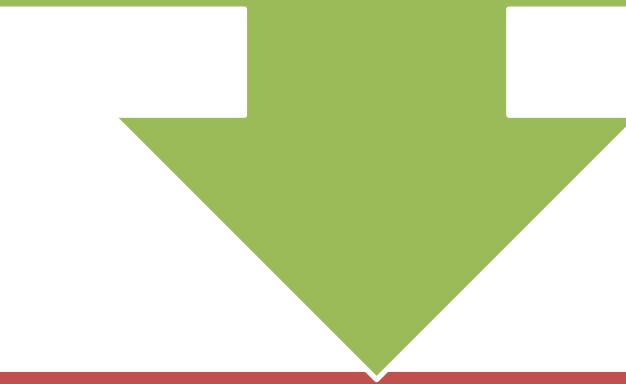
Available Datasets: Looker provides access to pre-built datasets and explorers, such as e-commerce, events, and FAA data, for immediate use.

Interactive Data Exploration: Users can select fields (dimensions and measures) from the dataset, build custom queries, and run reports to visualize data insights.

Customizable Analysis: Add, remove, and adjust fields in real-time while exploring data, with the option to create custom fields for deeper insights.

Filtering Data: Filters allow you to narrow down data in Explorer based on specific criteria, such as excluding certain values like "orange" from a fruit dataset.

Filters Revisited



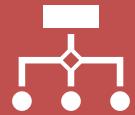
Filter Methods:

Direct Filter from Column Options: Click on a field's column options, select 'Filter,' and set conditions (e.g., "is not equal to orange").

Filters Section in Explorer: Access and manage filters at the top section of the Explorer interface, allowing multiple conditions.

Advanced Filters Menu: Select filter options directly from fields (dimensions or measures) on the left, offering greater control over filter types (e.g., "does not match," "contains").

Sorting Revisited



Sorting Columns: Easily sort your data by clicking the column headers in Explorer (e.g., sort by color, total price).



Ascending/Descending Order: Click the 'Sort' button to toggle between ascending (A-Z) and descending (Z-A) orders for any column.



Practical Use Cases: Sorting by numerical fields, such as total price or average price, can provide quick insights into your data.



Multiple Sorting Options: You can apply sorts to multiple fields at once to refine your data analysis further.

Row Limits and Totals

1

Displaying Totals: Click the 'Totals' option to display the total values for your measures at the bottom of the data results. Looker intelligently calculates the weighted average for fields like average price.

2

Subtotals: For datasets with multiple categories, subtotals can be enabled to provide a breakdown of totals for each category.

3

Row Limit: You can limit the number of rows displayed in the Explorer by setting a row limit (e.g., 10 or 20). The limit only affects the view, not the underlying dataset.

4

Totals Unaffected by Row Limit: Even when limiting the number of rows displayed, the totals remain accurate and reflective of the full dataset.

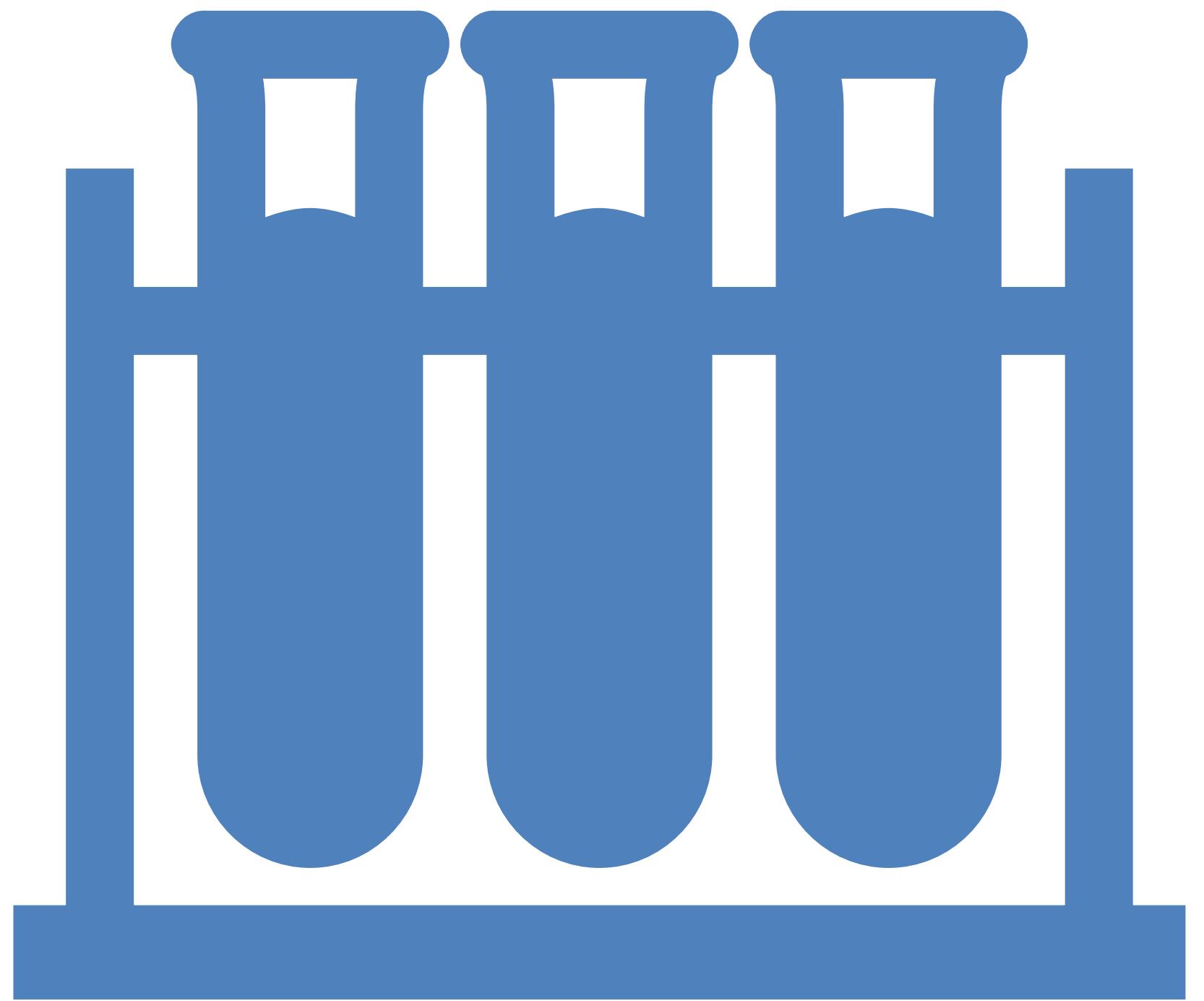
In use and Clear Field Options

Quick Reset Option: If your analysis becomes too complex, instead of manually removing each column, switch to the **In-Use** section to see all currently used fields.

Clear All Fields: Use the **Clear Row** option to instantly remove all selected fields and filters, allowing you to start a fresh analysis.

Keep Filters: Alternatively, use the **Clear Fields** option to remove all columns while keeping any filters you've applied.

Efficiency: This feature is particularly useful when working with many fields, saving time by avoiding manual deletion.

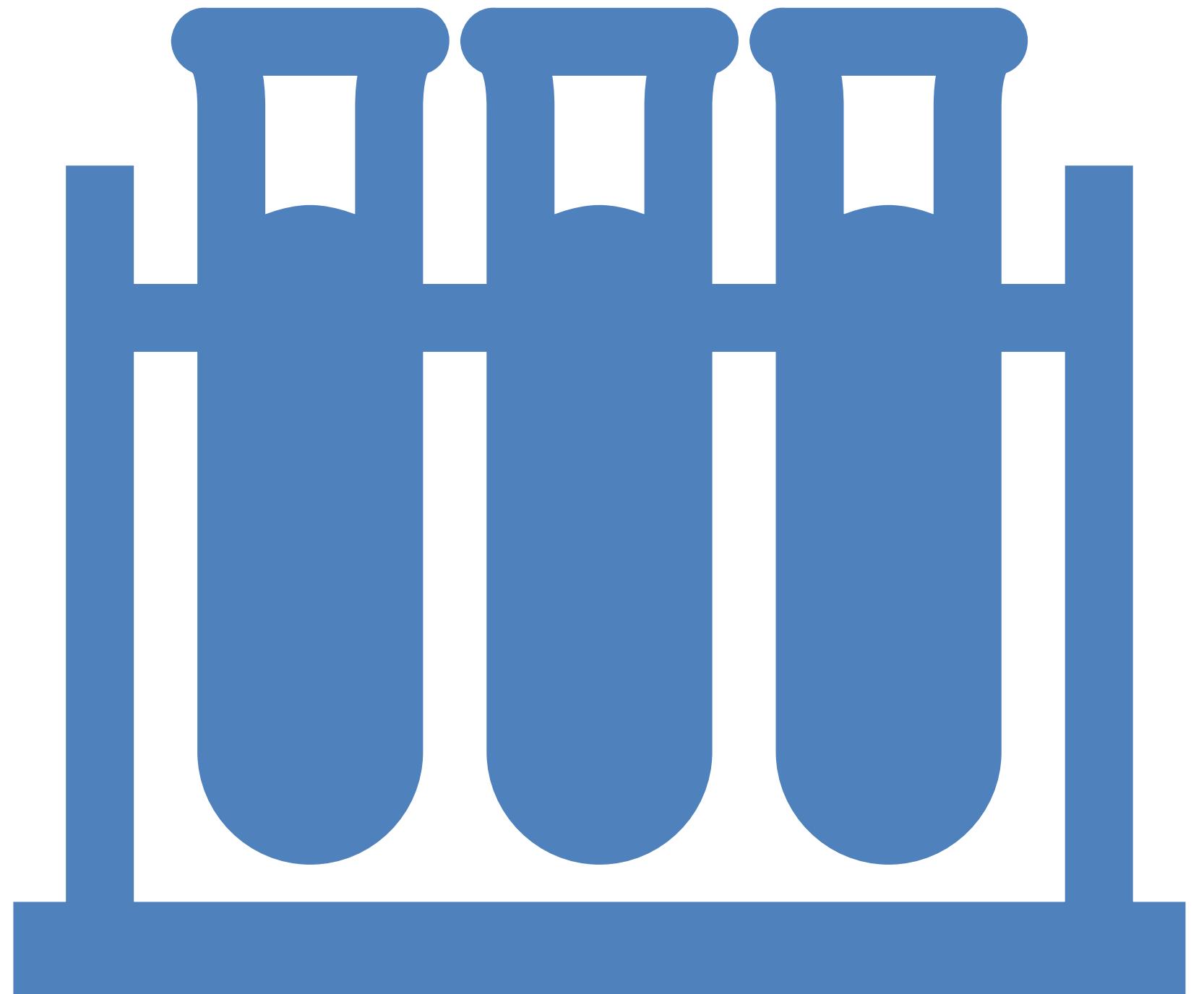


Lab 4: Sorting and Adding Totals

137



Pivoting on Explores



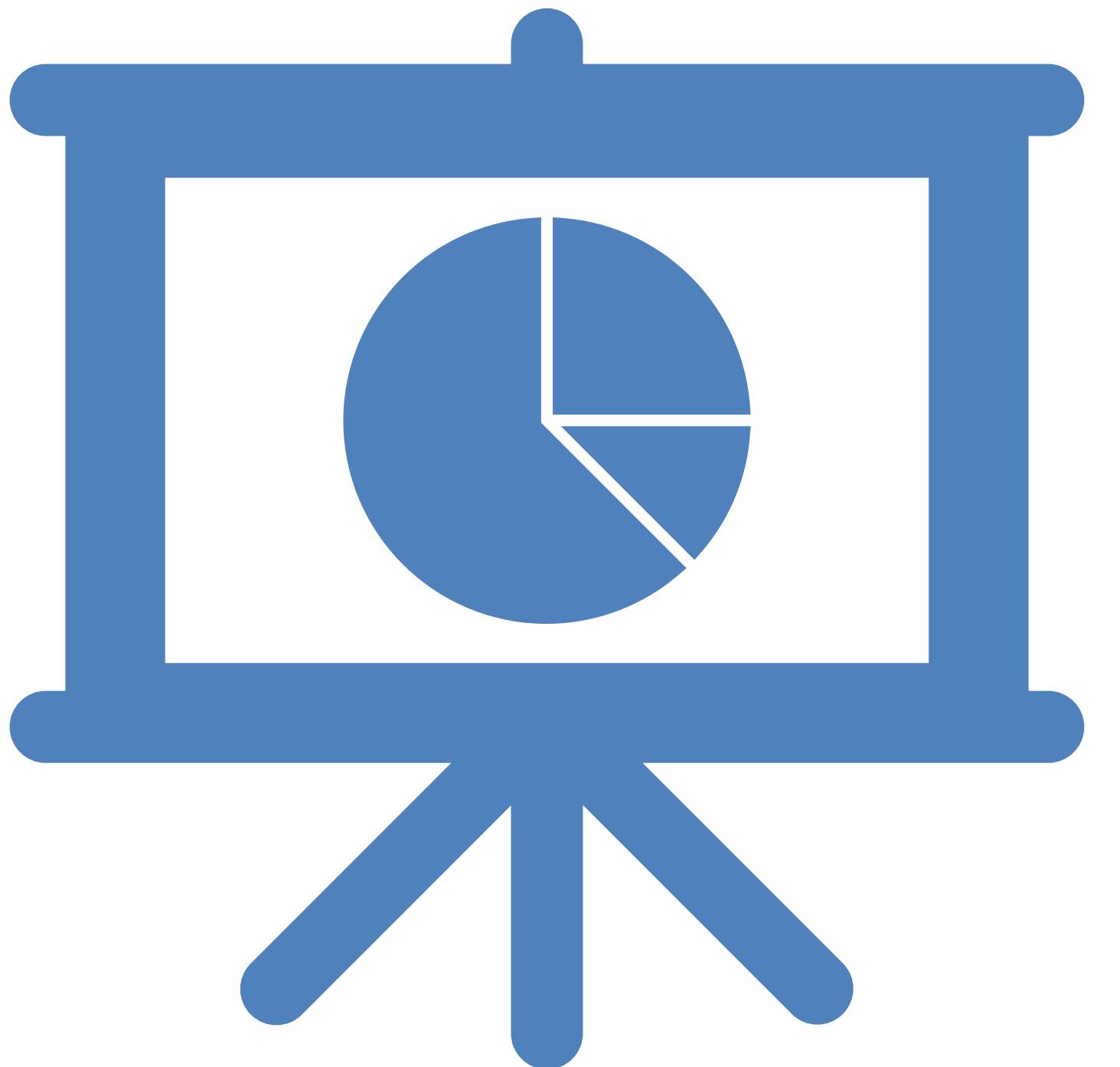
Lab 5: Pivots

139



Caching

- **Cached Queries:** Looker stores the results of prior queries in an encrypted cache file to reduce future database load.
- **Running Queries:**
- **Initial Query:** When running a query for the first time, Looker retrieves data directly from the database and caches the results.
- **Subsequent Query:** If the same query is run again within the cache validity period, Looker retrieves the data from the cached file instead of querying the database.
- **Expired Cache:** If the cache has expired based on the cache policy in LookML, Looker retrieves fresh data from the database.
- **Cache Policy:** Developers can define cache duration in LookML, such as one hour, after which cached data expires, prompting a new query to the database.

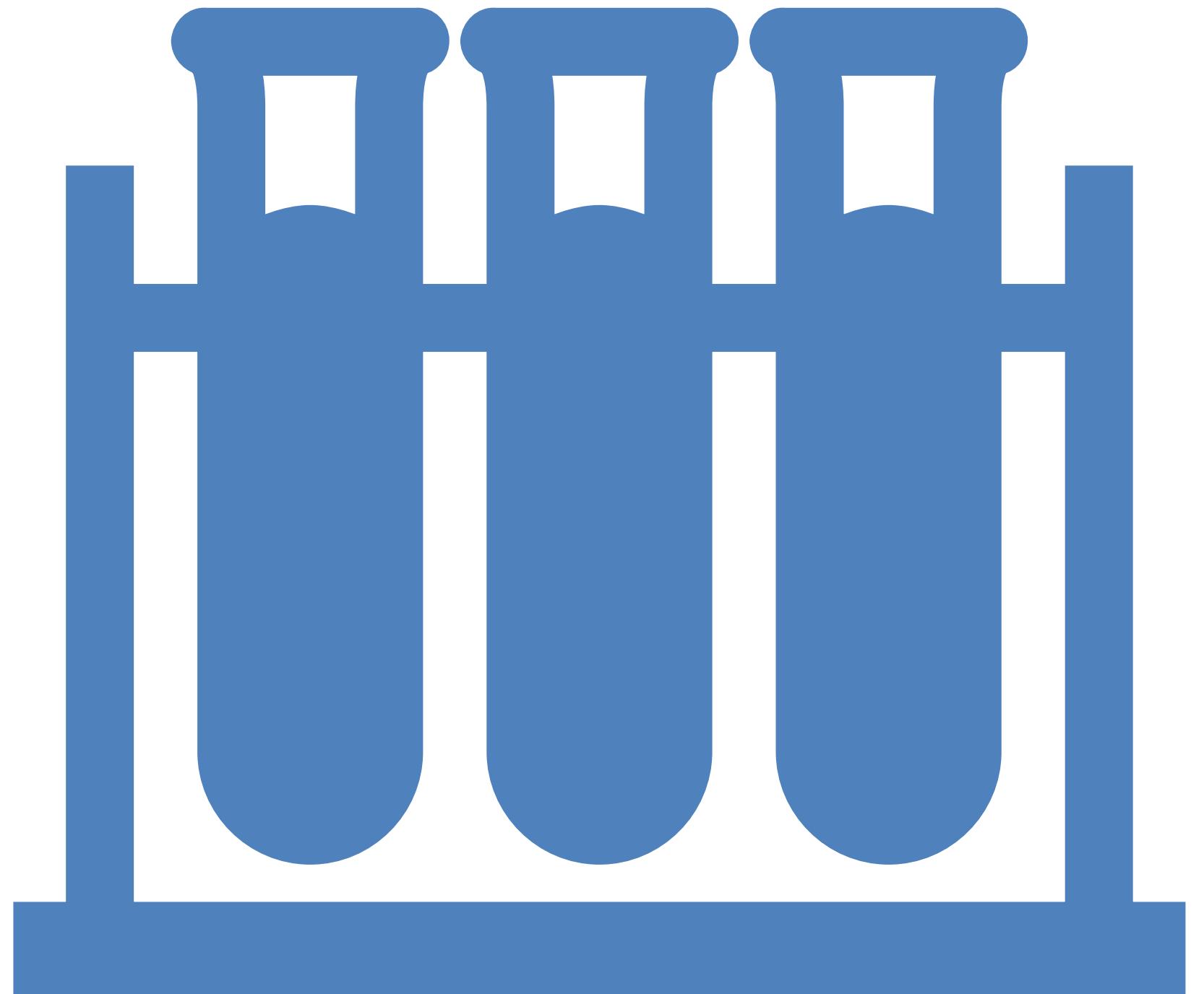


4. INTRO TO VISUALIZATIONS

141

Table Visualizations





Lab 6: Table Visualization

143

1,200

1,100

1,000

900

800

700

600

500

Column Charts

1,200

1,100

1,000

900

800

700

600

500

Bar Charts



Plot

Series

Values

Legend Positioning

- Grouped
- Stacked
- Stacked Percentage

Grid Layout

- None
- Show Percent of Previous

Inner Spacing

- 0px
- 1px

Spacing

- 0px
- 1px

Legend

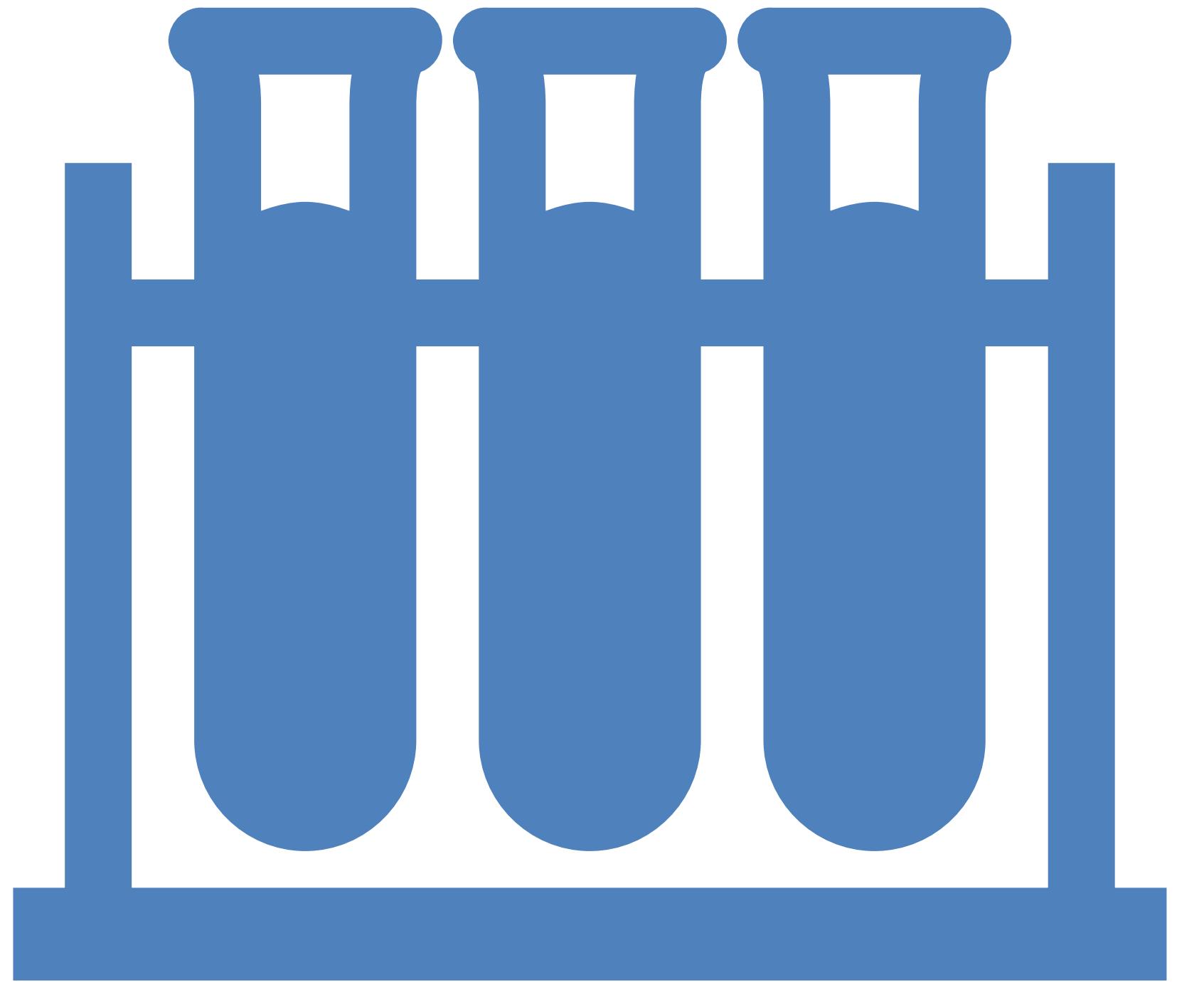
- Hide Legend

Legend Align

- Center
- Left
- Right

Label Displacement

- 0px
- 1px



Lab 7: Bar Visualization

146

Created Date

Jun 3

Jun 5

Jun 7

Jun 9

Scatter plots

250 260 270 280 290 300 310 320 330 340 350 360 370 380

7

Series Index

1

Show Label

Label Type

String

R²

Equation

Label Position

Left

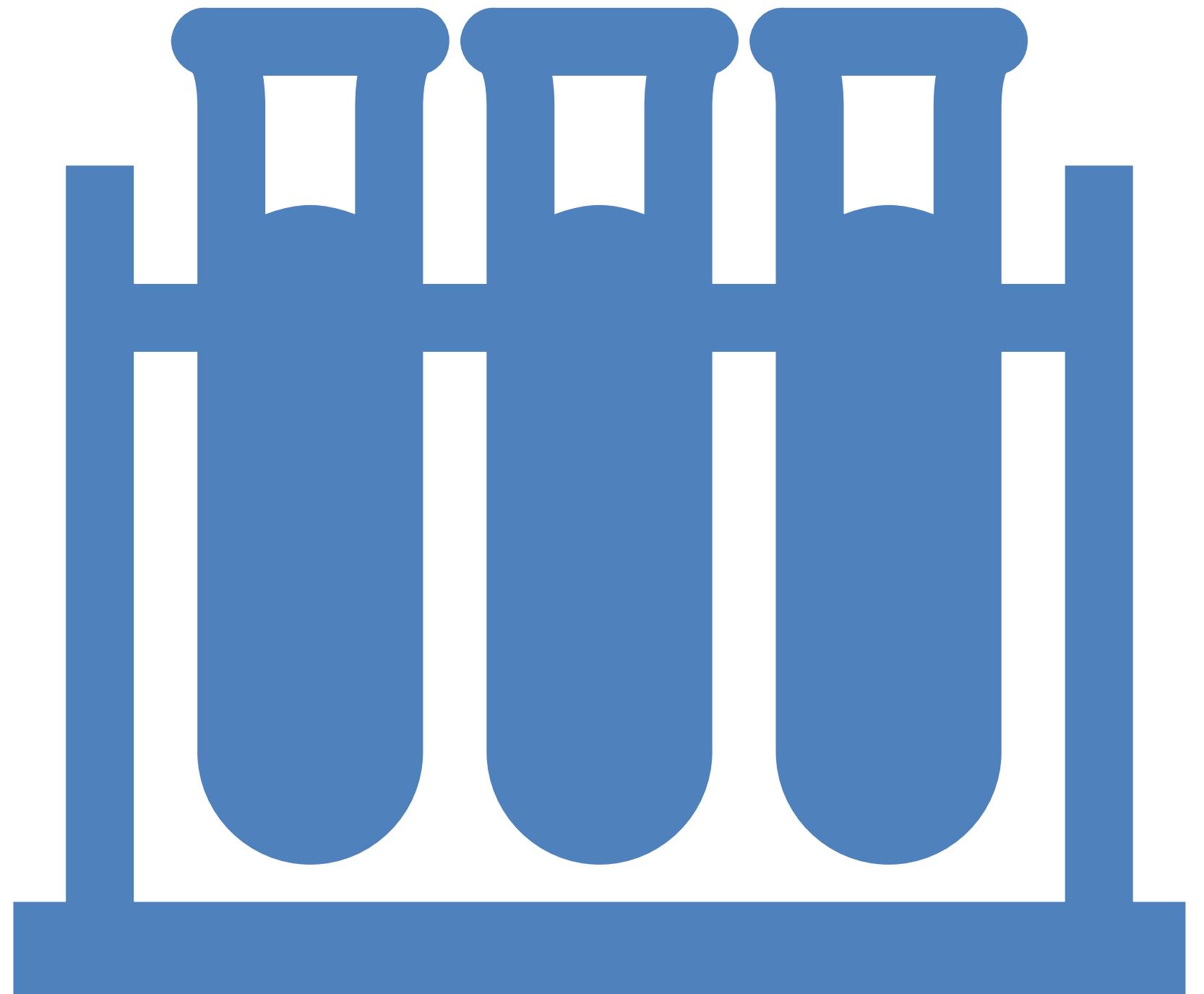
Center

Right

Color



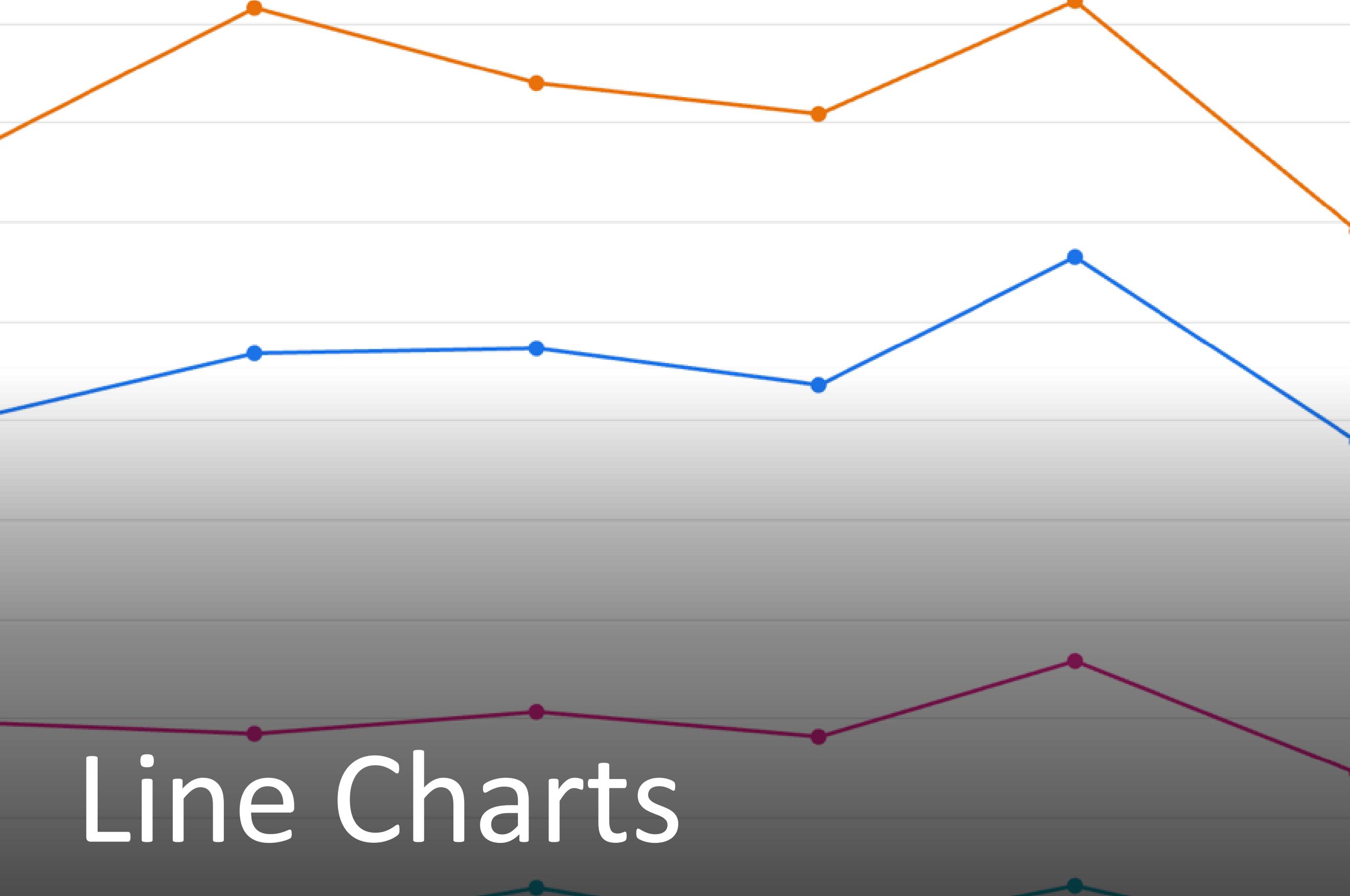
Add Trendline¹⁴⁷



Lab 8: Scatter Visualization

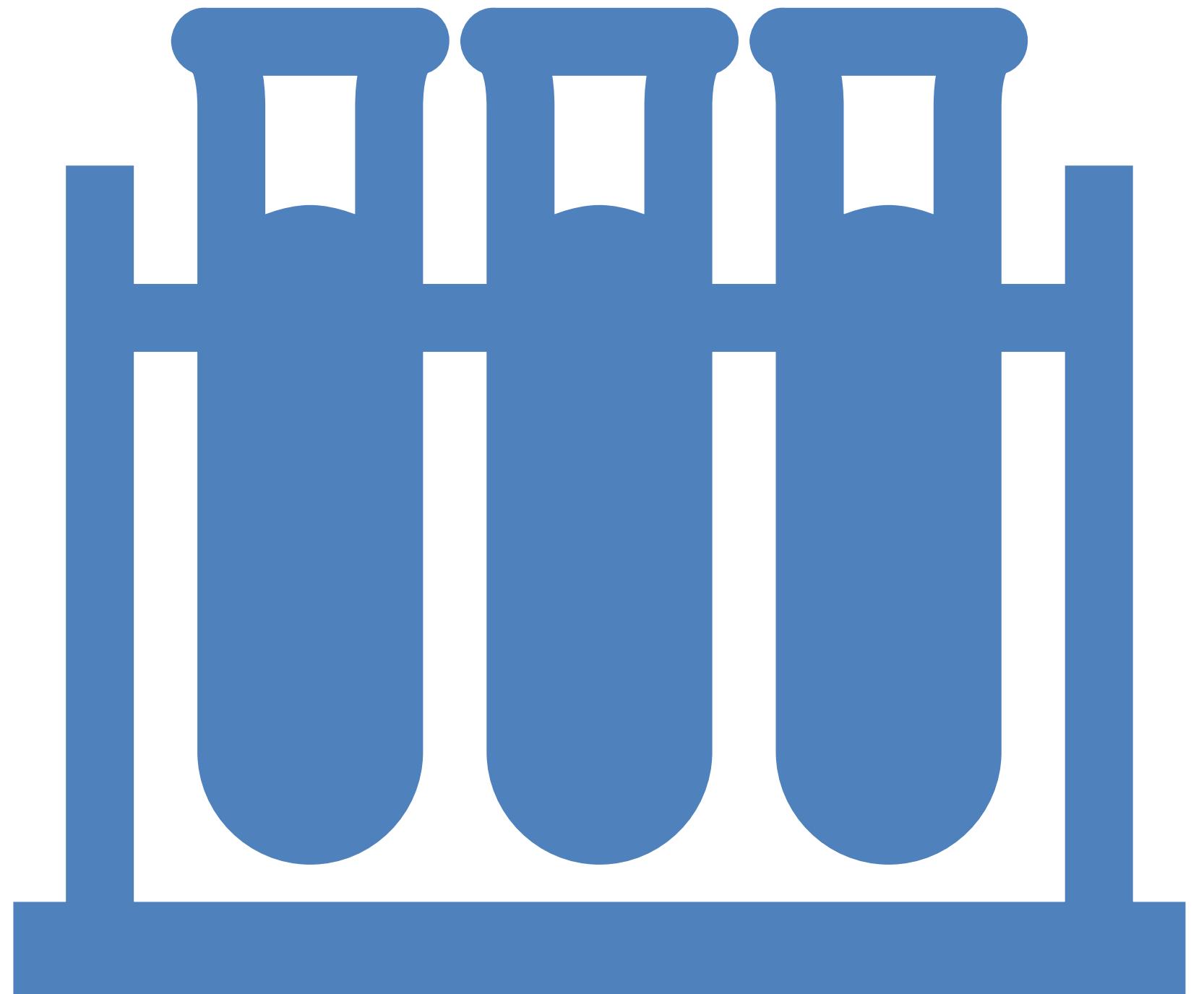
148

Line Charts



Data

Limit Displayed Rows



Lab 9: Line,Area,Pie Chart Visualization

150



Maps

0.00

Demo



Platform

Channel

Country (1)

Active users

Dec 30, 2020

Transactions

6

-64.7%

Percentage Change

Absolute Change

\$ -11

Total Revenue

\$347

-63.8%

\$ -611

Average Purchase Revenue

\$58

+ 2.6%

+\$1

 Product sold
 Product revenue

10

5

0

6

0

Google

Filters

Item Brand

 Type to search

<input checked="" type="checkbox"/> Vietnam	455	Purchase-to-view 7.06%
<input type="checkbox"/> Venezuela	41	-46.7%
<input type="checkbox"/> Uruguay	41	-6.19%
<input type="checkbox"/> United States	44.4K	
<input type="checkbox"/> United Kingdom	3.2K	
<input type="checkbox"/> United Arab Emirates	315	
<input type="checkbox"/> Ukraine	404	
<input type="checkbox"/> Turkey	1K	
<input type="checkbox"/> Tunisia	51	
<input type="checkbox"/> Trinidad & Tobago	23	
<input type="checkbox"/> Thailand	438	

Campus Collection

152

Apparel

Uncategorized Items

Clearance

Demo



Platform

Channel

Country (1)

Active users

Dec 30, 2020

Transactions

6

Percentage Change

-64.7%

Absolute Change

\$ -11

Total Revenue

\$347

-63.8%

\$ -611

Average Purchase Revenue

\$58

+ 2.6%

+ \$1



Looks

 Type to search

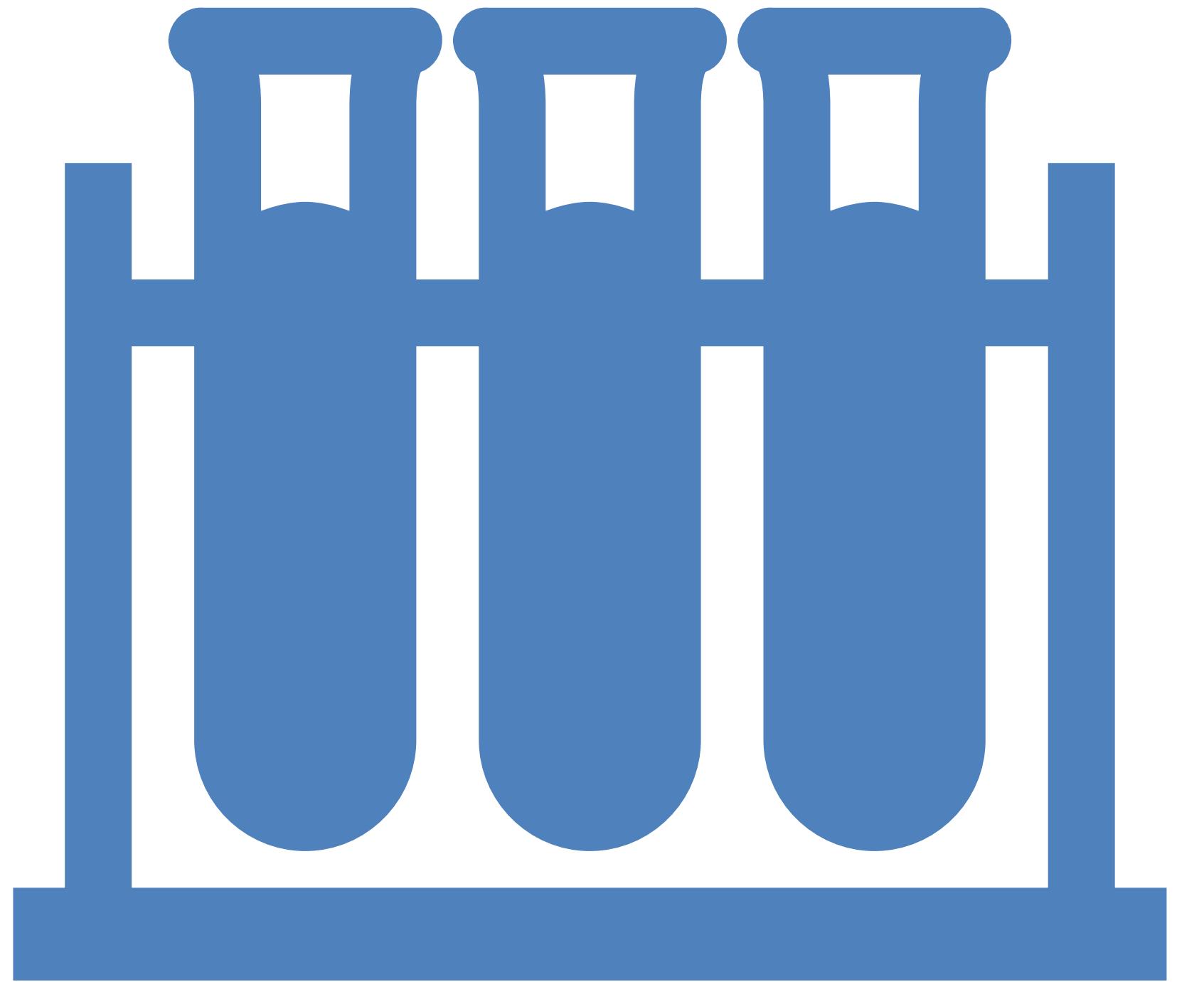
<input checked="" type="checkbox"/> Vietnam	455	Purchase-to-view 7.06%
<input type="checkbox"/> Venezuela	41	-46.7%
<input type="checkbox"/> Uruguay	41	-6.19%
<input type="checkbox"/> United States	44.4K	
<input type="checkbox"/> United Kingdom	3.2K	
<input type="checkbox"/> United Arab Emirates	315	
<input type="checkbox"/> Ukraine	404	
<input type="checkbox"/> Turkey	1K	
<input type="checkbox"/> Tunisia	51	
<input type="checkbox"/> Trinidad & Tobago	23	
<input type="checkbox"/> Thailand	438	

Apparel

Uncategorized Items

Clearance

Campus Collection



Lab 10: Create a Look

154

count by month ❤

12 rows · from cache · 2m ago · America - Los Angeles

Orders Created Date in the year 2019

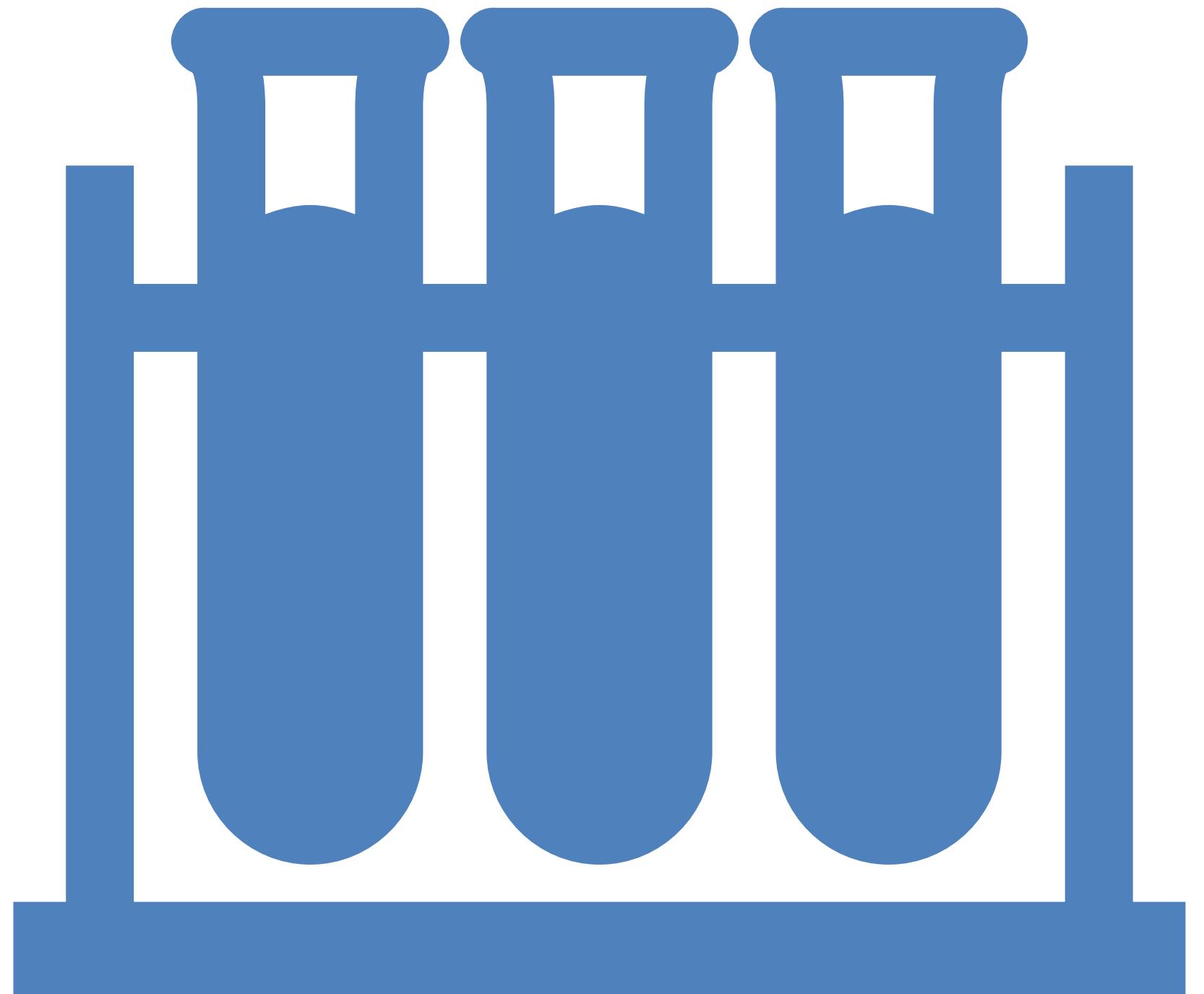
Reset Look | Explore from Here

on

Selected Month

▼ Orders





Lab 11: Organize and Edit a Look

156



▼ Shared

selected

▶ Account Management

Admin

Alliances

Business Operations

Company A's Content

▶ Customer Success

Customers

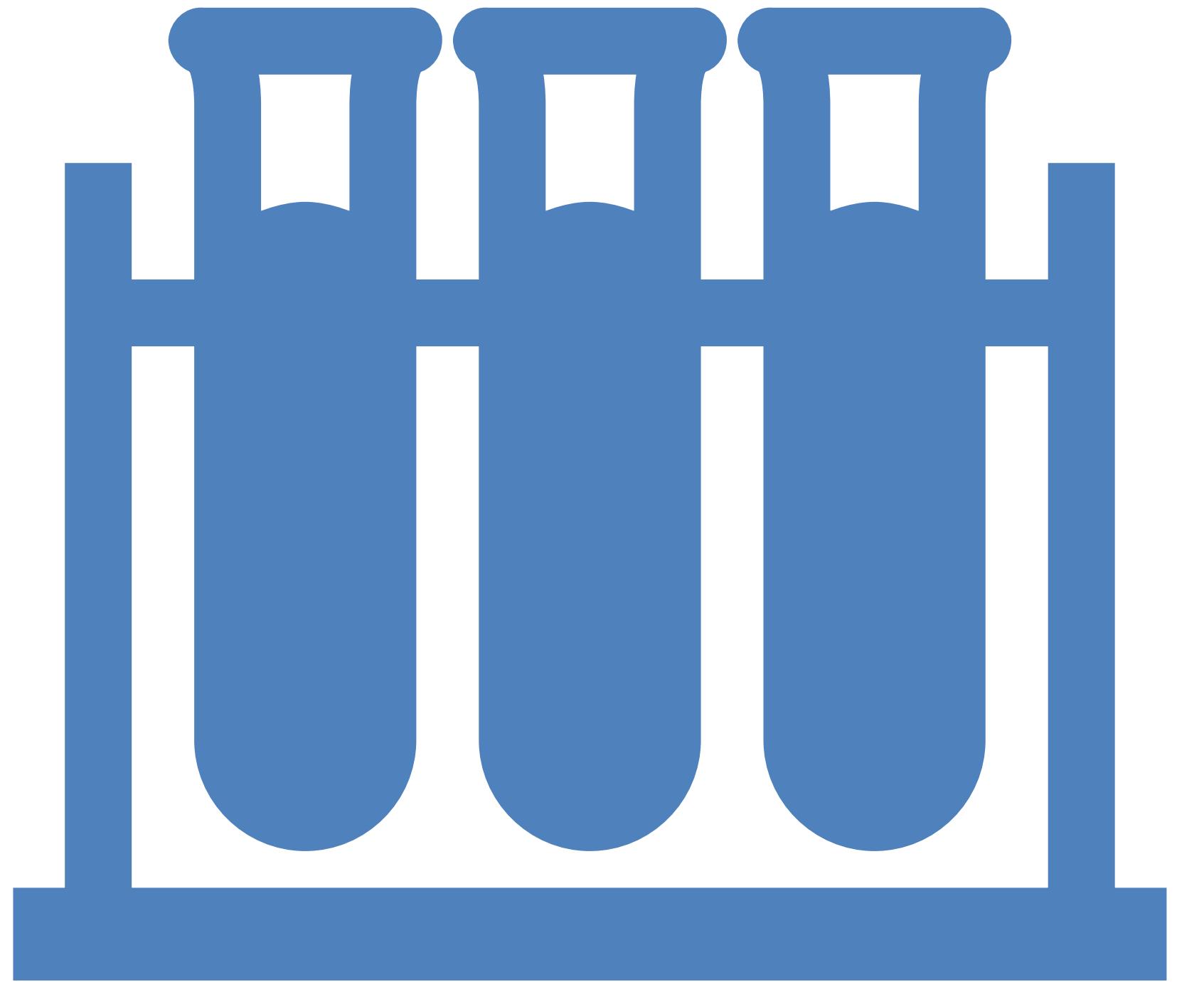
▶ Engineering

Finance

Human Resources

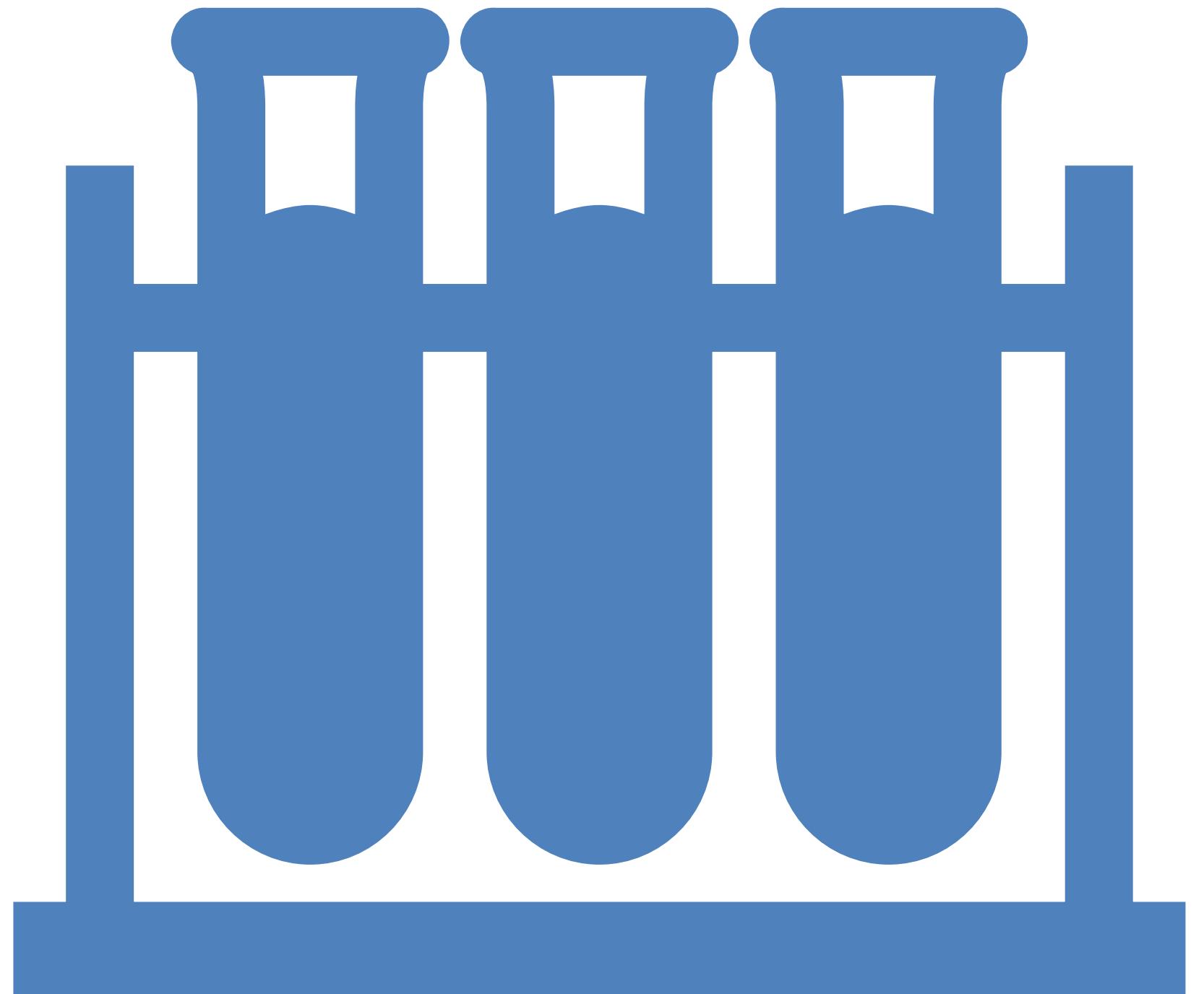
Look Options

▶ Users



Lab 12: Filter a Look

158



Lab 13: Using Operators in Looker Filters

159

Pacific Northwest

3

4

is Oregon



Group Name

Other

5

is

Oregon



Group remaining values

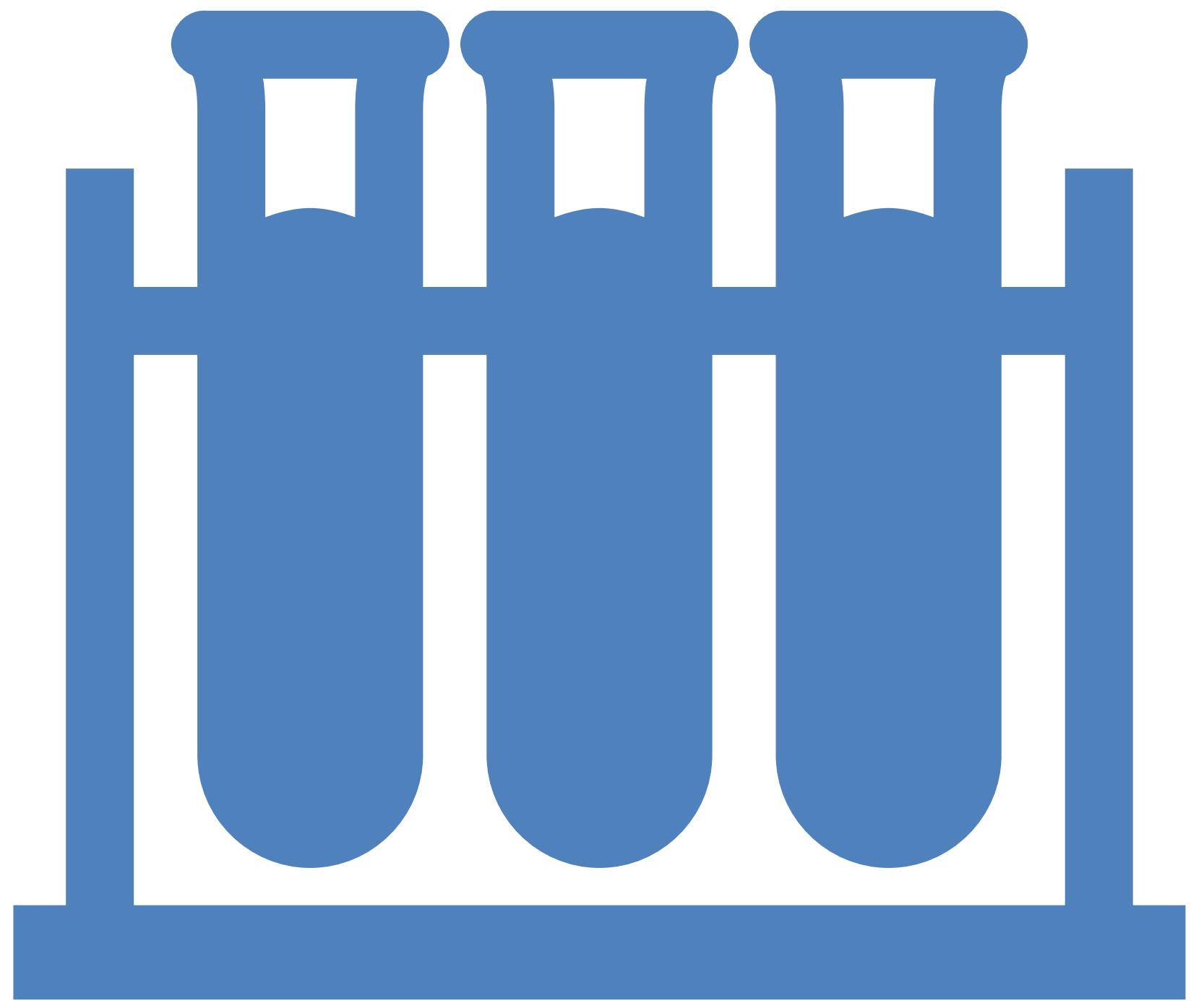
Field name

State Groups

+ Add description

Custom Fields Intro and Dimensions

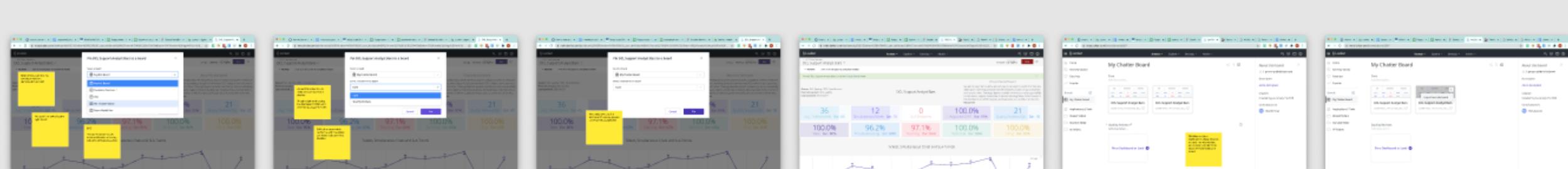
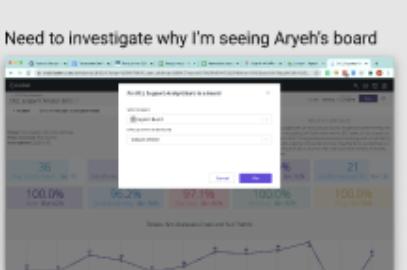
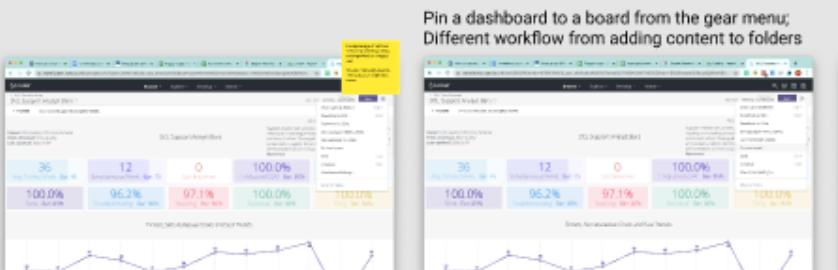
ave



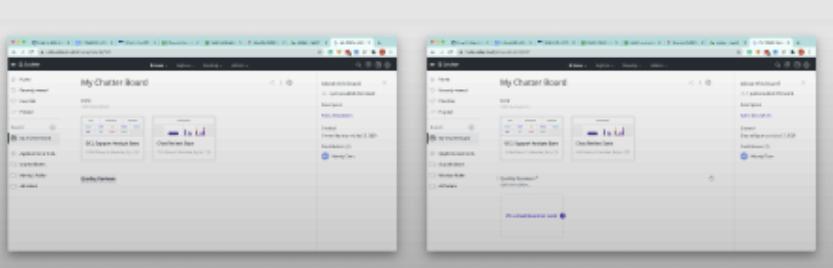
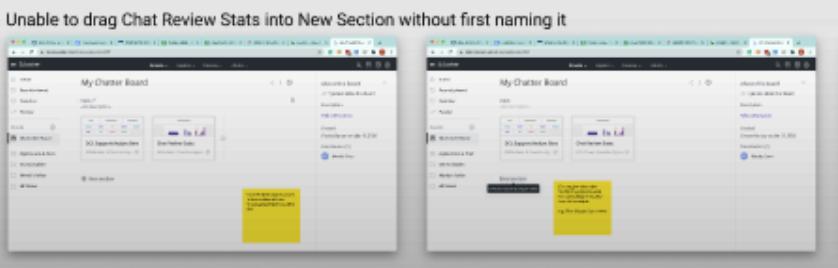
Lab 14: Table Calculations

161

Adding dashboard to board

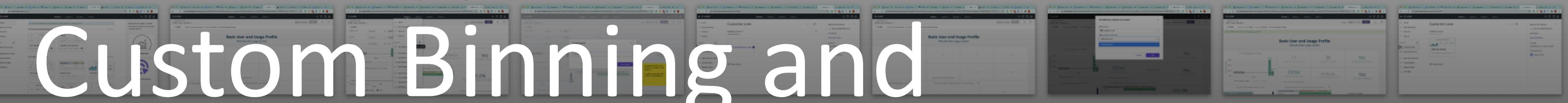


Editing a board

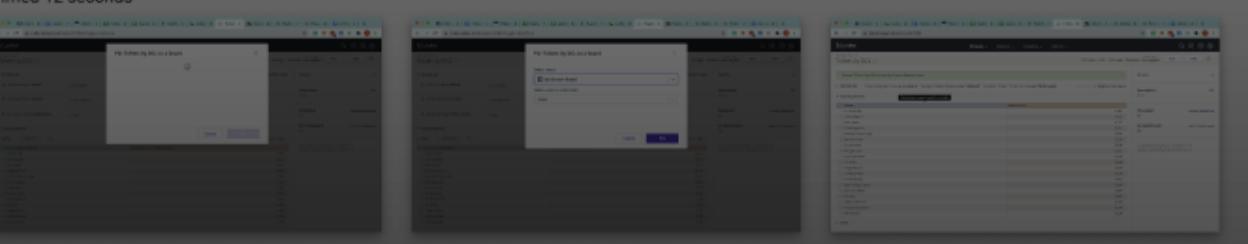
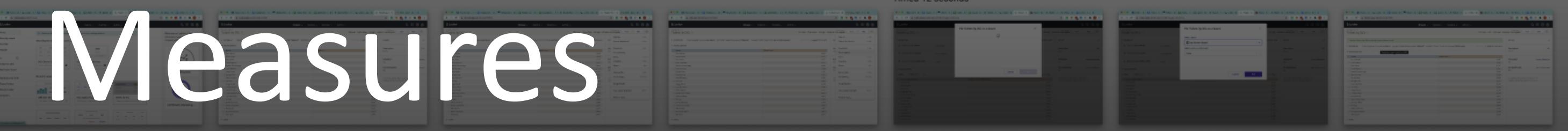


Creating a board from dashboard (from Browse menu)

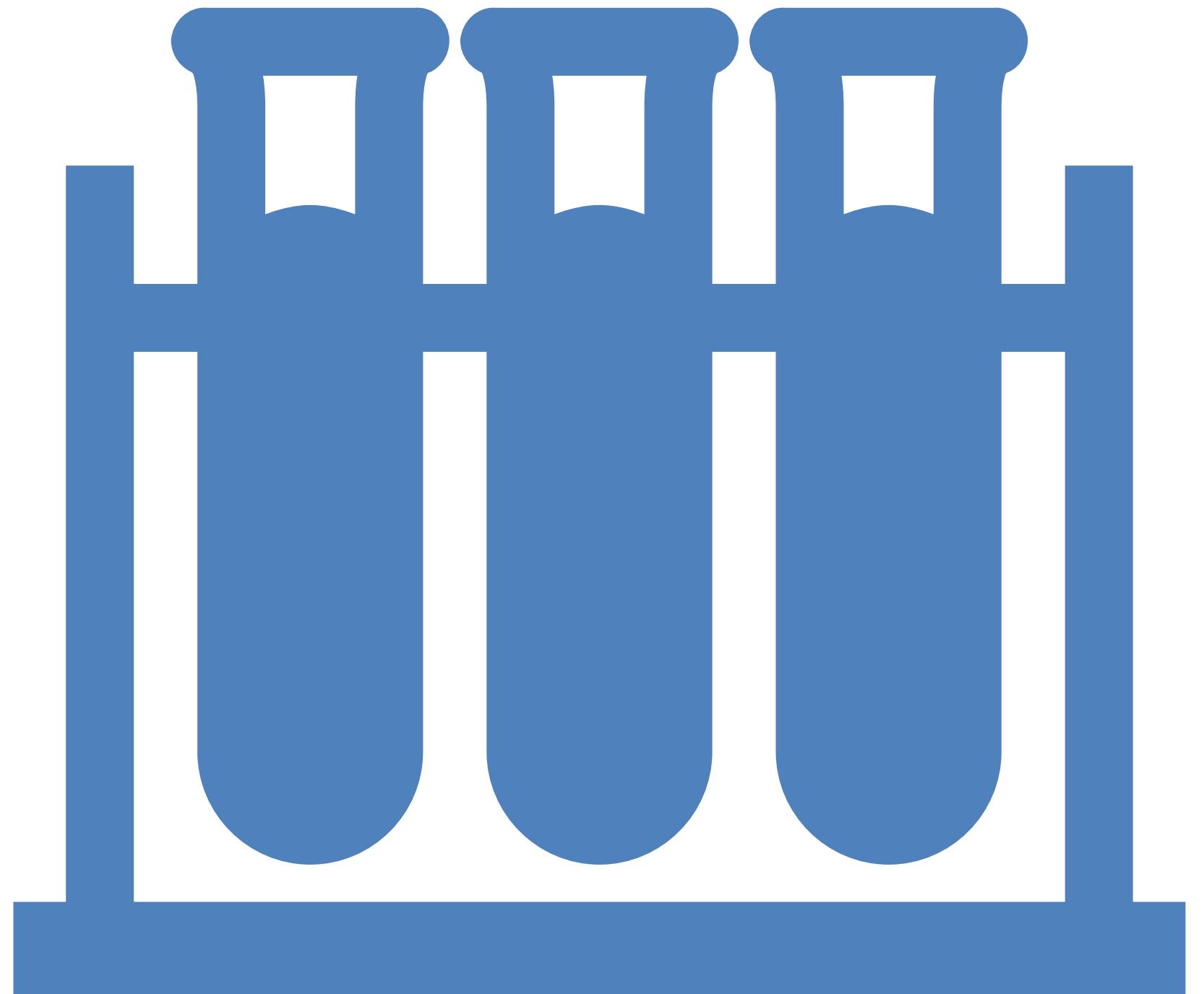
Want to add GBR User Details to a new board;
create board from navigation menu - goes to the board and have to click on the back arrow to go back to dashboard



Adding a Look to a board



Custom Binning and Measures



Lab 15: Custom Measures

163

```
 ${orders.is_first_purchase} AND if  
   (${orders.amount} - ${orders.cost} > 0,  
    yes,no)
```

`value_1 > value_2`

Returns `Yes` if `value_1` is greater than
`value_2`, and `No` otherwise

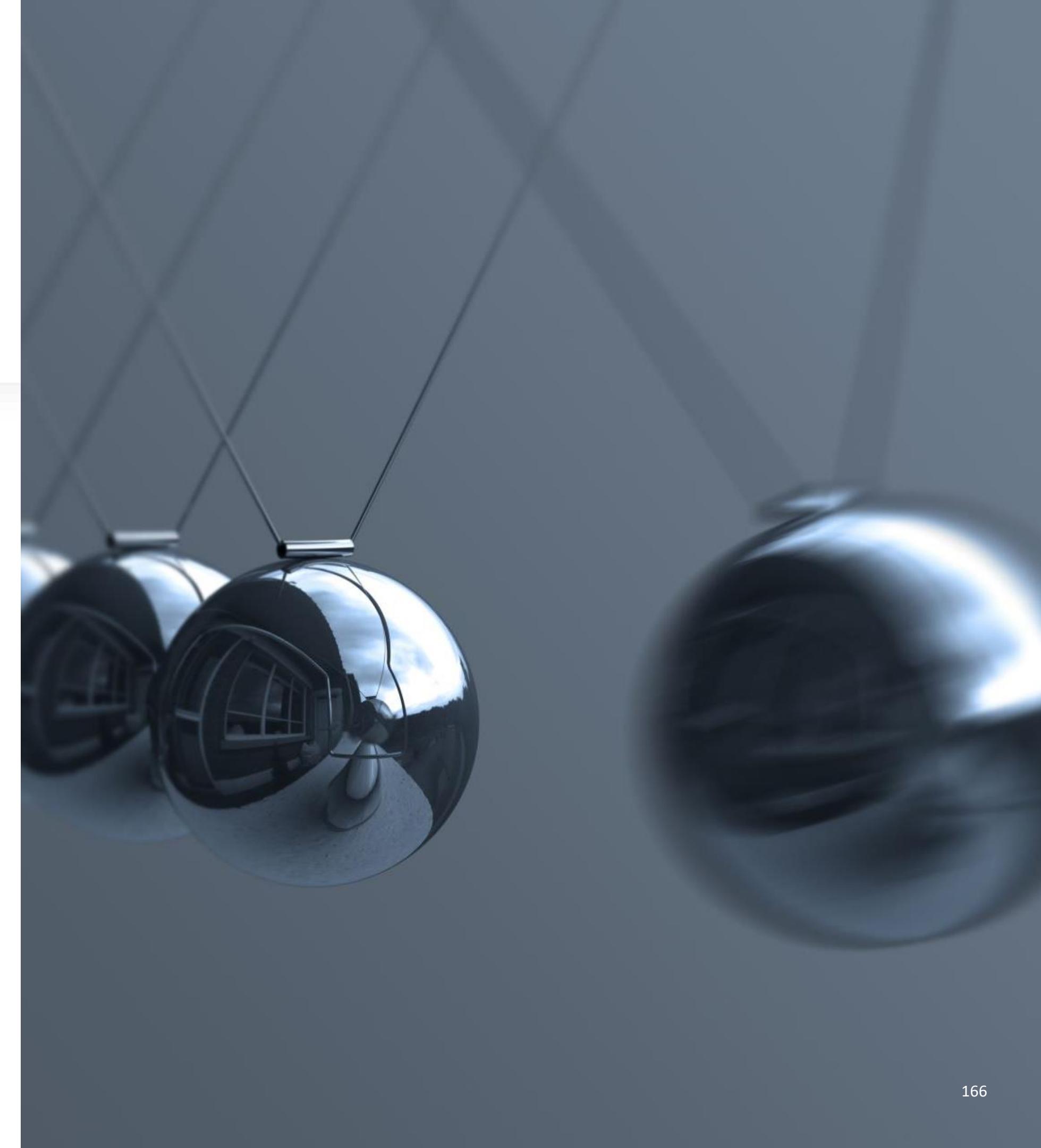
Looker Expressions

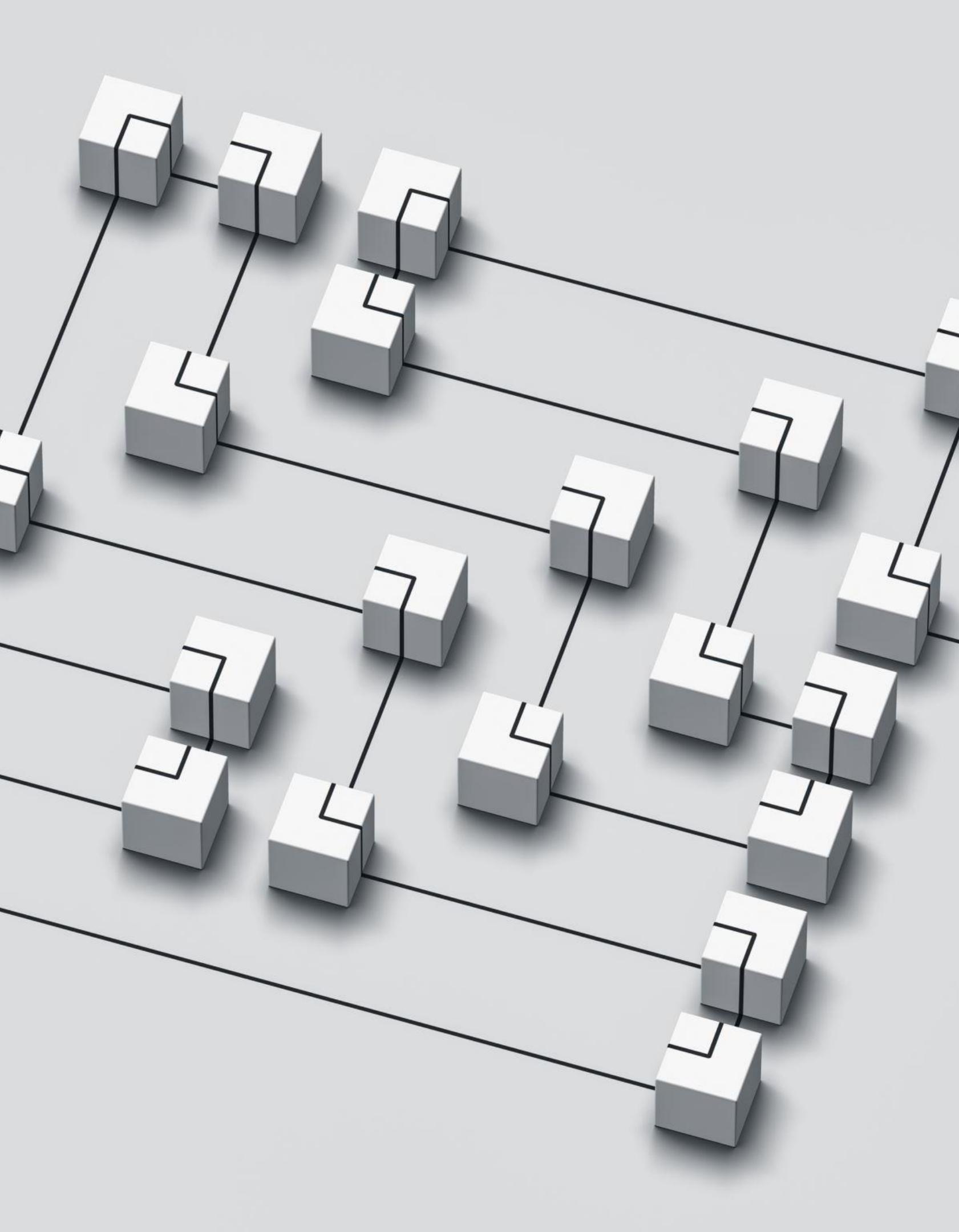


5. ADVANCED EXPLORES AND LOOKML

LookML Refresher and Best Practices

- **What is LookML?**: LookML is Looker's modeling language used to define data structures, logic, and relationships.
- **Best Practices**: Organize your models with clear naming conventions and modularize code using reusable views and dimensions.
- **Error Handling**: Use Looker's validation tools to catch errors in LookML before deploying models.



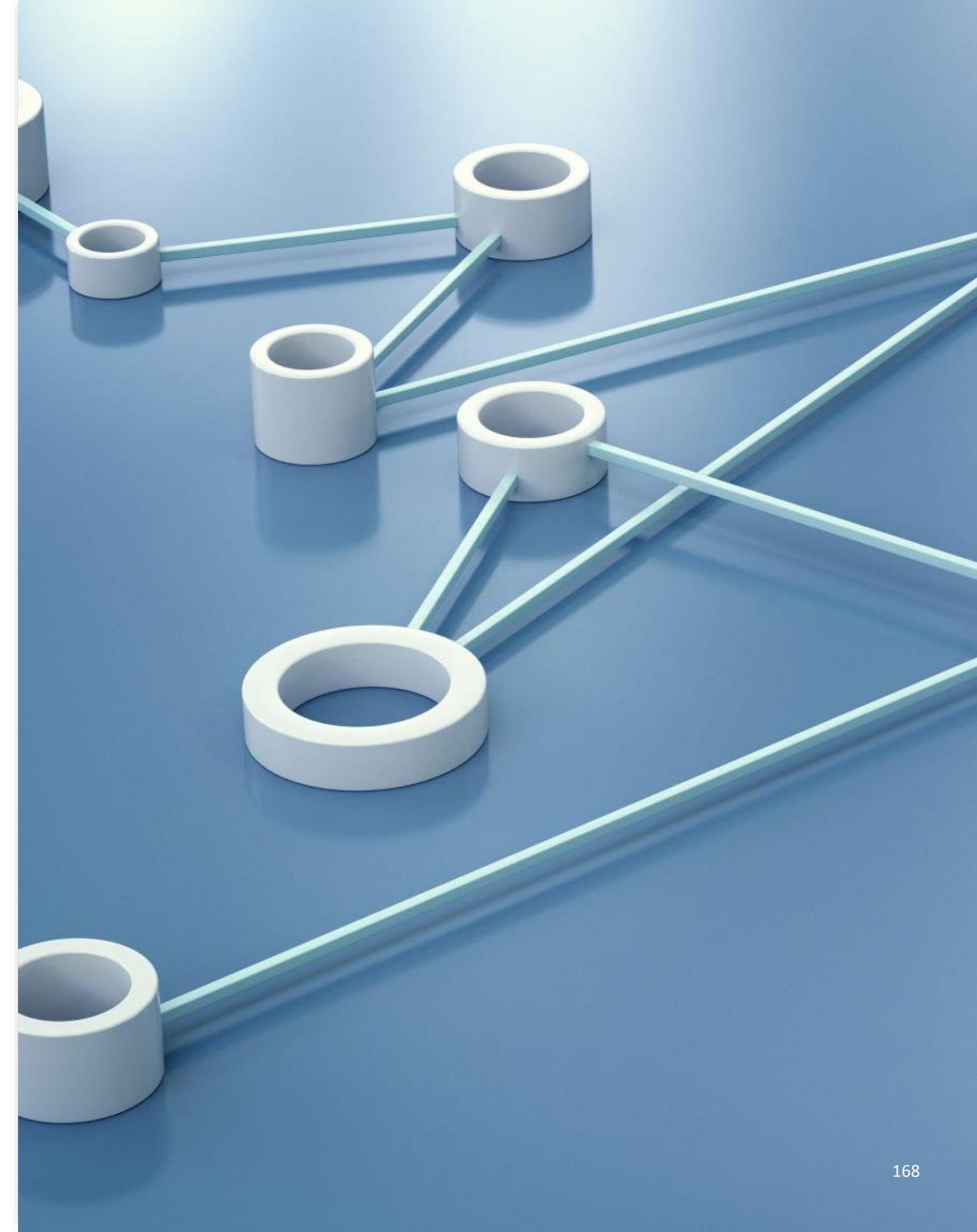


Creating Derived Tables and Data Transformations

- **What are Derived Tables?**: Derived tables are custom SQL queries within LookML that create virtual tables for more complex analysis.
- **Best Use Cases**: Use derived tables for pre-aggregating large datasets or simplifying complex joins.
- **How to Create**: Defined in LookML using the `sql:` block, derived tables are easy to customize.

Managing Access Controls and Data Permissions

- **Row-Level Permissions:** Limit access to specific data rows based on user roles.
- **Field-Level Permissions:** Control which fields or measures users can see in Explorers.
- **Best Practices:** Always adhere to the principle of least privilege, granting users only the access they need.



6. ORGANIZING AND SHARING CONTENT WITH FOLDERS AND BOARDS



Introduction to Folders and Boards in Looker

What are Folders?: Folders are used to organize reports, dashboards, and Looks in Looker.

What are Boards?: Boards allow you to curate and group relevant content for easy discovery.

Why Use Them?: Efficient organization improves collaboration and helps users quickly access relevant content.



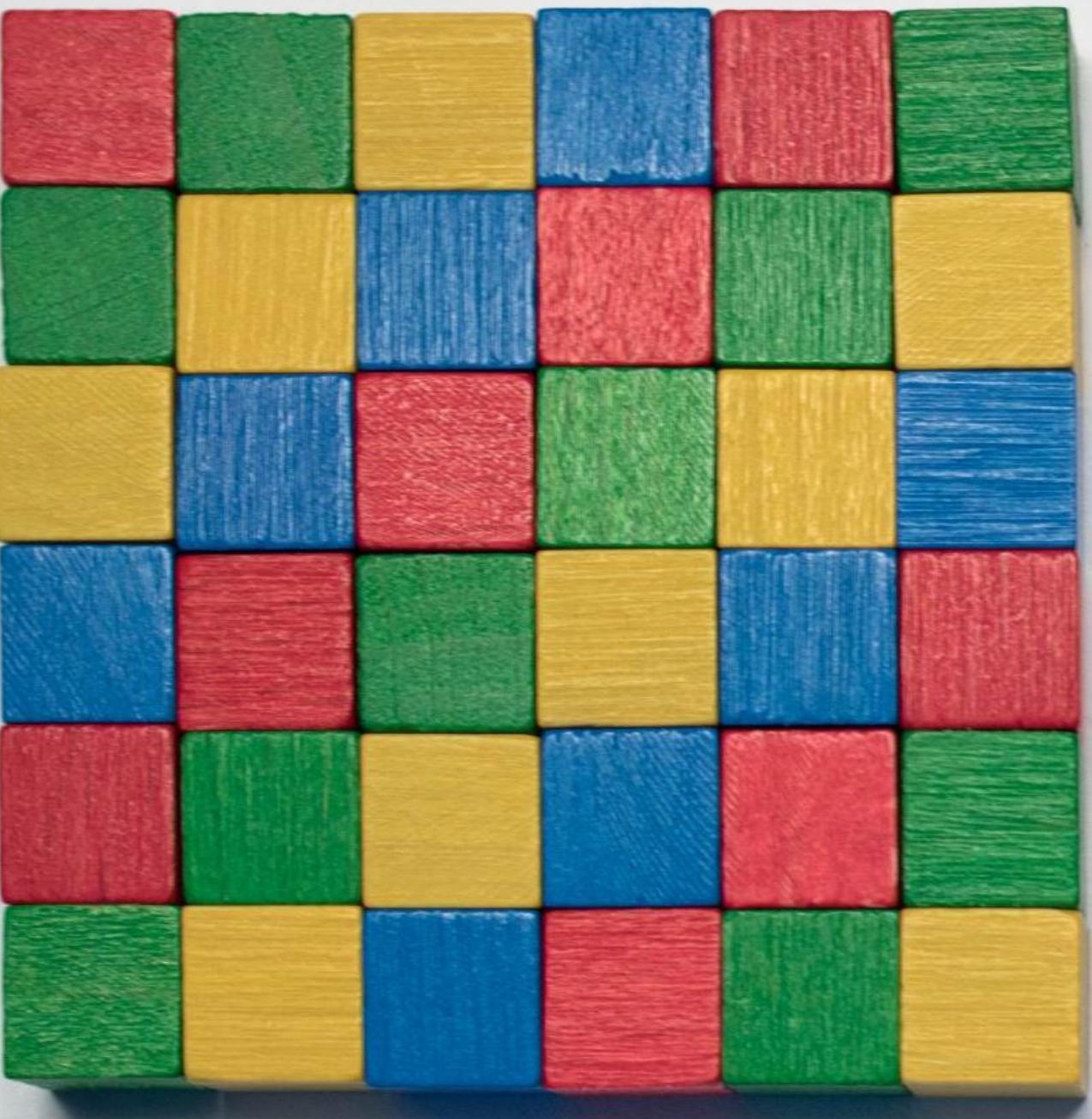
Creating and Managing Folders for Organizing Content

- **Creating Folders:** Users can create nested folders to organize content hierarchically.
- **Managing Content:** Drag and drop content into appropriate folders for better organization.
- **Renaming and Deleting:** Rename, move, or delete folders to maintain a clean environment.



Setting Up Boards for Easy Content Discovery

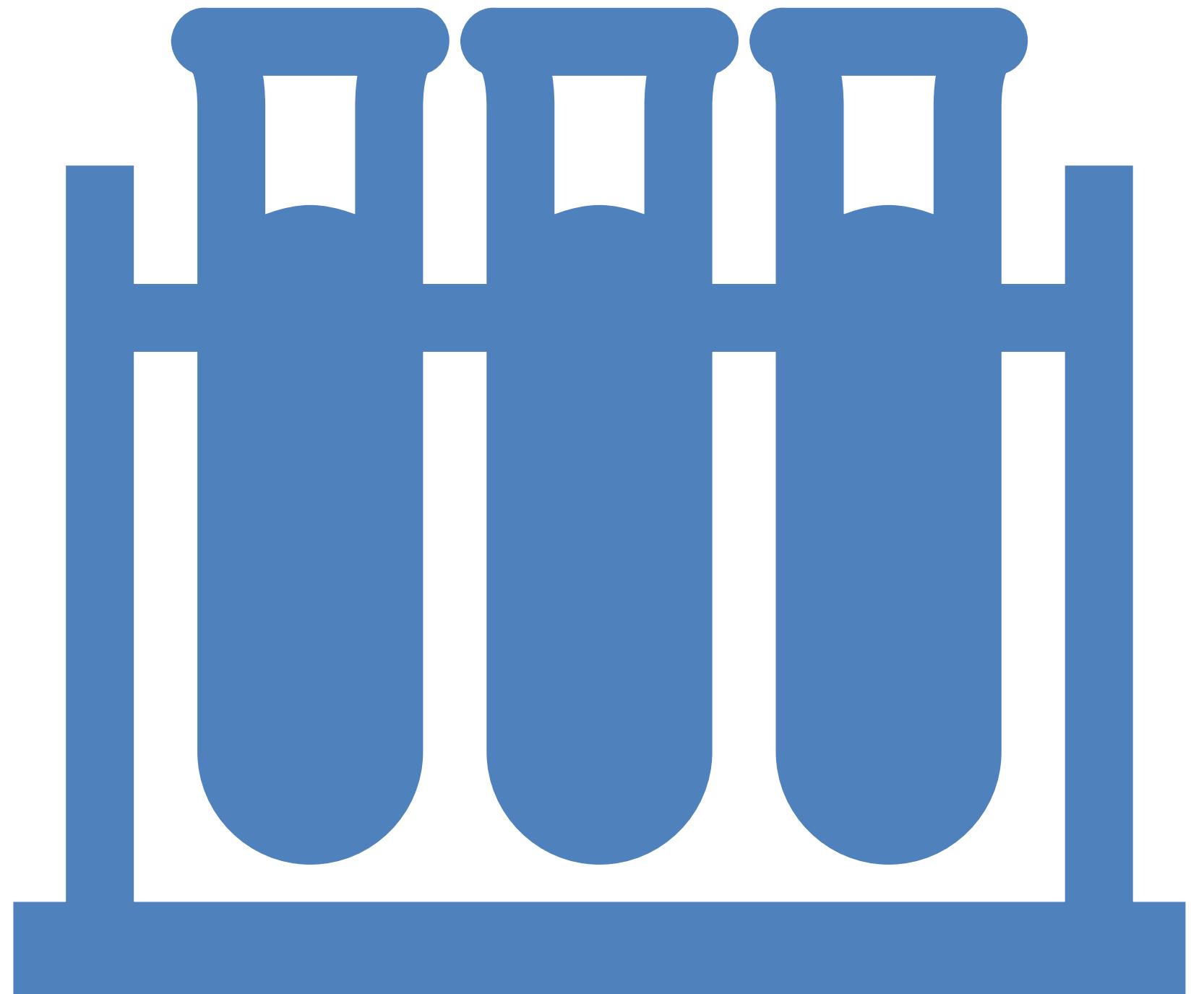
- **What are Boards Used For?**: Boards group relevant content for specific teams or purposes.
- **Adding Content to Boards**: Drag and drop Looks and dashboards into boards.
- **Personalized Layout**: Arrange content in a logical order for easy discovery.



Sharing Folders and Boards with Different User Roles and Permissions

- **User Roles and Permissions:** Control who can view, edit, or manage content in folders and boards.
- **Assigning Access:** Share folders and boards with specific user roles or groups.
- **Best Practices:** Apply the principle of least privilege to limit access to necessary content.





Lab 16: Download and Organize Data

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7. Dashboards Design and Sharing



Dashboard 2

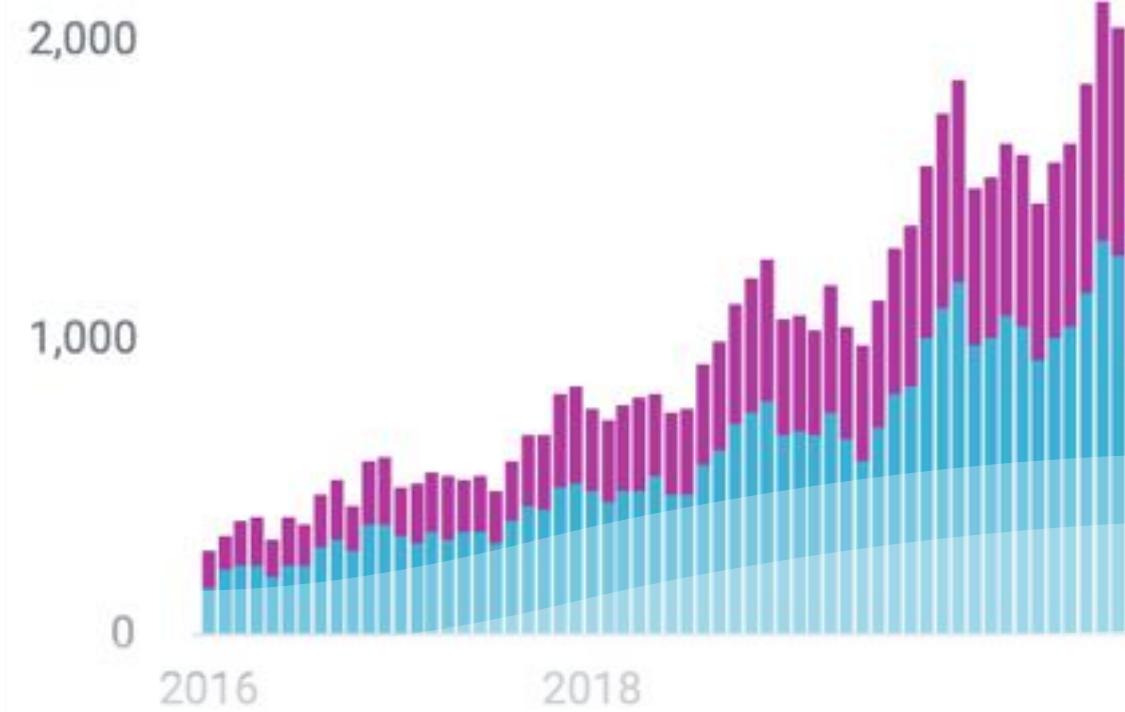
176

Organic X

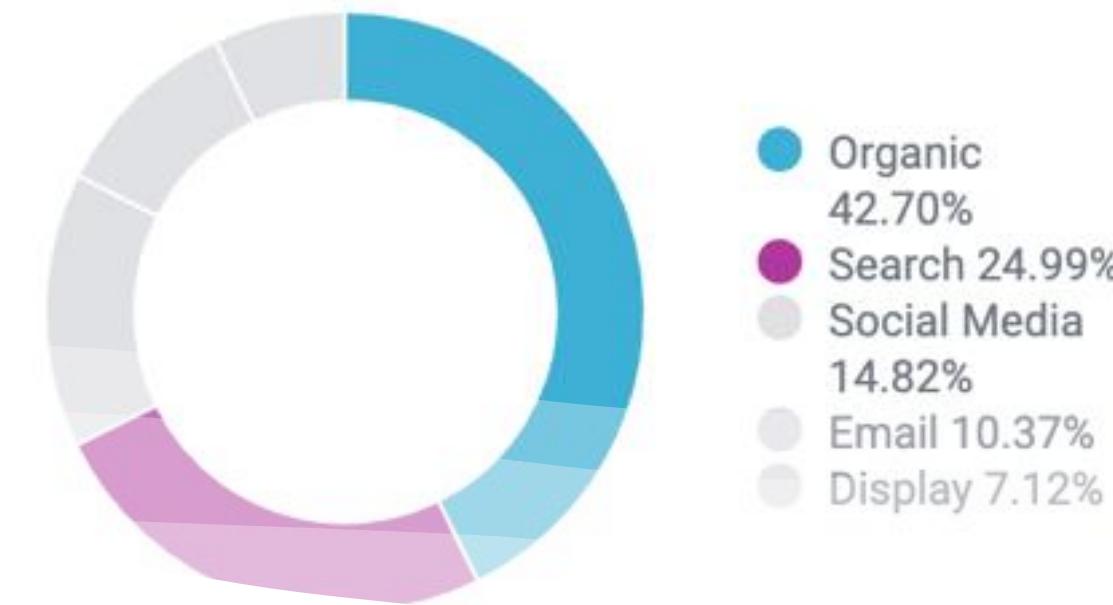
Search X

California X

Users Acquired over Time



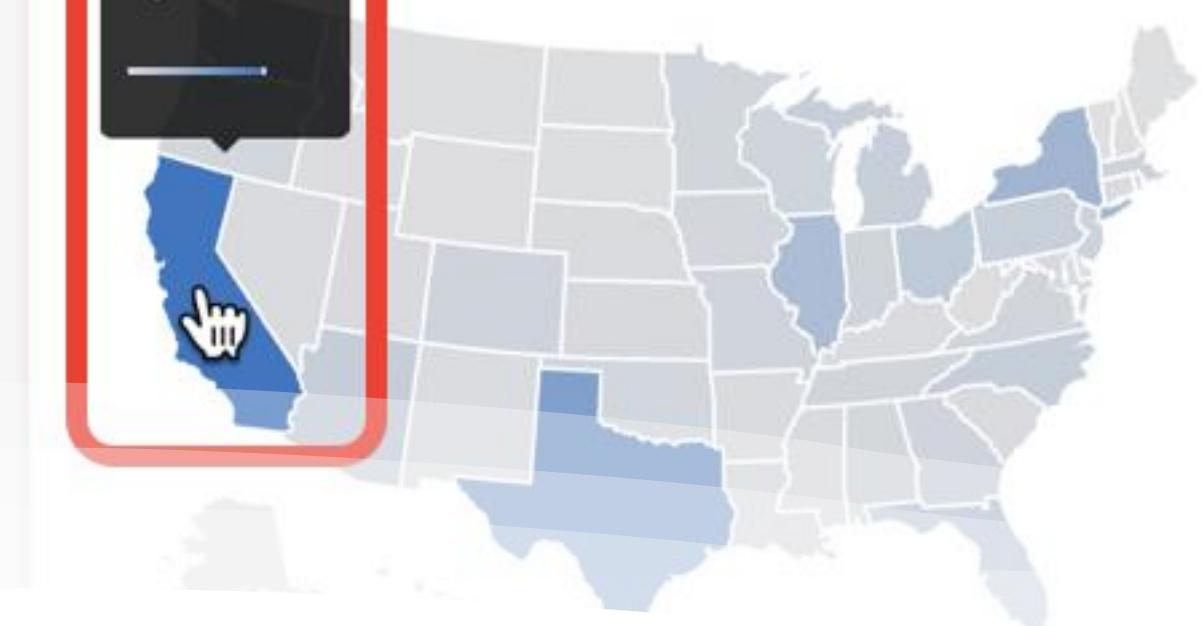
Users by Acquisition Source



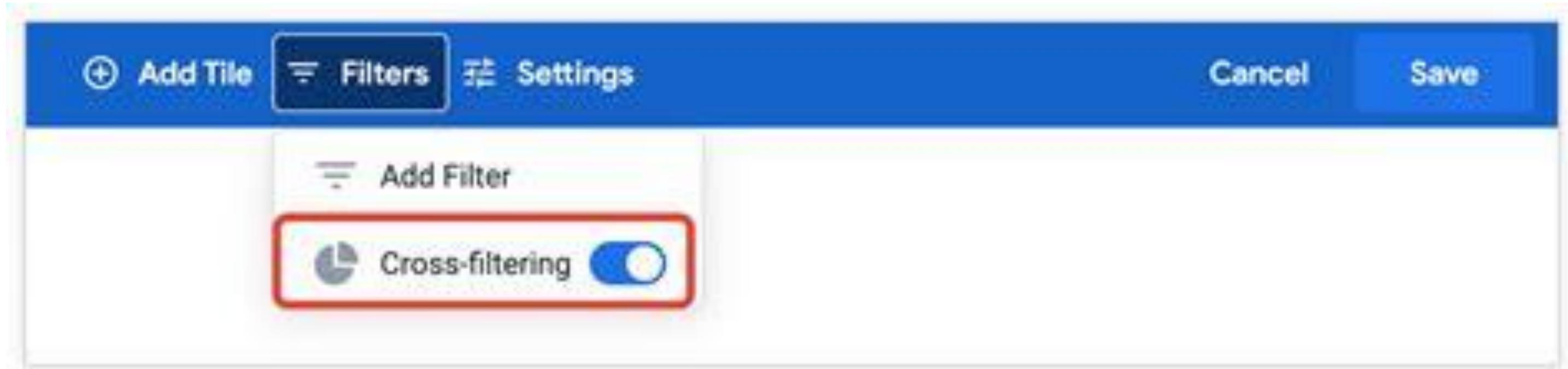
State
California
Count
3,929

—

Users by State

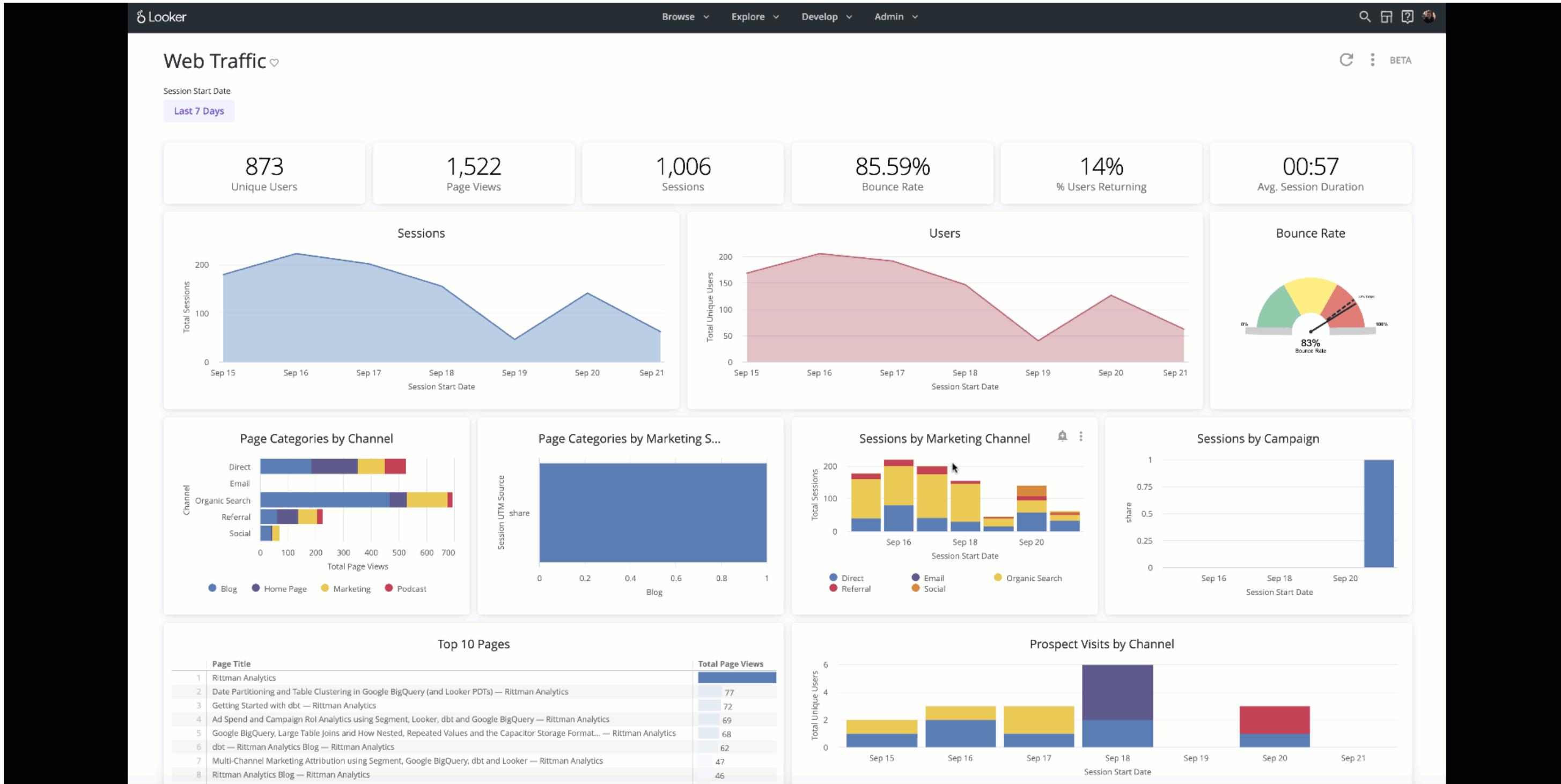


Dashboard Filters



Dashboard Cross Filtering and Settings

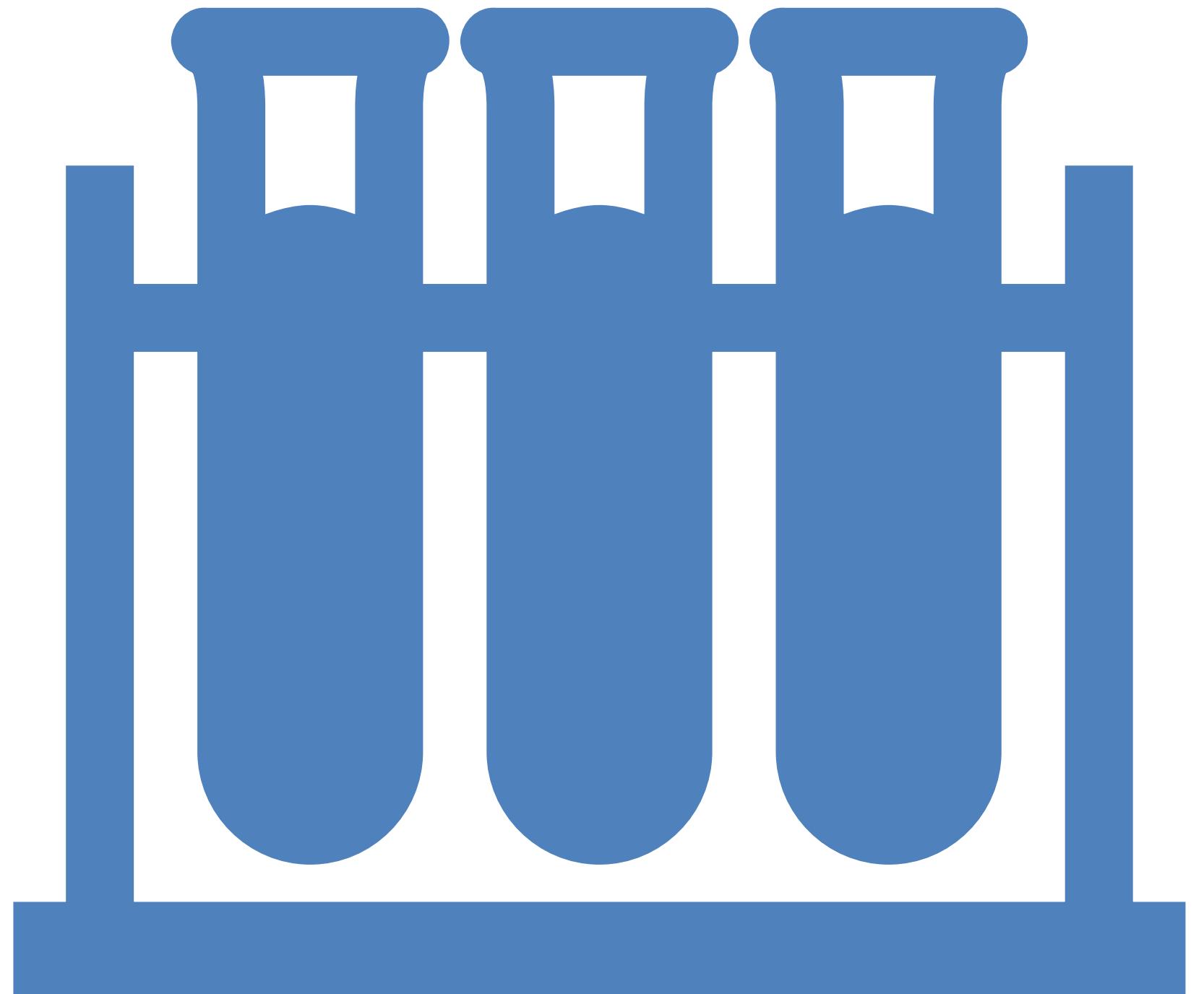
178



Dashboard Options

A photograph of a colorful board game scene. In the foreground, there's a yellow pawn on the left, a wooden pawn in the center, a red six-sided die showing three faces on the right, and a green plastic cup at the bottom left. The background features a green board with various colored circles (black, white, yellow, orange, red, purple) and some small ladders or paths. A white rectangular box with a thin black border is positioned in the upper-left area of the image, containing the word "Tricks".

Tricks

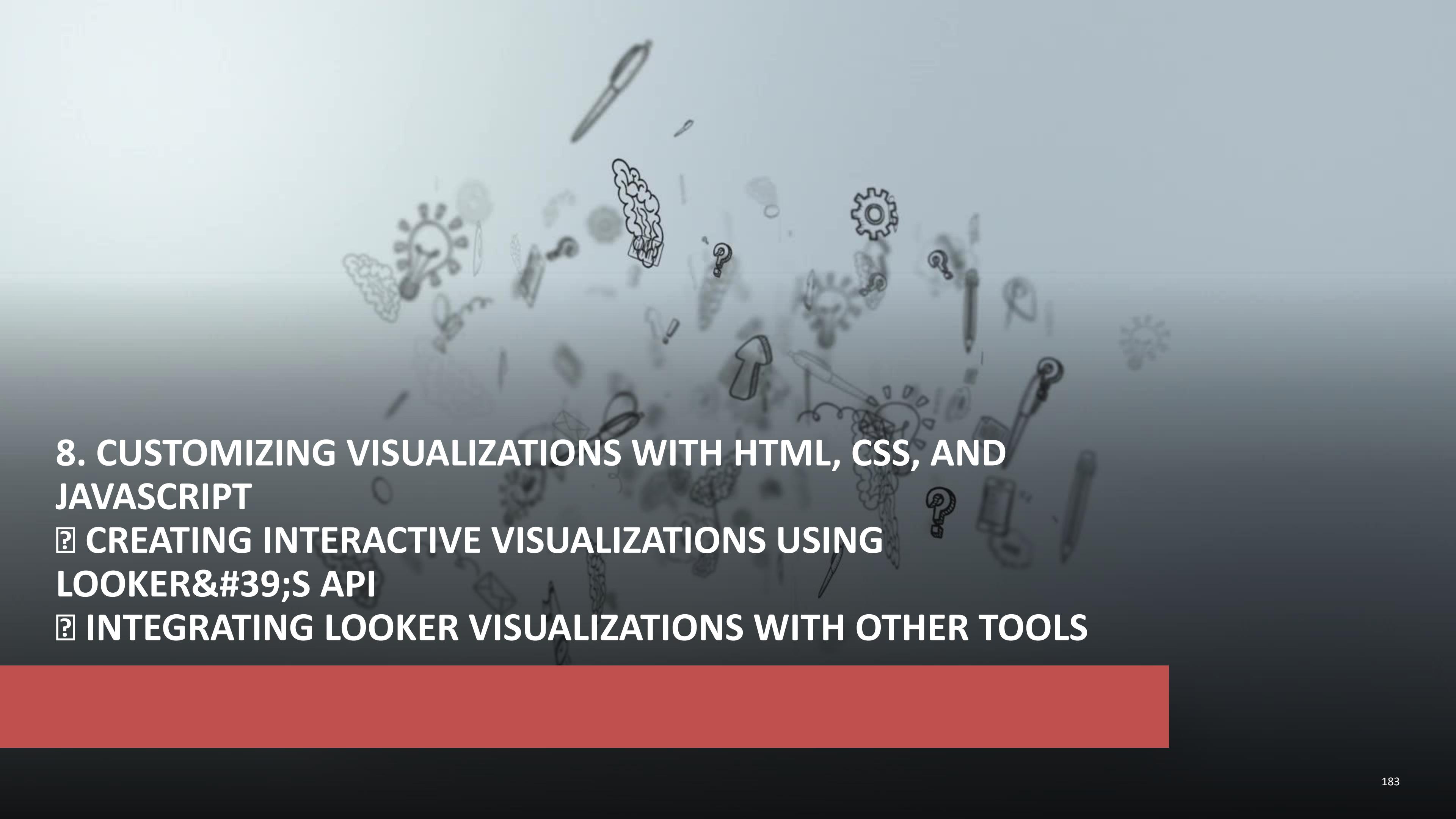


Lab 17: Dashboards

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Tricks 2



8. CUSTOMIZING VISUALIZATIONS WITH HTML, CSS, AND JAVASCRIPT

- ❑ CREATING INTERACTIVE VISUALIZATIONS USING LOOKER'S API
- ❑ INTEGRATING LOOKER VISUALIZATIONS WITH OTHER TOOLS

Customizing Visualizations with HTML, CSS, and JavaScript

- **Why Customize?**: Looker allows customization for more flexible and engaging visualizations.
- **Using HTML and CSS**: Add custom styling to elements such as text, colors, and layout.
- **JavaScript for Interactivity**: Use JavaScript to add interactive features like tooltips or dynamic elements.

Creating Interactive Visualizations Using Looker's API

Looker API Overview: The API allows you to embed and extend Looker visualizations.

Interactivity with Filters: Use Looker's API to create visualizations with real-time filters and user controls.

Custom Data Pipelines: Fetch and manipulate data from Looker in real-time for dynamic visualizations.

Integrating Looker Visualizations with Other Tools

01

Embedding Looker in Web Apps: Integrate Looker visualizations into websites or web apps using iframes or APIs.

02

Connecting with Business Tools: Embed Looker dashboards within tools like Salesforce or Slack for seamless data access.

03

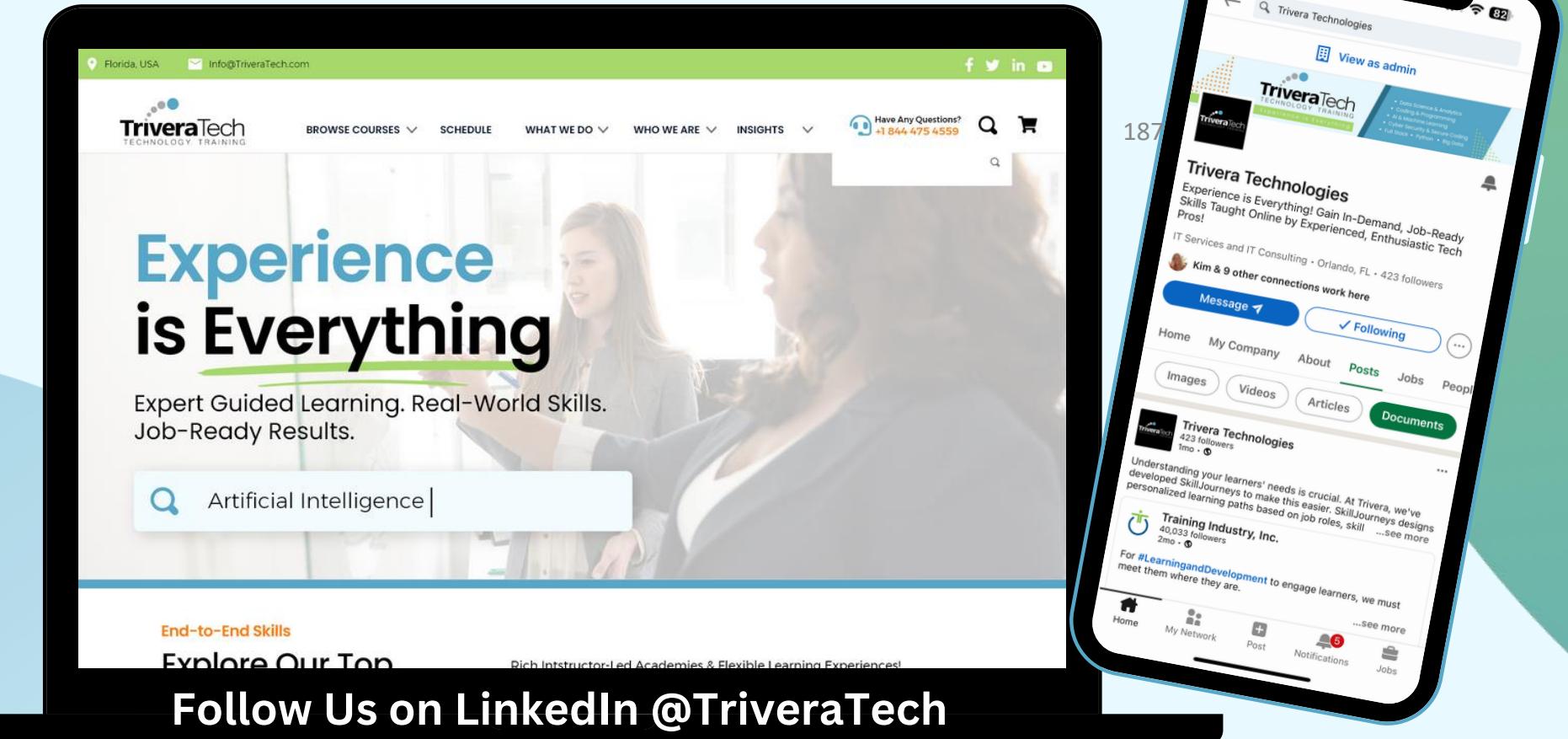
Automating Reports and Alerts: Use integrations to send automated reports or trigger alerts based on data thresholds.

Any Questions? Thanks for joining us!

We appreciate the time you spent with us today.

To Continue Your AI Skills Journey:

- Review the companion tip guide: **AI for All: Ensuring Safe Use in Your Workplace**
- Explore our 50+ courses in end-to-end AI skills at www.TriveraTech.com or contact Info@triveratech.com
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- Deep Learning, LLMS & Advanced Skills
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- Data Literacy, Data Science & Data Engineering
- PowerBI, Tableau, Oracle, Microsoft, Looker
- Cloud Foundation to Engineering
- Azure / AWS / GCP
- Python
- Full Stack Web Development & Mobile
- Coding / Intro to Advanced: Java, .Net, C++
- Secure Coding & Cybersecurity
- And Much More
- Onsite / Online / Blended / Self-Paced
- Training for Individuals, Teams or Enterprise Solutions
- Boot Camps / SkillJourneys / Assessments / Coaching / End to End Skills Programs