

Phuse: DV04

Get the full picture of your data with SAS

How to turn a billion data points into one actionable
insight

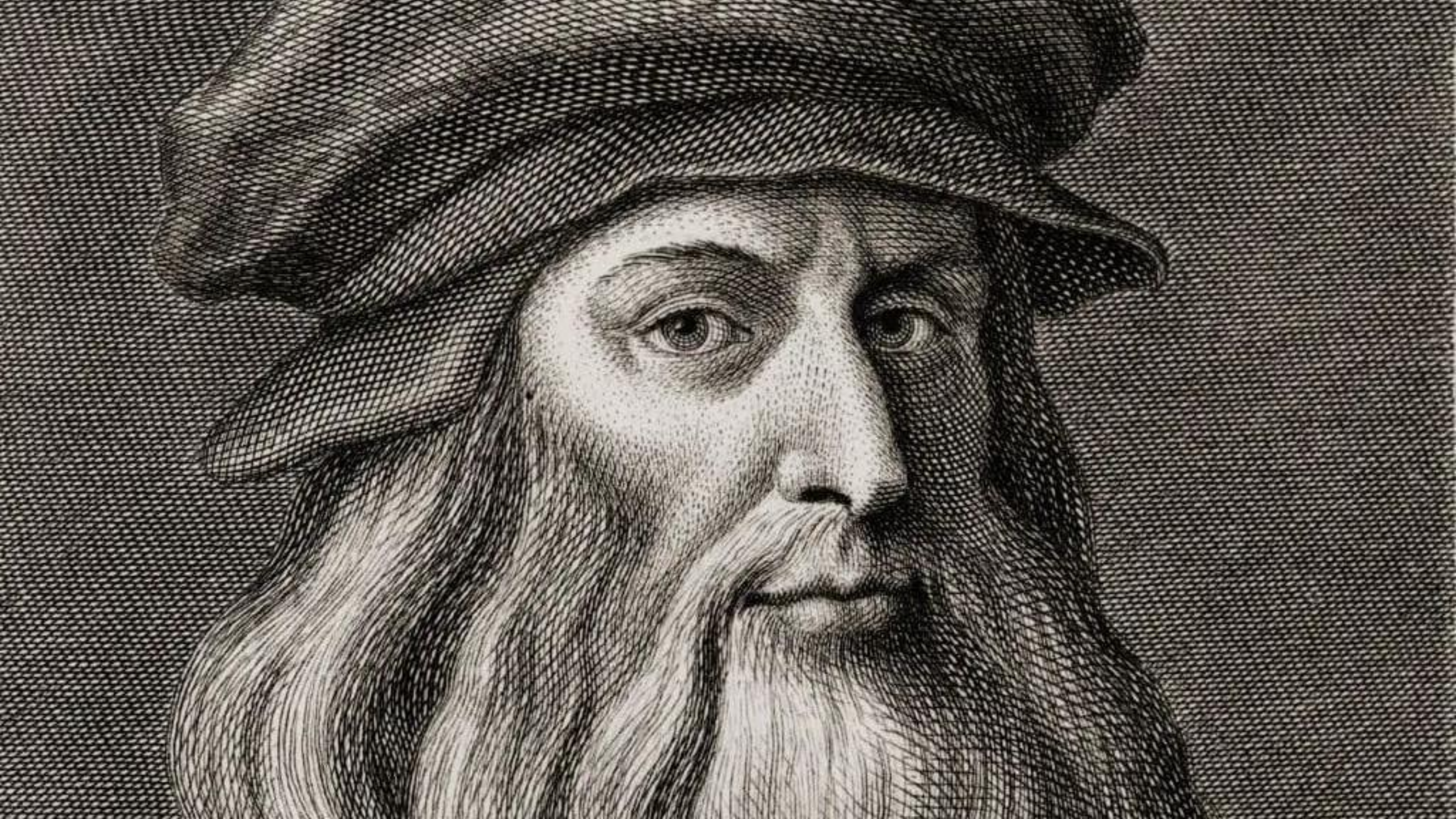
November 8, 2023

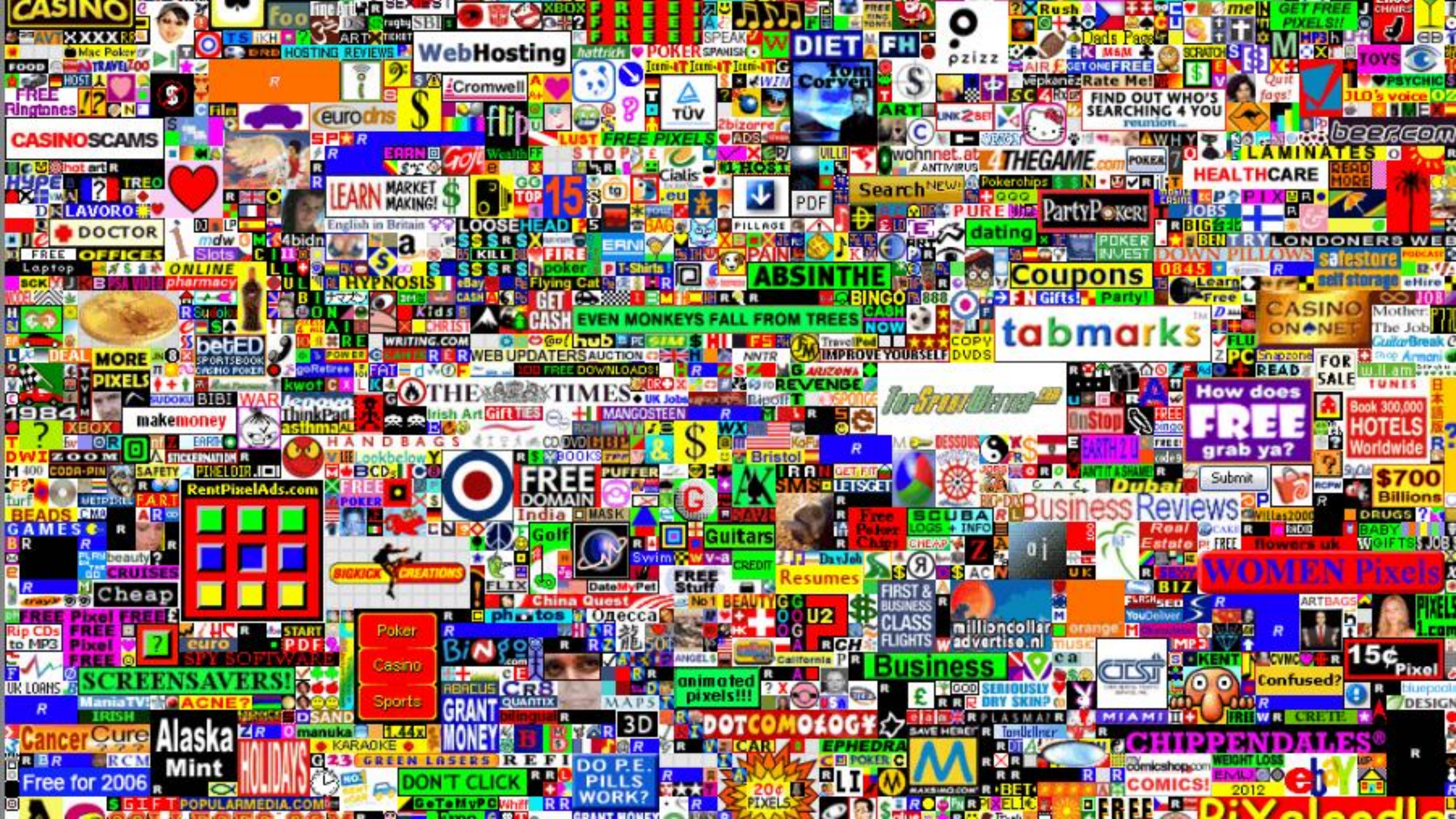
Andy Bayliss, Senior Technical Director SAS Life Sciences





A Picture says a thousand words





CASINO

Web Hosting

DIET

FH

DIET

CASINO SCAMS

flip

Tom Corven

FIND OUT WHO'S SEARCHING 4 YOU

beer.com

LEARN MARKET MAKING!

15

PDF

Party POKER!

HEALTHCARE

DOCTOR

LOOSEHEAD

ABSINTHE

Coupons

DOWN PILLOWS

ONLINE

HYPNOSIS

EVEN MONKEYS FALL FROM TREES

tabmarks

CASINO ON NET

DEAL

THE TIMES

REVENGE

tabmarks

FREE grab ya?

PIXELS

THE TIMES

REVENGE

tabmarks

FREE grab ya?

BEADS

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

GAMES

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

CHEAP

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

FREE

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

SCREENSAVERS!

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

Alaska Mint

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

Free for 2006

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?

Free for 2006

FREE DOMAIN

FREE DOMAIN

REVENGE

Business Reviews

FREE grab ya?



My Heatmap

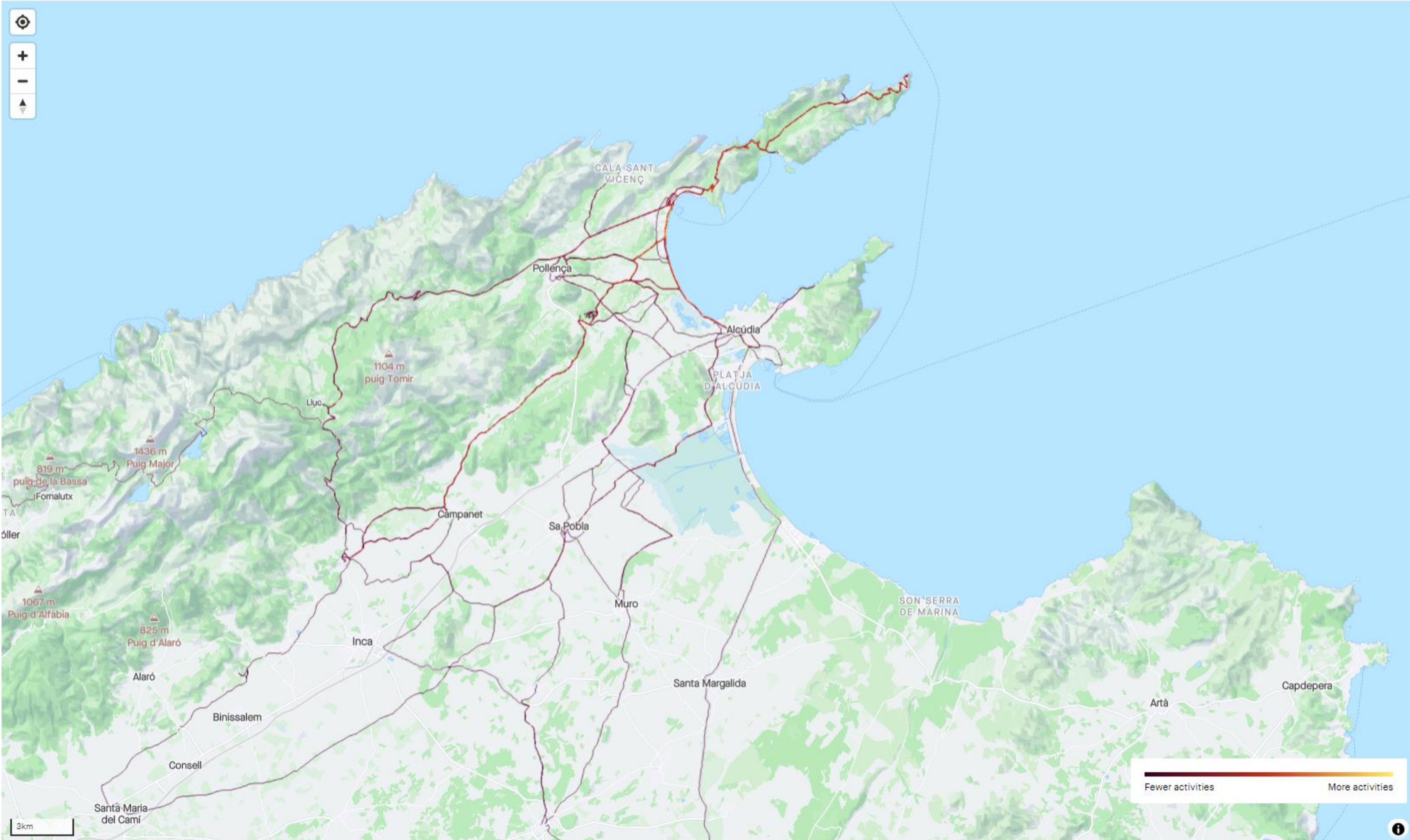
- All activities
- All-time
- Include private activities
- Include commutes
- Show hidden addresses

Map settings

- Red heat
- Standard map
- Show street labels
- Show activity clusters
- Show 3D Terrain

Search for places, landmarks, addresses

Map navigation controls: Home, Zoom In (+), Zoom Out (-), Full Screen (↕)



▼ ANALYTICS LIFE CYCLE

Discover Information Assets

Manage Data

Prepare Data

Explore and Visualize

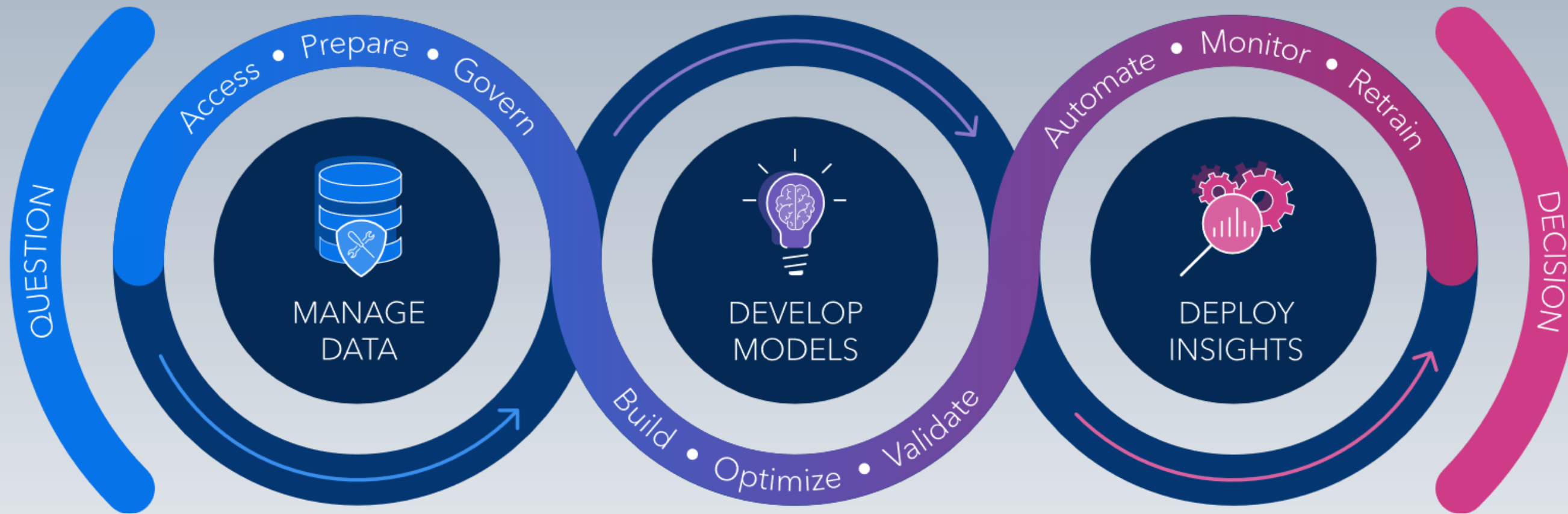
Build Models

Manage Models

Build Decisions

Share and Collaborate

Develop SAS Code



**Data for Analytics
and Decisioning**

*Accelerate data
storytelling and increase
speed to value.*

**Analytical
Visualization**

*Thread automation and
intelligence throughout
the analytics life cycle.*

**Advancing
with AI**

**Automate
Modeling**

*Deliver fast, self-service power
to every user - and deliver
embedded smart insights.*

**Operationalizing
Analytics**

Get more done with a faster



Innovate Faster

End-to-End

Automate Your Work

Fast Model Deployment

High-performance
Analytics



Elevate Everyone

Continuous
collaboration

All skill sets

Open integration

Combine multiple
approaches



Results You Trust

Governance

Enable responsible AI

Transparent insights

Trusted partner



Analytics You Need, Delivered on Your Terms

Frictionless access

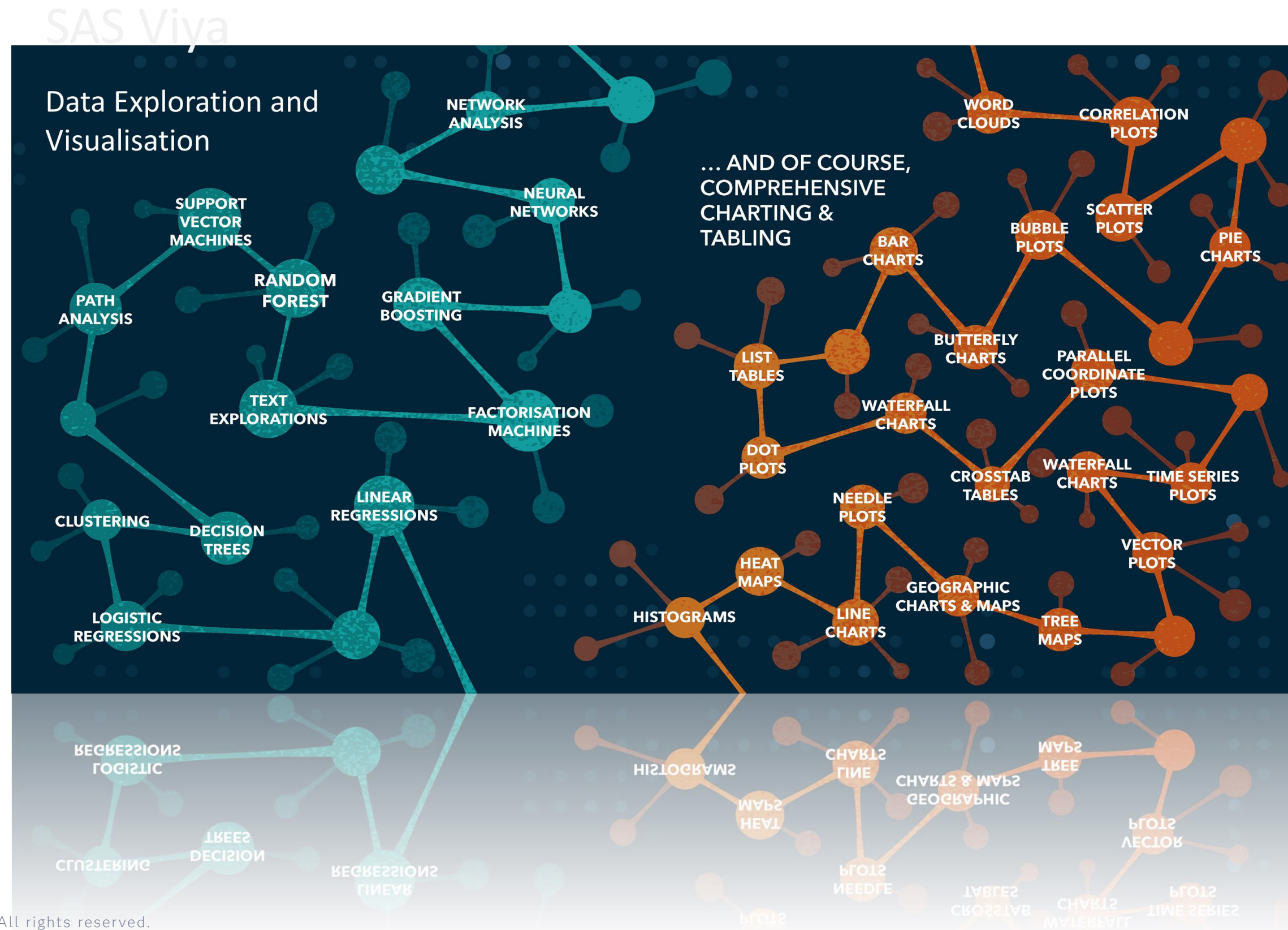
Agile development

Flexible compute
environments

Deploy anywhere

Exploration and Visualization

With a point-and-click visualization tool within SAS Viya you can build interactive reports dashboards to gain deeper insights quickly.



- Files and Folders
- Tasks and Utilities
 - My Tasks
 - Tasks
 - Data
 - Graph
 - Bar Chart
 - Bar-Line Chart**
 - Box Plot
 - Bubble Plot
 - Histogram
 - Line Chart
 - Mosaic Plot
 - Pie Chart
 - Scatter Plot
 - Series Plot
 - Simple HBar
 - Combinatorics and Prob
 - Statistics
 - High-Performance Statist
 - Power and Sample Size
 - Multivariate Analysis
 - Cluster Analysis
 - Snippets
 - Libraries
 - File Shortcuts

Program 1 * *Bar-Line Chart *

Settings Code/Results Split

DATA OPTIONS INFORMATION

DATA

SASHELP.CARS

WHERE CLAUSE FILTER

ROLES

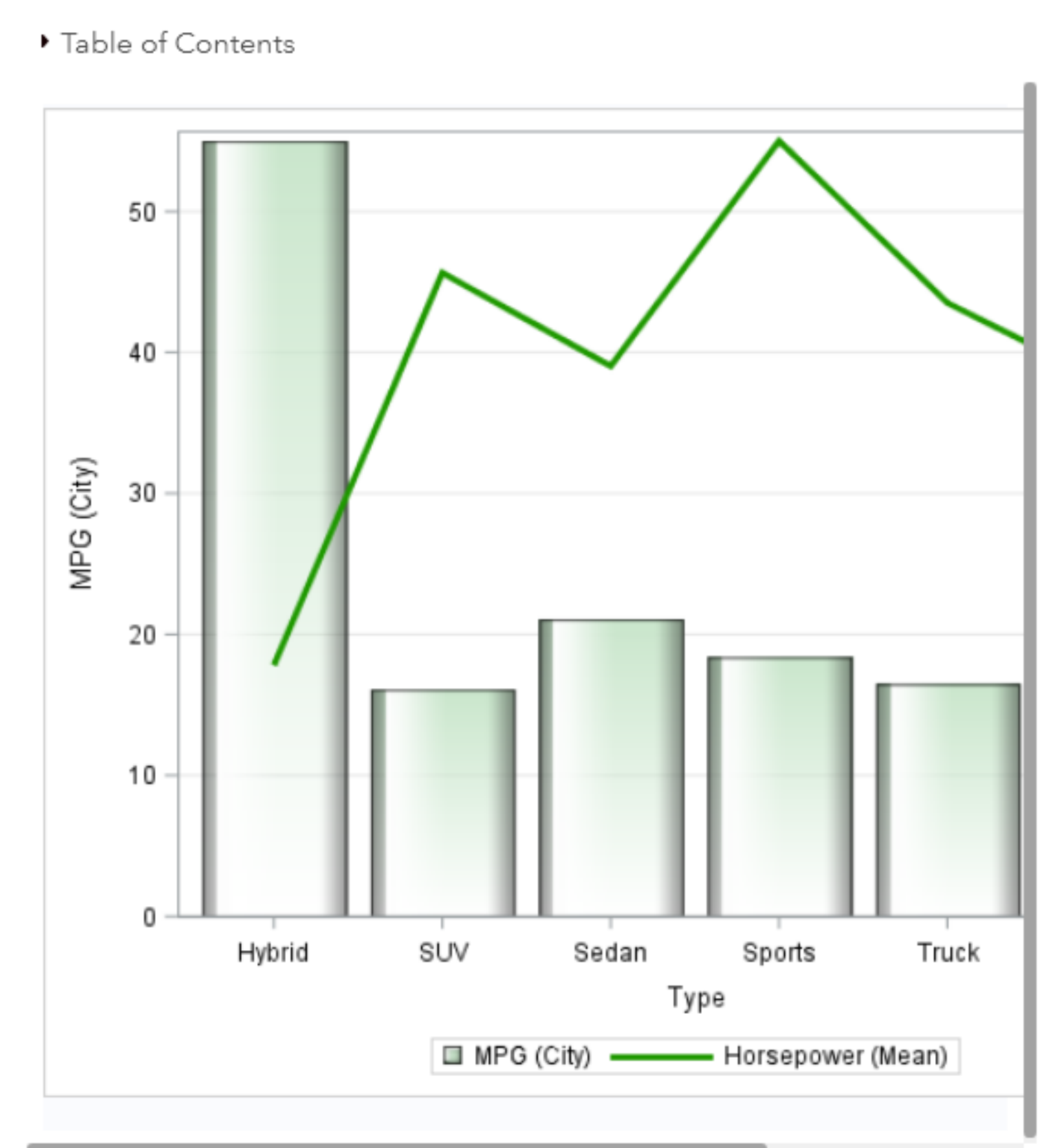
- *Category variable: (1 item)
 - Type
- *Bar response variable: (1 item)
 - MPG_City
- *Line response variable: (1 item)
 - Horsepower
- Group variable: (1 item)
 - Column
- URL variable: (1 item)
 - Column

STATISTICS

Log Code

CODE LOG RESULTS

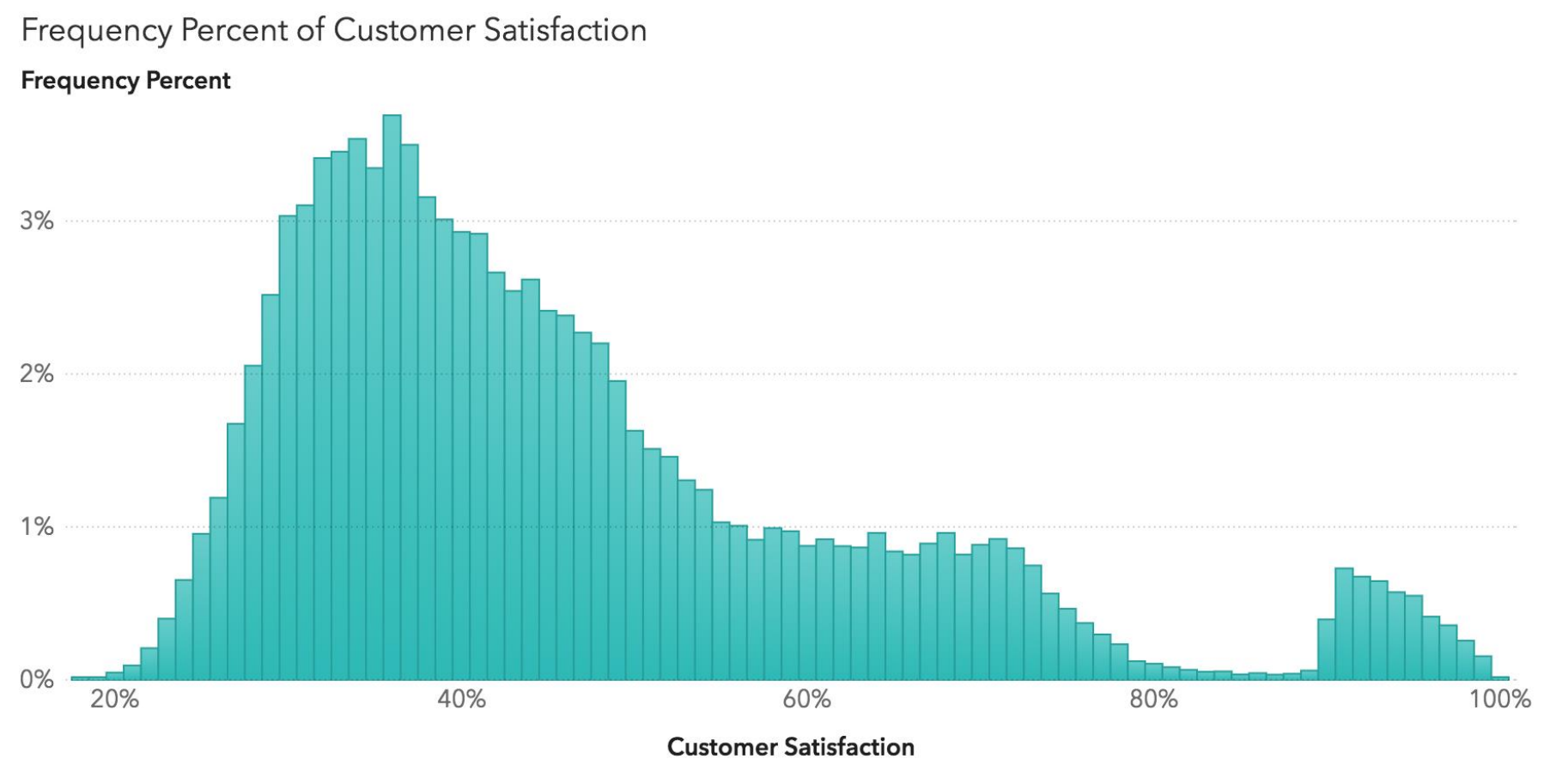
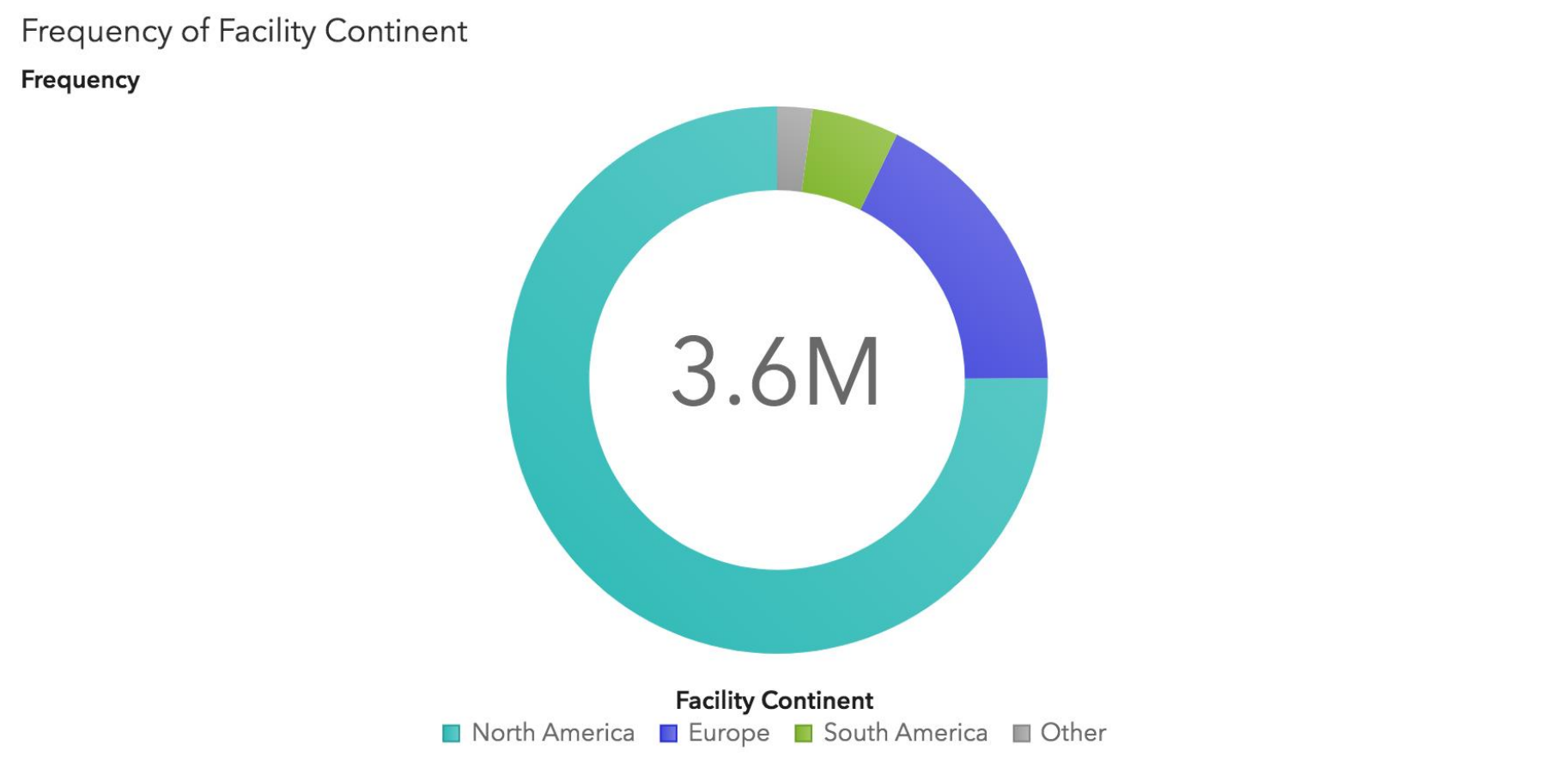
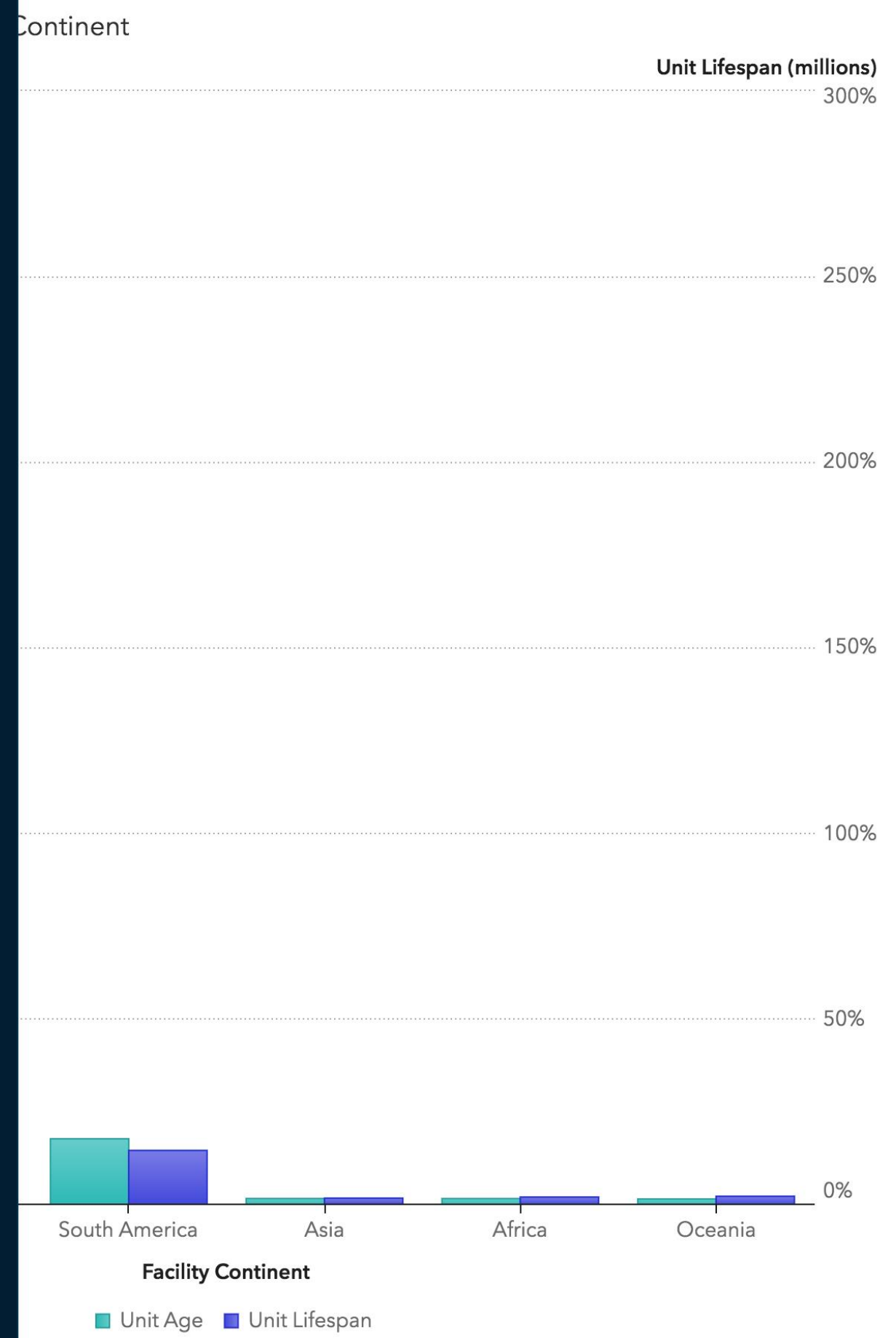
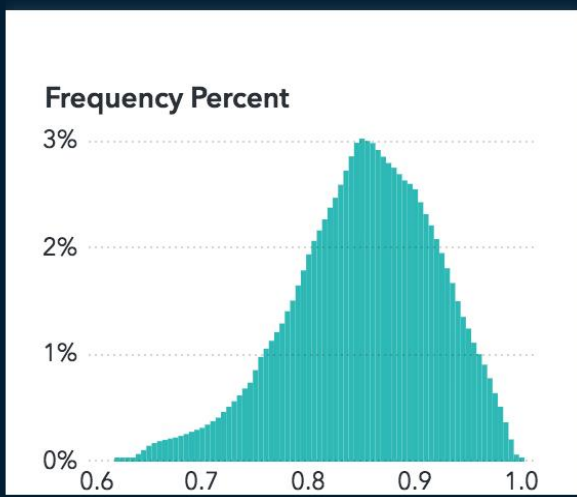
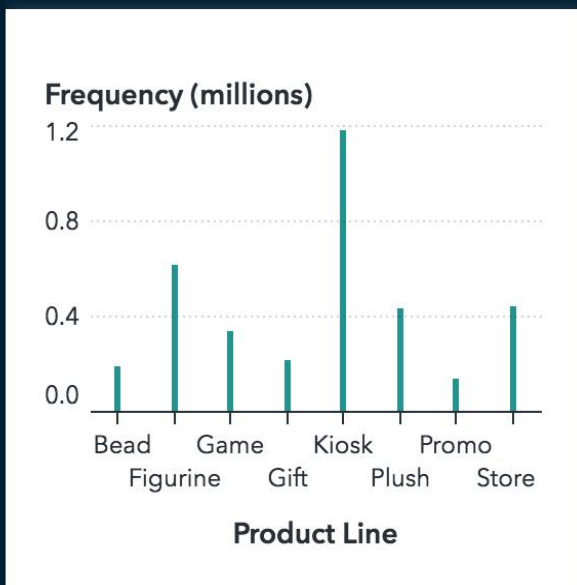
Table of Contents



Suggestions

INSIGHT_TOY_DEMO

More Refresh



Data

INSIGHT_TOY_DEMO

Filter

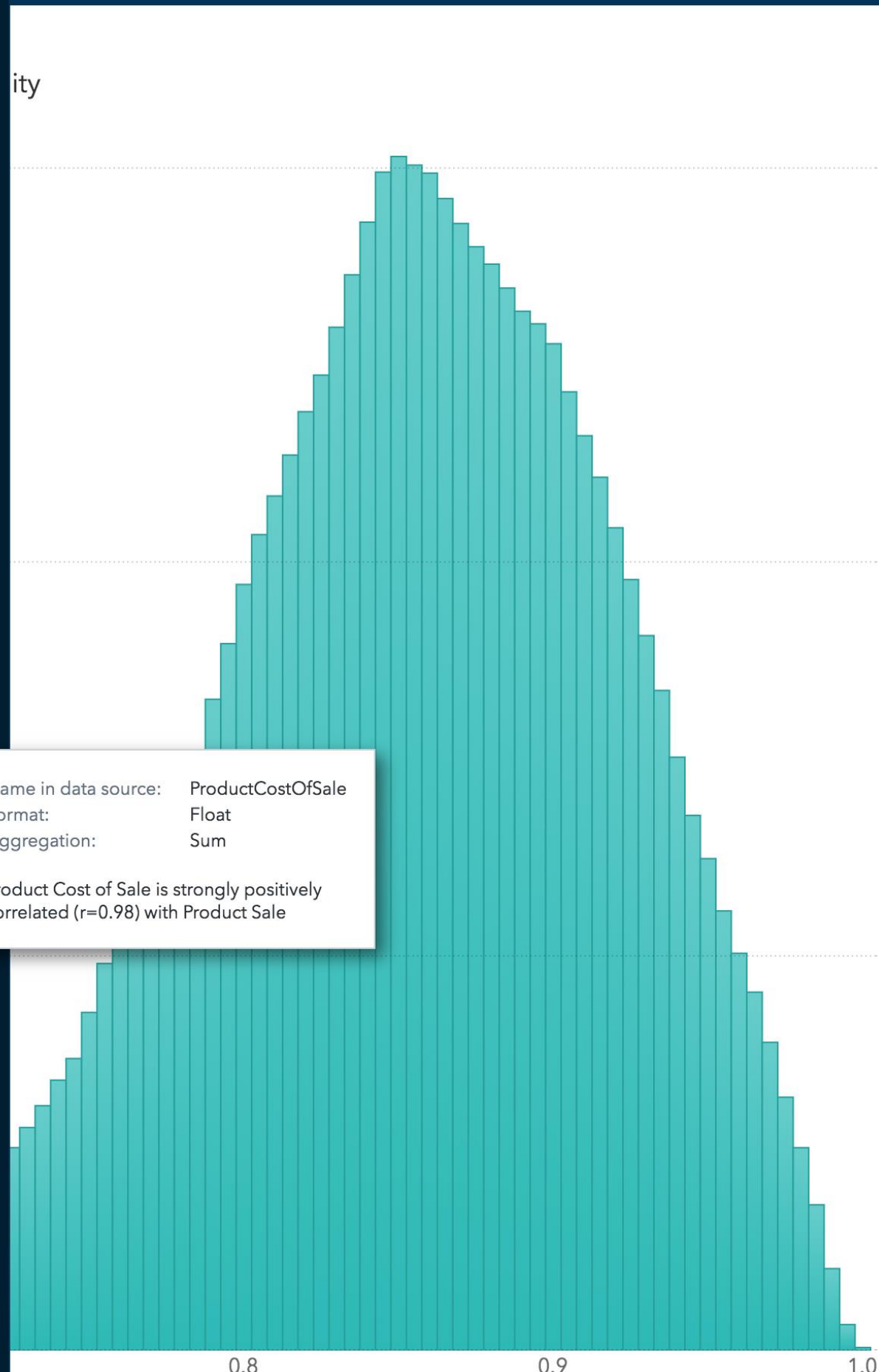
+ New data item

- Transaction Weekday - 5
- Transaction Year - 15
- Unit - 166
- Unit Status - 1

Measure

- Customer Distance
- Customer Satisfaction
- Facility Age
- Facility Efficiency
- Facility Employees
- Frequency
- Product Cost of Sale
- Product Material Cost
- Product Price (target)
- Product Quality
- Product Sale
- Sales Rep Customer Base
- Sales Rep Customers
- Sales Rep ID
- Sales Rep Rating
- Unit Actual
- Unit Age
- Unit Capacity
- Unit Discard Rate
- Unit Discards
- Unit Lifespan
- Unit Lifespan Limit

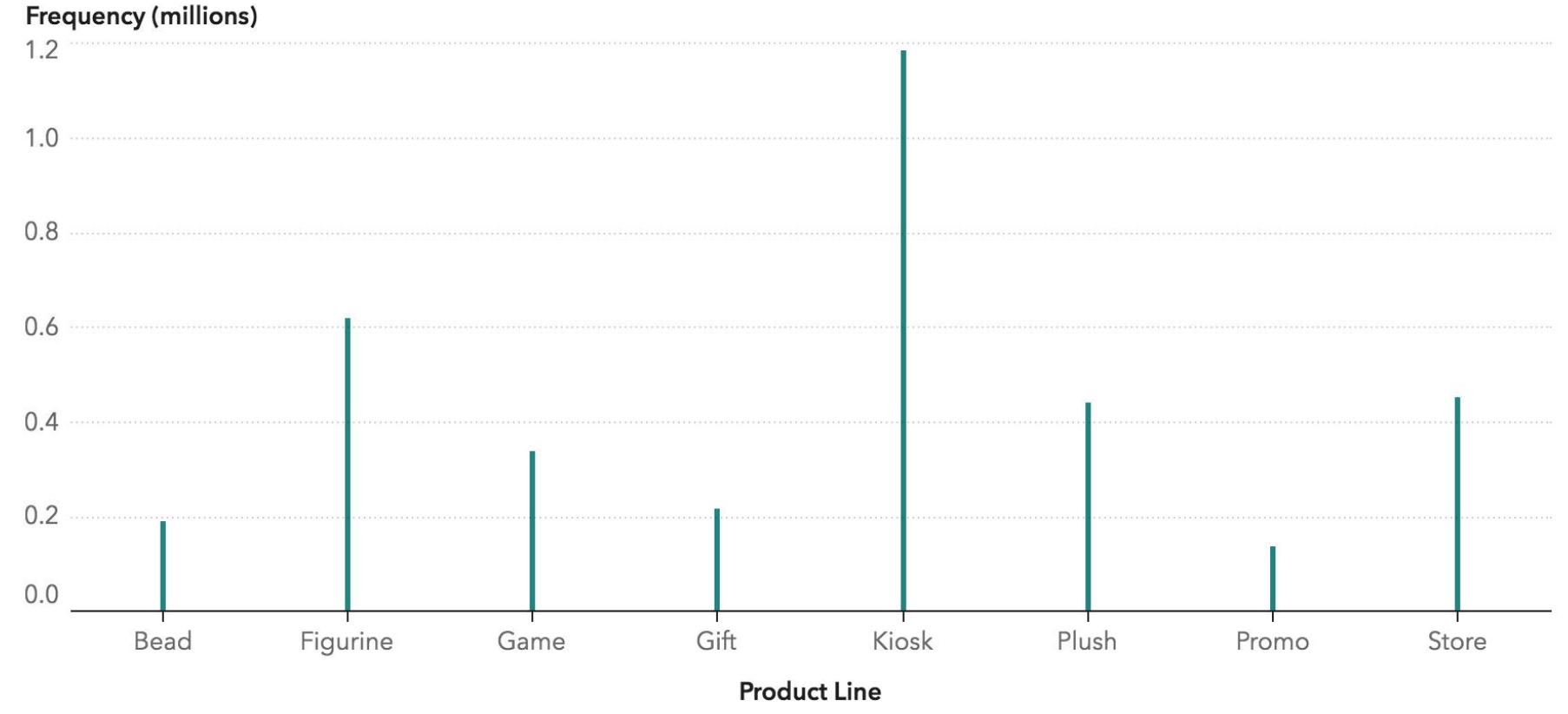
Clear selection



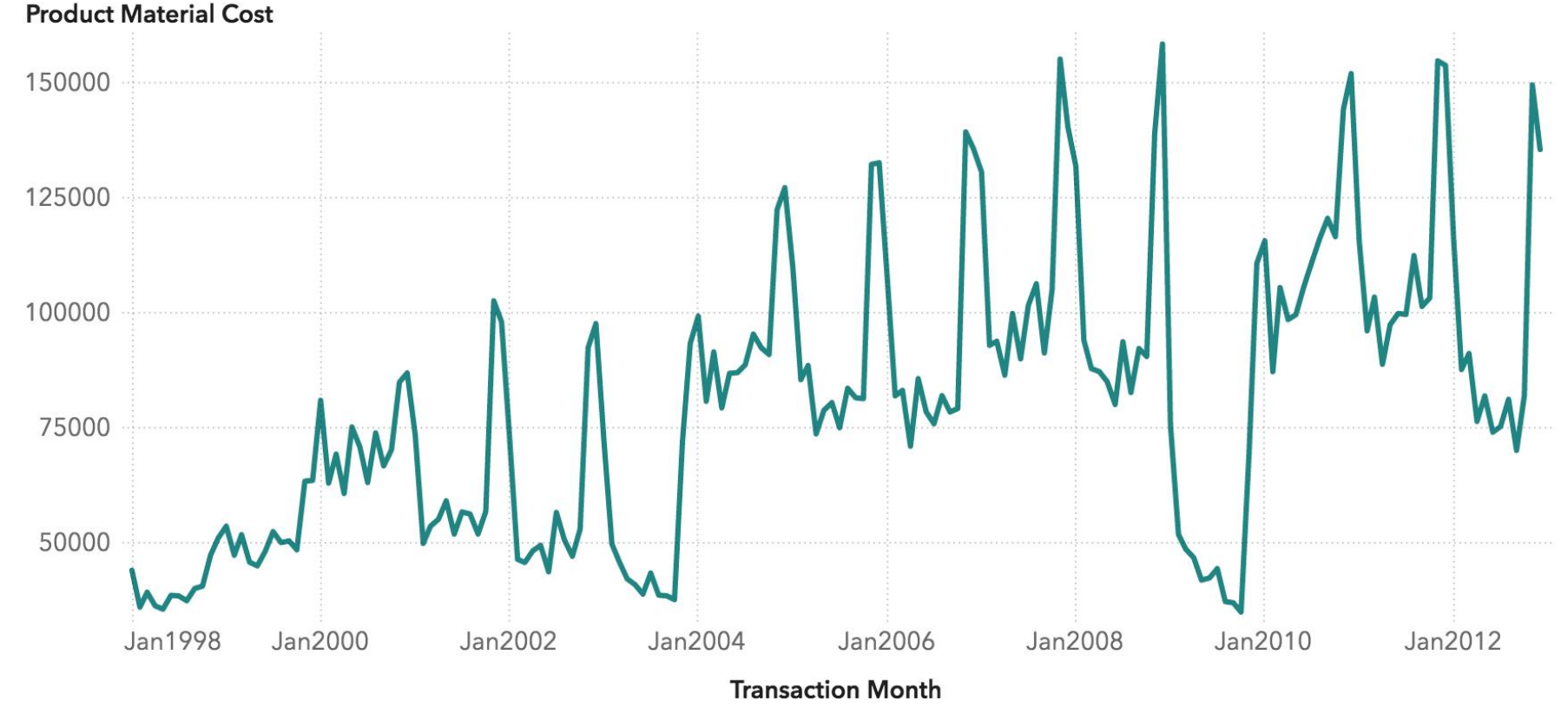
Name in data source: ProductCostOfSale
Format: Float
Aggregation: Sum

- Product Cost of Sale is strongly positively correlated ($r=0.98$) with Product Sale

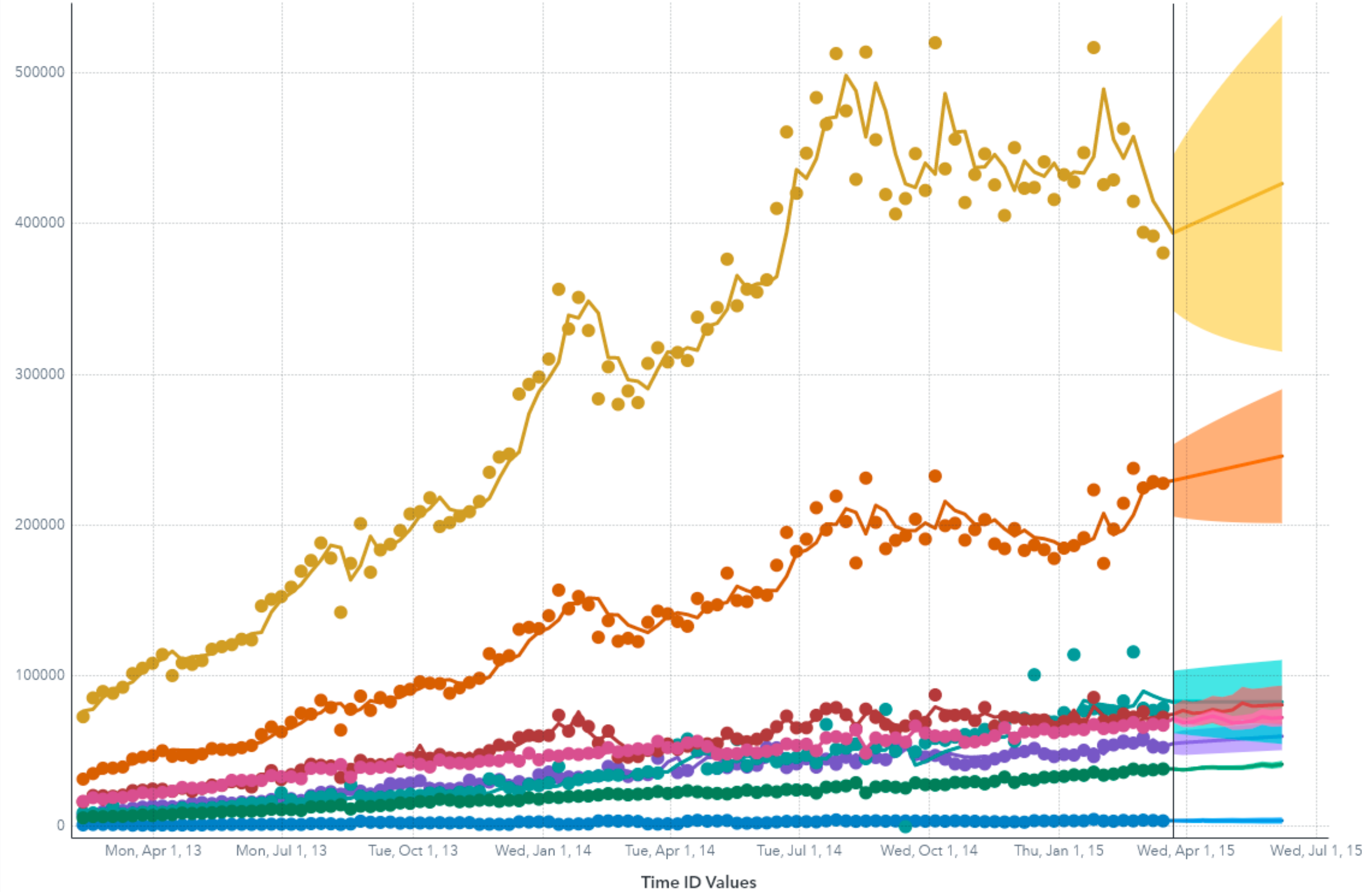
Frequency of Product Line



Product Material Cost by Transaction Month



Revenue



- Atlanta:Jennifer's Aloe Neem Face and Hand Soap 5 dl
- Atlanta:Jennifer's Aloe Neem Face and Hand Soap 6.76 dl
- Atlanta:Jennifer's Aloe Neem Face and Hand Soap 6.7dl
- Atlanta:Jennifer's Anti Dandruff Conditioner 17 dl
- Atlanta:Jennifer's Anti Dandruff Conditioner 31 dl
- Atlanta:Jennifer's Anti Dandruff Conditioner 31 dl
- Atlanta:Jennifer's Dark hair protect Conditioner 17 dl
- Atlanta:Jennifer's Energizing Face and Hand Soap 6.7dl
- Atlanta:Jennifer's Family Pack 31 dl
- Atlanta:Jennifer's Anti Dand. Cool Mint Shampoo 17 dl

Series (369 of 1,337)

- Atlanta:Jennifer's Aloe Neem Face ...
- Atlanta:Jennifer's Aloe Neem Face ...
- Atlanta:Jennifer's Anti Dand. Cool ...
- Atlanta:Jennifer's Anti Dandruff Co...
- Atlanta:Jennifer's Anti Dandruff Co...
- Atlanta:Jennifer's Dark hair protect ...
- Atlanta:Jennifer's Energizing Face a...
- Atlanta:Jennifer's Family Pack 31 dl
- Atlanta:Jennifer's Goose Berry Sha...
- Atlanta:Jennifer's Milk and Honey C...
- Atlanta:Jennifer's Moisturizing Faci...
- Atlanta:Jennifer's Oil Control Face ...
- Atlanta:Jennifer's Oil control Sham...
- Atlanta:Jennifer's Papaya Milk Facia...
- Atlanta:Jennifer's ProVita Shampoo ...
- Atlanta:Jennifer's Rose and Mist Sh...
- Atlanta:Jennifer's Shikaki and Rose ...
- Atlanta:Jennifer's Sun Screen SPF 3...
- Atlanta:Jennifer's Sun Screen SPF 5...
- Atlanta:Jennifer's Sun damage Prev...
- Chicago:Jennifer's Aloe Neem Face...
- Chicago:Jennifer's Anti Dand. Cool ...
- Chicago:Jennifer's Anti Dandruff C...
- Chicago:Jennifer's Anti Dandruff C...
- Chicago:Jennifer's Energizing Face ...
- Chicago:Jennifer's Family Pack 31 dl
- Chicago:Jennifer's Milk and Honey ...
- Chicago:Jennifer's Moisturizing Fac...
- Chicago:Jennifer's Oil Control Face...
- Chicago:Jennifer's Oil Control Face...
- Chicago:Jennifer's Papaya Milk Faci...
- Chicago:Jennifer's ProVita Shampo...
- Chicago:Jennifer's Shikaki and Ros...
- Chicago:Jennifer's Sun Screen SPF

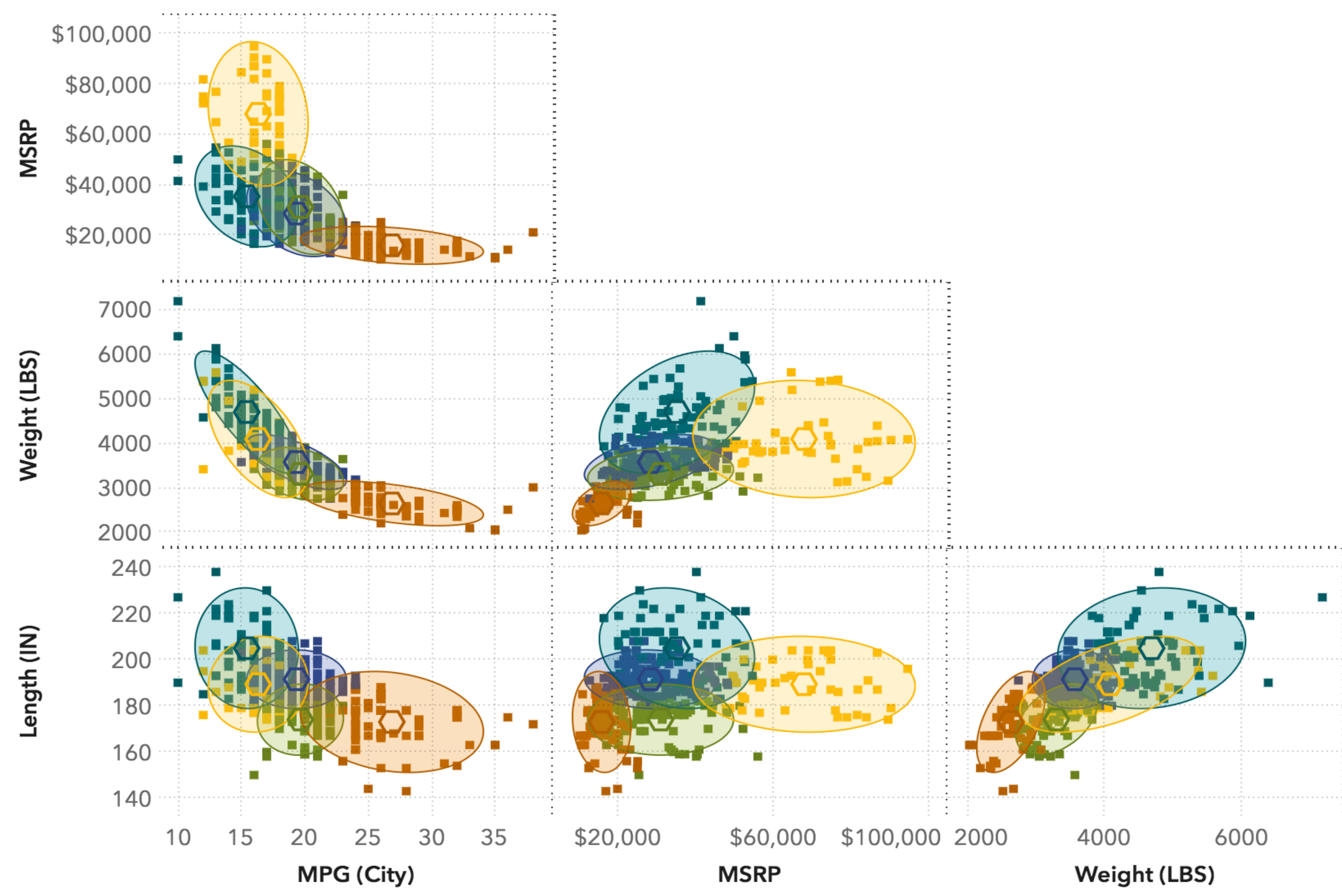
Filters

Jennifer

Attributes

- SKINPRODUCT_ATTRIBUT...
- Product Key (no filter)
- Distribution Center (no filter)
- Product Name (no filter)
- Supplier Name (1 of 6)
 - Jennifer (369)
 - Alex (322)
 - Macklin (201)
 - Joe (170)
 - Jerzy (139)
- Product Type (no filter)
- Sale's Venue (no filter)
- Product Category (no filter)
- _seg_ (no filter)
- Demand classification attri...
- Descriptive statistics
- Forecast attributes
 - Mean Absolute Percent Err...
 - Model Family (no filter)

Cluster Observations Used 421 Polylines 199

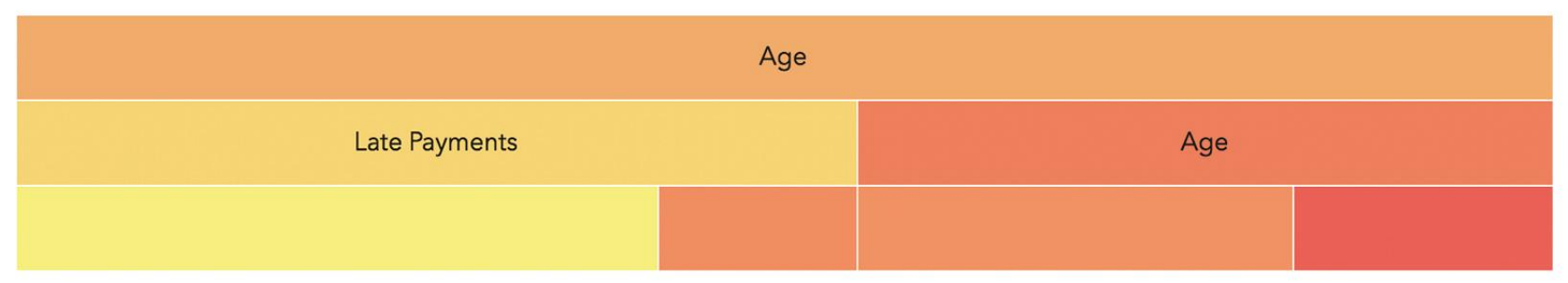
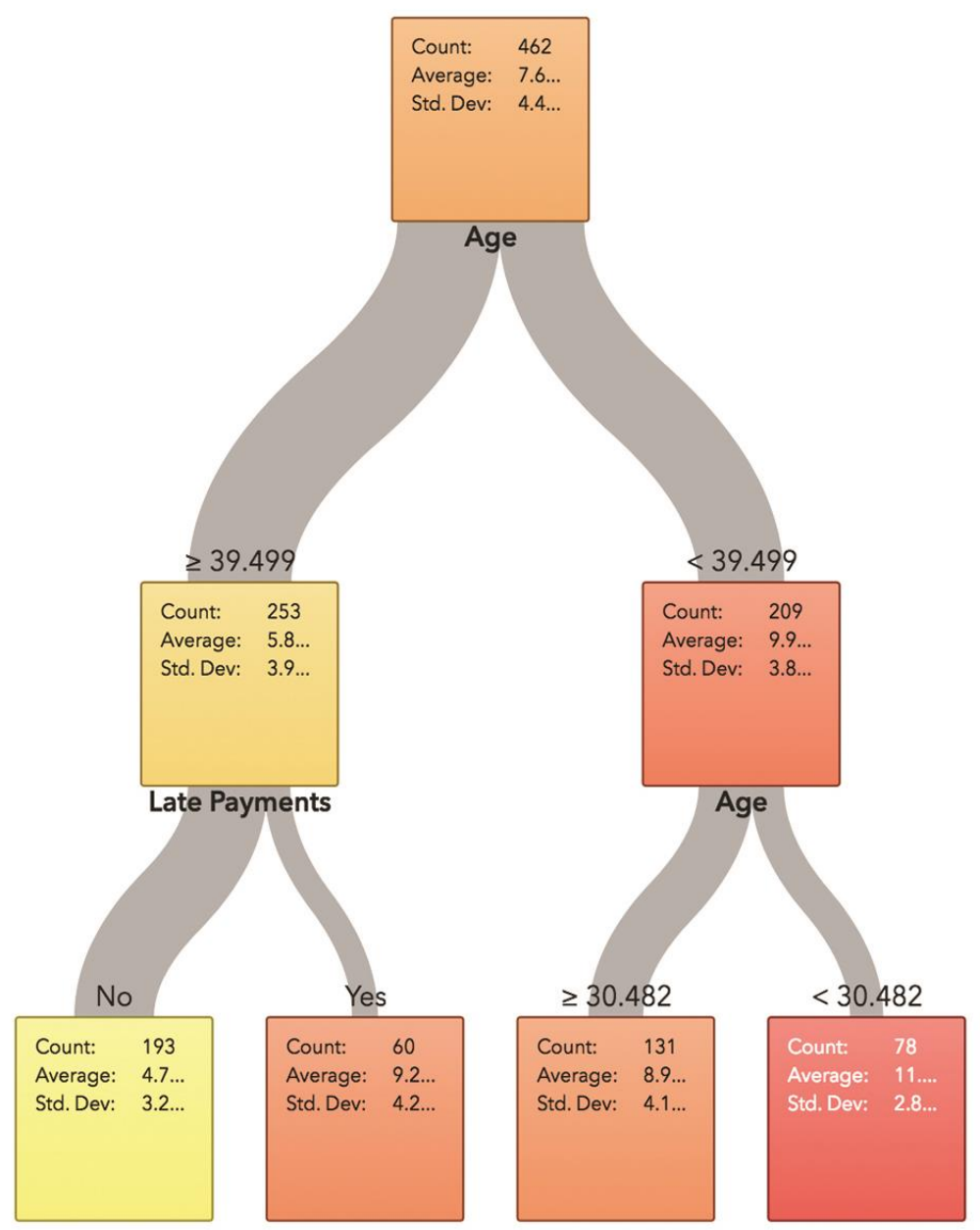


Options

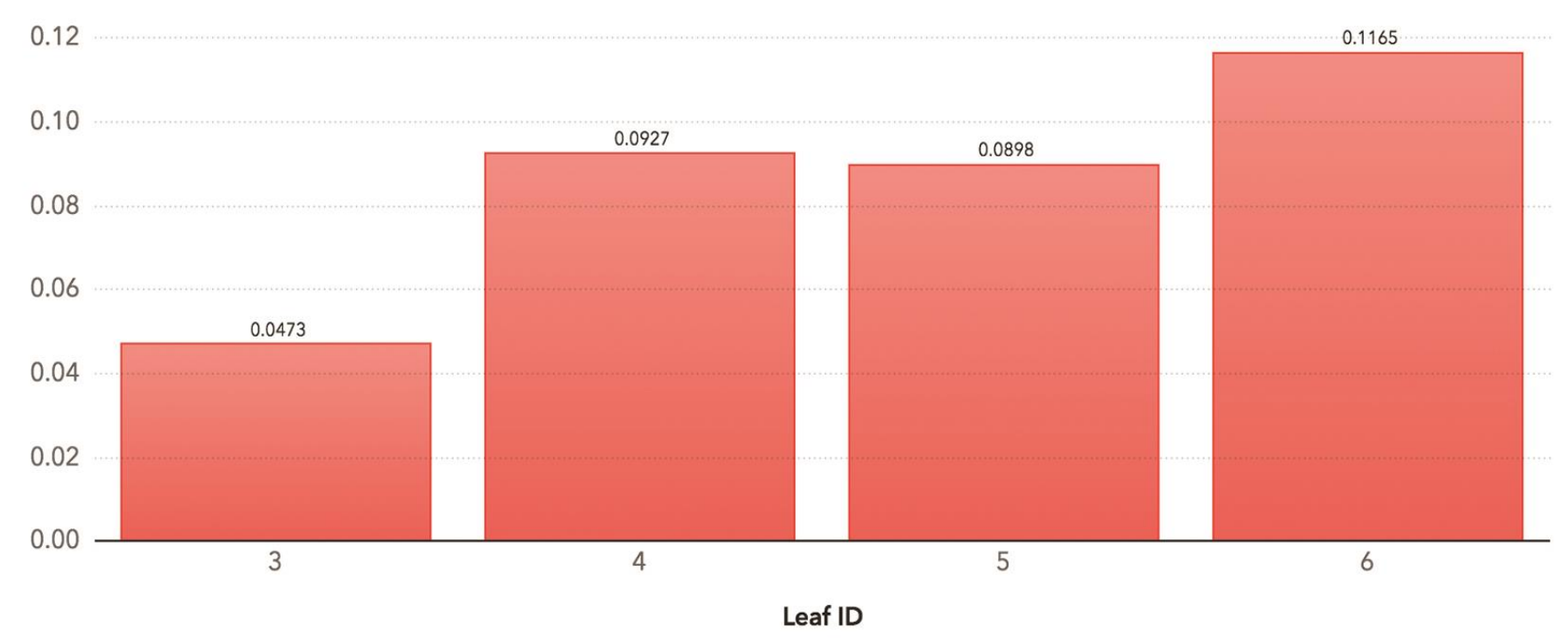
- ▶ General
- ▶ Background
- ▼ Cluster
 - Count:
 - Seed: ?
 - Initial assignment: ?
 - Standardization: ?
 - Layout:
- ▶ Cluster view
- ▶ Parallel Coordinates
- ▶ Layout

Decision Tree Write-Off Risk ASE 0.0013 Observations Used 462 [Create pipeline](#)

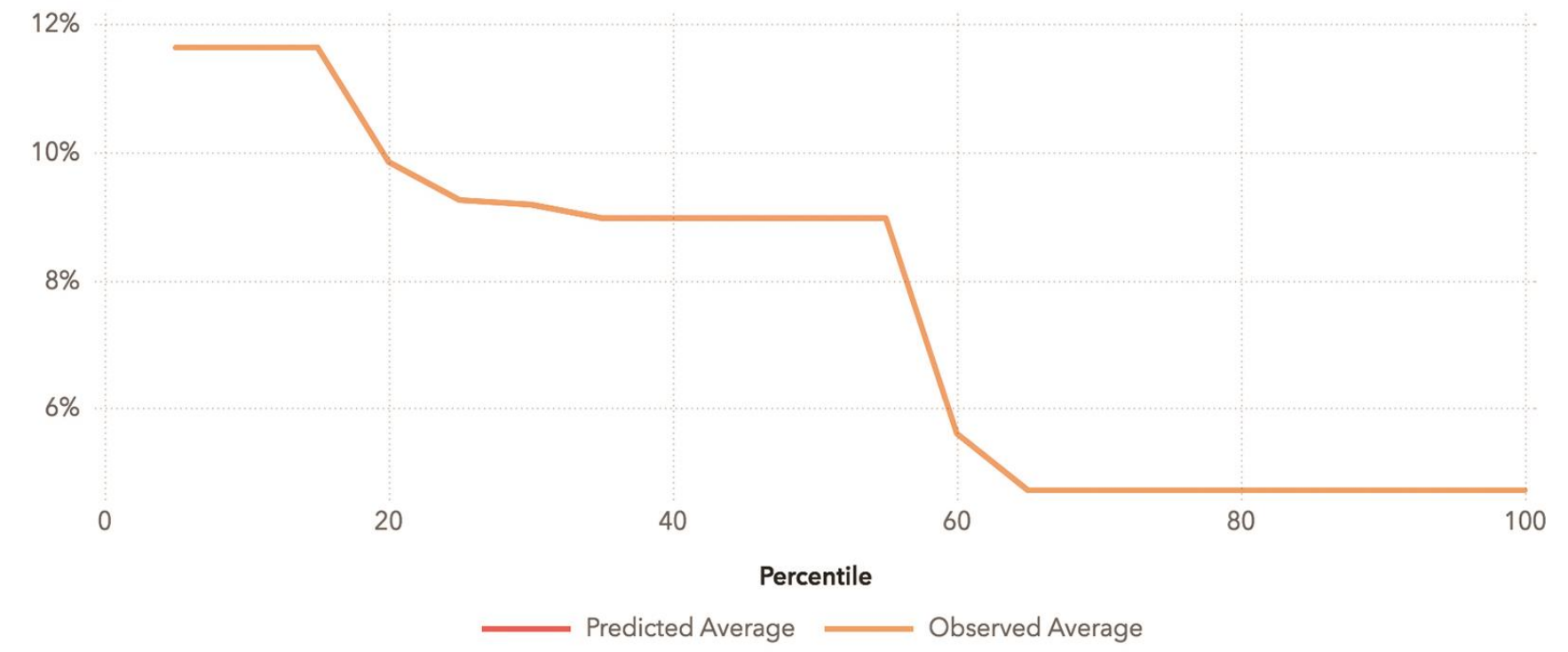
Tree



Leaf Statistics Average

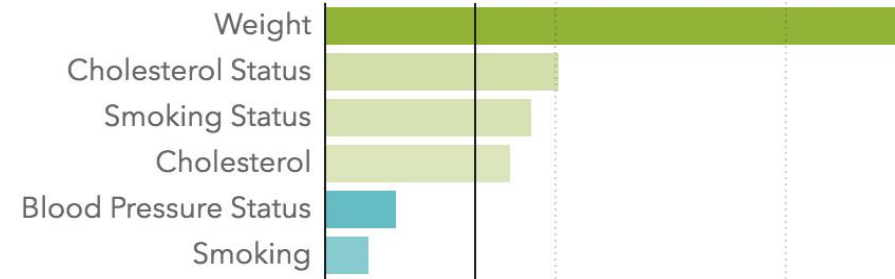


Assessment Write-Off Risk

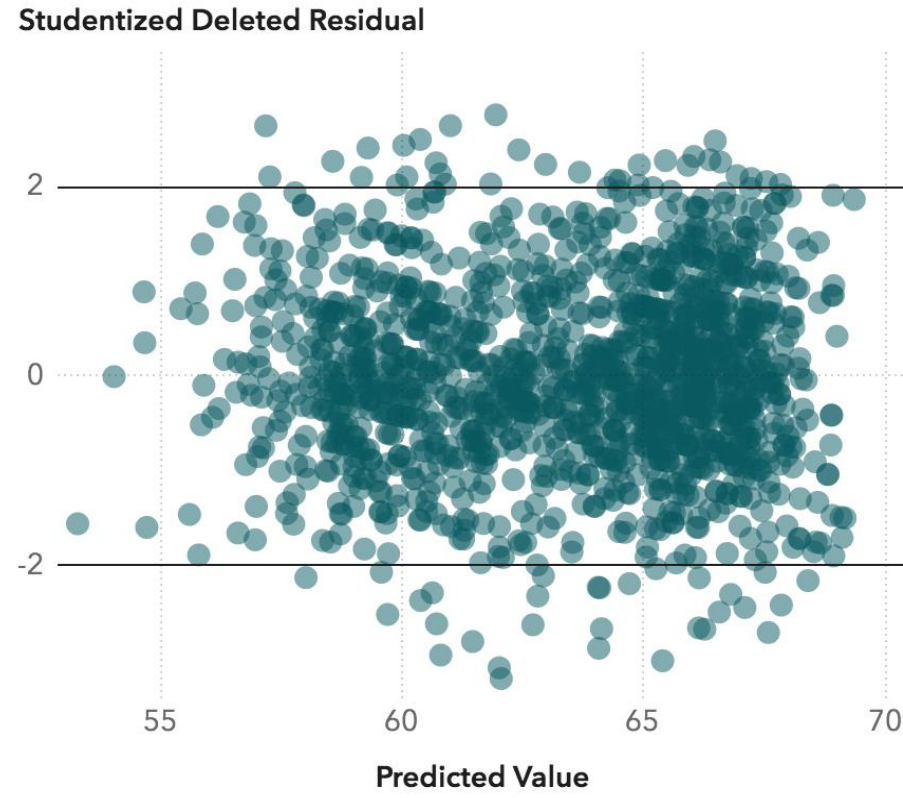


Linear Regression **Age CHD Diagnosed** Mean Square Error **89.7880** Observations Used **1,405** Unused **3,804**

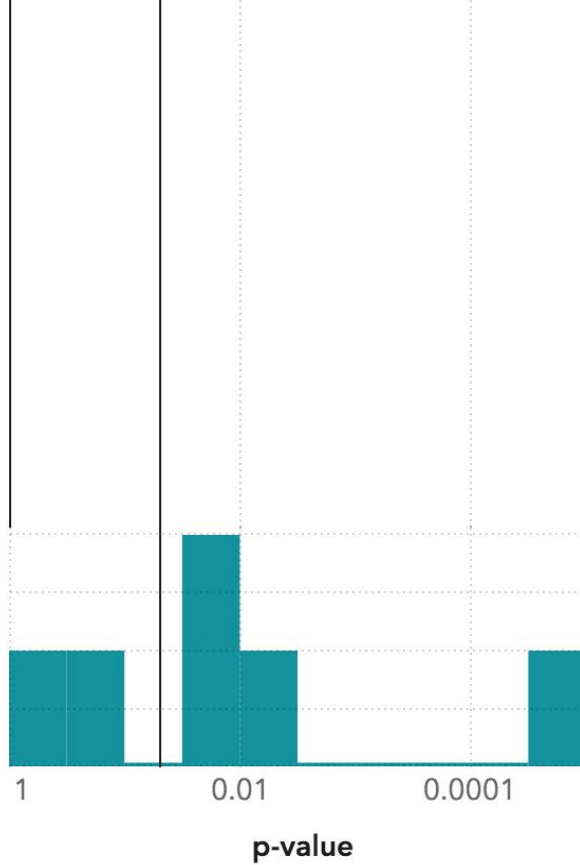
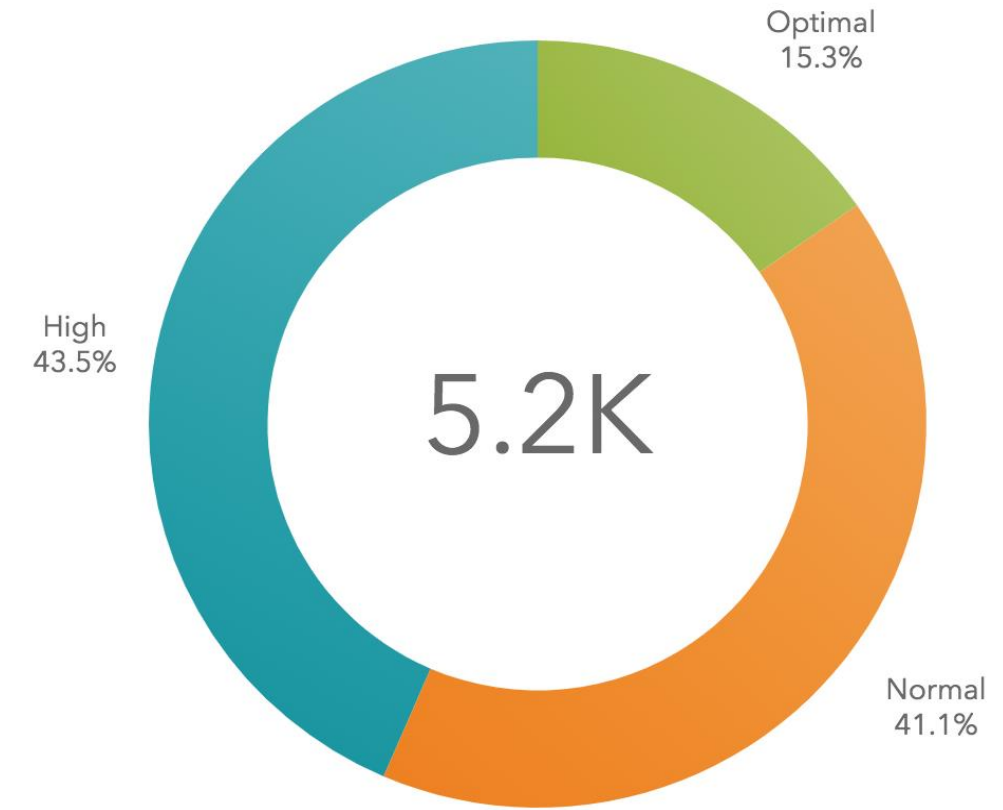
Fit Summary



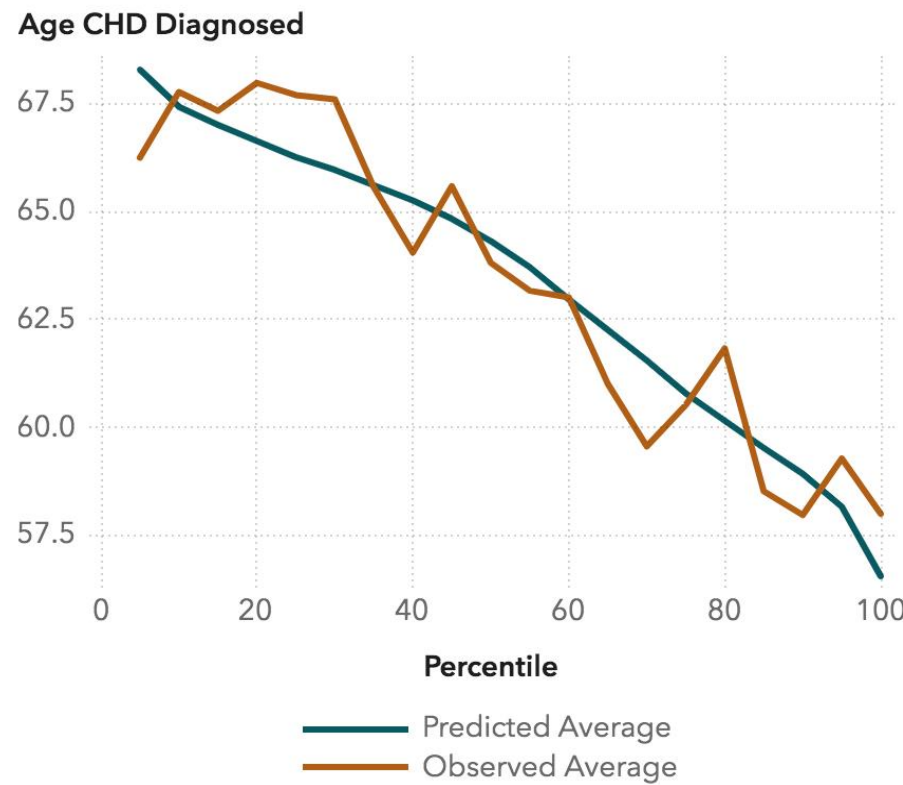
Residual Plot



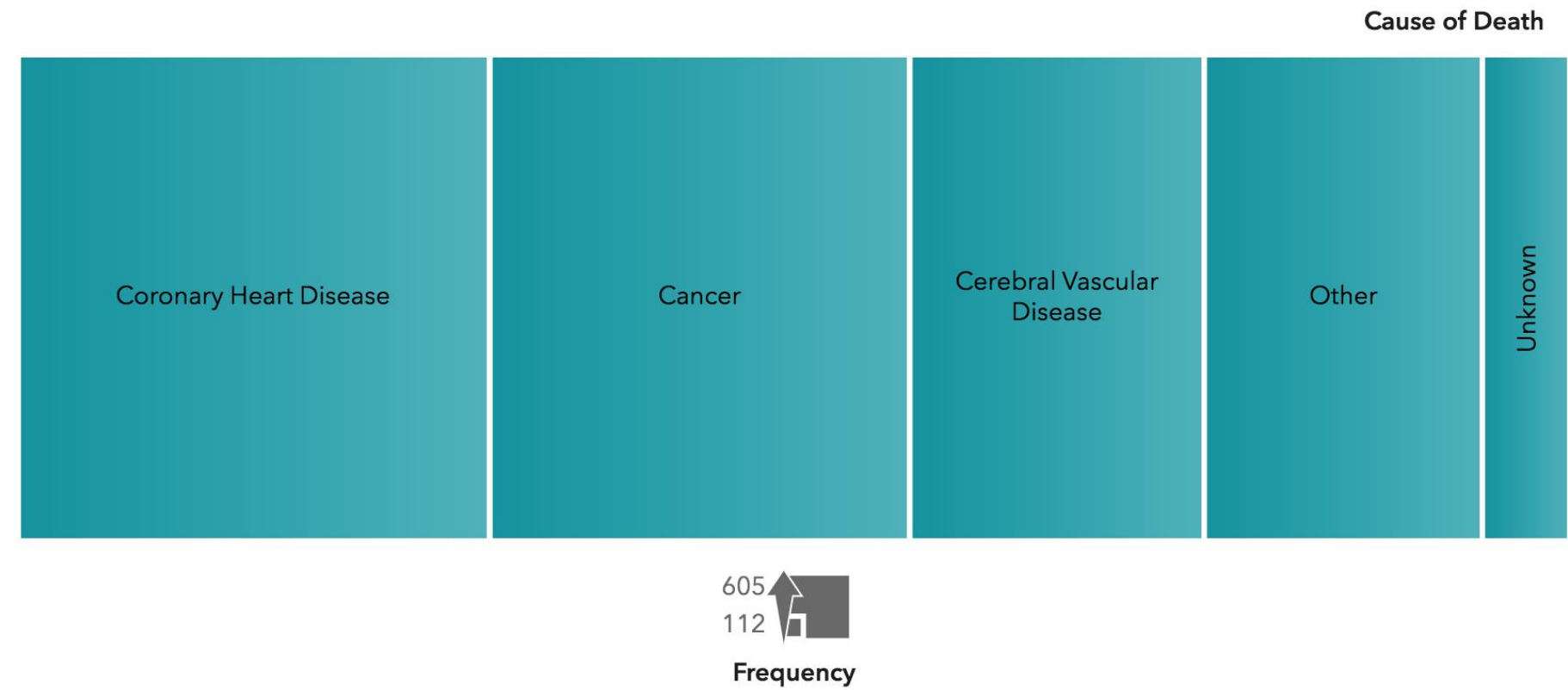
Frequency of Blood Pressure Status

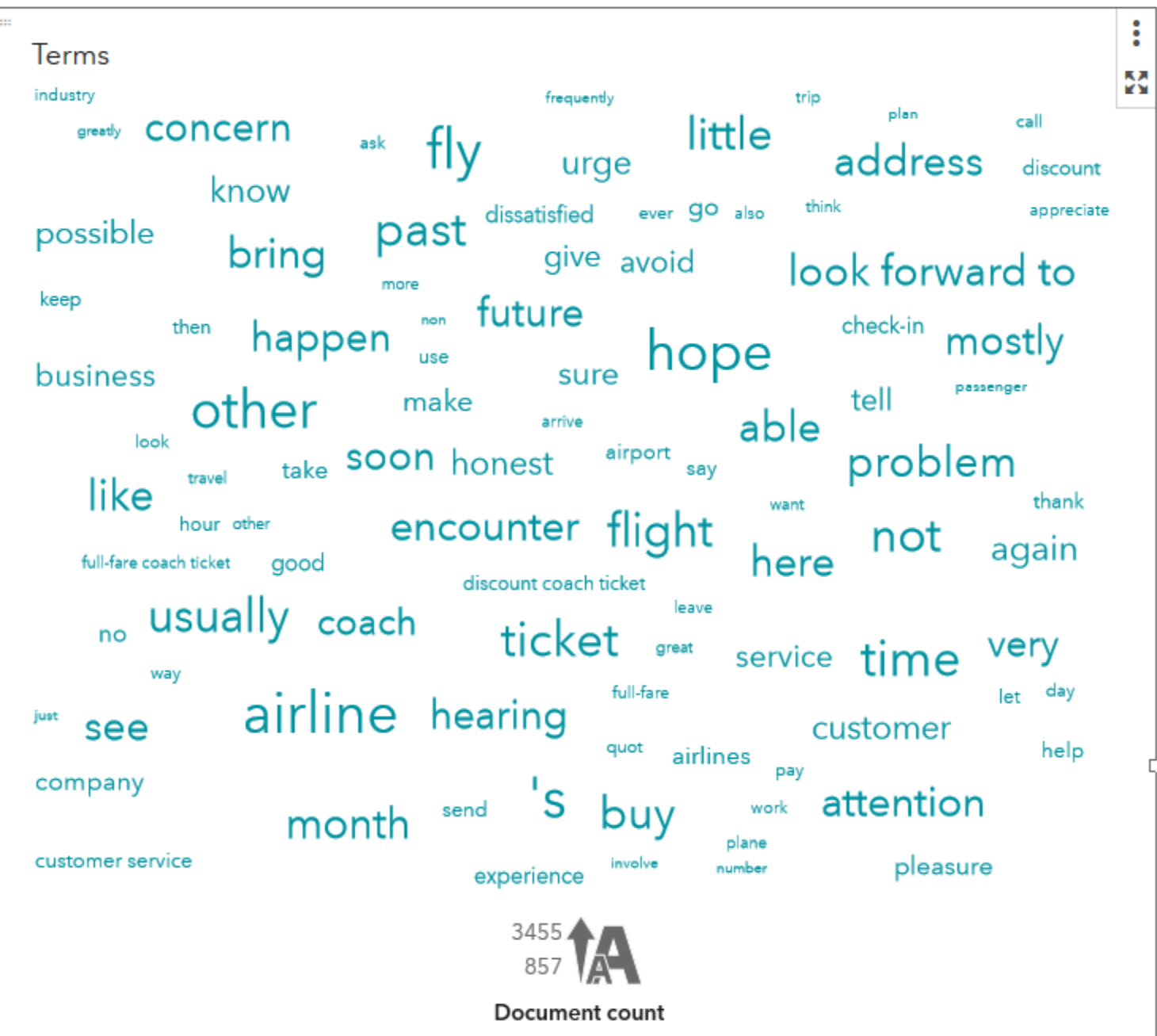
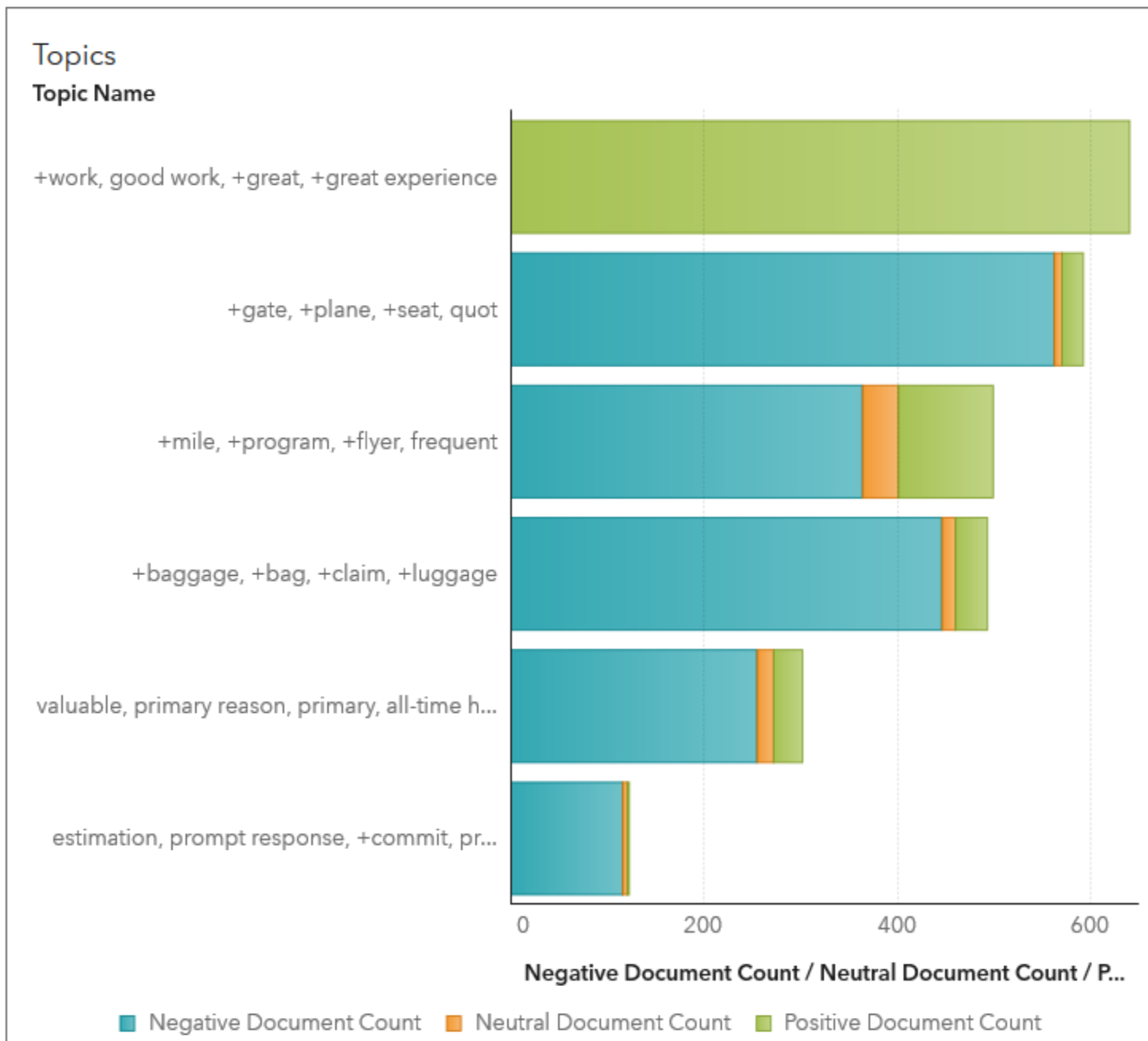


Assessment



Frequency of Cause of Death





Documents

Relevance	Document	category	sentiment	Sent
	With complaints about air travel at an all-time high, I hope airlines such as yours are willing to listen to passengers like me. I would like to bring to your attention a...	value	-1	1
	I would like to bring to your attention a problem I encountered with your airline's airport check-in. On my return from London, one of my suitcases was a four kilo...	check-in	-1	
	I would like to bring to your attention a problem I encountered with your airline's airport check-in. My daughter took a flight from BWI to STL on July 16, 2001. We...	check-in	-1	
	I would like to bring to your attention a problem I encountered with your airline's flight attendants. ON MONDAY, JULY 16TH 2001 I WAS ON AMERICA WEST FL...	flight attendants	-1	
	I would like to bring to your attention a problem I encountered with your airline's airport check-in. I was on a vacation gone too long. I was just looking to get ho...	check-in	-1	
	I would like to bring to your attention a problem I encountered with your airline's on-time performance. On Friday, June 22, 2001, we were very dismayed by the l...	on-time performance	-1	
	I would like to bring to your attention a problem I encountered with your airline's customer service (non check-in). I purchased a ticket through Priceline, without...	customer service	-1	
	I would like to bring to your attention a problem I encountered with your airline's airport check-in. Date: July 16, 2001 We are writing to request further compe...	check-in	-1	

Options

Text Topics - text 1

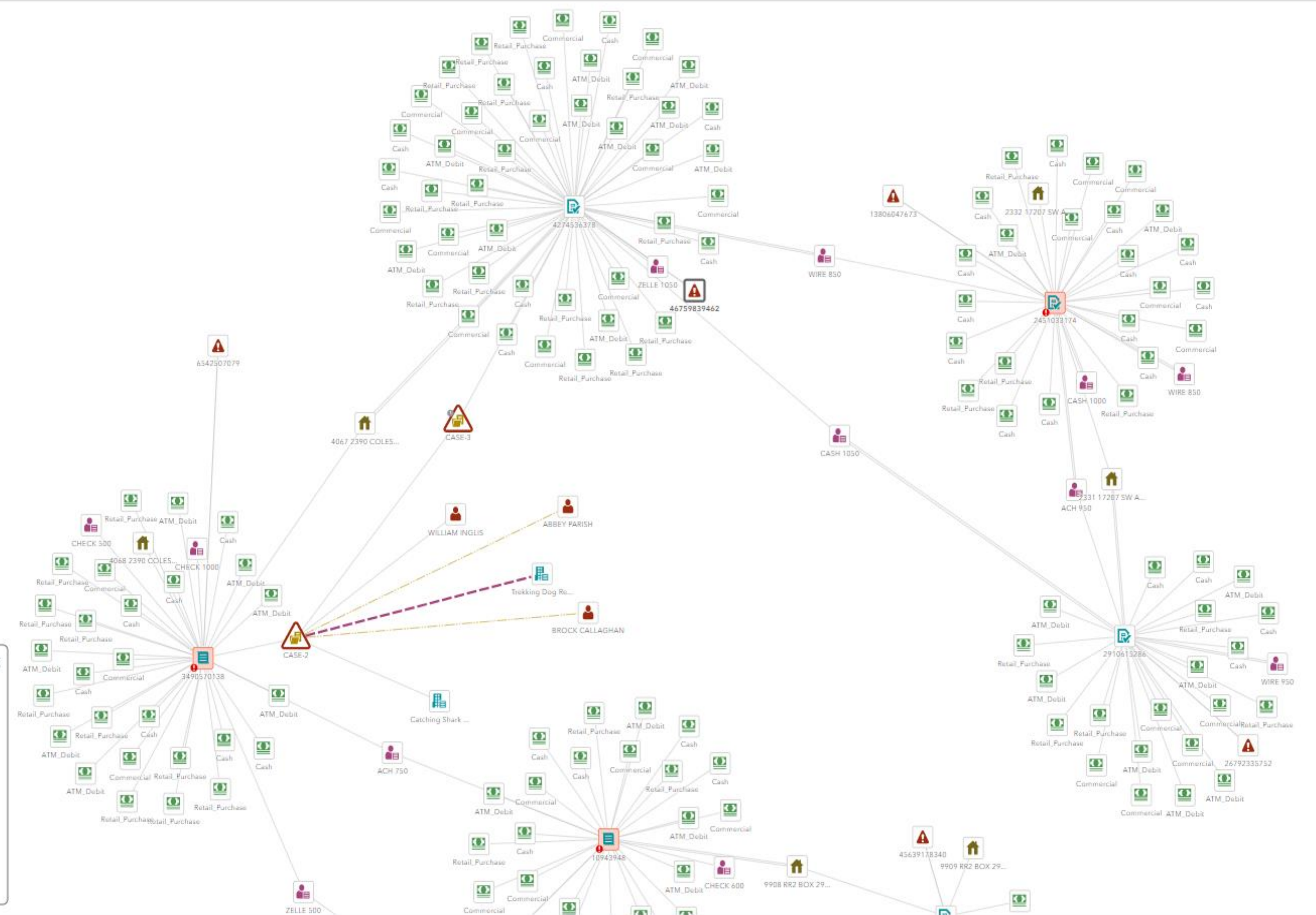
- Object
- Style
- Layout

Text Topics

- General
 - Term parsing and role identification: Automatic
 - Analyze document sentiment
 - Identify term roles
- Topic Discovery
 - Maximum topics: 6

Model Display

- Text Topics
- Text Terms
- Document Table

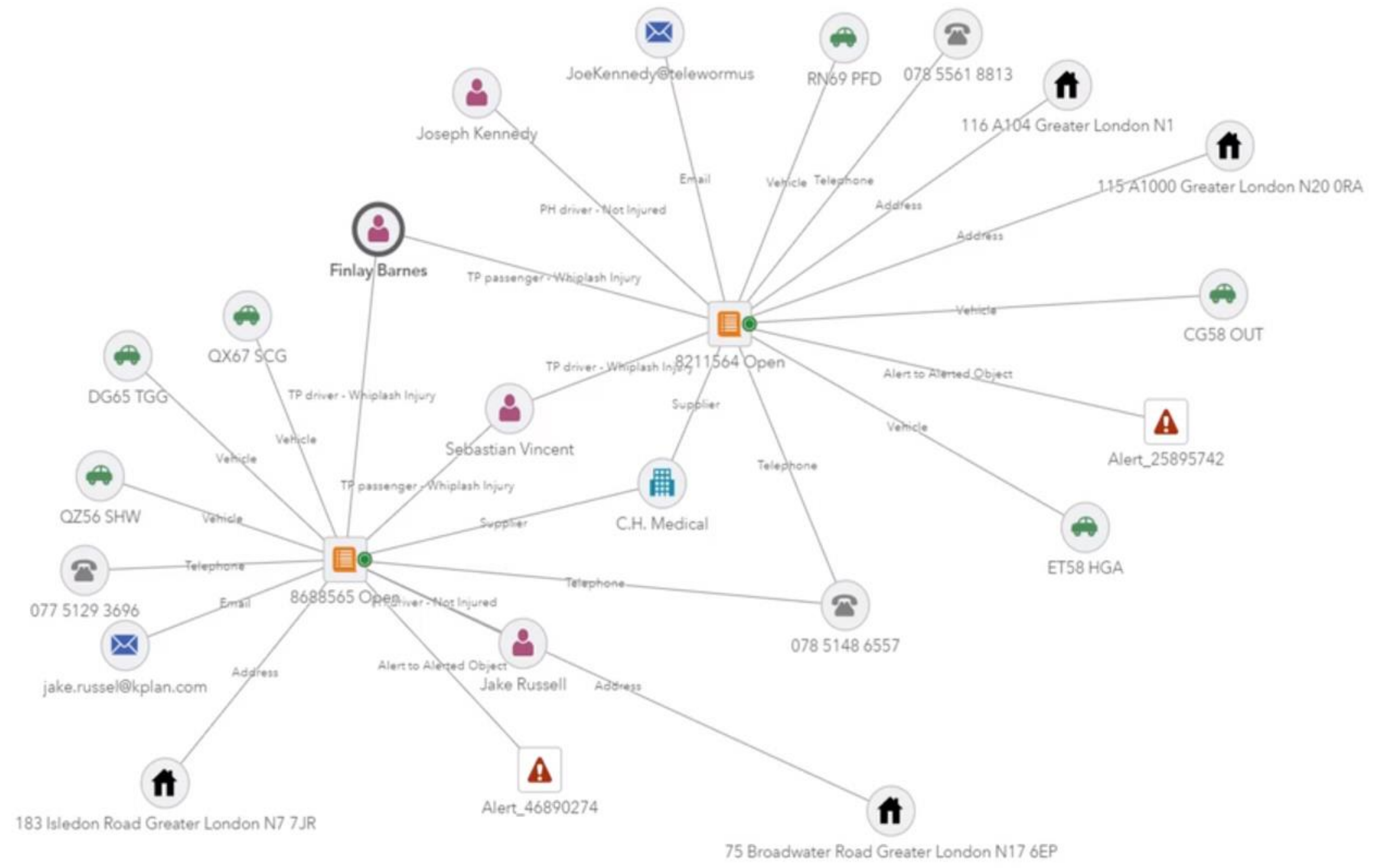


Alert Information

Alert ID: 46759839462
Actionable entity name: 4274536378
Actionable entity type: accounts_scored
Actionable entity ID: 4274536378
Score: 983
Queue: BankingFraud
Status: Active
Productive:
Last updated by: videmo
Last updated date: 22/10/2019 13:33

Node Legend

- Account Transfers
- Accounts Scored
- Alert
- Business Customers
- Case
- Common Address
- Individual Customers
- Transactions



Tools Network Properties

Apply layout to: Unadjusted nodes

- Stretch layout
- Contract layout
- Reset layout

Advanced Layout

- Show node annotation
- Show node labels
- Show link labels
- Show legend

Double-click on node to: Expand / Open

Time slider range: Exclude nodes starting before

Node Legend

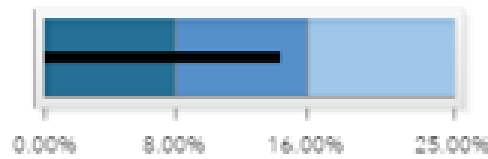
- Address
- Alert
- Claim
- Email
- Individual
- Supplier
- Telephone
- Vehicle



FAST

Marketing % of Sales at FAST

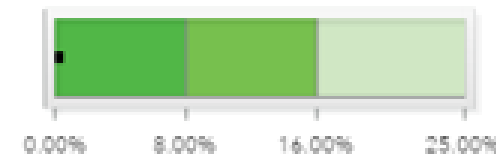
14.38%



GRAND

Marketing % of Sales at GRAND

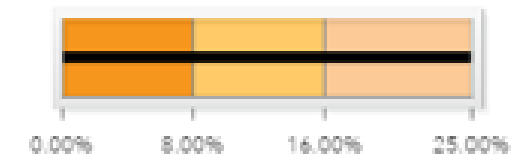
0.52%



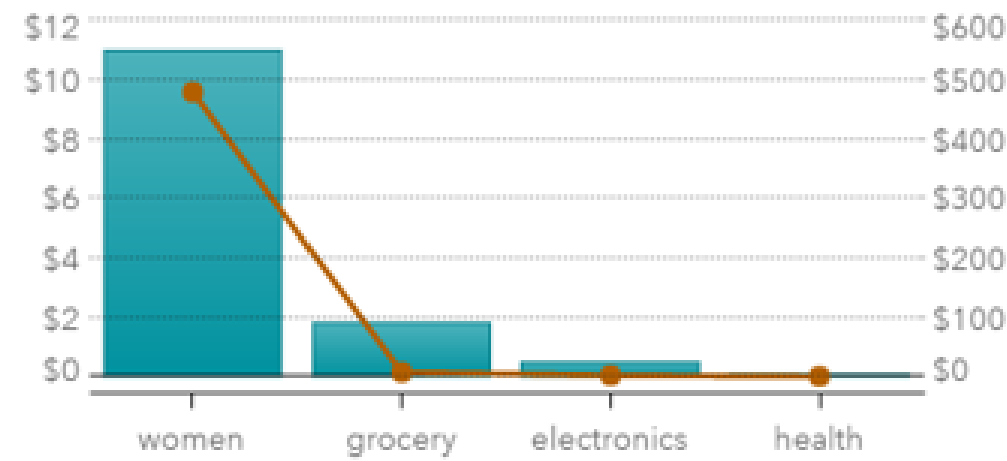
MODA

Marketing % of Sales at MODA

53.15%



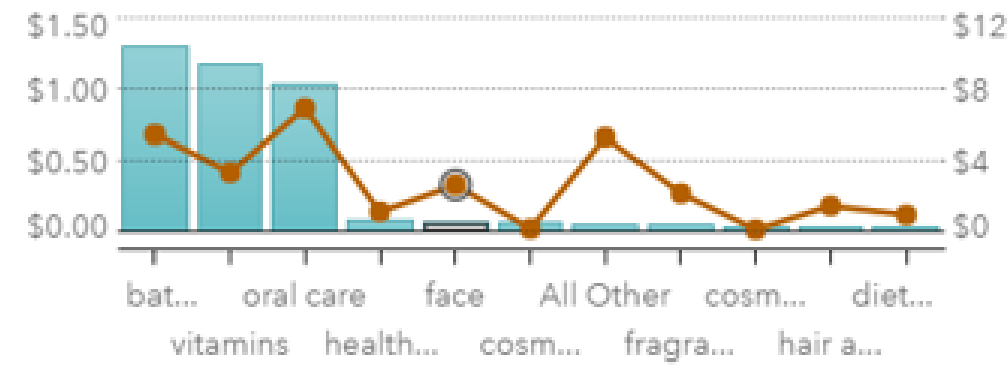
Regular Sales (millions) Marketing Budget (billions)



Regular Sales Marketing Budget

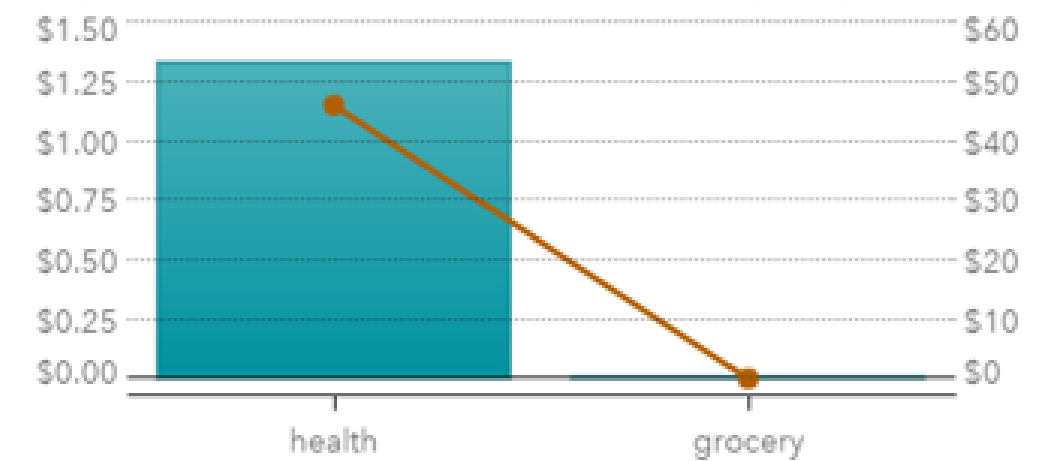
All Merchandise Hierarchy > health

Regular Sales (millions) Marketing Budget (billions)



Regular Sales Marketing Budget

Regular Sales (millions) Marketing Budget (billions)

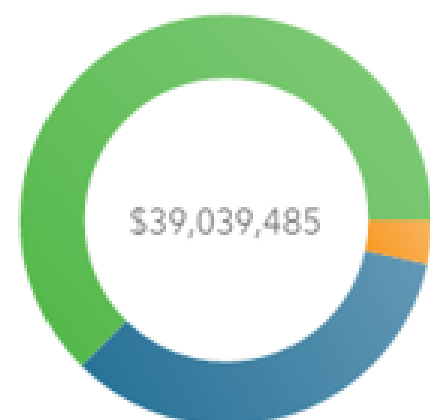


Regular Sales Marketing Budget

All Store Banners

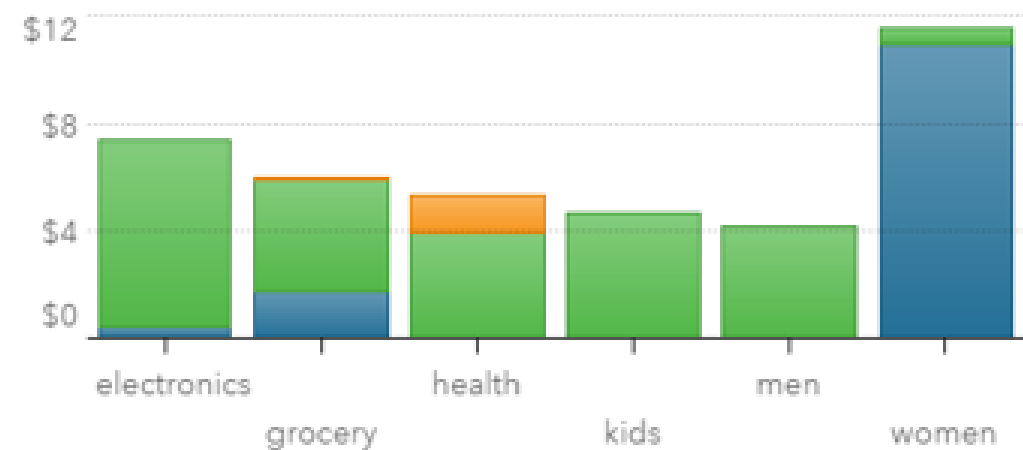
Regular Sales

Store Banner
 GRAND
 FAST
 MODA



Store Banner
 FAST
 GRAND
 MODA

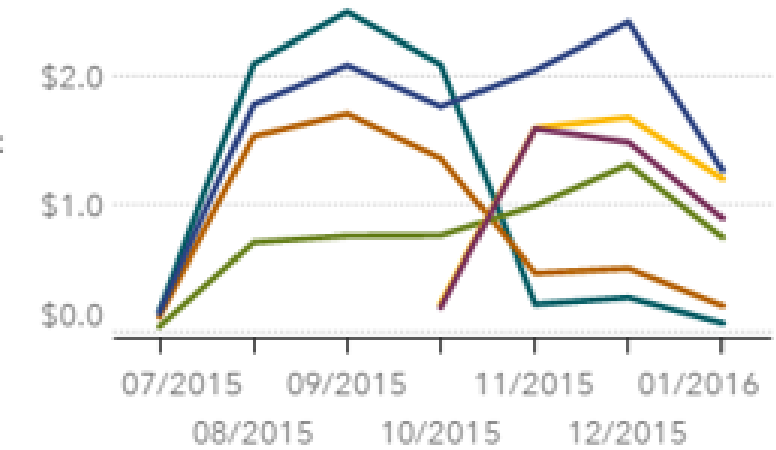
Regular Sales (millions)



Merchandise Department

Merchandise Department
 electronics
 grocery
 health
 kids
 men
 women

Regular Sales (millions)



Transaction MMYYYY

Study Site Identifier

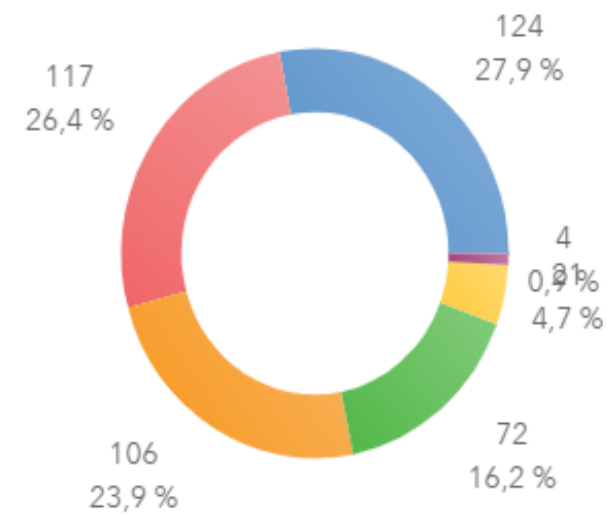
Subject Death Flag

Subjects in the study

444



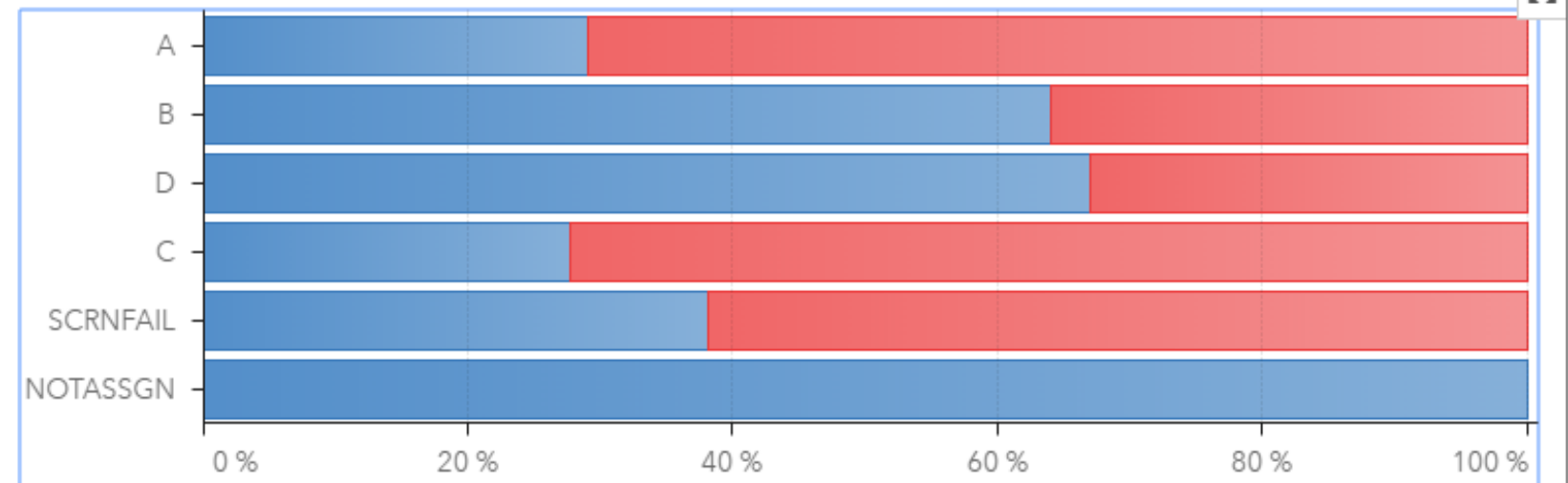
Count of Planned arm



Count of Actual Arm

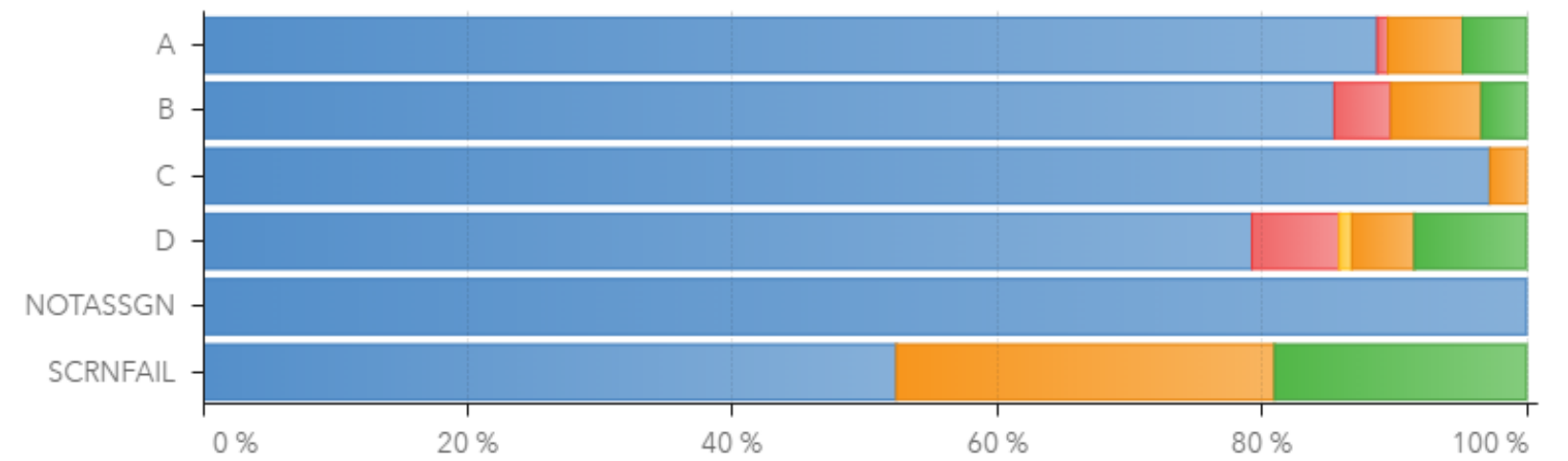


Gender Distribution



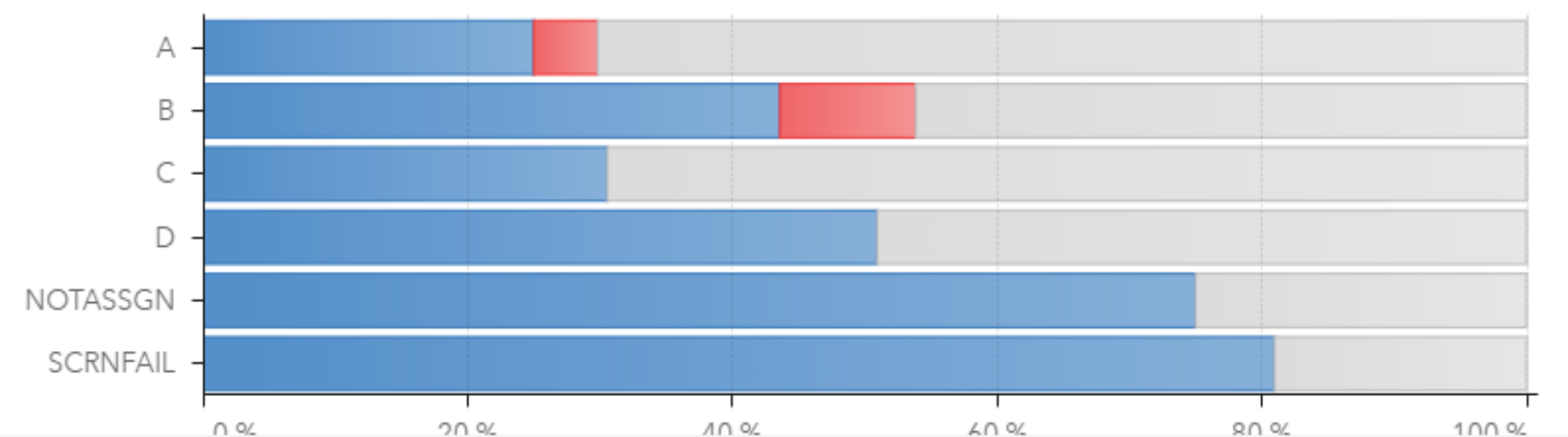
Description of Planned Arm	Age	Unique Subject Identifier (Distinct Co...)	Frequency Percent
Placebo/ProductX 600U	43,9	26	16,22 %
ProductX 600U	46,4	41	27,93 %
Not Assigned	47,5	4	0,90 %
Screen Failure	48,1	13	4,73 %
ProductX 800U	49,1	41	26,35 %
Placebo/ProductX 800U	49,3	29	23,87 %

Race Distribution



Study Site Identifier	Subject Identifier for the Study	Unique Subject Identifier	Description of Actual Arm	Subject Reference Start Date/Time	Subject Reference End Date/Time	Date/Time of Informed Consent	Da of
642001	64200100016	STUDY1-6420010...		2018-09-26T...	2018-09-26	2018-09-03	20
616007	61600700001	STUDY1-6160070...		2018-08-07T...	2018-08-07	2018-07-06	20
792006	79200600018	STUDY1-7920060...		2018-03-27T...	2018-03-27	2018-03-06	20
840009	84000900002	STUDY1-8400090...		2018-07-17T...	2018-07-17	2018-05-24	20
792006	79200600015	STUDY1-7920060...		2018-03-02T...	2018-07-03	2018-02-21	20
792006	79200600021	STUDY1-7920060...		2018-04-26T...	2018-08-02	2018-04-12	20
840011	84001100008	STUDY1-8400110...		2018-08-06T...	2018-08-06	2018-07-16	20
642001	64200100014	STUDY1-6420010...		2018-08-29T...	2018-08-29	2018-08-07	20
840042	84004200003	STUDY1-8400420...		2018-09-27T...	2018-09-27	2018-09-11	20
380010	38001000009	STUDY1-3800100...		2018-03-22T...	2018-03-22	2018-02-13	20

Ethnic Distribution



SAS Visualisation Examples

The screenshot displays the SAS Visual Analytics Gallery website. At the top, the SAS logo and 'COMMUNITIES' are visible, along with navigation links for 'All SAS', search, and user icons. A dark blue navigation bar contains links for 'Community', 'Learn', 'Programming', 'Analytics', 'SAS Viya', 'Administration', 'Solutions', and 'Hubs', with a 'Sign In' button on the right. Below this is the 'SAS Visual Analytics Gallery' header with the tagline 'A place to share and chat about interesting stories told through beautiful visualizations'. A search bar and 'Knowledge base' dropdown are present. The main content area shows a breadcrumb trail 'Home > SAS Viya > VA Gallery' and a row of utility buttons: 'Options', 'Bookmark', 'Subscribe', and 'RSS Feed'. A pagination control shows '1' as the active page. The gallery features several visualization examples:

- DEATH OF OUR FORESTS**: A dashboard with maps and charts showing global deforestation drivers and impact for countries like Brazil, Angola, Indonesia, Paraguay, Bolivia, and Malaysia.
- The Rise of Megacities**: A visualization showing global population growth trends and projections for 2025.
- Frequency of Topic Areas**: A donut chart showing a total of 200 topics across various categories like Science, Culture, and Technology.
- Guesses by Article Title**: A horizontal bar chart showing the frequency of different topics associated with article titles.
- Queenslanders On The Move**: A dashboard monitoring state road traffic with various gauges and charts.
- REACHING FOR THE STARS**: A visualization of the Hipparcos 2 catalogue with a large number '118,218'.
- AIR QUALITY ANALYSIS UNITED STATES**: A dashboard showing air quality metrics across different states.

On the right side, there are links to 'Use data for good through GatherIQ', 'Data visualization blog posts', and 'Data visualization SAS Global Forum 2021 Proceedings'. A 'How to post in the gallery' section is highlighted with a hand icon. Below it is a promotional box for a webinar titled 'Trustworthy AI Using SAS®: A Technical Discussion', which is premiering on October 5, 11 am ET, with a 'Register Now' button.



Thank You – Any Questions?