

Data Visualization II: Advanced Power BI

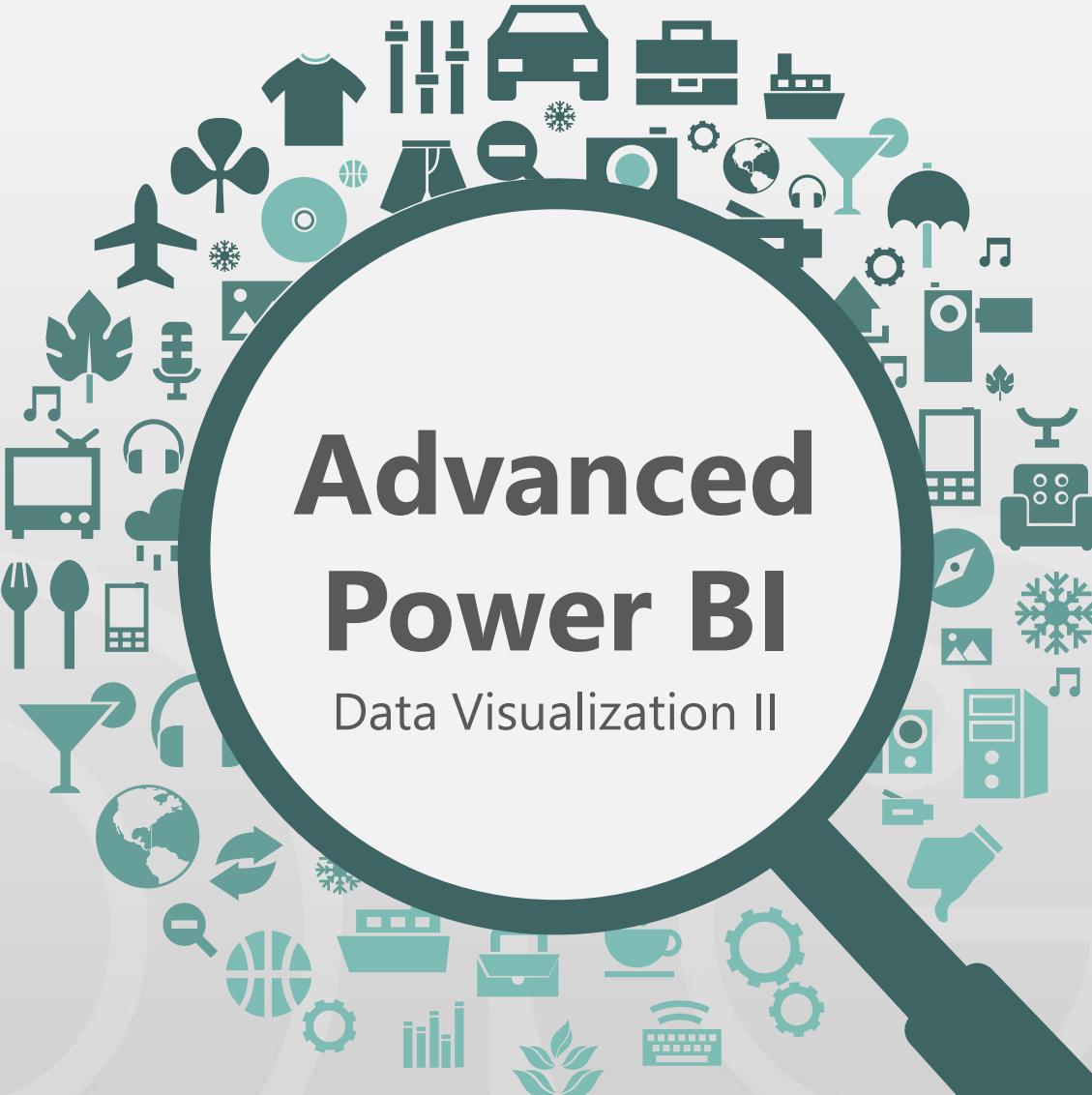
Business Data Visualization
Satidchoke Phosaard



Topics

Advanced Power BI

Data Visualization II



**1 Advanced Visualizaiton
and Analytics Tools**

3 Web Scrapping

2 DAX

Data Analysis Expression (DAX)

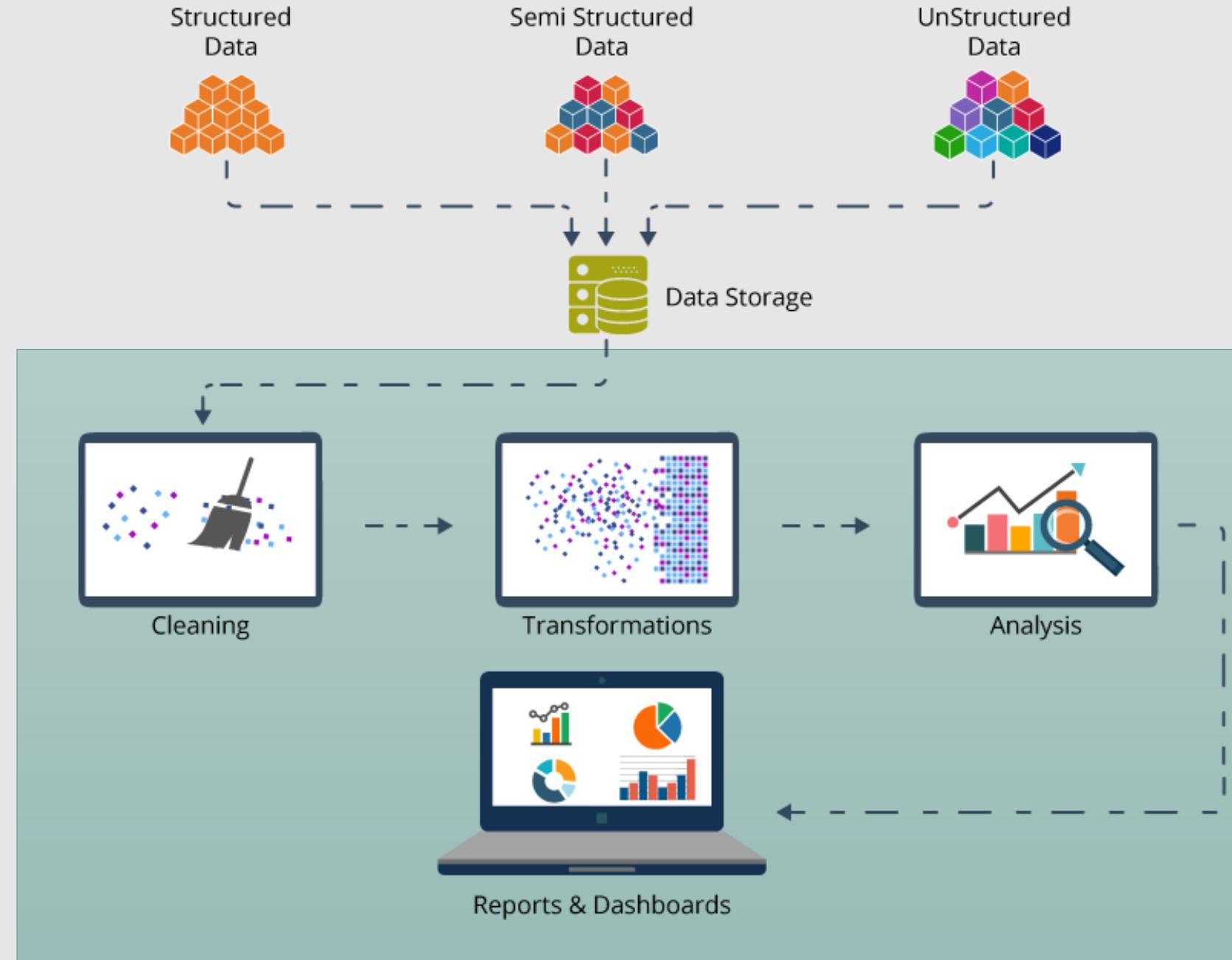
**4 End-to-End
Visualization Workshop**



Advanced Visualization and Analytics Tools

Course Topics

- Introduction to Big Data Analytics and Visualization
- End-to-End Data Project
- Principles of Infographics
- Infographics Creation Tools
- **Data Visualization I**
- **Data Visualization II**
- Big Data Technologies
- HDFS, YARN, MapReduce, Ambari
- HIVE, HBASE, Sqoop, Flume
- Spark MLlib and Hue
- Practical Examination



Sales Report - Power BI Desktop

Kaur Kotadia 

OVERVIEW

Sales Report

Key influencers **Top segments**  

What influences NPS to be 7  ?

Whenthe likelihood of NSAT being 7 increases by

- UnitPrice is 298.5 - 299.94 → 10.20x
- UnitPrice is 197.45 - 199.45 → 10.20x
- Manufacturer is Litware, INC. → 10.20x
- Color is Brown → 10.20x
- StockType is High → 10.20x
- Manufacturer is Contoso, Ltd → 10.20x
- Color is Silver → 10.20x

\$5.3M Australia

\$5.3M Canada

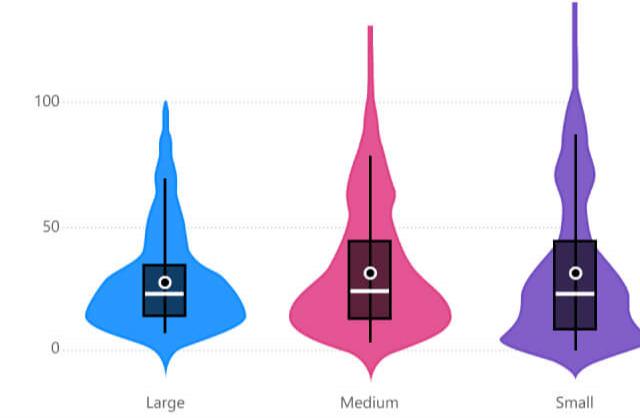
\$2.6M France

\$2.3M Germany

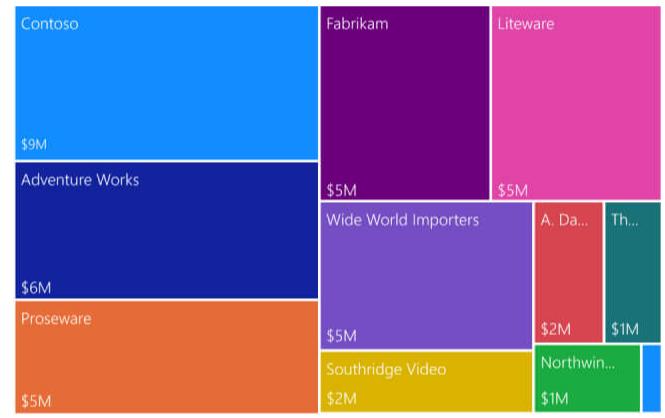
\$3.3M UK

\$21.8M USA

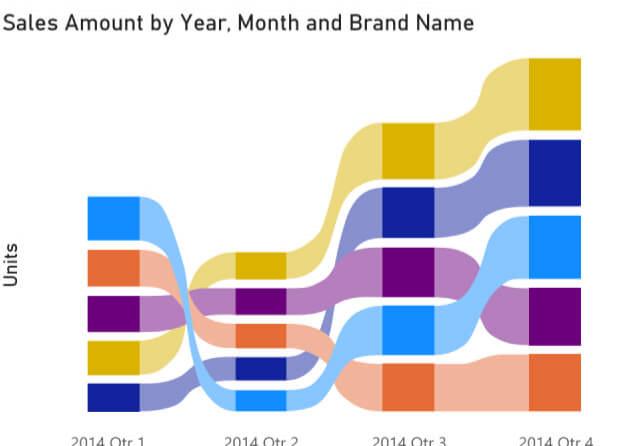
Units by Product and Sale Size



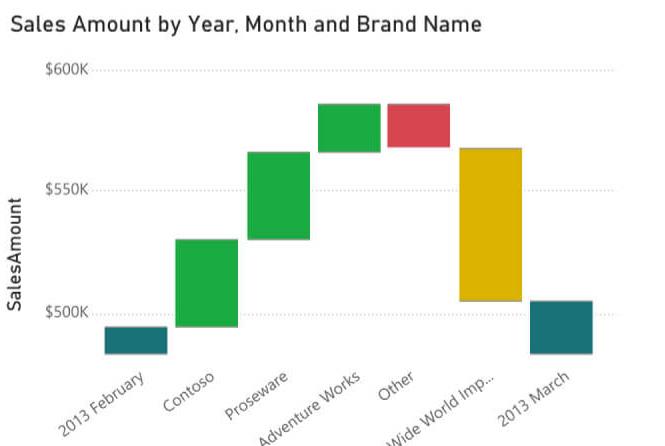
Sales Amount by Brand Name



Sales Amount by Year, Month and Brand Name



Sales Amount by Year, Month and Brand Name



Visualizations

Fields

Values

Drag data fields here

Drillthrough

Keep all filters

Off 

Drag data fields here

Overview Stores Products +

File Home Insert Modeling View Help

Get data Refresh New visual More visuals New measure Publish



Visualizations

Filters

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

A red box highlights the 'Drill through' section, specifically the 'Cross-report' option.

File Home Insert Modeling View Help

Get data Refresh New visual More visuals New measure Publish

Sales Year over Year Sales by Product Category

Office Supplies 25.16% Technology 40.12%

Furniture 34.72%

▲ 3.72M 8% 283K

Sales & Profit

Sales Profit

0.4M 0.2M 0.0M

0.34M 0.28M 0.35M 0.27M 0.38M 0.28M 0.24M 0.30M 0.32M 0.35M 0.26M 0.35M

0.04M 0.03M 0.04M 0.03M 0.03M 0.03M 0.01M 0.03M 0.02M 0.03M 0.02M

January February March April May June July August September October November December

Sales by State

Customer Segment Consumer Corporate Home Office Small Business

UNITED STATES MEXICO Sargasso Sea Atlantic Ocean Gulf of Mexico

Bing

Key influencers Top segments

What influences Sales to Increase ?

When...the average of Sales increases by

Ship Mode is Delivery Truck → 4.23K

Unit Price goes up 290.34 → 1.86K

Sales last year goes up 3392.88 → 1.6K

Order Quantity is more than 44 → 1.53K

Product Category is Technology → 1.49K

Order Quantity is 31 - 44 → 861.3

Sales this year month goes up 2475.43 → 597.5

Visualizations Fields

Search

SuperStore

- customer A...
- customer A...
- customer di...
- customer di...
- customer la...
- Customer ...
- Customer S...
- customer t...
- Discount

Order Date

- Order ID
- Order Priority
- Order Quan...
- pct_change
- Product Bas...
- Product Cat...
- Product Co...
- Product Na...
- Product Su...

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Page 1 Example dashboard +

File Home Insert Modeling View Help

Get data Refresh

New visual More visuals New measure

Publish

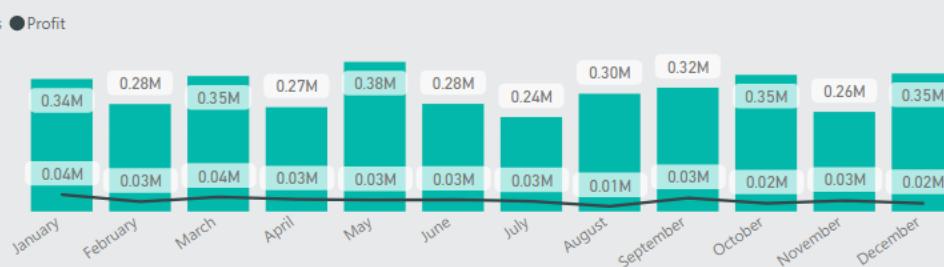
Sales Year over Year

▲ 3.72M
8% 283K

Sales by Product Category

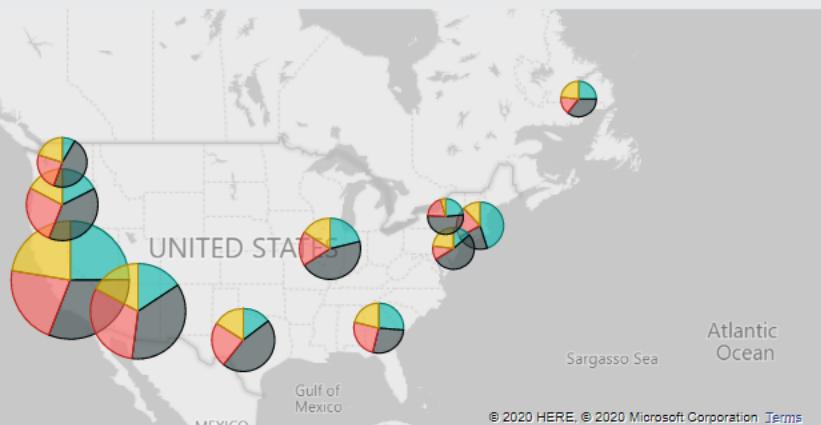


Sales & Profit



Sales by State

Customer Segment: Consumer, Corporate, Home Office, Small Business



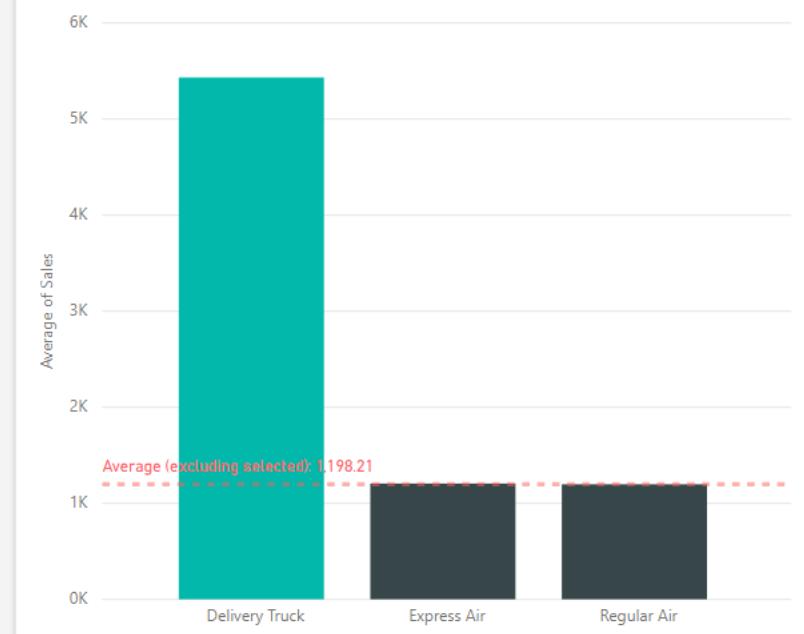
Key influencers

What influences Sales to Increase ?

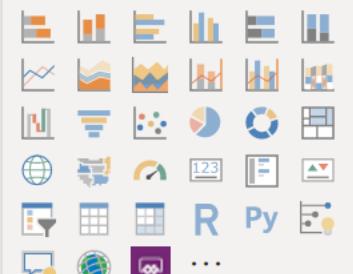
Ship Mode is Delivery Tr...

4.23K

← Sales is more likely to increase when Ship Mode is Delivery Truck than otherwise (on average).



Visualizations



Filters



Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Bing

Example dashboard

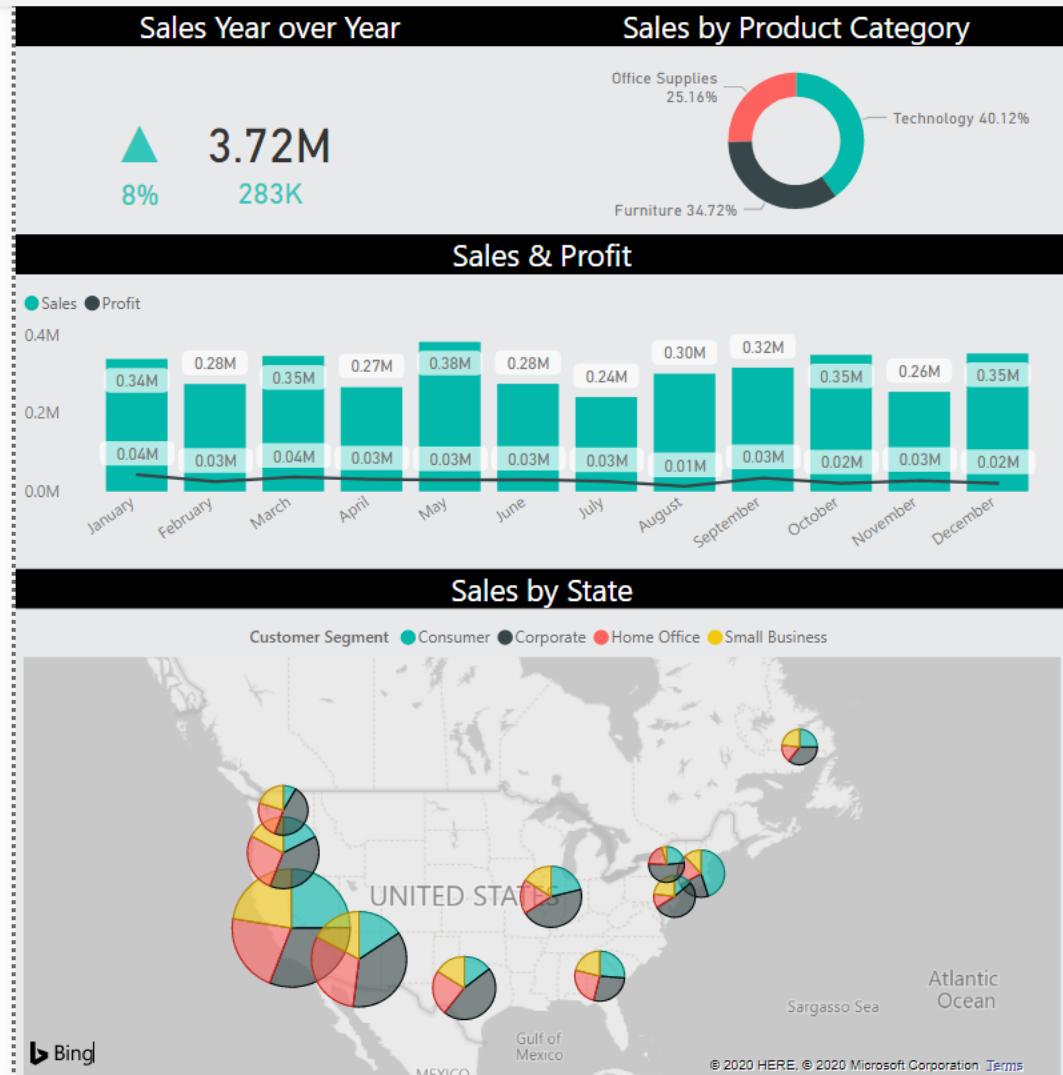


File Home Insert Modeling View Help

Get data Refresh

New visual More visuals New measure

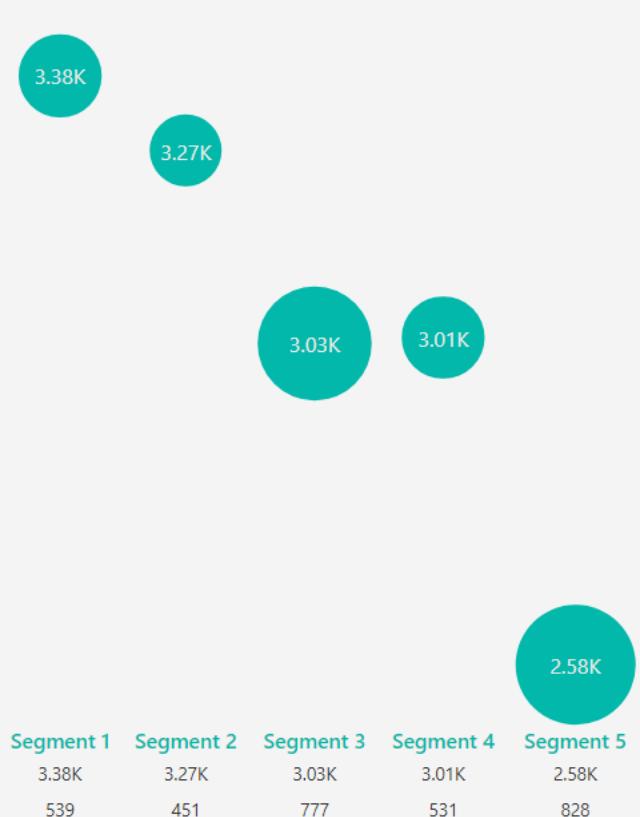
Publish



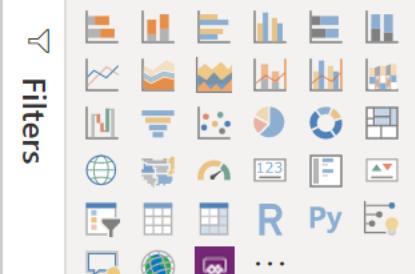
Key influencers Top segments

When is Sales more likely to be High ?

We found 5 segments and ranked them by Average of Sales and populati...



Visualizations



Filters



Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Example dashboard



File Home Insert Modeling View Help

Sales Year over Year Sales by Product Category

Office Supplies 25.16% Technology 40.12%
Furniture 34.72%

▲ 3.72M 8% 283K

Sales & Profit

Customer Segment ● Sales ● Profit
0.4M
0.2M
0.0M

Month	Sales	Profit
January	0.34M	0.04M
February	0.28M	0.03M
March	0.35M	0.04M
April	0.27M	0.03M
May	0.38M	0.03M
June	0.28M	0.03M
July	0.24M	0.03M
August	0.30M	0.01M
September	0.32M	0.03M
October	0.35M	0.02M
November	0.26M	0.03M
December	0.35M	0.02M

Sales by State

Customer Segment ● Consumer ● Corporate ● Home Office ● Small Business

Bing

Key influencers Top segments

When is Sales more likely to be High ?

3.38K 3.27K 3.03K 3.01K 2.58K

Segment 3

Customer Segment is Corporate
Product Category is not Office Supplies
State is not California
State is not Arizona

In segment 3, the average Sales is 3.03K. This is 1.25K units higher than the overall average, 1.78K.

Segment 3 3.03K
Overall 1.78K

Segment 3 contains 777 data points (9.3% of the data).

● Segment 3 ● Other

Visualizations

Filters

Values

Add data fields here

Drill through

Cross-report Off

Keep all filters On

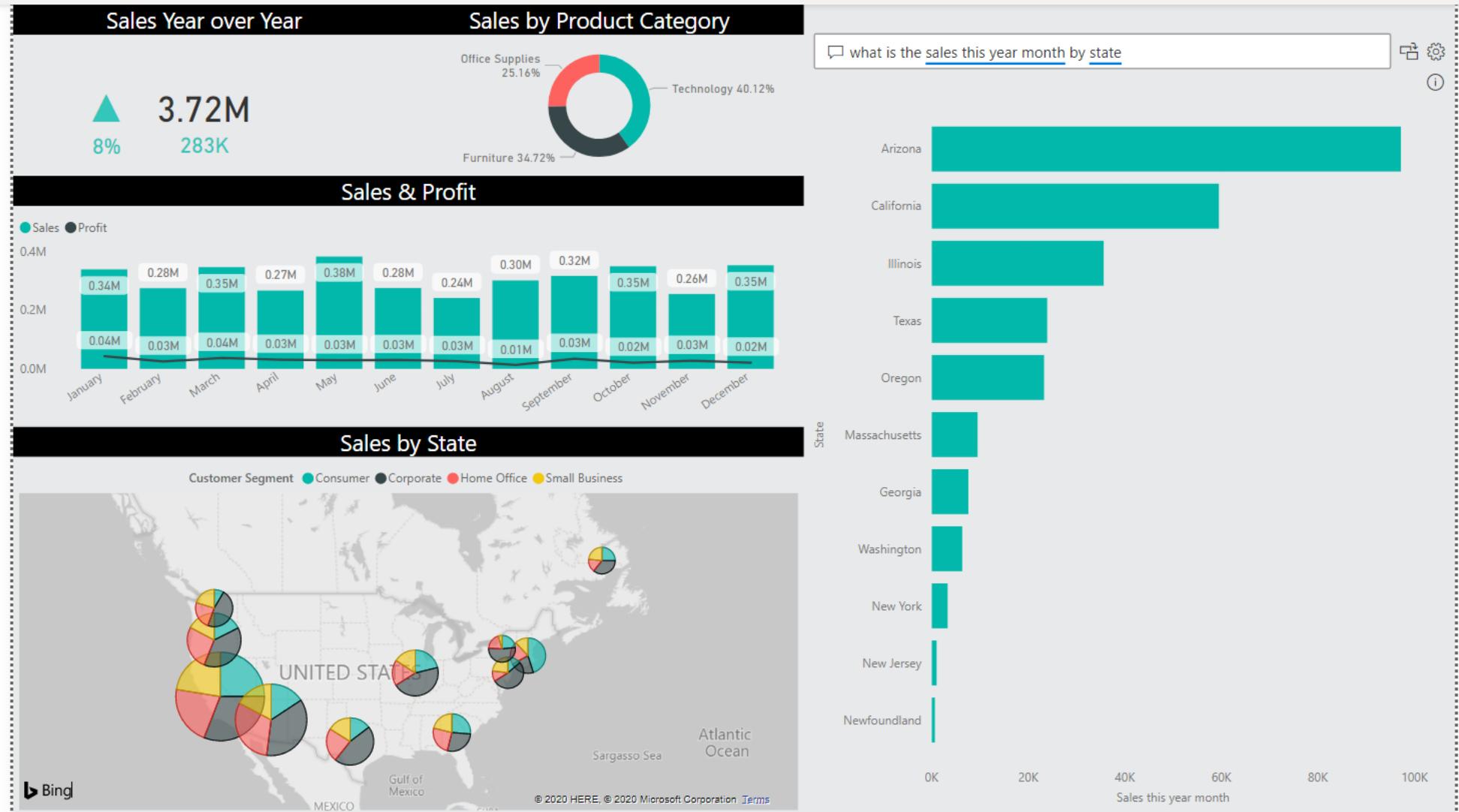
Add drill-through fields here

Get data New visual More visuals New measure Publish

Page 1 Example dashboard +

File Home Insert Modeling View Help

Get data Refresh New visual More visuals New measure Publish



Visualizations

Filters

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

11

Sales Year over

3.72M
8%
283K

Sales Profit

Month	Sales	Profit
January	0.34M	0.04M
February	0.28M	0.03M
March	0.35M	0.04M

Customer S

Bing

Page 1 Example

Power BI Visuals

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Search

Category: All, Advanced Analytics, Data Visualizations, Editor's Picks, Filters, Gauges, Infographics, KPIs, Maps, Power BI Certified, Time

Suggested for you:

- Enlighten Aquarium** Make dashboards fun with this award-winning Aquarium visualization
Add
- Radar Chart** Multiple measures plotted over a categorical axis. Useful to compare attributes
Add
- Sankey Chart** Flow diagram where the width of the series is proportional to the quantity of the flow
Add
- Visio Visual** Bring your business activities to life in ways that only Microsoft Visio diagrams can visualize
Add

Visualizations >

Fields

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

File Home Insert Modeling View Help Format Data / Drill

Sales Year over Year Sales by Product Category

3.72M 8% 283K

Office Supplies 25.16% Technology 40.12% Furniture 34.72%

Sales & Profit

Sales Profit

Month	Sales	Profit
January	0.34M	0.04M
February	0.28M	0.03M
March	0.35M	0.04M
April	0.27M	0.03M
May	0.38M	0.03M
June	0.28M	0.03M
July	0.24M	0.03M
August	0.30M	0.01M
September	0.32M	0.03M
October	0.35M	0.02M
November	0.26M	0.03M
December	0.35M	0.02M

Sales by State

Customer Segment: Consumer (Teal), Corporate (Dark Gray), Home Office (Red), Small Business (Yellow)

United States Mexico Gulf of Mexico Sargasso Sea Atlantic Ocean

Bing

New visual More visuals New measure Publish

Product Category

Select all Furniture Office Supplies Technology

Customer Segment

Select all Consumer Corporate Home Office Small Business

Visualizations

Filters

Enlighten Aquarium

Small Business Corporate Consumer Home Office

Legend

Customer Segment

Details

Add data fields here

Values

Sales

Toolips

Add data fields here

Drill through

Cross-report

Page 1 Example dashboard

The screenshot displays a Power BI dashboard titled "Example dashboard" with several visualizations:

- Sales Year over Year:** A summary card showing sales of 3.72M (8% growth) and 283K.
- Sales by Product Category:** A donut chart showing the distribution of sales across Office Supplies (25.16%), Technology (40.12%), and Furniture (34.72%).
- Sales & Profit:** A stacked bar chart showing monthly sales and profit from January to December.
- Sales by State:** A map of the United States where states are represented by pie charts showing the breakdown of sales by customer segment: Consumer (Teal), Corporate (Dark Gray), Home Office (Red), and Small Business (Yellow).

The Power BI Visualizations pane on the right contains the following items:

- Product Category:** Buttons for "Select all", "Furniture", "Office Supplies", and "Technology".
- Customer Segment:** Buttons for "Select all", "Consumer", "Corporate", "Home Office", and "Small Business".
- Visualizations:** A list of visualization types including bar charts, line charts, maps, and tables.
- Filters:** A section for filtering data.
- Enlighten Aquarium:** A specific visualization item highlighted with a red box.
- Legend:** A section for legends.
- Customer Segment:** A dropdown menu for the customer segment filter.
- Details:** A section for adding data fields.
- Values:** A section for selecting values, currently set to "Sales".
- Toolips:** A section for adding data fields.
- Drill through:** A section for cross-reporting.
- Cross-report:** A section for cross-reporting.

File Home Insert Modeling View Help Format Data / Drill

Sales Year over Year Sales by Product Category

Office Supplies 25.16% Technology 40.12%

Furniture 34.72%

▲ 3.72M 8% 283K

Sales & Profit

Sales by Customer Segment

Select all Furniture Office Supplies Technology

Select all Consumer Corporate Home Office

Sales by State

Customer Segment: Consumer Corporate Home Office Small Business

UNITED STATES MEXICO Sargasso Sea Atlantic Ocean

Bing © 2020 HERE, © 2020 Microsoft Corporation Terms

Product Category

Customer Segment

Sales

Home Office 3564628.29

Visualizations

Fields

Search

SuperStore

- customer A...
- customer A...
- customer di...
- customer di...
- customer la...
- Customer ...
- Customer S...
- customer t...
- Σ Discount
- Order Date
- Order ID
- Order Priority
- Order Quan...
- pct_change
- Σ Product Bas...
- Product Cat...
- Product Co...
- Product Na...
- 14 Product Su...

Fish

Customer Segment

Fish Size

Sales

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

The dashboard displays the following data:

- KPI Card:** ▲ 3.72M (Sales), 8% (Profit), 283K (Count)
- Donut Chart:** Technology (40.12%), Office Supplies (25.16%), Furniture (34.72%)
- Bar Chart:** Sales & Profit by Month (January to December). Data (M): Jan (0.34M), Feb (0.28M), Mar (0.35M), Apr (0.27M), May (0.38M), Jun (0.28M), Jul (0.24M), Aug (0.30M), Sep (0.32M), Oct (0.35M), Nov (0.26M), Dec (0.35M).
- Map:** Sales by State. States are color-coded by customer segment: Consumer (teal), Corporate (dark grey), Home Office (red), and Small Business (yellow).

The right side of the interface shows the **Visualizations** and **Fields** panes. The **Visualizations** pane lists various chart types. The **Fields** pane shows the **SuperStore** data source with numerous fields listed, some of which are selected (e.g., Customer Segment, Customer S...). A filter for "Customer Segment" is applied to the "Fish" visualization.

Workshop Visualization - Power BI Desktop

Satidchake Phosaard

File Home Insert

Get data

Sales Year over

3.72M
8% 283K

0.4M
0.2M
0.0M

0.34M 0.28M 0.35M

0.04M 0.03M 0.04M

January February March

Customer S

Bing

Page 1 Example

Power BI Visuals

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Infographic

Category All Advanced Analytics Data Visualizations Editor's Picks Filters Gauges Infographics KPIs Maps Power BI Certified Time

Suggested for you

Infographic Designer Beautify your reports with easy-to-create infographics Add

Animated Bar Chart Race Create fascinating animated trend charts, with bars that race to the top based on ranks. Add

Visio Visual Bring your business activities to life in ways that only Microsoft Visio diagrams can visualize Add

Scroller Your data gets visualized as an animating scrolling text. Add

Visualizations >

Fish

Customer Segment

Fish Size

Sales

Drill through

Cross-report

Off

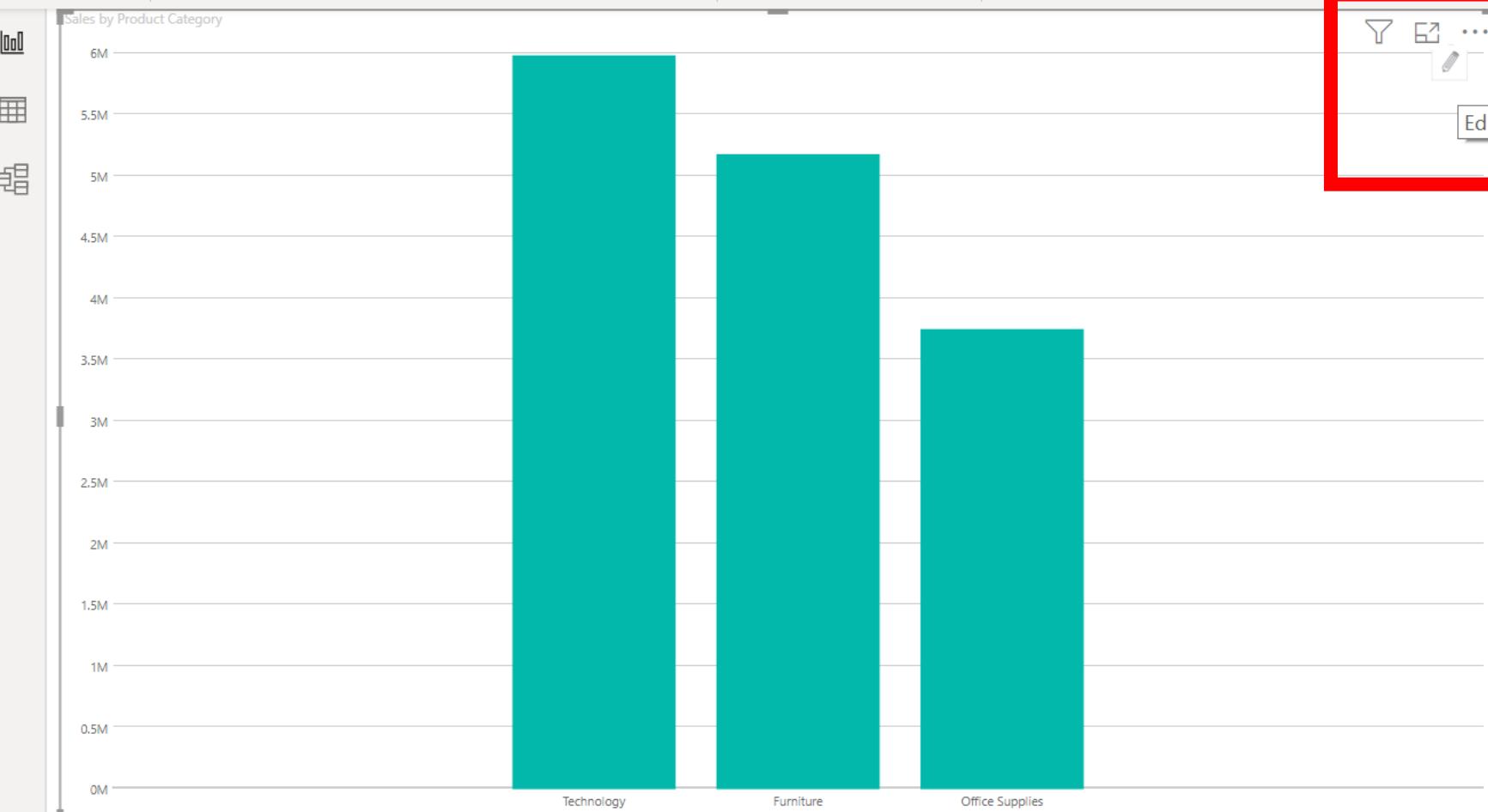
Keep all filters

On

Add drill-through fields here

PAGE 2 OF 2

File Home Insert Modeling View Help Format Data / Drill



visualizations

Fields

Search

Discount

Order Date

Order ID

Order Priority

Order Quant...

pct_change

Product Bas...

Product Cat...

Product Co...

Product Na...

Product Su...

Profit

profit Arro...

profit diff ...

profit diff y...

profit last y...

profit last y...

profit this y...

profit this y...

Region

Category

Product Category

Legend

Add data fields here

Measure

Sales

Column By

Add data fields here

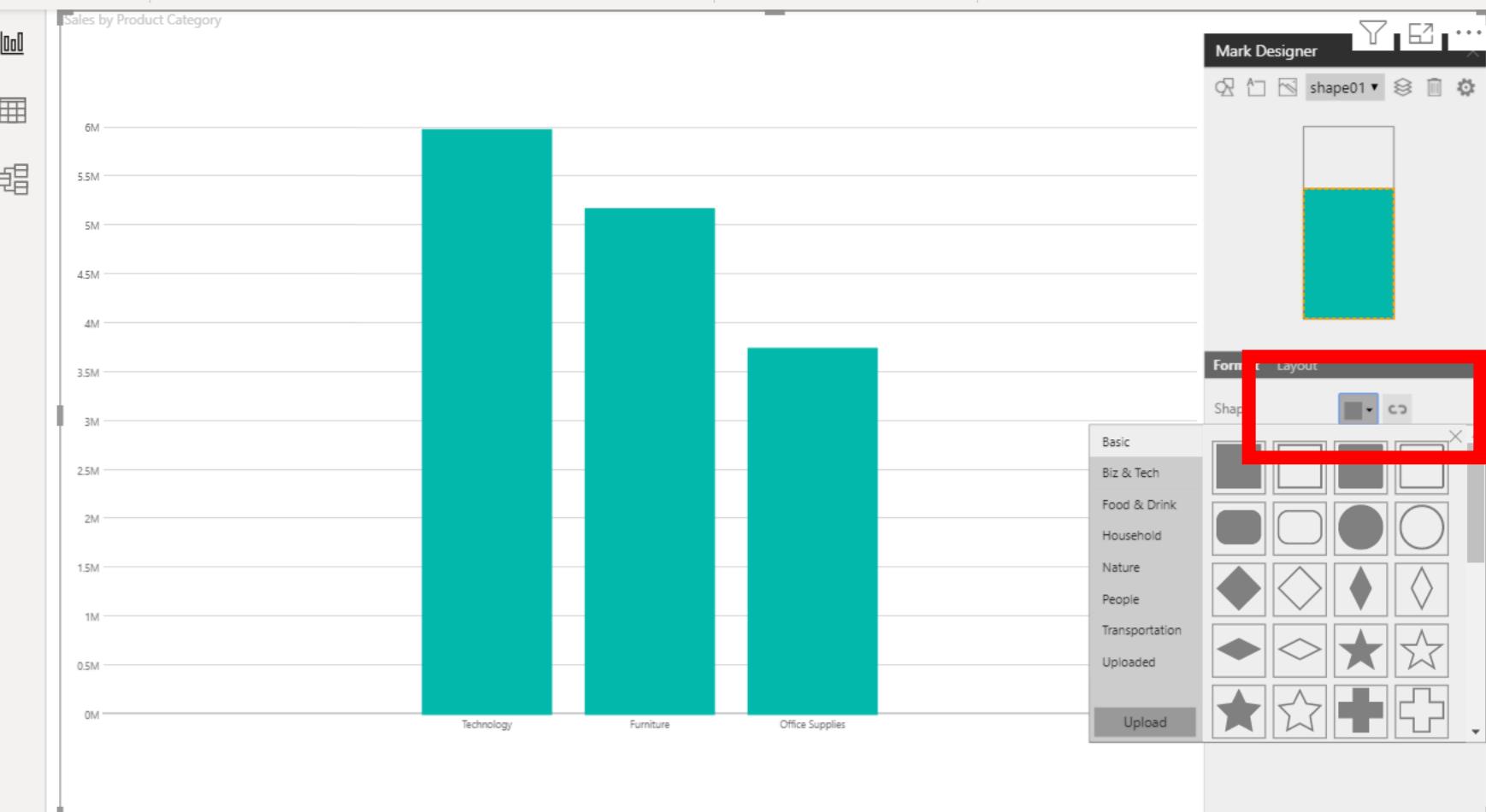
Row By

Add data fields here

The 'Edit mark' button is highlighted with a red box.

The 'More visuals' dropdown menu is open, showing various visualization icons like line charts, pie charts, and maps.

File Home Insert Modeling View Help Format Data / Drill



Visualizations

Fields

Search

Discount

Order Date

Order ID

Order Priority

Order Quant...

pct_change

Product Bas...

Product Cat...

Product Co...

Product Na...

Product Su...

Profit

profit Arro...

profit diff ...

profit diff y...

profit last y...

profit last y...

profit this y...

profit this y...

Region

Filters

Category

Product Category

Legend

Add data fields here

Measure

Sales

Column By

Add data fields here

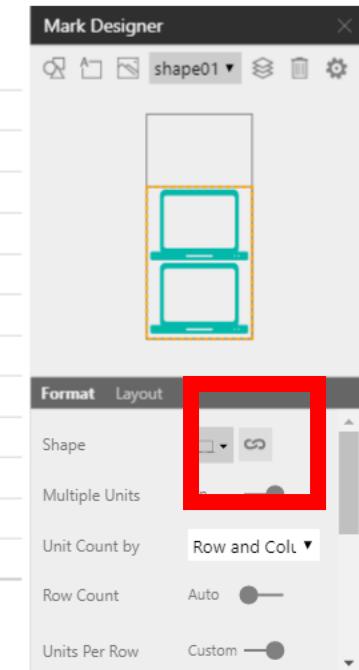
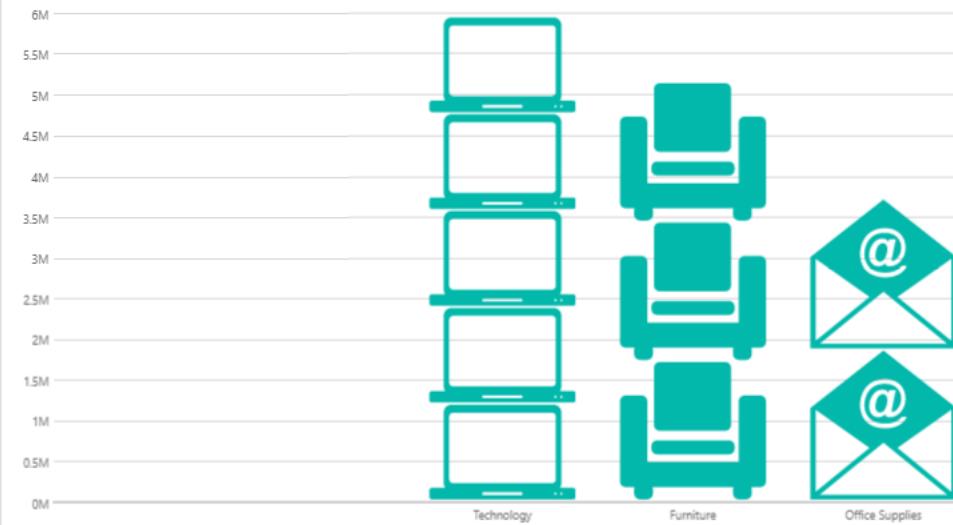
Row By

Add data fields here

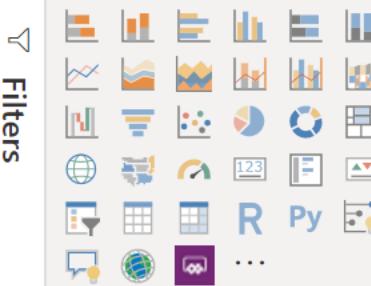
File Home Insert Modeling View Help



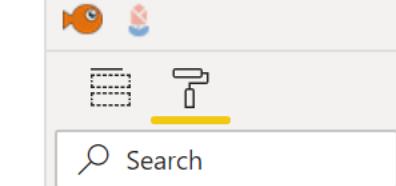
Sales by Product Category



Visualizations



Filters



Fields

Search

- Σ Discount
- Δ Order Date
- Order ID
- Order Priority
- Σ Order Quan...
- Δ pct_change
- Σ Product Bas...
- Product Cat...
- Product Co...
- Product Na...
- Product Su...
- Σ Profit
- Δ profit Arro...
- profit arrow...
- Δ profit diff ...
- Δ profit diff y...
- Δ profit last y...
- Δ profit last y...
- Δ profit this y...
- Δ profit this y...
- Region

File Home Insert Modeling View Help



Sales by Product Category



Mark Design

Format Layout

Data

Multiple Units On

Unit Count by Row and Col

Row Count Auto

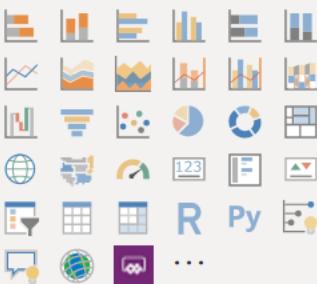
Units Per Row Custom 1

Fill Percentage none

Value Tint None

< Filters >

Visualizations



Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Fields

Search

- Σ Discount
- Σ Order Date
- Order ID
- Order Priority
- Σ Order Quan...
- pct_change
- Σ Product Bas...
- Product Cat...
- Product Co...
- Product Na...
- Product Su...
- Σ Profit
- profit Arro...
- profit arrow...
- profit diff ...
- profit diff y...
- profit last y...
- profit last y...
- profit this y...
- profit this y...
- Region



Page 1

Example dashboard

Page 2



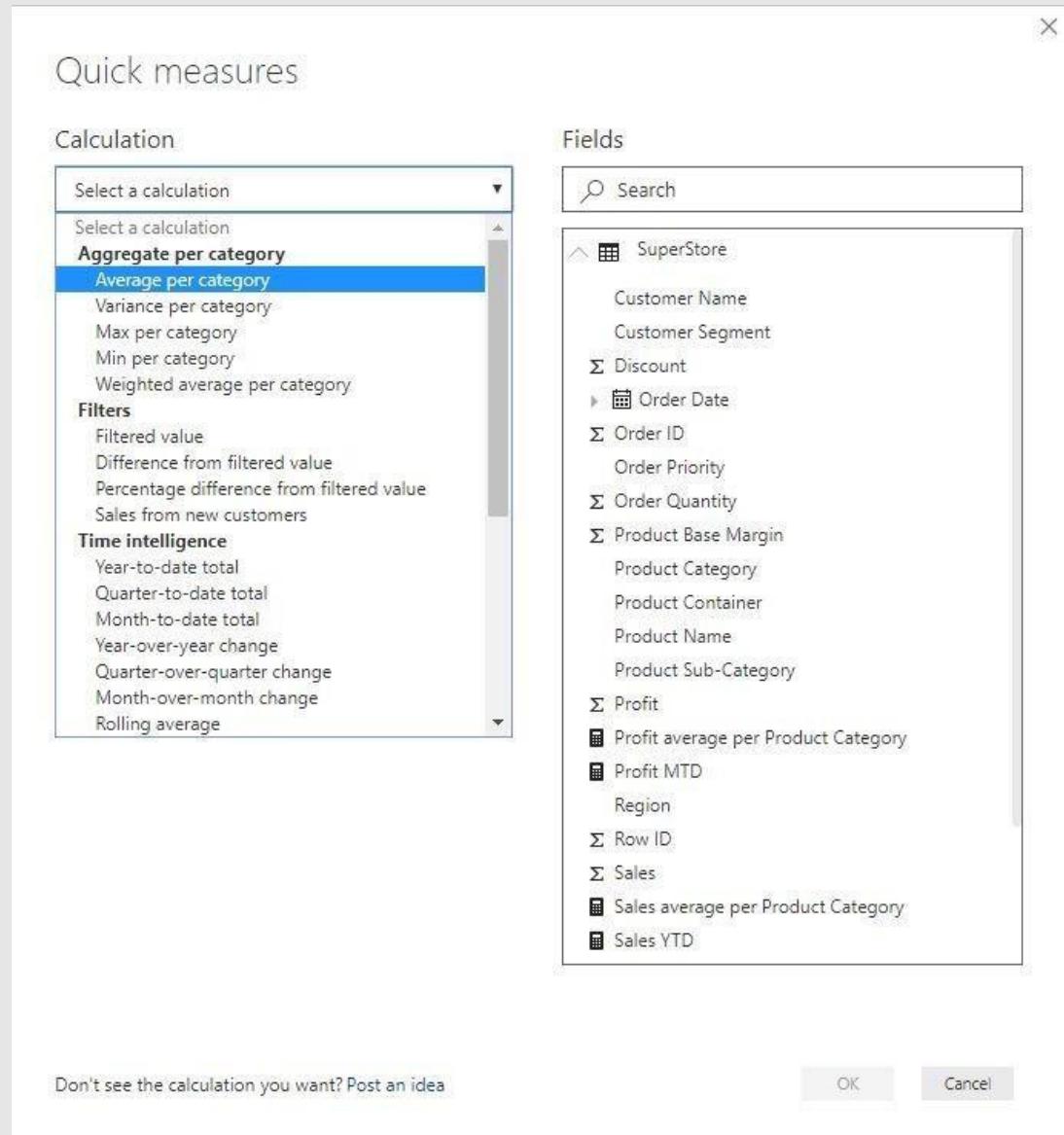
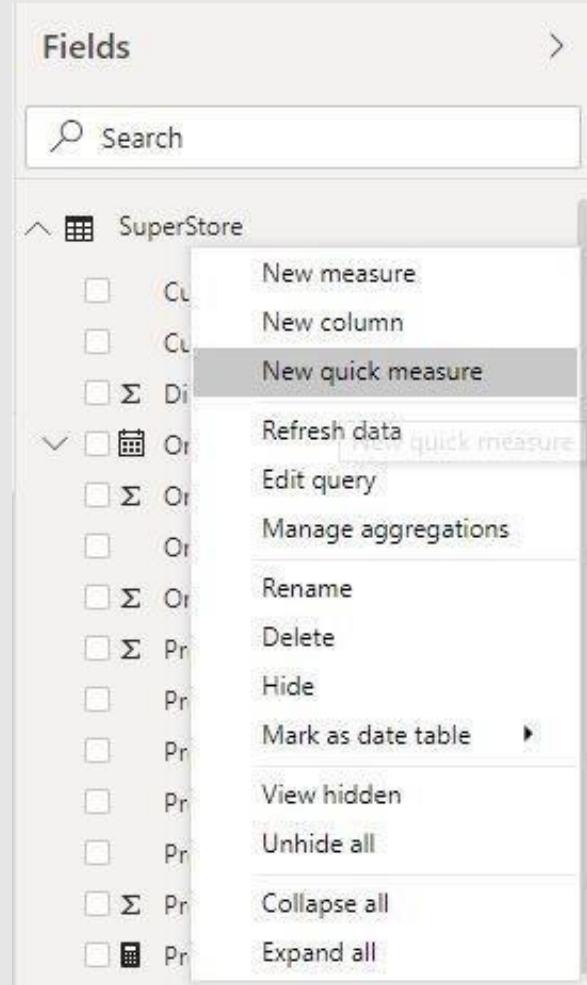
Activity 1

- Create a chart using demonstrated advanced visualization or choose one from the AppSource using any dataset.

Quick Measure

- Aggregate per category
 - Average percategory
 - Variance per category
 - Max per category
 - Min percategory
 - Weighted average percategory
- Filters
 - Filtered value
 - Difference from filtered value
 - Percentage difference from filtered value
 - Sales from new categories
- Time intelligence
 - [Year-to-date total](#)
 - Quarter-to-date total
 - Month-to-date total
 - [Year-over-year change](#)
 - Quarter-over-quarter change
 - Month-over-month change
 - Rolling average
- Totals
 - Running total
 - Total for category (filters applied)
 - Total for category (filters not applied)
- Mathematical operations
 - Addition
 - Subtraction
 - Multiplication
 - Division
 - Percentage difference
 - Correlation coefficient
- Text
 - Star rating
 - Concatenatedlist of values

Quick Measure



Rational Decision Making



- Steps 1-4 are decision making; with steps 5-6 the whole process is problem solving.
- Desirable model in business and generally but its assumptions are limiting.*

Strategic Customer Questions

- Who are the most/least profitable customers?
- Who are the most/least satisfied customers?
- What is fastest/slowest customer segment?
- What type of ads bring most customers?
- What is our customer experience like & how can we improve it?
- What is the cost of customer acquisition?
- What are the reasons for losing customer?
- What are the costs of customer transactions?

Strategic Employee Questions

- Who are the most productive salespeople, employee?
- Who have the right skills for the next key product line?
- Which employees have the strongest customer relationships?
- Which managers have the highest retention rates? What do they do?
- Which hires work out the best (faculty)?
- What is our retention rate? Why do people leave?
- What is the cost of turnover?
- Why do people join the organization?

Strategic Product Questions

- What are our most/least profitable products?
- What are our production costs & how can we lower them?
- What is our quality level & how can we improve that (Fed Ex)?
- What is our cycle time & how can we lower it?
- What are the sources of product innovation?
- What impacts the demand of our product?

Strategic Financial Questions

- How accurate are the financial forecasts?
- How much financial data is used to answer business decisions?
- What items are affecting our margins the most?



Data Analysis Expressions (DAX)



The ribbon bar at the top of the Excel window shows the "Home" tab is selected. The "Clipboard" section includes Paste, Copy, and Paste Special options. The "Font" section includes Bold (B), Italic (I), Underline (U), and various font size and style dropdowns. The "Alignment" section includes horizontal alignment (Left, Center, Right) and vertical alignment (Top, Middle, Bottom). The "Number" section includes a dropdown for "Custom" format, currency (\$), percentage (%), and comma (,) separators. The "Styles" section includes Conditional Formatting, Format as Table, and Cell Styles. The "Cells" section includes Insert, Delete, and Format options. The "Editing" section includes Sort & Filter, Find & Select, and Ideas.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Full Name	Last Name	ID	Age	Age Range	Dept.	Description	Salary	Hire Date	Year	Leave							
2	Andrew	Miller		1406	29 Less Than 30	Service	Administrative Manager	85,000	1/26/2017	2017	0							
3	David	King		1407	31 Over Than 30	Sales	Sales Assistant	99,000	2/23/2017	2017	0							
4	Lucy	White		1408	33 Over Than 30	Accounting	Accounting Support	83,000	8/3/2017	2017	0							
5								=SUM(H2:H4)										
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
14																		
15																		
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19																		
20																		
21																		
22																		
23																		
24																		



The screenshot shows the Microsoft Excel ribbon with the 'Home' tab selected. The 'Clipboard' section contains buttons for Paste, Copy, and Cut. The 'Font' section includes buttons for Bold (B), Italic (I), Underline (U), and various font size and style dropdowns. The 'Alignment' section has buttons for horizontal and vertical alignment, and the 'Number' section includes a dropdown for General, Currency (\$), Percentage (%), and other formats. The 'Styles' section features Conditional Formatting, Table, and Cell Styles. The 'Cells' section includes Insert, Delete, Format, and Sort & Filter buttons. The 'Editing' section has a lightning bolt icon and the 'Ideas' button.

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
1	Full Name	Last Name	ID	Age	Age Range	Dept.	Description	Salary	Hire Date	Year	Leave							
2	Andrew	Miller		1406	29 Less Than 30	Service	Administrative Manager	85,000	1/26/2017	2017	0							
3	David	King		1407	31 Over Than 30	Sales	Sales Assistant	99,000	2/23/2017	2017	0							
4	Lucy	White		1408	33 Over Than 30	Accounting	Accounting Support	83,000	8/3/2017	2017	0							
5								267,000			=K2+K3+K4							
6																		
7																		
8																		
9																		
10																		
11																		
12																		
13																		
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16																		
17																		
18																		
19																		
20																		
21																		
22																		
23																		
24																		

[=] DAX Guide

<https://dax.guide>

• Aggregation functions

Aggregation functions return a scalar value applying an aggregation function to a column or to an expression evaluated by iterating a table expression.

• Date and Time functions

Date and time functions help creating calculations based on dates and time. Many of the functions in DAX are similar to the Excel date and time functions.

• Filter functions

Filter functions manipulate table and filter contexts.

• Information functions

Information functions provide information about data type or filter context of the argument provided.

• Logical functions

Logical functions act upon an expression to return information about the values or sets in the expression.

• Math and Trig functions

The mathematical functions in DAX are very similar to the Excel mathematical and trigonometric functions.

• Other functions

These are special functions that cannot be classified in other categories.

• Parent-child functions

These functions helps flattening a parent-child relationship in a regular one.

• Relationships management functions

These functions manage and manipulate relationships between tables.

• Statistical functions

Statistical aggregation functions.

• Table manipulation functions

These functions manipulate and return tables.

• Text functions

Text functions manipulate strings.

• Time Intelligence functions

Time intelligence functions support calculations to compare and aggregate data over time periods, supporting days, months, quarters, and years.

DAX Guide

- All products
 - Any attribute
- A-Z Groups Search

FUNCTIONS

Aggregation

- APPROXIMATEDISTINCTCOUNT
- AVERAGE
- AVERAGEA
- AVERAGEEX
- COUNT
- COUNTA
- COUNTAX
- COUNTBLANK
- COUNTROWS

The DAX language

The DAX language was created specifically for the handling of data models, through the use of formulas and expressions. DAX is used in several Microsoft Products such as Microsoft Power BI, Microsoft Analysis Services and Microsoft Power Pivot for Excel. These products all share the same internal engine, called Tabular.

Functions

Browse DAX functions alphabetically from the sidebar or choose a category below:

- Aggregation functions

Aggregation functions return a scalar value applying an aggregation function to a column or to an expression evaluated by iterating a table expression.

- Date and Time functions

Date and time functions help creating calculations based on dates and time. Many of the functions in DAX are similar

- Logical functions

Logical functions act upon an expression to return information about the values or sets in the expression.

- Math and Trig functions

The mathematical functions in DAX are very similar to the Excel mathematical and trigonometric functions.

- Statistical functions

Statistical aggregation functions.

- Table manipulation functions

These functions manipulate and return tables.

- Text functions

Text functions manipulate strings.

Common DAX Functions

Aggregation functions

- SUM
- AVERAGE
- MIN
- MAX
- SUMX (and other X functions)

Logical functions

- AND
- OR
- NOT
- IF
- IFERROR

Text functions

- CONCATENATE
- REPLACE
- SEARCH
- UPPER
- FIXED

Counting functions

- COUNT
- COUNTA
- COUNTBLANK
- COUNTROWS
- DISTINCTCOUNT

Information functions

- ISBLANK
- ISNUMBER
- ISTEXT
- ISNONTEXT
- ISERROR

Date functions

- DATE
- HOUR
- NOW
- EOMONTH
- WEEKDAY

Common DAX Functions

DAX table functions

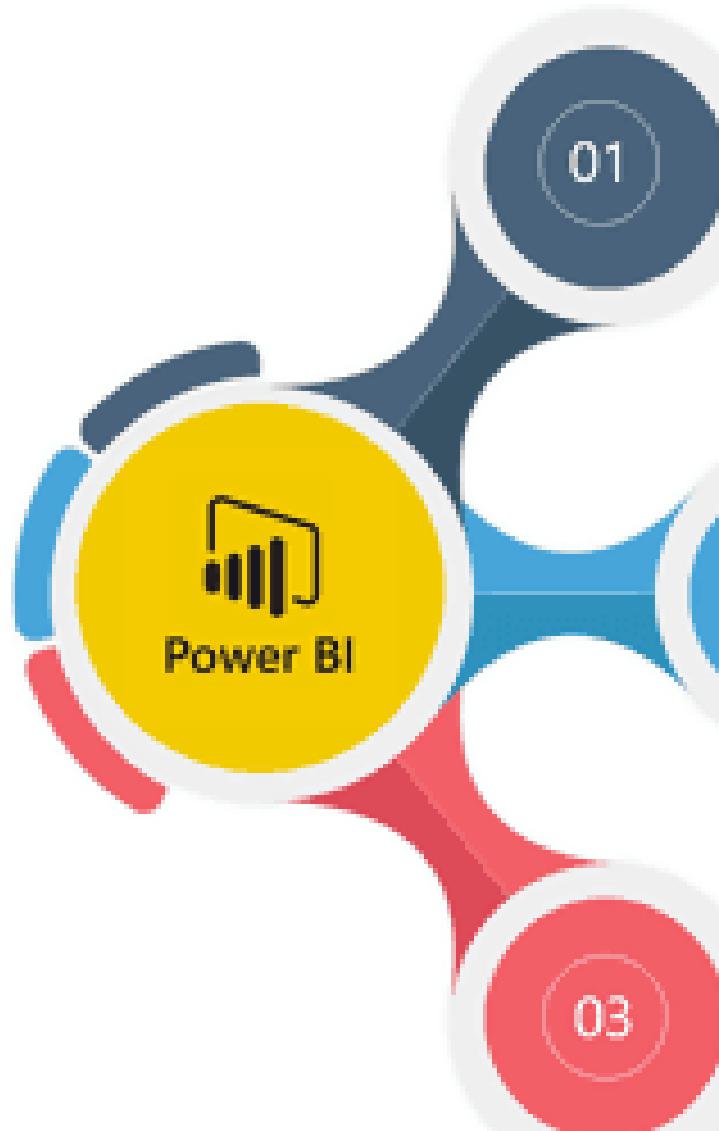
- FILTER
- ALL
- VALUES
- DISTINCT
- RELATEDTABLE



City	Channel	Color	Size	Quantity	Price
Paris	Store	Red	Large	1	15
Paris	Store	Red	Small	2	13
Torino	Store	Green	Large	4	11
New York	Store	Green	Small	8	9
	Internet	Red	Large	16	7
	Internet	Red	Small	32	5
	Internet	Green	Large	64	3
	Internet	Green	Small	128	1

```
SUMX (
    ALL ( Orders ),
    Orders[Quantity] * Orders[Price]
)
```

Why is DAX Important?



Learning how to create effective DAX formulas will help you get the most out of your data

DAX formulas provides the capability to create reports that show valuable insights easily when calculation over large data is needed

When you get the information you need, you can begin to solve real business problems easily with the help of measures

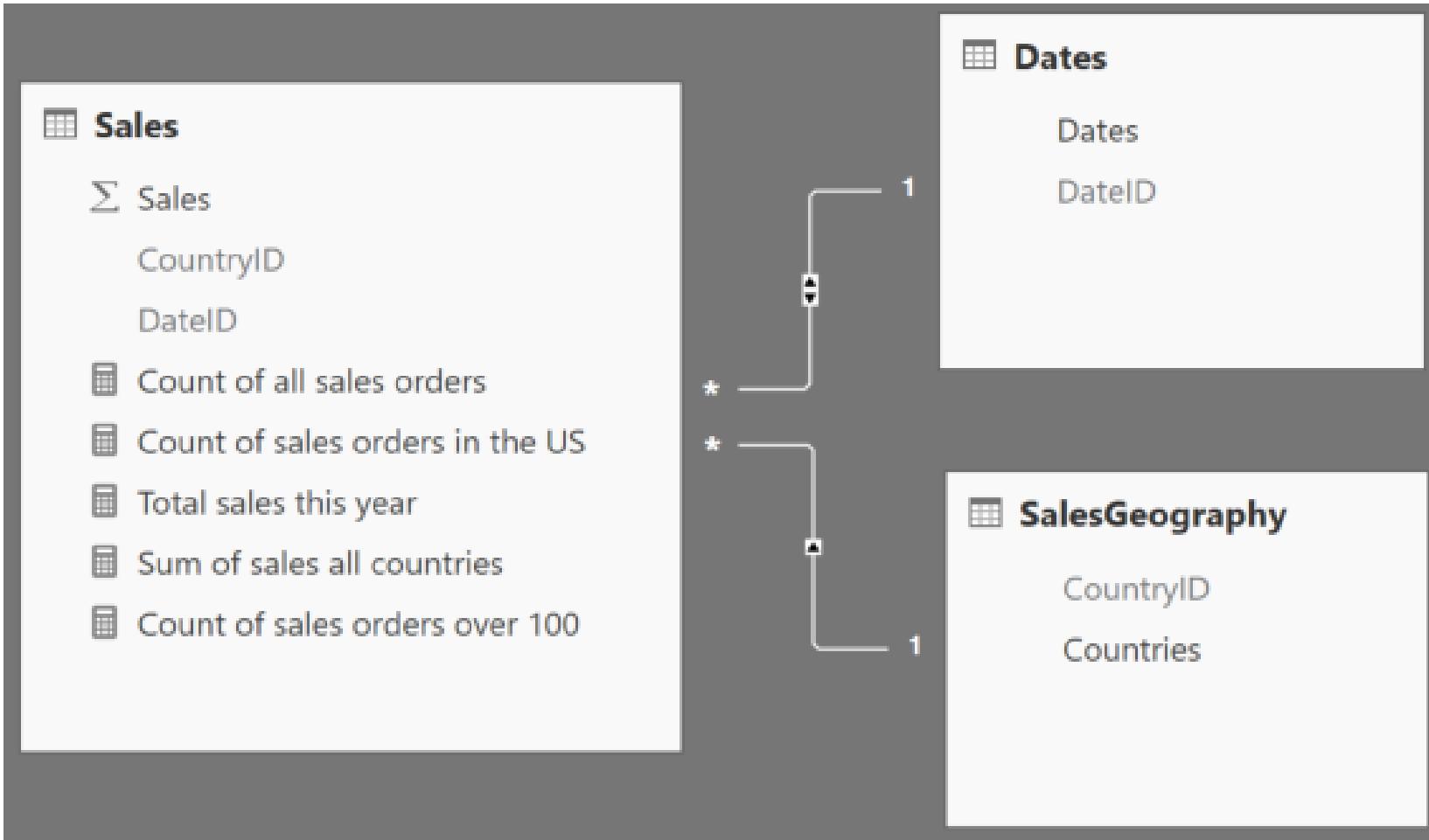
Top 5 Useful DAX Functions

- FILTER
- ALL
- RELATED
- TOTALYTD/TOTALQTD/TOTALMTD
- CALCULATE

Data View

Date Table		Sales Table			SalesGeography Table	
Dates	DateID	Sales	CountryID	DateID	CountryID	Countries
Tuesday, December 27, 2016	362	\$43	1	399	1	United States
Wednesday, December 28, 2016	363	\$23	2	338	2	Germany
Thursday, December 29, 2016	364	\$54	3	381	3	Mexico
Friday, December 30, 2016	365	\$105	1	360	4	France
Saturday, December 31, 2016	366	\$62	1	335	5	Canada
Sunday, January 1, 2017	367	\$110	4	389		
Monday, January 2, 2017	368	\$95	5	410		
Tuesday, January 3, 2017	369	\$140	4	303		
Wednesday, January 4, 2017	370	\$130	1	370		
Thursday, January 5, 2017	371	\$126	3	269		

Relationship View



File Home Insert Modeling View Help

Get data Refresh New visual More visuals New measure Publish



Fields
Search
Filters
Visualizations

Countries
 Canada
 France
 Mexico
 United States

4

Count of sales orders in the US

5

Count of sales orders over 100

10

Count of all sales orders

432

Total sales this year

Dates
9/25/2016 2/13/2017

888

Sum of sales all countries



File Home Insert Modeling View Help Table tools

Name Sales | Mark as date table | Manage relationships | New measure | Quick measure | New column | New table

Countries
Canada
France
Mexico
United States

Dates
9/25/2016 2/13/2017

Visualizations | Fields

Filters

Sales

New measure

New column

New quick measure

Refresh data

Edit query

Incremental refresh

Manage aggregations

Rename

Delete

Hide

View hidden

Unhide all

Collapse all

Expand all

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Report +

FILTER

FILTER(<table>,<filter>)

The FILTER function is used to return a subset of a table or expression, as shown below.

**Count of sales orders over 100 = COUNTROWS(
FILTER('Sales', 'Sales'[Sales] > 100))**

ALL

ALL(<table> or <column>)

The ALL function is used to return all of the rows in a table, or values in a column, ignoring any filters that may have been applied.

Count of all sales orders = COUNTROWS(ALL('Sales'))

RELATED

RELATED(<column>)

The RELATED function returns a related value from another table (example shown below).

**Count of sales orders in the US = COUNTROWS(FILTER(ALL('Sales'),
RELATED('SalesGeography'[Countries]) = "United States"))**

TOTALYTD

TOTALYTD(<expression>,<dates>[,<filter>][,<year_end_date>])

Time intelligence functions in DAX enable you to manipulate data using time periods, including days, months, quarters, and years, and then build and compare calculations over those periods.

Total sales this year = **TOTALYTD(SUM('Sales'[Sales]), 'Dates'[Dates])**

CALCULATE

CALCULATE(<expression>, <filter1>,<filter2>...)

The CALCULATE function evaluates an expression in a context that is modified by specific filters.

Sum of sales all countries =
CALCULATE(SUM('Sales'[Sales]), ALL('SalesGeography'))

Four Dimensions of Measurement

- **Speed**
 - Speed, an output measure, refers to the timing of the delivery of the product or service, not necessarily 'how fast'..
- **Accuracy**
 - Accuracy, an output measure, is the quality dimension of your results.
- **Volume**
 - Volume, an output measure, refers to the quantity of goods and services provided.
- **Investment**
 - Investment, an input measure, refers to the efficient utilization of total organizational resources to get the job done.

Speed Indicators

- response time records
- days gap
- usage time
- time to purchase

Accuracy Indicators

- customer returns or warranty claims
- customer complaints
- customer satisfaction
- down-time
- no. of incidents

Volume Indictors

- sales volume
- quantity sold
- page views
- no. of customers

Investment Indicators

- acquisition cost
- marketing expenses
- cost of goods sold
- service expenses

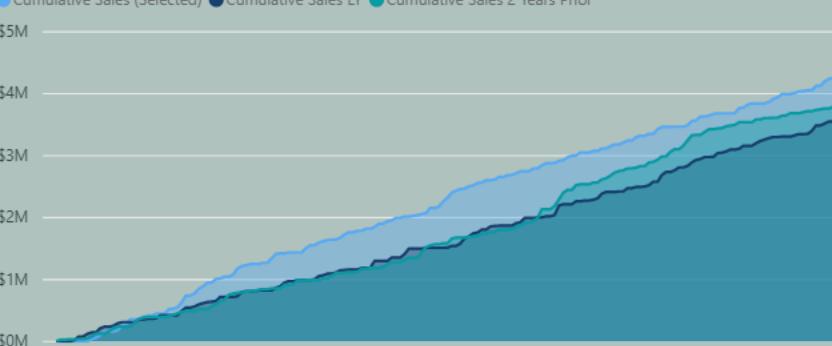
Basic Statistical Calculation to help generate your measures

- Sum
- Mean
- Median
- Mode
- Max
- Min
- First
- Last
- Standard Deviation
- Variance
- Proportion
- Percent

Customer Analysis 

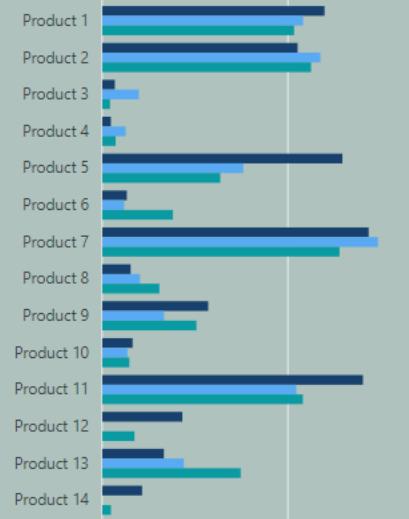
Cumulative Sales Time Frame Comparisons

● Cumulative Sales (Selected) ● Cumulative Sales LY ● Cumulative Sales 2 Years Prior



Sales Comparisons

● Total Sales ● Sales LY ● Sales 2 Yrs Prior



Product	Total Sales	Sales LY	Sales 2 Yrs Prior
Product 1	\$1.2M	\$1.1M	\$1.0M
Product 2	\$1.5M	\$1.4M	\$1.3M
Product 3	\$0.5M	\$0.4M	\$0.3M
Product 4	\$0.2M	\$0.1M	\$0.1M
Product 5	\$1.8M	\$1.7M	\$1.6M
Product 6	\$0.3M	\$0.2M	\$0.1M
Product 7	\$2.0M	\$1.9M	\$1.8M
Product 8	\$0.4M	\$0.3M	\$0.2M
Product 9	\$0.6M	\$0.5M	\$0.4M
Product 10	\$0.1M	\$0.1M	\$0.1M
Product 11	\$2.2M	\$2.1M	\$2.0M
Product 12	\$0.5M	\$0.4M	\$0.3M
Product 13	\$0.8M	\$0.7M	\$0.6M
Product 14	\$0.1M	\$0.1M	\$0.1M

Last Sale Amount \$7.18K

Last Sales Date 6/30/2016

Total Sales \$4.25M

Sales LY \$3.55M

% Sales Growth to LY 19.6%

Total Profits \$1.54M

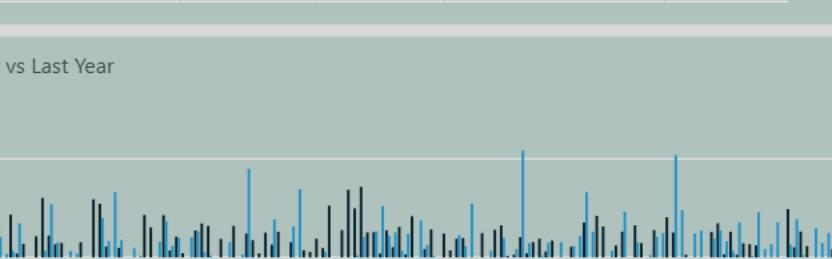
Customer Names

Search

- 21st Ltd
- 3LAB, Ltd
- Amylin Group
- Apollo Ltd
- Apotheca, Ltd
- Ascend Ltd
- AuroMedics Corp
- Avon Corp
- Bare
- Burt's Corp
- Capweld
- Dharma Ltd
- E. Ltd
- Ei
- Elorac, Corp
- Eminence Corp
- ETUDE Ltd
- Exact-Rx, Corp
- Fenwal, Corp
- Linde
- Llorens Ltd
- Medline

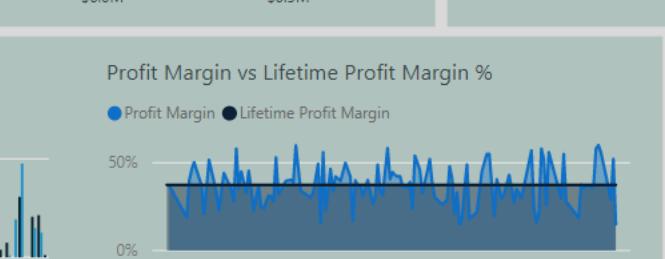
Total Profits per Day this Year vs Last Year

● Total Profits ● Profits LY



Profit Margin vs Lifetime Profit Margin %

● Profit Margin ● Lifetime Profit Margin



Visualizations

Search

Filters

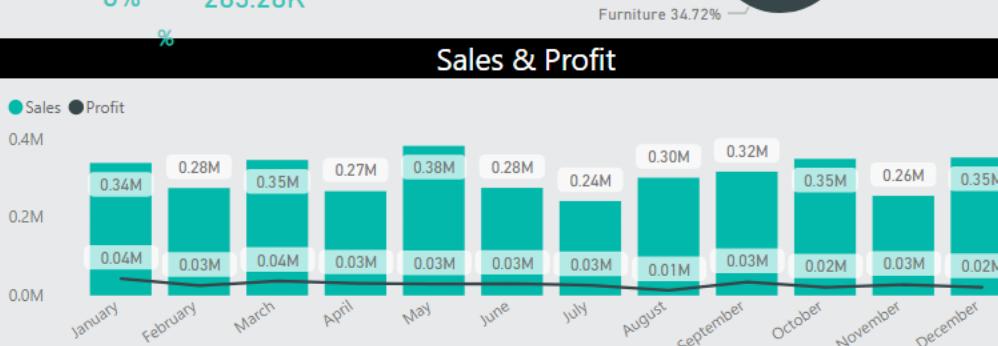
- ABC Classification
- Averages per Day
- Cumulative Patter...
- Customer Measur...
- Dynamic Segmen...
- Key Measures
- Percent of Total
- Ranking
- Time Comparison
- Time Intelligence
- Classification
- Customers
- Dates
- Price Ranges
- Products
- Regions
- Sales

Strategic Customer Questions

- Who are the most/least profitable customers?
- Who are the most/least satisfied customers?
- What is fastest/slowest customer segment?
- What type of ads bring most customers?
- What is our customer experience like & how can we improve it?
- What is the cost of customer acquisition?
- What are the reasons for losing customer?
- What are the costs of customer transactions?

File Home Insert Modeling View Help

Get data Refresh New visual More visuals New measure Publish

Total Sales	Sales by Product Category	Last Sale Amount	Last Sales Date	Total Profit
<p>▲ 3.72M 8% 283.28K %</p> 		3.17K	30/12/2012	1.52M

Sales & Profit

Number of Customer by Period

Sales by State

Quantity VS Profit by Product

Customer Segment: Consumer (Blue), Corporate (Grey), Home Office (Red), Small Business (Yellow)

Bing

Page 1 Example dashboard +

Fields

Search

Filters

Visualizations

SuperStore

DAX

- Last Sale Amount = CALCULATE([Total Sales] , LASTNONBLANK(Dates[Date], [Total Sales]))
- Last Sales Date = LASTNONBLANK(Dates[Date] ,[Total Sales])
- Total Sales = SUM (Sales[Line Total])
- % Sales Growth to LY = DIVIDE([Total Sales], [Sales LY] , 0) - 1
- Sales LY = CALCULATE([Total Sales], SAMEPERIODLASTYEAR(Dates[Date]))
- Total Profits = [Total Sales] - [Total Costs]
- Total Costs = SUMX (Sales , Sales[Order Quantity] * Sales[Total Unit Cost])
- Sales Arrow year = IF([Sales diff] >= 0, UNICHAR(9650), IF([Sales diff] < 0, UNICHAR(9660), BLANK()))

Activity 2

- Complete the Understanding Your Customer Better dashboard.



Web Scrapping

File Home Insert Modeling View Help

Get data ▾

- Excel
- Power BI datasets
- Power BI dataflows
- SQL Server
- Analysis Services
- Text/CSV
- Web
- OData Import data from a web page.
- SharePoint

More...

Common data sources

Refresh

New visual

More visuals ▾

New measure

Publish

Visualizations

Filters

Values

Add data fields here

Drill through

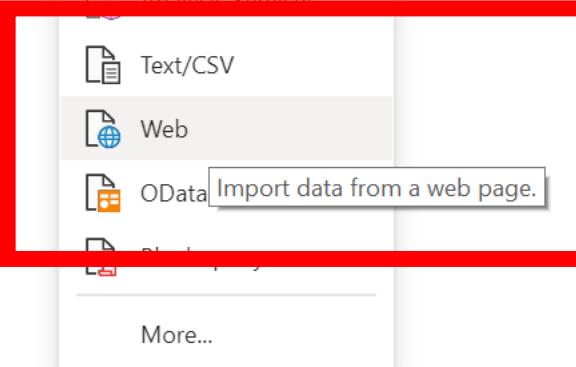
Cross-report

Off

Keep all filters

On

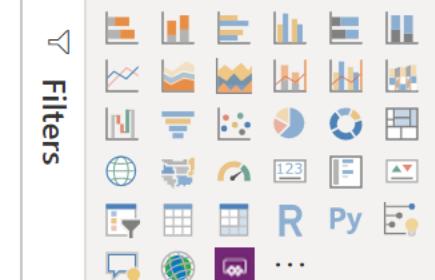
Add drill-through fields here



File Home Insert Modeling View Help



Visualizations



Filters



Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here



Saard

File Home Insert

Get data

Display Options

Table View Web View

Table 0

วันที่	ราคา เปิด	ราคา สูงสุด	ราคา ต่ำสุด	ราคาปิด	เปลี่ยนแปลง
24/04/2563	327	328	322	323	+1
23/04/2563	329	330	325	326	+1
22/04/2563	318	328	317	328	+10
21/04/2563	318	324	317	319	+1
20/04/2563	326	328	319	322	+3
17/04/2563	321	328	319	327	+6
16/04/2563	323	325	313	314	-12
15/04/2563	322	330	320	323	+11
14/04/2563	322	323	319	323	+1
13/04/2563	323	323	317	321	+4
10/04/2563	319	324	319	324	+5
09/04/2563	322	327	320	320	+0
08/04/2563	329	329	326	329	+3
07/04/2563	322	330	318	329	+11
03/04/2563	318	318	312	313	+1
02/04/2563	317	321	314	316	+2
01/04/2563	321	323	315	318	+7
31/03/2563	317	324	316	324	+7
30/03/2563	319	319	311	312	+1
27/03/2563	326	327	314	320	+4
26/03/2563	313	324	311	323	+10

Add table using examples

Load Transform Data Cancel

Visualizations >

R Py

Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

PAGE 3 OF 3



File Home Insert Modeling View Help Format Data / Drill

New visual

More visuals 

New page 

Text box

Buttons 

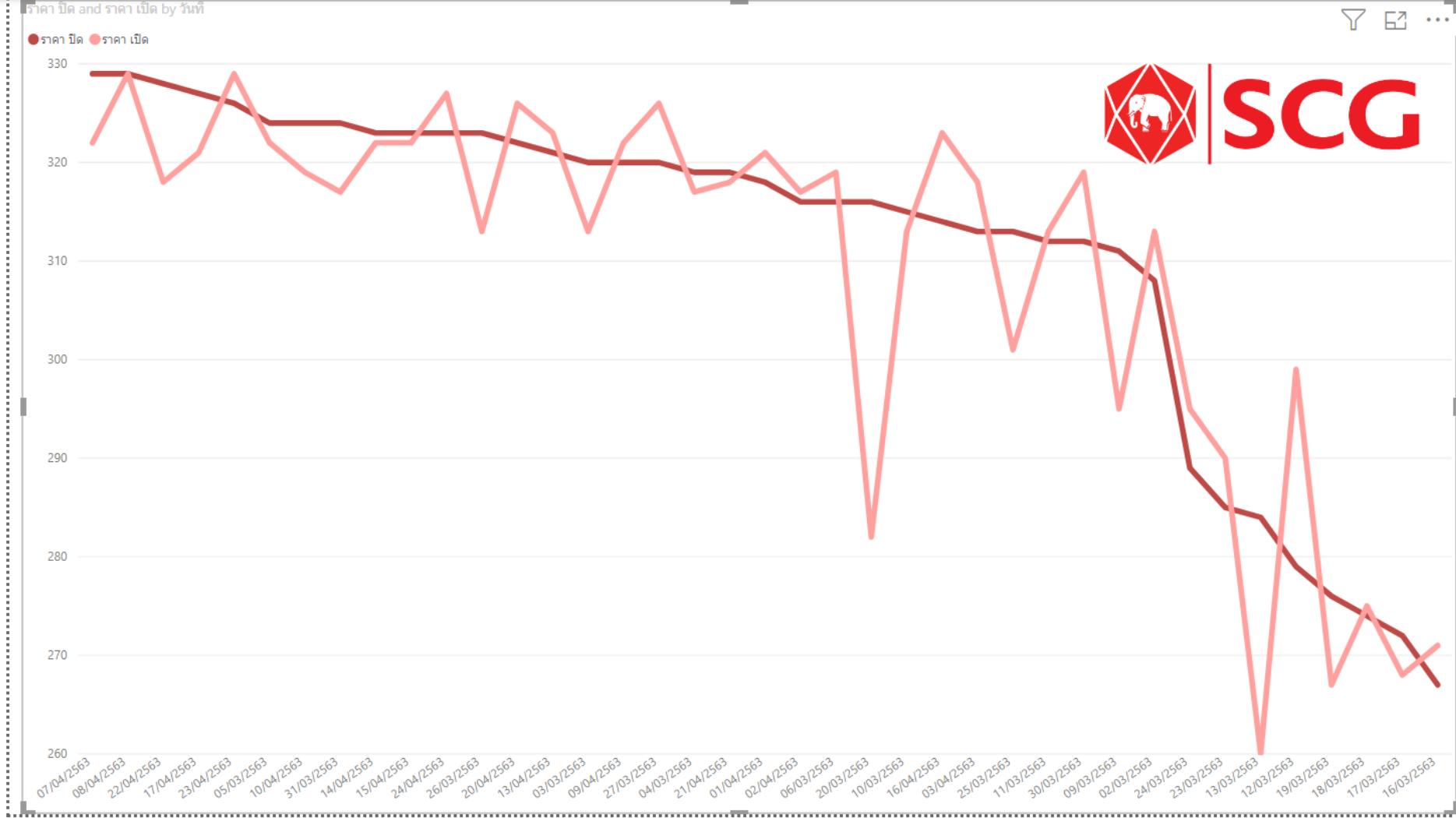
Shapes 

Image

Power Apps

Q&A

Key influencers



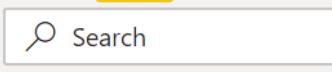
< ▾ ▾ Filters

Visualizations



< ▾ ▾ Filters

Fields



Shapes



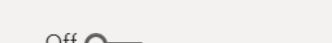
Join type



Line style



Show marker



Stepped



Page 1

Example dashboard

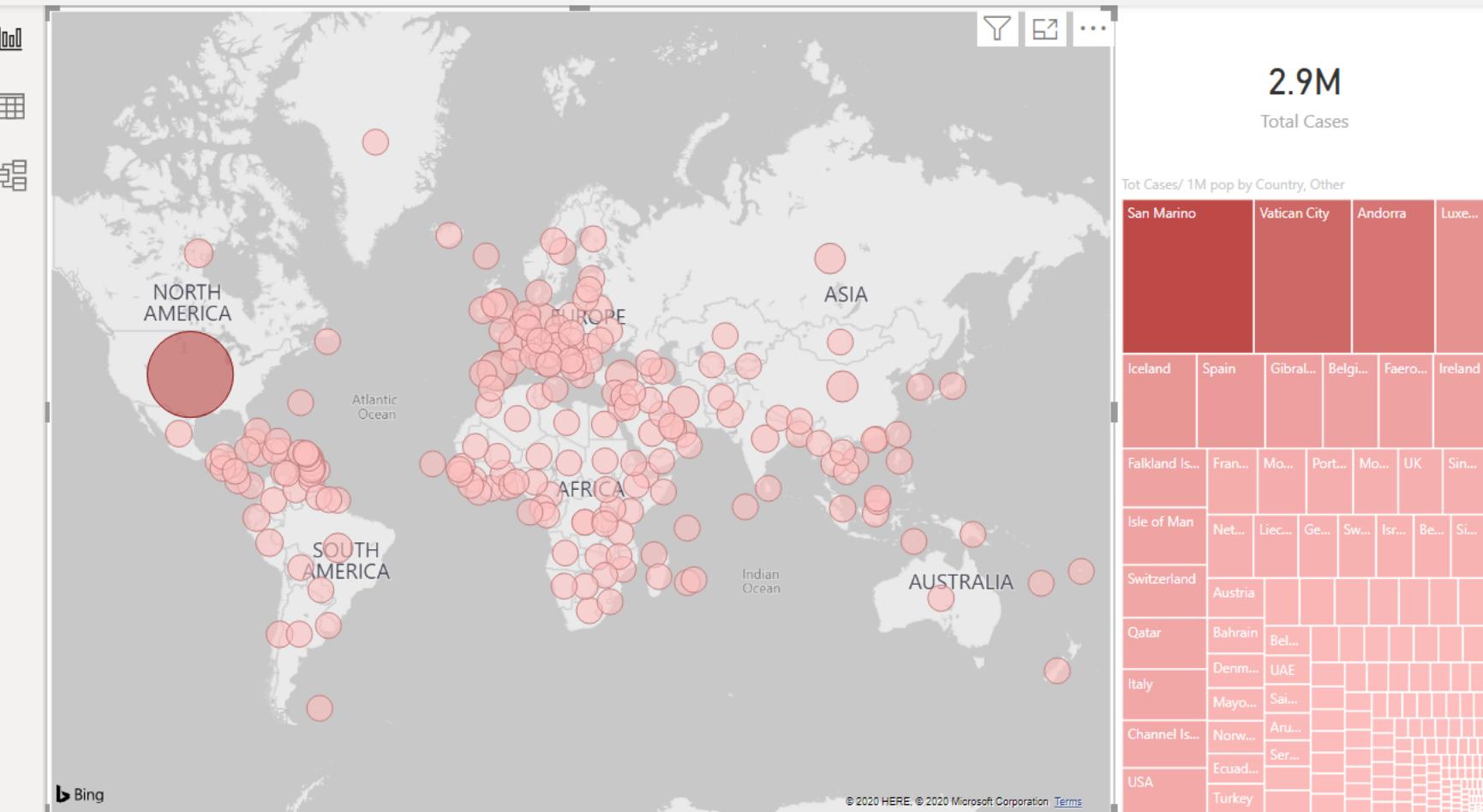
Page 2



All	Europe	North America	Asia	South America	Africa	Oceania							
Country, Other	Total Cases	New Cases	Total Deaths	New Deaths	Total Recovered	Active Cases	Serious, Critical	Tot Cases/1M pop	Deaths/1M pop	Total Tests	Tests/1M pop		
World	2,940,993	+21,589	203,822	+658	842,074	1,895,097	57,655	377	26.1				
USA	960,896	+245	54,265	+9	118,162	788,469	15,110	2,903	164	5,279,237	15,949		
Spain	223,759		22,902		95,708	105,149	7,705	4,786	490	930,230	19,896		
Italy	195,351		26,384		63,120	105,847	2,102	3,231	436	1,707,743	28,245		
France	161,488		22,614		44,594	94,280	4,725	2,474	346	463,662	7,103		
Germany	156,727	+214	5,880	+3	109,800	41,047	2,570	1,871	70	2,072,669	24,738		
UK	148,377		20,319		N/A	127,714	1,559	2,186	299	640,792	9,439		
Turkey	107,773		2,706		25,582	79,485	1,782	1,278	32	868,565	10,298		
Iran	90,481	+1,153	5,710	+60	69,657	15,114	3,079	1,077	68	421,313	5,016		
China	82,827	+11	4,632		77,394	801	51	58	3				
Russia	80,949	+6,361	747	+66	6,767	73,435	2,300	555	5	2,877,699	19,719		
Brazil	59,324	+128	4,057	+12	29,160	26,107	8,318	279	19	291,922	1,373		
Belgium	46,134	+809	7,094	+177	10,785	28,255	891	3,981	612	189,067	16,313		
Canada	45,354		2,465		16,425	26,464	557	1,202	65	684,271	18,130		

File Home Insert Modeling View Help Format Data / Drill

Get data Refresh New visual More visuals New measure Publish



Visualizations Fields

Search

COVID

- Σ Active Cases
- Country, Ot...
- Σ Deaths/ 1M...
- Σ New Cases
- Σ New Deaths
- Σ Serious, Crit...
- Σ Tests/ 1M p...
- Σ Tot Cases/ ...
- Σ Total Cases
- Σ Total Deaths
- Total Recov...
- Σ Total Tests

Filters

Location

Country, Other

Legend

Add data fields here

Latitude

Add data fields here

Longitude

Add data fields here

Size

Total Cases



End-to-End Visualization Workshop



COVID-19 Dashboard by the Center for Systems Science and Engineering (CSSE) at Johns Hopkins Un...



Total Confirmed

2,917,073

Confirmed Cases by Country/Region/Sovereignty

939,249 US

223,759 Spain

195,351 Italy

161,665 France

156,513 Germany

149,569 United Kingdom

107,773 Turkey

90,481 Iran

83,909 China

80,949 Russia

Admin0

Last Updated at (M/D/YYYY)

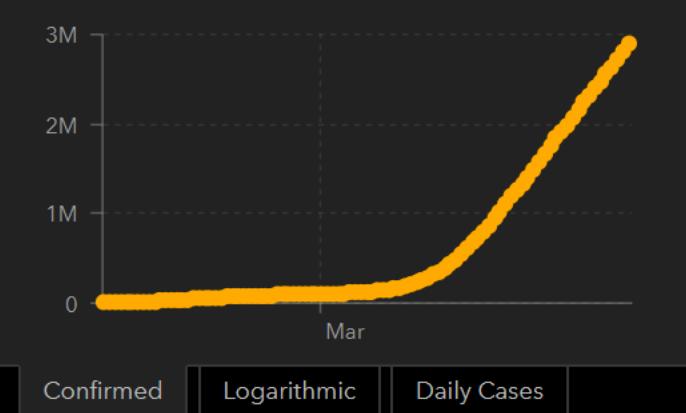
4/26/2020 8:31:18 p.m.



Total Deaths

203,54526,384 deaths
Italy22,902 deaths
Spain22,614 deaths
France20,319 deaths
United Kingdom17,126 deaths
New York City **New York** US

Deaths

185
countries/regionsLancet Inf Dis Article: [Here](#). Mobile Version: [Here](#).
Lead by JHU CSSE. Automation Support: Esri Living Atlas team and JHU APL. Contact US. [FAQ](#).

Coronavirus COVID-19 (2019-nCoV) Google covid dataset johns hopkins - Google

https://www.google.com/search?q=covid+dataset+johns+hopkins&spell=1&sa=X&ved=2ahUKEwiFq--gqobpAhWJXSsKH... Guest Sign in

Google covid dataset johns hopkins

github.com › CSSEGISandData › COVID-19 ▾

[CSSEGISandData/COVID-19: Novel Coronavirus ... - GitHub](#)

Novel Coronavirus (**COVID-19**) Cases, provided by JHU CSSE ... 2019 Novel Coronavirus
COVID-19 (2019-nCoV) Data Repository by **Johns Hopkins CSSE**.
[Csse_covid_19_data](#) · [COVID-19 Time Series](#) · [Who_covid_19_situation_reports](#)

aws.amazon.com › marketplace › Global-Coronavirus-... ▾

[Johns Hopkins - Amazon Web Services](#)

Apr 1, 2020 - Global Coronavirus (**COVID-19**) Data (**Johns Hopkins**) ... is publishing a **dataset** that combines the five JHU time series **datasets** into one file.

www.tableau.com › covid-19-coronavirus-data-resources ▾

[Coronavirus \(COVID-19\) Data Hub | Case Tracker, Starter ...](#)

Access the free **data set** from **John Hopkins** University tracking new cases and deaths.
Download our starter dashboard or check out community visualizations to ...

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[Coronavirus Data Hub FAQ: What you should know about our ...](#)

Mar 26, 2020 - The Tableau **COVID-19** Data Hub contains resources to help you ... from the **dataset** maintained and updated by the **Johns Hopkins** University Center ... The data from **Johns Hopkins** is updated at approximately 7 p.m. PST.

data.world › covid-19-case-counts ▾

[Global Coronavirus \(COVID-19\) Data \(Johns Hopkins\)](#)

Coronavirus COVID-19 (2019-nCov) X covid dataset johns hopkins - Google Search

covid dataset johns hopkins

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github.com › CSSEGISandData › COVID-19

CSSEGISandData/COVID-19: Novel Coronavirus ... - GitHub

Novel Coronavirus (**COVID-19**) Cases, provided by JHU CSSE ... 2019 Novel Coronavirus
COVID-19 (2019-nCoV) Data Repository by **Johns Hopkins CSSE**.
[Csse_covid_19_data](#) · [COVID-19 Time Series](#) · [Who_covid_19_situation_reports](#)

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data.world › covid-19-case-counts

Global Coronavirus (COVID-19) Data (Johns Hopkins)

Coronavirus COVID-19 (2019-nCoV) COVID-19/csse_covid_19_data.cs ...

https://github.com/CSSEGISandData/COVID-19/tree/master/csse_covid_19_data/csse_covid_19_time_series

Guest

Why GitHub? Team Enterprise Explore Marketplace Pricing Search / Sign in Sign up

CSSEGISandData / COVID-19 Watch 931 Star 21.3k Fork 12.1k

Code Issues 1,267 Pull requests 241 Actions Projects 0 Security 0 Insights

Branch: master COVID-19 / csse_covid_19_data / csse_covid_19_time_series / Create new file Find file History

CSSEGISandData Update Australia recovered Latest commit 46a7433 5 hours ago

..

.gitignore update 2 months ago

Errata.csv Update Ukraine 13 hours ago

README.md update 0419 7 days ago

time_series_covid19_confirmed_US.csv automated update 14 hours ago

time_series_covid19_confirmed_global.csv Update Ukraine 13 hours ago

time_series_covid19_deaths_US.csv Update NYC deaths 6 hours ago

time_series_covid19_deaths_global.csv automated update 14 hours ago

time_series_covid19_recovered_global.csv Update Australia recovered 5 hours ago

README.md

← → 🔍 https://github.com/CSSEGISandData/COVID-19/blob/master/csse_covid_19_data/csse_covid_19_time_series/time_series_covid19_confirmed_global.csv Guest ? ...

Raw

265 lines (265 sloc) | 79.5 KB

Search this file...

	Province/State	Country/Region	Lat	Long	1/22/20	1/23/20	1/24/20	1/25/20	1/26/20	1/27/20
1		Afghanistan	33.0	65.0	0	0	0	0	0	0
2		Albania	41.1533	20.1683	0	0	0	0	0	0
3		Algeria	28.0339	1.6596	0	0	0	0	0	0
4		Andorra	42.5063	1.5218	0	0	0	0	0	0
5		Angola	-11.2027	17.8739	0	0	0	0	0	0
6		Antigua and Barbuda	17.0608	-61.7964	0	0	0	0	0	0
7		Argentina	-38.4161	-63.6167	0	0	0	0	0	0
8		Armenia	40.0691	45.0382	0	0	0	0	0	0
9	Australian Capital Territory	Australia	-35.4735	149.0124	0	0	0	0	0	0
10	New South Wales	Australia	-33.8688	151.2093	0	0	0	0	3	4
11	Northern Territory	Australia	-12.4634	130.8456	0	0	0	0	0	0
12	Queensland	Australia	-28.0167	153.4	0	0	0	0	0	0
13	South Australia	Australia	-34.9285	138.6007	0	0	0	0	0	0
14	Tasmania	Australia	-41.4545	145.9707	0	0	0	0	0	0
15	Victoria	Australia	-37.8136	144.9631	0	0	0	0	1	1
16	Western Australia	Australia	-31.9505	115.8605	0	0	0	0	0	0
17		Austria	47.5162	14.5501	0	0	0	0	0	0

Data Transformation Example Use Case

Transform report format to machine readable format

Step 1

- Choose Columns
- Unpivot Columns
- Change Type

Step 2

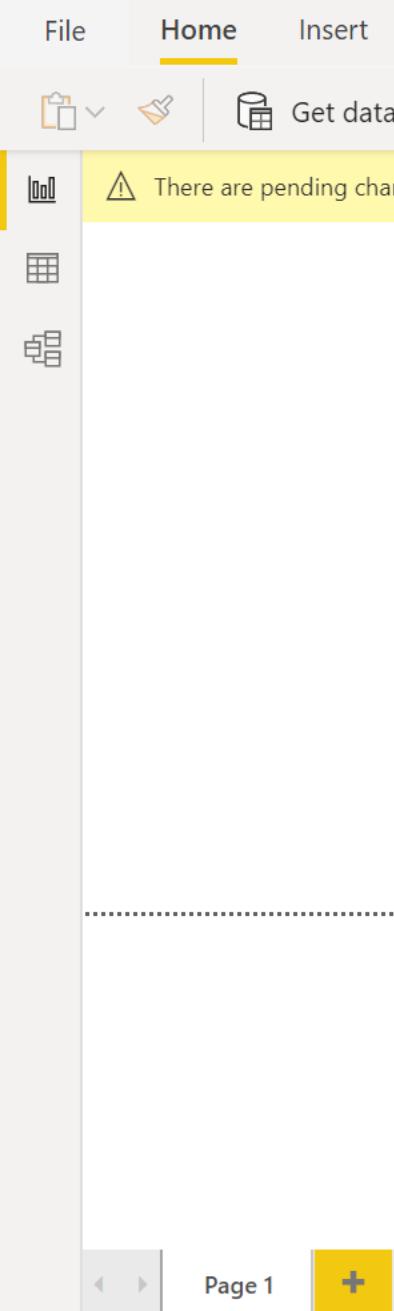
- Split Column
- Rename Columns
- Replace Value
- Change Type
- Append Queries

Step 3

- Merge Queries

Data Transformation Example Use Case

Name	Leave 2017	Leave 2018	Medical Expenses 2017	Medical Expenses 2018	Traveling Expenses 2017	Traveling Expenses 2018
Andrew Miller	0	1	1500	3500	26000	31000
David King	2	3	5000	3000	35000	15000
Lucy White	1	1	0	2700	19000	13000



time_series_covid19_confirmed_global.csv

File Origin

1252: Western European (Windows)

Delimiter

Comma

Data Type Detection

Based on first 200 rows

Column1	Column2	Column3	Column4	Column5	Column6	Column7	Column8	Column9	Column10
Province/State	Country/Region	Lat	Long	1/22/20	1/23/20	1/24/20	1/25/20	1/26/20	1/27/20
	Afghanistan	33.0	65.0	0	0	0	0	0	0
	Albania	41.1533	20.1683	0	0	0	0	0	0
	Algeria	28.0339	1.6596	0	0	0	0	0	0
	Andorra	42.5063	1.5218	0	0	0	0	0	0
	Angola	-11.2027	17.8739	0	0	0	0	0	0
	Antigua and Barbuda	17.0608	-61.7964	0	0	0	0	0	0
	Argentina	-38.4161	-63.6167	0	0	0	0	0	0
	Armenia	40.0691	45.0382	0	0	0	0	0	0
Australian Capital Territory	Australia	-35.4735	149.0124	0	0	0	0	0	0
New South Wales	Australia	-33.8688	151.2093	0	0	0	0	3	4
Northern Territory	Australia	-12.4634	130.8456	0	0	0	0	0	0
Queensland	Australia	-28.0167	153.4	0	0	0	0	0	0
South Australia	Australia	-34.9285	138.6007	0	0	0	0	0	0
Tasmania	Australia	-41.4545	145.9707	0	0	0	0	0	0
Victoria	Australia	-37.8136	144.9631	0	0	0	0	1	1
Western Australia	Australia	-31.9505	115.8605	0	0	0	0	0	0
	Austria	47.5162	14.5501	0	0	0	0	0	0
	Azerbaijan	40.1431	47.5769	0	0	0	0	0	0
	Bahamas	25.0343	-77.3963	0	0	0	0	0	0

Load

Transform Data

Cancel

Publish

Fields

Search

Untitled - Power Query Editor

File **Home** **Transform** **Add Column** **View** **Tools** **Help**

Table **Transpose** **Data Type:** Text **1 2** **Merge Columns**
Reverse Rows **Detect Data Type** **ABC** **Extract**
Count Rows **Rename** **Split Column** **Format** **10²** **Trigonometry**
Group By **Use First Row as Headers** **1 2** **Parse** **Statistics** **Standard** **Scientific** **.00 .0** **Rounding**
Any Column **Text Column** **Date** **Date & Time Column** **Information**
Structured Column **R Py** **Run R script** **Run Python script** **Scripts**

Query Settings

PROPERTIES

Name: time_series_covid19_confirmed_global[1]

[All Properties](#)

APPLIED STEPS

Source
X Changed Type

	Column1	Column2	Column3	Column4
1	Province/State	Country/Region	Lat	Long
2	Afghanistan	33.0	65.0	
3	Albania	41.1533	20.1683	
4	Algeria	28.0339	1.6596	
5	Andorra	42.5063	1.5218	
6	Angola	-11.2027	17.8739	
7	Antigua and Barbuda	17.0608	-61.7964	
8	Argentina	-38.4161	-63.6167	
9	Armenia	40.0691	45.0382	
10	Australian Capital Territory	Australia	-35.4735	149.0124
11	New South Wales	Australia	-33.8688	151.2093
12	Northern Territory	Australia	-12.4634	130.8456
13	Queensland	Australia	-28.0167	153.4
14	South Australia	Australia	-34.9285	138.6007
15	Tasmania	Australia	-41.4545	145.9707
16	Victoria	Australia	-37.8136	144.9631
17	Western Australia	Australia	-31.9505	115.8605
18	Austria	47.5162	14.5501	

99 COLUMNS, 265 ROWS

Page 1 +

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Data Type: Whole Number

Transpose Reverse Rows Detect Data Type Rename

Group By Use First Row as Headers Count Rows

Table Any Column Text Column Number Column Date & Time Column Scripts

Unpivot Columns

Translate all but the currently unselected columns into attribute-value pairs.

	123 4/22/20	/24/20	123 4/25/20
1	1176	1351	1463
2	634	678	712
3	2910	3007	3127
4	723	723	731
5	25	25	25
6	24	24	24
7	3144	3435	3607
8	1473	1523	1596
9	104	104	105
10	2971	2976	2982
11	28	28	28
12	1024	1026	1026
13	438	438	438
14	205	207	207
15	1336	1337	1343
16	546	546	548
17	14925	15002	15071
18	1518	1548	15148
19			1617

Queries [1]

time_series_covid19_confirmed_global

Query Settings

PROPERTIES

Name: time_series_covid19_confirmed_global

APPLIED STEPS

Source, Changed Type, Promoted Headers, **Changed Type1**

99 COLUMNS, 264 ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 9:57 PM

Page 1 +

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Data Type: Text ▾ 1 2 3 Merge Columns Statistics Standard Scientific Information ▾ Date ▾ Time ▾ Duration ▾ Structured Column ▾ Run R script Run Python script R Py Scripts

Transpose Reverse Rows Detect Data Type Rename Split Column Format ABC Extract 123 Parse

Group By Use First Row as Headers Count Rows

Table Any Column Text Column Number Column Date & Time Column

Queries [1]

time_series_covid19_confirmed_global

1.2 Lat 1.2 Long A B C Date 1 2 3 Confirmed

	1.2 Lat	1.2 Long	A B C	Date	1 2 3 Confirmed
1		33		65	1/22/20
2		33		65	1/23/20
3		33		65	1/24/20
4		33		65	1/25/20
5		33		65	1/26/20
6		33		65	1/27/20
7		33		65	1/28/20
8		33		65	1/29/20
9		33		65	1/30/20
10		33		65	1/31/20
11		33		65	2/1/20
12		33		65	2/2/20
13		33		65	2/3/20
14		33		65	2/4/20
15		33		65	2/5/20
16		33		65	2/6/20
17		33		65	2/7/20
18		33		65	2/8/20

Date
Format Date values or extract elements of Date values.

Name: time_series_covid19_confirmed_global

All Properties

APPLIED STEPS

- Source
- Changed Type
- Promoted Headers
- Changed Type1
- Unpivoted Columns
- Renamed Columns

6 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 9:59 PM

Page 1 +

Untitled - Power Query Editor

File **New Source** **Transform** **Add Column** **View** **Tools** **Help**

Closes & Appends **New Source** Recent Sources Enter Data

Data source settings Manage Parameters Refresh Preview Advanced Editor

Choose Columns Remove Columns Keep Rows Remove Rows Sort

Split Column Group By Reduce Rows

Data Type: Text Use First Row as Headers

Merge Queries Append Queries Combine Files

Replace Values

Queries

	1.2 Lat	1.2 Long	Avg Date	123 Confirmed
1		33	65 1/22/20	0
2		33	65 1/23/20	0
3		33	65 1/24/20	0
4		33	65 1/25/20	0
5		33	65 1/26/20	0
6		33	65 1/27/20	0
7		33	65 1/28/20	0
8		33	65 1/29/20	0
9		33	65 1/30/20	0
10		33	65 1/31/20	0
11		33	65 2/1/20	0
12		33	65 2/2/20	0
13		33	65 2/3/20	0
14		33	65 2/4/20	0
15		33	65 2/5/20	0
16		33	65 2/6/20	0
17		33	65 2/7/20	0
18		33	65 2/8/20	0

Import data from a text or CSV file.

Query Settings

PROPERTIES

Name: time_series_covid19_confirmed_global

[All Properties](#)

APPLIED STEPS

- Source
- Changed Type
- Promoted Headers
- Changed Type1
- Unpivoted Columns
- Renamed Columns**

6 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 9:59 PM

Page 1 +

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Recent Enter Data Data source settings Manage Parameters Refresh Preview Manage Choose Columns Remove Columns Keep Rows Remove Rows Sort Manage Columns Reduce Rows Split Column Group By Data Type: Text Use First Row as Header Replace Values Combine Files Close New Query Data Sources Parameters Query Transform Combine

Merge Queries
Merge this query with another query in this file.

PROPERTIES

Name: covid-19
[All Properties](#)

APPLIED STEPS

Source
Changed Type
Promoted Headers
Changed Type1
Unpivoted Columns
Renamed Columns
Parsed Date

	Province/State	Country/Region	Lat	Long
1		Afghanistan	33	65
2		Afghanistan	33	65
3		Afghanistan	33	65
4		Afghanistan	33	65
5		Afghanistan	33	65
6		Afghanistan	33	65
7		Afghanistan	33	65
8		Afghanistan	33	65
9		Afghanistan	33	65
10		Afghanistan	33	65
11		Afghanistan	33	65
12		Afghanistan	33	65
13		Afghanistan	33	65
14		Afghanistan	33	65
15		Afghanistan	33	65
16		Afghanistan	33	65
17		Afghanistan	33	65
18		Afghanistan	33	65

6 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 10:04 PM

Page 1 +

File Home Insert Modeling

Untitled - Power Query Editor

File Home Transform Add Column

Close & Apply New Recent Enter Data

Source Sources Data source settings

Close New Query Data Source

Queries [4]

- time_series_covid19_confirm...
- time_series_covid19_death...
- time_series_covid19_recov...
- covid-19

ABc Pre

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

6 COLUMNS, 999+ ROWS Column profiling based on current selection

Page 1 +

Merge

Select a table and matching columns to create a merged table.

Province/State	Country/Region	Lat	Long	Date	Confirmed
	Afghanistan	33	6	1/22/2020	0
	Afghanistan	33	6	1/23/2020	0
	Afghanistan	33	6	1/24/2020	0
	Afghanistan	33	6	1/25/2020	0
	Afghanistan	33	6	1/26/2020	0

Province/State	Country/Region	Lat	Long	Date	Deaths
	Afghanistan	33	6	1/22/2020	0
	Afghanistan	33	6	1/23/2020	0
	Afghanistan	33	6	1/24/2020	0
	Afghanistan	33	6	1/25/2020	0
	Afghanistan	33	6	1/26/2020	0

Join Kind

Left Outer (all from first, matching from second)

 Use fuzzy matching to perform the merge

Fuzzy matching options

✓ The selection matches 25080 of 25080 rows from the first table.

OK

Cancel

PREVIEW DOWNLOADED AT 10:04 PM

Merge Queries Append Queries Combine Files

Combine

Properties

STEPS

- Source
- Changed Type
- Noted Headers
- Changed Type1
- Migrated Columns
- Named Columns
- Edited Date

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Recent Enter Data Data source settings Manage Parameters Refresh Preview Manage Choose Columns Remove Columns Keep Rows Remove Rows Sort Split Column Group By Data Type: Table Use First Row as Headers Merge Queries Append Queries Combine Files Close New Query Data Sources Parameters Query Manage Columns Reduce Rows Sort Transform

Queries [4]

- time_series_covid19_confirm...
- time_series_covid19_deaths...
- time_series_covid19_recov...
- covid-19

Date Confirmed time_series_covid19_deaths_global

	Date	Confirmed	time_series_covid19_deaths_global
1	65	1/22/2020	
2	65	1/23/2020	
3	65	1/24/2020	
4	65	1/25/2020	
5	65	1/26/2020	
6	65	1/27/2020	
7	65	1/28/2020	
8	65	1/29/2020	
9	65	1/30/2020	
10	65	1/31/2020	
11	65	2/1/2020	
12	65	2/2/2020	
13	65	2/3/2020	
14	65	2/4/2020	0 Table
15	65	2/5/2020	0 Table
16	65	2/6/2020	0 Table
17	65	2/7/2020	0 Table
18	65	2/8/2020	0 Table

Search Columns to Expand

PROPERTIES

Name: covid-19

All Properties

APPLIED STEPS

- Source
- Changed Type
- Promoted Headers
- Changed Type1
- Unpivoted Columns
- Renamed Columns
- Parsed Date
- Merged Queries

7 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 10:06 PM

Page 1 +

Untitled - Power Query Editor

File Home Transform Add Column View Tools Help

Close & Apply New Source Recent Enter Data Data source settings Manage Parameters Refresh Preview Advanced Editor Choose Columns Remove Columns Keep Rows Remove Rows Sort Data Type: Whole Number Data Type: Whole Number Use First Row as Headers Merge Queries Append Queries Combine Files Close New Query Data Sources Parameters Query Manage Columns Reduce Rows Group By Split Column Replace Values Combine

Queries [4]

- time_series_covid19_con...
- time_series_covid19_dea...
- time_series_covid19_rec...
- covid-19

Query Settings

PROPERTIES

Name: covid-19
All Properties

APPLIED STEPS

- Changed Type
- Promoted Headers
- Changed Type1
- Unpivoted Columns
- Renamed Columns
- Parsed Date
- Merged Queries
- Expanded time_series_covi...
- Renamed Columns1
- Merged Queries1
- Expanded time_series_covi...
- Renamed Columns2

	Date	Confirmed	Deaths	Recovered
1	1/22/2020	-	-	-
2	1/23/2020	0	0	0
3	1/24/2020	0	0	0
4	1/25/2020	0	0	0
5	1/26/2020	0	0	0
6	1/27/2020	0	0	0
7	1/28/2020	0	0	0
8	1/29/2020	0	0	0
9	1/30/2020	0	0	0
10	1/31/2020	0	0	0
11	2/1/2020	0	0	0
12	2/2/2020	0	0	0
13	2/3/2020	0	0	0
14	2/4/2020	0	0	0
15	2/5/2020	0	0	0
16	2/6/2020	0	0	0
17	2/7/2020	0	0	0
18	2/8/2020	0	0	0

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows PREVIEW DOWNLOADED AT 10:09 PM

Page 1 +

Untitled - Power Query Editor

File

- Close & Apply
- New
- Recent
- Enter Data
- Source
- Sources
- Enter Data
- Close
- New Query

Home

- Transform
- Add Column
- View
- Tools
- Help

Transform

- Data source settings
- Manage Parameters
- Refresh Preview
- Advanced Editor
- Choose Columns
- Remove Columns
- Keep Rows
- Remove Rows
- Sort
- Split Column
- Group By
- Replace Values
- Merge Queries
- Append Queries
- Combine Files

Query

- Data Type: Whole Number
- Use First Row as Headers
- 1 Replace Values

Manage Columns

Reduce Rows

Sort

Query Settings

PROPERTIES

Name: covid-19

[All Properties](#)

APPLIED STEPS

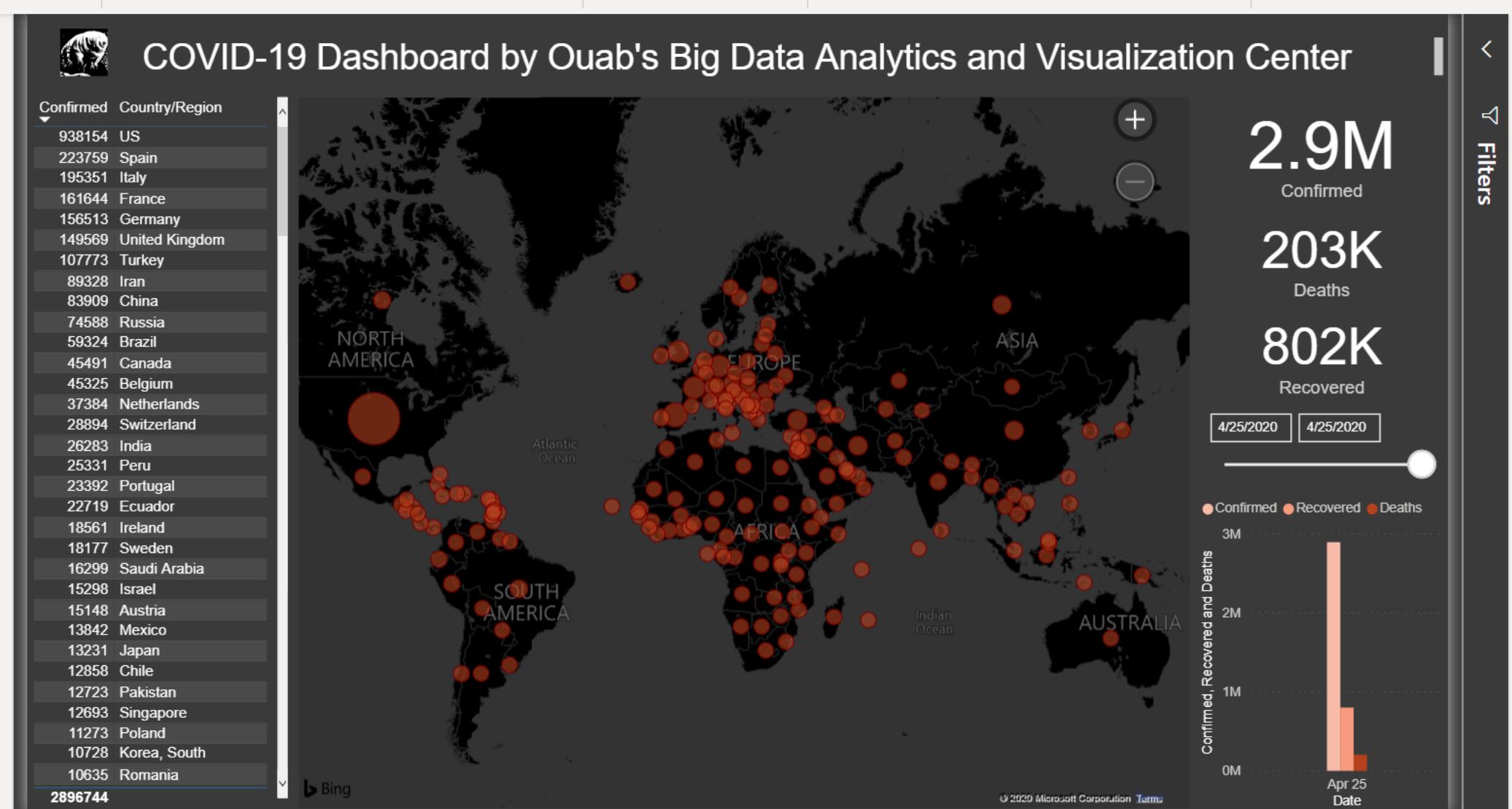
- Changed Type
- Promoted Headers
- Changed Type1
- Unpivoted Columns
- Renamed Columns
- Parsed Date
- Merged Queries
- Expanded time_series_covi...
- Renamed Columns1
- Merged Queries1
- Expanded time_series_covi...
- Renamed Columns2

8 COLUMNS, 999+ ROWS Column profiling based on top 1000 rows

PREVIEW DOWNLOADED AT 10:09 PM

Page 1 +

	Date	Confirmed	Deaths	Recovered
1	1/22/2020	0	0	0
2	1/23/2020	0	0	0
3	1/24/2020	0	0	0
4	1/25/2020	0	0	0
5	1/26/2020	0	0	0
6	1/27/2020	0	0	0
7	1/28/2020	0	0	0
8	1/29/2020	0	0	0
9	1/30/2020	0	0	0
10	1/31/2020	0	0	0
11	2/1/2020	0	0	0
12	2/2/2020	0	0	0
13	2/3/2020	0	0	0
14	2/4/2020	0	0	0
15	2/5/2020	0	0	0
16	2/6/2020	0	0	0
17	2/7/2020	0	0	0
18	2/8/2020	0	0	0



Fields

Search

covid-19

- Σ Confirmed
- Country/Re...
- Date
- Date Hierar...
- Σ Deaths
- Σ Lat
- Σ Long
- Province/St...
- Σ Recovered

time_series_covid...

time_series_covid...

time_series_covid...

Visualizations

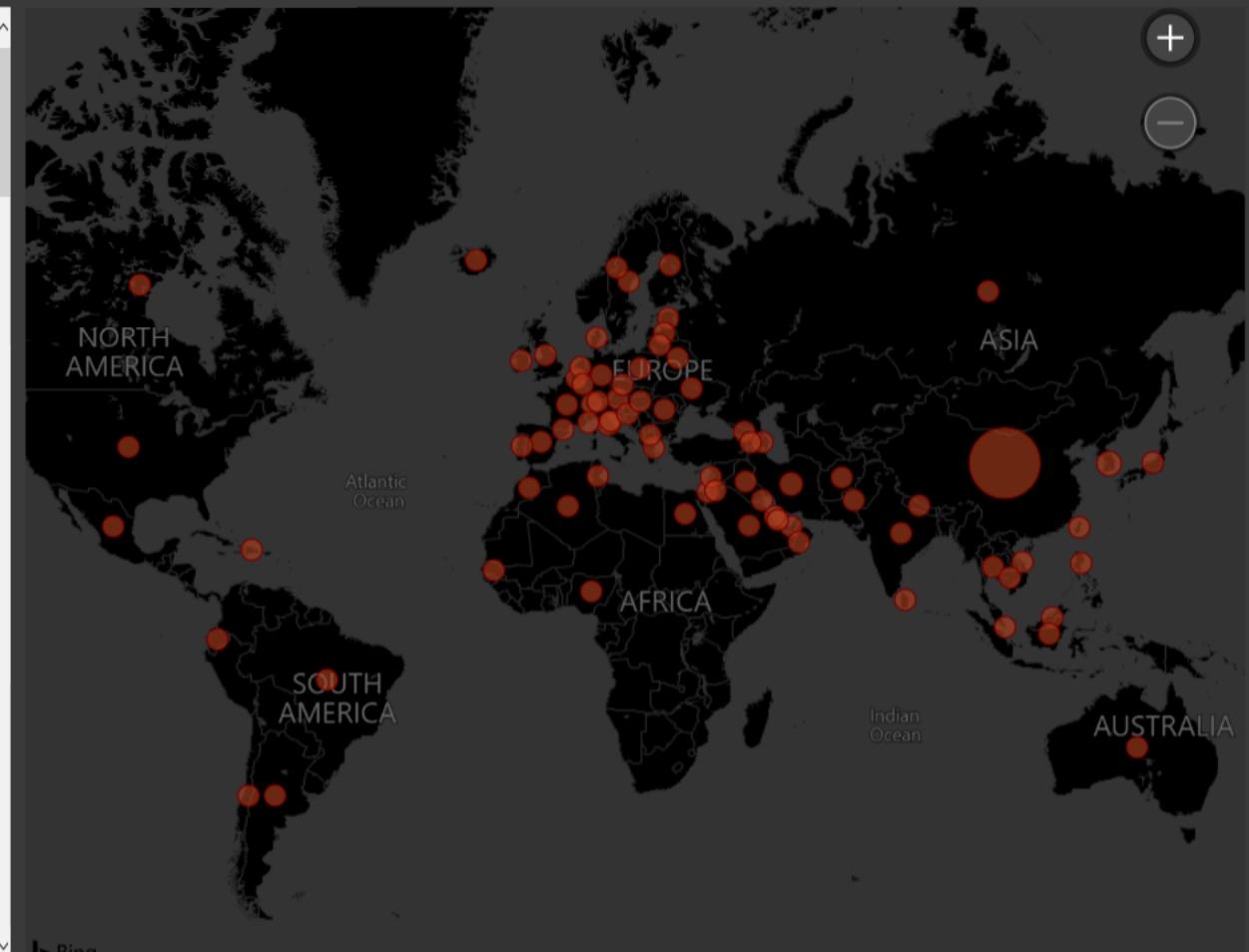
File Home Insert Modeling View Help



COVID-19 Dashboard by Ouab's Big Data Analytics and Visualization Center

Confirmed Country/Region

938154	US
223759	Spain
195351	Italy
161644	France
156513	Germany
149569	United Kingdom
107773	Turkey
89328	Iran
83909	China
74588	Russia
59324	Brazil
45491	Canada
45325	Belgium
37384	Netherlands
28894	Switzerland
26283	India
25331	Peru
23392	Portugal
22719	Ecuador
18561	Ireland
18177	Sweden
16299	Saudi Arabia
15298	Israel
15148	Austria
13842	Mexico
13231	Japan
12858	Chile
12723	Pakistan
12693	Singapore
11273	Poland
10728	Korea, South
10635	Romania
2896744	



95.1K

Confirmed

3254

Deaths

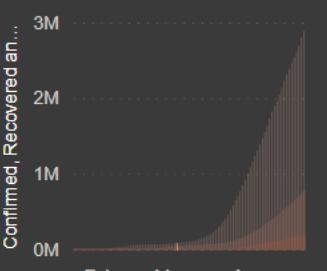
51K

Recovered

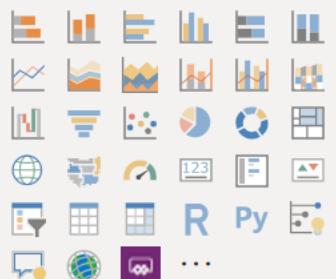
04/03/2020



Confirmed Recovered an...



Visualizations



Values

Add data fields here

Drill through

Cross-report

Off

Keep all filters

On

Add drill-through fields here

Activity 3

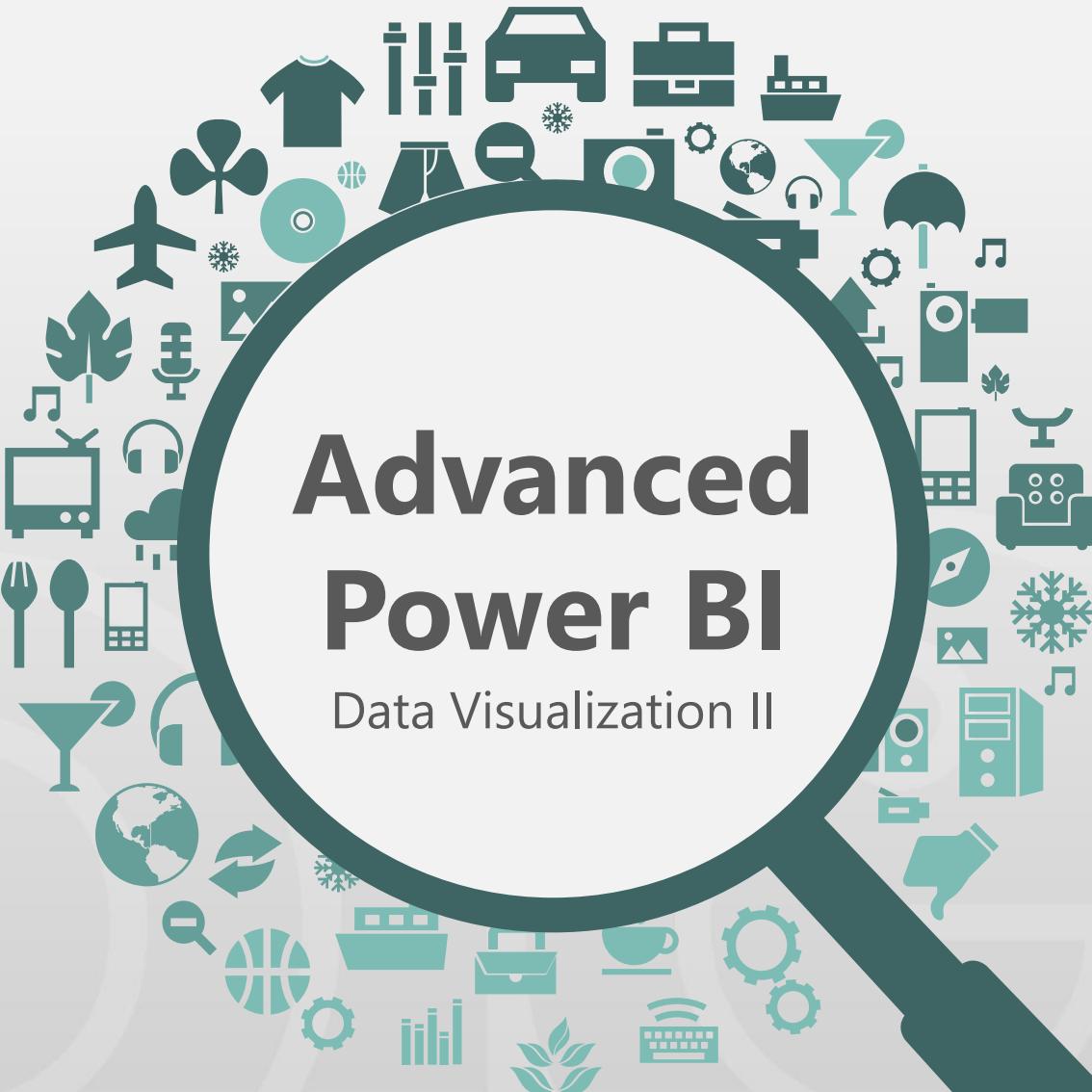


Create a dashboard using at least 4 visuals from set.or.th data or create a COVID-19 dashboard as demonstrated.

Topics

Advanced Power BI

Data Visualization II



**1 Advanced Visualizaiton
and Analytics Tools**

2 DAX

Data Analysis Expression (DAX)

3 Web Scrapping

**4 End-to-End
Visualization Workshop**



Thank You.