



BATCH :
LESSON :
DATE :
SUBJECT :

TABLEAU 2024

Tableau ENG

June 02.2024

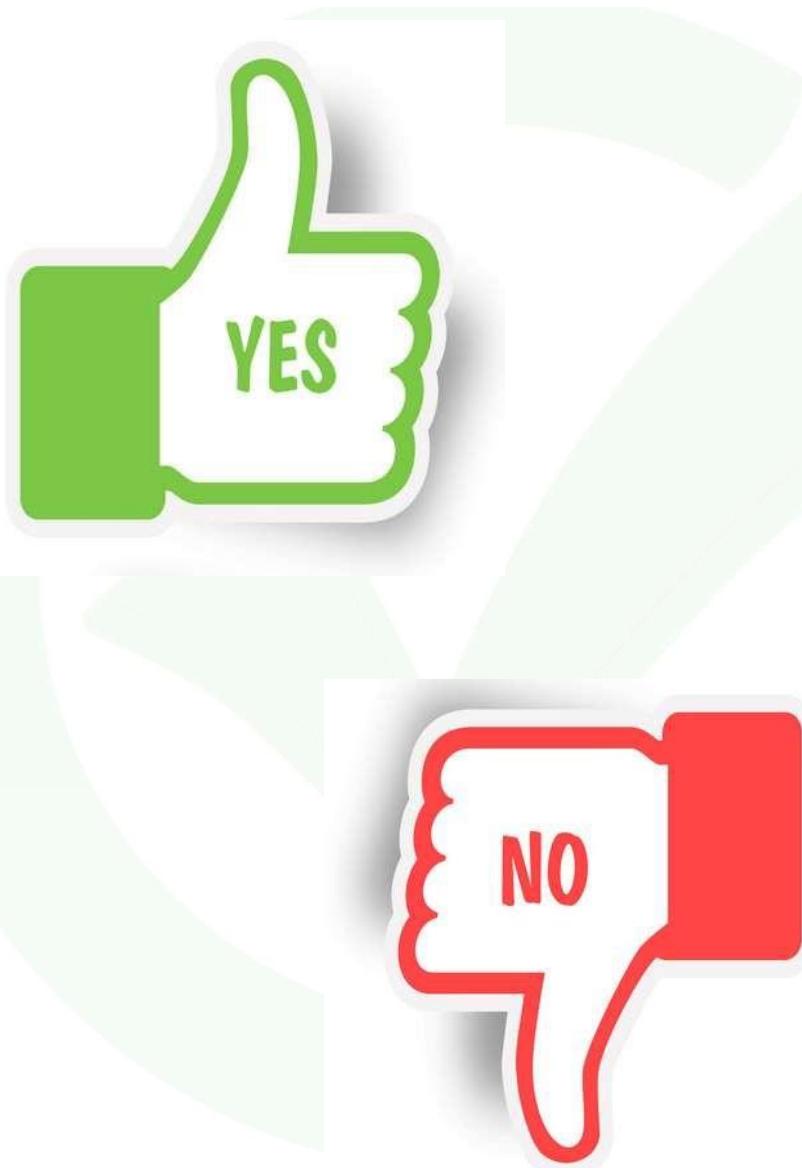
Different Topics - Joins

PLEASE USE **LMS** TO JOIN THE ZOOM
MEETINGS





**I covered first 4 lessons and
have no questions!**





Where we left on Saturday..



+ a b | e a u



CALCULATED FIELDS



Calculated Fields



What is calculated field?

- Calculated fields allow you to create new data from data that already exists in your data source. When you create a calculated field, you essentially create a new field (or column) in your data source whose values or members are determined by a calculation that you control.

The screenshot shows the Tableau desktop application. At the top, the menu bar includes File, Data, Worksheet, Dashboard, Story, **Analysis**, Map, Format, Window, and Help. Below the menu bar, there's a toolbar with various icons. The main workspace shows a data source named "100 Sales Records". On the left, there's a pane titled "Dimensions" with options like "Create Calculated Field...", "Create Parameter...", "Group by Folder", "Group by Data Source Table" (which is selected), "Sort by Name", "Sort by Data Source Order", "Hide All Unused Fields", and "Show Hidden Fields". A context menu is open over the "Dimensions" pane, with "Create Calculated Field..." also highlighted. The overall interface is light blue and white, typical of Tableau's design.

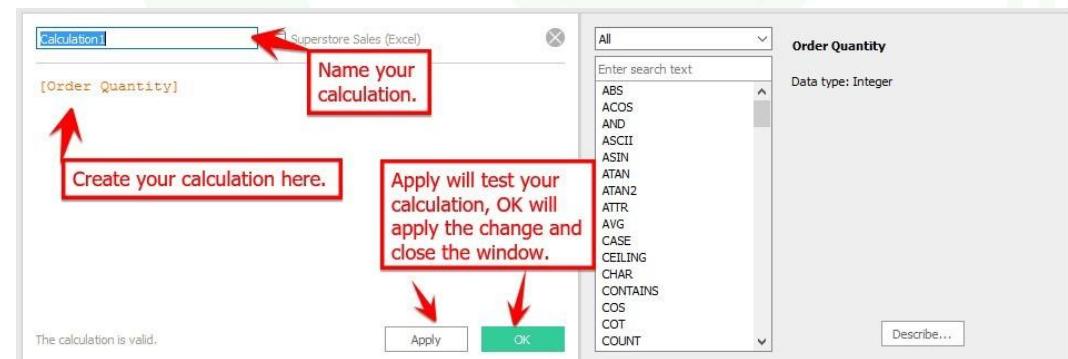
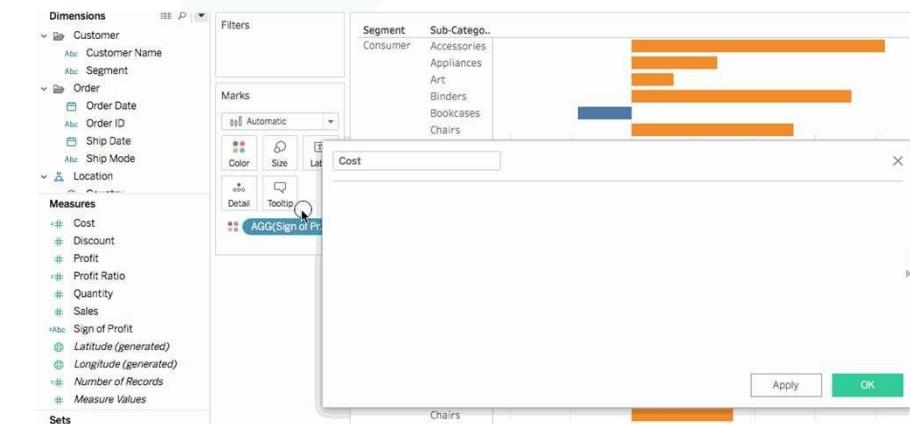


Calculated Fields



Purpose of usage

- To segment data
- To convert a field's data type, such as converting a string to a date
- To aggregate data
- To filter results
- To calculate the ratio



Calculated Fields

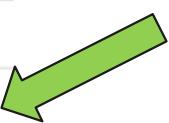


Data

Analytics

Orders (Sample - Superstore (3))

Search



Create Calculated Field...

Create Parameter...

Group by Folder

Group by Data Source Table

Sort by Name

Sort by Data Source Order

Hide All Unused Fields

Show Hidden Fields

Expand All

Collapse All

State

Calculation1

String

MAX(expression) or MAX(expr1, expr2)

Returns the maximum of a single expression across all records or the maximum of two expressions for each record.

Example: MAX([Sales])

ISDATE
LEFT
LEN
LOWER
LTRIM
MAX
MID
MIN
REGEXP_EXTRACT
REGEXP_EXTRACT...
REGEXP_MATCH

Apply OK

Tables

- Postal Code
- Product ID
- Product Name
- Region
- Region (group)
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Sub-Category
- Sub-Category (group)
- Measure Names
- Discount
- Profit
- Quantity
- Sales

Add to Sheet

- Duplicate
- Rename
- Hide
- Create
- Convert to Discrete
- Convert to Dimension
- Change Data Type
- Geographic Role
- Default Properties
- Group by
- Folders
- Replace References...
- Describe...

Calculated Field...

Group...
Bins...
Parameter...

Drop field here



Calculated Fields



Creating Calculated Field

- Calculated fields allow you to create new data from data that already exists in your data source

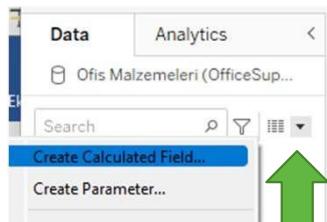
The screenshot shows the Tableau Data Explorer interface. On the left, there are several panels: 'Pages' (empty), 'Filters' (empty), and 'Marks' (set to 'Automatic'). The main area is titled 'Sheet 1' and displays a data table. The table has columns for 'Product Category', 'Product Sub-Category', and 'Region' (with sub-columns for East, South, and West). The data includes categories like Furniture, Office Supplies, and Technology, with sub-categories such as Bookcases, Chairs & Chairmats, Office Furnishings, Tables, Appliances, Binders and Binder Acces., Envelopes, Labels, Paper, Pens & Art Supplies, Rubber Bands, Scissors, Rulers and Trim., Storage & Organization, Computer Peripherals, Copiers and Fax, Office Machines, and Telephones and Communi.. The 'Region' column contains values like 'Abc'.

Product Category	Product Sub-Category	Region			
		Central	East	South	West
Furniture	Bookcases	Abc	Abc	Abc	Abc
	Chairs & Chairmats	Abc	Abc	Abc	Abc
	Office Furnishings	Abc	Abc	Abc	Abc
	Tables	Abc	Abc	Abc	Abc
Office Supplies	Appliances	Abc	Abc	Abc	Abc
	Binders and Binder Acces..	Abc	Abc	Abc	Abc
	Envelopes	Abc	Abc	Abc	Abc
	Labels	Abc	Abc	Abc	Abc
	Paper	Abc	Abc	Abc	Abc
	Pens & Art Supplies	Abc	Abc	Abc	Abc
	Rubber Bands	Abc	Abc	Abc	Abc
	Scissors, Rulers and Trim..	Abc	Abc	Abc	Abc
	Storage & Organization	Abc	Abc	Abc	Abc
Technology	Computer Peripherals	Abc	Abc	Abc	Abc
	Copiers and Fax	Abc	Abc	Abc	Abc
	Office Machines	Abc	Abc	Abc	Abc
	Telephones and Communi..	Abc	Abc	Abc	Abc

Calculated Fields



1



Calculation1

2

ABS (number)
Returns the absolute value of the given number.
Example: ABS(-7) = 7

- All
- Search
- ABS
- ACOS
- AND
- AREA
- ASCII
- ASIN
- ATAN
- ATAN2
- ATTR
- Avg
- BUFFER

3

Calculation1

[Unit Price]*[Quantity]

Quantity

The calculation contains errors ▾
Syntax error (maybe you are missing an operator).

The calculation is valid.

4

Quantity
Unit Price
Ofis Malzemeleri (Count)
Measure Values

Add to Sheet
Duplicate
Rename
Hide
Create
Transform
Convert to Discrete
Convert to Dimension
Change Data Type

Calculated Field...
Group...
Bins...
Parameter...

5

Abc Measure Names
Quantity
:# Sales
Unit Price

Sales
Unit Price
Ofis Malzemeleri (Count)
Measure Values

Add to Sheet
Cut
Copy
Edit...
Delete...

6

Sales
Unit Price
Ofis Malzemeleri (Count)
Measure Values

Add to Sheet
Cut
Copy
Edit...
Delete...

Calculated Fields



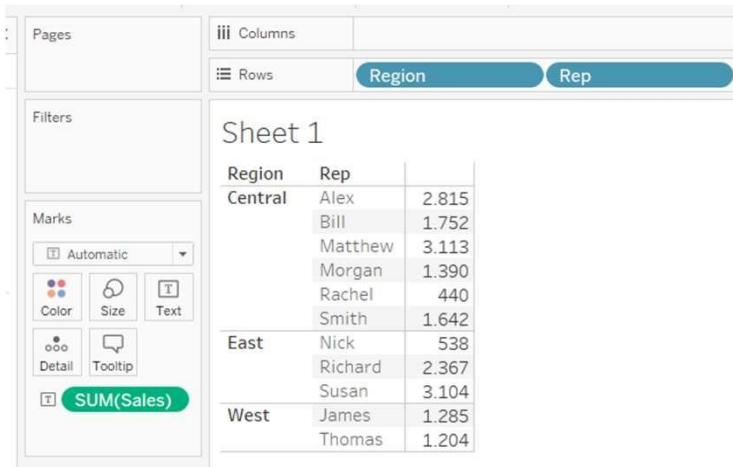
1

Ofis Malzemeleri

Table Details / 10 rows

	Ofis Malzemeleri	Abc Ofis Malzemeleri	Abc Ofis Malzemeleri	Abc Ofis Malzemeleri	# Ofis Malzemeleri	# Ofis Malzemeleri	# Calculation Sales
Order Date	Region	Rep	Item	Quantity	Unit Price		
17.11.2016	Central	Alex	Binder	11	5.000	55.00	
4.12.2016	Central	Alex	Binder	94	20.000	1.880.00	
9.02.2017	Central	Alex	Pencil	36	5.000	180.00	
24.03.2017	Central	Alex	Pen Set	50	5.000	250.00	
5.05.2017	Central	Alex	Pencil	90	5.000	450.00	
10.09.2016	Central	Bill	Pencil	7	1.300	9.10	
15.01.2017	Central	Bill	Binder	46	9.000	414.00	
26.02.2017	Central	Bill	Pen	27	20.000	540.00	
14.05.2017	Central	Bill	Pencil	53	1.300	68.90	

2



3

Rill | 1.752 |

Sales_v2

SUM([Unit Price]) * SUM([Quantity])

4

Measure Values

SUM(Sales) **▼**

Filter...

Show Filter

Format... **▼**

✓ Include in Tooltip

5

Axis Pane

Default

Numbers: 123.456

6

Numbers: 123.456.00

Region	Rep
Central	Alex

Number (Custom) **▼**

Automatic

Number (Standard)

Number (Custom)

Currency (Standard)

Currency (Custom)

Scientific

Percentage

Custom

Decimal places: 2

Negative values: -1234

Display Units: None

Prefix / Suffix:

Include thousands separators



Calculated Fields



File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics Sample - Superstore

Dimensions

- Ship Mode
- Location
 - Country
 - State
 - City
 - Postal Code
- Product
 - Category
 - Sub-Category
 - Manufacturer
 - Product Name
- Profit (bin)
- Region
- Measure Names

Measures

- Discount
- Profit
- Quantity

Sets

- Top Customers by Profit

Parameters

- Profit Bin Size
- Top Customers

Pages Columns Region

Rows Category Sub-Category

Sheet 1

Category	Sub-Catego...	Region		
		Central	East	South
Furniture	Bookcases	Abc	Abc	Abc
	Chairs	Abc	Abc	Abc
	Furnishings	Abc	Abc	Abc
	Tables	Abc	Abc	Abc
Office Supplies	Appliances	Abc	Abc	Abc
	Art	Abc	Abc	Abc
	Binders	Abc	Abc	Abc
	Envelopes	Abc	Abc	Abc
	Fasteners	Abc	Abc	Abc
	Labels	Abc	Abc	Abc
	Paper	Abc	Abc	Abc
	Storage	Abc	Abc	Abc
	Supplies	Abc	Abc	Abc
Technology	Accessories	Abc	Abc	Abc
	Copiers	Abc	Abc	Abc
	Machines	Abc	Abc	Abc
	Phones	Abc	Abc	Abc

Data Source Sheet 1

Calculated Fields Hands-On



```
Profit_margin
x
IF [Profit]/[Sales] >0.20 THEN "HIGH PROFIT"
ELSEIF [Profit]/[Sales] >0 THEN "LOW PROFIT"
ELSE "LOSS"
END

The calculation is valid.
Apply OK
```

Tables

- Abc Category
- ⊕ City
- ⊕ Country
- Abc Customer ID
- Abc Customer Name
- ⊕ Order Date
- ⊕ Order ID
- ⊕ Postal Code
- Abc Product ID
- Abc Product Name
- Abc Profit_margin
- Abc Region
- # Row ID



iii Columns Measure Names

Rows Order ID Product ID Profit_margin

Profit Margin

Order ID	Product ID	Profit_mar..	Profit	Sales
CA-2014-100006	TEC-PH-10002075	HIGH PROFIT	110	378
CA-2014-100090	FUR-TA-10003715	LOSS	-88	502
	OFF-BI-10001597	HIGH PROFIT	69	197
CA-2014-100293	OFF-PA-10000176	HIGH PROFIT	32	91
CA-2014-100328	OFF-BI-10000343	HIGH PROFIT	1	4
CA-2014-100363	OFF-FA-10000611	HIGH PROFIT	1	2
	OFF-PA-10004733	HIGH PROFIT	7	19
CA-2014-100391	OFF-PA-10001471	HIGH PROFIT	7	15
CA-2014-100678	FUR-CH-10002602	LOSS	-18	317
	OFF-AR-10001868	HIGH PROFIT	1	3
	OFF-EN-10000056	HIGH PROFIT	50	149
	TEC-AC-10000474	LOW PROFIT	28	228
CA-2014-100706	FUR-FU-10002268	HIGH PROFIT	10	29
	TEC-AC-10001314	LOW PROFIT	8	100
CA-2014-100762	OFF-AR-10000380	HIGH PROFIT	46	152
	OFF-LA-10003930	HIGH PROFIT	96	197
	OFF-PA-10001815	HIGH PROFIT	69	144
	OFF-PA-10004082	HIGH PROFIT	8	16
CA-2014-100860	OFF-LA-10001982	HIGH PROFIT	9	19
CA-2014-100867	TEC-PH-10004922	LOW PROFIT	20	322
CA-2014-100881	TEC-PH-10003273	LOW PROFIT	23	302
CA-2014-100895	OFF-AR-10004511	HIGH PROFIT	3	9
	OFF-ST-10001490	HIGH PROFIT	107	357
	TEC-PH-10001425	HIGH PROFIT	67	240
CA-2014-100916	FUR-TA-10004607	LOW PROFIT	112	591
	OFF-AR-10001022	HIGH PROFIT	1	3
	OFF-ST-10003479	LOW PROFIT	10	195
CA-2014-100972	OFF-PA-10000357	HIGH PROFIT	80	166
CA-2014-101147	OFF-AP-10004249	LOSS	-6	2
CA-2014-101175	OFF-ST-10004950	LOSS	-1	101
CA-2014-101266	OFF-PA-10002986	HIGH PROFIT	6	13

Calculated Fields Hands-On



Sales Data Overview

Product Name: 3D Systems Cube Printer, 2nd Generation, White

Print_query:

```
CONTAINS([Product Name], 'Printer')
```

Postal Code:

Print_query:

Contextual menu open for Product Name:

- Add to Sheet
- Show Filter
- Duplicate
- Rename
- Hide
- Aliases...
- Create** (highlighted)
- Transform
- Calculated Field...

Sheet 19

Product Name	Print_qu..
1.7 Cubic Foot Compact "Cube" Office Refrigerators	False
1/4 Fold Party Design Invitations & White Envelopes, 24 8-1/2" X 11" Cards, 25 ..	False
3-ring staple pack	False
3.6 Cubic Foot Counter Height Office Refrigerator	False
3D Systems Cube Printer, 2nd Generation, Magenta	True
3D Systems Cube Printer, 2nd Generation, White	True
3M Hangers With Command Adhesive	False
3M Office Air Cleaner	False
3M Organizer Strips	False
3M Polarizing Light Filter Sleeves	False
3M Polarizing Task Lamp with Clamp Arm, Light Gray	False
3M Replacement Filter for Office Air Cleaner for 20'x 33' Room	False
6" Cubicle Wall Clock, Black	False
9-3/4 Diameter Round Wall Clock	False
12 Colored Short Pencils	False
12-1/2 Diameter Round Wall Clock	False
14-7/8 x 11 Blue Bar Computer Printout Paper	False
24 Capacity Maxi Data Binder Racks, Pearl	False
24-Hour Round Wall Clock	False
36X48 HARDFLOOR CHAIRMAT	False
50 Colored Long Pencils	False
2300 Heavy-Duty Transfer File Systems by Perma	False
4009 Highlighters	False



Tablo'da "Customer Name" alanı için isminin ilk harfi A, B veya C ile başlayanları getirmek için aşağıdaki hesaplama alanını kullanabilirsiniz:

Adım 1: Calculation Field Oluşturma

1. Sağ tıklayın ve "Create Calculated Field" seçenekini seçin.

2. Aşağıdaki formülü kullanarak yeni bir hesaplama alanı oluşturun:

```
css  Copy code
IF LEFT([Customer Name], 1) = "A" OR
LEFT([Customer Name], 1) = "B" OR
LEFT([Customer Name], 1) = "C"
THEN [Customer Name] END
```

3. Hesaplama alanına bir isim verin, örneğin "ABC Customers".

Adım 2: Hesaplama Alanını Kullanma

1. Yeni oluşturduğunuz hesaplama alanını sürekli bırak yöntemiyle raporunuzun sütunlar veya filtreler bölümünde yerleştirin.

2. Hesaplama alanını filtre olarak kullanarak sadece A, B veya C ile başlayan müşteri isimlerini görmek istediğinizde filtreleri ayarlayın.

Bu şekilde hesaplama alanını kullanarak sadece A, B veya C ile başlayan müşteri isimlerini filtreleyebilirsiniz.

ABC Customers

```
IF LEFT([Customer Name], 1) = "A" OR
LEFT([Customer Name], 1) = "B" OR
LEFT([Customer Name], 1) = "C"
THEN [Customer Name] END
```

ABC Customers	ABC
Null	Abc
Aaron Bergman	Abc
Aaron Hawkins	Abc
Aaron Smayling	Abc
Adam Bellavance	Abc
Adam Hart	Abc
Adam Shillingsburg	Abc
Adrian Barton	Abc
Adrian Hane	Abc
Adrian Shami	Abc
Aimee Bixby	Abc
Alan Barnes	Abc
Alan Dominguez	Abc
Alan Haines	Abc
Alan Hwang	Abc
Alan Schoenberger	Abc
Alan Shonely	Abc
Alejandro Ballentine	Abc
Alejandro Grove	Abc
Alejandro Savely	Abc
Aleksandra Gannaway	Abc
Alex Avila	Abc
Alex Grayson	Abc
Alex Russell	Abc
Alica McCarthy	Abc

Sheet 7

regex

	Abc
NULL	Abc
Aaron Bergman	Abc
Aaron Hawkins	Abc
Aaron Smayling	Abc
Adam Bellavance	Abc
Adam Hart	Abc
Adam Shillingsb..	Abc
Adrian Barton	Abc
Adrian Hane	Abc

IIF(REGEXP_MATCH([Customer Name] , '^[a-cA-C].*') , [Customer Name],NULL)

The calculation is valid.

1 Dependency ▾

Apply OK

regex

All

Search

ABS (number)

Returns the absolute value of the given number.

Example: ABS(-7) = 7

	Abc
Alice McCarthy	Abc
Allen Armold	Abc
Allen Goldenen	Abc
Allen Rosenblatt	Abc

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics <

Office Supplies (OfficeSupplies Not fixed)

Search

Tables

- Item
- Order Date
- Region
- =ABC region_trimmedCapital
- =ABC RegionFixed
- Rep
- Measure Names
- # Quantity
- # Unit Price
- # Office Supplies (Count)
- # Measure Values

Pages Columns & Rows

Region region.. Region..

Region	region..	Region..
Centr	Centr	Central
central	Central	Central
East	East	East
West	West	West
Centr	Centr	Central
Central	Central	Central
East	East	East
wEST	West	West

Marks Automatic

Colour Size Text Detail Tooltip

Sheet 1

RegionFixed

```
IIF ([region_trimmedCapital] = 'Centr',  
REPLACE([region_trimmedCapital], 'r','al') , [region_trimmedCapital])
```

The calculation is valid.

Dependency Apply OK

All ABS (number)

Search ABS ACOS AND AREA ASCII ASIN ATAN ATAN2 ATTR AVG DURRR

Returns the absolute value of the given number.

Example: ABS(-7) = 7

0 Data Source Sheet 1 10 marks 8 rows by 1 column

Pages ▾

iii Columns

Rows Customer Name State State (group) Sales Represantat..

Filters

Sheet 5

Customer Name	State	State (..	Sales Rep..	
Adam Hart	Ohio	SR3	Tom	Abc
	Pennsylvania	SR3	Tom	Abc
	Rhode Island	SR3	Tom	Abc
	Tennessee	SR3	Tom	Abc
	Texas	SR3	Tom	Abc
Adam Shillingsburg	California	SR4	Jason	Abc
	Illinois	SR2	Alexandra	Abc
	Missouri	SR4	Jason	Abc

Marks

Automatic

Colour Size Text Detail

Sales Representative

```
IF [State (group)]='SR1' THEN "Brian"
ELSEIF [State (group)]= 'SR2' THEN "Alexandra"
ELSEIF [State (group)]= 'SR3' THEN "Tom"
ELSE "Jason"
END|
```

The calculation is valid.

2 Dependencies ▾

Apply OK

Kentucky SR2 Alexandra Abc
Oregon SR3 Tom Abc
Texas SR3 Tom Abc

Edit Group [State (group)]

Field Name: State (group)

Groups: Add to:

- > SR1
- > SR2
- > SR3
- > SR4

All

Search

ABS
ACOS
AND
AREA
ASCII
ASIN
ATAN
ATAN2
ATTR
AVG
DURATION

Group Rename Ungroup Show Add Location

Include 'Other'

Find members

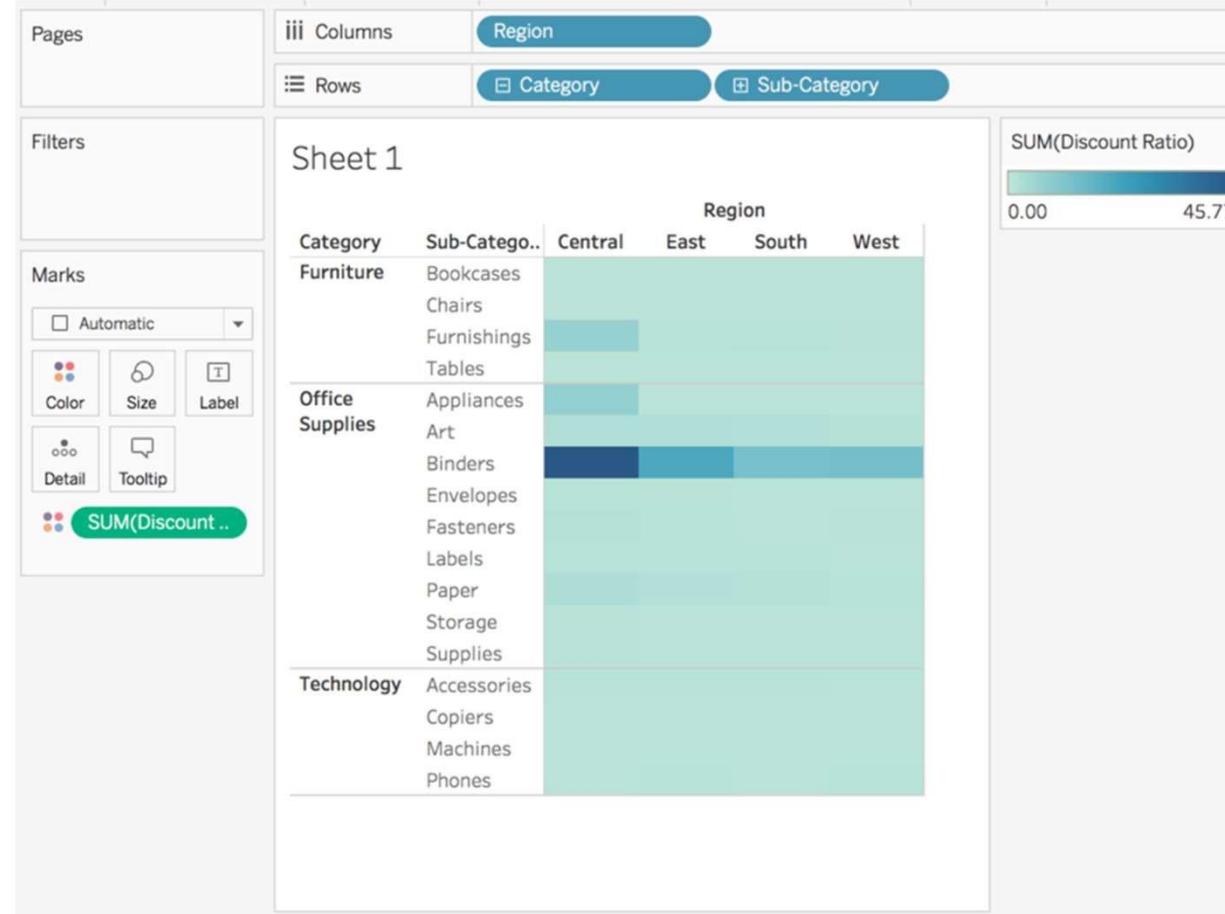
Contains Range: (All)

Find All Find Next

Reset OK Cancel Apply



Calculated Fields



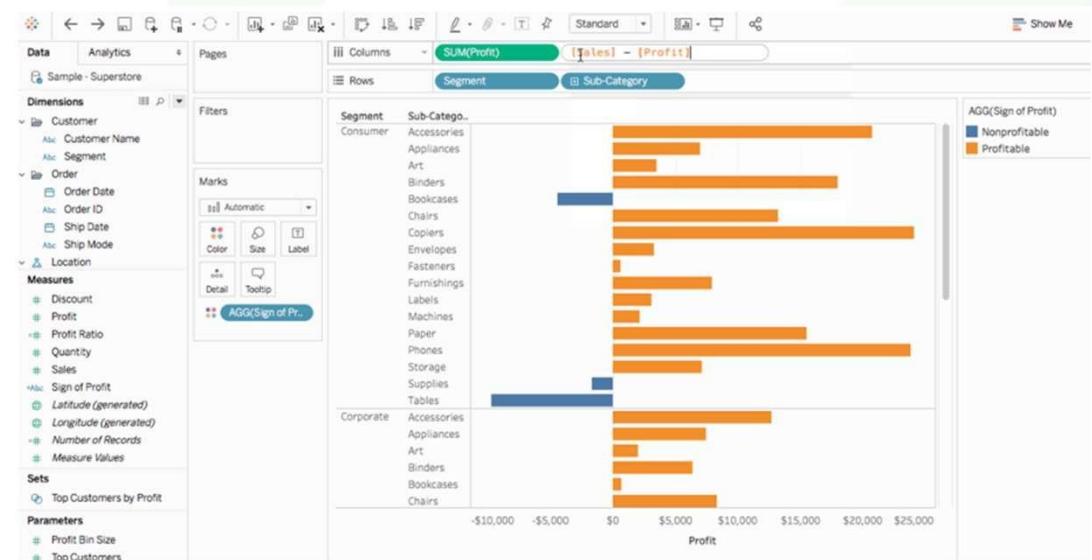


Calculated Fields



Hesapları Anlama

- Calculations allow you to create new data from data that already exists in your data source, as well as perform calculations on your data



If Null

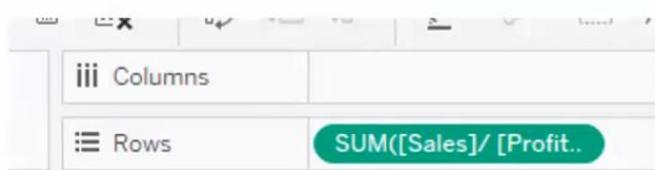


Profit Updated

```
IFNULL([Profit], 0)  
IFNULL(expr1, expr2)
```

Customer Name Updated

```
IFNULL([Customer Name], 'Unknown')  
IFNULL(expr1, expr2)
```



Calculation - Boolean



The image shows two Tableau dashboards demonstrating the use of Boolean calculations in filters.

Dashboard 1 (Left):

- Sheet 7:** A list of Sub-Categories and their Sales values.
- Filter:** A calculated field named "Sales_V3" is used in a filter. The formula is `Sum([Sales]) > 50000`.
- Marks:** The filter is applied using the AGG function: `AGG(Sales_V3): True`.

Sub-Catego...	Sales
Accessories	167.380
Appliances	107.532
Art	27.119
Binders	203.413
Bookcases	114.880
Chairs	328.449
Copiers	149.528
Envelopes	16.476
Fasteners	3.024
Furnishings	91.705
Labels	12.486
Machines	189.239
Paper	78.479
Phones	330.007
Storage	223.844
Supplies	46.674
Tables	206.966

Dashboard 2 (Right):

- Sheet 7:** A list of Sub-Categories and their Sales values.
- Filter:** A calculated field named "Sales_V3" is used in a filter. The formula is `Sum([Sales]) > 50000`.
- Marks:** The filter is applied using the AGG function: `AGG(Sales_V3): True`.
- General Filter:** A search bar allows filtering by "Sales_V3". The "True" checkbox is selected.

Sub-Catego...	Sales
Accessories	167.380
Appliances	107.532
Binders	203.413
Bookcases	114.880
Chairs	328.449
Copiers	149.528
Furnishings	91.705
Machines	189.239
Paper	78.479
Phones	330.007
Storage	223.844
Tables	206.966



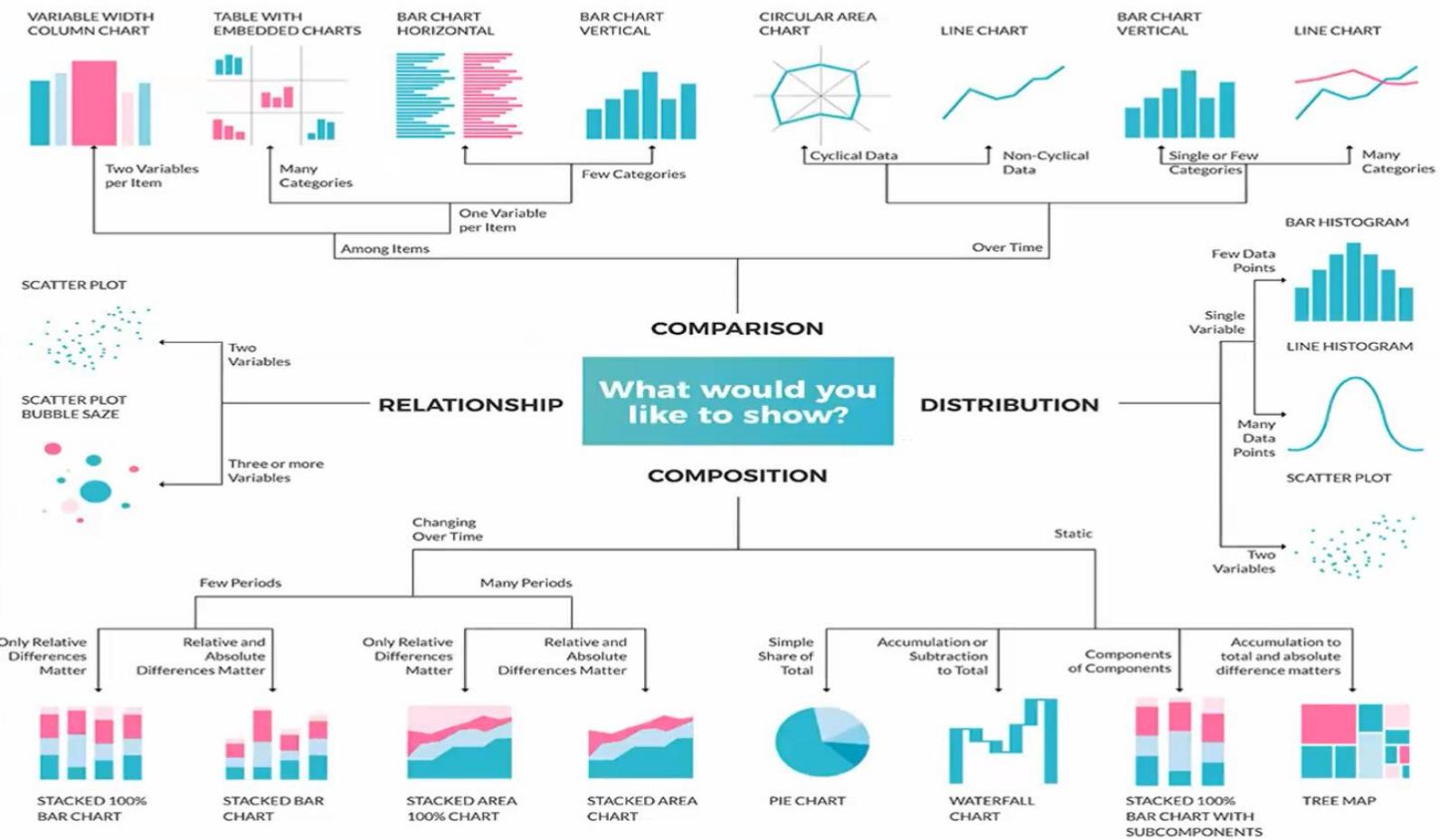
Sheet 1

Marks

- Text
- Colour
- Size
- Detail
- Tooltip
- State**
- SUM(Sal.)**
- State**



State
Alabama
Arizona
Arkansas
California
Colorado
Connecticut
Delaware
District of Columbia
Florida
Georgia
Idaho
Illinois
Indiana
Iowa
Kansas
Kentucky
Louisiana
Maine
Maryland
Massachusetts
Michigan
Minnesota
Mississippi
Missouri
Montana
Nebraska
Nevada
New Hampshire
New Jersey
New Mexico
New York
North Carolina
North Dakota
Ohio
Oklahoma





<https://makeovermonday.co.uk/>

Data Set Reorganizing



Screenshot of a data visualization tool interface showing a table of Nintendo Switch sales data.

Table Headers:

- Data
- 6 fields 8 rows

Table Data:

Nintendo Switch Platform	Metric	3/2017	3/2018	3/2019	3/2020
Nintendo Switch hardware/...	ten thousand units (hardware)	60	378	385	521
Nintendo Switch hardware/T...	ten thousand units (hardware)	120	594	688	811
Nintendo Switch hardware/E...	ten thousand units (hardware)	76	379	405	534
Nintendo Switch hardware/O...	ten thousand units (hardware)	18	194	199	237
Nintendo Switch software/...	ten thousand units (software)	89	1.226	2.148	3.256
Nintendo Switch software/E...	ten thousand units (software)	286	2.752	5.394	7.428
Nintendo Switch software/O...	ten thousand units (software)	142	1.917	3.936	5.017
Nintendo Switch software/...	ten thousand units (software)	29	496	797	1.171

Contextual Menus:

- For the first row (Hardware): Rename, Copy Values, Hide, Create Calculated Field...
- For the second row (Hardware): Pivot, Merge Mismatched Fields

Screenshot of a data visualization tool interface showing a pivot table and a 'Custom Split' dialog box.

Pivot Table Headers:

- ABC
- Data
- Metric
- Date

Pivot Table Data:

Metric	Date
ten thousand units (hardware)	3/2017
ten thousand units (hardware)	3/2018
ten thousand units (hardware)	3/2020
ten thousand units (hardware)	3/2017
ten thousand units (hardware)	3/2018
ten thousand units (hardware)	3/2019

Contextual Menus:

- For the second row (2018): Rename, Reset Name, Copy Values, Hide, Aliases..., Create Calculated Field..., Create Group..., Split, Custom Split...
- For the third row (2020): Remove Pivot, Describe...

Custom Split Dialog:

How should this data be split?
Use the separator: ;
Split off: First 1 columns

Buttons:

- OK
- Cancel



QUICK TABLE CALCULATION





Quick Table Calculations



Quick Table Calculations

- Quick table calculations allow you to quickly apply a common table calculation to your visualization using the most typical settings for this type of calculation.

- Running total
- Difference
- Percent difference
- Percent of total
- Rank
- Percentile
- Moving average
- YTD total
- Compound growth rate
- Year over year growth
- YTD growth

Quick Table Calculations



Data Analytics

Ofis Malzemeleri (OfficeSup...)

Search

Tables

- Abc Item
- Order Date
- Abc Region
- Abc Rep
- Abc Measure Names
- # Quantity
- # Sales
- # Sales_v2
- ...

Sales

[Quantity] * [Unit Price]

1

Pages

iii Columns Region Rep

Filters

Marks

Automatic

Color Size Text

Detail Tooltip

SUM(Sales)

Sheet 1

Region	Rep	
Central	Alex	2.815,00
	Bill	1.752,00
	Matthew	3.113,00
	Morgan	1.389,50
	Rachel	440,20
	Smith	1.642,10
East	Nick	538,00
	Richard	2.367,00
	Susan	3.104,00
West	James	1.285,00
	Thomas	1.204,00

2

Analysis Map Format Server Window Help

Show Mark Labels

Aggregate Measures

Stack Marks

View Data...

Explain Data

Reveal Hidden Data

Percentage Of

Totals

Forecast

Trend Lines

Special Values

Table Layout

Legends

Show Row Grand Totals

Show Column Grand Totals

Row Totals to Left

Column Totals to Top

Add All Subtotals

Remove All Subtotals

3

Sheet 1

Region	Rep	
Central	Alex	2.815,00
	Bill	1.752,00
	Matthew	3.113,00
	Morgan	1.389,50
	Rachel	440,20
	Smith	1.642,10
	Total	11.151,80
East	Nick	538,00
	Richard	2.367,00
	Susan	3.104,00
	Total	6.009,00
West	James	1.285,00
	Thomas	1.204,00
	Total	2.489,00

4

iii Columns Item

Rows Region Rep

Sheet 1

Region	Rep	Item	Binder	Desk	Pen	Pen Set	Pencil
Central	Alex	1.935,00			250,00	630,00	
	Bill	1.134,00			540,00		78,00
	Matthew	1.000,00	625,00			1.488,00	
	Morgan	252,00				687,50	450,00
	Rachel	140,00				300,20	
	Smith	1.305,00	250,00			87,10	
	Total	5.766,00	875,00	540,00	2.425,50	1.545,30	
East	Nick	58,00			480,00		
	Richard	860,00			576,00	566,00	365,00
	Susan	1.620,00			300,00	1.184,00	
	Total	2.538,00		1.356,00	1.750,00		365,00
West	James	140,00	825,00	152,00		168,00	
	Thomas	1.140,00				64,00	
	Total	1.280,00	825,00	152,00			232,00

5

Analysis Map Format Server Window Help

Show Mark Labels

Aggregate Measures

Stack Marks

View Data...

Explain Data

Reveal Hidden Data

Percentage Of

Total

Show Row Grand Totals

Show Column Grand Totals

Row Totals to Left

Column Totals to Top

Add All Subtotals

Remove All Subtotals

Total All Using

Legend

Filters

High亮子

Parameters

Create Calculated Field...

Edit Calculated Field

Infer Properties from Missing Values

Cycle Fields

Item

Pen	Pen Set	Pencil	Grand To..
250,00	630,00	2.815,00	
40,00	78,00	1.752,00	
		1.488,00	3.113,00
		687,50	450,00
		300,20	440,20
		87,10	1.642,10
		538,00	
		365,00	6.009,00
		168,00	
		64,00	
		232,00	2.489,00

Quick Table Calculations



1

Sheet 1

		Item							
		Region	Rep	Binder	Desk	Pen	Pen Set	Pencil	Grand To..
Central	Alex	1.935,00			250,00	630,00	2.815,00		
	Bill	1.134,00		540,00		78,00	1.752,00		
	Matthew	1.000,00	625,00		1.488,00		3.113,00		
	Morgan	252,00			687,50	450,00	1.389,50		
	Rachel	140,00				300,20	440,20		
	Smith	1.305,00	250,00			87,10	1.642,10		
	Total	5.766,00	875,00	540,00	2.425,50	1.545,30	11.151,80		
East	Nick	58,00		480,00		538,00			
	Richard	860,00		576,00	566,00	365,00	2.367,00		
	Susan	1.620,00		300,00	1.184,00		3.104,00		
	Total	2.538,00		1.356,00	1.750,00	365,00	6.009,00		
West	James	140,00	825,00	152,00	168,00	1.285,00			
	Thomas	1.140,00			64,00	1.204,00			
	Total	1.280,00	825,00	152,00	232,00	2.489,00			
Grand Total	9.584,00	1.700,00	2.048,00	4.175,50	2.142,30	19.649,80			

SUM(Sales)

2

Analysis Map Format Server Window Help

Show Mark Labels

✓ Aggregate Measures

Stack Marks

View Data...

Explain Data

Reveal Hidden Data

Percentage Of

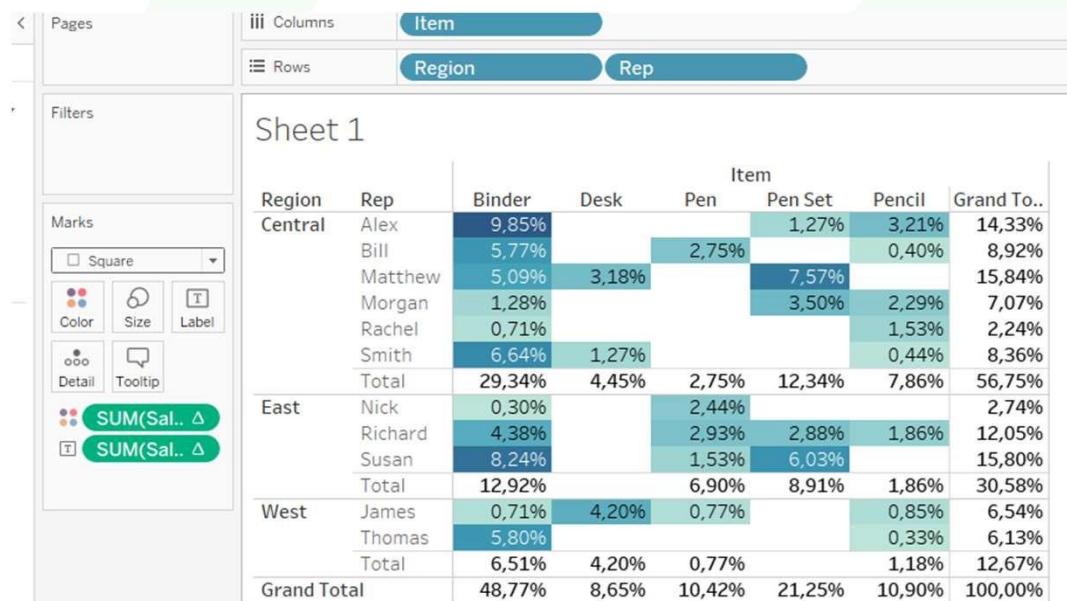
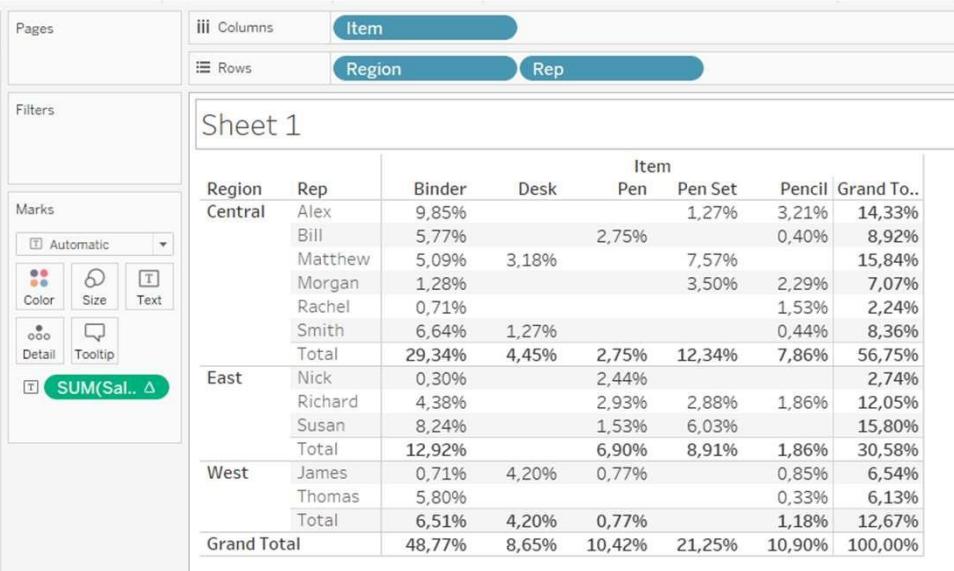
- None
- Table
- Totals
- Forecast
- Trend Lines
- Special Values
- Table Layout
- Legends
- Filters
- Highlighters
- Parameters
- Create Calculated Field...
- Edit Calculated Field
- Infer Properties from Missing Values
- Cycle Fields
- Swap Rows and Columns

Ctrl+W

		Item							
		Region	Rep	Desk	Pen	Pen Set	Pencil	Grand To..	
Central	Alex	1.935,00			250,00	630,00	2.815,00		
	Bill	1.134,00		540,00		78,00	1.752,00		
	Matthew	1.000,00	625,00		1.488,00		3.113,00		
	Morgan	252,00			687,50	450,00	1.389,50		
	Rachel	140,00				300,20	440,20		
	Smith	1.305,00	250,00			87,10	1.642,10		
	Total	5.766,00	875,00	540,00	2.425,50	1.545,30	11.151,80		
East	Nick	58,00		480,00		538,00			
	Richard	860,00		576,00	566,00	365,00	2.367,00		
	Susan	1.620,00		300,00	1.184,00		3.104,00		
	Total	2.538,00		1.356,00	1.750,00	365,00	6.009,00		
West	James	140,00	825,00	152,00	168,00	1.285,00			
	Thomas	1.140,00			64,00	1.204,00			
	Total	1.280,00	825,00	152,00	232,00	2.489,00			
Grand Total	9.584,00	1.700,00	2.048,00	4.175,50	2.142,30	19.649,80			



Quick Table Calculations



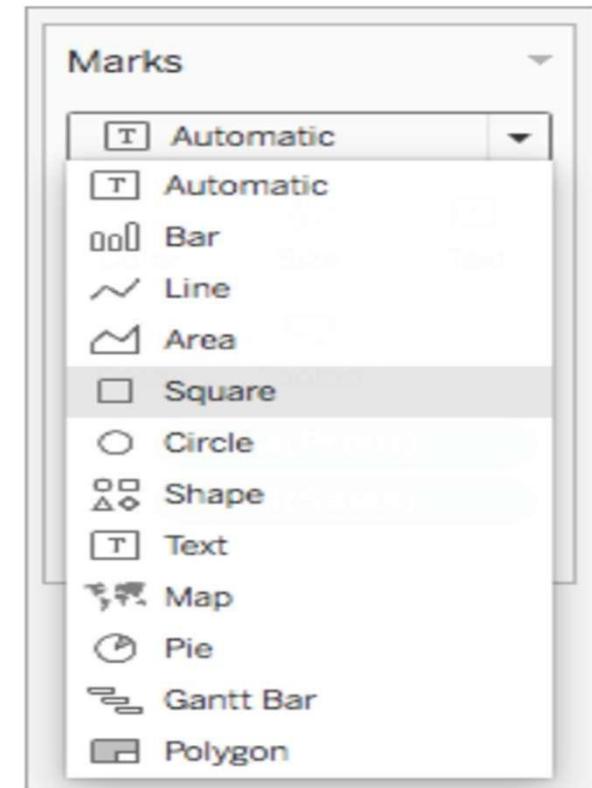


Quick Table Calculations



Quick Table Calculations

- Quick table calculations allow you to quickly apply a common table calculation to your visualization using the most typical settings for this type of calculation.





Quick Table Calculations





Quick Table Calculations



Sheet 1

State	Order Date			
	2014	2015	2016	2017
Alabama	\$6,139	\$3,892	\$7,651	\$1,828
Arizona	\$8,295	\$9,611	\$6,242	\$11,134
Arkansas	\$6,303	\$444	\$2,224	\$2,708
California	\$91,304	\$88,444	\$131,552	\$146,388
Colorado	\$6,502	\$4,639	\$10,667	\$10,300
Connecticut	\$2,794	\$1,285	\$3,998	\$5,307
Delaware	\$4,786	\$6,190	\$2,720	\$13,755
District of Columbia		\$2,670	\$117	\$78
Florida	\$34,248	\$15,177	\$13,603	\$26,445
	\$4,540	\$11,338	\$14,058	\$19,160
	\$465	\$1,500	\$1,183	\$1,234
	\$16,203	\$18,578	\$21,034	\$24,352
	\$2,937	\$6,640	\$25,462	\$18,516
	\$1,191	\$1,713	\$959	\$716
	\$1,320	\$170	\$691	\$733
	\$8,280	\$7,674	\$5,103	\$15,535
	\$2,535	\$918	\$263	\$5,502
	\$617	\$106	\$547	
	\$1,701	\$7,843	\$4,710	\$9,452
	\$9,900	\$6,626	\$3,965	\$8,143
	\$6,172	\$16,844	\$27,420	\$25,834
	\$15,883	\$5,724	\$1,527	\$6,728
	\$2,055	\$302	\$5,417	\$2,997
			\$4,221	\$9,351
			\$4,229	
			\$3,081	\$3,579
			\$9,081	\$3,138
			\$934	\$1,509
			\$17,983	\$9,484
			\$64	\$2,819
			\$71,844	\$93,923
			\$14,967	\$23,457
				\$920
			\$24,748	\$23,265
			\$8,010	\$6,226
Nevada				
New Hampshire				
New Jersey				
New Mexico				
New York				
North Carolina				
North Dakota				
Ohio				
Oklahoma				

The screenshot shows a Tableau interface with a data view and a floating context menu. The menu is open over a column of data, specifically the '2014' column for the state of Florida. The menu path 'Quick Table Calculation...' is highlighted in blue, and the submenu is also blue. The 'Moving Average' option is selected and highlighted with a cursor. Other options in the submenu include Running Total, Difference, Percent Difference, Percent of Total, Rank, Percentile, YTD Total, Compound Growth Rate, Year Over Year Growth, and YTD Growth.



Quick Table Calculations



- You can perform quick table calculations only on dimensions in the view.
- These predefined calculations are called tabular calculations because they calculate the results based on a virtual table containing only the numbers in the view.
- A delta symbol appears in the field to indicate that quick table calculations have been applied to the field.
- Table calculations can be saved as a calculated field for future use



Tableau - 5



Different Topics



Practice

- For all the practice questions use Startup Expansions dataset.
- 1.question
- Create a table
- find total revenue where revenue is greater than 100000 and state is under region 1

Practice



Sheet 4

State

State	Revenue
Alabama	221.025
Connecticut	158.511
Florida	479.023
Georgia	157.656
Illinois	200.413
Iowa	133.268
Michigan	147.759
New Jersey	122.403
New York	160.046

Filter [Sales Region]

General Wildcard Condition Top

Select from list Custom value list Use all

Enter search text

Region 1
 Region 2

Filter [Revenue]

Range of values At least At most Special

At least

100.000 479.023

17.006 479.023

Show: Only Relevant Values Include Null Values

Reset OK Cancel Apply



Practice

- 2.question
- Create a scatter plot with revenue and marketing spend for each city,
- find bottom 25 cities which is sales are low
- color each region

Practice



Filter [City]

General Wildcard Condition Top

None

By field:

Bottom 25 by

Revenue Sum

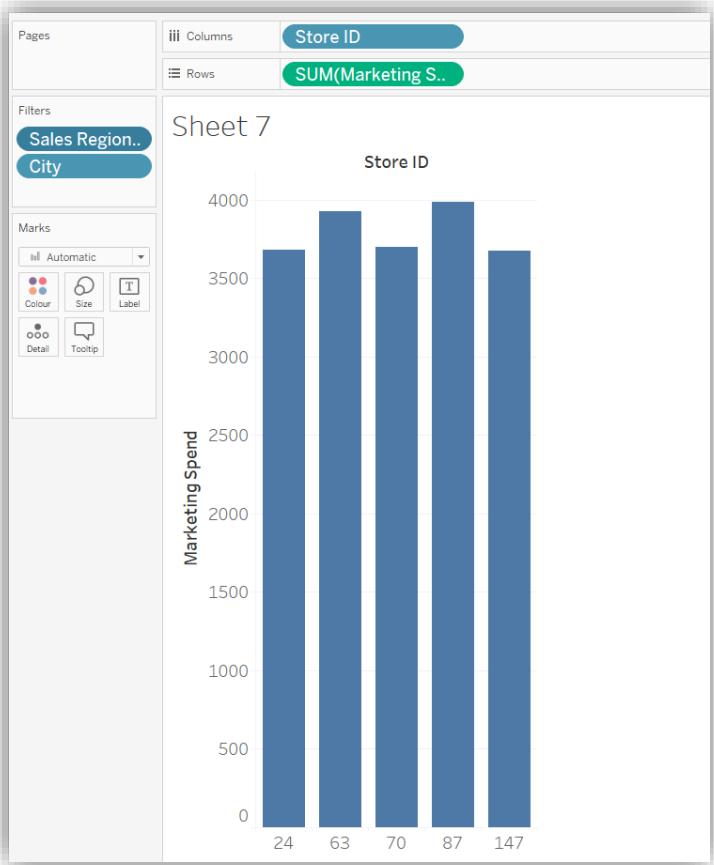




Practice - Homework

- 3.question
- Find 5 stores which are marketing spend at most in region 2

Practice



Filter [Sales Region]

General Wildcard Condition Top

Select from list Custom value list Use all

Enter search text

Region 1 Region 2

Filter [City]

General Wildcard Condition Top

None By field:

Top 5 by Marketing Spend Sum



Practice

- 4.question
- Find states which has 8 characters (use calculated fields) and their store ids.

Practice



Pages **8 characters states** **Store ID**

Filters **8 characters...**

Marks Automatic Colour Size Text Detail Tooltip

Sheet 8

8 charact...	Store ID	
Arkansas	64	Abc
Colorado	31	Abc
	56	Abc
	70	Abc
	79	Abc
	85	Abc
Illinois	93	Abc
	94	Abc
	98	Abc
	143	Abc
	148	Abc
Michigan	32	Abc
	121	Abc
	137	Abc
New York	6	Abc
	10	Abc
	41	Abc
Oklahoma	20	Abc
Virginia	42	Abc
	57	Abc

Tables

=Abc **8 characters states**

8 characters states

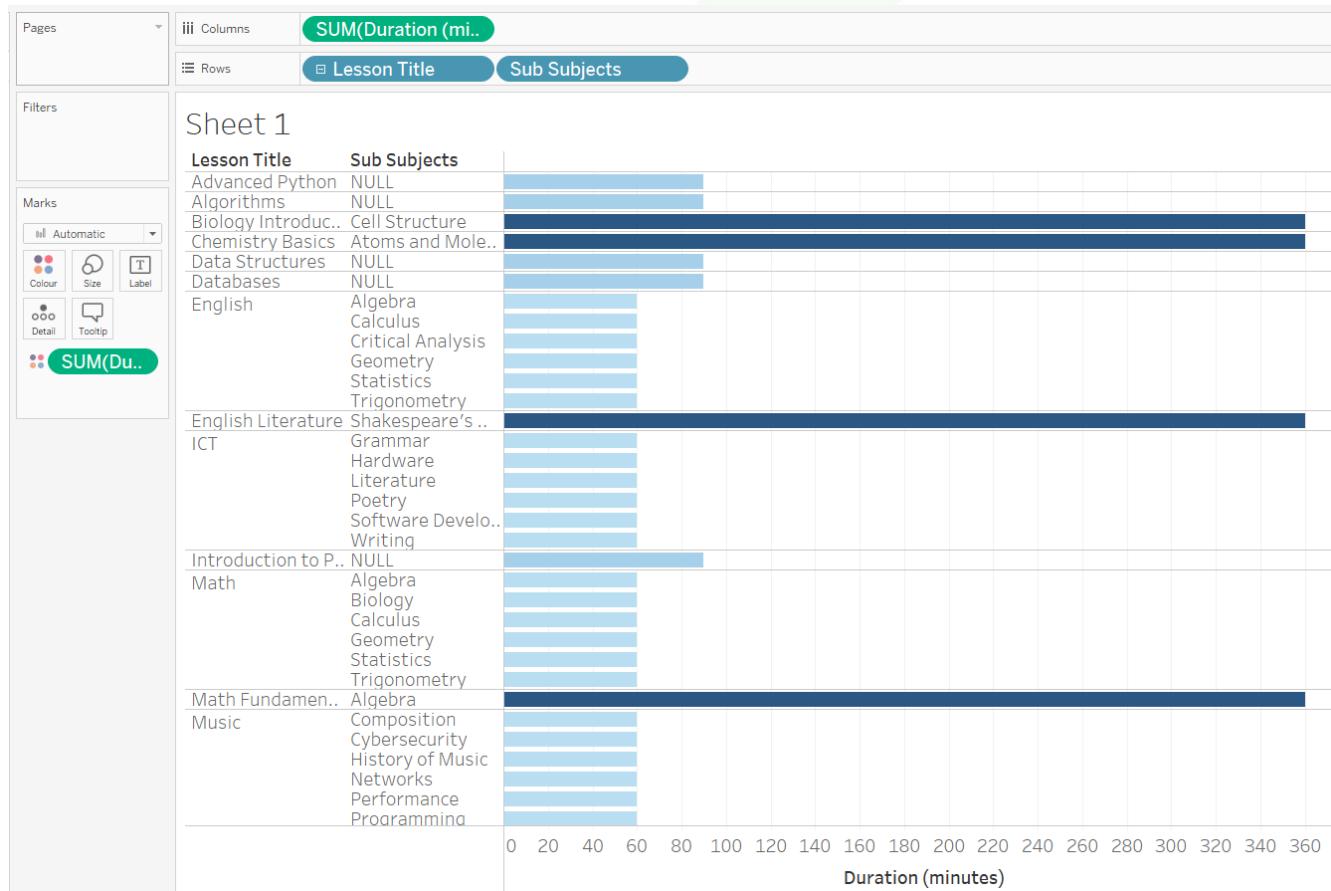
IIF(LEN([State]) =8 , [State],NULL)



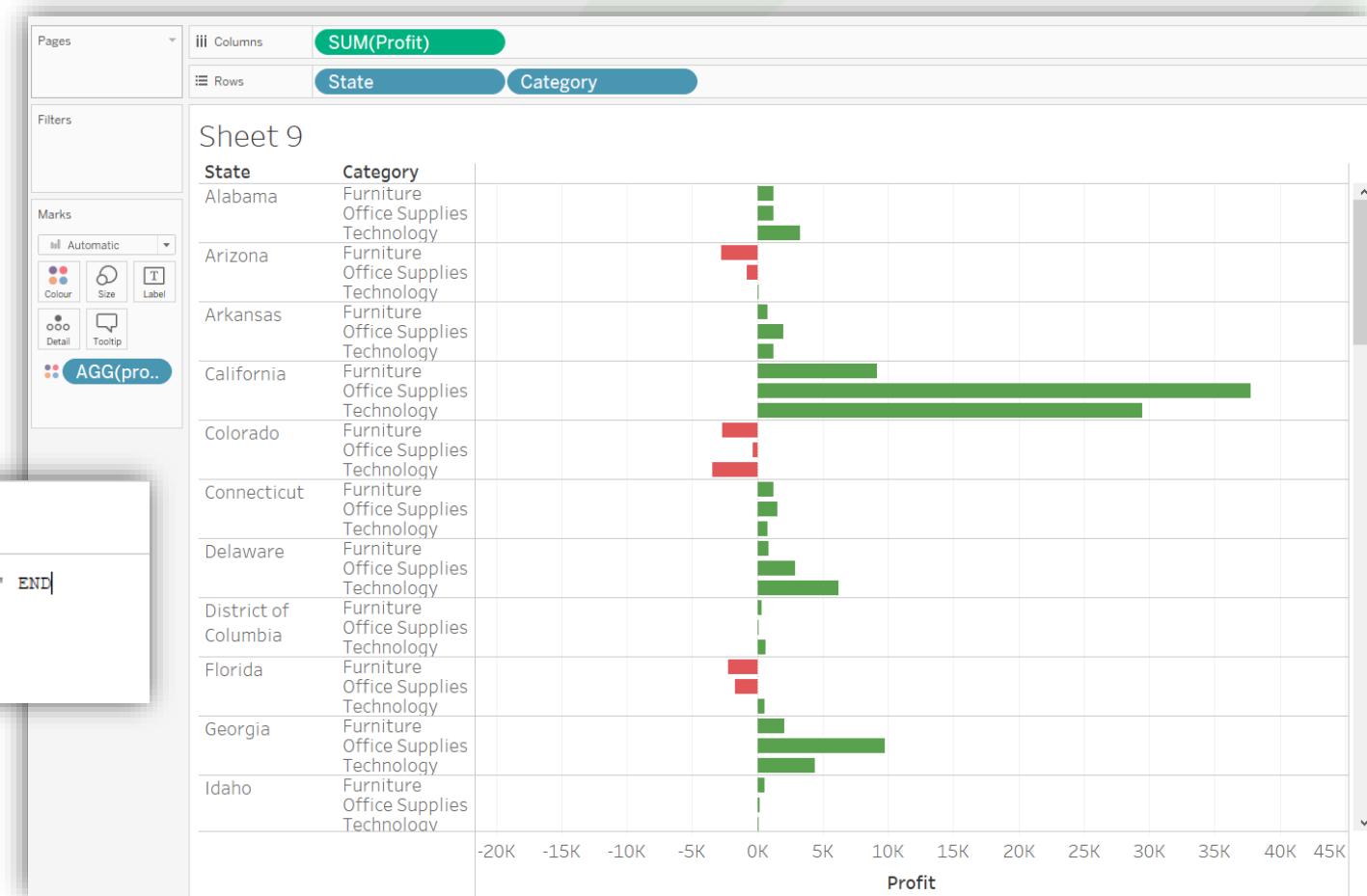
Practice

- 5.question
- Use Lessons data set , create hierarchy lesson title , sub subjects, and analyze the duration for subsubjects

Practice



Analyze the profit for each state and category





CALCULATION - Correlation

Sheet 10
0,4791

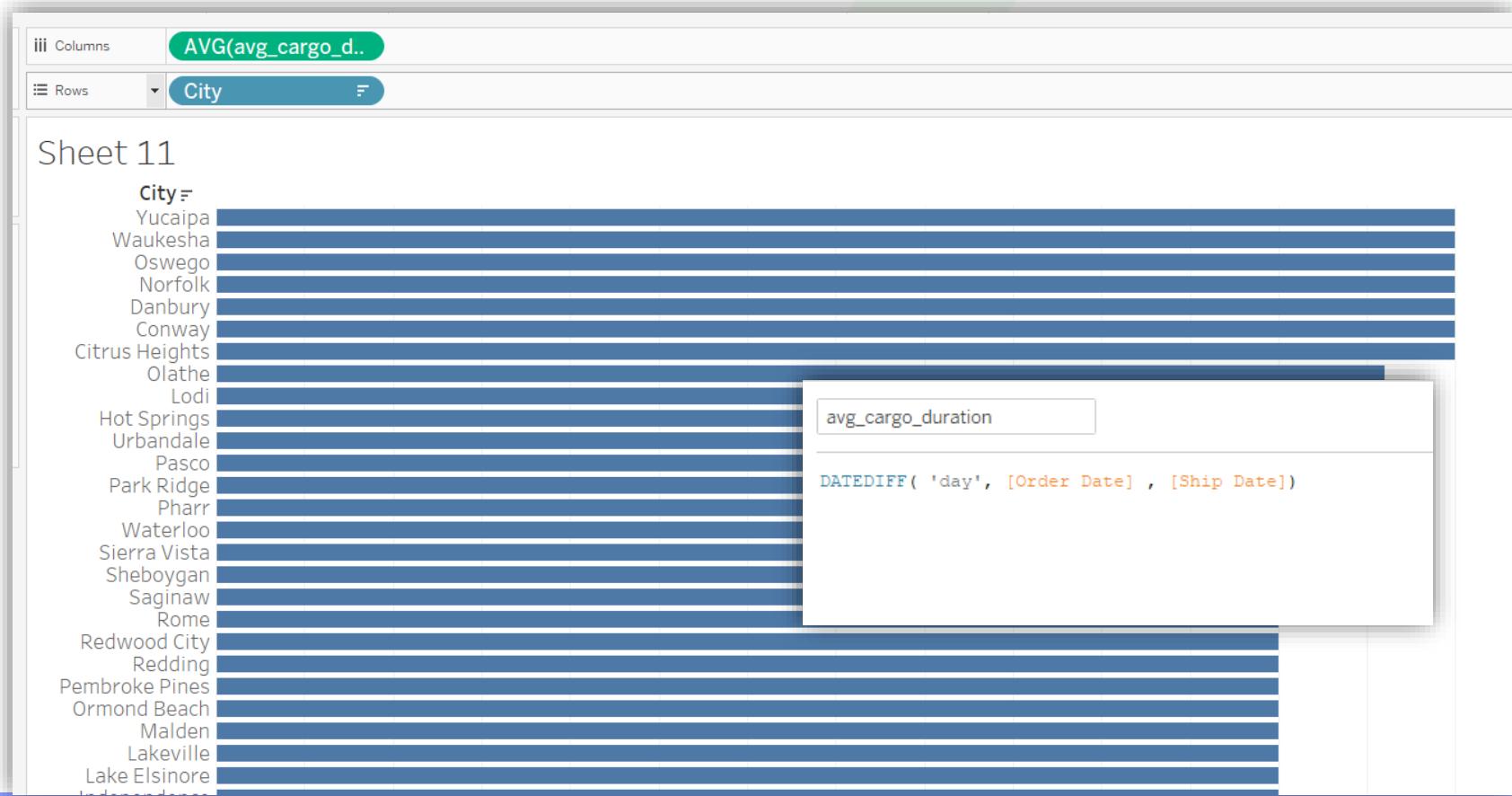
profit - sales crltn

```
CORR( [Profit] , [Sales] )
```

The calculation is valid.

CALCULATION - Date

Create a graph shows the avg cargo duration for each city



CALCULATION - Case



region category

```
CASE [Region]
WHEN 'Central' THEN '1'
WHEN 'East' THEN '2'
WHEN 'South' THEN '3'
ELSE '4'
END
```

Pages iii Columns Region

Rows

Filters

Marks

Automatic

Colour Size Text

Detail Tooltip

region c...

	Region			
Cent..	East	South	West	
1	2	3	4	

Sheet 12



CALCULATION - Right

Rows Order ID orderid_right

Sheet 13

Order ID	orderid..
CA-2014-104283	104283
CA-2014-104402	104402
CA-2014-104472	104472
CA-2014-104563	104563
CA-2014-104738	104738
CA-2014-104773	104773
CA-2014-104780	104780
CA-2014-104808	104808
CA-2014-104829	104829
CA-2014-104976	104976
CA-2014-105165	105165
CA-2014-105172	105172
CA-2014-105249	105249
CA-2014-105270	105270
CA-2014-105340	105340
CA-2014-105417	105417
CA-2014-105648	105648
CA-2014-105872	105872

orderid_right

RIGHT([Order ID] , 6)

The calculation is valid.

1 D

Abc



tableau

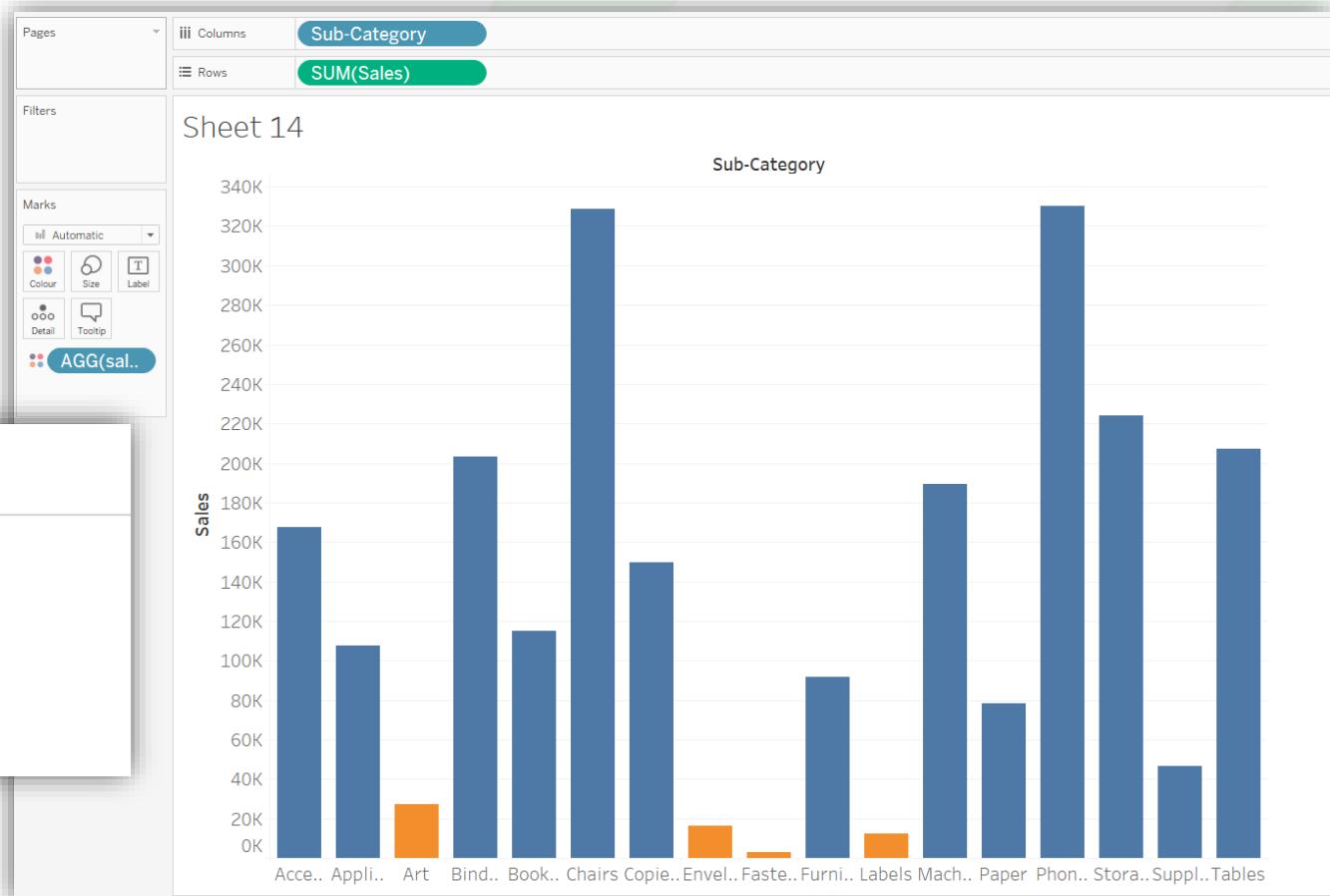


PARAMETERS AND SETS

PARAMETERS AND SETS

Show the sales which are greater than 30000 , using calculated field

```
sales_sub_category  
  
IF SUM([Sales])>30000 THEN 'HIGH SALES'  
ELSE 'LOW SALES'  
END
```



PARAMETERS AND SETS



Search

- Create Calculated Field...
- Create Parameter...**
- Group by Folder
- Group by Data Source Table
- Sort by Name**
- Sort by Data Source Order
- Hide All Unused Fields
- Show Hidden Fields
- Expand All
- Collapse All

Edit Parameter [sales_param]

Name
sales_param

Properties

Data type: Float Display format: 10.000

Current value: 10.000 Value when workbook opens: Current value

Allowable values

All List Range

Range of values

<input checked="" type="checkbox"/> Minimum	10.000	<input checked="" type="radio"/> Fixed
<input checked="" type="checkbox"/> Maximum	340.000	<input type="radio"/> When workbook opens
<input checked="" type="checkbox"/> Step size	10.000	Add values from ▾

Cancel **OK**

ABC Product Name

ABC Region

=ABC region category

Row ID

ABC Segment

Ship Date

ABC Ship Mode

@ State

ABC Sub-Category

ABC Measure Names

=# avg_cargo_duration

Discount

Profit

=ABC profit - loss

=# profit - sales critn

=# Profit copy

Quantity

Sales

=ABC sales_sub_category

=T#F sales_v2

@ Latitude (generated)

@ Longitude (generated)

Orders (Count)

Measure Values

Add to Sheet

Show Parameter

Cut Copy Edit... Duplicate Rename Hide Delete Create Default Properties Folders Replace References... Describe...

sales_selection

100.000

Sales

Sheet 14

Sub-Category

Sales

Sub-Category	Sales
Acces. Appli.	160K
Art.	20K
Bind.	200K
Book	100K
Chairs	140K
Cope.	10K
Envel.	10K
Faste.	10K
Furni.	90K
Labels	10K
Mach.	160K
Paper	10K
Phon.	320K
Stora.	200K
Suppl.	160K
Tables	160K



PARAMETERS AND SETS

The screenshot shows the configuration of a parameter named "sales_selection". The left panel displays the parameter's properties:

- Show Title (checked)
- Edit Title...
- Format Parameters...
- Customise
- Slider (selected)
- Type In
- Hide Card

The right panel shows the current value of the slider, which is set to 60.001.

Allowable values

All List Range

Range of values

Minimum 1

Maximum 500.000

Step size 10.000

Create a graph shows the top customer names according to the dynamic top number, (create a parameter and use as filter)



Sheet 15

Customer Name

Adrian Barton
Hunter Lopez
Ken Lonsdale
Raymond Buch
Sanjit Chand
Sean Miller
Tamara Chand
Tom Ashbrook

0K 1K 2K 3K 4K 5K 6K 7K 8K 9K 10K 11K 12K 13K 14K

Sales

Filter [Customer Name]

General **Wildcard** **Condition** **Top**

None
 By field:
Top by Sales Sum
 By formula:
Top by 10

Create Parameter

Name: Best X

Properties:

- Data type:** Integer
- Display format:** 1
- Current value:** 1
- Value when workbook opens:** Current value

Allowable values:

- All
- List
- Range

Range of values:

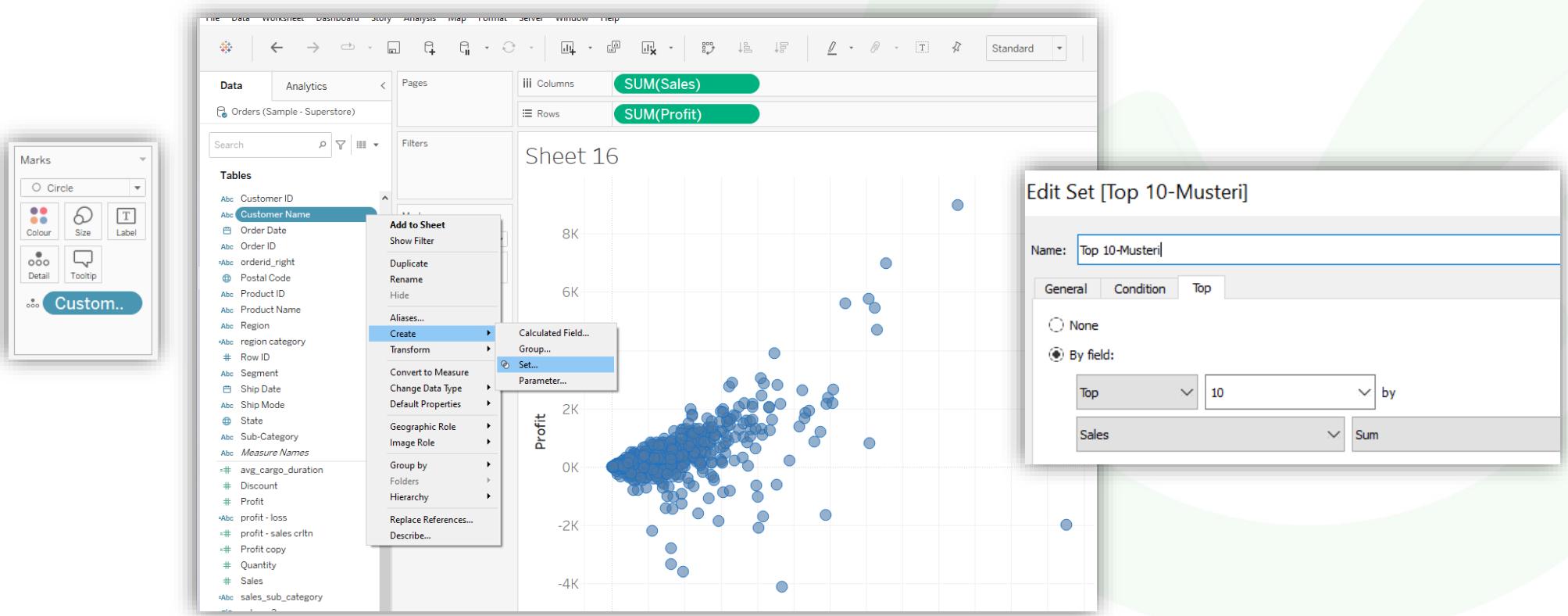
- Minimum: 1
- Maximum: 50
- Step size: 1

Buttons: Cancel OK



SETS

Create sales profit breakdown and using set select the top 10 people.



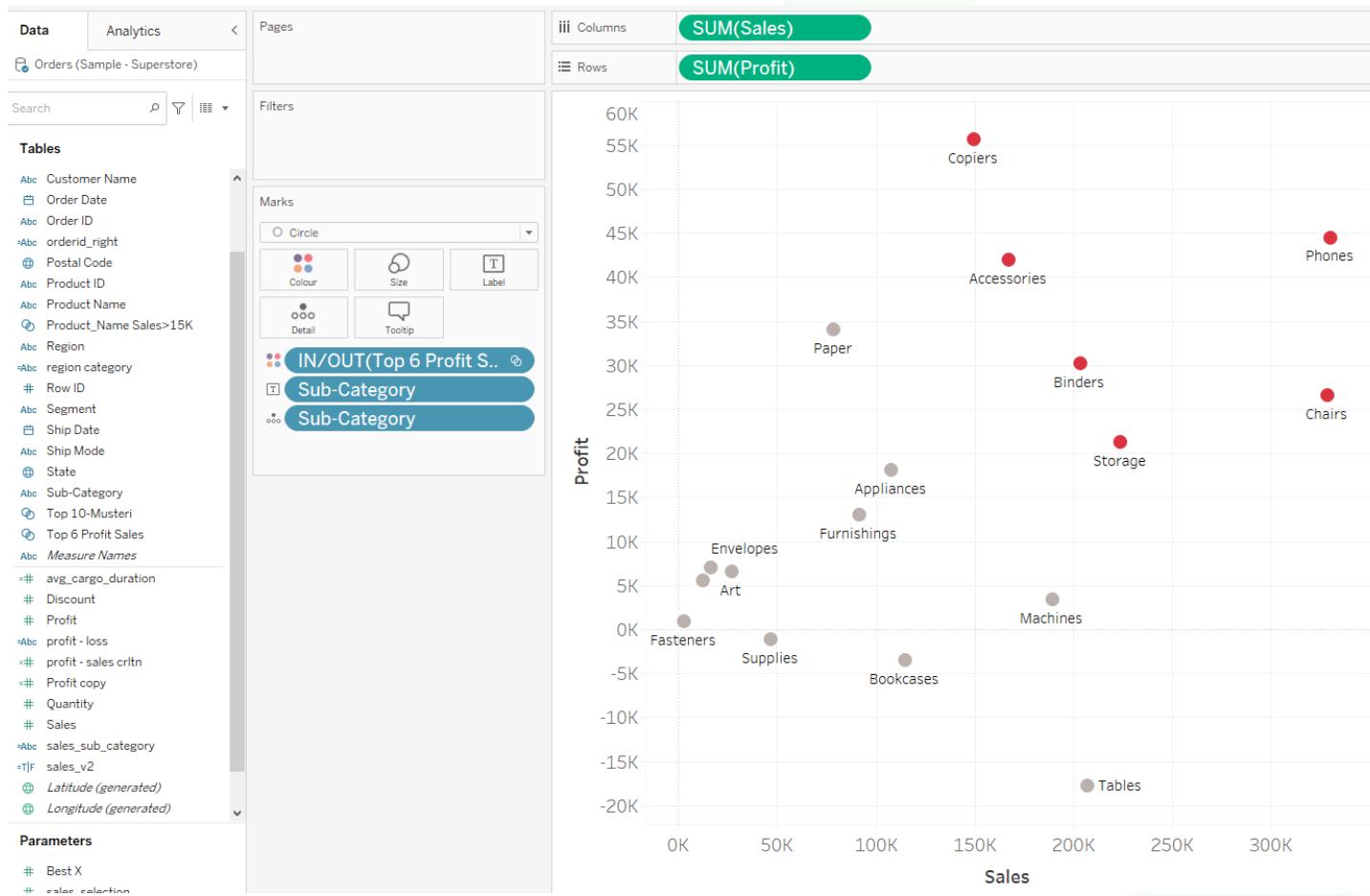
SETS





SETS

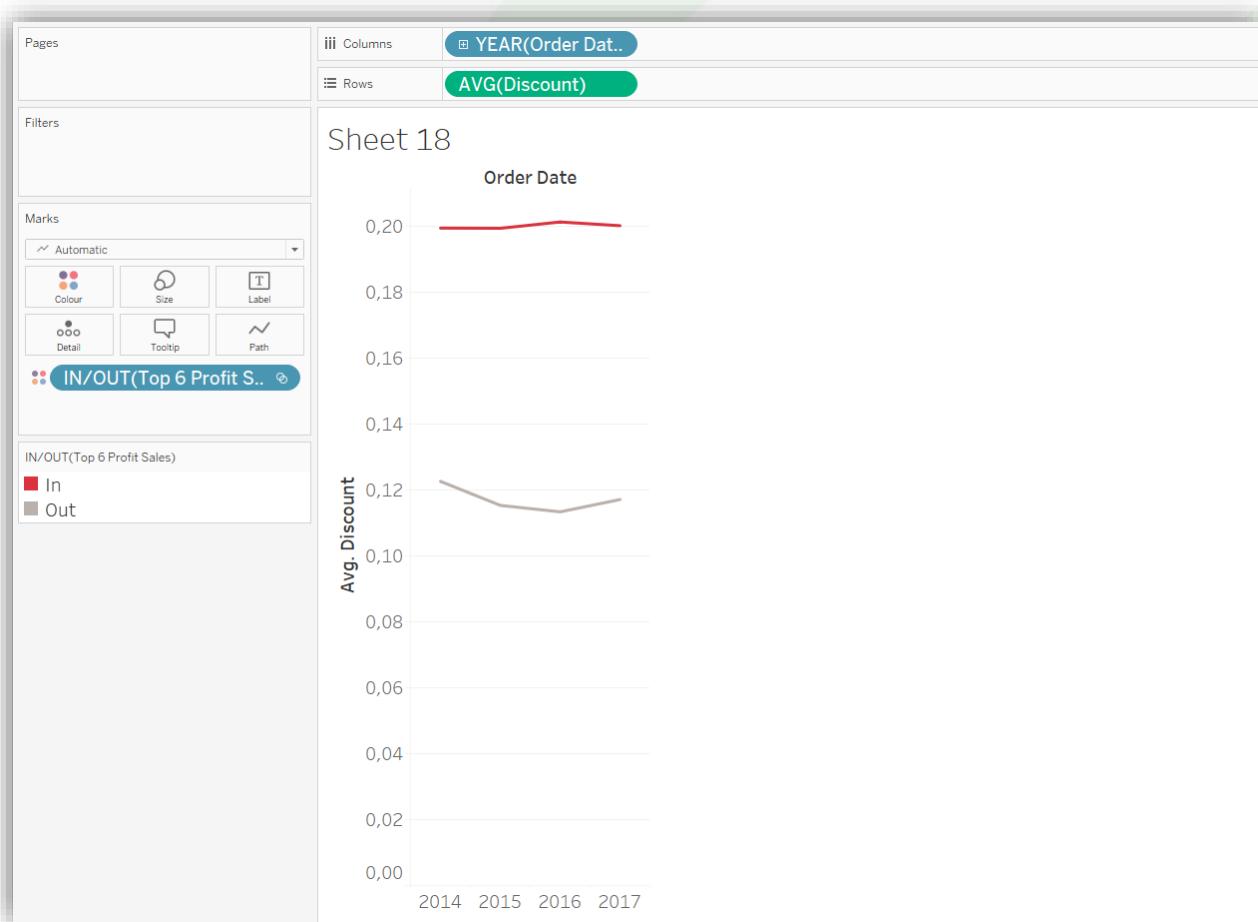
Create
sales & profit
graphic
Find top 6
subcategories



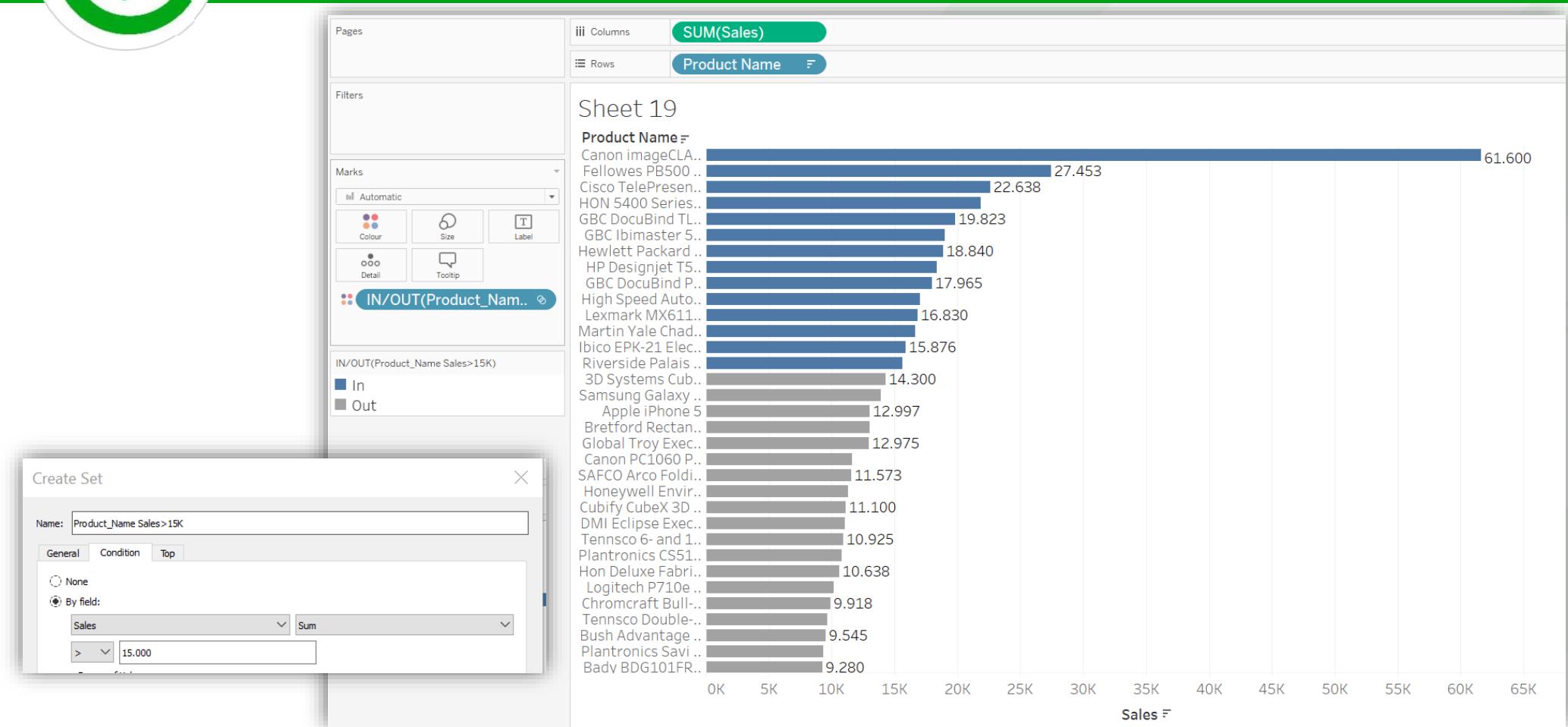


SETS

**Find avg discount
accorging to order
years for top 6 and
others**



SETS



COMBINED SET – SET INTERSECTION



Sheet 20

Sub-Catego..	Profit	Sales
Accessories	41.937	167.380
Appliances	18.138	107.532
Art	6.528	27.119
Binders	30.222	203.413
Bookcases	-3.473	114.880
Chairs	26.590	328.449
Copiers	55.618	149.528
Envelopes	6.964	16.476
Fasteners	950	3.024
Furnishings	13.059	91.705
Labels	5.546	12.486
Machines	3.385	189.239
Paper	34.054	78.479
Phones	44.516	330.007
Storage	21.279	223.844
Supplies	-1.189	46.674
Tables	-17.725	206.966

Edit Set [Sub Category Sales>150K Set]

Name: Sub Category Sales>150K Set

General Condition Top

None

By field:

Sales Sum > 150.000

Edit Set [Sub-Category Profit>0 Set]

Name: Sub-Category Profit>0 Set

General Condition Top

None

By field:

Profit Sum > 0

COMBINED SET – SET INTERSECTION



A screenshot of a data visualization interface. On the left, there is a list of dimensions and measures. A context menu is open over a selected item, specifically 'Sub Category Sales>15'. The menu items include 'Detail', 'Tooltip', 'Measure...', 'Show Set', 'Cut', 'Copy', and 'Create Combined Set...'. The 'Create Combined Set...' option is highlighted with a blue selection bar.

- # Row ID
- Abc Segment
- Ship Date
- Abc Ship Mode
- (+) State
- (+) Sub Category Sales>15
- Abc Sub-Category
- (+) Sub-Category Profit>0
- (+) Top 10-Musteri
- (+) Top 6 Profit Sales
- Abc Measure Names
- =# avg_cargo_duration
- # Discount
- # Profit
- =Abc profit - loss
- =# profit - sales critn
- =# Profit copy
- # Quantity
- # Sales
- =Abc sales_sub_category
- T|F sales_v2

Edit Set [Subcategory-Intersect] X

Name: Subcategory-Intersect

How would you like to combine the two sets?

Sets: Sub-Category Profit>0 Set ▼ ○ Sub Category Sales>150K Set ▼

All members in both sets

Shared members in both sets

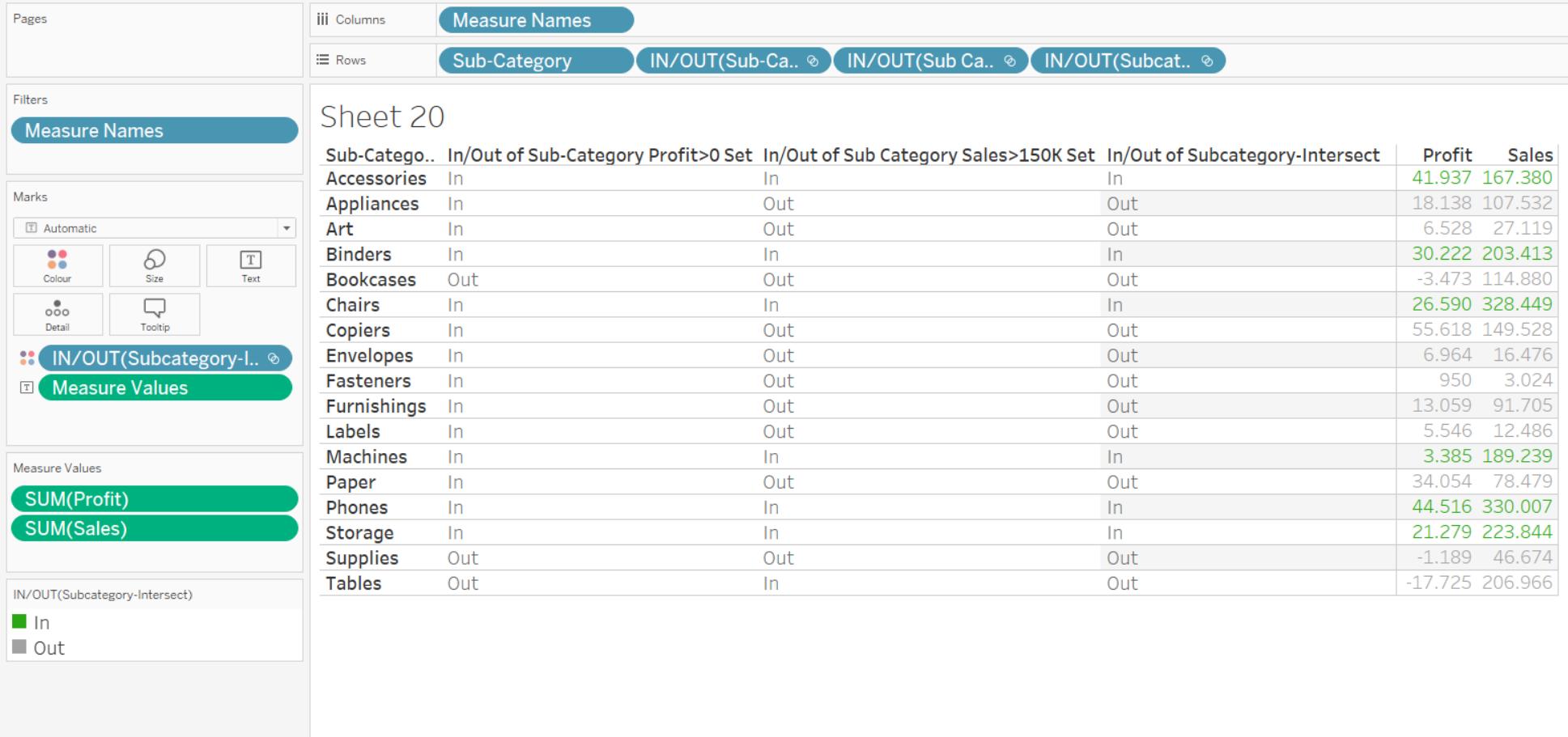
"Sub-Category Profit>..." except shared members

"Sub Category Sales>..." except shared members

Separate members by East, Green Tea, 2012

OK Cancel Apply

COMBINED SET – SET INTERSECTION



Multiple conditions



Sheet 21

Sub-Catego..	In/Out ..	Profit	Sales
Phones	In	44.516	330.007
Chairs	In	26.590	328.449
Storage	In	21.279	223.844
Binders	In	30.222	203.413
Accessories	In	41.937	167.380
Copiers	Out	55.618	149.528
Machines	In	3.385	189.239
Tables	Out	-17.725	206.966
Appliances	Out	18.138	107.532
Paper	Out	34.054	78.479
Bookcases	Out	-3.473	114.880
Furnishings	Out	13.059	91.705
Supplies	Out	-1.189	46.674
Art	Out	6.528	27.119
Envelopes	Out	6.964	16.476
Labels	Out	5.546	12.486
Fasteners	Out	950	3.024

Filters

Measure Names

Sub-Category = IN/OUT(SubC ..)

Measure Values

SUM(Profit)
SUM(Sales)

Edit Set [SubC Profit>0 Sal>150K]

Name: SubC Profit>0 Sal>150K

General Condition Top

None

By field:

Sum = 0

Range of Values

Min: Load
Max:

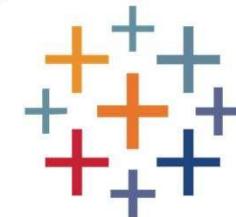
By formula:

SUM([Profit])>0 AND SUM([Sales])>150000



BUMP CHART

SAMPLE GRAPH



+ a b | e a u

Bump Chart



Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Standard Show Me

Tables

- Category
 - City
 - Country
- Customer ID
- Customer Name
- Order Date
- Order ID
- Postal Code
- Product ID
- Product Name
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Sub-Category
- Measure Names
 - Discount
 - Profit
 - Quantity
 - Sales
- Sales_Sub_cat
 - Latitude (generated)

Parameters

- Best X
- Sales_selection

Pages

Filters

Marks

Automatic

Color Size Text Detail Tooltip

Sheet 11

Drop field here

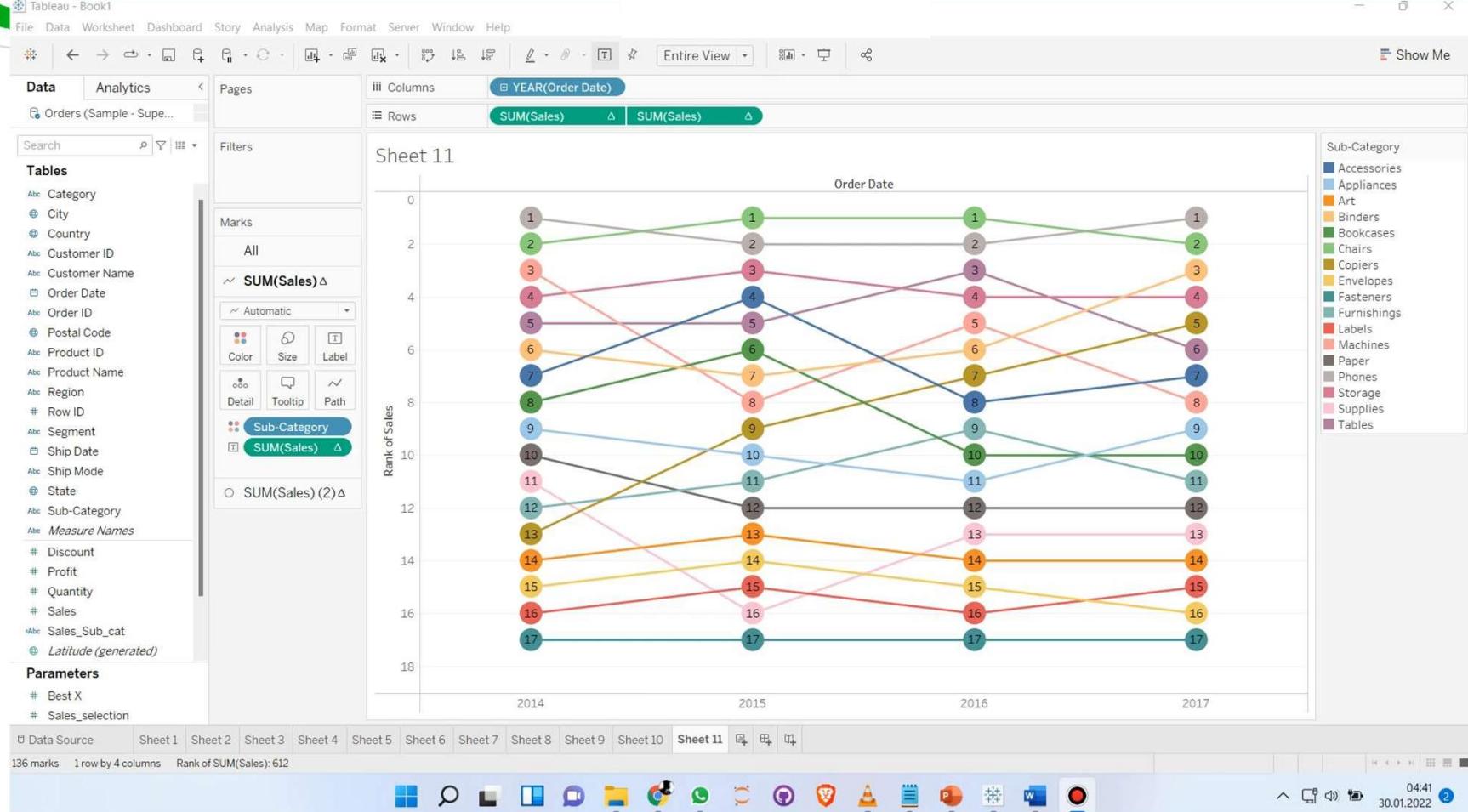
Drop field here

Drop field here

Data Source Sheet 1 Sheet 2 Sheet 3 Sheet 4 Sheet 5 Sheet 6 Sheet 7 Sheet 8 Sheet 9 Sheet 10 Sheet 11

04:33 30.01.2022

Bump Chart





ANALYTIC PANE

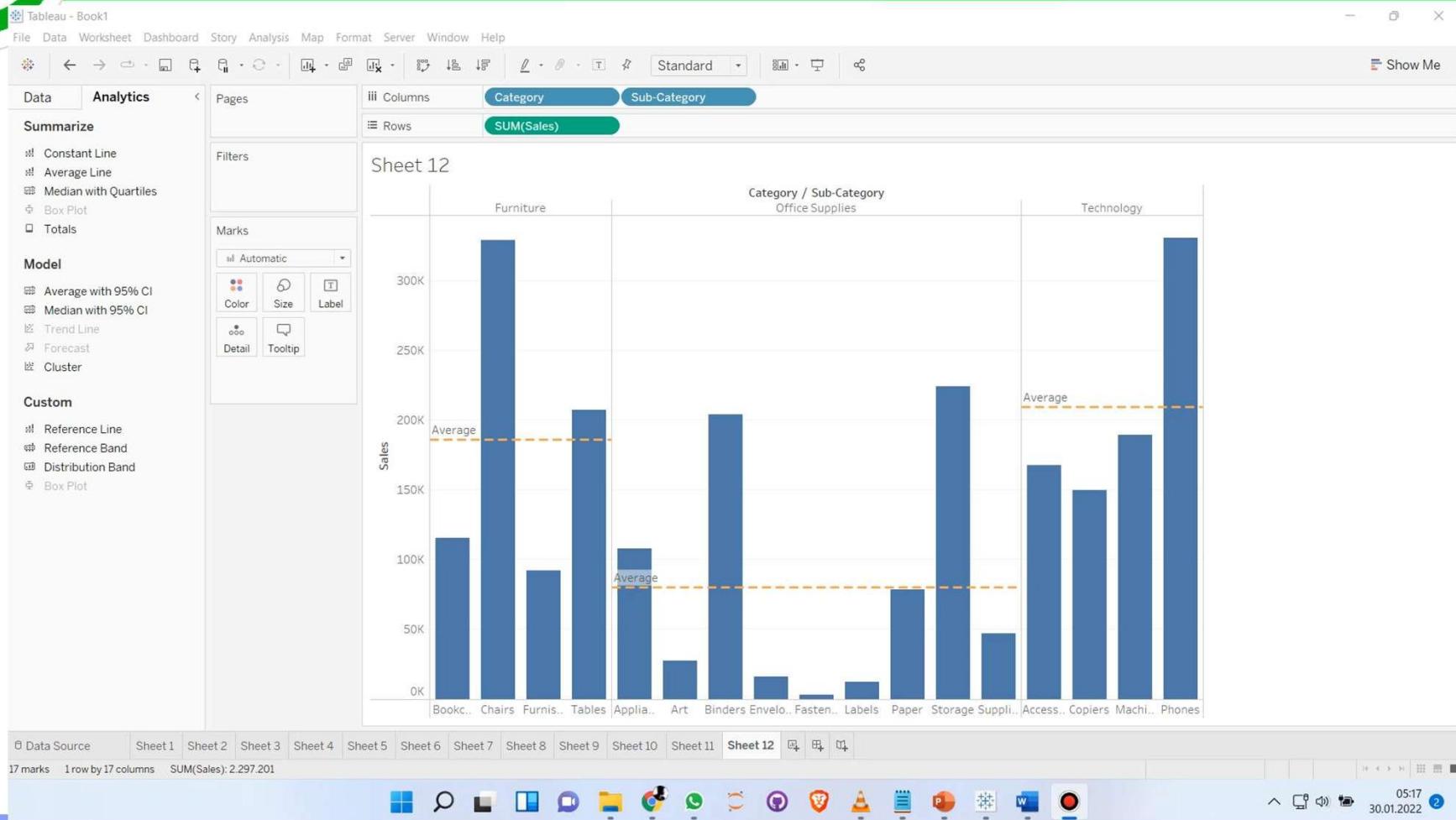


Analytic Pane - 1

The screenshot displays the Tableau software interface, specifically the Analytic Pane, which is used for creating visualizations. The interface includes the following components:

- Top Bar:** Shows the title "Tableau - Book1" and standard menu options: File, Data, Worksheet, Dashboard, Story, Analysis, Map, Format, Server, Window, Help.
- Toolbar:** Includes icons for zooming, navigating, and other common functions.
- Left Panel (Data Source):** Contains sections for "Tables" and "Parameters".
 - Tables:** Lists various dimensions and measures from the "Orders (Sample - Superstore)" data source, such as Category, City, Country, Customer ID, Customer Name, Order Date, Order ID, Postal Code, Product ID, Product Name, Region, Row ID, Segment, Ship Date, Ship Mode, State, Sub-Category, Measure Names, Discount, Profit, Quantity, Sales, Sales_Sub_cat, and Latitude (generated).
 - Parameters:** Lists parameters like Best X and Sales_selection.
- Middle Panel (Analytics):** Features the "Analytics" tab selected. It includes sections for "Pages", "Filters", and "Marks".
 - Pages:** Shows "Sheet 12" with two empty "Drop field here" areas.
 - Filters:** Allows filtering by Color, Size, and Text.
 - Marks:** Set to "Automatic" and includes options for Color, Size, Text, Detail, and Tooltip.
- Bottom Panel:** Shows the "Sheet 12" tab selected in the navigation bar, along with other sheet tabs: Data Source, Sheet 1, Sheet 2, Sheet 3, Sheet 4, Sheet 5, Sheet 6, Sheet 7, Sheet 8, Sheet 9, Sheet 10, Sheet 11, and Sheet 12. The status bar at the bottom right shows the time as 05:08 and the date as 30.01.2022.

Analytic Pane - 2

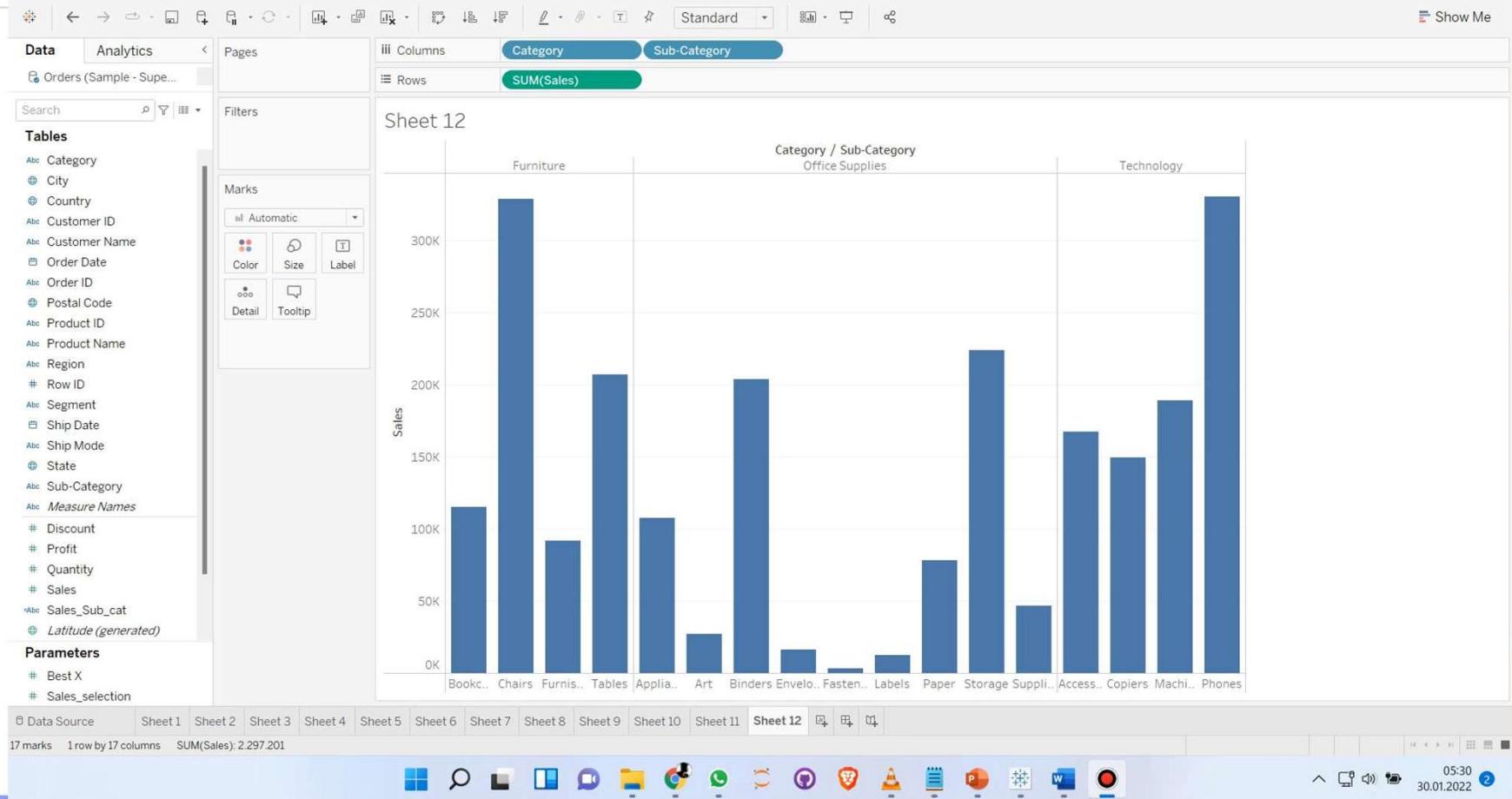


Analytic Pane - 3



Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

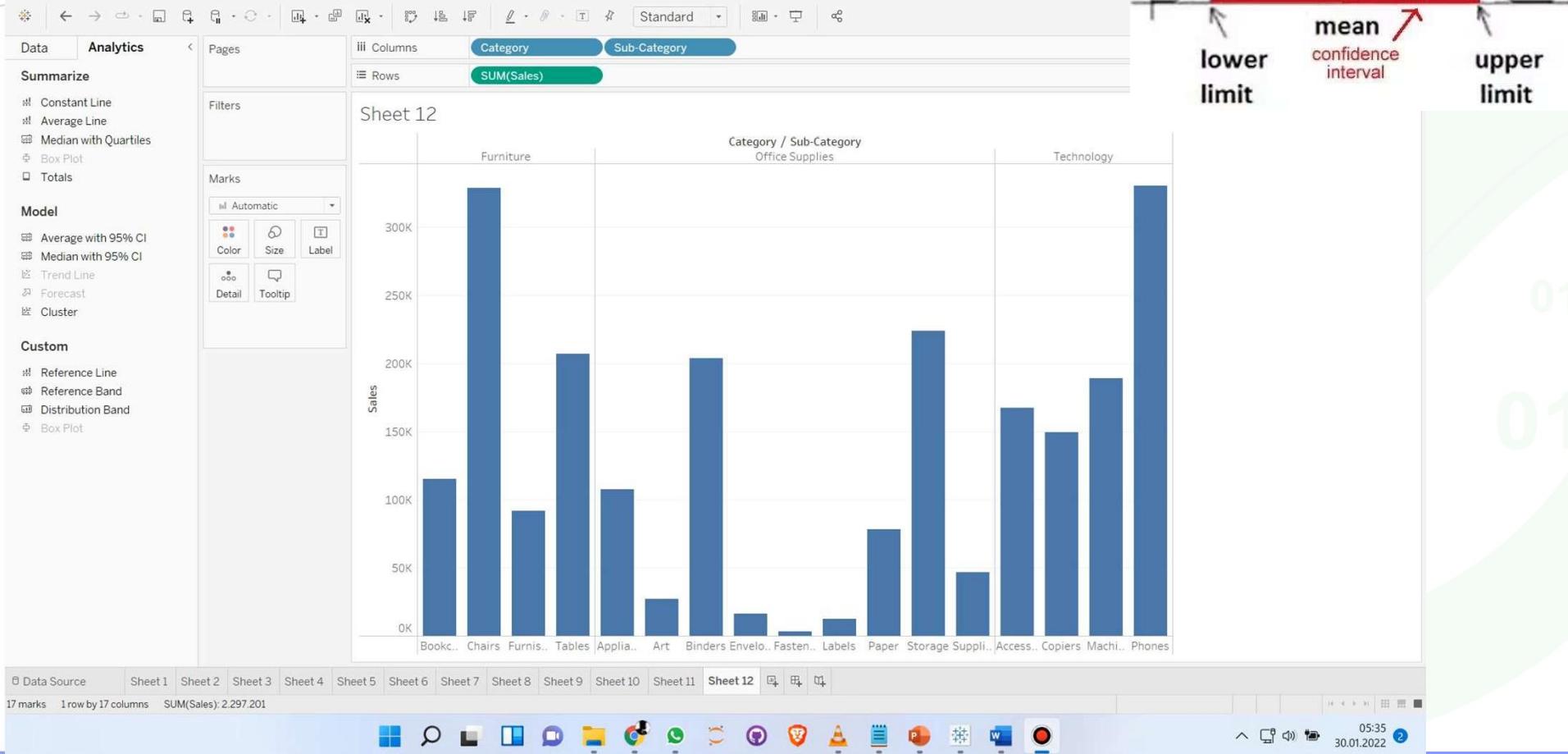




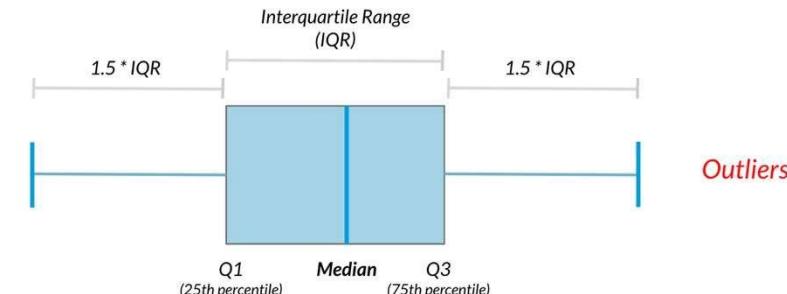
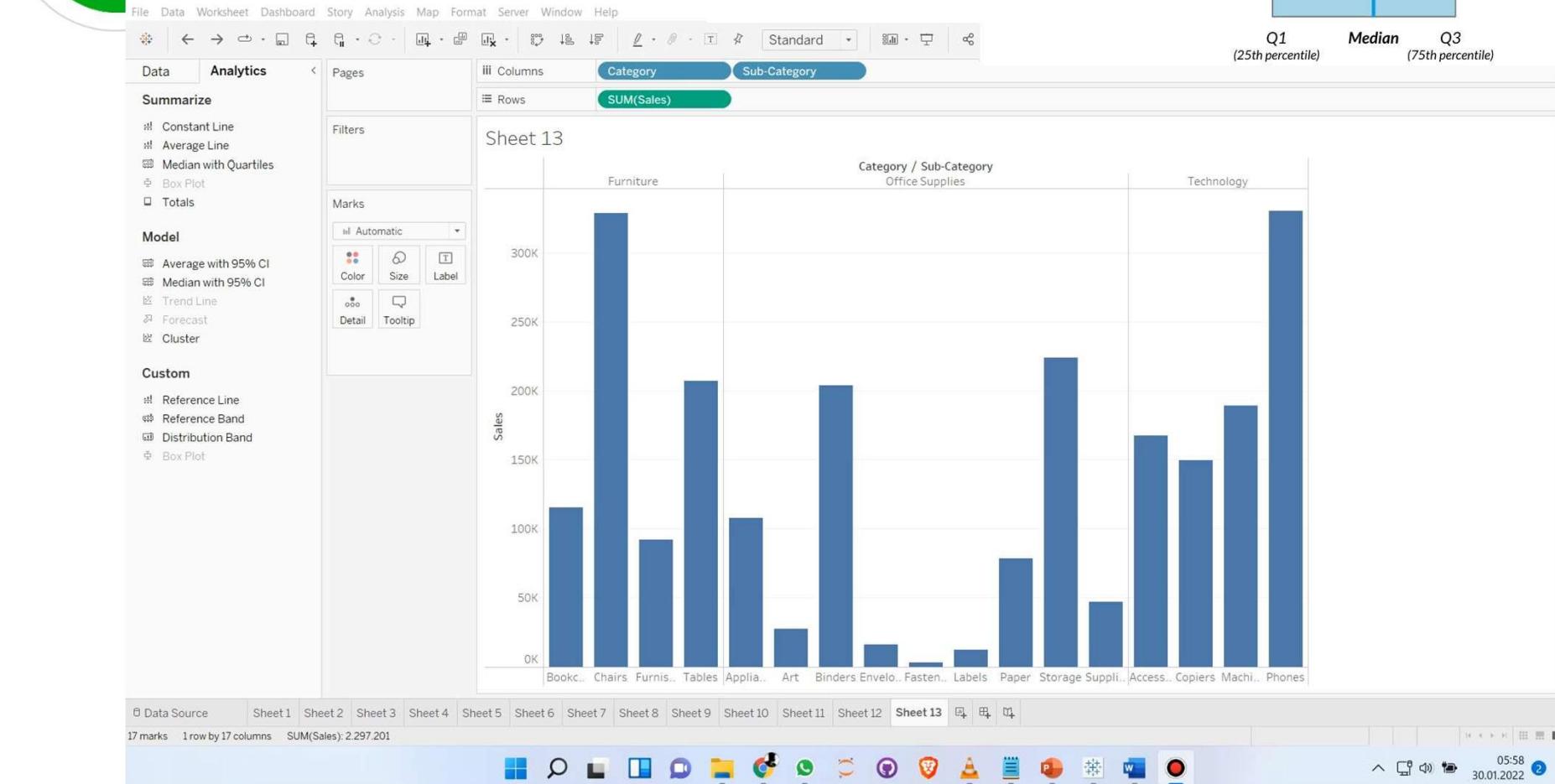
Analytic Pane - 4

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help



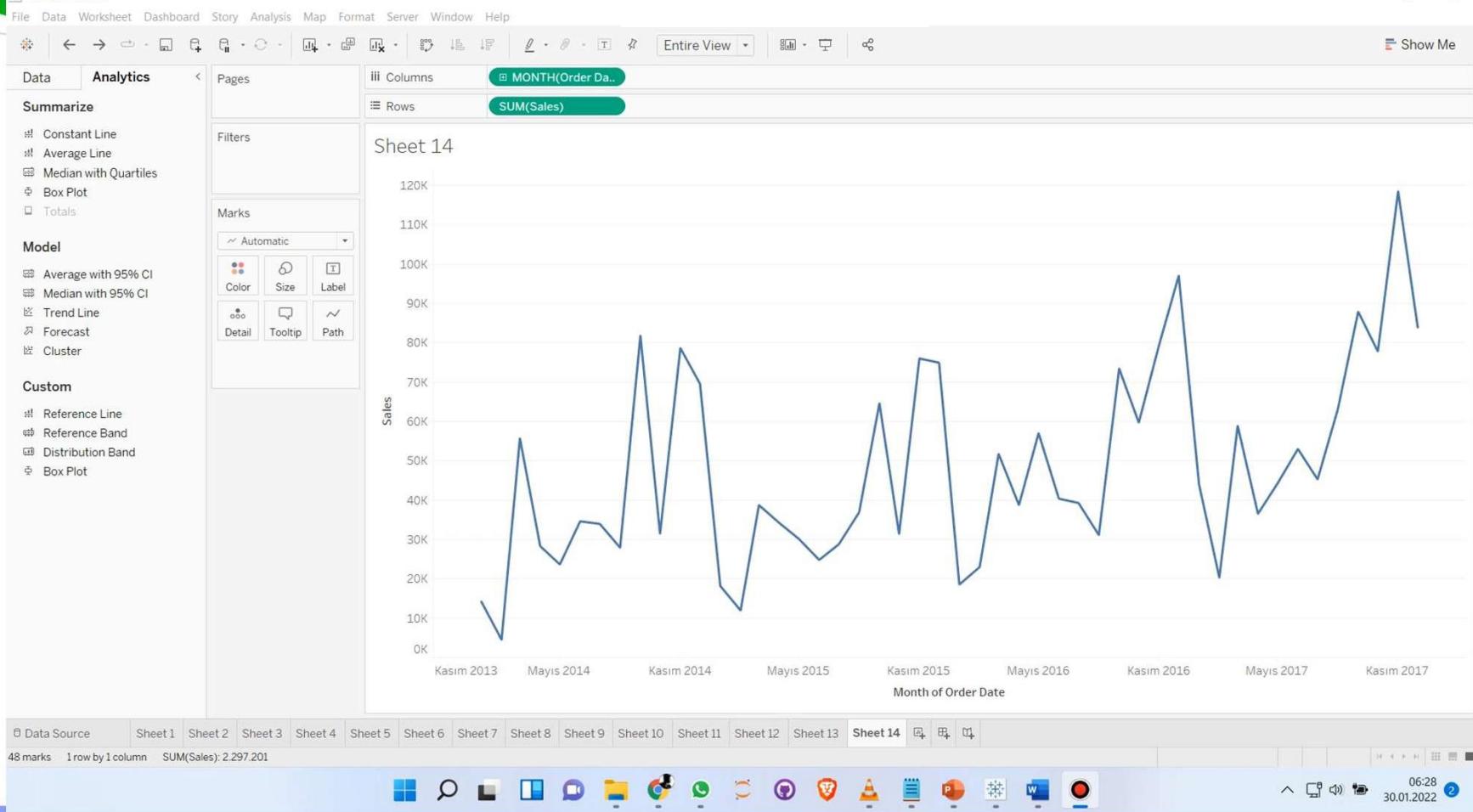
Analytic Pane - 5



Analytic Pane - 6

The screenshot shows the Tableau desktop application interface. The title bar reads "Tableau - Book1". The menu bar includes File, Data, Worksheet, Dashboard, Story, Analysis, Map, Format, Server, Window, and Help. The ribbon bar has tabs for Data, Analytics, Pages, Columns, Rows, and Standard. The left sidebar displays the "Tables" section with various dimensions and measures, and the "Parameters" section. The main workspace is titled "Sheet 14" and contains two blank "Drop field here" placeholder areas. The bottom navigation bar shows tabs for Data Source, Sheet 1, Sheet 2, Sheet 3, Sheet 4, Sheet 5, Sheet 6, Sheet 7, Sheet 8, Sheet 9, Sheet 10, Sheet 11, Sheet 12, Sheet 13, and Sheet 14, with Sheet 14 currently selected. The status bar at the bottom right shows the time as 06:16 and the date as 30.01.2022.

Analytic Pane - 7





Order Details

- Create Order No
- Calculate shipping time for each ship mode
- Draw a graph with which we can see top x customers based on number of orders they made, we should be able to filter this graph by ship mode



Sales Meta

- Show me the sales line chart of each year-month
- Show me the sales records by months of total data
- Create order no
- Create product no



+ a b | e a u



FINISH