



Hands On - calculated Field

Numeric calculations



Exercise # 1

Create a new calculate field “Double Sales” which is double the current sales and show in a visualization the “Double Sales” for each sub category.



Double Sales

Tableau - Book1

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Show Me

Data Analytics

Orders (Sample - Superstore)

Dimensions

- City
- Country
- Customer ID
- Order Date
- Order ID
- Postal Code
- Prod Hierarchy
- Category
- Sub-Category
- Product Name
- Customer Name
- Product ID
- Region
- Row ID
- Segment
- Ship Date

Measures

- Discount
- Double Sales
- New Sales
- Profit
- Quantity
- Sales
- Triple Sales
- Latitude (generated)
- Longitude (generated)
- Number of Records
- Measure Values

Pages Columns Measure Names

Rows Customer Name

Filters Measure Names

Marks Automatic

- Color
- Size
- Text

Detail Tooltip

Measure Values

SUM(Sales)

SUM(Double Sales)

Customer Name	Sales	Double Sa..
Aaron Bergman	886.16	1,772.31
Aaron Hawkins	1,744.70	3,489.40
Aaron Smayling	3,050.69	6,101.38
Adam Bellavance	7,755.62	15,511.24
Adam Hart	3,250.34	6,500.67
Adam Shillingsburg	3,255.31	6,510.62
Adrian Barton	14,473.57	28,947.14
Adrian Hane	1,735.51	3,471.03
Adrian Shami	59.82	117.64
Aimee Bixby	966.71	1,933.42
Alan Barnes	1,113.84	2,227.68
Alan Dominguez	6,105.88	12,213.76
Alan Heines	1,587.45	3,174.90
Alan Hwang	4,805.34	9,610.69
Alan Schoenberger	4,260.78	8,521.57
Alan Shonely	584.61	1,169.22
Alejandro Ballentine	914.53	1,829.06
Alejandro Grove	2,582.90	5,165.80
Alejandro Savely	3,214.24	6,428.47
Aleksandra Gannaway	367.55	735.10
Alex Avila	5,563.56	11,127.12
Alex Grayson	660.97	1,321.94
Alex Russell	1,055.69	2,111.39
Alice McCarthy	814.01	1,628.02
Allen Arnold	1,056.39	2,112.78
Allen Goldenen	200.95	401.89
Allen Rosenblatt	2,236.13	4,472.26
Alyssa Crouse	925.80	1,851.60
Alyssa Tate	1,171.81	2,343.63
Annie Coss	2,237.46	4,474.92

Double Sales

2 * [Sales]

The calculation is valid.

Sheets Affected

Apply OK

Data Source Sheet 1 Sheet 2 Sheet 3

1586 marks 793 rows by 2 columns SUM of Measure Values: 6,891,603

Exercise # 2

- Management wants to analyze how it would have been if they would have been able to achieve 10% above the current sales.

Create a new calculate field "New Sales" which is 10% above the current sales and show in a visualization the "New Sales" for each customer.



Calculated Field "New Sales" showing the New Sales i.e. 10% above current Sales for different Customers.

Sales

Orders (Sample - Superstore)

Dimensions

- 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

Measures

- Discount
- New Sales
- Profit
- Quantity
- Sales
- Latitude (generated)
- Longitude (generated)
- Number of Records
- Measure Values

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Normal

Customer Name

Customer Name Sales New Sales

Customer Name	Sales	New Sales
Aaron Bergman	886	975
Aaron Hawkins	1,745	1,919
Aaron Smayling	3,051	3,356
Adam Bellavance	7,756	8,531
Adam Hart	3,250	3,575
Adam Shillingsburg	3,255	3,581
Adrian Barton	14,474	15,921
Adrian Hane	1,736	1,909
Adrian Shami	59	65
Aimee Bixby	967	1,063
Alan Barnes	1,114	1,225
Alan Dominguez	6,107	6,718
Alan Haines	1,587	1,746
Alan Hwang	4,805	5,286
Alan Schoenberger	4,261	4,687

New Sales

[Sales] + 10/100*[Sales]

The calculation is valid.

Sheets Affected

Apply OK

All

Enter search text

ABS
ACOS
AND
ASCII
ASIN
ATAN
ATAN2
ATTR
AVG
CASE
CEILING
CHAR

ABS(number)

Returns the absolute value of the given number.

Example: ABS(-7) = 7

Exercise # 3

- Create a Calculated Field “Volume Indicator” that shows the **Quantity** for different Customer in “Green” if Quantity greater than Ten and in “Red” if Quantity Less than Ten.



Calculated field - Volume Indicator showing the Sales for different customers in color red if the quantity greater than 10 and green if quantity less than 10.

Create the Calculated field as shown and then Drag this Calculated field "Volume Indicator" onto "Color" shelf and adjust color accordingly.

The screenshot shows a Tableau desktop interface with a bar chart. The chart has 'Customer Name' in the columns shelf and 'SUM(Quantity)' in the rows shelf. The bars are colored red, indicating quantities are greater than 10. A tooltip for a bar is open, showing the calculated field 'Volume Indicator' with the formula:

```
if( sum([Quantity])>10 ) then  
    "High Volume"  
ELSE  
    "Low Volumne"  
END
```

The tooltip also shows the `ABS(number)` function with its description: "Returns the absolute value of the given number." and an example: `Example: ABS(-7) = 7`.

On the left, the data source is 'Orders (Sample - Superstore)' and the measures include 'Discount', 'New Sales', 'Profit', 'Quantity', 'Sales', and 'VolumeIndicator'. The 'VolumeIndicator' measure is selected.

On the right, a callout box contains the instruction: "Create the Calculated field as shown and then Drag this Calculated field 'Volume Indicator' onto 'Color' shelf and adjust color accordingly."

Exercise # 4

- Create a Calculated Field “Profit Indicator” that shows the Sales for different Customer in “Green” if Profit greater than Zero and in “Red” if Profit Less than Zero.



Calculated Field "Profit Indicator" showing the Sales for Different Customers in colored if the Profit is Negative

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics

Orders (Sample - Superstore)

Dimensions

- Category, Sub-Category
 - Category
 - Sub-Category
 - Product Name
 - Customer Name
- City
- Country
- Customer ID
- Order Date
- Order ID
- Postal Code
- Product ID
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Measure Names

Measures

- # Profit / Sales
- # [Discount]/[Sales]
- # Discount
- # Profit
- ABC Profit Indicator
- # Quantity

Pages

Columns SUM(Sales)

Rows Customer Name

Filters

Marks

- Automatic
- Color
- Size
- Label
- Detail
- Tooltip

AGG(Profit Indicator..)

Customer Name

Customer Name	SUM(Sales)
Aaron Bergman	Positive
Aaron Hawkins	Positive
Aaron Smayling	Negative
Adam Bellavance	Positive
Adam Hart	Positive
Adam Shillingsburg	Positive
Adrian Barton	Positive
Adrian Hane	Negative
Adrian Shami	Positive
Aimee Bixby	Positive
Alan Barnes	Positive
Alan Dominguez	Positive
Alan Haines	Negative
Alan Hwang	Positive
Alan Schoenherrner	Positive

Profit Indicator

```
if SUM([Profit]) > 0 then "Positive"  
ELSE "Negative" END
```

All

ABS(number)

Enter search text

ABS

ACOS

AND

ASCII

ASIN

ATAN

ATAN2

ATTR

AVG

CASE

CEILING

CHAR

The calculation is valid.

Sheets Affected

Apply

OK

18K 20K 22K

Create the Calculated field as shown and then Drag this Calculated field "Profit Indicator" onto "Color" shelf and adjust color accordingly.

Exercise-5

- Show the Profit Ratio of various Product Sub Categories against Sales.



Exercise- 6

- What is the Total Sales, Profit and Profit Ratio of the 10 Customer giving maximum Sales.



String calculations



Exercise- 7

- **How do we align Customer Name along with their residing City & State?**



Date calculations



Exercise- 8

- **Analyze the Quantity & Sales of Each Customer for the Exact date he ordered.**



Exercise-9

- **Analyze the Days to Ship each of the Products along with their Order Date and shipping Date.**



Exercise- 10

- **Analyze the Avg. Days to Ship each of the Products.**
- **Also, Analyze the overall Avg. Days to ship.**



Exercise- 11

- **Analyze the Avg. no of days taken by each Ship mode from the Order to Shipment of goods.**



Exercise- 12

- Show the Shipping status of each of the Products on the condition that if Days to Ship is less than 3 days the it is “on time”
- If Days to ship ≤ 6 days then “minor delay”
- Otherwise all are “delayed”



understanding The concept of
“Granularity”, using sum()
in the calculated Field and
Ratio Calculations in Formula



We will understand this by Examples . Lets Get Started ...

- Create a calculated field (Sales - Profit) for different sub category.
- Create another calculated field sum (Sales) - sum (Profit) for different sub category.
- Place both the fields side by side and verify if there is any difference for different hierarchy - category , sub category and Product Names.



calculated field "Sales - Profit"

Analytics

Orders (Sample - Superstore)

Dimensions

- Category, Sub-Category
 - Category
 - Sub-Category
 - Product Name
- City
- Country
- Customer ID
- Customer Name
- Order Date
- Order ID
- Postal Code
- Product ID
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Measure Names

Measures

- Discount
- Profit
- Profit Indicator
- Quantity
- Sales
- Sales - Profit
- sum(Sales) - sum(Profit)
- Latitude (generated)

Pages

Columns

Rows

Sub-Category

Filters

Marks

Automatic

- Color
- Size
- Text
- Detail
- Tooltip

Sub-Category

Sub-Category	
Accessories	125,444
Appliances	89,394
Art	20,591
Binders	173,191
Bookcases	118,353
Chairs	301,859
Copiers	93,910
Envelopes	9,512
Fasteners	2,075
Furnishings	78,646
Labels	6,940
Machines	185,854
Paper	44,426
Phones	285,491

Sales - Profit

[Sales] - [Profit]

The calculation is valid.

Sheets Affected

Apply

OK

All

Enter search text

- ABS
- ACOS
- AND
- ASCII
- ASIN
- ATAN
- ATAN2
- ATTR
- Avg
- CASE
- CEILING
- CHAR

calculated field "sum(Sales) - sum(Profit)"

Data **Analytics**

Orders (Sample - Superstore)

Dimensions

- Category, Sub-Category
 - Category
 - Sub-Category
 - Product Name
- City
- Country
- Customer ID
- Customer Name
- Order Date
- Order ID
- Postal Code
- Product ID
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Measure Names

Measures

- Discount
- Profit
- Profit Indicator
- Quantity
- Sales
- Sales - Profit
- sum(Sales) - sum(Profit)
- Latitude (generated)

Pages

Filters

Marks

- Automatic
- Color
- Size
- Text
- Detail
- Tooltip

AGG(sum(Sales) - sum(Profit))

Columns

Rows **Sub-Category**

Sub-Category	
Accessories	125,444
Appliances	89,394
Art	20,591
Binders	173,191
Bookcases	118,353
Chairs	301,859
Copiers	93,910
Envelopes	9,512
Fasteners	2,075
Furnishings	78,646
Labels	6,940
Machines	185,854
Paper	44,426
Phones	285,491

sum(Sales) - sum(Profit)

sum([Sales]) - sum([Profit])

The calculation is valid.

Sheets Affected

Apply OK

All

Enter search text

- ABS
- ACOS
- AND
- ASCII
- ASIN
- ATAN
- ATAN2
- ATTR
- Avg
- CASE
- CEILING
- CHAR

Comparison of "sales - profit" and "sum(sales) - sum(profit)" at different Hierarchy - Category, Sub category and Name.

Pages	Columns	Measure Names
Filters	Rows	Sub-Category
Measure Names	Sub-Categories	Expense Total Expenses
Accessories	Accessories	125,444 125,444
Appliances	Appliances	89,394 89,394
Art	Art	20,591 20,591
Binders	Binders	173,191 173,191
Bookcases	Bookcases	118,353 118,353
Chairs	Chairs	301,859 301,859
Copiers	Copiers	93,910 93,910
Envelopes	Envelopes	9,512 9,512
Fasteners	Fasteners	2,075 2,075
Furnishings	Furnishings	78,646 78,646
Labels	Labels	6,940 6,940
Machines	Machines	185,854 185,854
Paper	Paper	44,426 44,426
Phones	Phones	285,491 285,491
Storage	Storage	202,565 202,565
Supplies	Supplies	47,863 47,863
Tables	Tables	224,691 224,691

Pages	Measure Names		
Filters	Rows	Sub-Category	Product Name
Measure Names	Sub-Category	Product Name	Expense Total Expenses
Accessories	Accessories	AmazonBasics 3-Button ..	56 56
		Anker Ultra-Slim Mini Blu..	400 400
		Anker Ultrathin Bluetooth..	459 459
		Belkin F8E887 USB Wire..	498 498
		Belkin QODE FastFit Blu..	479 479
		Card 104 key ..	260 260
		Hz Wirel..	1,242 1,242
		ogram..	427 427
		timedi..	95 95
		Vireles..	1,820 1,820
		ite Key..	919 919
		F Wire..	319 319
		N Pad	1,706 1,706
		S PIN ..	451 451
		key PS..	218 218
		Pinpad	833 833
		Travel..	334 334
		Travel..	341 341
		Travel..	665 665
		cket Pro..	323 323
		JSB Flas..	146 146
		imation Bio 2GB USB Fla..	1,217 1,217
		imation Bio 8GB USB Fla..	2,261 2,261
		imation Clip USB flash dr..	442 442
		imation Secure Drive + H..	693 693
		imation Secure+ Hardwar..	1,518 1,518

Values remain same at all granularity level. So if we use $\text{sum}(\text{sales}) - \text{sum}(\text{profit})$ for finding difference it would be good. Now we will see what happens if we find ratio , and why we should always use $\text{sum}(\text{sales}) , \text{sum}(\text{profit})$ to take care of the granularity level

Pages	Columns	Measure
Filters	Rows	Category
Measure Names	Category	Expe
Accessories	Furniture	723,
Appliances	Office Supplies	596,
Art	Technology	690,

Now we repeat the Earlier Exercise using Sum()

- Create a calculated field say "Profit / Sales" using (Profit / Sales) for different sub category.
- Create another calculated field say "sum(Profit) / sum(Sales)" using (sum(Profit) / sum(Sales)) for different sub category.
- Place both the fields side by side and verify if there is any difference for different hierarchy - category, sub category and Product Names.



calculated field Ratio of Profit / Sales for sub category

File Data Worksheet Dashboard Story Analysis Map Format Server Window Help

Data Analytics

Orders (Sample - Superstore)

Dimensions

- Category, Sub-Category
 - Category
 - Sub-Category
 - Product Name
- City
- Country
- Customer ID
- Customer Name
- Order Date
- Order ID
- Postal Code
- Product ID
- Region
- Row ID
- Segment
- Ship Date
- Ship Mode
- State
- Measure Names

Measures

- Profit / Sales
- Discount
- Profit
- Profit Indicator
- Quantity
- Sales
- Sales - Profit
- sum(Profit) / sum(Sales)

Pages Columns Rows Sub-Category

Filters

Marks

- Automatic
 - Color
 - Size
 - Text
- Detail
- Tooltip

SUM(Profit / Sales..)

Sub-Category	
Accessories	169.1
Appliances	-73.1
Art	200.3
Binders	-304.0
Bookcases	-28.9
Chairs	27.1
Copiers	21.6
Envelopes	107.5
Fasteners	64.9
Furnishings	131.2
Labels	156.4
Machines	-8.3
Paper	583.1
Phones	106.0

Profit / Sales

[Profit] / [Sales]

The calculation is valid.

Sheets Affected

Apply OK

All

Enter search text

ABS(number)

Returns the absolute value of the given number.

Example: ABS(-7) = 7

ABS
ACOS
AND
ASCII
ASIN
ATAN
ATAN2
ATTR
AVG
CASE
CEILING
CHAR

calculated field Ratio of "sum(Profit)/sum(Sales)" for sub category - Note the difference from earlier one

The screenshot shows the Tableau Data Prep interface with the following details:

- Data Source:** Orders (Sample - Superstore)
- Dimensions:** Category, Sub-Category, Product Name, City, Country, Customer ID, Customer Name, Order Date, Order ID, Postal Code, Product ID, Region, Row ID, Segment, Ship Date, Ship Mode, State, Measure Names.
- Measures:** Profit / Sales, Discount, Profit, Profit Indicator, Quantity, Sales, Sales - Profit, sum(Profit) / sum(Sales).
- Calculated Field:** A new field named "Ratio" is being created with the formula `AGG(sum(Profit) / sum(Sales))`.
- Formula Bar:** The formula is also displayed as `SUM([Profit]) / SUM([Sales])`.
- Context Menu:** A context menu for the `ABS` function is open, listing other mathematical functions like ACOS, AND, ASCII, ASIN, ATAN, ATAN2, ATTR, AVG, CASE, CEILING, and CHAR.
- Message:** A message at the bottom left says "The calculation is valid."
- Buttons:** Apply and OK buttons are visible at the bottom right.

Comparison of "Profit / Sales" and "sum(Profit) / sum(Sales)" at different Hierarchy - Category, Sub Category and Name.

Pages		Columns	Measure Names
		Rows	Category
Filters	Measure Names	Category	Profit / Sales
Furniture			82.3
Office Supplies			831.8
Technology			288.4
		sum(Profit) / sum(Sales)	0.0
			0.2
			0.2

Marks

Abc Automatic

Color, Size, Text

Detail, Tooltip

Measure Values

SUM(Profit / Sales)

AGG(sum(Profit) / sum(Sales))



Pages		Columns	Measure Names	
		Rows	Category	Sub-Category
Filters	Measure Names	Category	Sub-Categ..	Profit / Sales
Furniture		Bookcases		-28.9
		Chairs		27.1
		Furnishings		131.2
		Tables		-47.1
Office Supplies		Appliances		-73.1
		Art		200.3
		Binders		-304.0
		Envelopes		107.5
		Fasteners		64.9
		Labels		156.4
		Paper		583.1
		Storage		75.4
		Supplies		21.3
Technology		Accessories		169.1
		Copiers		21.6
		Machines		-8.3
				106.0
				0.1

Pages		Columns	Measure Names		
		Rows	Category	Sub-Category	Product Name
Filters	Measure Names	Category	Sub-Categ..	Profit / Sales	sum(Profit) / su..
Furniture		Bookcases	Atlantic Metals Mobile 2..	-1.41	-0.28
			Atlantic Metals Mobile 3..	0.36	0.10
			Atlantic Metals Mobile 4..	-0.61	-0.02
			Atlantic Metals Mobile 5..	-1.02	0.00
			Bestar Classic Bookcase	-3.74	-0.32
			Bush Andora Bookcase, ..	0.26	0.04
			Bush Birmingham Collect..	-0.14	-0.14
			Bush Cubix Collection Bo..	-1.11	0.07
			Bush Heritage Pine Colle..	-0.63	-0.06
			Bush Mission Pointe Libr..	0.02	0.03
			Bush Saratoga Collection..	-0.11	-0.11
			Bush Somerset Collectio..	-0.56	-0.04
			Bush Westfield Collection..	-1.91	-0.15
			Bush Westfield Collection..	-2.10	-2.10
			Bush Westfield Collection..	0.17	0.05
			Bush Westfield Collection..	-0.67	-0.01
			DMI Eclipse Executive S..	0.04	0.01
			Global Adaptabilities Boo..	0.12	0.06
			Hon 4-Shelf Metal Bookc..	-1.07	-0.13
			Hon Metal Bookcases, Bl..	1.04	0.02

"Profit/Sales" and "sum(profit) / sum(sales)" becomes same only at the lowest granularity i.e. Customer Name.
 So Profit/Sales gives wrong value at higher granularity so we should always be using Sum(profit) / sum(sales)

Pages		Columns		Measure Names					
		Rows		Category	Sub-Category	Product Name	Customer Name		
Filters		Category	Sub-Categ..	Product Name	Customer Name	Profit / Sales	sum(Profit) / su..		
Measure Names		Furniture	Bookcases	Atlantic Metals Mobile 2-Shelf Bookcases, Cust...	Bobby Trafton Joy Bell...	-1.367 -0.044	-1.367 -0.044		
				Atlantic Metals Mobile 3-Shelf Bookcases, Custom Colors	Carl Ludwig Jack O'Briant Mark Packer Michael Kennedy Russell Applegate Scott Cohen Steve Nguyen Tom Stivers	0.260 0.260 0.075 0.260 -0.057 0.129 -0.088 -0.480	0.260 0.260 0.075 0.260 -0.057 0.129 -0.088 -0.480		
				Atlantic Metals Mobile 4-Shelf Bookcases, Custom Colors	Aaron Smayling Anthony Johnson Jim Karlsson Jim Radford Mark Packer Pamela Coakley	0.176 0.176 0.125 -1.333 0.125 0.125	0.176 0.176 0.125 -1.333 0.125 0.125		
				Atlantic Metals Mobile 5-Shelf Bookcases, Custom Colors	Anna Andreadi Arthur Prichep Bryan Davis Caroline Jumper Craig Molinari Kean Thornton Mary O'Rourke Patrick O'Brill	0.176 -1.333 0.125 -0.029 -0.029 -0.029 0.125 -0.029	0.176 -1.333 0.125 -0.029 -0.029 -0.029 0.125 -0.029		
				Bestar Classic Bookcase	Art Foster Bruce Bell...	-0.620 -0.121	-0.620 -0.121		

Drag and Drop Customer Name to the last visualization at Product Name Hierarchy i.e. put Customer Name on the rows

Now the Question Why "Profit / Sales" and "sum(profit) / sum(sales)" are different in Tableau at Higher Granularity Level?

We take the example when we are seeing Ratio at Product name level.

Category	Sub-Categ..	Product Name	Profit / Sales	sum(Profit) / su..
Furniture	Bookcases	Atlantic Metals Mobile 2..	-1.41	-0.28
		Atlantic Metals Mobile 3..	0.36	0.10
		Atlantic Metals Mobile 4..	-0.61	-0.02

So if we see the first -1.41 and -0.28 and check the underlying data (see below). The first profit / sales is adding the individual Ratio ($-1.36 + -0.04412$) = -1.41 which is wrong. The correct would be sum(profit) / sum(sales) i.e. $-113.261 / 400.0268 = -0.28$ which is correct

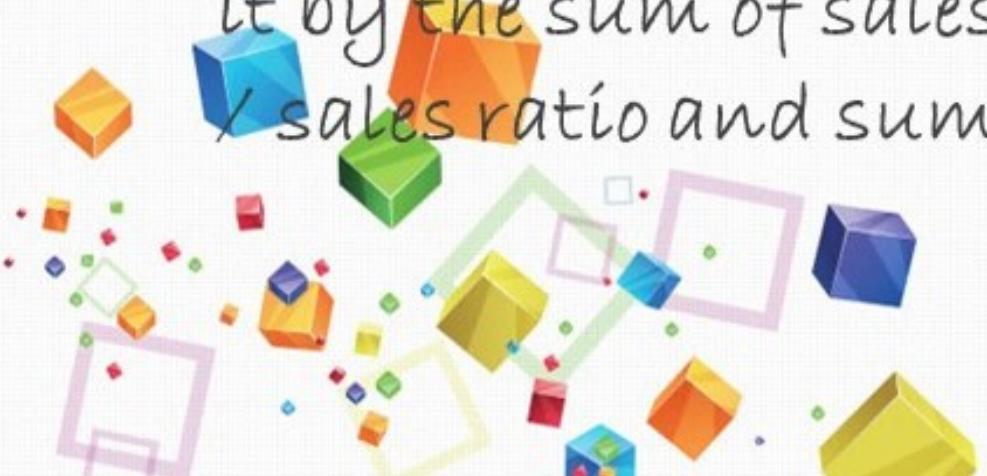
Profit	Sales	Profit / Sales	sum(Profit) / sum(Sales)
-98.8018	72.294	-1.366667	-1.366667
-14.4588	327.733	-0.04412	-0.04412



	Profit	Sales	Profit / Sales	sum(Profit) / sum(Sales)
	-98.8018	72.294	-1.366666667	-1.366666667
	-14.4588	327.7328	-0.044117647	-0.044117647
Total	-113.261	400.0268	-1.410784314	-1.410784314

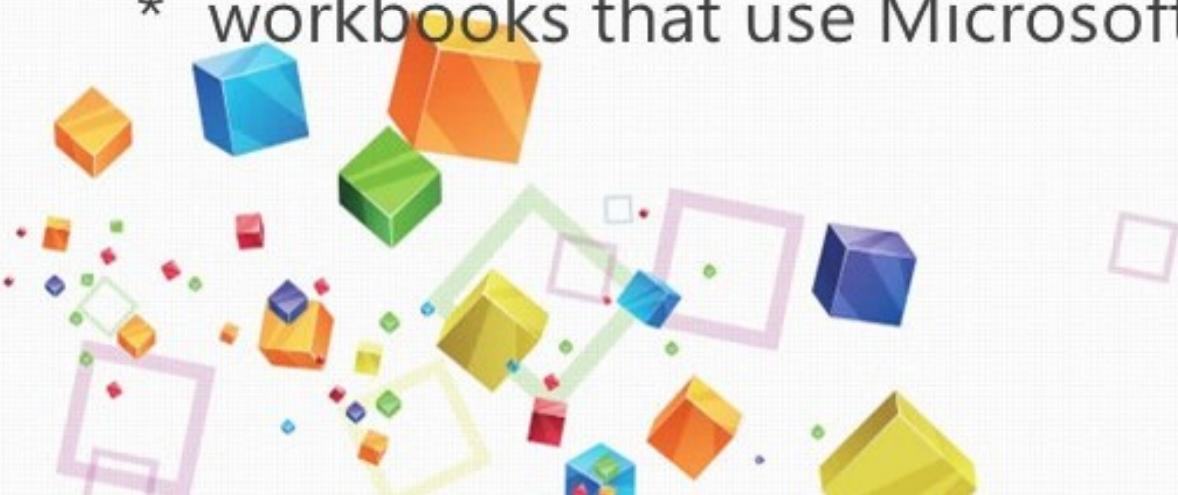
Takeaways from Profit Ratio Example

- At Lowest Granularity level i.e. Customer here Profit / Sales means exactly same as Sum (profit) / Sum (sales)
- However if we are at a higher Granularity level say Product Name , and the question is what is the Profit to Sales ratio for each Product . So we would need to sum up the Profit for the product and divide it by the sum of sales . If we do an individual profit / sales ratio and sum it up it will give wrong result.



CountD Function

- Returns the number of distinct items in a group.
- Null values are not counted.
- This function is not available in the following cases:
 - * workbooks created before Tableau Desktop 8.2 that use Microsoft Excel or text file data sources,
 - * workbooks that use the legacy connection,
 - * workbooks that use Microsoft Access data sources



CountD- Hands On

- Show the unique Customers and the unique Orders across various Years and analyze.



Pages

Columns

YEAR(Order Date)

Rows

Measure Names

Filters

Measure Names

Marks

Abc Automatic



Abc 123 Measure Values

Measure Values

SUM(Number of Recor..)

AGG(Unique Customer..)

AGG(Unique Order Id)

Order Date

	2011	2012	2013	2014	Grand T..
Number of Records	1,993	2,102	2,580	3,319	9,994
Unique Customer ID	595	573	637	693	793
Unique Order Id	969	1,038	1,310	1,692	5,009

The total of the row is lower than the SUM of all the different Values because each Unique Customer has a record in all the different year.

Date Function

Tableau Provides a variety of Date Functions :

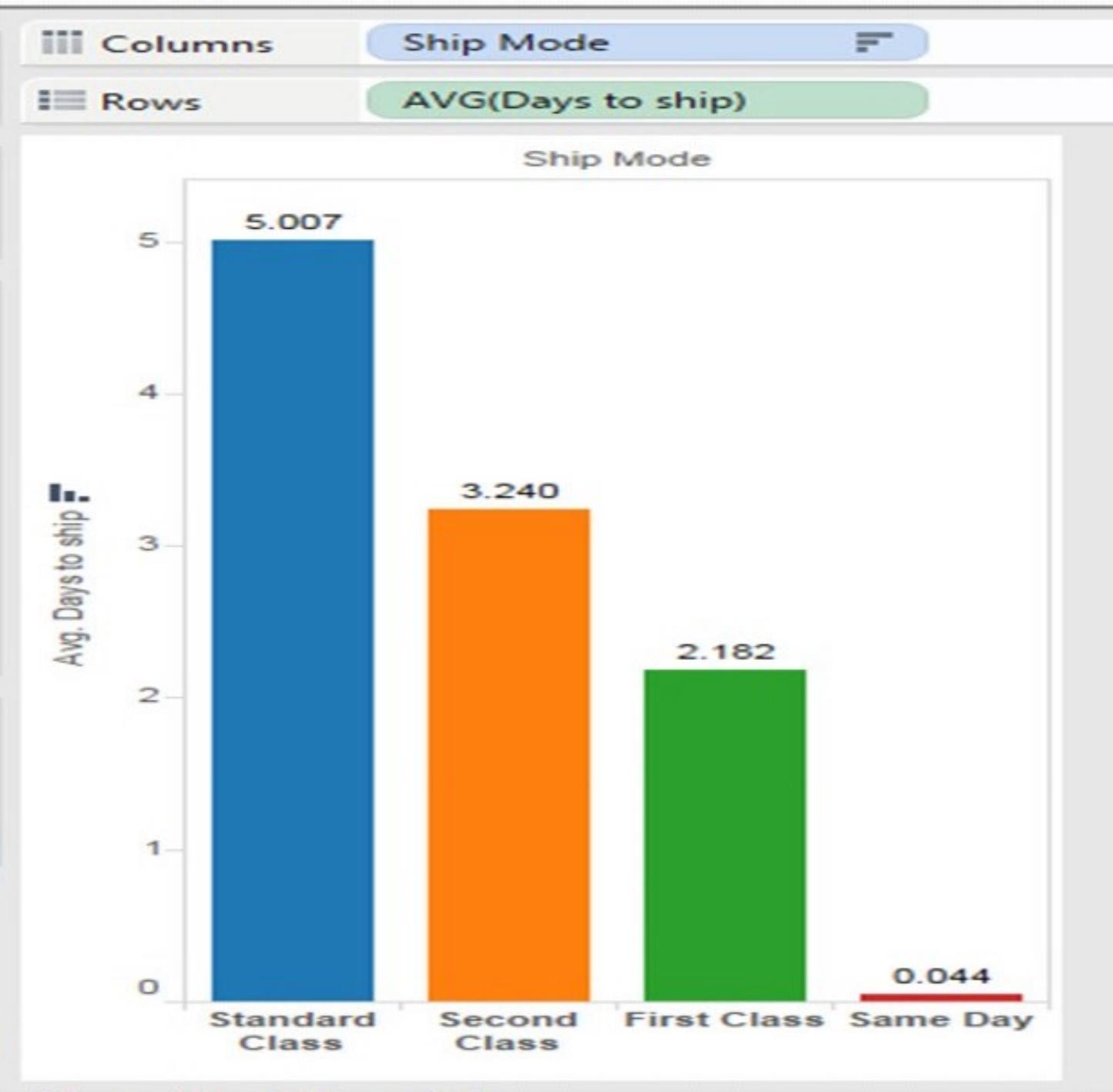
date_part	Values
'year'	Four-digit year
'quarter'	1-4
'month'	1-12 or "January", "February", and so on
'dayofyear'	Day of the year; Jan 1 is 1, Feb 1 is 32, and so on
'day'	1-31
'weekday'	1-7 or "Sunday", "Monday", and so on
'week'	1-52
'hour'	0-23
'minute'	0-59
'second'	0-60



Date Function- Hands on

- Which Shipping Mode requires the highest Avg. Shipping Days.

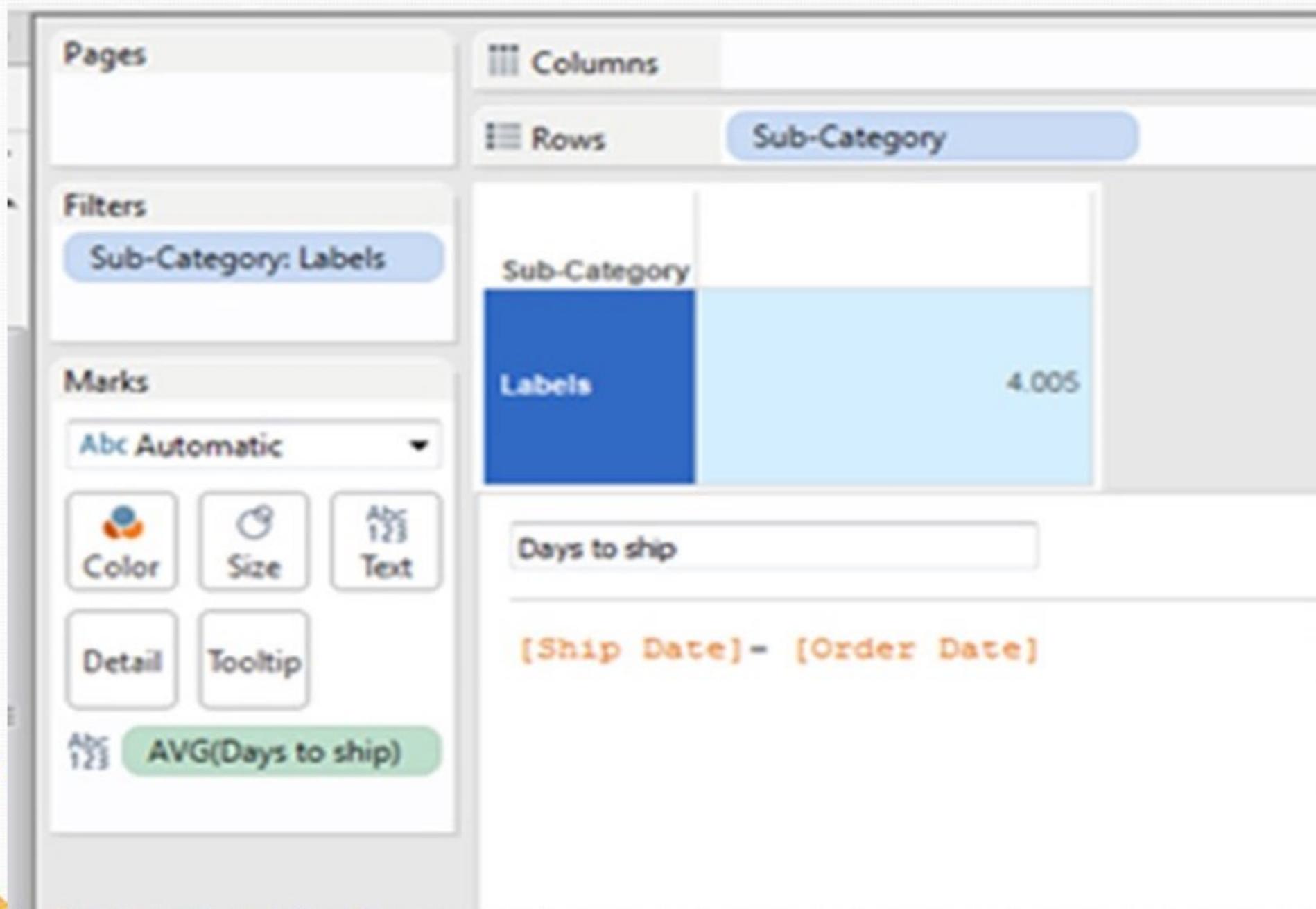




Date Function- Hands On

- What is the Average days to Ship the Labels Sub-category?





String Function

- String Calculations return the String values that are in our data set.
- There may be a particular format in which we want to name our customers; like; in Initials. So, String calculations help us do exactly this.



String Function- Hands On

- Show the list of customers along with their city and state.



Pages

Columns

Rows

Cust's City & State

Filters

Marks

Abc Automatic



Detail

Tooltip

Cust's City & State

Aaron Bergman From Arlington in Texas
 Aaron Bergman From Oklahoma City in Oklahoma
 Aaron Bergman From Seattle in Washington
 Aaron Hawkins From Gulfport in Mississippi
 Aaron Hawkins From Los Angeles in California
 Aaron Hawkins From New York City in New York
 Aaron Hawkins From Philadelphia in Pennsylvania
 Aaron Hawkins From San Francisco in California
 Aaron Hawkins From Troy in New York
 Aaron Smayling From Arlington in Virginia
 Aaron Smayling From Austin in Texas
 Aaron Smayling From Jacksonville in North Carolina
 Aaron Smayling From New York City in New York
 Aaron Smayling From Pasadena in California
 Aaron Smayling From Redmond in Oregon
 Aaron Smayling From San Francisco in California
 Adam Bellavance From Concord in New Hampshire
 Adam Bellavance From Des Moines in Washington
 Adam Bellavance From Greenwood in Indiana
 Adam Bellavance From Los Angeles in California
 Adam Bellavance From New York City in New York
 Adam Bellavance From Philadelphia in Pennsylvania
 Adam Bellavance From Seattle in Washington
 Adam Bellavance From Waynesboro in Virginia

Abc
Abc
Abc

Cust's City & State

```
[Customer Name] + " From " + STR([City]) + " in " + STR([State])
```

The calculation is valid.

Sheets Affected ▾

Apply

OK

Ad-hoc calculation

Ad-hoc calculations are calculations that you can create and update as you work with a field on a shelf in the view.

Ad-hoc calculations, also known as type-in or in-line calculations, can be useful for testing a hunch, trying a what-if scenario, or debugging a complex calculation.

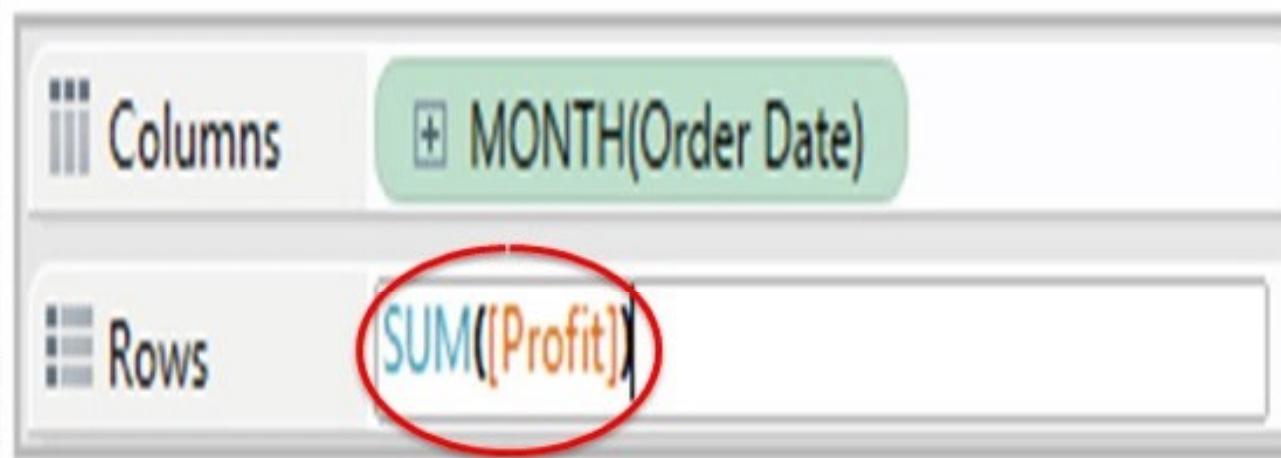
Ad-hoc calculations are supported for fields on the Rows, Columns, Marks, and Measure Values shelves; they are not supported for fields on the Filter or Pages shelves.



Steps of Ad-hoc calculation

Step-1:

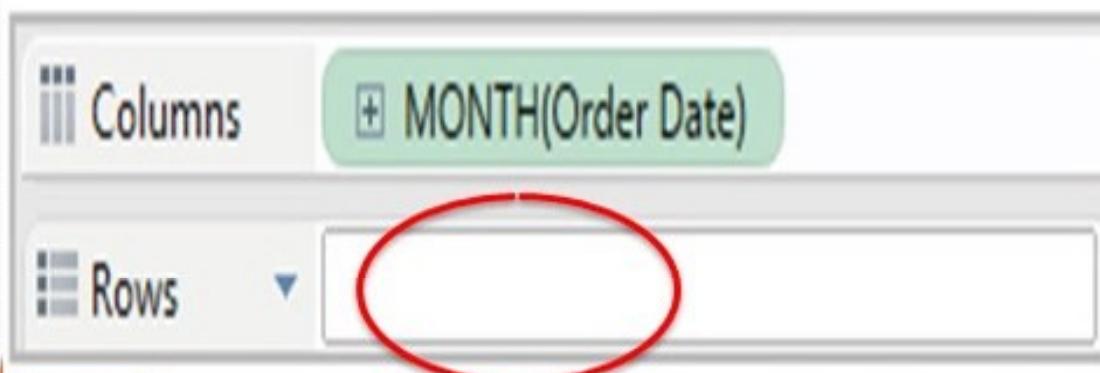
Double-click on an existing field in the view to start editing.



Steps of Ad-hoc calculation (cont.)

Step-2:

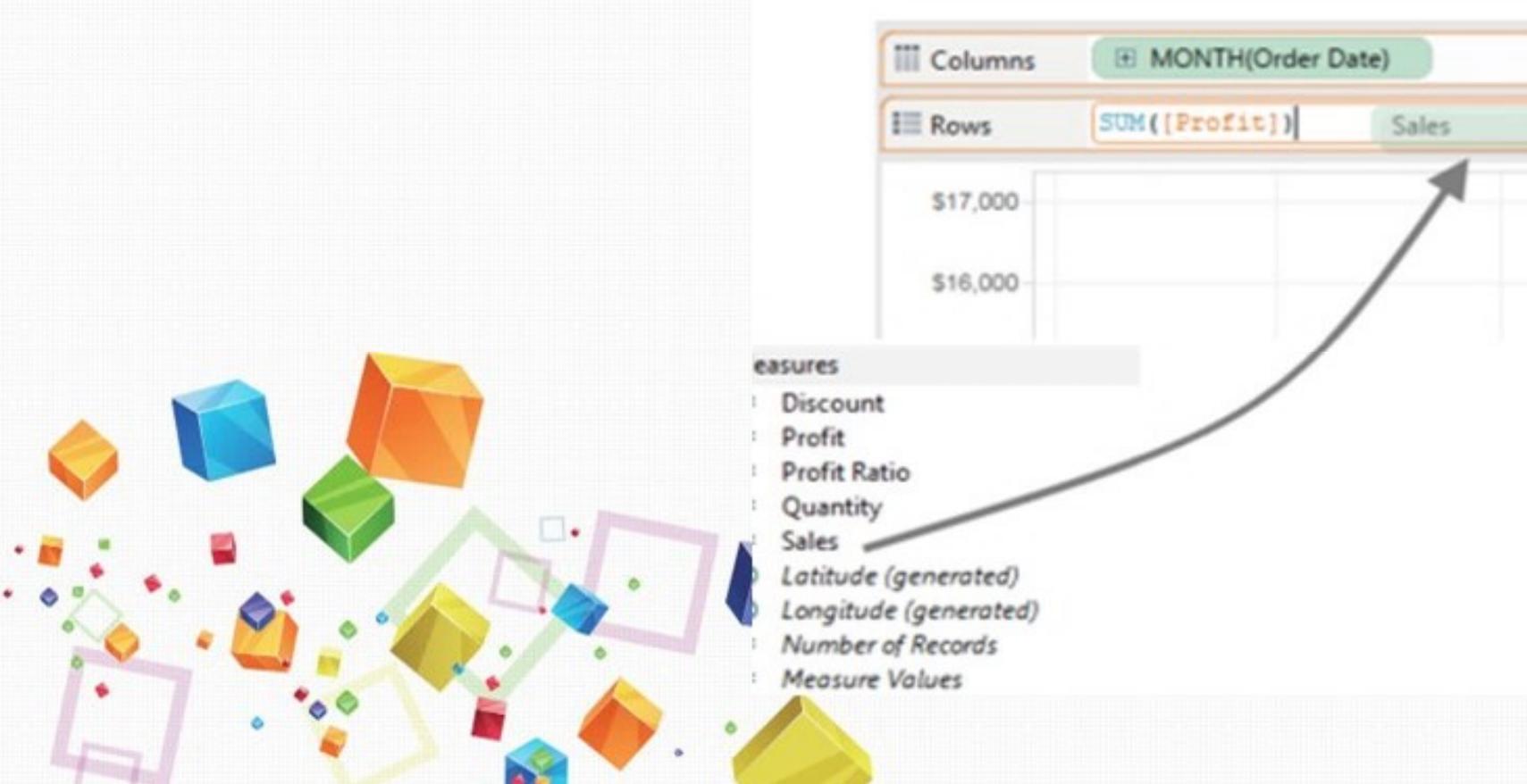
Alternatively, you can double-click on an empty shelf or on an empty part of a shelf to create a new ad-hoc calculation.



Steps of Ad-hoc calculation (cont.)

Step-3:

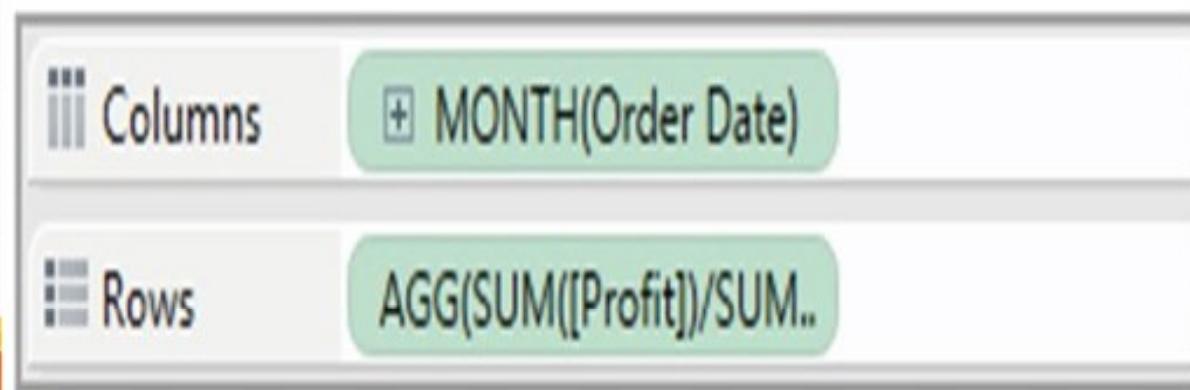
Type to update the expression, or drag new fields into the expression from the Data pane in the view.



Steps of Ad-hoc calculation (cont.)

Step-4:

When you are satisfied with the expression, press Enter or Tab, or click outside the expression to commit the expression and update the view.





Summary

- This section gives a better understanding of how to create a calculated field to incorporate the data that would be helpful in analyzing the performance of the company or any additional fields that are not in the data source but are important for the visualization.
- This gives you an understanding of the Granularity Level , Ratio Calculation and the correct approach to go for it .In the background it also gives you the understanding of Aggregation , Dis aggregation and other very crucial concepts in Tableau .
 - Practice the concepts multiple times before you understand it thoroughly.

Quiz

- The Calculation [Order Date]- [Ship Date]=_____
- What will the Function: Left(3,"Tableau") return?



Quiz Answers

- The Calculation [Order Date]- [Ship Date]= the no. of days bet. The 2 dates
- What will the Function: Left(3,"Tableau") return?- Error. Correct: Left('Tableau",3)

