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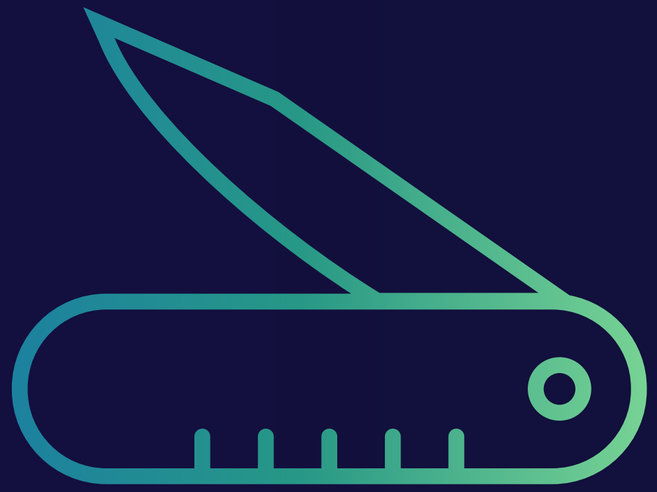
MARCH 16 - 20, 2026



DAX 201: CALCULATE()

Unfolding the Swiss Army Knife of DAX Functions

Michael Hewitt
Senior Business Intelligence Manager
Hunt Brothers Pizza / Hunt Advantage Group
Nashville, Tennessee, USA

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Session Objectives

- Unfold the mechanics of CALCULATE
- Understand where to use CALCULATE
- Understand what CALCULATE is doing behind the scenes
- Understand Evaluation Context

DAX Learning Path

You Are Here

DAX 101 → DAX 200 → DAX 300 → DAX 400

DAX Basics
Calculated Columns
Measures
Aggregations
Variables

Common Table Functions
Use Cases
Adding Filters
Removing Filters
Mixing Table Functions

Evaluation Context
Row Context
Filter Context
Context Transition
Forcing Filter Context

CALCULATE
= Filter Context
Filter arguments are tables
Context Transition
Hands-on Examples

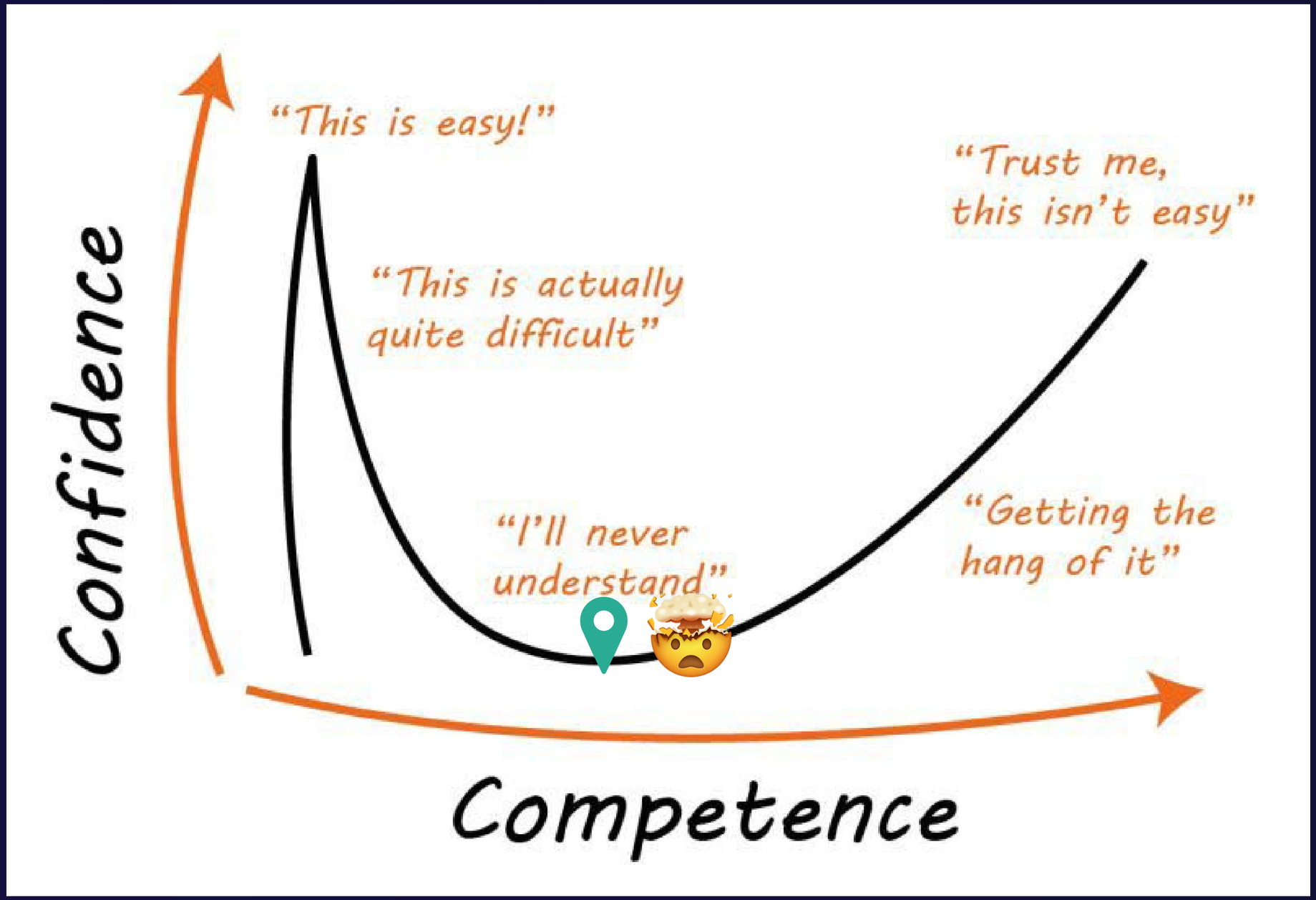
Relationships
Propagate Row Context?
Propagate Filter Context
DAX in action!

Time Intelligence
Marking Date Table
Turn off Auto-Calendar
Standard Functions
Calendar Based Time Intelligence

Complex DAX Patterns
Custom Time Intelligence
DAX Queries

Expanded Tables
Propagating Relationships
Vs.
Mirroring filters through expanded table concept.

Many to Many
Classic M2M

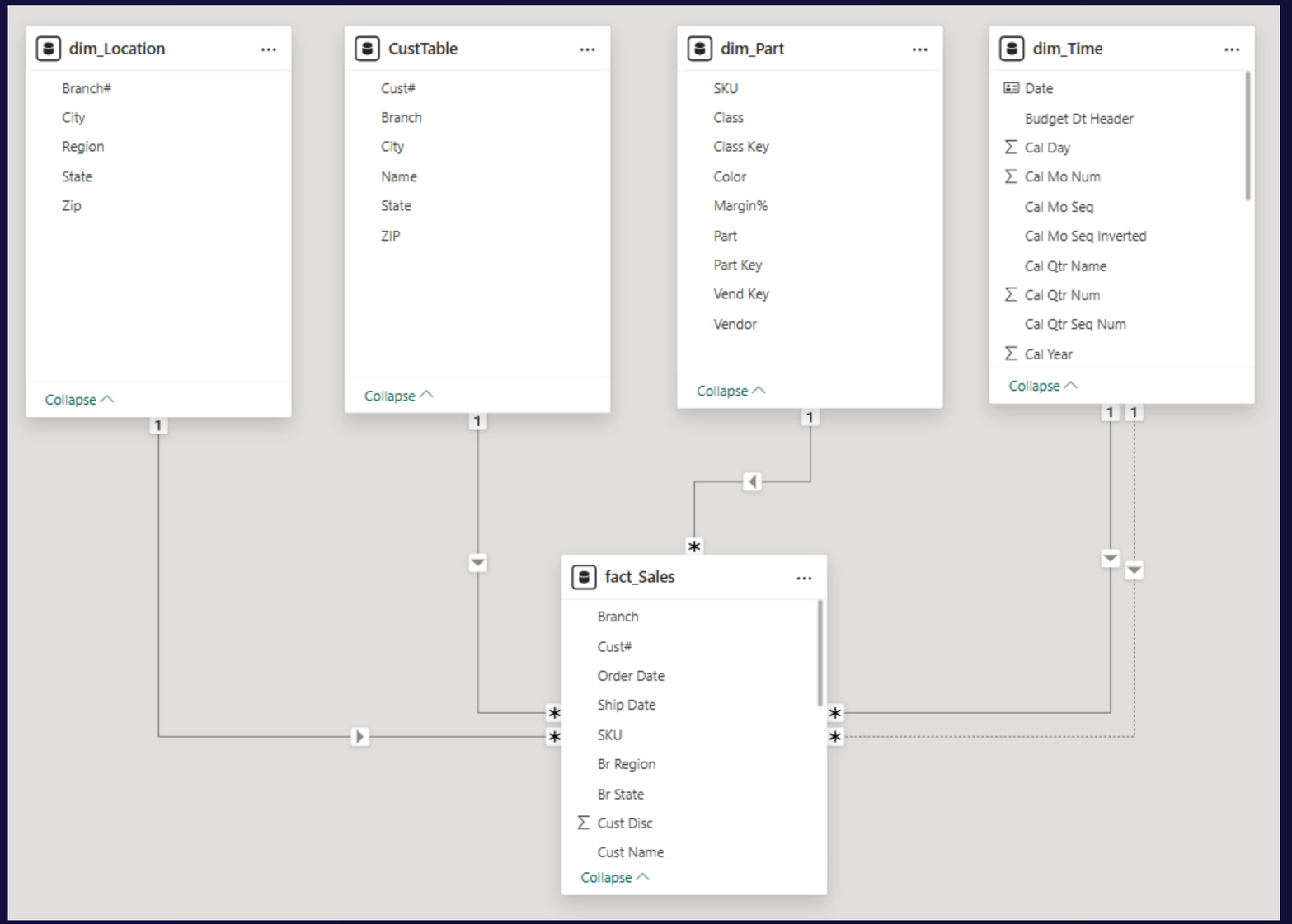

"This is easy!"
"This is actually quite difficult"
"I'll never understand"
"Getting the hang of it"
"Trust me, this isn't easy"
Confidence
Competence


EVALUATION
CONTEXT
CALCULATE()

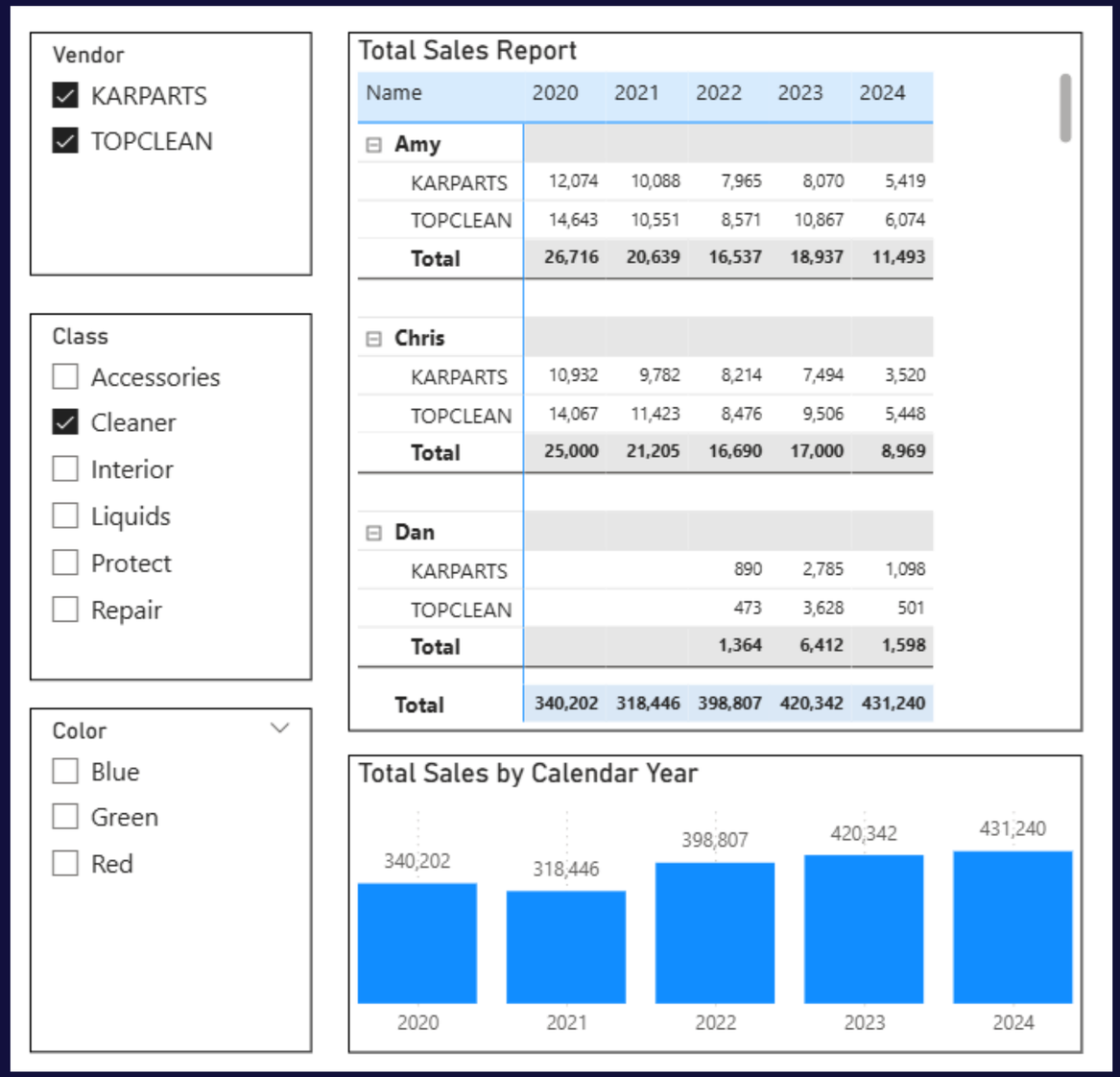
EVALUATION CONTEXT

CALCULATE()

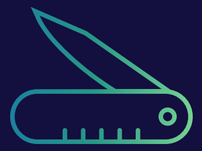
How do we go from this...



... to this?


Vendor
KARPARTS
TOPCLEAN
Class
Accessories
Cleaner
Interior
Liquids
Protect
Repair
Color
Blue
Green
Red
Total Sales Report
Name 2020 2021 2022 2023 2024
Amy
KARPARTS 12,074 10,088 7,965 8,070 5,419
TOPCLEAN 14,643 10,551 8,571 10,867 6,074
Total 26,716 20,639 16,537 18,937 11,493
Chris
KARPARTS 10,932 9,782 8,214 7,494 3,520
TOPCLEAN 14,067 11,423 8,476 9,506 5,448
Total 25,000 21,205 16,690 17,000 8,969
Dan
KARPARTS 890 2,785 1,098
TOPCLEAN 473 3,628 501
Total 1,364 6,412 1,598
Total 340,202 318,446 398,807 420,342 431,240
Total Sales by Calendar Year
340,202
318,446
398,807
420,342
431,240
2020
2021
2022
2023
2024


DAX!
CALCULATE()!



Unfolding the Mechanics of CALCULATE()

Order of Evaluation

Priority: First to Last

5
KEEPFILTERS

1
ORIGINAL REPORT FILTERS

Report Level Filters and User Selections

2
TABLE ROWS > FILTERS: Context Transition

Remove and Replace matching filters from Level 1

3
CALCULATE MODIFIERS

Modify Original Filters From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

4
ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

Table Function	Filtered by orig FC?	Invalid Blank Row?
Color = Red	Ignores FC on Col	Blank Row
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DISTINCT	Yes, can restore FC	No Blank
FILTER/Whole Table	Yes	No Blank

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Attract original report filters (outer & inner)

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Attract original table filters - Context Transition

Alter filters - CALCULATE Modifiers

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Attract original table filters - Context Transition

Alter filters - CALCULATE Modifiers

Add new table filters

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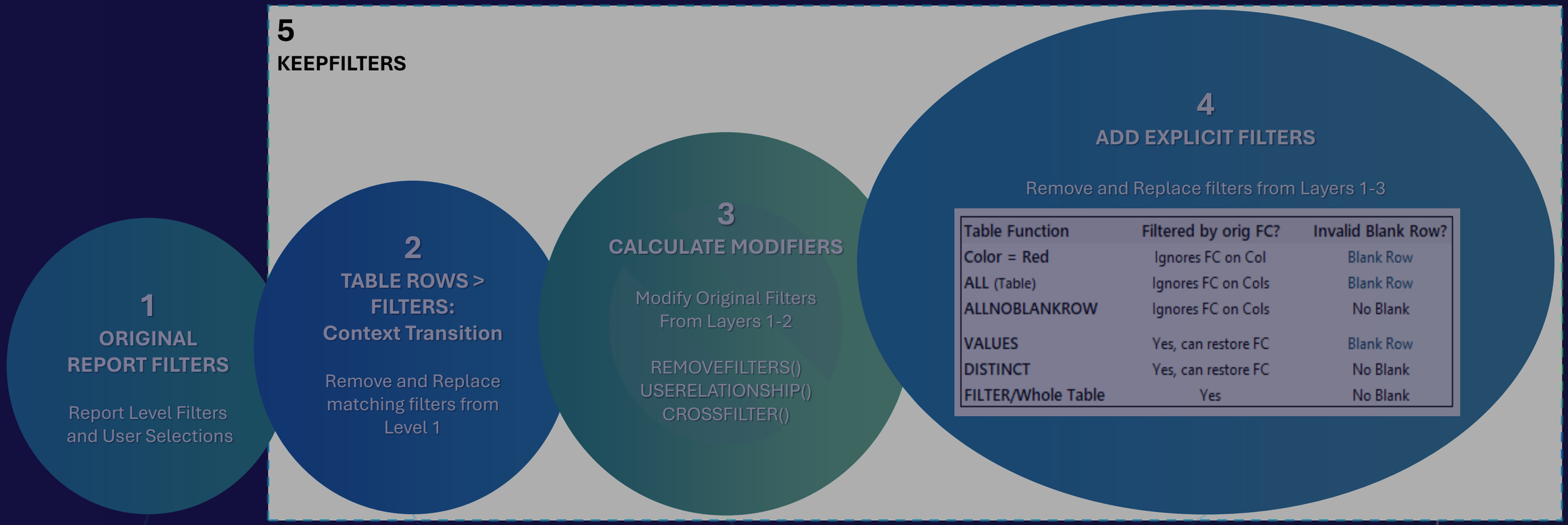
Priority: First to Last



Attract original report filters (outer & inner)

Attract original table filters - Context Transition

Alter filters - CALCULATE Modifiers

Add new table filters

Filter Modifier – KEEPFILTERS()

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Attract original report filters (outer & inner)

Attract original table filters - Context Transition

Alter filters - CALCULATE Modifiers

Add new table filters

Filter Modifier – KEEPFILTERS()

Challenge Questions

(WAIT!? Does that mean there’s a quiz?)

Challenge Questions

(WAIT!? Does that mean there’s a quiz?)

Yes.

Challenge Question #1

USERELATIONSHIP() vs. TREATAS()

What is unseen here that is causing unexpected results with TREATAS()?

Total Sales Report

Date	Total Sales	USEREL (L3)	TREATAS (L4)
01/01/2024	4,252	$3,570	$519
01/02/2024	3,679	$3,164	$567
01/03/2024	3,005	$2,568	$360
01/04/2024	2,886	$2,509	$519
01/05/2024	2,592	$2,487	$349
01/06/2024	2,677	$2,967	$310
01/07/2024	2,109	$1,855	$214
01/08/2024	3,073	$2,958	$554
01/09/2024	2,929	$3,563	$496
01/10/2024	2,073	$3,462	$409
01/11/2024	3,207	$2,698	$592
01/12/2024	3,903	$3,095	$429
01/13/2024	3,380	$3,331	$487
01/14/2024	2,510	$2,859	$689
01/15/2024	4,237	$3,220	$1,430
01/16/2024	3,257	$3,237	$481
01/17/2024	3,025	$3,239	$890
01/18/2024	2,875	$4,047	$835
01/19/2024	3,655	$3,741	$873
01/20/2024	3,550	$2,893	$464
01/21/2024	2,764	$4,233	$247
01/22/2024	3,928	$3,964	$821
01/23/2024	3,461	$3,487	$450
Total	**1,222,462**	**$1,222,501**	**$1,212,281**

```
USEREL (L3) =
CALCULATE (
    [Total Sales],
    USERELATIONSHIP ( fact_Sales[Order Date], dim_Time[Date] )
)
```

```
TREATAS (L4) =
CALCULATE (
    [Total Sales],
    TREATAS ( VALUES ( dim_Time[Date] ), fact_Sales[Order Date] )
)
```

TREATAS()

Table expression – technically NOT a CALCULATE() modifier

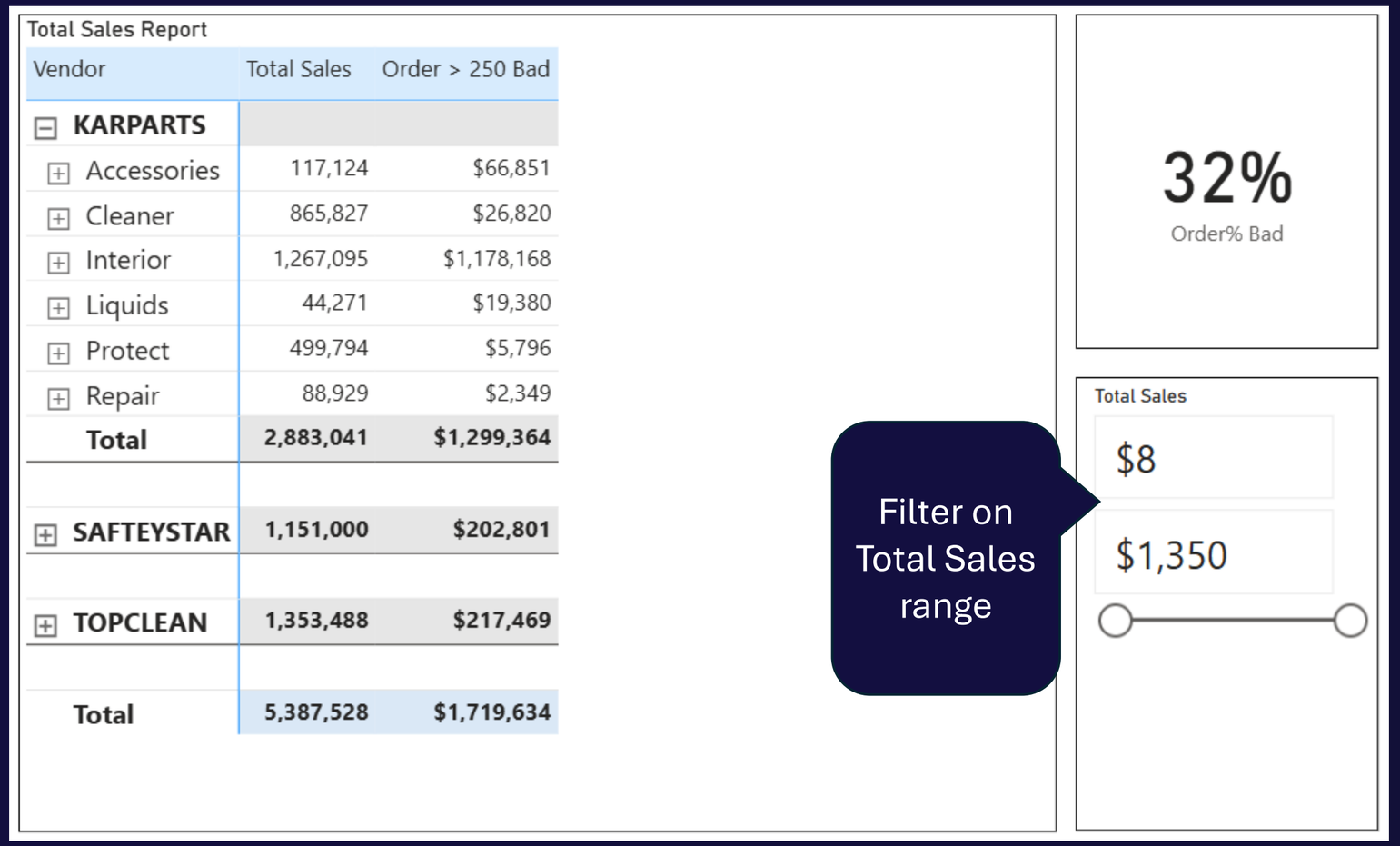
Treats the columns of the input table as columns from other tables – DAX.guide

Transfers column values as filters to other columns through virtual relationships

TREATAS() creates virtual relationships that transfer lineage

Challenge Question #2

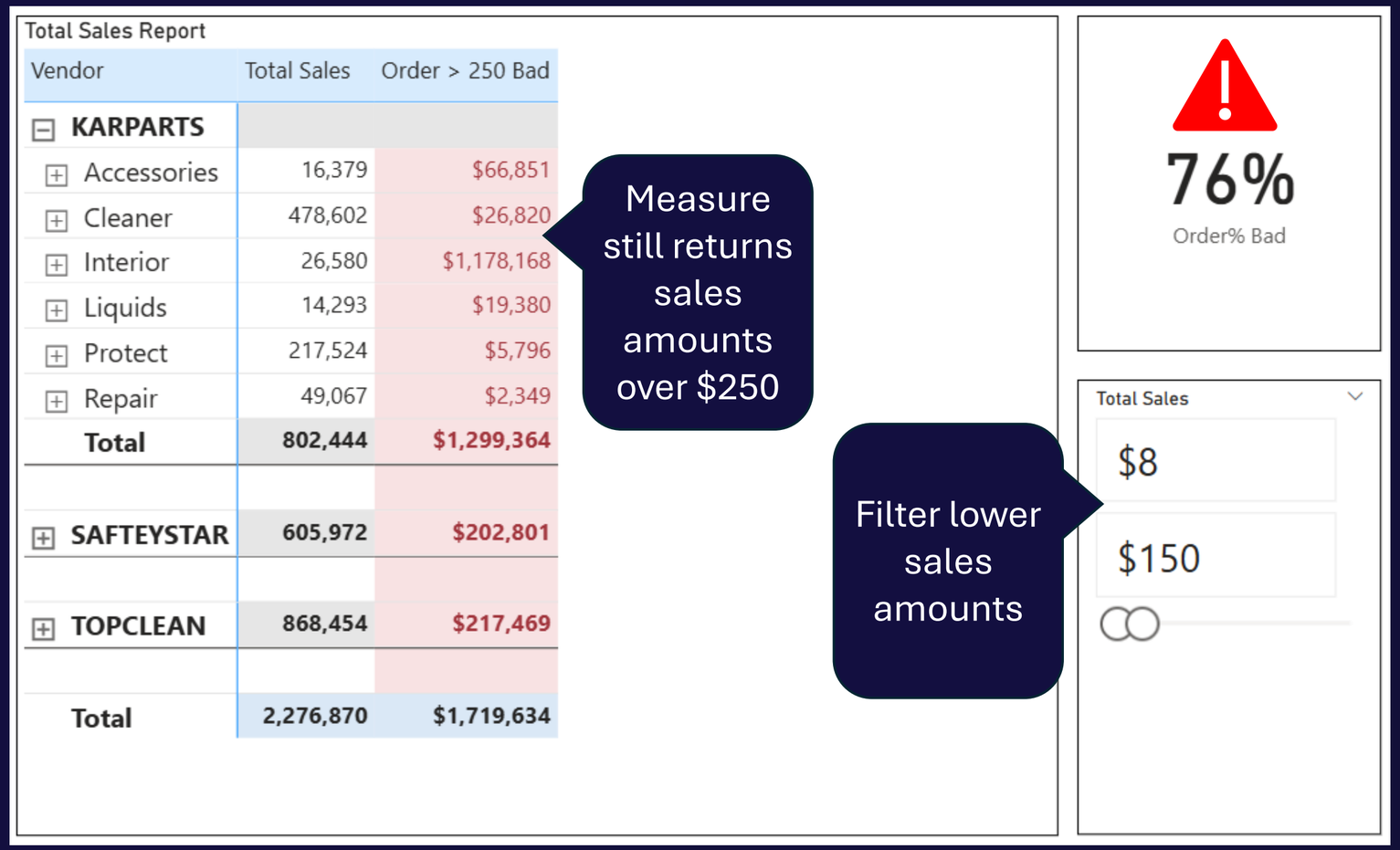
Slicer not filtering large orders?




```
Order > 250 Bad =
CALCULATE ( [Total Sales],
fact_Sales[Total Sales] > 250
)
```

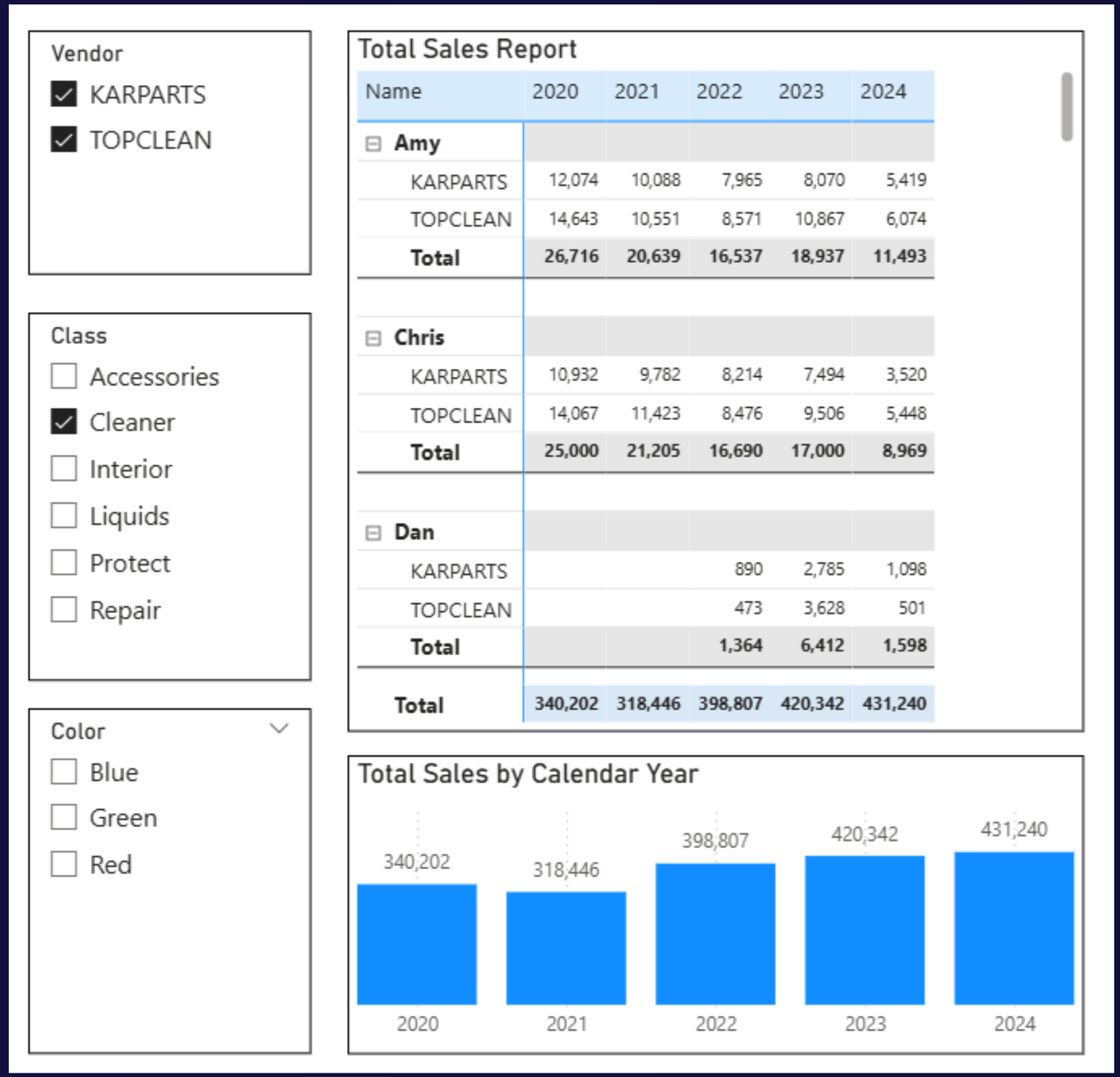
Challenge Question #2

Slicer not filtering large orders?




```
Order > 250 Bad =
CALCULATE ( [Total Sales],
fact_Sales[Total Sales] > 250
)
```

CALCULATE() in Slow Motion



1

We write a measure to calculate total sales and visualize that measure

```
SUM ( fact_Sales[Total Sales] )
```

Vendor

- [x] KARPARTS
- [x] TOPCLEAN

Class

- [ ] Accessories
- [x] Cleaner
- [ ] Interior
- [ ] Liquids
- [ ] Protect
- [ ] Repair

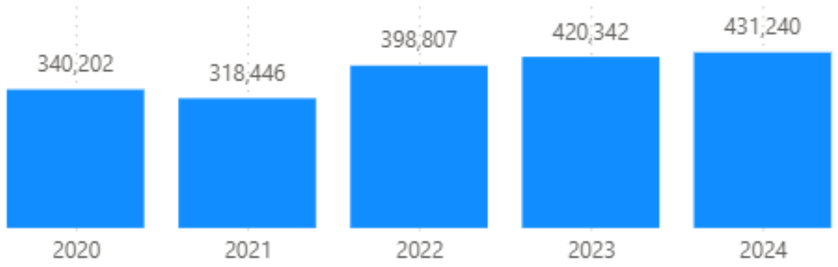
Color

- [ ] Blue
- [ ] Green
- [ ] Red

Total Sales Report

Name	2020	2021	2022	2023	2024
Amy					
KARPARTS	12,074	10,088	7,965	8,070	5,419
TOPCLEAN	14,643	10,551	8,571	10,867	6,074
Total	**26,716**	**20,639**	**16,537**	**18,937**	**11,493**
Chris					
KARPARTS	10,932	9,782	8,214	7,494	3,520
TOPCLEAN	14,067	11,423	8,476	9,506	5,448
Total	**25,000**	**21,205**	**16,690**	**17,000**	**8,969**
Dan					
KARPARTS			890	2,785	1,098
TOPCLEAN			473	3,628	501
Total			**1,364**	**6,412**	**1,598**
Total	**340,202**	**318,446**	**398,807**	**420,342**	**431,240**

Total Sales by Calendar Year



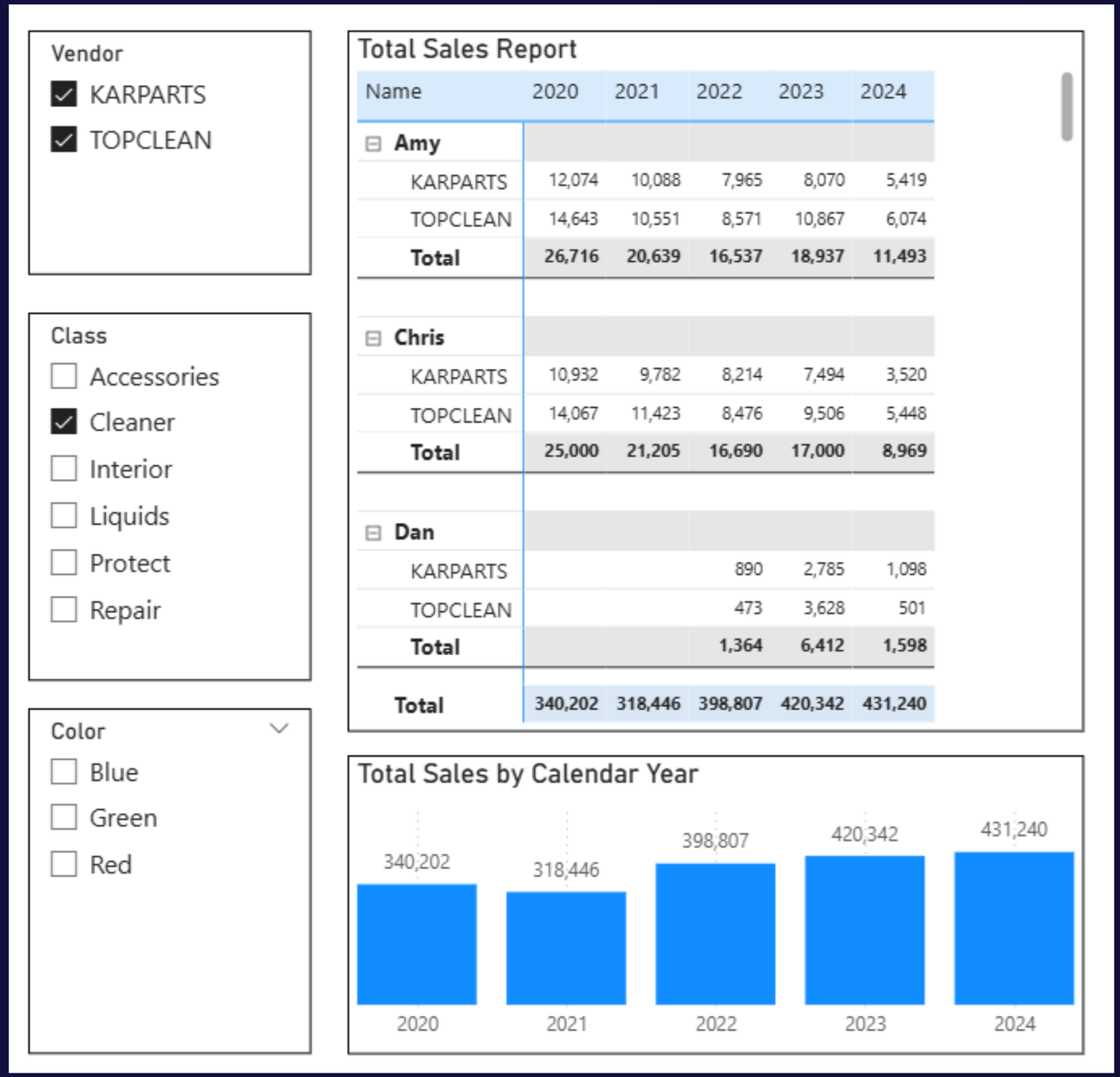
2

Under the hood, the corresponding iterator function is used

```
SUM ( fact_Sales[Total Sales] )
```

```
SUMX (fact_Sales,
fact_Sales[Total Sales] )
```

Row Context is in play

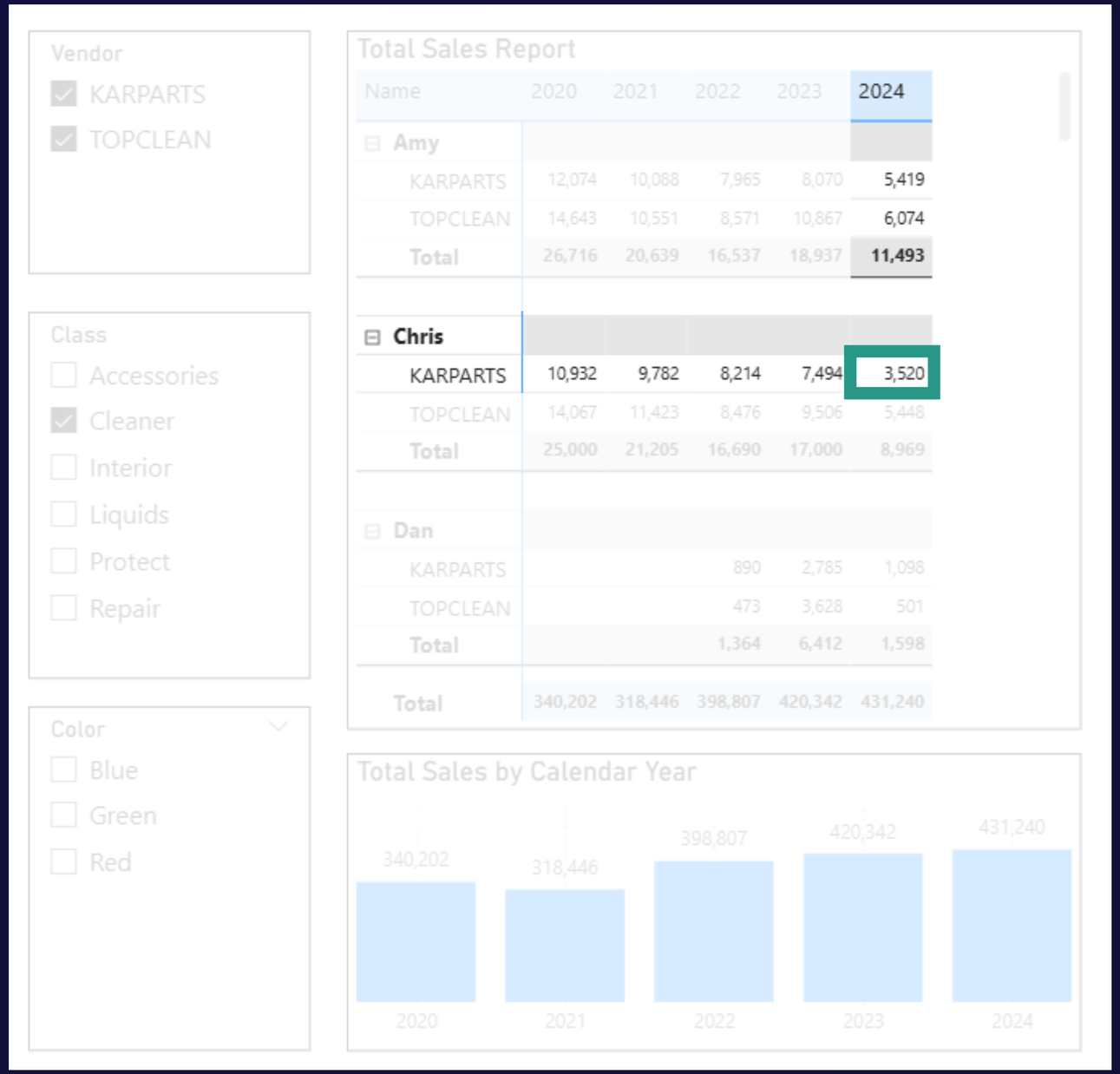


3

Under the hood, an implicit CALCULATE() is added which captures the initial filter context

```
CALCULATE (
        SUMX (fact_Sales,
        fact_Sales[Total Sales] ),
        <FILTERS>
)
```

Filter Context is in play



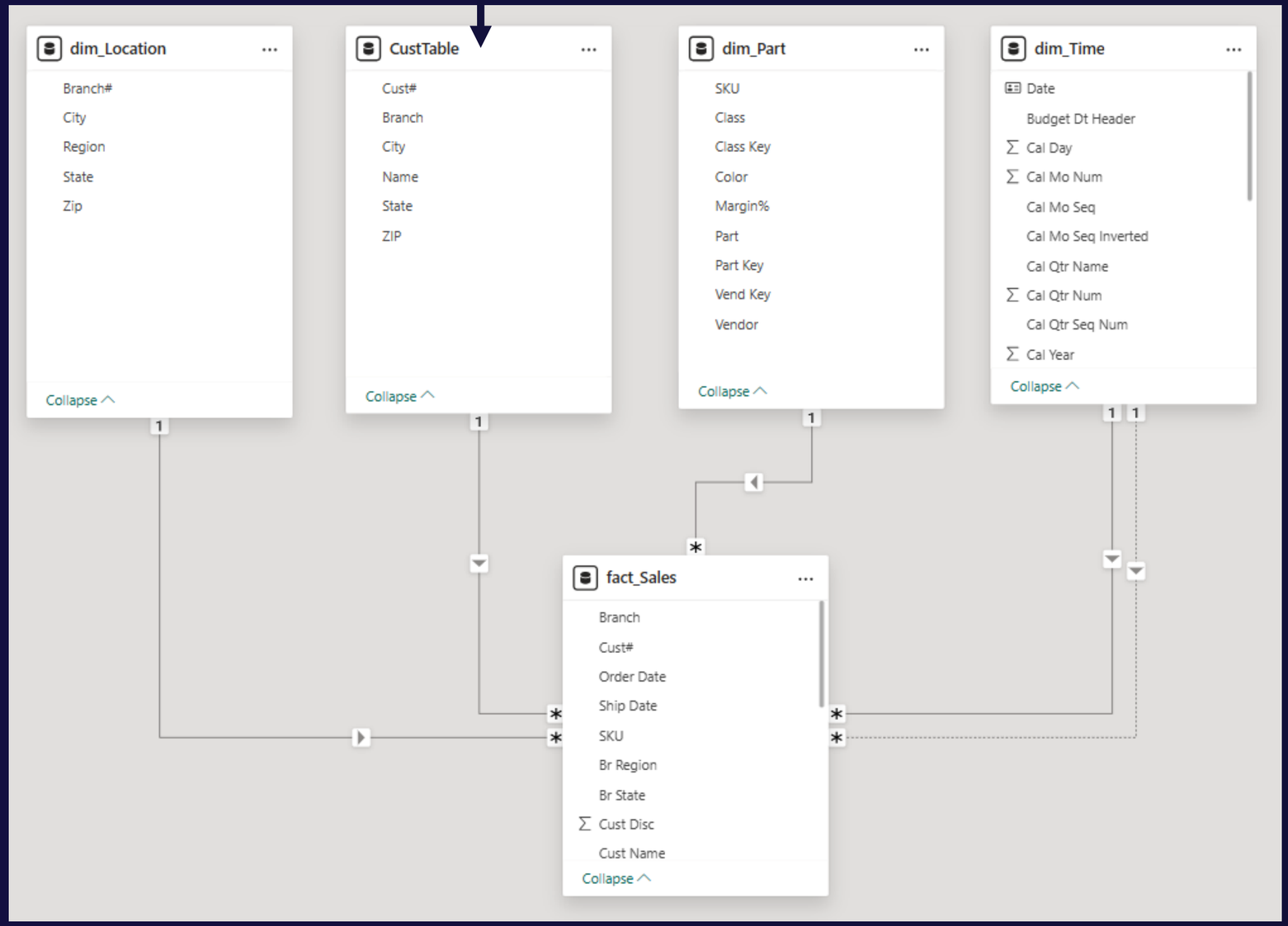
3

Under the hood, an implicit CALCULATE() is added which captures the initial filter context

```
CALCULATE (
        SUMX (fact_Sales,
        fact_Sales[Total Sales] ),
        CustTable[Name] = “Chris”,
        dim_Part[Vendor] = “KARPARTS”,
        dim_Time[Cal Year] = 2024
)
```

Filter Context is in play

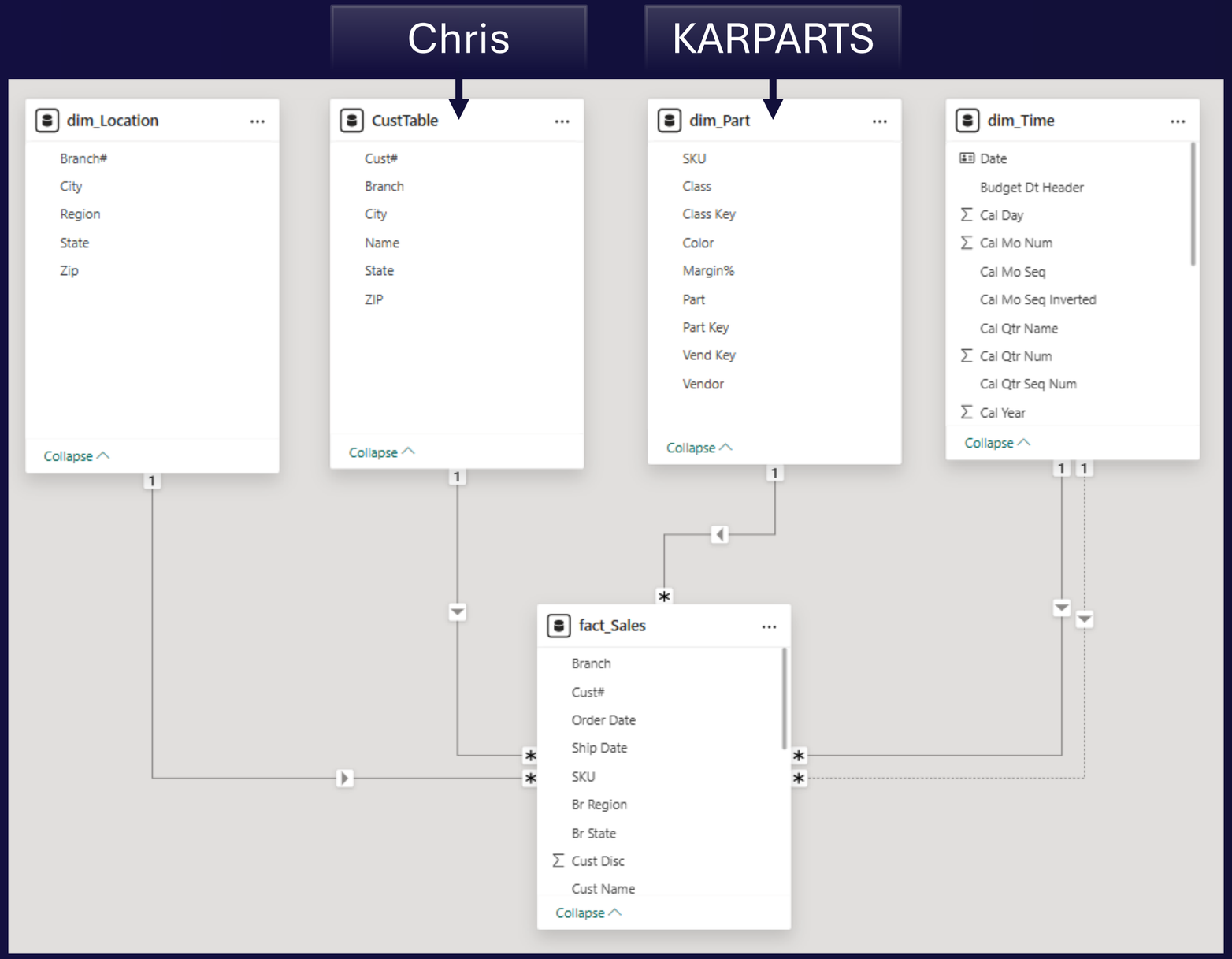
Chris



4

CALCULATE() filters the dimension tables

```
CALCULATE (
        SUMX (fact_Sales,
        fact_Sales[Total Sales] ),
        CustTable[Name] = “Chris”,
        dim_Part[Vendor] = “KARPARTS”,
        dim_Time[Cal Year] = 2024
)
```



5

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)
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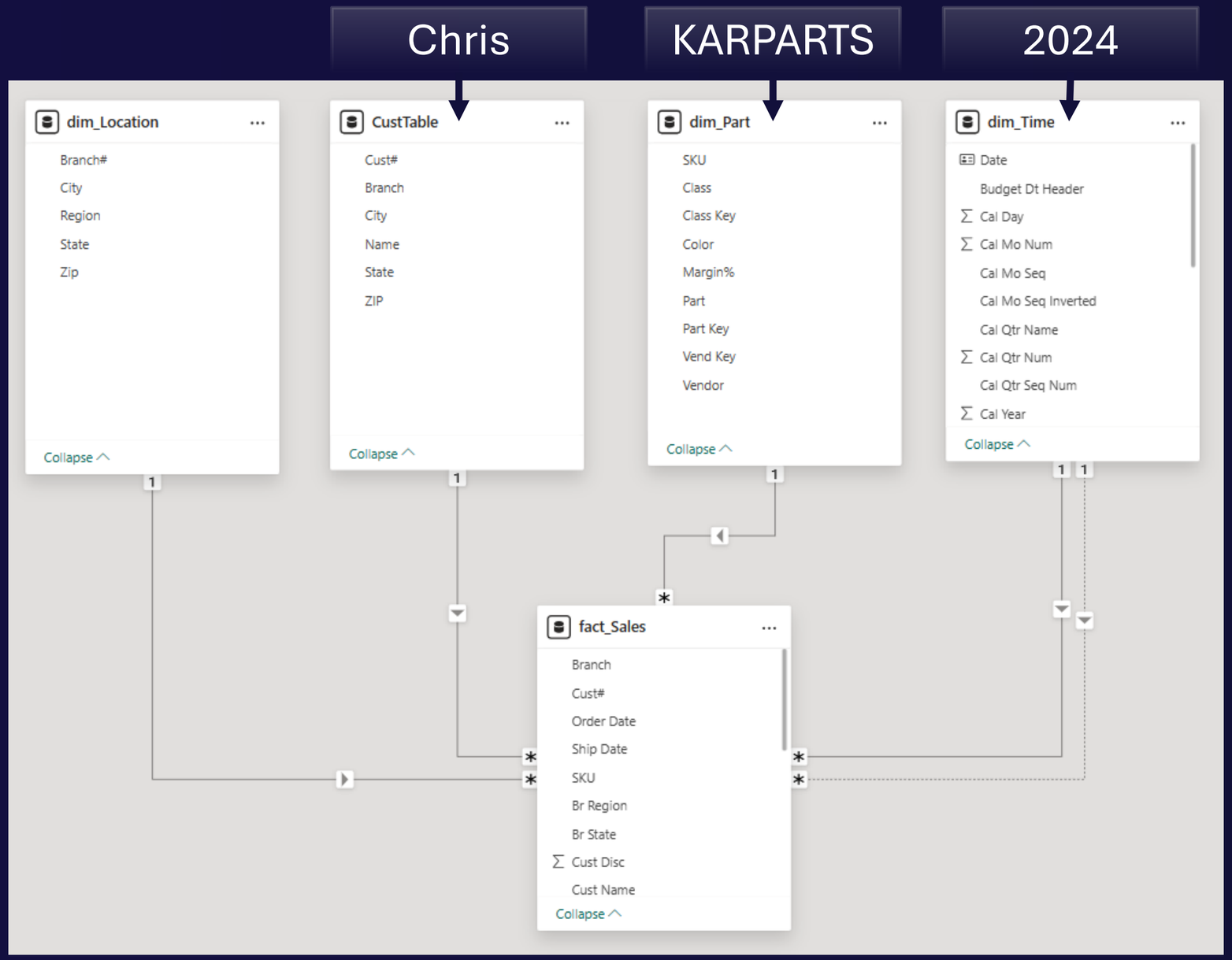

6

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)
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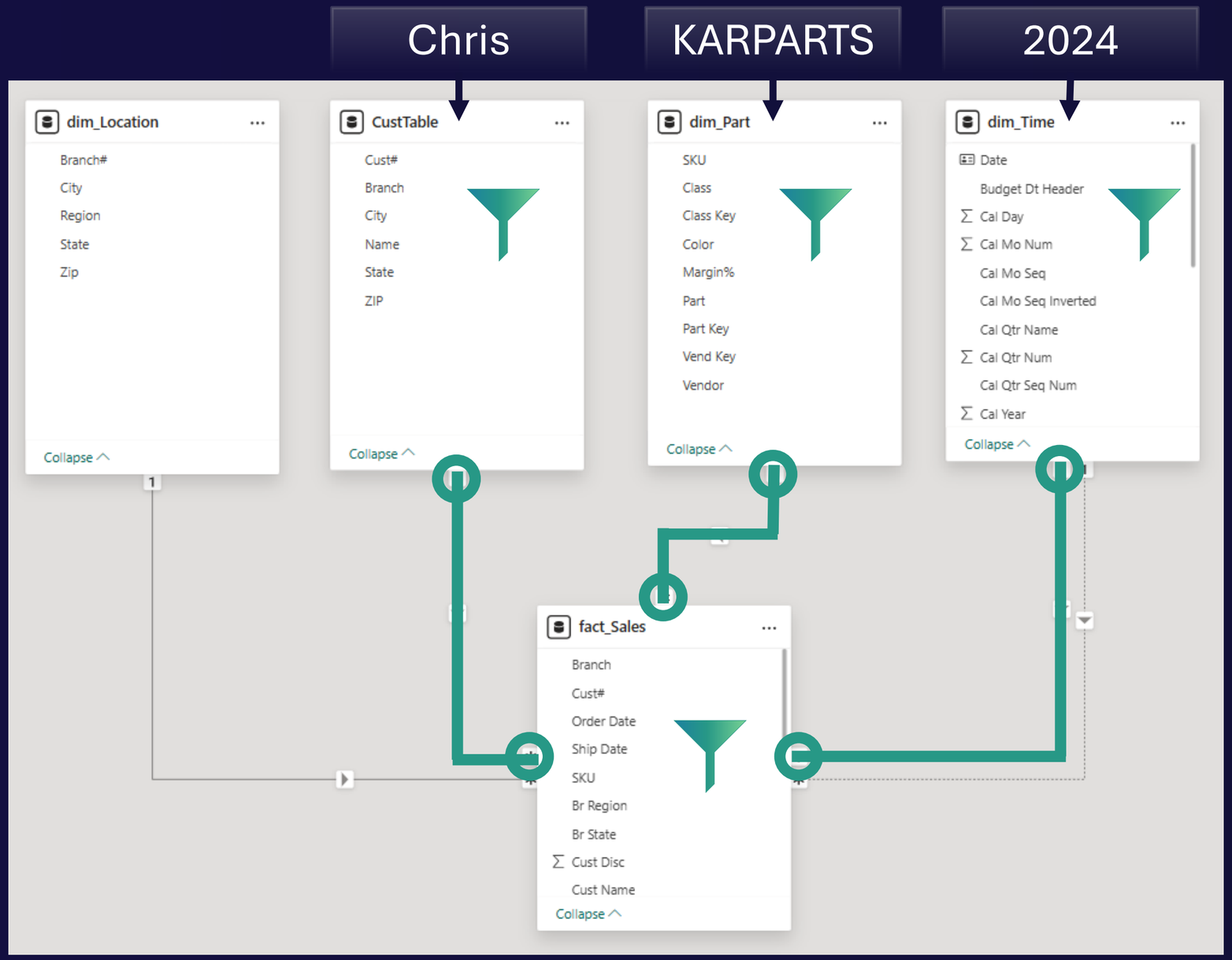
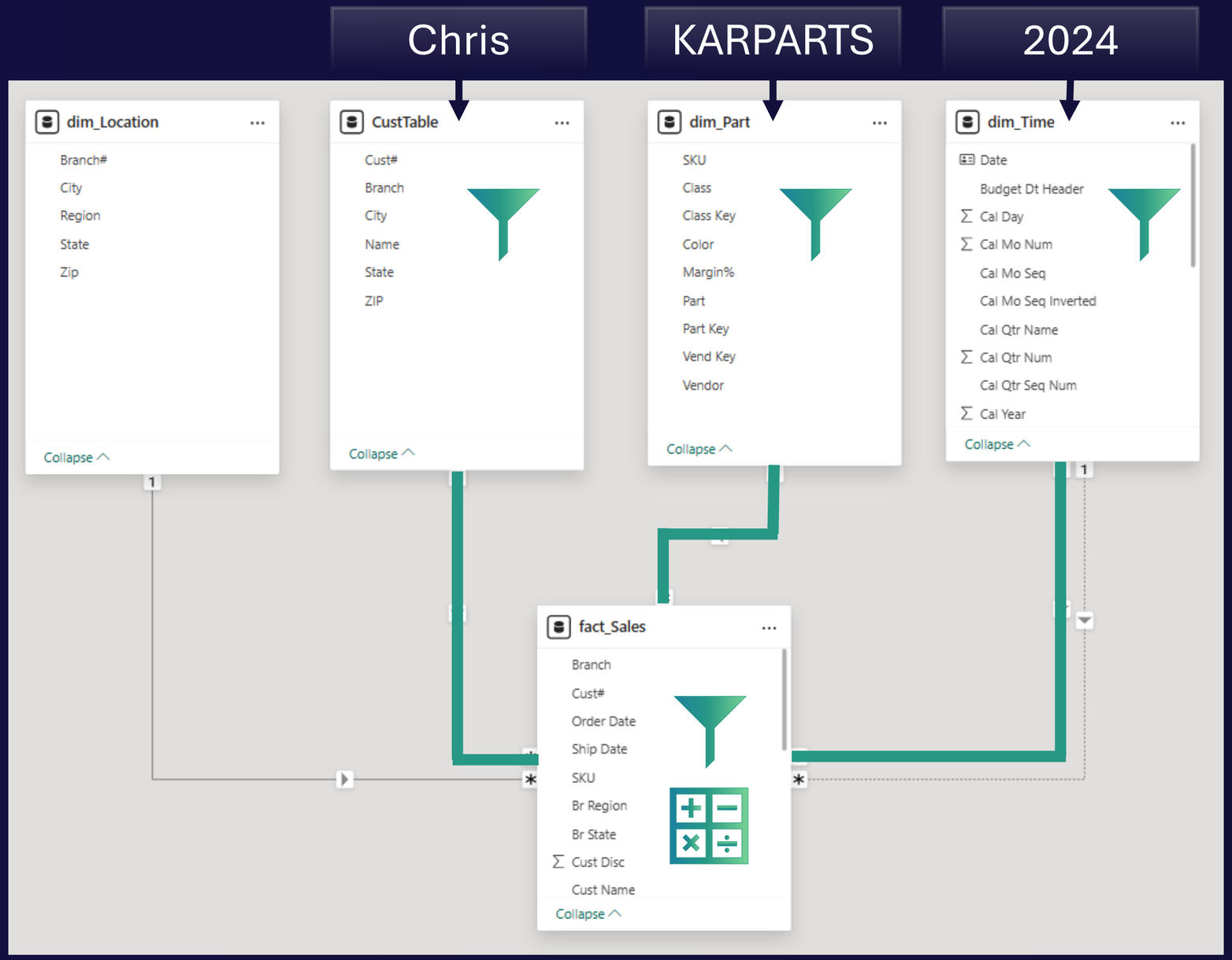


7

Filters flow from dimension tables to the fact table and are applied to the fact table

```
CALCULATE (
        SUMX (fact_Sales,
        fact_Sales[Total Sales] ),
        CustTable[Name] = “Chris”,
        dim_Part[Vendor] = “KARPARTS”,
        dim_Time[Cal Year] = 2024
)
```



8

Filtered rows in the fact table are aggregated

```
CALCULATE (
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        fact_Sales[Total Sales] ),
        CustTable[Name] = “Chris”,
        dim_Part[Vendor] = “KARPARTS”,
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)
```

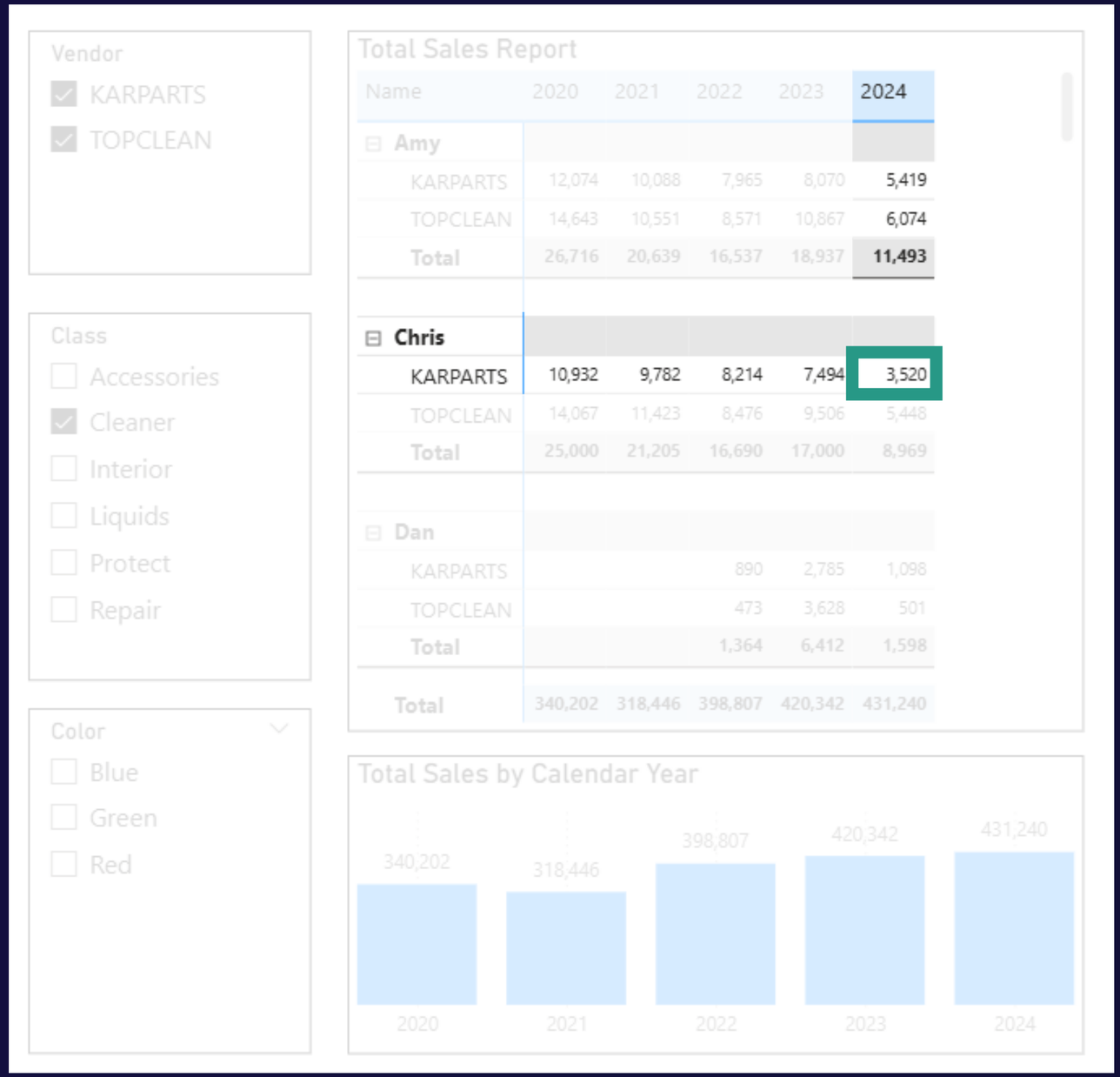

9

CALCULATE() returns the new filter context back to the visual under the new filter context

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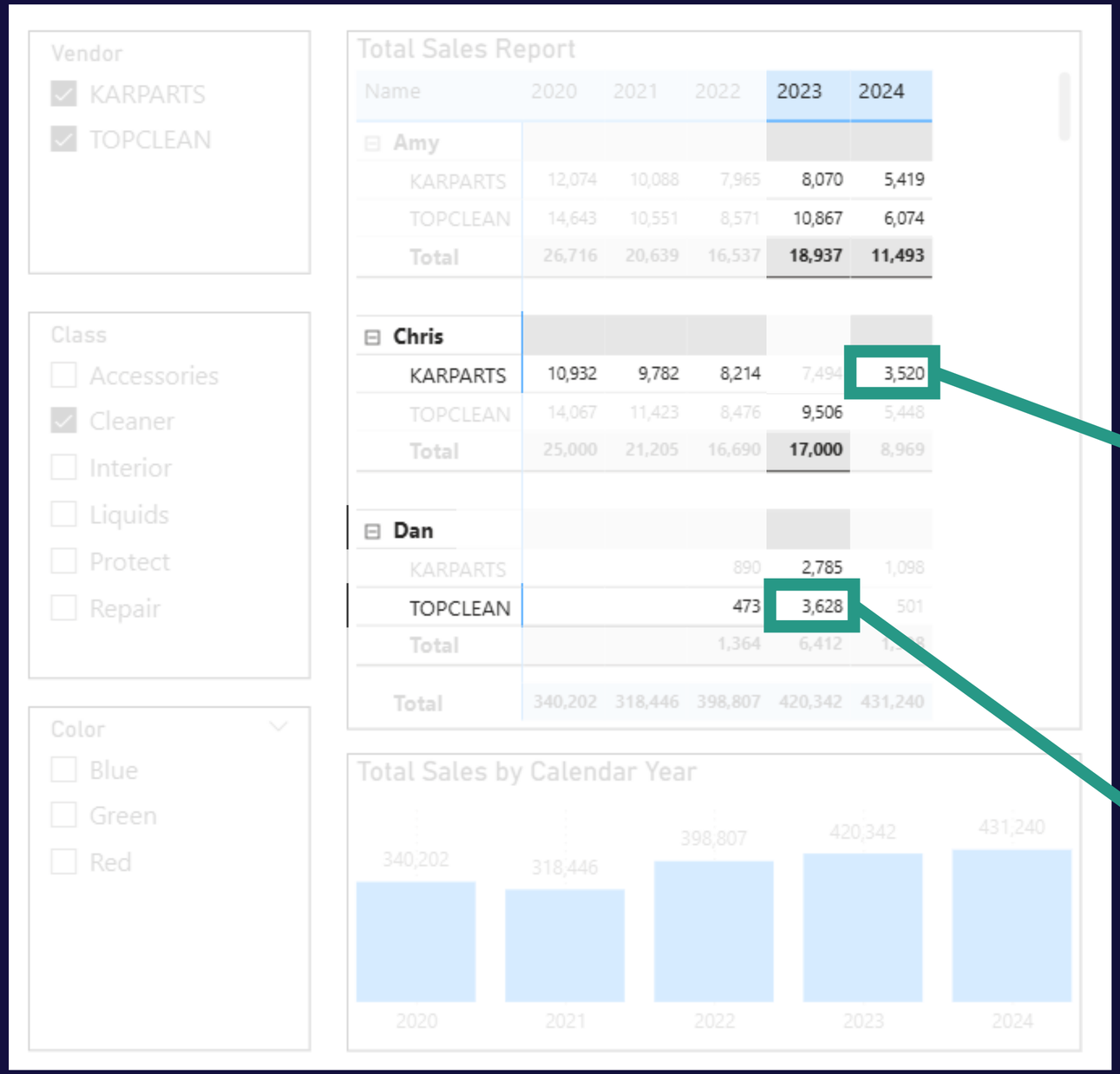
ORIGINAL REPORT FILTERS

Report Level Filters and User Selections

2
TABLE ROWS > FILTERS: Context Transition

Remove and Replace matching filters from Level 1



CALCULATE() = Filter Context

Reusable and dynamic results in our visuals

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)
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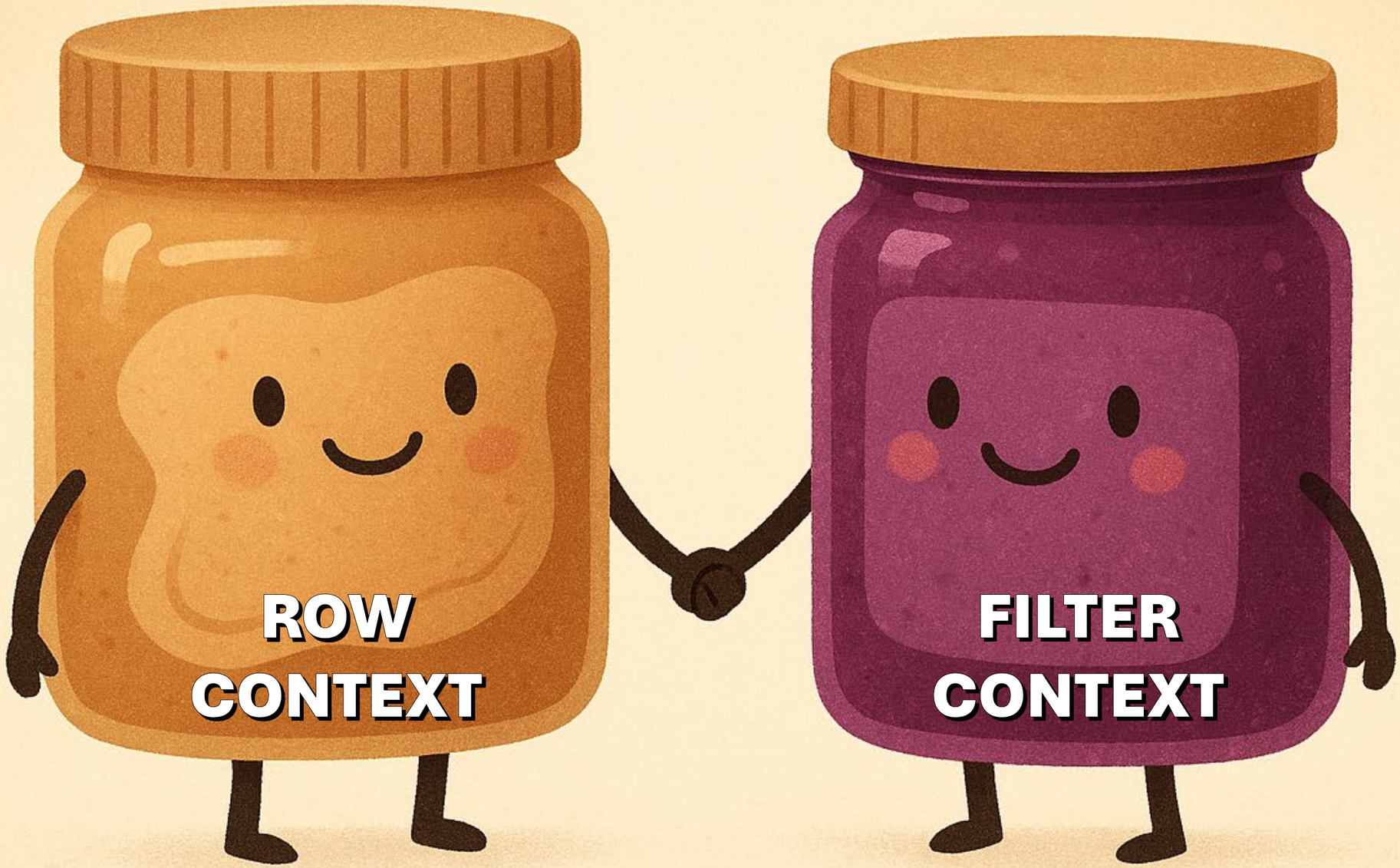
)
```

The MOST Important DAX Concept

Row Context and Filter Context Work Together!


ROW
CONTEXT
FILTER
CONTEXT

Row Context and Filter Context Work Together

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)
```

Row Context

Filter Context

Calculate Modifiers

Use of ALL() or REMOVEFILTERS() to compute Ratios

ALL() or REMOVEFILTERS() as a CALCULATE() argument removes filters placed on columns

ALL() is a table function that returns all rows in a tables or all values in a column ignoring any filters

REMOVEFILTERS() is not a table function – it is a modifier that clears filters from a table or column

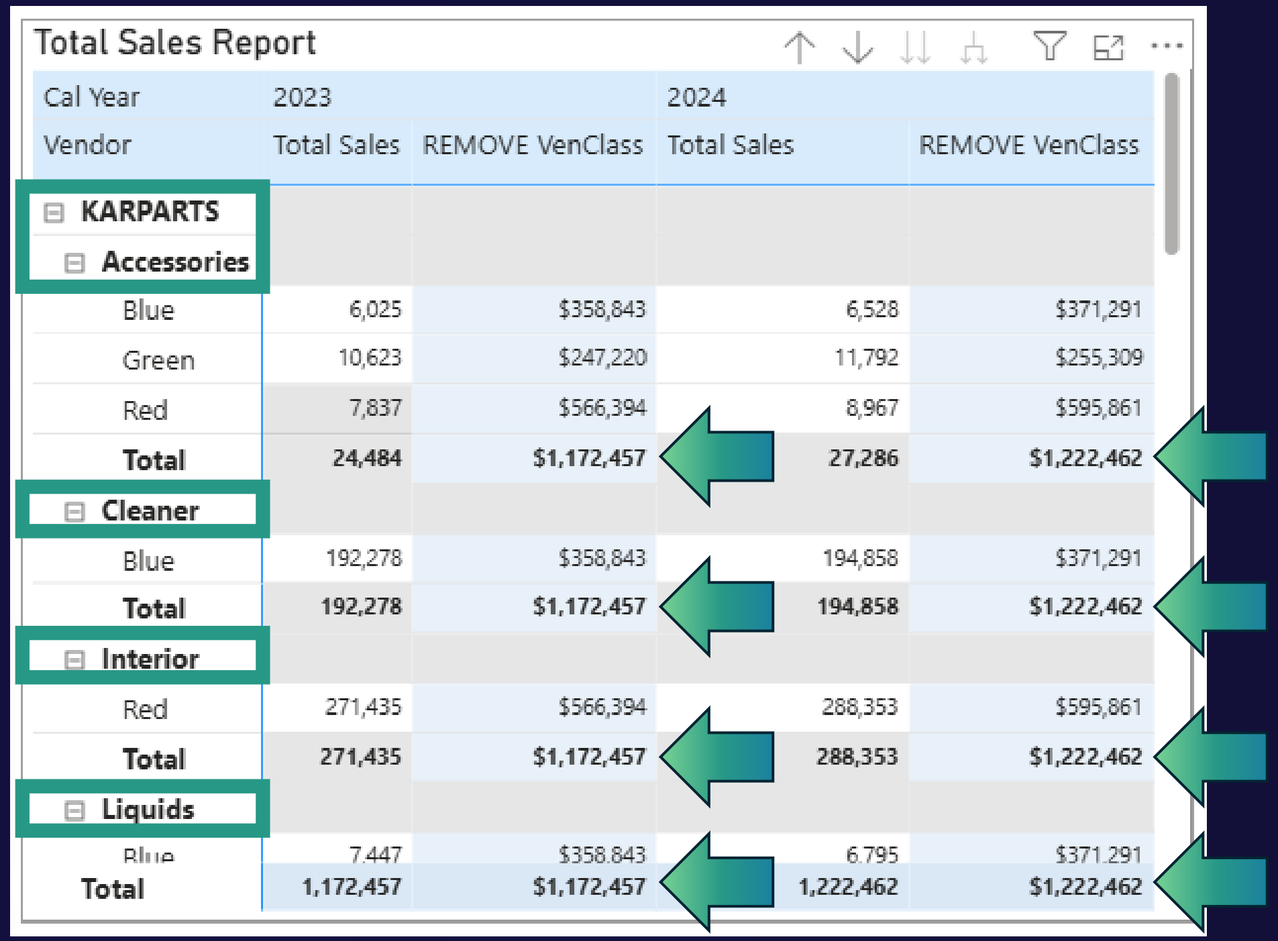
```
CALCULATE ( [Total Sales], ALL ( dim_Part[Vendor] ) )

CALCULATE ( [Total Sales], REMOVEFILTERS ( dim_Part[Vendor] ) )

CALCULATE ( [Total Sales], REMOVEFILTERS ( dim_Part[Vendor], dim_Part[Class] ) )
```

Calculate Modifiers

Use of ALL() or REMOVEFILTERS() to compute Ratios



Total Sales Report

Cal Year	2023		2024	
Vendor	Total Sales	REMOVE VenClass	Total Sales	REMOVE VenClass
KARPARTS				
Accessories				
Blue	6,025	$358,843	6,528	$371,291
Green	10,623	$247,220	11,792	$255,309
Red	7,837	$566,394	8,967	$595,861
Total	**24,484**	**$1,172,457**	**27,286**	**$1,222,462**
Cleaner				
Blue	192,278	$358,843	194,858	$371,291
Total	**192,278**	**$1,172,457**	**194,858**	**$1,222,462**
Interior				
Red	271,435	$566,394	288,353	$595,861
Total	**271,435**	**$1,172,457**	**288,353**	**$1,222,462**
Liquids				
Blue	7,447	$358,843	6,795	$371,291
Total	**1,172,457**	**$1,172,457**	**1,222,462**	**$1,222,462**

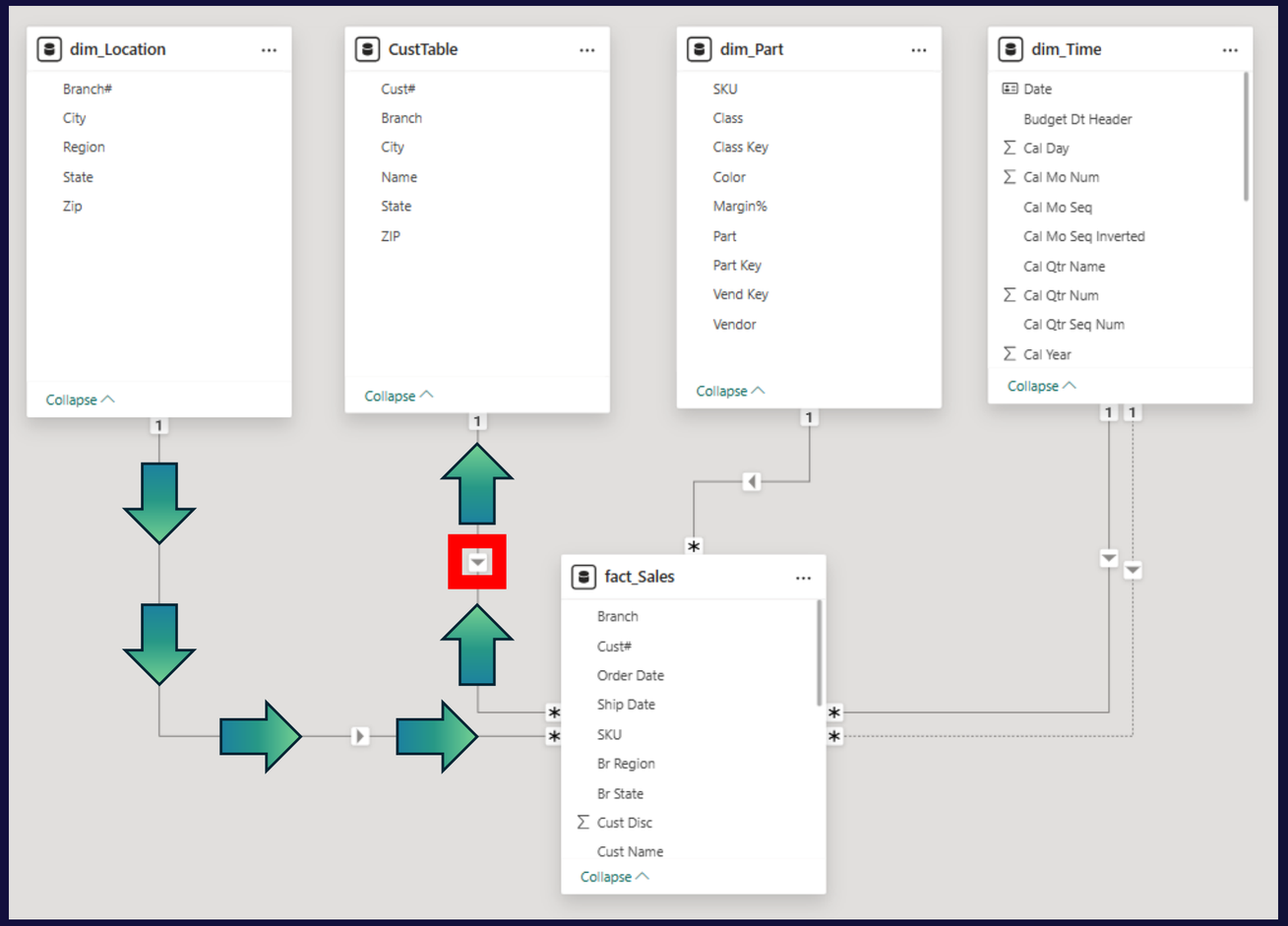
3

CALCULATE MODIFIERS

Modify Original Filters
From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

Calculate Modifiers
CROSSFILTER()



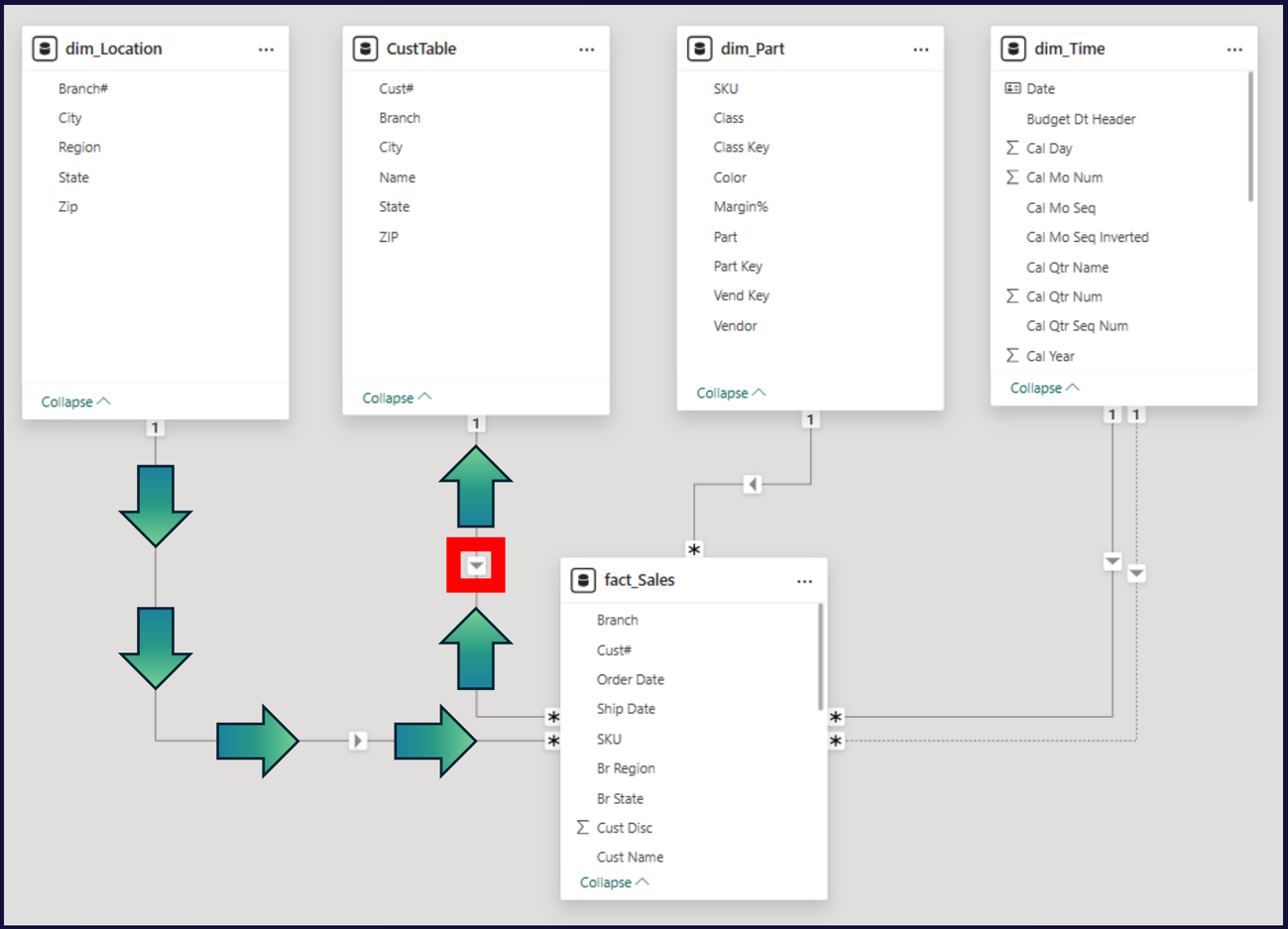
3
CALCULATE MODIFIERS

Modify Original Filters
From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

```
CALCULATE (
    COUNTROWS ( CustTable ),
    CROSSFILTER (
      fact_Sales[Cust#],
      CustTable[Cust#],
      BOTH
    )
)
```

Calculate Modifiers
CROSSFILTER()



3
CALCULATE MODIFIERS

Modify Original Filters
From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

```
CALCULATE (
    COUNTROWS ( CustTable ),
    CROSSFILTER (
      fact_Sales[Cust#],
      CustTable[Cust#],
      BOTH
    )
)
```

Column Filter Predicates

Which DAX expressions are identical when evaluated?

HINT: Simple filters ignore other filters on the visual (Color = “Red”)

```
CALCULATE ( [Total Sales], dim_Part[Color] = "Red" )

CALCULATE ( [Total Sales], FILTER ( ALL ( dim_Part[Color] ), dim_Part[Color] = "Red" ) )

CALCULATE ( [Total Sales], FILTER ( VALUES ( dim_Part[Color] ), dim_Part[Color] = "Red" ) )
```

Column Filter Predicates

Which DAX expressions are identical when evaluated?

Total Sales Report

Cal Year	2024			
Vendor	Total Sales	Color Red (L4)	Color ALL Red (L4)	Color VALUES Red (L4)
TOPCLEAN				
Cleaner				
Blue	111,518	$69,580	$69,580	
Green	55,284	$69,580	$69,580	
Red	69,580	$69,580	$69,580	$69,580
Total	**236,382**	**$69,580**	**$69,580**	**$69,580**
Liquids				
Blue	5,669	$3,093	$3,093	
Green	4,384	$3,093	$3,093	
Red	3,093	$3,093	$3,093	$3,093
Total	**13,146**	**$3,093**	**$3,093**	**$3,093**
Repair				
Blue	5,583	$40,538	$40,538	
Green	11,538	$40,538	$40,538	
Red	40,538	$40,538	$40,538	$40,538
Total	**57,658**	**$40,538**	**$40,538**	**$40,538**
Total	**307,185**	**$113,210**	**$113,210**	**$113,210**
Total	**307,185**	**$113,210**	**$113,210**	**$113,210**

4

ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

Column Filter Predicates

Which DAX expressions are identical when evaluated?

4

ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

HINT: Simple filters ignore other filters on the visual (Color = “Red”)

```
CALCULATE ( [Total Sales], dim_Part[Color] = "Red" )
```

```
CALCULATE ( [Total Sales], FILTER ( ALL ( dim_Part[Color] ), dim_Part[Color] = "Red" ) )

CALCULATE ( [Total Sales], FILTER ( VALUES ( dim_Part[Color] ), dim_Part[Color] = "Red" ) )
```

Table Iterator

Table Function
VALUES() respects filter context

Filter expression

Resolving Filter Conflicts

Competing filters: Impossible ‘AND’

Total Sales Report

Cal Year	2024	
Vendor	Total Sales	Color Red Blue (L4)
⊟ **TOPCLEAN**		
⊟ **Cleaner**		
Blue	111,518	
Green	55,284	
Red	69,580	
Total	**236,382**	
⊟ **Liquids**		
Blue	5,669	
Green	4,384	
Red	3,093	
Total	**13,146**	
⊟ **Repair**		
Blue	5,583	
Green	11,538	
Red	40,538	
Total	**57,658**	
Total	**307,185**	
Total	**307,185**	

4

ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

```
CALCULATE ( [Total Sales],
      dim_Part[Color] = "Red",
      dim_Part[Color] = "Blue“
)
```

Competing Filters and Nested CALCULATE()s

Innermost filter wins

5
KEEPFILTERS

Multiple filters in CALCULATE() “merge”

In nested CALCULATE()s, **inner filter OVERWRITES** the outer filter
(first evaluated CALCULATE filter)

Use **KEEPFILTERS()** to keep the inner filter from replacing the outer filter – “Intersect”

Competing Filters and Nested CALCULATE()s

Innermost filter wins

```
Compete Filters 1 = CALCULATE ( [Total Sales], dim_Part[Color] = "Red", dim_Part[Color] = "Blue" )

Compete Filters2 = CALCULATE (
        CALCULATE ( [Total Sales], dim_Part[Color] IN { "Red", "Blue" } ),
        dim_Part[Color] IN { "Green", "Blue" }
    )

Compete Filters3 = CALCULATE (
        CALCULATE (
            [Total Sales],
            KEEPFILTERS ( dim_Part[Color] IN { "Red", "Blue" } )
        ),
        dim_Part[Color] IN { "Green", "Blue" }
    )
```

5
KEEPFILTERS

Competing Filters and Nested CALCULATE()s

Innermost filter wins

5
KEEPFILTERS

Total Sales Report

Cal Year	2024			
Vendor	Total Sales	Compete Filters1 (L4)	Compete Filters2 (L4)	Compete Filters3 (L4)
KARPARTS				
Accessories				
Blue	6,528		$15,495	$6,528
Green	11,792		$15,495	$6,528
Red	8,967		$15,495	$6,528
Total	**27,286**		**$15,495**	**$6,528**
Cleaner				
Blue	194,858		$194,858	$194,858
Total	**194,858**		**$194,858**	**$194,858**
Interior				
Red	288,353		$288,353	
Total	**288,353**		**$288,353**	
Liquids				
Blue	6,795		$9,801	$6,795
Total	**1,222,462**		**$967,153**	**$371,291**

```
Compete Filters 1 =
CALCULATE ( [Total Sales],
      dim_Part[Color] = "Red",
      dim_Part[Color] = "Blue"
)
```

Competing Filters and Nested CALCULATE()s

Innermost filter wins

5
KEEPFILTERS

Total Sales Report

Cal Year	2024			
Vendor	Total Sales	Compete Filters1 (L4)	Compete Filters2 (L4)	Compete Filters3 (L4)
KARPARTS				
Accessories				
Blue	6,528		$15,495	$6,528
Green	11,792		$15,495	$6,528
Red	8,967		$15,495	$6,528
Total	**27,286**		**$15,495**	**$6,528**
Cleaner				
Blue	194,858		$194,858	$194,858
Total	**194,858**		**$194,858**	**$194,858**
Interior				
Red	288,353		$288,353	
Total	**288,353**		**$288,353**	
Liquids				
Blue	6,795		$9,801	$6,795
Total	**1,222,462**		**$967,153**	**$371,291**

```
Compete Filters2 =
CALCULATE (

      CALCULATE ( [Total Sales],
      dim_Part[Color] IN { "Red", "Blue" }
      ),

dim_Part[Color] ~~IN { "Green", "Blue" }~~

)
```

Competing Filters and Nested CALCULATE()s

Innermost filter wins

5
KEEPFILTERS

Total Sales Report

Cal Year	2024			
Vendor	Total Sales	Compete Filters1 (L4)	Compete Filters2 (L4)	Compete Filters3 (L4)
KARPARTS				
Accessories				
Blue	6,528		$15,495	$6,528
Green	11,792		$15,495	$6,528
Red	8,967		$15,495	$6,528
Total	**27,286**		**$15,495**	**$6,528**
Cleaner				
Blue	194,858		$194,858	$194,858
Total	**194,858**		**$194,858**	**$194,858**
Interior				
Red	288,353		$288,353	
Total	**288,353**		**$288,353**	
Liquids				
Blue	6,795		$9,801	$6,795
Total	**1,222,462**		**$967,153**	**$371,291**

```
Compete Filters3 =
CALCULATE (

      CALCULATE ( [Total Sales],
      KEEPFILTERS ( dim_Part[Color] IN {
            ~~"Red",~~ "Blue" } )
      ),

dim_Part[Color] IN { ~~"Green",~~ "Blue" }

)
```

(Not So)
Pop Quiz!

Challenge Question #1

USERELATIONSHIP() vs. TREATAS()

What is unseen here that is causing unexpected results with TREATAS()?

Total Sales Report

Date	Total Sales	USEREL (L3)	TREATAS (L4)
01/01/2024	4,252	$3,570	$519
01/02/2024	3,679	$3,164	$567
01/03/2024	3,005	$2,568	$360
01/04/2024	2,886	$2,509	$519
01/05/2024	2,592	$2,487	$349
01/06/2024	2,677	$2,967	$310
01/07/2024	2,109	$1,855	$214
01/08/2024	3,073	$2,958	$554
01/09/2024	2,929	$3,563	$496
01/10/2024	2,073	$3,462	$409
01/11/2024	3,207	$2,698	$592
01/12/2024	3,903	$3,095	$429
01/13/2024	3,380	$3,331	$487
01/14/2024	2,510	$2,859	$689
01/15/2024	4,237	$3,220	$1,430
01/16/2024	3,257	$3,237	$481
01/17/2024	3,025	$3,239	$890
01/18/2024	2,875	$4,047	$835
01/19/2024	3,655	$3,741	$873
01/20/2024	3,550	$2,893	$464
01/21/2024	2,764	$4,233	$247
01/22/2024	3,928	$3,964	$821
01/23/2024	3,461	$3,487	$450
Total	**1,222,462**	**$1,222,501**	**$1,212,281**

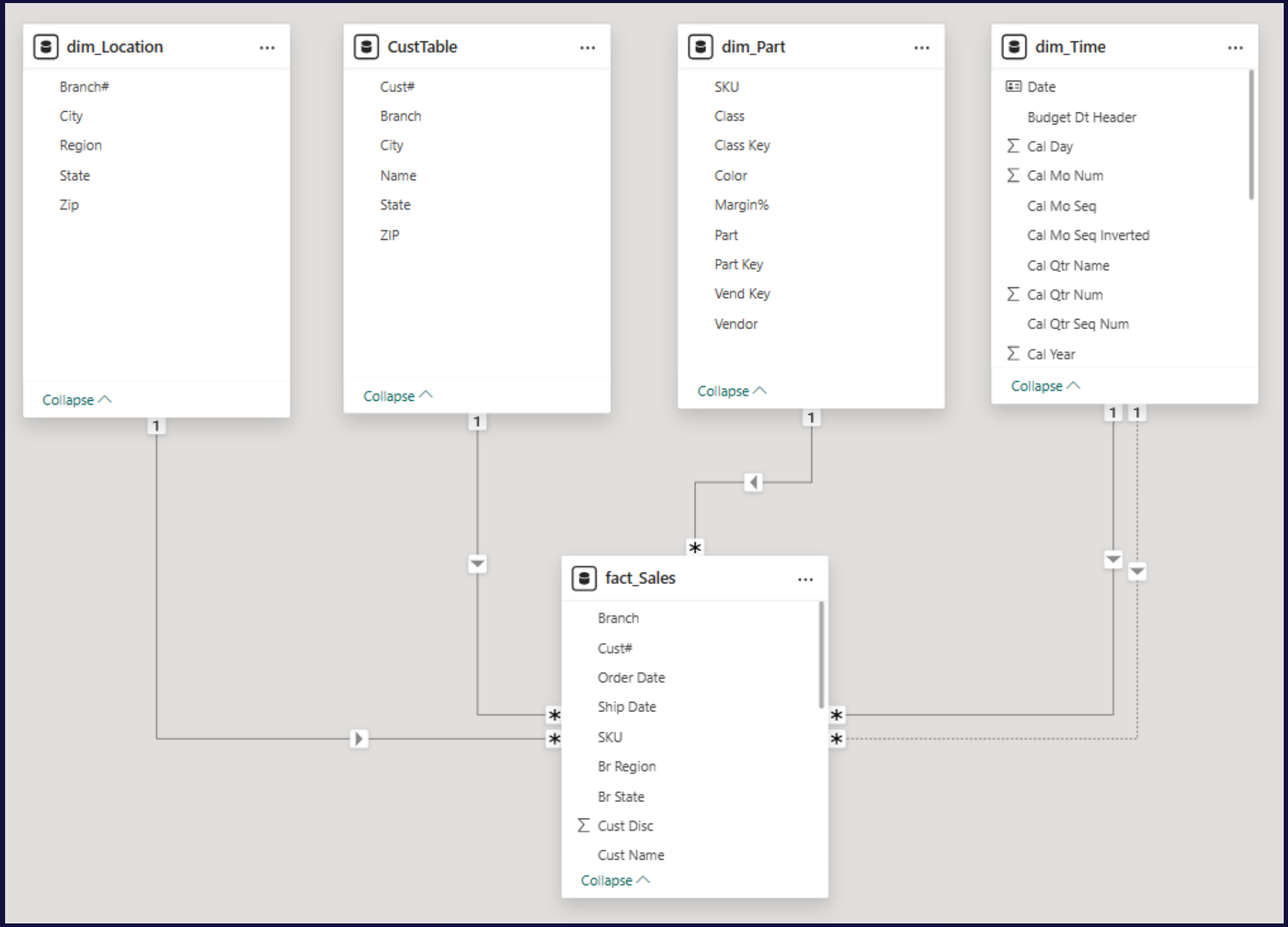
```
USEREL (L3) =
CALCULATE (
    [Total Sales],
    USERELATIONSHIP ( fact_Sales[Order Date], dim_Time[Date] )
)
```

```
TREATAS (L4) =
CALCULATE (
    [Total Sales],
    TREATAS ( VALUES ( dim_Time[Date] ), fact_Sales[Order Date] )
)
```

Challenge Question #1

USERELATIONSHIP() vs. TREATAS()

What is unseen here that is causing unexpected results with TREATAS()?



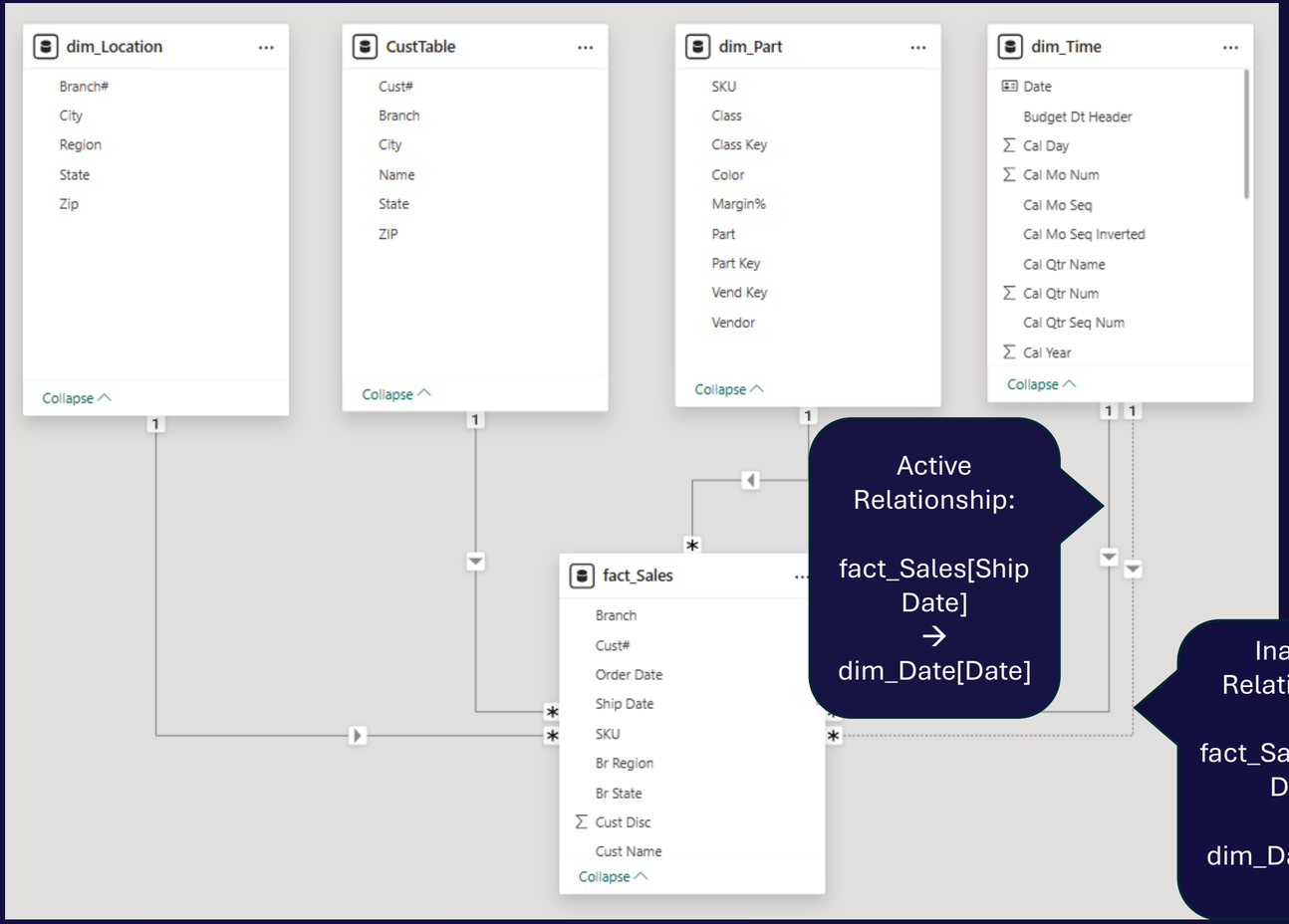

```
USEREL (L3) =
CALCULATE (
      [Total Sales],
      USERELATIONSHIP (
            fact_Sales[Order Date],
            dim_Time[Date] )
)

TREATAS (L4) =
CALCULATE (
      [Total Sales],
      TREATAS ( VALUES ( dim_Time[Date]),
      fact_Sales[Order Date] )
)
```

Challenge Question #1

USERELATIONSHIP() vs. TREATAS()

What is unseen here that is causing unexpected results with TREATAS()?



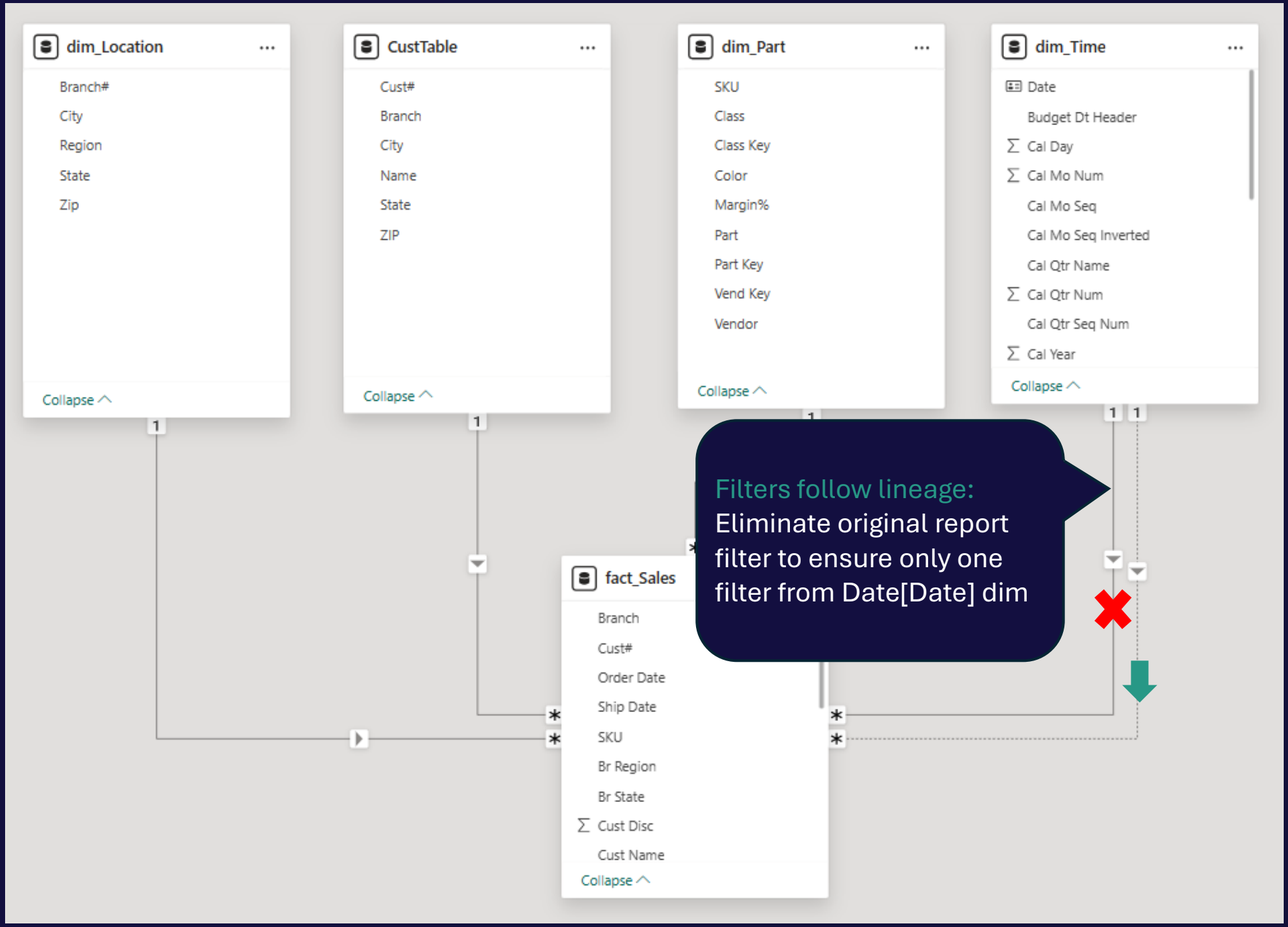

```
USEREL (L3) =
CALCULATE (
        [Total Sales],
        USERELATIONSHIP (
                fact_Sales[Order Date],
                dim_Time[Date] )
)

TREATAS (L4) =
CALCULATE (
        [Total Sales],
        TREATAS ( VALUES ( dim_Time[Date]),
        fact_Sales[Order Date] )
```

Challenge Question #1

USERELATIONSHIP() vs. TREATAS()

What is unseen here that is causing unexpected results with TREATAS()?




```
USEREL (L3) =
CALCULATE (
      [Total Sales],
      USERELATIONSHIP (
            fact_Sales[Order Date],
            dim_Time[Date] )
)

TREATAS (L4) =
CALCULATE (
      [Total Sales],
      TREATAS ( VALUES ( dim_Time[Date]),
      fact_Sales[Order Date] )
)
```

Challenge Question #1

USERELATIONSHIP() vs. TREATAS()

What is unseen here that is causing unexpected results with TREATAS()?

Total Sales Report

Date	Total Sales	USEREL (L3)	TREATAS (L4)	TREATAS (L4) RF
01/01/2024	4,252	$3,570	$519	$3,570
01/02/2024	3,679	$3,164	$567	$3,164
01/03/2024	3,005	$2,568	$360	$2,568
01/04/2024	2,886	$2,509	$519	$2,509
01/05/2024	2,592	$2,487	$349	$2,487
01/06/2024	2,677	$2,967	$310	$2,967
01/07/2024	2,109	$1,855	$214	$1,855
01/08/2024	3,073	$2,958	$554	$2,958
01/09/2024	2,929	$3,563	$496	$3,563
01/10/2024	2,073	$3,462	$409	$3,462
01/11/2024	3,207	$2,698	$592	$2,698
01/12/2024	3,903	$3,095	$429	$3,095
01/13/2024	3,380	$3,331	$487	$3,331
01/14/2024	2,510	$2,859	$689	$2,859
01/15/2024	4,237	$3,220	$1,430	$3,220
01/16/2024	3,257	$3,237	$481	$3,237
01/17/2024	3,025	$3,239	$890	$3,239
01/18/2024	2,875	$4,047	$835	$4,047
01/19/2024	3,655	$3,741	$873	$3,741
01/20/2024	3,550	$2,893	$464	$2,893
01/21/2024	2,764	$4,233	$247	$4,233
01/22/2024	3,928	$3,964	$821	$3,964
Total	**1,222,462**	**$1,222,501**	**$1,212,281**	**$1,212,281**

```
TREATAS (L4) RF =
CALCULATE (
    [Total Sales],
    ???( dim_Time[Date] ),
    TREATAS ( VALUES ( dim_Time[Date] ), fact_Sales[Order Date] )
)
```

```
TREATAS (L4) RF =
CALCULATE ( [Total Sales],
REMOVEFILTERS ( dim_Time[Date] ), TREATAS ( VALUES ( dim_Time[Date] ), fact_Sales[Order Date] ) )
```

5
KEEPFILTERS

1
ORIGINAL REPORT FILTERS

Report Level Filters and User Selections

2
TABLE ROWS > FILTERS: Context Transition

Remove and Replace matching filters from Level 1

3
CALCULATE MODIFIERS

Modify Original Filters From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

4
ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

Table Function	Filtered by orig FC?	Invalid Blank Row?
Color = Red	Ignores FC on Col	Blank Row
ALL (Table)	Ignores FC on Cols	Blank Row
ALLNOBLANKROW	Ignores FC on Cols	No Blank
VALUES	Yes, can restore FC	Blank Row
DISTINCT	Yes, can restore FC	No Blank
FILTER/Whole Table	Yes	No Blank

Attract original report filters (outer & inner)

Attract original table filters - Context Transition

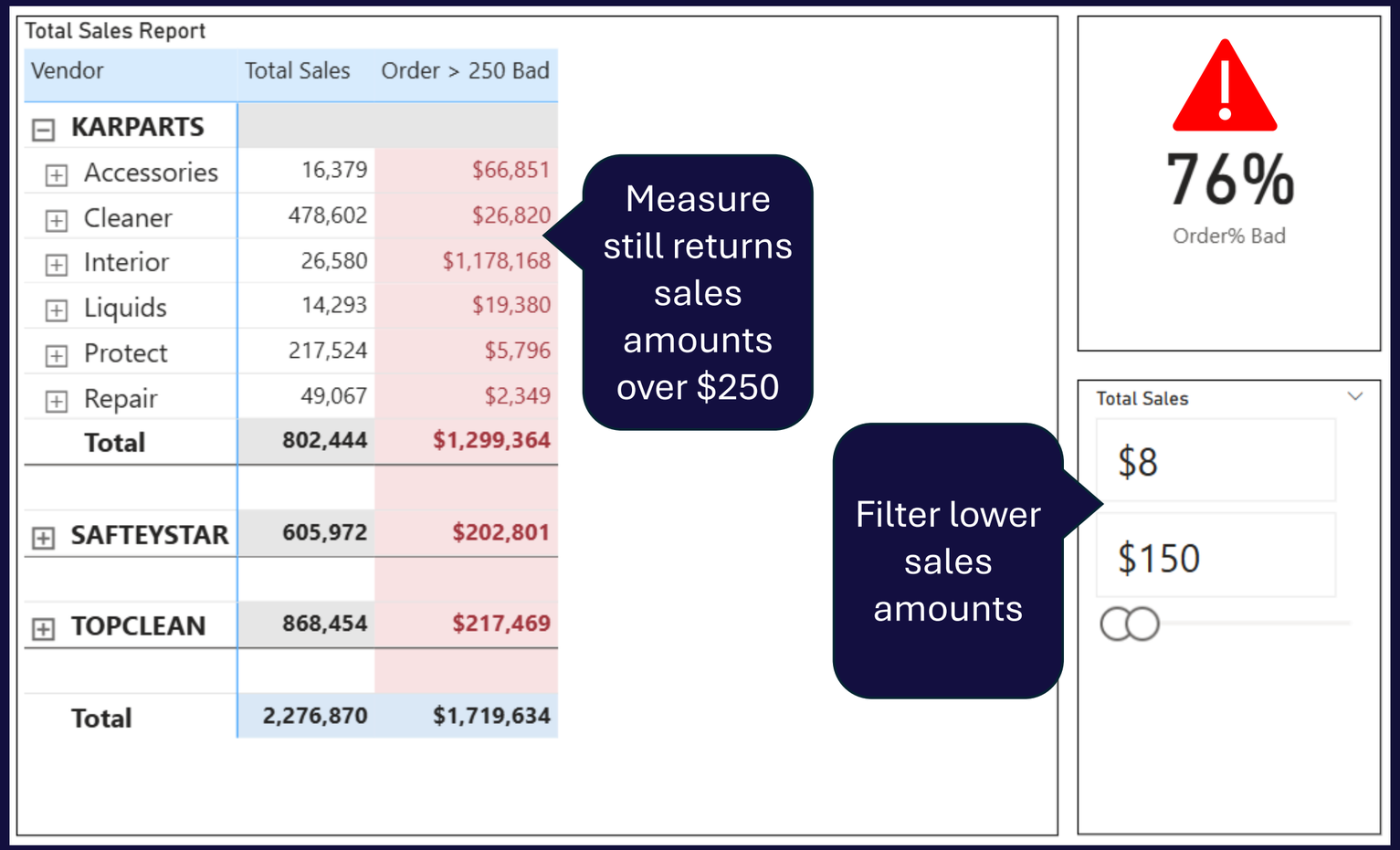
Alter filters - CALCULATE Modifiers

Add new table filters

Filter Modifier – KEEPFILTERS()

Challenge Question #2

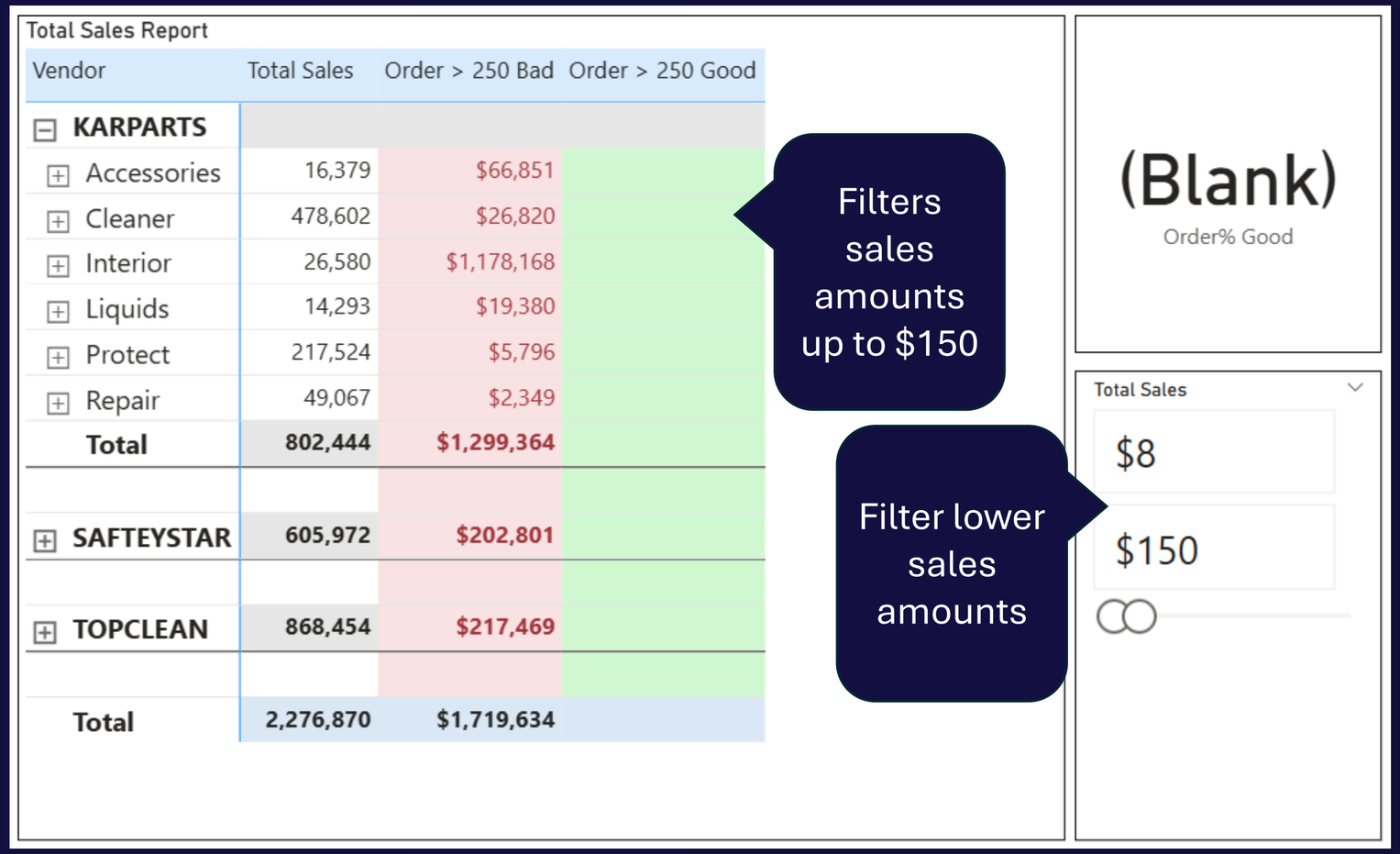
Slicer not filtering large orders?




```
Order > 250 Bad =
CALCULATE ( [Total Sales],
fact_Sales[Total Sales] > 250
)
```

Challenge Question #2

Slicer not filtering large orders?




```
Order > 250 Good =
CALCULATE ( [Total Sales],
        ???
        fact_Sales[Total Sales]
        > 250
)
)
```

Order of Evaluation

Priority: First to Last

KEEPFILTERS() builds a barrier around Level 2-4, preventing each from impacting lower-level filter arguments

5
KEEPFILTERS

1
ORIGINAL REPORT FILTERS

Report Level Filters and User Selections

2
TABLE ROWS > FILTERS: Context Transition

Remove and Replace matching filters from Level 1

3
CALCULATE MODIFIERS

Modify Original Filters From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

4
ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

Table Function	Filtered by orig FC?	Invalid Blank Row?
Color = Red	Ignores FC on Col	Blank Row
ALL (Table)	Ignores FC on Cols	Blank Row
ALLNOBLANKROW	Ignores FC on Cols	No Blank
VALUES	Yes, can restore FC	Blank Row
DISTINCT	Yes, can restore FC	No Blank
FILTER/Whole Table	Yes	No Blank

Attract original report filters (outer & inner)

Attract original table filters - Context Transition

Alter filters - CALCULATE Modifiers

Add new table filters

Filter Modifier – KEEPFILTERS()

Order of Evaluation

Priority: First to Last

5
KEEPFILTERS

1
ORIGINAL REPORT FILTERS

Report Level Filters and User Selections

2
TABLE ROWS > FILTERS: Context Transition

Remove and Replace matching filters from Level 1

3
CALCULATE MODIFIERS

Modify Original Filters From Layers 1-2

REMOVEFILTERS()
USERELATIONSHIP()
CROSSFILTER()

4
ADD EXPLICIT FILTERS

Remove and Replace filters from Layers 1-3

Table Function	Filtered by orig FC?	Invalid Blank Row?
Color = Red	Ignores FC on Col	Blank Row
ALL (Table)	Ignores FC on Cols	Blank Row
ALLNOBLANKROW	Ignores FC on Cols	No Blank
VALUES	Yes, can restore FC	Blank Row
DISTINCT	Yes, can restore FC	No Blank
FILTER/Whole Table	Yes	No Blank

Attract original report filters (outer & inner)

Attract original table filters - Context Transition

Alter filters - CALCULATE Modifiers

Add new table filters

Filter Modifier – KEEPFILTERS()

Complete Session Surveys in **Whova** for your chance to WIN PRIZES!