

- **Puzzle 1: Confusing Totals**

- **Visual: Table**
- **Columns: Product, Sales, Quantity, Sales / Quantity (as a new column)**
- **Problem: The total of Sales / Quantity doesn't match the sum of individual rows.**



- **Question: Why is the total different? How would you rewrite the DAX to get the correct total?**

In DAX, measures aggregate first, then compute.

Calculated columns compute row-by-row, then aggregate

Structure

Formatting

Properties

measure measure

Calculations

1 Total of Sales/Quantity = SUM(sales_with_geodata[Sales])/SUM(sales_with_geodata[Quantity])

OrderID	Customer	Product	Category	Sales	Quantity	OrderDate	City	Region	Country	Latitude	Longitude	Units sold
1052	Bob	Printer	Accessories	540.73	8	Friday, March 15, 2024	Singapore	Central Region	Singapore	1.3521	103.8198	68
1053	Charlie	Printer	Accessories	250.85	2	Sunday, March 17, 2024	Toronto	Ontario	Canada	43.651	-79.347	125
1059	Hannah	Printer	Accessories	393.67	8	Thursday, February 1, 2024	Sydney	New South Wales	Australia	-33.8688	151.2093	49
1061	Isaac	Printer	Accessories	488.83	4	Thursday, February 22, 2024	Tokyo	Tokyo	Japan	35.6895	139.6917	122
1067	Grace	Printer	Accessories	478.77	7	Tuesday, February 13, 2024	Cape Town	Western Cape	South Africa	-33.9249	18.4241	68
1068	Isaac	Printer	Accessories	497.2	2	Monday, March 25, 2024	Dubai	Dubai	UAE	25.276987	55.296249	249
1073	Isaac	Printer	Accessories	269.94	8	Thursday, February 22, 2024	London	England	UK	51.5074	-0.1278	34
1077	Noah	Printer	Accessories	345.91	9	Wednesday, February 7, 2024	Cape Town	Western Cape	South Africa	-33.9249	18.4241	38
1079	Noah	Printer	Accessories	318.94	1	Monday, February 26, 2024	London	England	UK	51.5074	-0.1278	319
1084	Alice	Printer	Accessories	374.9	6	Thursday, March 14, 2024	Dubai	Dubai	UAE	25.276987	55.296249	62
1094	Isaac	Printer	Accessories	397.3	10	Tuesday, March 19, 2024	Toronto	Ontario	Canada	43.651	-79.347	40
1106	Liam	Printer	Accessories	578.28	9	Monday, January 29, 2024	Berlin	Berlin	Germany	52.52	13.405	64
1112	Ava	Printer	Accessories	206	9	Monday, January 15, 2024	Los Angeles	California	USA	34.0522	-118.2437	23
1114	Jack	Printer	Accessories	415.36	8	Friday, March 22, 2024	Mexico City	Mexico City	Mexico	19.4326	-99.1332	52
1115	Charlie	Printer	Accessories	264.86	3	Saturday, February 3, 2024	Toronto	Ontario	Canada	43.651	-79.347	88
1116	Jack	Printer	Accessories	546.26	6	Thursday, January 18, 2024	New York	New York	USA	40.7128	-74.006	91
1122	Hannah	Printer	Accessories	351.87	4	Sunday, February 25, 2024	Mumbai	Maharashtra	India	19.076	72.8777	88
1133	Alice	Printer	Accessories	300.13	1	Wednesday, February 14, 2024	New York	New York	USA	40.7128	-74.006	300
1143	Bob	Printer	Accessories	207.49	7	Tuesday, February 13, 2024	Berlin	Berlin	Germany	52.52	13.405	30
1144	Charlie	Printer	Accessories	309.53	4	Monday, January 15, 2024	Sydney	New South Wales	Australia	-33.8688	151.2093	77
1155	Emma	Printer	Accessories	297.61	2	Tuesday, February 27, 2024	Los Angeles	California	USA	34.0522	-118.2437	149
1161	Charlie	Printer	Accessories	285.46	3	Tuesday, January 16, 2024	Singapore	Central Region	Singapore	1.3521	103.8198	95
1165	Bob	Printer	Accessories	406.68	10	Saturday, March 16, 2024	Cape Town	Western Cape	South Africa	-33.9249	18.4241	41
1168	David	Printer	Accessories	399.13	7	Wednesday, January 10, 2024	Paris	Île-de-France	France	48.8566	2.3522	57
1169	Bob	Printer	Accessories	331.26	4	Friday, February 16, 2024	Mexico City	Mexico City	Mexico	19.4326	-99.1332	83
1173	Bob	Printer	Accessories	556.56	3	Saturday, March 30, 2024	São Paulo	São Paulo	Brazil	-23.5505	-46.6333	186
1177	Liam	Printer	Accessories	508.46	1	Monday, March 11, 2024	New York	New York	USA	40.7128	-74.006	508

Data

Quick measure

sales_with_geodata

Category

City

Country

Customer

Latitude

Longitude

OrderDate

OrderID

Product

Quantity

Region

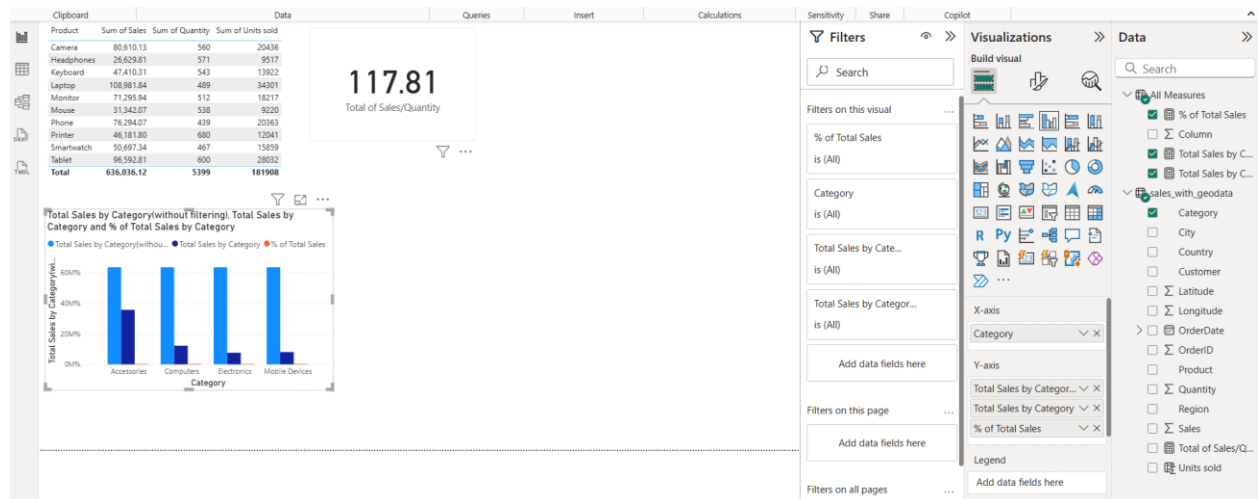
Sales

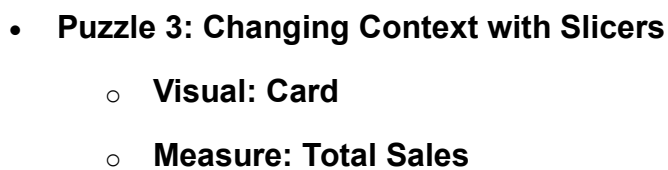
Total of Sales/Quantity

Units sold

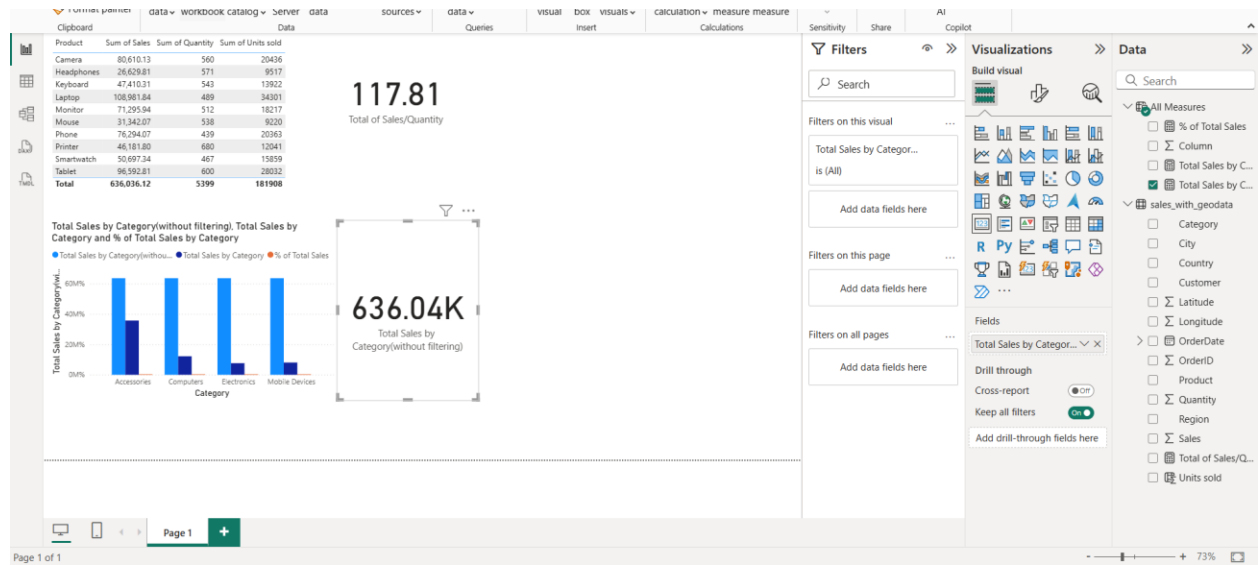
- **Puzzle 2: Filtered vs. Unfiltered Totals**

- **Visual: Bar Chart**
- **Values: Total Sales (explicit measure), Total Sales (All Categories)**
- **Axis: Category**
- **Task: Write two measures:**
- **One for total sales per category.**
- **One ignoring the axis filter (always total sales for all categories).**
- **Bonus: Add a % of total column.**

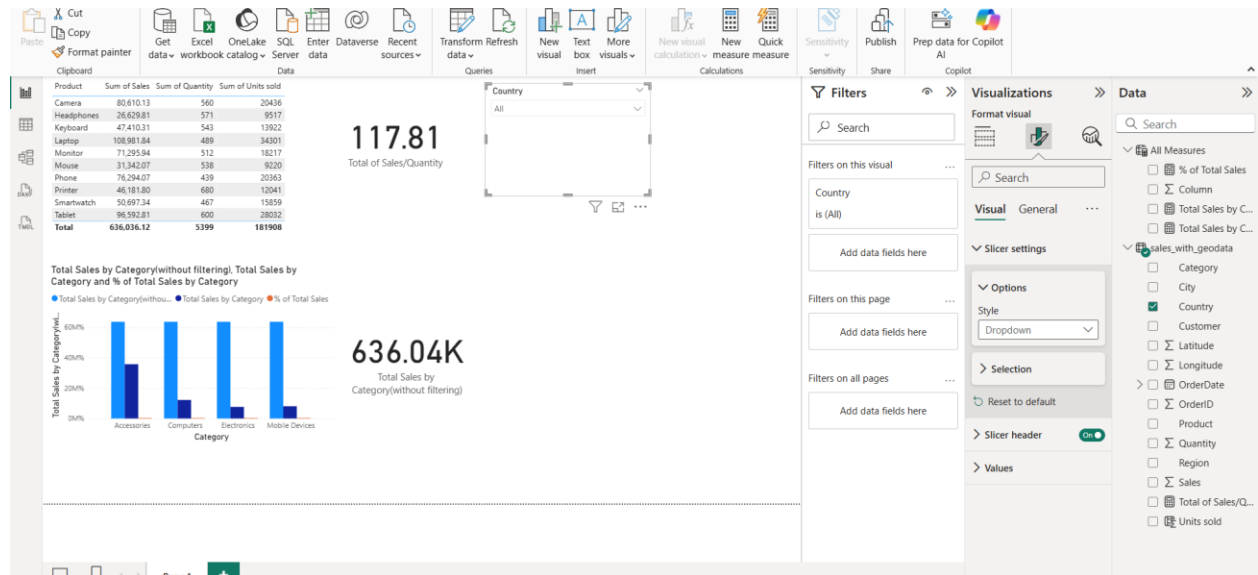




- **Visual: Card**
- **Measure: Total Sales**



- Task: Add a slicer for Country.



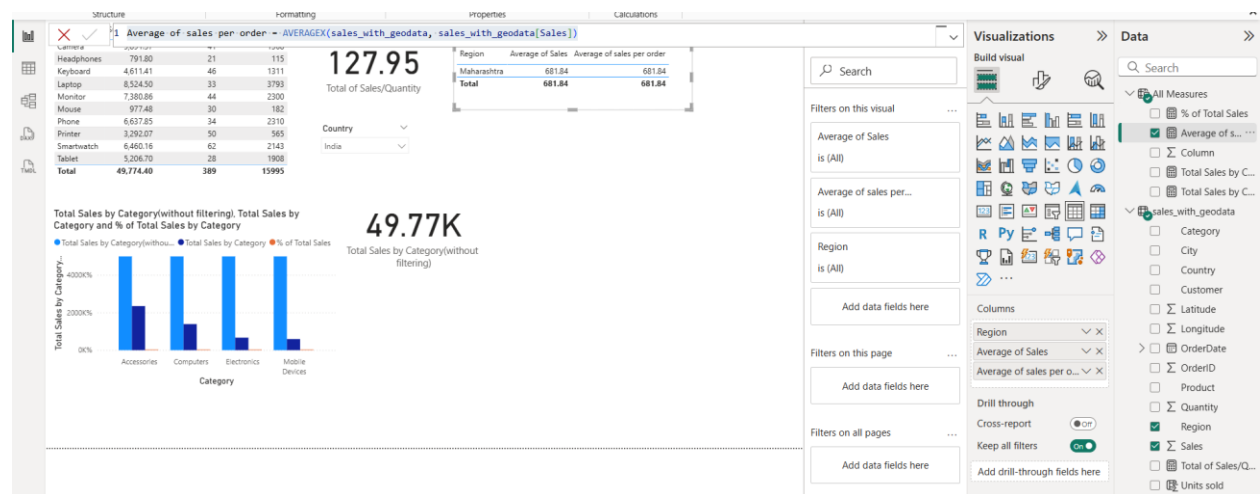
- Question: Why does the card change when you select different countries?
- Because the card visual is filtered by the selected country, so the measure updates based on the current selection. If you want the card not to change when selecting different countries, you can use the ALL() function in DAX to remove the country filter. Follow-Up: Add a second measure to ignore the slicer.

• Puzzle 4: Misleading Average

- Visual: Table

- **Columns: Region, Average Sales per Order**
- **Problem: You calculate Average Sales using:**
- **Average Sales = [Total Sales] / [Total Orders]**
- **But results are incorrect in visual.**
- **Question: Why doesn't this work as expected in a visual?**

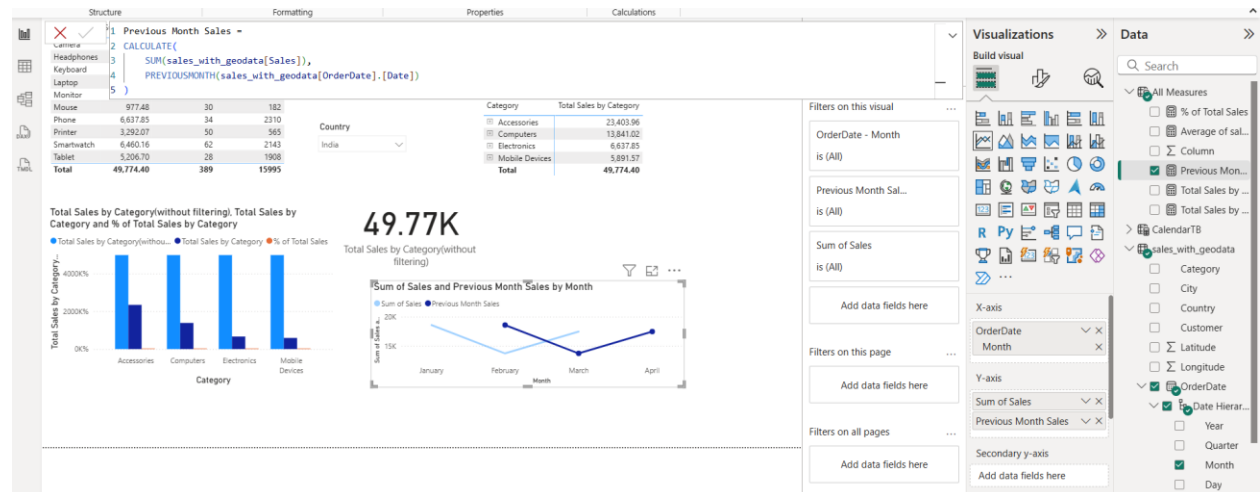
The measure divides two totals, which can give incorrect results when the visual groups data (like by Region). It doesn't calculate the real average per order. Using AVERAGEX gives the correct average by going order by order inside each group.



in this context both can be the same, but sometimes with more complex data there might be mismatches

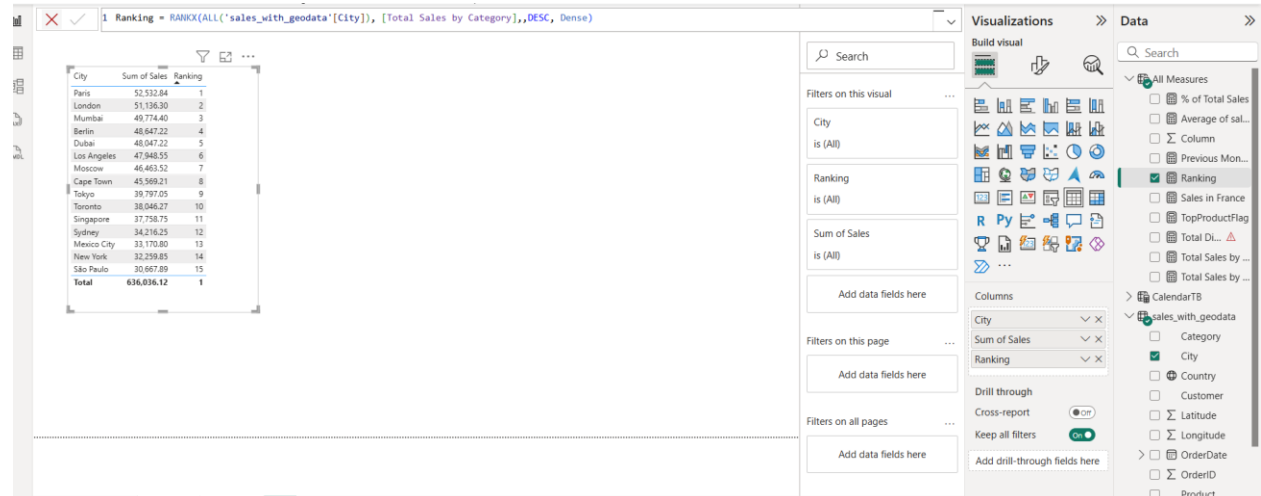
- **Puzzle 5: Highlight Top Product per Category**
 - **Visual: Matrix**
 - **Rows: Category, Product**
 - **Values: Total Sales**
 - **Task: Add a visual-level filter to show only the top-selling product per category.**
- **Puzzle 6: Unexpected Blank Values**
 - **Visual: Table**
 - **Columns: Customer, Sales in France**

- **Measure: Sales in France = CALCULATE(SUM(Sales[Sales]), Sales[Country] = "France")**
- **Problem: Some customers have blank values even though they made purchases.**
- **Question: Why? How to fix it?**
- **Puzzle 7: Time Intelligence Confusion**
 - **Visual: Line chart**
 - **Axis: OrderDate (by Month)**
 - **Values: Sales, Previous Month Sales**
 - **Task: Add a line for previous month's sales.**
 - **Challenge: Handle edge cases like first month of year or missing months.**



- **Puzzle 8: Row-Level Calculation**
 - **Visual: Table**
 - **Columns: Product, Quantity, Discount per Unit, Total Discount**
 - **Measure: Total Discount = SUMX(Sales, Sales[Quantity] * Sales[Discount per Unit])**
 - **Question: Why use SUMX() instead of just multiplying two columns?**
- **Puzzle 9: Rank with Ties**
 - **Visual: Table**

- **Columns: City, Total Sales, Rank**
- **Challenge: Use RANKX() to handle ties correctly and allow descending/ascending logic.**



• **Puzzle 10: Dynamic Titles and KPIs**

- **Visual: Card and Title**
- **Task: Show a dynamic card title that changes based on slicer (e.g., selected country).**
- **Measure: Title = "Sales for " & SELECTEDVALUE(Sales[Country], "All Countries")**

