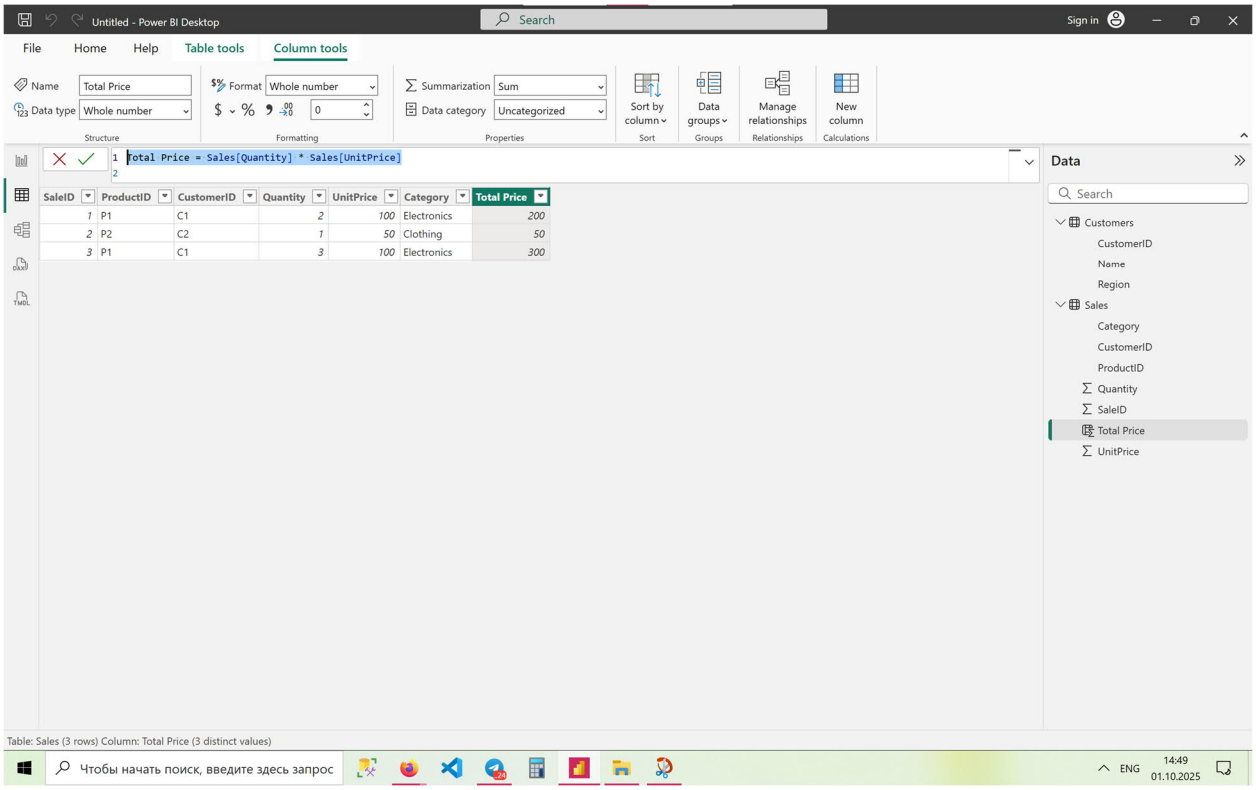
Lesson 9 — DAX Context, CALCULATE, Variables

1. What is row context? Give an example in a calculated column.

- **Row context** means DAX evaluates each row one by one.
- In a calculated column, row context happens automatically.

Example:

Total Price = Sales[Quantity] * Sales[UnitPrice]



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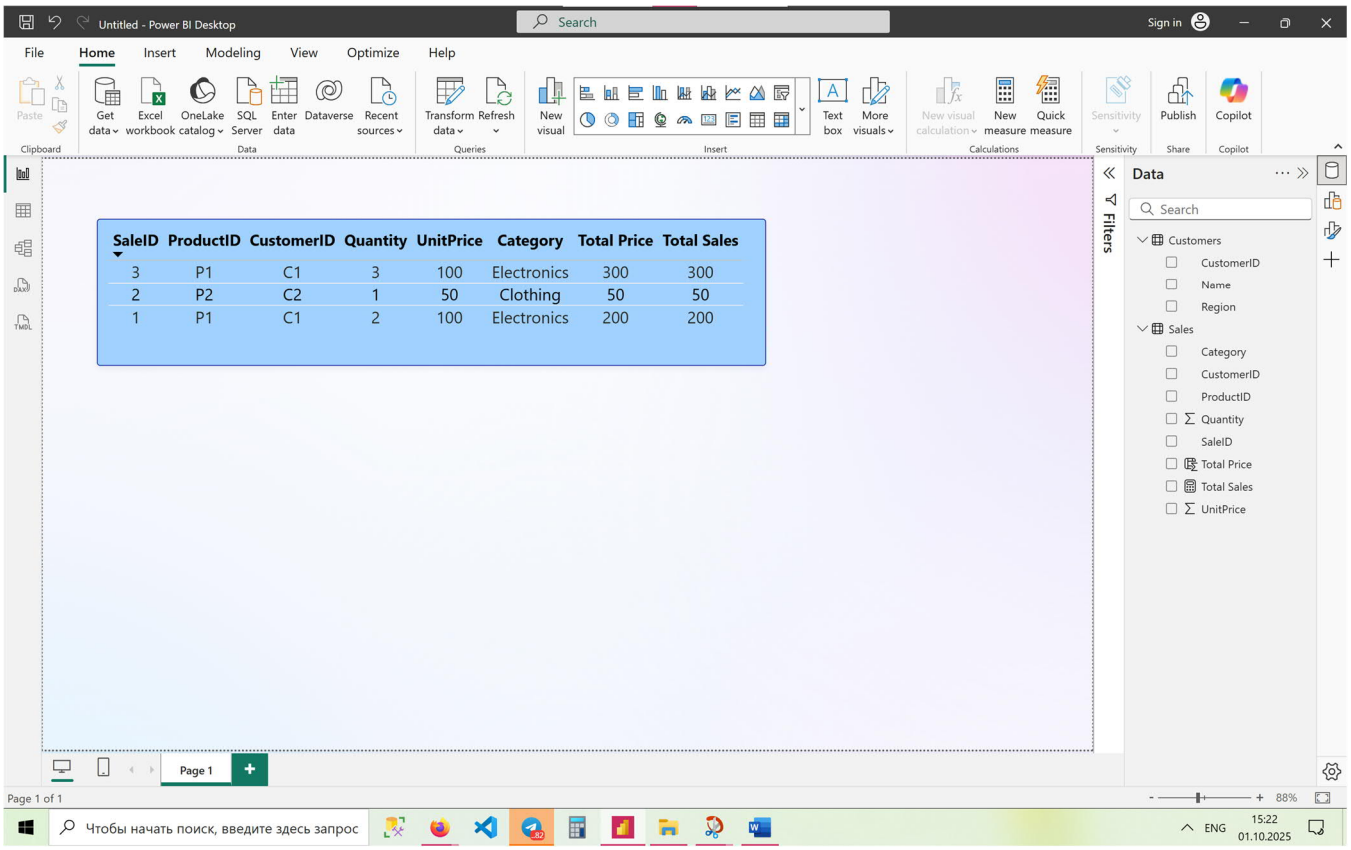
2. Write a measure that finds total sales

Total Sales = SUMX(Sales, Sales[Quantity] * Sales[UnitPrice])



There we can see the difference between Total price, which is created as new column, and Total Sales, witch is a new measure

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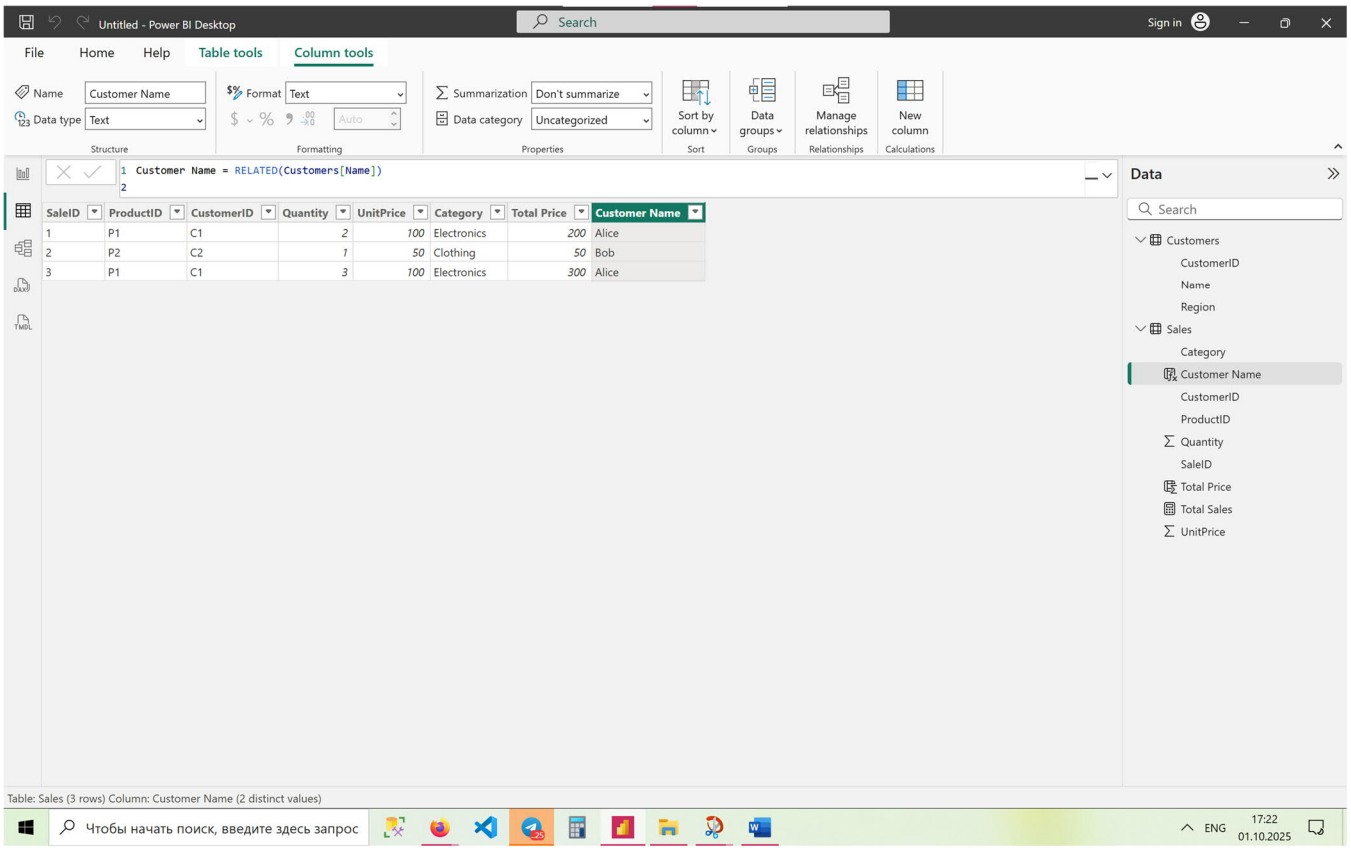
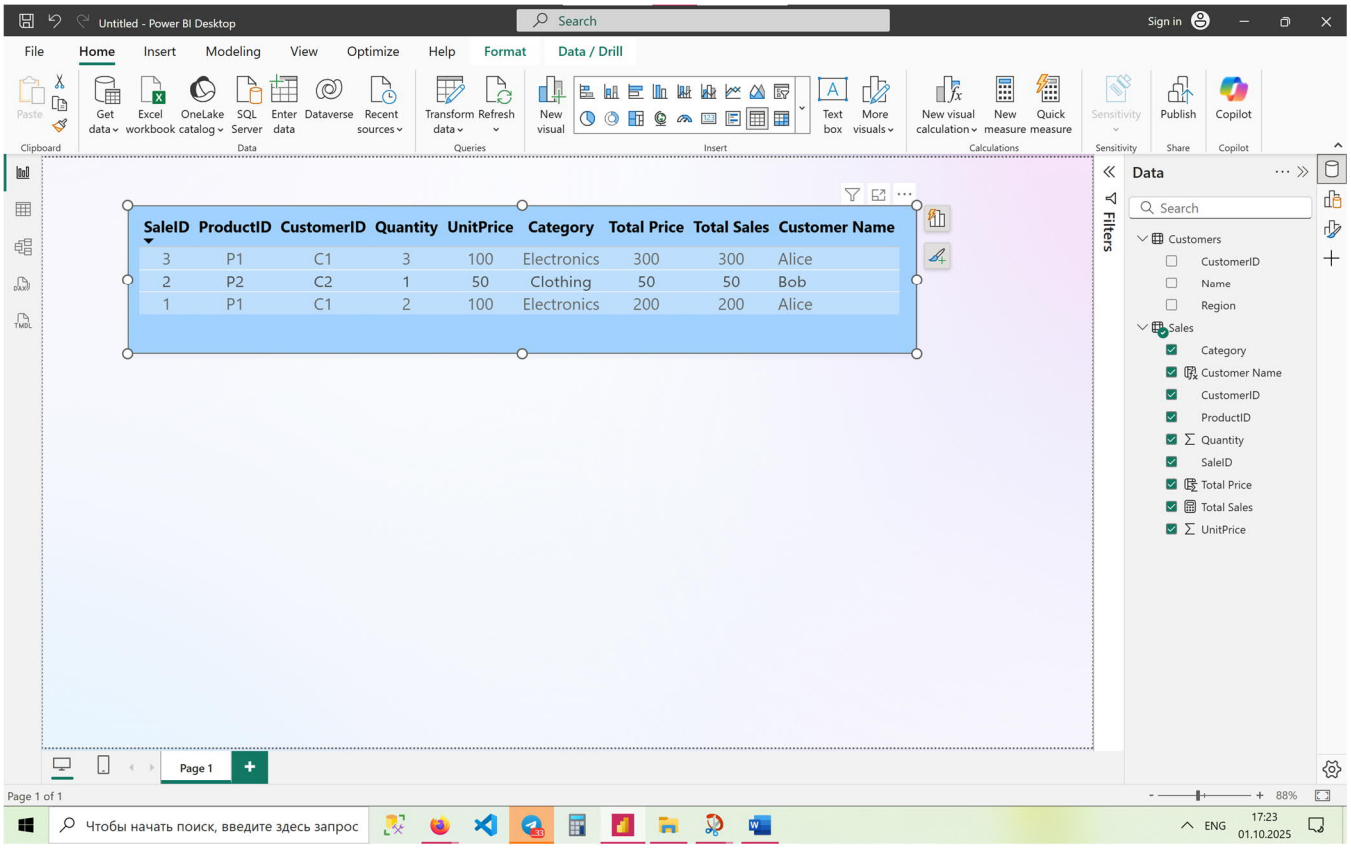
3. Use RELATED to fetch the Name from the Customers table into the Sales table

CustomerName = RELATED(Customers[Name])





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4. What does

CALCULATE(SUM(Sales[Quantity]), Sales[Category] = "Electronics")

return?

- It returns the sum of Quantity only for rows where Category = "Electronics".

👉 👉 the sample table: 2 + 3 = **5**.

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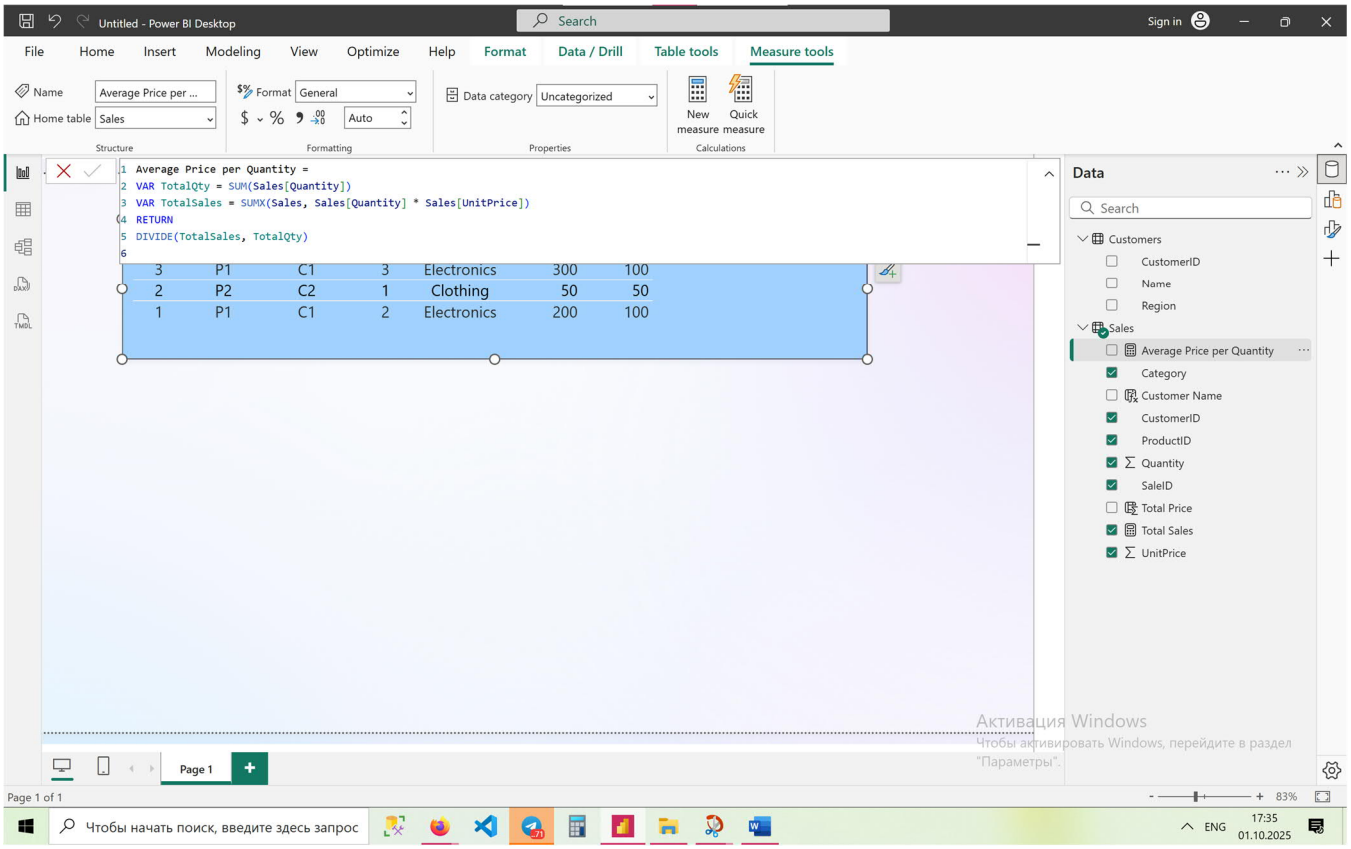
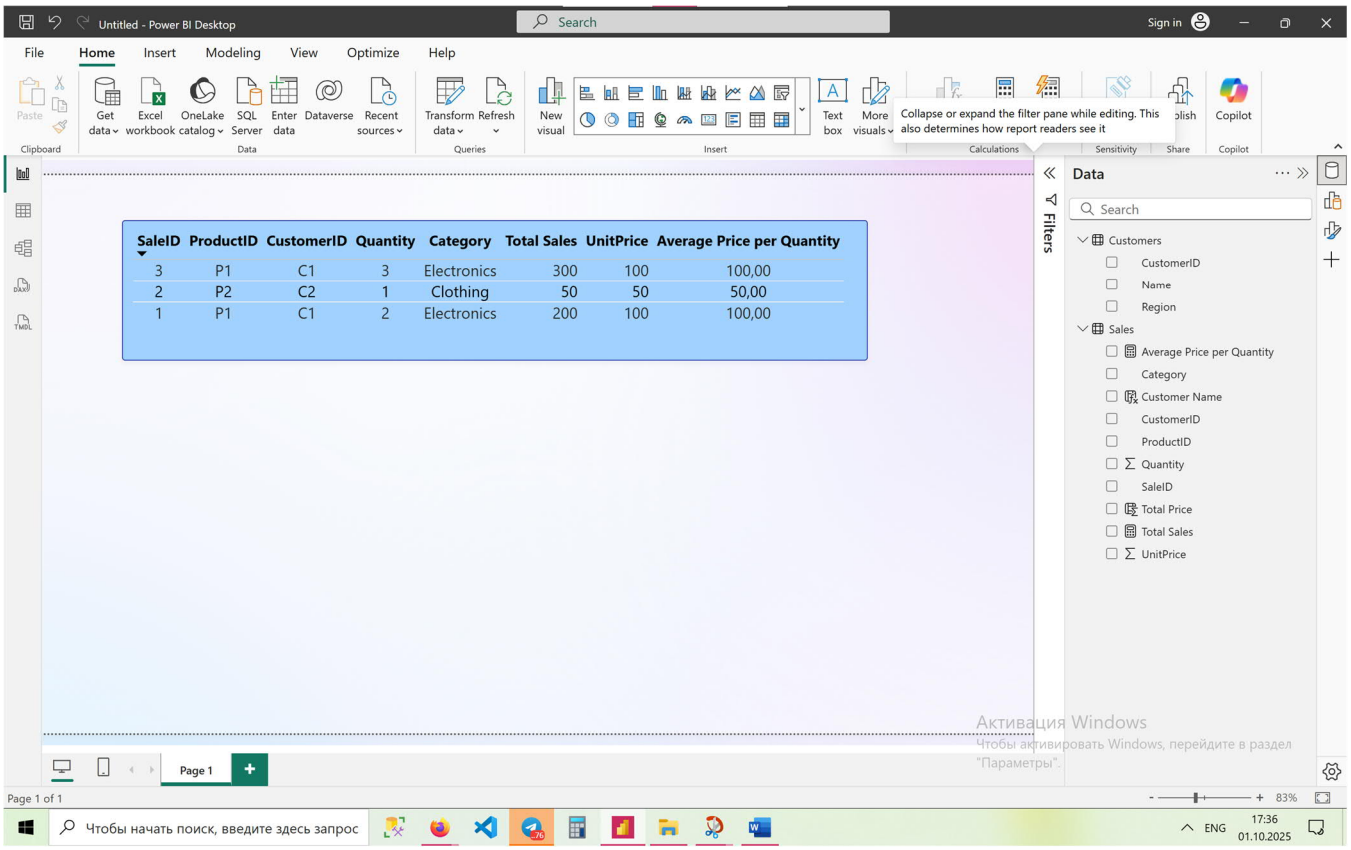
5. Explain the difference between VAR and RETURN in DAX

- VAR = stores a temporary value (a number, a table, or an expression).
- RETURN = defines what the measure will output.

Example:

```
Average Price per Quantity =
VAR TotalQty = SUM(Sales[Quantity])
VAR TotalSales = SUMX(Sales, Sales[Quantity] * Sales[Price])
RETURN
DIVIDE(TotalSales, TotalQty)
```





SaleID	ProductID	CustomerID	Quantity	Category	Total Sales	UnitPrice	Average Price per Quantity
3	P1	C1	3	Electronics	300	100	100,00
2	P2	C2	1	Clothing	50	50	50,00
1	P1	C1	2	Electronics	200	100	100,00

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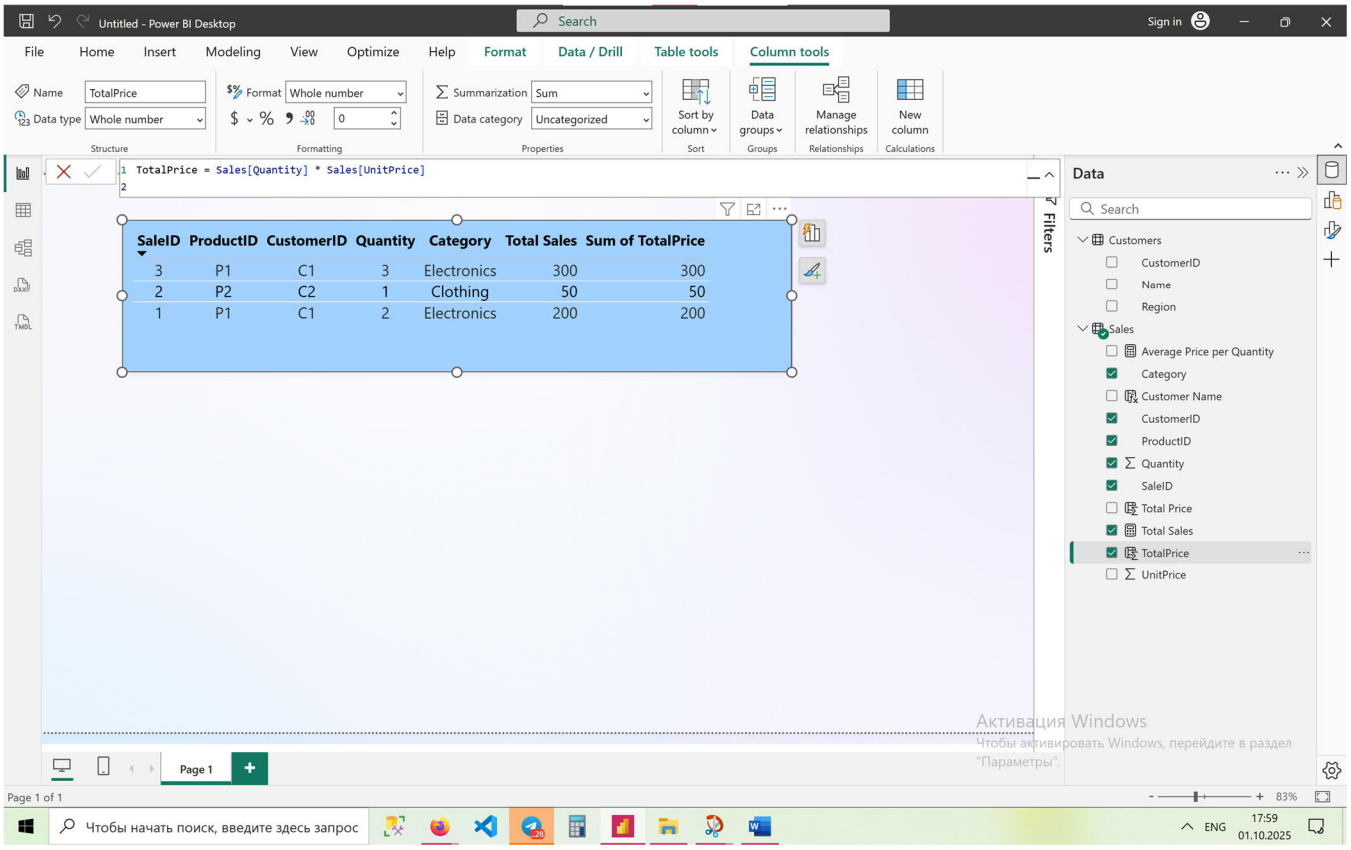
6. Create a calculated column in Sales called TotalPrice using row context

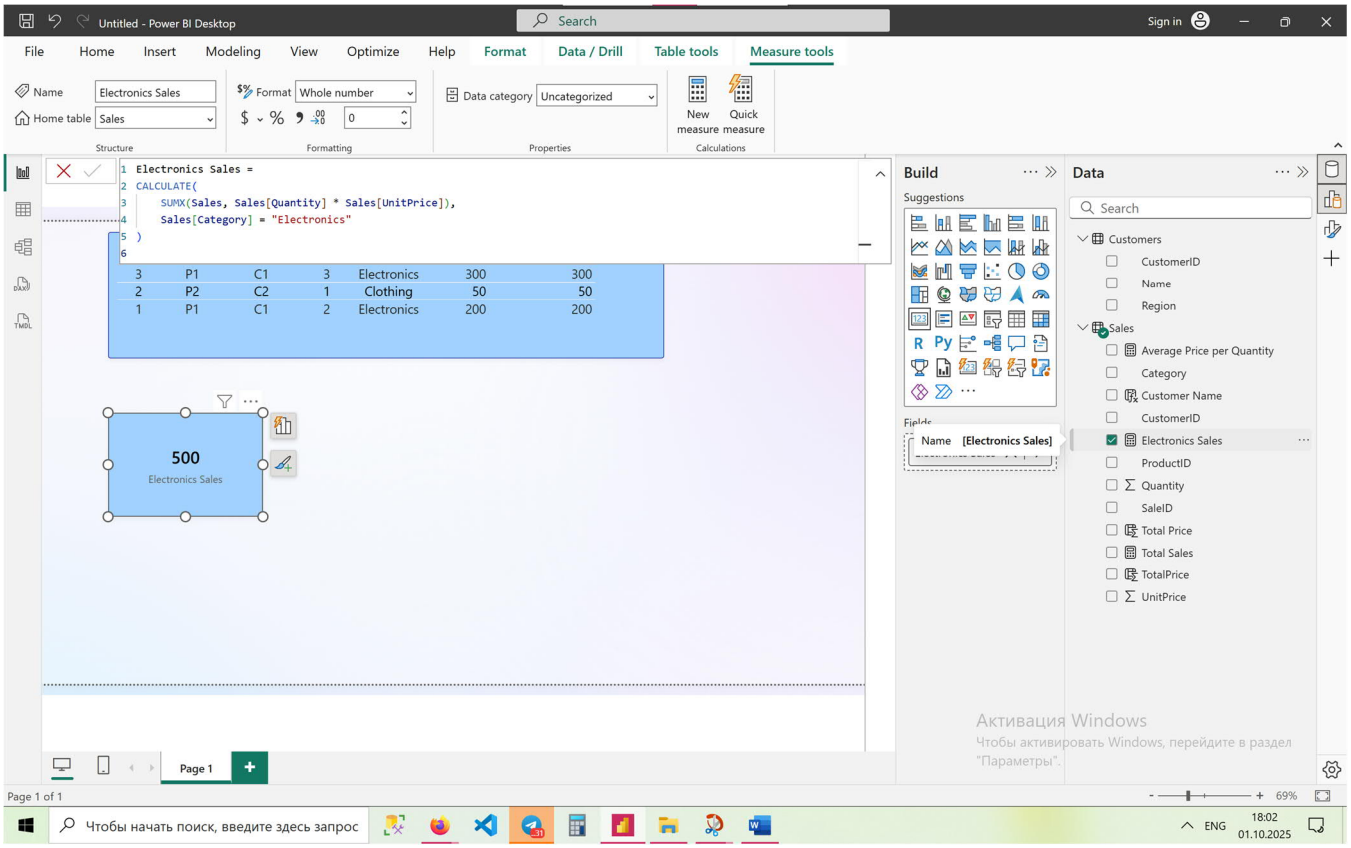
TotalPrice = Sales[Quantity] * Sales[UnitPrice]



SaleID	ProductID	CustomerID	Quantity	Category	Total Sales	Sum of TotalPrice
3	P1	C1	3	Electronics	300	300
2	P2	C2	1	Clothing	50	50
1	P1	C1	2	Electronics	200	200

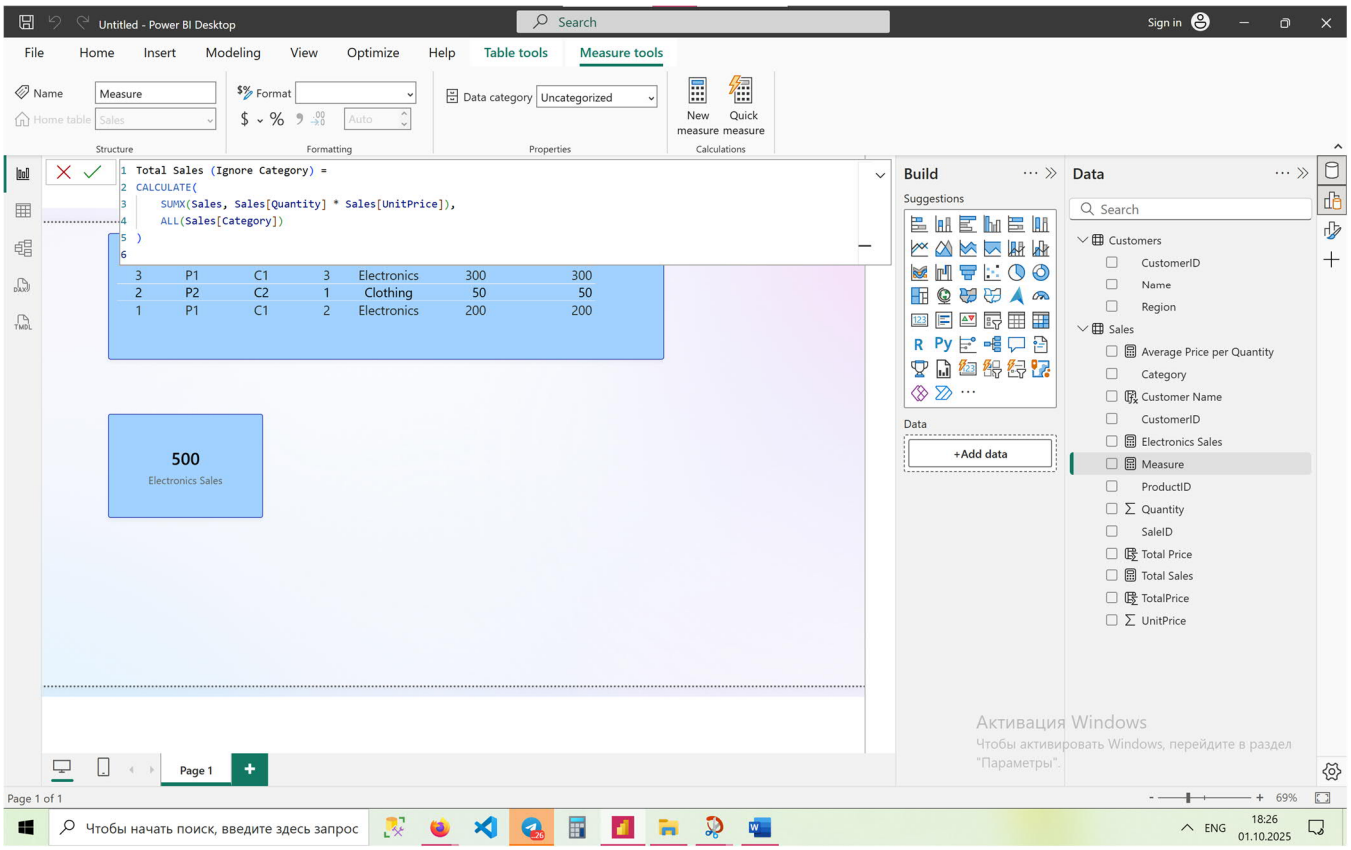
7. Write a measure Electronics Sales using CALCULATE

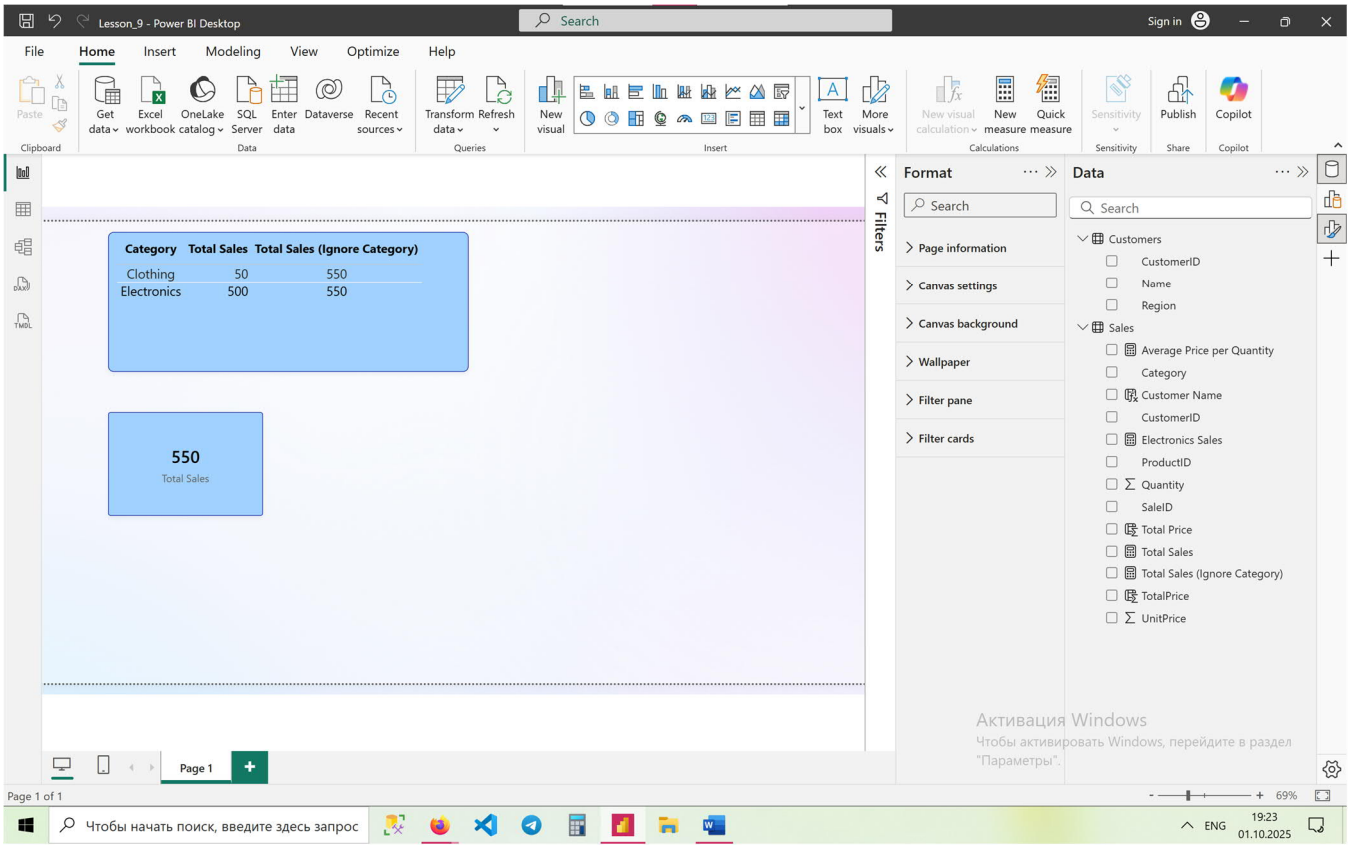
```
Electronics Sales =
CALCULATE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    Sales[Category] = "Electronics"
)
```



8. Use ALL(Sales[Category]) in a measure to show total sales ignoring category filters

```
Total Sales Ignore Category =
CALCULATE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    ALL(Sales[Category])
)
```

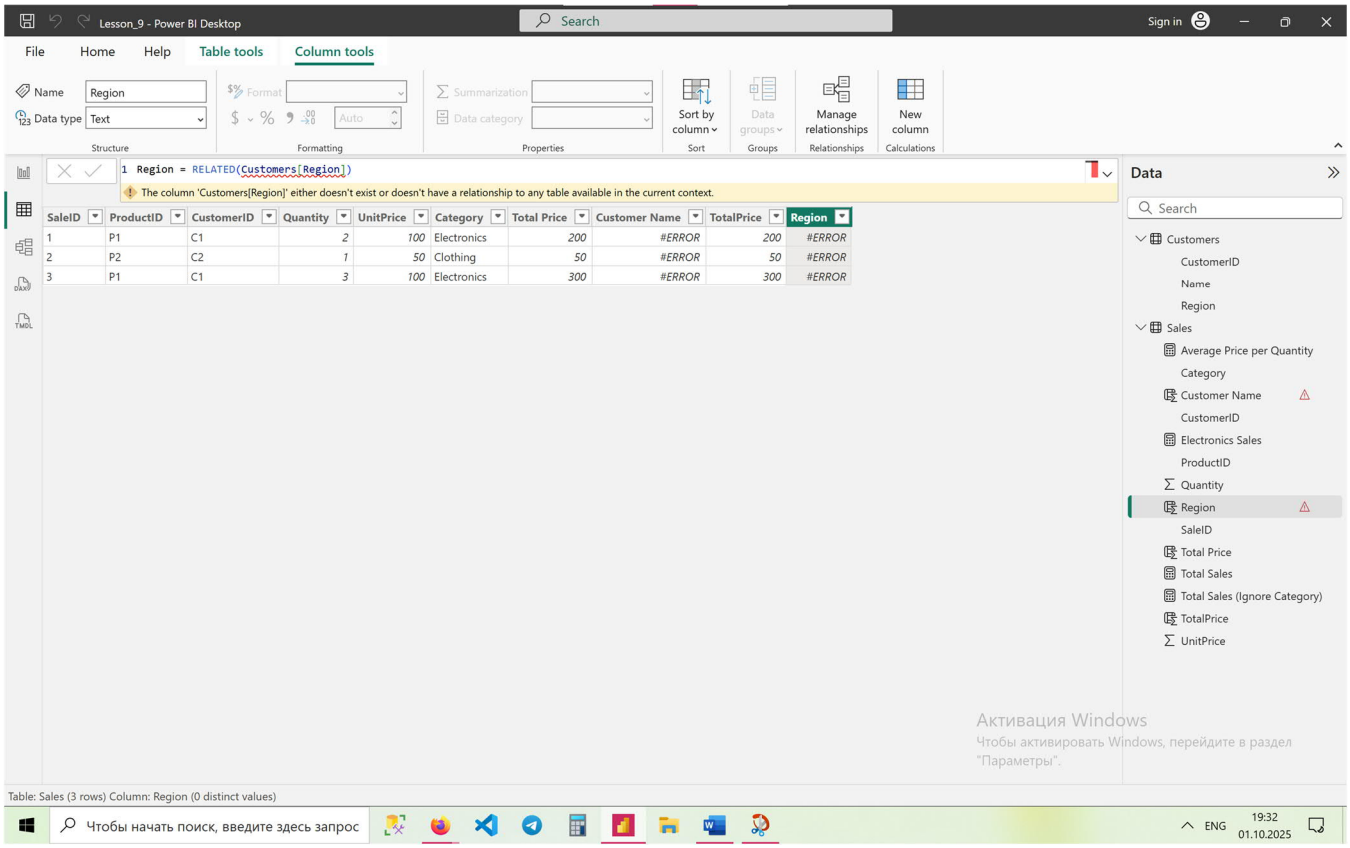


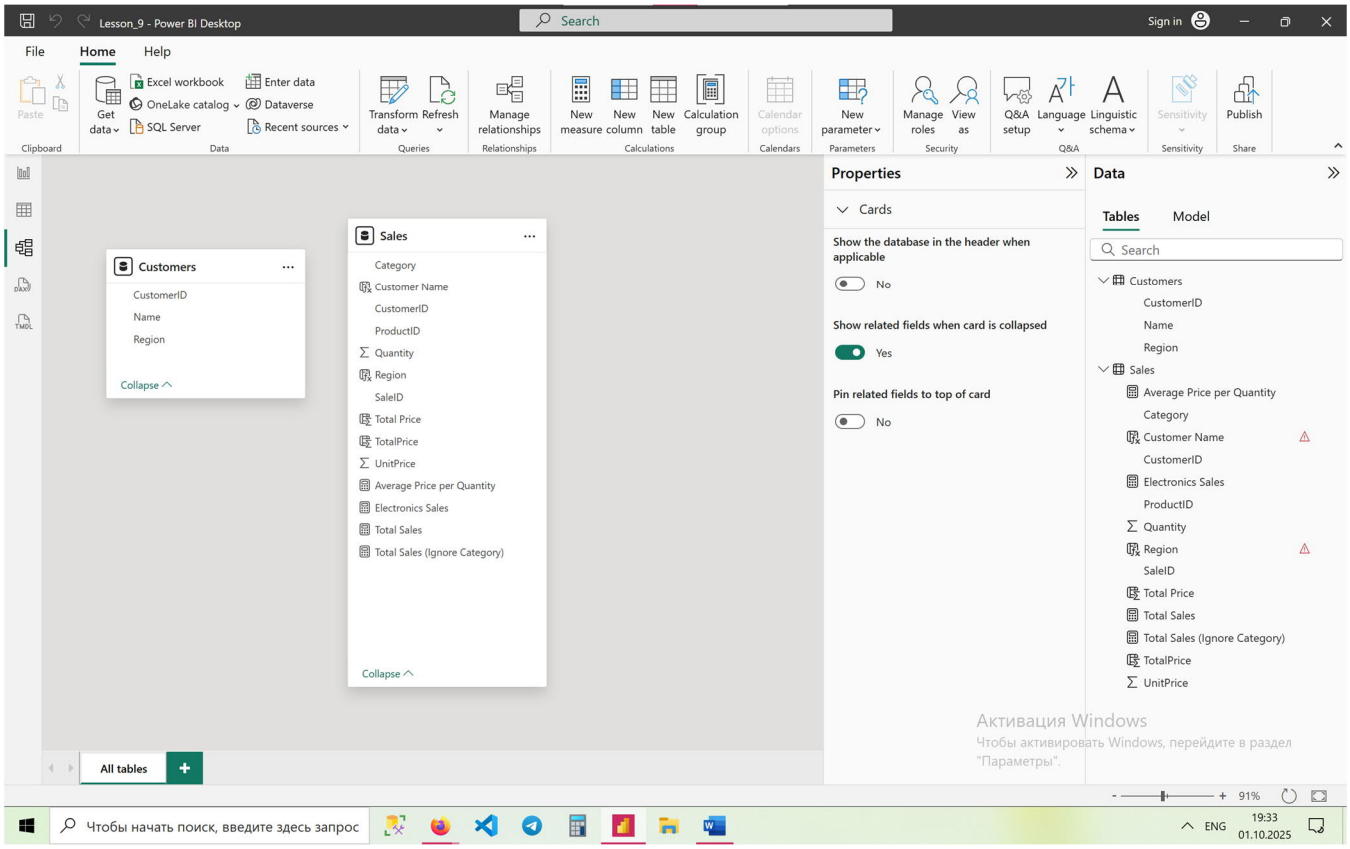


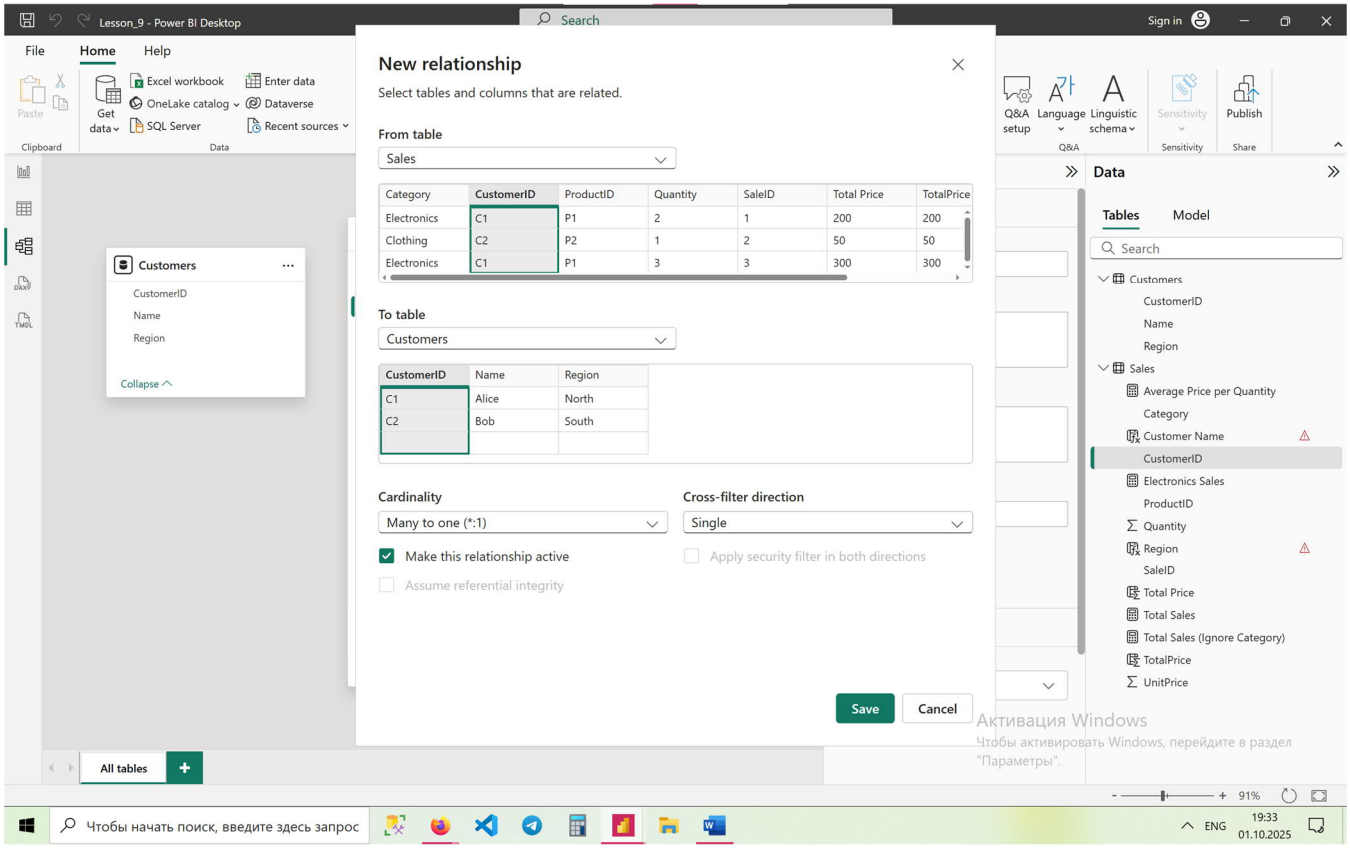
9. Fix this error: A calculated column in Sales uses RELATED(Customers[Region]) but returns blanks

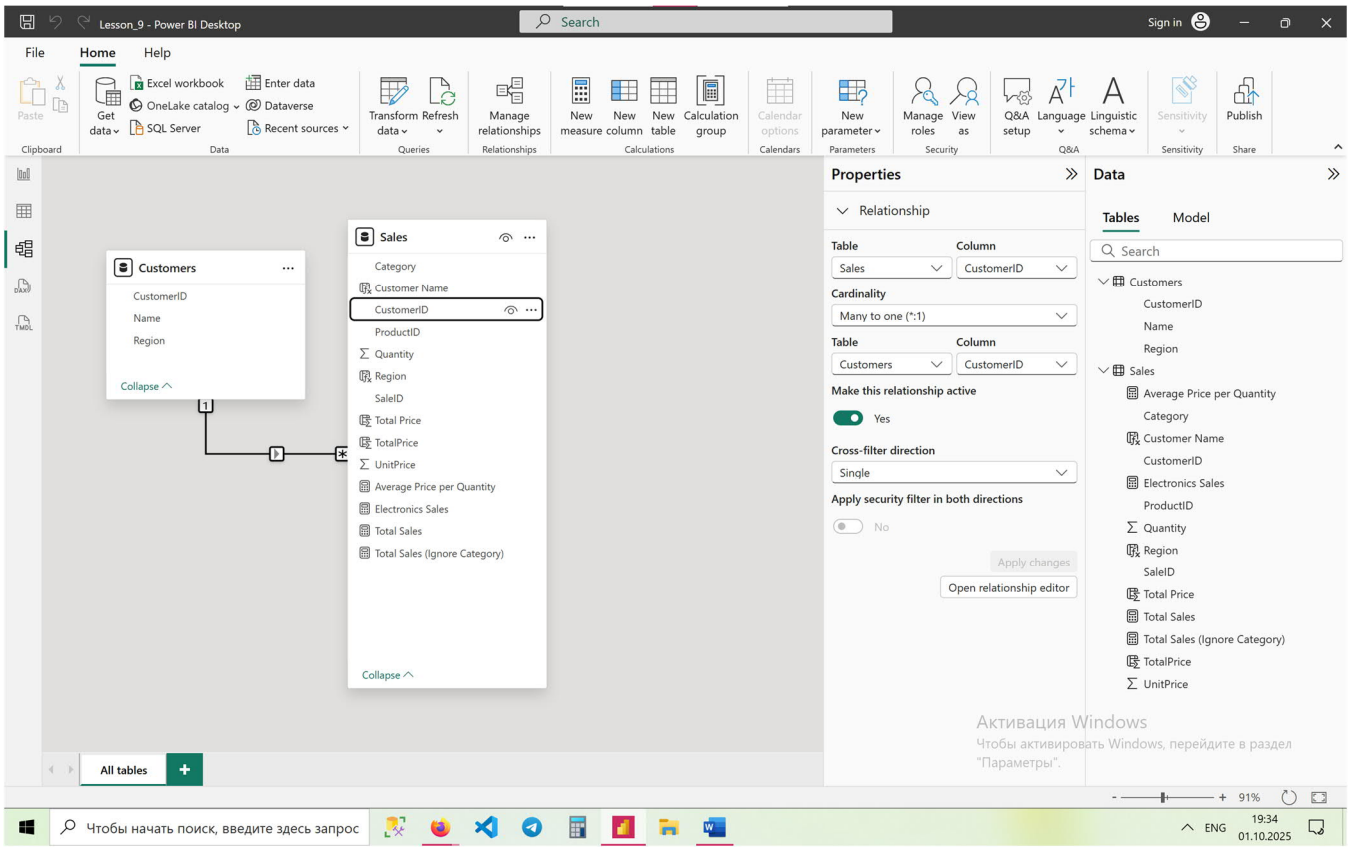
- The cause: there is **no active relationship** between Sales[CustomerID] and Customers[CustomerID].

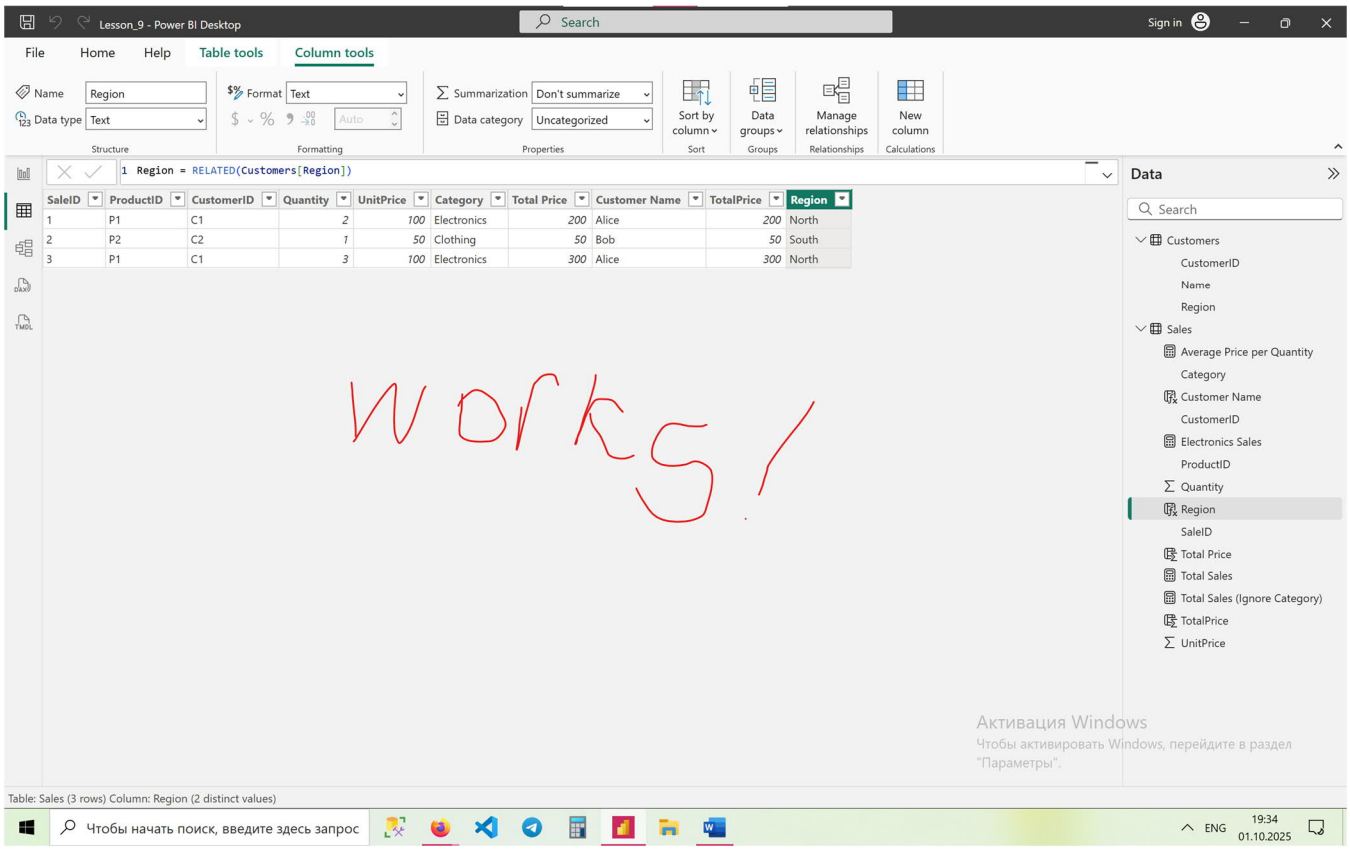
✅ ■x: Create or activate the relationship in the data model.






Lesson_9 - Power BI Desktop
Search
Sign in
File
Home
Help
New relationship
Select tables and columns that are related.
From table
Sales
Category | CustomerID | ProductID | Quantity | SaleID | Total Price | TotalPrice
Electronics | C1 | P1 | 2 | 1 | 200 | 200
Clothing | C2 | P2 | 1 | 2 | 50 | 50
Electronics | C1 | P1 | 3 | 3 | 300 | 300
To table
Customers
CustomerID | Name | Region
C1 | Alice | North
C2 | Bob | South
Cardinality
Many to one (*:1)
Cross-filter direction
Single
Make this relationship active
Apply security filter in both directions
Assume referential integrity
Save
Cancel
Customers
CustomerID
Name
Region
Collapse
Data
Tables
Model
Search
Customers
CustomerID
Name
Region
Sales
Average Price per Quantity
Category
Customer Name
CustomerID
Electronics Sales
ProductID
Quantity
Region
SaleID
Total Price
Total Sales
Total Sales (Ignore Category)
TotalPrice
UnitPrice
All tables
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".
91%
Чтобы начать поиск, введите здесь запрос
ENG
19:33
01.10.2025


Lesson_9 - Power BI Desktop
Search
Sign in
File
Home
Help
Transform data
Refresh
Manage relationships
New measure
New column
New table
Calculation group
Calendar options
New parameter
Manage roles
View as
Q&A setup
Language
Linguistic schema
Sensitivity
Publish
Properties
Relationship
Table
Column
Sales
CustomerID
Cardinality
Many to one (*:1)
Table
Column
Customers
CustomerID
Make this relationship active
Yes
Cross-filter direction
Single
Apply security filter in both directions
No
Apply changes
Open relationship editor
Customers
CustomerID
Name
Region
Collapse
Sales
Category
Customer Name
CustomerID
ProductID
Quantity
Region
SaleID
Total Price
TotalPrice
UnitPrice
Average Price per Quantity
Electronics Sales
Total Sales
Total Sales (Ignore Category)
Collapse
Data
Tables
Model
Search
Customers
CustomerID
Name
Region
Sales
Average Price per Quantity
Category
Customer Name
CustomerID
Electronics Sales
ProductID
Quantity
Region
SaleID
Total Price
Total Sales
Total Sales (Ignore Category)
TotalPrice
UnitPrice
All tables
Активация Windows
Чтобы активировать Windows, перейдите в раздел "Параметры".
91%
Чтобы начать поиск, введите здесь запрос
ENG
19:34
01.10.2025



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10. Why does CALCULATE override existing filters?

- Because CALCULATE evaluates the expression in a **modified filter context**. It either replaces or adds filters to the current context.

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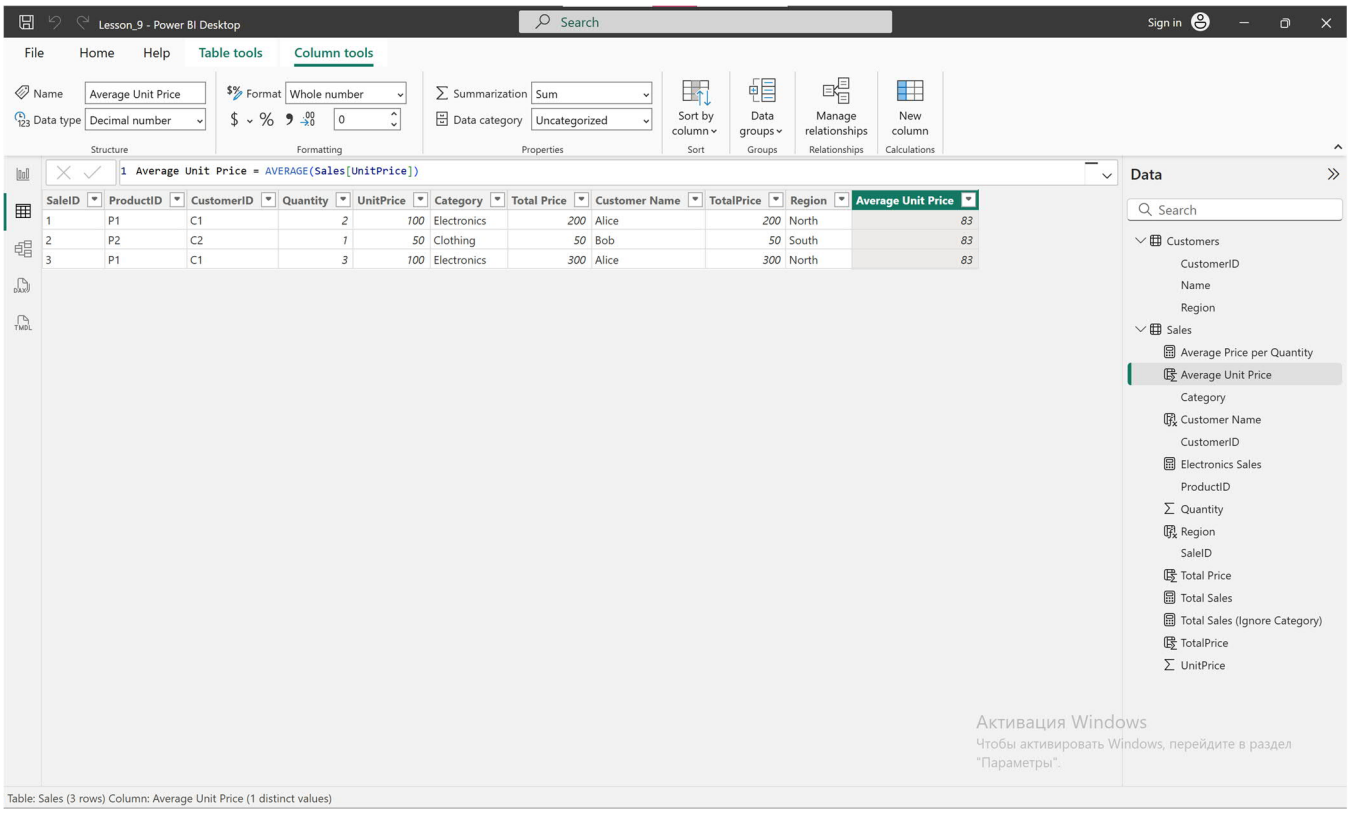
11. Write a measure that returns average unit price of products

Average Unit Price = AVERAGE(Sales[UnitPrice])



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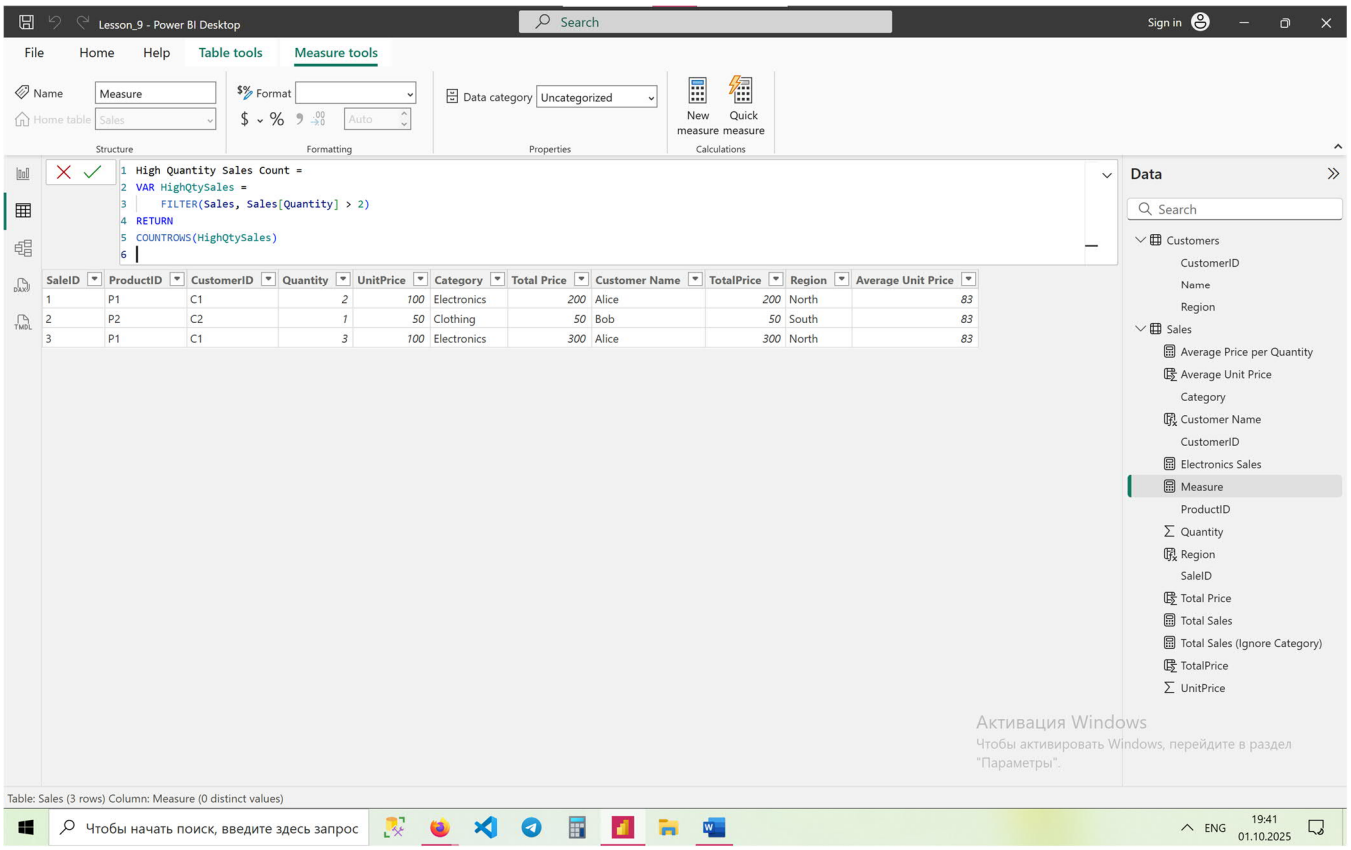
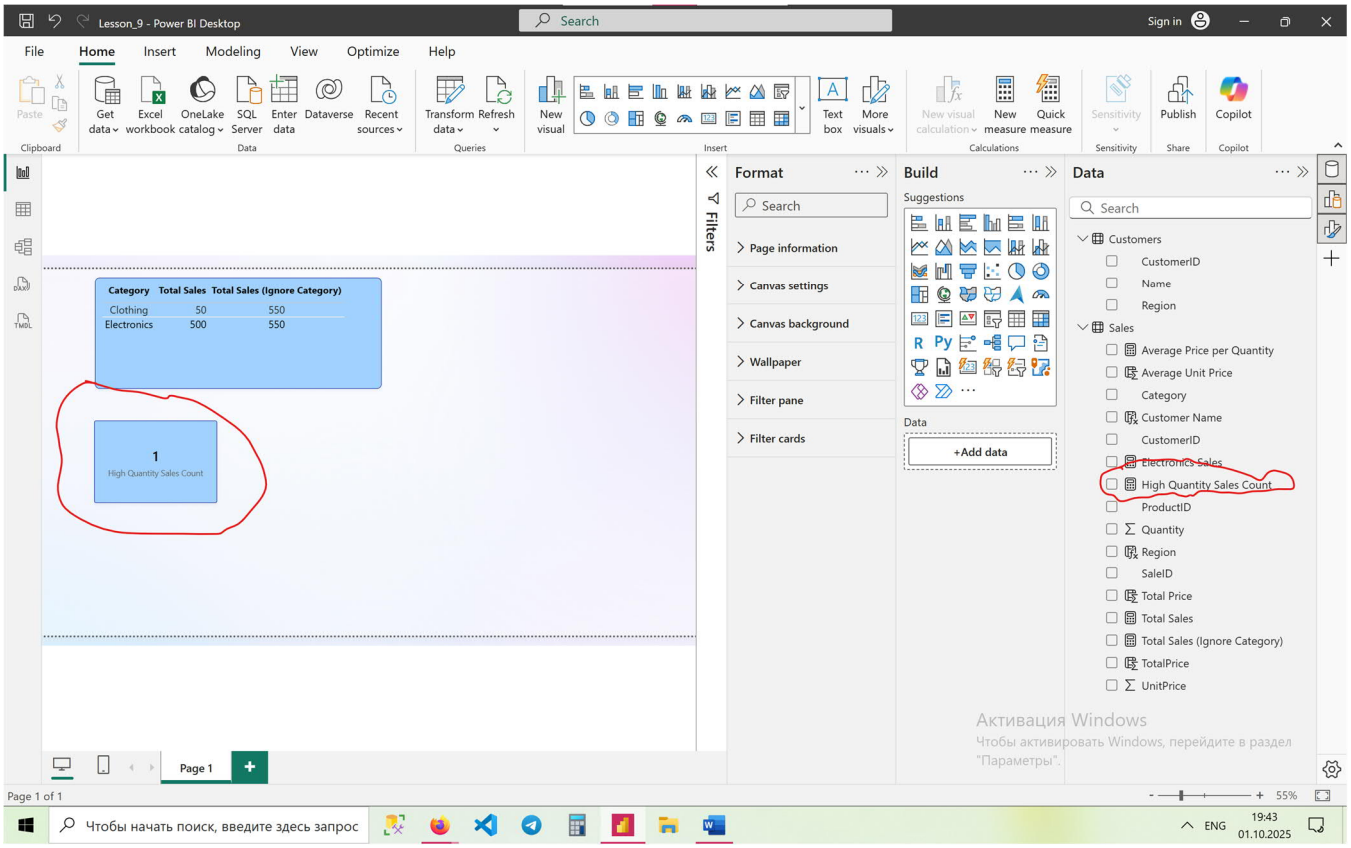
12. Use VAR to store a temporary table of high-quantity sales (Quantity > 2), then count rows

High Quantity Sales Count =
VAR HighQty = FILTER(Sales, Sales[Quantity] > 2)
RETURN COUNTROWS(HighQty)

👉 👉the example table, result = **1 row** (SaleID = 3).

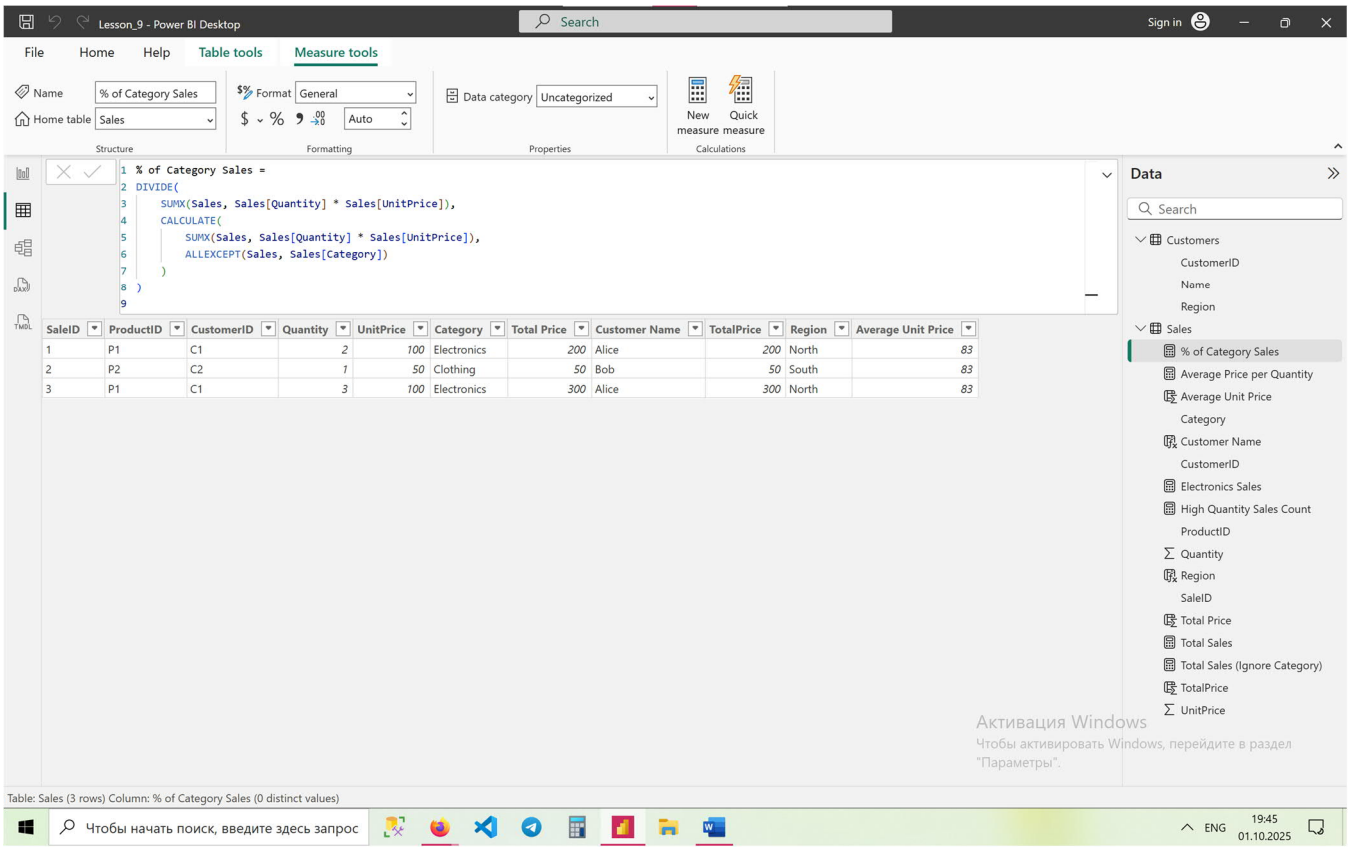


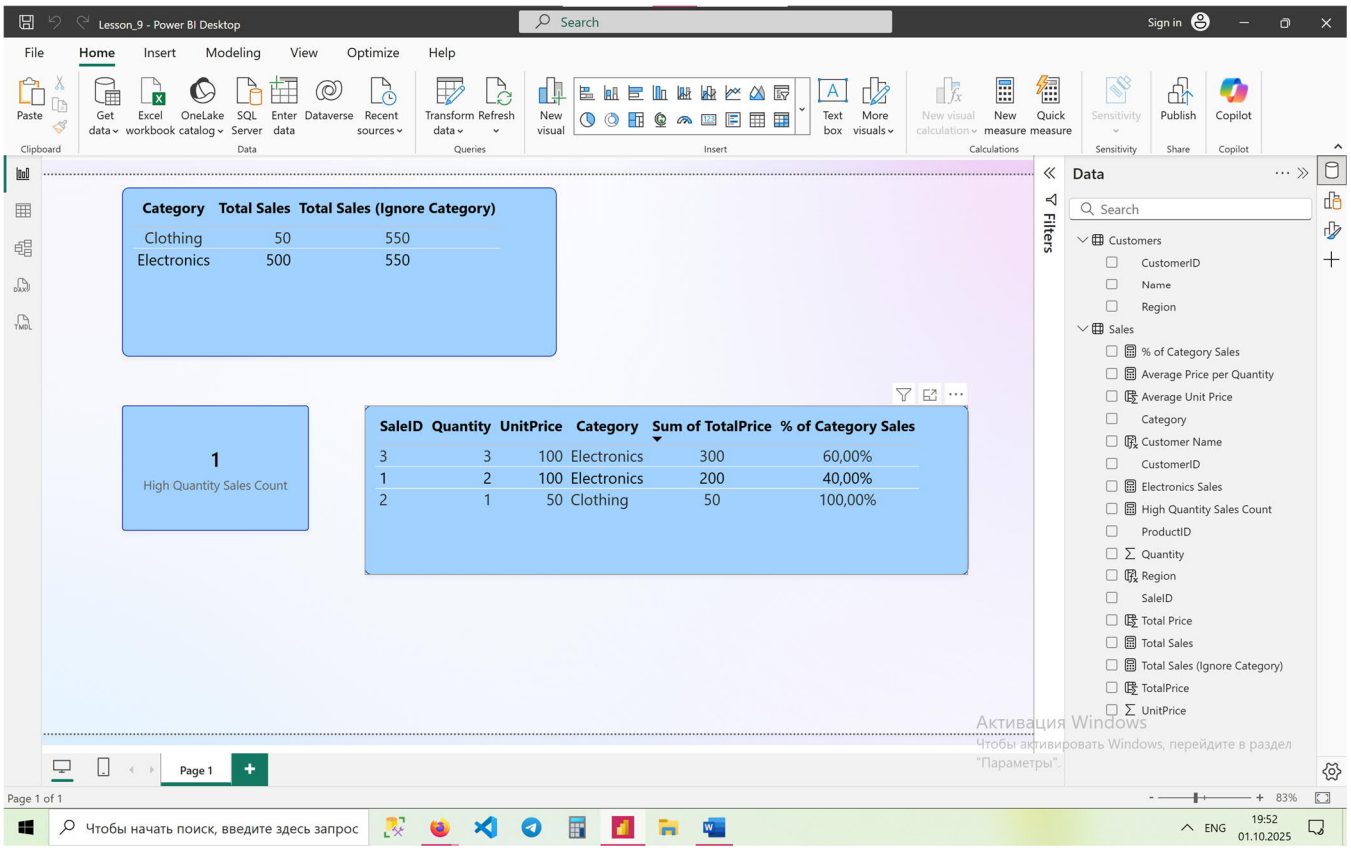


13. Write a measure % of Category Sales

% of Category Sales =
DIVIDE(

```
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    CALCULATE(
        SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
        ALLEXCEPT(Sales, Sales[Category])
    )
)
```





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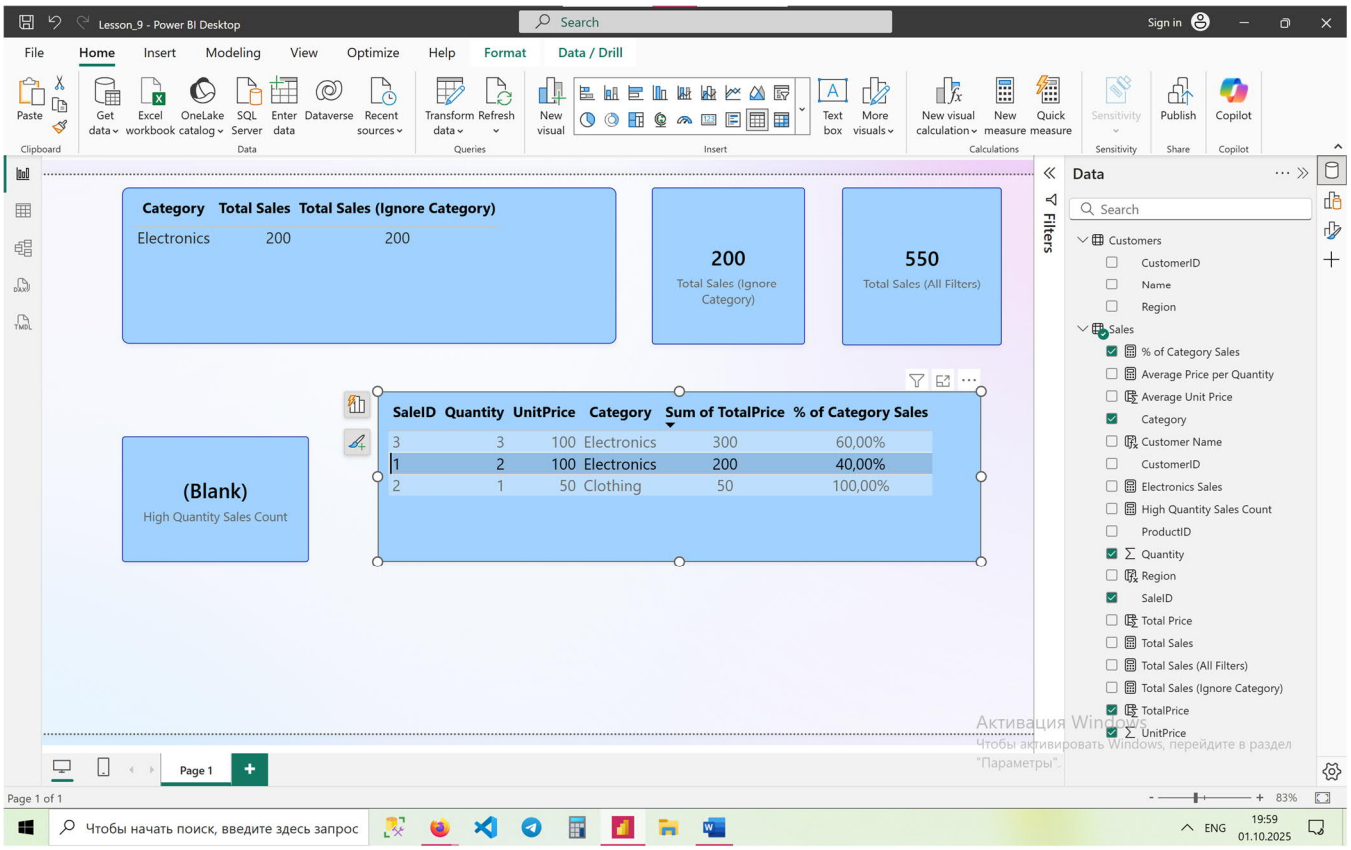
14. Simulate a "remove filters" button using ALL in a measure

```
Sales Remove Filters =
CALCULATE(
    SUMX(Sales, Sales[Quantity] * Sales[UnitPrice]),
    ALL(Sales)
)
```



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15. Troubleshoot: A CALCULATE measure ignores a slicer. What's the likely cause?

- The likely cause is that the measure uses ALL() or REMOVEFILTERS(), which **remove slicer filters**.
- Check the measure: it may be designed to ignore slicers.