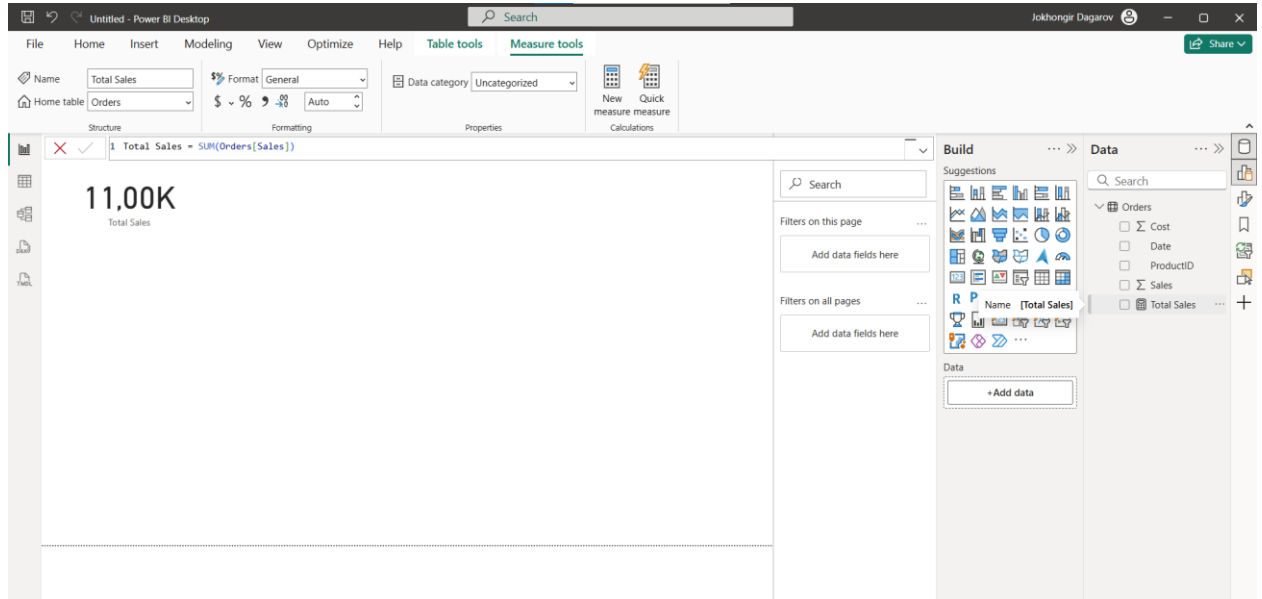


1. What does DAX stand for?

DAX = *Data Analysis Expressions* — a formula language used in Power BI, Power Pivot, and SSAS Tabular models.

2. Write a DAX formula to sum the Sales column



3. What is the difference between a calculated column and a measure?

Calculated Column

Calculated row-by-row when data loads

Stored in the data model (uses memory)

Adds a new column in the table

Has **row context**

Measure

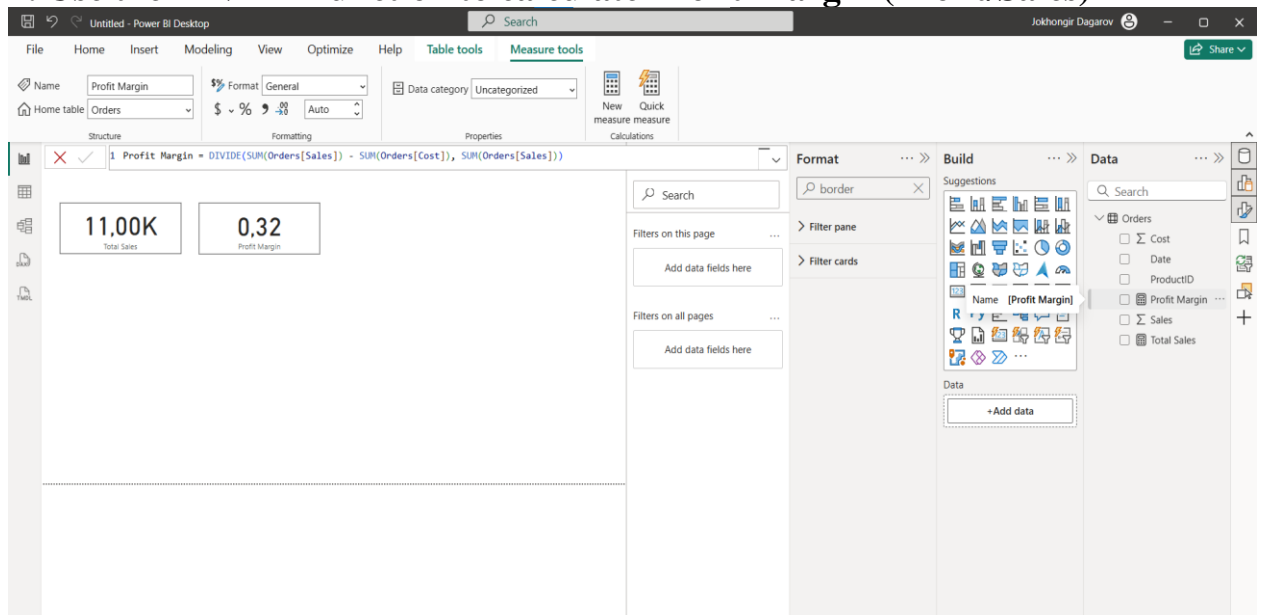
Calculated dynamically based on visuals and context

Computed on demand (more efficient)

Doesn't create a column; only shown in visuals

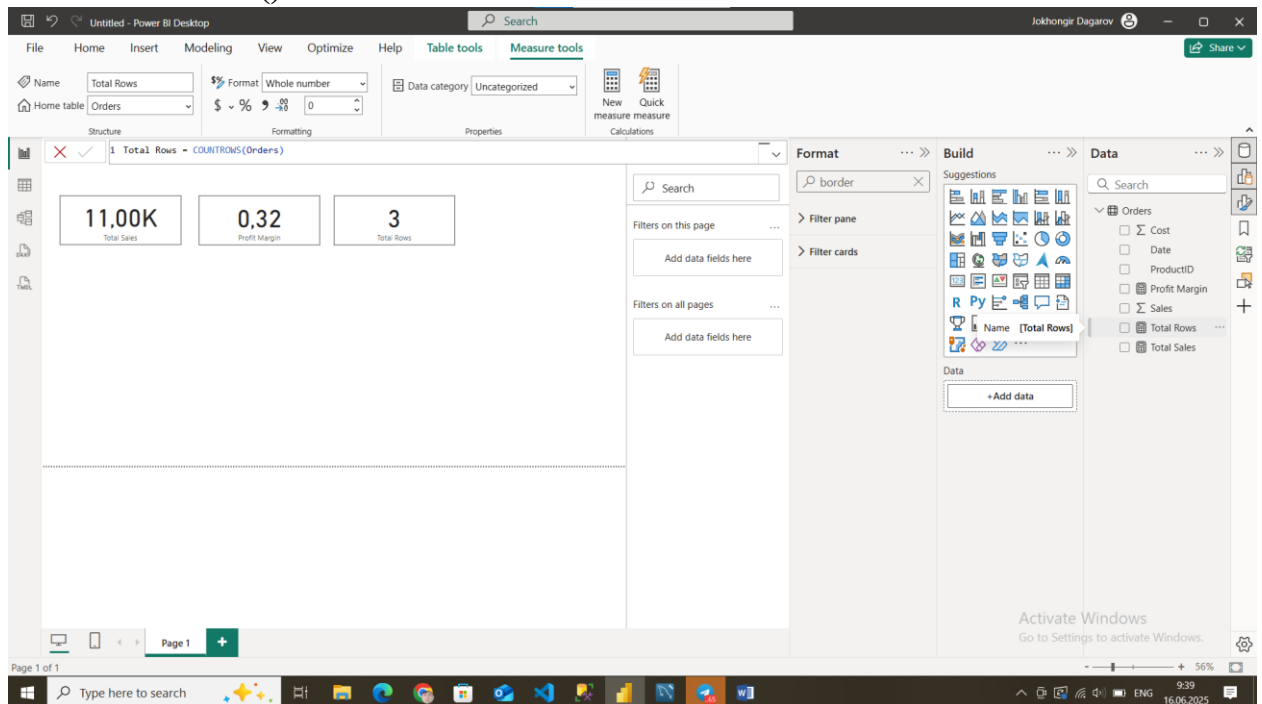
Has **filter context**

4. Use the DIVIDE function to calculate Profit Margin (Profit/Sales)

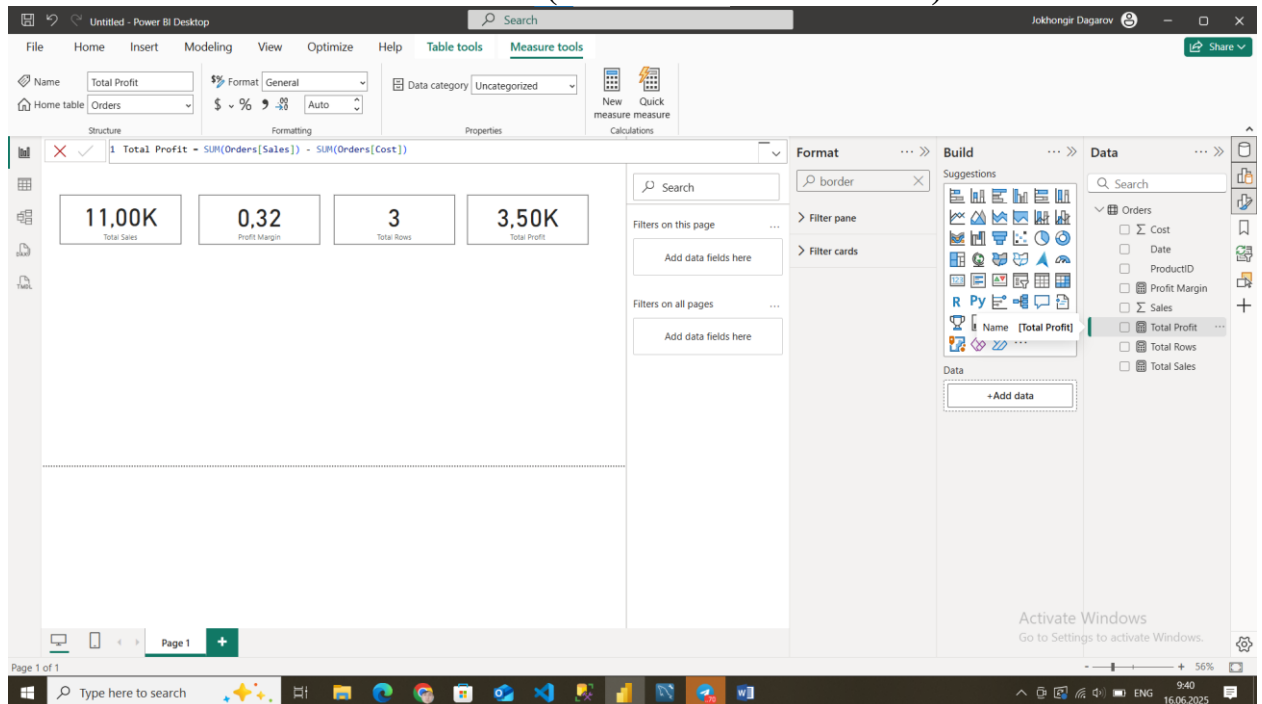


5. What does COUNTROWS() do in DAX?

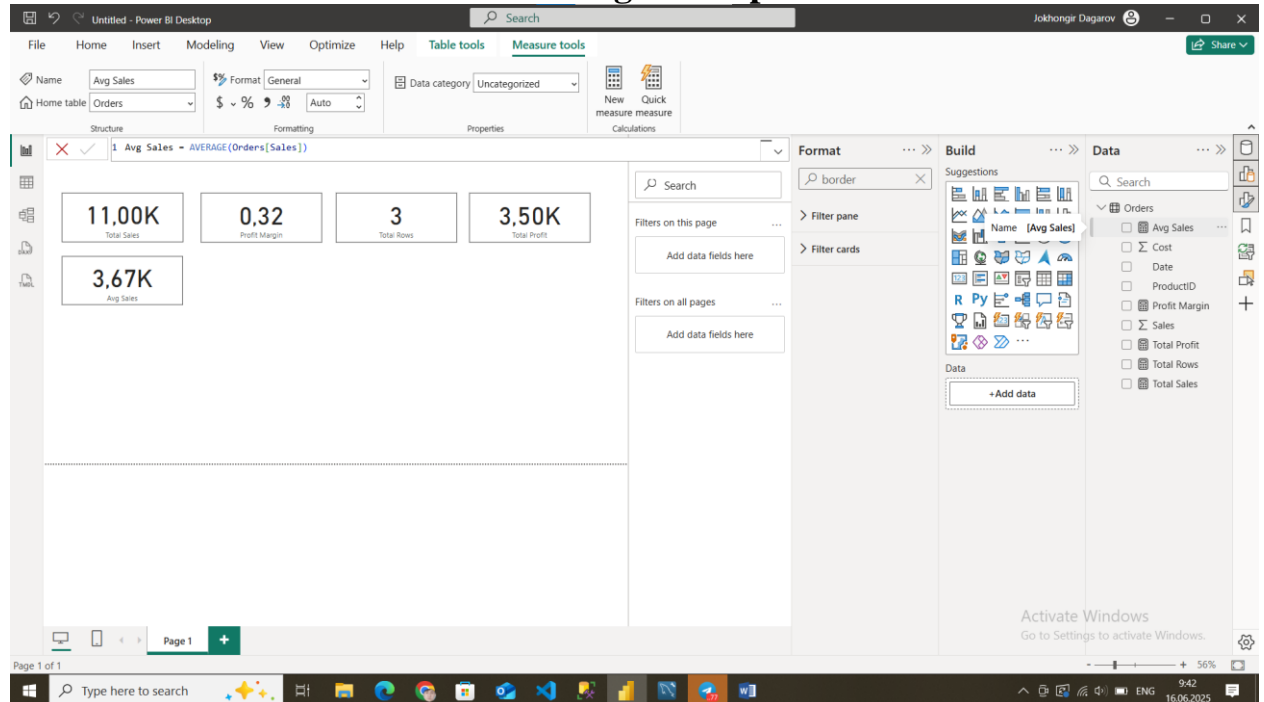
COUNTROWS() counts the number of rows in a table.



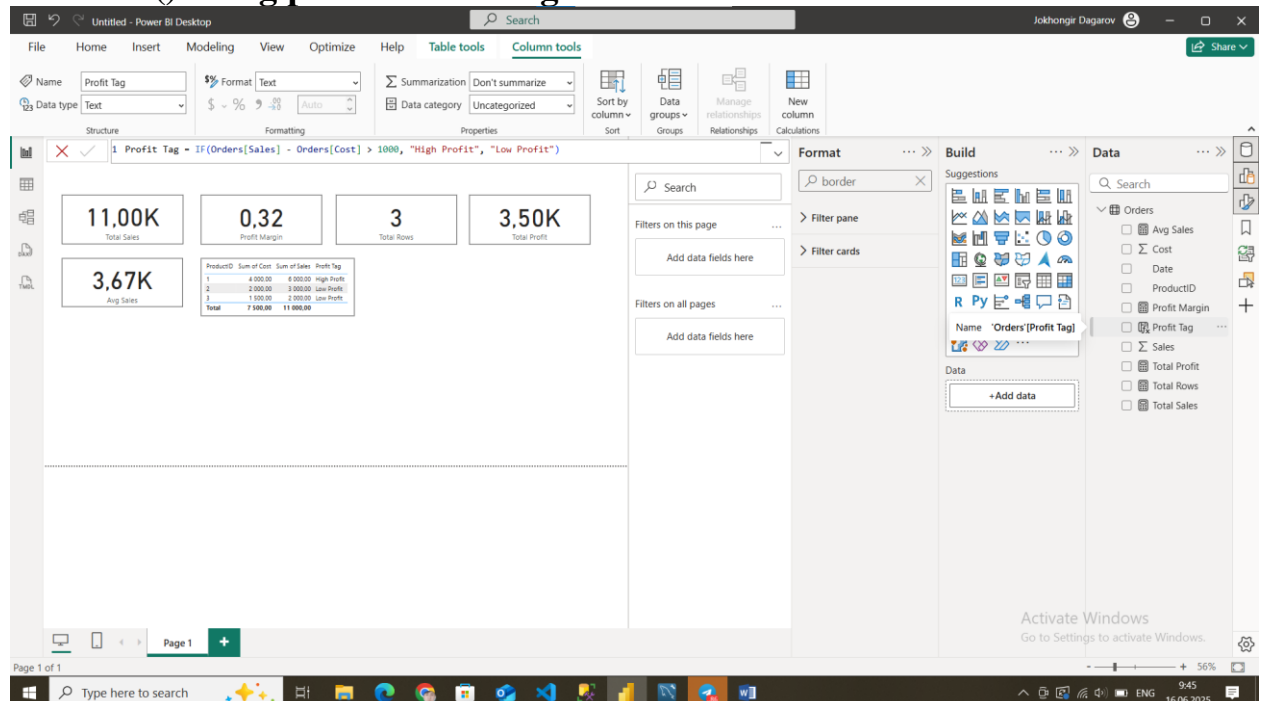
6. Create a measure: Total Profit (Total Sales - Total Cost)



7. Write a measure to calculate Average Sales per Product



8. Use IF() to tag products as "High Profit" if Profit > 1000



9. What is a circular dependency error in a calculated column?

Occurs when a calculated column directly or indirectly depends on itself in its formula, creating an endless calculation loop that DAX cannot resolve.

10. Explain row context vs. filter context

Row Context

Operates row-by-row in a calculated column or iterator

Filter Context

Comes from report filters, slicers, or CALCULATE() functions

11. Write a measure to calculate YTD Sales using TOTALYTD()

The screenshot shows the Power BI Desktop interface with a measure named 'YTD Sales' defined as `TOTALYTD(SUM(Orders[Sales]), Orders[Date])`. The report visual includes several cards and a table:

- 11,00K** Total Sales
- 0.32** Profit Margin
- 3** Total Rows
- 3,50K** Total Profit
- 3,67K** Avg Sales

ProductID	Sum of Cost	Sum of Sales	Profit Tag
1	4 000.00	6 000.00	High Profit
2	2 000.00	3 000.00	Low Profit
3	1 500.00	2 000.00	Low Profit
Total	7 500.00	11 000.00	

The Data pane on the right shows the 'YTD Sales' measure selected under the 'Orders' table.

12. Create a dynamic measure that switch between Sales, Profit, and Margin

The screenshot shows the Power BI Desktop interface with a dynamic measure named 'Selected Measure Value' defined using a SWITCH function. The report visual includes several cards and a table:

- 3,67K** Avg Sales
- 11,00K** YTD Sales
- 3,50K** Selected Measure Value

ProductID	Sum of Cost	Sum of Sales	Profit Tag
1	4 000.00	6 000.00	High Profit
2	2 000.00	3 000.00	Low Profit
3	1 500.00	2 000.00	Low Profit
Total	7 500.00	11 000.00	

The Data pane on the right shows the 'Selected Measure Value' measure selected under the 'Orders' table.

13. Optimize a slow DAX measure using variables (VAR)

The screenshot shows the Power BI Desktop interface with the following DAX measures defined in the formula bar:

```
1 Fast Measure =  
2 VAR SalesAmount = SUM(Orders[Sales])  
3 VAR ProfitAmount = SalesAmount - SUM(Orders[Cost])  
4 RETURN DIVIDE(ProfitAmount, SalesAmount)
```

The visual displays several KPI cards:

- Total Sales: 11,00K
- Profit Margin: 0,32
- Total Rows: 3
- Total Profit: 3,50K
- Avg Sales: 3,67K
- YTD Sales: 11,00K
- Selected Measure Value: 3,50K
- Slow Measure: 0,32
- Fast Measure: 0,32

The right-hand pane shows the 'Data' section with a list of measures, including 'Fast Measure'.

14. Use CALCULATE() to override a filter

The screenshot shows the Power BI Desktop interface with the following DAX measure defined in the formula bar:

```
1 Sales 2023 = CALCULATE(SUM(Orders[Sales]), YEAR(Orders[Date]) = 2023)
```

The visual displays several KPI cards:

- Total Sales: 11,00K
- Profit Margin: 0,32
- Total Rows: 3
- Total Profit: 3,50K
- Avg Sales: 3,67K
- YTD Sales: 11,00K
- Selected Measure Value: 3,50K
- Slow Measure: 0,32
- Fast Measure: 0,32
- Sales 2023: 11,00K

The right-hand pane shows the 'Data' section with a list of measures, including 'Sales 2023'.

15. Write a measure that returns the highest sales amount

The screenshot shows the Power BI Desktop interface with the following DAX measure defined in the formula bar:

```
1 Max Sales = MAX(Orders[Sales])
```

The visual displays several KPI cards:

- Total Sales: 11,00K
- Profit Margin: 0,32
- Total Rows: 3
- Total Profit: 3,50K
- Avg Sales: 3,67K
- YTD Sales: 11,00K
- Selected Measure Value: 3,50K
- Slow Measure: 0,32
- Fast Measure: 0,32
- Sales 2023: 11,00K
- Max Sales: 6,00K

The right-hand pane shows the 'Data' section with a list of measures, including 'Max Sales'.