Lesson - 10 Homework

Question 1 : What does FILTER(Sales, Sales[Amount] > 1000) return?

It returns a table containing only the rows from the Sales table where the Amount is greater than 1000.

Example: If your Sales table has 1,000 rows but only 50 have Amount > 1000, FILTER(Sales, Sales[Amount] > 1000) returns a temporary table with just those 50 rows.

Question 2 : Write a measure High Sales that sums Amount where Amount > 1000 using FILTER.

Table view

SaleID	ProductID	SaleDate	Amount	Region
		Thursday, January 5, 2023	$1,200	North
2	P2	Tuesday, January 10, 2023	$800	South
3	P1	Sunday, January 15, 2023	$1,500	North
4	P2	Friday, January 20, 2023	$600	East

```
Total High Sales =
CALCULATE(
    SUM(Sales[Amount]),
    FILTER(Sales,Sales[Amount]>1000
    ))
```

Question 3 : How does ALLEXCEPT(Sales, Sales[Region]) differ from ALL(Sales)?

ALLEXCEPT(Sales, Sales[Region]) removes all filters except those on the Region column. So if you filter by Region and Date, only the Date filter gets removed.

ALL(Sales) removes all filters from the entire Sales table completely. Region, Date, Category - everything gets ignored.

Simple analogy:

ALLEXCEPT(Sales, Region) = "Keep my region filter, remove everything else"

ALL(Sales) = "Remove all filters, show me everything"

Question 4 : Use SWITCH to categorize Amount:`"Medium" if 500–1000 | "High" if > 1000 ```

SaleID	ProductID	SaleDate	Amount	Region
1	P1	Thursday, January 5, 2023	$1,200	North
2	P2	Tuesday, January 10, 2023	$800	South
3	P1	Sunday, January 15, 2023	$1,500	North
4	P2	Friday, January 20, 2023	$600	East

```
Amount Category =
SWITCH(
    TRUE(),
    Sales[Amount] > 1000, "High",
    Sales[Amount] > 500 && Sales[Amount] < 1000, "Medium",
    "Low"
)
```

SaleID	ProductID	SaleDate	Amount	Region	Amount Category
1	P1	Thursday, January 5, 2023	$1,200	North	High
2	P2	Tuesday, January 10, 2023	$800	South	Medium
3	P1	Sunday, January 15, 2023	$1,500	North	High
4	P2	Friday, January 20, 2023	$600	East	Medium

Question 5 : What is the purpose of ALLSELECTED?

ALLSELECTED keeps only the filters that the user actively selected in slicers or visuals, while removing any filters coming from the current visual's context (like row/column filters).

Simple example:
If you have a slicer for "Year" and a table showing "Products", ALLSELECTED will respect the year you picked in the slicer but ignore the product filtering happening in the table.

It's useful for showing % of parent total or comparisons against the user's selected subset of data.

Question 6 : Write a measure Regional Sales % showing each sale's contribution to its region's total (use ALLEXCEPT).

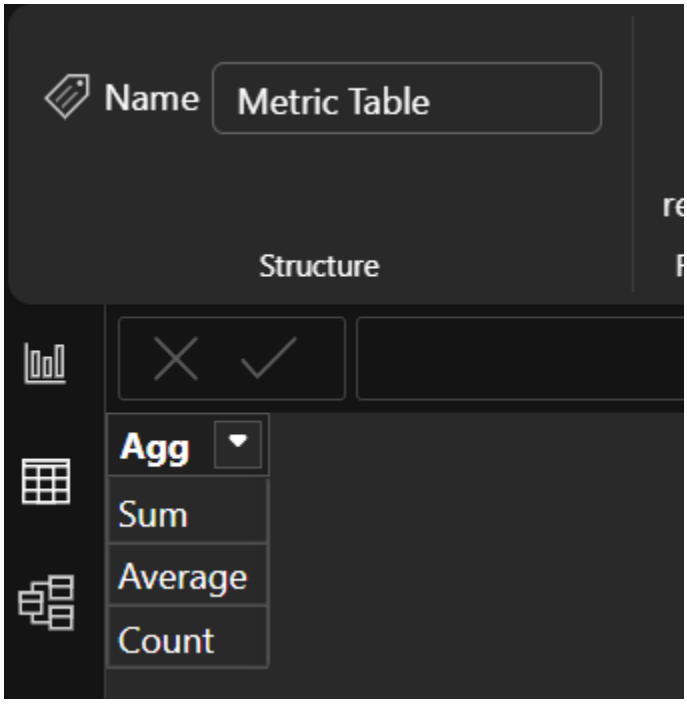
```
Regional Sales % =
DIVIDE(
    Sales[Amount],
    CALCULATE(
        SUM(Sales[Amount]),
        ALLEXCEPT(Sales, Sales[Region])
    )
)
```

SaleID	ProductID	SaleDate	Amount	Region	Amount Category	Regional Sales %
1	P1	Thursday, January 5, 2023	$1,200	North	High	44.44%
2	P2	Tuesday, January 10, 2023	$800	South	Medium	100.00%
3	P1	Sunday, January 15, 2023	$1,500	North	High	55.56%
4	P2	Friday, January 20, 2023	$600	East	Medium	100.00%

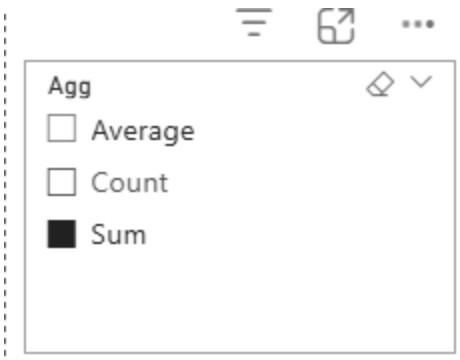
DAX :

```
Regional Sales % =
DIVIDE(
    Sales[Amount],
    CALCULATE(
        SUM(Sales[Amount]),
        ALLEXCEPT(Sales, Sales[Region])
    )
)
```

Question 7 : Create a dynamic measure using SWITCH to toggle between SUM, AVERAGE, and COUNT of Amount.

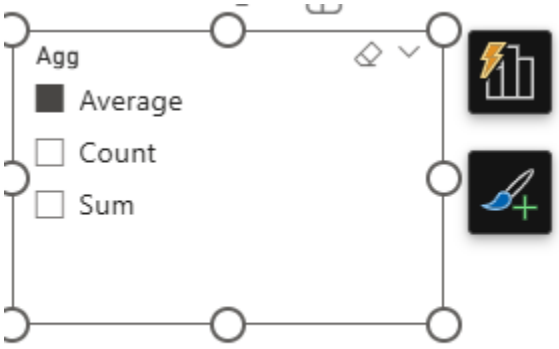



```
Selected Agg =
SWITCH(
    TRUE(),
    SELECTEDVALUE('Metric Table'[Agg]) = "Sum", [Total Sum],
    SELECTEDVALUE('Metric Table'[Agg]) = "Average", [Avg Amount],
    SELECTEDVALUE('Metric Table'[Agg]) = "Count", [Count Amount],
    BLANK()
    )
```



Sum

4100

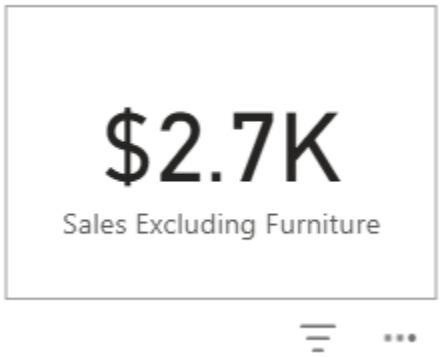


Average

1025

Question 8 : Use FILTER inside CALCULATE to exclude "Furniture" sales (Products[Category] = "Furniture").

```
Sales Excluding Furniture =
CALCULATE(
    SUM(Sales[Amount]),
    FILTER(
        ALL(Products[Category]),
        Products[Category] <> "Furniture"
    )
)
```



Question 9 : Why might ALLSELECTED behave unexpectedly in a pivot table?

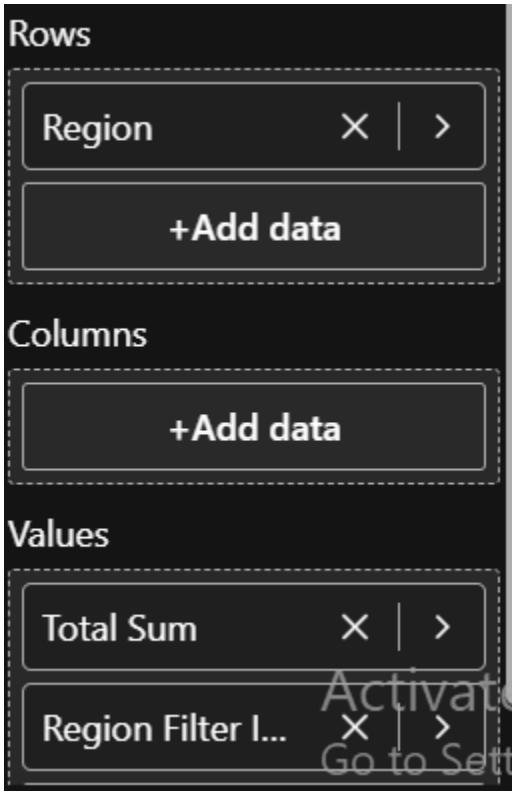
It's affected by the visual's own row/column headers - the headers create an implicit filter context that ALLSELECTED includes.

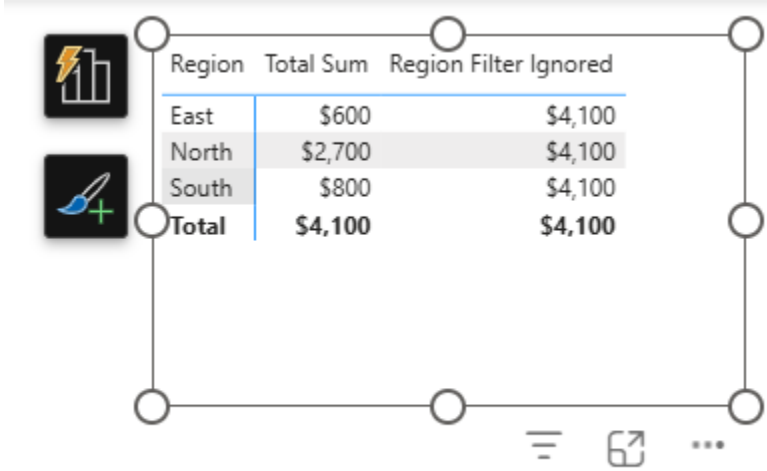
Cross-filtering from other visuals - if you have other charts interacting with your pivot table, ALLSELECTED considers those selections too.

The "shadow filter context" - ALLSELECTED tries to remember what the user intended to select, which can get complex with nested visuals.

Question 10 : Write a measure that calculates total sales and ignores filters from region

```
Region Filter Ignored =
CALCULATE(
    [Total Sum],
    ALL(Sales[Region])
)
```





Region	Total Sum	Region Filter Ignored
East	$600	$4,100
North	$2,700	$4,100
South	$800	$4,100
Total	**$4,100**	**$4,100**

Question 11 : Optimize this measure:
`High Sales = CALCULATE(SUM(Sales\[Amount]), FILTER(Sales, Sales\[Amount] > 1000))` **(Hint: Replace FILTER with a Boolean filter inside CALCULATE.)**

High Sales = CALCULATE(SUM(Sales[Amount]), Sales[Amount] > 1000)

- Removes the FILTER function which iterates row-by-row
- Uses a simple Boolean filter that's much faster
- Does the same thing but more efficiently

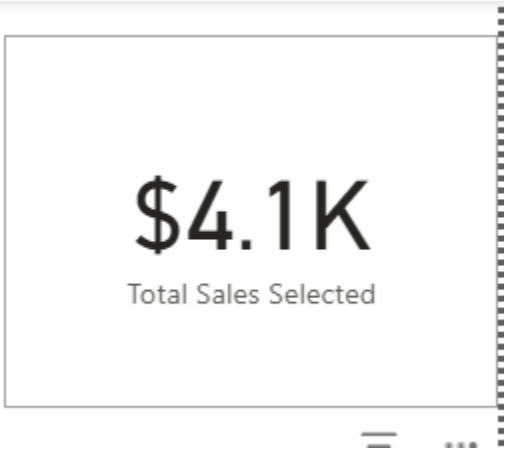
Question 12 : Write a measure Top 2 Products using TOPN and FILTER to show the highest-grossing products.

```
Top 2 Products =
CALCULATE(
    SUM(Sales[Amount]),
    TOPN(
        2,
        VALUES(Products[ProductName]),
        CALCULATE(SUM(Sales[Amount]))
    )
)
```

ProductName	Top 2 Products
Chair	$1,400
Laptop	$2,700
Total	**$4,100**

Question 13 : Use ALLSELECTED with no parameters to respect slicers but ignore visual-level filters.

```
Total Sales Selected =
CALCULATE(
    SUM(Sales[Amount]),
    ALLSELECTED()
)
```



Respects all slicers and page-level filters you've selected

Ignores filters coming from the current visual's rows/columns

Shows the total for whatever the user has chosen in slicers, regardless of the visual context

Question 14 : Debug: A SWITCH measure returns incorrect values when fields are added to a matrix visual.

Fix: Use `HASONEVALUE()` to check if you're in a single cell:

```
Selected Metric =
SWITCH(
   TRUE(),
   HASONEVALUE('Metric Table'[Metric]),
      SWITCH(
         SELECTEDVALUE('Metric Table'[Metric]),
         "Sales", [Total Sales],
         "Profit", [Total Profit],
         BLANK()
      ),
   [Total Sales]  // fallback when multiple values exist
)
```

This handles both single cells (slicer selection) and matrix cells properly.

Question 15 : Simulate a "reset filters" button using ALL in a measure.

```
Reset View =
CALCULATE(
    [Total Sum],
    ALL('Sales'),
    ALL('Products')
)
```

Create this measure

Add it to a card visual

When you want to reset filters, just look at this card - it will always show the total sales as if no filters were applied, regardless of what slicers are selected.

$2.7K

Total High Sales

$2.7K

Sales Excluding Furniture

Region	Total Sum	Region Filter Ignored
East	$600	$4,100
North	$2,700	$4,100
South	$800	$4,100
Total	**$4,100**	**$4,100**

$4.1K

Total Sales Selected

Agg

- Average
- Count
- Sum

Average

1025

ProductName	Top 2 Products
Chair	$1,400
Laptop	$2,700
Total	**$4,100**

$4.1K

Reset View