WEEK 10

Notes By
Prof. Vishal Chugh

Power BI DAX Concepts

1. SUM Formula ?

SUM is a simple aggregation function that adds up all the values in a single column

```
Total_Sales = SUM(Table_Name[Sales])
```

Use Case: Use SUM when you want to sum up all the values in a numeric column without any complex row-by-row operation.

Performance: Since it operates directly on a column, it's fast and efficient for simple summations.

WEEK 10

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2. SUMX Formula ?

SUMX is an iterator function that performs row-by-row calculations and then sums the results

```
Total_Sales=SUMX(Table_Name,Table_Name[Quantity] * Table_Name[Unit_Price])
```

Use Case: Use SUMX when you want to perform a calculation for each row before summing, such as multiplying two columns together or applying conditional logic

Performance: SUMX can be slower than SUM because it performs calculations on each row individually before summing. It's ideal for more complex scenaios that require row context

WEEK 10

NOTES BY
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3. COUNT Formula ?

COUNT counts the number of non-blank values in a column.

Number of Customers= COUNT('Table'[Customer ID])

Use Case: When you want to count the non-empty values in a column.

4. COUNTA Formula ?

COUNTA counts the number of non-blank values in a column, including text, numeric values, and logical values even counts Boolean values where only Count will not count Boolean data type

Number of Reviews= COUNTA('Table'[Review Status])

Use Case: When you need to count all non-blank values, regardless of the data type (text, numbers, etc.).

WEEK 10

Notes By
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5. COUNTBLANK Formula ?

COUNTBLANK counts the number of blank (empty) values in a column.

Blank Reviews = COUNTBLANK('Table'[Review Points])

Use Case: When you want to count the number of blank or missing values in a column.

6. COUNTROWS Formula ?

COUNTROWS counts the number of rows in a table.

Total Records= COUNTROWS('Table')

Use Case: When you want to count the total number of rows in a table or in a filtered table.

WEEK 10

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7. DISTINCTCOUNT Formula ?

DISTINCTCOUNT counts the number of unique, non-blank values in a column.

Unique States= DISTINCTCOUNT('Table'[State])

Use Case: When you need to count the distinct (unique) values in a column, excluding blanks.

8. COUNTX Formula ?

COUNTX is an iterator function that counts non-blank results of an expression evaluated row by row over a table.

Count Reviews>= 5 = COUNTX('Table', IF('Table'[Review Points] >= 5, 1, BLANK()))

Use Case: When you need to count based on an expression that is evaluated for each row in a table.

WEEK 10

Notes By
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9. COUNTAX Formula ?

COUNTAX is the iterator version of COUNTA. It evaluates an expression for each row and counts the number of non-blank results.

Count True= COUNTAX(FILTER('Table','Table'[Review Status]=true),'Table'[Review Status])

Use Case: When you need to count based on an expression that is evaluated for each row in a table even there is Binary data type.

10. COUNTROWS with FILTER Formula ?

COUNTROWS can be used with the FILTER function to count rows that meet specific criteria.

Maharashtra_Count=COUNTROWS(FILTER('Table','Table'[State]:"Maharashtra"))

Use Case: When you want to count rows based on a condition or set of conditions.

WEEK 10

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11. Create Custom Calendar ?

CALENDAR(MIN(SalesOata[Date]),MAX(SalesOata[Date]))

The CALENDARDAX function in Power Bl is used to generate a continuous range of dates between a specified start and end date. It's particularly useful when building a date table, which is essential for time-based calculations such as year-over-year analysis, month-to-date, quarter-to-date, etc.

12. Extract Day/Month/Year ?

DAY(<datetime>) : Extracts the day from a date value.

MONTH(<datetime>): Extracts the month from a date value.

YEAR(<datetime>) : Extracts the year from a date value.

WEEK 10

NOTES BY
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13. Extract Hour/Minute/Second ?

Hour(<datetime>) : Extracts the Hour from a date and time value.

Minute(<datetime>): Extracts the Minute from a date and time value.

Second(<datetime>) : Extracts the Second from a date and time value.

14. DATEDIFF Formula ?

Returns the difference between two dates in the specified interval (days, months, years, etc.)

DATEDIFF(<start_date>, <end_date>, <interval>)

Example
DATEDIFF(Sales[OrderDate],Sales[ShipDate], DAY)

WEEK 10

NOTES BY
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15. MTD QTD AND YTD FORMULA ?

SalesMTD = TOTALMTD(SUM(Sales[SalesAmount]), DateTable[Date])

Sales QTD = TOTALQTD(SUM(Sales[SalesAmount]), OateTable[Date])

Sales YTD = TOTALYTD(SUM(Sales[SalesAmount]), OateTable[Date])

MTD (Month-to-Date), QTD (Quarter-to-Date), and YTD (Year-to-Date) are commonly used DAX functions in Power Bl for performing time-based aggregations. They are particularly helpful for tracking progress over the current month, quarter, or year, making it easy to see cumulative totals up to the present date. These functions rely on having a properly structured date table, ideally linked to your data model.

WEEK 10

NOTES BY
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16. DATESBETWEEN FORMULA ?

DATESBETWEEN(<dates>,<start_date>,<end_date>)

The DATESBETWEEN function in DAX returns a table with dates within a specified start and end date range. This function is useful when you want to filter data to specific date boundaries.

17. LEFT, RIGHT TEXT FORMULA ?

In Power Bl, there are several DAX functiions designed for workiing with text data. These functions allow you to manipulate and format text values in various ways. Here are some commonly used text DAX formulas in Power Bl:
LEFT, RIGHT

LEFT("Power Bl", 5) II Result: "Power"

RIGHT("Power Bl", 2) // Result: "Bl"

WEEK 10

Notes By
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18. UPPER, LOWER TEXT FORMULA ?

In Power Bl, there are several DAX functiions desiigned for working with text data. These functions allow you to manipulate and format text values in various ways. Here are some commonly used text DAX formulas in Power Bl:

UPPER and LOWER

UPPER{"Power Bl") // Result: "POWERBl"

LOWER("Power Bl") // Result: "power lbi"

19. LEN TEXT FORMULA ?

LEN: Returns the length (number of characters) of a text string.