DAX Power Functions in Power BI

Section 1: Learn

What is DAX?

DAX (Data Analysis Expressions) is a formula language used in **Power BI, Excel, and SQL Server Analysis Services (SSAS)** to perform calculations on data.

Why Use DAX?

- **Performs complex calculations** – Aggregations, filters, and relationships.

- **Creates custom measures** – Dynamic calculations for reports.

- **Enhances data models** – More flexibility than Excel formulas.

How Does DAX Work?

DAX consists of:

1. **Functions** – Predefined formulas (SUM(), AVERAGE(), etc.).

2. **Operators** – Arithmetic (+, –), logical (AND, OR).

3. **Context** – **Row context** (calculates per row) & **Filter context** (calculates based on filters).

Fun Fact: DAX is Like Excel, But Smarter!

DAX functions are **similar to Excel formulas** but work **better with relational data**.

Section 2: Practice

1. Basic Aggregation Functions

```
Total Sales = SUM(Sales[Amount])

Average Sales = AVERAGE(Sales[Amount])

Max Sales = MAX(Sales[Amount])
```

2. IF Statements in DAX

```
High Sales = IF(Sales[Amount] > 50000, "High", "Low")
```

3. Using CALCULATE() for Advanced Filtering

```
Total Sales in 2023 = CALCULATE(SUM(Sales[Amount]), Sales[Year] = 2023)
```

4. Creating a Running Total (Cumulative Sum)

Running Total = CALCULATE(SUM(Sales[Amount]),

FILTER(ALL(Sales), Sales[Date] <= MAX(Sales[Date])))

5. Using RELATED() to Fetch Data from Another Table

Product Category = RELATED(Product[Category])

Try This Yourself:

1. Create a **New Measure** that calculates **Total Profit** using SUM().

2. Use IF() to classify sales as **"Above Target" or "Below Target"**.

Section 3: Know More

Frequently Asked Questions

Q1: What is the difference between a Measure and a Calculated Column?

- **Measure** – Works on the entire dataset, **dynamic**.

- **Calculated Column** – Added to a table, **static** per row.

Q2: Can I use DAX in Excel?

Yes! **Power Pivot in Excel** supports DAX formulas.

Q3: What is the use of ALL() in DAX?

ALL() removes filters in calculations:

Total Sales (Ignoring Filters) = CALCULATE(SUM(Sales[Amount]),

ALL(Sales))

Q4: How do I handle errors in DAX?

Use IFERROR():

Safe Division = IFERROR(Sales[Amount] / Sales[Quantity], 0)

Q5: Can DAX be used for date calculations?

Yes! Functions like TODAY(), DATESYTD(), DATEDIFF() are useful for

date analysis.

DAX **supercharges Power BI** by enabling advanced calculations. Keep

practicing to master it!