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📩 Email from Business Analyst Manager

Subject: Project Brief: DAX Depo – Advanced Calculations Using DAX in Power BI

From: Priya Sinha, Business Analyst Manager
To: Data Analyst Team
Date: May 16, 2025

Dear Akash,

We have received a request from senior leadership to build a backend data model and perform **advanced analytical calculations using DAX** in Power BI. This initiative, titled **"DAX Depo"**, will help the analytics team evaluate how well our internal metrics, KPIs, and time-based insights can be generated using **DAX functions** without relying on external visuals (except Matrix where absolutely necessary).

🧠 Project Goals:

You are expected to leverage Power BI's DAX language to build calculated insights on a **Sales and Returns model**. Visuals are not to be included except **Matrix tables**, which may be used to display calculation results where needed.

🗂️ Required Dataset Tables (already attached in mail):

- Sales_Fact
- Returns_Fact
- Customer_Dim
- Product_Dim
- Date_Dim
- Region_Dim

✅ Tasks to Perform:

Calculated Columns:

1. Create a Profit column in Sales_Fact (SalesAmount - Cost).
2. Create a ReturnFlag column in Sales_Fact to show "Returned" or "Not Returned".
3. Add a Customer Full Name column by combining first and last names in Customer_Dim.

Measures:

4. Create measures for:
    - Total Sales
    - Total Cost
    - Total Profit
    - Return Rate (% of items returned)
    - Average Sale per Transaction

Quick Measures:

5. Use **Quick Measures** to:
    - Calculate Year-Over-Year Sales Growth
    - Find difference between Current and Previous Month Sales

Measure Management:

6. Create a **Dedicated Measure Table** to organize all DAX measures clearly.

Filter Context & Behavior:

7. Use Matrix to compare Sales by Region with and without filters using:
    - ALL()
    - FILTER()
    - CALCULATE()

DAX Operators and Functions:

8. Use:
    - Basic math/statistical functions (SUM, AVERAGE, MAX)
    - COUNTX, DISTINCTCOUNT
    - IF, AND, OR, SWITCH for conditional logic
    - CONCATENATE, UPPER, LEFT for text manipulations
    - YEAR, MONTH, EOMONTH for date handling

Joining and Relationships:

9. Use the RELATED() function to pull related data from dimension tables into calculated columns or measures.

Time Intelligence (Matrix-based Analysis):

10. Use:
    - TOTALYTD(), SAMEPERIODLASTYEAR(), DATESINPERIOD() in Matrix to analyze sales across months and years.
    - Create a running total using CALCULATE() and DATESBETWEEN().

Additional Scenarios:

11. Use SWITCH() to categorize sales ranges (e.g., Low, Medium, High).
12. Use Iterator functions like SUMX() and AVERAGEX() for aggregated metrics.

Output Requirement:

- All calculated results should be displayed in **Matrix visual only**, grouped by Region, Month, Product Category, and Customer Segment.
- **Do not use any other visualizations.**

Attachments:
Dataset: LINK

Please complete the project and submit the .pbix file for review by **Monday, May 20, 2025 (within 4 days)**.

Best regards,
Madhav Shah
Business Analyst Manager

DAX Depo
POWER BI - DATA ANALYSIS & DATA SCIENCE

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