Day 17 – Power BI Model Documentation

1. Data Model Overview

This documentation describes the Superstore sales data model used for Days 14–17. The model is designed as a simple star schema centred on the sales fact table, with supporting dimension tables for Date, Customer, Product, and Region. The grain of the fact table is one row per order line.

2. Table-Level Data Dictionary

- FactSales (Superstore_1000Rows)

Description: Central transaction table containing one row per order line from the Superstore dataset. Used for all core sales, quantity, discount, and profit calculations.

Key columns:

1. Order ID – Unique identifier for each order. Multiple lines can share the same Order ID.
2. Order Date – Date on which the order was placed. Used to join to the Date table.
3. Ship Date – Date on which the order shipped. Used for logistics and lead-time analysis.
4. Customer ID – Unique identifier of the customer placing the order. Joins to DimCustomer.
5. Product ID / Product Name – Identifier and descriptive name of the product sold. Joins to DimProduct.
6. Category – High-level product category (Furniture, Office Supplies, Technology).
7. Sub-Category – More detailed product classification within Category.
8. Region – Geographic sales region. Joins to DimRegion in the star schema version.
9. Country – Country where the order was delivered.
10. Sales – Revenue amount for the line item after discount.
11. Quantity – Number of units sold on the line item.
12. Discount – Discount percentage applied to this line item.
13. Profit – Line-level profit after cost of goods and discount.

- DimDate

Description: Calendar table containing one row per day, used to drive consistent time-intelligence and filtering.

Key columns:

14. Date – Unique calendar date. Primary key of DimDate.

15. Year – Calendar year of the date.
16. Quarter – Calendar quarter (Q1–Q4).
17. Month – Full month name (January, February, etc.).
18. Month Number – Numeric month (1–12), used for correct sorting.
19. Year-Month – Concatenated label such as 2024-01 used in visuals.

- DimCustomer

Description: Dimension table with one row per customer. Used to analyse sales by customer attributes.

Key columns:

20. Customer ID – Unique identifier for the customer. Primary key.
21. Customer Name – Customer's full name.
22. Segment – Customer segment (Consumer, Corporate, Home Office).
23. Region – Customer's primary region. Often aligns with order region.
24. Country – Customer's country.

- DimProduct

Description: Dimension table with one row per product. Used to analyse performance at product and category level.

Key columns:

25. Product ID – Unique product identifier. Primary key.
26. Product Name – Descriptive product name.
27. Category – High-level category (Furniture, Office Supplies, Technology).
28. Sub-Category – More specific product grouping within each category.

- DimRegion

Description: Lookup table containing geographic regions used in the dataset.

Key columns:

29. Region – Region code or name. Primary key.
30. Country – Country belonging to the region.
31. State / City – Optional additional geographic breakdown depending on model.

3. Relationships Between Tables

- FactSales[Order Date] → DimDate[Date] (Many-to-One, single direction from DimDate to FactSales).
- FactSales[Customer ID] → DimCustomer[Customer ID] (Many-to-One, single direction from DimCustomer to FactSales).
- FactSales[Product ID] → DimProduct[Product ID] (Many-to-One, single direction from DimProduct to FactSales).
- FactSales[Region] → DimRegion[Region] (Many-to-One, single direction from DimRegion to FactSales).

4. DAX Measures – Business-Friendly Documentation

- Total Sales

DAX definition: Total Sales = SUM(FactSales[Sales])

Business meaning: Calculates overall revenue by summing the Sales column across all visible transactions. This is the primary top-line KPI used in most reports.

- Total Quantity

DAX definition: Total Quantity = SUM(FactSales[Quantity])

Business meaning: Counts the total number of units sold. Used to understand volume independently from revenue.

- Total Profit

DAX definition: Total Profit = SUM(FactSales[Profit])

Business meaning: Aggregates profit across all transactions after discounts and costs. Used to evaluate financial performance.

- Average Discount

DAX definition: Average Discount = AVERAGE(FactSales[Discount])

Business meaning: Shows the average discount percentage applied to orders in the current filter context. Useful for monitoring discounting behaviour by region, segment, or product.

- Profit Margin %

DAX definition: Profit Margin % = DIVIDE([Total Profit], [Total Sales])

Business meaning: Expresses profit as a percentage of sales. Executives read this as the overall profitability of the business for the selected slice (e.g., by year, region, or category).

- Sales LY

DAX definition: Sales LY = CALCULATE([Total Sales], DATEADD(DimDate[Date], -1, YEAR))

Business meaning: Returns last year's sales for the same period, enabling year-over-year comparisons in visuals.

- Sales YoY %

DAX definition: Sales YoY % = DIVIDE([Total Sales] - [Sales LY], [Sales LY])

Business meaning: Shows the percentage change in sales compared to the same period last year. Positive values indicate growth; negative values indicate decline.

- High Value Customers

DAX definition: High Value Customers = CALCULATE(DISTINCTCOUNT(DimCustomer[Customer ID]), [Total Sales] > 100000)

Business meaning: Counts customers whose sales exceed a defined threshold (e.g., 100K). Used to track key accounts.

5. How to Use This Documentation

• Use the table dictionary when onboarding new analysts so they understand what each field represents.
• Use the relationship section to explain why filters behave a certain way in reports.
• Use the DAX documentation whenever you present KPIs to non-technical stakeholders – you can read the business-meaning paragraphs directly in meetings.
• When you add new tables or measures, extend this document so it stays in sync with the live Power BI model.