**🎓 Power BI Hands-on Guide for Finance Students**

**🧠 Focus: DAX – Measures, Calculated Columns, and Date Functions**

**📁 Step 1: Load Sample Sales Data**

Use this sample:

| **Segment** | **Country** | **Product** | **Discount Band** | **Units Sold** | **Manufacturing Price** | **Sale Price** | **Gross Sales** | **Discounts** | **Sales** | **COGS** | **Profit** | **Date** | **Month Number** | **Month Name** | **Year** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Government | Canada | Carretera | None | 1618.5 | 3 | 20 | 32370 | 0 | 32370 | 16185 | 16185 | 41640 | 1 | January | 2014 |
| Government | Germany | Carretera | None | 1321 | 3 | 20 | 26420 | 0 | 26420 | 13210 | 13210 | 41640 | 1 | January | 2014 |
| Midmarket | France | Carretera | None | 2178 | 3 | 15 | 32670 | 0 | 32670 | 21780 | 10890 | 41791 | 6 | June | 2014 |

📌 Load into Power BI as a table called Sales.

**🧮 Step 2: Create Calculated Column (Row-by-Row)**

**🔹 Example: Profit Margin (%)**

dax

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Profit Margin (%) =

DIVIDE(Sales[Profit], Sales[Sales], 0)

**Use Cases:**

* Add to **Table visuals**
* Use in filters (e.g., show only rows with margin > 0.4)

**📏 Step 3: Create Measures (Dynamic Aggregation)**

**🔹 Total Profit**

dax

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Total Profit = SUM(Sales[Profit])

**🔹 Profit Margin Measure**

dax

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Profit Margin Measure =

DIVIDE(SUM(Sales[Profit]), SUM(Sales[Sales]), 0)

**Use Cases:**

* Use in Cards, KPIs, charts
* Dynamically changes with slicers

**✅ Step 4: Show Difference (Table vs Card)**

| **Use in Table** | **Use in Card** |
| --- | --- |
| Profit Margin (%) | Profit Margin Measure |

**📅 Step 5: Create a Date Table (Calculated Table)**

**🔹 Add this table using "New Table"**

dax

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DateTable =

ADDCOLUMNS (

CALENDAR (DATE(2014, 1, 1), DATE(2014, 12, 31)),

"Year", YEAR([Date]),

"Month Number", MONTH([Date]),

"Month Name", FORMAT([Date], "MMMM"),

"Quarter", "Q" & FORMAT([Date], "Q"),

"YearMonth", FORMAT([Date], "YYYY-MM")

)

**🔄 Create Relationship:**

Link Sales[Date] to DateTable[Date]

**🕒 Step 6: Use Date Functions with Measures**

**🔹 YTD Profit**

dax

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YTD Profit =

TOTALYTD([Total Profit], 'DateTable'[Date])

**🔹 Sales Last Month**

dax

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Sales Last Month =

CALCULATE([Total Sales], PREVIOUSMONTH('DateTable'[Date]))

**🧠 Step 7: Use CALCULATE in Calculated Column**

**🔹 High Profit Flag**

dax

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High Profit Flag =

IF(

Sales[Profit] > CALCULATE(AVERAGE(Sales[Profit])),

"High Profit",

"Normal"

)

**📊 Step 8: Visual Suggestions**

| **Visual Type** | **Fields Used** |
| --- | --- |
| Table | Country, Sales, Profit, Profit Margin % |
| Card | Total Profit, Profit Margin Measure |
| Line Chart | DateTable[YearMonth] vs YTD Profit |
| Matrix | Segment vs Profit / Sales |
| Slicer | Month Name, Year |

**📝 Summary**

| **Feature** | **Calculated Column** | **Measure** |
| --- | --- | --- |
| Row-by-row logic | ✅ Yes | ❌ No |
| Stored in data model | ✅ Yes | ❌ No |
| Filter dynamically | ❌ No | ✅ Yes |
| Use in visuals | ✅ Table visual | ✅ Card, Chart, Matrix |
| Performance (large data) | Slower | Faster |