

SQL DATA Analytics

Project



SQL Projects



~Organize, Structure, Prepare~

- ETL/ELT Processing
- Data Architecture
- Data Integration
- Data Cleansing
- Data Load
- Data Modeling



~Understand Data~

- Basic Queries
- Data Profiling
- Simple Aggregations
- Subquery



~Answer Business Questions~

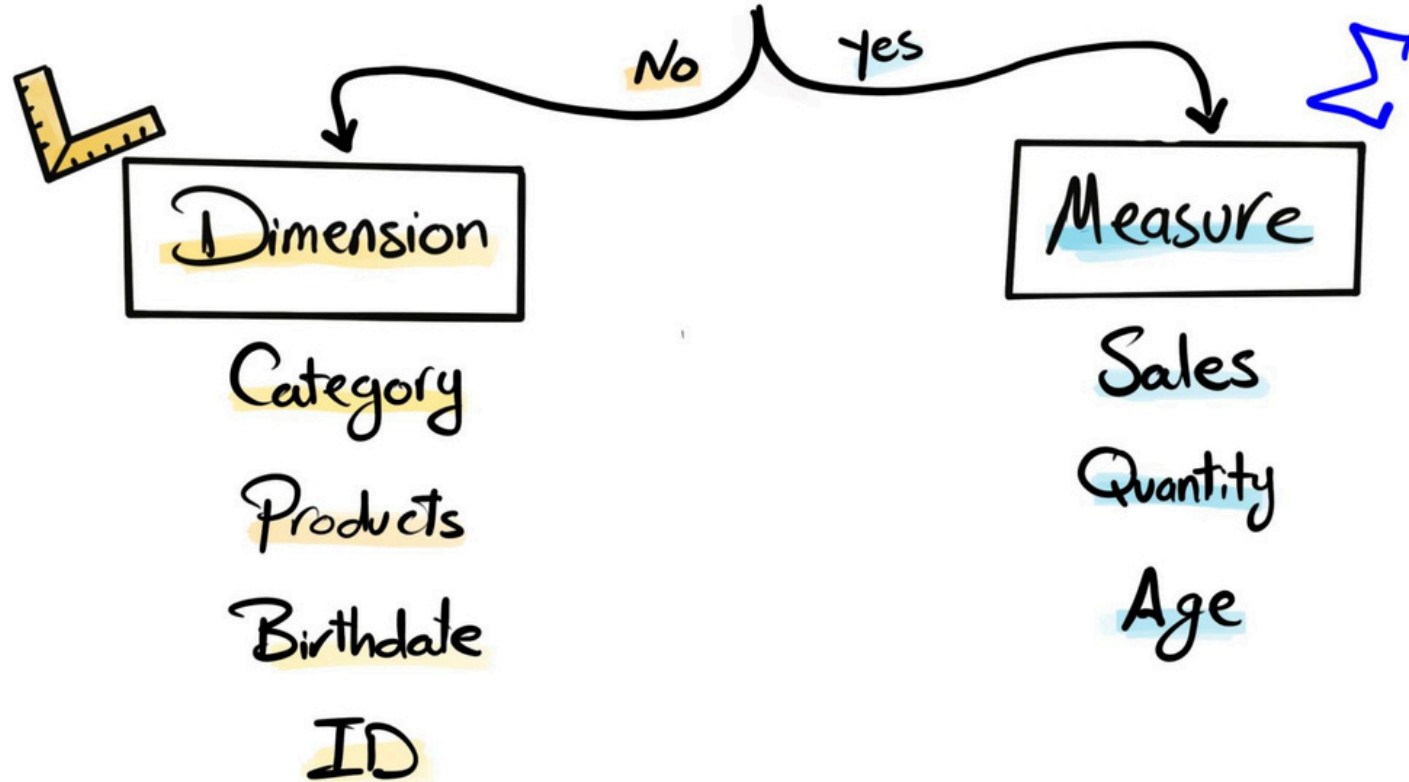
- Complex Queries
- Window Functions
- CTE
- Subqueries
- Reports

Dataset

~	~	~	~	~
~	~	~	~	~
~	~	~	~	~
~	~	~	~	~

Is it Numeric ?

& Does it make Sense to aggregate?



A	C
B	D

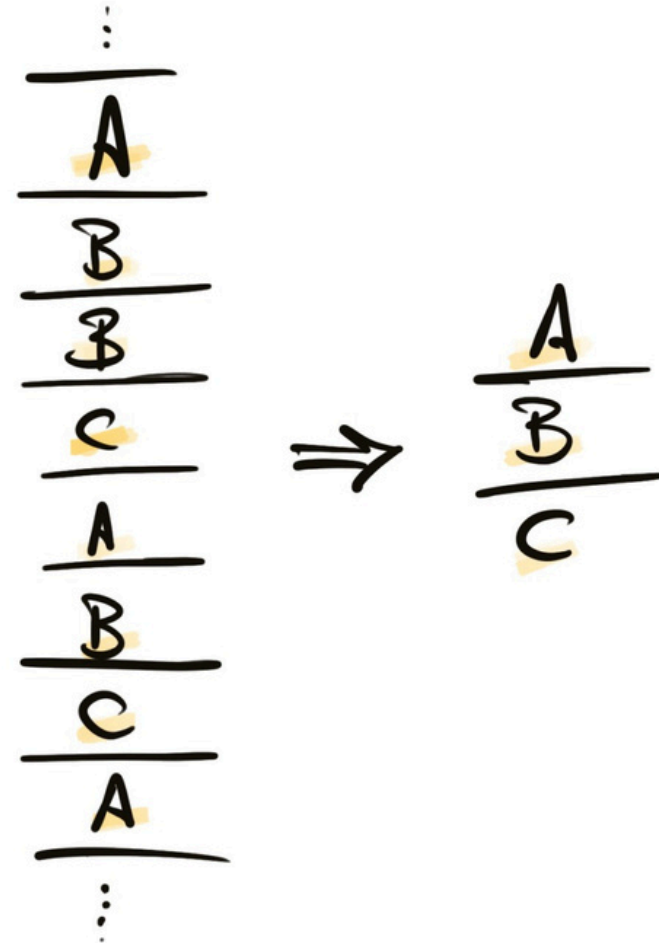
Dimensions Exploration

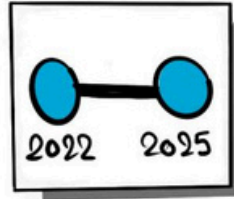
DISTINCT [Dimension]

DISTINCT Country

DISTINCT Category

DISTINCT Product





Date Exploration

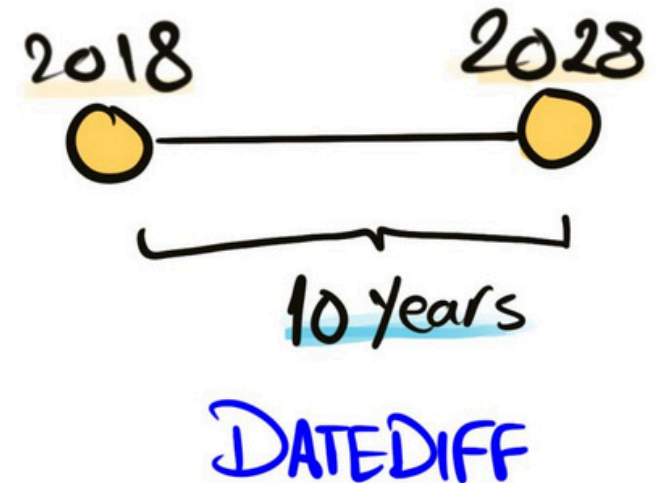
MIN/MAX [Date Dimension]

MIN Order_date

MAX Create_date

MIN Birthdate

2019
2020
2018
2018
2022
2023
2023
2028
2022



DATEDIFF

999
~~~~~

## Measures Exploration

$\Sigma$  [Measure]

SUM (Sales)

AVG (Price)

SUM (Quantity)

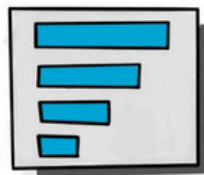
|    |
|----|
| 10 |
| 20 |
| 50 |
| 30 |
| 10 |
| 80 |
| 30 |
| 10 |

$\Rightarrow$

240

BIG Number  
↙

↗  
Key Metric



# Magnitude

$\Sigma$  [Measure] By [Dimension]

Total Sales By Country

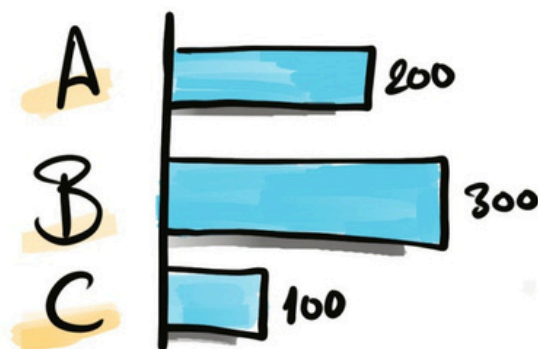
Total Quantity By Category

Average Price By Product

Total Orders By Customer

600

|   |     |
|---|-----|
| A | 200 |
| B | 300 |
| C | 100 |





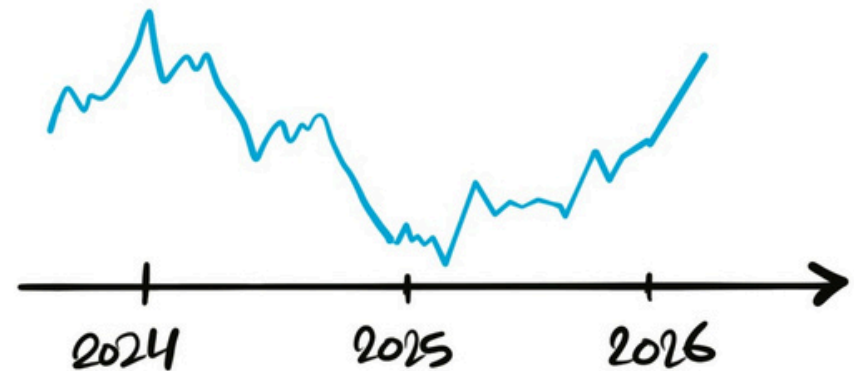
## Change-Over-Time Trends

$\Sigma$  [Measure] By [Date Dimension]

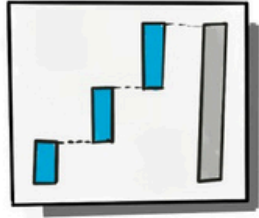
Total Sales By Year

Average Cost By Month

|      |     |
|------|-----|
| 2024 | 300 |
| 2025 | 100 |
| 2026 | 200 |







## Cumulative Analysis

$\Sigma$  [Cumulative Measure] By [Date Dimension]

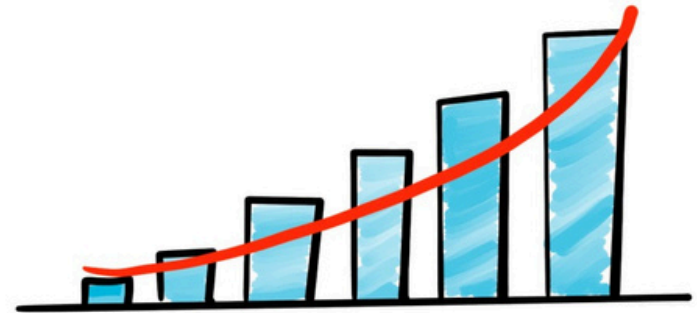
Running Total Sales By Year

Moving Average of Sales By Month

Cumulative  
↓

|      |                  |     |
|------|------------------|-----|
| 2024 | 300              | 300 |
| 2025 | 100 <sup>+</sup> | 400 |
| 2026 | 200 <sup>+</sup> | 600 |

## WINDOW FUNCTIONS





## Performance Analysis

Current [Measure] - Target [Measure]

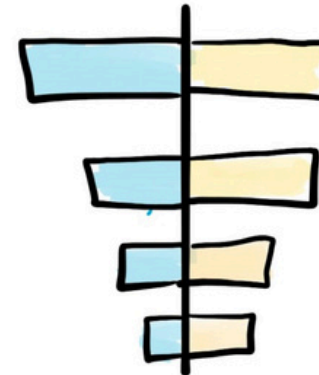
Current Sales - Average Sales

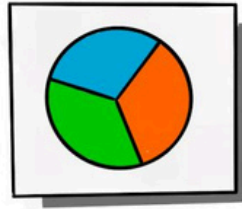
Current Year Sales - Previous Year Sales

Current Sales - lowest Sales

## WINDOW FUNCTIONS

|   | Current | - | Target (AVG) | Performance |
|---|---------|---|--------------|-------------|
| A | 200     | - | 200          | 0           |
| B | 300     | - | 200          | 100         |
| C | 100     | - | 200          | -100        |





## Part-to-Whole

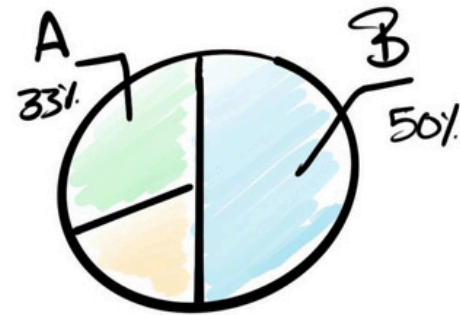
Proportional  
Analysis

$$([\text{Measure}] / \text{Total} [\text{Measure}]) * 100 \text{ By } [\text{Dimension}]$$

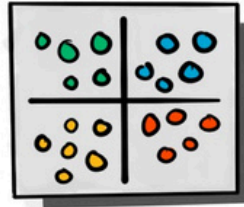
$$(\text{Sales} / \text{Total Sales}) * 100 \text{ By Category}$$

$$(\text{Quantity} / \text{Total Quantity}) * 100 \text{ By Country}$$

|   |     |     |
|---|-----|-----|
| A | 200 | 33% |
| B | 300 | 50% |
| C | 100 | 17% |







# Data Segmentation

[Measure] By [Measure]

Total Products By Sales Range

Total Customers By Age

Σ ↘ Categorize ↘

|    |     |   |        |
|----|-----|---|--------|
| 3  | 50  |   |        |
| 4  | 100 | ↘ | Low    |
| 5  | 150 | ↘ | Medium |
| 1  | 200 | ↘ | Large  |
| 10 | 250 |   |        |
| 5  | 300 |   |        |
|    |     |   | 7      |
|    |     |   | 6      |
|    |     |   | 15     |

CASE WHEN STATEMENT

