



SQL DATA Analytics

Project

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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?

No

Yes



Dimension

Category

Products

Birthdate

ID

Measure

Sales

Quantity

Age



A	C
B	D

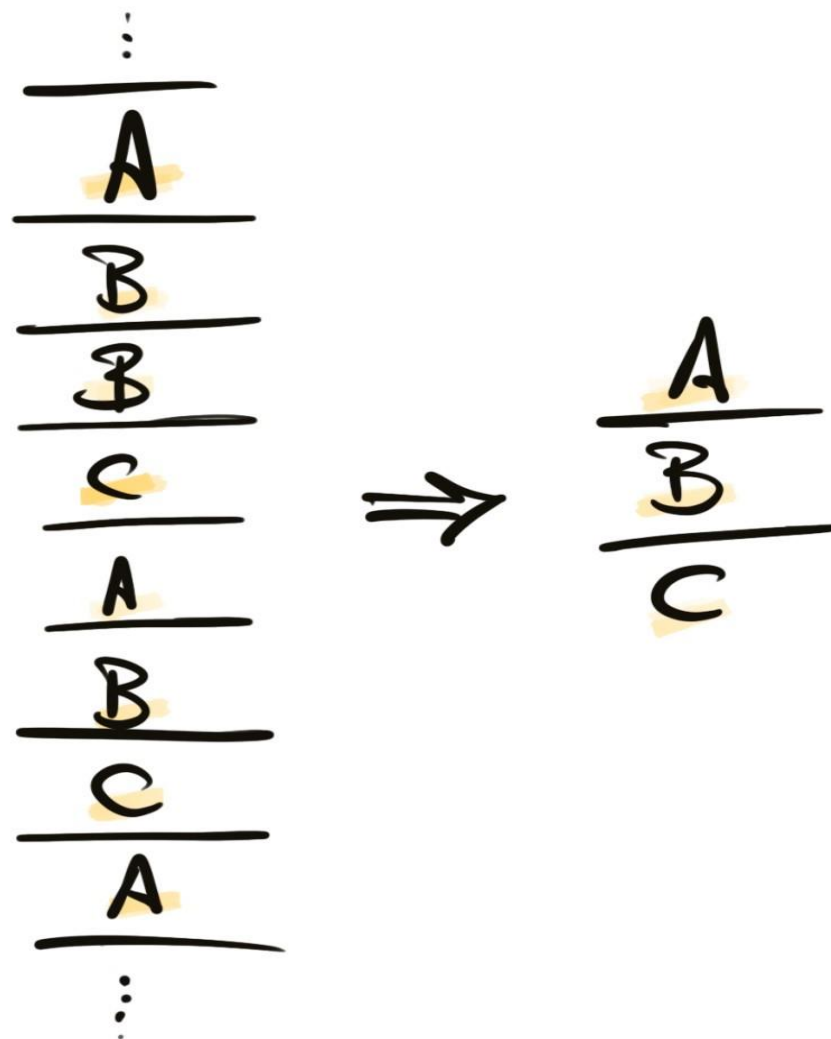
Dimensions Exploration

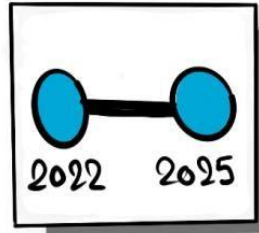
DISTINCT [Dimension]

DISTINCT Country

DISTINCT Category

DISTINCT Product





Date Exploration

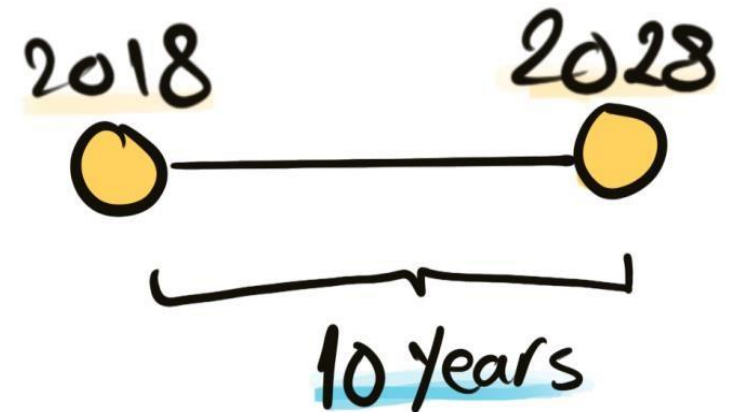
MIN/MAX [Date Dimension]

MIN Order_date

MAX Create_date

MIN Birthdate

2019
2020
2018
2018
2022
2023
2023
2028
2022



DATEDIFF

999

Measures Exploration

Σ [Measure]

SUM (Sales)

AVG (Price)

SUM (Quantity)

10
20
50
30
10
80
30
10

\Rightarrow

240

BIG Number

Key Metric



Magnitude

Σ [Measure] By [Dimension]

Total Sales By Country

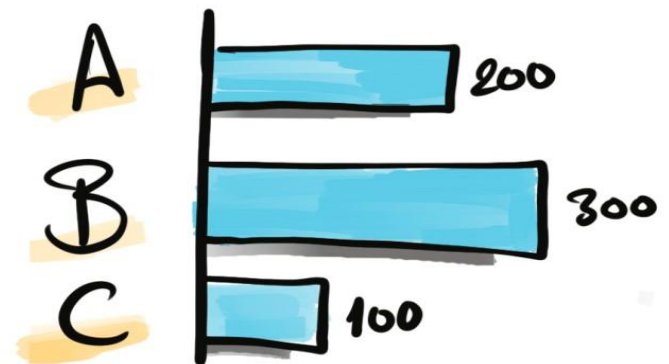
Total Quantity By Category

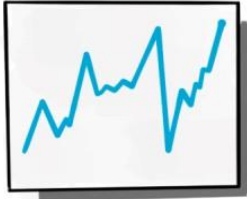
Average Price By Product

Total Orders By Customer

600

A	200
B	300
C	100





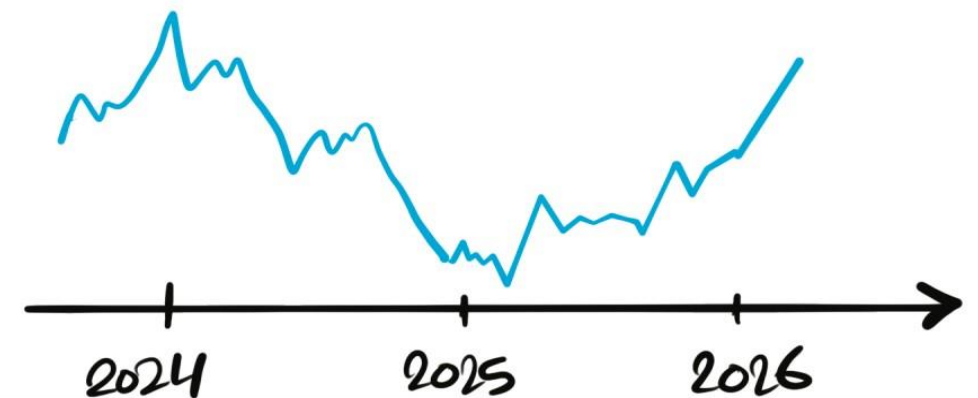
Change-Over-Time Trends

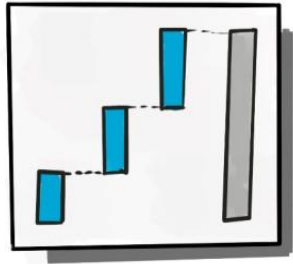
Σ [Measure] By [Date Dimension]

Total Sales By Year

Average Cost By Month

2024	300
2025	100
2026	200





Cumulative Analysis

Σ [Cumulative Measure] By [Date Dimension]

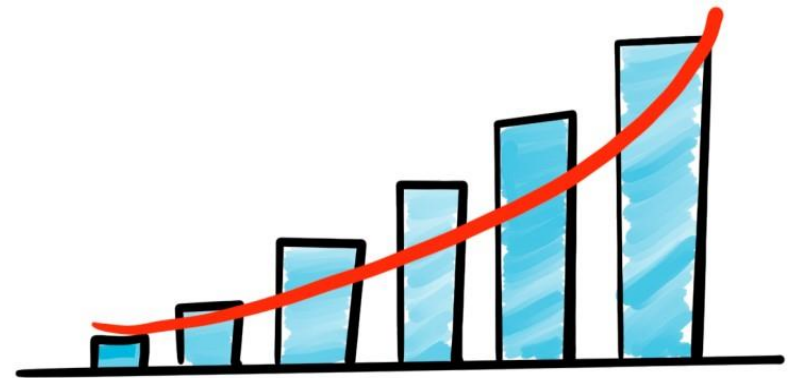
Running Total Sales By Year

Moving Average of Sales By Month

Cumulative

2024	300	300
2025	100 ⁺	400
2026	200 ⁺	600

WINDOW FUNCTIONS





Performance Analysis

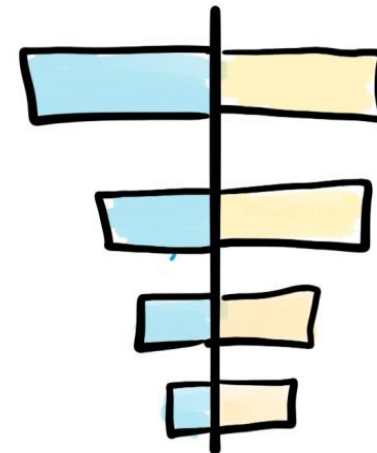
Current [Measure] - Target [Measure]

Current Sales - Average Sales

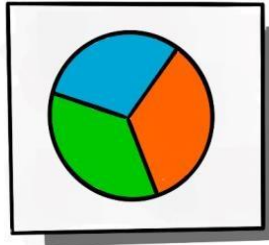
Current Year Sales - Previous Year Sales

Current Sales - lowest Sales

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



WINDOW FUNCTIONS



Part-to-Whole

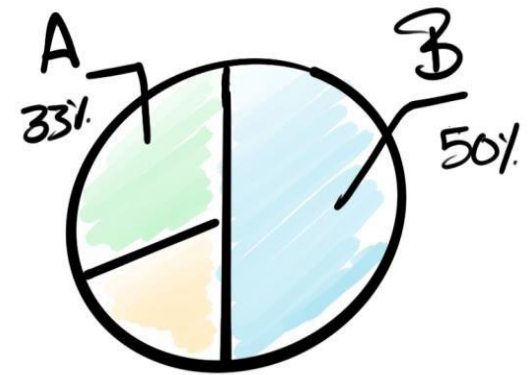
Proportional
Analysis

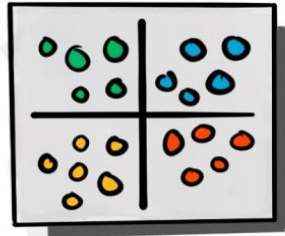
$$([\text{Measure}] / \text{Total} [\text{Measure}]) * 100 \text{ By } [\text{Dimension}]$$

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

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

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

