



DATA WITH BARAA

SQL DATA WAREHOUSE

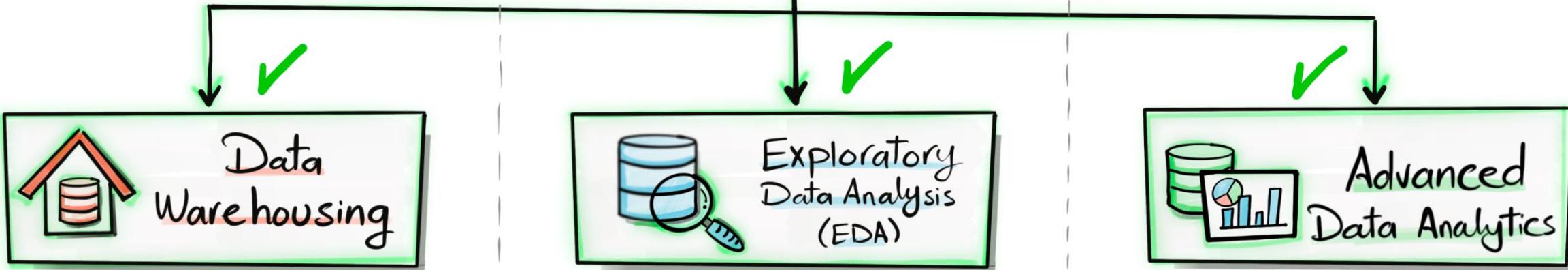
Project

Baraa Khatib Salkini
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SQL Course | Data Warehouse Project





SQL Projects



"Organize, Structure, Prepare."

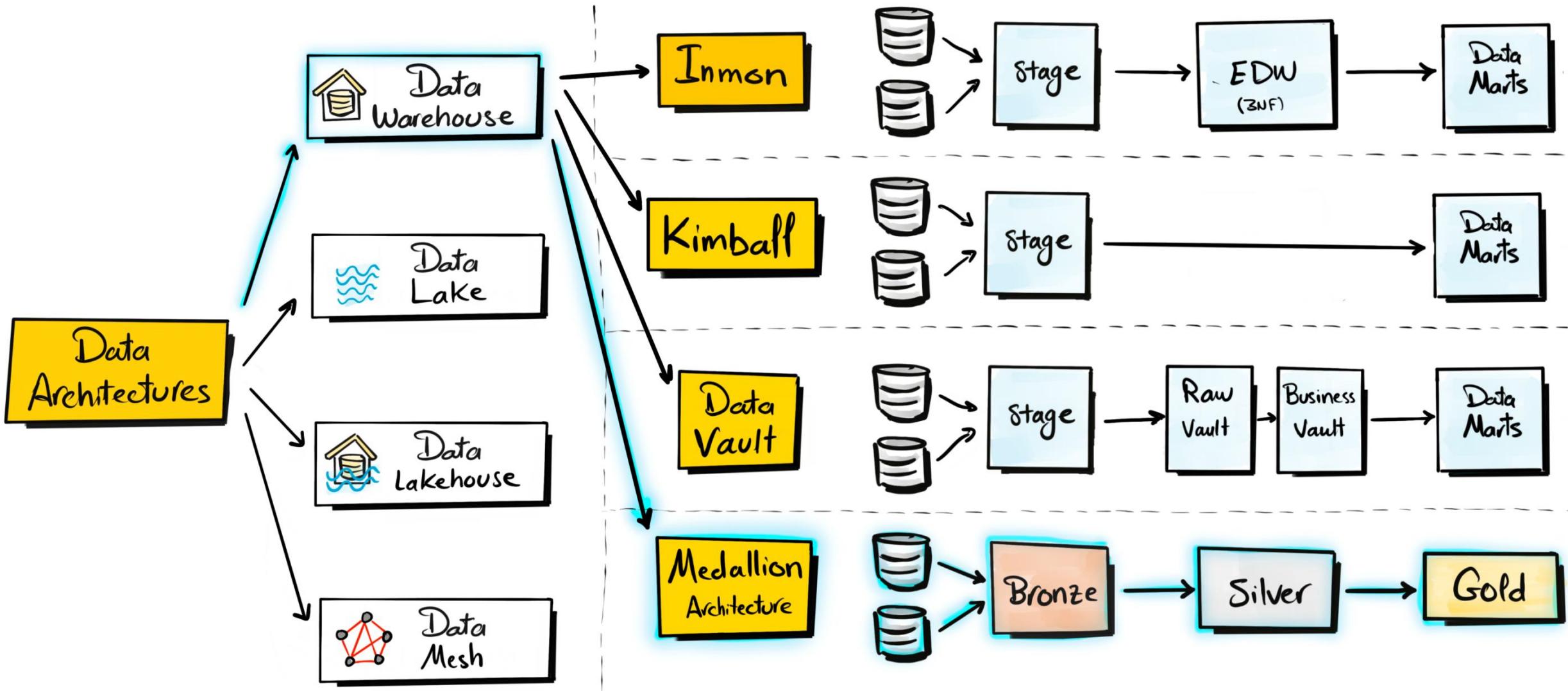
- ETL/ELT Processing
- Data Architecture
- Data Integration
- Data Cleansing
- Data Load
- Data Modeling

"Understand Data."

- Basic Queries
- Data Profiling
- Simple Aggregations
- Subquery

"Answer Business Questions."

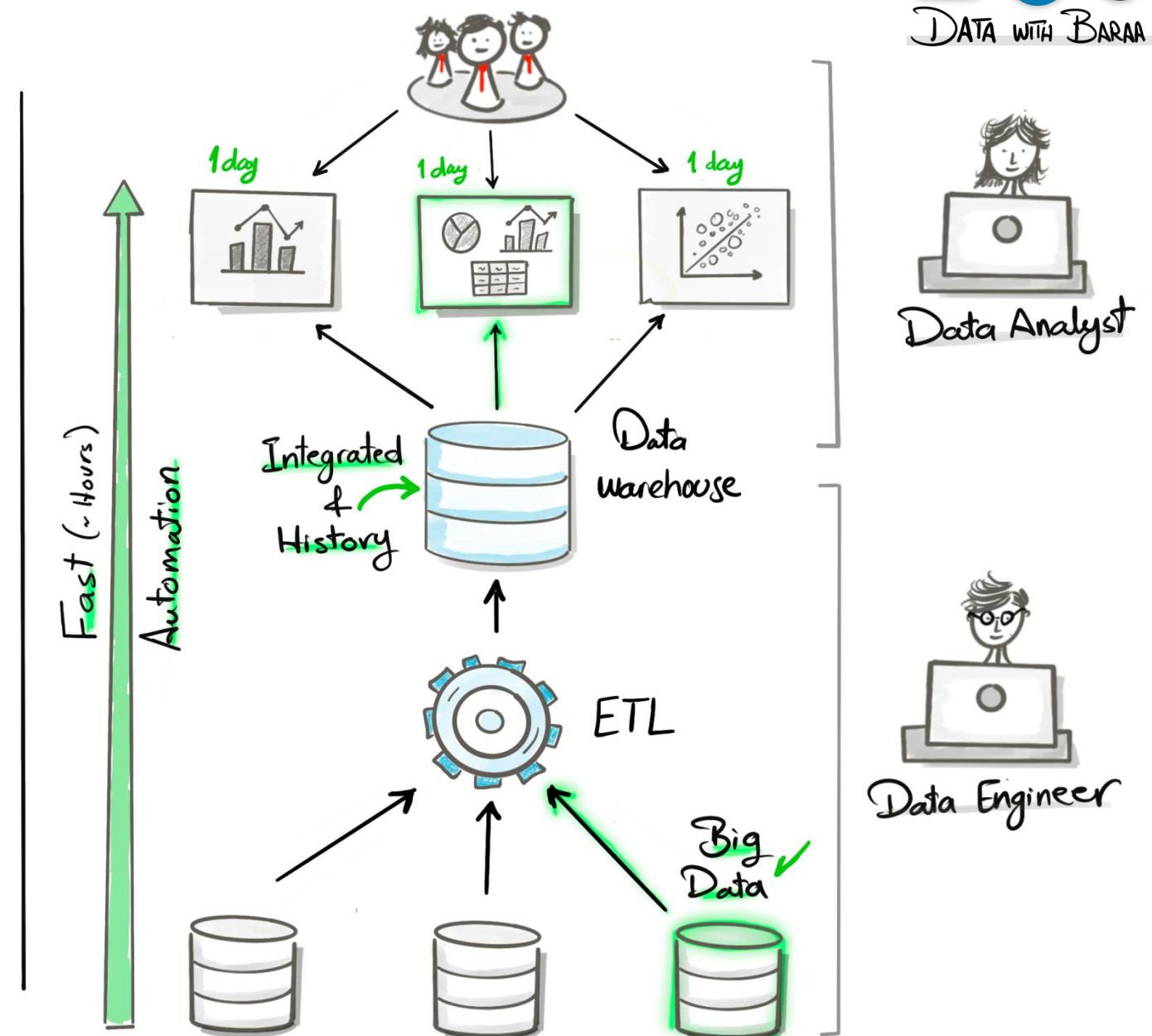
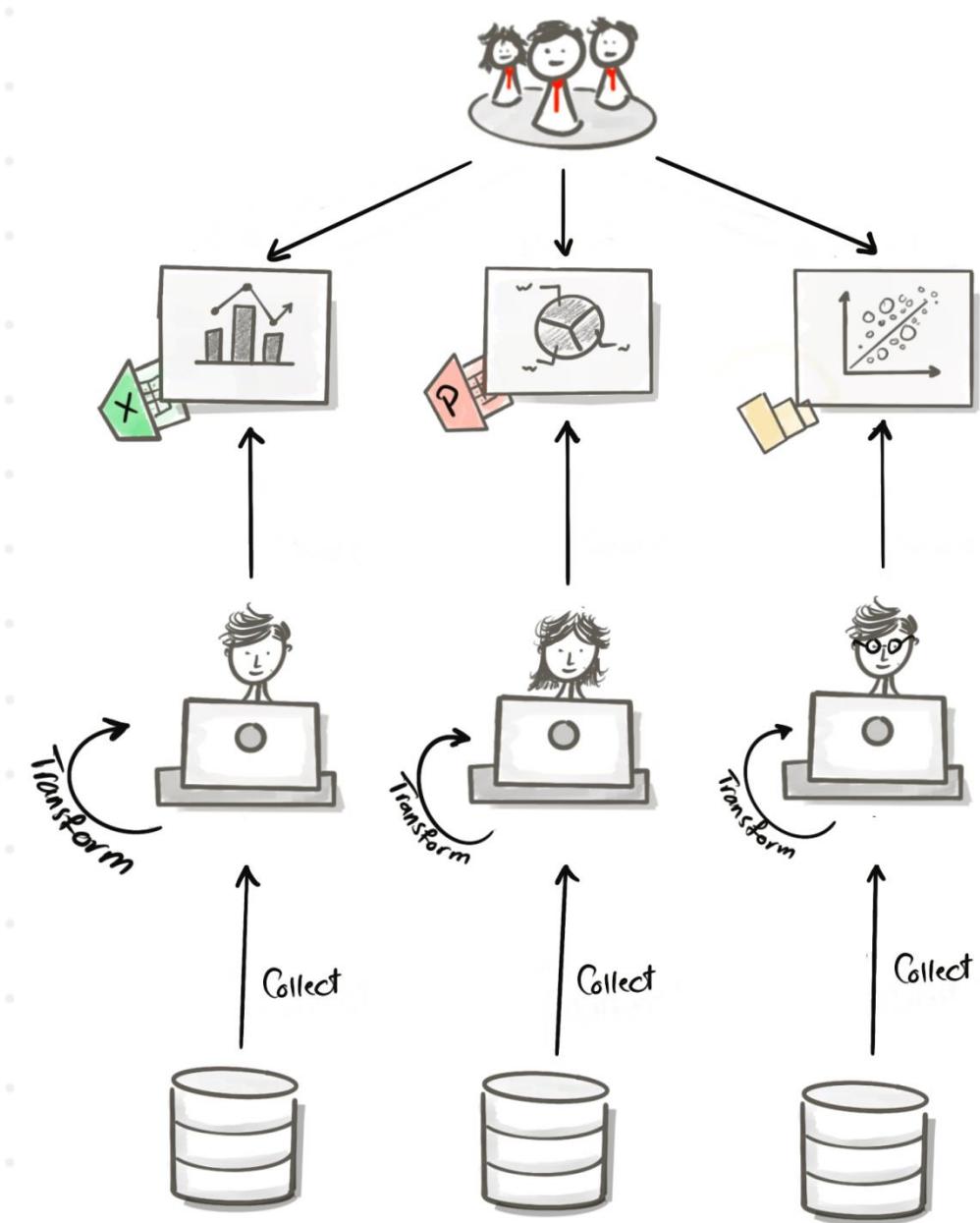
- Complex Queries
- Window Functions
- CTE
- Subqueries
- Reports

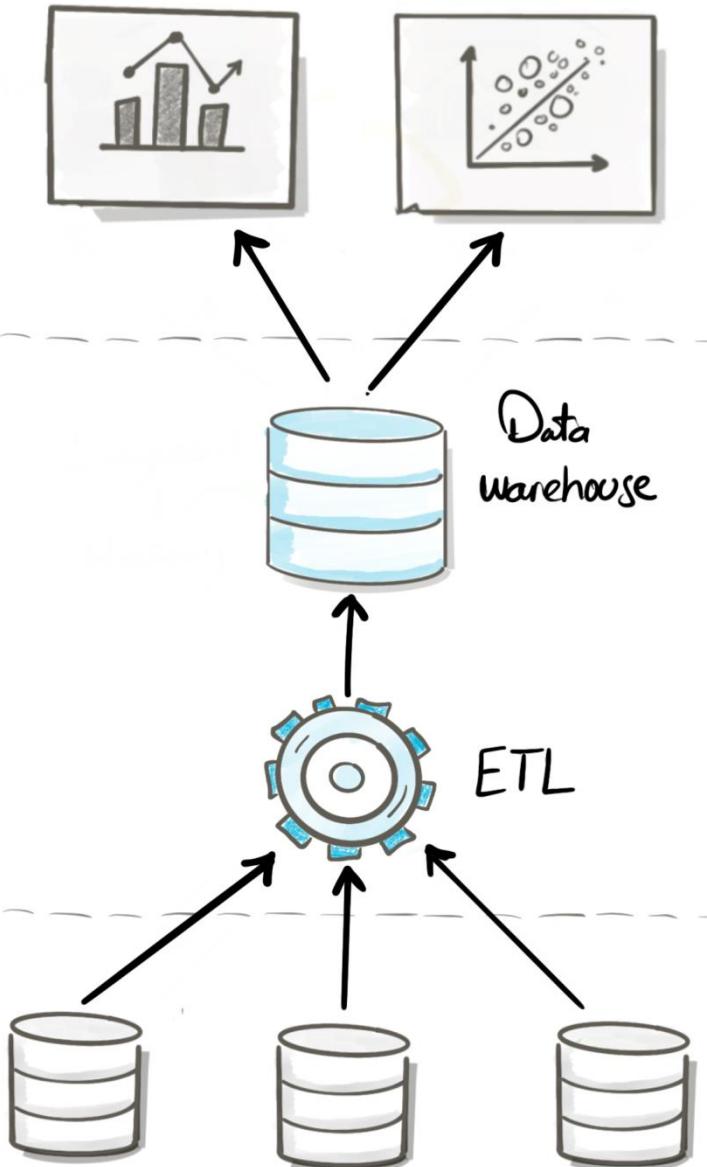




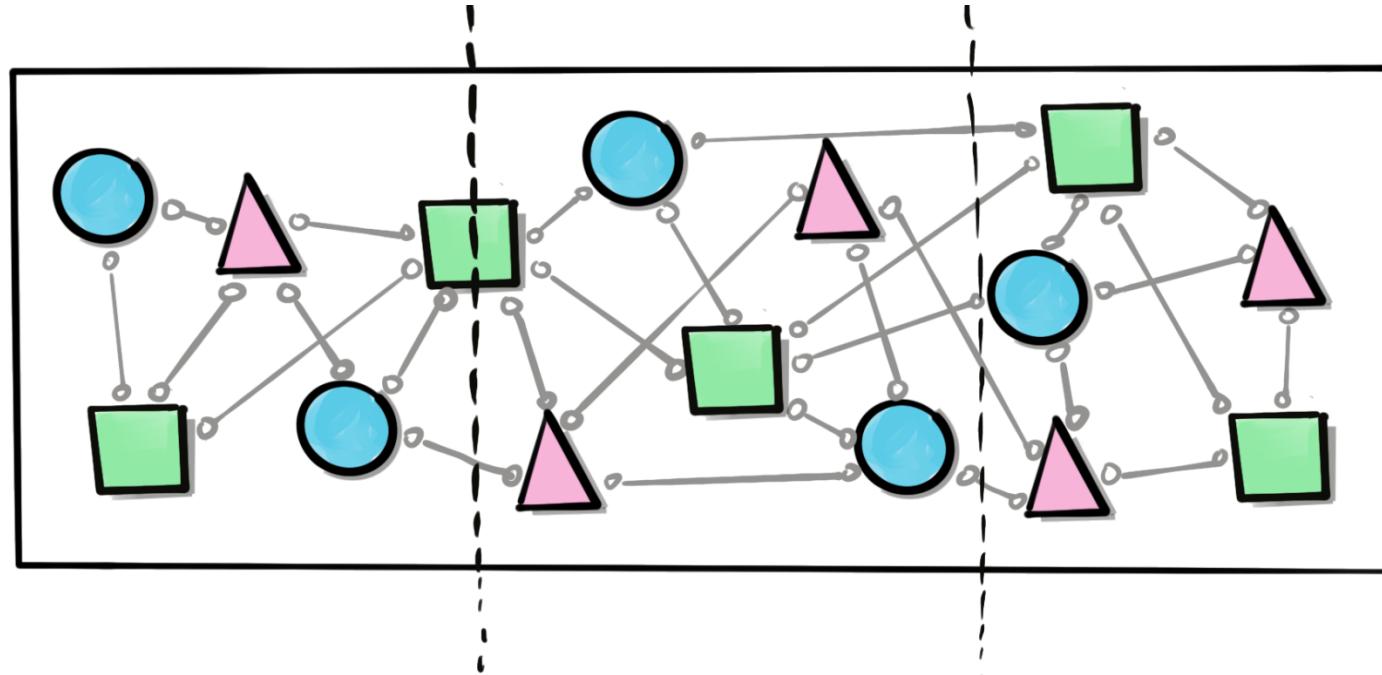
Bronze Layer

Definition	Raw, unprocessed data as-is from sources	Clean & standardized data	Business-Ready data
Objective	Traceability & Debugging	(Intermediate Layer) Prepare Data for Analysis	Provide data to be consumed for reporting & Analytics
Object Type	Tables	Tables	Views
Load Method	Full Load (Truncate & Insert)	Full Load (Truncate & Insert)	None
Data Transformation	None (as-is)	<ul style="list-style-type: none"> - Data Cleaning - Data Standardization - Data Normalization - Derived Columns - Data Enrichment 	<ul style="list-style-type: none"> - Data Integration - Data Aggregation - Business Logic & Rules
Data Modeling	None (as-is)	None (as-is)	<ul style="list-style-type: none"> - Start Schema - Aggregated Objects - Flat Tables
Target Audience	- Data Engineers	<ul style="list-style-type: none"> - Data Analysts - Data Engineers 	<ul style="list-style-type: none"> - Data Analysts - Business Users

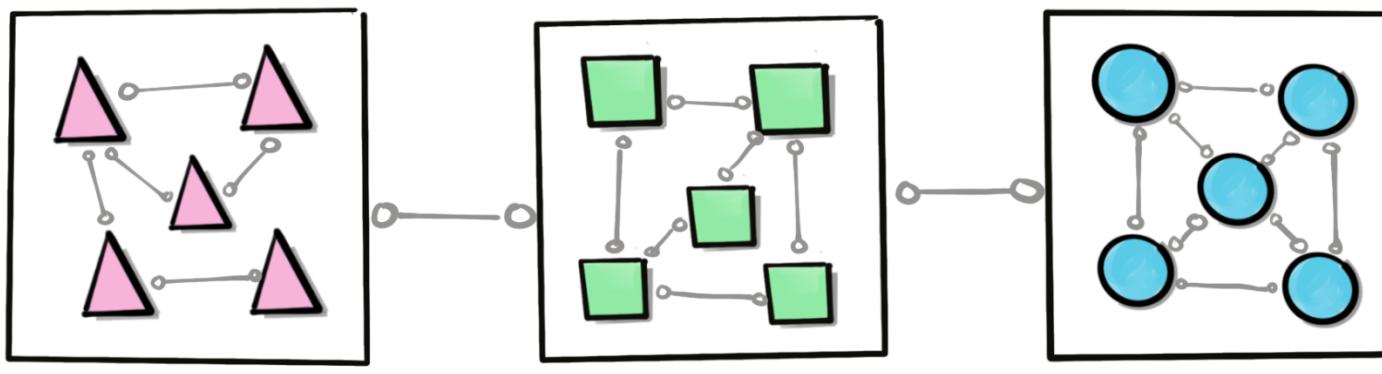




Without
SOC



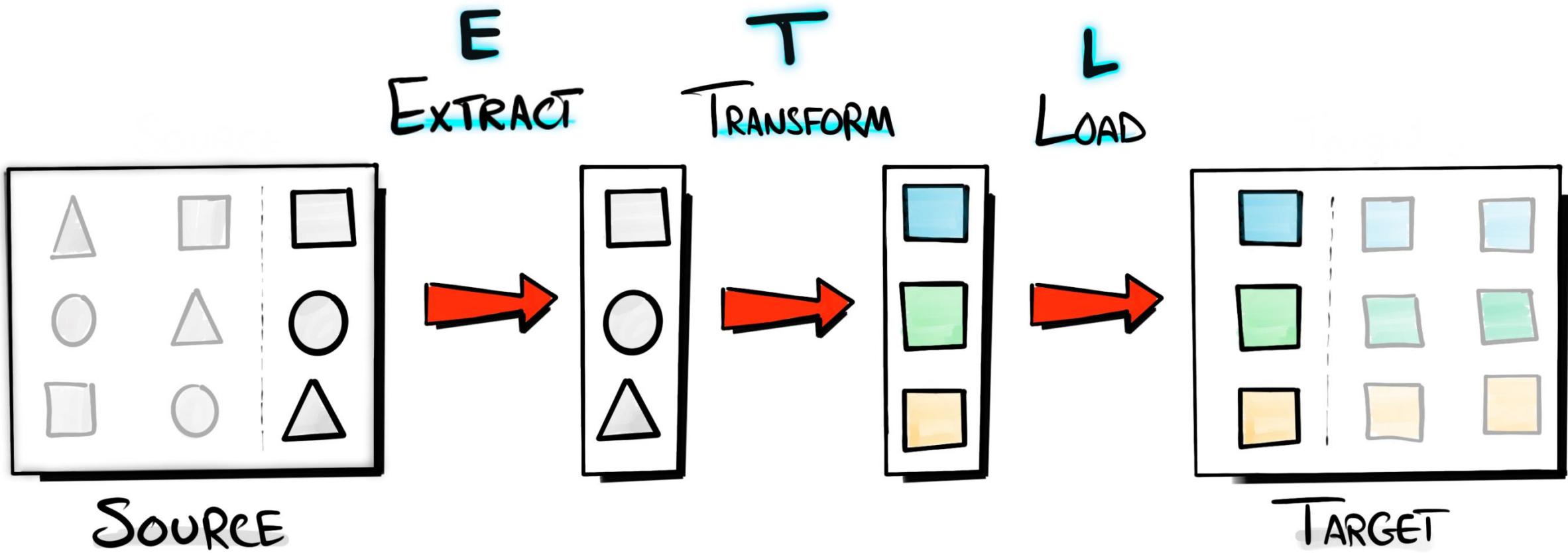
with
SOC



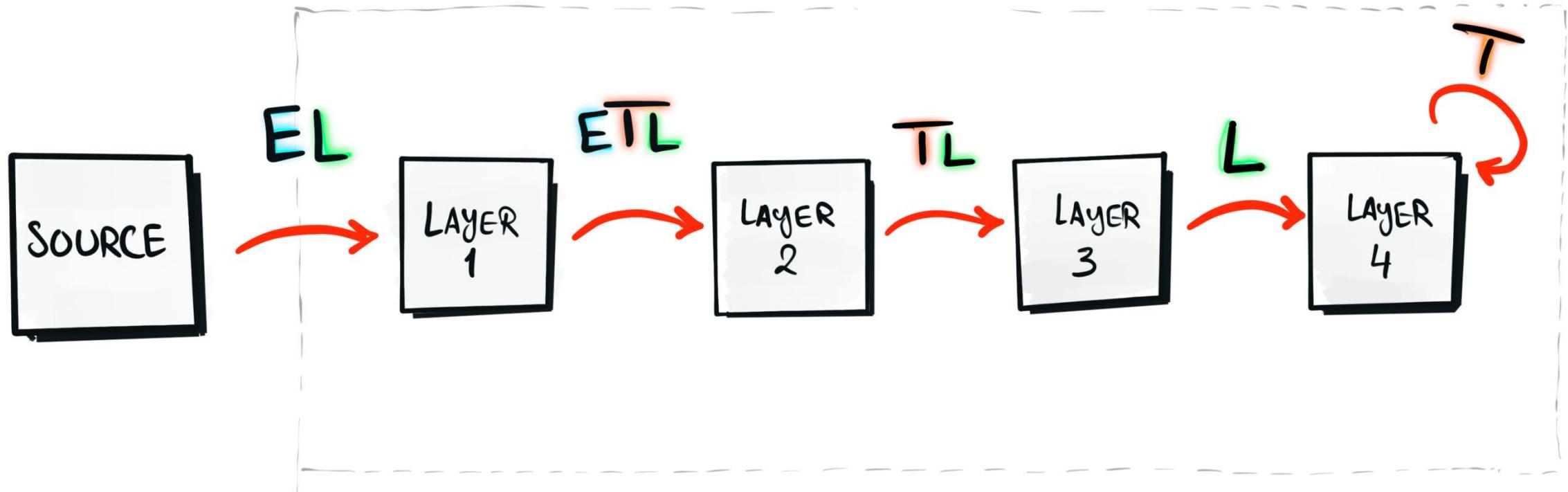
Module A

Module B

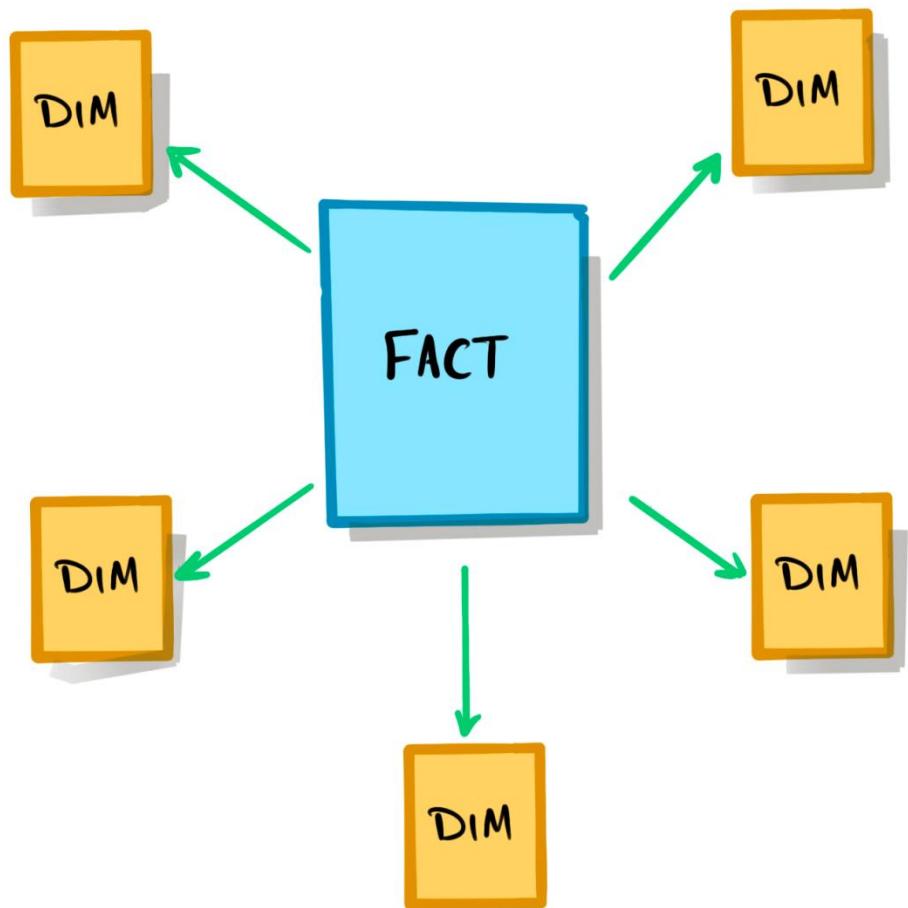
Module C



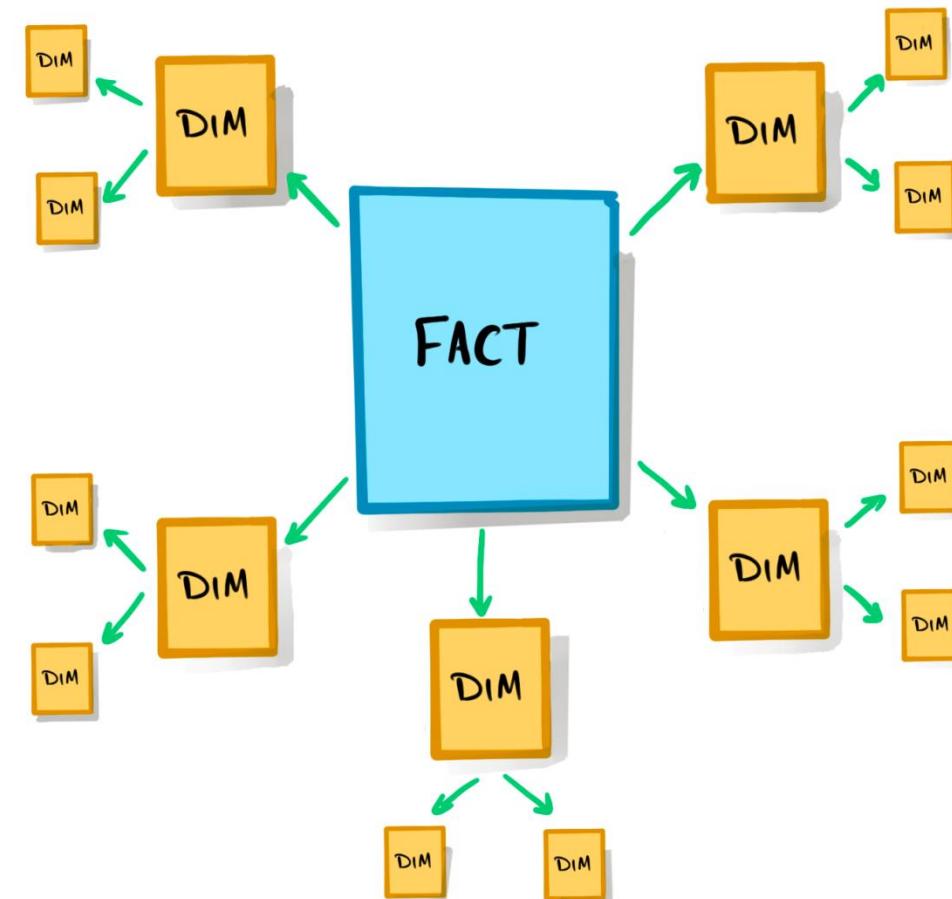
Data Architecture



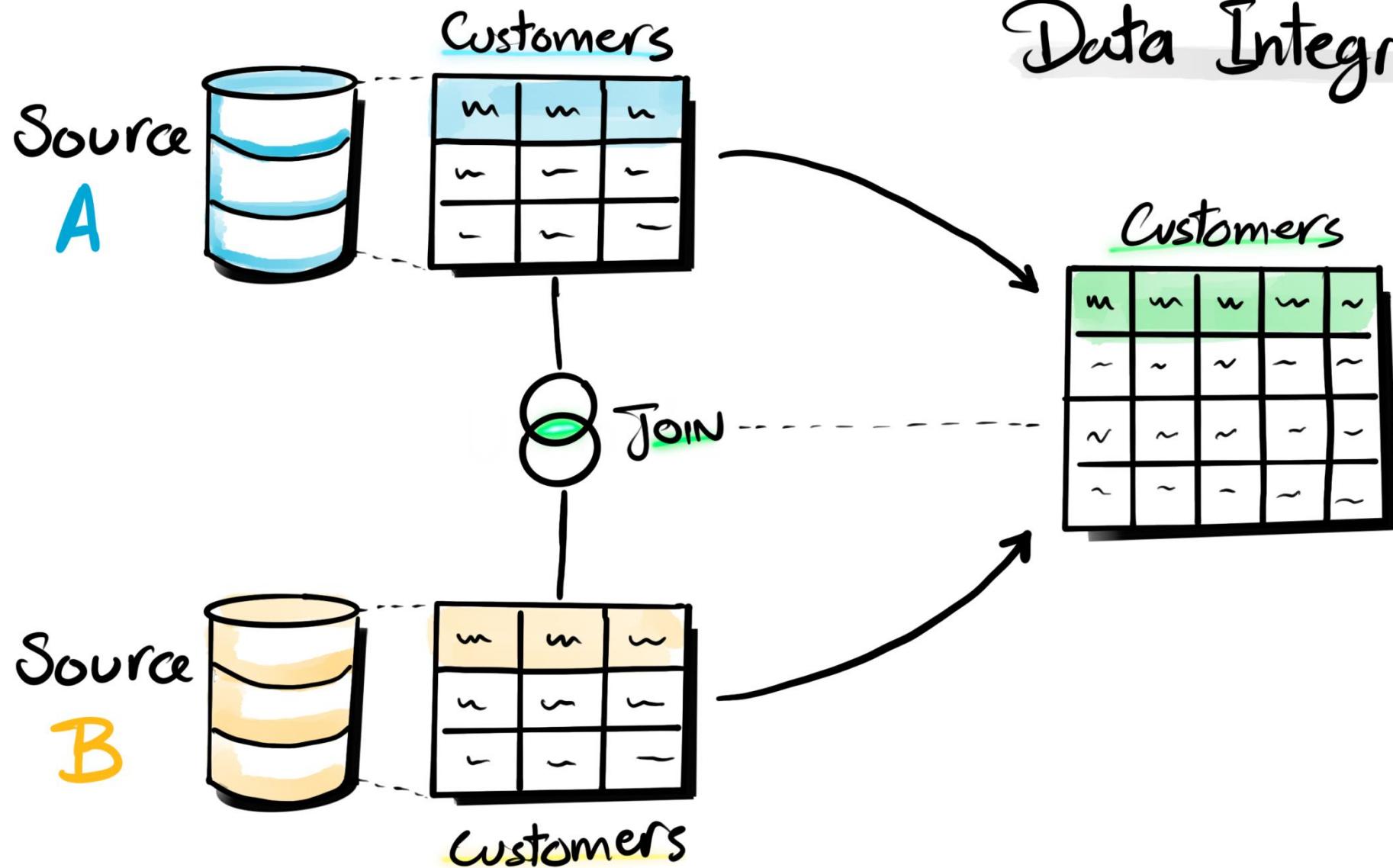
STAR SCHEMA

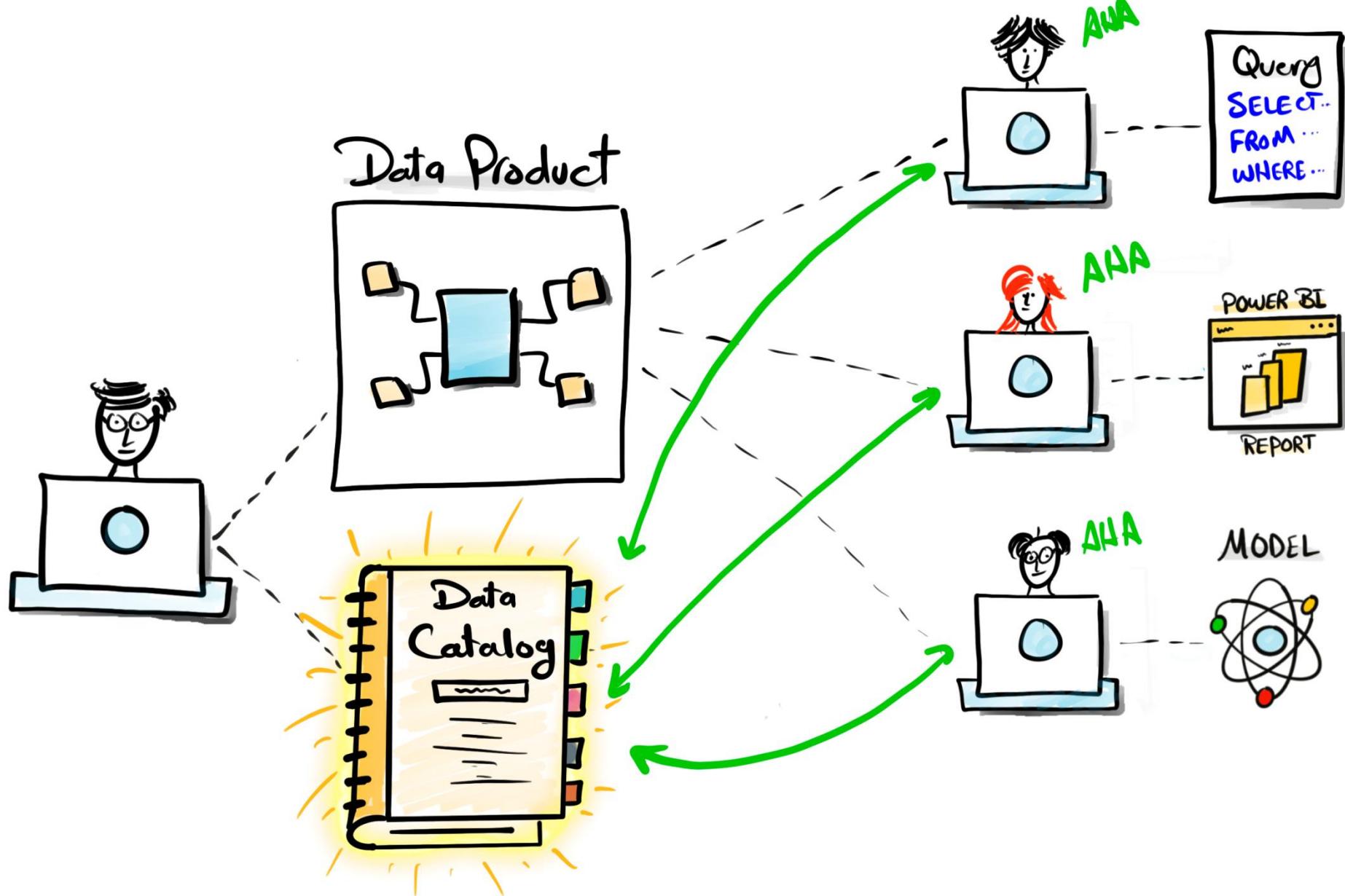


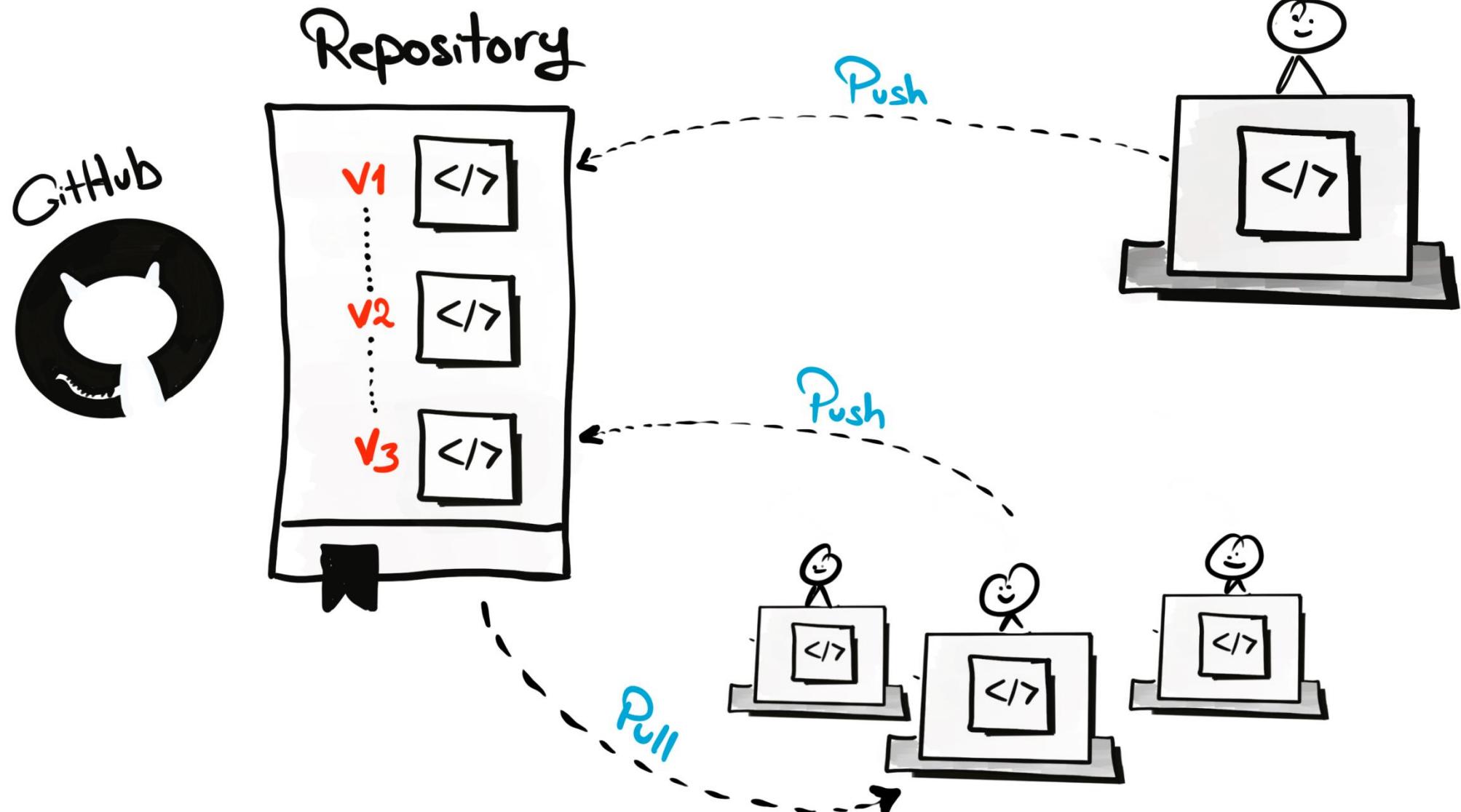
SNOWFLAKE SCHEMA

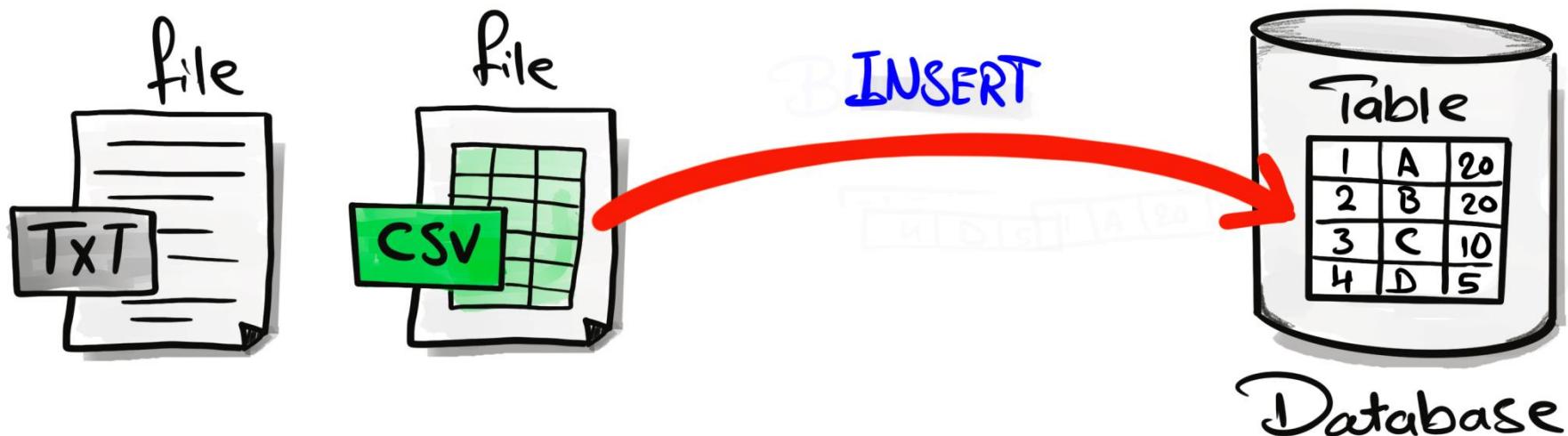
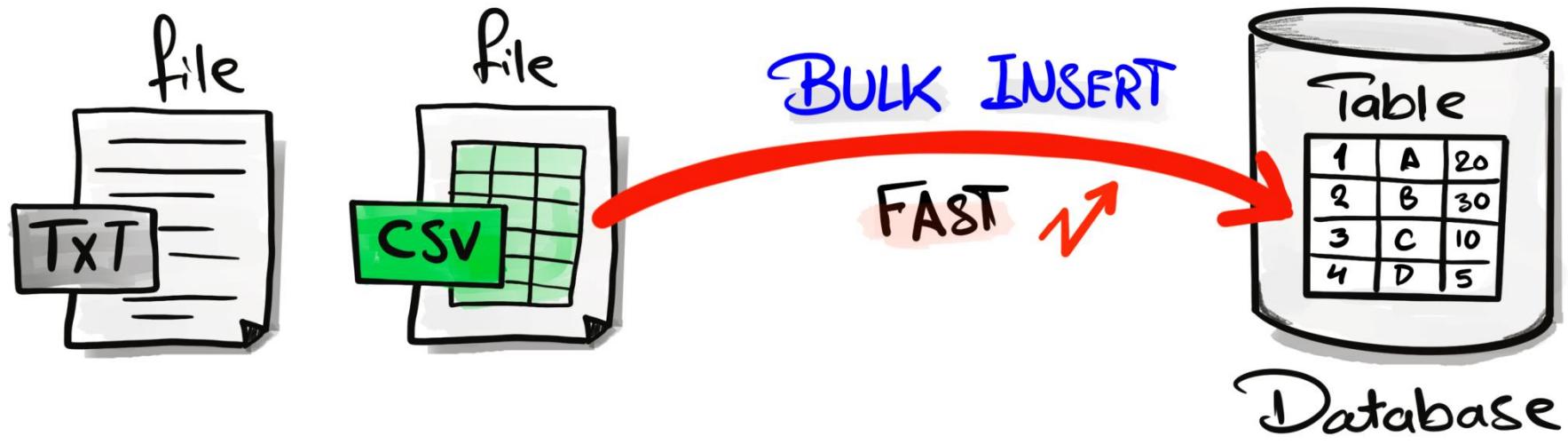


Data Integration









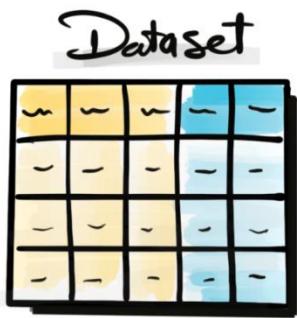


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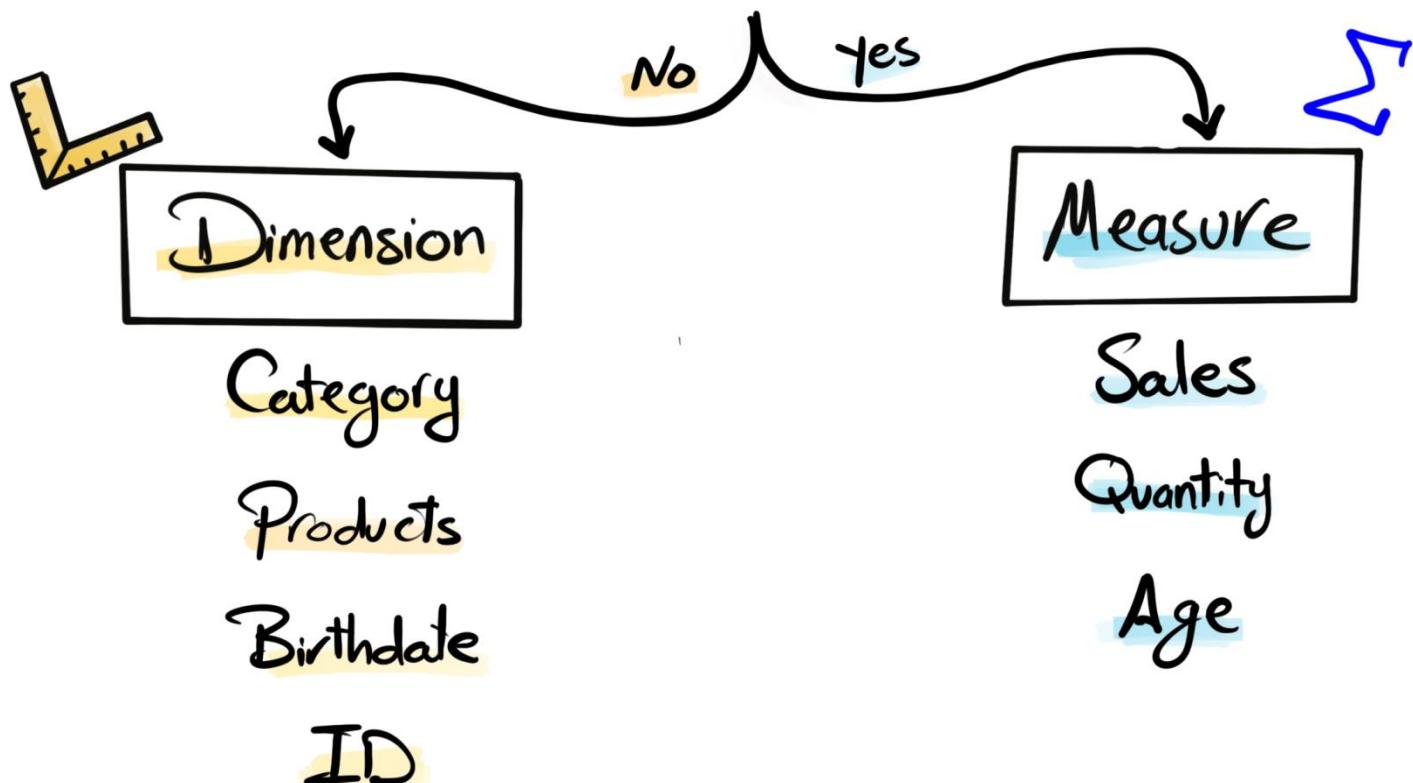
SQL DATA Analytics Project

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Is it Numeric?
 & Does it make Sense to aggregate?



A	C
B	D

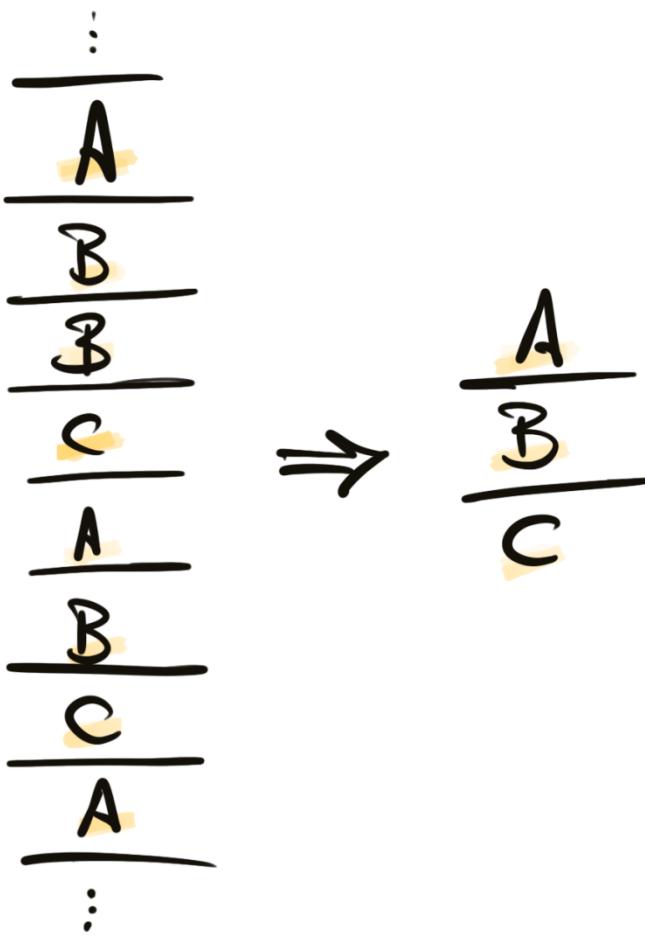
Dimensions Exploration

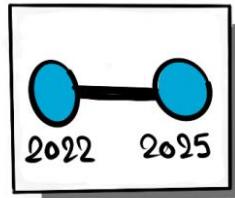
DISTINCT [Dimension]

DISTINCT Country

DISTINCT Category

DISTINCT Product





Date Exploration

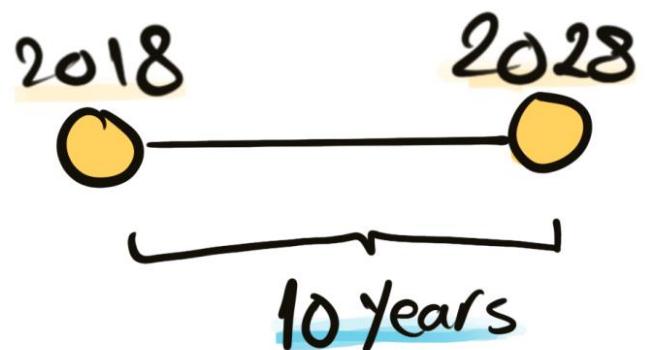
MIN/MAX [Date Dimension]

MIN Order_date

MAX Create_date

MIN Birthdate

2019
2020
2018
2018
2022
2023
2023
2028
2022



DATEDIFF

999

Measures Exploration

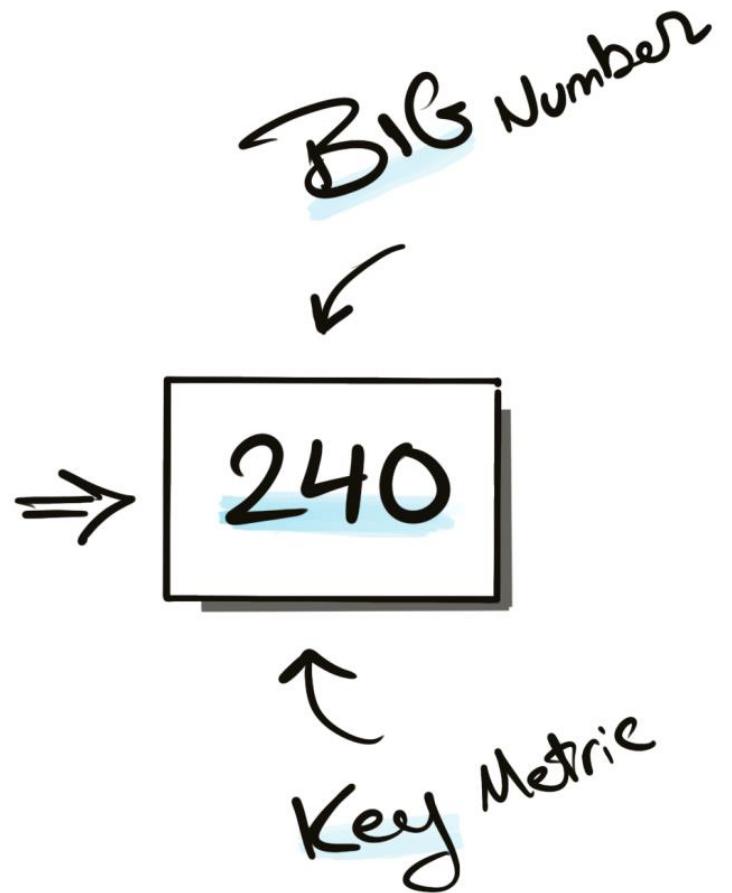
\sum [Measure]

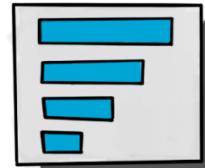
SUM (Sales)

AVG (Price)

SUM (Quantity)

$$\begin{array}{r}
 10 \\
 \hline
 20 \\
 \\
 50 \\
 \hline
 30 \\
 \\
 10 \\
 \hline
 80 \\
 \hline
 30 \\
 \hline
 10
 \end{array}$$





Magnitude

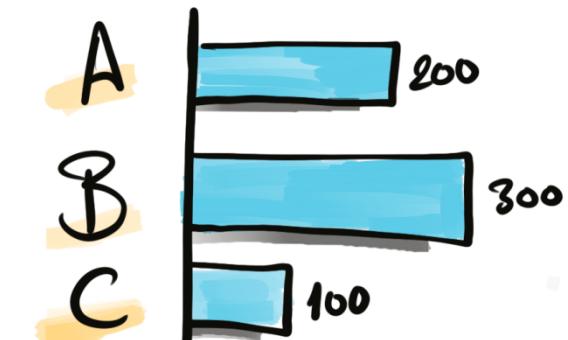
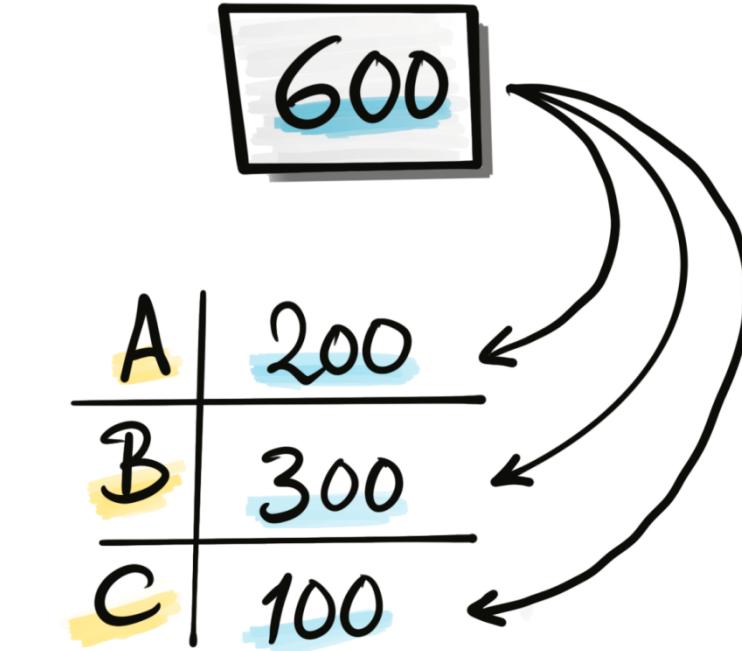
Σ [Measure] By [Dimension]

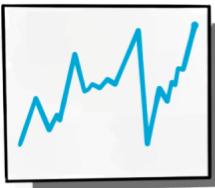
Total Sales By Country

Total Quantity By Category

Average Price By Product

Total Orders By Customer





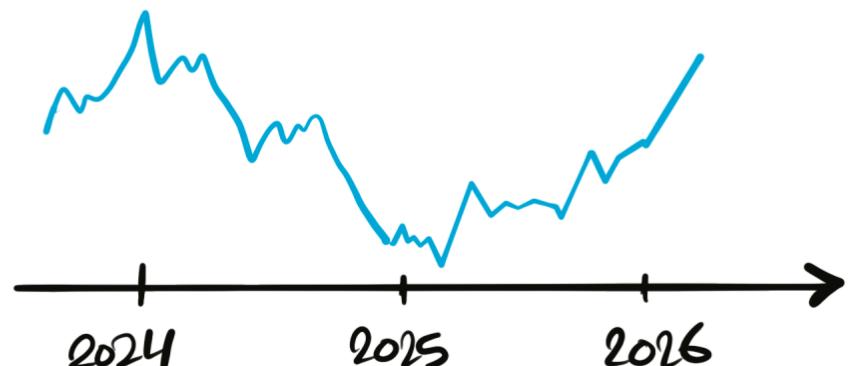
Change - Over - Time ~ Trends~

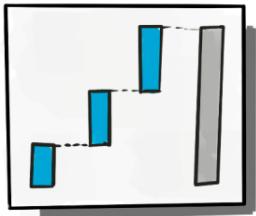
\sum [Measure] By [Date Dimension]

Total Sales By Year

Average Cost By Month

2024	300
2025	100
2026	200





Cumulative Analysis

Σ [Cumulative Measure] By [Date Dimension]

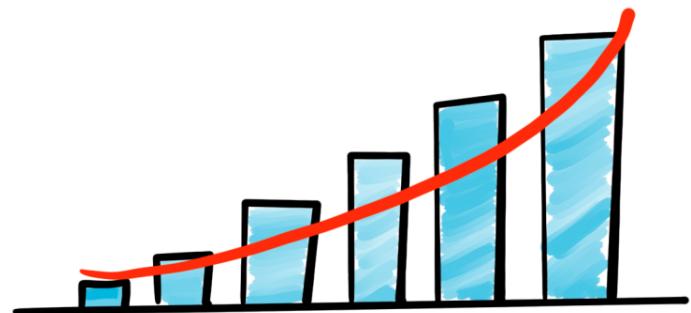
Running Total Sales By Year

Moving Average of Sales By Month

2024	300	300
2025	100	400
2026	200	600

A hand-drawn diagram shows red arrows indicating the cumulative addition of values from previous years to the current year. In 2025, a red circle with a plus sign is placed above the 100 value, with an arrow pointing to the 300 value in 2024. In 2026, another red circle with a plus sign is placed above the 200 value, with an arrow pointing to the 400 value in 2025. A blue arrow labeled "Cumulative" points diagonally down and to the right across the table.

WINDOW FUNCTIONS





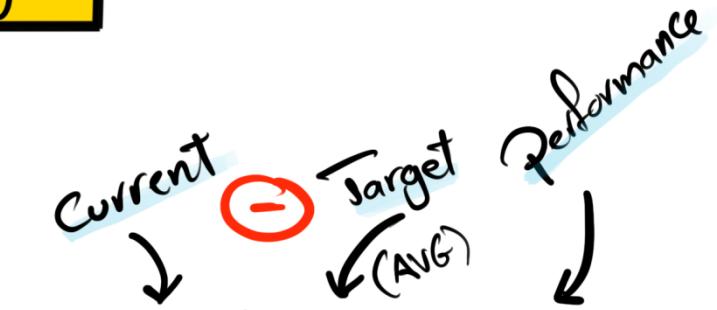
Performance Analysis

Current [Measure] - Target [Measure]

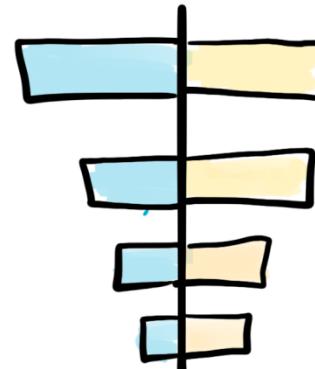
Current Sales - Average Sales

Current year Sales - Previous Year Sales

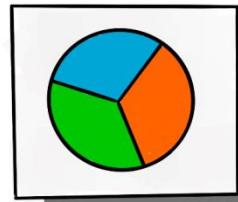
Current Sales - lowest Sales



A	200	200	0
B	300	200	100
C	100	200	-100



WINDOW FUNCTIONS



Part-to-Whole

Proportional Analysis

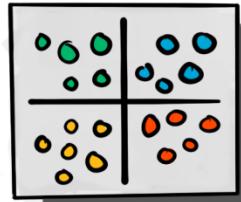
$([\text{Measure}] / \text{Total [Measure]}) * 100$ By [Dimension]

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

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

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





Data Segmentation

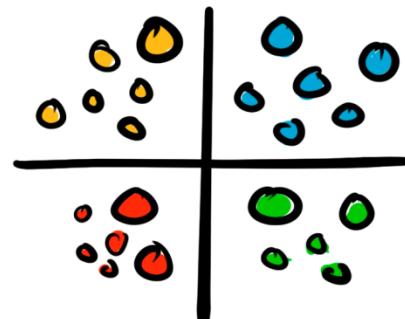
[Measure] By [Measure]

Total Products By Sales Range

Total Customers By Age

Σ Categorize

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



CASE WHEN STATEMENT