

SQL DATA WAREHOUSE

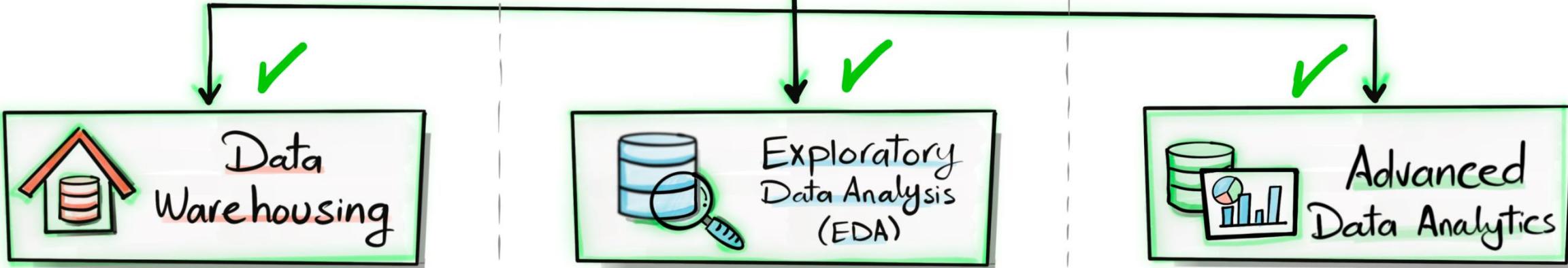
Project

Baraa Khatib Salkini
YouTube | **DATA WITH BARAA**
SQL Course | Data Warehouse Project





SQL Projects



Organize, Structure, Prepare

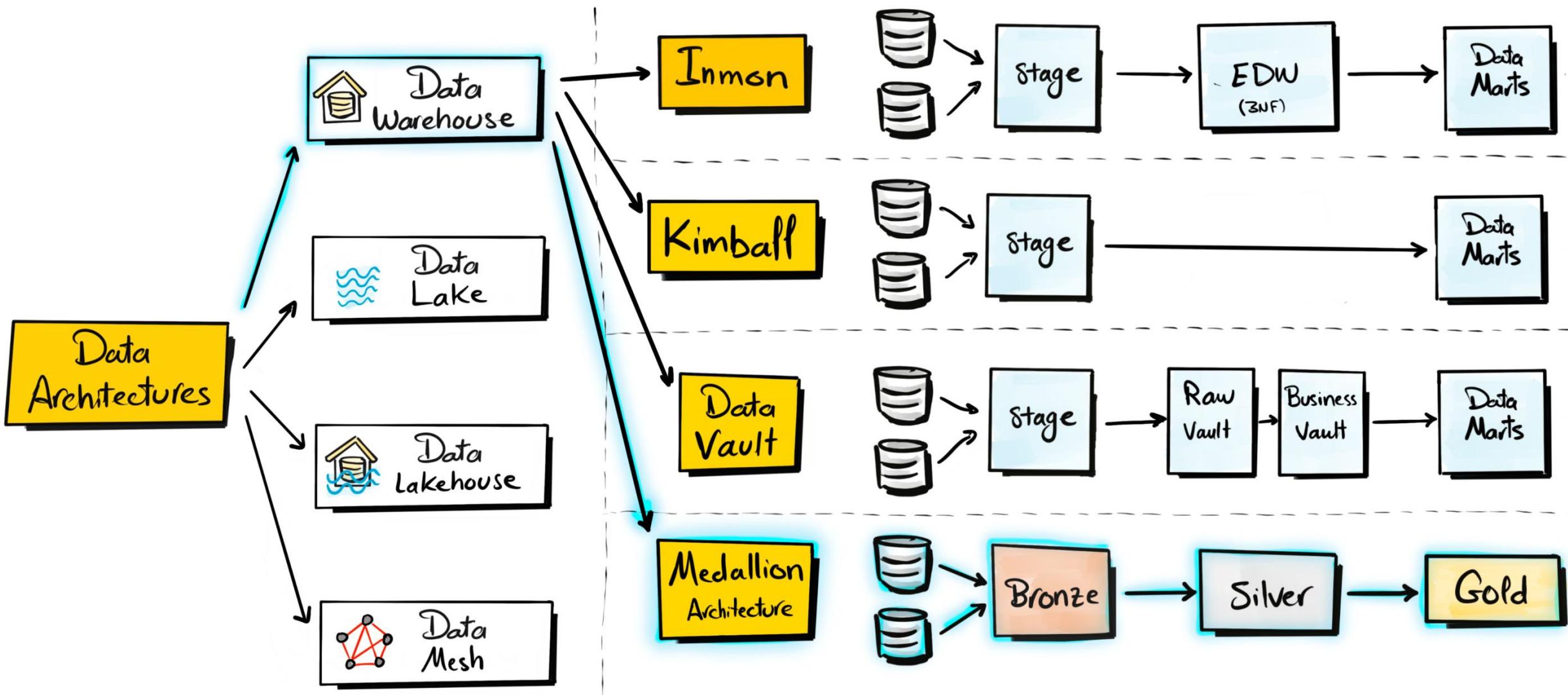
- ETL/ELT Processing
- Data Architecture
- Data Integration
- Data Cleansing
- Data Load
- Data Modeling

Understand Data

- Basic Queries
- Data Profiling
- Simple Aggregations
- Subquery

Answer Business Questions

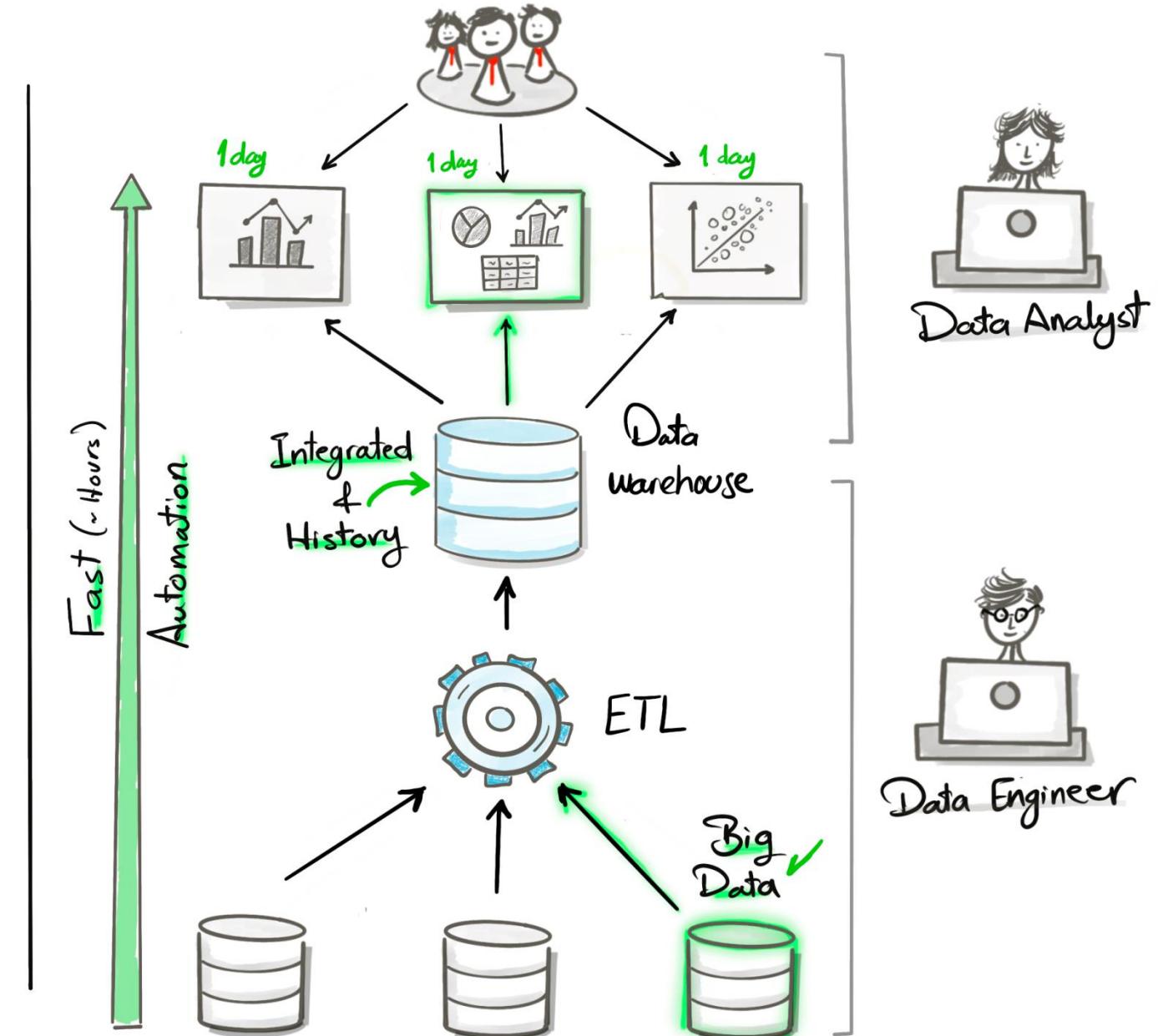
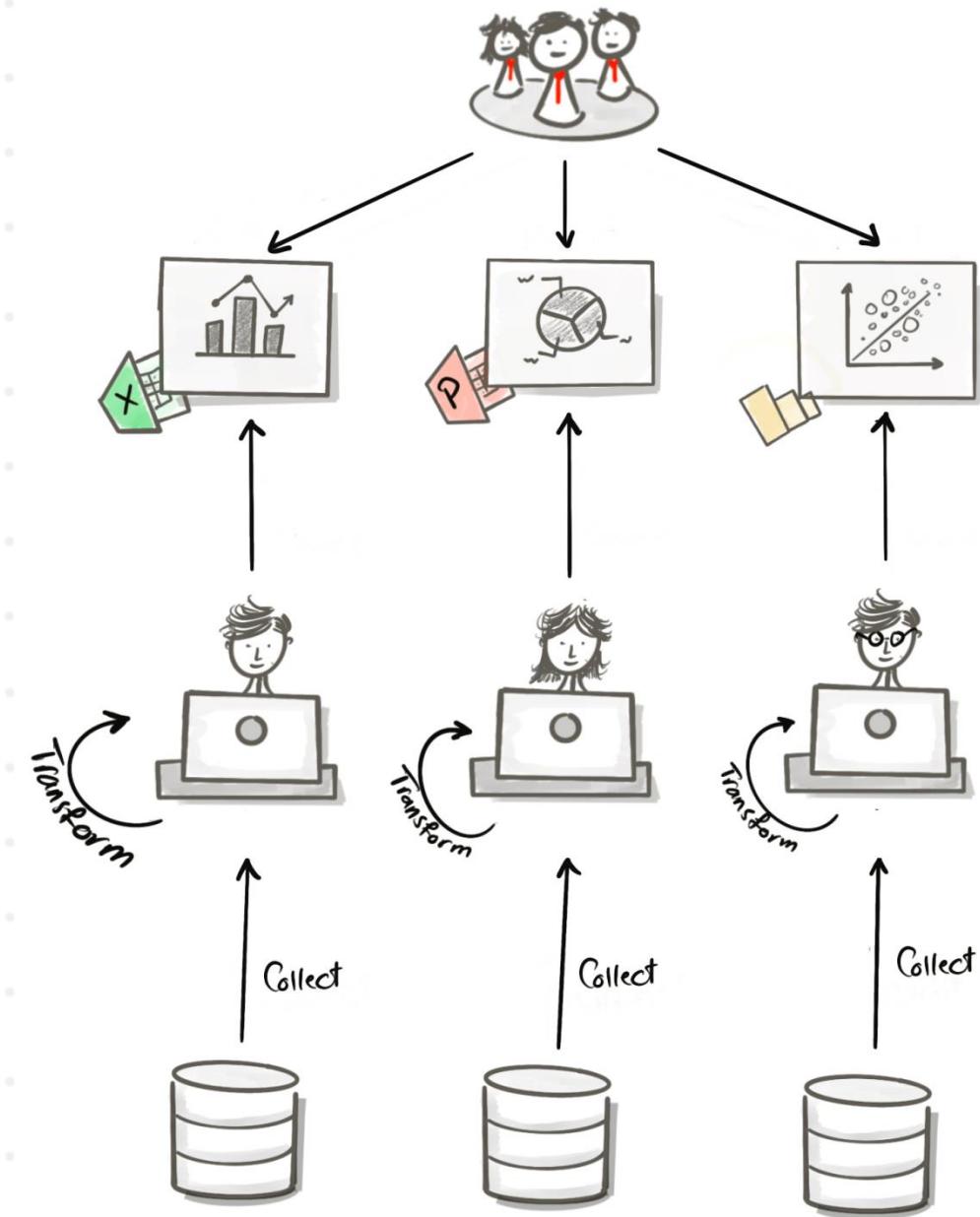
- Complex Queries
- Window Functions
- CTE
- Subqueries
- Reports

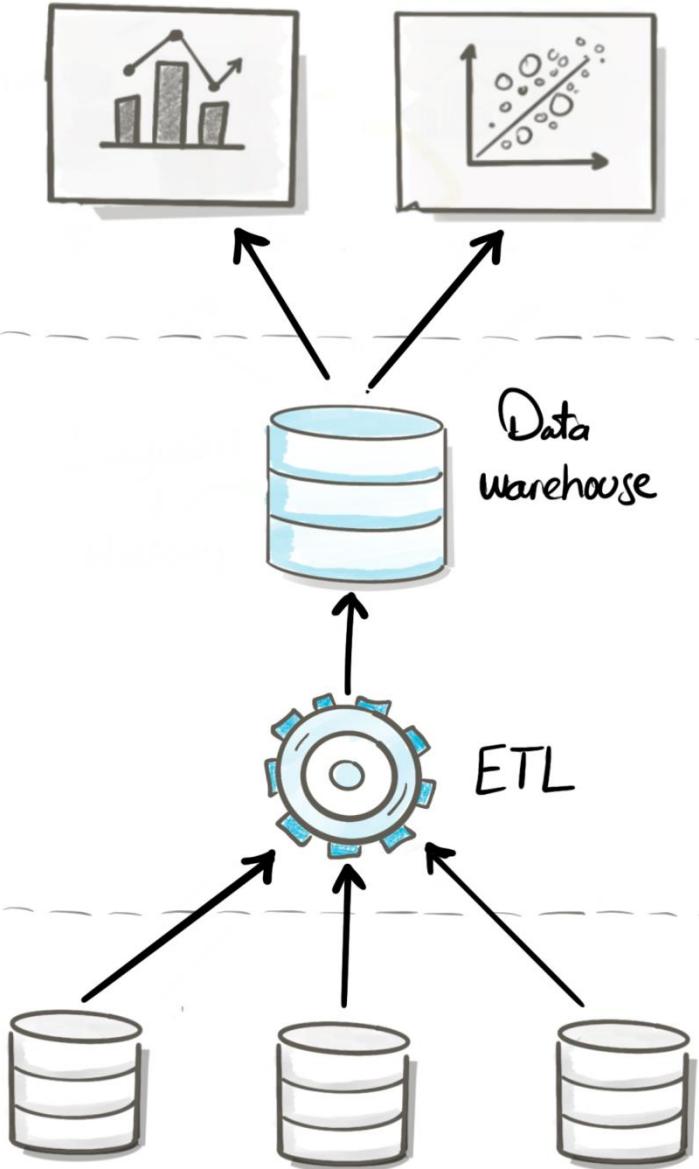




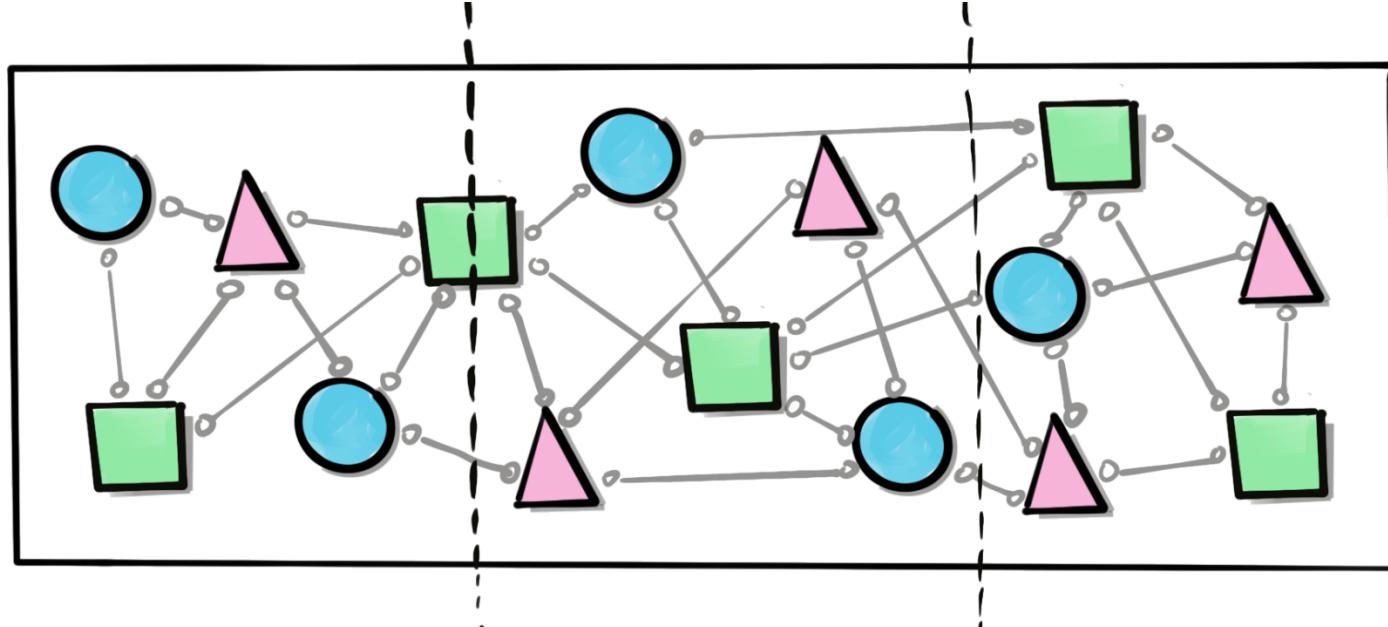
Bronze Layer

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

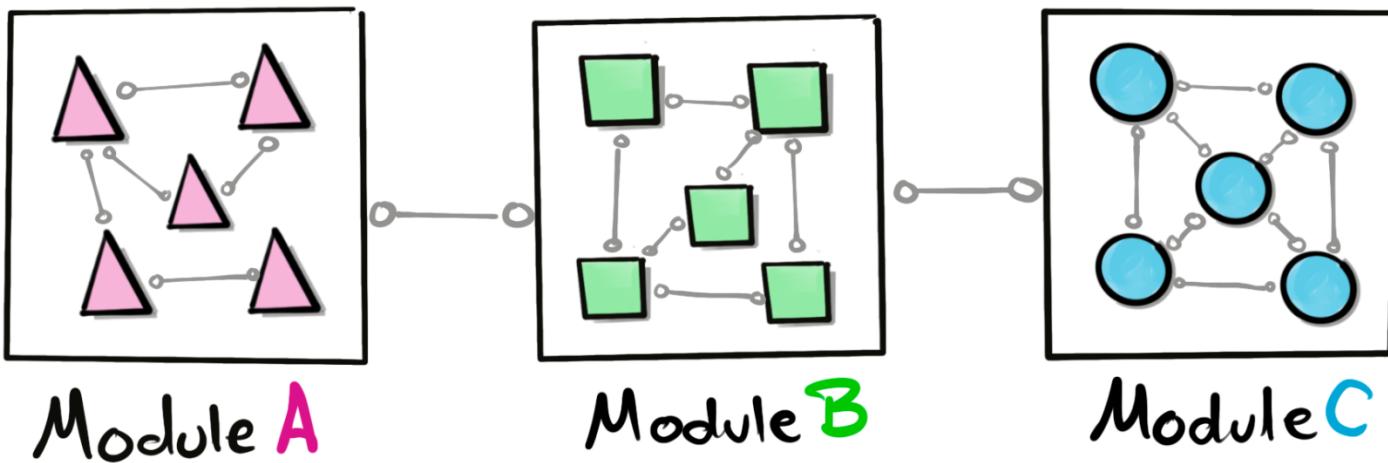




Without
SOC



with
SOC



Module A

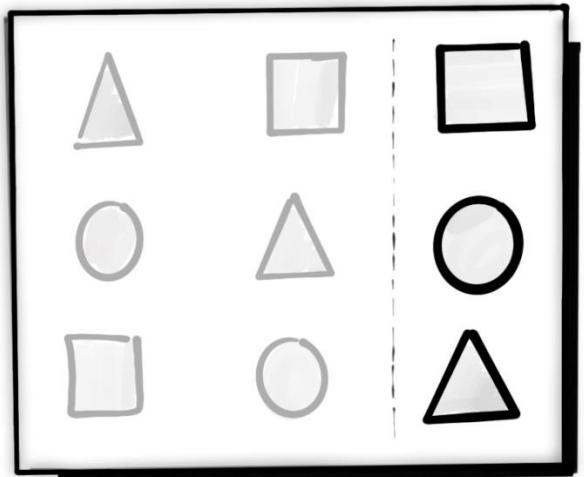
Module B

Module C

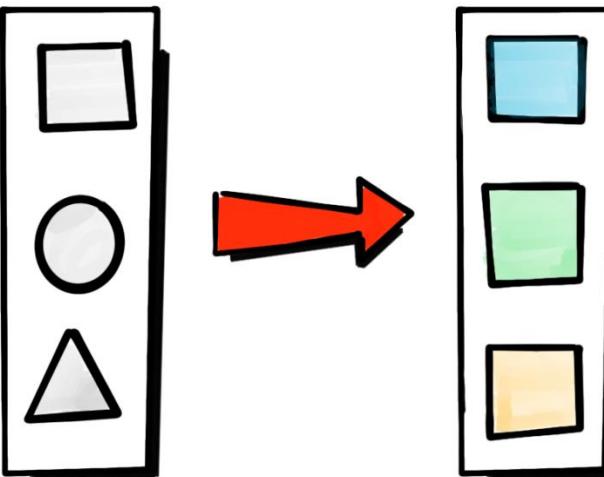
E
EXTRACT

T
TRANSFORM

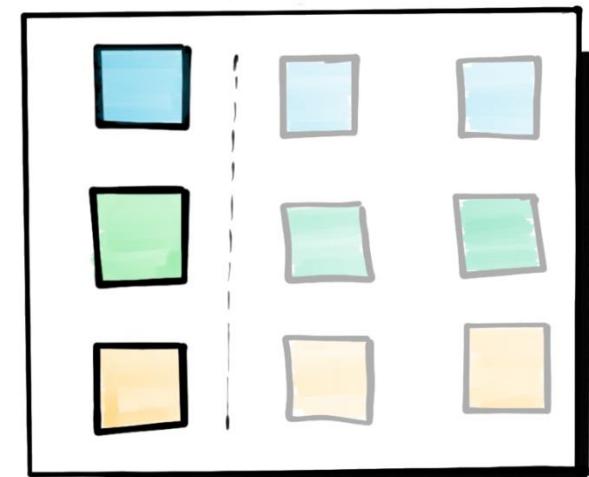
L
LOAD



SOURCE

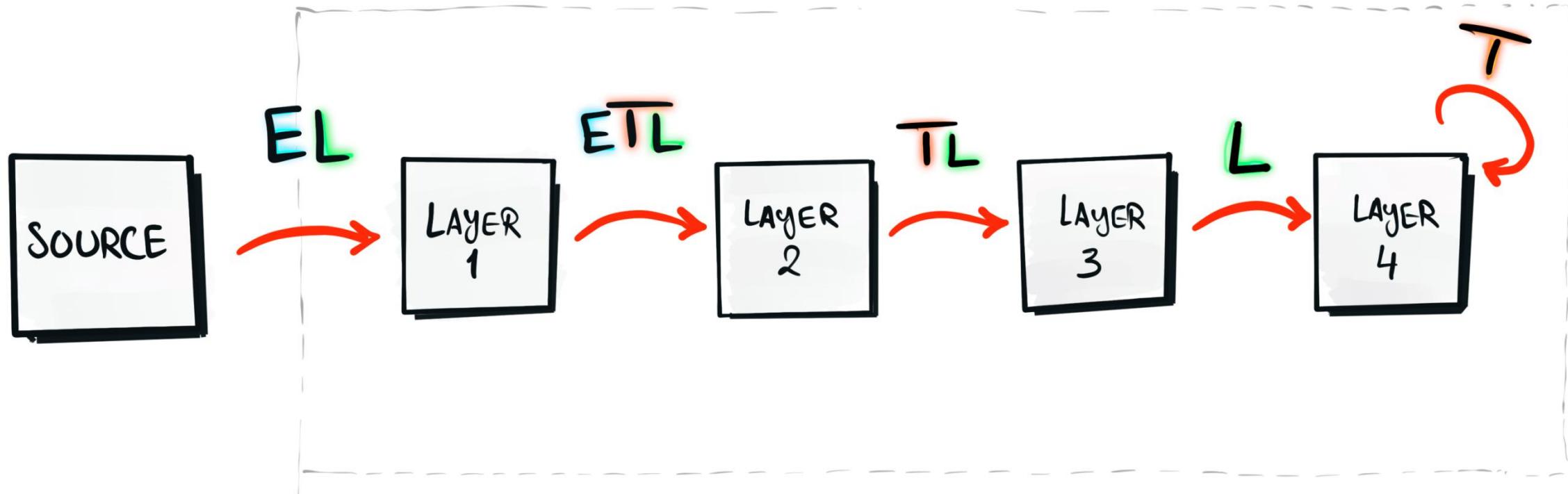


TRANSFORM

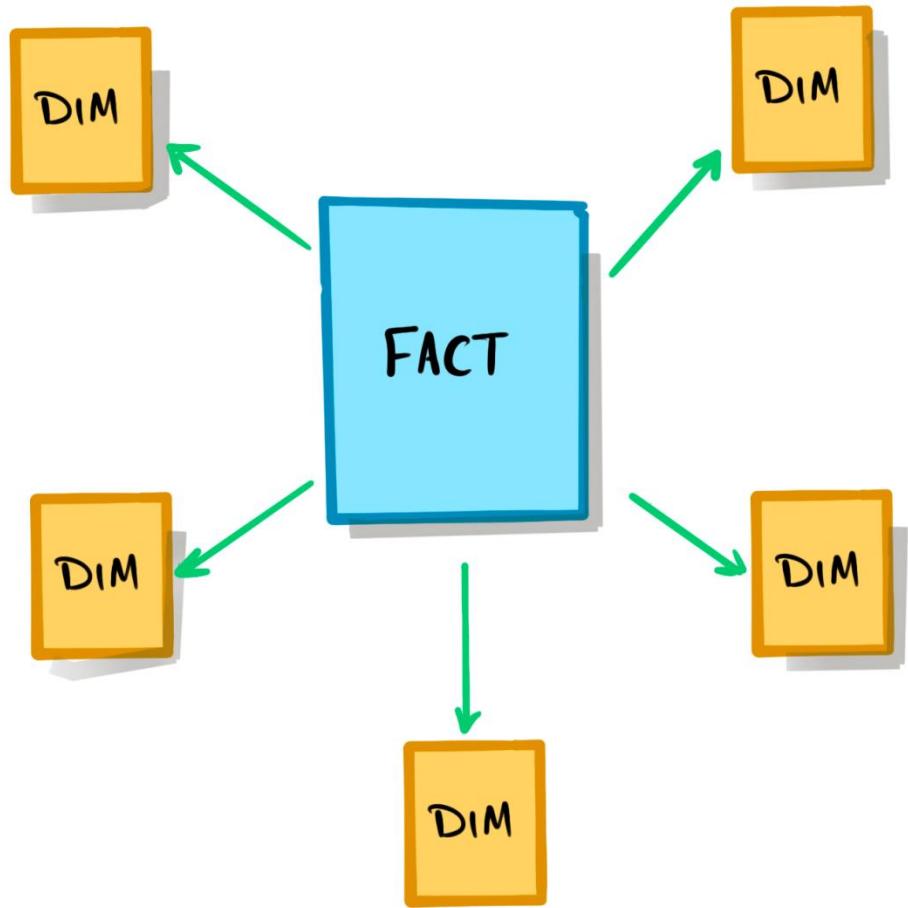


TARGET

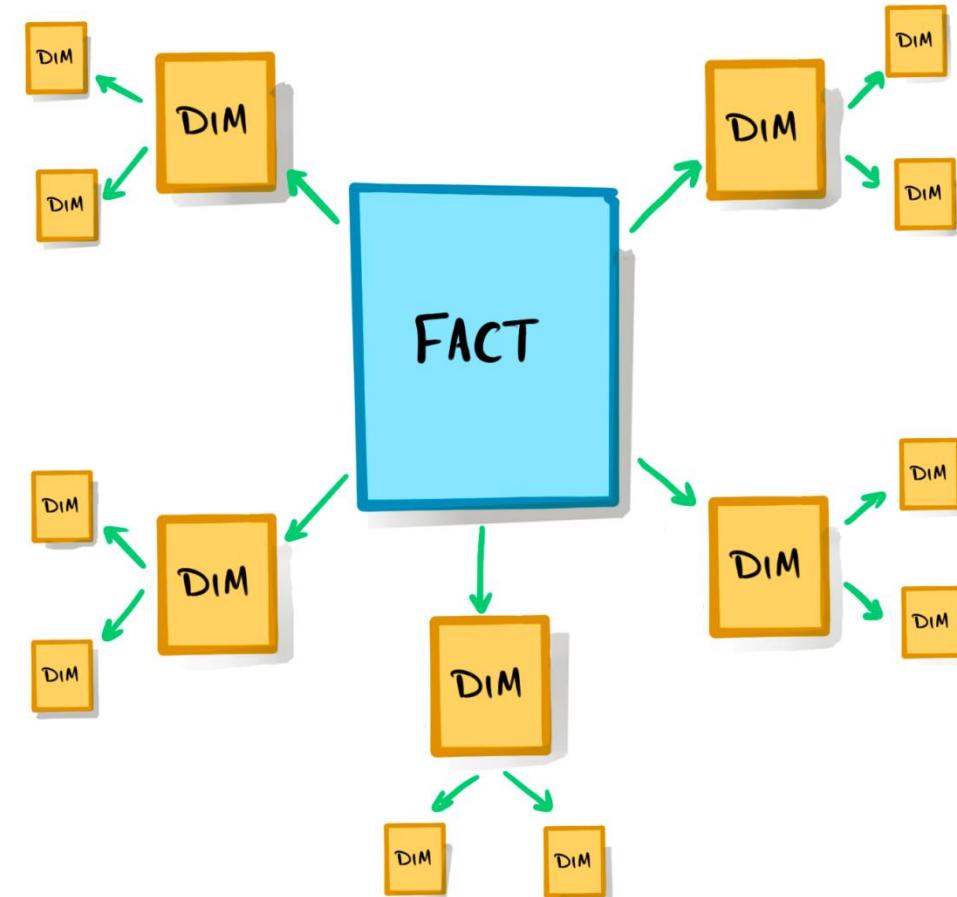
Data Architecture



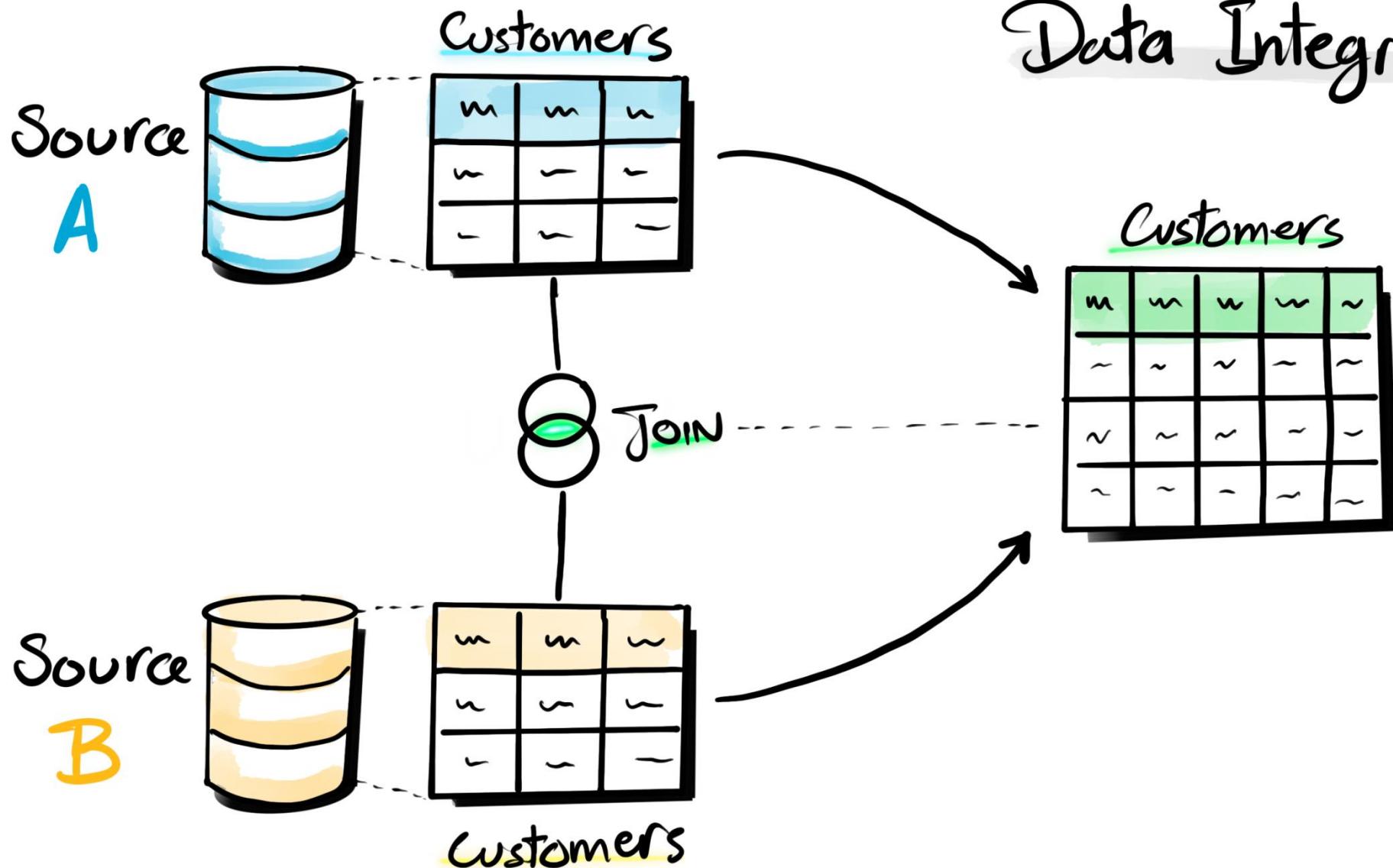
STAR SCHEMA

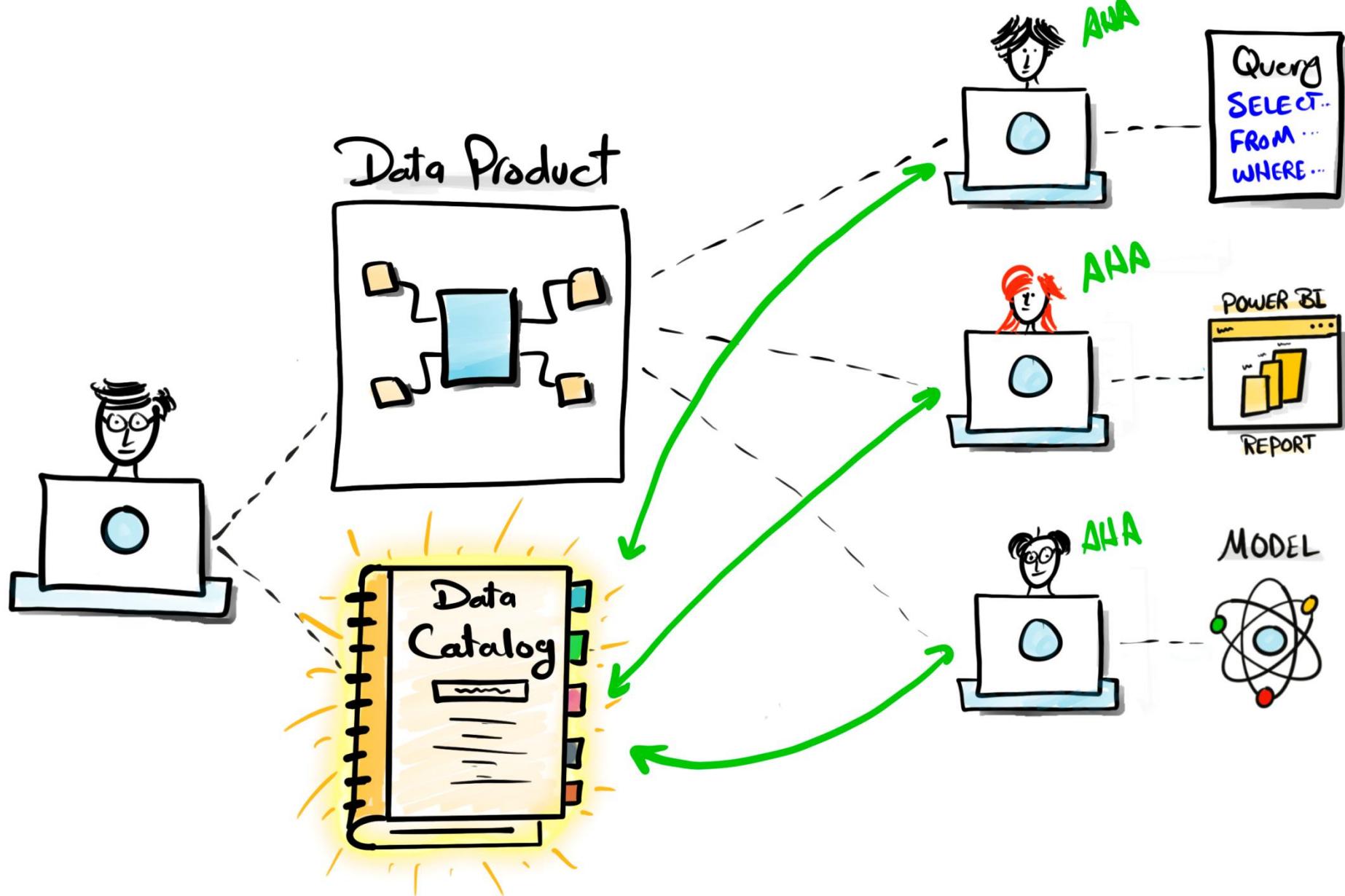


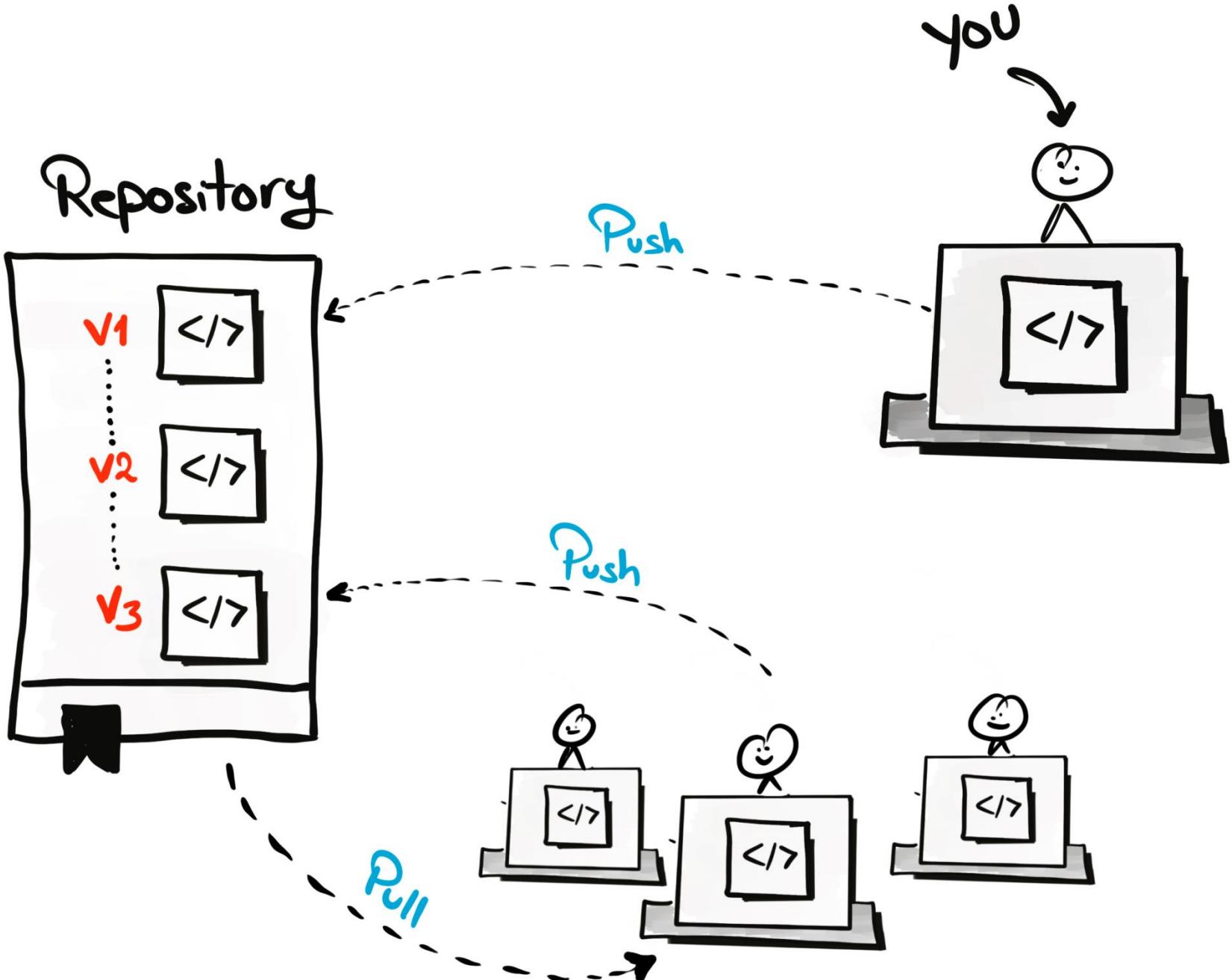
SNOWFLAKE SCHEMA

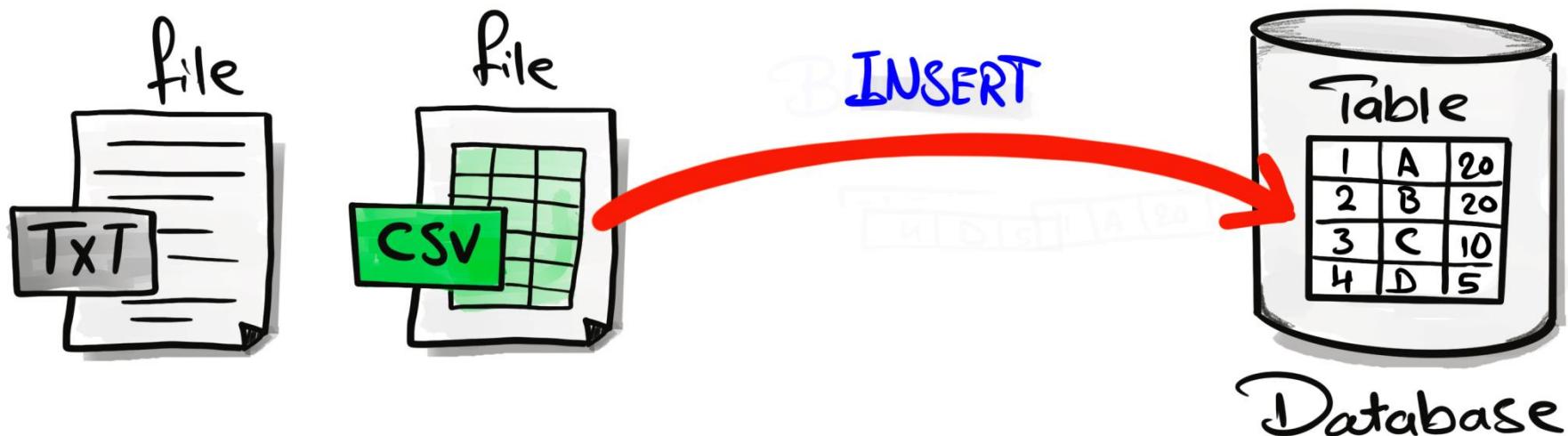
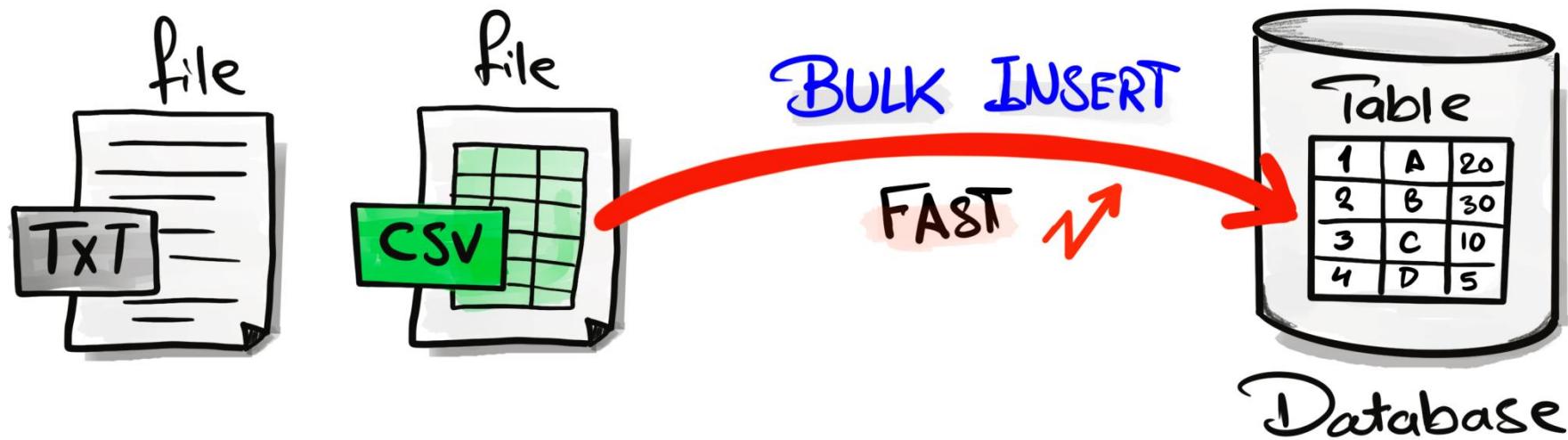


Data Integration





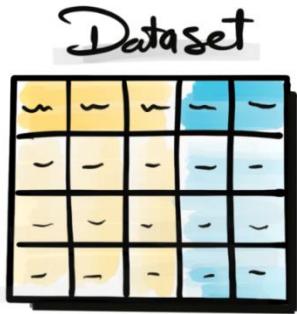






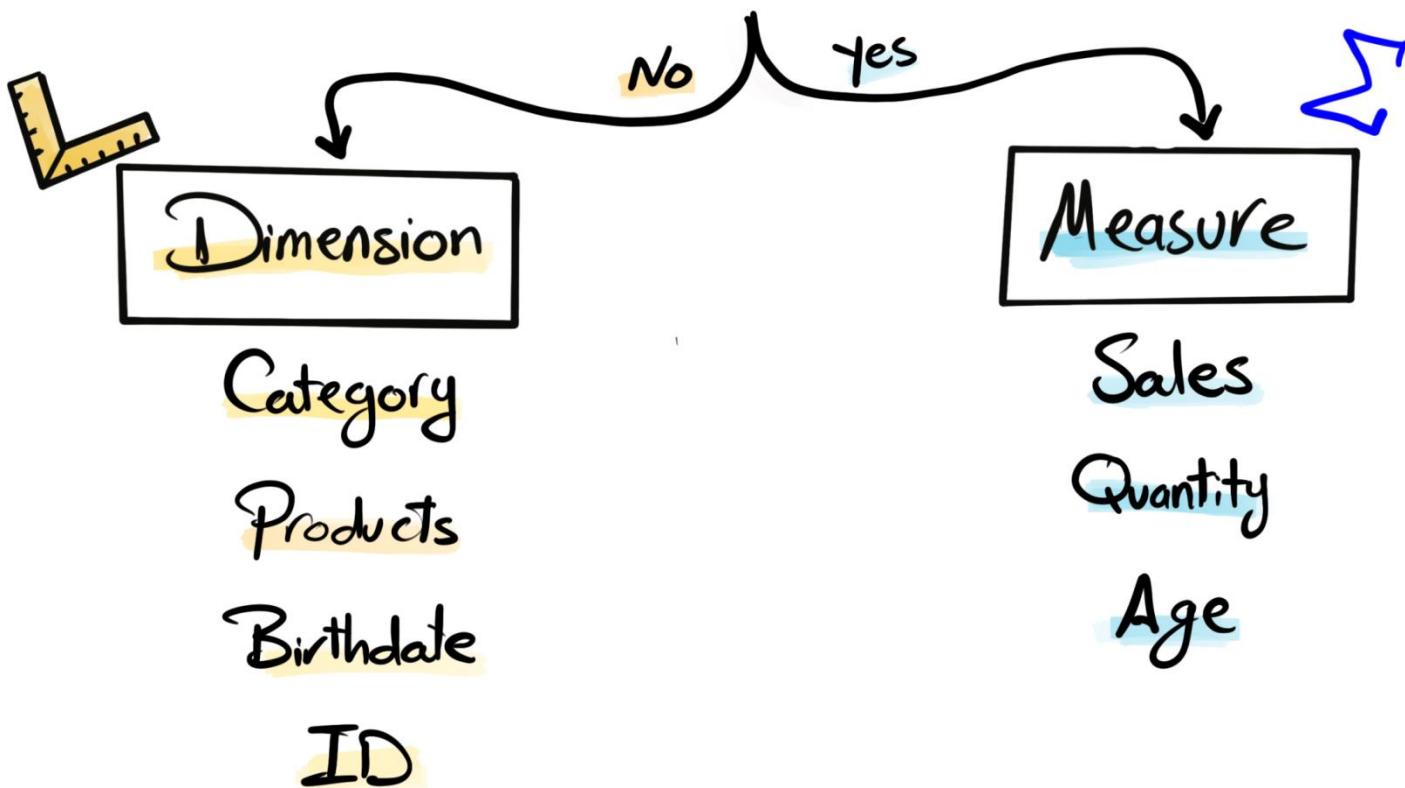
SQL DATA Analytics

Project



Is it Numeric ?

& Does it make Sense to aggregate?



A
C
B
D

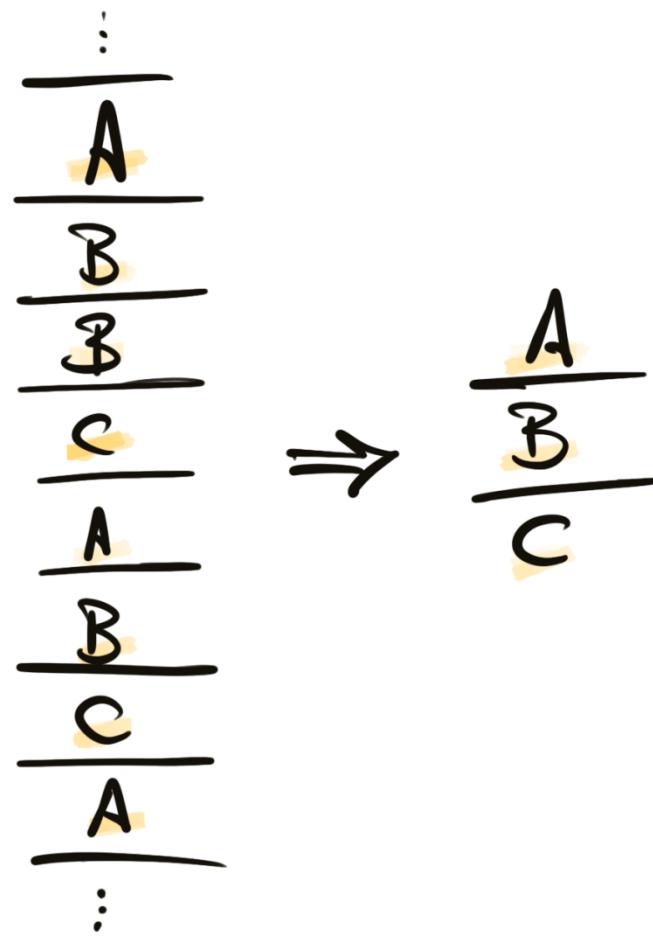
Dimensions Exploration

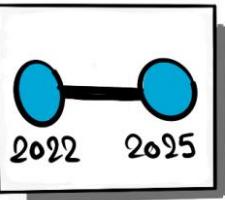
DISTINCT [Dimension]

DISTINCT Country

DISTINCT Category

DISTINCT Product





Date Exploration

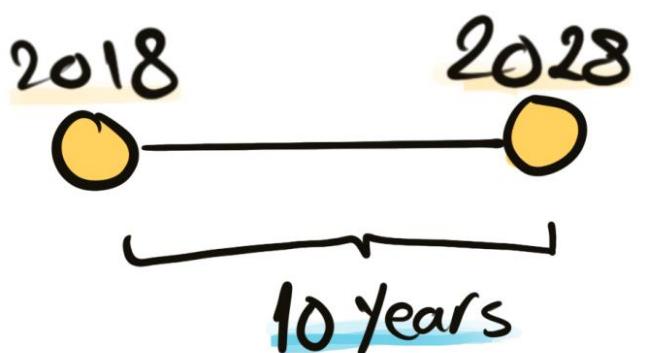
MIN/MAX [Date Dimension]

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)

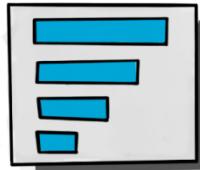
$$\begin{array}{r} 10 \\ \hline 20 \\ 50 \\ \hline 30 \\ 10 \\ \hline 80 \\ 30 \\ \hline 10 \end{array}$$



240

BIG Number

↑
Key Metric



Magnitude

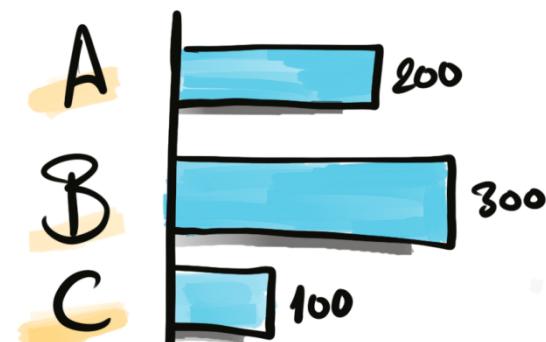
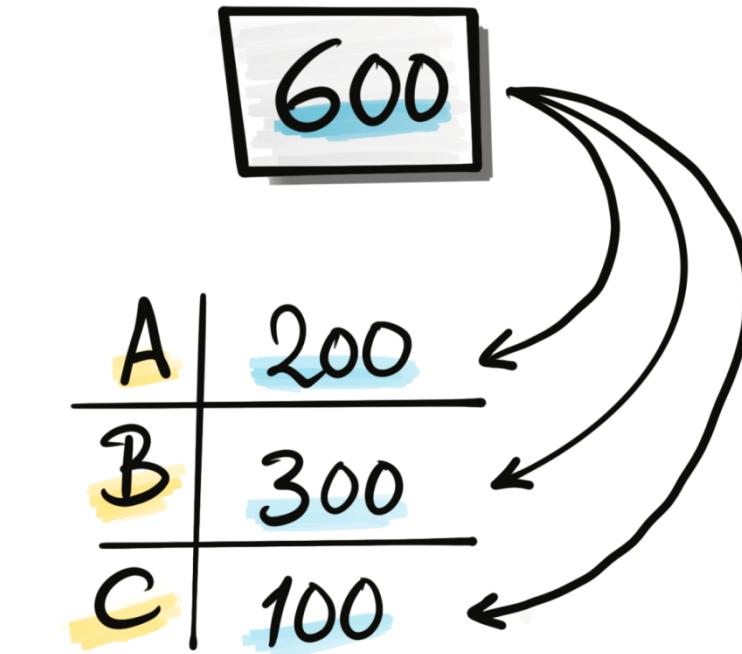
Σ [Measure] By [Dimension]

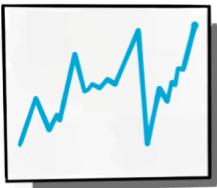
Total Sales By Country

Total Quantity By Category

Average Price By Product

Total Orders By Customer





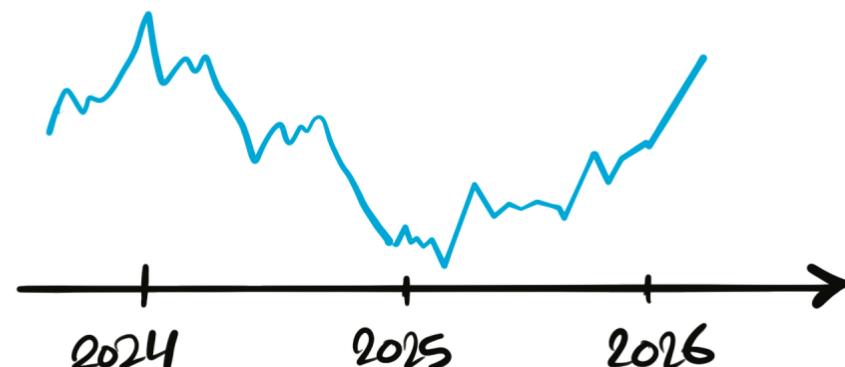
Change - Over - Time Trends

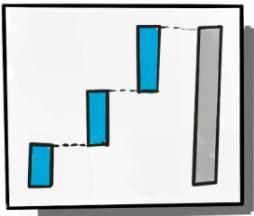
\sum [Measure] By [Date Dimension]

Total Sales By Year

Average Cost By Month

2024	300
2025	100
2026	200





Cumulative Analysis

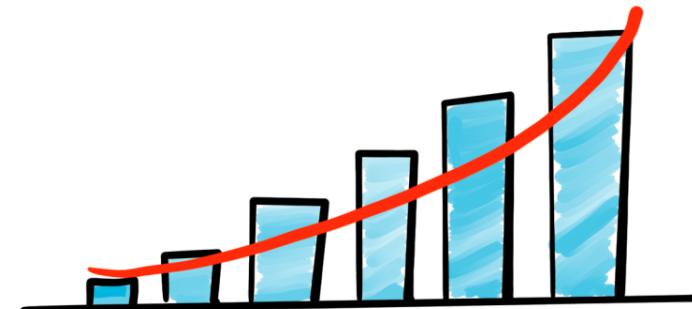
\sum [Cumulative Measure] By [Date Dimension]

Running Total Sales By Year

Moving Average of Sales By Month

2024	300	300
2025	100	400
2026	200	600

A blue arrow labeled "Cumulative" points from the top right towards the table, indicating the direction of cumulative calculation.



WINDOW FUNCTIONS



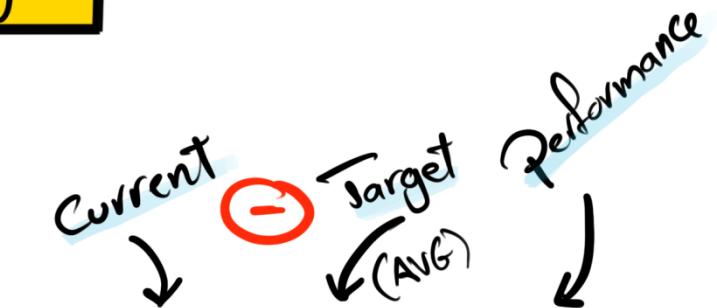
Performance Analysis

Current [Measure] - Target [Measure]

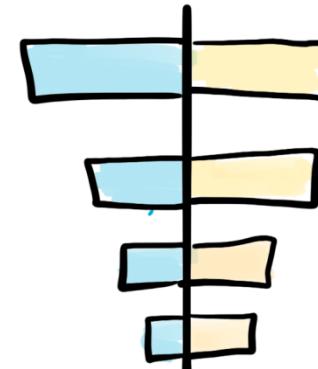
Current Sales - Average Sales

Current year Sales - Previous Year Sales

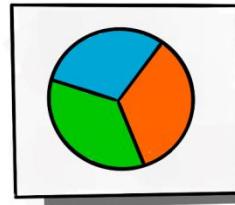
Current Sales - lowest Sales



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



WINDOW FUNCTIONS



Part-to-Whole

Proportional Analysis

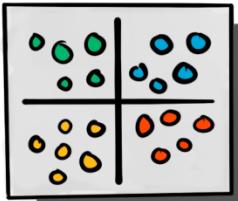
([Measure] / Total [Measure]) * 100 By [Dimension]

(Sales / Total Sales) * 100 By Category

(Quantity / Total Quantity) * 100 By Country

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





Data Segmentation

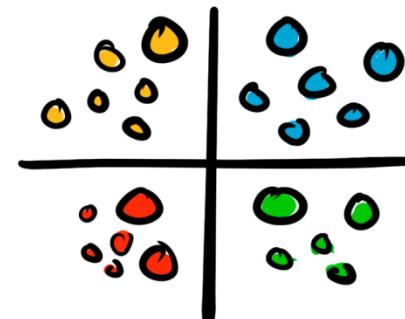
[Measure] By [Measure]

Total Products By Sales Range

Total Customers By Age

Σ Categorize

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



CASE WHEN STATEMENT