DATA WITH BARAA

SQL DATA WARHOUESE

Project

Baraa Khatib Salkini
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SQL Course | Data Warehouse Project

SQL Projects

Data Warehousing

"Organize, Structure, Prepare"

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

Exploratory Data Analysis (EDA)

"Understand Data"

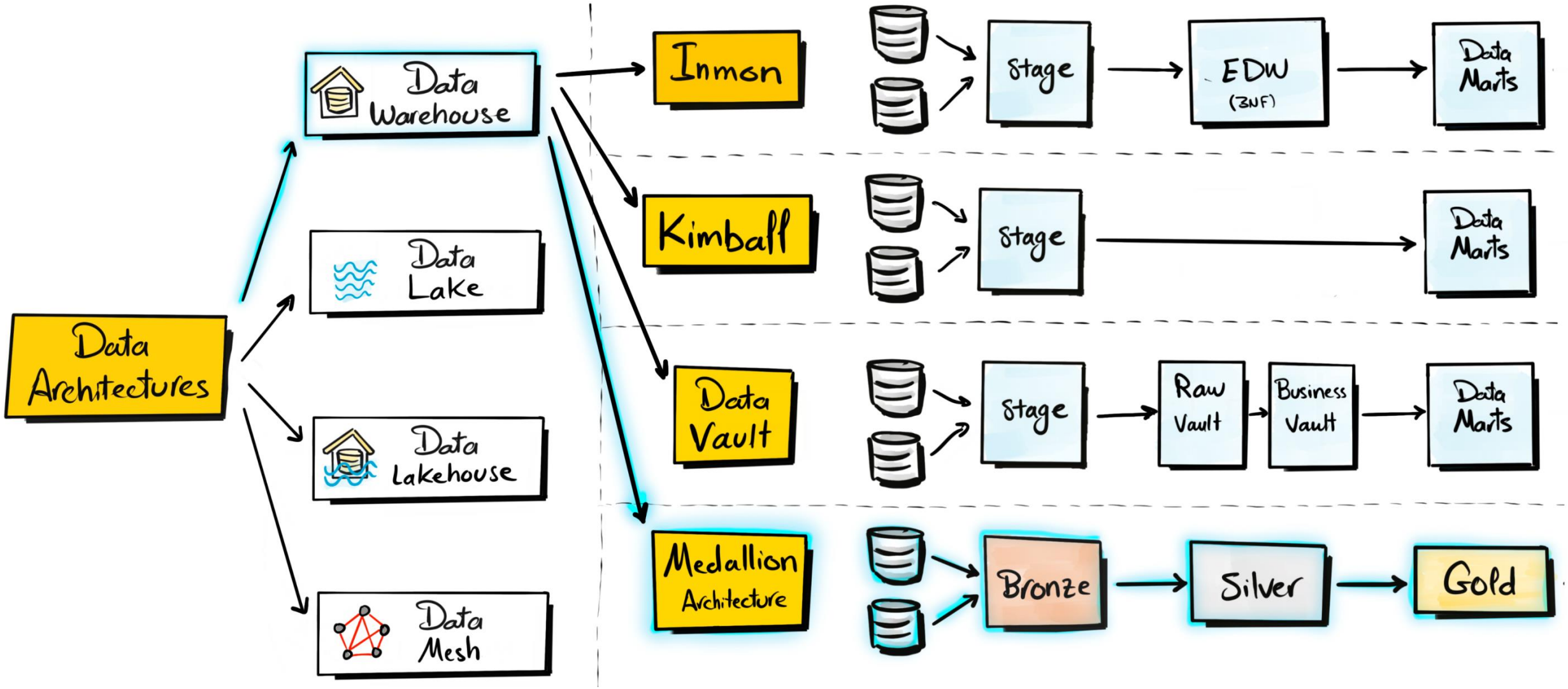
- Basic Queries
- Data Profiling
- Simple Aggregations
- Subquery

Advanced Data Analytics

"Answer Business Questions"

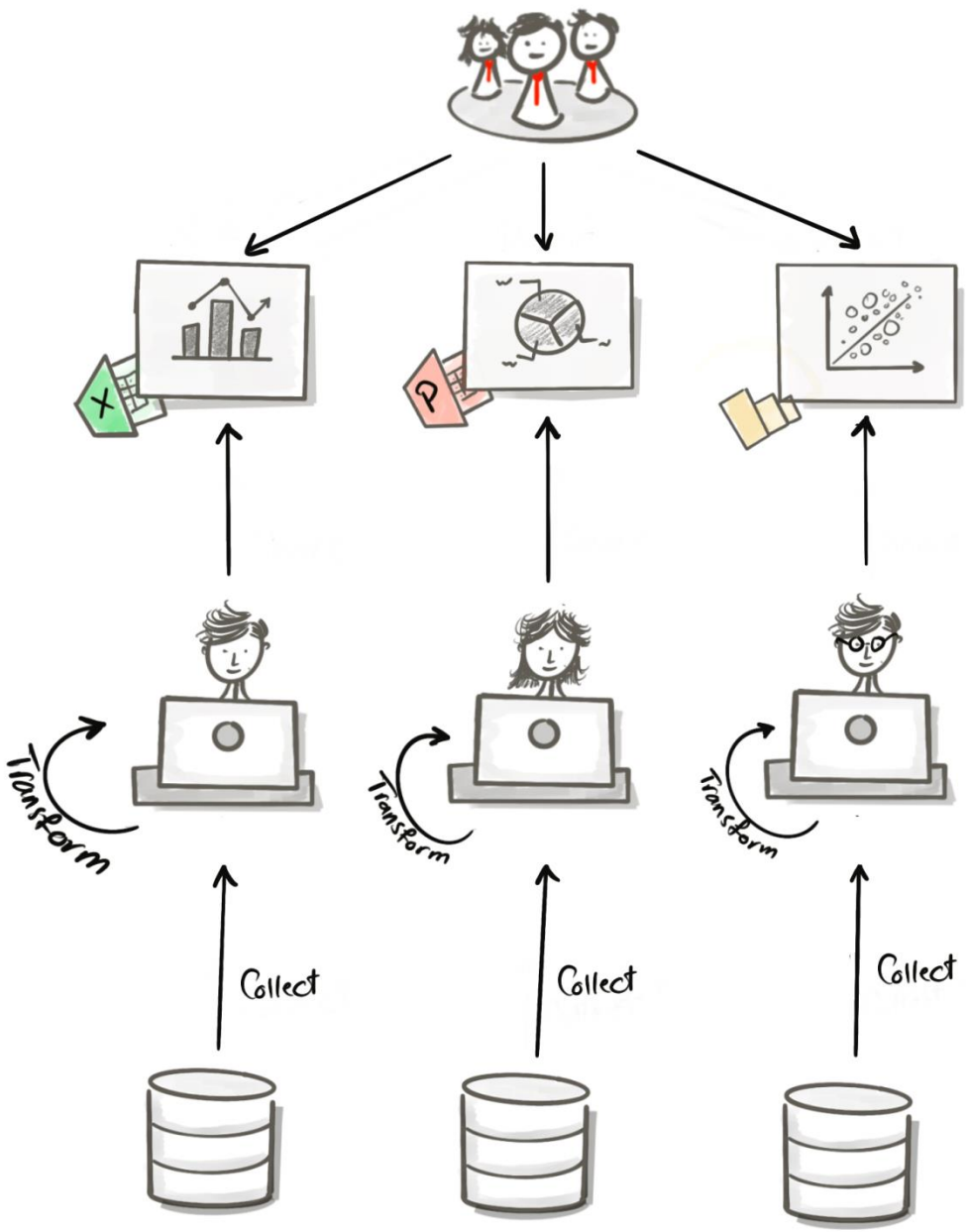
- Complex Queries
- Window Functions
- CTE
- Subqueries
- Reports

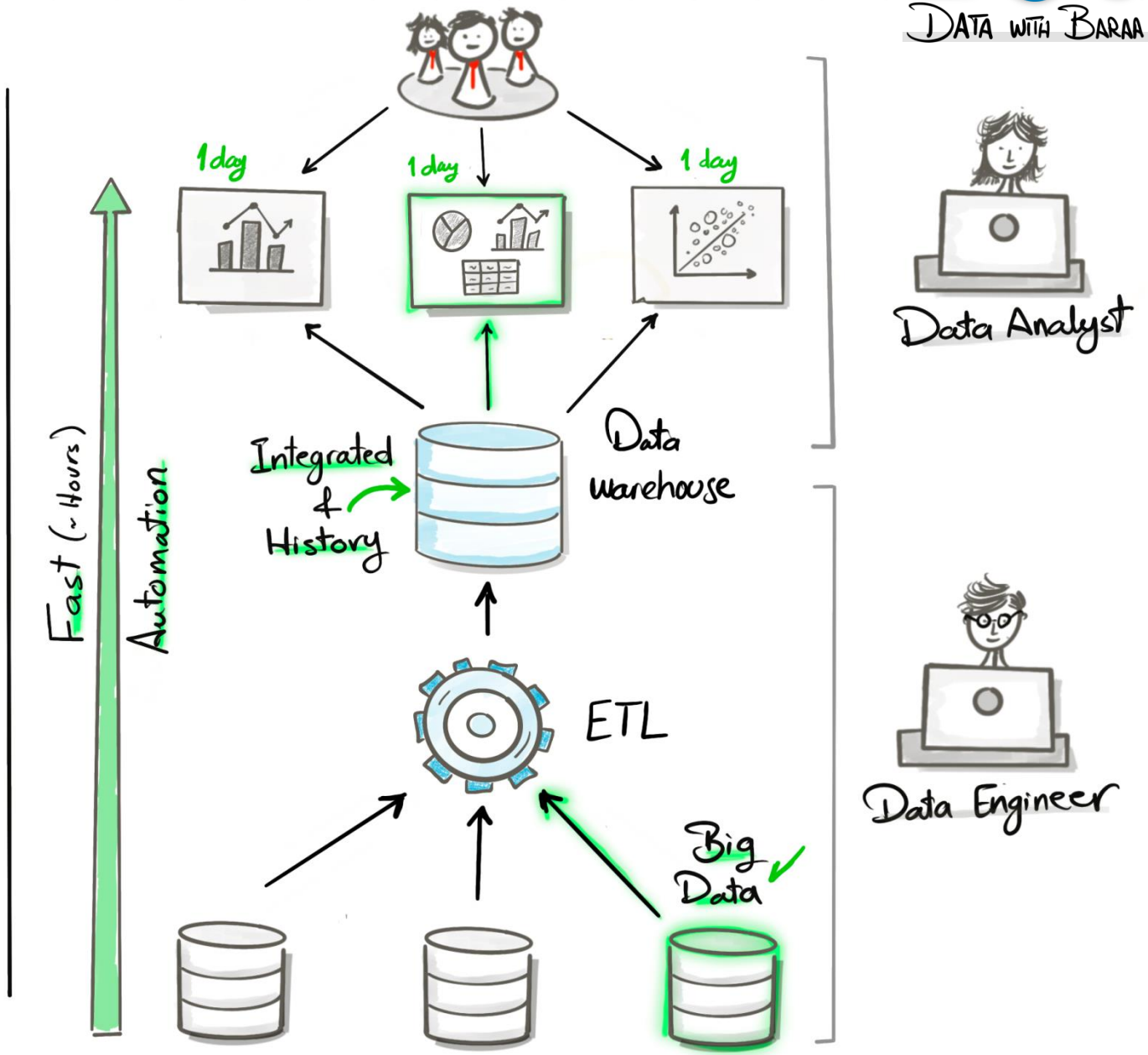
DATA WITH BARAA

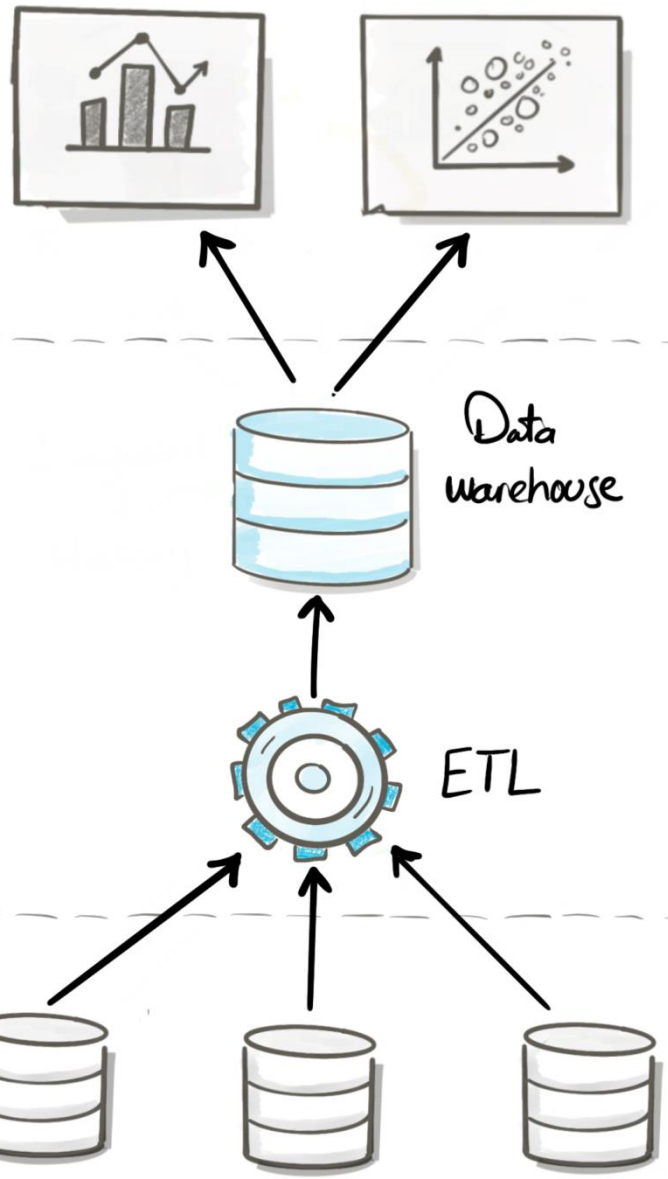

Data Architectures
Data Warehouse
Data Lake
Data Lakehouse
Data Mesh
Inmon
Stage
EDW (3NF)
Data Marts
Kimball
Stage
Data Marts
Data Vault
Stage
Raw Vault
Business Vault
Data Marts
Medallion Architecture
Bronze
Silver
Gold

DATA WITH BARAA

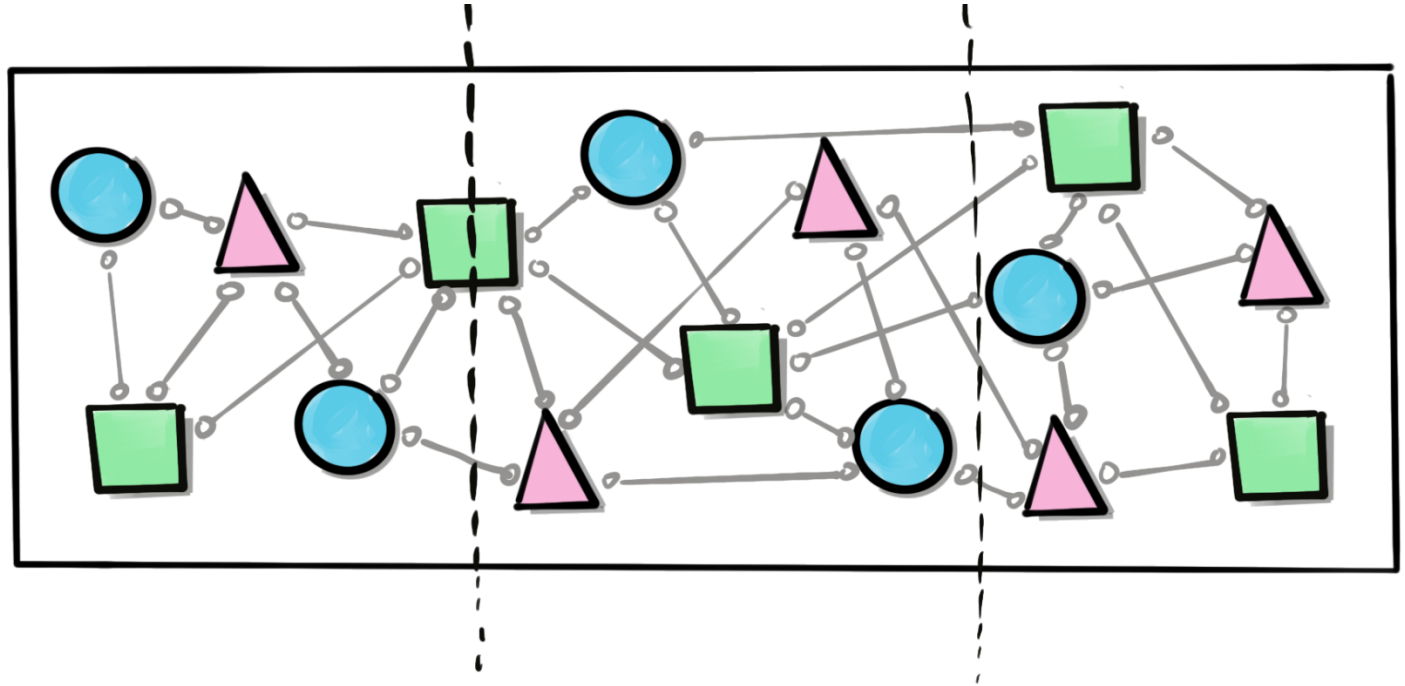
	Bronze Layer	Silver Layer	Gold Layer
Definition	Raw, unprocessed data as-is from sources	Clean & standardized data	Business-Ready data
Objective	Traceability & Debugging	(Intermediate Layer) Prepare Data for Analysis	Provide data to be consumed for reporting & Analytics
Object Type	Tables	Tables	Views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


Transform
Transform
Transform
Collect
Collect
Collect

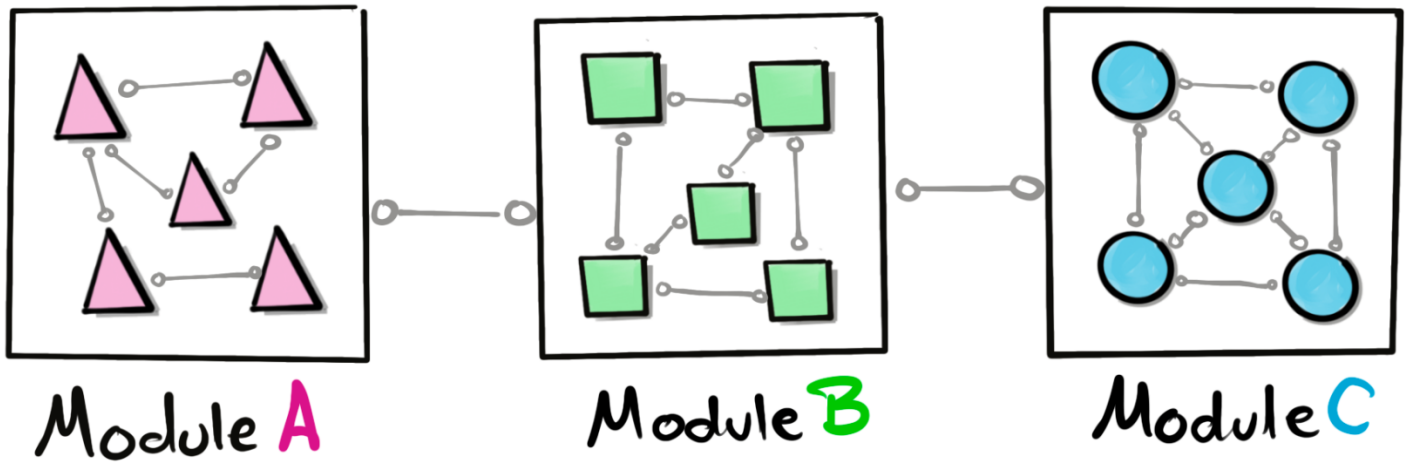

1 day
1 day
1 day
Fast (~ Hours)
Automation
Integrated
&
History
Data
Warehouse
ETL
Big
Data
Data Analyst
Data Engineer


Data
warehouse
ETL

Without SOC



With SOC



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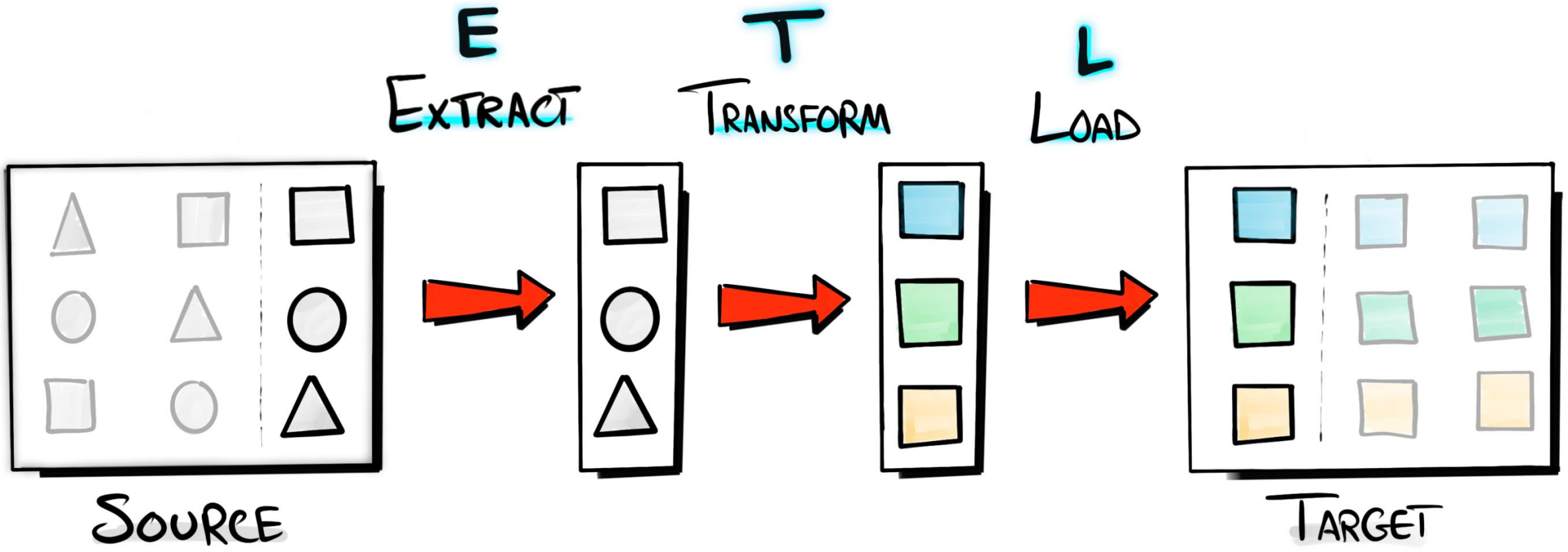

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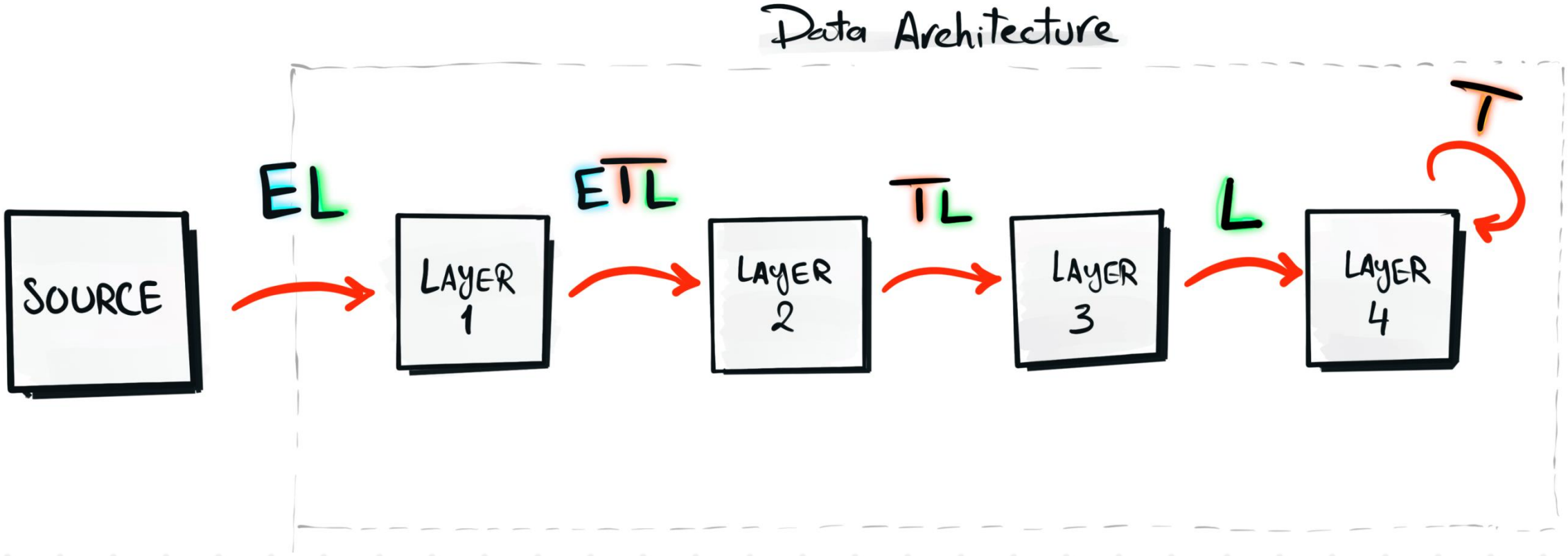

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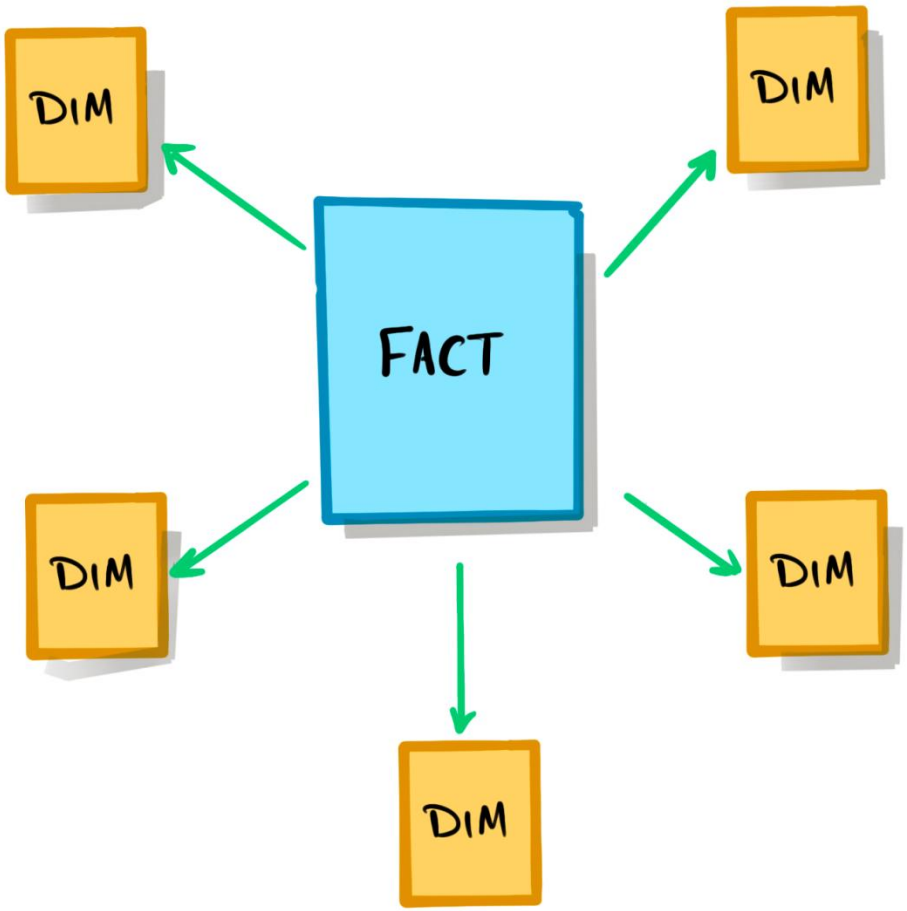
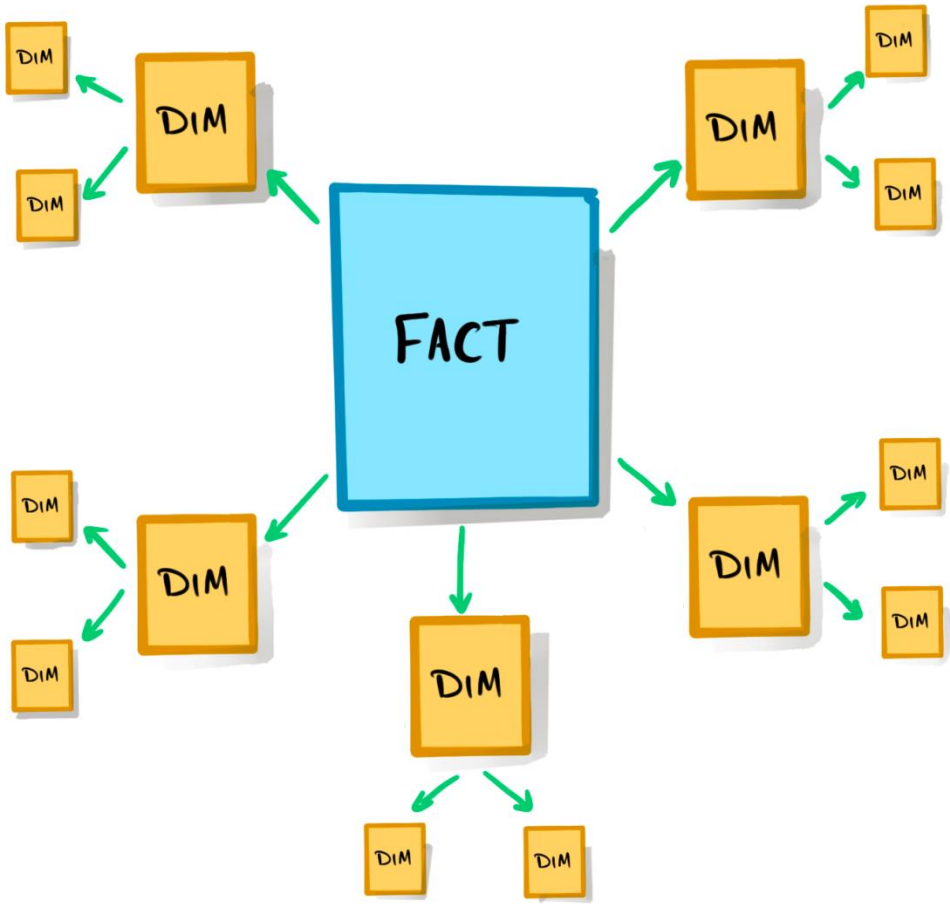
STAR SCHEMA



SNOWFLAKE SCHEMA



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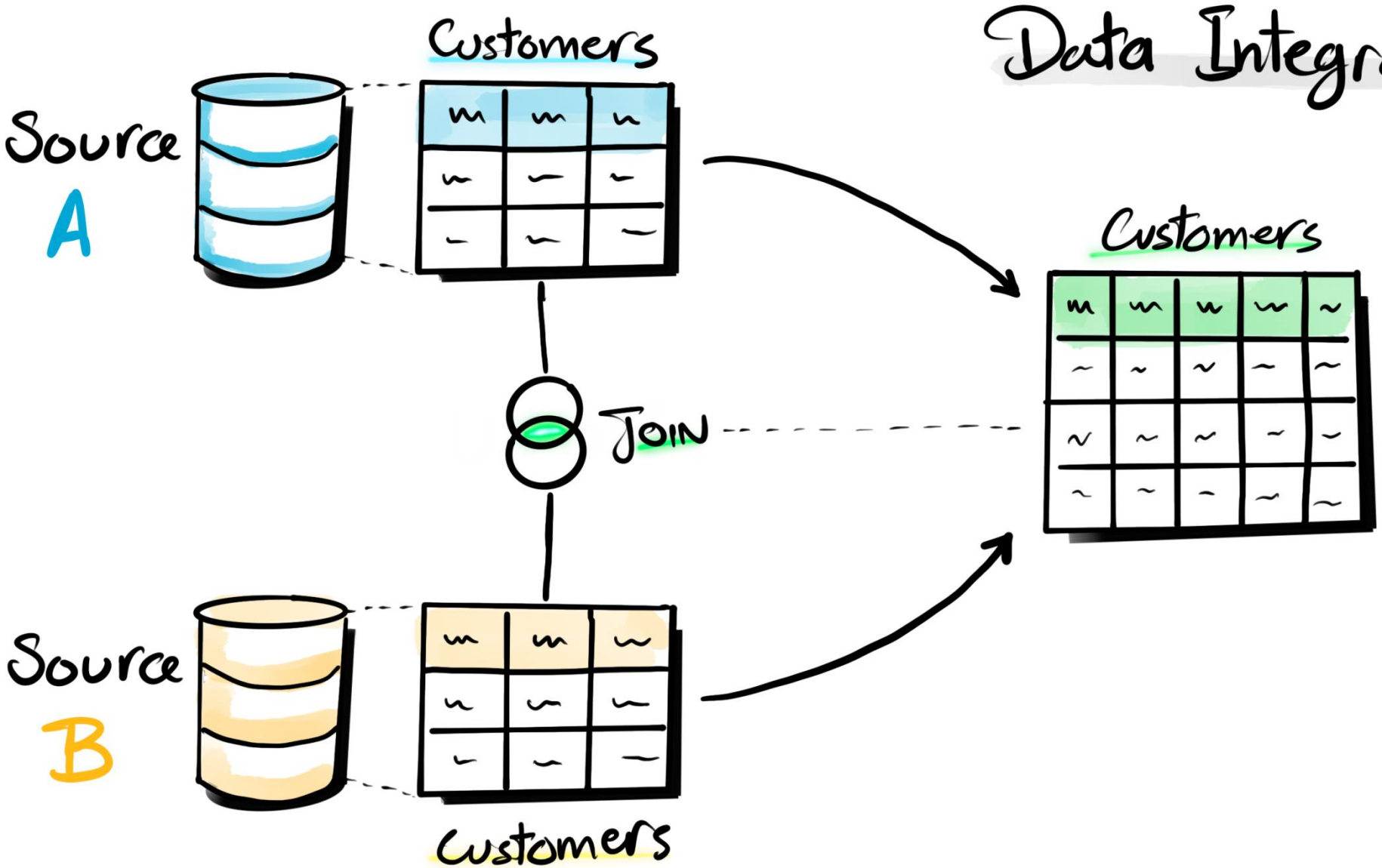
Data Integration



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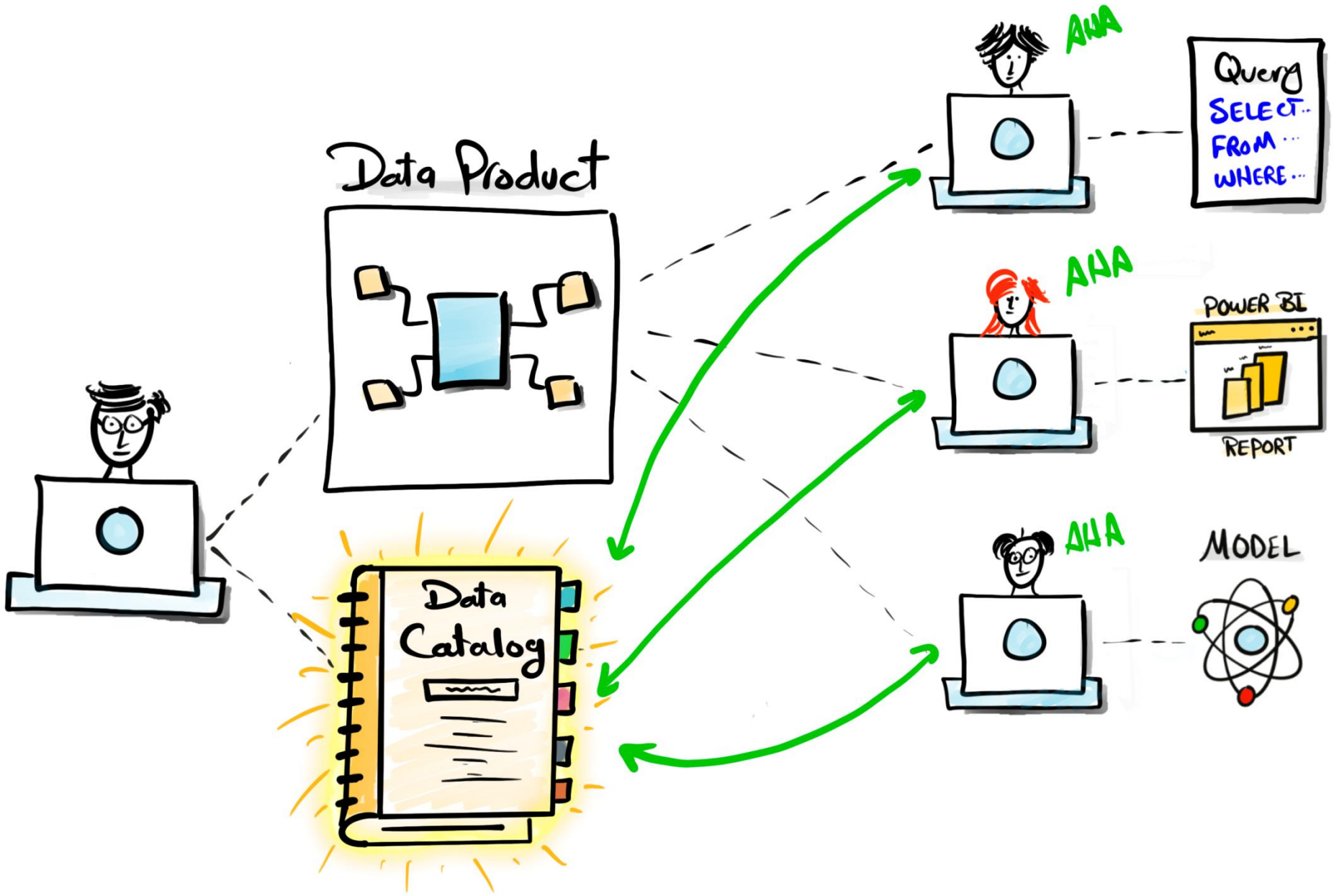
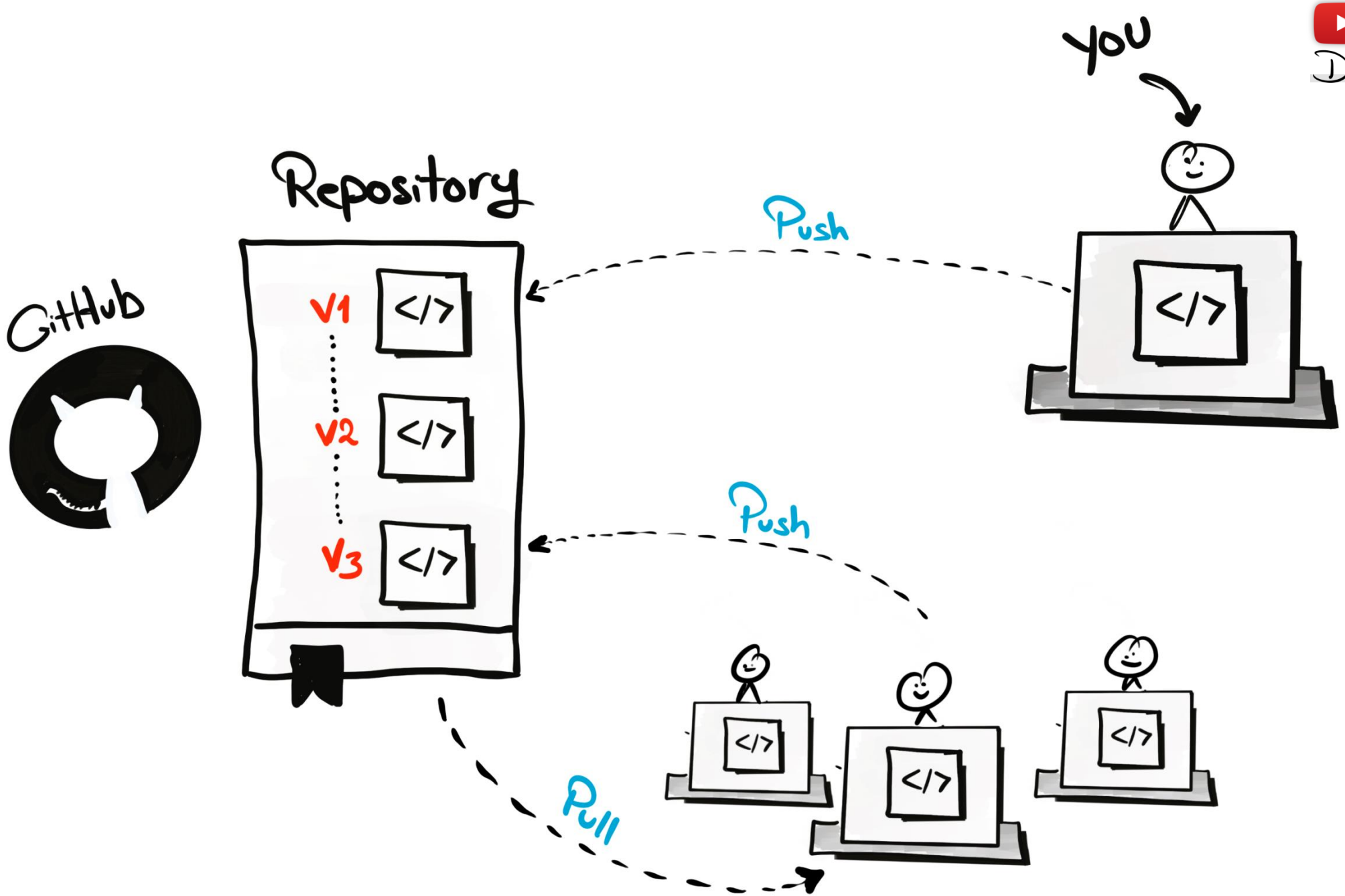
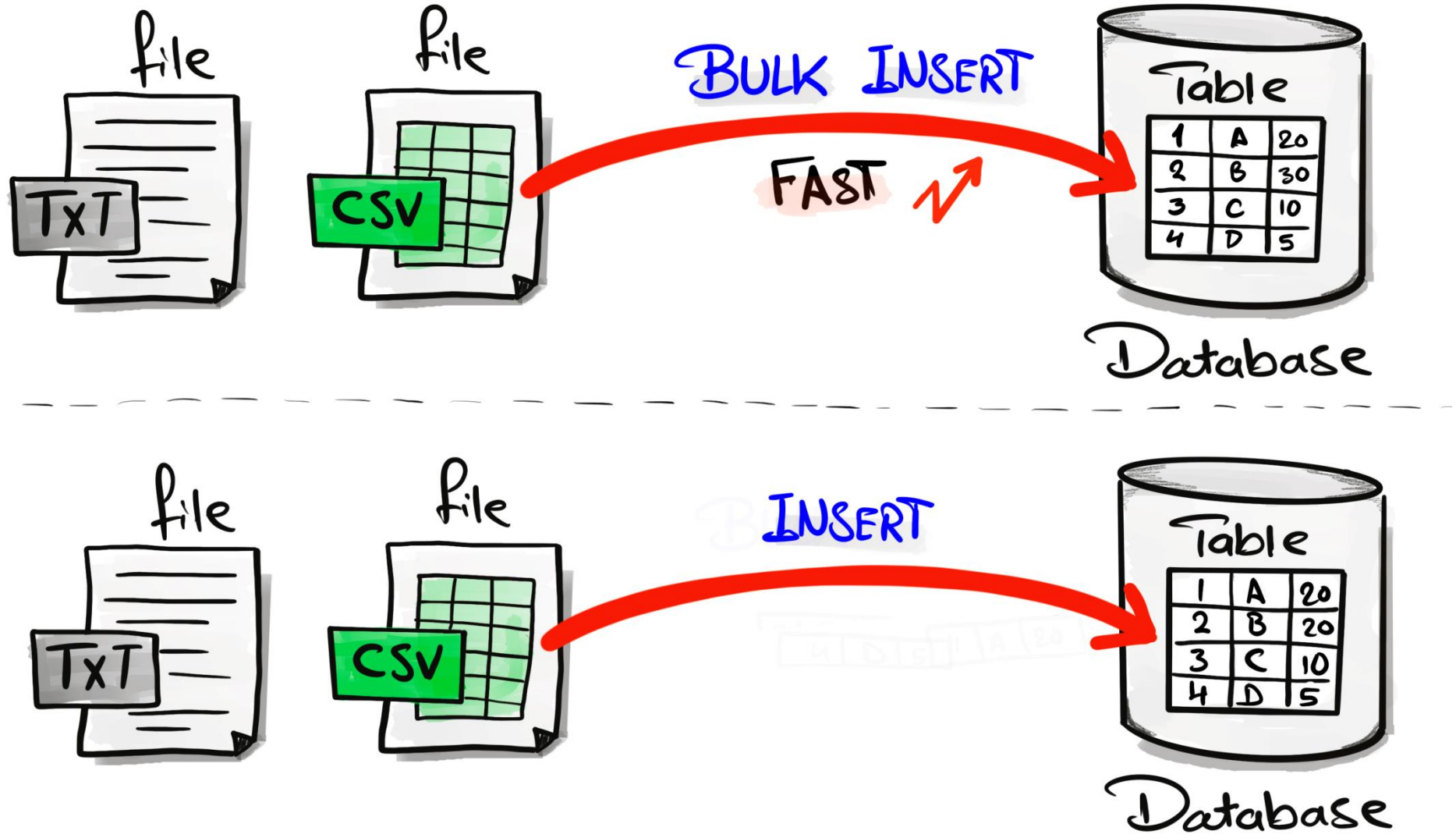

Data Product
Data Catalog
AHA
Query
SELECT...
FROM...
WHERE...
AHA
POWER BI
REPORT
AHA
MODEL


you
Repository
Push
GitHub
V1
V2
V3
Push
Pull


file
TXT
file
CSV
BULK INSERT
FAST
Table
1 A 20
2 B 30
3 C 10
4 D 5
Database
file
TXT
file
CSV
INSERT
Table
1 A 20
2 B 20
3 C 10
4 D 5
Database

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SQL DATA Analytics

Project

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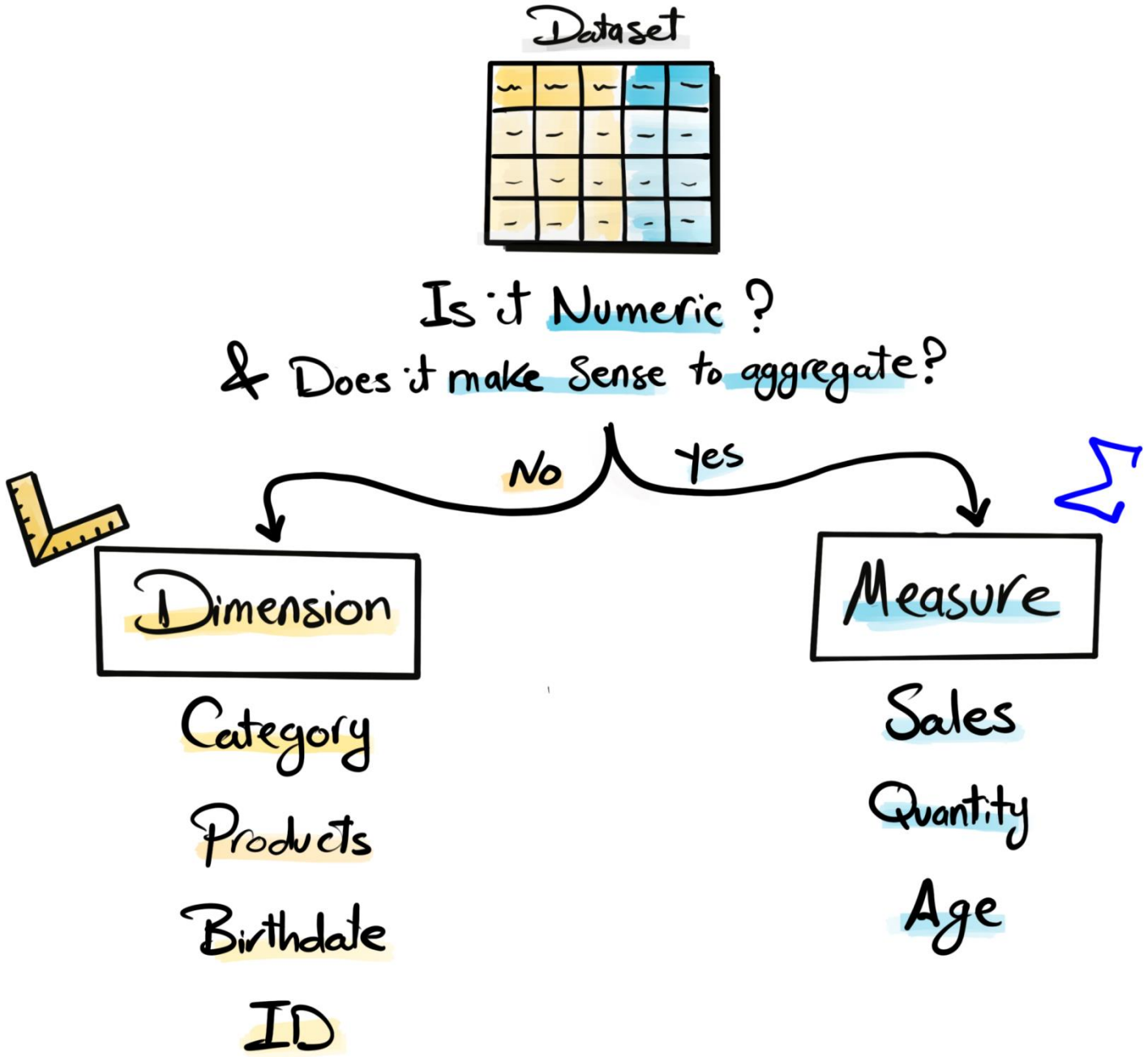
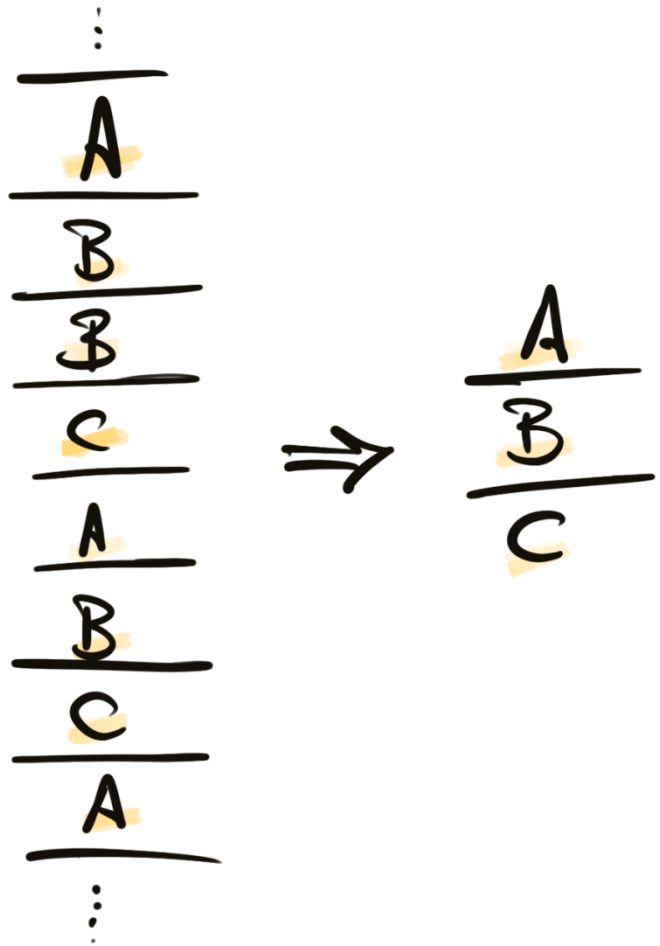
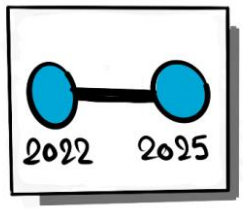

Dataset
Is it Numeric ?
& Does it make Sense to aggregate?
No
Yes
Dimension
Category
Products
Birthdate
ID
Measure
Sales
Quantity
Age

Dimensions Exploration

DISTINCT [Dimension]

DISTINCT Country
DISTINCT Category
DISTINCT Product





Date Exploration

DATA WITH BARAA

MIN/MAX [Date Dimension]

MIN Order_date

MAX Create_date

MIN Birthdate

2019

2020

2018

2018

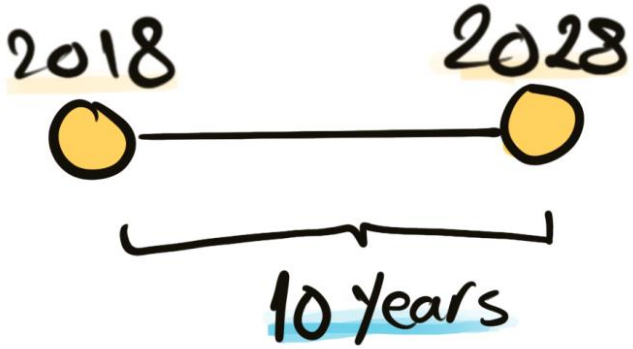
2022

2023

2023

2028

2022



DATEDIFF

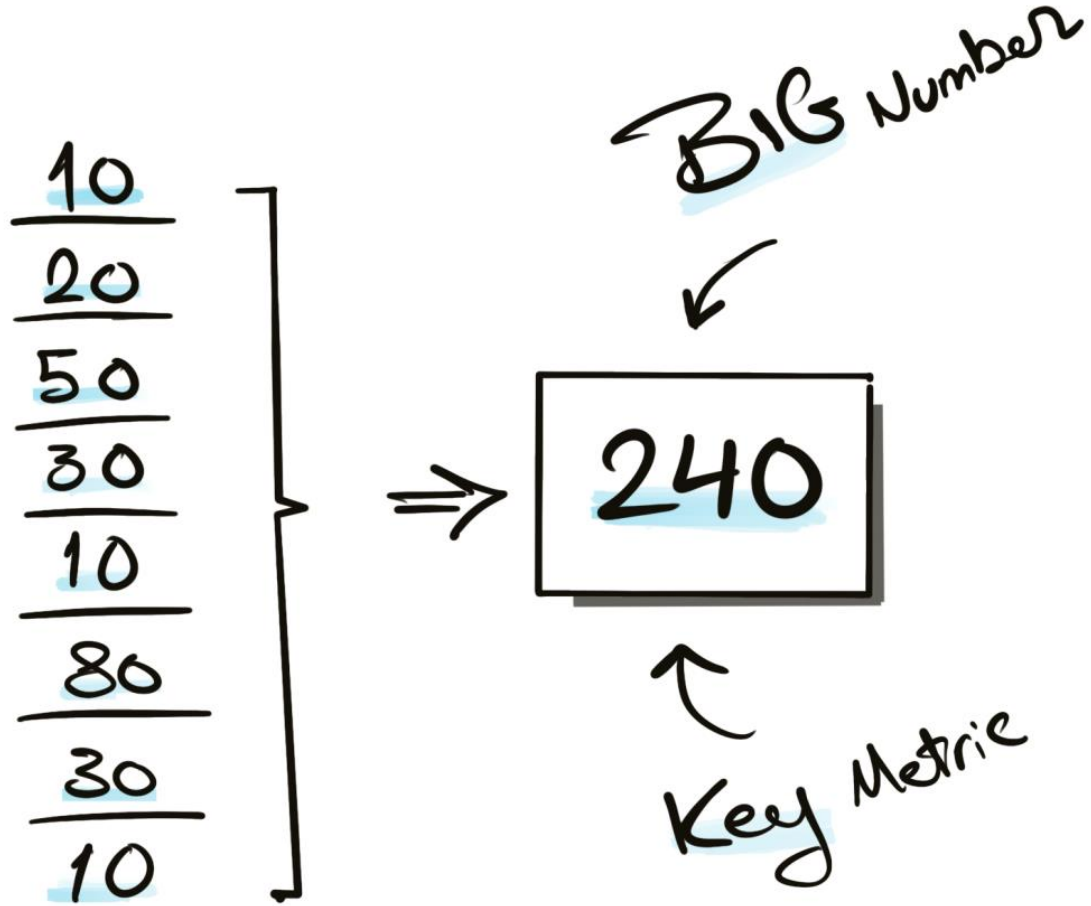
999 Measures Exploration

$\sum$ [Measure]

SUM (Sales)

AVG (Price)

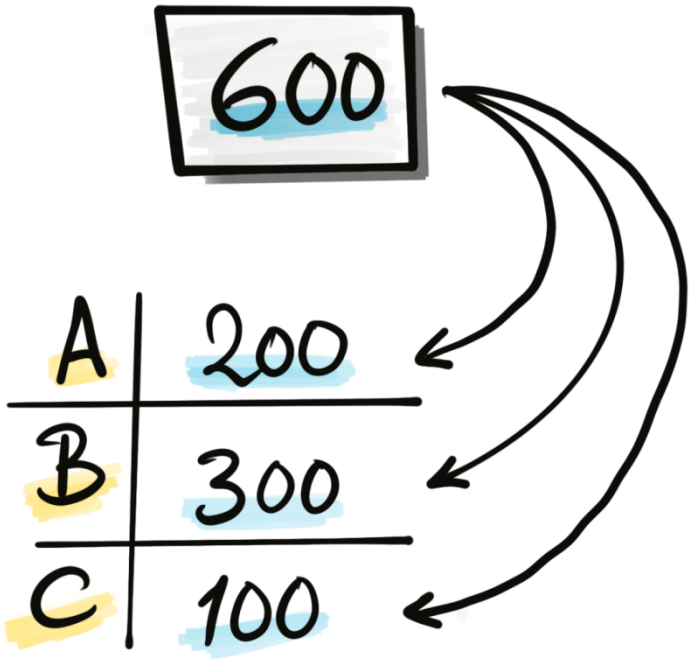
SUM (Quantity)

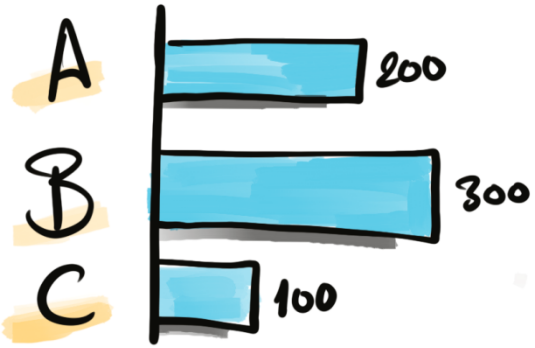


Magnitude

$\sum$ [Measure] By [Dimension]

- Total Sales By Country
- Total Quantity By Category
- Average Price By Product
- Total Orders By Customer





Change-Over-Time Trends

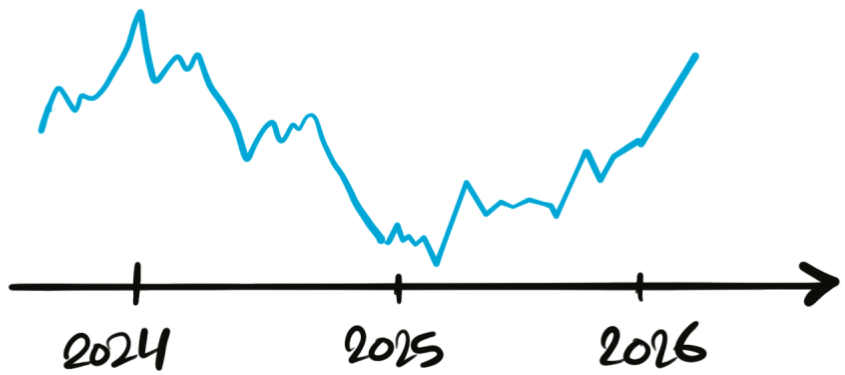
DATA WITH BARAA

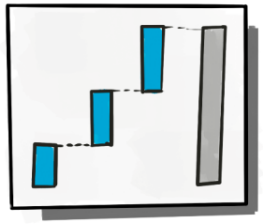
$\sum$ [Measure] By [Date Dimension]

Total Sales By Year

Average Cost By Month

2024	300
2025	100
2026	200





Cumulative Analysis

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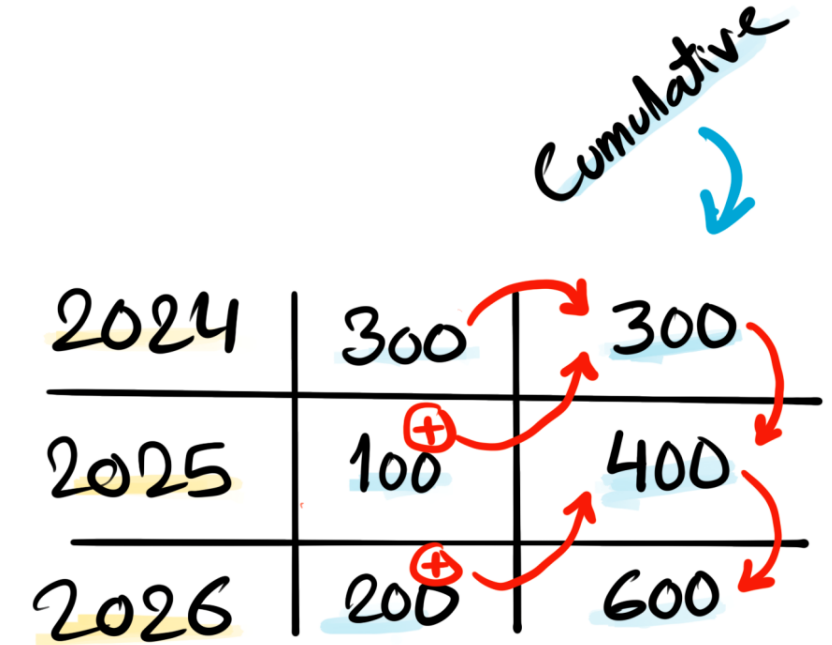
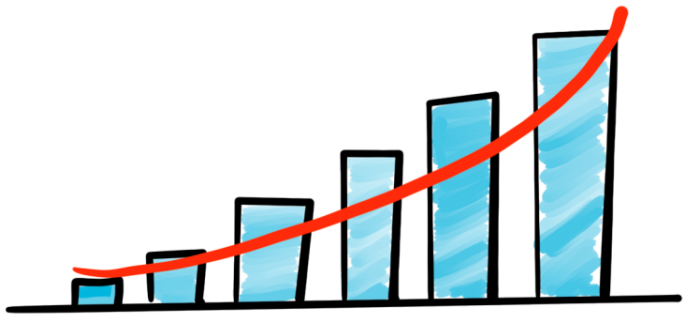
$\sum$ [Cumulative Measure] By [Date Dimension]

Running Total Sales By Year

Moving Average of Sales By Month



WINDOW FUNCTIONS



Performance Analysis

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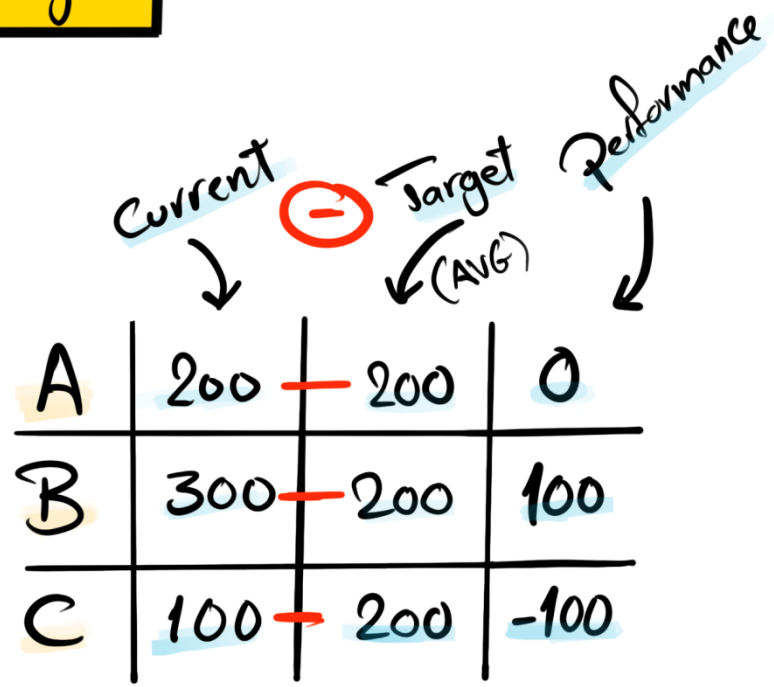
Current [Measure] – Target [Measure]

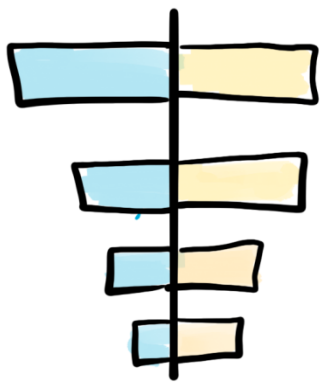
Current Sales – Average Sales

Current Year Sales – Previous Year Sales

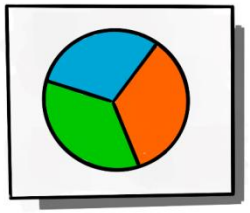
Current Sales – lowest Sales



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



WINDOW FUNCTIONS



Part-to-Whole

Proportional Analysis

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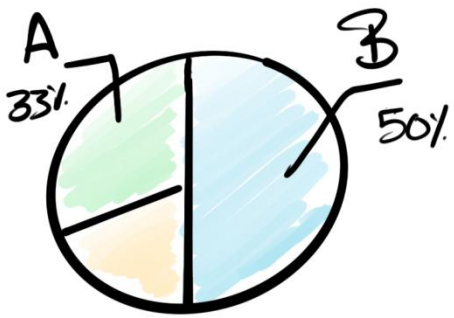
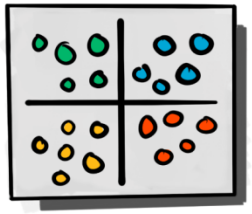
([Measure] / Total [Measure]) * 100 By [Dimension]

(Sales / Total Sales) * 100 By Category

(Quantity / Total Quantity) * 100 By Country

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





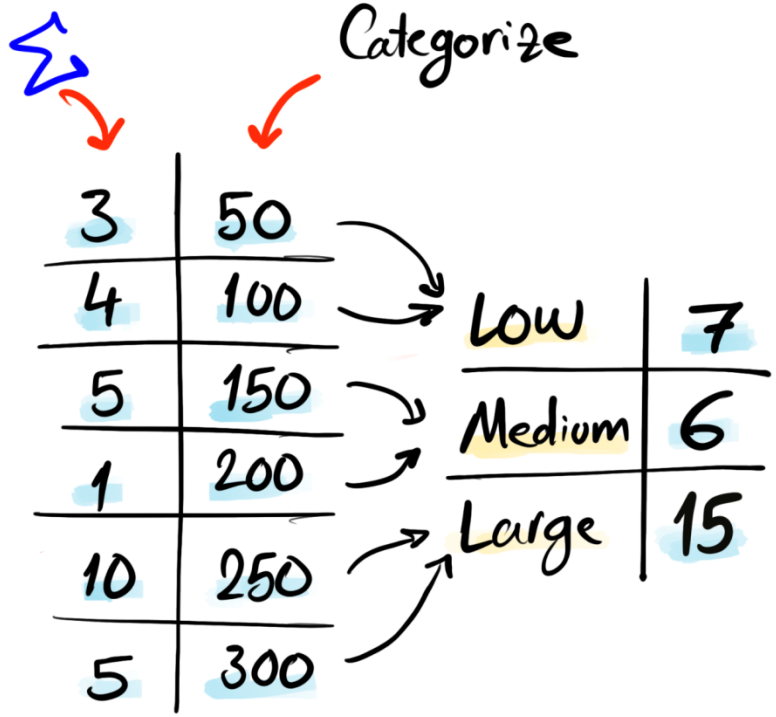
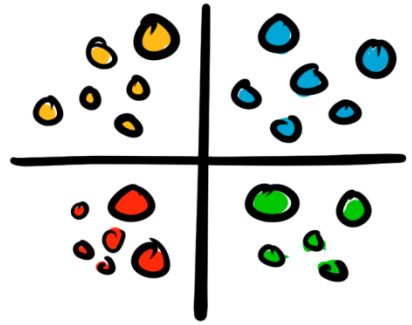
Data Segmentation

DATA WITH BARAA

[Measure] By [Measure]

Total Products By Sales Range

Total Customers By Age



CASE WHEN STATEMENT