

A series of light blue circuit lines with circular nodes, extending from the left edge of the slide towards the central text box.

BMBM5023

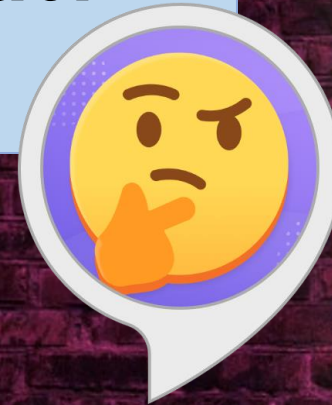
**DIGITAL INTELLIGENCE AND
FUTURE DEVELOPMENT**



**AN OVERVIEW OF BUSINESS
INTELLIGENCE & ANALYTICS**

Recap...

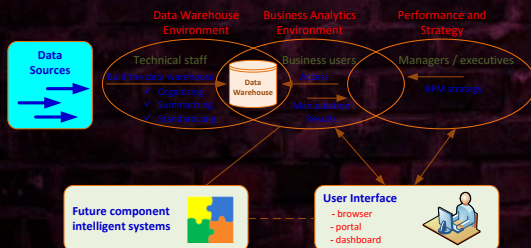
What do you remember from last week?



Factors that affect Business



Antecedent influences
Chance
Available resources



BUSINESS INTELLIGENCE (BI)

ANALYTICS & ALGORYTHEM...

LAPLACES DEMON



This Week

Data warehousing and Algorithms



Objectives

**Understand basic definitions
and concepts of data
warehousing**

**Critically discuss the different
types of data storage
structures**

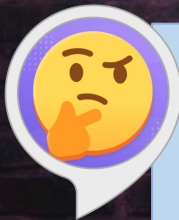
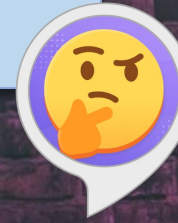
**Gain insight into the processes
involved in managing data**



Thought experiment

Amazon keeps a record of every single transaction...
Let's first imagine that we keep this information in folders..
What might this look like, how would you organise the folders?

What would be the benefits?
What are the limitations?



What is Spotify wrapped?
Try it now..
How do you think the data
is stored and correlated?



THE BEGINNING... DATA... LOTS OF DATA.....
BIG DATA!!!!

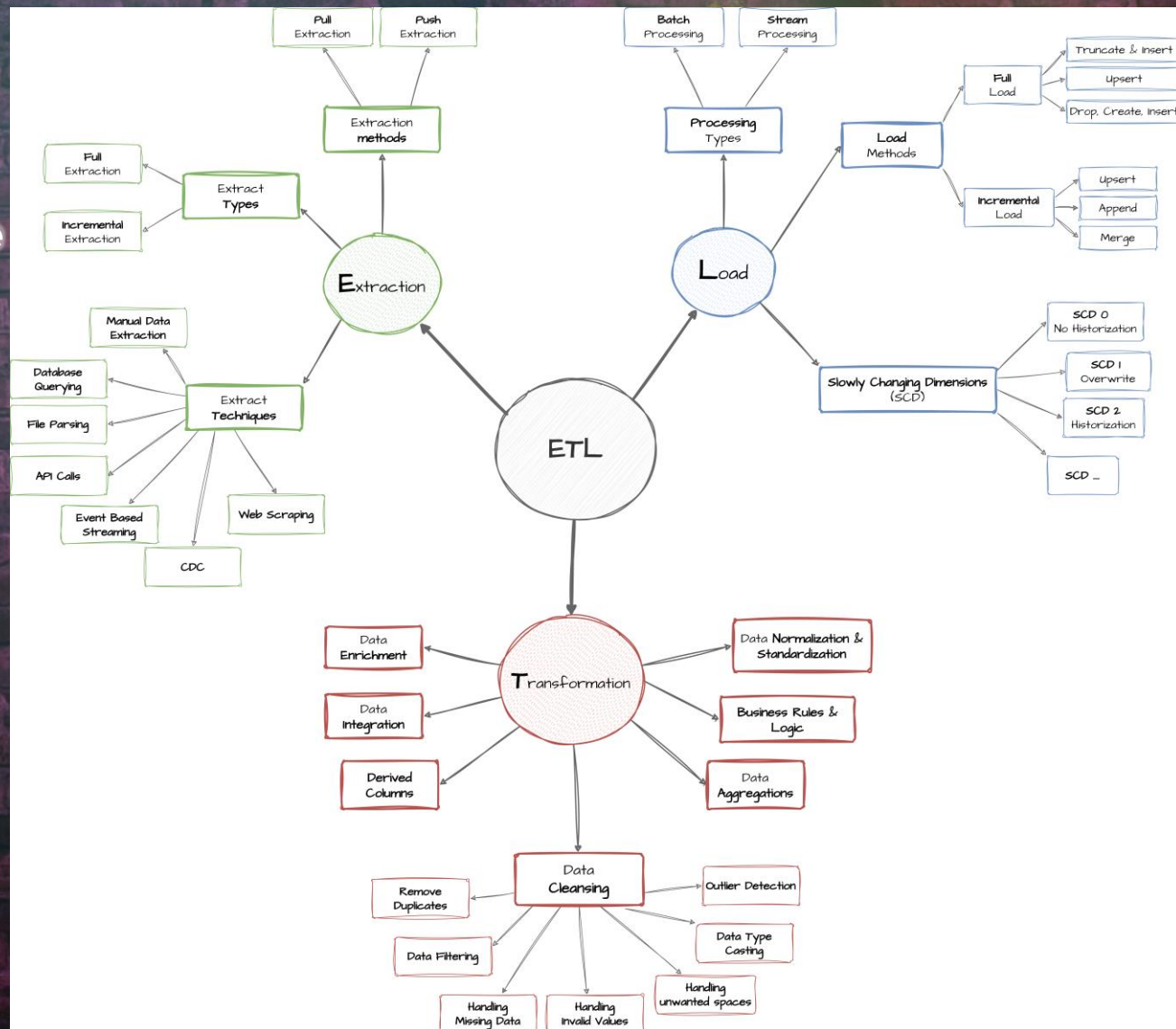


What happens to the Data?.... ETL!

Extract – Uploading the raw data incrementally or large data dumps !

Transform – Cleaning integration, format, in accordance with our systems

Load – Store the useable data in an accessible format and location



Extract

Methods

- Push
- Pull

Types

- Full (Data Dump)
- Incremental

Technique

- Manual/Query/Scraping
- API/CDC



Transform

enrichment

Enhancing raw data by adding relevant information from internal or external sources, transforming it into a more complete, accurate, and valuable asset

Intergration

Combining, synchronizing, and transforming data from multiple, disparate sources into a single, unified view to support analysis and decision-making

Logic and rules

- Basic levels of automation with will implement instructions on the data and organise according to predetermined logical progression and rules like If duplicated remove oldest etc..

Standardisation

Converting diverse datasets into a single, uniform format by applying a consistent set of rules for data types, values, and structures

Cleansing

- Filter data, Remove duplicates, identify and manage missing data , invalid values type casting data outlier identification etc..



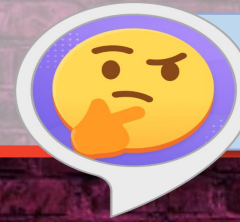
Load..

The final stage of the ETL process, where data that has been extracted from various sources and transformed into a consistent, usable format is loaded into a target destination, such as a data warehouse or data lake. This loading step ensures the data is ready for downstream uses like data analytics, reporting, and business intelligence.

Data storage and warehousing The Coffee shop

Transactional databases (OLTP) -Online Transaction Processing

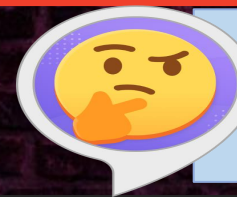
Can be thought of as the tills or "cash register", recording each sale (fast, small, frequent) addresses smaller specific tasks



What 'information' or 'queries' might we ask from this data at the tills?

Data warehouse (OLAP)- Online Analytical Processing

Can be thought of as the head office or the area manager, less concerned about individual transactions but are searching for trends and patterns, larger data sets with more strategic significance



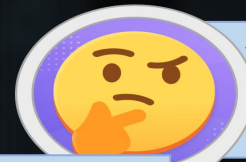
What 'information' or 'queries' might we ask from this larger and broader data set?

Data architecture

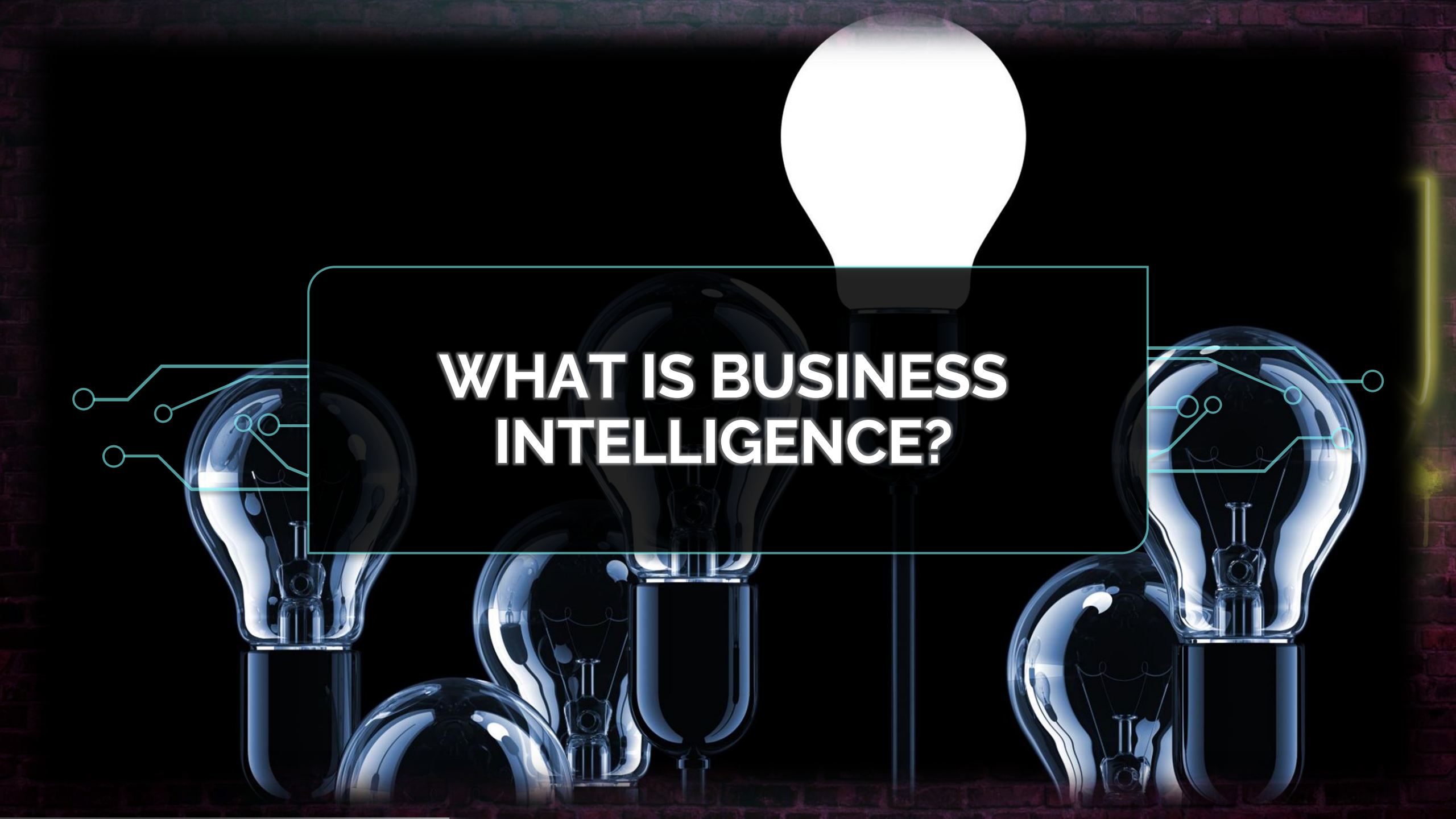
- **Data Warehouse:** Suitable for structured data
- **Data lake:** More flexible than the data warehouse suitable for semi-structured and unstructured data (like data for Machine Learning)
- **Data Lakehouse:** a mix between the data warehouse & Data Lake
- **Data Mesh:** Decentralised data management system (multiple departments where each one of them is building data product and sharing it)



What is the disadvantage? ?

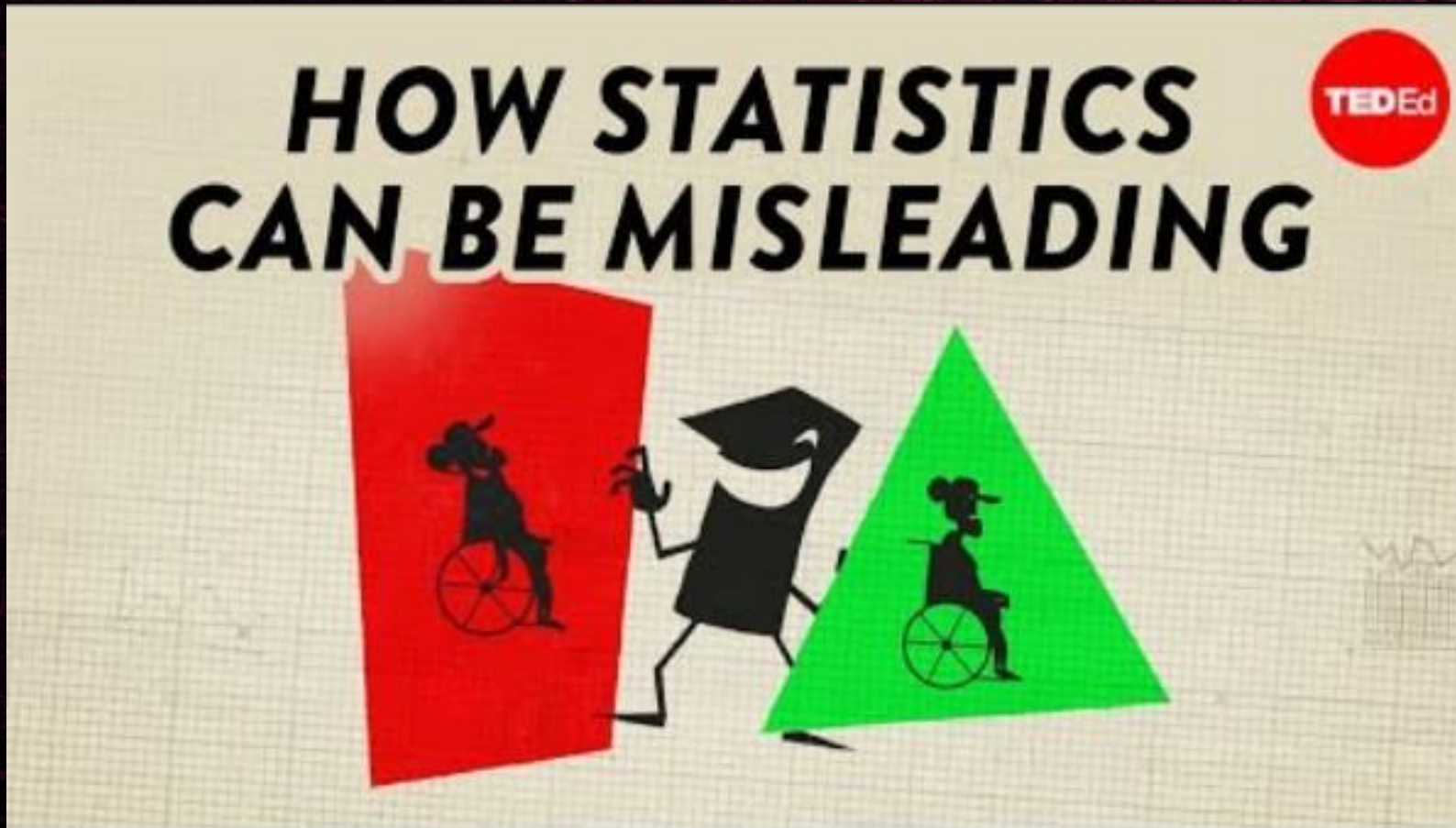


What is the advantage to data mesh over a data ware house?



WHAT IS BUSINESS INTELLIGENCE?

CRITICAL PERSPECTIVE



NEXT WEEK WE WILL BEGIN THE SESSION
WITH YOU EXPLAINING TO ME
THE CONCEPT OF SIMPSON'S PARADOX!