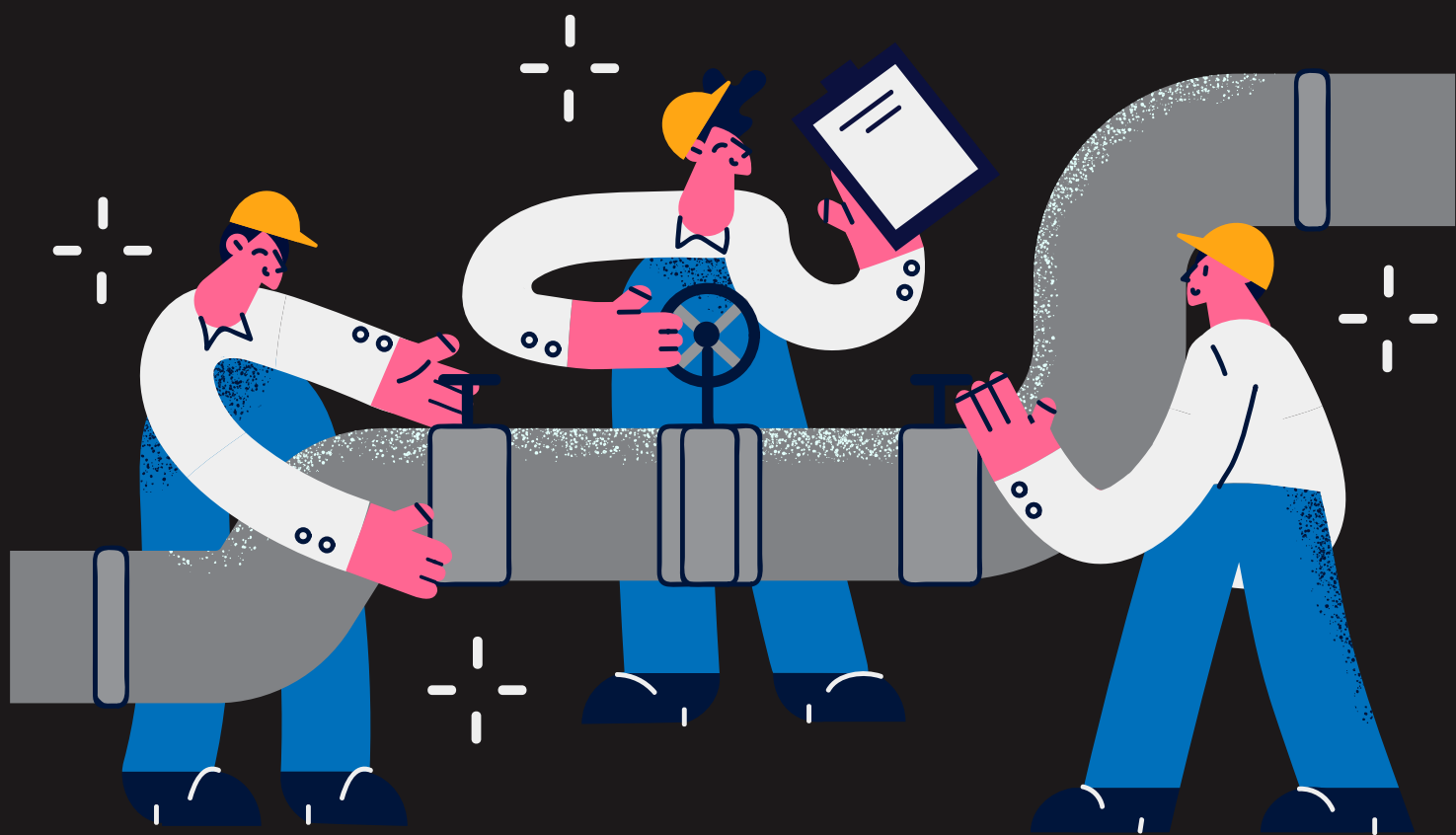


DATA PIPELINE



SIMPLIFIED

BY NISCHAY THAPA

Imagine a retail company that wants to analyse its sales data to understand customer behaviours.



The company collects data and stores it from different systems



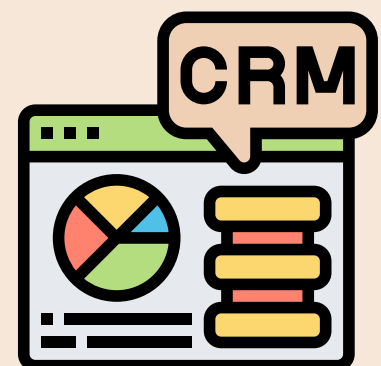
POS System

Website



Social Media

CRM System



These are known as 'Sources'

For analysis, they would like to collect and store all this data at one place.



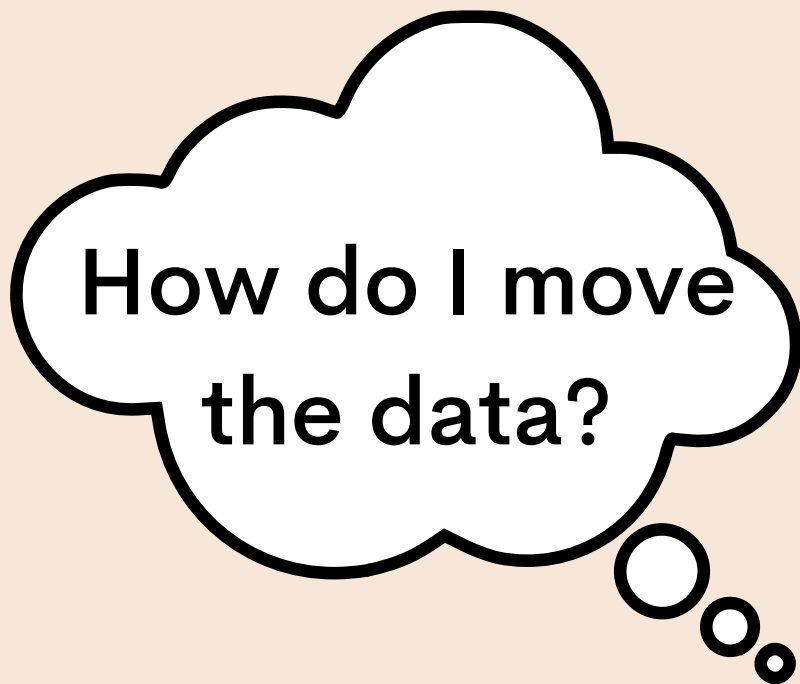
Data Warehouse



Data Lake

These are known as 'Destinations'

How will they build the connection?



Destination

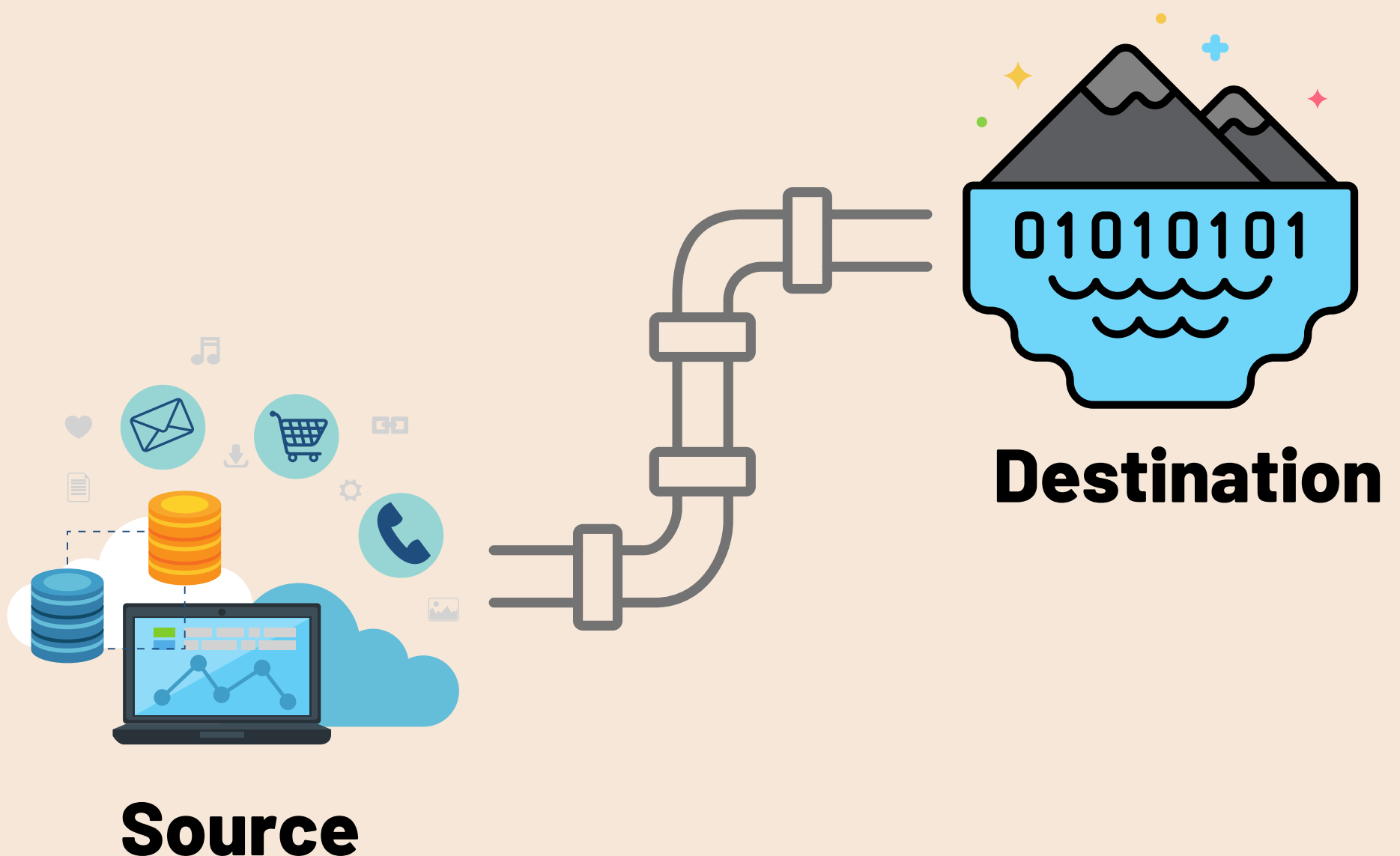


Source



Data Pipeline

A data pipeline is a series of automated processes that move data from one system or stage to another.

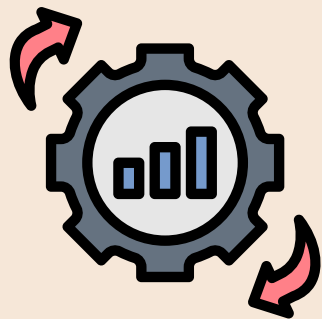


The processes in a data pipeline can include



Extraction

Validation



Transformation

Loading



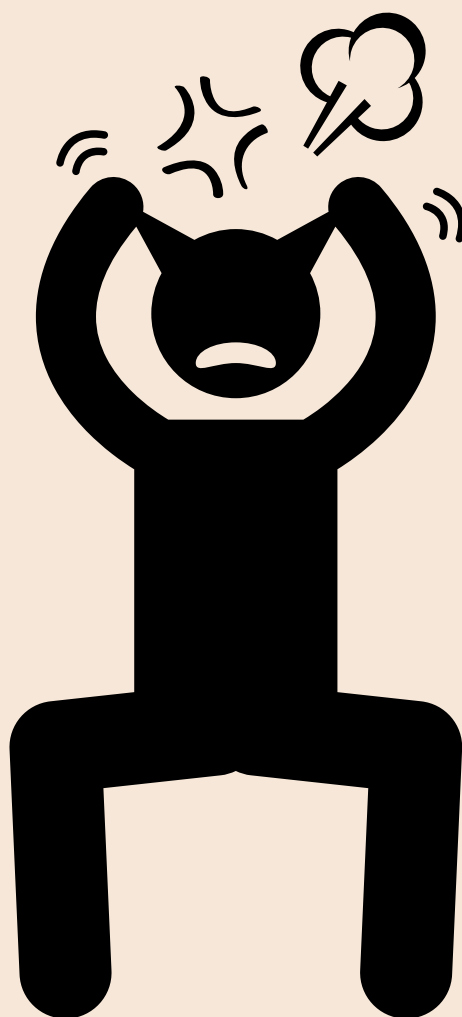
Quality Checks

Monitoring

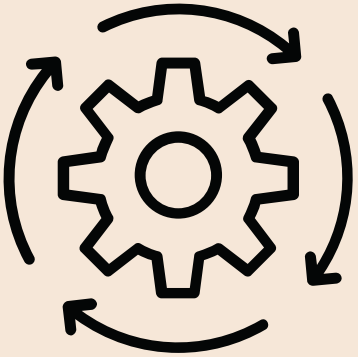


Without a data pipeline,

The company will have to **manually transfer data**, perform **multiple** extracts and transformations on the **same data**, which makes it **difficult** to track changes, and becomes **time-consuming** leading to **poor data quality** and **insights**.

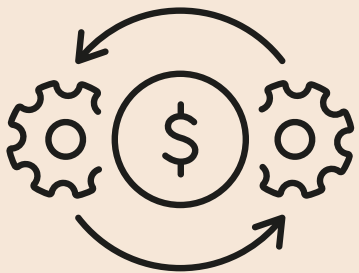
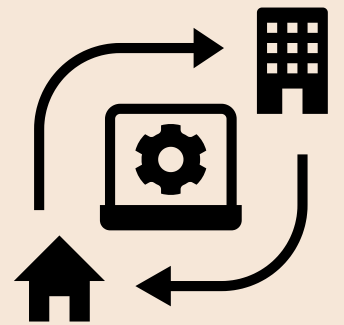


With data pipelines, they can



Automate data flows

Have flexible integration



Be cost-effective

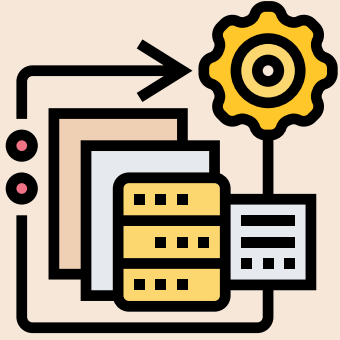
Produce better insights



Maintain data consistency

Common types of data pipeline

Batch Data Pipeline:



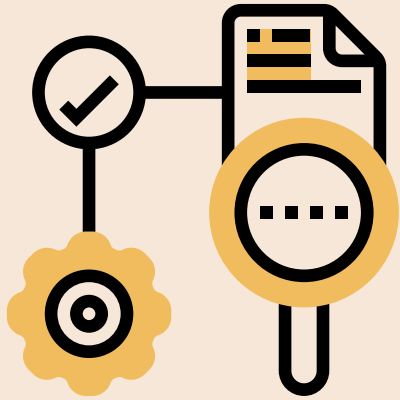
- Processes data in large chunks
- At specific intervals.
- Used for non-time-sensitive data

Streaming Data Pipeline:

- Processes data in real-time
- Commonly used for time-sensitive data
 - financial transactions
 - social media feeds.

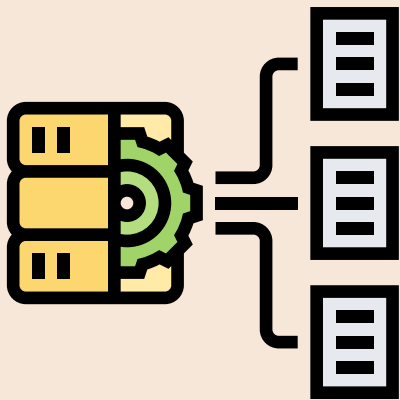
LIVE





ETL Pipeline:

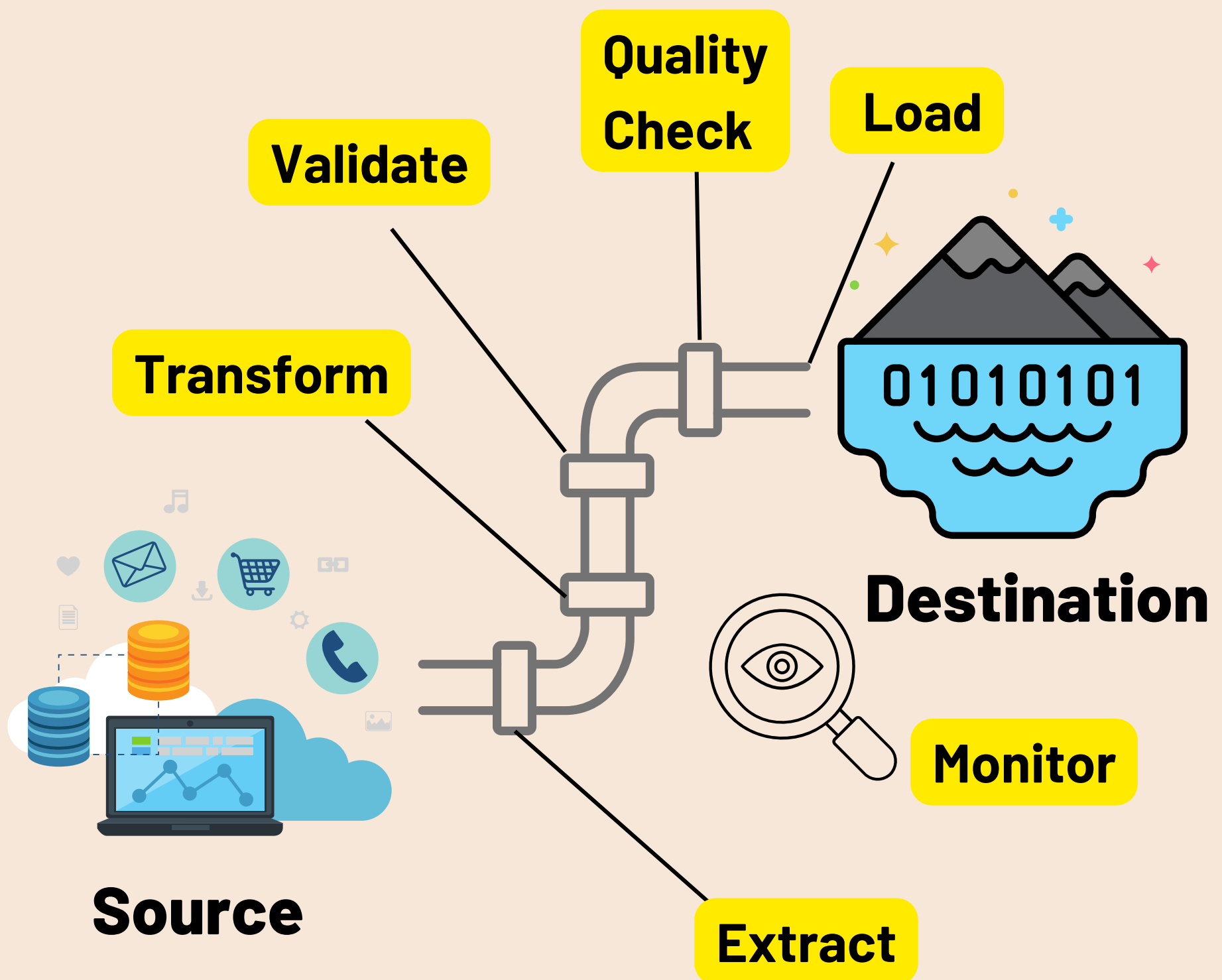
- **E**xtracts data from various sources
- **T**ransforms it
- **L**oads it into the destination system.



ELT Pipeline:

- Extracts data from various sources
- Loads it into a destination system
- Transforms it

Data pipelines are an efficient means for managing and processing data enabling automation, improved governance, and providing accurate insights to inform decision-making.





RESOURCES

[Data Pipeline | IBM](#)

[Design a data pipeline](#)

[Build a data pipeline | GCP](#)

[Build a data pipeline | Azure](#)

[Build a data pipeline | AWS](#)



Click them to find out more!