DATA ENGINEERING

- **Frontend**[React, Angular, etc.] **(CRUD UI)** [Create, Read, Update, Delete]

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- **Backend Services**[Node.js, Django, Spring Boot, etc.]

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- **DBMS** (e.g., MySQL, PostgresSQL, MongoDB, etc)

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- **[ETL Pipelines]** — DE

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- **Data Lake / Warehouse / Big Data** (Spark, Hadoop, Kafka)

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- **[DS/ML/DA]** — Insights & Predictions

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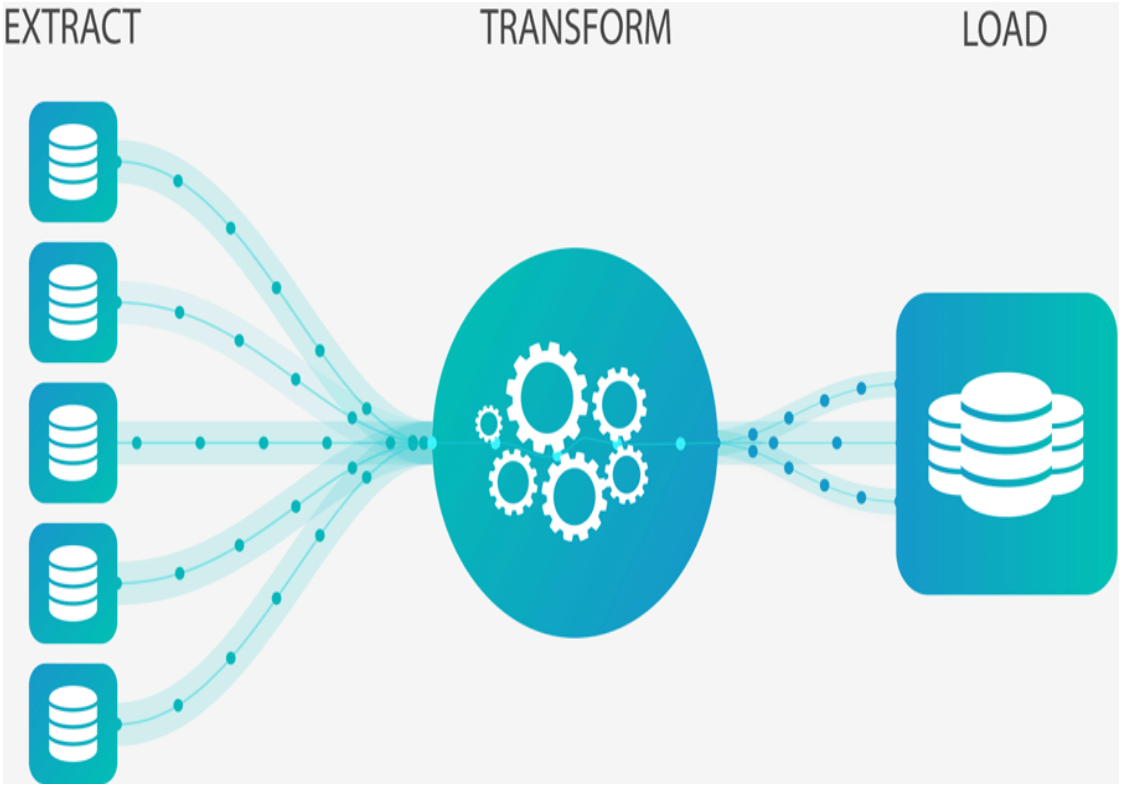
- **Dashboards / Reports** (Power BI, Tableau)

Data Engineer

- They build and scale the platforms that enable data collection, processing and storage for data science/business analytics use.

ETL (EXTRACT, TRANSFORM, LOAD)



[Step 1: Extract] ← Upstream

Pull RAW DATA from MySQL database

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[Step 2: Transform] ← Middle layer

Clean and enrich data, e.g., format dates, remove duplicates

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[Step 3: Load] ← Downstream

Load transformed data into a Data Warehouse (e.g., Snowflake) ##PROCESSED DATA

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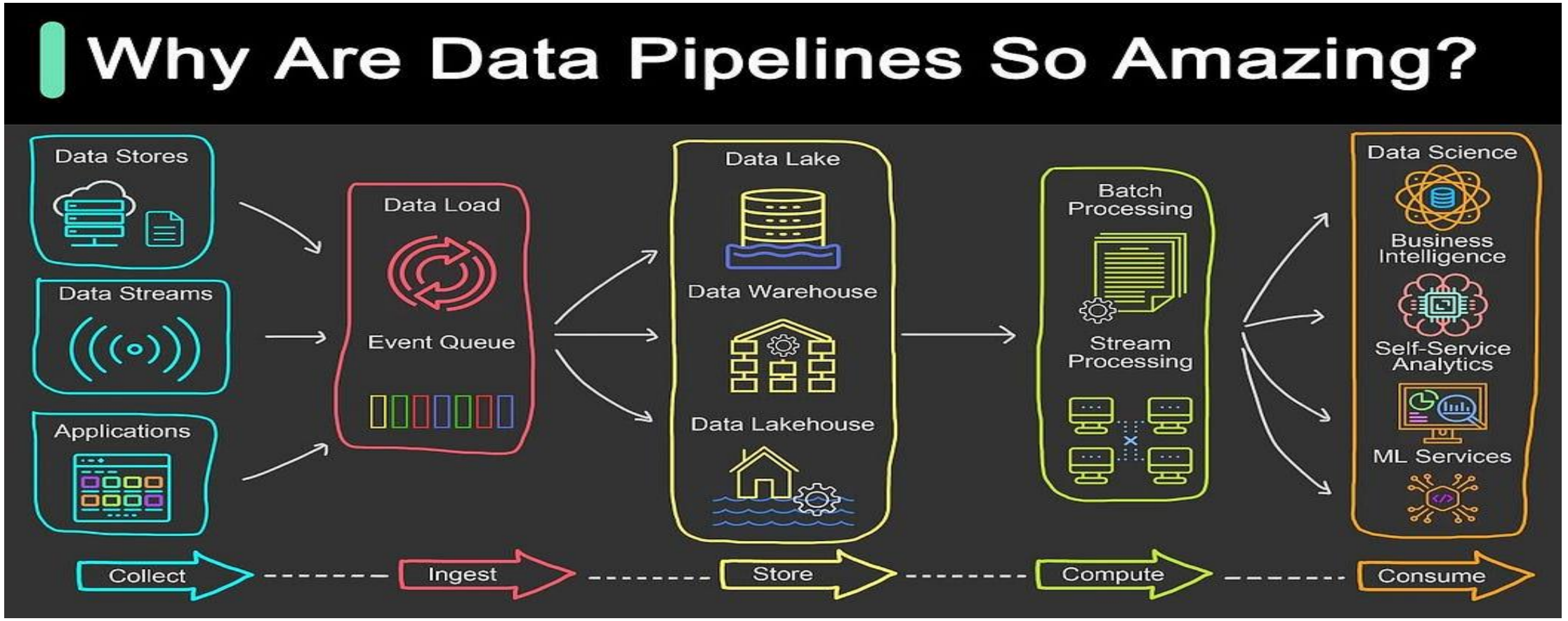
[Step 4: Dashboard]

BI tool (e.g., Power BI) reads from warehouse to show charts ##COOKED DATA



Step	Action	Purpose
Collect	Gather raw data	Capture from apps, APIs, devices
Ingest	Load into pipeline	Queue or stream data safely
Store	Save in lakes/warehouses	Keep data for access & analysis
Compute	Process/transform the data	Make it clean, structured, and useful
Consume	Use for BI, ML, or analytics	Create reports, predictions, insights