Introduction to Databases

From data sources to stored structure and back: why we need databases.

Data is everywhere: names and phone numbers, financial records, vehicle and sensor readings, and information from every part of an organization. At first, we might collect it in spreadsheets and text files. But as the amount and variety of data grow, we need a single, organized place to store it and a reliable way to ask questions and get answers. That place is a **database**.

1. Where data comes from and how it gets stored

Data flows from many sources—people, institutions, vehicles, devices—into a system (such as a laptop or server), where it is processed and then saved in structured forms like spreadsheets (e.g. Excel) or plain text files. This is the first step: turning real-world information into digital data we can store and use.

2. What goes into a database

Instead of keeping data scattered across files, we bring it together into one central store: the database. Customer data, company operations, products, and sales (and more) all feed into this store. Inside, the data is organized into **tables**—rows and columns—so it stays consistent, linked, and easy to manage.

3. Asking questions and getting answers

Once data lives in a database, we ask questions in a special language—usually **SQL** (Structured Query Language). For example: "What is total spending?" The database runs the query, combines the right tables, and returns a result (e.g. "30M"). So we move from raw data in many files to one place we can query for clear, fast answers.

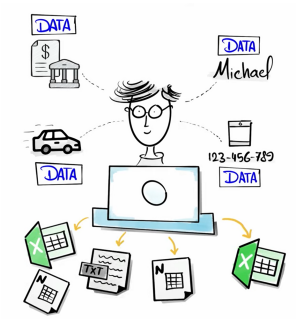

Fig. 1 — Data from many sources is processed and stored in files (e.g. spreadsheets, text).

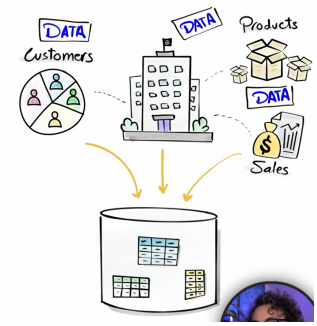

Fig. 2 — Customer, company, product, and sales data flow into a central database with tables.

Fig. 3 — A question becomes a SQL query; the database returns a result (e.g. 30M).

In short: Data is collected from many sources and often starts in files. A database centralizes that data in structured tables. We use SQL to ask questions and get precise answers—turning information into insight.