

Data Base

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What is a **Database?**

.....

A DATABASE

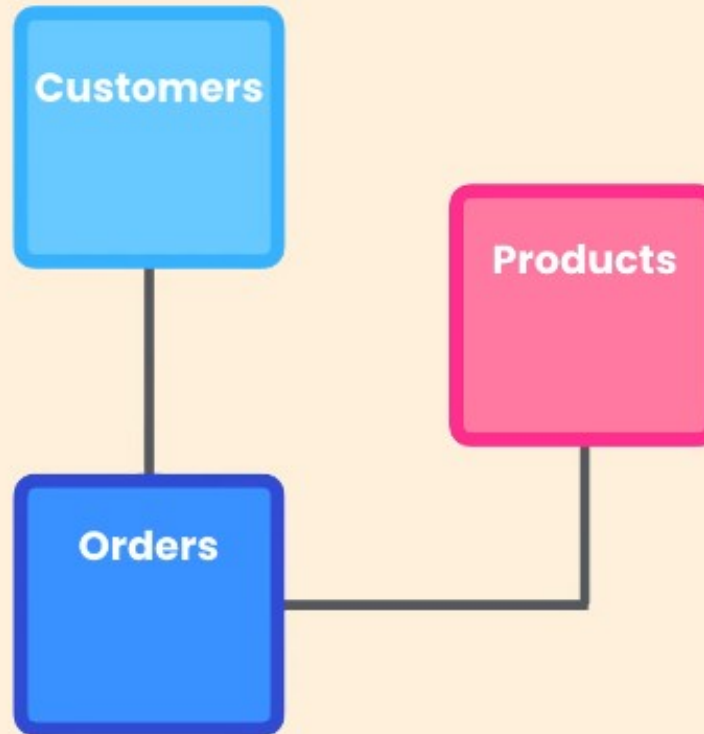
is a collection of data stored in a format that can easily be accessed



DBMS



RELATIONAL DATABASES



What is SQL?

What is SQL?

SQL stands for **Structured Query Language**.

- ✓ SQL is used to access and manipulate a database.
- ✓ MySQL is a program that understands SQL.

SQL can:

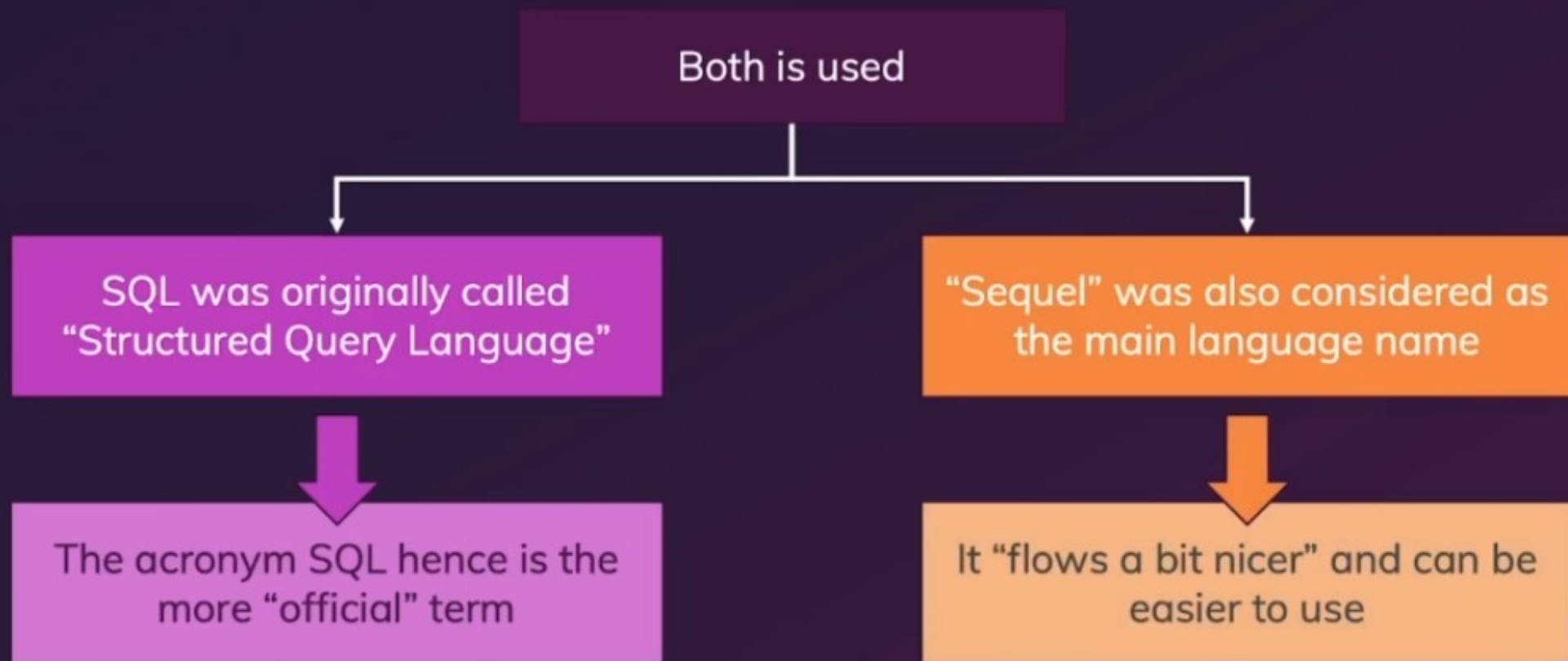
- insert, update, or delete records in a database.
- create new databases, tables, stored procedures and views.
- retrieve data from a database, etc.

SQL

```
SELECT *  
FROM products  
WHERE category = 'food'  
ORDER BY price
```

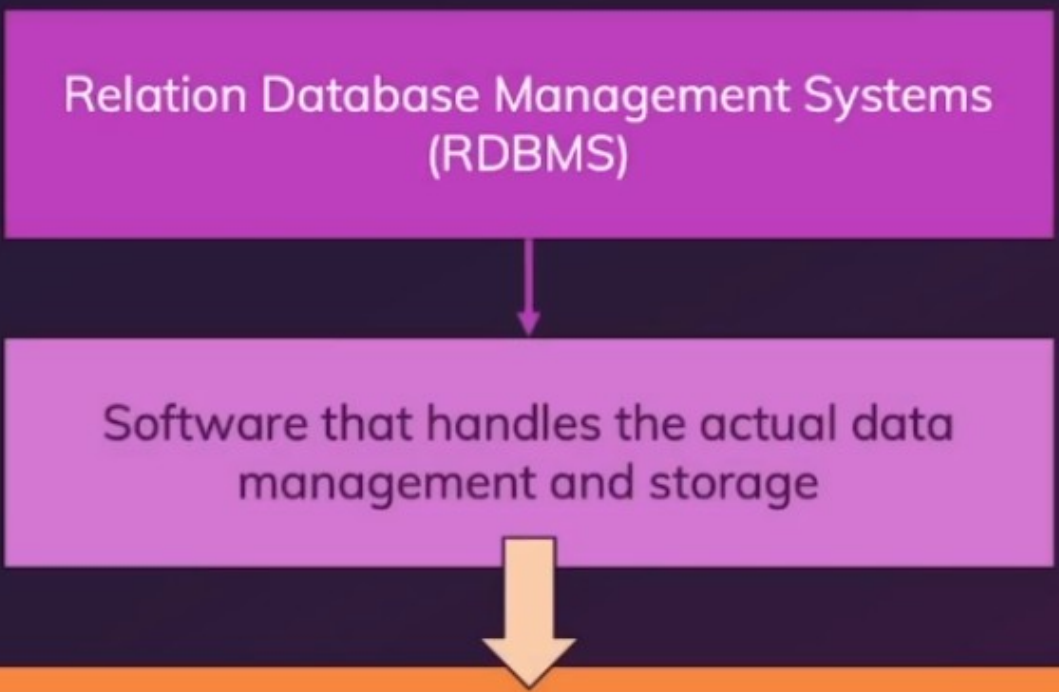


S.Q.L. or Sequel?



Relational Database Management Systems (RDBMS)

Relation Database Management Systems
(RDBMS)



Software that handles the actual data
management and storage

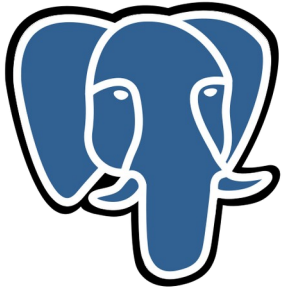
Use SQL as a language for you to interact with the database (e.g. for creating tables) and the data stored in those tables (e.g. select & filter data, insert data ...)

RDBMS

MySQL

SQL Server

Oracle



PostgreSQL

SQL Is A Language For Handling Structured, Relational Data

Employees

id	name	salary	dep_id
1	Max	10000	1
2	Julie	15000	1
3	Marc	8000	3

Departments

id	dep_name	location
1	Developers	Munich
2	Sales	Berlin
3	Accounting	Berlin

Relations

In RDBMS & with SQL, data is commonly split across multiple tables which are related via record ids

SQL is typically used for managing data in relational database management systems (RDBMS)

Database systems that organize **normalized** data into multiple, **related tables** where each table contains multiple fields (columns) for various records (rows)

Normalized Data

Single tables don't contain nested or compound data; Instead, data is split across multiple tables

Why Would You Use A Database (System)?



Transactional Data / Application Data

You / your application needs to store (user-)generated data

e.g. products, orders, user accounts, blog posts, comments, likes, ...



Almost all websites & mobile apps need some kind of database



Data Analytics / Report Data

You need to store (and analyze) analytics data

e.g. website log data, sales data, weather data, energy data, ...



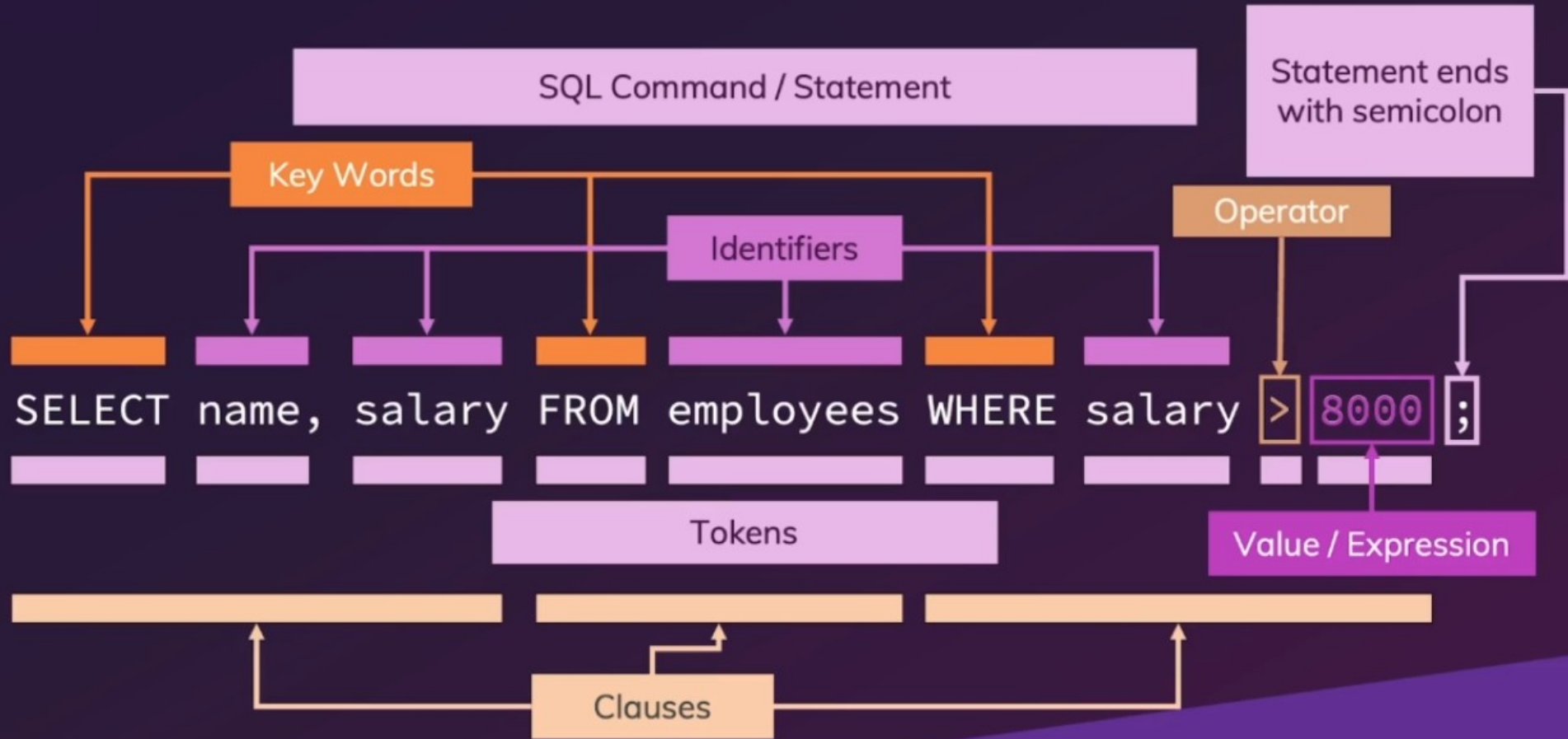
Most businesses gather + analyze data

Core SQL Syntax Rules

SQL Command / Statement

```
SELECT name, salary FROM employees WHERE salary > 8000 ;
```

Core SQL Syntax Rules





Question?