

Agenda

- Intro to Databases
- Relational Databases vs Non-Relational Databases
- DB vs DBMS vs SQL
- SQL vs NoSQL
- Database Design

→ MySQL
→ mongodb

Q what are Database

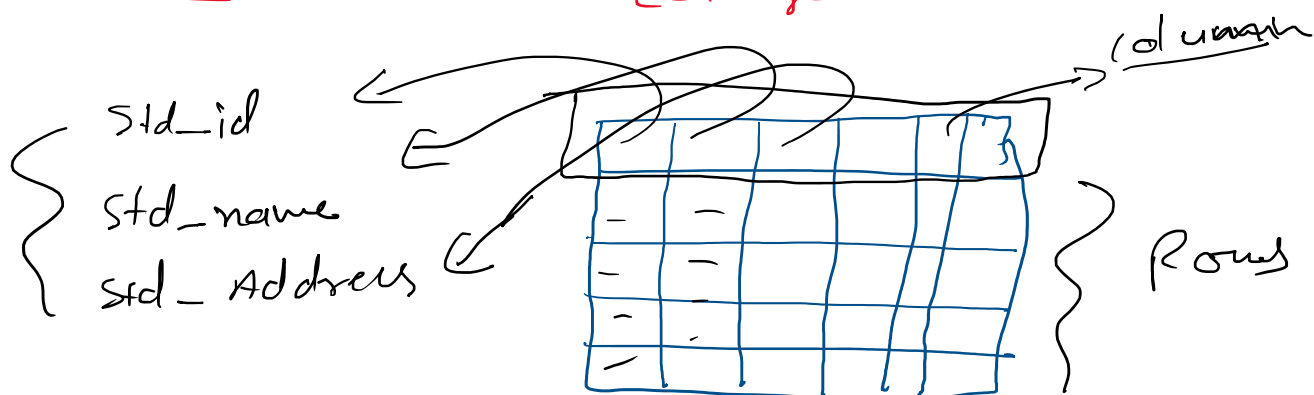
A → Database is any logically modeled collection of information.

Data → facts or piece of information
↓
collection of data.

File system → Can store like text, pdf, audio }
video, images etc.

Text → (a) structured &
(b) unstructured

eg Structured → eg Records of student in a college.



eg CSV, Excel, SQL

(b) Unstructured

→ Paragraph

eg Pdf, Docx, text
etc

DBMS

RDBMS

Database Management systems

x way to manage huge records.

"It is a software system that is designed to manage & organize data in a structured manner."

Key features DBMS

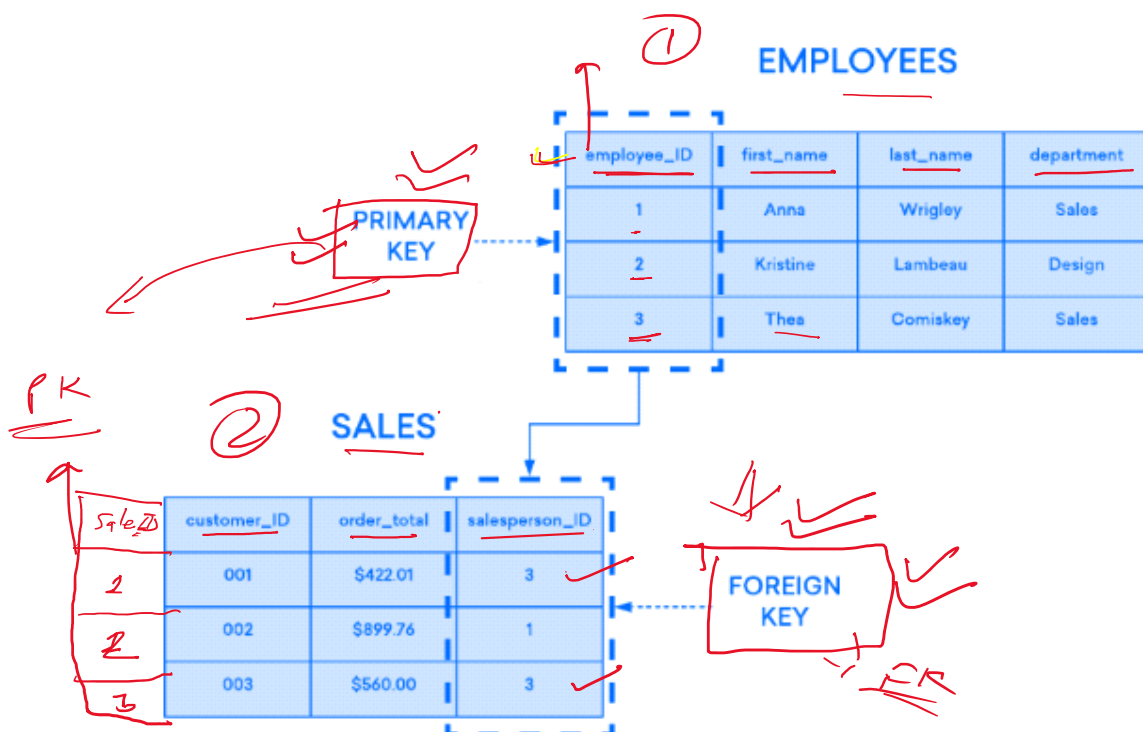
- Data modeling
- Data storage & retrieval
- Concurrency
- Backup & recovery

}



RDBMS → Data is organized in the form of tables & each table has a set of rows & columns.

→ The data are related to each other through Primary & foreign keys.



MySQL

eg

MySQL —

MS SQL Server —

PostgreSQL —

← [SQLite] →

NoSQL or Non-Relational Database

→ Data is organized in form of key-value Pairs, Documents, graphs.

* These are designed to handle large-scale high-performance scenarios.

(1) Key-Value Database

eg Redis { Key : Value }

(2) Document-oriented database

eg MongoDB { Key : Documents }

SQL & NoSQL

SQL → Structured Query language

SQL → Structured Query language

- It is a domain-specific programming language.
- commonly used for tasks such as inserting, updating, querying & deleting data within a database.

SQL is also used to create & modify data base schemas.

Database Design in DBMS

- ① Determine the goal of your database.
- ② List down the entities.
- ③ Organize information into different tables