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SQL

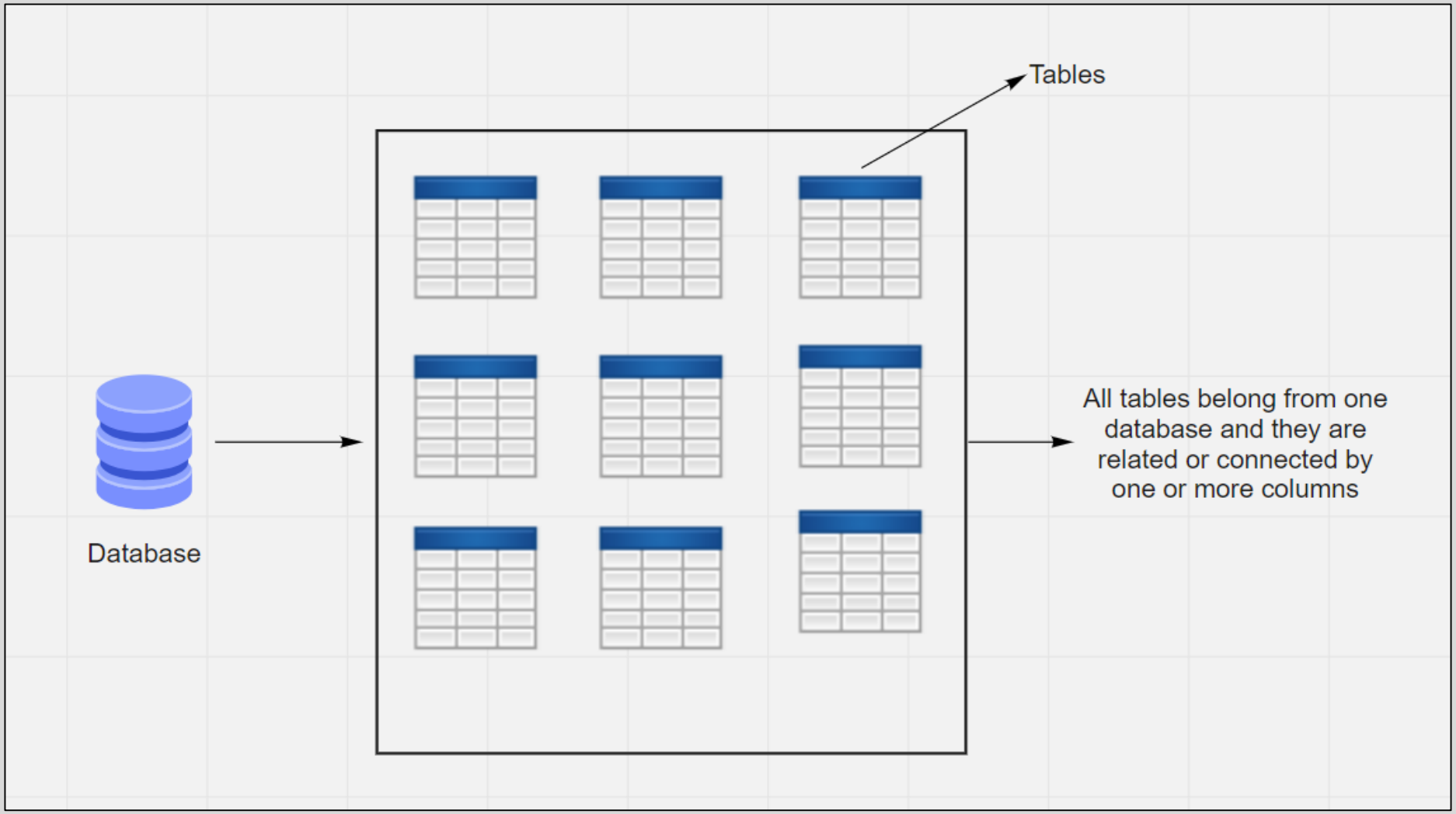
- **SQL** stands for **S**tructured **Q**uery **L**anguage
- **SQL** lets you access and manipulate databases
- **SQL** was initially developed at **IBM** by **Donald D. Chamberlin** and **Raymond F. Boyce** after learning about the relational model from **Edgar F. Codd** in the early 1970s. This version, initially called **SEQUEL** (**S**tructured **E**nglish **Q**uery **L**anguage)

Database

- A database is **an organized collection of structured information, or data, typically stored electronically in a computer system**.

- There are two types of database mainly :
  1. Relational Database
  2. Non-relational Database

Relational Database



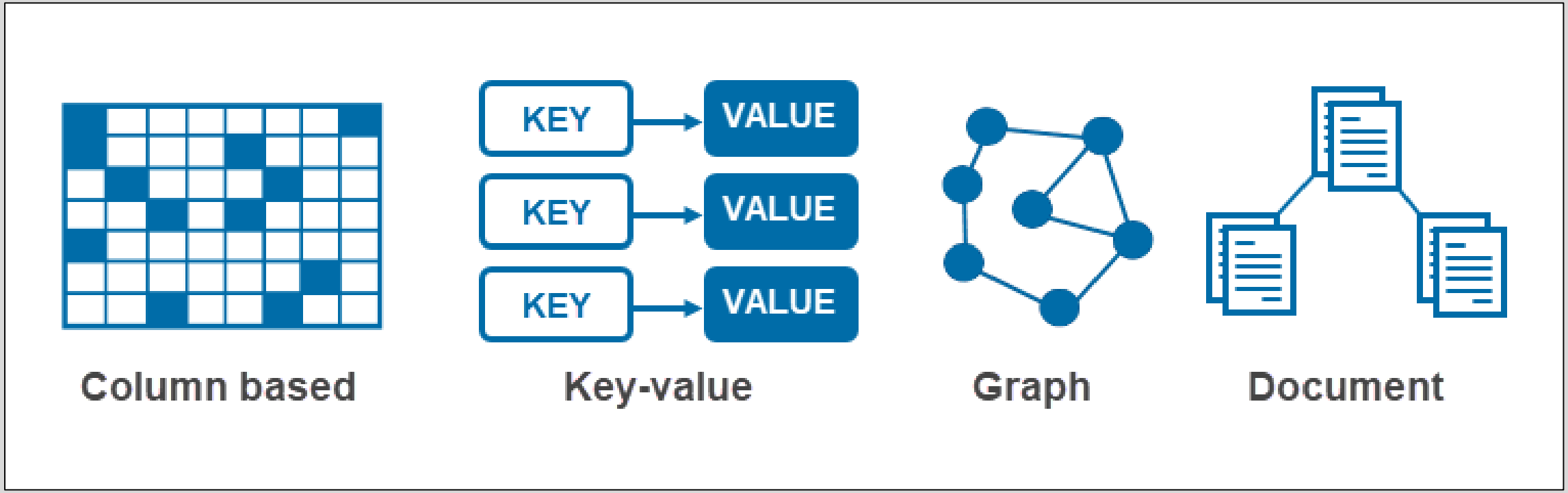
Example of Relational Database

Name	Dry/Wet Food	Good Boy (Y/N)
Fido	Dry	Y
Rex	Wet	N
Bubbles	Dry	Y
Cujo	Wet	N

Tag #	Height (in)	Weight (lbs)
1573	15	21
2684	9	7
3795	27	130
4806	6	5

Tag #	Name	Breed	Color	Age
1573	Fido	Beagle	Brown/White	1.5
2684	Rex	Pekingese	White	9
3795	Bubbles	Rottweiler	Black	5
4806	Cujo	Chihuahua	Gold	4

Non-relational Database



Types of Non-relational Database

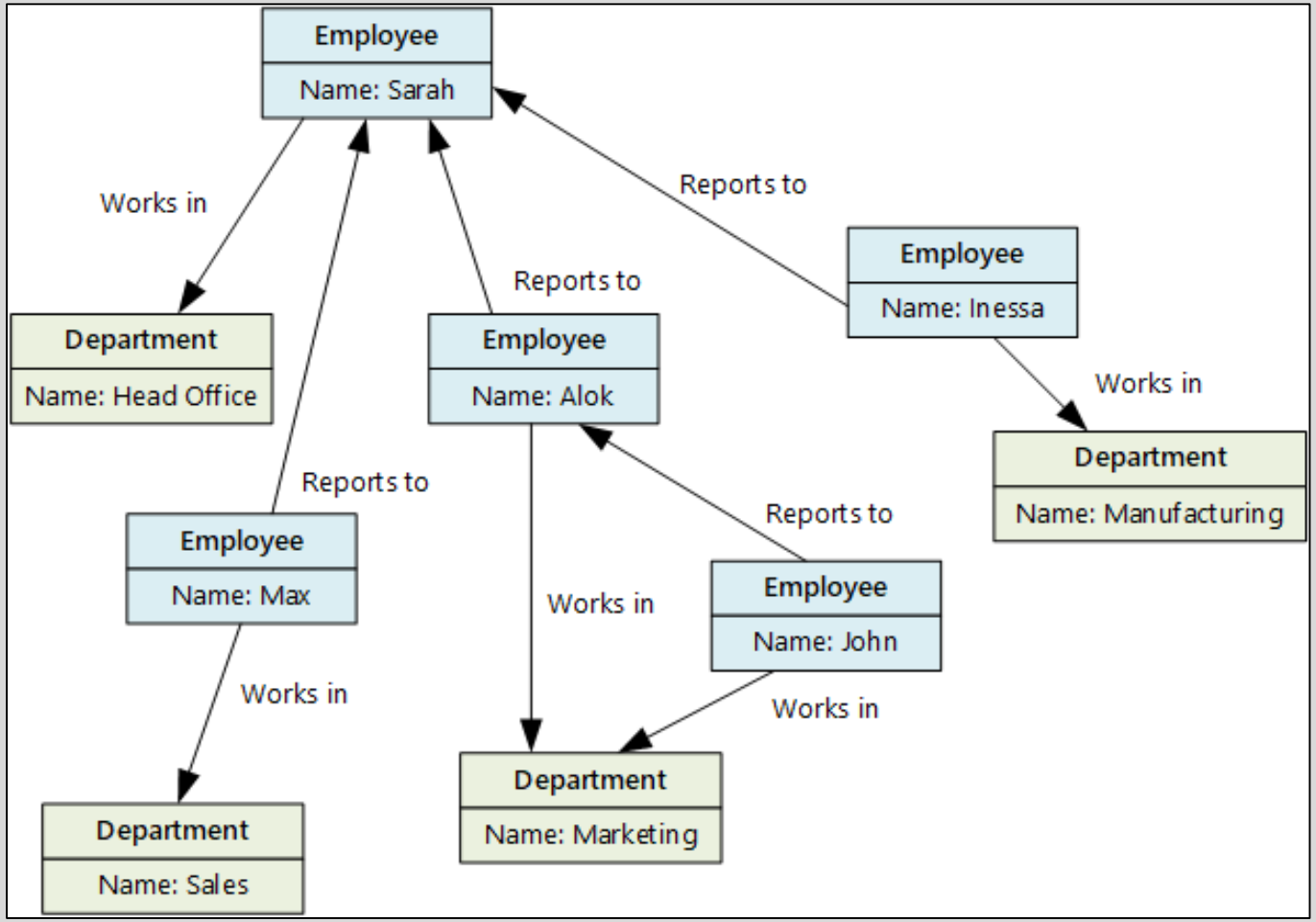
1. Key-value
2. Document
3. Graph
4. Memory
5. Search

Example of Non-relational Database

Key	Document

1001	<pre>{
	  "CustomerID": 99,
	  "OrderItems": [
	  { "ProductID": 2010,
	  "Quantity": 2,
	  "Cost": 520
	  },
	  { "ProductID": 4365,
	  "Quantity": 1,
	  "Cost": 18
	  }],
	  "OrderDate": "04/01/2017"
	}</pre>

1002	<pre>{
	  "CustomerID": 220,
	  "OrderItems": [
	  { "ProductID": 1285,
	  "Quantity": 1,
	  "Cost": 120
	  }],
	  "OrderDate": "05/08/2017"
	}</pre>



Database Servers

Database servers are the servers where we store/create our database. Below are the examples of some popular database servers of both categories.

Relational Database Servers

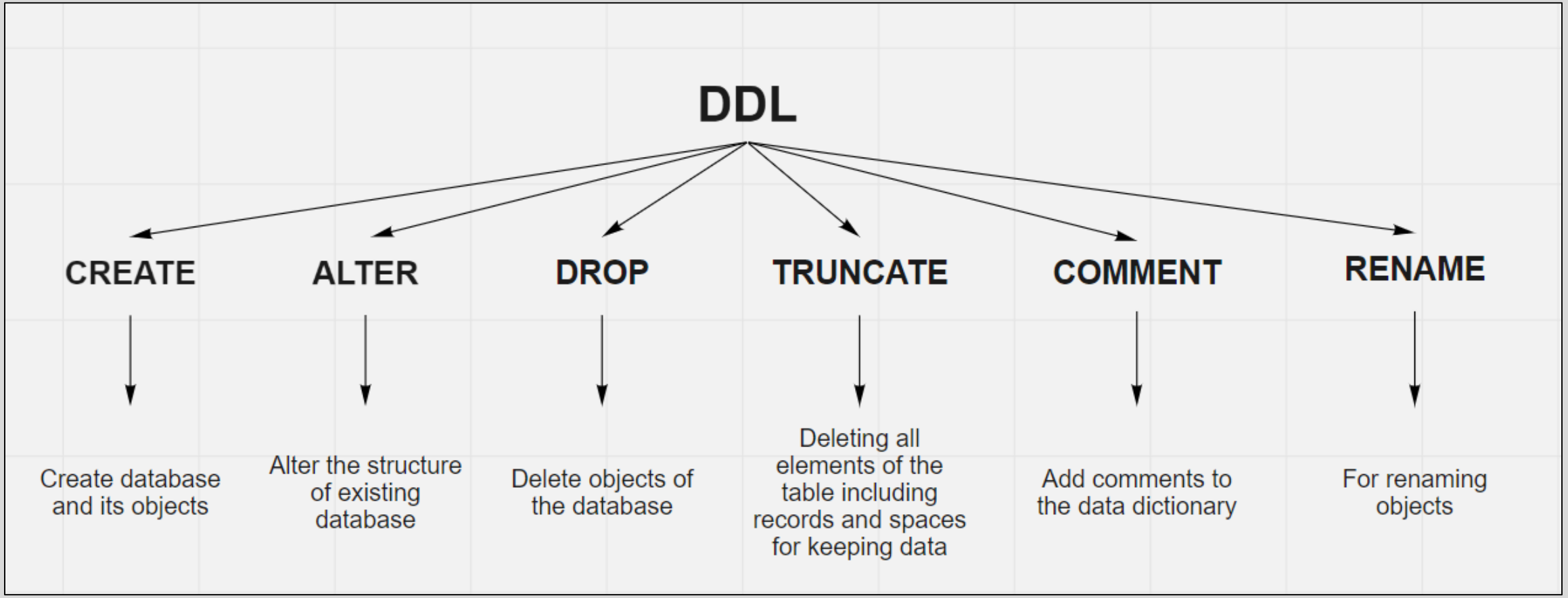
- ❑ MySQL
- ❑ Oracle
- ❑ Microsoft SQL Server
- ❑ PostgreSQL

Non-Relational Database Servers

- ❑ MongoDB
- ❑ Cassandra
- ❑ Redis
- ❑ GraphQL

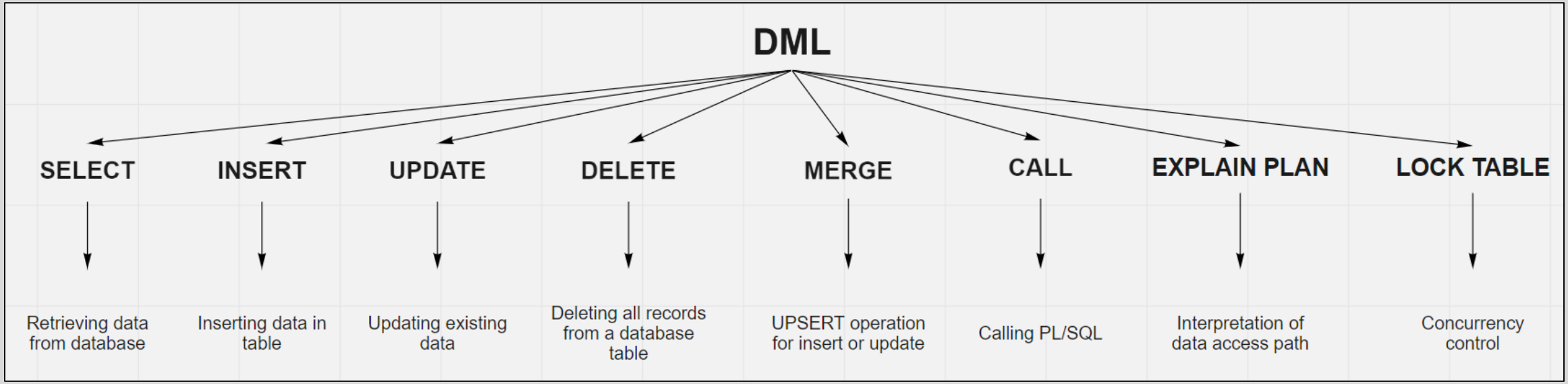
DDL : Data Definition Language

It deals with database schemas and descriptions, of how the data should reside in the database.



DML : Data Manipulation Language

It deals with data manipulation and includes most common SQL statements such SELECT, INSERT, UPDATE, DELETE, etc., and it is used to store, modify, retrieve, delete and update data in a database.



DBMS : Database Management System

Software for managing database is called Database Management System or DBMS.

Example :

DBMS Tasks

DBMS allows user to perform the below tasks

- Data definition
- Data updatation
- Data retrieval
- User administration

Operations with DBMS

With any DBMS, we will take one sample database and perform **CRUD** operations with the help of **SQL**

CRUD means,

Create **R**etrieve **U**pdate **D**elete

Thanks

Enough theory. Now start hands-on.