Introduction to

Structured Query Language (SQL)

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What is a Database?

A database is a collection of data stored in a format that can easily be accessed, modified, protected and analysed.

Types of Databases

There are 2 main types of Databases

- **Relational Databases (SQL)**
- **Non-relationa Databases (No-SQL)**

In this course we"ll be covering relational databases

Relational Databases

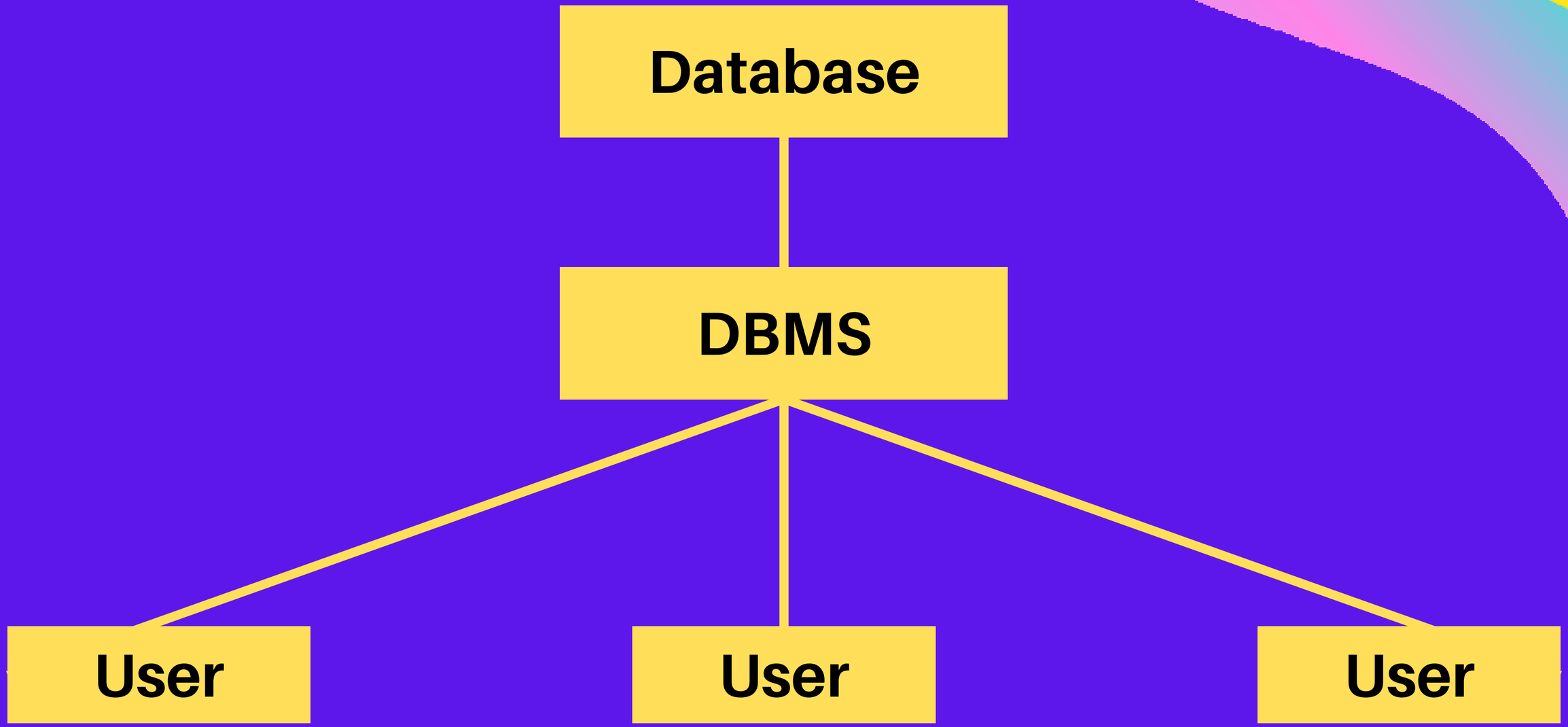
- A relational database is a type of database that organizes data into one or more tables, with each table consisting of a set of columns and rows. The tables in a relational database are related to each other through a common field.

- These tables have a prefined logical structure called a schema.

DBMS

- We primarily interact with a database through a database management system (DBMS).

- A DBMS is a computer program that is used to create, access, modify and maintain a database.


Database
DBMS
User
User
User

DBMS for Relational Databases *(RDBMS)*.

- MySQL
- PostgreSQL
- SQLite
- Microsoft SQL Server

SQL

- SQL or Structure Query Language programming language used to communicate with relational databases.
- SQL is a declarative language; one just needs to specify the result that they want to see and submit the query to RDBMS.
- RDBMS executes the code at the backend and gives the desired output.
- SQL is database dependent - It has different dialects for the different RDMS.
- This means that, SQL for MySQL is not the same as for SQLite.
- However, these dialect/versions of SQL are more the same than they are different.

Types of SQL Queries.

- **Data Manipulation Language (DML) queries:** These are used to manipulate data within a table, such as SELECT, INSERT, UPDATE, and DELETE statements.
- **Data Definition Language (DDL) queries:** These are used to define the structure of database objects, such as tables, indexes, and views. Examples include CREATE, ALTER, and DROP statements.
- **Data Control Language (DCL) queries:** These are used to control access to the database, such as granting and revoking permissions. Examples include GRANT and REVOKE statements.
- **Transaction Control Language (TCL) queries:** These are used to manage transactions within the database, such as COMMIT and ROLLBACK statements.
- **Data Query Language (DQL) queries:** These are used to retrieve data from the database, such as SELECT statements.

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