**Introduction to Relational Databases and Tables:**

* A **database** is a **repository** of data that provides functionality for adding, modifying, and querying the data.
* **SQL** is a language used to **query** or retrieve data from **a relational database**.
* **The Relational Model** is the **most used** data model for databases because it allows for **data independence.**
* **The primary key** of a relational table **uniquely** identifies each tuple or row, **preventing duplication** of data and providing a way of defining **relationships** between tables.
* SQL statements fall into two different categories: **Data Definition Language** (DDL) statements and **Data Manipulation Language** (DML) statements.
* Data Definition Language (or DDL) statements are used to define, change, or delete database objects

**Refining your Results:**

**Simplify** a SELECT statement by using

**String patterns (**when I do not know the exact where condition of string**) =** like ‘%’,

**Ranges (**using between to identify ranges**) =** between 5 and 10, or

**Sets of values (**but values of repeated attributes in prances with IN**) =** in (,).

**Sort** the result set by either **ascending** (by default) or **descending** (using DESC) order, and explain how to indicate which column to use for the sorting order (using the number of column in the selected columns instead of the column name).

**Eliminate duplicates** from a result set using distinct (write after select).

**Grouping Results sets** using group by (we write the column witch has repeated values) and using having (like where but use with group by only) in addition to function apply to the selected column in group by (like count)

# **Built-in Database Functions:**

**Built in** **SQL Aggregate Functions** = sum, minimum, maximum, and average (apply to column or set of values).

**Scalar** and **String Functions** = round, lowercase, and uppercase (apply to just one value).

**Date** and **Time Functions**