PostgreSQL Basics

Simple Querying

- Simple SELECT query
  - Query all columns from the table
  - Query only required columns from the table
  - Math functions and concatenation in select
- Ordering results
  - ASC / DESC ordering
  - Single / Multi column ordering
- Usage of LIMIT
  - Simple LIMIT
  - LIMIT with OFFSET
  - How to implement paging?
  - Why LIMIT without ORDER may be meaningless
- Usage of Aliases
  - Aliases for columns
  - Aliases for tables

Filtering Results

- Simple conditions
  - AND / OR
  - Simple comparison (>, <, =, <>, etc)
- BETWEEN Condition
  - When BETWEEN is better than > and <
  - When < and > is better than BETWEEN
- IN Condition
  - Static values
  - Subqueries
- LIKE Condition
  - Patterns usage
  - LIKE vs ILIKE
- NULL Values
  - Difference of NULL vs empty value
  - IS NULL / IS NOT NULL
  - IS DISTINCT FROM / IS NOT DISTINCT FROM

Data Aggregation

- GROUP BY Clause
  - Aggregate functions (COUNT, SUM, MIN, MAX)
  - Aggregate functions without GROUP BY
  - GROUP BY without aggregate functions
- HAVING Clause
  - Simple usage
  - WHERE vs HAVING
  - How to replace with subquery and WHERE

Joining Relations

- INNER JOIN
  - Join by simple condition
  - Join of more than two tables
- LEFT JOIN
  - Difference to INNER JOIN
  - When to use each of them
- Self JOIN
  - Simple join on the same table
  - Combining with WHERE conditions
- CROSS JOIN
  - Difference to INNER JOIN
  - When can be used

Subqueries

- General Subqueries
  - Subquery in FROM
  - Subquery in SELECT
  - Subquery in WHERE
- EXISTS
  - Simple EXISTS usage
  - Benefit vs joining or regular subquery
- ANY / ALL
  - When to use
  - Difference to IN / NOT IN

Modifying Data

- INSERT
  - Insert without columns names
  - Insert with columns names
  - Multiple rows insert
  - Returning result of insert
- UPDATE
  - Update of single row
  - Update of multiple rows
  - Returning result of update
- DELETE
  - Delete of single row
  - Delete of multiple rows
  - Returning deleted rows
- TRUNCATE TABLE
  - Difference with DELETE