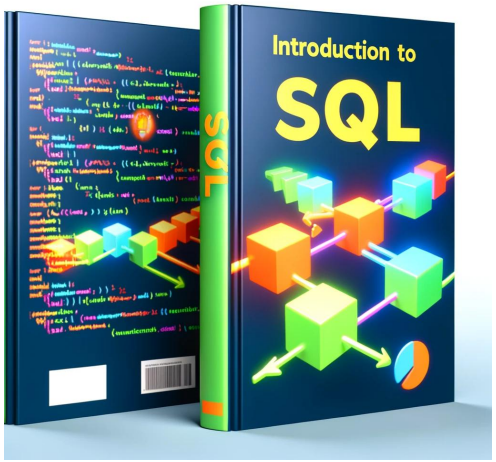

Introduction to SQL and duckDB

Feb 12, 2024

Shashank

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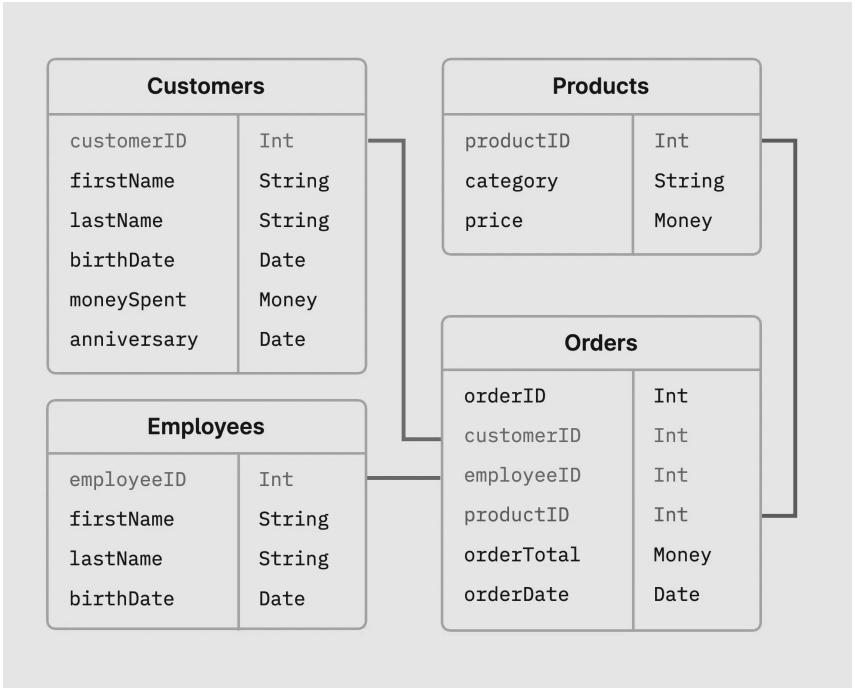
Database

- A database is a structured collection of data.
- It allows for the storage, retrieval, modification, and deletion of data in an organized manner.
- Databases come in various types, including relational, NoSQL. Relational databases organize data into tables, which are interconnected.
- Each table represents a collection of related data and is organized into rows and columns.



SQL stands for Structured Query Language.

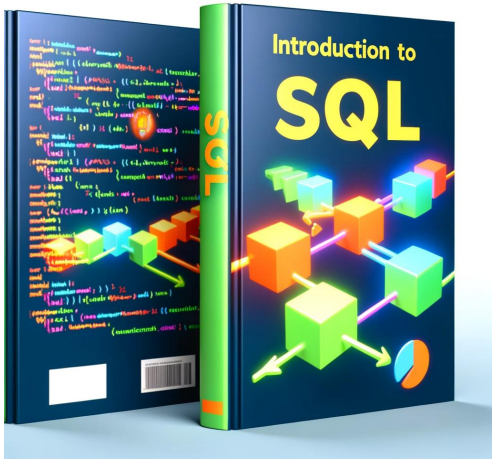
It's a programming language that's used to store and process information in relational databases.

Types of SQL Statements

DDL (Data Definition Language): DDL statements are used to define, modify, and remove database structures, but not the data within them. Common DDL statements include CREATE, ALTER, and DROP.

DML (Data Manipulation Language): DML statements are used for managing data within schema objects. They include **SELECT**, INSERT, UPDATE, and DELETE.

- An in-memory, columnar database management system optimized for analytical queries."
- Open-source and designed for simplicity, speed, and efficiency in processing analytical workloads."
- Supports SQL standards for easy integration with existing tools and workflows.



Agenda

SQL Recap and Functions, Sub-queries

Creating Tables and Inserting Data

Exporting data to CSV

Importing data from CSV to duckdb

Feb 19, 2024

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Sub-queries: A technique in SQL where a query is nested inside another query, allowing the use of the inner query's result set as part of the condition, selection, or calculation in the outer query.

Functions: Built-in or user-defined operations in SQL that perform specific tasks on data, such as mathematical calculations, string manipulation, date and time processing, and conditional evaluations, to transform or aggregate data within queries.

Questions

- What is the difference between SQL and MySQL?
- How do you create, update, and delete a table in SQL?
- What are the types of SQL queries and commands?
- What are the differences between DDL, DML, DCL, and TCL in SQL?
- What are the differences between primary key, foreign key, unique key, and composite key in SQL?
- What are the types of SQL joins and how do you use them?
- What are the differences between inner join, left join, right join, and full join in SQL?

Questions

- What are the differences between UNION and UNION ALL in SQL?
- What are the differences between WHERE and HAVING clauses in SQL?
- What are the differences between GROUP BY and ORDER BY clauses in SQL?
- What are the differences between aggregate and scalar functions in SQL?
- What are some examples of built-in and user-defined functions in SQL?
- What are subqueries and how do you use them in SQL?
- What are the differences between nested and correlated subqueries in SQL?
- How do you find the nth highest value in a column in SQL?

Questions

- What are indexes and how do you create and use them in SQL?
- What are the benefits and drawbacks of using indexes in SQL?
- What are the types of SQL constraints and how do you use them?
- What are the differences between normalization and denormalization in SQL?
- What are the normal forms and how do you apply them in SQL?
- What are the differences between DELETE, TRUNCATE, and DROP statements in SQL?
- How do you use transactions and locks in SQL?
- What are the types of SQL views and how do you use them?

Thank you!

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