

SQL WORKSHOP

UNLOCKING THE POWER OF
DATABASES

Data Science and Informatics
Matheus Kunzler Maldaner



Github Repository



01

ABOUT US

How you can get involved with the DSI club at UF

02

WHY SQL

Applications of SQL in the real world and its importance.

03

PRACTICAL

Interactive tutorial with SQL code in DB Browser for SQLite



01

ABOUT US

How you can get involved



DSI discord

WHY JOIN DSI

Apply Data Science Skills

- Workshops
- Project Opportunities

Career Building

- Resume Building
- Career and Interview Prep
- Guest Speakers from Different Industries

Community

- Interact with Peers
- Socials





02

WHY SQL

Applications and usability

SQL IN THE REAL WORLD

Business: From sales data to customer behavior, SQL helps businesses make informed decisions.

Tech & Web:

Powering web applications, e-commerce sites, tech platforms

Finance:

Analyzing financial data, trends, and market behaviors.

Healthcare:

Managing patient data, medical records, and research.

Everyday Apps:

From your favorite food delivery app to social media platforms, SQL is everywhere!

3 TYPES OF COMMANDS

DDL – Data Definition Language

- Commands that define a database – Create, Alter, Drop

DML - Data Manipulation Language

- Commands that maintain and query a database

DCL – Data Control Language

- Commands that control a database, including administering privileges and committing data.



03

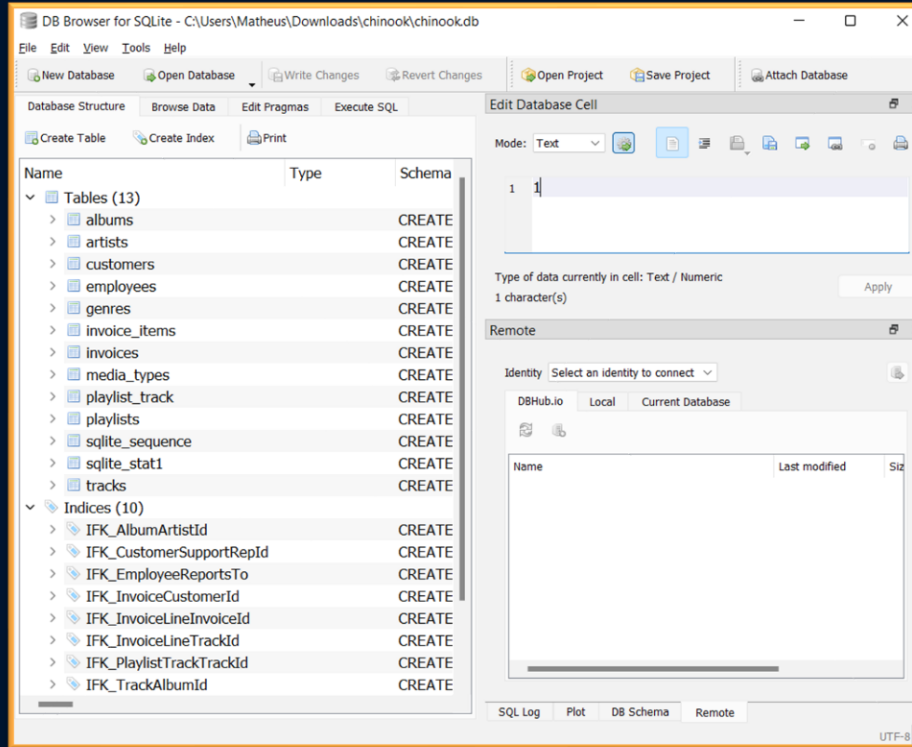
TUTORIAL

What you came here for!

Please switch to **DB Browser for SQLite**.



DB Browser software logo :)



How your screen should look after loading the sample dataset

Select

SELECT

Selects data from a database

SELECT DISTINCT

Selects only distinct (different) values

SELECT INTO

Copies data from one table into a new table

SELECT TOP

Specifies the number of records to return in the result set

```
-- Select all records from the 'albums' table
-- Hint: In SQL, the * symbol denotes "all". Use this symbol to retrieve all columns from the 'albums' table.
SELECT ____ FROM ____;
```

Where

WHERE

Filters a result set to include only records that fulfill a specified condition

```
-- Filter records from the 'customers' table where the country is 'Canada'  
-- Hint: Use the WHERE clause to filter records based on a specific condition  
-- In this case, you want to retrieve records where the 'Country' column has the value 'Canada'.  
SELECT ____ FROM ____ WHERE ____ = '____';
```


Order by

ORDER BY

Sorts the result set in ascending or descending order

```
-- Sort records from the 'albums' table by the 'Title' column in ascending order
-- Hint: Use the ORDER BY clause to sort records. By default, records are sorted in ascending order
-- If you want descending order, add the DESC keyword.
SELECT ____ FROM ____ ORDER BY ____;
```

Join

JOIN

Joins tables

```
-- Join the 'albums' and 'artists' tables on the 'ArtistId' column
-- Hint: When joining tables, specify the columns that should match in both tables.
-- Here, you're joining on the 'ArtistId' column.
SELECT __.__, __.__
FROM __
JOIN __ ON __.__ = __.__;
```

Count

The SQL COUNT() Function

The `COUNT()` function returns the number of rows that matches a specified criterion.

```
-- Count the total number of records in the 'invoices' table
-- Hint: The COUNT() function returns the number of rows in a table
-- Use this function to count all records in the 'invoices' table.
SELECT COUNT(____) FROM ____;
```

Average

The SQL AVG() Function

The `AVG()` function returns the average value of a numeric column.

```
-- Calculate the average of the 'Total' column in the 'invoices' table
-- Hint: The AVG() function calculates the average value of a numeric column
-- Use this function to find the average of the 'Total' column in the 'invoices' table.
SELECT AVG(____) FROM ____;
```


THANKS!

Do you have any questions?

- Matheus@sisnema.com.br
- [@uf_dsi](#)



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