

How to learn SQL for free | Roadmap to learning SQL

In this video, you will find complete roadmap on how to learn SQL for Beginners, Intermediate level, Advanced level and for database developers.

You will know how to choose a database and what SQL concepts you need to learn to have basic, intermediate, advanced and developer level knowledge of SQL.

Watch the video here:



Pre-Requisites

Choose your relational database (RDBMS)

- Most popular RDBMS are:
 - Oracle
 - MySQL
 - Microsoft SQL Server



Install the database

- If using cloud based database/databwarehouse then make sure to setup on your system.

Install the IDE

DATABASE	IDE
PostgreSQL	PgAdmin
MySQL	MySQL Workbench
Microsoft SQL Server	SQL Server Management Studio (for Windows) Azure Data Studio (for Mac)
Oracle	SQL Developer

Mentioned here are the IDE for 4 most popular RDBMS:

Basic SQL

Concepts

What is a Relational Database / RDBMS?

- How data is stored in a relational database?
- What is a schema wrt to a relational database?

SQL commands

- DDL, DML, DCL, TCL, DQL
- What are commands under each of these category and what each of these commands actually do?

Data Types

- String data type like VARCHAR, TEXT etc
- Integer data type like INT, NUMBER etc.
- DATE
- FLOAT / DECIMAL
- BOOLEAN
- Also check out IDENTITY column (Auto Increment column)

Constraints

- Primary key
- Foreign key
- Check constraint, Not null constraint, Unique constraint, Default etc.

Normalization in SQL

- Arithmetic operator
- Logical operator
- Comparison operator
- UNION, UNION ALL operator

CASE statement

- Simple case statement as well nested case statement.

Important SQL clause

- DISTINCT clause
- Order by clause
- Limit / Top clause

INNER join

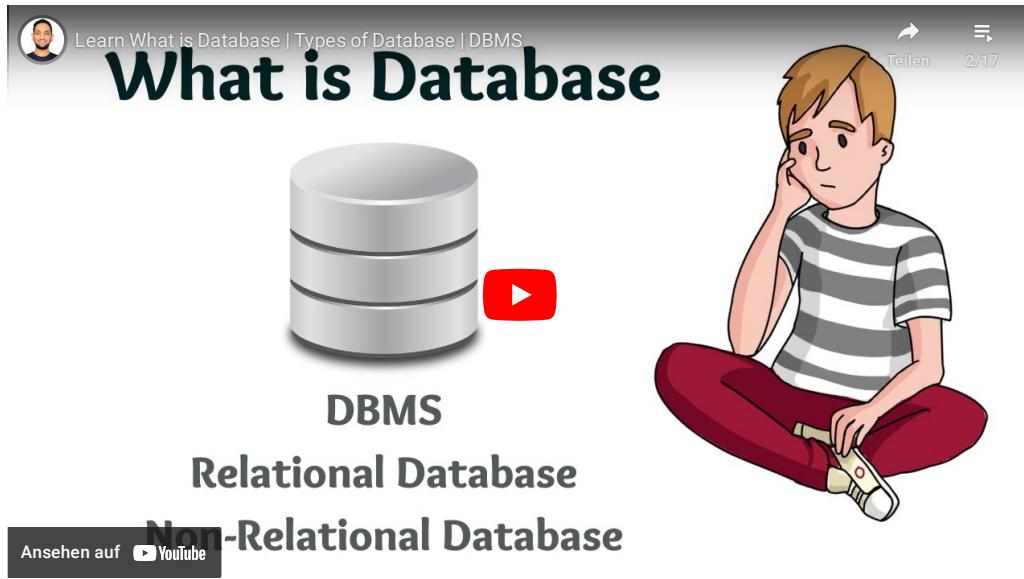
- How to fetch data from multiple tables.

Learning Resources

Install PostgreSQL database and PgAdmin tool:



Database tutorial



Complete Basic SQL tutorial



W3Schools:

[SQL Tutorial](#)

Practice Platforms

StrataScratch (Easy SQL problems)

LeetCode (Easy SQL problems)

[LeetCode – The World's Leading Online Programming Learning Platform](#)

DataLemur (Easy problems)

[DataLemur – Ace the SQL & Data Science Interview](#)

Jobs

- Business Analyst
- Junior Analyst roles
- Software Engineer

Intermediate SQL

Concepts

Group By and Having clause

Aggregate functions

Order of Execution

Sub-Queries

CTE table / WITH clause

All type of Joins

- LEFT Join, RIGHT Join, FULL OUTER Join
- CROSS Join, SELF Join

In-built functions

- String functions like Substring, Position, Coalesce etc.
- Date functions like Extract, To_Date etc.

Window functions

Learning Resources

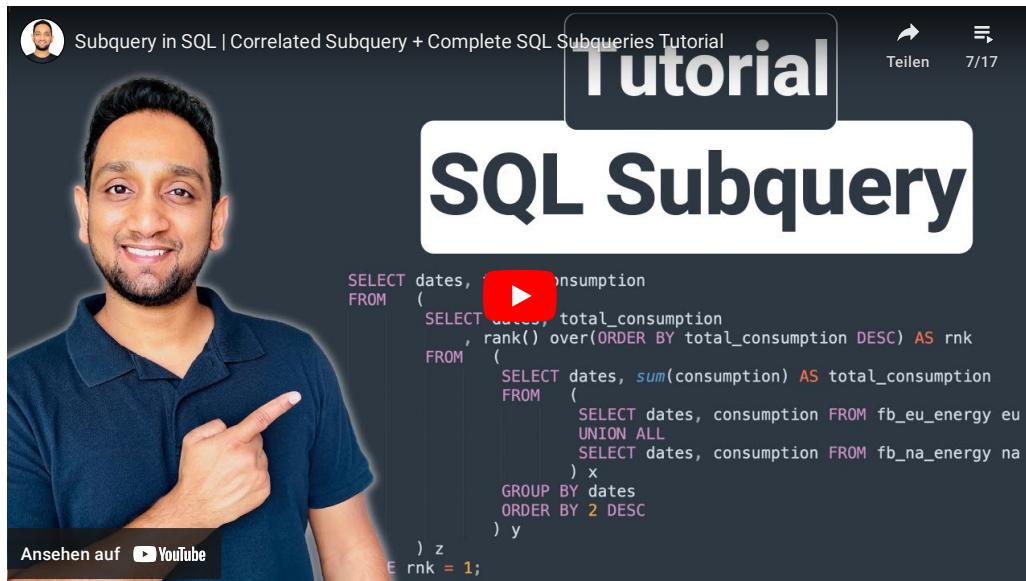
Group By, Having clause

[SQL Tutorial](#)

Order of Execution

[A Look Into SQL's Order Of Execution](#)

Sub-Queries Tutorial



CTE / WITH clause Tutorial



SQL WITH Clause | How to write SQL Queries using WITH Clause | SQL CTE (Common Tabl... Teilen 8/17

SQL WITH Clause

- Using CTE in SQL
- When to use it
- Advantages

Ansehen auf YouTube

A thumbnail for a YouTube video titled "SQL WITH Clause". It features a man in a black t-shirt with a pink and white logo. The video title is "SQL WITH Clause" in large yellow letters. Below the title, there's a list of three points: "- Using CTE in SQL", "- When to use it", and "- Advantages". A red play button icon is positioned above the second point. At the bottom left, there's a link to "Ansehen auf YouTube". The top right corner shows "8/17" and sharing icons.

JOINS Tutorial

Part 1:



SQL JOINS Tutorial for beginners | Practice SQL Queries using JOINS - Part 1 Teilen 5/17

SQL JOINS

TUTORIAL

PART
"1"

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN

Ansehen auf YouTube

A thumbnail for a YouTube video titled "SQL JOINS Tutorial for beginners | Practice SQL Queries using JOINS - Part 1". It features a man in a dark blue polo shirt pointing to his chest with the text "PART '1'". The video title is "SQL JOINS" in large blue letters, and "TUTORIAL" in an orange box. Below the title, there's a list of three types of joins: "INNER JOIN", "LEFT JOIN", and "RIGHT JOIN". A red play button icon is positioned above the first item in the list. At the bottom left, there's a link to "Ansehen auf YouTube". The top right corner shows "5/17" and sharing icons.

Part 2:



Window functions Tutorial

Part 1:



Part 2:



Views Tutorial



In-built functions

String Functions:

[PostgreSQL LEFT: Get First N Characters in a String](#)

[Oracle String Functions By Examples](#)

[SQL Server String Functions](#)

[MySQL String Functions Overview](#)

Date functions:

[SQL Server Date Functions Overview](#)

[MySQL Date Functions: Handling Date & Time Data More Effectively](#)

Practice Platforms

StrataScratch (Medium level SQL problems)

[Master Coding for Data Science](#)

LeetCode (Medium level SQL problems)

[LeetCode – The World's Leading Online Programming Learning Platform](#)

DataLemur (Medium level problems)

[DataLemur – Ace the SQL & Data Science Interview](#)

SQL case study from Data with Danny

[8 Week SQL Challenge](#)

Jobs

- Data Analyst
- Data Scientist

Advance SQL

Concepts

Recursive SQL Queries

PIVOT table / CROSSTAB function

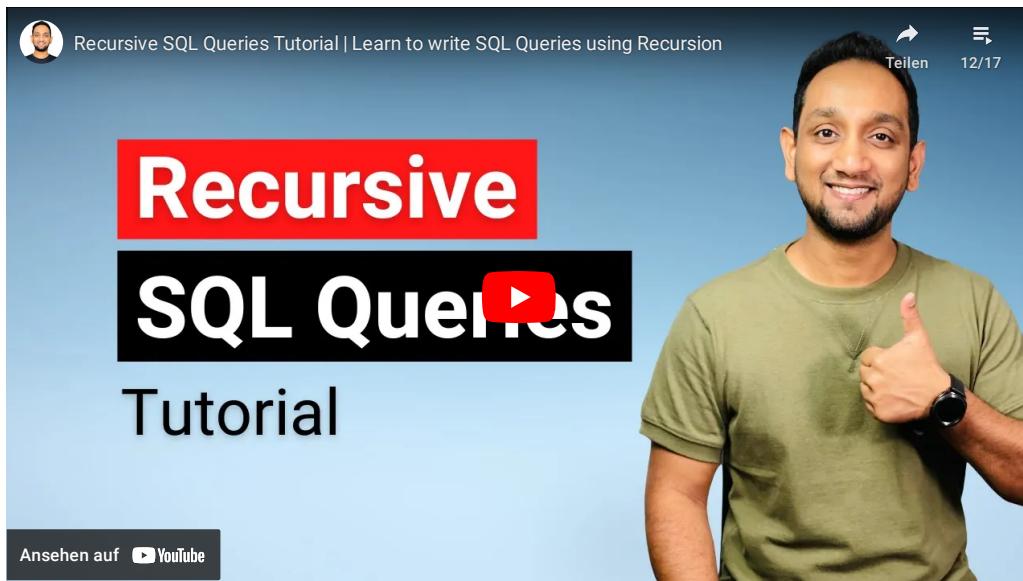
Materialized Views

Stored Procedure

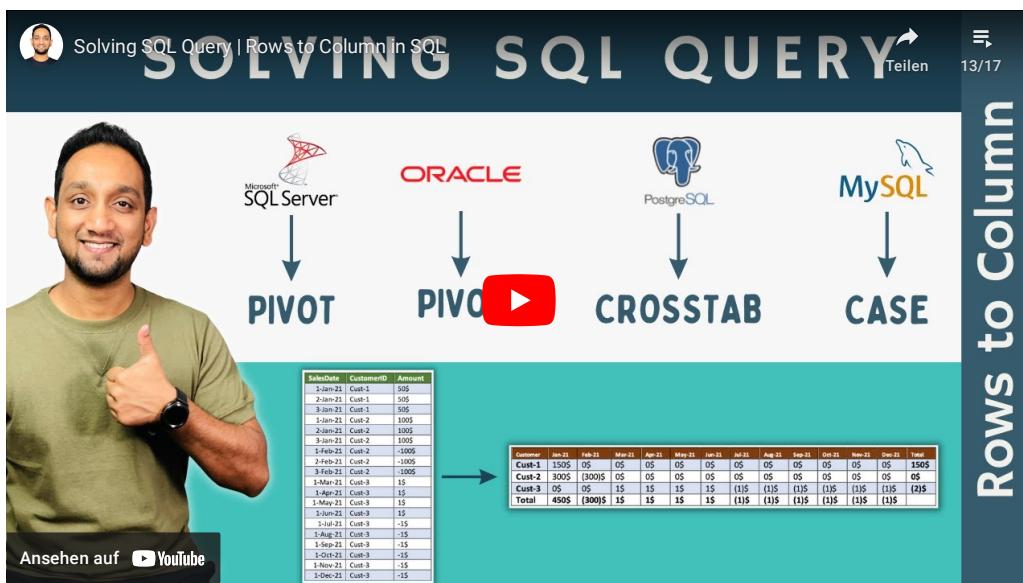
User Defined Functions

Learning Resources

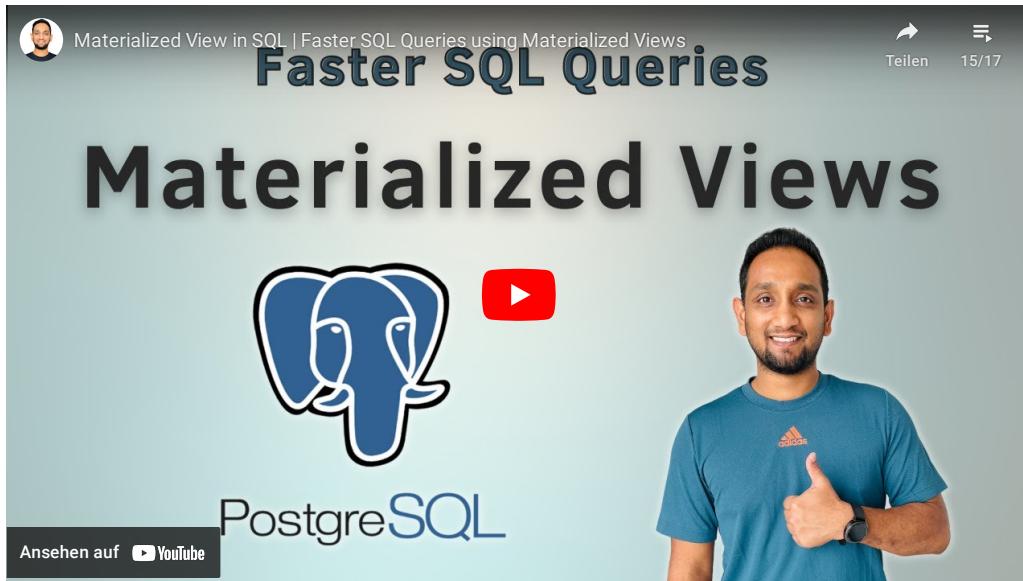
Recursive SQL Queries



PIVOT table / CROSSTAB function



Materialized Views



Stored Procedure



User Defined Functions

[Learn SQL: User-Defined Functions](#)

Practice Platforms

StrataScratch (Hard level SQL problems)

[Master Coding for Data Science](#)

LeetCode (Hard level SQL problems)

DataLemur (Hard level problems)

[DataLemur – Ace the SQL & Data Science Interview](#)

SQL case study from Data with Danny

[8 Week SQL Challenge](#)

Jobs

- Data Engineer
- ETL Developers

SQL for Database Developers / SQL Developers

Concepts

Indexes

Triggers

Temporary tables

Dynamic Execution of SQL statements

PL/SQL concepts

- Variables
- Cursors
- Collection types
- Loop statements
- IF Else statement
- Exception Handling
- Packages

Performance tuning

- Explain plan

- SQL Trace and TKProf

Learning Resources

Indexes

[SQL index overview and strategy](#)

Triggers

[Learn SQL: SQL Triggers](#)

Temporary tables

[Introduction to Temporary Tables in SQL Server](#)

Dynamic Execution of SQL statements

[Dynamic SQL in SQL Server](#)

PL/SQL concepts

[PL/SQL Tutorial - Master PL/SQL Programming Quickly and Easily](#)

Performance tuning

Explain Plan:

[Understanding Oracle Explain Plan](#)

[EXPLAIN PLAN FOR and DBMS_XPLAN.DISPLAY](#)

Table Statistics:

[Oracle Tables and Statistics](#)

Table Partitioning:

[5.11. Table Partitioning](#)

DBMS_Profiler:

[DBMS_PROFILER](#)

SQL Trace and TKProf:

[SQL trace, 10046, trcsess and tkprof in Oracle](#)

Jobs

- Database Developers

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 **deep hazra** A week ago · 0 Likes

Thank You Message For Sharing The Information

 **Kipngeo Ruto** 2 weeks ago · 0 Likes

Best channel for anyone who wants to learn sql! Thank you Thoufiq!

 **aamina** 3 weeks ago · 0 Likes

loved your sql videos! This is by far the best sql course i've ever come across. Such detailed explanations made the concepts so easy to understand. Made me more enthusiastic about sql. Thank you so much for your efforts. Highly recommendable.

 **Balachandar.B** 2 months ago · 0 Likes

Love from india!

 **Lisa Ann Dawn** 2 months ago · 0 Likes

Thank you for the work and time you put into this. Amazing.

 **Gabriella** 4 months ago · 0 Likes

Thank you for such a detailed overview Thoufiq!

 **Gabriel Godwin** 5 months ago · 0 Likes

More than what I needed, What would I have done without you!!

 **Jad** 5 months ago · 0 Likes

You are a great teacher, indeed.

 **Venu** 5 months ago · 0 Likes

Wow! Amazing content delivered in simplest form. Thank you so much for these tutorials. I appreciate your efforts and would recommend each of my friends who are SQL enthusiasts.

one interview ? - ADD one more column in existing table after the first column, with out interrupting the data in the table

Can you explain about this.



Harsh Sinha 7 months ago · 0 Likes

This is the best roadmap ever, I found. All thanks to Toufiq Bhai. All resources are available in one place.



Suriya 7 months ago · 0 Likes



ut SQL for those are coming from non-it background

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go · 0 Likes

8 months ago · 0 Likes

:h.
as looking for. I love your content bro.



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[Solving SQL Interview Query for Data Analyst asked by a Product based company](#) ›



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