# MASTER SQL IN 20 DAYS

## Beginner to Advanced



Curated by **tutort** academy

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## Stage 1: Getting Started



Understand the role of SQL in managing and querying data.

Learn basic terminology like tables, rows, columns, and queries.

Understand the role of SQL in managing and querying data.



#### > Setting Up the Environment:

Install a relational database management system (RDBMS) like MySQL, PostgreSQL, or SQLite.

Familiarize yourself with a SQL client or command-line interface.

#### Free Resources

SQLZoo

Khan Academy - Intro to SQL

## Stage 2: Core Concepts





Design and create database tables with proper data types and constraints.

Understand primary keys, foreign keys, and indexing.



#### Basic Querying:

Write SELECT statements to retrieve data from a single table.

Use WHERE clause for data filtering.

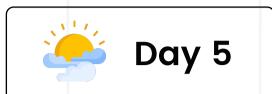
Sort and limit results with ORDER BY and LIMIT.

Free Resources

**SQLBolt** 



## Stage 2: Core Concepts





#### Data Manipulation:

INSERT, UPDATE, and DELETE data in tables.

Practice altering table data safely.

## Stage 3: Advanced Queries



Day 6



#### Joins and Relationships:

Understand different JOIN operations (INNER, LEFT, RIGHT, FULL).

Learn about one-to-many and many-to-many relationships.



Day 7



#### Subqueries and Derived Tables:

Write subqueries for complex filtering and aggregation.

Utilize derived tables for intermediate results.

## Stage 3: Advanced Queries





#### Conditional Logic and Functions:

Use CASE statements for conditional logic.

Explore SQL functions for string manipulation, date calculations, and more.

Free Resources:

**SQLZoo Advanced Tutorials** 



#### Stage 4: Database Design and Optimization

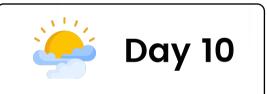




#### Normalization:

Deep dive into database normalization for optimized data structure.

Understand the importance of reducing data redundancy.





#### **Indexes and Performance:**

Learn about indexes for improved query performance.

Optimize queries using execution plans.

Free Resources:

<u>Coursera - Database</u> <u>Management Essentials</u>



#### Stage 4: Database Design and Optimization



Day 11



#### Transactions and ACID:

Grasp transactions and their role in data integrity.

Understand ACID properties (Atomicity, Consistency, Isolation, Durability).



#### Stage 5: Advanced Topics





#### **Window Functions:**

Explore window functions for advanced analytical queries.

Learn about ranking, aggregation, and pagination.





#### Stored Procedures and Functions:

Create stored procedures and functions for encapsulated logic.

Understand the benefits of procedural SQL.

Free Resources:

**Modern SQL** 



### Stage 5: Advanced Topics



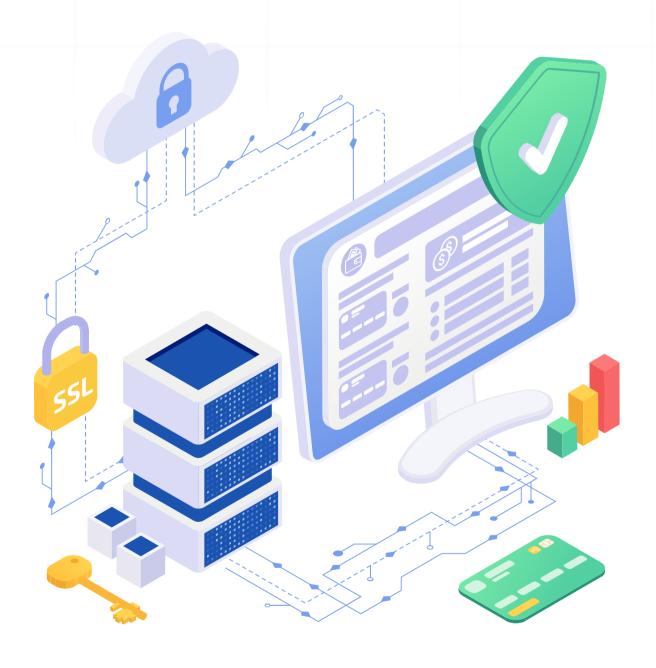
Day 14



#### **Database Security:**

Learn about SQL injection and securing databases.

Understand user roles, permissions, and encryption.



#### Stage 6: Practice, Practice, Practice





#### Free Resources for Practice

SQLZoo: This platform offers interactive tutorials and exercises that cover a wide range of SQL concepts and queries. It's suitable for beginners and more advanced learners.







#### Free Resources for Practice

LeetCode: While primarily known for coding challenges, LeetCode also has a database section with SQL problems that help you practice various SQL skills.

LeetCode SQL

#### Stage 6: Practice, Practice, Practice





#### Free Resources for Practice

HackerRank: HackerRank provides a variety of coding and technical challenges, including SQL problems. It offers a great way to test and improve your SQL skills.







#### Free Resources for Practice

SQLBolt is an online resource that provides interactive lessons and exercises to help you learn and practice SQL directly in your browser.

SQLBolt Exercises

#### Stage 6: Practice, Practice, Practice





#### Free Resources for Practice

Codecademy: Codecademy offers a free SQL course with hands-on exercises that help you practice SQL queries and database manipulation.

Codecademy SQL Course







#### Free Resources for Practice

W3Schools SQL Exercises: W3Schools offers interactive SQL exercises that allow you to practice different SQL queries and concepts.

**W3Schools SQL Exercises** 





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