SQL Guide

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Table of Contents

SQL stands for Structured Query Language. SQL is a standard language to manipulate, retrieve and create a database.

Install

Use community downloads

https://www.mysql.com/downloads/

Reference:

MySQL Tutorial for Beginners [Full Course]

1. Introduction

Structured query language (SQL) is a programming language for storing and processing information in a relational database. A relational database stores information in tabular form, with rows and columns representing different data attributes and the various relationships between the data values.

You can use SQL statements to store, update, remove, search, and retrieve information from the database. You can also use SQL to maintain and optimize database performance.

Why is SQL important?

Structured query language (SQL) is a popular query language that is frequently used in all types of applications. Data analysts and developers learn and use SQL because it integrates well with different programming languages. For example, they can embed SQL queries with the Java programming language to build high-performing data processing applications with major SQL database systems such as Oracle or MS SQL Server. SQL is also fairly easy to learn as it uses common English keywords in its statements

What is SQL (Structured Query Language)?
https://aws.amazon.com/what-is/sql/#:~:text=Structured%20query%20language%20(SQL)%20is,relationships%20between%20the%20data%20values.

1. SQL Statements / SQL Queries

SQL statements are valid instructions that relational database management systems understand.

[Reference]

Practice

SQL Exercises
https://www.sql-practice.com/

https://www.w3schools.com/sql/sql_exercises.asp

Tables

Get all the columns from the Customers table.
SELECT * FROM Customers;

SQL Tricks

https://www.viget.com/articles/10-sql-tricks-that-i-like/

1. USING	
2. COALESCE	

https://www.hackerrank.com/domains/sql

Exercise

1. Query all columns for all American cities in the CITY table with populations larger than 100000. The CountryCode for America is USA.

The CITY table is described as follows:

CITY

Field	Type
ID	NUMBER
NAME	VARCHAR2(17)
COUNTRYCODE	VARCHAR2(3)
DISTRICT	VARCHAR2(20)
POPULATION	NUMBER

SELECT * FROM CITY WHERE
COUNTRYCODE="USA" AND
POPULATION>100000

ALTER TABLE

ALTER TABLE

```
ALTER TABLE table_name
ADD column_name datatype;
```

5. Union and Join

https://www.kaggle.com/learn/advanced-sql

Select	
Count	
Avg	
Between	
Union	
Operators	

6. Operators

1. Arithmetic Operators

+	Add
-	Subtract
*	Multiply
/	Divide
%	Modulo

2. Bitwise Operators

Reference:
https://www.w3schools.com/sql/sql_operators.asp

SQL Database

7. Comments

SQL comments are used to explain codes of lines and prevent lines from executing.

Single line comments start with “- - “

```
-- Select all:
SELECT * FROM Customers;
```

Reference: https://www.w3schools.com/sql/sql_comments.asp

7. Auto-increment

Auto-increment allows a unique number to be generated automatically when a new record is inserted into a table.Often this is the primary key field that we would like to be created automatically every time a new record is inserted.

```
CREATE TABLE Persons (
```

```
    Personid int IDENTITY(1,1) PRIMARY KEY,
     LastName varchar(255) NOT NULL,
     FirstName varchar(255),
     Age int
);
```

8. Cheat Sheet

https://www.datacamp.com/cheat-sheet/sql-basics-cheat-sheet

Sample Data

Select all columns from the table airbnb_listings:

```
SELECT *
FROM airbnb_listings;
```

ORDER BY

ALTER

8. Conditionals

WHERE

9. LIMIT

https://www.coursera.org/learn/sql-data-science/home/module/1