SQLITE

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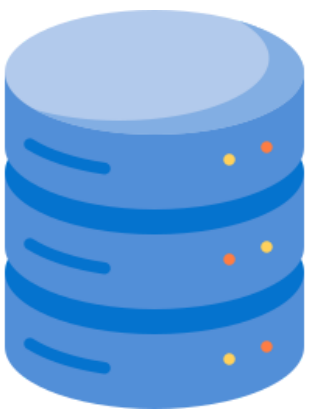
WHAT IS IT?

SQLite is a lightweight, open source and embedded **RDBMS** widely used for its simplicity and efficiency



Every database contains a **schema table** that stores the schema for that database

```
CREATE TABLE
sqlite_schema(type text, name
text, tbl_name text, rootpage
integer,sql text );
```

SQLite is the **most** widely deployed and used Database Engine, while being one of the **smallest** in size: only 750 KiB

Natively SQLite does not support replication

CAP & ACID

Consistency and Availability are the main properties of this database, which are reflected in:

Atomic

All changes to data are performed together

Consistent

Data is always in a consistent state

Isolated

Transactions do not interfere

Durable

Changes made to data persist

TRANSACTION & RECOVERY: SQLite implements serializable transactions through the usage of shared and reserved locks, as well as rollback journals to ensure ACID

FEATURES

LIBRARY: SQLite is a C-language library that implements the SQL engine

PERFORMANCE: SQLite is usually 2x faster than most SQL databases

SECURITY: Managing memory, reducing the number of inputs, encrypting the database through the SQLite Security Extension (SEE)

TEST: THL, TH3, Logical and Fuzz tests make SQLite branches 100% covered

OPTIMIZATION: Achieved by using B-Tree, Indexing, Query Planner (cost based algorithms), Caching, Dynamic Memory Allocation

SERVERLESS: Runs on the local disk

CONFIGURATION: Any program that is able to access the disk is able to use an SQLite database (Cross Platform)

SMALL & LIGHTWEIGHT: Make SQLite suitable for embedded devices

USE CASES

EMBEDDED SYSTEMS: Smartphones, TVs, remote sensors, cars, ecc..

SMALL to MEDIUM WEBSITES: Up to around 100k hits per day

SERVER SIDE DATABASE: An underlying storage engine

DATA ANALYSIS: Calculating raw data to generate reports

DATA TRANSFER FORMAT: A container for transferring data between systems

INFORMATIONS

SQLite is ranked 9th place among the other DBs

Companies like Google, Microsoft and Apple use SQLite in their products

Worldwide used by billions of devices of any type

DEMO

Explaining SQLite features by creating a phone contact database

Details are to be found in the repository

Find out **more** on our github page:
https://github.com/AntonioPirani/SQLiteProject