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### **Assignment 3: Basic Sqlite Commands**

#### **AIM:**

Study the SQLite database and its uses and installation.

#### **PROBLEM STATEMENT / DEFINITION:**

1. Study the SQLite database and its uses.
2. Elaborate on building and installing of SQLite.

#### **OBJECTIVE:**

1. To study SQLite database and its uses.
2. To study installation & configuration of SQLite database.

#### **THEORY:**

SQLite:

SQLite is a self-contained, high-reliability, embedded, full-featured, public-domain, SQL database engine. SQLite is the most used database engine in the world.

SQLite is a relational database management system contained in a C programming library. In contrast to many other database management systems, SQLite is not a client-server database engine. Rather, it is embedded into the end program.

SQLite is ACID-compliant and implements most of the SQL standard, using a dynamically and weakly typed SQL syntax that does not guarantee the domain integrity.[5]

SQLite is a popular choice as embedded database software for local/client storage in application software such as web browsers. It is arguably the most widely deployed database engine, as it is used today by several widespread browsers, operating systems, and embedded systems (such as mobile phones), among others.[6] SQLite has bindings to many programming languages.

Installing SQLite:

1. type in the following command –  
`$ sudo apt-get install sqlite3 libsqlite3-dev`

2. After installation check installation, sqlite terminal will give you a prompt and version info –

```
naved@neo:~$ sqlite3
```

```
SQLite version 3.8.2 2013-12-06 14:53:30
```

Enter `help` for instructions  
Enter SQL statements terminated with a `;`  
`sqlite>`

3. To quit –  
`sqlite> .quit`  
4. Go to desired folder and create database –  
`naved@neo:~$ sqlite3 database_name.db`  
It'll create `database_name.db` in the folder you've given the command.

5. To check whether the database has been created give the following command  
in `sqlite3`  
terminal –  
`sqlite> .databases`

Uses of SQLite:

SQLite is not directly comparable to client/server SQL database engines such as MySQL, Oracle, PostgreSQL, or SQL Server since SQLite is trying to solve a different problem. Client/server SQL database engines strive to implement a shared repository of enterprise data. They emphasize scalability, concurrency, centralization, and control. SQLite

strives to provide local data storage for individual applications and devices. SQLite

emphasizes economy, efficiency, reliability, independence, and simplicity. SQLite

does not compete with client/server databases.

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## Implementation:

```
Aditya@Aditya-VirtualBox:~$ sqlite3
SQLite version 3.31.1 2020-01-27 19:55:54
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a
persistent database. sqlite> .quit
```

```
Aditya@Aditya-VirtualBox:~$ sqlite3
SQLite version 3.31.1 2020-01-27 19:55:54
Enter ".help" for usage hints.
Connected to a transient in-memory database.
Use ".open FILENAME" to reopen on a persistent database.
// Creating table to store data
// Creating table without parameters
sqlite> CREATE TABLE first_table();
Error: near ")": syntax error
```

```

// Creating table with parameters first_name
and last_name sqlite> CREATE TABLE
first_table(first_name text, last_name text);

// Inserting new records into table
sqlite> INSERT INTO first_table
VALUES("Aditya", "Kangune");
sqlite> INSERT INTO first_table
VALUES("Abc","Xyz");
sqlite> INSERT INTO first_table
VALUES("Pqr","Lmn");

// Displaying created table
sqlite> SELECT * FROM first_table;
Aditya|Kangune
Abc|Xyz
Pqr|Lmn

// Selecting record using first_name
sqlite> SELECT * FROM first_table WHERE
first_name IS "Aditya"; Aditya|Kangune

// Selecting record using last_name
sqlite> SELECT * FROM first_table WHERE
last_name IS "Xyz"; Abc|Xyz

// Selecting only the first_name from
all records sqlite> SELECT first_name
FROM
first_table;
Aditya
Abc
Pqr

// Selecting only the last name from all records
sqlite> SELECT last_name FROM first_table;
Kangune
Xyz
Lmn

// Selecting row ids from table
sqlite> SELECT rowid FROM first_table;
1
2
3

// Inserting new record into table
sqlite> INSERT INTO first_table VALUES("Tom","Smith");

sqlite> SELECT rowid FROM first_table;
1
2

```

3  
4

```
sqlite> SELECT * FROM first_table;
Aditya|Kangune
Abc|Xyz
Pqr|Lmn
Tom|Smith
// Selecting particular fields for all records
from table sqlite> SELECT rowid, first_name,
last_name FROM first_table;
1|Aditya|Kangune
2|Abc|Xyz
3|Pqr|Lmn
4|Tom|Smith

// Selecting particular record by row id sqlite>
DELETE FROM first_table WHERE rowid = 3; sqlite>
SELECT * FROM first_table;
Aditya|Kangune
Abc|Xyz
Tom|Smith

// Inserting new records in table
sqlite> INSERT INTO first_table
VALUES("Max","Jane"); sqlite> INSERT
INTO first_table VALUES("Tom","Jerry");
sqlite> SELECT * FROM first_table;
Aditya|Kangune
Abc|Xyz
Tom|Smith
Max|Jane
Tom|Jerry

sqlite> SELECT rowid, first_name, last_name
FROM first_table;

1|Aditya|Kangune
2|Abc|Xyz
4|Tom|Smith
5|Max|Jane
6|Tom|Jerry

// Adding new column to table
sqlite> ALTER TABLE first_table ADD COLUMN
country text; sqlite> SELECT rowid, first_name,
last_name, country FROM first_table;
1|Aditya|Kangune| 2|Abc|Xyz|
4|Tom|Smith|
5|Max|Jane|
6|Tom|Jerry|
```

```
// Updating information for a record
sqlite> UPDATE first_table SET country = "India"
WHERE rowid = 1; sqlite> SELECT rowid, first_name,
last_name, country FROM first_table;
1|Aditya|Kangune|India
2|Abc|Xyz|
4|Tom|Smith|
5|Max|Jane|
6|Tom|Jerry|

// Filling values for remaining entries
sqlite> UPDATE first_table SET country = "Germany"
WHERE rowid = 2; sqlite> UPDATE first_table SET country
= "Italy" WHERE rowid = 3; sqlite> UPDATE first_table
SET country = "USA" WHERE rowid = 4; sqlite>
UPDATE first_table SET country = "Canada" WHERE rowid =
5; sqlite> UPDATE first_table SET country = "Russia"
WHERE rowid = 6; sqlite> SELECT rowid, first_name,
last_name, country FROM first_table;
1|Aditya|Kangune|India
2|Abc|Xyz|Germany
4|Tom|Smith|USA
5|Max|Jane|Canada
6|Tom|Jerry|Russia

// Applying same value to all records
sqlite> UPDATE first_table SET country = "India"; sqlite>
SELECT rowid, first_name, last_name, country
FROM first_table;
1|Aditya|Kangune|India
2|Abc|Xyz|India
4|Tom|Smith|India
5|Max|Jane|India
6|Tom|Jerry|India
```

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### **Conclusion:**

1. Study of installation steps of SQLite database.
2. Study of configuration of SQLite database.
3. To understand various uses of SQLite database.