Automation Testing

SQL Commands

simplilearn

A Day in the Life of an Automation Test Engineer

Jake now understands how to use basic commands in SQL.

He has now decided to start creating a database table. He will also learn about various SQL commands and their types and subqueries and how to implement them with various other statements and operators.

To achieve the above, he will learn a few concepts in this lesson on how to execute the commands that will help him find a solution to the scenario.

Learning Objectives

By the end of this lesson, you will be able to:

- Describe the different types of Data Definition Language commands
- List various techniques to manipulate databases and tables in SQL
- Create and view subqueries with different methods

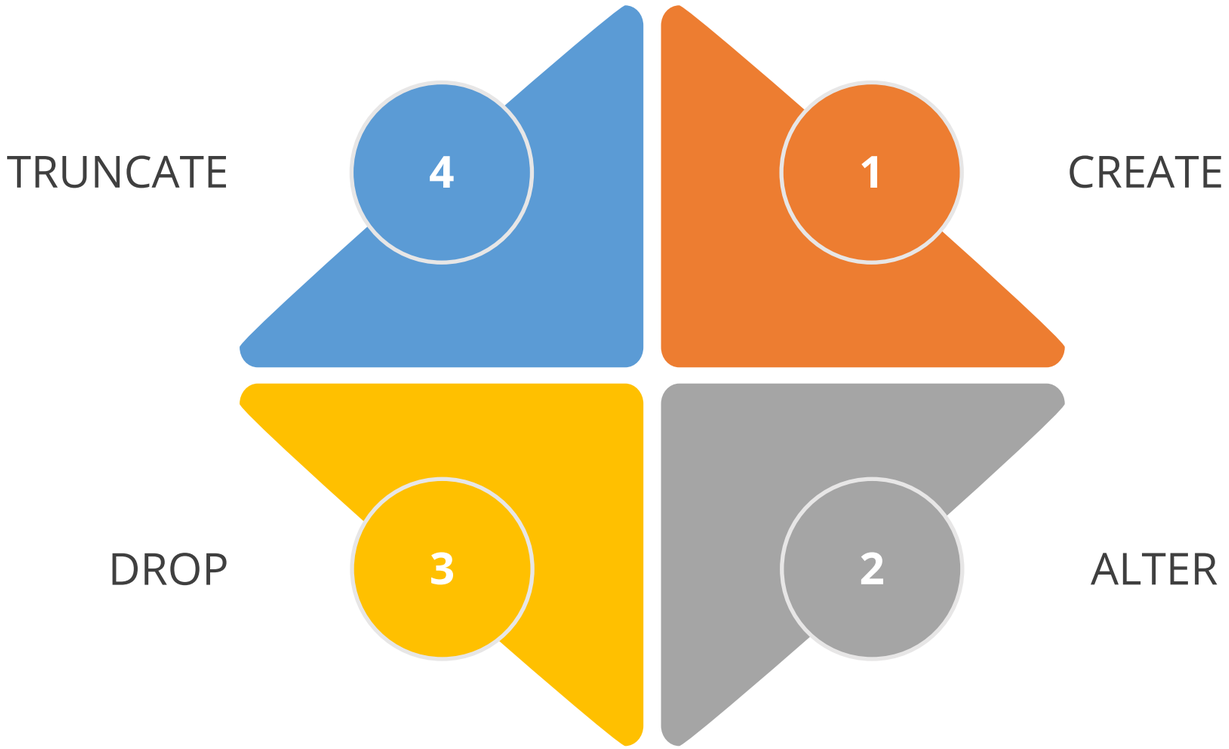
Data Definition Language (DDL) Commands

Data Definition Language (DDL) Commands

Data Definition Language (DDL) commands are a set of SQL commands that are used for creating, modifying, and deleting database structures.

Data Definition Language (DDL) Commands

The following is the list of DDL commands:



Data Definition Language (DDL) Commands: Create

The CREATE command is a data definition language command that is used for creating databases or its objects like database tables, database indexes, functions, and views.

Data Definition Language (DDL) Commands: Create

The following is the syntax for creating a database:

SQL Query

```
CREATE DATABASE database_name;
```

Data Definition Language (DDL) Commands: Alter

The ALTER command is a data definition language command that is used to change the structure of a database by adding, renaming, or modifying columns in an existing database table, as well as dropping or deleting columns.

Data Definition Language (DDL) Commands: Alter

The following is the syntax for altering a table in a database by adding a new column:

SQL Query

```
ALTER TABLE table_name
ADD (Columnname_1  datatype)
```

Data Definition Language (DDL) Commands: Drop

The DROP command is a data definition language command for deleting database objects. It can also be used to delete a database.

Note:

A rollback procedure cannot be performed on a dropped database or table command.

Data Definition Language (DDL) Commands: Drop

The following is the syntax for deleting a database using the Drop command:

SQL Query

```
DROP DATABASE database_name;
```

The following is the syntax for deleting a table using the Drop command:

SQL Query

```
DROP TABLE table_name;
```

Data Definition Language (DDL) Commands: Truncate

The TRUNCATE command is a data definition language command that is used to remove all the records from a table. It deletes all the spaces allocated for the records permanently.

Note:

A rollback procedure cannot be performed on a truncated command.

Data Definition Language (DDL) Commands: Truncate

The following is the syntax for using a Truncate command:

SQL Query

```
TRUNCATE TABLE table_name;
```

Data Manipulation Language (DML) Commands

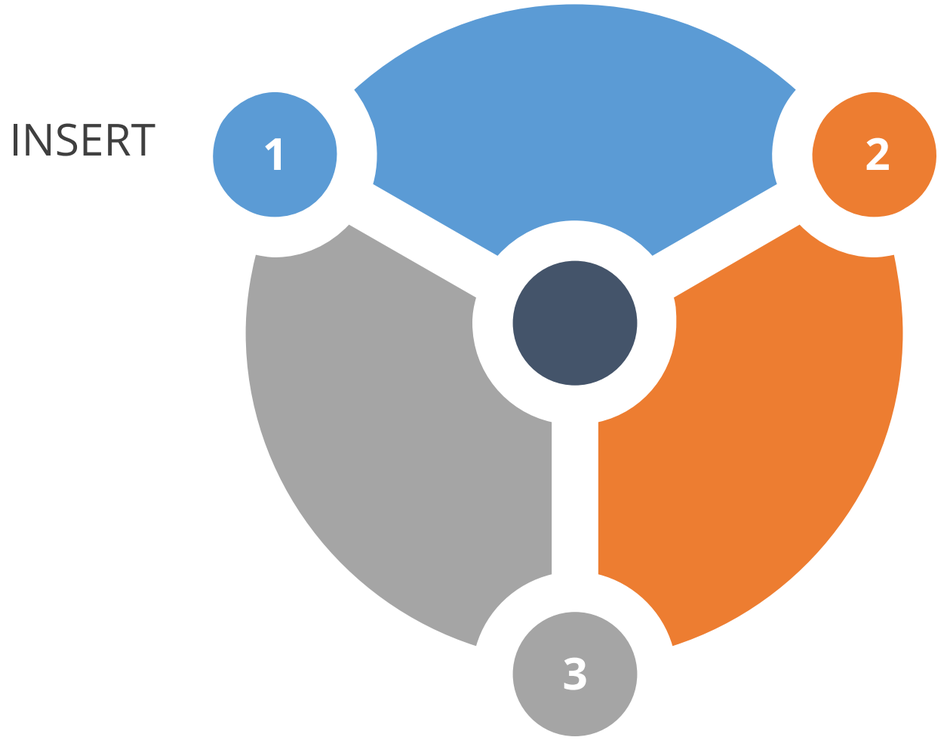
Data Manipulation Language (DML) Commands

Data Manipulation Language (DML) commands are a set of SQL commands that allows to insert, alter, and delete data from a database.

These commands are not automatically committed, so they can be rolled back.

Data Manipulation Language (DML) Commands

The list of DML commands includes:



Data Manipulation Language (DML) Commands: Insert

The INSERT command is a data manipulation language command that is used to insert data into a database table.

Data Manipulation Language (DML) Commands: Insert

The following is the syntax of the INSERT command:

SQL Query

```
INSERT INTO TABLE_NAME (column1, column2, column3,…columnN)
VALUES (value1, value2, value3,…valueN);
```

Data Manipulation Language (DML) Commands: Update

The UPDATE command is a data manipulation language command that is used for modifying or updating existing data in a database table.

Data Manipulation Language (DML) Commands: Update

The following is the syntax of the Update command:

SQL Query

```
UPDATE Table_name
SET [column_name1= value_1, ….., column_nameN = value_N]
WHERE CONDITION;
```

Data Manipulation Language (DML) Commands: Delete

The DELETE command is a data manipulation language command that is used for deleting one or multiple records from a database table.

Note:

The DELETE command does not remove the stored data from the database permanently.

Data Manipulation Language (DML) Commands: Delete

The following is the syntax of the DELETE command:

SQL Query

```
DELETE FROM Table_Name WHERE condition;
```

Insert, Update, and Delete Records from Table

Problem Statement:

You are required to insert, update, and delete records from tables.

ASSISTED PRACTICE

Assisted Practice: Guidelines

Steps to insert, update, and delete records from tables are:

1. Insert, update, and delete records from tables

Data Control Language (DCL) Commands

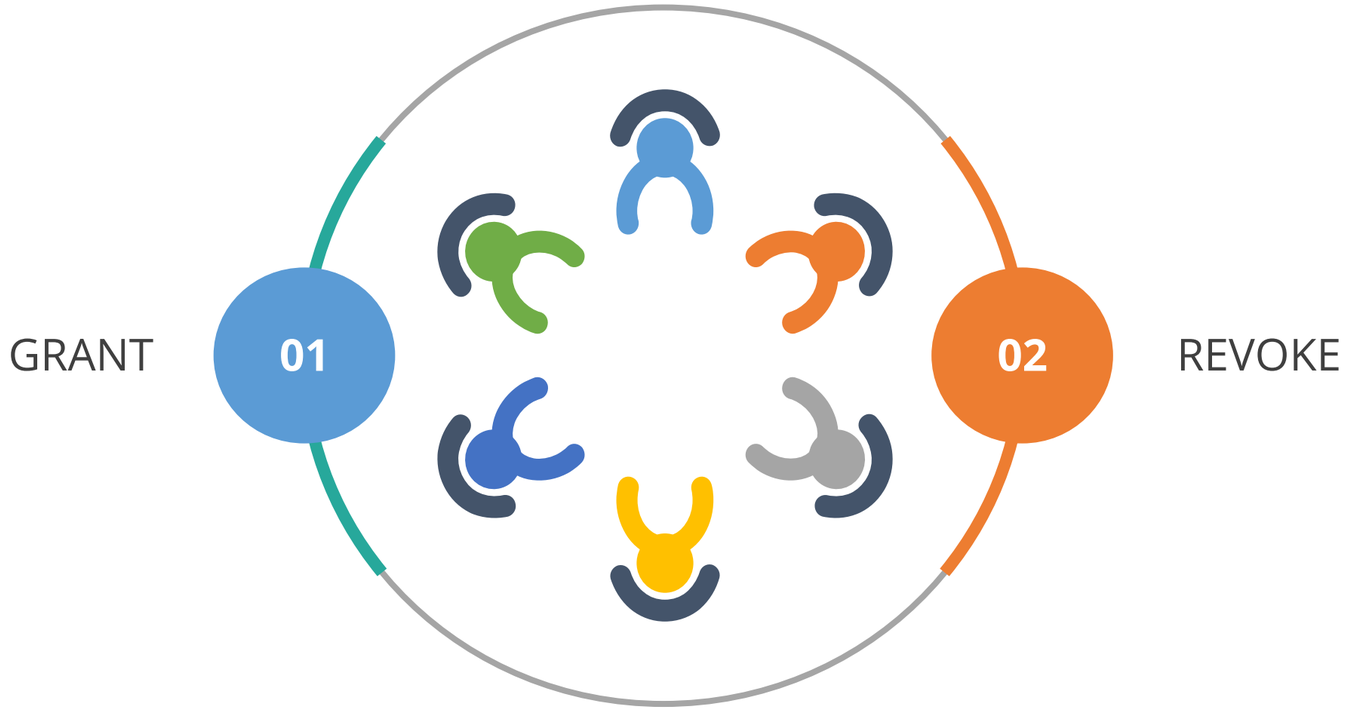
Data Control Language (DCL) Commands

Data Control Language (DCL) commands are a set of SQL commands that is used to grant or revoke database user authority.

These commands handle the rights, permissions, and other controls of the database system.

Data Control Language (DCL) Commands

The following is the list of DCL commands:



Data Control Language (DCL) Commands: GRANT

The GRANT command is a data control language command that grants database access to users.

Data Control Language (DCL) Commands: Grant

The following is the syntax of the GRANT command:

SQL Query

```
GRANT privilege_name on objectname to user;
```

Data Control Language (DCL) Commands: REVOKE

The REVOKE command is a data control language command that allows one to withdraw any user's access.

Data Control Language (DCL) Commands: REVOKE

The following is the syntax of the REVOKE command:

SQL Query

```
REVOKE privilege_name on objectname from user;
```

Transaction Control Language (TCL) Commands

Transaction Control Language (TCL) Commands

The Transaction Control Language (TCL) commands are a set of SQL commands that is used to manage database transactions.

These commands can only be used with DML commands such as INSERT, DELETE, and UPDATE.

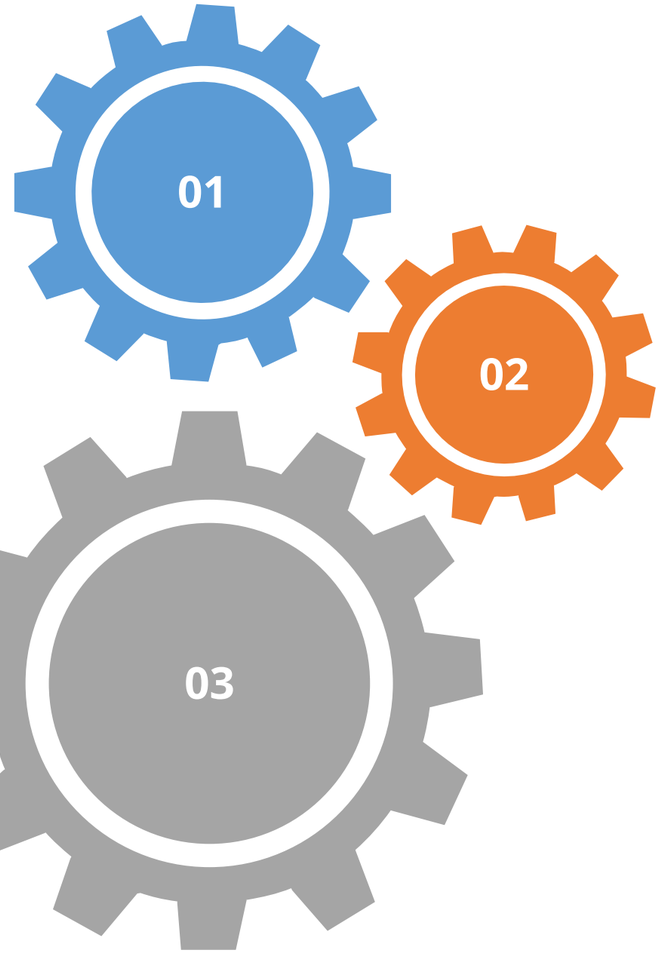
Transaction Control Language (TCL) Commands

The following is the list of TCL commands:

COMMIT

ROLLBACK

SAVEPOINT



Transaction Control Language (TCL) Commands: COMMIT

The COMMIT command is a transaction control language command that permanently saves all updates related to transactions in the database.

Transaction Control Language (TCL) Commands: COMMIT

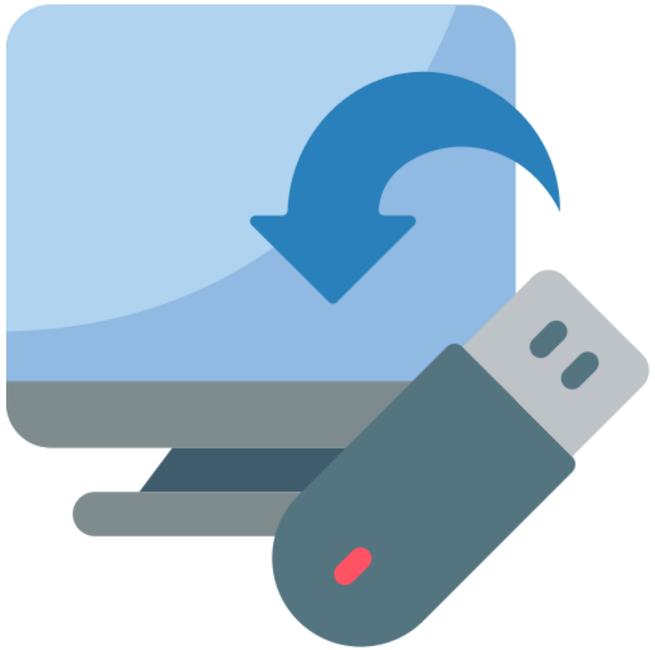
The following is the syntax of the COMMIT command:

SQL Query

```
COMMIT;
```

Transaction Control Language (TCL) Commands: ROLLBACK

The ROLLBACK command is a transaction control language command that restores data to the state it was last committed to.



Transaction Control Language (TCL) Commands: ROLLBACK

The following is the syntax of the ROLLBACK command:

SQL Query

```
ROLLBACK TO savepoint_name;
```

Transaction Control Language (TCL) Commands: SAVEPOINT

The SAVEPOINT command is a transaction control language command that is used to set a savepoint within a transaction. It may be rolled back to the starting point whenever required.

Transaction Control Language (TCL) Commands: SAVEPOINT

The following is the syntax of the SAVEPOINT command:

SQL Query

```
SAVEPOINT [savepoint_name;]
```

Data Query Language (DQL) Commands

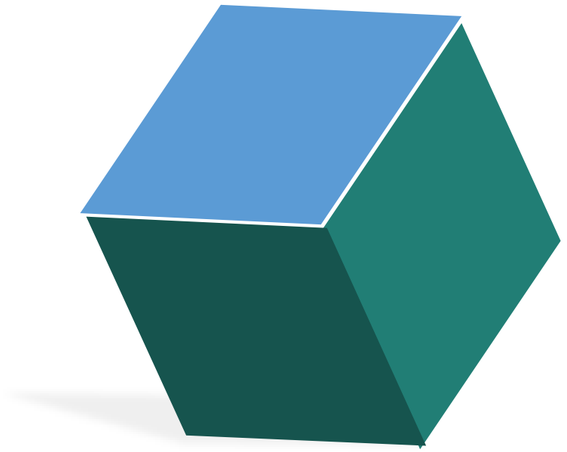
Data Query Language (DQL) Command

The Data Query Language (DQL) command is an SQL command that is used for retrieving data from a database.

These commands allow user to get data from the database and organize it.

Data Query Language (DQL) Command

It uses a single command:



SELECT

Data Query Language (DQL) Commands: SELECT

The SELECT command is a data query language command that retrieves data from the database depending on the WHERE clause condition.

Data Query Language (DQL) Commands: SELECT

The following is the syntax of the SELECT command:

SQL Query

```
SELECT expressions
FROM TABLES
WHERE conditions;
```

Using Select Statement with Various Clauses

Problem Statement:

You have been asked to use select statement with various clauses.

ASSISTED PRACTICE

Assisted Practice: Guidelines

Steps to use select statement with various clauses are:

1. Use select statement with various clauses

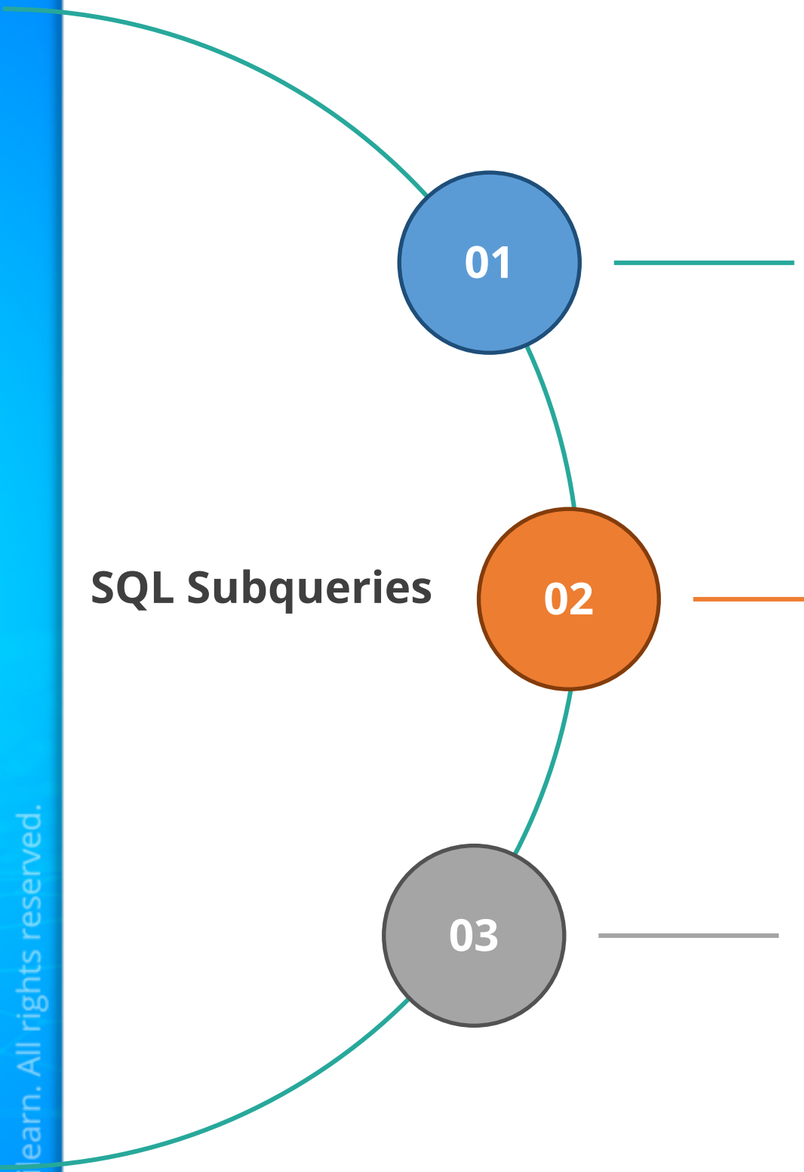
Subqueries

Subqueries

A subquery is a query that is contained within a bigger query.

These SQL queries are contained inside the WHERE clause of other SQL queries.

Subqueries



It is also called **Inner Query** or **Inner Select**, while the statement that contains the subquery is called an **Outer query** or **Outer select**.

It can be used wherever an expression is used and must be closed in parentheses.

It can be used within a SELECT, INSERT, UPDATE, or DELETE statement.

Subqueries with Statements and Operators

Subqueries with the SELECT Statement

The SELECT statement is widely used with subqueries.

Subqueries with the SELECT Statement

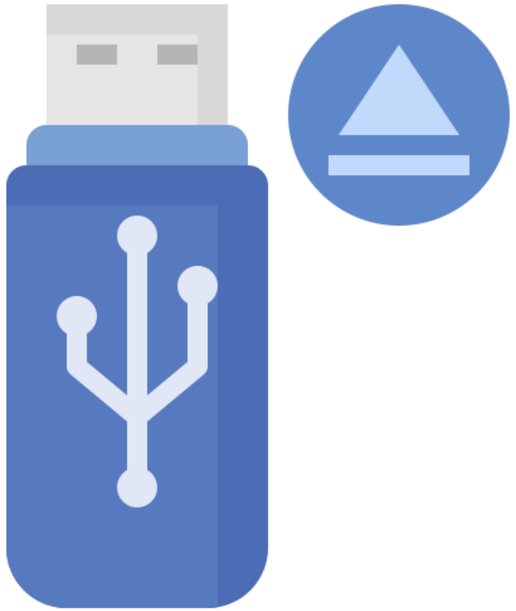
The following is the syntax of subqueries with the SELECT statement:

SQL Query

```
SELECT column_name [, column_name ]
FROM table1 [, table2 ]
WHERE column_name OPERATOR
(SELECT column_name [, column_name ]
FROM table1 [, table2 ]
[WHERE])
```

Subqueries with the INSERT Statement

INSERT statements can also utilize subqueries. The INSERT statement inserts data from a subquery into another table.



Subqueries with the INSERT Statement

The following is the syntax of subqueries with the INSERT statement:

SQL Query

```
INSERT INTO table_name [ (column1 [, column2 ]) ]
SELECT [ *|column1 [, column2 ]
FROM table1 [, table2 ]
[ WHERE VALUE OPERATOR ]
```

Subqueries with the UPDATE Statement

UPDATE statements can also utilize subqueries. Users can update a single or several columns in a table with the UPDATE statement.

Subqueries with the UPDATE Statement

The following is the syntax of subqueries with the UPDATE statement:

SQL Query

```
UPDATE table
SET column_name = new_value
[ WHERE OPERATOR [ VALUE ]
(SELECT COLUMN_NAME FROM TABLE_NAME)
[ WHERE) ]
```

Subqueries with the DELETE Statement

DELETE statements can also utilize subqueries.

Subqueries with the DELETE Statement

The following is the syntax of subqueries with the DELETE statement:

SQL Query

```
DELETE FROM TABLE_NAME
[ WHERE OPERATOR [ VALUE ]
(SELECT COLUMN_NAME
FROM TABLE_NAME)
[ WHERE) ]
```

Working with SubQueries

Problem Statement:

You are asked to work with Subqueries.

ASSISTED PRACTICE

Assisted Practice: Guidelines

Steps to work with subqueries are:

1. Work with subqueries

Key Takeaways

- Data Definition Language commands are a set of SQL commands that are used for creating, modifying, and deleting database structures.
- Data Manipulation Language commands are a set of SQL commands that allows to insert, alter, and delete data from a database.
- The Transaction Control Language commands are a set of SQL commands that are used to manage database transactions.
- The Data Query Language command is an SQL command that is used for retrieving data from a database.