**SQL Commands**

-- There are 5 types of SQL commands:

1. DDL (Data Definition Language):

> Create

> Drop

> Alter

> Truncate

2. DML (Data Manipulation Language):

> Insert

> Update

> Delete

> Merge

3. DCL (Data Control Language):

> Grant

> Revoke

4. TCL (Transaction Control Language):

> Commit

> Rollback

> Savepoint

5. DQL (Data Query Language):

> Select

DDL (Data Definition Language)

-- SQL commands which are used to define the structure of the database objects such as tables, views, functions etc falls under the category of DDL.

-- Using DDL command, we can create, modify, or drop any database object. The commands include CREATE, ALTER, DROP and TRUNCATE.

CREATE

-- As the name suggest, CREATE will be used to create a new database objects such as table, view, function etc. Syntax to create new table within a database:

> *CREATE TABLE table\_name*

*(*

*Column 1 DATA\_TYPE CONSTRAINT,*

*Column 2 DATA\_TYPE,*

*Column 3 DATA\_TYPE,*

*CONSTRAINT constraint\_name …*

*)*

> CREATE TABLE students

(

id VARCHAR(20) PRIMARY KEY,

first\_name VARCHAR(100) NOT NULL,

last\_name VARCHAR(100) NOT NULL,

gender VARCHAR(10) CHECK(GENDER IN (‘M’, ‘F’, ‘Male’, ‘Female’)),

age INT,

dob DATE,

grade FLOAT,

is\_active BOOLEAN,

CONSTRAINT ch\_student\_age CHECK (age>0)

);

-- In order to understand create table, you first need to understand what is datatype and constraint. And we will get back to it.

DROP

-- DROP removes the database objects (such as table, view, functions etc).

> *DROP TABLE table\_name*

> *DROP FUNCTION function\_name*

> *DROP VIEW view\_name*

ALTER

-- ALTER is used to modify the structure of the existing table.

-- It can be used to rename a table, rename a column, modify column data type, add new columns, remove columns, add constraints, remove constraints etc.

> *ALTER TABLE table\_name DROP COLUMN column\_name;*

> *ALTER TABLE table\_name RENAME TO new\_table\_name;*

> *ALTER TABLE table\_name RENAME COLUMN column\_name*

*TO new\_column\_name;*

TRUNCATE

-- It is a Data Definition Language Command (DDL).

-- It is used to delete all the rows of a relation (table) in one go.

-- With the help of the “TRUNCATE” command, we cannot delete the single row as here WHERE clause is not used.

-- By using this command, the existence of all the rows of the table is lost.

-- It is comparatively faster than the delete command as it deletes all the rows fastly.

> *TRUNCATE TABLE table\_name;*

**Assignment:**

1. Difference between drop and truncate?

2. Perform following operations on ‘student’ table:

add new columns, remove columns, add constraints, remove constraints.

DML (Data Manipulation Language)

-- DML commands are used to load, modify, and remove **data** from the database.

-- Unlike DDL, DML commands deal with the data itself, and not with the database entity structures.

INSERT

-- This command loads data into the table.

> *INSERT INTO table\_name (column1, column2, column3)*

*VALUES (‘value1’, ‘value2’, ‘value3’);*

*> INSERT INTO table\_name*

*VALUES (‘value1’, ‘value2’, ‘value3’);*

*> INSERT INTO table\_name VALUES*

*(‘r1-value1’, ‘r1-value2’, ‘r1-value3’),*

*(‘r2-value1’, ‘r2-value2’, ‘r2-value3’),*

*(‘r3-value1’, ‘r3-value2’, ‘r3-value3’);*

UPDATE

-- This command is used to modify the data in a table.

> *UPDATE table\_name*

*SET column1 = ‘new value’*

*WHERE column2 = ‘value’;*

*> UPDATE table\_name*

*SET column1 = ‘new value’, column3 = ‘new value’*

*WHERE column2 = ‘value’;*

DELETE

-- This command will remove the data from the table.

-- If you want to delete all the records from the table, then use delete command without using WHERE condition.

> *DELETE FROM table\_name;*

-- If you want to delete specific records, use WHERE condition.

*> DELETE FROM table\_name WHERE column1 = ‘value’;*

**Assignment:**

1. Difference between delete, drop, and truncate?

DQL (Data Query Language)

-- The SELECT command in SQL falls under the category of DQL.

-- Using SELECT, we can retrieve and view data from one or more tables.

-- SELECT can also be used to build reports, analyse data etc.

> *SELECT column\_name FROM table\_name WHERE join/filter condition;*

-- Here under the ‘column\_name’, you will select those columns which are need to be displayed when the query is executed.

-- There are two ways to write a SELECT query when we want to fetch the data from 2 different tables.

1. *SELECT t1.column1 as c1, t2.column2 as c2, t1.column3 as c3*

*FROM table1 as t1*

*JOIN table2 as t2*

*ON t1.column4 = t2.column5 AND t1.column1 = t2.column1;*

2. *SELECT t1.column1 as c1, t2.column2 as c2, t1.column3 as c3*

*FROM table1 as t1, table2 as t2*

*WHERE t1.column4 = t2.column5 AND t1.column1 = t2.column1;*