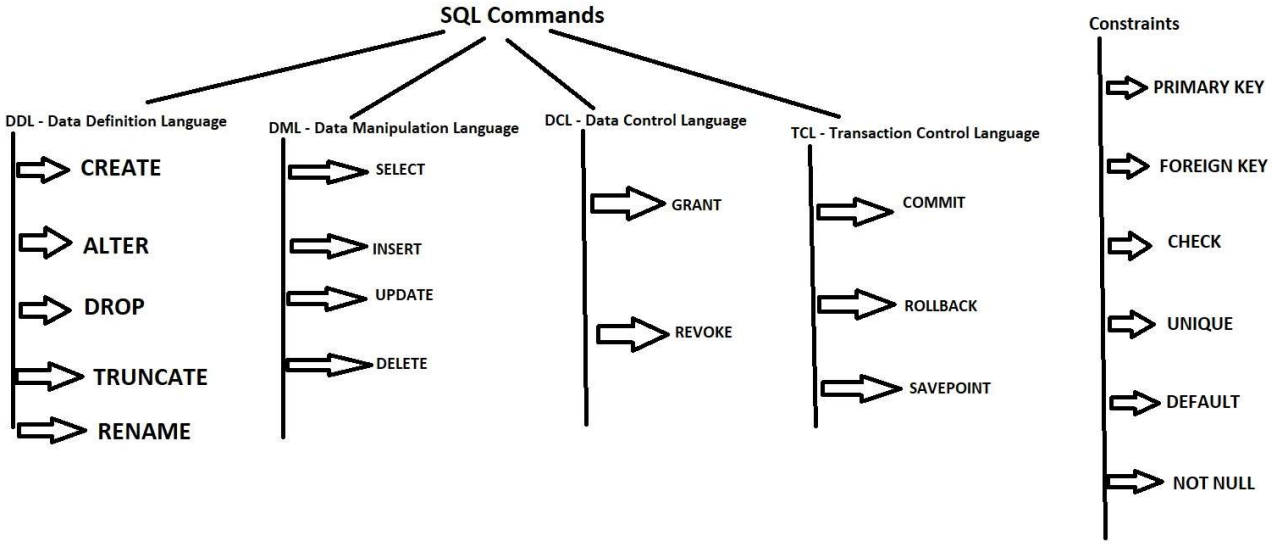
SQL Commands



DDL - Data Definition Language:

- CREATE - create a new table, view for a table or other object in the database
- ALTER - modifies an existing database object, such as a table
- DROP - deletes an entire table, a view of a table or other objects in the database
- TRUNCATE - remove all records from a table, including all spaces allocated for the records are removed
- COMMENT - add comments to the data dictionary
- RENAME - rename an object

DML - Data Manipulation Language:

DML is short name of Data Manipulation Language which deals with data manipulation and includes most common SQL statements such SELECT, INSERT, UPDATE, DELETE etc, and it is used to store, modify, retrieve, delete and update data in a database.

- SELECT - retrieves records from one or more tables
- INSERT - creates a record
- UPDATE - modifies records
- DELETE - deletes records

DCL - Data Control Language

DCL is short name of Data Control Language which includes commands such as GRANT and mostly concerned with rights, permissions and other controls of the database system.

- GRANT (Grant privilige(s) to user)
- REVOKE (Remove granted privilige(s) from a user)

TCL - Transaction Control Language

TCL is short name of Transaction Control Language which deals with a transaction within a database.

- COMMIT - commits a transaction
- ROLLBACK - rollback a transaction in case of any error occurs
- SAVEPOINT - to rollback the transaction making points within groups
- SET TRANSACTION - specify characteristics of the transaction.

Note : DQL :Data Query Language has only one command

- **SELECT - retrieves records from one or more tables.**

  SELECT command is also in DML.

SQL Constraints:

The available constraints in SQL are:

- **NOT NULL**: This constraint tells that we cannot store a null value in a column. That is, if a column is specified as NOT NULL then we will not be able to store null in this particular column any more.
- **UNIQUE**: This constraint when specified with a column, tells that all the values in the column must be unique. That is, the values in any row of a column must not be repeated.
- **PRIMARY KEY**: A primary key is a field which can uniquely identify each row in a table. And this constraint is used to specify a field in a table as primary key.
- **FOREIGN KEY**: A Foreign key is a field which can uniquely identify each row in a another table. And this constraint is used to specify a field as Foreign key.
- **CHECK**: This constraint helps to validate the values of a column to meet a particular condition. That is, it helps to ensure that the value stored in a column meets a specific condition.
- **DEFAULT**: This constraint specifies a default value for the column when no value is specified by the user.

SQL TABLES:

A database uses a table to store data in a structured way.

A table is basically a collection of information in the form of data entries and contains rows and columns to store data.

The below table show STUDENT table

STUDENT TABLE

ID	NAME	ROLLNO	AGE
123	RAM	400	23
124	RAJESH	401	24
125	RAJ LAKHMI	402	23

126	RAMYA	403	23

What is row or record?

A row of a table is also called a record. It specifies some information about each individual entry in the table.

It represents horizontally in the table.

For example, the row/record in the table is,

ID	NAME	ROLLNO	AGE
123	RAM	400	23

What is the column?

A column represents vertically in the table which contains information about the header which is the column name.

For example, from the above student table:

ID
123
124
125
126

DDL:

1. **CREATE command/query:**

There are two CREATE statements available in SQL:

- **CREATE DATABASE**
- **CREATE TABLE**

CREATE DATABASE

A **Database** is defined as a structured set of data. So, in SQL the very first step to store the data in a well-structured manner is to create a database. The **CREATE DATABASE** statement is used to create a new database in SQL.

Syntax:

CREATE DATABASE database name;

database name: name of the database.

Example Query:

This query will create a new database in SQL and name the database as *mydatabase*.

```
CREATE DATABASE mydatabase;
```

- **CREATE TABLE**

create command can also be used to create tables. Now when we create a table, we have to specify the details of the columns of the tables too.

We can specify the **names** and **datatypes** of various columns in the create command itself.

```
CREATE TABLE  <DATABASE>.<TABLE_NAME>

(

   column_name1 datatype1,
```

```
   column_name2 datatype2,

   column_name3 datatype3 );



Example:

CREATE TABLE XWORKS.Student(

   student_id INT,

   name VARCHAR(100),

   age INT);
```

The above command will create a new table with name **Student** in the current database with 3 columns, namely student_id, name and age. Where the column student_id will only store integer, name will hold upto 100 characters and age will again store only integer value.

Here we have listed some of the most commonly used datatypes used for columns in tables.

Datatype	**Use**
INT	used for columns which will store integer values.
FLOAT	used for columns which will store float values.
DOUBLE	used for columns which will store float values.
VARCHAR	used for columns which will be used to store characters and integers, basically a string.
CHAR	used for columns which will store char values(single character).
DATE	used for columns which will store date values.
TEXT	used for columns which will store text which is generally long in length. For example, if you create a table for storing profile information of a social networking website, then for **about me** section you can have a column of type TEXT.

DROP command/query:

DROP command completely removes a table from the database. This command will also destroy the table structure and the data stored in it. Following is its syntax,

Syntax:to drop a table	Syntax: to drop database
DROP TABLE table_name; Example: DROP TABLE student;	DROP DATABASE databasename; Example: DROP DATABASE Test;

TRUNCATE command/query:

TRUNCATE command removes all the records from a table. But this command will not destroy the table's structure.

syntax
TRUNCATE TABLE table_name; Example TRUNCATE TABLE student;

RENAME command/query:

RENAME command is used to set a new name for any existing table. Following is the syntax,

Syntax:
RENAME TABLE old_table_name to new_table_name; Example: RENAME TABLE student to students_info;

ALTER command/query:

alter command is used for altering the table structure, such as,

- to add a column to existing table
- to rename any existing column
- to change datatype of any column or to modify its size.
- to drop a column from the table.

Add a new Column:

Using ALTER command we can add a column to any existing table. Following is the syntax,

```
ALTER TABLE table_name ADD(

   column_name datatype);

example:

ALTER TABLE student ADD(

   address VARCHAR(200)

);
```

ALTER Command: Modify an existing Column

ALTER command can also be used to modify data type of any existing column. Following is the syntax,

```
ALTER TABLE table_name modify(

   column_name datatype

);



Example:

ALTER TABLE student MODIFY(
```

```
   address varchar(300));
```

ALTER Command: Rename a Column

using ALTER command you can rename an existing column. Following is the syntax,

```
Syntax:
ALTER TABLE table_name RENAME
   old_column_name TO new_column_name;

example:
ALTER TABLE student RENAME
   address TO location;
```

The above command will rename `address` column to `location`.

ALTER Command: Drop a Column

ALTER command can also be used to drop or remove columns. Following is the syntax,

```
Syntax:
ALTER TABLE table_name DROP(
   column_name);

example:

ALTER TABLE student DROP(
   address);
```

The above command will drop the address column from the table **student**.