

DDL and DML commands

Data Definition Language

Data Definition Language (DDL) in SQL encompasses **CREATE**, **ALTER**, **TRUNCATE**, and **DROP** statements used to create, modify, remove data from tables, and **manage the overall structure of a database**.

CREATE TABLE

The **CREATE** statement **enables the creation of databases and tables** to establish the foundation for data storage and manipulation tasks.

Create a database

```
CREATE DATABASE
    database_name;

USE
    database_name;
```

Create a table

```
CREATE TABLE table_name (
    column1 datatype,
    column2 datatype [Constraint],
    ...
);
```

Constraints

SQL **constraints** enforce **data integrity** and **define rules** for column values in tables, ensuring **consistency** and **adherence to specified conditions**.

Common SQL constraints:

NOT NULL: enforces non-null values in a column.
UNIQUE: ensures that the values in a column are unique across the table.
PRIMARY KEY: uniquely identifies each row in a column.
FOREIGN KEY: establishes a relationship between two tables based on a column.

ALTER TABLE

The **ALTER TABLE** statement is used to **modify the structure of an existing database object**, such as adding, modifying, or deleting columns in a table.

Add a column

```
ALTER TABLE
    table_name;

ADD
    column_name datatype;
```

Delete a column

```
ALTER TABLE
    table_name;

DROP COLUMN
    column_name;
```

Rename a column

```
ALTER TABLE
    table_name;

RENAME COLUMN
    old_name TO new_name;
```

Change a column data type

```
ALTER TABLE
    table_name;

MODIFY COLUMN
    column_name datatype;
```

TRUNCATE TABLE

The **TRUNCATE** statement efficiently **removes all data** from a table, **preserving the table structure**.

Truncate a table

```
TRUNCATE TABLE
    table_name;
```

DROP TABLE

The **DROP** statement is used to **remove database objects** such as tables or databases. It allows for the permanent deletion of the specified object, including all associated data and metadata.

Drop a table

```
DROP TABLE
    table_name;
```

Drop a database

```
DROP DATABASE
    database_name;
```

Data Manipulation Language

Data Manipulation Language (DML) is a sublanguage of SQL responsible for **manipulating data in a database**. It is most commonly used to add, edit, or delete data – using the **INSERT**, **DELETE**, and **UPDATE** commands.

INSERT

The **INSERT** statement enables the **addition of new records** to a table.

```
INSERT INTO
    database_name.table_name
    (column1, column2)

VALUES
    (value1, value2),
    (value1, value2);
```

UPDATE

The **UPDATE** statement allows **modification of existing data** in a table, optionally specifying **conditions** with the **WHERE** clause.

```
UPDATE
    database_name.table_name

SET
    column1 = value1,
    column2 = value2

WHERE
    condition;
```

DELETE

The **DELETE** query **removes specific records** from tables.

```
DELETE FROM
    database_name.table_name

WHERE
    condition;
```