

fingerTips

Module-3

Types of SQL Commands

1) Types of SQL Commands

There are 5 types of SQL commands:

- I. **DQL (Data Query Language)** commands are used to retrieve data from the database. Some common DQL commands are:
 - i. **SELECT:** Used to retrieve data from one or more tables in the database.
- II. **DDL (Data Definition Language)** commands are used to create, alter, and drop database objects. DDL commands are auto-committed which means the changes done using these commands are saved into the database automatically, users don't need to commit them manually. Some DDL commands are:
 - i. **CREATE:** Used to create a new database object like a table, view, index, etc.
 - ii. **ALTER:** Used to modify the structure of an existing database object.
 - iii. **TRUNCATE:** Used to remove all data from a table, while preserving the table structure.
 - iv. **DROP:** Used to delete a database object from the database.
- III. **DML (Data Manipulation Language)** commands are used to manipulate data within the database. DML commands are not auto-committed which means the changes done using these commands are not saved into the database automatically, users need to commit them manually. Some common DML commands are:
 - i. **INSERT:** Used to add data to a table.
 - ii. **UPDATE:** Used to modify existing data in a table.
 - iii. **DELETE:** Used to remove data from a table.
- IV. **TCL (Transaction Control Language)** commands are used to manage transactions in the database. TCL commands can only be used with DML commands like INSERT, DELETE and

UPDATE only. Some common TCL commands are:

- i. **COMMIT:** Used to commit a transaction and make its changes permanent.
- ii. **ROLLBACK:** Used to roll back a transaction and undo its changes.

V. **DCL (Data Control Language)** commands are used to control access to the database. Some common DCL commands are:

- i. **GRANT:** Used to grant specific privileges to a user or role.
- ii. **REVOKE:** Used to revoke privileges that have been granted to a user or role.

2) Data Query Language (DQL) Commands

i. SELECT:

SELECT column1, column2, ... FROM table_name WHERE condition;

select name, email from customers;

3) Data Definition Language (DDL) Commands

i. CREATE:

CREATE TABLE table_name (column1 datatype, column2 datatype, column3 datatype,);

We have already seen how to create tables products, customers, orders in Module-2.

Let's create a table trial:

```
create table trial
(id int primary key,
column1 varchar(20) not null
);
```

ii. ALTER:

ALTER TABLE table_name ADD column_name datatype;

Let's add a new column into trial:

```
alter table trial
add column2 int;
```

iii. **TRUNCATE:**

TRUNCATE TABLE table_name;

Let's truncate trial:

truncate table trial;

iv. **DROP:**

DROP TABLE table_name;

Let's drop trial:

drop table trial;

4) Data Manipulation Language (DML) Commands

i. **INSERT:**

INSERT INTO table_name (column1, column2, column3, ...)
VALUES (value1, value2, value3, ...);

We have already seen how to insert values in tables products, customers, orders in Module-2.

ii. **UPDATE:**

UPDATE table_name SET column1 = value1, column2 = value2, ... WHERE condition;

Example:

**update products
set name='shirt'
where id=20;**

Note: We will learn WHERE clause in next session.

iii. **DELETE:**

DELETE FROM table_name WHERE condition;

Example:

**delete from products
where id=20;**

Then,

select * from products;

Note: When we run these commands, we see record with id=20 is deleted. But this change is not permanent as this is a DML command.

5) Transaction Control Language (TCL) Commands

First we have to set auto-commit = 0, to make sure DML commands settings are not set to auto commitment.

set autocommit =0;

i. ROLLBACK:

delete from products

where id=19;

Then,

select * from products;

We will see record with id=19 is deleted, but since DELETE is DML command so change is not permanent. We can get back to actual data using ROLLBACK.

rollback;

Then,

select * from products;

Now we will see, we have former table with all 20 rows.

ii. COMMIT:

delete from products

where id=19;

Then,

select * from products;

We will see record with id=19 is deleted, but since DELETE is DML command so change is not permanent. We can make it permanent using COMMIT command.

commit;

Then,

select * from products;

Now we will see, we have only 19 rows as record with id=19 is deleted permanently.

Now even if we apply rollback command we can't get record with id=19.

Rollback;

select * from products;

6) Data Control Language (DCL) Commands

i. GRANT:

GRANT privilege_type ON object_name TO {user_name | role_name} [WITH GRANT OPTION];

Example:

grant insert,
select on products to John

ii. REVOKE:

REVOKE privilege_type ON object_name FROM {user_name | role_name};

Example:

revoke insert,
select on products from John