

SQL (Structured Query Language)

⇒ SQL:-

It is a database computer language designed for managing data and communicate with database. (RDBMS)

⇒ It is proposed by Donald Chamberlin and Raymond Boyce in 1970's at IBM.

⇒ Initially it is called SEQUEL (Structured English Query Language).

Note:-

RDBMS:-

It is a Relational database is a type of database that stores and provides access to data points that are related to one another.

⇒ What SQL do:-

⇒ Execute queries against a database

⇒ retrieve data, can ~~insert~~ insert data, update data etc.

* Commands:-

1. DDL (Data Definition Language):-

⇒ The DDL manages tables and its structure.

Commands in DDL:-

1. CREATE
2. DROP
3. ALTER
4. TRUNCATE
5. RENAME

} Main

1. CREATE:- create a table in database

Syntax:- CREATE TABLE TABNAME (COLUMN-NAME DATATYPES[...]);

Eg:- CREATE TABLE EMPLOYEE (Name Varchar(20), Email Varchar(20),
id int(10));

2. DROP:-

It is used to delete the table (both structure and records stored in the table).

Syntax DROP TABLE ~~EMPLOYEE~~ TABLE-NAME;

Eg:- DROP TABLE Employee;

3. ALTER:-

It is used to modify the characteristics of an existing attribute or probably to add a new attribute.

Notes In SQL "attributes" are called columns.
'rows' are called 'tuples'.

Syntax:- 1) To add new column:-
ALTER TABLE table-name ADD column-name column-definition.

Eg:- ALTER TABLE EMPLOYEE ADD (ADDRESS varchar(20));

2) To add modify existing column:-

Syntax:- ALTER TABLE TableName MODIFY (column-definition).

Eg:- ALTER TABLE EMPLOYEE MODIFY (Name varchar(30));

3) To renaming a existing column:-

Syntax:- ALTER TABLE TableName RENAME old column name to new column name;

Eg:- ALTER TABLE Employee RENAME NAME to First Name;

4) dropping a column:-

Syntax:- ALTER TABLE table-name DROP column-name;

Eg:- ALTER TABLE Employee DROP Address;

Note:-

We can add constraints in commands for alter.

Eg:- ALTER TABLE Table-name MODIFY column-name datatype NOT NULL;

4. Truncate:-

It is used to delete all records from table.
It doesn't delete table.

Syntax:- TRUNCATE TABLE table-name;

Eg:- TRUNCATE TABLE EMPLOYEE;

Note:-

delete statement without where clause also delete all the records but not efficient than truncate.

"Truncate" is faster than "delete".

Truncate is ~~also~~ only used for complete deletion of all records not partial records.

5. RENAME:-

It is used to renaming table names.

Syntax:-

RENAME TABLE old-table-name TO newtable name;

Eg:- RENAME TABLE EMPLOYEE TO EMP;

* DML (Data Manipulation Language):-

⇒ It deals with manipulation of data present in the database. We can insert data, delete particular data, retrieve data. & update data in this.

Commands:-

1. SELECT - Retrieve data from the database
2. INSERT - insert data into a table
3. UPDATE - update the existing data within a table.
4. DELETE - delete records from tables.

1.) SELECT :-

Syntax:- `SELECT column-name 1, column-name 2... FROM table-name
WHERE condition;`

Eg:- `SELECT customer-id, sale-data FROM customers;`
(or)

`SELECT * FROM customers;` (It displays all).

`SELECT Age FROM customers WHERE Age \geq 20;`

2.) UPDATE :-

Syntax:- `UPDATE table-name SET column-name-1 = Value 1, ... WHERE condition;`

Eg:- `UPDATE customers SET store-state = 'DL' WHERE store-state = 'NY';`

3. DELETE :-

Syntax:- `DELETE FROM table-name WHERE condition;`

Eg:- `DELETE FROM customers WHERE store-state = 'MH'
AND customer-id = '1001';`

4. INSERT :-

Syntax:- `INSERT INTO table-name (column-name-1, ...)
VALUES (value 1, ...);`

Eg:- `INSERT INTO customers (customer-id, order-id)
VALUES (1005, 1007);`

* DCL (Data Control Language) :-

It is used to control the accessing privileges ^{of user} in database
if a user needs privileges. those are of 2 types.

1) :- system :- This includes permissions for creating session, tables etc. all types of other system privileges.

2) object :- This includes permissions for any command or query to perform any operation on the database tables.

DCL have 2 commands,

1. Grant
2. Revoke

* Grant :- used to provide any user access privileges or other privileges for the database.

* Revoke :- used to take back permissions from any user.

① Grant :-
syntax :- GRANT ^{select, update, delete, insert.} privilege-name on ^{ntg but table name} objectname to user; _{/public/rolename}

Eg :- GRANT SELECT, UPDATE ON EMPLOYEES TO Bhanu;

REVOKE :-
syntax :- REVOKE privilege-name on objectname from user; _{/public/rolename}
eg :- REVOKE SELECT, UPDATE ON EMPLOYEES FROM Ram;

TCL: (Transactional Control Language)

1) TCL commands are used to Manage transactions in database.

1. commit :-

This command is used to make a transaction permanent in a database.

Syntax:- COMMIT;

2. ROLLBACK :-

- This command is used to restore the database to its original state since the last command that was committed.

Syntax:- ROLLBACK;

We can use Rollback with savepoint.

Syntax ROLLBACK TO <savepoint_name>;

Eg:- ROLLBACK TO A;

3. savepoint :-

This command is used to save the transaction temporarily. So the users can rollback to the required point of the transaction.

Syntax SAVEPOINT savepoint_name;

Eg:- SAVEPOINT A;