

SQL Fundamentals

- Structure Query language (SQL) is a database Query language used for storing and managing data in Relational.
- Today almost all RDBMS (MySQL, Oracle, Informatica, Sybase, MSAccess) use [SQL] as the standard database query language.
- SQL is used to Perform all types of data operations in RDBMS.

SQL Commands

(i) DDL: Data Definition language :-

- DDL Consists of the SQL Commands that can be used to define the database Schema.
- It simply deals with descriptions of the database schema and is used to create and modify structure of the database objects.
- This includes changes to the structure of table like :-
 - creation of table
 - altering table
 - deleting a table.

Command	Description
Create	to create new table on database
alter	for alteration.
truncate	delete data from table.
drop	to drop a table.
rename	to rename a table.

- 1) **Create**:- Create is a DDL-SQL Command used to create a table on a database in RDBMS.

Creating a Database

Syntax CREATE DATABASE DB_Name;

Example CREATE DATABASE Test;

Creating a Table

Syntax CREATE TABLE TABLE_NAME
&
Columnname1 datatype1,
Columnname2 datatype2);

Example CREATE TABLE Student (
id int,
name varchar(100));

i) ALTER Command

It is used for altering the table structure, such as:-

- o to add a column to existing table.
- o to rename any existing column.
- o to change datatype of any column.
- o to drop a column from the table.

Add a new Column

Syntax ALTER TABLE Tablename ADD (columnname, datatype);

Example ALTER TABLE Student ADD (address varchar(20));

Add Column with default value

Syntax ALTER Table table-name ADD (columnname datatype DEFAULT some-value);

Example ALTER Table student ADD (dob DATE DEFAULT '01-Jan-98');

Rename a Column

Syntax ALTER TABLE tablename RENAME oldColname TO newColname;

Example ALTER TABLE Student RENAME address TO Location;

Modify (update) an existing Column

Syntax ALTER TABLE tablename modify (columnname datatype);

Example ALTER TABLE Student modify (address varchar(300));

Drop a Column

tablename



Syntax ALTER TABLE Student DROP (columnname);

Example ALTER TABLE Student DROP (address);

(III) TRUNCATE Command

Syntax TRUNCATE TABLE table-name;

Example TRUNCATE TABLE Student;

(IV) DROP Command

Syntax DROP TABLE tablename;

Example DROP TABLE Student;

(V) RENAME Query

Syntax RENAME TABLE oldtablename to newtablename;

Example RENAME TABLE Student to Studentinfo;

2. DML (Data Manipulation Language):-

- DML Commands are used for manipulating the data stored in the table.
- DML Commands are not auto committed. It means changes are not permanent to database, they can be rolled back.

Command	Description
insert	to insert a new row.
update	to update existing row.
delete	to delete a row.
select	to show the records of the table

(i) Insert Command:-

Syntax:- INSERT INTO tablename VALUES (data1, data2 ...)

Example:- Consider a table student with the fields:-

sid	name	age
-----	------	-----

INSERT INTO student VALUES (101, 'ABC', 24);

INSERT Default value to a Column

sid	sname	age
101	ABC	15
102	XYZ	

INSERT INTO student VALUES (102, 'xyz', default);

(2) UPDATE COMMAND :-

Syntax UPDATE tablename SET Col-name = new-value WHERE Some-condition;

Example

S_id	name	age
101	ABC	15
102	XYZ	
103	PQR	14

← Table (Student)

UPDATE student SET age = 18 WHERE S-id = 102;

(3) DELETE COMMAND :-

Syntax DELETE FROM table-name;

Example DELETE FROM student; (all records are delete)

(b) DELETE FROM student WHERE sid = 103; (It deletes a Particular record from a table)

(4) SELECT COMMAND :- (DQL)

Syntax SELECT Column-name 1, Column-name 2, --- Column-name N FROM tablename;

Example

for all records → Select * from student;

for Particular records → Select sid, name, age FROM student;

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DCL (Data Control Language)

DCL includes Commands such as GRANT and REVOKE which mainly deals with the rights, Permissions and other controls of the database systems.

DCL Commands

<u>GRANT</u>	Used to Provide any user access privileges.
<u>REVOKE</u>	Used to take back Permissions from any user.

(i) GRANT :- It Provides any kind of access to any user.

Syntax :- GRANT privilege-name on Objectname to user;

↑
 Select, update, delete, insert etc.

↑
 tablename

↑
 name of user to whom we grant privileges.

Example :- grant select on emp to ram;

↑
 tablename

↑
 Username

(ii) REVOKE Command :-

- It is used to remove a privilege from a user.
- REVOKE helps the owner to cancel previously granted permissions.

Syntax :- REVOKE privilege-name ON objectname FROM user;

Example :- REVOKE select ON emp FROM ram;

(4) TCL (Transaction Control Language):-

TCL Commands can only use with DML Commands like INSERT, DELETE and UPDATE only.

TCL Commands

COMMIT	Commit Command is used to save all the transactions to the database.
Rollback	Rollback Command is used to undo transactions that have not already been saved to the database.
Save Point	It helps you to sets a savepoint within a transaction.

(i) COMMIT:-

Syntax

Example

COMMIT;

Delete from Student where
sid = 123;
COMMIT;

