Parul® University

Unit 2- SQL

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DIGITAL LEARNING CONTENT

CHAPTER-2

SQL

Structured Query Language(SQL)

- SQL stands for Structured Query Language
- SQL lets you access and manipulate databases
- SQL became a standard of the American National Standards Institute (ANSI) in 1986, and of the International Organization for Standardization (ISO) in 1987

What Can SQL do?

- SQL can execute queries against a database
- SQL can retrieve data from a database
- SQL can insert records in a database
- SQL can update records in a database
- SQL can delete records from a database
- SQL can create new databases
- SQL can create new tables in a database
- SQL can create stored procedures in a database
- SQL can create views in a database
- SQL can set permissions on tables, procedures, and views

SQL Commands

- SQL commands are instructions. It is used to communicate with the database. It is also used to perform specific tasks, functions, and queries of data.

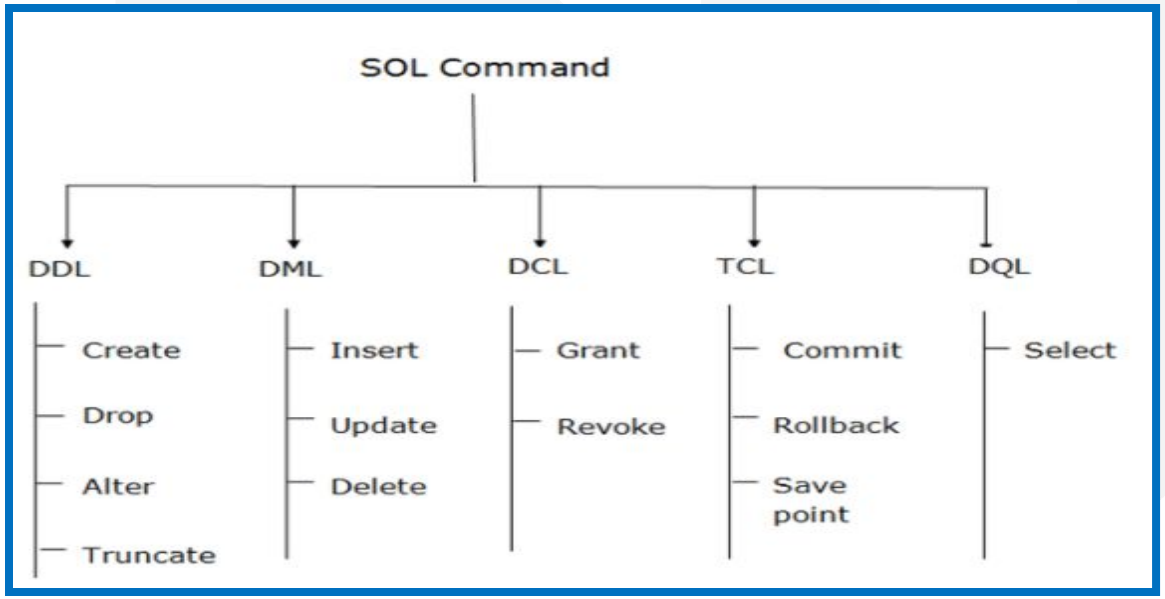

Figure: 1.24 SQL Commands

(**Image Source** : https://www.google.com/imgres?imgurl=https%3A%2F%2Fstatic.javatpoint.com%2Fdbms%2Fimages%2Fdbms-sql-command.png&imgrefurl=http)

Data Definition Language (DDL)

- DDL changes the structure of the table like creating a table, deleting a table, altering a table, etc.
- All the command of DDL are auto-committed that means it permanently save all the changes in the database.
- Here are some commands that come under DDL:

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

Data Definition Language (DDL Command)

1. **CREATE** It is used to create a new table in the database.

- **Syntax:**
  - CREATE TABLE TABLE_NAME (COLUMN_NAME DATATYPES[,....]);

- **Example:**
  - CREATE TABLE EMPLOYEE(Name VARCHAR2(20), Email VARCHAR2(100), DOB DATE);

Data Definition Language (DDL Command)

2. **DROP:** It is used to delete both the structure and record stored in the table.

- **Syntax**
  - DROP TABLE ;
- **Example**
  - DROP TABLE EMPLOYEE;

Data Definition Language (DDL Command)

3. **ALTER:** It is used to alter the structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.

- **Syntax:**
- **To add a new column in the table**
- ALTER TABLE table_name ADD column_name COLUMN-definition;
- **To modify existing column in the table:**
- ALTER TABLE MODIFY(COLUMN DEFINITION....);
- **EXAMPLE:**
- ALTER TABLE STU_DETAILS ADD(ADDRESS VARCHAR2(20));
- ALTER TABLE STU_DETAILS MODIFY (NAME VARCHAR2(20));

Data Definition Language (DDL Command)

4. **TRUNCATE:** It is used to delete all the rows from the table and free the space containing the table.

- **Syntax:**
  - TRUNCATE TABLE table_name;
- **Example:**
  - TRUNCATE TABLE EMPLOYEE;

Data Manipulation Language(DML)

- DML commands are used to modify the database. It is responsible for all form of changes in the database.
- The command of DML is not auto-committed that means it can't permanently save all the changes in the database. They can be rollback.
- Here are some commands that come under DML:

1. INSERT
2. UPDATE
3. DELETE

Data Manipulation Language(DML Commands)

1. **INSERT:** The INSERT statement is a SQL query. It is used to insert data into the row of a table.

- **Syntax:**

– INSERT INTO TABLE_NAME (col1, col2, col3,.... col N)
VALUES (value1, value2, value3, ... valueN);
Or
INSERT INTO TABLE_NAME
VALUES (value1, value2, value3, ... valueN);

- **For example:**

– INSERT INTO BOOK (Author, Subject) VALUES ("Shital", "DBMS");

Data Manipulation Language(DML Commands)

2. **UPDATE:** This command is used to update or modify the value of a column in the table.

- **Syntax:**
  - UPDATE table_name SET [column_name1= value1,...column_nameN = value N] [WHERE CONDITION]

- **For example:**
  - UPDATE students SET User_Name = 'Shital WHERE Student_Id = '3'

Data Manipulation Language(DML Commands)

3. **DELETE:** It is used to remove one or more row from a table.

- **Syntax:**
  - DELETE FROM table_name [WHERE condition];
- **For example:**
  - DELETE FROM Book WHERE Author="Shital";

Data Control Language(DCL)

- DCL commands are used to grant and take back authority from any database user.
- Here are some commands that come under DCL:

1. Grant
2. Revoke

Data Control Language(DCL Commands)

1. **Grant:** It is used to give user access privileges to a database.

- **Example**
  - GRANT SELECT, UPDATE ON MY_TABLE TO SOME_USER, ANOTHER_USER;

2. **Revoke:** It is used to take back permissions from the user.

- **Example**
  - REVOKE SELECT, UPDATE ON MY_TABLE FROM USER1, USER2;

Transaction Control Language(TCL)

- TCL commands can only use with DML commands like INSERT, DELETE and UPDATE only.
- These operations are automatically committed in the database that's why they cannot be used while creating tables or dropping them.
- Here are some commands that come under TCL:

1. COMMIT
2. ROLLBACK
3. SAVEPOINT

Transaction Control Language(TCL Commands)

1. **Commit:** Commit command is used to save all the transactions to the database.

- **Syntax:-**COMMIT;
- **Example:**
  - DELETE FROM CUSTOMERS WHERE AGE = 25;
  - COMMIT;

Transaction Control Language(TCL Commands)

2. **Rollback:** Rollback command is used to undo transactions that have not already been saved to the database.

- **Syntax:-**ROLLBACK;
- **Example:**
  - DELETE FROM CUSTOMERS WHERE AGE = 25;
  - ROLLBACK;

Transaction Control Language(TCL Commands)

3. SAVEPOINT: It is used to roll the transaction back to a certain point without rolling back the entire transaction.

- **Syntax:-**SAVEPOINT SAVEPOINT_NAME;

References

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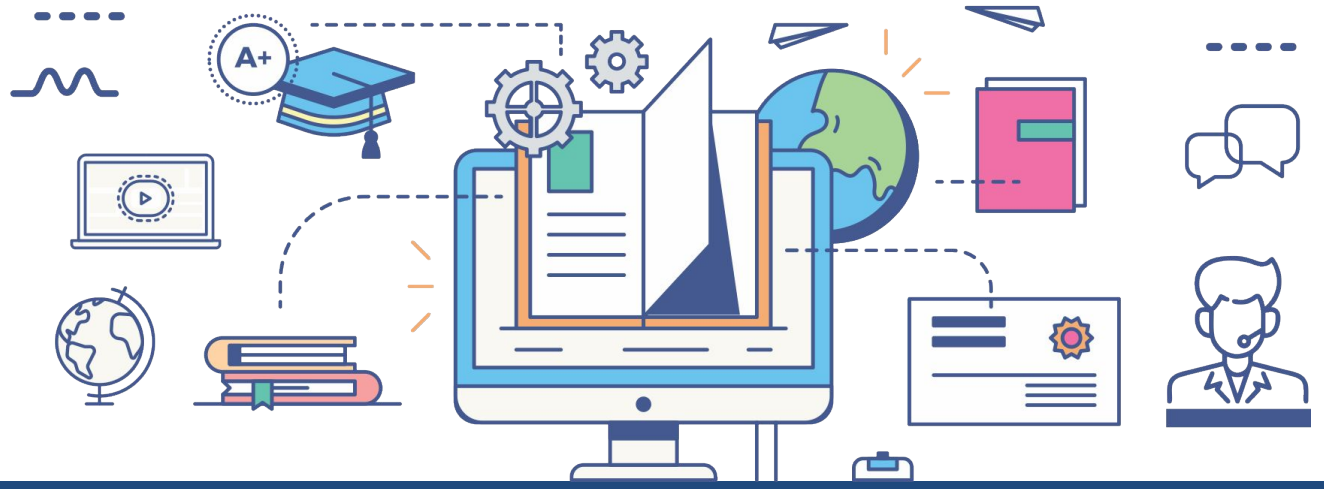

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