**Database Management System Notes**

**SQL | DDL, DQL, DML, DCL and TCL Commands**

Structured Query Language(SQL) as we all know is the database language by the use of which we can perform certain operations on the existing database and also we can use this language to create a database. SQL uses certain commands like Create, Drop, Insert etc. to carry out the required tasks.

**DDL(Data Definition Language) :** DDL or Data Definition Language actually 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 the structure of database objects in the database.

**Examples of DDL commands:**

1. [CREATE](https://www.geeksforgeeks.org/sql-create/) – is used to create the database or its objects (like table, index, function, views, store procedure and triggers).
2. [DROP](https://www.geeksforgeeks.org/sql-drop-truncate/) – is used to delete objects from the database.
3. [ALTER](https://www.geeksforgeeks.org/sql-alter-add-drop-modify/)-is used to alter the structure of the database.
4. [TRUNCATE](https://www.geeksforgeeks.org/sql-drop-truncate/)–is used to remove all records from a table, including all spaces allocated for the records are removed.
5. [COMMENT](https://www.geeksforgeeks.org/sql-comments/) –is used to add comments to the data dictionary
6. [RENAME](https://www.geeksforgeeks.org/sql-alter-rename/)–is used to rename an object existing in the database.

**DQL (Data Query Language) :**

DQL statements are used for performing queries on the data within schema objects. The purpose of DQL Command is to get some schema relation based on the query passed to it.

**Example of DQL:**

* + [SELECT](https://www.geeksforgeeks.org/sql-select-clause/) – is used to retrieve data from the a database.

**DML(Data Manipulation Language) :** The SQL commands that deals with the manipulation of data present in the database belong to DML or Data Manipulation Language and this includes most of the SQL statements.

**Examples of DML:**

* [INSERT](https://www.geeksforgeeks.org/sql-insert-statement/) – is used to insert data into a table.
* [UPDATE](https://www.geeksforgeeks.org/sql-update-statement/) – is used to update existing data within a table.
* [DELETE](https://www.geeksforgeeks.org/sql-delete-statement/) – is used to delete records from a database table.

**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 system.

**Examples of DCL commands:**

* **GRANT**-gives user’s access privileges to database.
* **REVOKE**-withdraw user’s access privileges given by using the GRANT command.

**TCL(transaction Control Language) :**TCL commands deals with the [transaction within the database](https://www.geeksforgeeks.org/sql-transactions/).

**Examples of TCL commands:**

* **COMMIT**– commits a Transaction.
* [ROLLBACK](https://www.geeksforgeeks.org/sql-transactions/)– rollbacks a transaction in case of any error occurs.
* **SAVEPOINT**–sets a savepoint within a transaction.
* **SET TRANSACTION**–specify characteristics for the transaction.

**Instances in DBMS**

In simple words, it is the snapshot of the database taken at a particular moment. It can also be described in more significant way as the collection of the information stored in the database at that particular moment. Instance can also be called as the database state or current set of occurrence due the fact that it is information that is present at the current state

### ****Schema in DBMS****

It is the overall description or the overall design of the database specified during the database design. Important thing to be remembered here is it should not be changed frequently. Basically, it displays the record types(entity),names of data items(attribute) but not the relation among the files

Quickly we can summarize the above things, information/data in database at particular moment is known as instance,physical arrangement of data as it appears in database can be defined as schema, and the logical view of data as it appears to the application can be called as sub schema.