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**SQL ASSIGNMENT 1**

1.What is a relational database management system (RDBMS)? What are the advantages of a database management system over a file system?

Ans:-

           RDMS:-

                     A relational database management system (RDBMS or just RDB) is a common type of database that stores data in tables, so it can be used in relation to other stored datasets. Most databases used by businesses these days are relational databases, as opposed to a flat file or hierarchical database. The majority of current IT systems and applications are based on a relational DBMS.

Advantages:-

**Data redundancy and inconsistency**: Redundancy is the concept of repetition of data i.e. each data may have more than a single copy. The file system cannot control the redundancy of data as each user defines and maintains the needed files for a specific application to run.

2. In a database management system, explain the ACID properties.

Ans:- In the context of transaction processing, the acronym ACID refers to the four key properties of a transaction: **atomicity, consistency, isolation, and durability**. Atomicity. All changes to data are performed as if they are a single operation. That is, all the changes are performed, or none of them are.

3. Explain the many types of query languages used in relational databases. DQL, DML, DCL, and DDL are some examples.

Ans:-

1. DDL – Data Definition Language

2. DQl – Data Query Language

3. DML – Data Manipulation Language

4. DCL – Data Control Language

DDL – Data Definition Language:-

[DDL](https://www.geeksforgeeks.org/features-of-structured-query-language-sql/) 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.DDL is a set of SQL commands used to create, modify, and delete database structures but not data. These commands are normally not used by a general user, who should be accessing the database via an application.

List of DDL commands:

· [**CREATE**](https://www.geeksforgeeks.org/sql-create/): This command is used to create the database or its objects (like table, index, function, views, store procedure, and triggers).

· [**DROP**](https://www.geeksforgeeks.org/sql-drop-truncate/): This command is used to delete objects from the database.

· [**ALTER**](https://www.geeksforgeeks.org/sql-alter-add-drop-modify/)**:**This is used to alter the structure of the database.

· [**TRUNCATE**](https://www.geeksforgeeks.org/sql-drop-truncate/)**:**This is used to remove all records from a table, including all spaces allocated for the records are removed.

· [**COMMENT**](https://www.geeksforgeeks.org/sql-comments/): This is used to add comments to the data dictionary.

· [**RENAME**](https://www.geeksforgeeks.org/sql-alter-rename/)**:**This 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 the DQL Command is to get some schema relation based on the query passed to it. We can define DQL as follows it is a component of SQL statement that allows getting data from the database and imposing order upon it. It includes the SELECT statement. This command allows getting the data out of the database to perform operations with it. When a SELECT is fired against a table or tables the result is compiled into a further temporary table, which is displayed or perhaps received by the program i.e. a front-end.

List of DQL:

· [**SELECT**](https://www.geeksforgeeks.org/sql-select-clause/)**:**It is used to retrieve data from the 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. It is the component of the SQL statement that controls access to data and to the database. Basically, DCL statements are grouped with DML statements.

List of DML commands:

· [**INSERT**](https://www.geeksforgeeks.org/sql-insert-statement/) : It is used to insert data into a table.

· [**UPDATE**](https://www.geeksforgeeks.org/sql-update-statement/)**:** It is used to update existing data within a table.

· [**DELETE**](https://www.geeksforgeeks.org/sql-delete-statement/) : It is used to delete records from a database table.

· [**LOCK:**](https://www.geeksforgeeks.org/sql-lock-table/) Table control concurrency.

**· CALL:**Call a PL/SQL or JAVA subprogram.

**· EXPLAIN PLAN:** It describes the access path to data.

DCL – Data Control Language:-

DCL includes commands such as GRANT and REVOKE which mainly deal with the rights, permissions, and other controls of the database system.

List of  DCL commands:

· [**GRANT:**](https://www.geeksforgeeks.org/mysql-grant-revoke-privileges/)This commandgives users access privileges to the database.

· [**REVOKE:**](https://www.geeksforgeeks.org/difference-between-grant-and-revoke/)This command withdraws the user’s access privileges given by using the GRANT command.

5.What is the difference between the main key and a composite key? Give instances of how primary key and composite are used.

Ans:-

Every row in the table must have a primary key and no two rows can have the same primary key. **Primary key value can never be null nor can be modified or updated.** **Composite Key is a form of the candidate key where a set of columns will uniquely identify every row in the table**.

6.Create a table with a primary key, a column default value, and a column unique constraint in SQL.

Ans:-

**RIMARY KEYs must be UNIQUE, but UNIQUE keys need not be primary**. You can have multiple UNIQUE keys in a table.