**MODULE: 5**

# **DATABASE**

**1.What do you understand By Database**

A database is an organized collection of structured information, or data. Typically stored electronically in a computer system.

- A database is usually controlled by a database management system ( DBMS ).

- Together, the data and the DBMS, along with the applications that are associated with them, are referred to as a database system, often shortened to just database.

- don’t within the most common types of data base in operation today is typically modeled in rows and columns in a series of tables to make processing and data querying efficient.

- the data can be easily accessed, managed, modified, updated, controlled, and organized. Most databases use structured query language (SQL) for writing and querying data.

**2. What is Normalization?**

A normalization is the process of minimizing redundancy(duplicity) from a relation or set of relations.

-Redundancy in relation may cause insertion, deletion and updating anomalies. So, it helps to minimize the redundancy in relations.

Most commonly used normal forms:

1. First normal form
2. Second normal form
3. Third normal form
4. Fourth normal form
5. Fifth normal form
6. Boyce - Codd normal form

**3. What is difference between DBMS and RDBMS?**

|  |  |  |
| --- | --- | --- |
| Parameters | DBMS | RDBMS |
| Storage | Stores data in the form of a file | Stores data in the form of tables |
| Database structure | Hierarchical arrangement of data | Stores data in the form of rows and columns within tables |
| Number of Users | Allows one user at a time | Allows more than one user at a time |
| ACID | Does not use the ACID form of data storage | Uses the ACID model |
| Type of Program | Manages the data in a computer | Maintains the relationship of tables in a database |
| Hardware and Software Needs | Not many hardware and software requirements | Needs a good set of hardware and software requirements |
| Integrity Constraints | Does not support integrity constraints | Supports integrity constrains |
| Normalization | Cannot be normalization | Supports normalization |
| Distributed Databases | No support for distributed databases | Allows distributed databases |
| Data Handling Capacity | Cannot handle large amounts of data | Able to handle high amounts of data |
| Data Access | Individual data access | Easy and straightforward data access |
| Data Relationship | No relationships defined for the data | Defines relationships using foreign keys |
| Data Security | Lack of data security | Good data security due to several log files |

**4. What is MF Cod rule of RDBMS Systems?**

Codd’s twelve rules are a set of thirteen rules ( number zero to twelve ) proposed by Edgar F. Codd, a pioneer of the relational model for databases, designed to define what is required from a database management system in order for it to be considered relational, i.e., a relational database management system(RDBMS).

-They are sometimes referred to as “Codd’s Twelve Commandments”.

**5. What do you understand By Data Redundancy?**

Data redundancy occurs when the same piece of data exists in multiple places, whereas data inconsistency is when the same data exists in different formats in multiple tables.

-Unfortunately, data redundancy can cause data inconsistency, which can provide a company with unreliable and/or meaningless information.

**6. What is DDL Interpreter?**

DDL interpreter DDL expands to Data definition Language. DDL interpreter as the name suggests interprets the DDL statement such as schema definition statement like create, delete, etc.

- the result of this interpretation is a set of a table that contains the meta-data which is stored in the data dictionary.

**7. What is DML Compiler in SQL?**

-A DML (data manipulation language) refers to a computer programming language that allows you to add (insert), delete(delete), and alter(update) data in a database.

- A DML is typically a sublanguage of a larger database language like SQL, with the DML containing some of the language’s operators.

- A DML (data manipulation language) is a group of computer languages that provide commands for manipulating data in databases.

**8. What is SQL Key Constraints writing an Example of SQL Key Constraints**

- SQL constraints are used to specify rules for the data in a table.

- Constraints are used to limit the type of data that can go into a table. This ensures the accuracy and reliability of the data in the table.

- if there is any violation between the constraint and the data action, the action is aborted.

**-** constraints can be column level or table level. Column level Constraints apply to a column, and table level Constraints apply to the whole table.

The following Constraints are commonly used in SQL:

- NOT NULL : ensures that a column cannot have a NULL value.

- UNIQUE : ensures that all values in a column are different.

- PRIMARY KEY : a combination of a NOT NULL and UNIQUE. Uniquely identifies each row in table.

- FOREIGN KEY : prevents actions that would destroy links between tables.

- CHECK : ensures that the values in a column satisfies a specific condition.

- DEFAULT : sets a default value for a column if no value is specified.

- CREATE INDEX : used to create and retrieve data from the database very quickly.

**9.What is save Point? How to create a save Point write a Query?**

- A save point is a special mark inside a transaction that allows all commands that are executed after it was established to be rolled bake.

- Restoring the transaction state to what it was at the time of the save point.

- Syntax for save point command:

- SAVEPOINT SAVEPOINT\_NAME; this command is used only in the creation of SAVEPOINT among all the transactions.

**10.What is trigger and how to create a Trigger in SQL?**

- A trigger is a special type of stored procedure that automatically runs when an event occurs in the database server.

- DML triggers run when a user tries to modify data through a data manipulation language (DML) event.

- DML events are INSERT, UPDATE, or DELETE statements on a table or view.