1. what is Data?

Data, in the context of databases, refers to all the single items that are stored in a database, either individually or as a set. Data in a database is primarily stored in database tables, which are organized into columns that dictate the data types stored therein. So, if the “Customers” table has a column titled “Telephone Number,” whose data type is defined as “Number,” then only numerals can be stored in that column.

2.   what is Information?

Information is created when data is presented in a way that has meaning to the recipient. To turn data into information, it must be processed and organized.

3.   what is Database (DB)?

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.

4.  What is the Relation Database Management System (RDBMS)?

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.

5.  Define the importance of Relation Database Management System (RDBMS)?

Relational databases have the muscle to handle multitudes of data and complex queries. Multiple tables are standard usage for modern databases. The data is often stored in many tables, also called ‘relations. These tables are divided into rows, also called records and columns (fields).

*Manageability*: For starters, an RDB is easy to manipulate. Each table of data can be updated without disrupting the others. You can also share certain sets of data with one group but limit their access to other groups – for example, allowing only the HR department to see confidential information about employees.

*Flexibility:* If you need to update your data, you only have to do it once – no more having to change multiple files one at a time. And it’s simple to extend your database. If your records are growing, a relational database is easily scalable to grow with your data.

*Avoid Errors*: There’s no room for mistakes in a relational database because it’s easy to check for mistakes against data in other parts of the records. And since each piece of information is stored at a single point, you don’t have the problem of old versions clouding the picture.

6.  As we all know that there are Two types of Databases. Relational Database (SQL) AND Non-Relational DB (NO SQL). what is the difference between them.

A relational database is structured, meaning the data is organized in tables. Many times,

the data within these tables have relationships with one another, or dependencies.

A non-relational database is document-oriented, meaning, all information gets stored

in more of a laundry list order. Within a single construct, or document, you will have all of your data listed out.

7. List examples of Relation Database Management System (RDBMS)?

Examples of relational data base system

Oracle

Microsoft SQL Server

PostgreSQL

MySQL

MariaDB

8. List examples of Non-Relational DB(NoSQL)?

MongoDB

Google Cloud Firestore

Cassandra

Redis

Apache HBase

Amazon DynamoDB

9. Define and Describe is Structured Query Language (SQL)?

SQL is short for Structured Query Language, basically meaning a very firm way of sorting through data in the form of tables, columns, and rows

10.  List and Describe each of the different subsets of SQL (Mean DDL, DML, DCL, TCL)?

DDL or Data Definition Language 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: This command is used to create the database or its objects (like table, index, function, views, store procedure, and triggers).

DROP: This command is used to delete objects from the database.

ALTER: This is used to alter the structure of the database.

TRUNCATE: This is used to remove all records from a table, including all spaces allocated for the records are removed.

COMMENT: This is used to add comments to the data dictionary.

RENAME: This is used to rename an object existing in the database.

The SQL commands that deal 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: It is used to insert data into a table.

UPDATE: It is used to update existing data within a table.

DELETE: It is used to delete records from a database table.

LOCK: Table control concurrency.

CALL: Call a PL/SQL or JAVA subprogram.

EXPLAIN PLAN: It describes the access path to data.

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: This command gives users access privileges to the database.

REVOKE: This command withdraws the user’s access privileges given by using the GRANT command.

Transactions group a set of tasks into a single execution unit. Each transaction begins with a specific task and ends when all the tasks in the group successfully complete. If any of the tasks fail, the transaction fails. Therefore, a transaction has only two results: success or failure. You can explore more about transactions here. Hence, the following TCL commands are used to control the execution of a transaction:

COMMIT: Commits a Transaction.

ROLLBACK: Rollbacks a transaction in case of any error occurs.

SAVEPOINT: Sets a save point within a transaction.

SET TRANSACTION: Specifies characteristics for the transaction.

11. what is table in Database (DB)?

Tables are database objects that contain all the data in a database. In tables, data is logically organized in a row-and-column format similar to a spreadsheet. Each row represents a unique record, and each column represents a field in the record.