**Short Answer**

1. **What is Data?**

Data is an information that must be translated into a form that is efficient for the processing. It is a collection of discrete values that convey information, describing quantity, quality, fact, statistics, other basic units of meaning, or simply sequences of symbols that may be further interpreted.

1. **What is Information?**

Information is the set of data that has been organized for direct utilization meaningfully for its receiver. When information is entered into and stored in a computer, it is commonly referred to as data. After processing the data such as formatting and printing, the output data can again be perceived as information.

Example: Timetable, merit List, Report card, headed tables, printed documents, pay slips, receipts, reports…

1. **What is Database (DB)?**

A database is a systematic collection of information that is set up for easy access, management and updating. In computing, a database is an organized collection of data stored and accessed electronically on computer clusters or cloud storage. Databases make the data management quite easy.

It is typically store aggregations of data records or files that contain information, such as online telephone directory, sales transactions, customer data, financials, and product information.

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

A relational database management system (RDBMS) is a collection of programs and capabilities that enables the IT teams and others to create, update, administer and otherwise interact with a relational database. RDBMS is the most popular database system among organizations across the world. It provides a dependable method of storing and retrieving enormous amounts of data while offering a combination of system performance and ease of implementation.

RDBMS stores and provides access to data points that are related to one another. The data stored in the form of tables, with most commercial relational database management systems using Structured Query Language (SQL) to access the database.

Each row in the table is a record with a unique ID called the key. The columns of the table hold attributes of the data, and each record usually has a value for each attribute, making it easy to establish the relationships among data points.

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

A relational database’s main importance is the ability to connect data from different tables to create useful information. This approach helps organizations of all sizes and industries decipher relationships between different sets of data, from various departments, to create meaningful insights. RDBMS are essential for businesses because they offer an efficient way of handling large amounts and multiple types of data. The ability to access data efficiently allows companies to make informed decisions quicker.

1. **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?**

Relational database is a type of database that stores data in tables. Each table stores information about a specific topic, and the tables are linked together by common fields. This type of database is easy to use and understand, making it a good choice for small businesses and individual users. SQL is still widely used for querying relational databases, where data is stored in rows and tables that are linked in various ways.

Non-relational database is a type of database that does not store data in tables. Instead, this type of database uses a hierarchical structure to store data. Non-relational databases are often used by large businesses and organizations that need to manage complex data. NoSQL is a non-relational database, meaning it allows different structures than a SQL database (not rows and columns) and more flexibility to use a format that best fits the data.

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| **Relational Database** | **Non-Relational DB** |
| The data is stored in tables. | It uses hierarchical structure to store data |
| The stored items have relationships with each other | The stored items can be structured, unstructured or semi-structured data. |
| Due to constraints and relationships, data integrity is high | Data integration is difficult |
| It is suitable for medium to large data size | Large amount of data size |
| It is highly reliable database | Its reliability is low |
| The scalability cost is very high | It is highly scalable |

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

Relational database examples include IBM, Oracle, MySQL, SQL Server, Microsoft SQL Server, PostgreSQL, QLite, MariaDB, Informix and Azure SQL.

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

Non-relational database examples are MongoDB, Apache Cassandra, Redis, Couchbase, Apache Hbase and Document DB.

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

Structured Query Language known as SQL or simply “sequel” is a standardized programming language that communicates through databases used to manage relational databases and perform various operations on the data in them. If you want to pull, add, delete, or edit information on a database, the easiest way to do it is through SQL. It’s flexible, powerful, and quick while being accessible and affordable for most businesses.

1. **List and describe each of the different subsets of SQL (Mean DDL, DML, DCL, TCL)?**

SQL commands are mainly categorized into five categories.

DDL – Data Definition Language

DQL – Data Query Language

DML – Data Manipulation Language

DCL – Data Control Language

TCL – Transaction Control Language

DDL – Data Definition Language: consists of the SQL commands that can be used to define the database schema. List of DDL commands:  Create, Drop, Alter, Truncate, Comment and Rename.

DQL – Data Query Language: 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. List of DQL: Select.

DML – Data Manipulation Language: 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. List of DML commands: Insert, Update, Delete, Lock, Call and Explain Plan.

DCL – Data Control Language: 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 and Revoke.

TCL – Transaction Control Language: 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. List of TCL commands: Commit, Rollback, Save Point and Set Transaction.

1. **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 like a spreadsheet. Each row represents a unique record, and each column represents a field in the record.

A relational database is made up of several components, of which the table is most significant.  The database table is where all the data in a database is stored, and without tables, there would not be much use for relational databases.

1. **What is column and Row (tuples) in table?**

A table row contained in a table in the tablespace is known as a tuple. Typically, a table has rows and columns, where the rows represent records, and the columns represent attributes. A tuple is a single row in a database that contains a single record for such a relation.

**Database Table Columns**

Columns are defined to hold a specific type of data, such as dates, numeric, or textual data.  In the simplest of definitions, a column is defined by its name and data type.  The name is used in SQL statements when selecting and ordering data, and the data type is used to validate information stored.

**Database Table Rows**

A database table can contain zero or more rows.  When there are zero, it said to be empty.  There is not practical limit on the number of rows a table can hold; however, remember the table’s primary key may have some influence on this.