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

* A database is an organized collection of data stored in a computer system and usually controlled by a database management system (DBMS). The data in common databases is modeled in tables, making querying and processing efficient.
* The Database is an essential part of our life. We encounter several activities that involve our interaction with databases, for example in the bank, in the railway station, in school, in a grocery store, etc. These are the instances where we need to store a large amount of data in one place and fetch these data easily.

**Q.2 What is Normalization?**

* Normalization is the process of minimizing redundancy from a relation or set of relations. Redundancy in relation may cause insertion, deletion, and update anomalies. So, it helps to minimize the redundancy in relations. Normal forms are used to eliminate or reduce redundancy in database tables.
* In DBMS, normal forms are a series of guidelines that help to ensure that the design of a database is efficient, organized, and free from data anomalies. There are several levels of normalization, each with its own set of guidelines, known as normal forms.
* 1. First Normal Form (1NF)

2. Second Normal Form (2NF)

3. Third Normal Form (3NF)

4. Boyce-Codd Normal Form (BCNF)

5. Fourth Normal Form (4NF)

6. Fifth Normal Form (5NF)

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| --- | --- |
| RDBMS (Relational database management system) | DBMS (database management system) |
| Data stored is in table format | Data stored is in the file format |
| Multiple data elements are accessible together | Individual access of data elements |
| Data in the form of a table are linked together | No connection between data |
| Normalisation is not achievable | There is normalisation |
| Support distributed database | No support for distributed database |
| Data is stored in a large amount | Data stored is a small quantity |
| Here, redundancy of data is reduced with the help of key and indexes in RDBMS | Data redundancy is common |
| RDBMS supports multiple users | DBMS supports a single user |
| It features multiple layers of security while handling data | There is only low security while handling data |
| The software and hardware requirements are higher | The software and hardware requirements are low |
| Oracle, SQL Server. | XML, Microsoft Access. |

**Q.3 What is Difference between DBMS and RDBMS?**

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

* Data redundancy refers to the unnecessary repetition of data within a database or system. This can result in larger storage requirements, slower processing speeds, and increased risk of errors and inconsistencies. Data redundancy can occur when the same piece of data is stored in multiple locations or when multiple data sets contain overlapping or duplicated information. It is important to identify and eliminate data redundancy in order to improve efficiency and data integrity.

**Q.6 What is DDL Interpreter?**

* DDL Interpreter stands for Data Definition Language Interpreter. It is a software program or tool that is used to interpret and execute data definition language commands. DDL commands are used to define the structure and properties of databases, tables, indexes, and other database objects. The DDL Interpreter reads and processes these commands to create, modify, or delete database objects according to the specified definitions. This is commonly used in database management systems to manage the database schema.

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

* DML (Data Manipulation Language) Compiler in SQL is a software tool that is responsible for translating SQL statements that manipulate data, such as INSERT, UPDATE, DELETE, and SELECT queries, into instructions that can be executed by the database management system. The DML compiler optimizes and processes these statements for efficient execution, which involves generating a query execution plan, validating syntax and semantics, and handling any necessary data conversions.

**Q.8 What is SQL Key Constraints? Writing an Example of SQL Key Constraints.**

* SQL key constraints are rules that enforce certain conditions on columns in a database table to ensure data integrity.

**1. NOT NULL** :- The NOT NULL constraint in a column means that the column cannot store NULL values.

**2. UNIQUE** :- The UNIQUE constraint in a column means that the column must have unique value.

**3. PRIMARY KEY** :- The PRIMARY KEY constraint is simply a combination of NOT NULL and UNIQUE constraints. It means that the column value is used to uniquely identify the row.

**4. FOREIGN KEY** :- The FOREIGN KEY constraint in a column is used to reference a record that exists in another table. It means that the values of columns are same but in different table and it links the both tables.

**5. DEFAULT** :- The DEFAULT constraint is used to set the default value if we try to store NULL in a column.

**6. CHECK** :- The CHECK constraint checks the condition before allowing values in a table.

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

* A save point in SQL is a named point in a transaction to which you can roll back in case of an error or issue. It allows you to save the current state of the transaction before making further changes, so that you can rollback to that point if needed.
* To create a save point in SQL, you can use the following query syntax :

SAVEPOINT save\_point\_name;

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

* A trigger in SQL is a special kind of stored procedure that is automatically executed when a specific event occurs in the database. This event can be an INSERT, UPDATE, or DELETE operation on a specific table.
* To create a trigger in SQL, you can use the following syntax :

CREATE TRIGGER trigger\_name

{ BEFORE | AFTER} { INSERT | UPDATE | DELETE }

ON table\_name

FOR EACH ROW

BEGIN

-- Trigger logic here

END;