MODULE-5 DATABASE

Q.1 What do you understand by database ?

Database is one kind of managing system to manage the huge amount of data. It's called database management system.

A database is an organized collection of data. So that it can be easily accessed and managed.

So that computer program can easily and quickly find access the needed data.

One can organize data into table, rows, column, and index .It makes easier to find relevant information.

Database handler create a database.

The main purpose of database is operate a large amount of information by storing, retrieving, and managing data.

Like: Students data, employees salary and attendance detail, hospital patient's data. All have own created database to store details.

2 What is RDBMS ?

RDBMS stands for relational database management System.

It used to manage relational database.

Once you connected with C++ can used to execute sql queries, fetch data, and perform various operations like insertion, deletion, updating, etc., in the database.

When loading huge amount of data there are two things that require optimization:

1. Storage of data

2. Retrieval of data storage.

According to the principle of database system the data is stored in such a way that is acquires lot less space as the Duplicate data has been removed before storage.

Fast retrieval of data along with storing the data in and optimized and systematic manner , it is also important that we retrieve the data quickly when needed.

Q.3 Difference between DBMS and RDBMS.

DBMS : Stands for database management system.

- **Stores data as a file.**
- **Normalization is not present.**
- **It allows one user at a time.**
- **DBMS does not any type of security with regards to data manipulate(access, store, update)**
- **It deals with small data and single user.**
- **Ex : File system, xml etc..**

RDBMS : Relational database management system.

- **Store data as a table form.**
- **Normalization is present.**
- **It allows one or more user at a time.**
- **RDBMS defines the integrity constrained for the purpose of ACID (Atomicity Consistency Isolation and Durability)**
- **It deals with large amount of data and support multiple user.**
- **Ex : MYSQL, ORACLE etc..**

Q.4 What is EF Code Role of RDBMS System ?

It developed by Dr. Edgar Frank Codd .

These rules can be applied on any database system that manages stored data using only its relational capabilities.

Rule 1 : This is foundation rule ::

For any system that is claimed to be a relational database management system (R D B M S) .

Which acts as a base for all the other rules.

Rule 2 : Guaranteed Access Rule ::

Every single data element (value) is guaranteed to be accessible via : table name , primary key and attribute name.

Rule 3 : Systemetic treatment of NULL values :

The null values in a database must be given systemetic and uniform treatment.

NULL can be interpreted as- data is missing , data is unknown , not blank space or data is not applicable.

Rule 4 : Active Online Catelog :

The structure description of the entire database must be stored in an online catalog, which can be accessed by database administrator .user can use the same query language to access the catalog.

Rule 5 : Comprehensive Data sub-language Rule :

A database can only be accessed using a language where changes can be mode data definition, data manipulation and transaction management operation.

Generally every RDBMS uses SQL (STRUCTURE QUERY LANGUAGE).

Rule 6 : View updating Rule :

All the views of database, which can theoretically updated. Must be also be updatable by the system.

EX: Every database may have different views like account view/sales view/customer view.

Rule 7 : High level insert, update, and delete Rule

A database (RDBMS) must support high level insertion, update and delete.

It must also support union, intersection and minus operation to sets of data records.

8 : Physical data independence :

The data stored in a database must be independent of the application that access the database. Any change in the physical structure of database must not have any impact how the data is being accessed by external applications.

Ex : any physical changes made to website should not effect to user accessing it.

9 : Logical Data independence :

The logical data in a database must be independent of it's user's view (application) that is , any changes made at logical data must not affect the application using it.

EX : If two tables are merged or split, there should be no impact on the application.

10 Integrity Independency :

Any data inserted in the table should maintain its integrity, no changes in its value.

Ex : If 10 is inserted in table, no changes in its value should be there.

11 Distribution Independency :

The end use must have not able to see that the data is distributade over various location. Users should always get the impression that the data is located at one site only.

The rule has been regarded as the foundation of distributed database system.

EX : Users may access website from different locations.

12 Non-Subversion Rule :

If a system has an interface that provides access to low level records, then the interface must not be able to subvert the system and bypass security and integrity constrains (that is use only SQL)

Q 5 What do you understand by data redundancy?

Data redundancy ensures an organization can provide continued operation or service in the event something happens to its data-for ex. In the case of data corruption or data loss.

Data redundancy can occur within an organization intentionally or accidentally.

If done intentionally, the same data is kept in different locations with the organization making a conscious effort to protect it and ensure its consistency.

This data is often used for backups or disaster recovery.

Redundant information that is unneeded or duplicate.

Data needs to be stored two or more places for it to be considered redundant. If the primary data becomes corrupted, or if the hard drive the data in fails, then the extra set of data provides a fail-safe the organization can shift to.

Q 6 What is DDL interpreter ?

DDL stands for data definition language.

It used to define the schema or structure of database.

DDL is set of commands which are used to create, update or delete structure of data base.

COMMAND	DESCRIPTION
CREATE	Create a new table, a view of table, or other objects in database.
ALTER	Modifies an existing database object, such as a table.
DROP	Delete an entire table.

Q 7 What is DML compiler in SQL ?

DML stands for data manipulation language.

DML is set of commands which are used to Insert, update or delete structure of records in a database.

COMMAND	DESCRIPTION
INSERT	Creates a record.
UPDATE	Modifies records.
DELETE	Delete records.

8 What is SQL key constrains writing an example of SQL key constrains.

SQL key constrains are rules applied to columns in a database table to enforce data integrity and ensure the uniqueness or integrity of data. There are different type of key constrains.

1.Primary key :

This constrains uniquely identifies each record in a table. It must contain unique values and cannot contain NULL values.

Example :

```
CREATE TABLE employee
(  Emp_Id INT PRIMARY key,
Firstname VARCHAR(50), lastname VARCHAR(50)
);
```

2. Unique key :

Similar to primary key constrains, but it allows for NULL values. It ensure that all values in a column are unique.

Example :

```
CREATE TABLE students
( studentID INT UNIQUE,
Firstname VARCHAR(50), lastname VARCHAR (50)
);
```

3. Foreign key constrains :

Ensures referential integrity by enforcing a link between in two tables. The foreign key column in one table must match a primary key value in another table, or be NULL if allowed.

```
CREATE TABLE order
( order_id INT PRIMARY key,
Product_id INT, quantity INT, FOREIGN key (product_id)
REFERENCE products (product_id)
);
```

9 What is save point? How to create a save point write a query?

SAVEPOINT is a one type of transaction control.

It creates points within the group of the transaction in which to ROLLBACK.

A SAVE POINT is a point in a transaction when you can roll the transaction back to a certain point without rolling back the entire transaction.

SYNTAX: SAVEPOINT SAVEPOINT_ NAME ;

These commands only in the certain of a SAVEPOINT among all the transactional statements. The ROLLBACK command is used to undo a group of transaction.

10 What is trigger and how to create a trigger in sql ?

A trigger is a stored procedure in a database which automatically invokes whenever a special event in the database occur.

Trigger can invoked when a row is insert into a specified table.

Trigger can be defined on the table, view, schema or database which the event is associated.

Syntax :

Create trigger [trigger_name] [before | after]

{ insert | update | delete} on [table_name] [for each row][trigger_body]