**Database Assignment**

**Basics of Database**

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

Ans.) A database is an organized collection of structured information/data typically stored electronically in a computer system.

1. **What is Normalization?**

Ans.) Normalization is the process of organizing a data in database. It includes creating tables and establishing relationships between those tables.

1. **What is Difference between DBMS and RDBMS?**

Ans.)

|  |  |
| --- | --- |
| Database Management System | Relational Database Management System |
| DBMS stores data as file. | RDBMS stores data in tabular form. |
| Data elements need to access individually. | Multiple data elements can be accessed at the same time. |
| Data redundancy is common in this model. | Keys and indexes do not allow Data redundancy. |
| Security is less | More security measures provided. |
| It deals with small quantity of data. | It deals with large amount of data. |

1. **What is EF Cod Rule of RDBMS Systems?**

Ans.) Dr Edgar F Codd, after his extensive research on the Relational Model of database systems, came up with twelve rules of his own, which according to him, a database must obey in order to be regarded as a true relational database.

Rules:-

**Rule:-1:- Information Rule**

--> The data stored in a database, may it be user data or metadata, must be a value of some table cell. Everything in a database must be stored in a table format

**Rule:-2 Guaranteed Access Rule**

--> Every single data element (value) is guaranteed to be accessible logically with a combination of table-name, primary key and attribute-name.

No other means, such as pointers, can be used to access data.

**Rule 3:- Systematic Treatment of NULL values**

--> The NULL values in a database must be given a systematic and uniform treatment. This is a very important rule because a NULL can be interpreted as one of the following - data is missing, data is not known, or data is not applicable.

**Rule 4:- Active Online Catalog**

--> The structure description of the entire database must be stored in an online catalog, known as data dictionary, which can be accessed by authorized users. Users can use the same query language to access the catalog which they use to access the database itself.

**Rule 5:- Comprehensive Data Sub-Language Rule**

--> A crucial component of any efficient database system is its ability to offer an easily understandable data manipulation language (DML) that facilitates defining, querying, and modifying information within the database.

**Rule 6:- View Updating Rule**

--> All the views of a database, which can theoretically be updated, must also be updatable by the system.

**Rule 7:- High-Level Insert, Update and Delete Rule**

--> A database must support high-level insertion, updation and deletion.This must not be limited to a single row, that is it must also support union, intersection and minus operations to yield sets of data records.

**Rule 8:- Physical Data Independence**

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

**Rule 9:- Logical Data Independence**

--> The Logical data in a database must be independent of its user's view. Any change in logical data must not affect the applications using it. For Example, if two tables are merged or one is split into two different tables, there should be no impact or change on the user application. This is one of the most difficult rule to apply.

**Rule 10:- Integrity Independence**

--> A database must be independent of the application that uses it. All its integrity constraints can be independently modified without the need of any change in the application. This rule makes a database independent of the front-end application and its interface.

**Rule 11:- Distribution Independence**

--> The end-user must not be able to see that the data is distributed over various locations. Users should always get the impression that the data is located at one site only. This rule has been regarded as the foundation of the distributed database systems.

**Rule 12:- Non-Subversion Rule**

--> If a system has an interface that provides access to low-levels records, then the interface must not be able to subvert the system and bypass security and integrity constraints.

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

* Ans.) Data redundancy is when an organization stores the same data in multiple places at the same time.
* It may occur within many fields in one database or across multiple technological platforms.
* 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.

1. **What is DDL Interpreter?**

Ans.) DDL Interpreter interprets the DDL (Data Definition Language) Instructions and stores the record in a data dictionary

Data Definition Language (DDL) is a subset of SQL. It is a language for describing data and its relationships in a database.

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

Ans.) 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.

Example:- INSERT, UPDATE, DELETE

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

Ans.) 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.

-->The PRIMARY KEY constraints uniquely identifies each record in a table. Primary keys must contain UINQUE values, and cannot contain NULL values.

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

Ans.) ---> A SAVEPOINT is a point in a transaction in which you can roll the transaction back to a certain point without rolling back the entire transaction.

---> Syntax for Savepoint command:- SAVEPOINT SAVEPOINT\_NAME;

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

Ans.) A trigger in SQL is a stored procedure that automatically executes in response to a specific event, such as an INSERT, UPDATE, DELETE, or TRUNCATE statement, on a specified table or view.

Syntax:-

CREATE TRIGGER [schema\_name.]trigger\_name

ON table\_name

AFTER {[INSERT],[UPDATE],[DELETE]}

[NOT FOR REPLICATION]

AS

{sql\_statements}