**SQL Assignment 1**

1. **What is a relational database management system (RDBMS)? What are the advantages of a database management system over a file system?**

Ans. Relational Database Management System is a program used by various teams in an organisation to create, update, administer and interact with relational databases.

Advantages of DBMS over a file system are:

* 1. Multiple people can work on same table as same time
  2. Versioning of the changes made can be done by Database administrators
  3. Access can be granted to people in an easy way who are authorized

1. **In a database management system, explain the ACID properties.**

Ans. ACID properties stands for Atomicity, Consistency, Isolation & Durability.

* 1. Atomicity: The entire transaction will happen wither at once or doesn’t happen at al. (i.e., No partial update is there)
  2. Consistency: The database is consistent before and after the transaction
  3. Isolation: All different transactions occur independently of each other
  4. Durability: If the transaction is successful, the changes are saved even if system failure occurs.

1. **Explain the concept of normalization.**

Ans. Normalization is the process of removing the data redundancy & enhance data integrity in the table. Normalization has 4 forms:

* 1. **1st NF Form:** It involves removing repeating groups from the table, creating separate table for each set of related data & identifying each set of related data with a Primary Key.
  2. **2nd NF Form:** It must be in 1st NF & table should not contain partial dependency.
  3. **3rd NF Form:** It must be in 2nd NF. There should be no transitive dependency for non-prime attributes i.e., all the non-prime attributes should depend on prime attributes only.
  4. **Boyce Codd (BC) NF**

1. **Explain the many types of query languages used in relational databases. DQL, DML, DCL, and DDL are some examples.**

Ans. There are mainly 4 types of query languages used in relational databases which are:

* 1. **DQL (Data Query Language):** DQL statements 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.
  2. **DDL (Data Definition Language):** 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. It mainly consists of Create, Alter & Drop commands.
  3. **DML (Data Manipulation Language):** The SQL commands that deals with the manipulation of data present in the database belong to DML or Data Manipulation Language and this includes INSERT, UPDATE & DELETE commands.
  4. **DCL (Data Control Language):** Data Control Language (or DCL) consists of statements that control security and concurrent access to table data.

1. **What is the difference between the main key and a composite key? Give instances of how primary key and composite are used.**

**Ans.** A primary key uniquely identifies each record in a database table whereas a composite key is a combination of two or more columns in a table that can be used to uniquely identify each row in the table when the columns are combined uniqueness is guaranteed, but when it taken individually it does not guarantee uniqueness.

1. **Create a table with a primary key, a column default value, and a column unique constraint in SQL.**

Ans.

create table emp\_info

(

emp\_id int not null,

full\_name varchar(50),

salary int DEFAULT 25000,

age int,

PRIMARY KEY (emp\_id)

)