**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.

A relational database management system (RDBMS) is a collection of programs and capabilities that enable IT teams and others to create, update, administer and otherwise interact with a relational database.

Advantages of database management system over a file system are

* No redundant data
* Data Consistency and Integrity
* Data Security
* Privacy
* Easy access to data
* Easy Recovery
* Flexible

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

Ans.

A transaction is a single logical unit of work which accesses and possibly modifies the contents of a database. Transactions access data using read and write operations.

In order to maintain consistency in a database, before and after the transaction, certain properties are followed. These are called ACID properties.

* Atomicity = The entire transaction takes place at once or doesn’t happen at all.
* Consistency = The database must be consistent before and after the transaction.
* Isolation = Multiple Transactions occur independently without interference.
* Durability = The changes of a successful transaction occurs even if the system failure occurs.

1. Explain the concept of normalization.

Ans.

Normalization is the process of organizing data in a database. This includes creating tables and establishing relationships between those tables according to rules designed both to protect the data and to make the database more flexible by eliminating redundancy and inconsistent dependency.

* Fist Normal Form
* Eliminate repeating groups in individual tables.
* Create a separate table for each set of related data.
* Identify each set of related data with a primary key.
* Second Normal Form
* Create separate tables for sets of values that apply to multiple records.
* Relate these tables with a foreign key.
* Third Normal Form
* Eliminate fields that do not depend on the key.

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

Ans.

* 1. DDL – Data Definition Language

Ex- Create, Drop, Alter and Truncate

* 1. DML- Data Manipulation Language

Ex- Insert , Update, Delete , Call, Explain Call, Lock

* 1. TCL – Transaction Control Language

Ex- Commit, Savepoint, Rollback, Set Transaction, Set Constraint

* 1. DQL – Data Query Language

Ex- Select

* 1. DCL – Data Control Language

Ex-Grant, Revoke

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

Ans. Primary key is that column of the table whose every row data is uniquely identified. ... Composite Key is a form of the candidate key where a set of columns will uniquely identify every row in the table.

In some cases, the homes may only be uniquely identified by a mortgage number — all other data (towns, streets, house numbers) is not unique to each record. The mortgage number would be the primary key. Suppose, however, that an MLS realtor’s listing technology assigns its own unique numbers to the records in the table.

Then, there will be two keys that developers might identify as “candidate keys”:

The mortgage number.

The MLS number.

One of them will qualify as the “primary key” in what some would consider an arbitrary way.

A composite key, then, would be the combination of two keys.

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

Ans. Use Database

Create Table Employee(

Emp\_id INT NOT NULL UNIQUE,

name varchar (20),

Status varchar (20) Default ‘Hired’);