Tutorial Sheet No. 1

DBMS ECSE206L

Short answer type questions.

Q1. Top 10 open-source database management systems.

Ans: https://www.goodfirms.co/blog/top-10-free-and-open-source-database-management-software-solutions

Q 2. What is meant by a Database?

Ans: In simple terms, Database is a collection of data in some organized way to facilitate its user's to easily access, manage and upload the data.

Q3. What is DBMS used for?

Ans: DBMS, commonly known as Database Management System, is an application system whose main purpose revolves around the data. This is a system that allows its users to store the data, define it, retrieve it and update the information about the data inside the database.

Q 4. Why is the use of DBMS recommended? Explain by listing some of its major advantages.

Ans: Some of the major advantages of DBMS are as follows:

Controlled Redundancy: DBMS supports a mechanism to control redundancy of data inside the database by integrating all the data into a single database and as data is stored at only one place, the duplicity of data does not happen.

Data Sharing: Sharing of data among multiple users simultaneously can also be done in DBMS as the same database will be shared among all the users and by different application programs.

Backup and Recovery Facility: DBMS minimizes the pain of creating the backup of data again and again by providing a feature of 'backup and recovery' which automatically creates the data backup and restores the data whenever required.

Enforcement of Integrity Constraints: Integrity Constraints are very important to be enforced on the data so that the refined data after putting some constraints are stored in the database and this is followed by DBMS.

Independence of Data: It simply means that you can change the structure of the data without affecting the structure of any of the application programs.

Q 5. What are the different types of languages that are available in the DBMS?

Ans: Basically, there are 3 types of languages in the DBMS as mentioned below:

DDL: DDL is Data Definition Language which is used to define the database and schema structure by using some set of SQL Queries like CREATE, ALTER, TRUNCATE, DROP and RENAME.

DCL: DCL is Data Control Language which is used to control the access of the users inside the database by using some set of SQL Queries like GRANT and REVOKE.

DML: DML is Data Manipulation Language which is used to do some manipulations in the database like Insertion, Deletion, etc. by using some set of SQL Queries like SELECT, INSERT, DELETE and UPDATE.

Q 6. What is Data Model?

Ans. A collection of conceptual tools for describing data, data relationships data semantics and constraints.

Q 7. What is RDBMS?

Ans: RDBMS is the Relational Database Management System which contains data in the form of the tables and data is accessed on the basis of the common fields among the tables.

Q 8. What is the purpose of SQL?

Ans: SQL stands for Structured Query Language whose main purpose is to interact with the relational databases in the form of inserting and updating/modifying the data in the database.

Q 9. Explain the concepts of a Primary key and Foreign Key.

Ans: Primary Key is used to uniquely identify the records in a database table while Foreign Key is mainly used to link two or more tables together as this is a particular field(s) in one of the database tables which are the primary key of some other table.

Example: There are 2 tables – Employee and Department and both have one common field/column as 'ID' where ID is the primary key of the Employee table while this is the foreign key for the Department table.

Q 10. What is an Entity?

Ans. An entity is a thing or object of importance about which data must be captured.

Q 11. What is E-R model in the DBMS?

Ans: E-R model is known as an Entity-Relationship model in the DBMS which is based on the concept of the Entities and the relationship that exists among these entities.

Q 12. What is Object Oriented model?

This model is based on collection of objects. An object contains values stored in instance variables with in the object. An object also contains bodies of code that operate on the object. These bodies of code are called methods. Objects that contain same types of values and the same methods are grouped together into classes.

Q 13. How do you communicate with an RDBMS?

Ans: You communicate with an RDBMS using Structured Query Language (SQL)

Q 14. What are the different type of relationships in the DBMS?

Ans: Relationships in DBMS depicts an association between the tables. Different types of relationships are as following.

One-to-One: This basically states that there should be a one-to-one relationship between the tables i.e. there should be one record in both the tables. Eg: Among a married couple, both wife and husband can have only one spouse.

One-to-Many: This states that there can be many relationships for one i.e. a primary key table hold only one record which can have many, one or none records in the related table. Eg: A Mother can have many children.

Many-to-Many: This states that both the tables can be related to many other tables. Eg: One can have many siblings and so do they have.

Q 15. What is Enterprise Resource Planning (ERP), and what kind of a database is used in an ERP application?

Ans. Enterprise Resource Planning (ERP) is an information system used in manufacturing companies and includes sales, inventory, production planning, purchasing and other business functions. An ERP system typically uses a multiuser database.

Q 16. What is difference between SQL and SQL SERVER?

Ans. SQL is a language that provides an interface to RDBMS, developed by IBM. SQL SERVER is a RDBMS just like Oracle, DB2.

Q 17. What is schema?

Ans. The description of a data base is called the database schema, which is specified during database design and is not expected to change frequently. A displayed schema is called schema diagram. We call each object in the schema as schema construct.

Q 18. What is DBMS instance?

Ans. The data stored in database at a particular moment of time is called instance of database. Database schema defines the variable declarations in tables that belong to a particular database, the value of these variables at a moment of time is called the instance of that database.

Q 19. Describe the three levels of data abstraction?

Ans. There are three levels of abstraction:

Physical level: The lowest level of abstraction describes how data are stored.

Logical level: The next higher level of abstraction, describes what data are stored in database and what relationship among those data.

View level: The highest level of abstraction describes only part of entire database.