CS6106 - DATA BASE MANAGEMENT SYSTEMS

(Week 3 – 28.02.2024)

OBSERVATION & EXECUTION

DDL & DML Commands

Data Definition Language (DDL)

DDL, which stands for Data Definition Language, is a subset of SQL (Structured Query Language) commands used to define and modify the database structure. These commands are used to create, alter, and delete database objects like tables, indexes, and schemas. DDL commands play a crucial role in defining the database schema.

The primary **DDL commands** in SQL include:

1. **CREATE**: This command is used to create a new database object. For example, creating a new table, a view, or a database.

   - Syntax for creating a table:
     CREATE TABLE table_name (column1 datatype, column2 datatype, ...);

   DESCRIBE: desc or **describe** command shows the **structure** of the table which include the **name** of the column, the **data type** of the column and the **nullability** which means, that column can contain null values or not.

   - Syntax:

     DESC table_name
      (or)
     DESCRIBE table_name

2. **ALTER**: This command is used to modify an existing database object, such as adding, deleting, or modifying columns in an existing table.

   - Syntax for adding a column in a table:
     ALTER TABLE table_name ADD column_name datatype;

- Syntax for modifying a column in a table:
  ALTER TABLE table_name MODIFY COLUMN column_name datatype;

3. **DROP**: This command is used to delete an existing database object like a table, a view, or other objects.

   - Syntax for dropping a table:
     DROP TABLE table_name;

4. **TRUNCATE**: This command is used to delete all data from a table, but the structure of the table remains. It's a fast way to clear large data from a table.

   - Syntax:
     TRUNCATE TABLE table_name;

5. **COMMENT**: Used to add comments to the data dictionary.

   - Syntax:
     COMMENT ON TABLE table_name IS 'This is a comment.';

6. **RENAME**: Used to rename an existing database object.

   - Syntax:
     RENAME TABLE old_table_name TO new_table_name;

Data Manipulation Language (DML)
Data Manipulation Language (DML) is a subset of SQL commands used for adding (inserting), deleting, and modifying (updating) data in a database. DML commands are crucial for managing the data within the tables of a database.

The primary **DML commands** in SQL include:

1. **INSERT**: This command is used to add new rows (records) to a table.

   - Syntax:

     INSERT INTO table_name (column1, column2, column3, ...) VALUES (value1, value2, value3, ...);

2. **UPDATE**: This command is used to modify the existing records in a table. The WHERE clause specifies which records should be updated. Without it, all records in the table will be updated.

   - Syntax:
     UPDATE table_name SET column1 = value1, column2 = value2, ... WHERE condition;

3. **DELETE**: This command is used to remove one or more rows from a table. Like with UPDATE, the WHERE clause specifies which rows should be deleted. Omitting the WHERE clause will result in all rows being deleted.

   - Syntax:

     DELETE FROM table_name WHERE condition;

4. **SELECT**: Although often categorized separately, the SELECT command is sometimes considered part of DML as it is used to retrieve data from the database. The SELECT statement is used to query and extract data from a table, which can then be used for various purposes.

   - Syntax:

     SELECT * FROM table_name;

     SELECT column1, column2, ... FROM table_name WHERE condition;

DDL Questions

Note: Write the corresponding syntax and the output for the below questions.

1. **CREATE**
   a. **Create a table name "Employee". Column name and datatype are shown below.**

Table Name: Employee

S.NO.	Column Name	Datatype	Key	
1	Employee ID	Integer	Primary Key	
2	First name	Varchar(50)		
3	Last name	Varchar(50)		
4	Department	Varchar(50)		

   b. **Describe the structure of the Employee.**

2. **ALTER Command**
   a. **By using Alter command, rename the existing table name as "Emp".**

   b. **Add a new columns using alter command in the existing table.**

Table Name: Emp

S.NO.	Column Name	Datatype	Key
1	Employee ID	Integer	Primary Key
2	First name	Varchar(50)	
3	Last name	Varchar(50)	
4	Department	Varchar(50)	
5	Email_id	Varchar(100)	
6	Salary	Integer	

   c. **By using Alter command, drop the column name "Email_id".**
   d. **Describe the structure of the Emp.**

DML Questions:

3. INSERT
a. Use the Insert syntax and add the values in the corresponding fields.

S.NO.	Employee ID	First name	Last name	Department	Salary
1	101	Sri	Ram	Engineer	33000
2	102	John	Smith	Sales	15000
3	103	John	Doe	HR	40000
4	104	Robert	Dan	Finance	35000
5	105	Milton	Lewis	Sales	17000
6	106	Jorge	Ivan	Manager	50000
7	107	Robin	Sandy	HR	40000

4. SELECT
a. Select all columns in your employee table
b. Select all columns for everyone with a salary over 30000
c. Select first name, last name, Salary for everyone whose department equals to HR.
d. Select all columns for everyone whose ends in "n"