**Task # 3**

What is SQL?

Structured query language is a programming language for storing, processing, and manipulating information in a relational database. A relational database stores information in tabular form, with rows and columns representing different data attributes and the various relationships between the data values. SQL is a standardized language used to interact with databases and allows users to retrieve, insert, update, and delete data from a database.

SQL Commands:

SQL commands are instructions. It is used to communicate with the database. It is also used to perform specific tasks, functions and queries a data.

Types of SQL Commands:

1. DDL:

DDL is an abbreviation of Data Definition Language, which deals with database schemas and descriptions, of how the data should reside in the database.

Here are some commands that comes under DDL:

* CREATE: To create a database and its objects like (table, index, views, store procedure, function, and triggers)

*Syntax:* CREATE TABLE table\_name (column\_name DATATYPE […]);

*Example:* CREATE TABLE Employee (Name VARCHAR(20), Email VARCHAR(100), DOB DATE);

* ALTER: It is used to alter the structure of the database. This change could be either to modify the characteristics of an existing attribute or probably to add a new attribute.

*Syntax:* To add a new column in the table

ALTER TABLE table\_name ADD (column\_name COLUMN\_DEFINITION);

*Example:* ALTER TABLE student\_details ADD (address VARCHAR (50));

*Syntax:* To modify existing column in the table

ALTER TABLE MODIFY (COLUMN\_DEFINITION);

*Example:* ALTER TABLE student\_details MODIFY (Name VARCHAR (20));

* DROP: It is use to delete both the structure and record stored in the table.

*Syntax:* DROP TABLE table\_name;

*Example:* DROP TABLE Employee;

* TRUNCATE: It is used to delete all the rows from the table and free the space containing the table.

*Syntax:* TRUNCATE TABLE table\_name;

*Example:* TRUNCATE TABLE Employee;

1. DML:

DML is an abbreviation of Data Manipulation Language, which deals with data manipulation. It is used to store, modify, delete, and update data in a database.

Here are some commands that comes under DML:

* INSERT: It is used to insert data into the row of a table

*Syntax:* INSERT INTO table\_name (col1, col2, …, colN) VALUES (value1, value2, …, valueN);

*Example:* INSERT INTO Employee (name, age) VALUES (“Ali”,21);

* UPDATE: It updates the existing data within a table

*Syntax:* UPDATE table\_name SET col1= value1, col2= value2, …, colN= valueN WHERE condition;

*Example:* UPDATE Employee SET salary= 10000 WHERE status = ‘freshie’;

* DELETE: It is used to remove one or more rows from a table.

*Syntax:* DELETE FROM table\_name WHERE condition;

*Example:* DELETE FROM Employee WHERE status = ‘retired’;

1. DCL:

DCL is the abbreviation of Data Control Language which includes commands that are mostly concerned with rights, permissions and other controls of the database systems.

Here are some commands that comes under DCL:

* GRANT: It allows users access privileges to the database.

*Syntax:* GRANT privileges-names ON object TO user;

*Example:* GRANT SELECT ON Employee TO ‘aliali@gmail.com’;

* REVOKE: It withdraws users access privileges given by using the GRANT command

*Syntax:* REVOKE privilege\_name ON object\_name;

*Example:* REVOKE SELECT ON Employee FROM ‘aliali@gmail.com’;

1. DQL:

DQL is an abbreviation of Data Query Language. It is used to fetch the data from the database.

Here is the command that comes under DCL:

* SELECT: It is used to retrieve or fetch data from a database we can fetch either the entire table or according to some specified rules.

*Syntax:* To fetch the entire table or all the fields in the table:

SELECT \* FROM table\_name;

*Example*: SELECT \* FROM Employee;

*Syntax:* To fetch some specific fields from the table:

SELECT col1, col2, …, colN FROM table\_name;

*Example*: SELECT name, age, status FROM Employee;

1. TCL:

TCL is an abbreviation of Transaction Control language which deals with a transaction within a database.

Here are some commands that comes under DCL:

* COMMIT: It is used to save all the transactions to the database.

*Syntax:* COMMIT;

*Example*: DELETE FROM Employee WHERE status= ‘retired’ COMMIT;

* ROLLBACK: It is used to undo transactions that have not already been saved to the database because of any error.

*Syntax:* ROLLBACK;

*Example*: DELETE FROM Employee WHERE status= ‘retired’ ROLLBACK;

* SAVEPOINT: 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:* SAVEPOINT SAVEPOINT\_NAME;