DDL, DML and DRL Operations in SQL

DATA DEFINITION LANGUAGE (DDL)

DDL is used to define and manage the structure of the database objects. It includes operations such as creating, altering, and dropping database objects like tables, indexes, views, and constraints.

Common DDL statements include:

CREATE: Used to create a new database object, such as a table.

ALTER: Used to modify the structure of an existing database object.

DROP: Used to delete a database object.

TRUNCATE: Used to remove all data from a table while preserving its structure.

CREATE INDEX: Used to create an index on one or more columns of a table.

EXAMPLE

```sql
-- DDL operation to create a table
CREATE TABLE employees (
  id INT PRIMARY KEY,
  name VARCHAR(100),
  department VARCHAR(100)
);
```

DATA MANIPULATION LANGUAGE (DML)

DML is used to manipulate data within the database objects. It involves operations such as inserting, updating, deleting, and retrieving data from tables.

Common DML statements include:

INSERT: Used to insert new records into a table.

UPDATE: Used to modify existing records in a table.

DELETE: Used to remove records from a table.

MERGE: Used to perform insert, update, or delete operations based on a condition.

EXAMPLE

```sql
-- DML operations to insert, update, and delete data
INSERT INTO employees (id, name, department) VALUES (1, 'John Doe', 'HR');
UPDATE employees SET department = 'Finance' WHERE id = 1;
DELETE FROM employees WHERE id = 1;
```

DATA RETRIEVAL LANGUAGE (DRL)

DRL is used to retrieve data from the database objects. It primarily involves querying the database to extract information. The most common DRL statement is:

SELECT: Used to retrieve data from one or more tables based on specified conditions. It allows filtering, sorting, joining, aggregating, and performing calculations on the data.

EXAMPLE

```
-- DRL operation to retrieve data
SELECT * FROM employees WHERE department = 'Finance';
```