DDL (Data Definition Language) commands in SQL are used to define, modify, and manage the structure of database objects like tables, indexes, and constraints. Here are the most common DDL commands along with explanations and examples:

CREATE:

Purpose: Creates a new database object like a table, index, or view.

Syntax: `CREATE TABLE table_name (column1 datatype, column2 datatype, ...);`

Example:

sqlCopy code

```
CREATE TABLE employees ( emp_id INT, emp_name VARCHAR(50), emp_salary DECIMAL(10,2) );
```

ALTER:

Purpose: Modifies the structure of an existing database object.

Syntax: `ALTER TABLE table_name ADD column_name datatype;`

Example:

sqlCopy code

```
ALTER TABLE employees ADD emp_age INT;
```

DROP:

Purpose: Deletes a database object like a table or index.

Syntax: `DROP TABLE table_name;`

Example:

sqlCopy code

```
DROP TABLE employees;
```

TRUNCATE:

Purpose: Deletes all records from a table without removing the table structure.

Syntax: `TRUNCATE TABLE table_name;`

Example:

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```
TRUNCATE TABLE employees;
```

RENAME:

Purpose: Renames a database object.

Syntax: `ALTER TABLE table_name RENAME TO new_table_name;`

Example:

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```
ALTER TABLE employees RENAME TO staff;
```

COMMENT:

Purpose: Adds comments to a database object for documentation purposes.

Syntax: `COMMENT ON TABLE table_name IS 'comment';`

Example:

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```
COMMENT ON TABLE employees IS 'Contains information about company employees.';
```

These DDL commands are essential for defining and managing the structure of database objects in SQL. They allow users to create, modify, and delete tables, indexes, and constraints to organize and manipulate data effectively.

DML (Data Manipulation Language) commands in SQL are used to manipulate data stored in the database. Here are the most common DML commands along with explanations and examples:

SELECT:

Purpose: Retrieves data from one or more tables based on specified criteria.

Syntax: `SELECT column1, column2 FROM table_name WHERE condition;`

Example:

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```sql
SELECT emp_name, emp_salary FROM employees WHERE emp_age > 30;
```

INSERT:

Purpose: Inserts new records into a table.

Syntax: `INSERT INTO table_name (column1, column2) VALUES (value1, value2);`

Example:

sqlCopy code

```sql
INSERT INTO employees (emp_name, emp_salary) VALUES ('John Doe', 50000);
```

UPDATE:

Purpose: Modifies existing records in a table.

Syntax: `UPDATE table_name SET column1 = value1 WHERE condition;`

Example:

sqlCopy code

```sql
UPDATE employees SET emp_salary = 55000 WHERE emp_id = 101;
```

DELETE:

Purpose: Deletes records from a table based on specified criteria.

Syntax: `DELETE FROM table_name WHERE condition;`

Example:

sqlCopy code

```sql
DELETE FROM employees WHERE emp_id = 101;
```

MERGE:

Purpose: Performs an INSERT, UPDATE, or DELETE operation on a target table based on the results of a join with a source table.

Syntax: `MERGE INTO target_table USING source_table ON condition WHEN MATCHED THEN UPDATE SET column1 = value1 WHEN NOT MATCHED THEN INSERT (column1, column2) VALUES (value1, value2);`

Example:

sqlCopy code

```sql
MERGE INTO employees_target USING employees_source ON employees_target.emp_id =
employees_source.emp_id WHEN MATCHED THEN UPDATE SET employees_target.emp_salary =
employees_source.emp_salary WHEN NOT MATCHED THEN INSERT (emp_id, emp_name, emp_salary)
VALUES (employees_source.emp_id, employees_source.emp_name, employees_source.emp_salary);
```

These DML commands are essential for manipulating data stored in tables within the database. They allow users to query, insert, update, and delete data to perform various operations on the database.

DCL (Data Control Language) commands in SQL are used to control access to the database and its objects. Here are the most common DCL commands along with explanations and examples:

GRANT:

Purpose: Provides specific privileges to users or roles.

Syntax: `GRANT privilege ON object TO user;`

Example:

sqlCopy code

```
GRANT SELECT, INSERT ON employees TO user1;
```

REVOKE:

Purpose: Removes specific privileges from users or roles.

Syntax: `REVOKE privilege ON object FROM user;`

Example:

sqlCopy code

```
REVOKE INSERT ON employees FROM user1;
```

These DCL commands are crucial for managing access control to the database and its objects, ensuring security and integrity of the data.