

SQL Commands

DDL (Data Definition Language) Commands

1. CREATE TABLE: Create a new table in the database.

```
CREATE TABLE Employees (  
  Employee_ID INT NOT NULL UNIQUE,  
  First_Name VARCHAR(30),  
  Last_Name VARCHAR(30),  
  Email VARCHAR(30),  
  Phone_Number VARCHAR(30),  
  Job_ID INT,  
  FOREIGN KEY (Job_ID) REFERENCES Jobs(Job_ID),  
  Salary INT,  
  Department_ID INT,  
  FOREIGN KEY (Department_ID) REFERENCES Department(Department_ID));
```

2. DROP TABLE: Remove an existing table from the database.

```
DROP TABLE Employees;
```

3. ALTER TABLE: Modify an existing table structure, such as adding, modifying, or deleting columns.

- **Adding a new column**

```
ALTER TABLE Employees  
ADD COLUMN Birthdate DATE;
```

- **Modifying an existing column**

```
ALTER TABLE Employees  
MODIFY COLUMN Phone_Number VARCHAR(50);
```

- **Deleting a column**

```
ALTER TABLE Employees  
DROP COLUMN Email;
```

4. TRUNCATE TABLE: Remove all data from an existing table but keep the table structure intact.

```
TRUNCATE TABLE Employees;
```

DML (Data Manipulation Language) Commands

1. INSERT INTO: Add new data into a table.

- **Insert a single row of data**

```
INSERT INTO Employees (Employee_ID, First_Name, Last_Name, Email, Phone_Number, Job_ID, Salary, Department_ID)
VALUES (1, 'John', 'Doe', 'john.doe@example.com', '1234567890', 101, 5000, 1);
```

- **Insert multiple rows of data**

```
INSERT INTO Employees (Employee_ID, First_Name, Last_Name, Email, Phone_Number, Job_ID, Salary, Department_ID)
VALUES (2, 'Jane', 'Doe', 'jane.doe@example.com', '9876543210', 102, 5500, 2),
      (3, 'Mark', 'Smith', 'mark.smith@example.com', '1112223333', 103, 6000, 1);
```

2. UPDATE: Modify existing data in a table.

- **Update a single row**

```
UPDATE Employees
SET Salary = 5200
WHERE Employee_ID = 1;
```

- **Update multiple rows**

```
UPDATE Employees
SET Salary = Salary * 1.1
WHERE Department_ID = 1;
```

3. DELETE: Remove data from a table.

- **Delete a single row**

```
DELETE FROM Employees
WHERE Employee_ID = 3;
```

- **Delete multiple rows**

```
DELETE FROM Employees
WHERE Department_ID = 2;
```

DCL (Data Control Language) Commands

1. GRANT: Provide privileges or permissions to users or roles.

- **Grant SELECT privilege on Employees table to user 'user1'**
GRANT SELECT ON Employees TO user1;
- **Grant INSERT, UPDATE, DELETE privileges on Employees table to role 'manager'**
GRANT INSERT, UPDATE, DELETE ON Employees TO manager;

2. REVOKE: Remove privileges or permissions from users or roles.

- **Revoke SELECT privilege on Employees table from user 'user1'**
REVOKE SELECT ON Employees FROM user1;
- **Revoke INSERT, UPDATE, DELETE privileges on Employees table from role 'manager'**
REVOKE INSERT, UPDATE, DELETE ON Employees FROM manager;

DQL (Data Query Language) Commands

1. SELECT: Retrieve data from a database.

- **Retrieve all columns from the Employees table**
SELECT * FROM Employees;
- **Retrieve specific columns (EmployeeID, FirstName, LastName) from the Employees table**
SELECT EmployeeID, FirstName, LastName FROM Employees;
- **Retrieve data from multiple tables using JOIN**
SELECT Orders.OrderID, Customers.CustomerName, Orders.OrderDate
FROM Orders
JOIN Customers ON Orders.CustomerID = Customers.CustomerID
ORDER BY Orders.OrderDate DESC;