

1. Data Definition Language (DDL) – Table Creation & Modification

Query	Syntax	Example
CREATE DATABASE	CREATE DATABASE database_name;	CREATE DATABASE school;
DROP DATABASE	DROP DATABASE database_name;	DROP DATABASE school;
CREATE TABLE with Constraints	CREATE TABLE table_name (column_name datatype CONSTRAINT, ...);	CREATE TABLE students (id SERIAL PRIMARY KEY, name VARCHAR(50) NOT NULL, email VARCHAR(100) UNIQUE, age INT CHECK (age >= 18));
DROP TABLE	DROP TABLE table_name;	DROP TABLE students;
ALTER TABLE – ADD COLUMN	ALTER TABLE table_name ADD COLUMN column_name datatype;	ALTER TABLE students ADD COLUMN phone VARCHAR(15);
ALTER TABLE – DROP COLUMN	ALTER TABLE table_name DROP COLUMN column_name;	ALTER TABLE students DROP COLUMN phone;
ALTER TABLE – MODIFY DATA TYPE	ALTER TABLE table_name ALTER COLUMN column_name TYPE new_datatype;	ALTER TABLE students ALTER COLUMN age TYPE BIGINT;
ALTER TABLE – ADD PRIMARY KEY	ALTER TABLE table_name ADD CONSTRAINT constraint_name PRIMARY KEY (column);	ALTER TABLE students ADD CONSTRAINT pk_students PRIMARY KEY (id);
ALTER TABLE – ADD FOREIGN KEY	ALTER TABLE table_name ADD CONSTRAINT constraint_name FOREIGN KEY (column) REFERENCES other_table(column);	ALTER TABLE courses ADD CONSTRAINT fk_courses FOREIGN KEY (student_id) REFERENCES students(id);
ALTER TABLE – ADD UNIQUE CONSTRAINT	ALTER TABLE table_name ADD CONSTRAINT constraint_name UNIQUE (column);	ALTER TABLE students ADD CONSTRAINT unique_email UNIQUE (email);
ALTER TABLE – ADD CHECK CONSTRAINT	ALTER TABLE table_name ADD CONSTRAINT constraint_name CHECK (condition);	ALTER TABLE students ADD CONSTRAINT check_age CHECK (age >= 18);
ALTER TABLE – DROP CONSTRAINT	ALTER TABLE table_name DROP CONSTRAINT constraint_name;	ALTER TABLE students DROP CONSTRAINT check_age;

2. Data Manipulation Language (DML) – Insert, Update, Delete

Query	Syntax	Example
INSERT INTO	INSERT INTO table_name (column1, column2, ...) VALUES (value1, value2, ...);	INSERT INTO students (name, age) VALUES ('Alice', 22);
INSERT MULTIPLE ROWS	INSERT INTO table_name VALUES (value1, value2, ...), (value1, value2, ...);	INSERT INTO students VALUES (1, 'Bob', 21), (2, 'Charlie', 23);
UPDATE	UPDATE table_name SET column1 = value1 WHERE condition;	UPDATE students SET age = 25 WHERE name = 'Alice';
DELETE	DELETE FROM table_name WHERE condition;	DELETE FROM students WHERE age < 20;

3. Data Query Language (DQL) – Retrieving Data

Query	Syntax	Example
SELECT ALL COLUMNS	SELECT * FROM table_name;	SELECT * FROM students;
SELECT SPECIFIC COLUMNS	SELECT column1, column2 FROM table_name;	SELECT name, age FROM students;
WHERE Clause	SELECT * FROM table_name WHERE condition;	SELECT * FROM students WHERE age > 21;
ORDER BY	SELECT * FROM table_name ORDER BY column ASC	DESC;
LIMIT Clause	SELECT * FROM table_name LIMIT number;	SELECT * FROM students LIMIT 3;
DISTINCT Values	SELECT DISTINCT column_name FROM table_name;	SELECT DISTINCT age FROM students;

4. Filtering Data – Operators

Query	Syntax	Example
BETWEEN	SELECT * FROM table_name WHERE column BETWEEN value1 AND value2;	SELECT * FROM students WHERE age BETWEEN 20 AND 25;
IN Clause	SELECT * FROM table_name WHERE column IN (value1, value2, ...);	SELECT * FROM students WHERE age IN (20, 21, 22);
LIKE (Pattern Matching)	SELECT * FROM table_name WHERE column LIKE 'pattern%';	SELECT * FROM students WHERE name LIKE 'A%';
IS NULL	SELECT * FROM table_name WHERE column IS NULL;	SELECT * FROM students WHERE email IS NULL;

5. Grouping and Filtering Aggregates

Query	Syntax	Example
GROUP BY	SELECT column, AGG_FUNC(column) FROM table_name GROUP BY column;	SELECT age, COUNT(*) FROM students GROUP BY age;
HAVING	SELECT column, AGG_FUNC(column) FROM table_name GROUP BY column HAVING condition;	SELECT age, COUNT(*) FROM students GROUP BY age HAVING COUNT(*) > 2;

6. TCL(Transaction Control Language)

Query	Syntax	Example
BEGIN TRANSACTION	BEGIN;	BEGIN;
COMMIT	COMMIT;	COMMIT;
ROLLBACK	ROLLBACK;	ROLLBACK;
SAVEPOINT	SAVEPOINT savepoint_name;	SAVEPOINT sp1;
ROLLBACK TO SAVEPOINT	ROLLBACK TO SAVEPOINT savepoint_name;	ROLLBACK TO SAVEPOINT sp1;

7. Data Control Language (DCL) – Managing Permissions

Query	Syntax	Example
GRANT	GRANT privilege ON table TO user;	GRANT SELECT ON students TO john;
REVOKE	REVOKE privilege ON table FROM user;	REVOKE SELECT ON students FROM john;
CREATE ROLE	CREATE USER username PASSWORD 'password' ;	CREATE USER admin_1 PASSWORD 'admin@123';
DROP ROLE	DROP USER username;	DROP USER admin_1;