

# PostgreSQL: Commands, Functions, Libraries & Modules with Examples

## 1. SQL Commands

Command Type	Example
DDL (Data Definition)	CREATE TABLE users (id SERIAL PRIMARY KEY, name VARCHAR(50));
DML (Data Manipulation)	INSERT INTO users (name) VALUES ('Alice');
DCL (Data Control)	GRANT SELECT ON users TO guest;
TCL (Transaction Control)	COMMIT;

## 2. Built-in Functions

Function Type	Example
String	SELECT CONCAT('Hello', ' ', 'World');
Mathematical	SELECT ROUND(123.456, 2);
Date/Time	SELECT NOW();
Window Function	SELECT id, name, RANK() OVER (ORDER BY id) FROM users;

## 3. Extensions & Modules

Module	Description	Example
pg_stat_statements	Track SQL execution statistics	CREATE EXTENSION pg_stat_statements;
uuid-ossdp	UUID generation	SELECT uuid_generate_v4();
PostGIS	Geospatial data management	SELECT ST_AsText(ST_MakePoint(10, 20));

## 4. Client Libraries (Examples)

Language	Library	Example
Python	psycopg2	import psycopg2 conn = psycopg2.connect('dbname=test user=postgres')
R	RPostgreSQL	library(RPostgreSQL) dbConnect(PostgreSQL(), dbname='test')
Node.js	pg	const { Client } = require('pg'); const client = new Client();

## 5. Administration & Utility Commands

Command	Description	Example
Backup	Backup the database	<code>pg_dump mydb &gt; backup.sql</code>
Restore	Restore from backup	<code>psql mydb &lt; backup.sql</code>
Configuration	Set configurations	<code>SHOW all;</code>