Postgresql (psql)

- Difference between psql and sql:

Psql	Sql
Psql is a command line tool Postgresql an advanced open-source relational database system.	Sql is a standardized language used to interact with relational database system.
Used specific for PostgreSQL database. It's support sql queries and additional commands unique to PostgreSQL.	Used in any relational database management system, example: MySQL, PostgreSQL, SQL Server etc.
Psql is not a universal standard it's use in only PostgreSQL.	SQL is a universal standard and it's syntax is supported across multiple database management system.
Psql is a PostgreSQL specific command-line tool to interact with PostgreSQL databases using sql and additional commands.	Sql is the language used for querying and managing relational databases.

- Create/Delete Multiple Database:

  -First I create test database using **createdb test2;** command.
  -Delete that test database using **dropdb test2;** command.

```
odoo@ICAPC0041:~/trainee-jay/Session7_PSQL$ createdb test2;
odoo@ICAPC0041:~/trainee-jay/Session7_PSQL$ psql -l
                              List of databases
   Name    |  Owner   | Encoding | Collate | Ctype |   Access privileges
-----------+----------+----------+---------+-------+-----------------------
 postgres  | postgres | UTF8     | en_IN   | en_IN |
 template0 | postgres | UTF8     | en_IN   | en_IN | =c/postgres          +
           |          |          |         |       | postgres=CTc/postgres
 template1 | postgres | UTF8     | en_IN   | en_IN | =c/postgres          +
           |          |          |         |       | postgres=CTc/postgres
 test      | odoo     | UTF8     | en_IN   | en_IN |
 test1     | odoo     | UTF8     | en_IN   | en_IN |
 test2     | odoo     | UTF8     | en_IN   | en_IN |
(6 rows)

odoo@ICAPC0041:~/trainee-jay/Session7_PSQL$ dropdb test2;
odoo@ICAPC0041:~/trainee-jay/Session7_PSQL$ psql -l
                              List of databases
   Name    |  Owner   | Encoding | Collate | Ctype |   Access privileges
-----------+----------+----------+---------+-------+-----------------------
 postgres  | postgres | UTF8     | en_IN   | en_IN |
 template0 | postgres | UTF8     | en_IN   | en_IN | =c/postgres          +
           |          |          |         |       | postgres=CTc/postgres
 template1 | postgres | UTF8     | en_IN   | en_IN | =c/postgres          +
           |          |          |         |       | postgres=CTc/postgres
 test      | odoo     | UTF8     | en_IN   | en_IN |
 test1     | odoo     | UTF8     | en_IN   | en_IN |
(5 rows)
```

- Insert data into Tables:

  -I create a test database and in that test database i create one table student. And insert some rows to that table student.
  -using insert query to insert multiple data and give input as column wise.

  example:

```
test=> CREATE TABLE student (id SERIAL PRIMARY KEY, name VARCHAR(100), age INT, grade VARCHAR(10));
CREATE TABLE
```

```
test=> INSERT INTO student(name,age,grade) VALUES('vatsal',20,'B'),('abc',21,'C');
INSERT 0 2
test=> select * from student;
 id |  name  | age | grade
----+--------+-----+-------
  1 | jay    |  20 | A
  3 | Utsav  |  20 | B
  2 | prince |  20 | A
  4 | vatsal |  20 | B
  5 | abc    |  21 | C
(5 rows)
```

- Alter Command for Tables:

  -Using the Alter command we add, delete and modify the column and also we update the data type of column using the alter command.

  ADD column:

```
test=> alter table student add subject varchar(20);
ALTER TABLE
test=> select * from student;
 id | name  | age | grade | subject
----+-------+-----+-------+---------
  1 | jay   |  20 | A     |
  2 | jay   |  20 | A     |
  3 | Utsav |  20 | B     |
(3 rows)
```

  DELETE column:

```
test=> alter table student drop column subject;
ALTER TABLE
test=> select * from student;
 id |  name  | age | grade
----+--------+-----+-------
  1 | jay    |  20 | A
  3 | Utsav  |  20 | B
  2 | prince |  20 | A
(3 rows)
```

  Modify DataType:

```
test=> alter table student alter column grade type varchar(4);
ALTER TABLE
```

Update Table:

```
test=> update student set name = 'prince' where id = 2;
UPDATE 1
test=> select * from student
test-> ^C
test=> ^C
test=> select * from student;
 id |  name   | age | grade | subject
----+---------+-----+-------+---------
  1 | jay     |  20 | A     |
  3 | Utsav   |  20 | B     |
  2 | prince  |  20 | A     |
(3 rows)
```

- Task Output ScreenShot:

```
test1=> create table employee (employee_id serial primary key, name varchar(100), department varchar(50));
CREATE TABLE
test1=> insert into employee(name, department) values('Alice', 'DEV'),('Bob', 'HR'),('Charlie', 'Business');
INSERT 0 3
test1=> select * from employee;
 employee_id |  name   | department
-------------+---------+------------
           1 | Alice   | DEV
           2 | Bob     | HR
           3 | Charlie | Business
(3 rows)
```

```
test1=> create table projects (project_id serial primary key, project_name varchar(100), employee_id int, foreign key (employee_id) references
 employee(employee_id));
CREATE TABLE
test1=> insert into projects(project_name, employee_id) values('Website Redesign', 1),('Ad Campaign', 2);
INSERT 0 2
test1=> select * from projects
test1-> ^C
test1=> ^C
test1=> select * from projects;
 project_id |   project_name   | employee_id
------------+------------------+-------------
          1 | Website Redesign |           1
          2 | Ad Campaign      |           2
(2 rows)
```

```
test1=> select employee.name, projects.project_name from projects inner join employee on projects.employee_id=employee.employee_id;
 name  |   project_name
-------+-----------------
 Alice | Website Redesign
 Bob   | Ad Campaign
(2 rows)

test1=> select employee.name, projects.project_name from projects left join employee on projects.employee_id=employee.employee_id;
 name  |   project_name
-------+-----------------
 Alice | Website Redesign
 Bob   | Ad Campaign
(2 rows)

test1=> select employee.name, projects.project_name from projects right join employee on projects.employee_id=employee.employee_id;
  name   |   project_name
---------+-----------------
 Alice   | Website Redesign
 Bob     | Ad Campaign
 Charlie |
(3 rows)
```