POSTGRES SQL PRACTICE - I (exp-1)

• AIM

To perform fundamental database operations in SQL by:
1. Creating Author and Book tables using DDL (Data Definition Language) commands.
2. Inserting sample records into these tables using DML (Data Manipulation Language) commands.
3. Retrieving book titles along with corresponding author details using INNER JOIN.

• OBJECTIVE

To understand and apply core SQL operations including:
- Designing relational tables with appropriate primary and foreign key constraints.
- Populating tables with meaningful sample data.
- Using INNER JOIN to combine data from multiple related tables based on foreign key relationships.
This helps in learning relational database design and basic querying.

• PROCEDURE / ALGORITHM

1. Start the SQL terminal or database environment.
2. Create the Author table with fields author_id, name, and country.
3. Create the Book table with fields book_id, title, author_id, and genre, linking author_id to the Author table via a foreign key.
4. Insert sample data into both tables.
5. Write an INNER JOIN query to retrieve book titles along with the respective author name and country.
6. Execute each SQL query and verify the output.

Q1: Problem Statement

Create Author and Book Tables using DDL Commands

Query:

```
SELECT
    Books.title,Authors.name,Authors.country
    FROM Books INNER JOIN Authors ON Books.author_id =
Authors.author_id;
```

Output:

```
CC & D=# \dt
         List of relations
 Schema |  Name  | Type  |  Owner
--------+--------+-------+----------
 public | author | table | postgres
 public | book   | table | postgres
(2 rows)
```

Q2: Problem Statement → Query → Output

Insert Sample Records into Author and Book Tables

Query:

```
SELECT
    Books.title,Authors.name,Authors.country
    FROM Books INNER JOIN Authors ON Books.author_id =
Authors.author_id;
```

Output:

```
CC & D=# insert into author values(1,'Ashish','India'),(2,'Smaran','USA'),(3,'Vaibhav','UK');insert into book values(101,
'Data Science Basics',1),(102,'AI in Education',2),(103,'SQL Simplified',1);select *from author;Select *from book;
INSERT 0 3
INSERT 0 3
 author_id |  name   | country
-----------+---------+---------
         1 | Ashish  | India
         2 | Smaran  | USA
         3 | Vaibhav | UK
(3 rows)

 book_id |        title        | author_id | genre
---------+---------------------+-----------+-------
     101 | Data Science Basics |         1 |
     102 | AI in Education     |         2 |
     103 | SQL Simplified      |         1 |
(3 rows)
```

Q3: Problem Statement → Query → Output

Retrieve Book Titles Along with Author Information Using INNER JOIN

Query:

```
SELECT
  Book.title AS book_title,
  Author.name AS author_name,
  Author.country
FROM
  Book
INNER JOIN
  Author ON Book.author_id = Author.author_id;
```

Output:

```
CC & D=# SELECT     book.title,author.name,author.country    FROM book INNER JOIN author ON book.author_id = author.author
_id;
       title        |  name  | country
--------------------+--------+---------
 Data Science Basics | Ashish | India
 AI in Education     | Smaran | USA
 SQL Simplified      | Ashish | India
(3 rows)
```