**ASSIGNMENT 3 (JOIN)**

**Assignment: Join Operations**

Here's an assignment that covers join operations in PostgreSQL, including the necessary CREATE TABLE and INSERT commands, along with the solutions:

Assume you're managing data for a company that sells products. You have two tables, **products** and **orders**, with the following structures:

1. **products**

|  |  |  |  |
| --- | --- | --- | --- |
| Col Name | product\_id | product\_name | category\_id |
| Data Type | INTEGER | VARCHAR(100) | INTEGER |
| Constraint | P.K. | Not Null |  |
| Record 1 | 10 | Product A | 1 |
| Record 2 | 20 | Product B | 2 |
| Record 3 | 30 | Product C | 3 |

1. **orders**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Col Name | order\_id | product\_id | quantity | order\_date |
| Data Type | INTEGER | INTEGER | INTEGER | DATE |
| Constraint | P.K. | REFERENCES products(product\_id) |  |  |
| Record 1 | 101 | 10 | 10 | '2023-01-15' |
| Record 2 | 102 | 20 | 5 | '2023-01-20' |
| Record 3 | 103 | 10 | 8 | '2023-01-20' |

Tasks:

1. Create the products and orders tables with the given structures.
2. Insert sample data into both tables.
3. Write a simple English statement describing an INNER JOIN operation between the products and orders tables.
4. Write an SQL query using INNER JOIN to retrieve the names of products and the corresponding order quantities.
5. Write an SQL query using LEFT JOIN to retrieve all product names and their corresponding order quantities, if any.
6. Write an SQL query using RIGHT JOIN to retrieve all order quantities along with their corresponding product names, if available.
7. Write an SQL query using FULL OUTER JOIN to retrieve all product names and order quantities, including cases where there are no matching orders or products.