Skilling Exercise-5

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PRE-LAB

What do you mean by Correlated subquery?

Are the resulting relations of PRODUCT and JOIN operation the same? Explain.

Explain a join between tables

Describe the difference between embedded and dynamic SQL.

How does Tuple-oriented relational calculus differ from domain-oriented relationalcalculus?

1. Correlated subquery means that subquery depends on the outer query result i.e the subquery which are depending on the outer query output is known as a correlated subquery.

2. A SQL Join statement is used to combine data or rows from two or more tables based on a common field between them.

Different types of joins are:

- INNER JOIN
- LEFT JOIN
- RIGHT JOIN
- FULL JOIN

IN-LAB

Q. Implement SQL Queries on Case Study (PROPERTY RENTALINFORMATION SYSTEM)

1. Create tables with the required constraints for the given case study
2. Insert 10 records into the created tables

```
postgres=# select * from staff;
 staff_no |  name   |  salary  |   city    |     state      |   phone    |       email
----------+---------+----------+-----------+----------------+------------+-------------------
 50012    | Surya   | 45000.00 | Hyderabad | Telangana      | 6074331464 | sj@gmail.com
 50013    | raju    | 50000.00 | Banglore  | Karnataka      | 6158984565 | raju@yahoo.co.in
 50014    | virat   | 55000.00 | Vijaywada | Andhra Pradesh | 6243637666 | v@raju.com
 50015    | laya    | 60000.00 | chennai   | Tamil nadu     | 6328290767 | pooja@tcs.com
 50016    | pooja   | 65000.00 | kochi     | kerala         | 6412943868 | ab@gmail.com
 50017    | anil    | 70000.00 | Hyderabad | Telangana      | 6497596969 | anil@gmail.com
 50018    | sunil   | 75000.00 | Banglore  | Karnataka      | 6582250070 | sunil@gmail.com
 50019    | rohit   | 35000.00 | Vijaywada | Andhra Pradesh | 6666903171 | rohit@gmail.com
 50020    | sowmya  | 42000.00 | chennai   | Tamil nadu     | 6751556272 | sowmya@gmail.com
 50021    | robert  | 90000.00 | mumbai    | maharastra     | 6836209373 | robert@gmail.com
 50022    | mujahed | 95000.00 | pune      | maharastra     | 6920862474 | mujahed@gmail.com
(11 rows)
```

```
postgres=# select * from branch;
 branch_no |   city    |     state      |  manager   | branch_phone |    branch_email
-----------+-----------+----------------+------------+--------------+--------------------
      6622 | Hyderabad | Telangana      | 50017      |   8074337464 | Hyderabad@gmail.com
      6623 | Banglore  | Karnataka      | 50018      |   8075337465 | banglore@gmail.com
      6624 | Vijaywada | Andhra Pradesh | 50014      |   8076337466 | ap@gmail.com
      6625 | chennai   | Tamil nadu     | 50015      |   8077337467 | tn@gmail.com
      6626 | kochi     | kerala         | 50016      |   8078337468 | kochi@gmail.com
(5 rows)
```

```
postgres=# select * from owner;
 owner_no |  name   | type_of_business  |   city    |     state      |   phone    |       email
----------+---------+-------------------+-----------+----------------+------------+-------------------
     8892 | shiva   | private employee  | Hyderabad | Telangana      | 6074331464 | shiva@gmail.com
     8893 | iswhar  | software engineer | Banglore  | Karnataka      | 6158984565 | ish@gmail.com
     8894 | gopi    | private employee  | Vijaywada | Andhra Pradesh | 6243637666 | gopi@gmail.com
     8895 | gopal   | clerk             | chennai   | Tamil nadu     | 6328290767 | gopal@gmail.com
     8896 | sneha   | jr journalist     | kochi     | kerala         | 6412943868 | sneha@gmail.com
     8897 | latha   | teacher           | Hyderabad | Telangana      | 6497596969 | latha@gmail.com
     8898 | gorge   | coal mining ceo   | Banglore  | Karnataka      | 6582250070 | gorge@gmail.com
     8899 | samuel  | business          | Vijaywada | Andhra Pradesh | 6666903171 | samuel@gmail.com
     8900 | roberts | business          | chennai   | Tamil nadu     | 6751556272 | roberts@gmail.com
     8901 | sonu    | software engineer | mumbai    | maharastra     | 6836209373 | sonu@gmail.com
     8902 | raju    | software engineer | pune      | maharastra     | 6920862474 | raju@gmail.com
(11 rows)
```

```
postgres=# select * from renter;
 renter_no |  name   | type_of_business  |   city    |     state      |   phone    |       email
-----------+---------+-------------------+-----------+----------------+------------+-------------------
      9802 | ram     | private employee  | Hyderabad | Telangana      | 6074331464 | ram@gmail.com
      9803 | sham    | software engineer | Banglore  | Karnataka      | 6158984565 | sham@gmail.com
      9804 | sundhar | private employee  | Vijaywada | Andhra Pradesh | 6243637666 | sindhar@gmail.com
      9805 | raghu   | clerk             | chennai   | Tamilnadu      | 6328290767 | raghu@gmail.com
      9806 | raja    | jr journalist     | kochi     | kerala         | 6412943868 | raja@gmail.com
      9807 | anthony | teacher           | Hyderabad | Telangana      | 6497596969 | anthony@gmail.com
      9808 | ismail  | coal mining ceo   | Banglore  | Karnataka      | 6582250070 | ismail@gmail.com
      9809 | farah   | business          | Vijaywada | Andhra Pradesh | 6666903171 | farah@gmail.com
      9810 | zoya    | business          | chennai   | Tamil nadu     | 6751556272 | zoya@gmail.com
      9811 | adam    | software engineer | mumbai    | maharastra     | 6836209373 | adam@gmail.com
      9812 | ricky   | software engineer | pune      | maharastra     | 6920862474 | ricky@gmail.com
(11 rows)
```

```
postgres=# select * from property;
 property_no |   city    | owned_by | overseen_by
-------------+-----------+----------+-------------
       63589 | Hyderabad |     8892 |       50012
       76589 | Banglore  |     8893 |       50013
       89589 | Vijaywada |     8894 |       50014
      102589 | chennai   |     8895 |       50015
      115589 | kochi     |     8896 |       50015
      128589 | Hyderabad |     8897 |       50017
      141589 | Banglore  |     8898 |       50018
      154589 | Vijaywada |     8899 |       50018
      167589 | chennai   |     8900 |       50019
      180589 | mumbai    |     8901 |       50013
      193589 | pune      |     8902 |       50018
(11 rows)
```

```
postgres=# select * from viewing;
 property_no | renter_no | viewing_date
-------------+-----------+--------------
       63589 |      9802 | 24-Jul-20
       76589 |      9812 | 25-Jul-20
       89589 |      9804 | 26-Jul-20
      102589 |      9811 | 27-Jul-20
      115589 |      9806 | 28-Jul-20
      128589 |      9807 | 29-Jul-20
      141589 |      9808 | 30-Jul-20
      154589 |      9809 | 31-Jul-20
      167589 |      9809 | 01-Aug-20
      180589 |      9811 | 02-Aug-20
      193589 |      9812 | 03-Aug-20
(11 rows)
```

```
postgres=# select * from advertisement;
 ad_no |  ad_date  |   paper    | property_no
-------+-----------+------------+-------------
    22 | 01-Jun-20 | hindu      |       63589
    23 | 02-Jun-20 | eenadu     |       76589
    24 | 03-Jun-20 | times      |       89589
    25 | 04-Jun-20 | sakshi     |      102589
    26 | 05-Jun-20 | dc         |      115589
    27 | 06-Jun-20 | hindu      |      128589
    28 | 07-Jun-20 | eenadu     |      141589
    29 | 08-Jun-20 | times      |      154589
    30 | 09-Jun-20 | sakshi     |      167589
    31 | 10-Jun-20 | dc         |      180589
    32 | 11-Jun-20 | hindu      |      193589
(11 rows)
```

```
postgres=# select * from rental_agreement;
 rental_no | property_no | signing_date | start_date | end_date   | renter_no
-----------+-------------+--------------+------------+------------+-----------
      2356 |       63589 | 24-Aug-20    | 04-Sep-20  | 04-Sep-22  |      9802
      2357 |       76589 | 25-Aug-20    | 05-Sep-20  | 05-Sep-22  |      9812
      2358 |       89589 | 26-Aug-20    | 06-Sep-20  | 06-Sep-22  |      9804
      2359 |      102589 | 27-Aug-20    | 07-Sep-20  | 07-Sep-22  |      9811
      2360 |      115589 | 28-Aug-20    | 08-Sep-20  | 08-Sep-22  |      9806
      2361 |      128589 | 29-Aug-20    | 09-Sep-20  | 09-Sep-22  |      9807
      2362 |      141589 | 30-Aug-20    | 10-Sep-20  | 10-Sep-22  |      9808
      2363 |      154589 | 31-Aug-20    | 11-Sep-20  | 11-Sep-22  |      9809
      2364 |      167589 | 01-Sep-20    | 12-Sep-20  | 12-Sep-22  |      9809
      2365 |      180589 | 02-Sep-20    | 13-Sep-20  | 13-Sep-22  |      9811
      2366 |      193589 | 03-Sep-20    | 14-Sep-20  | 14-Sep-22  |      9812
(11 rows)
```

3. Display renter details which are unique

```
postgres=# select distinct * from renter;
 renter_no |  name   | type_of_business  |   city    |     state      |   phone    |       email
-----------+---------+-------------------+-----------+----------------+------------+-------------------
      9802 | ram     | private employee  | Hyderabad | Telangana      | 6074331464 | ram@gmail.com
      9811 | adam    | software engineer | mumbai    | maharastra     | 6836209373 | adam@gmail.com
      9809 | farah   | business          | Vijaywada | Andhra Pradesh | 6666903171 | farah@gmail.com
      9805 | raghu   | clerk             | chennai   | Tamilnadu      | 6328290767 | raghu@gmail.com
      9804 | sundhar | private employee  | Vijaywada | Andhra Pradesh | 6243637666 | sindhar@gmail.com
      9810 | zoya    | business          | chennai   | Tamil nadu     | 6751556272 | zoya@gmail.com
      9808 | ismail  | coal mining ceo   | Banglore  | Karnataka      | 6582250070 | ismail@gmail.com
      9812 | ricky   | software engineer | pune      | maharastra     | 6920862474 | ricky@gmail.com
      9807 | anthony | teacher           | Hyderabad | Telangana      | 6497596969 | anthony@gmail.com
      9806 | raja    | jr journalist     | kochi     | kerala         | 6412943868 | raja@gmail.com
      9803 | sham    | software engineer | Banglore  | Karnataka      | 6158984565 | sham@gmail.com
(11 rows)
```

4. Give the email addresses and the renter number for all the private renters. Please ,sort them by the renter number

```
postgres=# select email, renter.renter_no from renter where renter_no is not null order by renter.renter_no;
       email       | renter_no
-------------------+-----------
 ram@gmail.com     |      9802
 sham@gmail.com    |      9803
 sindhar@gmail.com |      9804
 raghu@gmail.com   |      9805
 raja@gmail.com    |      9806
 anthony@gmail.com |      9807
 ismail@gmail.com  |      9808
 farah@gmail.com   |      9809
 zoya@gmail.com    |      9810
 adam@gmail.com    |      9811
 ricky@gmail.com   |      9812
(11 rows)
```

5. Find unique property name and number of branches for each property

```
postgres=# select distinct * from property;
 property_no |   city    | owned_by | overseen_by
-------------+-----------+----------+-------------
      180589 | mumbai    |     8901 |       50013
       76589 | Banglore  |     8893 |       50013
      154589 | Vijaywada |     8899 |       50018
      128589 | Hyderabad |     8897 |       50017
       63589 | Hyderabad |     8892 |       50012
      167589 | chennai   |     8900 |       50019
      193589 | pune      |     8902 |       50018
      102589 | chennai   |     8895 |       50015
      141589 | Banglore  |     8898 |       50018
      115589 | kochi     |     8896 |       50015
       89589 | Vijaywada |     8894 |       50014
(11 rows)
```

6. Create table for staff member and insert all the details of the staff members

```
postgres=# select * from staff;
 staff_no |  name   |  salary  |   city    |     state      |   phone    |       email
----------+---------+----------+-----------+----------------+------------+-------------------
 50012    | Surya   | 45000.00 | Hyderabad | Telangana      | 6074331464 | sj@gmail.com
 50013    | raju    | 50000.00 | Banglore  | Karnataka      | 6158984565 | raju@yahoo.co.in
 50014    | virat   | 55000.00 | Vijaywada | Andhra Pradesh | 6243637666 | v@raju.com
 50015    | laya    | 60000.00 | chennai   | Tamil nadu     | 6328290767 | pooja@tcs.com
 50016    | pooja   | 65000.00 | kochi     | kerala         | 6412943868 | ab@gmail.com
 50017    | anil    | 70000.00 | Hyderabad | Telangana      | 6497596969 | anil@gmail.com
 50018    | sunil   | 75000.00 | Banglore  | Karnataka      | 6582250070 | sunil@gmail.com
 50019    | rohit   | 35000.00 | Vijaywada | Andhra Pradesh | 6666903171 | rohit@gmail.com
 50020    | sowmya  | 42000.00 | chennai   | Tamil nadu     | 6751556272 | sowmya@gmail.com
 50021    | robert  | 90000.00 | mumbai    | maharastra     | 6836209373 | robert@gmail.com
 50022    | mujahed | 95000.00 | pune      | maharastra     | 6920862474 | mujahed@gmail.com
(11 rows)
```

7. Display the count of staff in each branch and display them in descending order on count

```
postgres=# select city,count(*) from staff group by city order by count DESC;
   city    | count
-----------+-------
 Banglore  |     2
 Vijaywada |     2
 Hyderabad |     2
 chennai   |     2
 kochi     |     1
 mumbai    |     1
 pune      |     1
(7 rows)
```

8. Write a query to print details of the staff whose Name ends with ‘h’ and contains six alphabets

```
postgres=# select name from staff where name like '%h' and char_length('name')=6;
 name
------
(0 rows)
```

9. Write a query to print details of the staff whose SALARYlies between 100000 and 500000

```
postgres=# select * from staff where salary between 10000 and 50000;
 staff_no |  name  |  salary  |   city    |      state      |   phone    |      email
----------+--------+----------+-----------+-----------------+------------+-----------------
 50012    | Surya  | 45000.00 | Hyderabad | Telangana       | 6074331464 | sj@gmail.com
 50013    | raju   | 50000.00 | Banglore  | Karnataka       | 6158984565 | raju@yahoo.co.in
 50019    | rohit  | 35000.00 | Vijaywada | Andhra Pradesh  | 6666903171 | rohit@gmail.com
 50020    | sowmya | 42000.00 | chennai   | Tamil nadu      | 6751556272 | sowmya@gmail.com
(4 rows)
```

10. Write down a query to find out the Name, Address and Position of the branch staff whose salary is the second highest without using TOP or limit method

```
postgres=# select * from staff where salary in (select max(salary) as salary from staff where salary not in (select max(salary) from st
aff));
 staff_no |  name  |  salary  |  city  |   state    |   phone    |      email
----------+--------+----------+--------+------------+------------+-----------------
 50021    | robert | 90000.00 | mumbai | maharastra | 6836209373 | robert@gmail.com
(1 row)
```

POSTLAB

1.Create a SQL query to display employees details whose salary is greater than 30000 and less than 50000

A. select * from worker where salary>30000 and salary<50000;

```
labs=# select * from worker where salary>30000 and salary<50000;
 worker_id | first_name | last_name | salary | joining_date | department
-----------+------------+-----------+--------+--------------+------------
(0 rows)
```

2. Display the no. of employees in each department

A. select department,count(*) from worker group by department;

```
labs=# select department,count(*) from worker group by department;
 department | count
------------+-------
            |     1
 Admin      |     4
 Account    |     2
 HR         |     2
(4 rows)
```

3. Display the count of employees with same designation in an organization

A. select worker_title,count(*) from Title group by worker_title;

```
labs=# select worker_title,count(*) from Title group by worker_title;
 worker_title  | count
---------------+-------
 Manager       |     2
 Executive     |     3
 Lead          |     2
 Asst. Manager |     1
(4 rows)
```