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Lab 4: SQL Queries: the subseries *Sequel*

The screenshot shows the pgAdmin 4 interface. On the left is the Object Browser pane, which lists several servers and databases. The main area contains two SQL queries in a query editor window titled 'CAP on postgres@PostgreSQL 9.6'. The first query, labeled '-- 1st Query--', selects cities from the 'agents' table where the agent ID ('aid') is in a subquery that finds all agent IDs ('aid') associated with an order having customer ID 'c006'. The second query, labeled '-- 2nd Query--', selects distinct product IDs ('pid') from the 'orders' table where the customer ID ('cid') is in a subquery that finds all customer IDs ('cid') from the 'customers' table. The results of the first query are displayed in a table titled 'Data Output'.

```
-- 1st Query-
select city
from agents
where aid in (select aid
               from orders
               where cid = 'c006'
             )
order by city ASC;
-- 2nd Query-
select distinct pid
from orders
where cid in (select cid
               from customers
             )
```

	city	text
	Dallas	
	New York	
	Tokyo	

pgAdmin 4

File ▾ Object ▾ Tools ▾ Help ▾

Browser

- Servers (4)
 - PostgreSQL 9.3
 - PostgreSQL 9.4
 - PostgreSQL 9.5
 - PostgreSQL 9.6
- Databases (3)
 - CAP
 - Casts
 - Catalogs
 - Event Triggers
 - Extensions
 - Foreign Data Wrappers
 - Languages
 - Schemas
 - postgres
 - template_postgis
- Login/Group Roles
- Tablespaces
- pgAgent Jobs

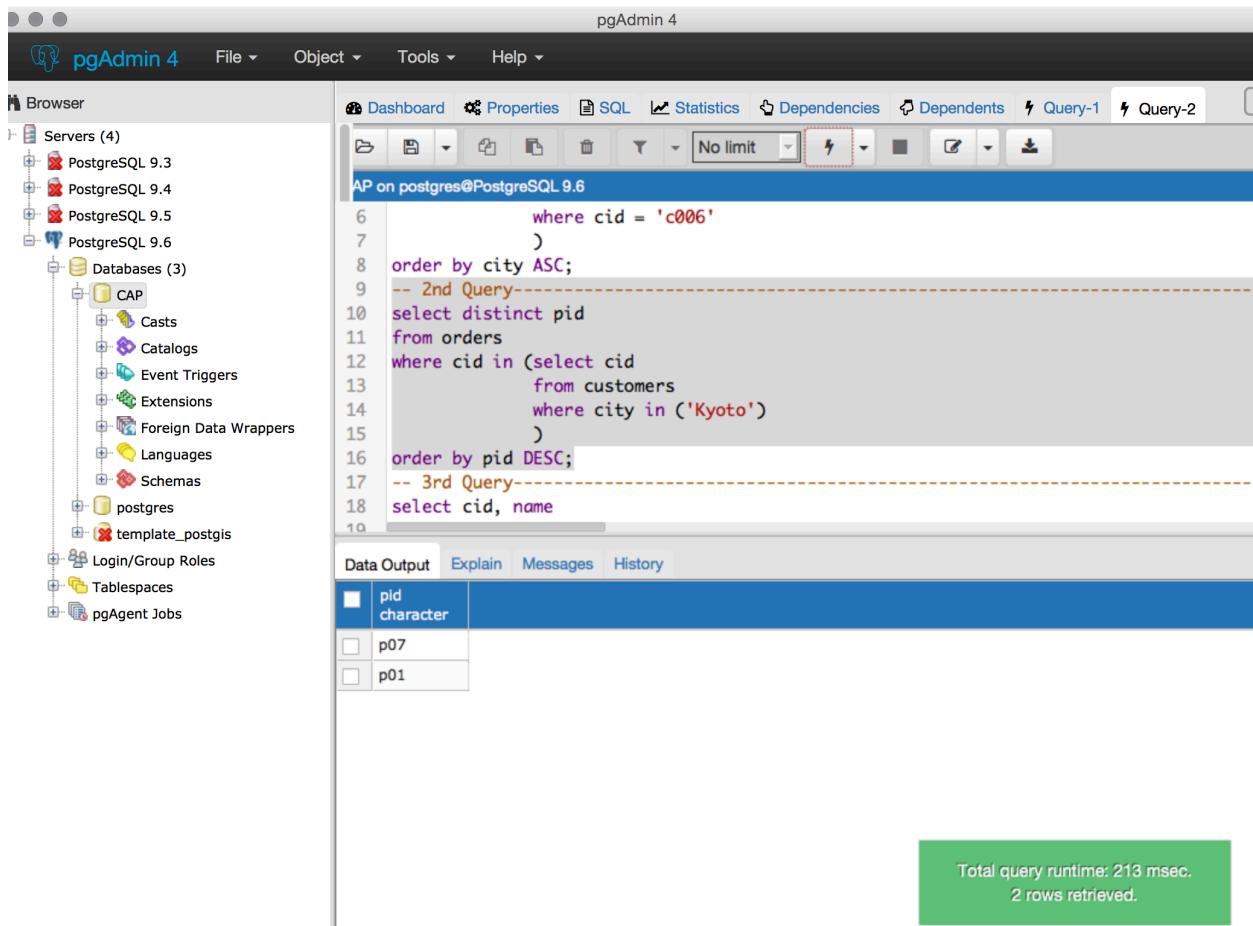
AP on postgres@PostgreSQL 9.6

```
6           where cid = 'c006'
7
8 order by city ASC;
-- 2nd Query-
9 select distinct pid
10 from orders
11 where cid in (select cid
12                 from customers
13                 where city in ('Kyoto')
14
15
16 order by pid DESC;
-- 3rd Query-
17 select cid, name
18
```

Data Output Explain Messages History

pid	character
p07	
p01	

Total query runtime: 213 msec.
2 rows retrieved.



pgAdmin 4

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Query-1

CAP on postgres@PostgreSQL 9.6

```
16 order by pid DESC;
17 -- 3rd Query
18 select cid, name
19 from customers
20 where cid not in (select cid
21                     from orders
22                     where aid = ('a01')
23)
24 order by name ASC;
25 -- 4th Query ids of customers who ordered p01 and p07-----
26 select cid
27 from orders
28 where pid = 'p07' and cid in (select distinct cid
29)
```

Data Output Explain Messages History

	cid character	name text
<input type="checkbox"/>	c004	ACME
<input type="checkbox"/>	c003	Allied
<input type="checkbox"/>	c002	Tyrell
<input type="checkbox"/>	c005	Weyland

Total query runtime: 212 msec.
4 rows retrieved.

The screenshot shows the pgAdmin 4 interface. On the left is a tree view of the database structure under 'Servers'. The 'CAP' database is selected. In the main pane, there's a query editor with two queries. The first query is a multi-step process involving 'customers' and 'orders' tables. The second query is a simplified version. Below the queries is a 'Data Output' tab showing a table with four rows. A green box at the bottom right displays the execution statistics: 'Total query runtime: 212 msec.' and '4 rows retrieved.'

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Dashboard Properties SQL Statistics Dependencies Dependents Query-1 Query-2

No limit

AP on postgres@PostgreSQL 9.6

```
19    FROM customers
20   WHERE cid NOT IN (SELECT cid
21                      FROM orders
22                     WHERE aid = ('a01')
23                           )
24 ORDER BY name ASC;
-- 4th Query ids of customers who ordered p01 and p07-----
25 SELECT cid
26   FROM orders
27  WHERE pid = 'p07' AND cid IN (SELECT DISTINCT cid
28                                    FROM orders
29                                   WHERE pid = 'p01');
30
-- 5th-----
31 SELECT DISTINCT pid
```

Data Output Explain Messages History

cid	character
c006	
c001	

Total query runtime: 299 msec.
2 rows retrieved.

pgAdmin 4

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AP on postgres@PostgreSQL 9.6

```
28 where pid = 'p07' and cid in (select distinct cid
29   from orders
30   where pid = 'p01' );
31 -- 5th-----
32 select distinct pid
33 from products
34 where pid not in (select cid
35   from orders
36   where aid = 'a08'
37   )
38 order by pid DESC;
39 -- 6th Query-----
40 select name, discount, city
41   .
```

Data Output Explain Messages History

pid	character
p08	
p07	
p06	
p05	
p04	
p03	
p02	
p01	

Total query runtime: 180 msec.
8 rows retrieved.

The screenshot shows the pgAdmin 4 interface. On the left is a tree-view 'Browser' panel with sections for Servers, Databases, Login/Group Roles, Tablespaces, and pgAgent Jobs. The 'Databases' section is expanded, showing three databases: CAP, postgres, and template_postgis. The 'postgres' database is selected. On the right is a 'Query Editor' window titled 'AP on postgres@PostgreSQL 9.6'. It contains several SQL queries numbered 28 through 41. Below the editor is a 'Data Output' tab showing a table with two columns: 'pid' and 'character'. The table lists eight rows: p08, p07, p06, p05, p04, p03, p02, and p01. A green status bar at the bottom right indicates a total query runtime of 180 msec and 8 rows retrieved.

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Dashboard Properties SQL Statistics Dependencies Dependents Query-1 Query-2

No limit

AP on postgres@PostgreSQL 9.6

```
38 order by pid DESC;
-- 6th Query-
40 select name, discount, city
from customers
where cid in (select cid
               from orders
               where aid in (select aid
                             from agents
                             where city in ('Tokyo', 'New York'))
46
47 );
49 -- 7th Query-
50 select *
```

Data Output Explain Messages History

	name text	discount numeric ...	city text
<input type="checkbox"/>	Tiptop	10	Duluth
<input type="checkbox"/>	Tyrell	12	Dallas
<input type="checkbox"/>	Allied	8	Dallas
<input type="checkbox"/>	ACME	0	Kyoto

Total query runtime: 322 msec.
4 rows retrieved.

This screenshot shows the pgAdmin 4 interface. The left sidebar displays a tree view of database objects, including servers, databases (CAP, postgres, template_postgis), and various system catalog tables like Casts, Catalogs, and Event Triggers. The main area contains a query editor window titled 'AP on postgres@PostgreSQL 9.6' with two numbered queries. The first query is a complex multi-table join involving 'customers', 'orders', and 'agents'. The second query is a simple 'select *'. Below the query editor is a 'Data Output' tab showing a table with four rows of data. The table has columns for an unnamed checkbox, 'name', 'discount', and 'city'. The data rows are: Tiptop (10, Duluth), Tyrell (12, Dallas), Allied (8, Dallas), and ACME (0, Kyoto). A green status bar at the bottom right indicates a total query runtime of 322 msec and 4 rows retrieved.

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Dashboard Properties SQL Statistics Dependencies Dependents Query-1 Query-2

AP on postgres@PostgreSQL 9.6

```

47
48 );
49 -- 7th Query-
50 select *
51 from customers
52 where discount in (select discount
53   from customers
54   where city in ('Duluth', 'London')
55 );
56 -- Question 8-----
57 --   The check constraint is used to limit the value range placed within a single colu
58 --   This is essentially an integrity constraint only allowing for certain values to be
59 --   When defining the check constraint on a table you can limit the values in certain
60

```

Data Output Explain Messages History

	cid	name	city	discount
	character	text	text	numeric...
<input type="checkbox"/>	c001	Tiptop	Duluth	10
<input type="checkbox"/>	c004	ACME	Duluth	8.5

Total query runtime: 210 msec.
2 rows retrieved.

pgAdmin 4

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Dashboard Properties SQL Statistics Dependencies Dependents Query-1 Query-2

CAP on postgres@PostgreSQL 9.6

```

45   from agents
46   where city in ('Tokyo', 'New York')
47 );
48 );
49 -- 7th Query-
50 select *
51 from customers
52 where discount in (select discount
53   from customers
54   where city in ('Duluth', 'London')
55 );
56 -- Question 8-
57 --   The check constraint is used to limit the value range placed within a single column
58 --   This is essentially an integrity constraint only allowing for certain values to be entered into a
59 --   column
60 --   When defining the check constraint on a table you can limit the values in certain columns
61 --   One simple example is when a boolean value is required, then a string cannot be entered in that
62 --   value place.
63 --   Another good example of a check constraint is when you prompt for the specific string values
64 --   such as sports, ('football,basketball,soccer,baseball') and the user enters something other than
65 --   a sport. However you could also argue that sports is not necessarily a good example and in fact a
66 --   bad check constraint because it is possible that your school could add another sport.
67 --   A bad example of a check constraint is a social security number simply because it changes.
68 --   This can change over 130 days and some people do not have one.
69
70

```