

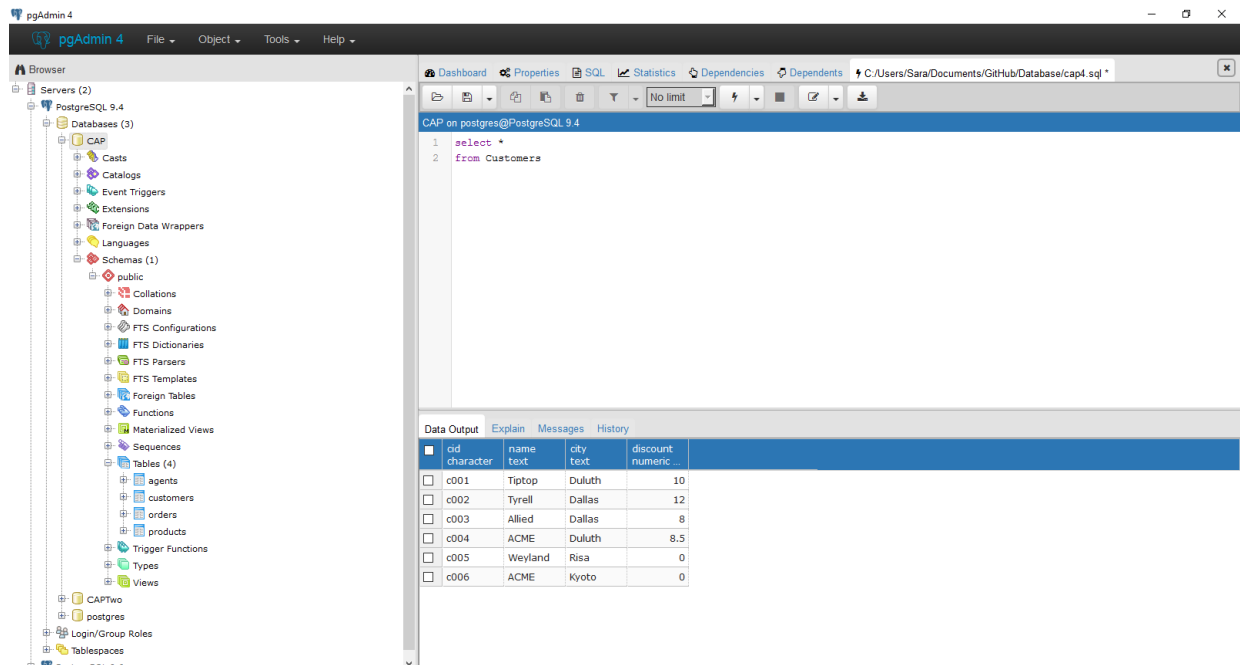
Sara Ogorzalek

Lab 2

CMPT 308

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# 1. Screenshots of each query below

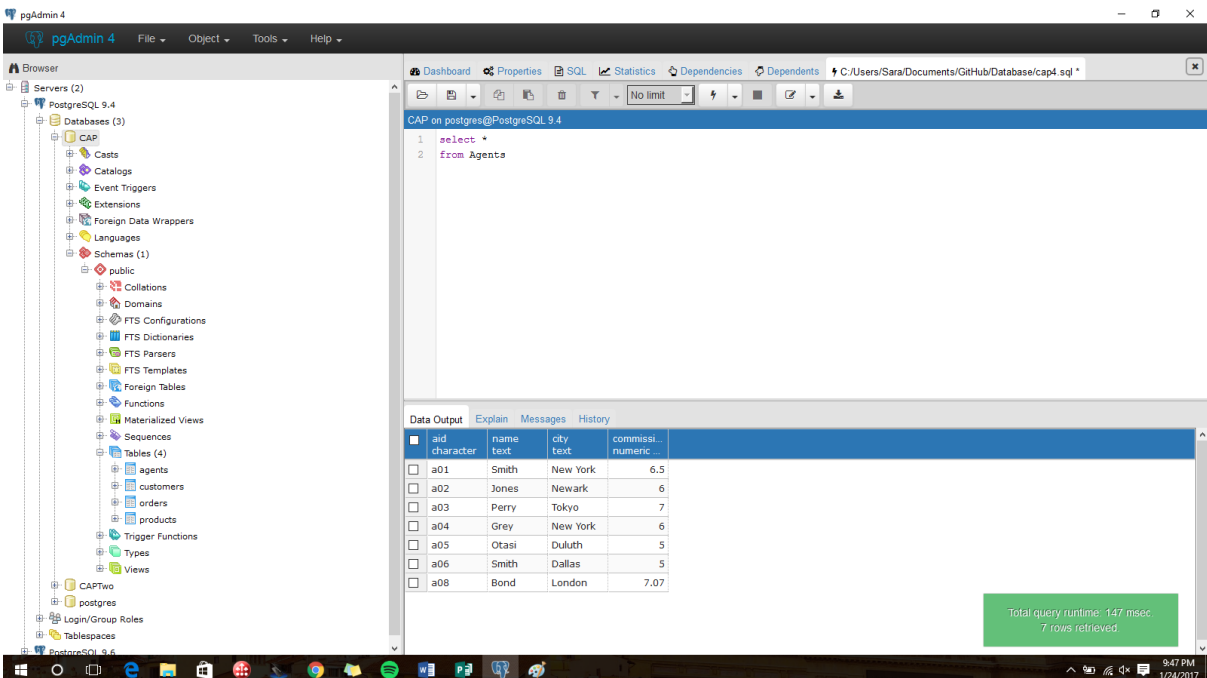


The screenshot shows the pgAdmin 4 interface. The left pane displays the database structure for PostgreSQL 9.4, including the 'CAP' database and its 'public' schema. The right pane shows the SQL editor with the following query:

```
1 select *
2 from Customers
```

The 'Data Output' tab is selected, displaying the results of the query in a table with 5 columns: 'id', 'character', 'name', 'city', and 'discount numeric...'. The results are as follows:

id	character	name	city	discount numeric...
c001	Tiptop	Duluth	10	
c002	Tyrell	Dallas	12	
c003	Allied	Dallas	8	
c004	ACME	Duluth	8.5	
c005	Weyland	Risa	0	
c006	ACME	Kyoto	0	



The screenshot shows the pgAdmin 4 interface. The left pane displays the database structure for PostgreSQL 9.4, including the 'CAP' database and its 'public' schema. The right pane shows the SQL editor with the following query:

```
1 select *
2 from Agents
```

The 'Data Output' tab is selected, displaying the results of the query in a table with 5 columns: 'aid', 'character', 'name', 'city', and 'commissi... numeric...'. The results are as follows:

aid	character	name	city	commissi... numeric...
a01	Smith	New York	6.5	
a02	Jones	Newark	6	
a03	Perry	Tokyo	7	
a04	Grey	New York	6	
a05	Otasi	Duluth	5	
a06	Smith	Dallas	5	
a08	Bond	London	7.07	

A green box at the bottom right of the results table indicates: 'Total query runtime: 147 msec. 7 rows retrieved.'

The screenshot shows the pgAdmin 4 interface. On the left, the 'Browser' pane displays the database structure for 'PostgreSQL 9.4', including 'Databases (3)', 'CAP', 'Catalogs', 'Event Triggers', 'Extensions', 'Foreign Data Wrappers', 'Languages', 'Schemas (1)', 'public', 'Collations', 'Domains', 'FTS Configurations', 'FTS Dictionaries', 'FTS Parsers', 'FTS Templates', 'Foreign Tables', 'Functions', 'Materialized Views', 'Sequences', 'Tables (4)', 'agents', 'customers', 'orders', 'products', 'Trigger Functions', 'Types', and 'Views'. The 'SQL' pane on the right contains the following query:

```

1 select *
2 from Products

```

The 'Data Output' pane shows the results of the query, which are 8 rows from the 'Products' table. The columns are: pid (character), name (text), city (text), quantity (integer), and priceusd (numeric). The data is as follows:

pid	name	city	quantity	priceusd
p01	comb	Dallas	111400	0.5
p02	brush	Newark	203000	0.5
p03	razor	Duluth	150600	1
p04	pen	Duluth	125300	1
p05	pencil	Dallas	221400	1
p06	trapper	Dallas	123100	2
p07	case	Newark	100500	1
p08	eraser	Newark	200600	1.25

A green box at the bottom right indicates: 'Total query runtime: 199 msec. 8 rows retrieved.'

The screenshot shows the pgAdmin 4 interface. On the left, the 'Browser' pane displays the database structure for 'PostgreSQL 9.4', including 'Databases (3)', 'CAP', 'Catalogs', 'Event Triggers', 'Extensions', 'Foreign Data Wrappers', 'Languages', 'Schemas (1)', 'public', 'Collations', 'Domains', 'FTS Configurations', 'FTS Dictionaries', 'FTS Parsers', 'FTS Templates', 'Foreign Tables', 'Functions', 'Materialized Views', 'Sequences', 'Tables (4)', 'agents', 'customers', 'orders', 'products', 'Trigger Functions', 'Types', and 'Views'. The 'SQL' pane on the right contains the following query:

```

1 select *
2 from Orders

```

The 'Data Output' pane shows the results of the query, which are 16 rows from the 'Orders' table. The columns are: ordnumb (integer), month (character), cid (character), aid (character), pid (character), qty (integer), and totalusd (numeric). The data is as follows:

ordnumb	month	cid	aid	pid	qty	totalusd
1011	Jan	c001	a01	p01	1000	450
1012	Jan	c002	a03	p03	1000	880
1015	Jan	c003	a03	p05	1200	1104
1016	Jan	c006	a01	p01	1000	500
1017	Feb	c001	a06	p03	600	540
1018	Feb	c001	a03	p04	600	540
1019	Feb	c001	a02	p02	400	180
1020	Feb	c006	a03	p07	600	600
1021	Feb	c004	a06	p01	1000	460
1022	Mar	c001	a05	p06	400	720
1023	Mar	c001	a04	p05	500	450
1024	Mar	c006	a06	p01	800	400
1025	Apr	c001	a05	p07	800	720
1026	May	c002	a05	p03	800	744

2. A primary key, candidate key, and superkey are different from each other. A superkey is a column or set of columns that ensures every row will be unique. A candidate key uniquely identifies every single row in fewest number of columns. Essentially, a

candidate key is a minimally sized superkey. Lastly, a primary key is the chosen candidate key. There can only be one primary key.

3. A topic for which I might create a table is for keeping track of when I spend money online. The name of the table would be Transactions. The column names would be TransactionNumber, Date, name, priceUSD, discount (percentage). The TransactionNumber would order the amount of transactions I have. This data type would be a numeric field. The date would be a date field. Name would be a character field. Price would be a decimal field. And discount would also be a decimal field, and possibly nullable if no discount applied.
4. A. The “first normal form” rule is where all intersections of every row and column have no multi-value. This can be fixed by creating a separate table for that data. For example, if there is a list of items in an “inventory” column, it would be violating the 1NF rule. This list needs to be broken down into a different table. Another example is a “name” field. First and last name need to be broken up in order to not violate this rule. If there is a data type, such as ‘date’ then this is okay.  
  
B. The “access rows by content only” rule is the what, not where rule. This means it is important to state what is in the row or column, instead of the number of the row or column. Data can always change sequence, so it is important to specify. An example of this is “give me row 10”. Row 10 can change, therefore this rule states to give the value of row 10.  
  
C. The “all rows must be unique” rule is that for each table, all rows must be different. This enables to individually address each row, which is important for relational rule number two.