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Database Systems – Lab 2

1. select * from customers;

The screenshot shows a PostgreSQL SQL Editor window titled "Query - postgres on postgres@localhost:5432". The SQL Editor tab is active, displaying the following SQL code:

```
-- Connect to your Postgres server and set the active database to CAP2. Then .  
select *  
from customers;  
  
select *  
from agents;  
  
select *  
from products;
```

The Output pane at the bottom shows the results of the first query, "select * from customers;". The output is displayed in a table with the following columns: cid, name, city, and discount. The results are as follows:

	cid character(4)	name text	city text	discount numeric(5,2)
1	c001	Tiptop	Duluth	10.00
2	c002	Basics	Dallas	12.00
3	c003	Allied	Dallas	8.00
4	c004	ACME	Duluth	8.00
5	c005	Weyland-Yutani	Acheron	0.00
6	c006	ACME	Kyoto	0.00

The status bar at the bottom indicates "OK. Unix Ln 188, Col 1, Ch 5810 24 chars 6 rows. 18 ms".

select * from agents;

The screenshot shows a PostgreSQL SQL Editor window titled "Query - postgres on postgres@localhost:5432 *". The SQL Editor tab is active, displaying the following SQL code:

```
-- Connect to your Postgres server and set the active database to CAP2. Then .  
  
select *  
from customers;  
  
select *  
from agents;  
  
select *  
from products;
```

The Output pane is visible below the editor, showing the results of the query. The "Data Output" tab is selected, displaying a table with 7 rows and 5 columns: aid, name, city, percent, and real. The data is as follows:

	aid	name	city	percent	real
1	a01	Smith	New York	6	
2	a02	Jones	Newark	6	
3	a03	Brown	Tokyo	7	
4	a04	Gray	New York	6	
5	a05	Otasi	Duluth	5	
6	a06	Smith	Dallas	5	
7	a08	Bond	London	7	

The status bar at the bottom indicates "OK. Unix Ln 193, Col 1, Ch 5858 22 chars 7 rows. 23 ms".

select * from products;

The screenshot shows a PostgreSQL SQL Editor window titled "Query - postgres on postgres@localhost:5432 *". The SQL Editor tab is active, displaying the following SQL code:

```
select *  
from agents;  
  
select *  
from products;  
  
select *  
from orders;
```

The Output pane is visible below the editor, showing the results of the query. The "Data Output" tab is selected, displaying a table with 8 rows and 6 columns: pid, name, city, quantity, priceusd, and numeric(10,2). The data is as follows:

	pid	name	city	quantity	priceusd	numeric(10,2)
1	p01	comb	Dallas	111400	0.50	
2	p02	brush	Newark	203000	0.50	
3	p03	razor	Duluth	150600	1.00	
4	p04	pen	Duluth	125300	1.00	
5	p05	pencil	Dallas	221400	1.00	
6	p06	folder	Dallas	123100	2.00	
7	p07	case	Newark	100500	1.00	
8	p08	clip	Newark	200600	1.25	

The status bar at the bottom indicates "OK. Unix Ln 194, Col 1, Ch 5859 23 chars 8 rows. 21 ms".

select * from orders;

The screenshot shows a PostgreSQL query editor window titled "Query - postgres on postgres@localhost:5432". The SQL Editor tab is active, displaying three queries: "select * from agents;", "select * from products;", and "select * from orders;". The output pane shows the results of the third query in a table format.

	ordno integer	mon character(3)	cid character(4)	aid character(3)	pid character(3)	qty integer	dollars numeric(12,2)
1	1011	jan	c001	a01	p01	1000	450.00
2	1013	jan	c002	a03	p03	1000	880.00
3	1015	jan	c003	a03	p05	1200	1104.00
4	1016	jan	c006	a01	p01	1000	500.00
5	1017	feb	c001	a06	p03	600	540.00
6	1018	feb	c001	a03	p04	600	540.00
7	1019	feb	c001	a02	p02	400	180.00
8	1020	feb	c006	a03	p07	600	600.00

At the bottom of the output pane, it shows: "Unix Ln 197, Col 1, Ch 5884 21 chars 14 rows. 18 ms".

2. A super key is any set of columns that uniquely identify every row in the table. The candidate keys are basically the minimal super key. A primary key is a candidate key that you chose to be primary. Typically when there is only one candidate key, it automatically becomes the primary key.

3. There are many instances, especially in the business world today, where information needs to be stored in a clear and concise table. One example, in which you may need to create a table, would be to organize a company's employee's personal information. Not only would you need to have access to their name and contact information, such as phone number or email, you might also need their mailing address for certain newsletters and such things like that. The name of the table could be clear and descriptive, Employee Information. The fields within the table would include headings such as Name, Date of Birth, Home Address, Phone Number, Email, etc. The only field that would be strictly a string date type would be the employee's name. Date of Birth, Phone number would be strictly integer data

types. Fields of Home Address and email would be a mix of both numbers and letters, so that would go under the character data type. Most of the fields would require information to be placed within them, except for one. Due to the purpose of the Home Address field being requested solely for newsletters and extra company opportunity information, it is listed as optional. Therefore, it is possible for this field to be listed as nullable.

4. a) The first normal form refers to the condition that every component of every tuple is an atomic value. Within this rule, there are no multi-valued attributes allowed. The first normal form is an essential property of a relation within a relational database due to it being a minimal requirement for the process of representing a database in terms of relations in standard normal forms.

b) The “access rows by content only” rule refers to the statement, “what, not where”. This purpose of this particular rule simply explains rules with the content of the fields. This rule discusses the use of null values. It does not necessarily equate to a blank or zero; however, it does indicate that the value is missing. It can become dangerous when using the null value, so be careful when entering your data into a table. Therefore, it is “what” you are entering as your data that is important within the rule, not “where”.

c) The “all rows must be unique” rule basically explains itself. If there are duplicate rows that are not distinct, there can be numerous issues that arise when resolving which of the two possible selections is the correct one.