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CMPT_308L_200_16S

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Lab 2

1.

The screenshot shows the CAP2 SQL Editor interface. The title bar reads "Query - CAP2 on postgres@localhost:5432 *". The menu bar includes File, Edit, Query, Favourites, Macros, View, and Help. The toolbar contains various icons for file operations, execution, and help. The main window is divided into two panes: the SQL Editor and the Scratch pad. The SQL Editor contains the following queries:

```
INSERT INTO Orders( ordno, mon, cid, aid, pid, qty, do:
VALUES(1024, 'mar', 'c006', 'a06', 'p01', 800, 400.)

INSERT INTO Orders( ordno, mon, cid, aid, pid, qty, do:
VALUES(1025, 'apr', 'c001', 'a05', 'p07', 800, 720.)

INSERT INTO Orders( ordno, mon, cid, aid, pid, qty, do:
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.)

select *
from customers;
```

The Output pane at the bottom shows the results of the "select * from customers;" query. It includes tabs for Data Output, Explain, Messages, and History. The Data Output tab is active, displaying a table with 6 rows and 5 columns: cid, name, city, and discount.

	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.", "DOS", "Ln 165, Col 1, Ch 4855", "6 rows.", and "64 msec".

Query - CAP2 on postgres@localhost:5432 *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries [v] Delete Delete All

```
VALUES(1024, 'mar', 'c006', 'a06', 'p01', 800, 400.0)
INSERT INTO Orders( ordno, mon, cid, aid, pid, qty, do
VALUES(1025, 'apr', 'c001', 'a05', 'p07', 800, 720.0)
INSERT INTO Orders( ordno, mon, cid, aid, pid, qty, do
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.0)

select *
from customers;

select *
from agents;
```

Scratch pad

Output pane

Data Output Explain Messages History

	aid character(3)	name text	city text	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

OK. DOS Ln 166, Col 13, Ch 4877 7 rows. 98 msec

Query - CAP2 on postgres@localhost:5432 *

File Edit Query Favourites Macros View Help

Previous queries Delete Delete All

SQL Editor Graphical Query Builder

```
VALUES(1025, 'apr', 'c001', 'a05', 'p07', 800, 720.0);  
  
INSERT INTO Orders( ordno, mon, cid, aid, pid, qty, do  
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.0);  
  
select *  
from customers;  
  
select *  
from agents;  
  
select *  
from products;
```

Scratch pad

Output pane

Data Output Explain Messages History

	pid character(3)	name text	city text	quantity integer	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

OK. DOS Ln 169, Col 15, Ch 4905 8 rows. 77 msec

The screenshot shows a PostgreSQL query editor window titled "Query - CAP2 on postgres@localhost:5432 *". The window has a menu bar (File, Edit, Query, Favourites, Macros, View, Help) and a toolbar. The main area is divided into two panes: "SQL Editor" and "Scratch pad". The "SQL Editor" pane contains the following SQL queries:

```
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.0);

select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;
```

The "Output pane" at the bottom shows the results of the queries. It has tabs for "Data Output", "Explain", "Messages", and "History". The "Data Output" tab is selected, displaying a table with 14 rows and 8 columns. The columns are: **ordno** (integer), **mon** (character(3)), **cid** (character(4)), **aid** (character(3)), **pid** (character(3)), **qty** (integer), and **dollars** (numeric(12,2)). The data is as follows:

	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
9	1021	feb	c004	a06	p01	1000	460.00
10	1022	mar	c001	a05	p06	400	720.00
11	1023	mar	c001	a04	p05	500	450.00
12	1024	mar	c006	a06	p01	800	400.00
13	1025	apr	c001	a05	p07	800	720.00
14	1026	may	c002	a05	p03	800	740.00

The status bar at the bottom shows "OK.", "DOS", "Ln 172, Col 13, Ch 4931", "14 rows.", and "129 msec".

2. A primary key is a candidate key that is used as a reference and it makes all the rows in a table unique. A candidate key is the minimum set of superkeys that makes the rows of a table unique. A superkey is a set of columns in a table that makes every row unique and is used to identify mistakes in Normal Form (Rule I).

3. There are different kinds of data types in a table. One type is FLOAT, or floating point, which is a number with a fixed decimal. Another type is DATE and TIME which denote date and time. A third data type is character string CHAR which is a fixed-length string and character string VARCHAR where the

string-length is used. A fourth data type is bit strings which use strings of bits instead of characters. A fifth type is BOOLEAN which implies a logical value like TRUE and FALSE. A sixth type is INTEGER or INT which is used for integer values.

I would create a table for the Agents' recorded working time. The table name would be Salary and its fields would be Agent ID (aid), Agent Name (name), Time In (timein), Time Out (timeout), Total Time (totalhours), and Money Earned (earnedUSD). The type for Agent ID (aid) would be INTEGER. The type for Agent Name (name) would be a VARCHAR character string. The type for Time In (timein) would be TIME. The type for Time Out (timeout) would also be TIME. The type for Total Time (totalhours) would be INTEGER. The type for Money Earned (earnedUSD) would be FLOAT.

4. The three relational rules for databases are important because they help us better organize our data in a way that we can actually use. The first rule is the "first normal form" rule. This rule follows the "atomicity" part of the ACID test. Through this rule we make sure that data is placed in such a way that it is isolated. By doing this, we can separate data into different tables and call it individually. The second rule is the "access rows by content only" rule. This rule says that we can ask what a piece of data is but not where it is. By this we mean that the placement or order of the data should not matter when trying to find the data. If it matters, then our design is probably flawed. The third rule is that all rows must be unique. This is important because having multiple rows with the same name will cause problems when trying to find and call the data. This can lead to errors and incorrect information that once again says our design is flawed.