

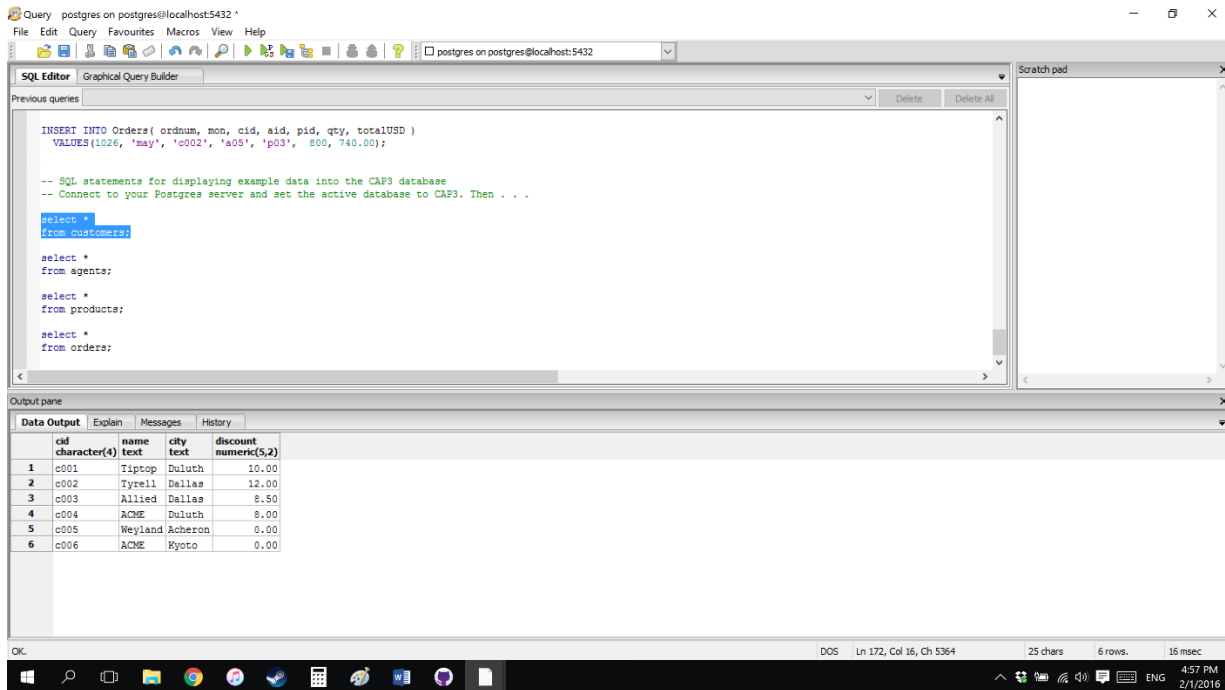
Database Systems

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2/1/16

Lab 2: CAP database

1. Screenshots of pgAdmin.



Query: postgres on postgres@localhost:5432

```
INSERT INTO Orders( ordnum, mon, cid, aid, pid, qty, totalUSD )
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.00);

-- SQL statements for displaying example data into the CAP3 database
-- Connect to your Postgres server and set the active database to CAP3. Then . . .

select *
from customers;

select *
from agents;

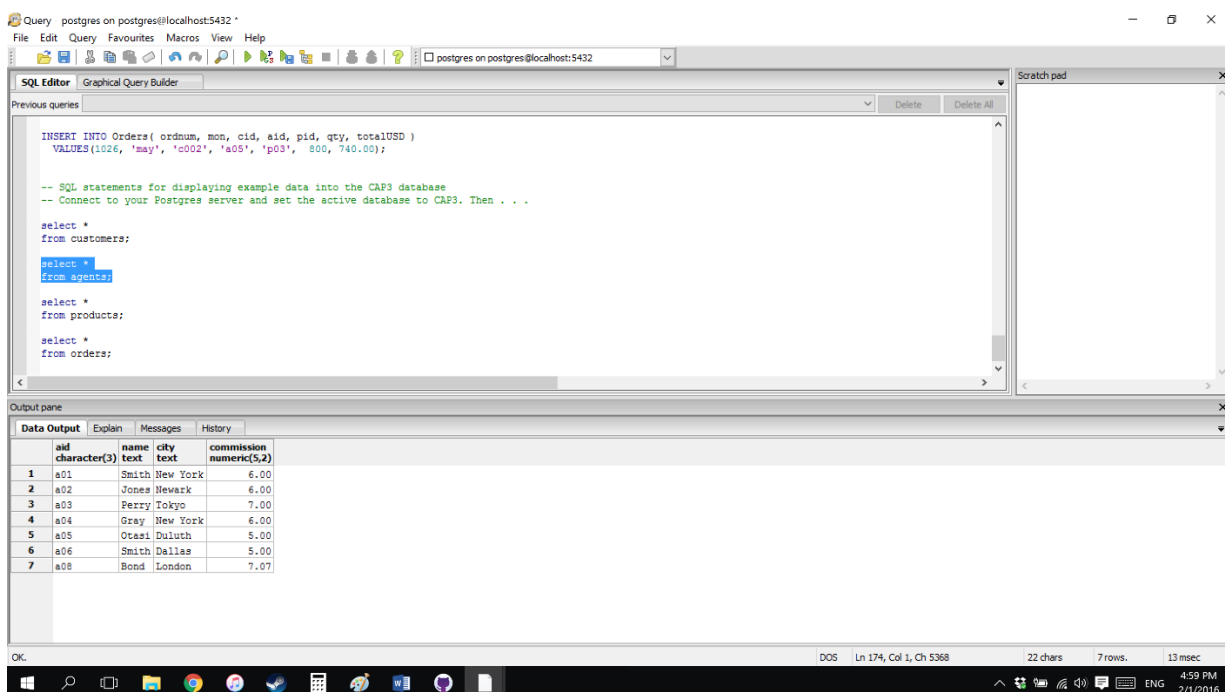
select *
from products;

select *
from orders;
```

Output pane

	cid	name	city	discount
	character(4)	text	text	numeric(5,2)
1	c001	Tiptop	Duluth	10.00
2	c002	Tyrell	Dallas	12.00
3	c003	Allied	Dallas	8.50
4	c004	ACME	Duluth	8.00
5	c005	Weyland	Acheron	0.00
6	c006	ACME	Kyoto	0.00

OK. DOS Ln 172, Col 16, Ch 5364 25 chars 6 rows. 16 msec



Query: postgres on postgres@localhost:5432

```
INSERT INTO Orders( ordnum, mon, cid, aid, pid, qty, totalUSD )
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.00);

-- SQL statements for displaying example data into the CAP3 database
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select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;
```

Output pane

	aid	name	city	commission
	character(3)	text	text	numeric(5,2)
1	a01	Smith	New York	6.00
2	a02	Jones	Newark	6.00
3	a03	Perry	Tokyo	7.00
4	a04	Gray	New York	6.00
5	a05	Otsa	Duluth	5.00
6	a06	Smith	Dallas	5.00
7	a08	Bond	London	7.07

OK. DOS Ln 174, Col 1, Ch 5368 22 chars 7 rows. 13 msec

Query: postgres on postgres@localhost:5432

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```

INSERT INTO Orders( ordnum, mon, cid, aid, pid, qty, totalUSD )
VALUES(1026, 'may', 'c002', 'a05', 'p03', 800, 740.00);

-- SQL statements for displaying example data into the CAP3 database
-- Connect to your Postgres server and set the active database to CAP3. Then . . .

select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;

```

Output pane

Data Output Explain Messages History

	pid	name	city	quantity	priceusd
	character(3)	text	text	integer	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 177, Col 1, Ch 5394 24 chars 8 rows. 15 msec 4:59 PM 2/1/2016

Query: postgres on postgres@localhost:5432

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```

-- Connect to your Postgres server and set the active database to CAP3. Then . . .

select *
from customers;

select *
from agents;

select *
from products;

select *
from orders;

```

Output pane

Data Output Explain Messages History

	ordnum	mon	cid	aid	pid	qty	totalusd
	integer	character(3)	character(4)	character(3)	character(3)	integer	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

OK DOS Ln 180, Col 1, Ch 5422 22 chars 14 rows. 12 msec 5:00 PM 2/1/2016

2. Distinctions between 'keys'.

Superkeys are a column or a set of columns that uniquely ID every row. Candidate keys are minimal superkeys (fewest number of columns needed to uniquely identify a row), and primary keys are candidate keys that you choose to make primary, and will match foreign keys in other tables.

3. Data Types

A topic one might create a table for could be a music library. The table could be named MusicLibrary and have the fields SongName, TrackNumber, Album, Genre, Artists, and Year. The fields SongName, Album, Genre, and Artists would all use the text data-type. Only SongName and Artist would not be nullable. TrackNumber and Year would be the integer data types and both would be nullable.

4. Relational Rules

The “first normal form” rule is written as such to ensure that all column/row intersects are atomic. Columns with internal structure or multi-value attributes are not allowed because they can be split. This is important because each column is meant to communicate precise data and remove all ambiguity. Having single-value attributes achieves this. The “access rows by content only” rule is written to ensure that rows are not retrieved based on their location but on their content, because row order is not static and will probably change. The “all rows must be unique” rule is written to prevent duplicate entries in the table. One field should be different (at least in the primary key attribute) in order to make a row unique.