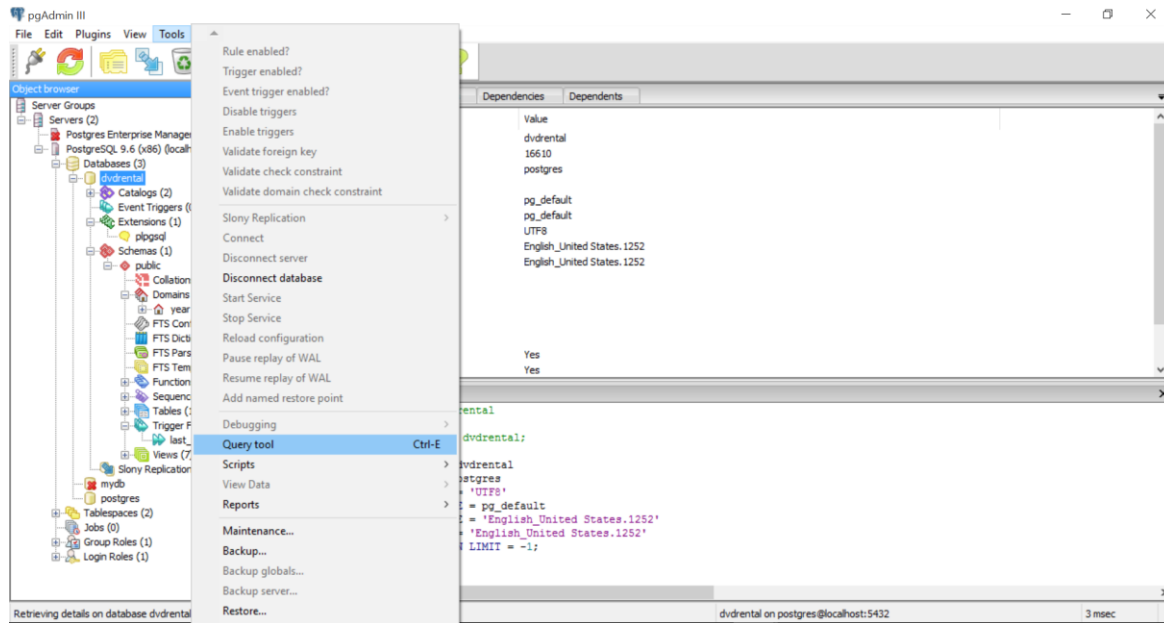
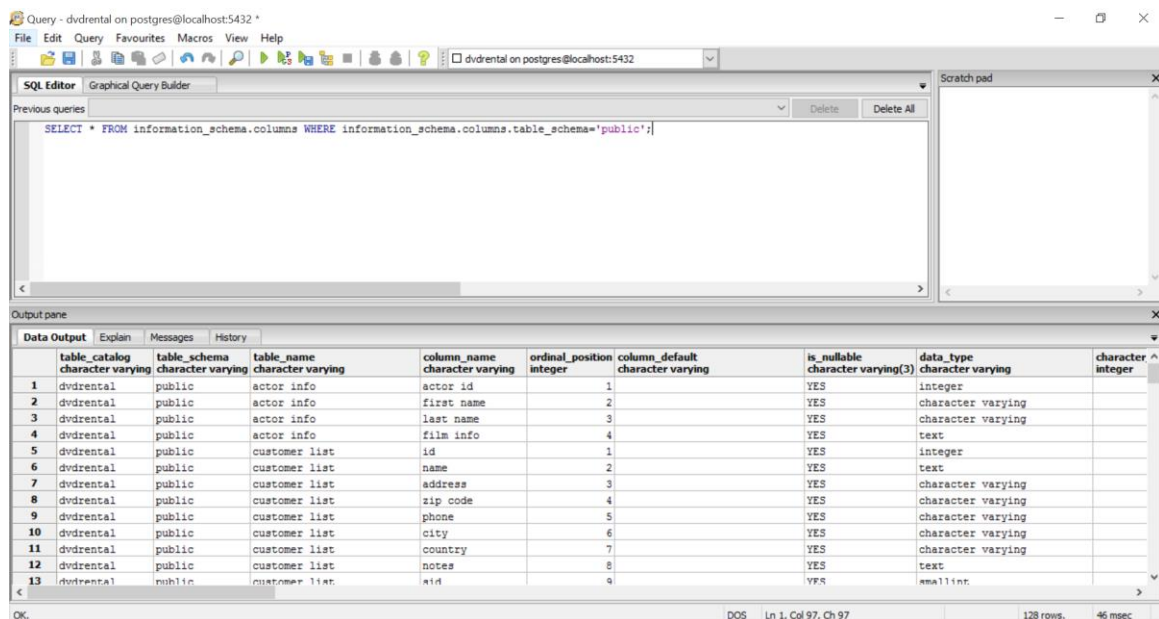


Tutorial 3

1. To obtain the information needed about base relations (from the data dictionary and the definition of the relations), open pgAdmin III, stand on the node “dvdrental”, and go to “Tools” menu and click on “Query tool”. Then, apply some SQL queries provided in the following link: www.postgresql.org/docs/current/static/information-schema.html



2. Once the SQL query editor opens, type the following SQL statement: “SELECT * FROM information_schema.columns WHERE information_schema.columns.table_schema='public';” and observe the results in the output pane



3. You can save the output in a Web-like format by doing the following steps:

The screenshot shows a database query tool interface. The top menu bar includes 'File', 'Edit', 'Query', 'Favourites', 'Macros', 'View', and 'Help'. The 'File' menu is open, showing options like 'New window', 'Open...', 'Save', 'Save as', 'Export...', 'Quick report...', 'Recent files', and 'Exit'. The 'Quick report...' option is highlighted. Below the menu, the 'Output pane' displays a table with 13 rows and 9 columns. The columns are: 'table_catalog', 'table_schema', 'table_name', 'column_name', 'ordinal_position', 'column_default', 'is_nullable', 'data_type', and 'character'. The table contains data for various tables in the 'public' schema, including 'actor_info', 'customer_list', and 'customer_list'. The status bar at the bottom indicates 'OK', 'DOS', 'Ln 1, Col 97, Ch 97', '128 rows', and '46 msec'.

The 'Generate a report' dialog box is open, showing the following options:

- Report Title: Data report1
- Report Notes: (empty text area)
- Include the SQL in the report? ☒
- Output format: ☒ XHTML 1.0 Transitional, ☐ XML
- Stylesheet: ☒ Embed the default stylesheet, ☐ Embed an external stylesheet (specified file must exist), ☐ Link to an external stylesheet
- Filename: (empty text field)
- Output file: C:\Users\Sony\Desktop\Tutorial example\Data report1
- Open the output file in the default browser? ☒

The dialog box has 'Help', 'OK', and 'Cancel' buttons. The background shows the same 'Output pane' table as above.

Data report1

Generated: 7/27/2017 9:37:27 PM
Database: dvdrental on postgres@localhost:5432

Query results

table_catalog	table_schema	table_name	column_name	ordinal_position	column_default	is_nullable	data_type	character_maximum_len
dvdrental	public	actor_info	actor_id	1		YES	integer	
dvdrental	public	actor_info	first_name	2		YES	character varying	45
dvdrental	public	actor_info	last_name	3		YES	character varying	45
dvdrental	public	actor_info	film_info	4		YES	text	
dvdrental	public	customer_list	id	1		YES	integer	
dvdrental	public	customer_list	name	2		YES	text	
dvdrental	public	customer_list	address	3		YES	character varying	50
dvdrental	public	customer_list	zip code	4		YES	character varying	10
dvdrental	public	customer_list	phone	5		YES	character varying	20
dvdrental	public	customer_list	city	6		YES	character varying	50
dvdrental	public	customer_list	country	7		YES	character varying	50
dvdrental	public	customer_list	notes	8		YES	text	
dvdrental	public	customer_list	slid	9		YES	smallint	
dvdrental	public	film_list	fid	1		YES	integer	
dvdrental	public	film_list	title	2		YES	character varying	255
dvdrental	public	film_list	description	3		YES	text	
dvdrental	public	film_list	category	4		YES	character varying	25
dvdrental	public	film_list	price	5		YES	numeric	
dvdrental	public	film_list	length	6		YES	smallint	
dvdrental	public	film_list	rating	7		YES	USER-DEFINED	
dvdrental	public	film_list	actors	8		YES	text	
dvdrental	public	nicer_but_slower_film_list	fid	1		YES	integer	
dvdrental	public	nicer_but_slower_film_list	title	2		YES	character varying	255
dvdrental	public	nicer_but_slower_film_list	description	3		YES	text	

4. To obtain information about primary key and foreign keys, use the following SQL statement:
“SELECT * FROM information_schema.constraint_column_usage WHERE
information_schema.constraint_column_usage.table_schema='public';”

Query - dvdrental on postgres@localhost:5432 *

File Edit Query Favouites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

SELECT * FROM information_schema.constraint_column_usage WHERE information_schema.constraint_column_usage.table_schema='public';

Output pane

	table_catalog	table_schema	table_name	column_name	constraint_catalog	constraint_schema	constraint_name
1	dvdrental	public	actor	actor id	dvdrental	public	actor pkey
2	dvdrental	public	address	address id	dvdrental	public	address pkey
3	dvdrental	public	category	category id	dvdrental	public	category pkey
4	dvdrental	public	city	city id	dvdrental	public	city pkey
5	dvdrental	public	country	country id	dvdrental	public	country pkey
6	dvdrental	public	customer	customer id	dvdrental	public	customer pkey
7	dvdrental	public	film actor	actor id	dvdrental	public	film actor pkey
8	dvdrental	public	film actor	film id	dvdrental	public	film actor pkey
9	dvdrental	public	film category	film id	dvdrental	public	film category pkey
10	dvdrental	public	film category	category id	dvdrental	public	film category pkey
11	dvdrental	public	film	film id	dvdrental	public	film pkey
12	dvdrental	public	inventory	inventory id	dvdrental	public	inventory pkey
13	dvdrental	public	language	language id	dvdrental	public	language pkey
14	dvdrental	public	payment	payment id	dvdrental	public	payment pkey

OK. DOS Ln 1, Col 112, Ch 112 35 rows. 21 msec

5. To obtain information about the referential integrity constraints for foreign keys, try this SQL statement: “SELECT * FROM information_schema.referential_constraints WHERE
information_schema.referential_constraints.constraint_schema='public';”

Query - dvdrental on postgres@localhost:5432 *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```
SELECT * FROM information_schema.referential_constraints WHERE information_schema.referential_constraints.constraint_schema='public';
```

Scratch pad

Output pane

	constraint_catalog character varying	constraint_schema character varying	constraint_name character varying	unique_constraint_catalog character varying	unique_constraint_schema character varying	unique_constraint_name character varying	match_option character varying	update_rule character varying	delete_rule character varying
1	dvdrental	public	customer address id fkey	dvdrental	public	address pkey	NONE	CASCADE	RESTRICT
2	dvdrental	public	film actor actor id fkey	dvdrental	public	actor pkey	NONE	CASCADE	RESTRICT
3	dvdrental	public	film actor film id fkey	dvdrental	public	film pkey	NONE	CASCADE	RESTRICT
4	dvdrental	public	film category category id fkey	dvdrental	public	category pkey	NONE	CASCADE	RESTRICT
5	dvdrental	public	film category film id fkey	dvdrental	public	film pkey	NONE	CASCADE	RESTRICT
6	dvdrental	public	film language id fkey	dvdrental	public	language pkey	NONE	CASCADE	RESTRICT
7	dvdrental	public	fk address city	dvdrental	public	city pkey	NONE	NO ACTION	NO ACTION
8	dvdrental	public	fk city	dvdrental	public	country pkey	NONE	NO ACTION	NO ACTION
9	dvdrental	public	inventory film id fkey	dvdrental	public	film pkey	NONE	CASCADE	RESTRICT
10	dvdrental	public	payment customer id fkey	dvdrental	public	customer pkey	NONE	CASCADE	RESTRICT
11	dvdrental	public	payment rental id fkey	dvdrental	public	rental pkey	NONE	CASCADE	SET NULL
12	dvdrental	public	payment staff id fkey	dvdrental	public	staff pkey	NONE	CASCADE	RESTRICT
13	dvdrental	public	rental customer id fkey	dvdrental	public	customer pkey	NONE	CASCADE	RESTRICT

OK. DOS Ln 1, Col 134, Ch 134 18 rows. 12 msec

6. To obtain information about the attributes' domain and constraints on that domain, there are two SQL statements to execute:
- "SELECT * FROM information_schema.domains WHERE information_schema.domains.domain_schema='public';"

Query - dvdrental on postgres@localhost:5432 *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```
SELECT * FROM information_schema.domains WHERE information_schema.domains.domain_schema='public';
```

Scratch pad

Output pane

	domain_catalog character varying	domain_schema character varying	domain_name character varying	data_type character varying	character_maximum_length integer	character_octet_length integer	character_set_catalog character varying	character_set_schema character varying	character_set_name character varying	collation character
1	dvdrental	public	year	integer						

OK. DOS Ln 1, Col 98, Ch 98 1 row. 14 msec

- "SELECT * FROM information_schema.domain_constraints WHERE information_schema.domain_constraints.constraint_schema='public';"

Query - dvdrental on postgres@localhost:5432 *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```
SELECT * FROM information_schema.domain_constraints WHERE information_schema.domain_constraints.constraint_schema='public';
```

Scratch pad

Output pane

	constraint_catalog character varying	constraint_schema character varying	constraint_name character varying	domain_catalog character varying	domain_schema character varying	domain_name character varying	is_deferrable character varying(3)	initially_deferred character varying(3)
1	dvdrental	public	year check	dvdrental	public	year	NO	NO

OK. DOS Ln 1, Col 107, Ch 107 1 row. 13 msec

7. To obtain information about general constraints other than those on primary keys and foreign keys, run the following SQL statement: "SELECT * FROM information_schema.check_constraints WHERE information_schema.check_constraints.constraint_schema='public';"

Query - dvdrental on postgres@localhost:5432 *

File Edit Query Favourites Macros View Help

SQL Editor Graphical Query Builder

Previous queries

```
SELECT * FROM information_schema.check_constraints WHERE information_schema.check_constraints.constraint_schema='public';
```

Scratch pad

Output pane

	constraint_catalog character varying	constraint_schema character varying	constraint_name character varying	check_clause character varying
1	dvdrental	public	2200 16694 2 not null	city IS NOT NULL
2	dvdrental	public	2200 16737 2 not null	customer id IS NOT NULL
3	dvdrental	public	2200 16718 2 not null	film id IS NOT NULL
4	dvdrental	public	2200 16660 1 not null	film id IS NOT NULL
5	dvdrental	public	2200 16743 7 not null	last update IS NOT NULL
6	dvdrental	public	2200 16743 4 not null	customer id IS NOT NULL
7	dvdrental	public	2200 16687 2 not null	address IS NOT NULL
8	dvdrental	public	2200 16660 6 not null	rental duration IS NOT NULL
9	dvdrental	public	2200 16687 7 not null	phone IS NOT NULL
10	dvdrental	public	2200 16635 8 not null	create date IS NOT NULL
11	dvdrental	public	2200 16701 3 not null	last update IS NOT NULL
12	dvdrental	public	2200 16766 4 not null	last update IS NOT NULL
13	dvdrental	public	2200 16755 1 not null	staff id IS NOT NULL
14	dvdrental	public	2200 16737 1 not null	payment id IS NOT NULL

OK. DOS Ln 1, Col 122, Ch 122 73 rows. 12 msec