
Bazy Danych

Wykład p.t.

Wprowadzenie do psql i SQL.

Język komend psql.

Podstawy instrukcji SELECT

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Wykorzystano materiały:

[http:](http://www.postgresql.org/docs/8.3/interactive/index.html)

[//www.postgresql.org/docs/8.3/interactive/index.html](http://www.postgresql.org/docs/8.3/interactive/index.html)

Klient PostgreSQL – psql

psql – interakcyjny terminal PostgreSQL

psql [option...] [dbname [username]]

opcje i opis:

<http://www.postgresql.org/docs/8.3/interactive/app-psql.html>

-d dbname – specyfikacja bazy

-h hostname – specyfikacja hosta

-p port – specyfikacja portu; default: PORT = '5432'

-U user – uprawniony użytkownik

```
ali@ali:~/DATABASES/PRAC$ psql pracownicy
```

```
Welcome to psql 8.2.6, the PostgreSQL interactive terminal.
```

```
Type:  \copyright for distribution terms
       \h for help with SQL commands
       \? for help with psql commands
       \g or terminate with semicolon to execute query
       \q to quit
```

```
pracownicy=>
```

```
pracownicy=> \q
```

```
ali@ali:~$
```

```
ali@ali:~$ psql -d pracownicy -U ali
Welcome to psql 8.2.6, the PostgreSQL interactive terminal.
```

```
Type:  \copyright for distribution terms
       \h for help with SQL commands
       \? for help with psql commands
       \g or terminate with semicolon to execute query
       \q to quit
```

```
pracownicy=>
```

Komendy psql

pracownicy=> \?

General

<code>\c[onnect] [DBNAME - USER - HOST - PORT -]</code>	connect to new database (currently "pracownicy")
<code>\cd [DIR]</code>	change the current working directory
<code>\copyright</code>	show PostgreSQL usage and distribution terms
<code>\encoding [ENCODING]</code>	show or set client encoding
<code>\h [NAME]</code>	help on syntax of SQL commands, * for all commands
<code>\q</code>	quit psql
<code>\set [NAME [VALUE]]</code>	set internal variable, or list all if no parameter
<code>\timing</code>	toggle timing of commands (currently off)
<code>\unset NAME</code>	unset (delete) internal variable
<code>\! [COMMAND]</code>	execute command in shell or start interactive shell

Query Buffer

<code>\e [FILE]</code>	edit the query buffer (or file) with external editor
<code>\g [FILE]</code>	send query buffer to server (and results to file)
<code>\p</code>	show the contents of the query buffer
<code>\r</code>	reset (clear) the query buffer
<code>\s [FILE]</code>	display history or save it to file
<code>\w FILE</code>	write query buffer to file

Input/Output

<code>\echo [STRING]</code>	write string to standard output
<code>\i FILE</code>	execute commands from file
<code>\o [FILE]</code>	send all query results to file or pipe
<code>\qecho [STRING]</code>	write string to query output stream (see \o)

Informational

```

\d [NAME]          describe table, index, sequence, or view
\d{t|i|s|v|S} [PATTERN] (add "+" for more detail)
                  list tables/indexes/sequences/views/system ta
\dA [PATTERN]     list aggregate functions
\dB [PATTERN]     list tablespaces (add "+" for more detail)
\dC [PATTERN]     list conversions
\dC              list casts
\dD [PATTERN]     show comment for object
\dD [PATTERN]     list domains
\dF [PATTERN]     list functions (add "+" for more detail)
\dG [PATTERN]     list groups
\dN [PATTERN]     list schemas (add "+" for more detail)
\dO [NAME]        list operators
\dL              list large objects, same as \lo_list
\dP [PATTERN]     list table, view, and sequence access privile
\dT [PATTERN]     list data types (add "+" for more detail)
\dU [PATTERN]     list users
\l              list all databases (add "+" for more detail)
\z [PATTERN]     list table, view, and sequence access privile

```

Formatting

```

\a              toggle between unaligned and aligned output m
\C [STRING]     set table title, or unset if none
\f [STRING]     show or set field separator for unaligned que
\H             toggle HTML output mode (currently off)
\pset NAME [VALUE]
                set table output option
                (NAME := {format|border|expanded|fieldsep|foc
                numericlocale|recordsep|tuples_only|title|tak
\T             show only rows (currently off)
\T [STRING]     set HTML <table> tag attributes, or unset if
\x            toggle expanded output (currently off)

```

Copy, Large Object

```
\copy ...          perform SQL COPY with data stream to the client
\lo_export LOBOID FILE
\lo_import FILE [COMMENT]
\lo_list
\lo_unlink LOBOID      large object operations
(END)
```

Podstawowe komendy psql

Type: \copyright for distribution terms
 \h for help with SQL commands
 \? for help with psql commands
 \g or terminate with semicolon to execute query
 \q to quit

\c[onnect] [DBNAME|- USER|- HOST|- PORT|-]
 connect to new database (currently "pracownicy")

\encoding [ENCODING]
 show or set client encoding

\set [NAME [VALUE]]
 set internal variable, or list all if no parameters

\w FILE write query buffer to file

\i FILE execute commands from file

\d [NAME] describe table, index, sequence, or view
\d{t|i|s|v|S} [PATTERN] (add "+" for more detail)
 list tables/indexes/sequences/views/system tables

\l list all databases (add "+" for more detail)

Komendy SQL: SELECT

pracownicy=> \h select

Command: SELECT

Description: retrieve rows from a table or view

Syntax:

```
SELECT [ ALL | DISTINCT [ ON ( expression [, ...] ) ] ]
      * | expression [ AS output_name ] [, ...]
      [ FROM from_item [, ...] ]
      [ WHERE condition ]
      [ GROUP BY expression [, ...] ]
      [ HAVING condition [, ...] ]
      [ { UNION | INTERSECT | EXCEPT }
[ ALL ] select ]
      [ ORDER BY expression
[ ASC | DESC | USING operator ] [, ...] ]
      [ LIMIT { count | ALL } ]
      [ OFFSET start ]
      [ FOR { UPDATE | SHARE }
[ OF table_name [, ...] ] [ NOWAIT ] [...] ]
```

where from_item can be one of:

```
[ ONLY ] table_name [ * ]
[ [ AS ] alias [ ( column_alias [, ...] ) ] ]
  ( select ) [ AS ] alias [ ( column_alias [, ...] ) ]
  function_name ( [ argument [, ...] ] )
[ AS ] alias [ ( column_alias [, ...]
| column_definition [, ...] ) ]
  function_name ( [ argument [, ...] ] )
AS ( column_definition [, ...] )
  from_item [ NATURAL ] join_type from_item
[ ON join_condition | USING ( join_column [, ...] ) ]
```


SELECT – przykłady

```
SELECT 2=3;
```

```
pracownicy=> select 2+3;  
?column?
```

```
-----
```

```
5
```

```
(1 row)
```

```
SELECT *  
FROM prac;
```

```
pracownicy=> SELECT * FROM PRAC;
```

id_prac	nazwisko	imie	data_ur	dzial	stanow
1100	Kowal	Adam	1989-12-15	PD303	robotn
110	Kowalik	Artur	1998-12-13	PD303	kierow
1110	Kowalewski	Adam	1989-11-15	PR202	robotn
101	Kowalczyk	Amadeusz	1998-12-17	PK101	kierow
1101	Kowalski	Antoni	1999-12-15	PD303	robotn
1011	Kowalowski	Alojzy	1998-11-15	PK101	robotn
111	Kowalczuk	Adam	1998-11-12	PR202	kierow
1010	Kawula	Alojzy	1998-11-15	PK101	robotn

```
(8 rows)
```

```
SELECT imie, nazwisko, stanowisko, pobory  
FROM prac  
WHERE pobory > 1500;
```

```
imie | nazwisko | stanowisko | pobory
```

```
-----+-----+-----+-----  
Adam   | Kowalewski | robotnik | 3500.00  
Antoni | Kowalski   | robotnik | 4500.00  
Alojzy | Kowalowski | robotnik | 2500.00  
Adam   | Kowalczuk  | kierownik | 2500.00  
Alojzy | Kawula     | robotnik | 2500.00  
(5 rows)
```