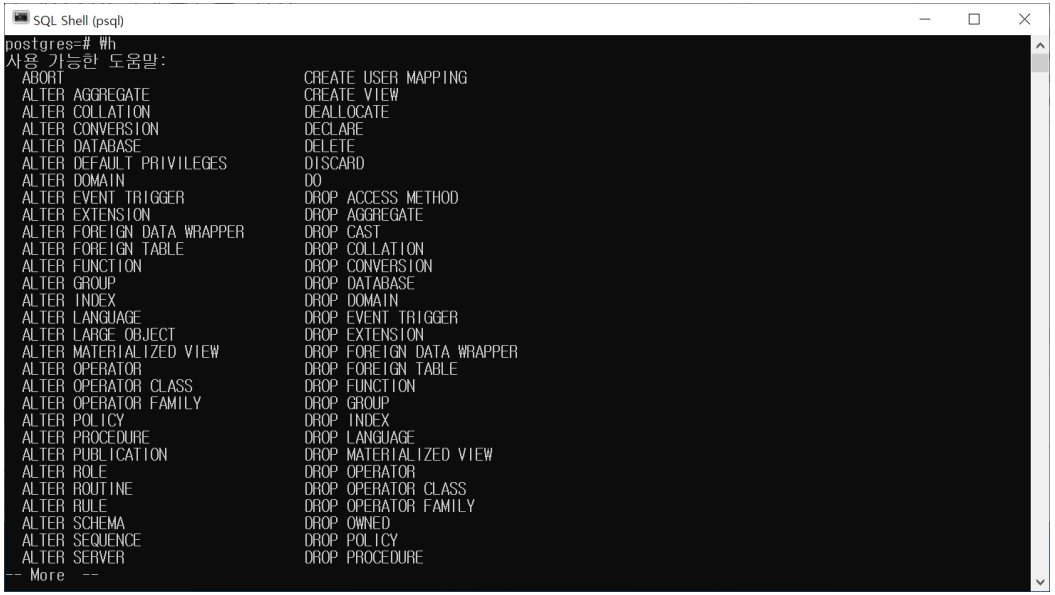
KOREA UNIVERSITY
DATABASE LAB

Lab

Chapter 3 – SQL 2/2

Useful PostgreSQL Commands

- \h: help, \h *command*: help on the command
- \d: list tables, \d *table_name*: describe table
- \i *file_name*: import SQL script
- \c *database_name*: connect to the database
- \l : list databases
- \q: quit PostgreSQL
- History 기능 제공 (위, 아래 화살표 사용)



Database Setup

1. Download the following sql files from blackboard
   - University.sql
   - Employee.sql
2. Make university schema and insert the data into relations using sql files
   a. Execute PostgreSQL SQL Shell(psql)
   b. Run '\c chapter3' // connection to database 'chapter3'
   c. Run '\i [filepath]/University.sql' (Don't use whitespace or backslash '\' in the filepath)
      - \i 'C:\\Users\\account\\한글 폴더\\University.sql' (double backslash wrapped in single quotation marks)
      - 문제가 있으면 파일을 조건에 맞는 디렉토리로 옮겨서 사용
   d. Run '\i [filepath]/Employee.sql'

Exercise 1

- Based on the university schema, write the following queries in SQL.
  a. Execute ‘select * from instructor;’ and ‘select * from course;’
  b. Increase the *salary* of each instructor in the Comp. Sci. department by 10%.
  c. Delete all courses that have never been offered (i.e., do not occur in the *section* relation).
  d. Insert every student whose *tot_cred* attribute is greater than 100 as an instructor in the same department, with a salary of $10,000.
  e. Execute ‘select * from instructor;’ and ‘select * from course;’

Exercise 2

- Consider the relational database in the below, where the primary keys are underlined. Give an expression in SQL for each of the following queries.

employee (ID, person_name, street, city)
works (ID, company_name, city, salary)
company (company_name, city)

a. Find the ID of each employee who does not work for “First Bank Corporation”.
b. Find the ID of each employee who earns more than every employee of “Small Bank Corporation”.
c. Find the name of the company that has the most employees (or companies, in the case where there is a tie for the most).
d. Find the name of the company that has branches in all cities where “Small Bank Corporation” is located; make sure there are no duplicates in the result. (“Small Bank Corporation” may be included in the result.)
e. Find the city where the company, the answer to the problem above, exists, but “Small Bank Corporation” doesn’t.

Exercise 2

- Consider the relational database in the below, where the primary keys are underlined. Give an expression in SQL for each of the following queries.

employee (ID, person_name, street, city)
works (ID, company_name, city, salary)
company (company_name, city)

f. Increase the salary of each employee in the company whose employees earn a lower salary, on average, than the average salary at “Second Bank Corporation” by 20%.

1. Execute 'select * from works;’.
2. Find the name of each company whose employees earn a lower salary, on average, than the average salary at “Second Bank Corporation”.
3. Solve the problem.
4. Execute 'select * from works;’.

Homework

- Complete today's practice exercises
- Write your queries and take screenshots of execution results
- Submit your report on blackboard
  - 10:29:59, 2024/04/18
  - **Only PDF files** are accepted
  - **No late submission**

End of Lab