KOREA UNIVERSITY
DATABASE LAB

Chapter 3 - Lab

SQL Practice 2

Useful PostgreSQL Commands

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

Database Setup

1. Download the following two sql files from blackboard
   - University.sql
   - Employee.sql
2. Make university and employee schemas and insert the data into relations, using sql files
   a. Execute PostgreSQL SQL Shell(psql)
   b. Create a new database using 'CREATE DATABASE practice2;' command
   c. \c practice2 // connection to database 'practice2'
   d. \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
   e. \i [filepath]/Employee.sql

Exercise 1

- Write the following queries in SQL, using the university schema.
  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 of below figure, 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*, *salary*)
company (*company_name*, *city*)

a. Find the ID, name, city, and street of each employee who works for “First Bank Corporation”.
b. Find the ID, name, city, and street of each employee who works for “First Bank Corporation” and earns more than $10000.
c. Find the ID of each employee who does not work for “First Bank Corporation”.
d. Find the ID of each employee who earns more than every employee of “Small Bank Corporation”.

Exercise 2

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

employee (<u>*ID*</u>, *person_name*, *street*, *city*)
works (<u>*ID*</u>, *company_name*, *salary*)
company (<u>*company_name*</u>, *city*)

e. Find the name of each company that is in the city of “Small Bank Corporation” is located.
f. Find the name of the company that has the most employees (or companies, in the case where there is a tie for the most).
g. Find the name of each company whose employees earn a higher salary, on average, than the average salary at “First Bank Corporation”.

Homework

- Complete today's practice exercises
- Write your queries and take screenshots of execution results
- Submit your report on blackboard
  - 10:29:59, April 13th
  - **Only PDF files** are accepted
  - **No late submission**

End of Lab