HomeWork 09 SQL: due 09/25/2019

Part A: Creating Database

CREATE DATABASE "HW09\_SQL"

WITH

OWNER = postgres

ENCODING = 'UTF8'

LC\_COLLATE = 'English\_United States.1252'

LC\_CTYPE = 'English\_United States.1252'

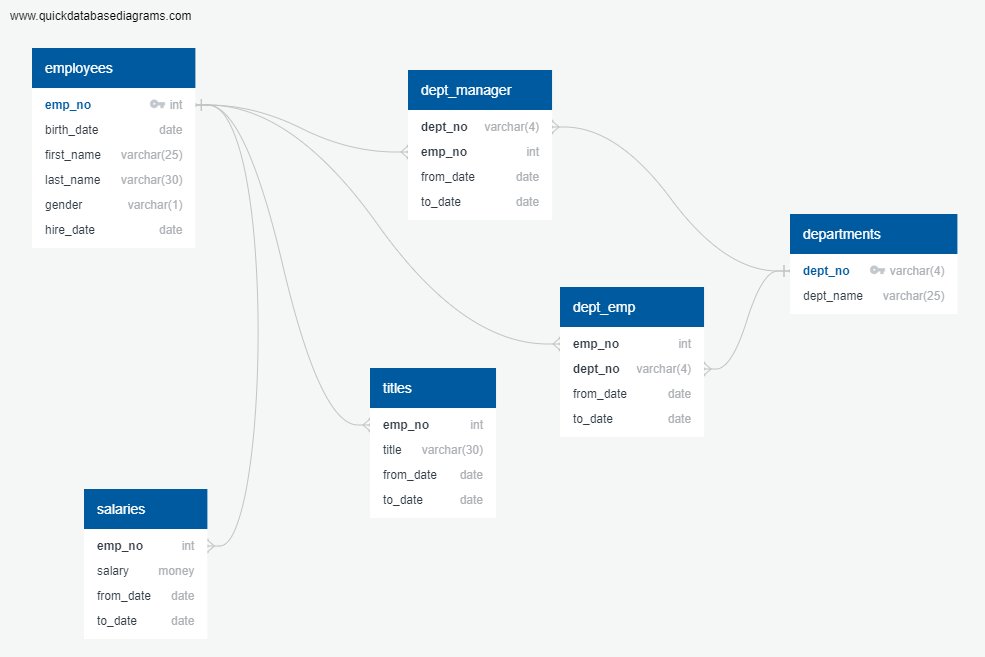
TABLESPACE = pg\_default

CONNECTION LIMIT = -1;

COMMENT ON DATABASE "HW09\_SQL"

IS 'Home Work 09 using SQL';

Part B: Creating Needed Tables within the Database



-- Exported from QuickDBD: https://www.quickdatabasediagrams.com/

-- Link to schema: https://app.quickdatabasediagrams.com/#/d/T3VgHJ

-- NOTE! If you have used non-SQL datatypes in your design, you will have to change these here.

CREATE TABLE "employees" (

"emp\_no" int NOT NULL,

"birth\_date" date NOT NULL,

"first\_name" varchar(25) NOT NULL,

"last\_name" varchar(30) NOT NULL,

"gender" varchar(1) NOT NULL,

"hire\_date" date NOT NULL,

CONSTRAINT "pk\_employees" PRIMARY KEY (

"emp\_no"

)

);

CREATE TABLE "titles" (

"emp\_no" int NOT NULL,

"title" varchar(30) NOT NULL,

"from\_date" date NOT NULL,

"to\_date" date NOT NULL

);

CREATE TABLE "salaries" (

"emp\_no" int NOT NULL,

"salary" money NOT NULL,

"from\_date" date NOT NULL,

"to\_date" date NOT NULL

);

CREATE TABLE "departments" (

"dept\_no" varchar(4) NOT NULL,

"dept\_name" varchar(25) NOT NULL,

CONSTRAINT "pk\_departments" PRIMARY KEY (

"dept\_no"

)

);

CREATE TABLE "dept\_emp" (

"emp\_no" int NOT NULL,

"dept\_no" varchar(4) NOT NULL,

"from\_date" date NOT NULL,

"to\_date" date NOT NULL

);

CREATE TABLE "dept\_manager" (

"dept\_no" varchar(4) NOT NULL,

"emp\_no" int NOT NULL,

"from\_date" date NOT NULL,

"to\_date" date NOT NULL

);

ALTER TABLE "titles" ADD CONSTRAINT "fk\_titles\_emp\_no" FOREIGN KEY("emp\_no")

REFERENCES "employees" ("emp\_no");

ALTER TABLE "salaries" ADD CONSTRAINT "fk\_salaries\_emp\_no" FOREIGN KEY("emp\_no")

REFERENCES "employees" ("emp\_no");

ALTER TABLE "dept\_emp" ADD CONSTRAINT "fk\_dept\_emp\_emp\_no" FOREIGN KEY("emp\_no")

REFERENCES "employees" ("emp\_no");

ALTER TABLE "dept\_emp" ADD CONSTRAINT "fk\_dept\_emp\_dept\_no" FOREIGN KEY("dept\_no")

REFERENCES "departments" ("dept\_no");

ALTER TABLE "dept\_manager" ADD CONSTRAINT "fk\_dept\_manager\_dept\_no" FOREIGN KEY("dept\_no")

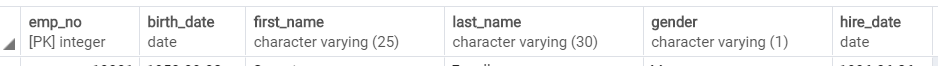
REFERENCES "departments" ("dept\_no");

ALTER TABLE "dept\_manager" ADD CONSTRAINT "fk\_dept\_manager\_emp\_no" FOREIGN KEY("emp\_no")

REFERENCES "employees" ("emp\_no");

Resulting Table Structures:

**employees**



**titles**



**salaries**



**departments**



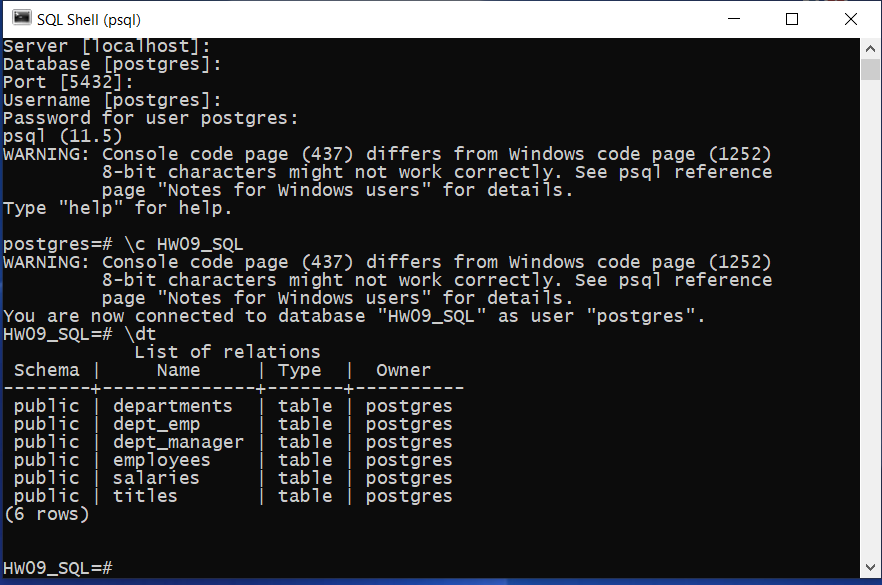
**dept\_emp**



**dept\_mager**



Another Way to Confirm Existence of Tables: (By using psql Shell)



Part C: Running Queries

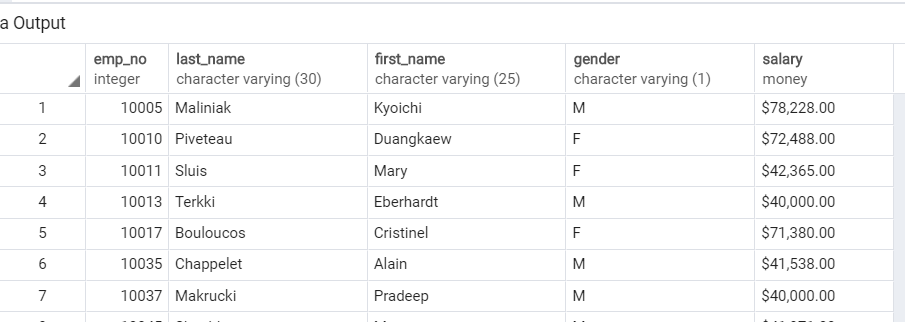
[1] List the following details of each employee: employee number, last name, first name, gender, and salary.

SELECT e.emp\_no, e.last\_name, e.first\_name, e.gender, s.salary

FROM salaries AS s

INNER JOIN employees AS e ON

e.emp\_no=s.emp\_no;



[2] employees hired in 1987

Tried two different approaches and got same results:

SELECT emp\_no, last\_name, first\_name, gender, hire\_date

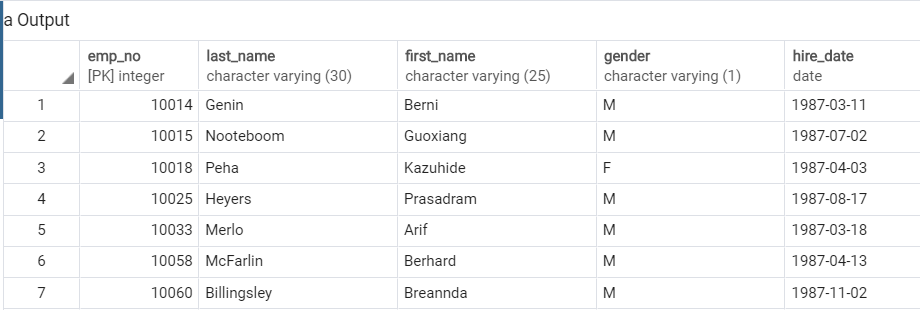
FROM employees

WHERE hire\_date BETWEEN'1987-01-01' AND'1987-12-31';

SELECT emp\_no, last\_name, first\_name, gender, hire\_date

FROM employees

WHERE extract (year from hire\_date)='1987';



[3] List the manager of each department with the following information: department number, department name, the manager's employee number, last name, first name, and start and end employment dates.

SELECT d.dept\_no, d.dept\_name, e.emp\_no, e.last\_name, e.first\_name, s.from\_date, s.to\_date

FROM departments as d

INNER JOIN dept\_manager as dm

ON d.dept\_no=dm.dept\_no

INNER JOIN employees as e

ON dm.emp\_no=e.emp\_no

INNER JOIN salaries as s

ON e.emp\_no=s.emp\_no

ORDER BY d.dept\_no;



[4] List the department of each employee with the following information: employee number, last name, first name, and department name.

SELECT e.emp\_no, e.last\_name, e.first\_name, d.dept\_name

FROM employees as e

INNER JOIN dept\_emp de

ON de.emp\_no=e.emp\_no

INNER JOIN departments as d

ON de.dept\_no=d.dept\_no

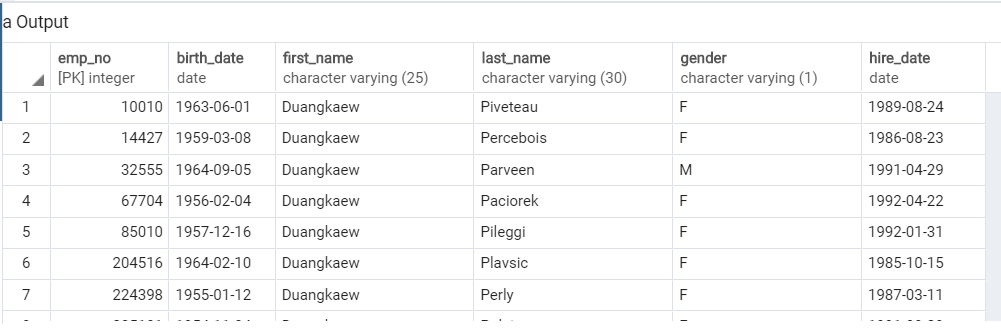
ORDER BY e.last\_name;



[5] List all employees whose first name is "Duangkaew" and last names begin with "P."

SELECT \* FROM employees

WHERE first\_name='Duangkaew' and left(last\_name,1)='P';



[6] List all employees in the Sales department, including their employee number, last name, first name, and department name.

SELECT e.emp\_no, e.last\_name, e.first\_name, d.dept\_name

FROM employees as e

INNER JOIN dept\_emp as de

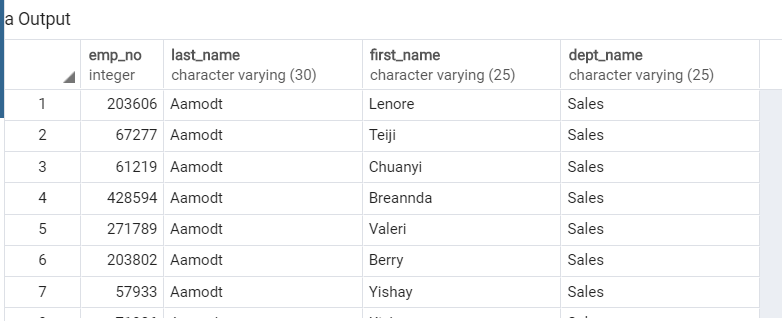
ON e.emp\_no=de.emp\_no

INNER JOIN departments as d

ON de.dept\_no=d.dept\_no

WHERE d.dept\_name='Sales'

ORDER BY e.last\_name;



[7] List all employees in the Sales and Development departments, including their employee number, last name, first name, and department name.

SELECT e.emp\_no, e.last\_name, e.first\_name, d.dept\_name

FROM employees as e

INNER JOIN dept\_emp as de

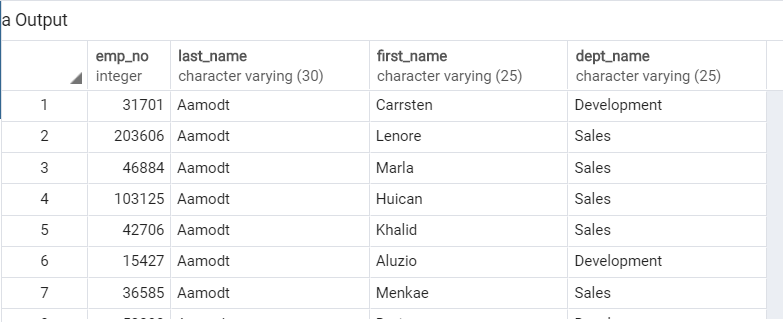
ON e.emp\_no=de.emp\_no

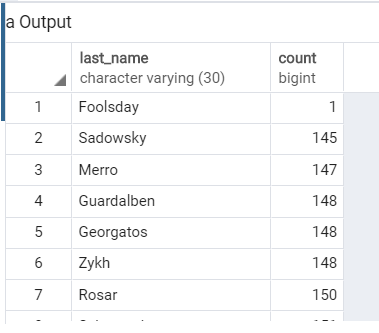
INNER JOIN departments as d

ON de.dept\_no=d.dept\_no

WHERE d.dept\_name='Sales' OR d.dept\_name='Development'

ORDER BY e.last\_name;



[8] In ascending order, list the frequency count of employee last names, i.e., how many employees share each last name.

SELECT last\_name,COUNT(\*) as count

FROM employees

GROUP BY last\_name

ORDER BY count;