

## CS 325 - Week 5 Lab Exercise

### Deadline

Due by the end of lab on 2021-09-24.

### Purpose

To practice writing more SQL `select` statements, including some using new features discussed this week, and including some combining several relational operations in a single `select` statement.

### How to submit

**JUST** this "driver" for each pair should use `~st10/325submit` to submit the pair's copy of this lab exercise's files, with a lab number of **85**

### Important notes

- **I have included an example** `325lab5-out.txt` **along with this lab exercise handout, for comparison purposes.**
  - This is both to let you know if you are on the right track, AND to hopefully encourage **DEBUGGING** of your SQL `select` statements if you see significant differences.
- You may find the following useful for this lab exercise:
  - NOTE that on the course Canvas site, under Modules, in the "Class Recordings" section, the **FIRST** link in that section leads to the public course web site's "In-class Examples" section.
  - SQL Reading Packet 3 - More where clause options and aggregate functions
- You are required to work in **pairs** for this lab exercise. If you are not pair-programming, then you may not receive full credit for your lab exercise.
  - If there are an odd number of students attending lab, or too many students with connectivity issues, some teams may have 3 students.
- **RECOMMENDATION:** RUN your script-in-progress **FREQUENTLY** as you are developing it -- do not create the entire script before running it for the first time.

### Lab Exercise set-up

- On nrs-projects, **CREATE** a directory `325lab5`, protect it, and go to it:

```
mkdir 325lab5
chmod 700 325lab5
cd 325lab5
```
- **IF** you do not already have tables `empl`, `dept`, and `customer`, **COPY** the following script to your directory:

```
cp ~st10/set-up-ex-tbls.sql . # remember the space and period
```

...and **run** it in `sqlplus` to get your own versions of these tables

## Lab Exercise tasks

- Then, begin a SQL script `325lab5.sql` with comment(s) including at least **BOTH (all)** of your **names** and **today's date**. Add commands for the following into this SQL script.
- Start spooling to a file `325lab5-out.txt`.
- Write a prompt command to print a message to the screen containing **both** of your names.
- Write a prompt command outputting **lab query 1**, then write a query that projects just the employee last names for employees who have a `mgr` column whose value is null.
- Write a prompt command outputting **lab query 2**, then write a query that projects just the employee last name and hire dates for employees whose job title is 'Sales'.
- Write a prompt command outputting **lab query 3**, then write a query that projects the `dept_name` and `salary` for employees whose `mgr` column contains '7839'.
- Write a prompt command outputting **lab query 4**, then write a query performing a true relational projection - with NO duplicate rows in the result - of the `job_title` and `mgr` columns of the `empl` table.
- Write a prompt command outputting **lab query 5**, then write a query using **IN** that selects those rows in `dept` whose location is either 'Dallas', 'Boston', or 'New York'.
- Write a prompt command outputting **lab query 6**, then write a query that projects the employee last names, job titles, and salaries for employees who either have salaries greater than 3000 or who have salaries less than 1000.
- Write a prompt command outputting **lab query 7**, then write a query, using **between**, that selects the rows for employees hired between September 1, 2018 and September 30, 2018.
- Write a prompt command outputting **lab query 8**, then write a query, using **like**, that selects those rows from the employee table for employees whose last name begins with the letter 'M'.
- Write a prompt command outputting **lab part 9**, then think of at least one question you could ask about employees, departments, or customers, that you think you can answer given what you know about SQL so far. (It should ask something different than is answered by any of the queries above.)

Then:

- Write a prompt command printing at least one such question you decided on.
- Then write a query answering each such question you give. (For lab exercise purposes, make sure the result has at least one row in it.)
- Turn off spooling.
- When you believe your SQL script is working properly, submit your `325lab5.sql` and `325lab5-out.txt` files using `~st10/325submit` with a homework number of **85**.
  - (Once you have submitted your lab exercise files, you may leave lab if you wish. Or, you can ask questions, (noting that lab-exercise-related questions need to receive 1st priority), work on the CS 325 homework, etc.)