

In-class Exercises: Databases

1. Before we can start working with a database you need to connect to your teach.cs account. You'll do this using your utorid as the login and the password that Jennifer emailed to you. If you don't know your password, ask Michelle. Once you have logged in (either using NX or ssh) you need a window running a terminal so that you can type unix commands.
2. Each C4M student has their own Postgres database already set up – although it has no tables in it yet. In order to access it you need to be on a particular teach.cs server called `dbsrv1`. You connect to this by typing:

```
ssh <your UTORID>@dbsrv1.teach.cs.toronto.edu
```

3. The next command is to copy the schema and data files for the practice database into your local directory.

```
cp ~/mccraig/C4M/courses* .
```

This should copy the files `coursesDDL.txt` (the schema) and `coursesData.txt` (the data).

4. Now you can start Postgres by typing the command below but replacing `mccraig` with your UTORID.

```
psql c4mws-mccraig
```

You should see the postgres prompt. Typing `.` now should tell you that no relations were found.

5. Use the command `\i coursesDDL.txt` to load the practice schema. Now `\d` should show you the 4 tables and `\d student` will show you the schema for the Student table.
6. The tables are all empty at this point. Load the data with `\i coursesData.txt` Explore the data by using `SELECT * FROM <tablename>` on the different tables.
7. Here are some questions to answer to practice basic SQL queries. Although you might be able to answer the questions by visually scanning through the output from a larger query, don't do this. Write a query that only gives the data you need.
 - What are the email addresses of the students whose cgpa's are greater than 3.2?
 - What courses (find the course number and department) did Craig teach in term 2081?
 - What is the name of the course HIS 220?
 - What is the number of the course called 'The Graphic Novel'?
8. Write an SQL query to find each of the following.
 - What are the names of professors who have taught Marine Mammal Bio?
 - Who has taught Homer Simpson?
9. Find the sid and minimum grade of each student with an average over 80.
10. Find the sid, surname, and average grade of each student, but keep the data only for those students who have taken at least 10 courses.
11. Add yourself into the database with student number '444'. Now add a friend with student number '157'.