**Homework 3** **CS157A**

Total Points: **20**

Each SQL query is 1 point

**Part 1:**

Load the ‘census-summary.sql’ data into SQLite (use .read census-summary.sql)

Write SQL to answer the following questions:

1. Show the workclass and education of people under 20?

* sqlite> select workclass, education from census where age < 20;

1. Show the sex of people who are over 80 and have never married?

* sqlite> select sex from census where age > 80 and marital\_status = 'Never\_married';

1. show the sex, age, and marital status for people in the armed forces

* sqlite> select sex, age, marital\_status from census where occupation = 'Armed\_Forces';

1. show the marital status of people of age 50 with relationship 'Not\_in\_family'

* select marital\_status from census where age = 50 and relationship = 'Not\_in\_family';

1. show the occupation of women under the age of 40 with a Doctorate degree

* select distinct occupation from census where sex = 'Female' and education = 'Doctorate' and age < 40;

1. show all columns for people under the age of 21 with a Masters degree

* sqlite> select \* from census where age < 21 and education = "Masters";

1. show the age of females with either a bachelors or a masters degree

* select distinct age from census where sex = 'Female' and (education = 'Bachelors' or education = 'Masters');

1. which native countries have "land" in their name

* sqlite> select distinct native\_country from census where native\_country like '%land%';

1. what is the average education years for people having a native country that is not the US

* sqlite> select avg(education\_num) from census where native\_country NOT like 'United\_States';

1. how many different native countries are found in the data set

* sqlite> select count (distinct native\_country) from census;

**Part 2:**

Read the ‘courses-ddl.sql’ and ’courses-small.sql’ files into SQLite. Write SQL to answer the following questions. **Use Simple Join for questions 11-13 and Natural Join for 14-20.**

1. Show the names of all students who have taken course “CS-190”, as well as the year in which they took the course.

* sqlite> select name, year from student, takes where student.ID = takes.ID and course\_id = 'CS-190';

1. For every course taught by an instructor, show the instructor’s name and the course that is taught.

* sqlite> select name, course\_id from instructor, teaches where instructor.id = teaches.id;

1. Do the same as in the previous question, but do not show duplicates and sort by instructor name.

* select distinct name, course\_id from instructor, teaches where instructor.id = teaches.id ORDER BY instructor.name;

1. what are the names of all students who have taken some course? Don't show duplicates.

* sqlite> select distinct name from student natural join takes;

1. what are the names of departments that offer 4-credit courses? Don't list duplicates.

* sqlite> select distinct dept\_name from department natural join course where credits = 4;

1. How many B grades have been given to physics majors

* sqlite> select count(grade) from student natural join takes where dept\_name = 'Physics' and grade = 'B';
* 1

1. What is the average total credits of students who have taken CS-319

* select avg(tot\_cred) from student natural join takes where course\_id = 'CS-319';
* 52

1. What is the average total credits of students who have taken CS-101

* select avg(tot\_cred) from student natural join takes where course\_id = 'CS-101';
* 62.285714285714

1. What are the course IDs of courses taught by instructor Katz

* select course\_id from instructor natural join teaches where name = 'Katz';

1. What are the course IDs of all courses offered by instructor Crick's department

* select course\_id from course natural join department natural join instructor where dept\_name = (select dept\_name from instructor where name = 'Crick');