CS 157A Spring 2020   **Homework 3**

Point: 20 (each question is 1 point)

Part 1 (Listen to the Video lecture on DB Internals and answer following questions):

1. What is the typical size of Disk Block?
   (a) 64 bytes
   (b) 8K bytes
   (c) 64K bytes
   (d) 4K bits

2. Database file can have at most one Disk Block? True/False

3. Which search strategy works better if database is on hard drive?
   (a) Multiple access times and small transfer time
   (b) Single access time and large transfer time

4. Table records can be sorted on multiple attributes of the table? True/False

5. In sequential file organization, records are sorted/ordered according to the value of one attribute ("Search Key"). Should Search Key always be primary key of the table?
   (a) Yes
   (b) No
   (c) Does not matter (Search key can be any attribute)

Part 2: SQL questions

The following queries are based on the 1994 census data (1994-census-summary.sql)

6. which native countries have "land" in their name?

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

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

Part 3: SQL questions (use Natural Join)

The following queries are based on the courses-ddl.sql and courses-small.sql data

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

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

11. How many B grades have been given to physics majors?

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

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

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

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

Extra Credit:

16. What is the course_id, semester, and year of sections of computer science courses? Don't show duplicates.