Quiz 3, Fall 2018
CSCI 4380 Database Systems
Time: 20 minutes

Name 1: _____
Name 2: _____
Name 3: _____

Rules.

- Open book and notes. Do not use any electronic tools including your computer.
- You can talk to anyone in class. If you know the answer, help someone else in class.
- Each quiz must be by at least two and at most three people. Most quizzes should be by three people, so find someone to talk to. Put your name on one quiz only.

Question (Points: a-12 b-13). You are given the following data model for elections:

```
Parties(name, url, description, foundedon)
Elections(id, name, etype, state, howoften)
Person(id, fname, lname, bio, birthday)
Candidates(personid, eid, year, partyname, ballotposition, numvotes)
```

Keys are underlined. There are many `parties` (even though some small) and many `elections`. Each election has a `name` and a `etype`. `elections.type` is either `'state'` or `'federal'`. For state elections there is a state listed (e.g. `'NY'`. Attribute `elections.howoften` lists how many years this election occurs regularly.

People run as candidates for different elections, which is stored in the `Candidates` relation. Each candidate runs for a specific party. If they are independent, `candidates.partyname` is `NULL`. Ballotposition is a number (1,2,3) that shows where they appear on the ballot. If they are not on any ballot (write-in candidate), then ballotposition is zero.

Write the following queries using SQL:

(a) For each party, return the party name total number of years that they ran in non-federal election (i.e. had a candidate) and the number of distinct candidates in non-federal elections.

Answer here.

(b) For each candidate, return their name and the last year they ran for office and the number of votes they got in this election (assume a single election per candidate in a given year).

. Answer here.