CSCI 4370 - Georgia Elections Database

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Project Proposal

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1. Elaborate on a topic and Summary (Problem Description.)

The Georgia secretary of state releases election data every year in which there is an election. (https://sos.ga.gov/index.php/elections) Data is also released about the demographic makeup of the electorate, voter turnout by demographic, and county-level data. The formatting of this data is inconsistent and stored in various excel and csv files which can be difficult to extract insights from. Our goal is to build a database of election data to quickly serve various analytical needs of the public. A relational database would be able to dynamically pull queries from across different election years and contests to quickly find trends. The database would store the following types of records across various tables:

- Contest Results by County (A contest is a single question on a ballot)
- Voter Registration and turnout by county, race, gender, and age group
- Candidate Information including results by County and Party
- Shapefiles for dynamically plotting and displaying data
- Baseline demographic information from US Census (and other sources)
- Contest Information by Election Year

The web portal would allow for convenient querying, downloading, and visualization of Georgia election data.

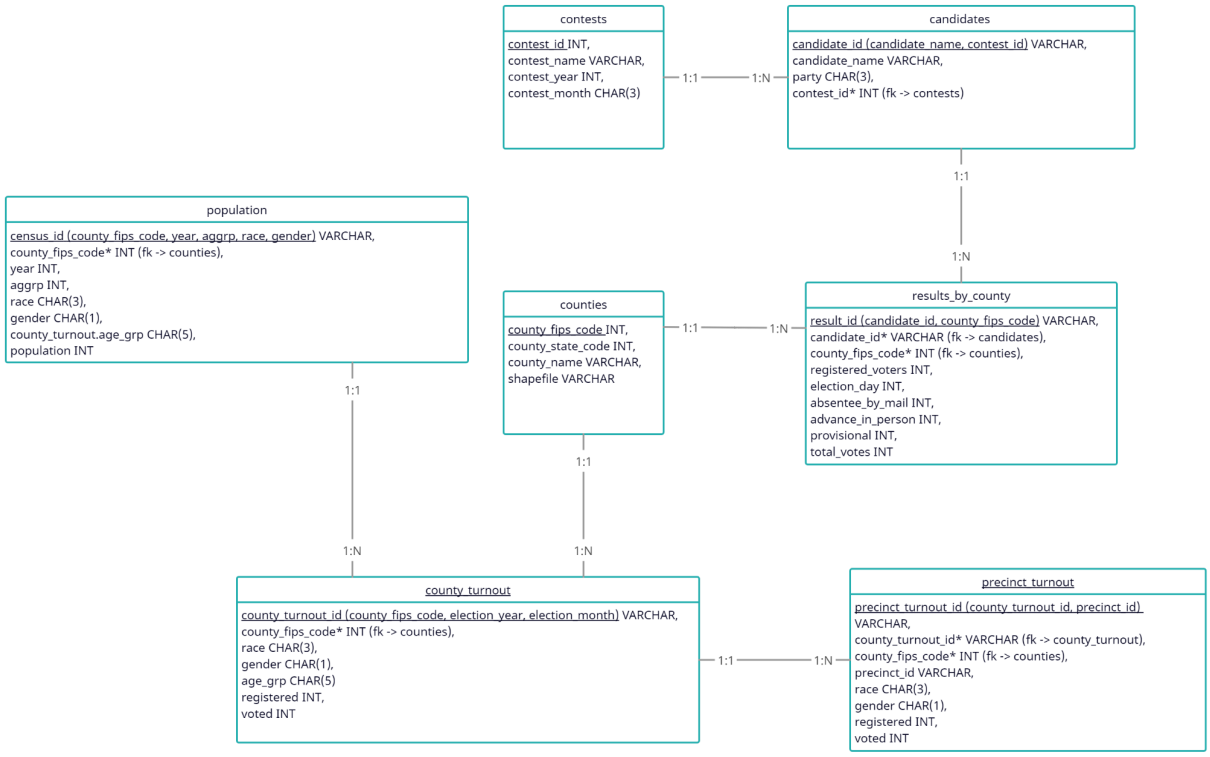
2. Define the Client. Who (client) will use the database?

Mainly, our client will be anybody who is interested in or needs election data to make decisions on future elections or analyze past ones. An example of a client would be a campaign trying to look at previous election data to see how they can use that to help themselves win in the next election. Also, a client could be anybody who is interested in election data and would like to see how the previous elections turned out and how they changed over time according to race, gender, county, etc. We believe this could also help groups looking to create a more fair and representative voting population in these counties get a greater sense of the actual turnout already occurring. We would like to reach out to local nonprofits, whose focus is fighting voter suppression, to see if they would have interest in our database after its creation.

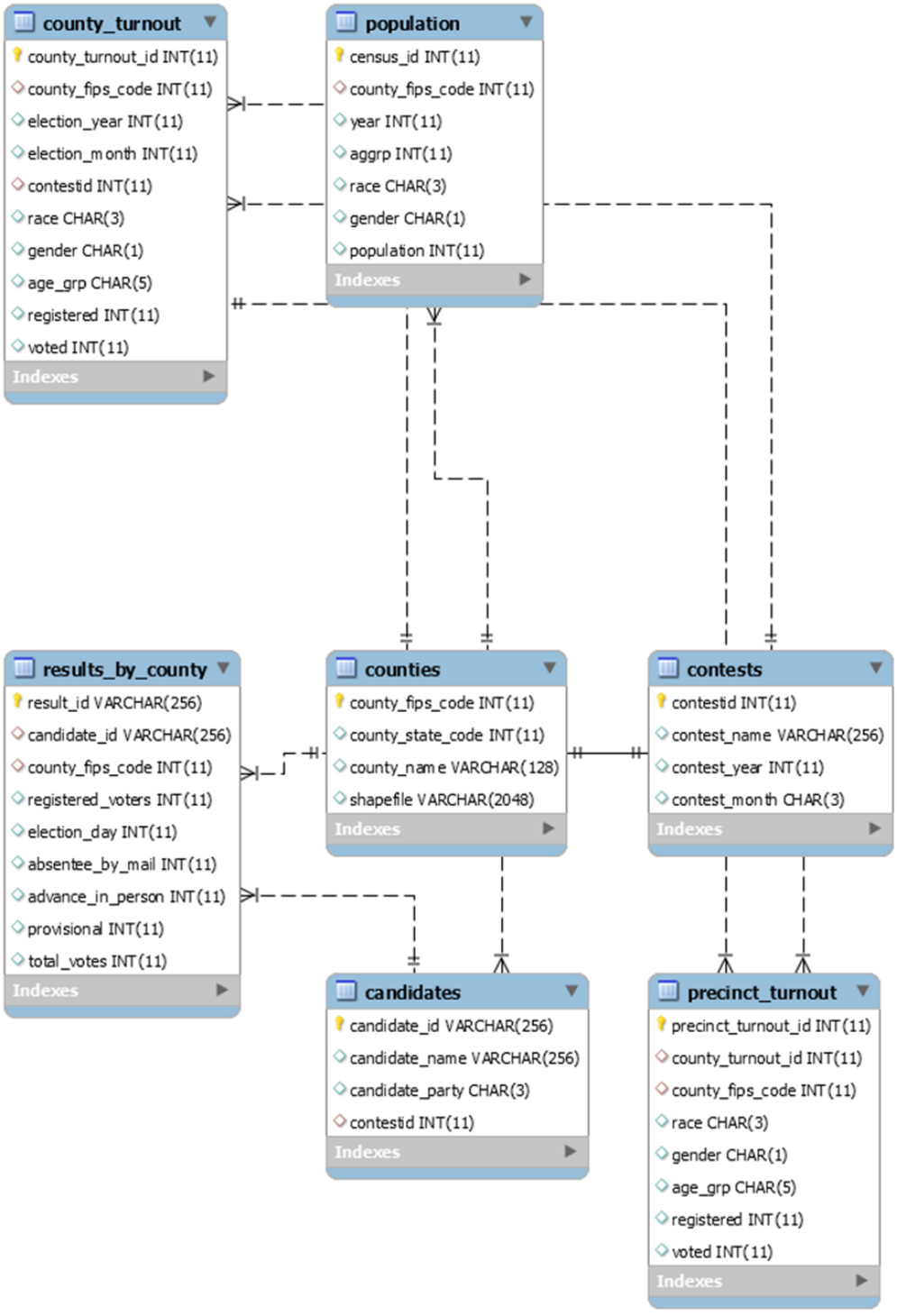
3. Create Sample Questions that your database will answer. Note that in your labs you were required to turn in the a) question, b) the c) sql question. At this stage, I want only the questions in English

- What are the election turnout rates by race, gender, county, avg. income, and population density?
- Who were the candidates (and parties) for a specific election contest?
- Track changes in results by party across different elections
- What are the election results by county?
- Track changes in results over time with demographic changes over time
- Which age group has the highest voter turnout?
- Which elections are getting the highest voter turnout rates? (Primary, General, Runoffs)

ER Diagram



Relational Schema



Data Dictionary

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contests

Column	**Data Type**	**Required**	**Unique**	**Description**
contest_id	INT	yes	yes	Contest Identification Number (Composite/Surrogate Key)
contest_name	VARCHAR	yes	yes	Contest Name
contest_year	INT	yes	no	Contest Year
contest_month	CHAR(3)	yes	no	Contest Month

candidates

Column	**Data Type**	**Required**	**Unique**	**Description**
candidate_id	VARCHAR	yes	yes	Composite primary key (candidate_name, contest_id) --- Candidate Identification Number
candidate_name	VARCHAR	yes	yes	Candidate Name
party	CHAR(3)	yes	no	Candidate Party
contest_id	INT	yes	no	Foreign key (contests) --- Contest Identification Number

results_by_county

Column	Data Type	Required	Unique	Description
result_id	VARCHAR	yes	yes	Result Identification Number
candidate_id	VARCHAR	yes	yes	Foreign key (candidates) --- Candidate Identification Number
county_fips_code	INT	yes	no	Foreign Key (counties) --- Federal Information Processing Standards code which uniquely identified counties
registered_voters	INT	yes	no	Number of registered voters within the county
election_day	INT	yes	no	Election date within the county
absentee_by_mail	INT	yes	no	Number of absentee by mail votes within the county
advance_in_person	INT	yes	no	Number of advance in person mail votes within the county
provisional	INT	yes	no	Number of provisional votes within the county
total_votes	INT	yes	no	Total number of votes within the county

counties

Column	Data Type	Required	Unique	Description
county_fips_code	INT	yes	yes	Federal Information Processing Standards code which uniquely identified counties
county_state_code	INT	yes	yes	County State Identification Number
county_name	VARCHAR	yes	yes	County name
shapefile	VARCHAR	yes	no	County geospatial data formatted for geographic information system (GUS) use

county_turnout

Column	Data Type	Required	Unique	Description
county_turnout_id	VARCHAR	yes	yes	Composite primary key (county_fips_code, election_year, election_month) --- County Turnout Identification Number
county_fips_code	INT	yes	yes	Foreign key (counties) --- Federal Information Processing Standards code which uniquely identifies counties

race	CHAR(3)	yes	no	County race turnout
gender	CHAR(1)	yes	no	County gender turnout
age_grp	CHAR(5)	yes	no	County age group turnout
registered	INT	yes	no	Number of citizens within the county registered to vote
voted	INT	yes	no	Number of citizens within the county that voted

precinct_turnout

Column	**Data Type**	**Required**	**Unique**	**Description**
precinct_turnout_id	VARCHAR	yes	yes	Composite primary key (county_turnout_id, precinct_id) --- Precinct Turnout Identification Number
county_turnout_id	VARCHAR	yes	yes	Foreign key (county_turnout) --- County Turnout Identification Number
county_fips_code	INT	yes	yes	Foreign key (counties) --- Federal Information Processing Standards code which uniquely identified counties
precinct_id	VARCHAR	yes	yes	Precinct Turnout

				Identification Number
race	CHAR(3)	yes	no	Precinct race turnout
gender	CHAR(1)	yes	no	Precinct gender turnout
registered	INT	yes	no	Number of citizens within the precinct registered to vote
voted	INT	yes	no	Number of citizens within the precinct that voted

population

Column	**Data Type**	**Required**	**Unique**	**Description**
census_id	VARCHAR	yes	yes	Composite primary key (year, county_fips_code, aggrp, race, gender) --- Census Identification Number
county_fips_code	INT	yes	yes	Foreign key (counties) --- Federal Information Processing Standards code which uniquely identifies counties
year	INT	yes	no	Population year
aggrp	INT	yes	no	Population age group - literal age i.e., 0,1,2,3
race	INT	yes	no	Population race
gender	CHAR(1)	yes	no	Population gender
county_turnout.a	CHAR(5)	yes	no	County turnout age

ge_grp				group - categorized in groups i.e., 18-24,25-29
population	INT	yes	no	Population number