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CMSC461

Project 1.2 + Reductions

I decided to add reasoning (where applicable) below each table reduction for readability.

Ballots (Ballot_ID, short_name, Question, Availabilty_period, Voter_ID, Ballots_Date, start_at, end_at);

      PK: Ballot_ID;

Cast_Vote (Confirmation_Number, Voter_ID, ID, Ballot_ID, Answer, Cast_Vote_Date);

      PK: Confirmation_Number;

      FKRC: Cast_Vote (Voter_ID) ->Folk(ID),

      Cast_Vote (Ballot_ID) ->Ballots(Ballot_ID),

      Cast_Vote (ID) ->Election_Staff(ID),

      Cast_Vote (Answer) ->Ballot_answer(Answer)

To ensure the constraint "A folk can cast at most one vote for any single ballot" Unique constraint on Ballot_ID and voter_ID. This will prevent voters from casting multiple votes for one Ballot.

Voting_Center (Unique_Acronym, street_num, street_name, city, state, zipcode, x_coords, y_coords, start_at, Open_time, close_time, end_at);

      PK: Unique_Acronym, street_num, street_name, city, state, zipcode;

I opted to leave start_at, Open_time, close_time and end_at out of the primary key constraint as voting centers may have different operating hours in the future.

Scheduled (Unique_Acronym, ID, start_date_time, end_date_time);

      PK: Unique_Acronym, ID;

      FKRC: Scheduled (Unique_Acronym) -> Voting_Center (Unique_Acronym)

      Scheduled (ID) -> Election_Staff (ID);

An election staff member may be scheduled to fill the role of a judge at one voting center and the role of an administrator at another voting center. This set up allows for that.

Place (street_num, street_name, city, state, zipcode, x_coords, y_coords);

      PK: street_num, street_name, city, state, zipcode;

Prevents user from inputing the same address and cords twice.

Residence (street_num, street_name, city, state, zipcode, x_coords, y_coords);

      PK: street_num, street_name, city, state, zipcode;

Resides (ID, street_num, street_name, city, state, zipcode, x_coords, y_coords);

      PK: ID, , street_num, street_name, city, state, zipcode, x_coords, y_coords;

      FKRC: Resides (ID) -> Folk (ID)

      Resides (street_num, street_name, city, state, zipcode) -> Place (street_num, street_name, city, state, zipcode);

Folk(ID, first_name, last_name, nickname, street_num, street_name, city, state, zipcode, dob);

      PK: ID;

I merged my folks table with Person table. Folks inherited all columns from person. This change still constrains voting eligibility to folks and allows folks to remain as just a folk or being a folk and election staff member.

Folk_Phone (ID, phonetype, number);

      PK: ID, phonetype, number;

      FKRC: Folk_Phone (ID) -> Folk (ID);

New table was made for the multivalue attribute

Folk_Email (ID, email);

      PK: ID, email;

      FKRC: Folk_Email (ID) -> Folk (ID);

New table was made for the multivalue attribute

Election_Staff (ID, ID, Unique_Acronym);

      PK: ID, ID;

      FKRC: Election_Staff (ID) -> Folk (ID);

Judge (ID, Judge_ID, Salary);

      PK: ID, Judge_ID;

      FKRC: Judge (ID) -> Election_Staff (ID);

Clerk (ID, Clerk_ID, Salary);

      PK: ID, Clerk_ID;

      FKRC: Clerk (ID) -> Election_Staff (ID);

Administrator (ID, Administrator _ID, Salary);

      PK: ID, Administrator _ID;

      FKRC: Administrator (ID) -> Election_Staff (ID);

monitors (ID, monitors _ID, Salary);

        PK: ID, monitors _ID;

        FKRC: monitors (ID) -> Election_Staff (ID);

Voting_Registry (ID, Unique_Acronym, Ballot_ID, Confirmation_Number, Voting_Date);

        PK: ID, Unique_Acronym, Ballot_ID, Confirmation_Number, Voting_Date;

        FKRC: Voting_Registry(ID) -> Folk(ID)

        Voting_Registry(Unique_Acronym) -> Voting_Center (Unique_Acronym)

        Voting_Registry(Ballot_ID) -> Ballots (Ballot_ID)

        Voting_Registry(Confirmation_Number) -> Cast_Vote (Confirmation_Number);

VC_Operating_periods(Unique_Acronym, start_at, start_at, Open_time, end_at);

        PK: Unique_Acronym, start_at, start_at, Open_time, end_at;

        VC_Operating_periods (Unique_Acronym) -> Voting_Center(Unique_Acronym)