**BIM - 312 DATABASE MANAGEMENT SYSTEMS**

HOMEWORK 1

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**REQUIREMENT ANALYSIS**

**What is the purpose of the database? What should it do?**

* The point of the database is to provide a secure, easy to use and fast environment to voters and candidates to vote and to be elected.
* The database stores admins’, voters’, candidates’, elections’ information, and the relations between them.
* These relations are admins create elections, candidates attend to them, voters vote those who candidates attended the election according to their background.

**Who are the users and what are their information needs?**

* The user types are admin, voter, candidate.
* All users need id, nationality id, name, password, age, address, contact.
* Candidates also need education info and an introduction that introduce them.

**What are the problems that the system should solve?**

* Complexity of managing election data and keep information second by second.
* Candidates should be ordered by vote count.

**What input data is available to the database?**

* Users’, voters’, candidates’, admins’, elections’, election candidates’ information is available to the database.

**What kind of information should be stored in the database?**

* Voters’ personal data.
* Admins' personal data.
* Candidates’ personal data and educational info.
* Elections’ start – end dates, creation date, who is created it, who are currently managing it and attended candidates to it.
* Votes’ vote date.

**Cardinality Explanation:**

* One admin can create many elections, one election can be created by one admin.
* Many admins can manage one election, one admin can manage more than one election.
* Many candidates can attend one election at the same time, one candidate can attend many elections at the same time.
* One voter can vote one candidate in an election, a candidate can be voted by many voter

**Participation Explanation:**

* An election should be created by an admin, but an admin does not have to create an election, but still exists.
* An election should be managed by at least one admin, but an admin does not have to manage an election, but still exists.
* A candidate does not have to attend an election, an election can exist without any candidate attending.

**Functional/Non-functional Requirements:**

Functional:

- Create a new user.

- Get user info.

- Add a candidate to an election.

Non-functional:

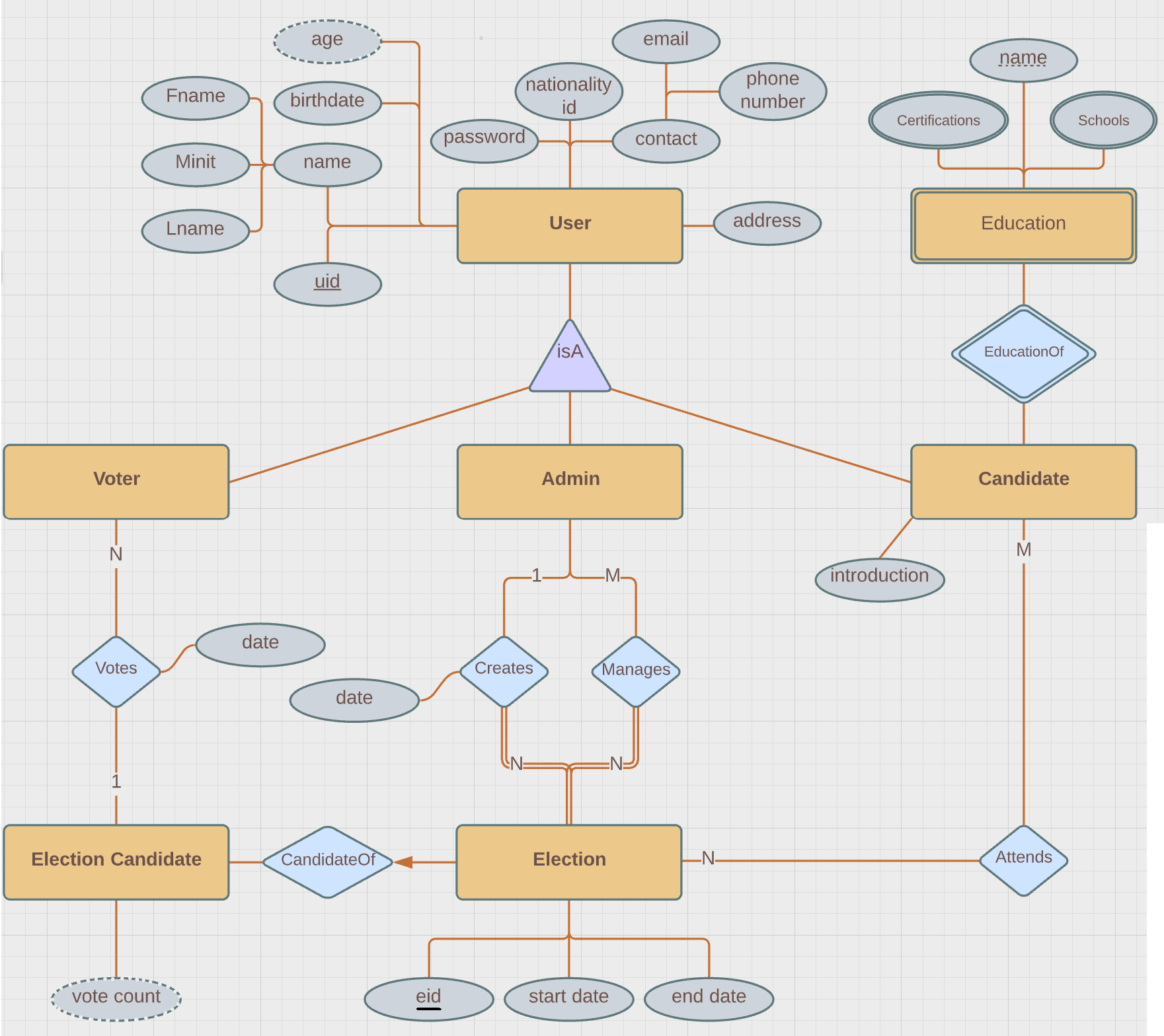
- Separate last name information from full name.

- Get vote count per candidate by counting the tuples by using election candidate id in the “votes” relationship.

**QUERIES**

* What is the most voted candidate in an election?
* Is the user an admin?
* When did voter vote the candidate?
* When was an election created, and by whom?
* Which admins are managing which election?
* Which candidates attended which election?
* What is the education info of a candidate?
* What is information of a user?
* When will an election start and end?

**E/R DIAGRAM**

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