VOTING MANAGEMENT SYSTEM

An electronic system which provides you facility of casting vote at our own home.

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Introduction

1.1 Product Overview

Democracy is an important matter in most modern societies. One of the most important activities within a democracy is the election of representatives. It is also a very delicate process that is the subject of various disturbances, such as inactive citizens, attempts of fraud etc. Hence, we will propose a software solution to the problem that will display the most important aspects of this problem.

1.2 Purpose

The main purpose is to:

- Boost the turnout of votes. People who are outside of their town/city don't want to come to their area for just casting the votes due to the expenses and trouble of transportation.
- Committing fraud and cheating during an election would be made very difficult. People who are registered can cast only one vote, hence leaving no room for a double casting of votes.
- Ensure a speedy way of casting votes rather than the traditional way of hand counting votes.
- Ensure an intelligent method as many votes are discarded due to improper stamping etc.

1.3 Scope

The scope of this system will be international, i.e; Pakistanis living overseas can easily cast their vote using this system without having the worry of coming back to Pakistan. They will just have to register using the CNIC provided to them by NADRA and once that is done, they can easily cast their vote.

OVERALL DESCRIPTION

The voting system software should provide an easily accessible method of voting to all the eligible voters in Pakistan. It should have a simple, easy to understand interface so that the illiterate voters face less difficulty using it. It should store the data of voters as well as their votes in a database that can only be viewed by the Administrator for further processing. Once a vote is placed, the voter cannot make further changes. The product should be economical.

FUNCTIONALITIES:

The following functionalities are provided;

- Separate login option for the administrator
- A safeguarded registration page for the voter where the voter has to provide his CNIC, full name, district, and gender,
- After successful registration, the software will evaluate the validity of voter's identification card against a publicly available, stored database provided by NADRA and accordingly and give the voter permission to vote,
- The voter can then cast one vote for a candidate,
- After casting the vote, the voter can only view his vote by logging through his CNIC.
- There are different functions for the administrator;
- Once the voting ends the administrator can have access to the votes,
- The administrator will then be able to ask the software to count the votes of each district separately,
- After the votes are counted and verified, the voters can view the results.

NON FUNCTIONAL REQUIREMENTS:

AVAILABILITY: Probably the most important requirement of our system. The system will remain available until elections end.

RELIABILITY: System has to be reliable since it is the matter of future of our country.

PERFORMANCE: of system under undesirable situations should not degrade. System should not crash but deal with it and if necessary shut down gracefully.

SECURITY: System is completely secure since it is safety critical system. Even minor drawback can result in the loss of critical information.

REUSEABILITY: The Voting system is generic software and we have developed it in a way that it can be reused with little bit changes.

SYSTEM CHARACTERISTICS:

Voters are only allowed to vote once after which they, as well as administrators, are not allowed to edit the vote. They can only view their vote before the deadline. After the deadline, the voters have view-only access to the results. This is done to minimize fraud in election results.

- The system should be updated and saved after every vote is cast so as to prevent loss of data during load shedding.
- There are no hangs in the system as only one user is accessing a single system at a time.

SPECIFICATIONS and REQUIREMENTS:

3.1 User Requirements:

The system can be accessed by two types of users:

Voter:

Any registered person can access only a few features using the restricted interface. An interface will be understandable by illiterate person and this will be achieved by including related pictures (i.e. of different political personalities).

Administrator:

A person or a team who controls the whole process of voting. The administrator can have access to all functionalities except updating already submitted vote. Admin can update the system's database by registering new voter or candidate, counting votes at the end of the election.

3.2 Hardware Interface:

Hardware through which the system can be accessed can be a computer or a laptop which will act as a terminal. While Administrator of that particular area will have full-featured software on their devices.
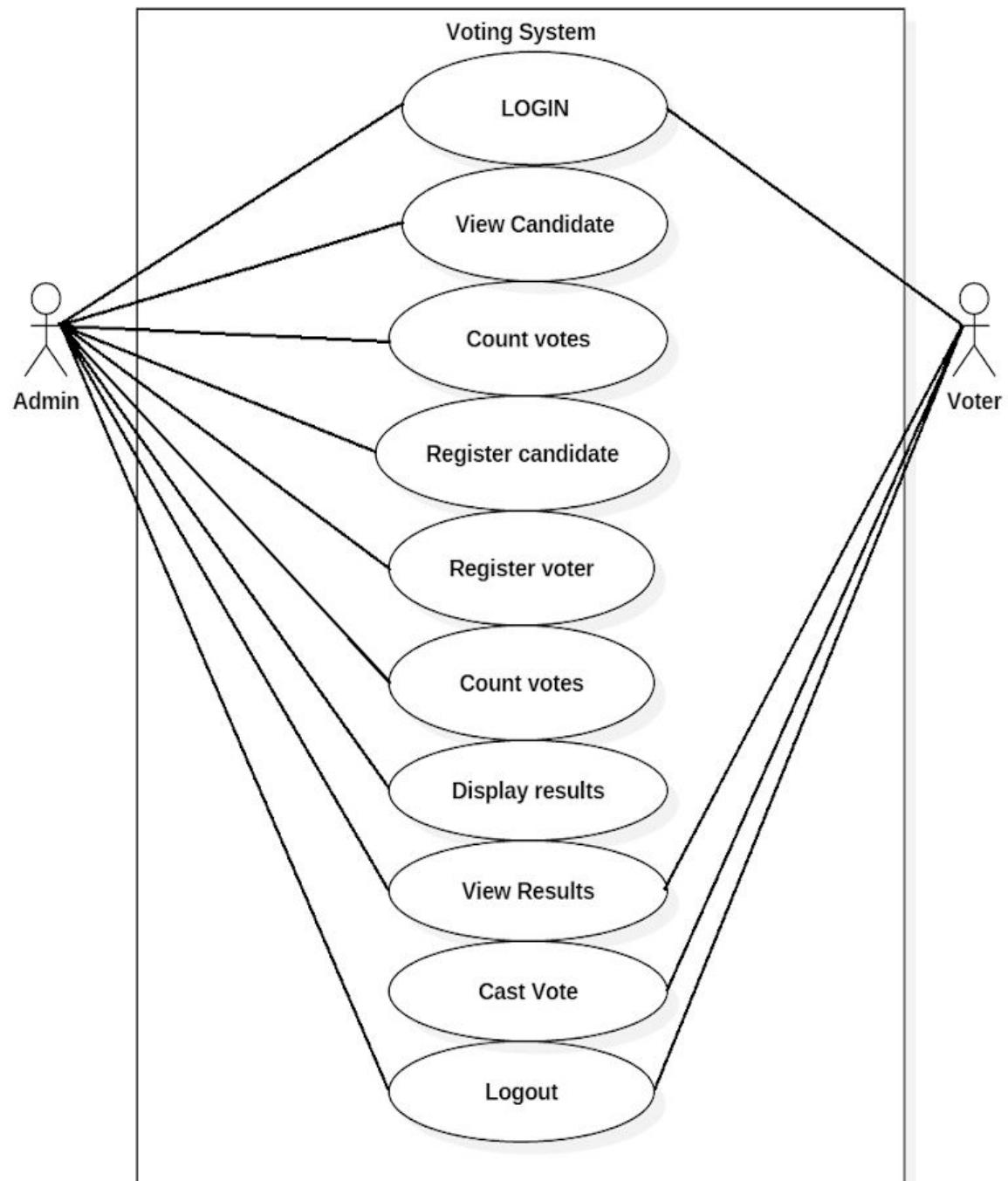
3.3 Software Interface:

Since we provide the executable file to end users, no special software is required. The system will be compatible with any Operating system.

3.4 Performance Requirements:

For best performance PC should be Pentium 4 or later once.

USECASE DIAGRAM:

DESIGN OF VOTING SYSTEM:

Designing Constraints

As the system may be used by non-technical and illiterate people, the system interface is not that complicated. The non-technical people may find it hard to log in and cast vote. So, easy to understand instruction regarding the procedure of access is provided for the users. The user interface is implemented using the English language. So, the voter should be familiar with the language or government should provide an authorized facilitator for the uneducated people.

Attributes

- The administrator has the authority to update the candidate's as well as voter's information.
- The system is easily accessible by non-technical masses.
- The system is safety critical. Only the authorized person has the access to the information of the voter, votes, and candidate.
- The system is maintainable so that it can be modified/updated when required.
- The system is compatible with all the latest versions of Operating System.
- The system facilitates the voter so it can provide the necessary information accordingly.
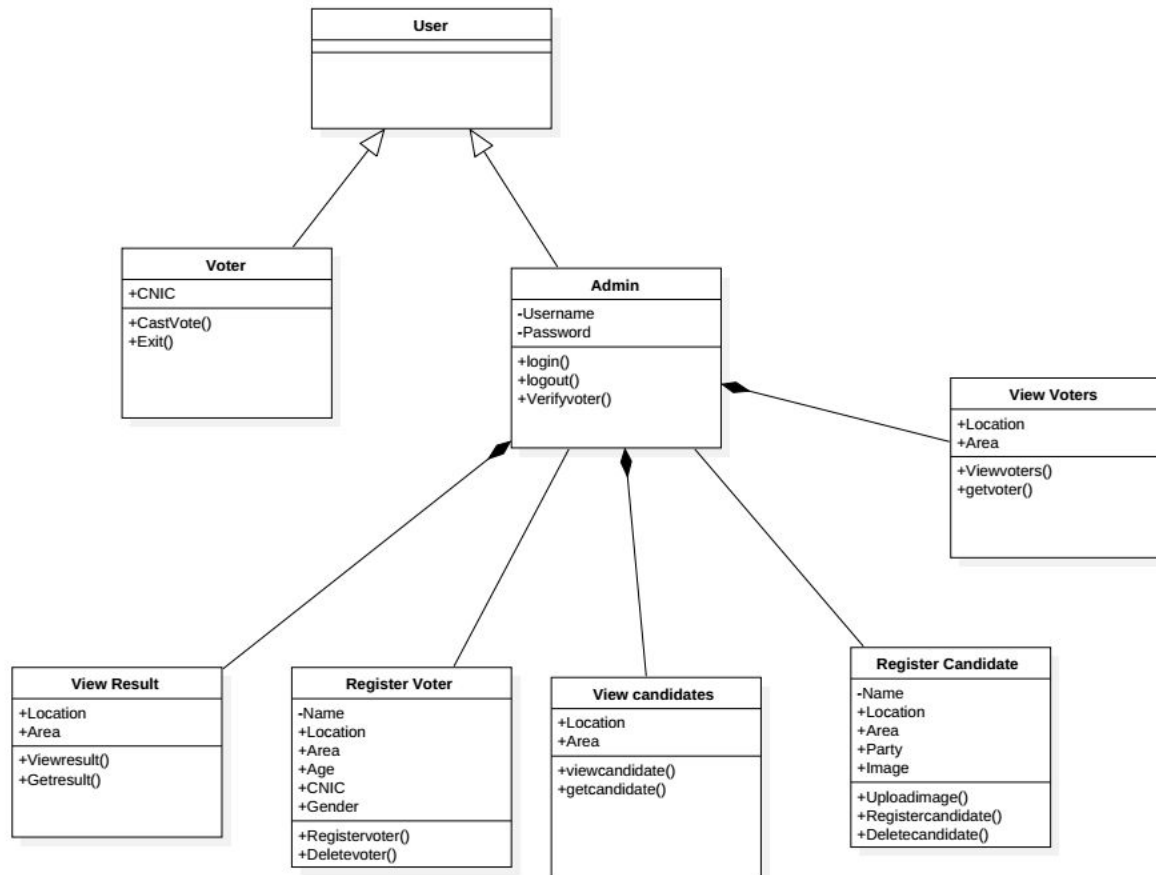
We have implemented this project in PYTHON language using OOP(object-oriented programming). SQLite is used for storage and retrieval of data. Basically, three databases are created one is for maintaining the record of voters that admin registers and those who are already registered. The second one is for saving candidate's information. And the third database contains the information of votes. Their count for a particular personality.
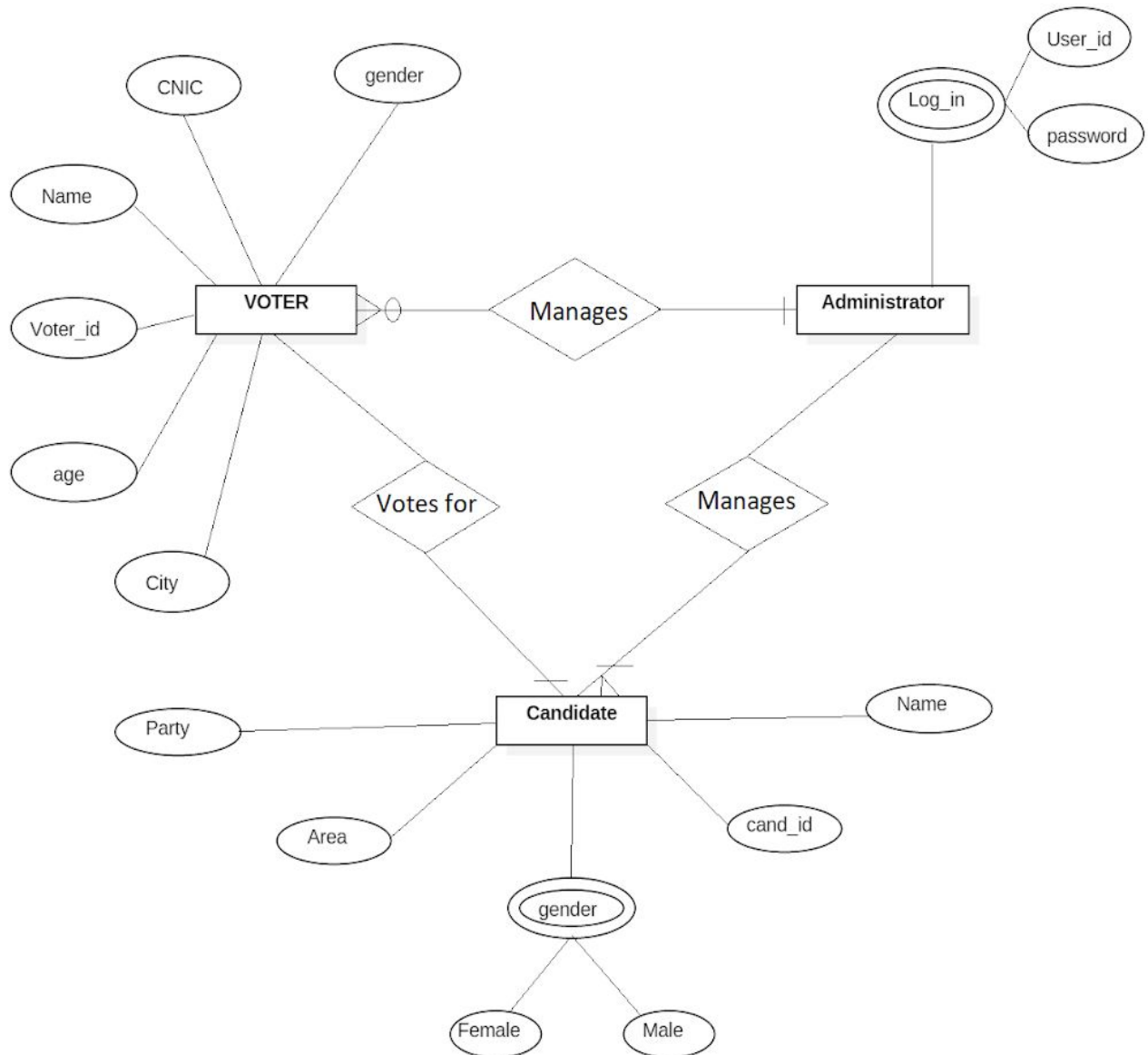
CONSTRAINTS:

- Age of voter can not be less than 18.
- CNIC should be verified if it exists in the national database only than voter can be registered.
- The candidate that can be registered has to be a member of a valid party.
- After submission of the vote, a voter is not allowed to update it neither administrator is.

CLASS DIAGRAM:

ERD (Entity Relationship Diagram):

ADVANTAGES:

- It's simple to understand.
- It doesn't cost much to administer.
- It's is fairly quick to count the votes and work out who has won; meaning results can be declared relatively quickly after the polls close.
- In a political environment, VOTING MANAGEMENT SYSTEM enables voters to clearly express a view on which party they think should form the next government.
- Anyone can cast vote without troubble of going to stations.
- A person who is outside country or far away from his/her hometown can cast vote.

LIMITATIONS:

- Even the interface is designed while keeping in mind the illiteracy rate of Pakistan. It is quite interactive but voter needs to know the basics of English to use this system. Since all the instructions are provided in English.
- Our system is a desktop application. Hence it is not compatible with technologies that support mobile and other handheld devices.
- It's nearly impossible to check if someone is forced to vote for someone. The privacy of voter may be endangered.
- The system is more susceptible to hacking