Four D

Online National Polling System

Software Requirement Specification

Version 1.0

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Software Requirement Specification

1.0 Introduction:

1.1 Purpose:

This application helps to conduct elections across the country online using the internet for all citizens. This system minimises the waiting time of the voters for casting their votes and makes voting procedure easier.It can be used to issue new voter's id for the voters and allows candidates to file their nominations online. The result can be declared online which includes election statistics and reports.

1.2 Scope:

- This application will address the elections held at national level. It covers all states except in remote locations and areas without internet connectivity.
- Using this application, the overall voting percentage will increase as the process involved for voting is simple and quick. People get their voter-id card easily and each voter will get a unique id no. to caste their valuable vote.
- It will maintain the database of all the eligible citizens and candidates.
- It will manage all the account details of the voters such as citizen name, date of birth, their constituency area, region, state, login id and password of the voter and also of the candidate.

1.3 Definitions, Acronyms and Abbreviations:

- Election: An election is a formal decision-making process where people choose an individual to hold public office.
- Voter: A person with the right to vote at an election.
- Candidate: A person nominated for contesting in a constituency election.
- Field Officer (FO): A person who verifies the voter or candidate identity.
- Election Commision Officer (ECO): A person who heads the Election Commission of India, a body empowered to conduct elections to the national and state legislatures.

- Voting: A process where people choose their choice of candidate in an election.
- ONPS-Online National Polling System

1.4 References:

- SRS template – IBM
- www.eci.nic.in – Election Commision of India
- Software Engineering – Ian Sommerville
- Database Management System - Abraham Silberschatz, Henry F. Korth,S. Sudarshan

1.5 Tools and Technologies to be used:

- Rational Rose: A visual modeling and development tool using UML
- DB2: IBM Database
- Eclipse: Development Tool
- Websphere: Application Server
- Tivoli: Backup and Recovery tool
- XML: Extensible Markup Language
- HTML: Hyper Text Markup Language
- AJAX: Asynchronous JavaScript And XML

1.6 Overview:

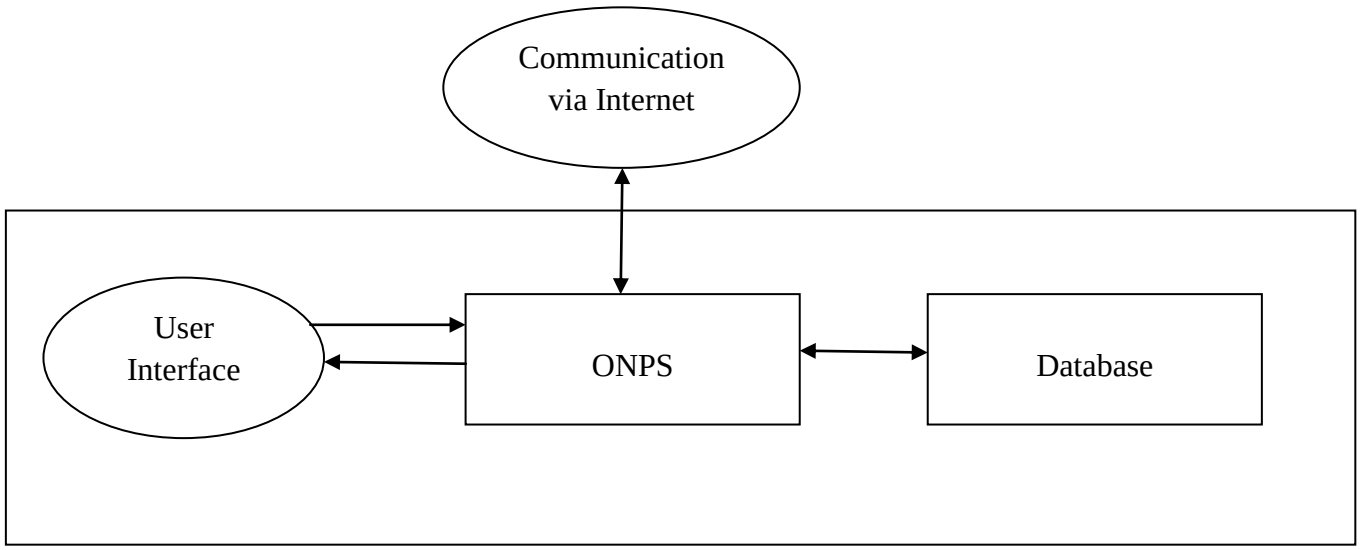
The SRS will include two sections namely:

- **Overall Description:** This section will describe major components of the system, interconnections and external interfaces.
- **Specific Requirements:** This section will describe the functions of actors, their roles in the system and the constraints faced by the system.

2.0 Overall Description:

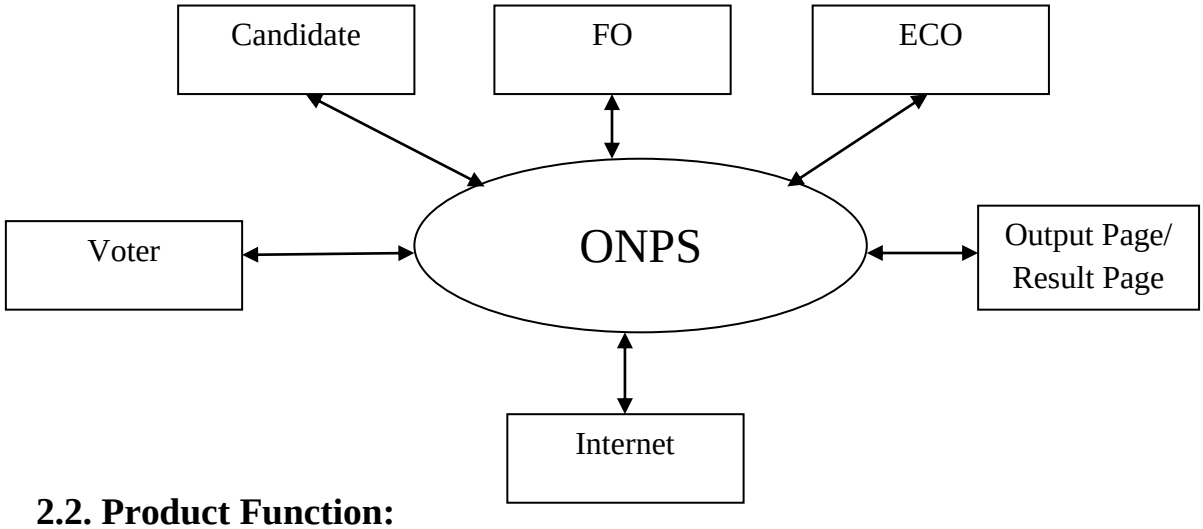
2.1 Product Perspective:

Online National Polling System (ONPS) is composed of three main components. The user interface component handles all of the input or requests from the user. The ONPS component retrieves the data from the database. It also sorts and manages the data to and from the database. Management of the data includes adding, deleting, and modifying data. The database component stores all of the data and status. The whole system communicates with the Internet to update the data that are stored in the database.



ONPS System Diagram

The ONPS interaction with the external system and objects is depicted below. The ONPS interacts with the Voter, Candidate, Field Officer (FO) and Election Commision Officer (ECO) by receiving requests and sending appropriate response. The output interface is the where all the users see the respose given by the system. ONPS interacts with the Internet in order to retrieve data, insert/update/delete data as well as to validate the data contained in the database.



2.2. Product Function:

2.2.1. Voter ID Registration:

The voter can apply for voter ID by registering in ONPS online. The voter provides the necessary details like name, address, contact number during the registration process. The Field Officer will verify the voter details by visiting the residence in person. After successful verification the voter ID card will be issued along with Online Voting System activation pin.

2.2.2. Online Voting System Registration:

Once the voter receives the voter ID card, he/she must register in the Online Voting System. The voter must fill in the username, password, secret question, secret answer and activation pin fields in the registration form. The voter ID will be used as username. The secret question and answer will be used for verification of voter if he/she forgets password. The activation pin is provided so that Online Voting System registration can be done by the voter only and no one else.

2.2.3. Online Voting:

The voter logs in using the username and password. He/She can view the details of the candidates contesting in the particular constituency. After which he/she can go to voting page which contains the list of candidates and then cast their vote. The time stamp of the vote is recorded and the vote status is set. The vote status is set so that the dulplicate voting is prevented.

2.2.4. Candidate Registration:

The candidate can file their nomination online. They must specify the party to which they belong and the constituency in which they are going to contest. Their identities will verified by the Field Officer after which he/she becomes a valid candidate.

2.2.5. Candidate Election Campaign

The candidate can conduct the election campaign with the help of chat rooms and forums. A profile will be maintained which contains the details of the candidate, promises he/she made, their previous work and experience.

2.2.6. Result Declaration:

The Election Commision Officer will add the online votes with the votes cast in polling booth and declare the final results. The final results will be released in the website along with statistics of number of votes won by each candidate in a constituency and by the different parties.

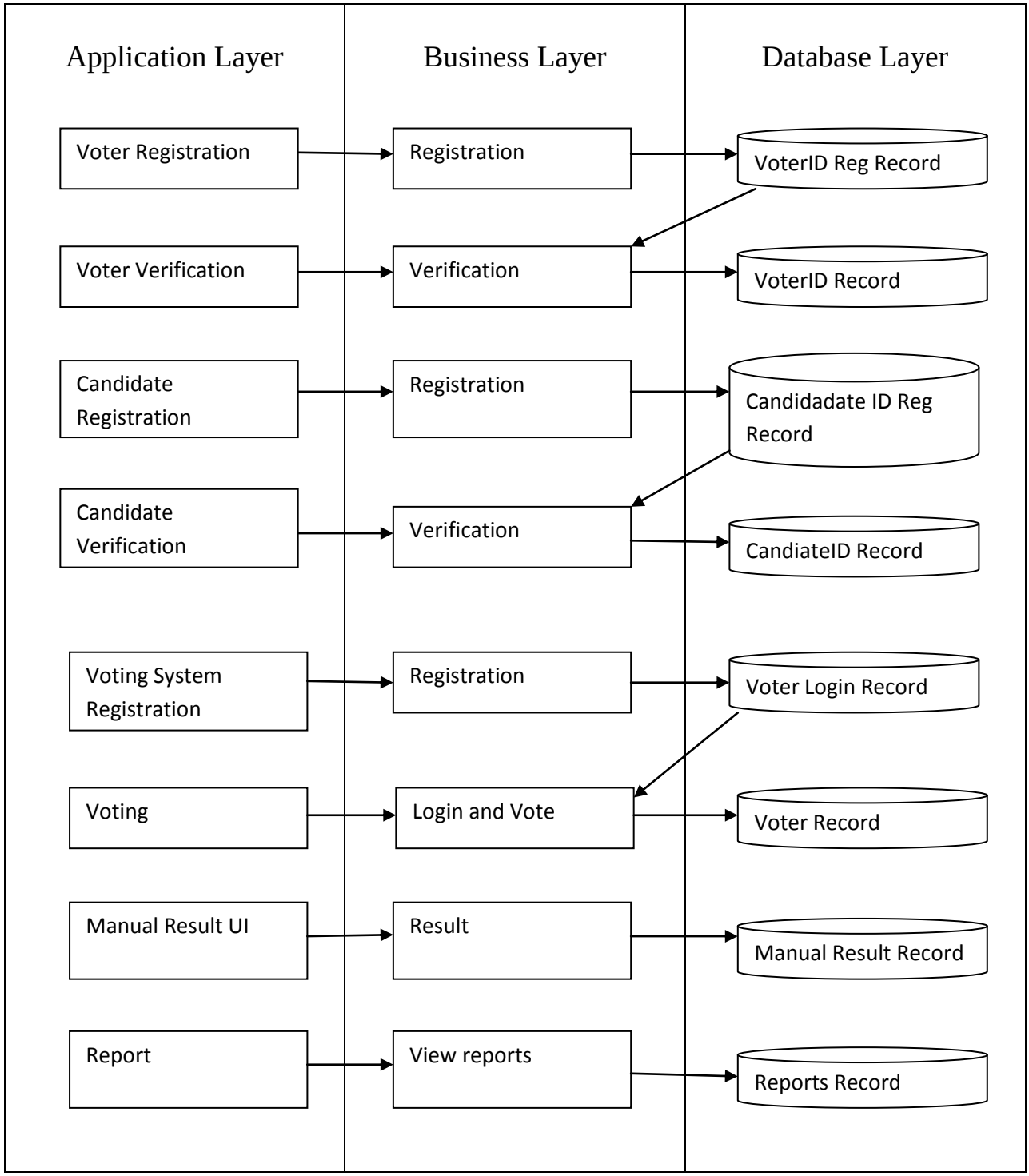
2.3 User Characteristics:

- The user shall be defined as one possessing general knowledge of the Microsoft Windows/Linux operating system and
- General knowledge of using the Internet by employing a standard browser such as Mozilla Firefox or Microsoft Internet Explorer is also required
- Must be able to use button, pull-down menus, and similar tools.

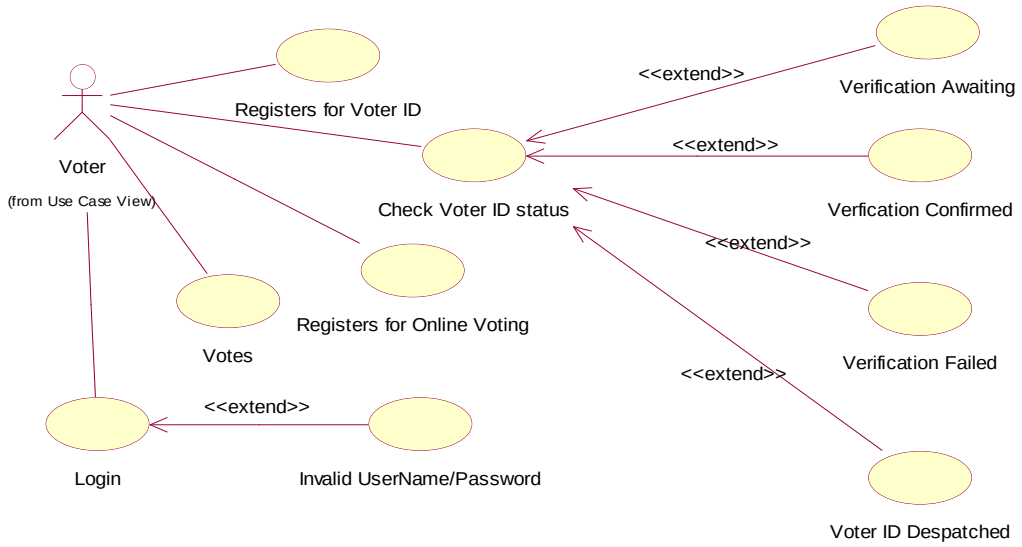
2.4 Constraints:

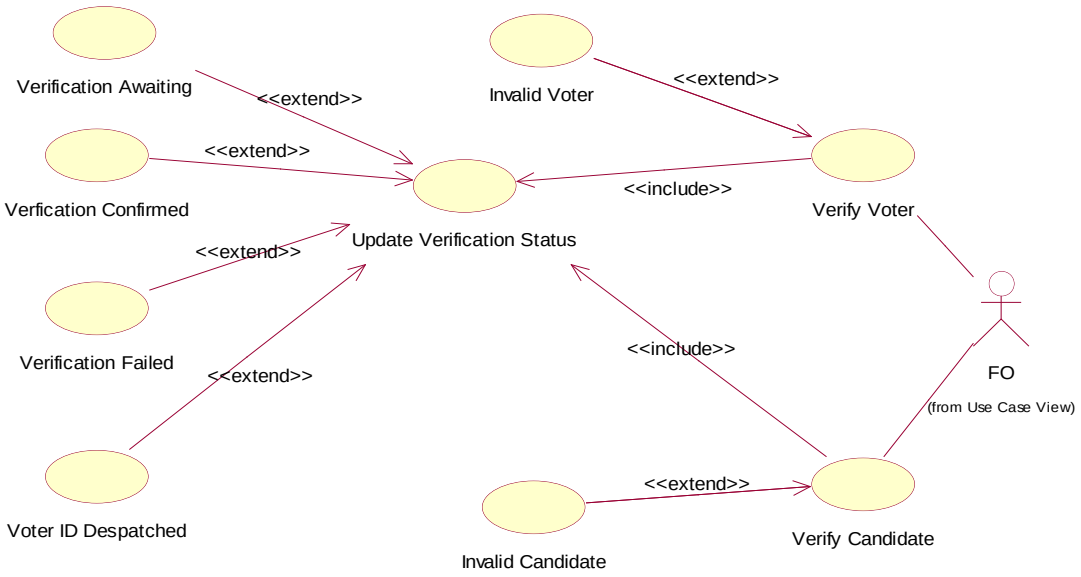
- The application shall be designed to run on an IBM-PC or 100% compatible computer with a Pentium-class or comparable processor.
- Stable internet connectivity along with web browsers such as Mozilla Firefox must be present.

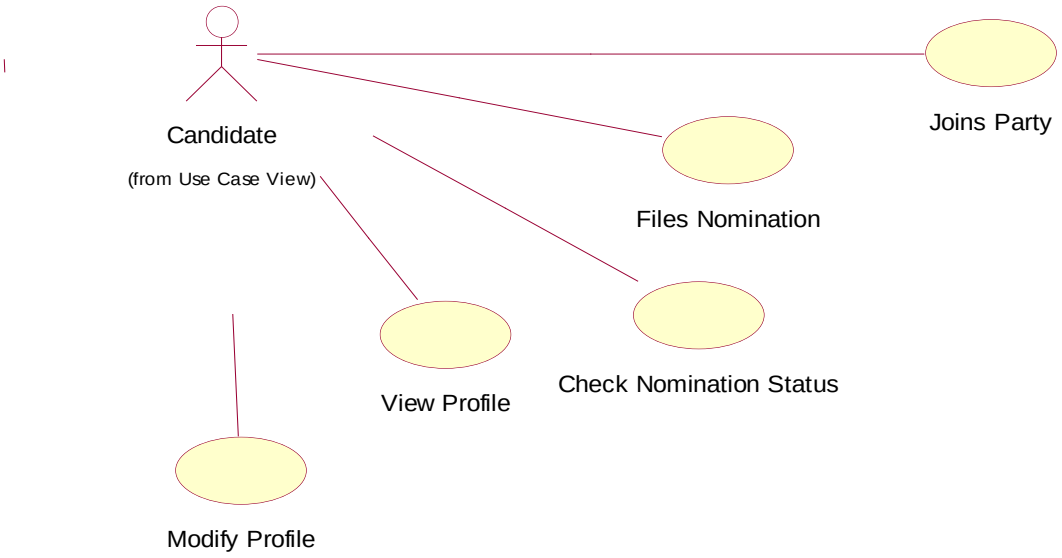
2.5 Architecture Design:

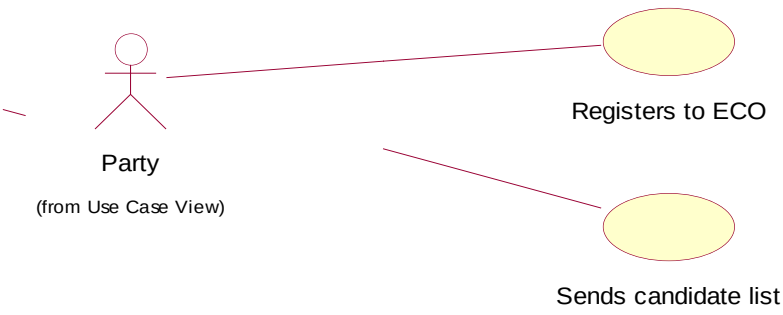


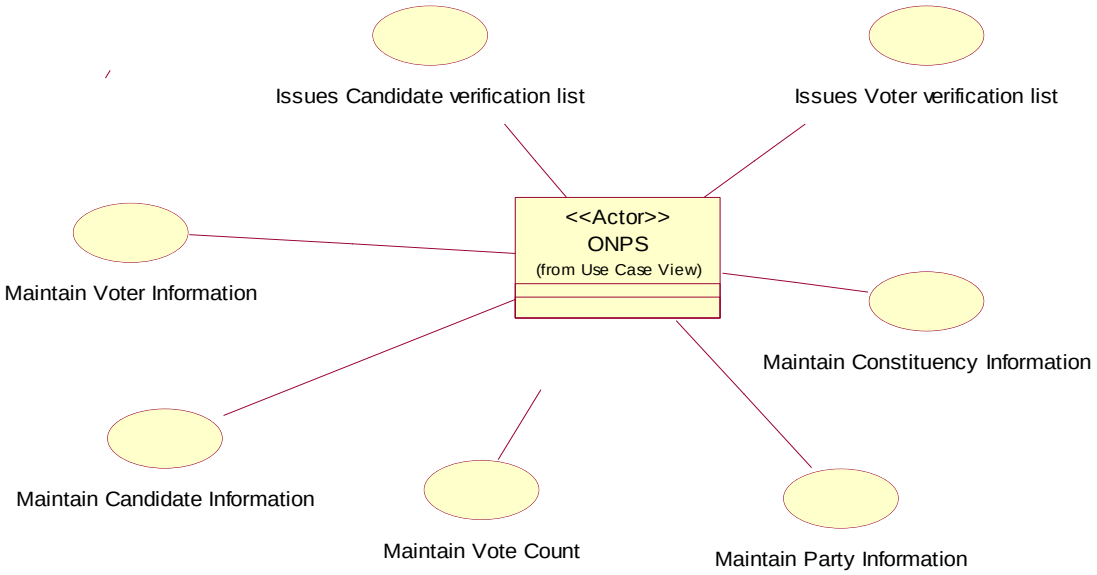
2.6 Use Case Model Description

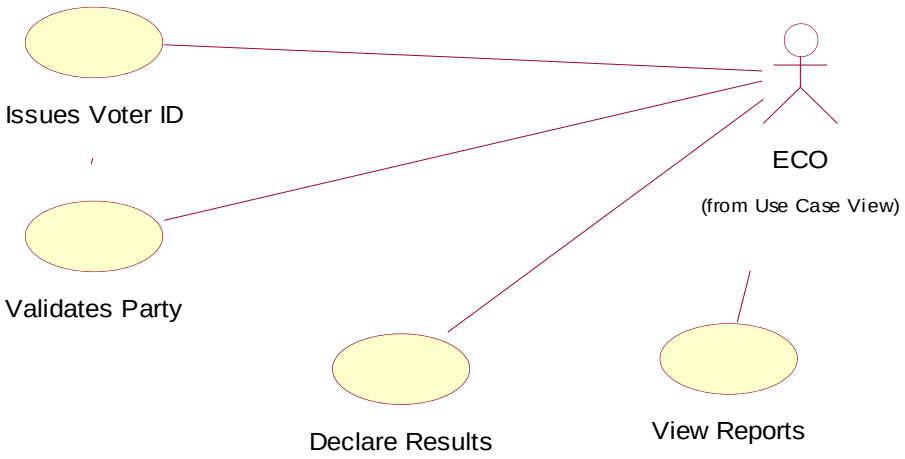




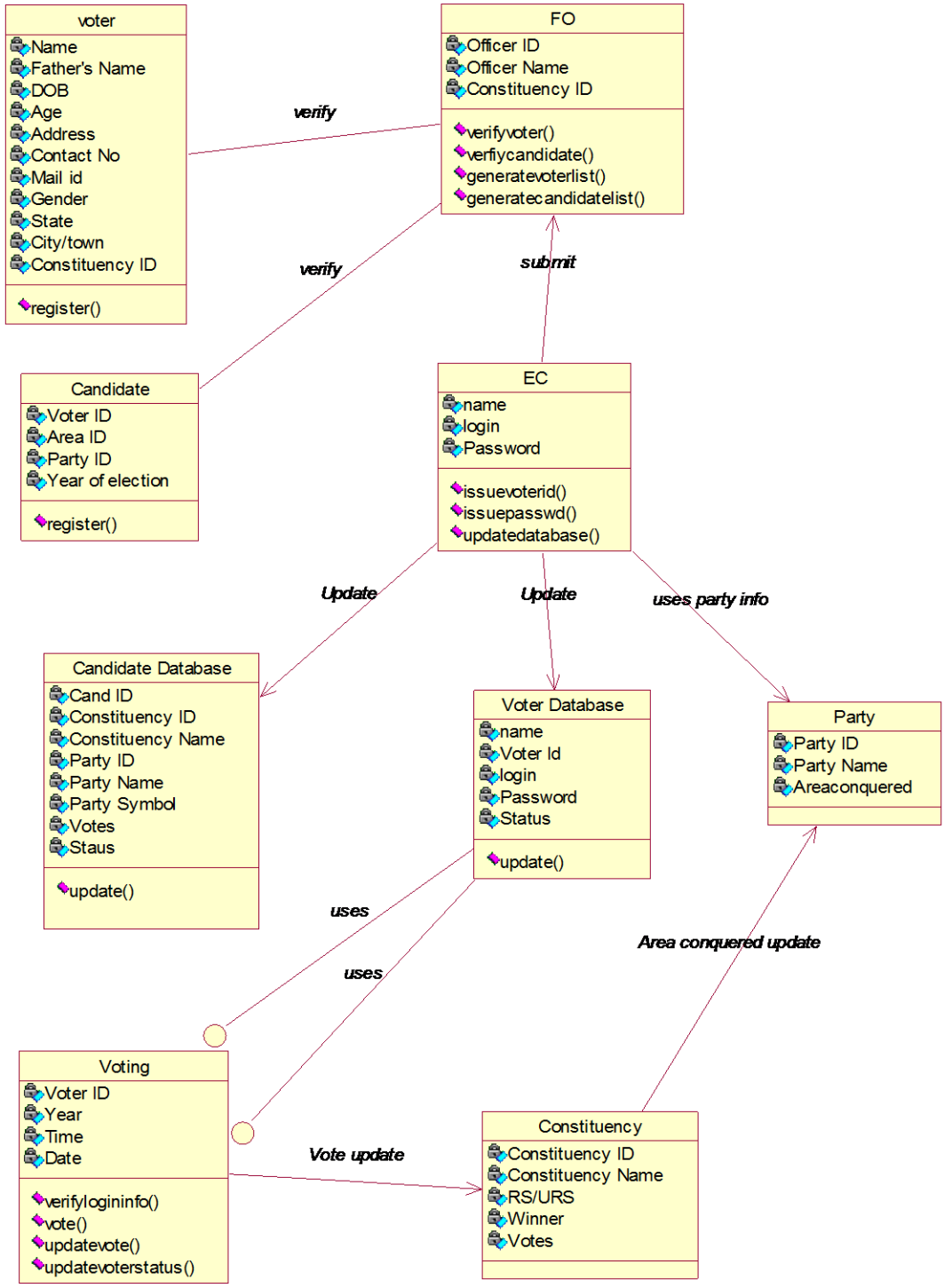

Candidate
(from Use Case View)
Joins Party
Files Nomination
View Profile
Check Nomination Status
Modify Profile


Party
(from Use Case View)
Registers to ECO
Sends candidate list


Issues Candidate verification list
Issues Voter verification list
<<Actor>>
ONPS
(from Use Case View)
Maintain Voter Information
Maintain Constituency Information
Maintain Candidate Information
Maintain Vote Count
Maintain Party Information

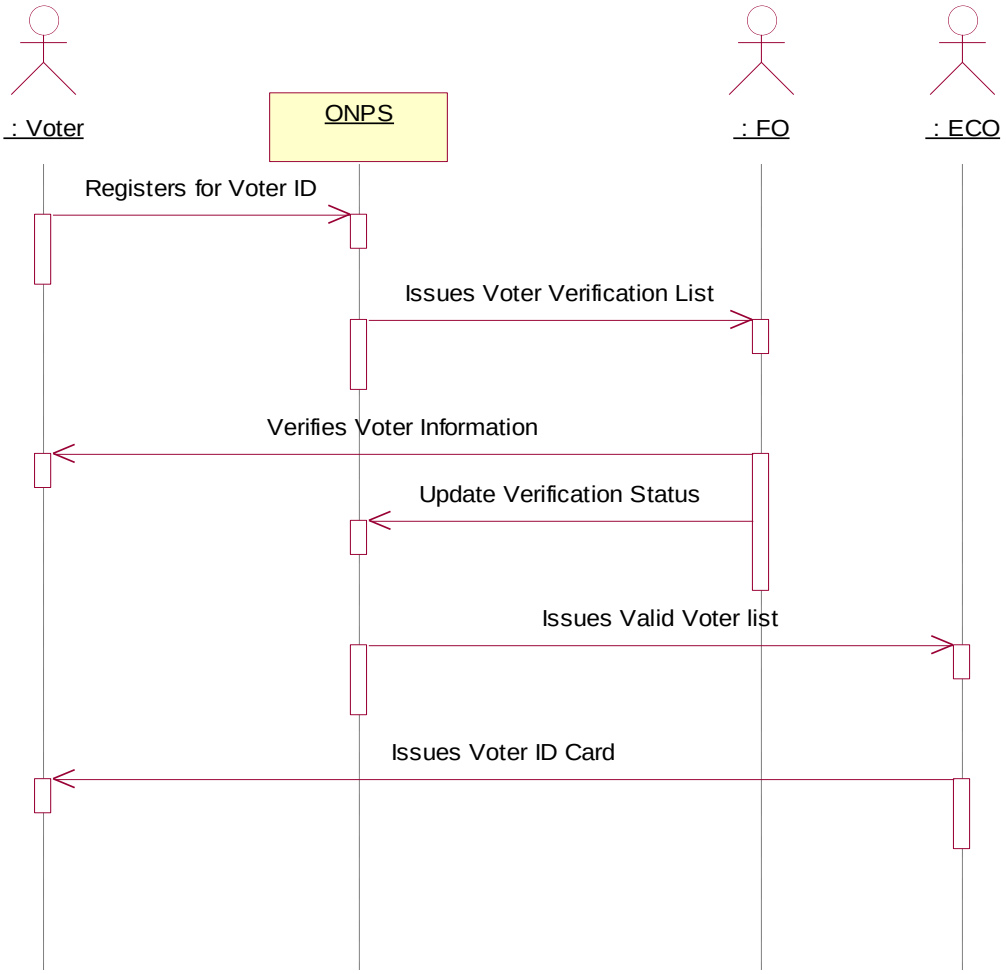

Issues Voter ID
ECO
(from Use Case View)
Validates Party
Declare Results
View Reports

2.7 Class Diagram

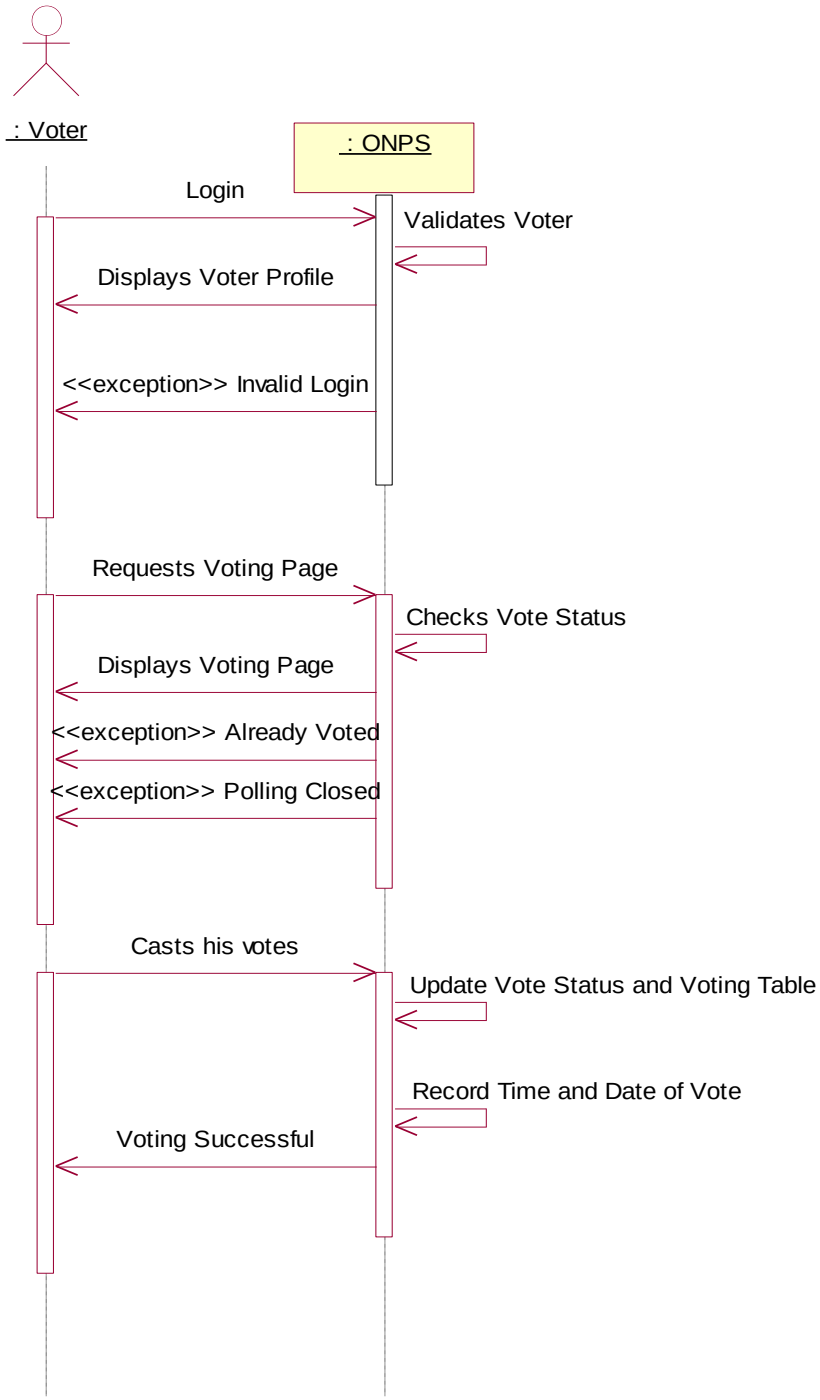


2.8 Sequence Diagram

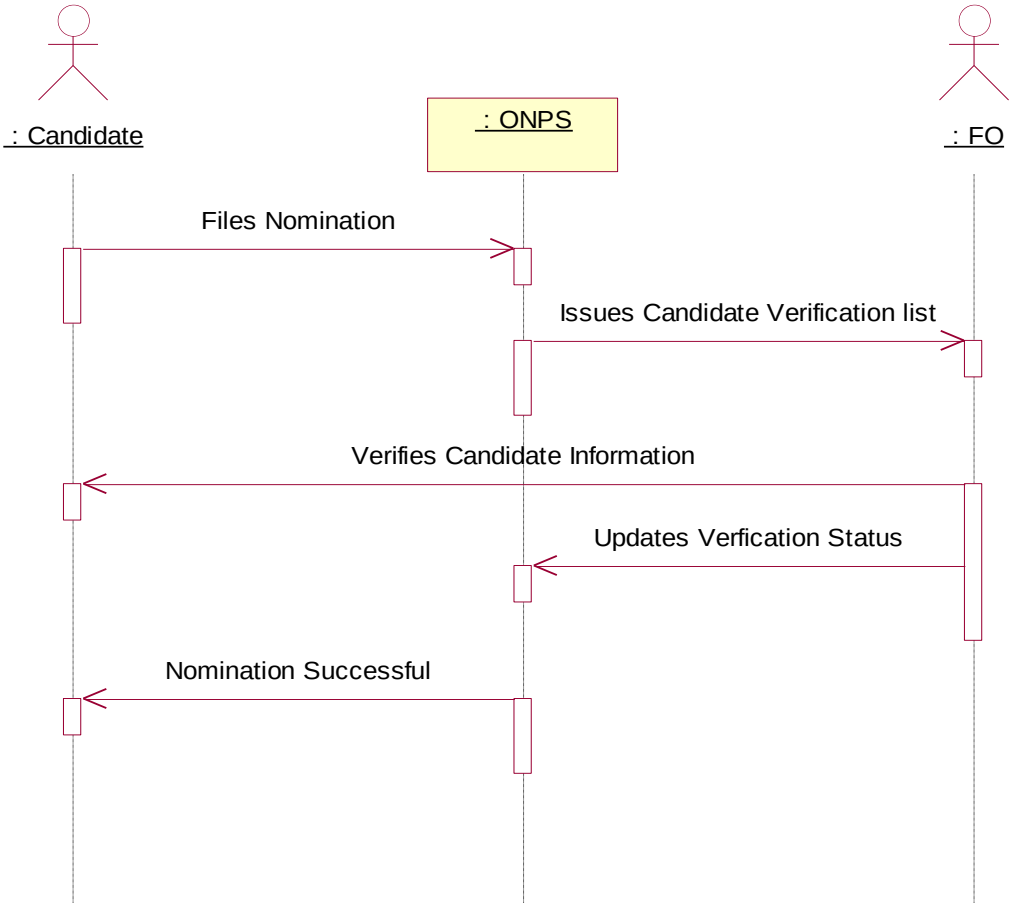
Voter ID Registration Process



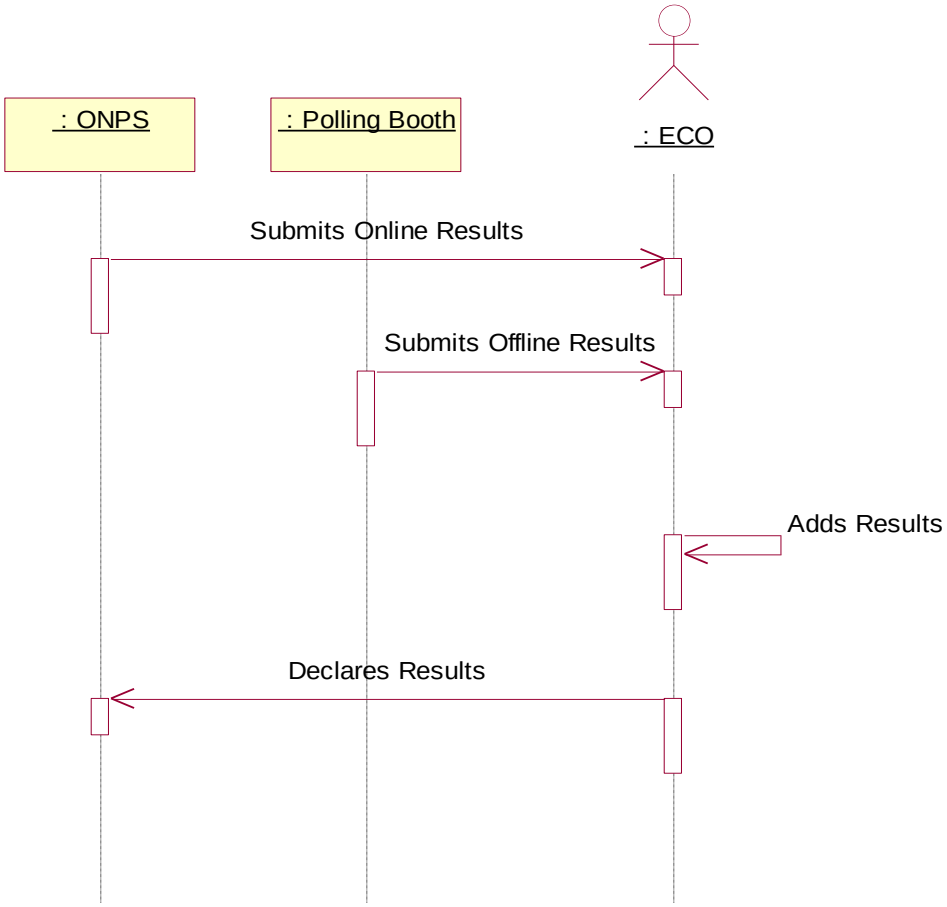
Voting Process



Candidate Registration Process



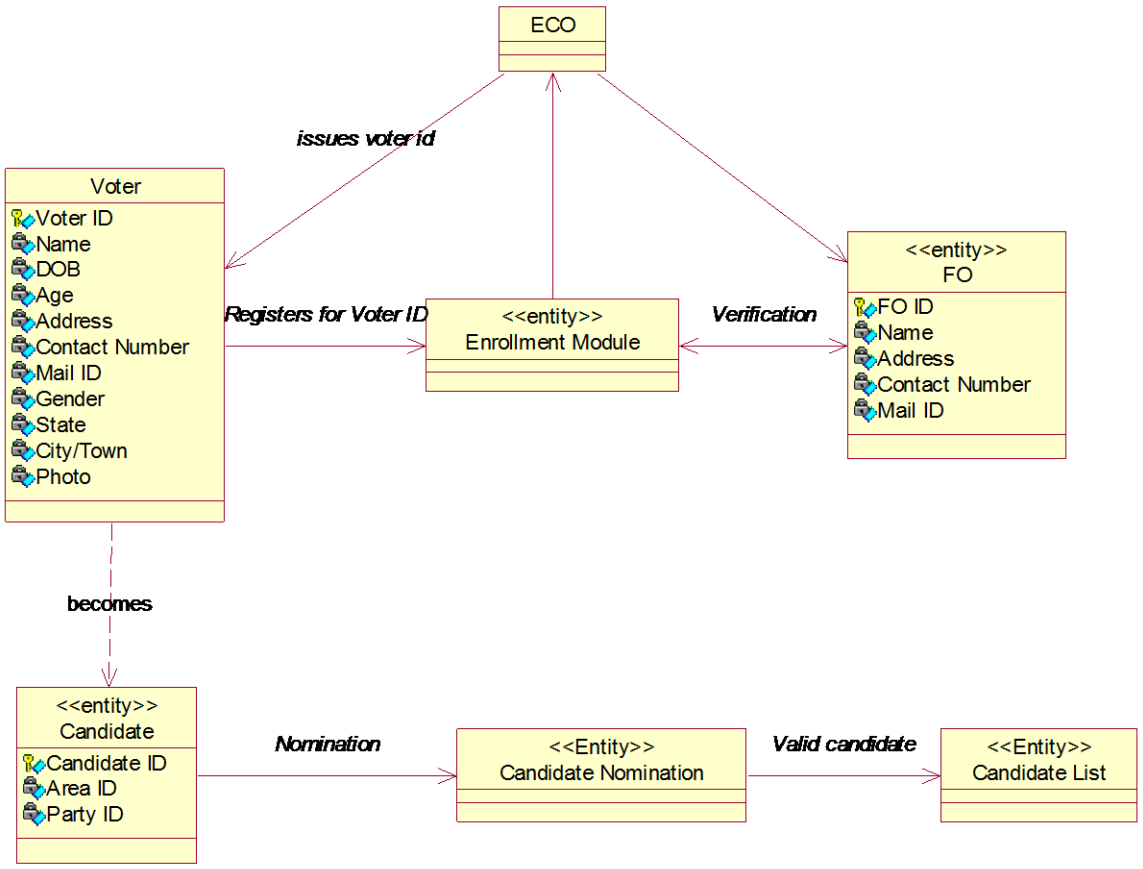
Result Declaration



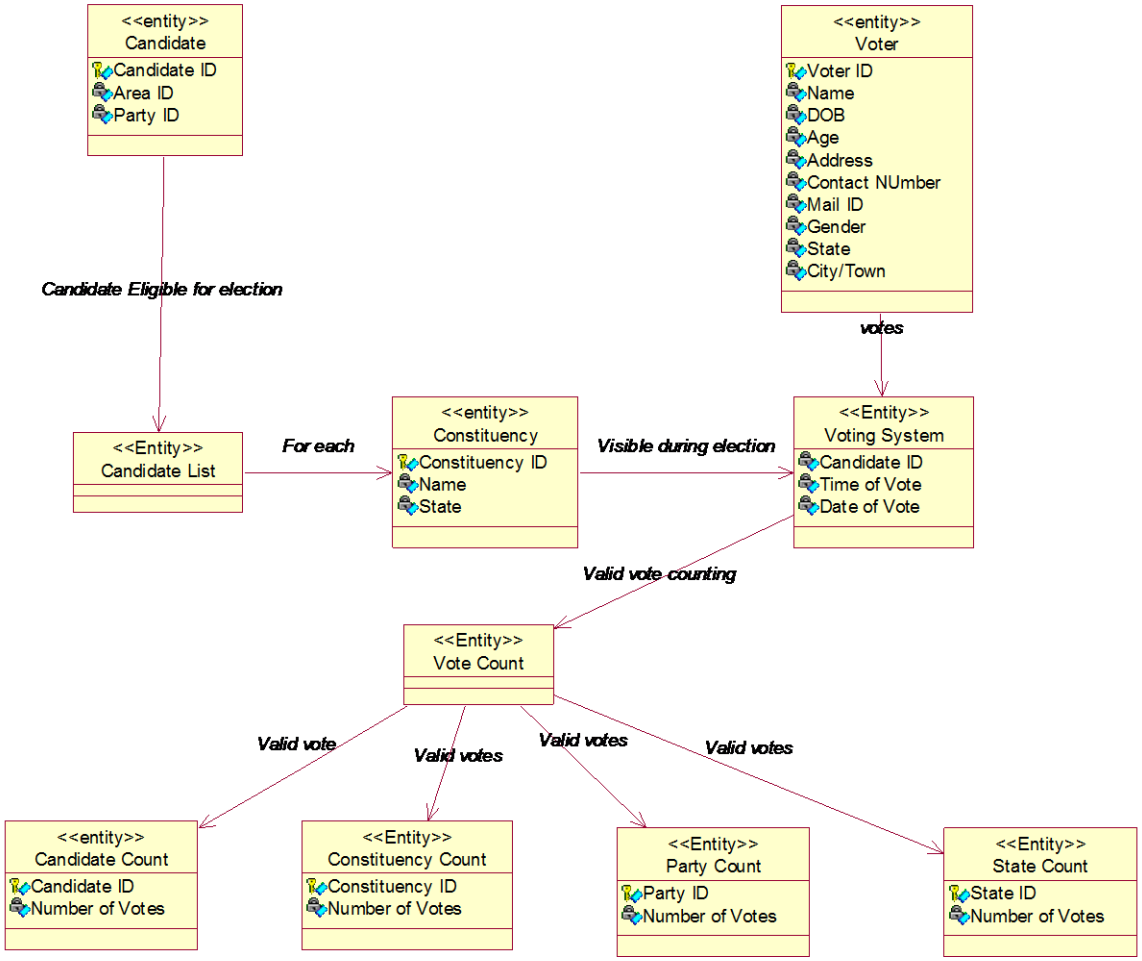
2.9 Database Design

2.9.1 ER Diagram (UML Notation)

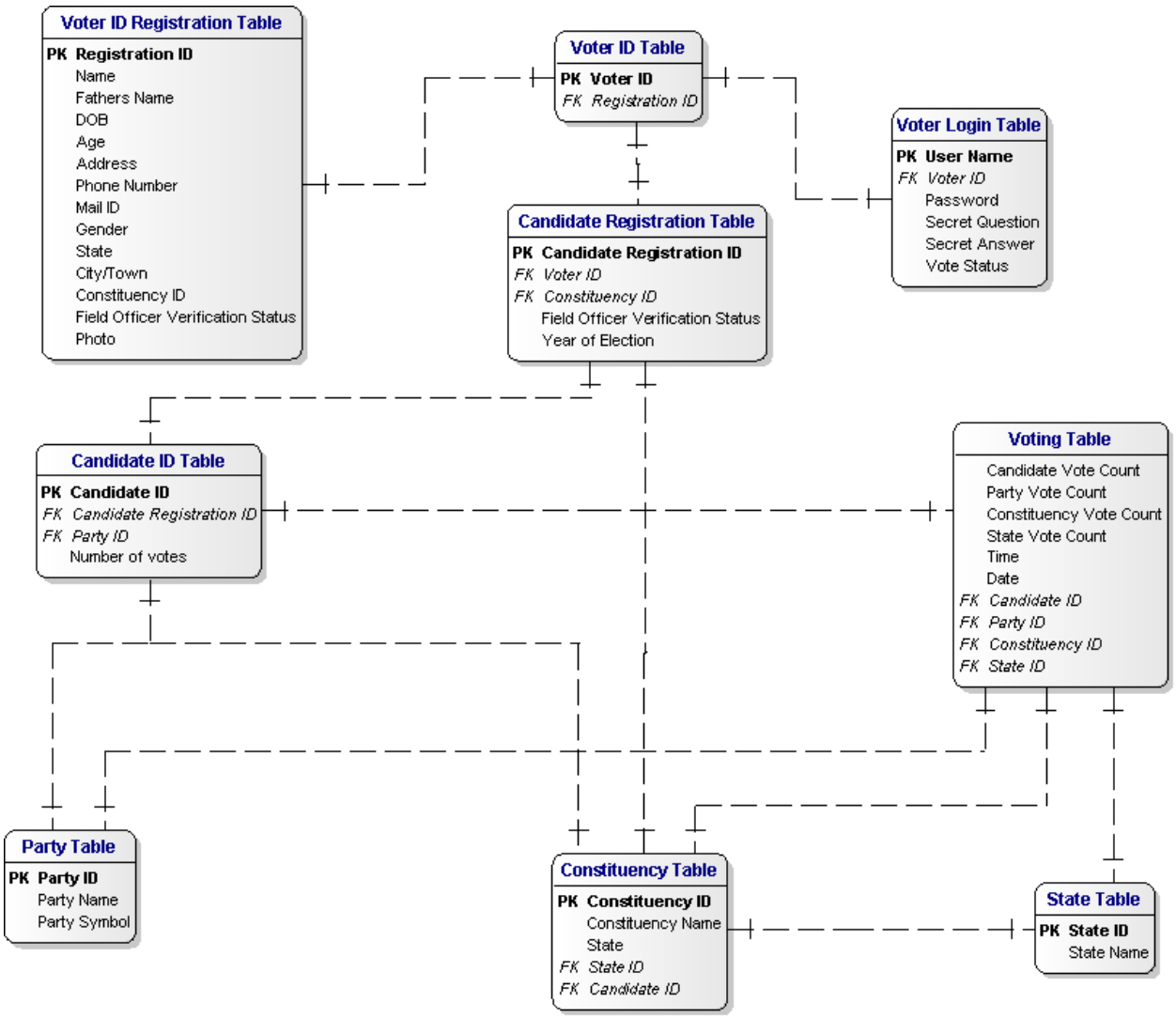
Enrollment Module



Voting and Result Declaration Module



2.9.2 Schema Diagram



2.10 Assumptions and Dependencies

- The party must register themselves to Election Commision of India. They must choose a name, symbol and provide the necessary details.
- The party must submit the list of candidates contesting in the election to Election Commision Officer
- A candidate can contest in a single contituency only.
- The voting results will be calculated by the Election Commisioner of India manually by adding the online results with the results from polling booths

3.0 Specific Requirements

3.1 Use Case Reports

1. **Voters:** The citizens of the country who are eligible for voting
    - **Registration for Voter ID:** The voter will register online for getting the voter ID. They will provide the details will be stored in the database.
    - **Voter ID status:** The voter can check the status of the voter ID registration. The status includes Awaiting Verification, Rejected and Voter ID card despatched.
    - **Registration for Online Voting System:** Those who have got their voter ID card must register themselves for the Online Voting System. The voter ID is used as username and a password must be set for secure authentication.
    - **Voting:** The voter can login, view the candidate profile and then cast the vote as per his/her wish
2. **Candidate:** A person nominated for contesting in a constituency election.
    - **Files Nomination:** The candidate will register for nomination through the website
    - **Add details to the profile:** Candidates will enter their details in the profile such as experience, contributions to the society.
    - **Modify Profile:** Candidates will be able to modify selected portions of the profile after they file their nominations.
    - **View Profile:** Candidates will be able to view his/her profile.

3. **Field Officer:** A person who verifies the voter or candidate identity.
    - **Verify Voter:** The Field Officer will visit the voter's residence and verify the identity. If the identity is verified, the verification status is set to Valid else it is set to Invalid.
    - **Verify Candidate:** The Field Officer will verify the candidate identity, assets and liabilities possesed, education background and criminal antecedents.

4. **Election Commision Officer:** A person who heads the Election Commission of India, a body empowered to conduct elections to the national and state legislatures.
    - **Declare Results:** The ECO will add the manual votes with the online votes and declare the result online.
    - **View Reports:** The details about the number of contituencies won by the party, number of votes got by candidate and the total number of votes cast can be viewed.
    - **Register Party:** The political parties will register to the ECO so that they can contest in the election.
    - **Issue Voter ID:** After the verification of voter, the ECO will issue the voter ID card through post or through registrar office.

3.2 Supplementary Requirements:

- The application must be able to handle large volume of transactions per hour.
- It must be user friendly and compatible to all browsers.
- The count of votes will be displayed in thousands.
- The progress of the election must be available in hourly basis.
- High speed online real time back up to be provided.