SOFTWARE REQUIREMENT SPECIFICATION(SRS)

for

ELECTION MANAGEMENT SYSTEM

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1. Introduction

1.1. Purpose

This document is provided to ensure that the software created by the development team meets the needs of all customers. It describes and explains the project requirements provided to the development team. Clearly stating these requirements helps address any potential misunderstandings early on when making changes is lesscostly. We encourage customers to share this document with their potential users andmanagement to give us feedback. This feedback will assist the development team in making sure that the final product meets everyone's needs. Additionally, this document will be helpful for those who will upgrade or maintain the software after it's finished.

1.2. Scope

The main focus of the document is on an Election Management System. It's meant to help with planning, organizing, and carrying out elections. It handles everything from registering candidates and voters to creating ballots, conducting voting, and announc-ing results.

1.3. Definitions, Acronyms, and Abbreviations

1.EMS: Election Management System.

2.Voter: A person who is eligible to participate in the election.

3.Candidate: Someone running for a position in the election.

4.Ballot: The official list of candidates and issues for voting.

1.4. System Overview

The Election Management System is like a digital tool designed to handle everything in an election, from the beginning to the end. Its main goals are to make sure everything is fair, secure, and correct. This system will have different parts for things like register- ing voters, signing up candidates, creating ballots, letting people vote, and figuring outthe results.

1.5. System Architecture

The system architecture is set up like a conversation between two parts: the client

(web-based interface for users) and the server (backend). The client is what users interact with - it's the web interface for administrators, candidates, and voters. The server, or backend, is like the engine room. It stores and processes data, ensuring smooth communication between the user interface and the stored information. This separation allows for an organized and efficient election management process, with

2. General Description

2.1. Product Perspective

The Election Management System (EMS) serves as a crucial component within the electoral process, acting as the central hub for managing and overseeing elections. It interfaces with various external entities, including voter registration databases, candidate information systems, and election result reporting systems.

2.2. Product Function

The Election Management System (EMS) oversees voter registration, candidate sign-ups, and ensures a secure and transparent electoral process. Acting as a guardian, it streamlines administrative tasks, making elections fair and trustworthy for all participants. From setting up elections to counting votes, the EMS plays a pivotal role in the democratic process.

2.3. Key Features

1.EfficientRegistration

2.Secure Voting Process

3.Security Measures

4.Interoperability and Scalability

2.4. Development Model

The development team recommends using the Iterative Model would be more suitable. This model is chosen due to its suitability for projects with evolving requirements, allowing for the gradual development and delivery of features.It aligns well with the iterative nature of the Election Management System, enabling stakeholders to provide early feedback on individual increments.

3. Functional Requirements

3.1. Voter/Candidate Registration

1.The system shall facilitate the registration of eligible voters by capturing requisite personal details, including full name, roll number (college id), degree.

2.Candidate eligibility shall be verified based on CPI and if any disciplinary record is there or not.

3.Voter eligibility shall be verified based on the information provided by the voter.

4.The system shall incorporate robust measures to prevent duplicate voter registrations.

5.Preventive measures shall be in place to curb duplicate candidate registrations.

3.2. Election Configuration

1.The system shall empower administrators with intuitive tools for configuring diverseelection parameters, including date, time, and eligible constituencies.

2.Support for various election types (e.g., SGC, DUPC) with adaptable voting methodsshall be inherent to the system.

3.3. Ballot Design

An interactive interface shall be provided for the design of electronic ballots, accommodating multiple candidates and diverse voting systems.

3.4. Voting Process

1.The system shall offer a secure, user-friendly interface for voters to cast their votes,featuring mechanisms for vote verification and accessibility.

2.Stringent measures shall be implemented to prevent multiple votes from the same voter.

3.5. Result Tabulation

The system shall execute secure aggregation and tabulation of votes, employing distinct algorithms tailored for different election types to ensure precise result calculation.

3.6. Audit Trail and Security

1.An exhaustive audit trail shall be maintained, documenting all user activities within the system.

2.Stringent user authentication, complemented by data transmission encryption, shallbe implemented to fortify system security.

3.7. Reporting and Analytics

1.Administrators shall be equipped with sophisticated reporting tools to analyze election data and discern trends.

2.Real-time updates on election progress shall be systematically generated.

4. Non-functional Requirements

4.1. Performance

The software is expected to have reasonably short response time. It should be able to log-in and feed the voter with new pages on request with a response time of the order of a few seconds.

4.2. Maintenance

Full support for maintenance and updates shall be provided to the application. User shall be able to contact us in case of any kind of issue they face regarding our application.

4.3. Security

1.The system should provide basic security features like password authentication and encrypted transactions.

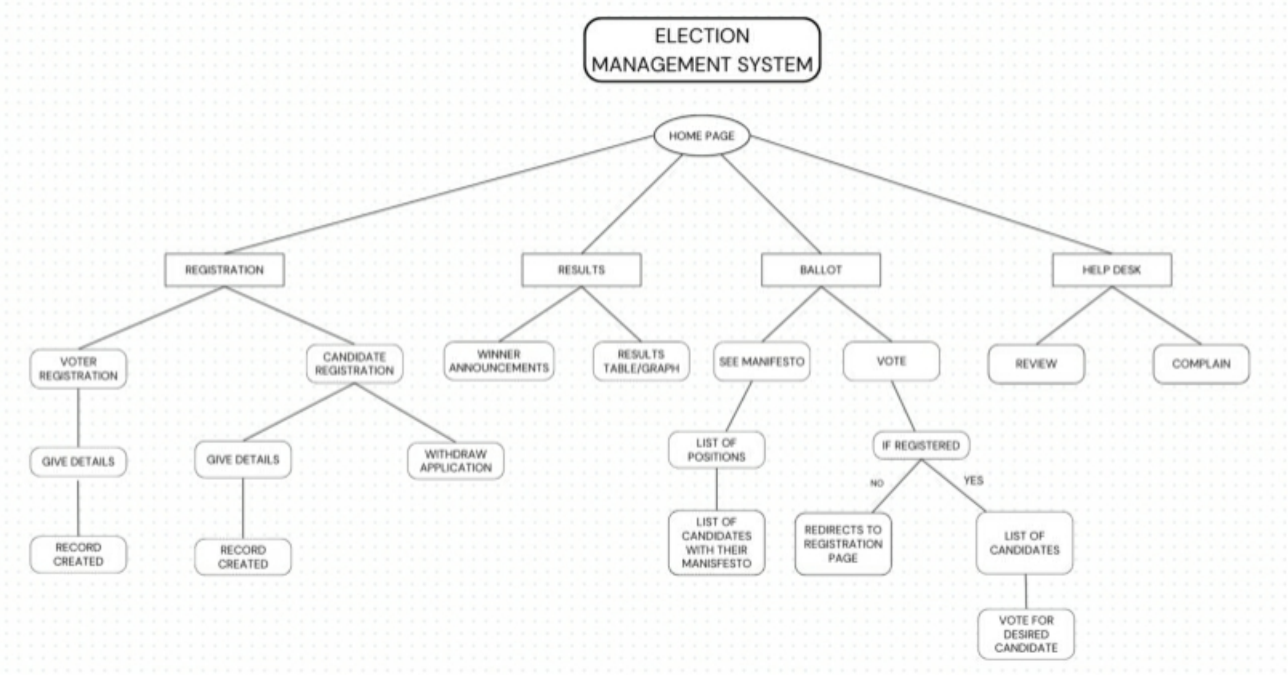
2.Incorporate robust security measures to protect user data and maintain user privacy.

4.4. Usability

The system shall feature an intuitive interface, minimizing the learning curve for users. Clear and consistent visual elements, including icons and buttons, will be employed to enhance usability and ensure easy navigation.

5. Decision Tree and Decision Table

5.1. Decision Tree



5.2. Decision Table

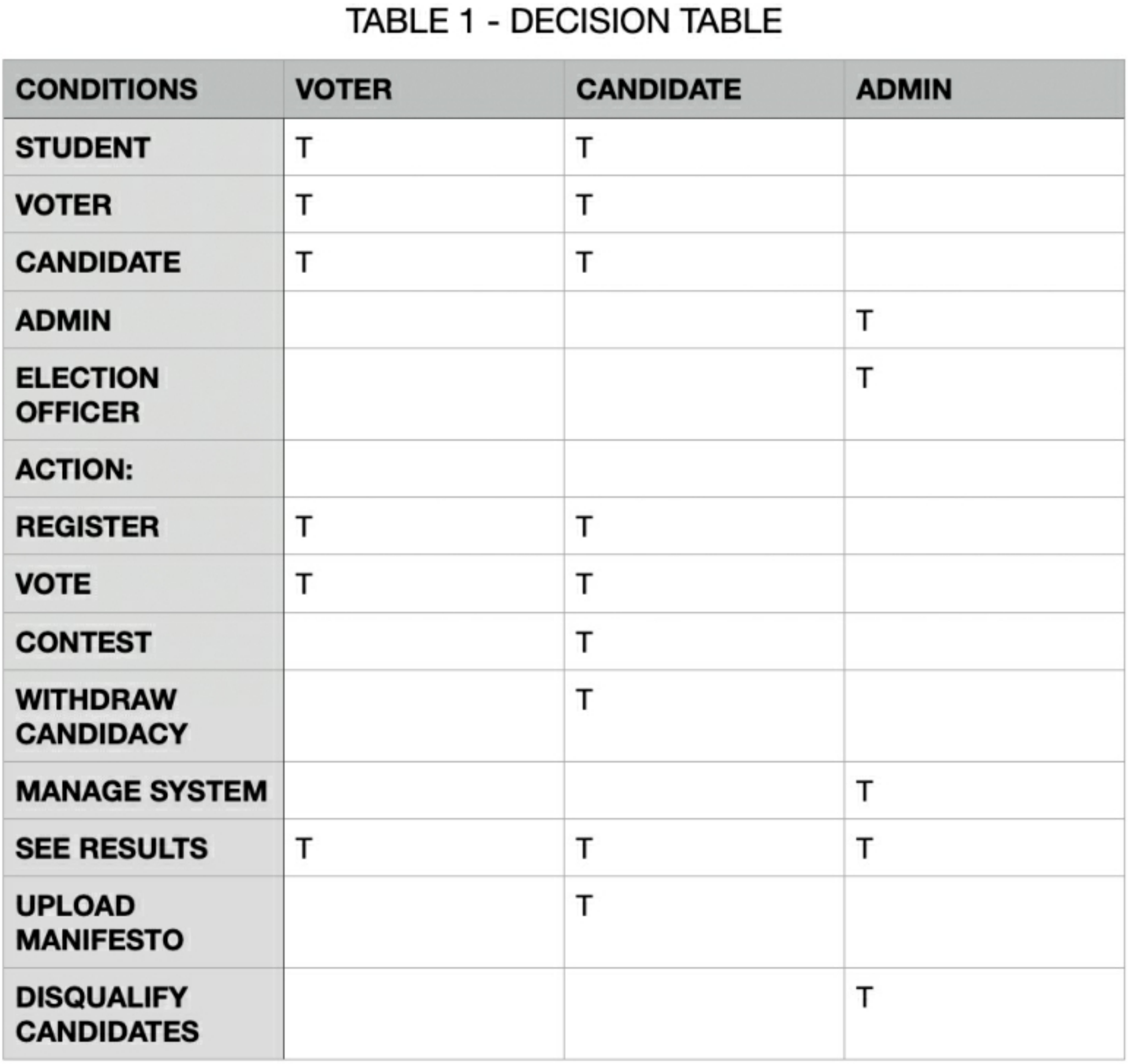


TABLE 1 - DECISION TABLE

CONDITIONS	VOTER	CANDIDATE	ADMIN
STUDENT	T	T	
VOTER	T	T	
CANDIDATE	T	T	
ADMIN			T
ELECTION OFFICER			T
ACTION:			
REGISTER	T	T	
VOTE	T	T	
CONTEST		T	
WITHDRAW CANDIDACY		T	
MANAGE SYSTEM			T
SEE RESULTS	T	T	T
UPLOAD MANIFESTO		T	
DISQUALIFY CANDIDATES			T

6. Constraints

1.The system must comply with relevant electoral laws and regulations.

2.The development budget and timeline are constrained.

7. Interfaces

1.Web-based interface for administrators, candidates, and voters.

2.Integration with a secure database for data storage.

8. Goal of Implementation

1.The Election Management System aims to be more time-efficient than current hard- ware solutions, streamlining electoral processes for quicker and more effective management.

2.The system will create and check election results to make sure they are accurate and reliable. This helps build trust in the electoral process and ensures that the outcomes are correct and dependable.

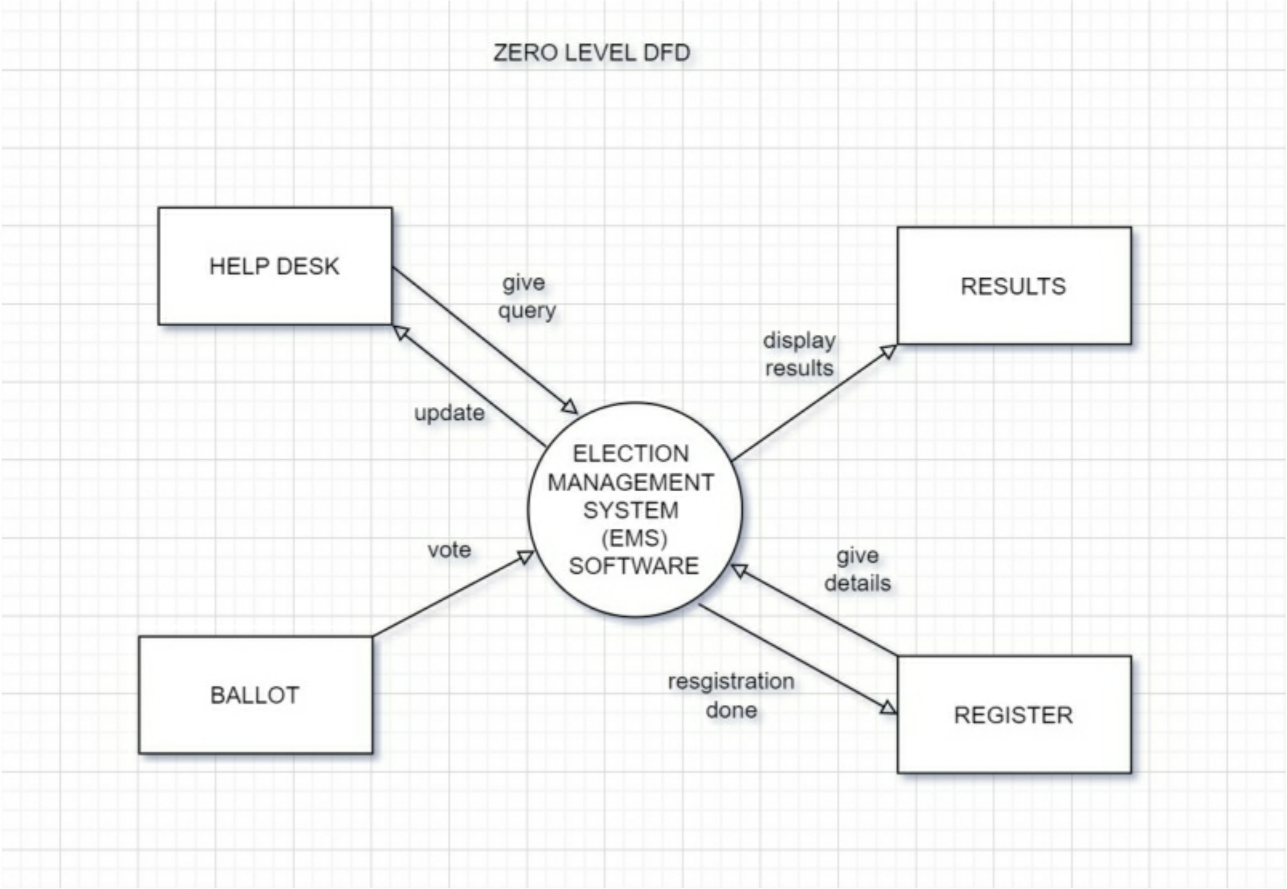
3.EMS with a user-friendly interface that allows election officials to navigate and manage the electoral process efficiently.

9. Update Section

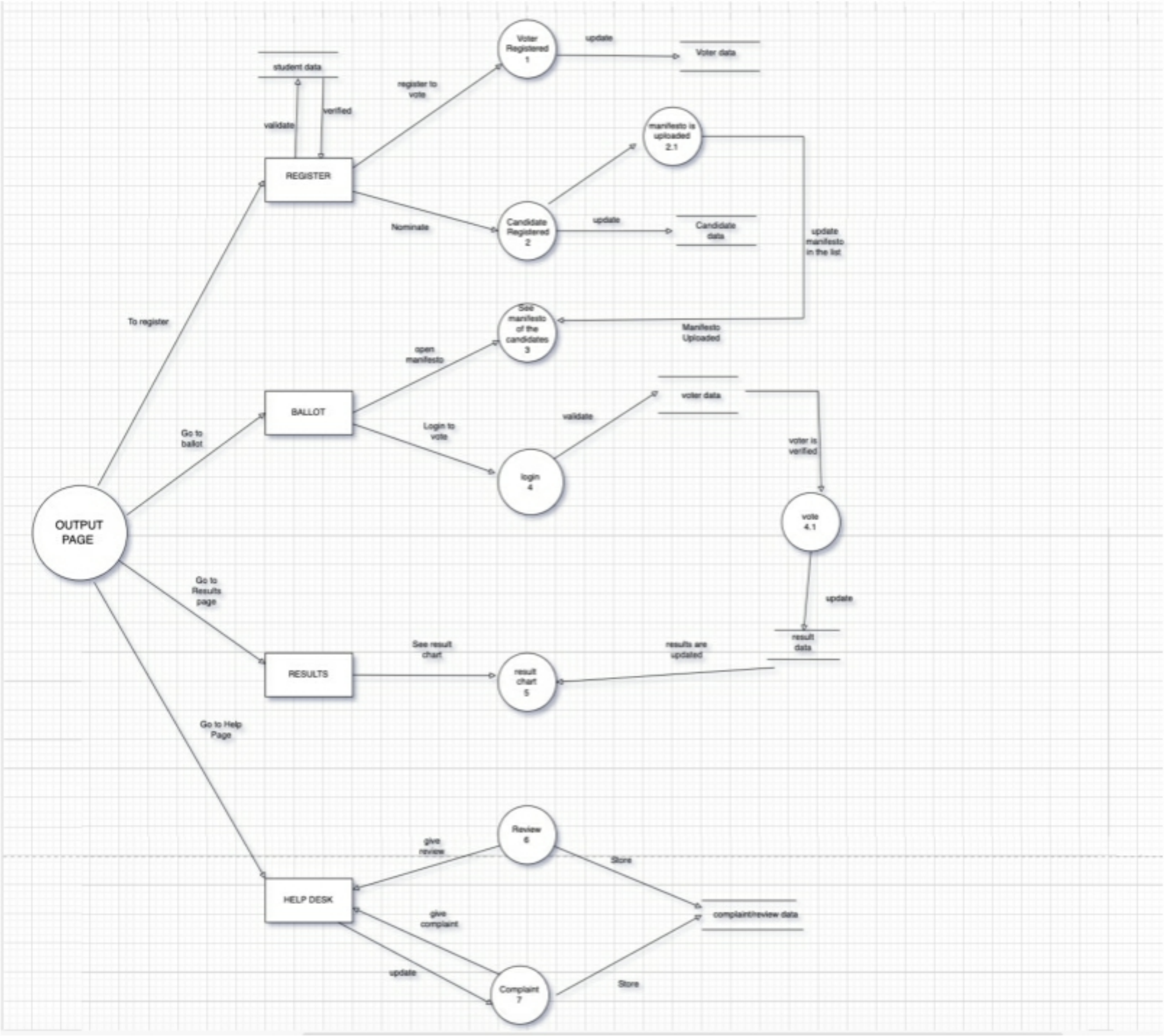
1.Decision table is updated.

2.Data flow diagram

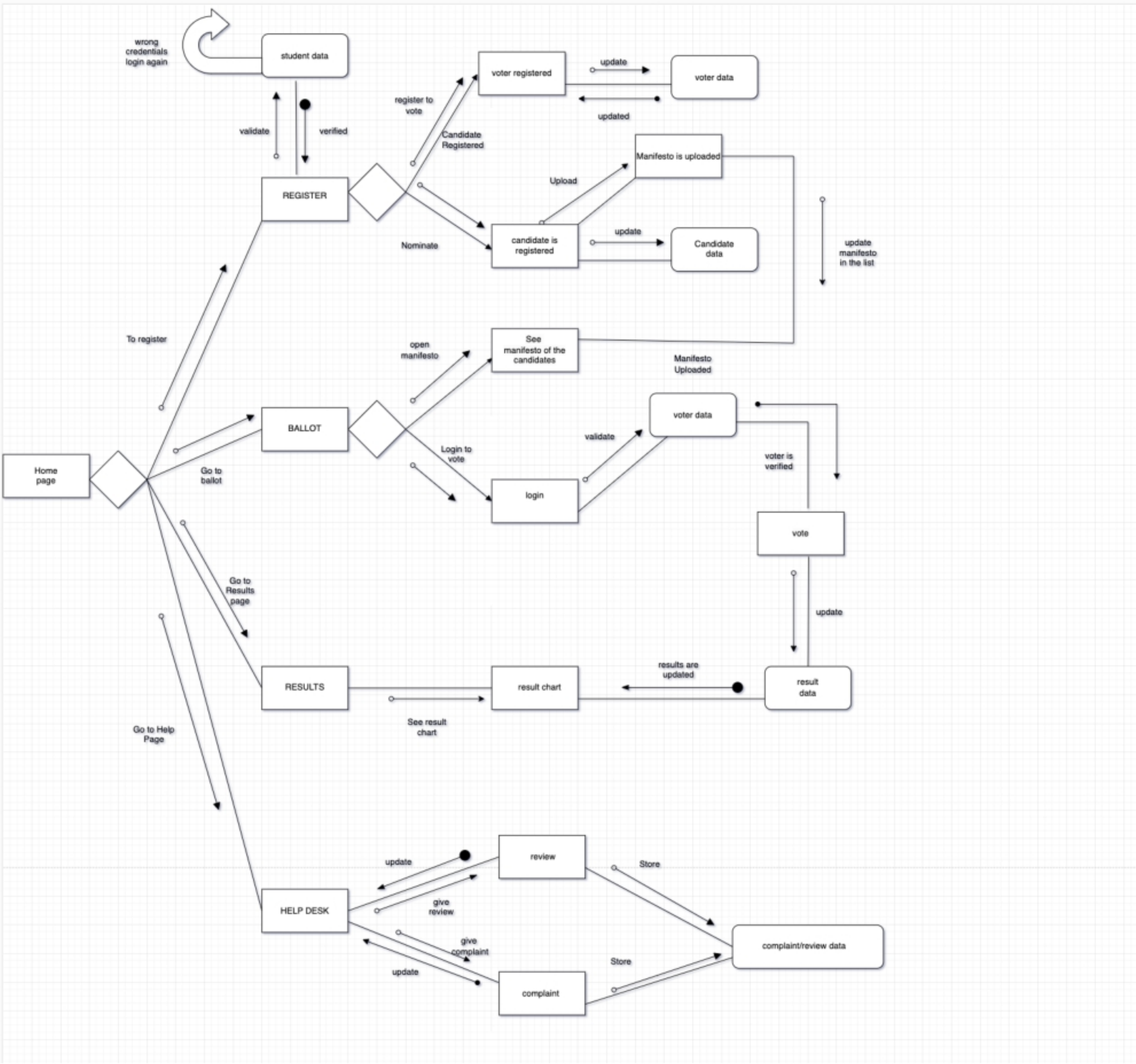
2.1 Zero level DFD



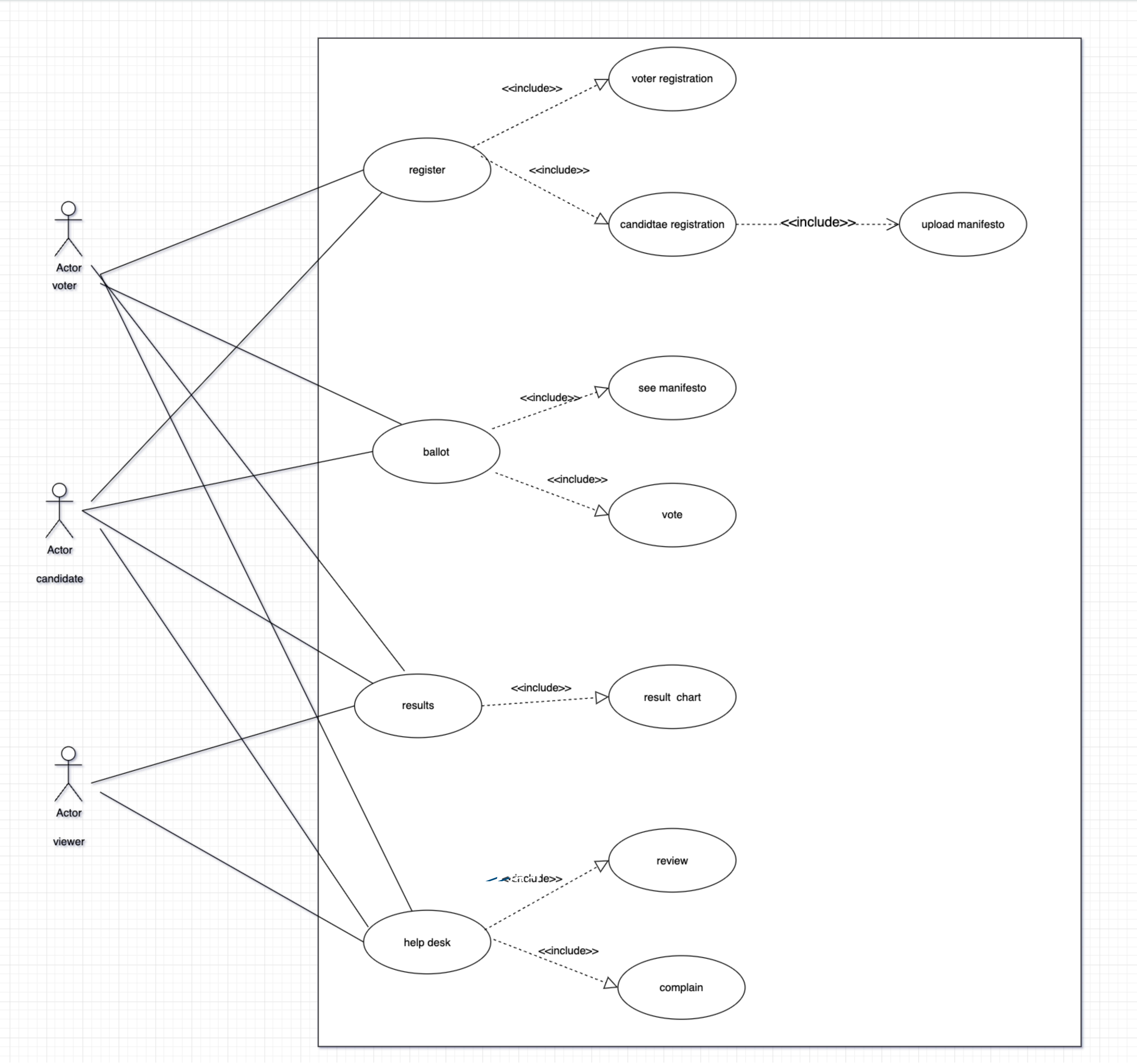
2.2 Level-1 DFD



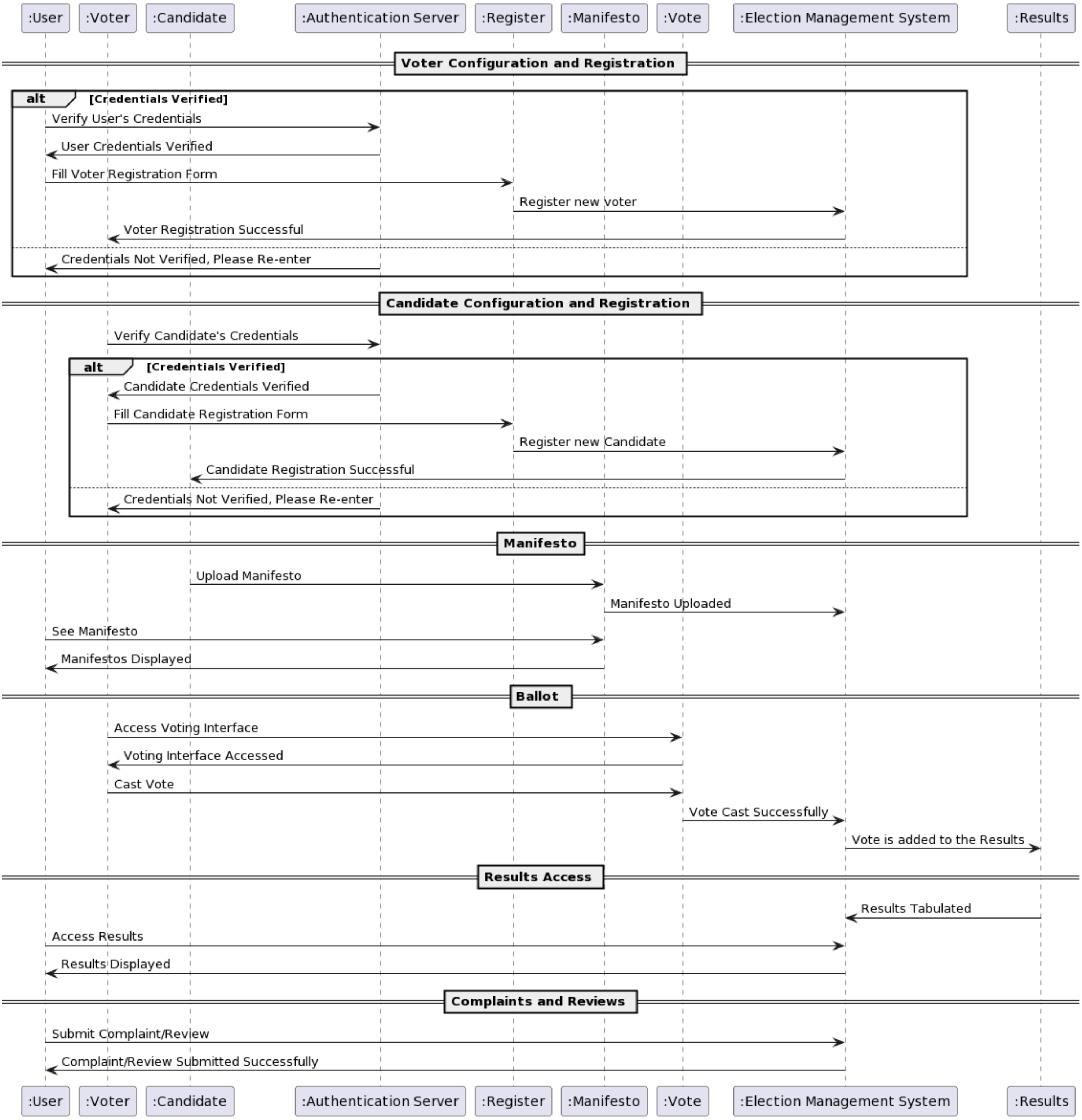
10. Structured Chart



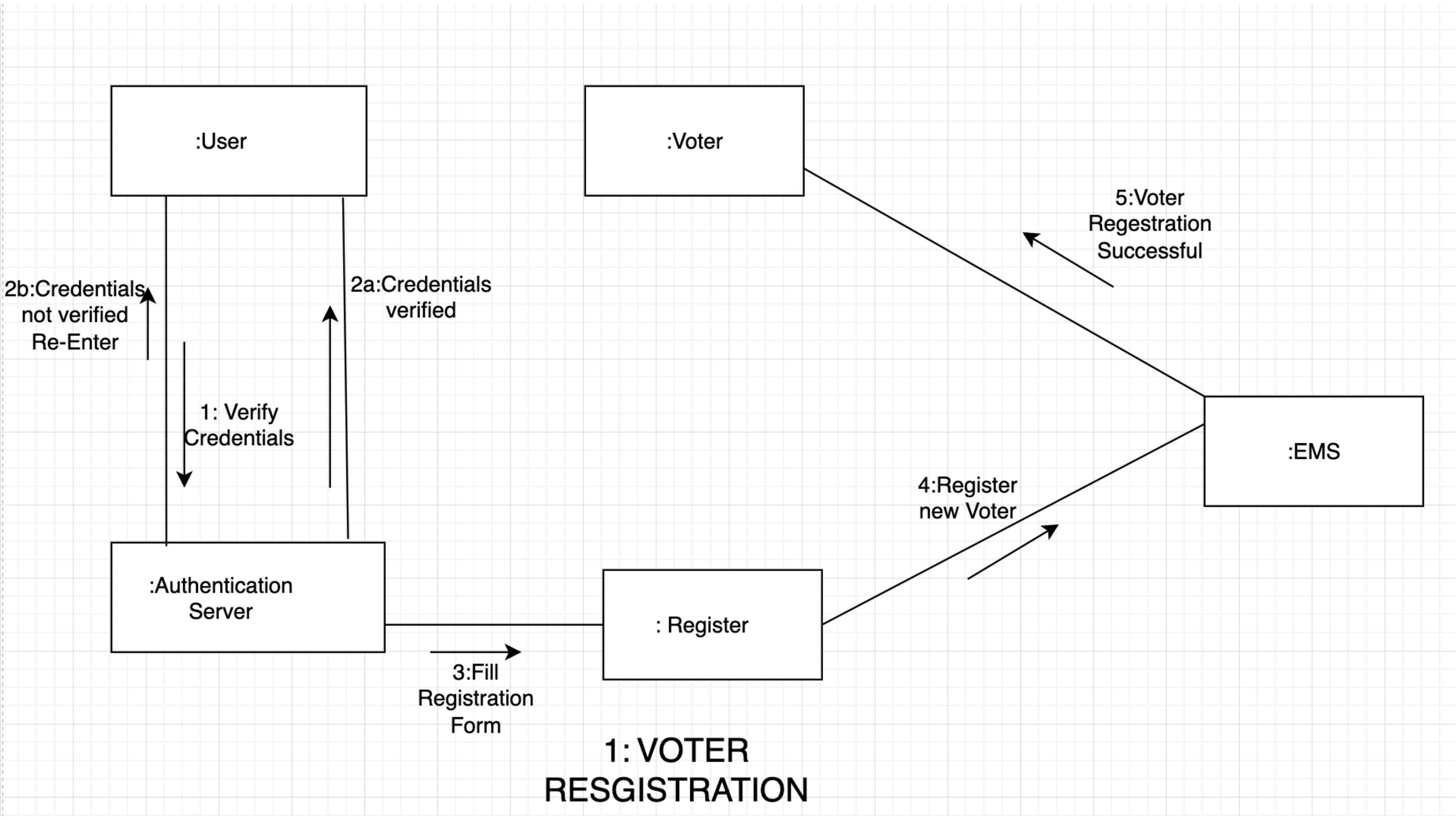
11. UML Diagram

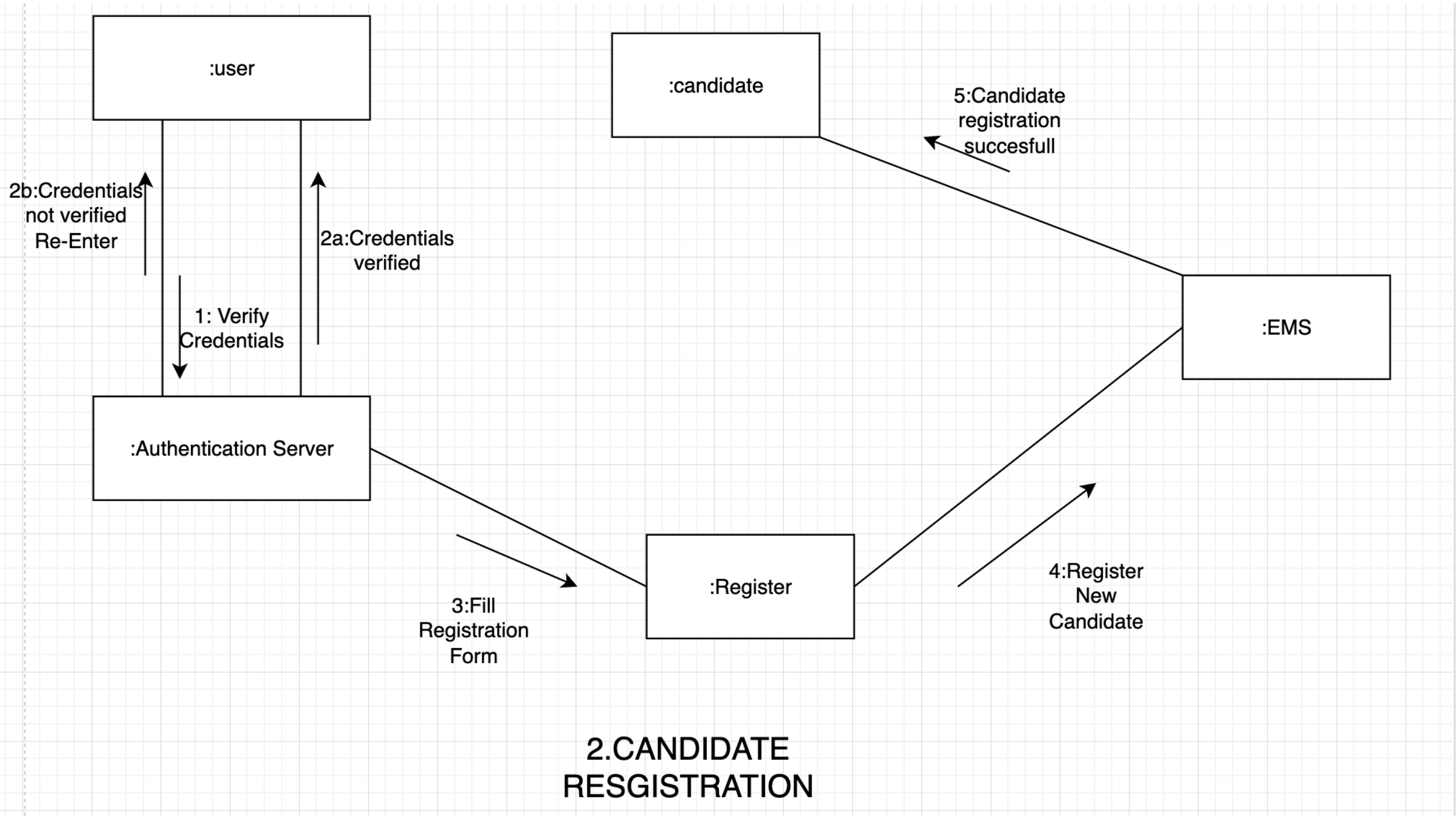


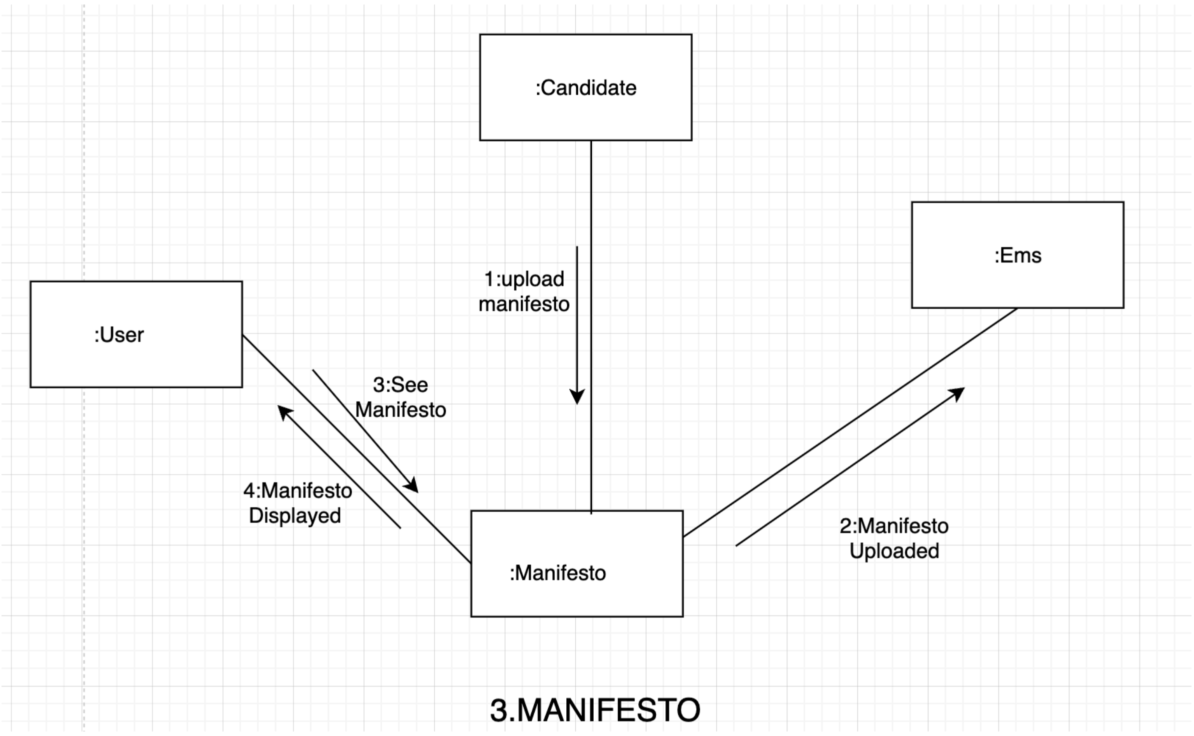
12. UML Sequence Diagram


:User
:Voter
:Candidate
:Authentication Server
:Register
:Manifesto
:Vote
:Election Management System
:Results
Voter Configuration and Registration
alt
[Credentials Verified]
Verify User's Credentials
User Credentials Verified
Fill Voter Registration Form
Register new voter
Voter Registration Successful
Credentials Not Verified, Please Re-enter
Candidate Configuration and Registration
Verify Candidate's Credentials
alt
[Credentials Verified]
Candidate Credentials Verified
Fill Candidate Registration Form
Register new Candidate
Candidate Registration Successful
Credentials Not Verified, Please Re-enter
Manifesto
Upload Manifesto
Manifesto Uploaded
See Manifesto
Manifestos Displayed
Ballot
Access Voting Interface
Voting Interface Accessed
Cast Vote
Vote Cast Successfully
Vote is added to the Results
Results Access
Results Tabulated
Access Results
Results Displayed
Complaints and Reviews
Submit Complaint/Review
Complaint/Review Submitted Successfully
:User
:Voter
:Candidate
:Authentication Server
:Register
:Manifesto
:Vote
:Election Management System
:Results

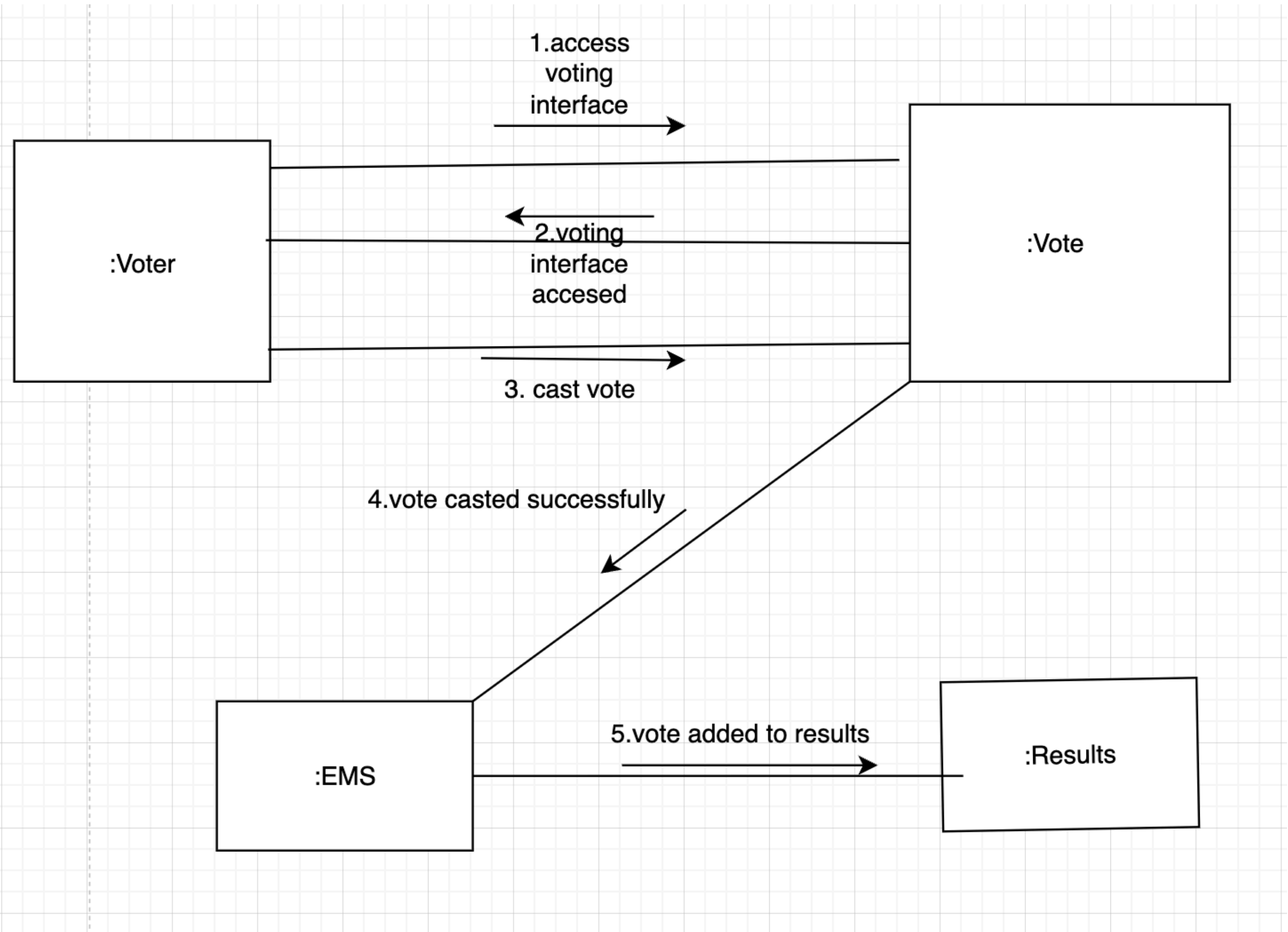
13. UML Collaboration Diagram



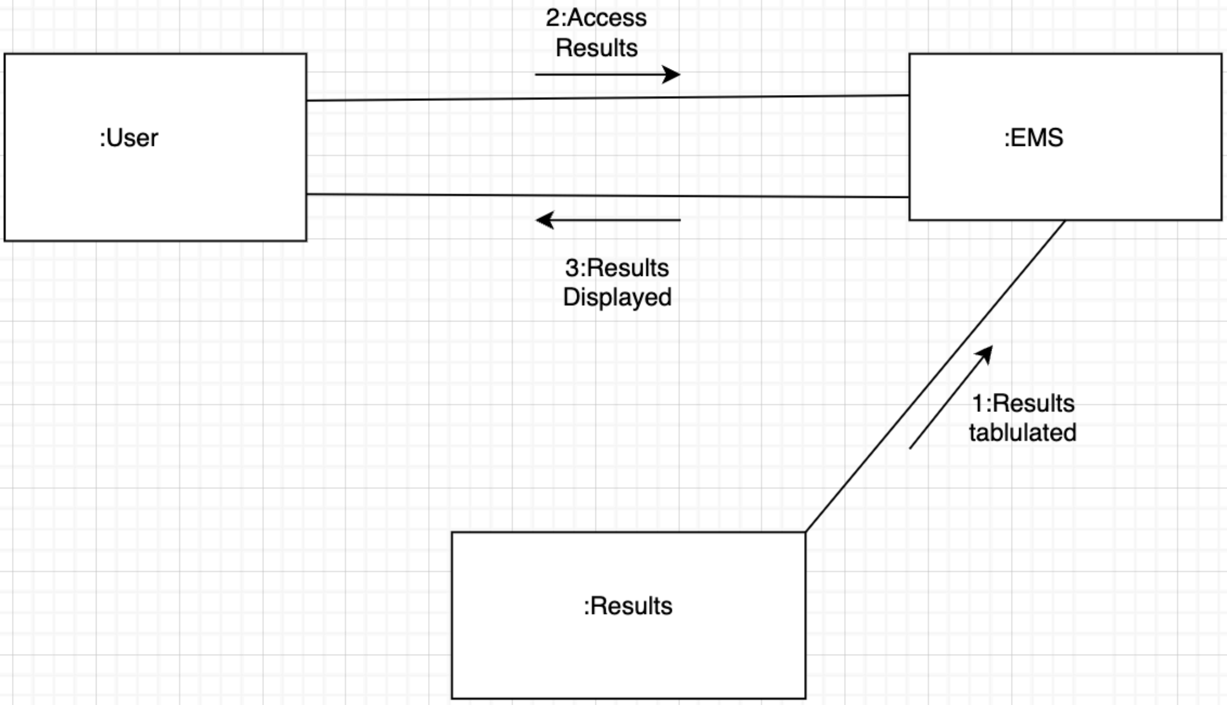




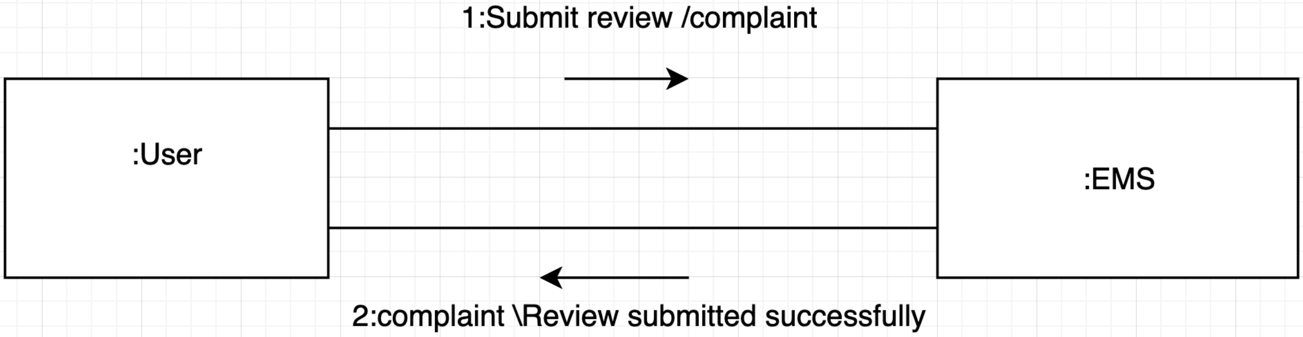
3.MANIFESTO



4.BALLOT



5.RESULT ACCESS


1:Submit review /complaint
:User
:EMS
2:complaint \Review submitted successfully

6.COMPLAINTS AND REVIEW