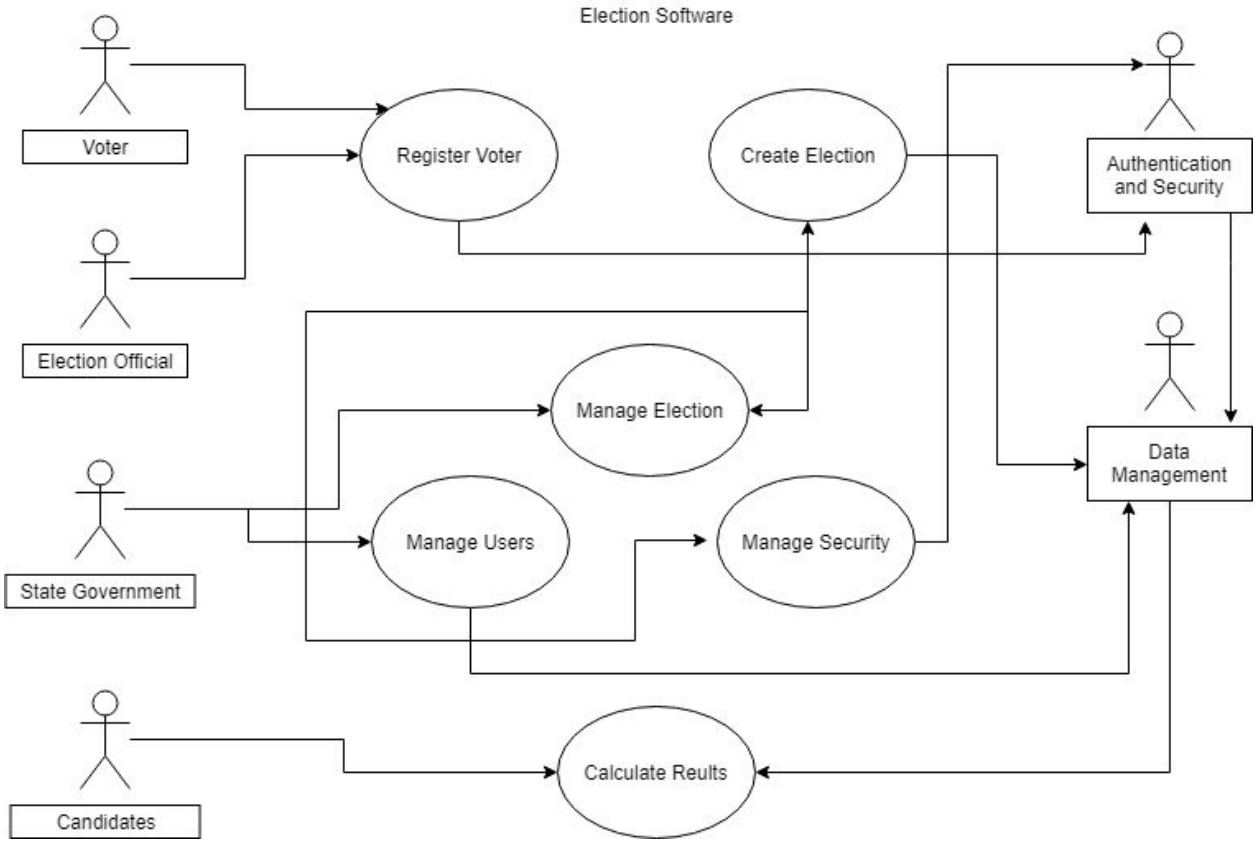
Web Surfers:
Jesse Deacon
Austin Purtell
David Rust
Evan Tanner

Deliverable 5 - Documentation

GitHub Repository: https://github.com/rustdmcofc/Group-Project---Election-Software-

Use Case Diagram:



Vision

Introduction:

We envision a modernized and secure election software exclusively created for the state of South Carolina. Our election software will consist of appealing data visualization, user friendliness, real-time analysis, and emphasized security.

Business Opportunity:

The effectiveness of security in US election systems has been heavily questioned in the past couple of years. Recently in the 2016 presidential election, the election systems of 21 states', including South Carolina, were targeted by hackers [1]. In addition to this, top electoral officials even admitted one state voter registration system was penetrated by these attacks[1]. These recent problems in US election security derive from the dated software and voting equipment used in many states. With 15 million dollars set aside to replace its outdated voting systems, there is a need for a more secure and innovative election software [2]. The software we envision will create heavy emphasis on security. Other features, such as election data visualization and real-time analysis, will also improve the software's user experience.

Problem Statement:

Most traditional election softwares are outdated and vulnerable to cyber attacks. In South Carolina, these attacks are considered to be profoundly threatening to its election infrastructure. Many officials have even brought forth their own concerns about S.C's election system. For example, Rokey Suleman, Richland County's Election Director, has stated, "Cyberattacks are much more at the forefront in South Carolina. Where we're really lacking is that our voting equipment needs updating." [2] In addition to this, a lawsuit filed in 2018 claims S.C's voting machines are so dysfunctional that they violate the right to vote for S.C citizens [2]. These examples show that the current state of S.C's election software need to be improved upon. Besides the security flaws, the current election software has no data visualization or real-time analysis. The software we envision will also have hardware constraints only allowing for secure operating systems with direct connection to the election's database.

Product Position Statement:

As an election software for the state of South Carolina, our application is more secure, user friendly, and visually appealing. With our application's secure implementation and appealing data visualization, it improves upon the current election system in use in South Carolina.

Key High-Level Goals and Problems of Stakeholders

High Level Goal	Priority	Problems and Concerns	Current Solution
Secure Voting	High	Increased Complexity	Outdated software
		Reduced Speed	Outdated hardware
		More User Involvement	
		Re-Vote if Necessary	
		Higher Resource Consumption	
Visually Appealing	High	Increased Complexity	Generic Layout
Real Time Analysis	High	Higher Resource Consumption	No real time analysis
		More Traffic to User Devices	
		Possibility of Altering Future Votes	
Secure /Simple Registration	High	Increased Registration Steps	Not Simple
		More Verification	
Data Visualization	High	Increased Complexity	No Visualization
		More Algorithmic Computation	

User-Level Goals

Voter- register ,submits ballot
System Administer- manage users, manage security, manage election calendar
Election Activity System- analyzes election data, visualizes data
Election Official- Monitor voters in person, handle software problems
Manager- Starts up, Shuts down

https://www.nbcnews.com/politics/elections/russians-penetrated-u-s-voter-systems-says-top-u-s-n845721 [1]

https://www.thestate.com/news/politics-government/article197156074.html [2]

https://www.thestate.com/news/local/article170274692.html

Use Case 1: Voter Registration

Scope: South Carolina Resident Registration Software

Level: User Goal

Primary Actor: Voters in South Carolina

Stakeholders and Interests:

- Voters: Want a quick, easy-to-navigate registration process which has clear instructions and requirements, to ensure that they are allowed to vote without later hassle.
- Election Officials: Want secure and error-free registration, because their jobs revolve around ensuring the effectiveness of the registration and voting process.
- Candidates: Want their potential voters to be able to cast a vote in their favor with ease, and want to make sure that the voting system is not abused by another candidate through false identities or other manipulation.
- State Government: Want residents of the state to be able to register to vote properly in order to prevent dissatisfaction of residents, and want to ensure a secure method of authentication for registered voters.

Preconditions: Software is available at public locations for voters to register. Election Officials are certified.

Success Guarantee (or Postconditions): Voter is registered and their information is securely stored in database for future elections. Voter will be able to return and vote in an election. Election fraud is prevented through authentication process.

Main Success Scenario (or Basic Flow):

1. Voter arrives at location where registration takes place.
2. Voter sits at computer.
3. Election Official monitors the voter and ensures that nothing goes wrong.
4. System gives the user the option to register.
5. Voter selects this option and begins registration process.
6. Voter enters proper authentication and personal information.
7. System verifies information and approves voter.
8. System logs voter data in database.
9. System provides voter with secure method of authorization for future use.
10. Voter leaves with authorization.

Extensions (or Alternative Flows):

a. At any time, user requests registration cancellation:
   i. System warns user of loss of registration status.
   ii. System deletes data gathered from user.
   iii. System returns to main menu for next user.

b. At any time, System fails or goes offline:
   To ensure security and avoid system manipulation, ensure data cannot be retrieved from

any step of the scenario.

i. Election Official restarts system and returns voter to the beginning of the registration process.

2-4-5a. User does not follow proper instructions for beginning registration process:

1. Election Official instructs user of the proper process.

3a. User attempts to manipulate hardware or software on computer system:

1. Election Official stops user and revokes their access to computer system.
2. Election Official assesses damage or interference to computer system.

2a. Computer system is damaged or compromised:

a. Election Official disables system for repair.

2b. Computer system is not damaged or compromised:

a. Election Official resets software.

3b. User accidentally damages hardware on computer system:

1. Election Official assesses damage or interference to computer system.

2a. Computer system is damaged or compromised:

a. Election Official disables system for repair.

2b. Computer system is not damaged or compromised:

b. Election Official resets software.

6-7a. User does not have proper authentication:

1. System informs user of lack of authentication.
2. System indicates what authentication the user requires.
3. System prevents user from continuing registration process.
    a. System allows user to either cancel registration or fill in the required fields properly.

6-7b. User attempts to register using information that is already in use by a registered voter.

1. System informs user of overlap in information.
2. System provides user opportunity to contact assistance with verification.
3. System prevents user from continuing registration process.
    a. System allows user to either cancel registration or fill in the required fields differently.

9-10a. User fails to retain authorization information.

1. User must re-verify themselves through authentication process on system.

Special Requirements:

- Full screen UI on a large computer monitor. Text must be visible from 1 meter.
- Authentication responds within 30 seconds 95% of the time.
    - Somehow, we want added security measures to ensure proper use of authentication and reception of authorization.

Technology and Data Variations List:

*a. Election Official has access to computer system via admin privileges.

3-5-6a-b. User interacts with system via keyboard and mouse, but may change depending on accessibility needs of user.

6. Unclear what technology will be used for identification thus far, but may require a camera or digital scanner.

Frequency of Occurrence: Potentially every instance.

Open Issues:

- What customization is needed for different locations?
- Can the voter directly use the authentication system, or does the Election Official have to do it?

Use Case 2: Cast a Ballot

Scope: Election Software Application

Level: User Goal

Primary Actor: Voters in South Carolina

Stakeholders and Interests:

- Voters: Want a clear, simple ballot that can be easily edited, and unambiguously verifies voter selections
- Election Officials: Want ease of use for voters to maintain flow of traffic. Want secure and error-free transmission of votes to tally location.
- Candidates: Want results to be accurate. Want allowable statistics to be available and verifiable.
- State Government: Wants clarity of ballots submitted to allow voters to be confident in accuracy of results

Preconditions: Voter is registered

Success Guarantee (Postconditions): Votes are accurately logged. Candidate vote totals are updated. Voter status is updated and voter is notified that vote has been processed.

Main Success Scenario (or Basic Flow):

1. Voter logs in to voting application with authentication provided at registration.
2. Application verifies registration.
3. Application verifies voter status as not yet voted.
4. Application offers view options for ballot.
5. Voter selects preferred view option.
6. Application presents ballot.
7. Voter selects candidate.
8. Application marks ballot reflecting Voter's choice.
9. If Voter is in single election view, Application confirms selection.
10. Application saves progress.

11. If Voter is in single election view, Application loads next election.

Steps 7-11 are repeated for each individual office being elected.

12. Voter advances to ballot verification.
13. Application confirms that a selection has been made for each office up for election.
14. Application displays ballot for review and asks voter to return to ballot or finalize submission.
15. Voter finalizes submission and casts ballot.
16. Application processes vote.
17. Application logs off voter and initializes to start screen.

Extensions (or Alternate Flows):

*a. At any given time, voter requests cancellation:
1. Application warns voter of loss of progress.
2. Voter confirms cancellation request.
3. Application returns to main menu for next voter.
*b. At any given time, system fails:
1. Election Official restarts system.
2. On recovery, Application notifies voter of lost progress.

1a. Voter's login identity cannot be verified:
1. Application notifies Voter that registration is required.
2. Application initializes to start screen.
2a. Voter's registration authentication does not match System ID:
1. Application notifies Voter that authentication does not match for this user.
2. Application allows Voter to attempt login again:
2a. Voter attempts login again.
2b. Voter cancels login attempt:
1. Application initializes to start screen.
3a. Application identifies voter as having already voted:
1. Application notifies Voter that no more votes are allowed.
2. Application initializes to start screen.
4a. Application offers Voter to view ballot in full or by one election at a time.
5a. Voter selects full view:
1. Application loads full ballot.
5b. Voter selects to view one election at a time:
1. Application loads first election.
13a. Application fails to confirm that a selection has been made for each election.
1. Application notifies Voter of elections for which a selection has not been made.
2. Application returns Voter to Step 6.
2a. If Voter is in single election view, Application loads first election for which a selection has not been made.
15a. Voter selects to return to ballot.
1. Application returns to Step 6.

Special Requirements:

- Full screen UI on a large computer monitor. Text must be visible from 1 meter.
- Accomodations for blind voters.
- Authentication responds within 30 seconds 95% of the time.

Frequency of Occurrence: Potentially every instance.

Open Issues:

- What customization is needed for different locations?
- Can the voter directly use the authentication system, or does the Election Official have to do it?

Use Case 3: Tallying and Certifying the In-Precinct Ballots

Scope: Election Software Application

Level: User Goal

Primary Actor: Election Administrators in South Carolina

Stakeholders and Interests:

- Election Officials: Want an easy-to-use system for tallying the unofficial in-precinct vote count, as well as a secure way to send.
- Voters: Want access to unofficial local results for to allow media coverage of the election results, as well as a secure transfer of data for votes to be officially tallied.
- Candidates: Want secure transfer of data to officially tally ballot results, as well as access to data that reflects the election results.
- State Government: Wants clarity of ballots submitted to allow voters to be confident in accuracy of results.

Preconditions: Voting process has completed and voting time has fully ended.

Success Guarantee (Postconditions): Votes or certified or recounted until certification completes. In-Precinct Ballots are unofficially tallied and are available to Election Officials. In-precinct results are sent to a central location for official tallying.

Main Success Scenario (or Basic Flow):

1. Entire voting period commences.

2. Election Official sits at Administrator Computer.
3. Election Official inputs login information.
4. Election Official login completes successfully.
5. System prompts the Official, asking if voting period has commenced.
6. Election Official confirms that voting period has commenced.
7. System certifies the vote count with number of voters.
8. If voter count and vote count match, ballot data is sent to a central location.
9. System prompts Election Official, asking if unofficial vote tally data should be output.
10. Election Official inputs choice to view unofficial vote tally data.
11. Unofficial vote tally data is output to the Administrator (total count, percentages, etc.)
12. Election Official logs off.
13. System is able to be shut down.

Extensions (or Alternate Flows):

*a. At any given time, the Election Official requests cancellation:
1. Application warns the Official of loss of progress.
2. Election official confirms cancellation request.
3. Application returns to main menu.

*b. At any given time, system fails:
1. Election Official restarts system.
2. Tally request and vote-certification process is able to be restarted.

*c. One hour after voting period has commenced, the Official has not begun Tallying/Certifying process:
1. Certification process will begin.
2. Ballot data will be sent to a central location.

3a. Election Official's login identity cannot be verified:
1. Application notifies Election Official that login information is incorrect.
2. Application returns to login screen.

5a. Voting period has not yet fully commenced:
1. Application notifies Election Official that the voting period has not yet completed.
2. Application returns to Election Official main menu.

8a. Vote count and voter count do not match:
1. Application notifies Election Official that the vote count and voter count are mismatched.
2. Application returns ballot data to a central location flagged for a recount.
3. Recount process is handled by the official vote tallying process.
4. Any unofficial in-precinct data output to Election Officials is flagged with a recount label.

10a. Election Official does not wish to view unofficial tally data.
1. Application will return to the Election Official main menu.

10b. In-Precinct ballot wasn’t certified and was flagged for a recount
1. Election Official may still view the unofficial tally data

2. Tally data is output with messages notifying it is not certified and a recount is necessary.

Special Requirements:

- Full screen UI on a large computer monitor. Text must be visible from 1 meter.
- Accomodations for Election Officials' potential disabilities.
- Authentication responds within 30 seconds 95% of the time.

Frequency of Occurrence: At least one complete execution at each precinct voting session.

Open Issues:

- How are election time extensions handled?
- How are recounts handled exactly? Further research into the laws surrounding vote recounting is needed.

Supplementary Specification

Version	Date	Description	Author
Inception Draft	Sept. 19, 2018	First draft. Will be refined during elaboration phase.	Web Surfers

Introduction

This documents specifications not addressed, or addressed in further detail, than the use cases.

Usability

Text needs to be sized in such a way that all age groups and those affected by color blindness can still use the software as intended.

Accessibility features for the blind, deaf, or disabled should be considered and implemented where feasible.

Voters who already have made their candidate decisions should be able to cast their vote quickly and without any confusion. Voting should be able to be completed within several minutes depending on the number of public offices being voted for.

Performance

Confirmation of the full submitted vote by the database to the voter should be within 10 seconds.

Security

Only secure hardware with a singular direct database connection will be used.

Data should be anonymized and the voting process should be verified to have been successful before data is sent to the database.

Reliability

A verification process would occur at the end of the voting session, before vote recording is completed, to ensure the system performed as intended.

Hardware Constraints

Voting systems must meet the program's performance requirements.

Systems must be running a secure Operating System with a direct connection to the vote-count storage database and no other internet connection. All other wireless hardware such as WiFi or Bluetooth capability must be disabled.

All device input and output must be secured and/or disabled.

Risk List

Time

The authentication process should be able to be executed in a timely manner such that all voters can have their vote counted. The User Interface should be simple, readable, and navigable in a way that accommodates the time requirements.

Hardware

Unsecured hardware, systems whose connections are not secure, and unsecured device input and output are a massive risk to the integrity of any electronic voting system.

Legal

Votes must be recorded anonymously so the way data is stored needs to reflect this. Accessible Voting is also protected by law, so processing as many votes as possible for those with accessibility constraints is a necessary challenge.

Glossary:

Authentication: The process or action of proving or showing something to be true, genuine, or valid. The process or action of verifying the identity of a user or process. [3]

Authorize: Give official permission for or approval to (an undertaking or agent). [3]

Ballot: A list of candidates and proposed laws that voters mark to make choices. A ballot may be made of paper and marked with a pen or hole punch or it may be electronic and voters mark their choices with the push of a button or by touch screen. [1]

Ballot Access: The process by which a candidate, measure, question, or issue gets on the ballot. [2]

Candidate: A person who has appropriately filed the necessary paperwork to run for an elected office,or a person who has declared that he or she wishes to run for an office and has accepted a contribution.[2]

Confidential information: Data or other information that is not considered public record. For example, social security numbers are considered confidential and must never be released to the public. Under certain circumstances, a county may release confidential information to law enforcement, or in response to a court order or other judicial directive. [2]

Election Calendar: A calendar created and issued by the election authority that includes a comprehensive list of election related dates. [2]

Election fraud: A broad category of criminal acts that undermine the integrity of the voting process. Election fraud includes, but is not limited to: illegal registration (e.g., the registration of a non-citizen), voter intimidation, vote buying, voter impersonation, multiple voting, and tampering with ballots or ballot-counting devices. Election fraud is also called voter fraud.[2]

Election Manager/Director: The individual who is directly responsible for overseeing election processes in a county. Generally, this person is not the county clerk, but rather a senior staff member who manages election functions in the county. [2]

Election Official: Any County Clerk and Recorder, election judge, member of a canvassing board, member of a board of county commissioners, member or secretary of a board of directors authorized to conduct public elections, representative of a governing body or other person contracting for or engaged in the performance of election duties.[2]

Language Minority: Refers to communities that may face barriers in the political process due to speaking a language other than English. Under Section 203 of the Voting Rights Act (VRA), certain jurisdictions are required to accommodate language minorities by providing election materials in both

English and the minority language. In Colorado, Costilla, Denver, and Rio Grande Counties are required to provide election materials in Spanish. [2]

Register: Enter or record on an official list or directory. [3]

Residence: A voter's primary and permanent home. For registration and voting purposes, establishing residency means a voter manifests the intent to make a particular location within the state his or her primary and permanent home. A voter remains Colorado resident even if he or she leaves the state for an extended period of time, provided that the voter intends to return at some point.[2]

Spoiled ballot: A ballot that has been damaged or marked incorrectly and must be duplicated or replaced in order to be counted.[2]

System (Computing)**:** A group of related hardware units or programs or both, especially when dedicated to a single application. [3]

Voter Status: The registration status of an elector, including active, inactive, cancelled, incomplete, and pending. An elector's status may enable or restrict the elector from certain processes. For example, active and inactive voters are eligible to cast a regular ballot during an election. Cancelled voters are not eligible to cast a regular ballot. [2]

Voting System: The electronic devices, including hardware and software, used to cast, record, and tabulate votes in an election. [2]

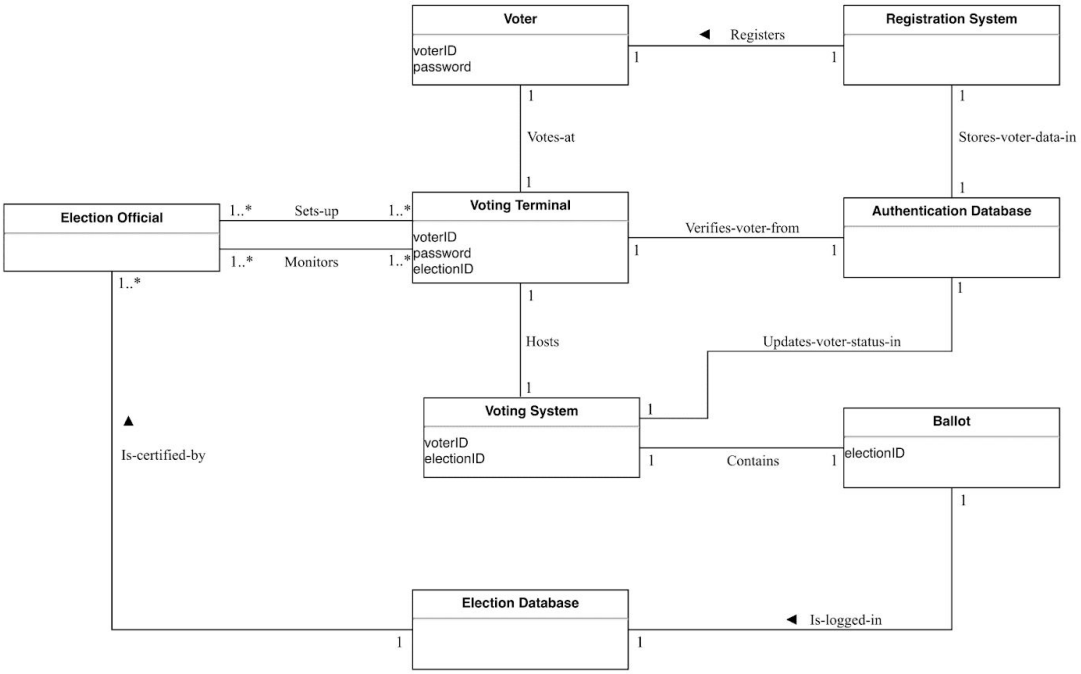
Voter Turnout: The percentage of eligible voters who participate in a particular election. In Colorado, voter turnout is based upon the percentage of active voters who participate. [2]

Works Cited

[1] Usa.gov. (2018). *Definitions of Common Voting and Election Terms | USAGov*. [online] Available at: https://www.usa.gov/voting-and-election-definitions [Accessed 20 Sep. 2018].

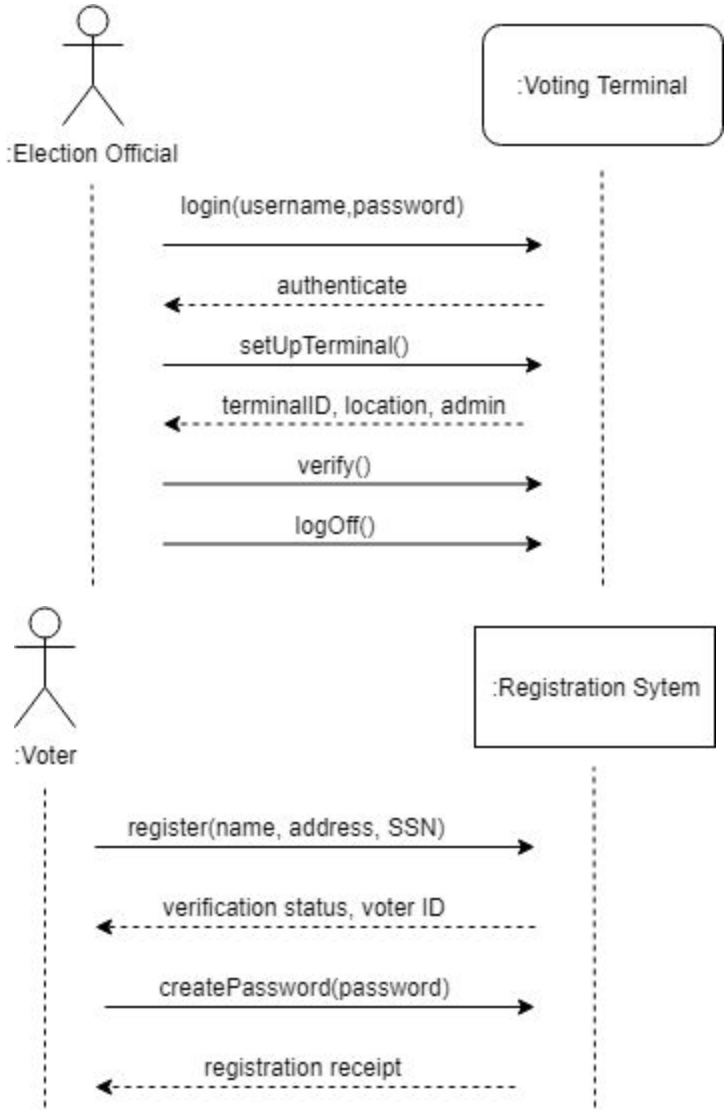
[2] Sos.state.co.us. (2018). [online] Available at: https://www.sos.state.co.us/pubs/elections/Resources/files/ElectionsGlossary.pdf [Accessed 19 Sep. 2018].

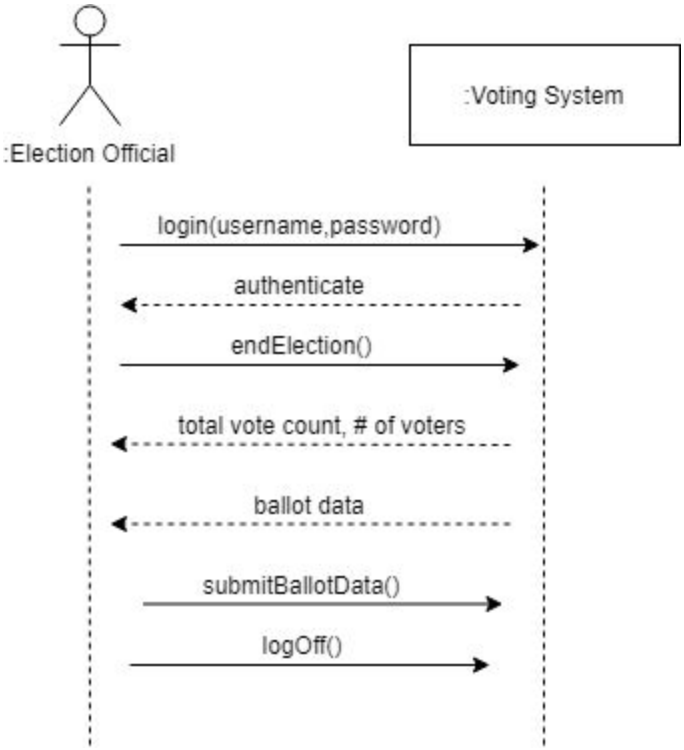
[3]Oxford Dictionaries | English. (2018). *English Dictionary, Thesaurus, & grammar help | Oxford Dictionaries*. [online] Available at: https://en.oxforddictionaries.com [Accessed 19 Sep. 2018].

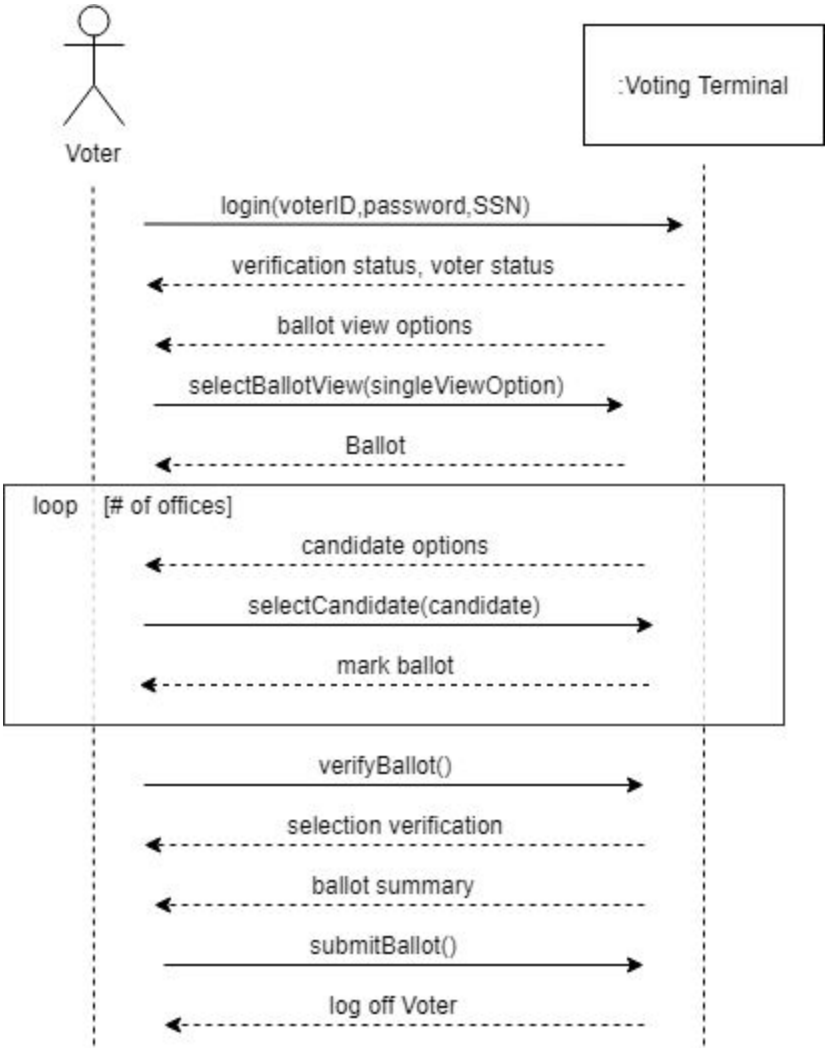


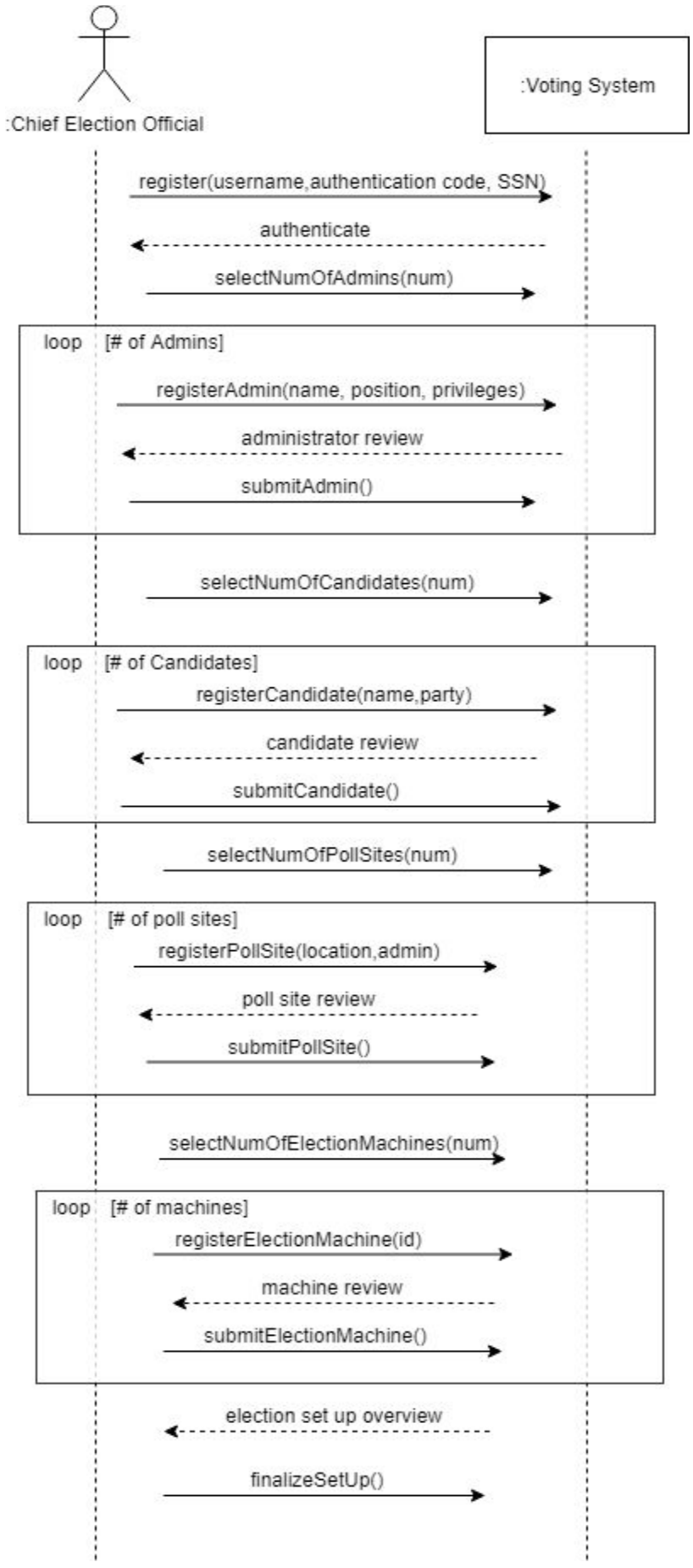
Domain Model

SSD’s


:Election Official
:Voting Terminal
login(username,password)
authenticate
setUpTerminal()
terminalID, location, admin
verify()
logOff()
:Voter
:Registration Sytem
register(name, address, SSN)
verification status, voter ID
createPassword(password)
registration receipt


:Election Official
:Voting System
login(username,password)
authenticate
endElection()
total vote count, # of voters
ballot data
submitBallotData()
logOff()


Voter
:Voting Terminal
login(voterID,password,SSN)
verification status, voter status
ballot view options
selectBallotView(singleViewOption)
Ballot
loop
[# of offices]
candidate options
selectCandidate(candidate)
mark ballot
verifyBallot()
selection verification
ballot summary
submitBallot()
log off Voter


:Chief Election Official
:Voting System
register(username,authentication code, SSN)
authenticate
selectNumOfAdmins(num)
loop
[# of Admins]
registerAdmin(name, position, privileges)
administrator review
submitAdmin()
selectNumOfCandidates(num)
loop
[# of Candidates]
registerCandidate(name,party)
candidate review
submitCandidate()
selectNumOfPollSites(num)
loop
[# of poll sites]
registerPollSite(location,admin)
poll site review
submitPollSite()
selectNumOfElectionMachines(num)
loop
[# of machines]
registerElectionMachine(id)
machine review
submitElectionMachine()
election set up overview
finalizeSetUp()

Operation Contracts:

Operation: registerOfficial(name:string, authentication code:string, SNN:string)
Cross References: Setting Up an Election
Preconditions:
Chief Election Official has received authentication code from Elect Bots 360.
Authentication Database contains Official's name and last 4 digits of social security number.
Postconditions:
Chief Election Official has been instantiated and authenticated.

Operation:selectNumOfAdmins(num:integer)
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
Postconditions:
admin loop is equal to numOfAdmins.

Operation:registerAdmin(name:string, position:string, privileges:string)
Cross References: Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
admin loop is equal to numOfAdmins.
Postconditions:
The administrator has been instantiated.

Operation:submitAdmin()
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
The administrator has been instantiated.
Postconditions:
The administrator has been stored in authentication database.

Operation:selectNumOfCandidates(num:integer)
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
Postconditions:

candidate loop is equal to numOfCandidates.

Operation:registerCandidate(name:string, party:string)
Cross References:Setting up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
candidate loop is equal to numOfCandidates.
Postconditions:
The candidate has been instantiated.

Operation:submitCandidate()
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
The candidate has been instantiated.
Postconditions:
The Candidate has been stored in election database.

Operation:selectNumOfPollSites(num:integer)
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
Postconditions:
poll site loop is equal to numOfPollSites.

Operation:registerPollSite(location:string, admin:string)
Cross References: Setting Up an Election
Preconditions:
poll site loop is equal to numOfPollSites.
Postconditions:
The poll site has been instantiated.

Operation:submitPollSite()
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
The poll site has been instantiated.
Postconditions:
The poll site has been stored in election database.

Operation:selectNumOfElectionMachines(num)
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
Postconditions:
machine loop is equal to numOfMachines.

Operation:registerElectionMachine(id)
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
machine loop is equal to numOfMachines
Postconditions:
The election machine has been instantiated.

Operation:submitElectionMachine()
Cross References:Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
The election machine has been instantiated.
Postconditions:
The administrator has been stored in election database.

Operation:finalizeSetUp()
Cross References: Setting Up an Election
Preconditions:
Chief Election Official has registered and been authenticated.
Administrators, Candidates, poll sites, and election machines have been instantiated and stored in their corresponding databases.
Postconditions:
The election set up is finalized.

Operation: login(username: string, password: string
Cross References: Tallying and Certifying the In-Precinct Ballots
Preconditions:
Election Official has all of the proper credentials and login information.
Postconditions:
Election Official login attempt is successful, has been authenticated.

Operation: endElection()
Cross References: Tallying and Certifying the In-Precinct Ballots
Preconditions:
Election Official has been logged in, authenticated.
Election voting period has commenced and all voting has completed.
Postconditions:
Election data is tallied and certified with voter count.
Unofficial In-Precinct voting results are counted, percentages calculated, and ballot data is returned to the Election Official.

Operation: SubmitBallotData()
Cross References: Tallying and Certifying the In-Precinct Ballots
Preconditions:
Election Official has been logged in, authenticated.
Election voting period has commenced and all voting has completed.
endElection() process has completed.
Postconditions:
Ballot data and it's certification status are passed to and recorded at the central data location.

Operation: logOff()
Cross References: Tallying and Certifying the In-Precinct Ballots
Preconditions:
Election Official has been logged in, authenticated.
Postconditions:
Election Official is logged out.
Election Official requires re-authentication for further action.

Operation: register(name, address, SSN)
Cross References: Voter Registration
Preconditions:
Voter is eligible to vote by US and SC voting laws.
Voter can provide all necessary registration credentials. (Name, Address, SSN, State Photo ID)
Postconditions:
Voter registered successfully and voter obtains voter ID.

Operation: createPassword(password)
Cross References: Voter Registration

Preconditions:
Voter registered successfully.
Postconditions:
Voter obtains registration receipt.
Registration process completes.

Operation: login(voterID, password, SSN)
Cross References: Casting a Ballot
Preconditions:
Voter has already registered to vote successfully.
Voter has the proper credentials to login (voterID, password, SSN).
Postconditions:
Voter has been logged in, information was authenticated.

Operation: selectBallotView(singleViewOption)
Cross References: Casting a Ballot
Preconditions:
Voter has successfully logged in.
Postconditions:
singleViewOption is the selected view preference of the ballot.

Operation: selectCandidate(candidate)
Cross References: Casting a Ballot
Preconditions:
Voter has successfully logged in.
Postconditions:
Candidate selection was recorded for review before verification and submission.

Operation: verifyBallot()
Cross References: Casting a Ballot
Preconditions:
Voter has successfully logged in.
Voter has completed all canditate selections.
Postconditions:
Voter has verified candidate choices.

Operation: submitBallot()
Cross References: Casting a Ballot
Preconditions:

Voter has successfully logged in.
Voter has verified candidate choices.
Postconditions:
Voting process completes.
Voter is logged off.

Operation: login(username, password)
Cross References: Terminal Setup
Preconditions:
Election Official has the proper credentials to login (username, password).
Postconditions:
Election official login information authenticated.

Operation: setUpTerminal()
Cross References: Terminal Setup
Preconditions:
Election Official has logged in successfully.
Postconditions:
Terminal initializes and returns relevant information to Election Official.

Operation: verify()
Cross References: Terminal Setup
Preconditions:
Election Official has logged in successfully.
Terminal has been initialized.
Postconditions:
Terminal setup process is verified to have been successful.

Operation: logOff()
Cross References: Terminal Setup
Preconditions:
Election Official has logged in successfully.
Postconditions:
Election Official has been logged off.