Name	Creating an Audit File for Election
ID	UC_002
Description	File contains a detailed description of type of voting, number of candidates, candidates, number of ballots, and more descriptive info.
Actors	Election Officials, Auditors
Organizational Benefits	Saves searching time, documents order of steps if there are any discrepancies in vote count/winner
Frequency of Use	Every time there is an election
Triggers	An election has occurred
Preconditions	A valid .csv file has been provided to the program and the program has ran successfully
Postconditions	A detailed, correct audit text file for an election has been produced and exported
Main Course	1. Information from the CSV file has been ran through the program 2. Information is gathered and written into a text audit file (EX1)
Alternate Courses	N/A
Exceptions	EX1: Fails to produce an audit file, rerun program and try again

Name	Processing header of the CSV file
ID	UC_009
Description	The program reads in the header of the CSV file with party names and type of election and runs the correct vote count
Actors	Election Officials, programmers, testers
Organizational Benefits	Easy to use, the user does not need to manually enter in the header and type of election being ran
Frequency of Use	Every time program is run
Triggers	An election is completed and a valid CSV file is entered in
Preconditions	A valid CSV file is entered in
Postconditions	The program runs the correct voting system count
Main Course	1. A valid CSV file is entered in and the program is run (EX1) 2. The program reads in the type of election 3. The program counts votes and declares a winner based on the type of election.
Alternate Courses	N/A
Exceptions	EX1: If valid CSV file is not entered prompt user again

Name	Displaying Winner(s) of an Election
ID	UC_003
Description	Displayed at the end of an election. Will include information such as winner(s), type of election, number of ballots cast, other candidates, etc.
Actors	Election Officials, Voters, General Public, Media Personnel
Organizational Benefits	Easy communication of who won an election; transparency in vote counts
Frequency of Use	Every time there is an election.
Triggers	Once an election has been completed.
Preconditions	All the votes have already been counted, CSV files have been read
Postconditions	A screen displaying winner(s) and other relevant info, if available
Main Course	1. System runs the program for the specified election 2. Program counts votes and determines a winner (AC1) 3. System displays winner(s) and other relevant info to the user (EX1)
Alternate Courses	AC1: If there is a tie, follow instructions in UC_001 to break tie
Exceptions	EX1: If it fails to display, double check CSV file for election and run again

Name	Tie-breaker for election ties
ID	UC_001
Description	When there is a tie between candidates/parties in the election, then a winner will be randomly selected in order to break the tie.
Actors	Election Official, Tester, Programmer
Organizational Benefits	More efficient than if done by hand. Fairness because of random selection of winners; no bias.
Frequency of Use	Rare, only when a tie is present during an election
Triggers	Vote count is the same for candidates/parties. In a closed party list election, this could be because there are an odd number of seats, but an equal split between parties, or if there is a tie for the last seat. In an instant runoff election, this can be because not all candidates are not ranked.
Preconditions	All the votes have already been counted and there is a tie present
Postconditions	A candidate and/or party is selected
Main Course	1. System runs the voting system 2. System counts votes 3. Cuts down voters in plurality (AC1) 4. System selects winner (AC2, AC3) 5. Winner announced (EC1)
Alternate Courses	AC1: If there are multiple candidates left, remove the one with lowest votes and transfer votes to other candidates AC2: If there is no tie, select them as a winner. AC3: If there is a tie, randomly select a winner by flipping a coin.
Exceptions	EC1: fails to find winner, run system again

Name	Naming the Audit File
ID	UC_007
Description	After the program is run and the audit file is created it will be named using the type of election and the date and saved as a .txt file into the same directory as the original csv file
Actors	Election officials, programmers, testers
Organizational Benefits	The benefits of this function are that the votes are accurately counted and an electronic copy of the results are saved into an easy to find location.
Frequency of Use	Every time the program is run
Triggers	An election has occurred and an audit file is created
Preconditions	A valid csv file has been provided to the program and the program has run successfully and an audit file has been created.
Postconditions	A detailed, correct audit text file for an election has been named and exported.
Main Course	1. A new audit file is created to collect information (EX1) 2. The text audit file is named after the type of election and the date (EX2) 3. The file is saved into the same directory as the original .csv file
Alternate Courses	N/A
Exceptions	EX1: Fails to produce an audit file, rerun program and try again EX2: The file name is already taken.

Name	Collection Additional Information from Users
ID	UC_004
Description	When the program is run, there may be additional information that is needed from the user that is not in the input file. In this case, the program will prompt the user for this information.
Actors	Election Officials, Programmers, Testers, Voters
Organizational Benefits	Saves time by not having to rely as much on full file input, which can be very time consuming.
Frequency of Use	Whenever information is missing from a user.
Triggers	Needed information for voting is missing from the input file.
Preconditions	Input file has been read.
Postconditions	All necessary information is collected for voting.
Main Course	1. File is read and any missing information is kept track of (AC1). 2. User is prompted to input any missing information (EX1). 3. All information is collected and voting can proceed.
Alternate Courses	AC1: All information is found in the input file. 1. Voting can proceed.
Exceptions	EX1: Fails to prompt and collect additional information from the user.

Name	Identifying the CSV file of votes (File Input)
ID	UC_008
Description	When the program is run, a single CSV file with the ballots is entered into the system to count. This CSV file will be identified through a command-line argument or through prompting.
Actors	Election officials, programmers, testers
Organizational Benefits	Using a CSV file to count votes is quick and accurate, leading to saving time and money. Prompting for the file assures the correct file is entered and makes the program easy to use for everyone.
Frequency of Use	Every time the program is run
Triggers	An election has occurred
Preconditions	Voting is done and votes are put into an Excel file which is then converted to a CSV file.
Postconditions	File with votes is identified and read, and votes can be counted.
Main Course	1. Votes are in an Excel file that is converted to a CSV file. 2. File is identified in the system through command-line (AC1) (EX1). 3. File is opened and read 4. Type of election is determined and voting can commence.
Alternate Courses	AC1: File name is not passed into command-line 1. Prompt user for the file name. 2. File is identified (EX1)
Exceptions	EX1: Incorrect or bad file is identified.

Name	Processing ballots in the CSV file
ID	UC_010
Description	The program reads in the number of votes for each candidate that is in the CSV file.
Actors	Election Officials, programmers, testers
Organizational Benefits	Easy to use, the user does not need to manually enter in the ballots
Frequency of Use	Every time program is run
Triggers	An election is run and a valid CSV file is entered in
Preconditions	A valid CSV file is entered in
Postconditions	Votes are counted and winner is displayed
Main Course	1. A valid CSV file is entered in and the program is run (EX1) 2. The program reads in the type of election 3. The program reads in the votes on the ballots and counts 4. Winner is displayed
Alternate Courses	N/A
Exceptions	EX1: Invalid CSV file is entered, prompt the user again.

Name	Running a closed party list election
ID	UC_005
Description	The program will run an election using a party list system. This means that political seats will be split based on votes for each party. For instance, if 40% of votes are for democrats, 40% of the seats would go toward democrats.
Actors	Election Officials
Organizational Benefits	Saves time and money by figuring out which candidates get what seats.
Frequency of Use	Every time the program is run and the input file specifies a Closed Party List election.
Triggers	The program has started and the first line of the input file has been read.
Preconditions	The file has been read in with the votes.
Postconditions	The seats are filled with candidates based on the casted votes.
Main Course	1. Read input file with votes 2. Calculate proportion of seats given to parties based on proportion of votes for each party 3. Fill seats based on proportion. Winners are selected based on the order they appear on the original voting ballot. (EX1) 4. Winner is announced.
Alternate Courses	N/A
Exceptions	EX1: No clear winner for a particular seat due to ties, go to tie use-case.

Name	Running Plurality Voting/IRV
ID	UC_006
Description	Instant runoff voting is when voters vote for candidates in the order of their preference. This means that voters can rank the candidates (however, they do not have to rank everyone if they do not want to). Votes are counted in the order of the voter's preferences. Unless a candidate were to receive a clear majority (over 50%), the candidate with the lowest number of votes gets dropped and the voters who voted for that candidate would get their 2nd preference counted and so on.
Actors	Election Officials
Organizational Benefits	Automates the counting of votes which can be time consuming and prevents election fraud due to the votes not being hand counted
Frequency of Use	Everytime a IRV election is ran
Triggers	The file has been read in with the votes.
Preconditions	CSV File has been read and the first line of the file is "IR"
Postconditions	Votes have been counted and there being a winner
Main Course	1. System processes file and starts counting votes (EC1). 2. Determines which candidate has the majority (over 50%) of votes (AC1). 3. Winner is selected (EX2).
Alternate Courses	AC1: There is no candidate with over 50% of the votes 1. The candidate with the least amount of votes is removed 2. Any votes from that candidate are then transferred to the other candidates based on voter rankings 3. Votes are counted again to determine majority candidate
Exceptions	EC1: System fails to count votes 1. Notify user and ask them to input file again or tell them file is bad EC2: No clear winner is found (there is a tie)