

Main Use Cases List:

UC_1: Input required voting information

UC_2: Run STV election

UC_3: Run plurality election

UC_4: Run test file(s)

UC_5: Turn off ballot shuffle

UC_6: Display election results

UC_7: Display help window

UC_8: Create election audit report

Name	Input required voting information
ID	UC_1
Description	Upon starting the system, the user must input information to correctly process the election.
Actors	Election officials
Organizational Benefits	The system gets information from the user to process the ballots for the election in the appropriate way.
Frequency of Use	Each time an election is run.
Triggers	The election official starts the voting system.
Preconditions	The voting system program has been started.
Postconditions	The system will have the following information which is required to run the election: <ul style="list-style-type: none">- The number of seats to fill in the election.- The type of election to perform.- The location of the election ballots.
Main Course	<ol style="list-style-type: none">1. The system prompts the user to input the number of seats to fill in the election.2. The user enters the number of seats to fill. (see EX_1, EX_2)3. The system prompts the user to input the type of election to run.4. The user enters the type of election to run. (see EX_3)5. The system prompts the user to input the location of the files containing the election ballots.6. The user enters the location of the files containing the election ballots. (see EX_4, EX_5)
Alternate Courses	AC_1: The user closes the voting system program at any time <ol style="list-style-type: none">1. The user restarts the voting system.

	2. Return to main course step 1.
Exceptions	<p>EX_1: The user enters something other than a number</p> <ol style="list-style-type: none">1. The system notifies the user that they must enter a number.2. Return to main course step 1. <p>EX_2: The user enters zero or another number that is not possible</p> <ol style="list-style-type: none">1. The system notifies the user that they must enter a valid number.2. Return to main course step 1. <p>EX_3: The user enters an election type that is not supported by the system.</p> <ol style="list-style-type: none">1. The system notifies the user that they must enter a valid election type.2. Return to main course step 3. <p>EX_4: The user enters a non valid file path.</p> <ol style="list-style-type: none">1. The system notifies the user that they must enter a valid file path.2. Return to main course step 5. <p>EX_5: The user enters a file type that is not supported.</p> <ol style="list-style-type: none">1. The system notifies the user that they must enter a valid file type.2. Return to main course step 5.

Name	Run STV election
ID	UC_2
Description	The user has set up an election and now wishes to run a STV election
Actors	Election officials
Organizational Benefits	Simplifies/automates the process of running an STV election
Frequency of Use	Once per election
Triggers	User selects option to run election
Preconditions	UC_1 needs to be complete (number of seats has been specified, election type has been selected as STV, ballot file has been loaded)
Postconditions	Election has been run, results are displayed
Main Course	<ol style="list-style-type: none">1. User selects option to run STV election2. System shuffles ballots3. System runs election4. System displays results when complete
Alternate Courses	AC_1: User did not input all required information into the system <ol style="list-style-type: none">1. System produces an error and prompts the user to input missing information2. Go to main course step 1
Exceptions	EX_1: Ballot not formatted for STV election <ol style="list-style-type: none">1. User notified of error, can't run election

Name	Run plurality election
ID	UC_3
Description	User has entered information for election and runs results based on plurality voting
Actors	Election officials
Organizational Benefits	Simplifies/automates the process of running a plurality election
Frequency of Use	Once per election
Triggers	User selects option to run plurality election
Preconditions	User has specified number of seats to be filled, selected plurality election type, loaded valid plurality election ballot files
Postconditions	Election has been run, results are displayed
Main Course	<ol style="list-style-type: none">1. User selects plurality option to run election2. System runs plurality election3. System displays results when complete
Alternate Courses	AC_1: User did not input all required information into the system <ol style="list-style-type: none">1. System produces an error and prompts the user to input missing information2. Go to main course step 1
Exceptions	EX_1: Ballot not formatted for plurality election <ol style="list-style-type: none">1. User notified of error, can't run election

Name	Run test file(s)
ID	UC_4
Description	The users run a test file and the shuffle option should be able to be turned off.
Actors	Developers/testers
Organizational Benefits	Running test files allows users to ensure the system is calibrated properly and also allows for unit testing.
Frequency of Use	Not frequent. During system development and deployment. When the system is tested as needed.
Triggers	Users run command line argument to test system
Preconditions	The system can run elections. The ballot shuffling function can be turned off.
Postconditions	The system produces election results.
Main Course	<ol style="list-style-type: none"> 1. User runs program with command line argument 2. System starts user interface 3. System loads test file(s) 4. System processes test file(s) with options provided by user 5. System produces election results
Alternate Courses	<p>AC_1: User did not make/compile the system before running command line argument</p> <ol style="list-style-type: none"> 1. Operating system does not recognize command 2. Go to main course step 1 <p>AC_2: User inputs wrong command line argument</p> <ol style="list-style-type: none"> 1. System produces error 2. Go to main course step 2 <p>AC_3: User did not provide enough information</p> <ol style="list-style-type: none"> 1. System produces error 2. Go to main course step 2
Exceptions	EX_1: User provided wrong options

Name	Turn off ballot shuffle
ID	UC_5
Description	The user decides to turn off the ballot shuffling feature of the voting system.
Actors	Developers/testers
Organizational Benefits	Turning off the ballot shuffle will create a scenario where the system will provide repeatable election results each time an election is run with the same ballot information. This can be used for system calibration and testing.
Frequency of Use	Whenever system testing or calibration is needed.
Triggers	The user starts the voting system using the appropriate command line option.
Preconditions	The user decides that the ballot shuffle should be turned off. The appropriate command is entered into the system.
Postconditions	The ballots for an election will be processed in the order they have been entered into the ballot files.
Main Course	<ol style="list-style-type: none">1. The user enters the appropriate command into the system to turn off ballot shuffling.2. The system turns off the ballot shuffling option.
Alternate Courses	AC_1: After starting the system and prior to running the election, the user decides to turn off the ballot shuffling option. <ol style="list-style-type: none">1. The user must quit the voting system and run it from the command line2. Return to the main course step 1
Exceptions	EX_1: User mistypes command line argument to disable shuffling <ol style="list-style-type: none">1. User informed cannot run program

Name	Display election results
ID	UC_6
Description	After an election is run the system will display the results of the election. It will display the type of election (STV/plurality), the number of ballots, the number of seats, the number of candidates, droop quota(STV only) and the winners.
Actors	Election officials, developers/testers
Organizational Benefits	Allows election official to easily view the results of an election
Frequency of Use	Once per election
Triggers	The user has selected to view the election results
Preconditions	The system has completed running the election
Postconditions	Election results are displayed
Main Course	<ol style="list-style-type: none">1. User selections option to view election results2. Election results are displayed, including location of audit file
Alternate Courses	AC_1: Election is in progress <ol style="list-style-type: none">1. Alert user election is in progress and could take several minutes to complete
Exceptions	EX_1: Election hasn't been run and isn't in progress <ol style="list-style-type: none">1. Alert user that they need to set up and run an election to see results

Name	Display help window
ID	UC_7
Description	A window detailing how to run the program
Actors	Election officials, developers/testers
Organizational Benefits	Users are able to learn how to run the program
Frequency of Use	As often as needed
Triggers	User selects help option
Preconditions	System is running
Postconditions	Help window displayed with details of how to run the program
Main Course	<ol style="list-style-type: none">1. User selects option to display help window2. System displays help window
Alternate Courses	AC_1: Help window is already open <ol style="list-style-type: none">1. User is not able to select help option
Exceptions	EX_1: Election is in process of running <ol style="list-style-type: none">1. User is not able to select help option

Name	Create election audit report
ID	UC_8
Description	The system produces a report to users. The report shows the ballots that were assigned to a candidate as the election progressed. The report is in a text file. The report does not print to the screen. All pertinent election data are included in the report at the top of the report (e.g. type of election, number of seats, number of candidates, winners, losers, etc)
Actors	Election officials, developers/testers
Organizational Benefits	A report acting as an audit trail provides election transparency to the users. Users can check how the results are devised. This report provides a way to double check election results. This report in turn increases trust in the election results.
Frequency of Use	Once every time the system runs an election
Triggers	The system starts to run an election
Preconditions	The system has all the information it needs to run an election. The system has the function of producing auditing report
Postconditions	The system generates a report. The system produces election results.
Main Course	<ol style="list-style-type: none"> 1. User starts the system 2. User inputs all required information into the system 3. User runs election 4. System opens a report file 5. System records ballots assigned to each candidate at each step in the report 6. System records pertinent election results at the top of the report 7. System closes and saves report
Alternate Courses	<p>AC_1: User did not input all required information into the system</p> <ol style="list-style-type: none"> 3. System produces an error and prompts the user to input missing information 4. Go to main course step 2
Exceptions	EX_1: System cannot open report file