Project Name: Project 1: Voting System	Team#12
Test Stage: Unit _X_ System	Test Date: 10 November 2023
Test Case ID#: Intake-Valid-File-Name-001 Test Description: Collect user input for a file name. Read in and store valid file name.	Name(s) of Testers: Ruichen He
Automated: yes X no	Testing/UnitTest.cpp, uses testing/test_IR.csv
Results: Pass X Fail	
Preconditions for Test: File name entered is valid	

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1		Testing/UnitTest.cpp Specific Test: IR_Test.intake_valid_file_name_001	Returns: OK	Returns: OK	

A valid file name is accepted. File name is recorded in a variable.

Project Name: Project 1: Voting System	Team#12
Test Stage: Unit _X_ System	Test Date: 10 November 2023
Test Case ID#: Reject-Invalid-File-Name-002 Test Description: Collect user input for file name. Reject invalid file name.	Name(s) of Testers: Ruichen He
Automated: yes X no	Testing/UnitTest.cpp, uses testing/test_IR.csv
Results: Pass X Fail	
Preconditions for Test: filename entered is invalid	

Step #	Test Step Description	Test Data	1	Actual Result	Notes
1	-	Testing/UnitTest.cpp Specific Test: IR.Test.reject_invalid_file_name_002	Returns: OK	Returns: OK	

User is re-prompted for a file name, and no file is recorded.

Project Name: Project 1: Voting System	Team#12
Test Stage: Unit _X_ System	Test Date: 10 November 2023
Test Case ID#: open-file-003 Test Description: A file is opened for reading when given a valid filename.	Name(s) of Testers: Ruichen He
Automated: yes X no	Testing/UnitTest.cpp, uses testing/test_IR.csv
Results: Pass X Fail	
Preconditions for Test: Filename is valid and the file exists.	

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
			Returns: OK	Returns: OK	
1		Specific Test: IR.Test.open file 003			
2	Compre una run unit test	11c. 1est. open_ine_oos			
3					
4					

File is open for reading and processing.

Project Name: Project 1: Voting System	1eam#12
Test Stage: Unit _X_ System	Test Date: 10 November 2023
Test Case ID#: Identify-IR-Vote-Type-004 Test Description: File indicates vote type is IR IR election object created	Name(s) of Testers: Hannah Nelson
Automated: yes X no	Testing/UnitTest.cpp, uses testing/test_IR.csv
Results: Pass X Fail	
Preconditions for Test: File is opened, formatted correct	tly, and is type IR ballot

Step #	Test Step Description	Test Data	_	Actual Result	Notes
1		Testing/UnitTest.cpp Specific Test: IR.Test.identity_IR_vote_type_004	Return OK	Return OK	

IR election is ready to handle next steps

Project Name: Project 1: Voting System	Team#12		
Test Stage: Unit _X_ System	Test Date: 10 November 2023		
Test Case ID#: Identify-OPL-Vote-Type-005 Test Description: File indicates vote type is OPL OPL election object created	Name(s) of Testers: Hannah Nelson		
Automated: yes X no	Testing/UnitTest.cpp, uses testing/test_OPL.csv		
Results: Pass X Fail			
Preconditions for Test: File is opened, formatted correct	ctly, and is type OPL ballot		

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1		Testing/UnitTest.cpp Specific Test: IR.Test.identity_OPL_vote_type_005	Return OK	Return OK	

OPL election is ready to handle next steps

Project Name: Project 1: Voting System	Team#12
Test Stage: Unit _X_ System	Test Date: 10 November 2023
Test Case ID#: Fair-Coin-Toss-006 Test Description: When there is a tie between 2 final candidates, then a fair coin is tossed to decide a winner.	Name(s) of Testers: Ruichen He
Automated: yes X no	Testing/UnitTest.cpp, uses testing/test_tie_IR.csv
Results: Pass X Fail	
Preconditions for Test: Final candidates have an equal number of votes.	

Actual

Result

Returns: OK

Notes

within project 1.

Screenshot of all automatic test in a documentation folder

Expected

Result

Returns: OK

Post condition(s) for Test:

Description

Compile and run test

Step | Test Step

#

A winner is decided fairly with no bias for position or party.

Test

Data

Testing/UnitTest.cpp Specific Test:

IR. Test. fair-coin-toss-006

Project Name: Project 1: Voting System	Team#12		
Test Stage: Unit _X_ System	Test Date: 10 November 2023		
Test Case ID#: IR-Remove-Lowest-Candidate-007 Test Description: If there is no candidate with a majority vote and many Candidates are left, then the candidate with the lowest vote percentage is removed.	Name(s) of Testers: Hannah Nelson		
Automated: yes no X	Test file stored in the "testing" folder. Make file is in the project1 folder.		
Results: Pass X Fail			
Preconditions for Test: IR voting round is over, multiple candidates are left with r	no majority.		

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1	Run make				
2	Start Election App (./ElectionApp)				
3	Input IR election	testing/test_IR.csv			
4	Lowest candidate is found		Lowest candidate printed to the audit file	Lowest is printed to audit and screen	
	Votes are cleared from candidate		candidates	Candidate removed and votes are redistributed. Can see the candidate is removed in the next round and the votes appear under other candidates	

The candidate with the lowest percentage vote is removed from the candidate pool. Their votes are returned to be redistributed.

Project Name: Project 1: Voting System	Team#12			
Test Stage: Unit System _X_	Test Date: 10 November 2023			
Test Case ID#: IR-Majority-Candidate-008 Test Description: A candidate has a majority of the votes and is declared the winner.	Name(s) of Testers: Hannah Nelson			
	Test file stored in the "testing" folder. Make file is in the project1 folder.			
Automated: yes no X				
Results: Pass X Fail				
Preconditions for Test:				
End of IR round, votes are distributed.				

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1	Run "make"				
	Run election app (./ElectionApp)				
			Audit file prints winner from who has majority votes in the	Winner is who has majority of votes	
3	Input IR election	testing/test_IR.csv	round		
4					

A winner who has the majority of votes is declared.

Project Name: Project 1: Voting System	leam#12
Test Stage: Unit System _X_	Test Date: 12 November 2023
Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.	Name(s) of Testers: Hannah Nelson
	Test file stored in the "testing" folder. Make file is in the project1 folder.
Automated: yes no X	
Results: Pass X Fail	
Preconditions for Test: Valid election file contains greater than 100,000 ballots.	

Step	Test Step	Test	Expected Result	Actual	Notes
#	Description	Data	Kesuit	Result	Notes
1	Run "make"				
2	Run election app (./ElectionApp)				
				Winner is declared in under 8 seconds.	
3	Input IR election	testing/timeTest.csv	seconds		
4					

Post condition(s) for Test:

A winner who has the majority of votes is declared in under 8 seconds

Project Name: Project 1: Voting System	Team#12			
Test Stage: Unit _X _ System	Test Date: 12 November 2023			
Test Case ID#: Audit-File-010 Test Description: A election with over 100,000 ballots runs in under 8 seconds.	Name(s) of Testers: Hannah Nelson			
Automated: yes no X	Test file stored in the "testing" folder. Make file is in the project1 folder.			
Results: Pass X Fail				
Preconditions for Test:				
Valid election file.				

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1	Run "make"				
2	Run election app (./ElectionApp)				
2	Input IR election			Audit file is produced and shows all ballots and their placements	
4	input its election	testing/test3 TR.esv	shows bandt placements		

An audit file is produced which shows which ballots are given to each candidate, how many votes a candidate has, and which candidates are left in the race.

Project Name: Project 1: Voting System	Team#12			
Test Stage: Unit System _X_	Test Date: 10 November 2023			
Test Case ID#: OPL-Winner-011 Test Description: Winners are declared using largest remainder formula after filling seats based on quota.	Name(s) of Testers: Hannah Nelson			
Automated: yes no X	Test file stored in the "testing" folder. Make file is in the project1 folder.			
Results: Pass X Fail				
Preconditions for Test:				
End of OPL.				

Step	Test Step	Test	±	Actual	
#	Description	Data	Result	Result	Notes
1	Run "make"				
	Run election app (./ElectionApp)				
3	Input IR election	testing/test_OPL.csv	Audit file prints winners	Winners are displayed	
4					

A winners are declared for the seats.

Team#12
Date: 12 November 2023
e(s) of Testers: Hannah Nelson
ile stored in the "testing" folder. Make file is in the ct1 folder.
E

Step #	Test Step Description	Test Data	Expected Result	Actual Result	Notes
1	Run "make"				
2	Run election app (./ElectionApp)				
3	Input IR election		Winner is declared in under 8 seconds		
4					

Post condition(s) for Test:

A winner who has the majority of votes is declared in under 8 seconds

Project Name: Project 1: Voting System			Project Name: Project 1: Voting System				
Test Stage: Unit System _X_			Test Stage: Unit System _X_				
Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.				Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.			
Auto	mated: yes no_X			Auto	mated: yes no	o_X	
Resu	lts: Pass X	Fail		Resu	lts: Pass X	Fail	
1	onditions for Test: alid election file contain	s greater than 100,00	00 ballots.		onditions for Test: alid election file con	tains greater than 1	00,000 ballots.
Step	Test Step	Test	Expected	Step	Test Step	Test	Expected
#	Description	Data	Result	#	Description	Data	Result
1	Run "make"			1	Run "make"		
2	Run election app (./ElectionApp)			2	Run election app (./ElectionApp)		
			Winner is declared			1	Winner is declare

Input IR election

A winner who has the majority of votes is declared in under 8 seconds

testing/timeTest.csv

Post condition(s) for Test:

Input IR election

3

seconds

A winner who has the majority of votes is declared in under 8 seconds

testing/timeTest.csv

seconds

Project Name: Project 1: Voting System					ect Name: Proje	ect 1: Voting Sy	stem	
Test Stage: Unit System _X_ Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.				Test Stage: Unit System _X_				
				Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.				
Auto	Automated: yes no X				Automated: yes no_X			
Resu	lts: Pass X	Fail		Results: Pass X Fail				
1	onditions for Test: alid election file contain	s greater than 100,00	00 ballots.		onditions for Test: alid election file con	tains greater than 1	00,000 ballots.	
Step	Test Step	Test	Expected	Step	Test Step	Test	Expected	
#	Description	Data	Result	#	Description	Data	Result	
1	Run "make"			1	Run "make"			
2	Run election app (./ElectionApp)			2	Run election app (./ElectionApp)			
			Winner is declared			1	Winner is declare	

Input IR election

A winner who has the majority of votes is declared in under 8 seconds

testing/timeTest.csv

Post condition(s) for Test:

Input IR election

3

seconds

A winner who has the majority of votes is declared in under 8 seconds

testing/timeTest.csv

seconds

Project Name: Project 1: Voting System					ect Name: Proje	ect 1: Voting Sy	stem	
Test Stage: Unit System _X_ Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.				Test Stage: Unit System _X_				
				Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.				
Auto	Automated: yes no X				Automated: yes no_X			
Resu	lts: Pass X	Fail		Results: Pass X Fail				
1	onditions for Test: alid election file contain	s greater than 100,00	00 ballots.		onditions for Test: alid election file con	tains greater than 1	00,000 ballots.	
Step	Test Step	Test	Expected	Step	Test Step	Test	Expected	
#	Description	Data	Result	#	Description	Data	Result	
1	Run "make"			1	Run "make"			
2	Run election app (./ElectionApp)			2	Run election app (./ElectionApp)			
			Winner is declared			1	Winner is declare	

Input IR election

A winner who has the majority of votes is declared in under 8 seconds

testing/timeTest.csv

Post condition(s) for Test:

Input IR election

3

seconds

A winner who has the majority of votes is declared in under 8 seconds

testing/timeTest.csv

seconds

Proj	ect Name: Project	1: Voting System	n	Proj	ect Name: Proj	ect 1: Voting System	m		
Test Stage: Unit System _X_					Test Stage: Unit System _X_				
Test	Case ID#: IR-Time-Description: A election with over 10 seconds.		under	Test A	Case ID#: IR-Tin Description: a election with over seconds.	ne-Test-009 100,000 ballots runs in	under		
Auto	omated: yes no_	<u>X</u>		Auto	mated: yes n	o_X			
Resu	ılts: Pass X	Fail		Resu	lts: Pass X	Fail			
	onditions for Test: alid election file contain	ns greater than 100,0	00 ballots.		onditions for Test: alid election file con	ntains greater than 100,0	000 ballots.		
Step	Test Step	Test	Expected	Step	Test Step	Test	Expected		
#	Description	Data	Result	#	Description	Data	Result		
1	Run "make"			1	Run "make"				
2	Run election app (./ElectionApp)			2	Run election app (./ElectionApp)				
3	Input IR election	testing/timeTest.csv	Winner is declared seconds	3	Input IR election	testing/timeTest.csv	Winner is declare seconds		
4				4					

A winner who has the majority of votes is declared in under 8 seconds

Post condition(s) for Test:

A winner who has the majority of votes is declared in under 8 seconds

Proje	ect Name: Project	1: Voting Syster	n	Proj	ect Name: Proj	ect 1: Voting System	m
Test Stage: Unit System _X_ Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.			Test Stage: Unit System _X_				
			Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.				
	mated: yes no X				•	o X	
Resu	lts: Pass X	<u>Fail</u>		Resu	dts: Pass X	<u>Fail</u>	
	onditions for Test: alid election file contain	as greater than 100,0	00 ballots.		onditions for Test: alid election file con	ntains greater than 100,0	000 ballots.
Step	Test Step	Test	Expected	Step	Test Step	Test	Expected
#	Description	Data	Result	#	Description	Data	Result
	Run "make"			1	Run "make"		
	Run election app (./ElectionApp)			2	Run election app (./ElectionApp)		
	Input IR election	testing/timeTest esy	Winner is declared	2	Input ID election	testing/timeTest asy	Winner is decla

A winner who has the majority of votes is declared in under 8 seconds

Post condition(s) for Test:

A winner who has the majority of votes is declared in under 8 seconds

Project Name: Project 1: Voting System	Project Name: Project 1: Voting System
Test Stage: Unit System _X_	Test Stage: Unit System _X_
Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.	Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.
Automated: yes no X	Automated: yes no X
Results: Pass X Fail	Results: Pass X Fail
Preconditions for Test: Valid election file contains greater than 100,000 ballots.	Preconditions for Test: Valid election file contains greater than 100,000 ballots.

Step	Test Step	Test	Expected	Step	Test Step	Test	Expected
#	Description	Data	Result	#	Description	Data	Result
1	Run "make"			1	Run "make"		
2	Run election app (./ElectionApp)			2	Run election app (./ElectionApp)		
3	Input IR election		Winner is declared seconds		Input IR election		Winner is declare seconds
4				4			

Post condition(s) for Test:

A winner who has the majority of votes is declared in under 8 seconds

A winner who has the majority of votes is declared in under 8 seconds

F 4	C. II ·	C 4 W	T (D)	Test Date: 12 November 2023			
	Stage: Unit			Test Date: 12 November 2023			
Test A	Case ID#: IR-Tin Description: A election with over seconds.	ne-Test-009 100,000 ballots runs in	under	of Testers: Hannah Nelson stored in the "testing" folder. M	Make file is in the		
Luto	mated: yes n	o X	projecti	Total.			
	alts: Pass X						
resu	1115. 1 255 A	r an					
rec	onditions for Test:						
V	alid election file cor	ntains greater than 100,0	000 ballots.				
ton	Tost Ston	Tost	Evnosted	Actual			
_	_	Test Data	Expected Result	Actual Result	Notes		
#	Description	Test Data	Expected Result	Actual Result	Notes		
1	_		1 =		Notes		
1 2	Description Run "make" Run election app		1 =		Notes		
1 2	Description Run "make" Run election app (/ElectionApp)	Data	Result Winner is declared in under 8	Result	Notes		
# 1 2 3	Description Run "make" Run election app (/ElectionApp)	Data	Result Winner is declared in under 8	Result	Notes		
# 1 2 3	Description Run "make" Run election app (/ElectionApp)	Data	Result Winner is declared in under 8	Result	Notes		
# 1 2 3 4	Description Run "make" Run election app (/ElectionApp)	Data testing/timeTest.csv	Result Winner is declared in under 8	Result	Notes		

Project Name: Project 1: Voting System	leam#12
Test Stage: Unit System _X_	Test Date: 12 November 2023
Test Case ID#: IR-Time-Test-009 Test Description: A election with over 100,000 ballots runs in under 8 seconds.	Name(s) of Testers: Hannah Nelson
	Test file stored in the "testing" folder. Make file is in the project1 folder.
Automated: yes no X	
Results: Pass X Fail	
Preconditions for Test: Valid election file contains greater than 100,000 ballots.	

Step	Test Step		Expected Result	Actual	Notes
#	Description	Data	Kesuit	Result	Notes
1	Run "make"				
2	Run election app (./ElectionApp)				
				Winner is declared in under 8 seconds.	
3	Input IR election	testing/timeTest.csv	seconds		
4					

Post condition(s) for Test:

A winner who has the majority of votes is declared in under 8 seconds

Project Name: The project #, name of your system, and the team#

Test Stage: Indicate whether it is a unit test or a system test.

Test Date: The date the test was performed.

Test Case ID#: A unique ID is required. Decide on a naming convention and use numbering. Example: Ballot Shuffle 1

Name(s) of Testers: List the names of anyone involved in running this test case.

Test Description: Describe briefly the test objective.

Automated: Indicate if the test is completely automated or being checked manually. (If you have methods running the tests and checking results, select "yes". If you are manually checking results, indicate manual by selecting the "no.")

Results: Indicate if the test passed or failed.

Step #: You will be listing the test steps in order. This number is the step number in the process.

Test Step Description: Details of the test step.

Test Data: What the test data will be for this step. Be clear on what the input data will be. If using a specific file, be clear on the name.

Expected Result: What result are you expecting from the program component or system.

Actual Result: What result were returned based on the test.

Post condition for Test: What will be true after the test has been run? Has the state of the system changed in any way?

Notes: Comments and notes for you and your team members.