Proj	ect Name: Projec	et 1: Voting Sys	stem	Team# 13			
Test S	Stage: Unit _X_	System	Test Date:	3/26/22			
Test 1	Case ID#: UT_ballor Description: s test will check if a ballor l also test if the push(allot is empty whe	en it is first created.	of Testers: iffler, Amy Nguyen, Willian	m Henning, Hoin Jang		
			Indicate w	where are you storing the t	tests (what file) and the name of the	ne method/functions being used.	
				st: all_test.cpp being used: isEmpty() and	push() from Ballot class		
Autor	nated: yes X n	0					
	ts: Pass X	Fail					
1	<pre>nditions for Test: v file for the IRV elec</pre>	tion is being ran					
Step	Test Step	Test	Expected	Actual			
#	Description	Data	Result	Result	Notes		

Step	<u> </u>	Test	1	Actual	
#	Description	Data	Result	Result	Notes
1	Create an empty ballot object	Ballot ballot			
2	Check if ballot is empty	ballot.isEmpty	true	true	
	Push a candidates ID				
3	onto the ballot	ballot.push(3)	false	false	

The ballot has added the appropriate candidates to the ballot and the ballot is no longer empty

Project Name: Project 1: Voting System	Team# 13
Test Stage: Unit _X_ System	Test Date: 3/26/22
Test Case ID#: UT_ballot_pop	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang
Test Description: This test will check if the first vote in the ballot is returned.	
	Indicate where are you storing the tests (what file) and the name of the method/functions being used.
	File for Test: all_test.cpp Function being used: ispop() from Ballot class
Automated: yes X no	
Results: Pass X Fail	
Preconditions for Test: A csv file for the IRV election is being ran	

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1	Create an empty ballot object	Ballot ballot			
2	Call pop() on the empty ballot	ballot.pop	Segmentation Fault	Segmentation Fault	Calling pop on an empty ballot should create a segmentation fault
	Push a candidates ID				
3	onto the ballot	ballot.push(1)			
4	Call pop() on ballot	ballot.pop	1	1	

The ballot has returned the first vote and it is removed from the ballot

Proj	ect Name: Project 1: Voti	ng System	Team# 13					
Test Stage: Unit _X_ System Test Date: 3/27/22								
Test (Case ID#: UT_candidate_name		Name(s) of Testers: Kaley Schiffler, Amy		enning, Hoin Jang			
This	Description: test will check if the correct nardate and check if the candidate's							
			Indicate where are	you storing the tests	(what file) and the name of the method/functions being used.			
	File for Test: all_test.cpp Functions being used: setName() and getName() from Candidate class							
	nated: yes X no							
Resul	ts: Pass X Fail							
	nditions for Test: v file for the IRV or OPL election	n is being ran.						
	1	1						
Step	Test Step	Test	Expected	Actual				
#	Description	Data	Result	Result	Notes			
1	Create a candidate object	Candidate c1						
2	Set the candidate's name	c1.setName("John")						
3	Return the the candidates name	c1.getName()	John	John				
	Create a candidate without setting							
4	a name for the candidate	c2.getName()	None	None				
Post co	ondition(s) for Test:							

The Candidate's name is set up with proper values

Project Name: Project 1: Voting System	Team# 13
Test Stage: Unit _X_ System	Test Date: 3/27/22
Test Case ID#: UT_candidate_addVote	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang
Test Description: This test will check if votes are being added to a candidate and checking the total votes for a candidate.	i
	Indicate where are you storing the tests (what file) and the name of the method/functions being used
	File for Test: all_test.cpp Functions being used: getNumVotes() and addVote() from Candidate class
Automated: yes X no	
Results: Pass X Fail	
Preconditions for Test:	
A csv file for the IRV or OPL election is being ran.	

Step #	Test Step Description	Test Data		Actual Result	Notes
1	Create a candidate object	Candidate c1			
2	Check if candidate has no votes	c1.getNumVotes()	0	0	Candidate starts with no votes when first initialized
3	Add a vote to the candidate	c1.addVote()			
	Return the number of votes for the				
4	candidate	c1.getNumVotes()	1	1	

Post cor	dition	(\mathbf{s})	for	Test:

The getNumVotes() variable is set up with the proper values

Project Name: Project 1: Voting System	Team# 13
Test Stage: Unit _X_ System	Test Date: 3/27/22
Test Case ID#: UT_candidate_addToParty	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang
Test Description: This test will check to see if a candidate has been added to a party and the total number of candidates is correct.	
	Indicate where are you storing the tests (what file) and the name of the method/functions being used.
	File for Test: all_test.cpp Functions being used: getNumCandidates() , setName() and addVote() from Candidate class
Automated: yes X no	
Results: Pass X Fail	
Preconditions for Test:	

A csv file for the IRV or OPL election is being ran. The functions setName(), addVote() and addCandidate() are all working properly.

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1	Create an empty party object	Party p			
	Check if the party has no		0	0	
2	candidates	p.getNumCandidates()			
		Candidate* c = new Candidate()			
		$c \rightarrow setName("Ben")$			
	Create a new candidate and add it	$c \rightarrow addVote();$			
3	to the party	p.addCandidate(c)			
	Check if the number of candidates		1	1	
4	have been updated	p.getNumCandidates()			

Post condition(s) for Test:

The candidate has been added to their party and getNumCandidates is set with proper values

Proj	ect Name: Project 1: Vot	ting System	Team# 13					
Test	st Stage: Unit _X_ System Test Date: 3/27/22							
Test (Case ID#: UT_party_name		Name(s) of Testers: Kaley Schiffler, Amy	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang				
This	Description: s test will check if the correct na and check if the party's name i							
			Indicate where are	you storing the tests	(what file) and the name of the method/functions being used.			
A 4	File for Test: all_test.cpp Functions being used: setName() and getName() from Party class							
	nated: yes X no ts: Pass X Fail							
Resul	ts: Pass X Fail							
	nditions for Test: v file for the IRV or OPL election	on is being ran.						
		1						
Step	Test Step	Test	Expected	Actual				
#	Description	Data	Result	Result	Notes			
1	Create a party object	Party p1						
2	Set a party's name	p1.setName("R")						
3	Return the party's name	p1.getName()	R	R				
4	Create a party without setting a name for the party	Party p2 p2.getName	None	None				
Post co	ondition(s) for Test:							

The Party's name is set up with proper values

Proje	ect Name: Project 1: Voting Syst	tem	Team# 13				
Test S	stage: Unit _X_ System	Test Date: 3/27/22	Test Date: 3/27/22				
Test (Case ID#: UT_party_totalVotes	Name(s) of Testers: Kaley Schiffler, Amy	Nguyen, William He	enning, Hoin Jang			
This	Description: test will check the total votes for a party added to candidates in the party.	based on votes					
		Indicate where are y	Indicate where are you storing the tests (what file) and the name of the method/functions being used.				
		Functions being used	File for Test: all_test.cpp Functions being used: getTotalVotes() , addCandidate() , addVote(), calculateTotalVotes(), getNumCandidates(), getNumVotes() from Party class				
Auton	nated: yes_X_ no						
Result	s: Pass X Fail						
	nditions for Test: file for the IRV or OPL election is being	g ran.					
C4	TE 4 C4	Tr. 4	TP 4.1				
Step #	Test Step Description	Test Data	Expected Result	Actual Result	Notes		
1	Create a party object and candidate objects	Party p Candidate* c1 and Candidate* c2					

Step #	Test Step Description	Test Data	Expected Result	Actual Result	Notes
		Party p			
1	Create a party object and candidate objects	Candidate* c1 and Candidate* c2			
2	Return total votes for the party	p.getTotalVotes	0	0	
		p.addCandidate(c1) and p.addCandidate(c2)			
	Add candidates to the party and add votes	$c1 \rightarrow addVote()$			
3	to the candidates	$c2 \rightarrow addVote()$, $c2 \rightarrow addVote()$			
4	Calculate total votes for the party	p.calculateTotalVotes()			
5	Get total votes for the party	p.getTotalVotes()	3	3	

condition		

The getTotalVotes() variable is set up with the proper values

Project Name: Project 1: Voting System	Team# 13
Test Stage: Unit _X_ System	Test Date: 3/27/22
Test Case ID#: UT_coinFlip	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang
Test Description: This test will check if the coin flip is random and unbiased.	
	Indicate where are you storing the tests (what file) and the name of the method/functions being used.
	File for Test: all_test.cpp Functions being used: flip() from Coin class
Automated: yes X no	
Results: Pass X Fail	
CreatCr3e	
Preconditions for Test: A csv file for the IRV or OPL election is being ran.	
<u> </u>	

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
		Coin c			
	Initialize a coin and counting	NUM_FLIPS = 300			
1	variables	headCount and tailCount = 0			
	Calculate the margin of 20% more	$maxMargin = (NUM_FLIPS / 2) * 1.20$			
2	or less than expected	$minMargin = (NUM_FLIPS / 2) * 0.80$			
	Initialize a boolean variable for				
3	coins fairness	fair = true			
4	record results of 300 flips				
5	check for unusual bias		true	true	

t:

The coin flip is unbiased and random

Proj	ect Name: Project 1: Voti	ing System	Team# 13				
Test	Stage: Unit _X_ System	_	Test Date: 3/27/22				
Test	Case ID#: UT_ballotQueue_isF	Empty	Name(s) of Testers: Kaley Schiffler, Amy	y Nguyen, William He	enning, Hoin Jang		
This create	Description: Is test will check if the ballot quested. It will also test if ballots are of tQueue.						
			Indicate where are	you storing the tests	(what file) and the name of the method/functions being used.		
			File for Test: all_test	срр	() from BallotQueue class		
Auto	mated: yes X no						
	ts: Pass X Fail						
	onditions for Test:						
A cs	v file for the IRV election is beir	ng ran.					
Step	Test Step	Test	Expected	Actual			
# #	Description	Data	Result	Result	Notes		
1	Create a BallotQueue object	BallotQueue ballotQueue					
2	Create a ballot	Ballot* b1					
3	Check if ballot queue is empty	ballotQueue.isEmpty	true	true			
4	Add the ballot to the ballot queue	ballotQueue.push(b1)					
5	Check if the ballot was added to the ballot queue	ballotQueue.isEmpty()	false	false			
Post co	ondition(s) for Test:						
The bal	lot was added to the ballot queue	e properly.					

	et i tulie. I loject i. vo	ting System	Team# 13			
Test S	tage: Unit _X_ System	Test Date:	3/27/22			
Test C	Case ID#: UT_ballotQueue_c			Villiam Henning, Hoin	Jang	
This	Description: test will check if the number of ect. Also, it tests if push propo					
		Indicate wh	ere are you storing	the tests (what file)	and the name of the method/fu	nctions being used
			•	,		J
	nated: yes X no s: Pass X Fail	File for Test Functions be		d getCount() from Bal	lotQueue class	
Result Precon		Functions be		d getCount() from Bal	lotQueue class	
Result Precon	s: Pass X Fail	Functions be		d getCount() from Bal	lotQueue class	
Result Precon A csv	s: Pass X Fail Inditions for Test: If file for the IRV election is be	Functions be	eing used: push() an		Notes	
Precor A csv Step #	s: Pass X Fail Inditions for Test: If file for the IRV election is be Test Step Description	Functions be	Expected	Actual		
Precon A csv Step #	s: Pass X Fail Inditions for Test: file for the IRV election is be Test Step	Functions be formally be a series of the ser	Expected	Actual		
Precon A csv Step #	s: Pass X Fail Inditions for Test: If file for the IRV election is be Test Step Description Create a ballot queue object Create ballots	Functions be Funct	Expected	Actual		
Precon A csv Step #	s: Pass X Fail Inditions for Test: If file for the IRV election is be Test Step Description Create a ballot queue object	Functions be Funct	Expected	Actual		

Project Name: Project 1: Voting System	Team# 13
Test Stage: Unit _X_ System	Test Date: 3/27/22
Test Case ID#: UT_ballotQueue_pop	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang
Test Description: This test will check if ballots are being properly added to the ballot queue. This test will also test if pop() returns the correct ballot.	
	Indicate where are you storing the tests (what file) and the name of the method/functions being used.
	File for Test: all_test.cpp Functions being used: push() , pop() and getCount() from BallotQueue class
Automated: yes X no	
Results: Pass X Fail	

Preconditions for Test:

A csv file for the IRV election is being ran.

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
1	Create a ballot queue object	BallotQueue ballotQueue			
	Count how many ballots are in the				
2	empty ballot queue	ballotQueue.getCount()	0	0	
3	Trying to pop() an empty ballot queue	ballotQueue.pop()	Segmentation Fault	Segmentation Fault	
4	Create ballots	Ballot* b1 , Ballot* b2 , Ballot* b3			
5	Push ballots onto ballot queue	ballotQueue.push(b1), etc.			
	Check for the number of ballots in				
6	ballot queue	ballotQueue.getCount()	3	3	
7	Return the last element in the queue	ballotQueue.pop()	b3	b3	

Post cond	lition(s) for T	lest:
-----------	----------	---------	-------

The ballot queue has the correct number of elements and the pop() function returns the last element in the queue properly

	System	Team# 13			
X System		Test Date: 3/27/22			
- -				nning, Hoin Jang	
	lded to a candidate a	and			
		Indicate where are	you storing the tests	(what file) and the name of the method/functions	being use
				addVote() from Candidate class	
Fail Cest: RV election is being ra	an.				
Fail Cest: RV election is being ra	est Pata	Expected Result	Actual Result	Notes	
Fail Cest: RV election is being ra	est			Notes	
Fail Cest: RV election is being ra	est			Notes	
1	<u> </u>	k if votes are being added to a candidate a otes for a candidate.	Name(s) of Testers: Kaley Schiffler, Amy k if votes are being added to a candidate and otes for a candidate. Indicate where are y File for Test: all_test. Functions being used	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William He k if votes are being added to a candidate and otes for a candidate. Indicate where are you storing the tests File for Test: all_test.cpp Functions being used: getNumVotes() and	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang k if votes are being added to a candidate and otes for a candidate. Indicate where are you storing the tests (what file) and the name of the method/functions File for Test: all_test.cpp Functions being used: getNumVotes() and addVote() from Candidate class

Proje	ct Name: Project 1: Voti	ing System		Te	eam# 13	
Test	Stage: Unit _X_ System		Test Date: 3/27/22			
Test	Case ID#: UT_ballotQueue_sl		Name(s) of Testers: Kaley Schiffler, Amy	Nguyen, William H	Tenning, Hoin Jang	
	Description: s test will check where the shuf e.	fle changes the order of the				
			Indicate where are	you storing the tests	s (what file) and the name of the method/functions being	used.
			File for Test: all_test Functions being used		shuffle() from BallotQueue class	
Auto	mated: yes_X_ no					
Resul	ts: Pass X Fail					
Preco	onditions for Test:					
1	v file for the IRV election is be	ng ran.				
Step	Test Step	Test	Expected	Actual		
#	Description	Data	Result	Result	Notes	
1	Create a ballot queue object	BallotQueue queue				
2	Create ballots	Ballot* b1, etc.				
3	Push ballots onto the queue	queue.push(b1), etc.				
4	Shuffle ballots	queue.shuffle()				-
5	Pop all ballots	queue.pop, 3 times				
6	Check if the order is the same		true	true		
Post co	ondition(s) for Test:				<u> </u>	

The shuffles function weaks manager		
The shuffle() function works properly		

Proje	ect Name: Projec	ct 1: Voting System			Team# 13				
Test	Stage: Unit	System _X_	Test Date: 3/27/22						
Test	Case ID#: System	Testing_01(opl1.csv)	Name(s) of Testers: Kaley Schiffler, Amy	Nguyen, W	illiam Henning, Hoin	Jang			
		. 1 tie between candidates in the same	•						
	Indicate where are you storing the tests (what file) and the name of the method/functions being use								
	File directory : Repo-Team13/Project1/testing File name: opl1.csv								
Auto	mated: yes X	no							
Resu	lts: Pass X	Fail							
	onditions for Test: v file for the IRV or	OPL election is being ran.							
Step #	Test Step Description	Test Data	Expec Resul		Actual Result	Notes			
	7 11/6								

Step	Test Step	Test	Expected	Actual	
#	Description	Data	Result	Result	Notes
	run ./build/final_program				
1	/testing/opl1.csv				
2	Enter election data	opl1.csv			
3	Confirm inputs	true			
	Check if printed display results are		true	true	Winners are Foster, Pike, and a coin flip between Jones
	correct and that the audit and				and Borg. The rest are losers.
4	media files are generated				

Post condition(s) for Te	st:
--------------------------	-----

Proje	ect Name: Project 1: Voti	ng System			1eam#	: 13	
Test S	Stage: Unit System_X	<u> </u>	Test Date: 3/27/22				
Test (Case ID#: System Testing_02(o	opl2.csv)	Name(s) of T Kaley Schiffle		William Henning	, Hoin Jang	
All	Description: candidates have same number of dates in the same party, 1 tie bet		;				
			Indicate whe	re are you storii	ng the tests (what	t file) and the name of the method/functions being used.	
			File directory File name: op	: Repo-Team13/ l2.csv	Project1/testing		
Autor	nated: yes X no						
	ts: Pass X Fail						
	nditions for Test: v file for the IRV or OPL election	n is being ran.					
Step	Test Step	Test		Expected	Actual		
#	Description	Data		Result	Result	Notes	
	run ./build/final_program						
1	/testing/opl2.csv						
2	Enter election data	opl2.csv					
3	1	true					
	Check if printed display results are correct and that the audit and	1		true	true	Coin flip for one seat between Foster and Pike. And	
4	media files are generated					Coin flip for two seats between Borg, Jones and smith. The rest are losers.	
<u> </u>				Į		L	

Proj	ect Name: Project 1: Voti	ng System			Team#	13
Test	Stage: Unit System_X	<u> </u>	Test Date: 3	/27/22		
Test	Case ID#: System Testing_03(opl3.csv)	Name(s) of T Kaley Schiffl		, William Henning	, Hoin Jang
One	Description: candidates gets all votes, rest of gh coin flip, 1 additional tie in R					
			Indicate whe	ere are you stori	ng the tests (what	file) and the name of the method/functions being used.
			File directory File name: op		/Project1/testing	
Auto	mated: yes X no					
Resul	ts: Pass X Fail					
	onditions for Test: v file for the IRV or OPL election	n is being ran.				
Chan	Took Char	Test		Even a sta d	Actual	
Step #	Test Step Description	Data		Expected Result	Result	Notes
1	run ./build/final_program/testing/opl3.csv					
2	Enter election data	opl3.csv				
3	Confirm inputs	true				
4	Check if printed display results are correct and that the audit and media files are generated			true	true	Coin flip between Foster and pike for one seat. Coin flip between the loser of first coin flip, Borg ,Jones and Smith fo two seats

ect Name: Project 1: Voti	ing System		Team#	13
Stage: Unit System _2	K_	Test Date: 3/27/22		
Case ID#: System Testing_04(opl4.csv)	Name(s) of Testers: Kaley Schiffler, Amy Nguye	n, William Henning,	Hoin Jang
<u>-</u>	. Everyone gets a seat.			
		Indicate where are you stor	ring the tests (what	file) and the name of the method/functions being used
		File directory : Repo-Team1 File name: opl4.csv	3/Project1/testing	
nated: yes_X_ no				
ts: Pass X Fail				
	n is being ran.			
Test Sten	Test	Evnected	Actual	
Description	Data	Result	Result	Notes
run ./build/final_program				
	† ^			
				W. Dil D. 10 M.
Check if printed display results are correct and that the audit and media files are generated	3	true	true	Winners are Pike, Borg, and Smith,the rest are losers.
	Case ID#: System Testing_04(Description: re seats than there are candidates ts: Pass X Fail Inditions for Test: v file for the IRV or OPL election Test Step Description run ./build/final_program/testing/opl4.csv Enter election data Confirm inputs Check if printed display results are correct and that the audit and	Case ID#: System Testing_04(opl4.csv) Description: The seats than there are candidates. Everyone gets a seat. Test Step	Stage: Unit System _X Test Date: 3/27/22 Name(s) of Testers: Kaley Schiffler, Amy Nguye Case ID#: System Testing_04(opl4.csv) Description: The seats than there are candidates. Everyone gets a seat. Indicate where are you stored for the interest of the interest opl4.csv Indicate where are you stored for the interest opl6.csv Indicate where are you stored for the interest opl6.csv Indicate where are you stored for the interest opl6.csv Indicate where are you stored for the interest opl6.csv Indicate where are you stored for the interest opl6.csv Indicate where are you stored for the interest opl6.csv Indicate where are you stored for the interest opl6.csv	Stage: Unit System_X_ Test Date: 3/27/22 Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Description: re seats than there are candidates. Everyone gets a seat. Indicate where are you storing the tests (what File directory: Repo-Team13/Project1/testing File name: opl4.csv mated: yes_X_ no tts: Pass_X Fail Inditions for Test: v file for the IRV or OPL election is being ran. Test Step Description Data Expected Actual Result Result run_/build/final_program _/testing/opl4.csv Enter election data Confirm inputs Check if printed display results are correct and that the audit and

Proje	ect Name: Project 1: Voti	ng System			Team# 13	
Test S	Stage: Unit System_X	<u> </u>	Test Date: 3/	27/22		
Test (Case ID#: System Testing_05(opl5.csv)	Name(s) of To Kaley Schiffle		William Henning, Ho	in Jang
	Description: llot, 1 seat, multiple candidates.	candidate who got the vo	te			
			Indicate when	re are you storing	g the tests (what file)	and the name of the method/functions being used
			File directory File name: op	: Repo-Team13/P 15.csv	roject1/testing	
Autor	nated: yes X no					
	ts: Pass X Fail					
IXCSUI	is. 1 ass A Tan					
	nditions for Test: / file for the IRV or OPL election	n is being ran.				
		-				
Step	Test Step	Test		Expected	Actual	
#	Description	Data		Result	Result	Notes
1	run ./build/final_program /testing/opl5.csv					
2	Enter election data	opl5.csv				
3	Confirm inputs	true				
	Check if printed display results are correct and that the audit and media files are generated			true	true	Winner is Pike, the rest are losers.

Proje	ect Name: Project 1: Voti	ng System			Team#	13
Test S	Stage: Unit System_X	<u> </u>	Test Date: 3/27/22			
Test (Case ID#: System Testing_06(o	opl6.csv)	Name(s) of Testers Kaley Schiffler, Am		William Henning,	Hoin Jang
5 pa	Description: rties, each with 1 candidate, each ers decided not by numbers of vo					
			Indicate where are	you storin	ng the tests (what	file) and the name of the method/functions being used.
			File directory: Repo		Project1/testing	
Autor	nated: yes_X_ no					
Resul	ts: Pass X Fail					
	nditions for Test: v file for the IRV or OPL election	n is being ran.				
Step	Test Step	Test	Expe	eatad	Actual	
# #	Description	Data	Resu		Result	Notes
1	run ./build/final_program /testing/op16.csv					
2	Enter election data	opl6.csv				
3	Confirm inputs	true				
4	Check if printed display results are correct and that the audit and media files are generated		true		true	Coin flip for one seat between Foster, Pike, Borg, Jones and Smith. The rest are losers.

Proje	ect Name: Project 1: Voti	ng System		1eam#	13
Test S	Stage: Unit System_X	<u> </u>	Test Date: 3/27/22		
Test (Case ID#: System Testing_07(opl7.csv)	Name(s) of Testers: Kaley Schiffler, Amy Nguye	n, William Henning,	Hoin Jang
3sea	Description: <pre>its, 3 parties with 1 candidate and seat.</pre>	d one vote each, everyone			
			Indicate where are you stor	ring the tests (what	file) and the name of the method/functions being used.
			File directory: Repo-Team1 File name: opl7.csv	3/Project1/testing	
Autor	nated: yes X no				
Resul	ts: Pass X Fail				
	nditions for Test: v file for the IRV or OPL election	n is being ran.			
Step #	Test Step Description	Test Data	Expected Result	Actual Result	Notes
1	run ./build/final_program /testing/opl7.csv				
2	Enter election data	opl7.csv			
3	Confirm inputs	true			
4	Check if printed display results are correct and that the audit and media files are generated		true	true	Winners are Pike, Jones and Smith. The rest are losers.

Proje	ect Name: Project I: Voti	ng System			Team#	13
Test S	Stage: Unit System _X	, 	Test Date: 3/2	27/22		
Test (Case ID#: System Testing_08(o	opl8.csv)	Name(s) of Te Kaley Schiffle		ı, William Henning	, Hoin Jang
No b	Description: pallots, with multiple parties, can ers decided not by numer of vote					
			Indicate wher	e are you stori	ing the tests (what	file) and the name of the method/functions being used.
			File directory : File name: opl		/Project1/testing	
Auton	nated: yes X no					
	ts: Pass X Fail					
	<pre>nditions for Test: / file for the IRV or OPL election</pre>	n is heing ran				
Acsv	The for the fixe of of L election	i is being ran.				
				Expected Result	Actual Result	Notes
Step	Test Step	Test				
#	Description	Data				
1	run ./build/final_program /testing/op18.csv					
2		opl8.csv				
	1 1	true				
	Check if printed display results are correct and that the audit and		t	rue	true	Coin flip for one seat between Foster, Pike, Borg, Jones and Smith. The rest are losers.

Post condition(s) for Test:

Correct results, display, audit file, and media file

media files are generated

Test Stage: Unit System _X_	Project Name: Project 1: Voting System		Team# 1	3
Test Case ID#: System Testing_09(opl9.csv) Test Description: 10000 ballots, checking the runtime of opl Indicate where are you storing the tests (what file) and the name of the method/functions being File directory: Repo-Team13/Project1/testing	Test Stage: Unit System _X_	Test Date: 3/27/22		
Indicate where are you storing the tests (what file) and the name of the method/functions being File directory: Repo-Team13/Project1/testing	Test Case ID#: System Testing_09(opl9.csv)		n, William Henning, H	Ioin Jang
File directory: Repo-Team13/Project1/testing	<u>-</u>			
		Indicate where are you stor	ring the tests (what fi	le) and the name of the method/functions being use
			3/Project1/testing	
Automated: yes X no	Automated: yes X no			
Results: Pass X Fail	Results: Pass X Fail			
Preconditions for Test: A csv file for the IRV or OPL election is being ran.				
Expected Actual Result Result Notes				Notes

			Expected Result	Actual Result	Notes
Step #	Test Step Description	Test Data			
1	run ./build/final_program /testing/opl9.csv				
2	7 .	opl9.csv			
3	Confirm inputs	true			
4	Check if printed display results are correct and that the audit and media files are generated		true	true	Pike is the winner. The rest are losers.

Projec	et Name: Project 1: Vo	oting System		Team# 13					
Test S	Stage: Unit System	_X_	Test Date:	3/27/22					
Test C	Case ID#: System Testing_(01(irv1.csv)	Name(s) of Testers: Kaley Schiffler, Amy Nguyen, William Henning, Hoin Jang						
	Description: ard election spread.								
			Indicate wh	nere are you stori	ng the tests (what	file) and the name of the m	ethod/functions being used		
			File director File name: in	ry : Repo-Team13, rv1.csv	/Project1/testing				
Auton	nated: yes_X_ no								
Result	s: Pass X Fail								
	nditions for Test: The first for the IRV or OPL elections for the IRV or OPL elections.	etion is being ran.							
				Expected Result	Actual Result	Notes			
Step #	Test Step Description	Test Data							

true

Winners are Rosen and Chou

Coin Flip between Royce and Kleinberg

Post condition(s) for Test:	

../testing/irv1.csv
Enter election data

Confirm inputs

run ./build/final_program

media files are generated

Correct results, display, audit file, and media file

Check if printed display results are correct and that the audit and

irv1.csv

Projec	ct Name: Proje	ct 1: Voting System		Team# 13					
Test S	Stage: Unit	System _X_	Test Date: 3/2	27/22					
Test (Case ID#: System	Testing 02(irv2.csv)	Name(s) of Te Kaley Schiffle		William Henning,	Hoin Jang			
	Description:	<u>5</u> _							
	candidates except 1 ble. Testing candid	have 0 votes, but there are two sate matching up.	seats						
			Indicate when	re are you storing	g the tests (what	file) and the name of the n	nethod/functions being used		
			File directory File name: irv	: Repo-Team13/P 2.csv	roject1/testing				
Auton	nated: yes_X_	no							
Result	ts: Pass X	Fail							
1	nditions for Test: of file for the IRV or	OPL election is being ran.							
				Expected Result	Actual Result	Notes			
Step #	Test Step Description	Test Data							
1	run ./build/final_prog	gram							

true

Winners are Rosen

Coin Flip between Kleinberg and Royce

Post condition(s) for Test:

Enter election data

media files are generated

Confirm inputs

Correct results, display, audit file, and media file

Check if printed display results are correct and that the audit and

irv2.csv

Projec	ct Name: Projec	et 1: Voting System		Team# 13					
Test S	Stage: Unit	System _X_	Test Date:	3/27/22					
Exar win ev	Description: <pre>mple of normal irv. 1</pre>	Testing_03(irv3.csv) Regardless of shuffle, Roser ving less votes initially. This he ballots.	ı should		n, William Henning,	Hoin Jang			
			Indicate wh	nere are you stor	ring the tests (what	file) and the name of the	method/functions being used		
	File directory: Repo-Team13/Project1/testing File name: irv3.csv								
Auton	nated: yes_X_	no							
Result	ts: Pass X	Fail							
	nditions for Test: y file for the IRV or	OPL election is being ran.							
				Expected	Actual				
				Result	Result	Notes			
Step #	Test Step Description	Test Data							
1	run ./build/final_prog /testing/irv3.csv	ram							
2	Enter election data	irv3.csv							

true

Winner is Rosen

Confirm inputs

Post condition(s) for Test:Correct results, display, audit file, and media file

Check if printed display results are correct and that the audit and

media files are generated

Project Name: Project 1: Voting System				Team# 13					
Test S	Stage: Unit System	_X_	Test Date: 3/27/2	2					
Test C	Case ID#: System Testing_()4(irv4.csv)	Name(s) of Tester Kaley Schiffler, An		Tilliam Henning, Hoin	Jang			
Test D	Description:								
Four	candidates, four seats, one v	rote. testing a 3-way tie.							
			Indicate where ar	re you storing	the tests (what file) a	and the name of the method/functions being used			
	File directory: Repo-Team13/Project1/testing File name: irv4.csv								
Auton	nated: yes X no								
	s: Pass X Fail								
l .	nditions for Test: Tile for the IRV or OPL electors	tion is being ran.							
			Exp	oected	Actual				
			Res	sult	Result	Notes			
Step	Test Step	Test							
#	Description	Data							
	run ./build/final_program								
	/testing/irv4.csv	I			i .				

true

Winners are Rosen, Kleinberg, Chou and Royce

No coin flip

Post condition(s) for Test:

Confirm inputs

Correct results, display, audit file, and media file

Check if printed display results are

correct and that the audit and

media files are generated

Project Name: Project 1: Voting System				Team# 13				
Test S	tage: Unit	System _X_	Test Date: 3	/27/22				
Test (Case ID#: System T	Testing_05(irv5.csv)	Name(s) of T Kaley Schiffl		William Henning, F	Ioin Jang		
	Description:	, , , , ,						
	candidate, one seat, breaks the system.	zero votes, testing if empty ballot	t					
			Indicate whe	ere are you storin	g the tests (what fi	le) and the name of the r	nethod/functions being used	
			File directory File name: irv	: Repo-Team13/F v5.csv	Project1/testing			
Auton	nated: yes X	10						
	ts: Pass X	Fail						
	nditions for Test: of file for the IRV or the interest of the	OPL election is being ran.						
				Expected Result	Actual Result	Notes		
Step #	Test Step Description	Test Data						
1	run ./build/final_prog /testing/irv5 csv	ram						

true

Rosen is winner.

Post condition(s) for Test: Correct results, display, audit file, and media file

irv5.csv

true

Enter election data

Check if printed display results are

correct and that the audit and media files are generated

Confirm inputs

Project Name: Project 1: Voting System			Team# 13						
Test S	tage: Unit	System _X_		Test Date: 3	/27/22				
	Case ID#: System Description:	Testing_06(irv6	.csv)	Name(s) of T Kaley Schiffl		illiam Henning, Hoin	Jang		
permu		able of testing th	represent all possible e actual randomness nould be a toss-up						
				Indicate whe	ere are you storing	the tests (what file) a	and the name of the method/functions being used		
	File directory: Repo-Team13/Project1/testing File name: irv6.csv								
Auton	nated: yes_X_	no							
Result	ts: Pass X	Fail	_						
	nditions for Test: of file for the IRV or	OPL election is	being ran.						
					Expected Result	Actual Result	Notes		
Step #	Test Step Description	Te Da	st nta						
1	run ./build/final_pro /testing/irv6.csv	gram							

true

Winners vary depending on the coin flip

Post condition(s) for Test: Correct results, display, audit file, and media file

irv6.csv

true

Enter election data

Check if printed display results are

correct and that the audit and media files are generated

Confirm inputs

Project Name: Project 1: Voting System			Team# 13						
Test S	tage: Unit	System _X	_	Test Date: 3/27/22					
Test Case ID#: System Testing_07(irv7.csv) Test Description: Four candidates, two seats, 30000 votes. This tests the shuffle and randomness, as rosen gets all the droop # of votes distributed to them first before other votes are distributed, and all permutations are represented equally. Also tests large						, William Henning	, Hoin Jang		
numb	ers of votes.								
				Indicate who	ere are you stori	ng the tests (what	file) and the name of the	method/functions being used.	
				File directory File name: irv	v7.csv	Project1/testing			
Auton	nated: yes X	no							
Result	ts: Pass X	Fail							
	nditions for Test: / file for the IRV or	r OPL election	n is being ran.						
	_				_				
					Expected Result	Actual Result	Notes		
Step #	Test Step Description		Test Data						
1	run ./build/final_pro /testing/irv7.csv	ogram							

true

Winners are Rosen

Coin Flip between Royce and Kleinburg

Post condition(s) for Test: Correct results, display, audit file, and media file

irv7.csv

true

Enter election data

Check if printed display results are

correct and that the audit and

media files are generated

Confirm inputs