| PBI#                       | 4  |
|----------------------------|--|
| PBI Description            | As an election official, I would like to bring in ballots from multiple balloting locations to run the election so that all ballots for an election are processed together from different polling locations. |
| Task Description           | The parse function parses all input streams for the number of ballots and the ballots themselves   |
| Test Description           | Test that importing ballot headers from multiple sources for InstantRunoffSystem results in the total number of ballots being their sum  |
| Test ID                    | test_437_07_importBallotsHeader_05_testMultipleImports   |
| Team Member(s) Responsible | Nikunj Chawla  |
| Inputs                     | Calls to importBallotsHeader with 2, 0, and 6 ballots (as part of one test)  |
| Tests                      | Test that importBallotsHeader sums the ballot counts provided for each call  |
| Outputs                    | None of the aforementioned calls to     importBallotsHeader result in an exception being     thrown and that numBallots is 8 after the calls   |
| Result (Pass or Fail)      | Pass   |
| Date                       | 4/21/21  |

| PBI#             | 4  |
|------------------|--|
| PBI Description  | As an election official, I would like to bring in ballots from multiple balloting locations to run the election so that all ballots for an election are processed together from different polling locations. |
| Task Description | The parse function parses all input streams for the number of ballots and the ballots themselves   |
| Test Description | Test that importing ballot headers from multiple sources for OpenPartyListSystem results in the total number of ballots being their sum  |

| Test ID                    | test_438_09_importBallotsHeader_07_testMultipleImports  |
|----------------------------|---|
| Team Member(s) Responsible | Nikunj Chawla   |
| Inputs                     | 1. 1. Calls to importBallotsHeader with 2 ballots and 4 seats, 0 ballots and 3 seats, and 6 ballots and 5 seats (as part of one test)                                       |
| Tests                      | Test that importBallotsHeader sums the ballot counts provided for each call and uses the last number of seats provided  |
| Outputs                    | 2. None of the aforementioned calls to<br>importBallotsHeader result in an exception being<br>thrown, numBallots is 8 after the calls, and numSeats<br>is 5 after the calls |
| Result (Pass or Fail)      | Pass  |
| Date                       | 4/21/21   |

| PBI#                       | 4  |
|----------------------------|--|
| PBI Description            | As an election official, I would like to bring in ballots from multiple balloting locations to run the election so that all ballots for an election are processed together from different polling locations.                         |
| Task Description           | The parse function parses all input streams for the number of ballots and the ballots themselves   |
| Test Description           | Test that parsing multiple files for InstantRunoffSystem with varying numbers of ballots per file works  |
| Test ID                    | test_439_06_parse_09_testParseMultipleIrFiles  |
| Team Member(s) Responsible | Aaron Kandikatla   |
| Inputs                     | 1. Calls the parse method in VotingStreamParser with 3 IR csv files as input. 2. ir_multi_part_1.csv: 2 ballots, ir_multi_part_2.csv: 4 ballots, ir_multi_part_3.csv: 3 ballots  |
| Tests                      | <ol> <li>Test that after parse is called, the number of candidates is correctly parsed</li> <li>Tests that the candidates themselves are correctly parsed</li> <li>Tests that ballots from 3 different files are added up</li> </ol> |

|                       | Tests that all candidates' ballots are parsed and distributed properly  |
|-----------------------|---|
| Outputs               | <ol> <li>The call to parse does not throw any exception</li> <li>getNumCandidates equals 4</li> <li>getCandidates equals Rosen (D),Kleinberg (R),Chou (I),Royce (L)</li> <li>getNumBallots equals 9</li> <li>The candidates receive the following number of ballots: Rosen - 4, Kleinberg - 2, Chou - 1, Royce - 2</li> </ol> |
| Result (Pass or Fail) | Pass  |
| Date                  | 4/24/21   |

| PBI#                       | 4   |
|----------------------------|---|
| PBI Description            | As an election official, I would like to bring in ballots from multiple balloting locations to run the election so that all ballots for an election are processed together from different polling locations.  |
| Task Description           | The parse function parses all input streams for the number of ballots and the ballots themselves  |
| Test Description           | Test that parsing multiple files for OpenPartyListSystem with varying numbers of ballots per file works   |
| Test ID                    | test_440_06_parse_10_testParseMultipleOplFiles  |
| Team Member(s) Responsible | Aaron Kandikatla  |
| Inputs                     | <ol> <li>Calls the parse method in VotingStreamParser with<br/>3 OPL csv files as input.</li> <li>opl_multi_part_1.csv: 1 ballot, opl_multi_part_2.csv: 5 ballots, opl_multi_part_3.csv: 3 ballots</li> </ol>   |
| Tests                      | <ol> <li>Test that after parse is called, the number of candidates is correctly parsed</li> <li>Tests that the candidates themselves are correctly parsed</li> <li>Tests that ballots from 3 different files are added up</li> <li>Tests that the number of seats are correctly parsed</li> <li>Tests that all parties' ballots are parsed and assigned properly</li> </ol> |
| Outputs                    | The call to parse does not throw any exception     getNumCandidates equals 6  |

|                       | <ol> <li>getCandidates equals         [Pike,D],[Foster,D],[Deutsch,R],[Borg,R],[Jones,R],[S mith,I]</li> <li>getNumBallots equals 9</li> <li>getNumSeats equals 3</li> <li>The parties receive the following number of ballots: R         - 3, D - 5, I - 1</li> </ol> |
|-----------------------|--|
| Result (Pass or Fail) | Pass   |
| Date                  | 4/24/21  |

| PBI#                       | 4  |
|----------------------------|--|
| PBI Description            | As an election official, I would like to bring in ballots from multiple balloting locations to run the election so that all ballots for an election are processed together from different polling locations. |
| Task Description           | The main method can accept multiple files as input and produce accurate audit and report files.  |
| Test Description           | Test that running the election on multiple files for InstantRunoffSystem with varying numbers of ballots per file works  |
| Test ID                    | test_441_05_main_18_testIrMultipleFiles  |
| Team Member(s) Responsible | Aaron Kandikatla   |
| Inputs                     | <ol> <li>Calls the main method in VotingSystemRunner with 3 IR csv files as input.</li> <li>ir_multi_part_1.csv: 2 ballots, ir_multi_part_2.csv: 4 ballots, ir_multi_part_3.csv: 3 ballots</li> </ol>        |
| Tests                      | Test that after main is called, the generated audit and report files match the expected audit and report files exactly   |
| Outputs                    | test_ir_multiple_files_audit_actual.txt matches     test_ir_multiple_files_audit_expected.txt     test_ir_multiple_files_report_actual.txt matches     test_ir_multiple_files_report_expected.txt            |
| Result (Pass or Fail)      | Pass   |
| Date                       | 4/24/21  |

| PBI#                       | 4  |
|----------------------------|--|
| PBI Description            | As an election official, I would like to bring in ballots from multiple balloting locations to run the election so that all ballots for an election are processed together from different polling locations.             |
| Task Description           | The main method can accept multiple files as input and produce accurate audit and report files.  |
| Test Description           | Test that running the election on multiple files for OpenPartyListSystem with varying numbers of ballots per file works  |
| Test ID                    | test_441_05_main_19_testOplMultipleFiles   |
| Team Member(s) Responsible | Aaron Kandikatla   |
| Inputs                     | <ol> <li>Calls the main method in VotingSystemRunner with 3         OPL csv files as input.</li> <li>opl_multi_part_1.csv: 1 ballot, opl_multi_part_2.csv: 5         ballots, opl_multi_part_3.csv: 3 ballots</li> </ol> |
| Tests                      | Test that after main is called, the generated audit and report files match the expected audit and report files exactly   |
| Outputs                    | test_opl_multiple_files_audit_actual.txt matches     test_opl_multiple_files_audit_expected.txt     test_opl_multiple_files_report_actual.txt matches     test_opl_multiple_files_report_expected.txt                    |
| Result (Pass or Fail)      | Pass   |
| Date                       | 4/24/21  |

| PBI#             | 6   |
|------------------|---|
| PBI Description  | As an election official, I want the IR election system to invalidate ballots that do not rank at least half of the candidates so that the requirement by state election officials is met. |
| Task Description | Create new tests for the addBallot function that takes into consideration the invalidation of ballots and create their respective log files   |

| Test Description           | Test that the invalidation of ballots works properly for an odd number of candidates  |
|----------------------------|---|
| Test ID                    | test_443_07_addBallots_10_testAddBallotInvalidationOdd  |
| Team Member(s) Responsible | Nikunj Chawla   |
| Inputs                     | <ol> <li>The number corresponding to the current ballot</li> <li>The string corresponding to a ballot line</li> <li>The identifier associated with the current input source</li> <li>The line number associated with the current ballot line being read</li> </ol>  |
| Tests                      | <ol> <li>Test that a ballot that is correct in format and ranks all of the candidates is added</li> <li>Test that a ballot that is correct in format but ranks much less than half of the candidates is not added</li> <li>Test that a ballot that is correct in format but ranks the number just over half the number of candidates is added</li> <li>Test that a ballot that is correct in format but ranks the number just under half the number of candidates is not added</li> </ol> |
| Outputs                    | The aforementioned ballots when used with  addBallot do not throw exceptions, and only the  ballots that rank equal to or over half of the ballots are  added   |
| Result (Pass or Fail)      | Pass  |
| Date                       | 4/25/21   |

| PBI#             | 6   |
|------------------|---|
| PBI Description  | As an election official, I want the IR election system to invalidate ballots that do not rank at least half of the candidates so that the requirement by state election officials is met. |
| Task Description | Create new tests for the addBallot function that takes into consideration the invalidation of ballots and create their respective log files   |
| Test Description | Test that the invalidation of ballots works properly for an even number of candidates   |
| Test ID          | test_444_07_addBallots_11_testAddBallotInvalidationEven   |

| Team Member(s) Responsible | Nikunj Chawla   |
|----------------------------|---|
| Inputs                     | <ol> <li>The number corresponding to the current ballot</li> <li>The string corresponding to a ballot line</li> <li>The identifier associated with the current input source</li> <li>The line number associated with the current ballot line being read</li> </ol>  |
| Tests                      | <ol> <li>Test that a ballot that is correct in format and ranks all of the candidates is added</li> <li>Test that a ballot that is correct in format but ranks the number just under half the number of candidates is not added</li> <li>Test that a ballot that is correct in format but ranks the number just over half the number of candidates is added</li> <li>Test that a ballot that is correct in format but ranks the number equal to half the number of candidates is added</li> </ol> |
| Outputs                    | The aforementioned ballots when used with  addBallot do not throw exceptions, and only the  ballots that rank equal to or over half of the ballots are  added   |
| Result (Pass or Fail)      | Pass  |
| Date                       | 4/25/21   |