| **Project Name: Project 1: Voting System Team#08** | |
| --- | --- |
| **Test Stage: Unit \_x\_ System \_ \_** | **Test Date: 3/23/2023** |
| **Test Case ID#: CPLElection\_10** | **Name(s) of Testers: Dheva Subramaniam** |
| **Test Description:**   * Testing the ReadElection method using the WriteResultsToFile method * This test uses the CPLElectionTest\_TieDuringSeatRedistribution.csv file, which contains an election that results in a party getting more seats than they have candidates to fill them and creates a tie during the process of reallocating those seats |  |
| **Automated: yes\_x\_ no \_\_\_ using Google Test** |  |
| **Results: Pass \_\_\_\_x\_\_\_ Fail\_\_\_\_\_\_\_\_** |  |
|  |  |
| **Preconditions for Test:**  CPLElectionTest\_TieDuringSeatRedistribution.csv must be in the same directory as the testing executable | |

| **Step**  **#** | **Test Step**  **Description** | **Test**  **Data** | **Expected**  **Result** | **Actual**  **Result** | **Notes** |
| --- | --- | --- | --- | --- | --- |
| 1 | Opens CPLElectionTest\_TieDuringSeatRedistribution.csv | CPLElectionTest\_TieDuringSeatRedistribution.csv | ifstream object | ifstream object | N/A |
| 2 | Call ignore() on istream object with inputs 256 and ‘\n’ | int 256, char ‘\n’ | N/A | N/A | First line is being skipped as it is already known what type of election is being read |
| 3 | Create CPLElection object | istream generated by step 2, date string: “05122001” | CPLElection object | CPLElection object | N/A |
| 4 | Call RunElection method on CPLElection object | CPLElection object from step3 | N/A | N/A | CPLElection’s private members should only be interacted with bypublic methods and so do not result in any direct output |
| 5 | Check that CPLElectionTest\_TieDuringSeatRedistribution.csv is closed using is\_open() | istream object | false | false | N/A |
| 6 | Run the WriteResultsToFile | CPLElection object from step 3 | 05122001CPL.txt file | 05122001CPL.txt file | File generated from auditFiler |
| 7 | Open 05122001CPL.txt | 05122001CPL.txt | ifstream object | ifstream object | N/A |
| 8 | Read contents | ifstream object | See below Post Conditions  \*Note, there are two possible options due to randomness so output varies\* | See below Post Conditions  \*Note, there are two possible options due to randomness so output varies\* | Contents are compared using Google Test |

**Post condition(s) for Test:**

05122001CPL.txt file containing auditor information

Expected results for step 8:

CPLElection

Number of Parties: 4

PartyA: A,B

PartyB: C,D

PartyC: E

PartyD: F

Number of seats: 3

Number of ballots: 3

Ballot ID: 1 Ballot Info: 1,,,

Ballot ID: 2 Ballot Info: 1,,,

Ballot ID: 3 Ballot Info: 1,,,

Counting ballots:

Party "PartyA" received ballot number 1

Party "PartyA" received ballot number 2

Party "PartyA" received ballot number 3

Quota determined to be: 1

Party "PartyA" | Seats assigned using quota: 3

Party "PartyB" | Seats assigned using quota: 0

Party "PartyC" | Seats assigned using quota: 0

Party "PartyD" | Seats assigned using quota: 0

Party "PartyA" has 3 seat(s) but only 2 candidate(s)- redistributing 1 seat(s)

Tie during seat reallocation between PartyB PartyC and PartyD

Party "PartyB" given one seat from "PartyA"

Candidates receiving seats:

PartyA: A B

PartyB: C

PartyC: None

PartyD: None

OR

CPLElection

Number of Parties: 4

PartyA: A,B

PartyB: C,D

PartyC: E

PartyD: F

Number of seats: 3

Number of ballots: 3

Ballot ID: 1 Ballot Info: 1,,,

Ballot ID: 2 Ballot Info: 1,,,

Ballot ID: 3 Ballot Info: 1,,,

Counting ballots:

Party "PartyA" received ballot number 1

Party "PartyA" received ballot number 2

Party "PartyA" received ballot number 3

Quota determined to be: 1

Party "PartyA" | Seats assigned using quota: 3

Party "PartyB" | Seats assigned using quota: 0

Party "PartyC" | Seats assigned using quota: 0

Party "PartyD" | Seats assigned using quota: 0

Party "PartyA" has 3 seat(s) but only 2 candidate(s)- redistributing 1 seat(s)

Tie during seat reallocation between PartyB PartyC and PartyD

Party "PartyC" given one seat from \"PartyA\"

Candidates receiving seats:

PartyA: A B

PartyB: None

PartyC: E

PartyD: None

OR

CPLElection

Number of Parties: 4

PartyA: A,B

PartyB: C,D

PartyC: E

PartyD: F

Number of seats: 3

Number of ballots: 3

Ballot ID: 1 Ballot Info: 1,,,

Ballot ID: 2 Ballot Info: 1,,,

Ballot ID: 3 Ballot Info: 1,,,

Counting ballots:

Party "PartyA" received ballot number 1

Party "PartyA" received ballot number 2

Party "PartyA" received ballot number 3

Quota determined to be: 1

Party "PartyA" | Seats assigned using quota: 3

Party "PartyB" | Seats assigned using quota: 0

Party "PartyC" | Seats assigned using quota: 0

Party "PartyD" | Seats assigned using quota: 0

Party "PartyA" has 3 seat(s) but only 2 candidate(s)- redistributing 1 seat(s)

Tie during seat reallocation between PartyB PartyC and PartyD

Party "PartyD" given one seat from \"PartyA\"

Candidates receiving seats:

PartyA: A B

PartyB: None

PartyC: None

PartyD: F

Actual Result for step 8:

CPLElection

Number of Parties: 4

PartyA: A,B

PartyB: C,D

PartyC: E

PartyD: F

Number of seats: 3

Number of ballots: 3

Ballot ID: 1 Ballot Info: 1,,,

Ballot ID: 2 Ballot Info: 1,,,

Ballot ID: 3 Ballot Info: 1,,,

Counting ballots:

Party "PartyA" received ballot number 1

Party "PartyA" received ballot number 2

Party "PartyA" received ballot number 3

Quota determined to be: 1

Party "PartyA" | Seats assigned using quota: 3

Party "PartyB" | Seats assigned using quota: 0

Party "PartyC" | Seats assigned using quota: 0

Party "PartyD" | Seats assigned using quota: 0

Party "PartyA" has 3 seat(s) but only 2 candidate(s)- redistributing 1 seat(s)

Tie during seat reallocation between PartyB PartyC and PartyD

Party "PartyB" given one seat from "PartyA"

Candidates receiving seats:

PartyA: A B

PartyB: C

PartyC: None

PartyD: None

OR

CPLElection

Number of Parties: 4

PartyA: A,B

PartyB: C,D

PartyC: E

PartyD: F

Number of seats: 3

Number of ballots: 3

Ballot ID: 1 Ballot Info: 1,,,

Ballot ID: 2 Ballot Info: 1,,,

Ballot ID: 3 Ballot Info: 1,,,

Counting ballots:

Party "PartyA" received ballot number 1

Party "PartyA" received ballot number 2

Party "PartyA" received ballot number 3

Quota determined to be: 1

Party "PartyA" | Seats assigned using quota: 3

Party "PartyB" | Seats assigned using quota: 0

Party "PartyC" | Seats assigned using quota: 0

Party "PartyD" | Seats assigned using quota: 0

Party "PartyA" has 3 seat(s) but only 2 candidate(s)- redistributing 1 seat(s)

Tie during seat reallocation between PartyB PartyC and PartyD

Party "PartyC" given one seat from \"PartyA\"

Candidates receiving seats:

PartyA: A B

PartyB: None

PartyC: E

PartyD: None

OR

CPLElection

Number of Parties: 4

PartyA: A,B

PartyB: C,D

PartyC: E

PartyD: F

Number of seats: 3

Number of ballots: 3

Ballot ID: 1 Ballot Info: 1,,,

Ballot ID: 2 Ballot Info: 1,,,

Ballot ID: 3 Ballot Info: 1,,,

Counting ballots:

Party "PartyA" received ballot number 1

Party "PartyA" received ballot number 2

Party "PartyA" received ballot number 3

Quota determined to be: 1

Party "PartyA" | Seats assigned using quota: 3

Party "PartyB" | Seats assigned using quota: 0

Party "PartyC" | Seats assigned using quota: 0

Party "PartyD" | Seats assigned using quota: 0

Party "PartyA" has 3 seat(s) but only 2 candidate(s)- redistributing 1 seat(s)

Tie during seat reallocation between PartyB PartyC and PartyD

Party "PartyD" given one seat from \"PartyA\"

Candidates receiving seats:

PartyA: A B

PartyB: None

PartyC: None

PartyD: F