| Bug | Description of Bug | Location of Bug | Steps to Recreate Bug and/or Test Case # | Root Cause Analysis Notes |
| --- | --- | --- | --- | --- |
| B\_001  **FIXED -Ethan. However, might still be an issue if there are more seats than total candidates** | CPL algorithm can fail if too many seats are allocated to a party. E.g. 5 seats are allocated to a party with only 4 candidates. Should only assign 4 seats, but assigns the fifth. Causes an index out of bounds error. | CPLElection class/CPLParty class. Could be implemented in either class. | Run election with input file <testCPL2.csv> | Oversight of this part of the algorithm. |
| B\_002 | File handler (and main) does not handle nonexistent files cleanly. It throws an exception, but should prompt user for another input file, (or q to quit). | Currently implemented in Main, could be implemented in FileHandler | Run election with any non existent file as input | Error checking for nonexistent file could be implemented better. |
| B\_003  **FIXED**  **-Ethan. May not have actually been a problem in the first place, but either way it works as intended now** | Algorithm to break ties isn’t random. Instead it always returns the same number. | Election.java: breakTie() | Run any file that results in a tie multiple times, and observe that the results are the same every time. E.g. run Project1/src/csvTestFiles/TestCPLNoBallots.csv. Should be random as there are no ballots, but is not random. |  |
| B\_004 | Audit file may not be created if the file is too big | IRElection.java: produceAuditFile()  AND  CPLElection.java: produceAuditFile() | Run election with very large input CSV file | To help with readability and efficiency, a helper audit file string is created before writing it to the audit file. If the file is too big, the string cannot hold all the data. |
| B\_005 | CPLElection does not break ties randomly in the second allocation of votes. The same results happen every time for ties in numbers of votes. | CPLElection | Run election with input file testCPLFewerSeats.csv multiple times, will get the same result every time. | The second allocation of votes doesn’t handle ties cleanly. |
| B\_006 | Out of bounds error in addToResults | CPLElection | Run election with input file testCPLAllTie.csv | Too many votes are being allocated in the first and second round of allocations somehow. More than the number of seats available are allocated somehow. |