

Product Backlog

Team 21

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Task Size Definitions

Small: ≤ 2 hours

Medium: 3-4 hours

Large: 5-6 hours

For group 21: 3 group members

$(3 * 8) * 2 = 48$ hours / sprint

$8 * 2 = 16$ hours / sprint / person

List of PBIs:

Ranked

1. CPL remainder round*
2. Date input*
3. Select multiple input files
4. Read multiple IR file headers
5. Read multiple CPL file headers
6. IR summary table

Unranked

- Input multiple files for CLI
- Process PO
- Ties in PO
- PO audit file
- GUI for inputs
- PO data input from CSV
- Compute PO stats
- Display PO results
- File explorer for GUI
- Remove invalid ballots IR
- File for invalid ballots IR

PRODUCT BACKLOG ITEMS FOR NON-BUG

Overview	As an election official I want the ability to process popularity only elections So that I can comply with the secretary of state
Acceptance Criteria	The logic for PO elections works with manually entered data. The PO computes a single winner for non-tied data.
Definition of Done	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Large
PBI Author(s)	Andrew Brevick

Overview	As an election official I want ties in PO elections to be handled fairly So that I can comply with the secretary of state
Acceptance Criteria	When ballot data with ties is entered, a winner is chosen randomly. The system handles multiple (3+ individuals) tying.
Definition of Done	No errors when tied data entered. When tested many times, no bias is present in the random algorithm. Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Andrew Brevick

Overview	As an election official I want an audit file to be generated for PO elections So that I can comply with the secretary of state
Acceptance Criteria	A PO audit file is created that contains all necessary info to rerun the election. The name contains the date and election type. All ballots are recorded according to which candidate received them
Definition of Done	When tested many times, no bias is present in the random algorithm. Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Andrew, Brian, Cuong

Overview	As an election official I want all necessary inputs to be in a GUI So that I can reduce training time
Acceptance Criteria	A GUI is implemented which mirrors the user steps of the CLI. Buttons are fields that are labeled appropriately.
Definition of Done	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Andrew Brevick

Overview	As an election official I want PO data to be input from a file So that I can reduce manual effort
Acceptance Criteria	When a file path is entered, the data is read and correct election results are produced. A CSV file following the given format can be read by the program.
Definition of Done	Multiple CSV input files of various length and content have been tested and passed. Timing requirements pass Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Medium
PBI Author(s)	Andrew Brevick

Overview	As an election official I want the stats of a PO election to be computed So that results can be observed and recorded
Acceptance Criteria	When a PO election is completed, candidates in a PO election have the percentage of votes they received relative to the total computed. Percentages are computed to 3 decimal places (thousandths) Winning candidates are indicated as the winners.
Definition of Done	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated The system accurately calculates the percentage of votes each candidate received from the total to 3 decimal places Winning candidates are registered as such

Effort	Small
PBI Author(s)	Brian Bianchi

Overview	As an election official I want the results of a PO election to be clearly displayed, showing who won and lost and how much they won or lost by So that this information can be readily passed on to the people voting in the election.
Acceptance Criteria	When a PO election is completed, a results screen is shown. This screen should indicate winners and losers. It should also indicate their vote percentages to 3 decimal places.
Definition of Done	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated Results screen functions for PO for both CLI and GUI Results screen for PO election depicts computed PO stats.
Effort	Small
PBI Author(s)	Brian Bianchi

Overview	As an election official I want to be able to select multiple files to compute the results of one election from So that ballot files from multiple polling places can be input
Acceptance Criteria	The program supplies the option to choose multiple files. These files can have different names and be in different places. The user can choose just one file or they can choose several.
Definition of Done	The UI (both GUI and CLI) allow the user to opt to choose more files to input into the system. These file paths get stored in a file path array for access by other parts of the system.

	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Cuong, Andrew, Brian

Overview	As an election official I want to read ballot data from multiple files rather than only one into the system So that we can bring in different files from multiple balloting locations
Acceptance Criteria	The files containing ballots information from more than one balloting location can be imported into the system for tabulating. When multiple file paths are entered manually, the system can read in ballot information from each file.
Definition of Done	The total ballots count are summed from different files, so the total ballots count must not be less than the total ballots count of one file. Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Large
PBI Author(s)	Cuong, Andrew, Brian

Overview	As an election official I want to input header data from multiple IRV election files So that we can bring in different files from multiple balloting locations
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Acceptance Criteria	The files containing ballots information from more than one balloting location can be imported into the system for tabulating. When multiple file paths are entered manually, the system can read in ballot information from each file.
Definition of Done	The total ballots count are summed from different files, so the total ballots count must not be less than the total ballots count of one file. Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Cuong, Andrew, Brian

Overview	As an election official I want to input header data from multiple CPL election files So that we can bring in different files from multiple balloting locations
Acceptance Criteria	The files containing ballots information from more than one balloting location can be imported into the system for tabulating. When multiple file paths are entered manually, the system can read in ballot information from each file.
Definition of Done	The total ballots count are summed from different files, so the total ballots count must not be less than the total ballots count of one file. Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Cuong, Andrew, Brian

Overview	As an election official I want to be able to easily pick and chose election files from around the computer So that I can reduce the amount of technical training I need to give volunteers
Acceptance Criteria	A window appears when starting the software that allows the user to find and select files from the computer
Definition of Done	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated GUI mode has a button by which to open a file explorer selection window Selecting a file gets its file path
Effort	Small
PBI Author(s)	Brian Bianchi

Overview	As an election official I want invalid IRV ballots to be removed So that I can comply with the secretary of state
Acceptance Criteria	When ballot data with less than half the candidates ranked is entered to the IR algorithm, it is not used in the tabulation
Definition of Done	Software compiles without error All unit tests pass All system tests pass All tests are documented All changes are documented in doxygen All changes are documented with in-code documentation All altered files have comment header updated
Effort	Small
PBI Author(s)	Andrew Brevick

Overview	As an election official I want invalid IRV ballots to be stored in a separate audit file So that I can comply with the secretary of state
Acceptance Criteria	A separate audit file for invalid votes is created All ballots that are deemed invalid are recorded in the new audit file.
Definition of Done	All unit tests pass. A file is created that stores the invalidated ballots for audit purposes. The name of the file is invalidated_dateofelection.xxx The separate file contains all invalid ballots.
Effort	Small
PBI Author(s)	Andrew Brevick

Overview	As an election official I want to see an IRV summary table that looks like the Wikipedia format So that I can easily see what happened each round
Acceptance Criteria	A table is shown with IRV round data The display table matches the format of the wikipedia table (excluding write-ins) The table is sized according the the number of rounds in a given election
Definition of Done	A table is generated in proper format with IRV round data All unit tests pass All system test pass Edge cases regarding names and large numbers of data are handled
Effort	Medium
PBI Author(s)	Andrew Brevick

PRODUCT BACKLOG ITEMS FOR BUGS

Overview	As an election official I want the remainder round of the CPL method to be correct So that we don't need to recalculate everything by hand again to ensure the correctness
Acceptance Criteria	The final seats allocation must be intuitively reasonable when we, the election officials, look at the intermediate information (e.g., the remaining votes of

	each party, the current number of seats assigned to each party, the rank of each party, etc.)
Definition of Done	<p>The remaining seats are allocated to each party one by one according to their current rank. If the remaining seats are less than the number of parties that have the same rank, a tie breaker must be performed. If every party has been given a seat and there are still some seats left, the system needs to go back and allocate them from the highest rank to lowest rank rather than giving all to the last visited party.</p> <p>Software compiles without error</p> <p>All unit tests pass</p> <p>All system tests pass</p> <p>All tests are documented</p> <p>All changes are documented in doxygen</p> <p>All changes are documented with in-code documentation</p> <p>All altered files have comment header updated</p>
Effort	Small
PBI Author(s)	Cuong Ha

Overview	<p>As an election official</p> <p>I want to be able to enter the date of the audit file in any format</p> <p>So that we don't need to compromise with just one format and therefore can take that off the training list</p>
Acceptance Criteria	When we, the election officials, enter a date, for example 01.01.2023 or 01/01/2023, we can view and read the content of the audit file with the correct date.
Definition of Done	<p>The system takes in a date in any format and creates an audit file with the date format "MM_DD_YYYY".</p> <p>Software compiles without error</p> <p>All unit tests pass</p> <p>All system tests pass</p> <p>All tests are documented</p> <p>All changes are documented in doxygen</p> <p>All changes are documented with in-code documentation</p> <p>All altered files have comment header updated</p>
Effort	Small
PBI Author(s)	Cuong Ha

