PBI Ranked by importance:

1. OPL & IRV works correctly

As an election official	
I want both IRV and OPL algorithm works correctly in the voting system	
So that I could proceed with the election efficiently by using the voting system	
Acceptance Criteria	1. The test cases could cover all edge cases 2. The output and behaviors of IRV & OPL have been thoroughly tested under these test cases and proved to be right.
Efforts	Medium 4 hours

2. Check and remove invalid ballots from row data.

As an election official	
I need the system to auto-detect invalid ballots,which have at least half of the candidates ranked, from the input data. What's more, a file named "invalidated_dataofelection.xxx" needed to be created to store the invalid ballots.	
So that the election process could works correctly align with our election rules.	
Acceptance Criteria	1. The system need to auto-detect all invalid ballot based on the requirement and then remove before election process 2. All removed invalid ballots need to be saved into file "invalidated_dataofelection.xxx"
Efforts	Medium 4 hours

3. Provide short report file

As an election official	
In addition to the origin audit file, I need the system to provide a printable short report file, which only contains the date, type of election, candidates, number of seats and the winner.	
So that I could print and give the report to the election certification officials	
Acceptance Criteria	1. System need to extract pertinent information according to the report requirements from the origin audit file. 2. All extracted information should match the report requirement and all the information needed to be correct.
Efforts	Small 1 hour

4. Display result table

As an election official	
I want to see a result table(contains number of votes each candidate added/subtracted for each round) on screen for IRV after the voting procedure.	
So that I can see the information of each round of the IR voting.	
Acceptance Criteria	1. The table format should follow the Examples form: en.wikipedia.org/wiki/Instant-runoff-voting 2. All information displayed in the table need to be correct
Efforts	Large 8 hours

5. Efficiently process tons of data

As an election official	
I want the system could deal with a large amount of ballots(like 100000 ballots) in a timely manner.	
So that I can use the program to deal with a large amount of ballots and get the result quickly.	
Acceptance Criteria	1. The system needs to have the ability to load and handle at least 100,000 ballots during running. 2. The total process time for the 100,000 ballots case should no more than 1min.
Efforts	Medium 4 hours

6. Auto detect info and format from CSV

As an election official	
I want the system could auto-detected the ballot type and format(number of candidates ,number of seats, and election type etc.) from the CSV file. And the only thing I need to input is the file name	
So that the system could be much more user friendly and conveniently.	
Acceptance Criteria	1. The system could successfully open the file based on the file name input by user 2. The system could properly and correctly detect the ballot info and format from the file.

Efforts	Small 1 hour

7. Provide two ways to specify filename

As an election official	
I hope the system provides me two ways to specify the input file: input through command line argument and input through a prompt request.	
So that I could choose the most convenient way to input file name	
Acceptance Criteria	1. The program could accept command line as input and get file name from it. 2. If the file name is already specified through command line, the system won't prompt a request for filename. 3. The system would prompt a request for filename, if command line arguments don't include the filename 4. The system could load ballots properly and correctly using that filename
Efforts	Small 3 hours

8. Provide GUI for filename request

As an election official	
When prompt filename request, I would prefer to type into a GUI instead of a command line	
So that the system would look more fancy and user friendly	
Acceptance Criteria	1. The system would prompt a request for filename through a graphic user interface(GUI), if command line arguments don't include the filename. 2. The user could select file or type filename through that GUI to specify the ballots file. 3. The system could load ballots properly and correctly using that filename
Efforts	Small 2 hours

9. Input ballot from GUI

As an election official	
I want to input ballot data on the screen directly into the voting system instead of just load data through file.	
So that I could continually provide new data and see the real-time voting updates	

Acceptance Criteria	1. The system needs to provide a GUI for user to input Ballot 2. Before input ballot, the system need prompt request to user to know the election type, number of candidates and etc. 3. System need allow user to fulfill all related data of a ballot through that GUI 4. The input ballot should be loaded into ballot dataset properly and correctly
Efforts	Medium 4 hours

10. Work on a client machine

As an election official
I prefer the system allows me to input ballot on a client machine and the ballot inputted are automatically transferred to the remote voting system server.
So that we could collect the voting data much more efficiently and see the real-time voting process

Acceptance Criteria	1. The system needs to provide a client version for user to collect data remotely 2. The client need to encode the inputted ballot into a file and automatically transfer that file to server. 3. System need to guarantee every ballot successfully transferred to the remote server without lost any package.
Efforts	Large 8 hours

11. Work on multiple client machines simultaneously

As an election official
I want multiple clients could interact with the main voting system simultaneously and all machines would eventually sending updated voting information to the system without lost any ballot
So that all users could share the updated voting result

Acceptance Criteria	1. The system needs to provide a client version for user to collect data remotely 2. The system needs to have the ability to handle multiple clients' file updates simultaneously without any conflicts.

	3. System need to guarantee every ballot successfully transferred to the remote server without lost any package. 4. System need to guarantee every client will receive update result from remote server without any lost package.
Efforts	Large 8 hours