

Final report



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*Project Title: Election-Voter*

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Link to Presentation:

<https://youtu.be/lIZ-1iOvZ4s>

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# Project Description

This project is meant to create a program which handles the support (or votes) by the voters to candidates in an election. In today’s world, more activities are being executed digitally. An election can be done with the help of a simple program.

# Project Goals and Objectives

## Project Goals

The project goal is to enable election voting to be done quickly and provide good and reliable voting experiences for candidates and voters.

## Project Objectives

The objective of the project is to let voters or candidates to receive vote results without any delays, to let both candidate and voter to easily view candidates’ information, to ensure that the voter can only vote once, to properly save and store information of both voter and candidate and to reduce the workload for election workers.

# Problem Statement

Due to the COVID-19 pandemic, physical voting had become very dangerous and thus unreliable. Apart from that, the operating hours for the voting service department is limited as well as the workers need to have their rest. Voters might not have time to vote due to a variety of reasons which will provide them with more even more reasons not to vote, leading to ineffective voting results. Some voters might try to vote two times for a candidate, which is problematic, if the security services are not good.

# Design Concept

Diagram

Description automatically generated

Figure 1: Flowchart for Candidate Program

Diagram, schematic

Description automatically generated

Figure 2: Flowchart for Voter Program

# Compatibility of Design

## How data is Stored

For both Candidate and Voters data, it will both be stored in a database using SQLite 3. The program will then read the files to write or retrieve data from both candidate and voter side. Candidate and voters’ data are both stored in separate database file, with the naming of candidate.txt and voter.txt.

For Candidates, their name, candidate ID, Party, Division and Vote Count is saved in the database. For Voters, their name, voter ID, Division and Status is saved in the database.

## Code Explanation

### Candidate Program

Text

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Figure 3: Program Description for Candidate Program

Text

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Text

Description automatically generated

Text

Description automatically generated

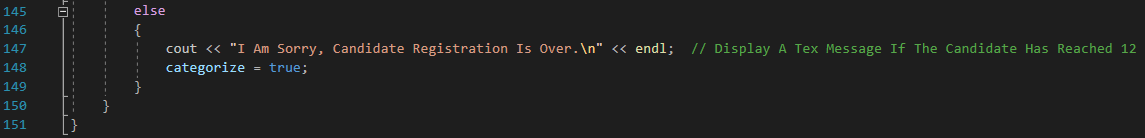


Figure 4: divisioncategorize function

Text

Description automatically generated

Figure 5: viewcandidateinfo function

Text

Description automatically generated

Figure 6: createcandidatedb function

Text

Description automatically generated

Figure 7: createcandidatetable function

Text

Description automatically generated

Text

Description automatically generated

Figure 8: insertdivisiondata function

Text

Description automatically generated

Figure 9: selectcandidatedata function

Text

Description automatically generated

Figure 10: callcandidatedata function

Text

Description automatically generated

Figure 11: usedpartyname function

Text

Description automatically generated

Figure 12: usedcandidateid function

Text

Description automatically generated

Figure 13: divisionsizecheck function

Text

Description automatically generated

Figure 14: partycheck function

Text

Description automatically generated

Figure 15: mainmenu function

A screenshot of a computer

Description automatically generated with medium confidence

Figure 16: mainselectionmenu function

Text

Description automatically generated with medium confidence

Figure 17: main function

### Voter Program

Text

Description automatically generated

Figure 18: Program Description for Voter Program

Text

Description automatically generated

Figure 19: viewcandidaeinfo function

Text

Description automatically generated

Figure 20: VoterDatabase function

Text

Description automatically generated

Figure 21: createcandidatedb function

Text

Description automatically generated

Figure 22: createcandidatetable function

Text

Description automatically generated

Figure 23: createvoterdb function

Text

Description automatically generated

Figure 24:createvotertable function

Text

Description automatically generated

Text

Description automatically generated

Text

Description automatically generated

Figure 25: insertvoterdata function

Text

Description automatically generated

Figure 26: viewallcandidateinfo function

Text

Description automatically generated

Figure 27: selectalldivision function

Text

Description automatically generated

Figure 28: viewdivision function

Text

Description automatically generated

Figure 29: selectbasedondivision function

Text

Description automatically generated

Figure 30: viewparty function

Text

Description automatically generated

Figure 31: selectbasedonparty function

Text

Description automatically generated

Figure 32: selectcandidatadata function

Text

Description automatically generated

Figure 33: selectvoterdata function

Text

Description automatically generated

Text

Description automatically generated

Figure 34: minmaxvotealldivision function

Text

Description automatically generated

Figure 35: maxvotecount function

Text

Description automatically generated

Figure 36: minvotecount function

Text

Description automatically generated

Figure 37: counttotalvote function

Text

Description automatically generated

Figure 38: callcandidatedata function

Text

Description automatically generated

Figure 39: callvoterdata function

A screenshot of a computer

Description automatically generated with medium confidence

Figure 40: callvotedata function

Text

Description automatically generated

Figure 41: usedpartyname function

Text

Description automatically generated

Figure 42: checkvoterstatus function

Text

Description automatically generated

Figure 43: usedcandidateidbasedondivision function

Text

Description automatically generated

Figure 44: usedcandidateid function

Text

Description automatically generated

Figure 45: divisionsizecheck function

Text

Description automatically generated

Figure 46: partycheck function

Text

Description automatically generated

Figure 47: checkvoterdivision function

Text

Description automatically generated

Figure 48: candidaeinfovoteselection function

Text

Description automatically generated

Figure 49: storevoterid function

A screenshot of a computer

Description automatically generated with medium confidence

Figure 50: voterstatusupdate function

A screenshot of a computer

Description automatically generated with medium confidence

Figure 51: votecountupdate function

Text

Description automatically generated

Figure 52: candidatevotebasedonid function

Text

Description automatically generated

Text

Description automatically generated

Figure 53: VoteCandidate function

Text

Description automatically generated

Figure 54: selectcandidatedata function

A screenshot of a computer

Description automatically generated with medium confidence

Figure 55: ViewResultMenu function

Text

Description automatically generated

Text

Description automatically generated

Figure 56: ResultSelectionMenu function

Text

Description automatically generated with medium confidence

Figure 57: ViewingCandidateMenu function

Text

Description automatically generated

Figure 58: VoterMainMenu function

Text

Description automatically generated

Text

Description automatically generated

Text

Description automatically generated

Figure 59:ViewingSelectionMenu function

Text

Description automatically generated

Figure 60: MainSelectionMenu function

A picture containing text

Description automatically generated

Figure 61: main function

## Program Walkthrough

### Candidate Program

Text

Description automatically generated

Figure 62: Main Menu UI For Candidate Program

Text

Description automatically generated

Figure 63: View Candidate UI

Text

Description automatically generated

Text

Description automatically generated

Figure 64: Add Candidate UI

Text

Description automatically generated

Figure 65: Exit Program UI

### Voter Program

Graphical user interface, text

Description automatically generated

Figure 66: Main Menu UI For Voter Program

Text

Description automatically generated

Figure 67: Viewing Candidates Menu UI

Text

Description automatically generated

Figure 68: Viewing Candidates Based on Division UI

Text

Description automatically generated

Figure 69: Viewing Candidate Based on party UI

Text

Description automatically generated

Text

Description automatically generated

Graphical user interface, text

Description automatically generated

Text

Description automatically generated with medium confidence

Figure 70: Register Voter Menu UI

Text

Description automatically generated

Text

Description automatically generated

Figure 71: Vote Menu UI

Text

Description automatically generated

Figure 72: View Voting Results and Summary UI

Text

Description automatically generated

Figure 73: View Voting Results and Summary Based on Division Menu UI

Text

Description automatically generated

Figure 74: Exiting Program UI

## Test Plan

### Candidate Program

#### Main Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | Go To Add Candidate Menu |
| 2 | Shows Candidate Data (Candidate Name, ID, Party, Division and Vote) |
| 3 | Exit the program |

Table 1: Valid Input for Main Menu in Candidate Program

##### Invalid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| Abc (any character) | Error Text show up and prompt user to enter valid input |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |

Table 2: Invalid Input for Main Menu in Candidate Program

#### Add Candidate Menu

##### Valid Input

|  |  |
| --- | --- |
| Input | Expected Result |
| AdamSze  (Any input with only characters and without white space) | Successfully add candidate  Returns to Main Menu |

Table 3: Valid Input for Add Candidate Menu

##### Invalid Input

|  |  |
| --- | --- |
| Inputs | Expected Result |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |
| White space | Error Text show up and prompt user to enter valid input |

Table 4: Invalid Input for Add Candidate Menu

### Voter Program

#### Main Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | Go To View Candidate Menu |
| 2 | Go To Register Voter Menu |
| 3 | Go To Vote Menu |
| 4 | Go To View Voting Results and Summary Menu |
| 5 | Exit the program |

Table 5: Valid Input for Main Menu in Voter Program

##### Invalid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| Abc (any character) | Error Text show up and prompt user to enter valid input |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |

Table 6: Invalid Input for Main Menu in Voter Program

#### View Candidate Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | View All Candidates in All Division |
| 2 | Go To View All Candidates in Specific Division |
| 3 | Go To View All Candidates Based on Party |
| 4 | Return to Main Menu |

Table 7: Valid Input for View Candidate Menu

##### Invalid Input

|  |  |
| --- | --- |
| Inputs | Expected Result |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |
| White space | Error Text show up and prompt user to enter valid input |

Table 8: Invalid Input for View Candidate Menu

#### View Candidate in Specific Division Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | View All Candidates in Division 1 |
| 2 | View All Candidates in Division 2 |
| 3 | View All Candidates in Division 3 |
| 4 | View All Candidates in Division 4 |

Table 7: Valid Input for View Candidate in Specific Division Menu

##### Invalid Input

|  |  |
| --- | --- |
| Inputs | Expected Result |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |
| White space | Error Text show up and prompt user to enter valid input |

Table 8: Invalid Input for View Candidate in Specific Division Menu

#### View Candidate Based on Party Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | View All Candidates in Party Einstein |
| 2 | View All Candidates in Party Tesla |
| 3 | View All Candidates in Party Mozart |

Table 7: Valid Input for View Candidate Based on Party Menu

##### Invalid Input

|  |  |
| --- | --- |
| Inputs | Expected Result |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |
| White space | Error Text show up and prompt user to enter valid input |

Table 8: Invalid Input for View Candidate Based on Party Menu

#### Register Voter Menu

##### Valid Input

|  |  |  |
| --- | --- | --- |
| Inputs | | Expected Result |
| Enter Your First Name: | Max | Successfully Registered as Voter and will return to Main Menu |
| Enter Your Last Name: | Low |
| Enter Your Desired Division: | 4 |
| Enter Your Age: | 21 |
| Enter Your First Name: | Max | Too Young to Register as Voter and will Return to Main Menu |
| Enter Your Last Name: | Low |
| Enter Your Desired Division: | 4 |
| Enter Your Age: | 10 |

Table 7: Valid Input for Register Voter Menu

##### Invalid Input

|  |  |  |
| --- | --- | --- |
| Inputs | | Expected Result |
| Enter Your First Name: | ! @ # (Special Characters)  123 (Integers) | Error text will appear and prompt user to retry |
| Enter Your Last Name: | ! @ # (Special Characters)  123 (Integers) |
| Enter Your Desired Division: | ! @ # (Special Characters)  abc (characters)  123 (Integers that is not 1 to 5) |
| Enter Your Age: | ! @ # (Special Characters)  abc (characters)  123 (Integers that is not 1 to 5) |

Table 8: Invalid Input for Register Voter Menu

#### Vote Menu

##### Valid Input

|  |  |  |
| --- | --- | --- |
| Inputs | | Expected Result |
| Please Enter Your Voter ID: | MaxLow | Show Candidates Info in the same division as the voter |
| Please Enter Your Candidate ID: | EIN03 | Voted for EIN03 and will return to Main Menu  Update Voter Status from “N” to “Y”  Update Candidates Vote Count |

Table 7: Valid Input for Vote Menu

##### Invalid Input

|  |  |  |
| --- | --- | --- |
| Inputs | | Expected Result |
| Please Enter Your Voter ID: | Any Input That Is Not the Same as Voter ID | Error Text Saying Voter ID Does Not Exist and Return to Main Menu |
| Please Enter Your Candidate ID: | Any Input That Is Not the Same as Candidate ID | Error Text Saying Candidate ID Does Not Exist and Return to Main Menu |
| Please Enter Your Voter ID: | MaxLow  (If Voter Already Voted Before) | Show Error Text Saying Voter Already Voted and Return to Main Menu |

Table 8: Invalid Input for Vote Menu

#### View Voting Results and Summary Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | View All Results from All Division |
| 2 | Go To View Results in Specific Division Menu |
| 3 | Return to Main Menu |

Table 7: Valid Input for View Voting Results and Summary Menu

##### Invalid Input

|  |  |
| --- | --- |
| Inputs | Expected Result |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |
| White space | Error Text show up and prompt user to enter valid input |

Table 8: Invalid Input for View Voting Results and Summary Menu

#### View Voting Results and Summary in Specific Division Menu

##### Valid Input

|  |  |
| --- | --- |
| Choices | Expected Result |
| 1 | View Voting Results in Division 1 |
| 2 | View Voting Results in Division 2 |
| 3 | View Voting Results in Division 3 |
| 4 | View Voting Results in Division 4 |

Table 7: Valid Input for View Voting Results and Summary in Specific Division Menu

##### Invalid Input

|  |  |
| --- | --- |
| Inputs | Expected Result |
| 123 (any integer that is not 1 to 5) | Error Text show up and prompt user to enter valid input |
| ! @ # (Special Characters) | Error Text show up and prompt user to enter valid input |
| White space | Error Text show up and prompt user to enter valid input |

Table 8: Invalid Input for View Voting Results and Summary in Specific Division Menu

# Project Outcomes

### Candidate Program

#### Main Menu

User will see three options available. The first option will be to add candidates, the second option will be to view candidates and the third option will be to exit the program.

#### Add Candidate Menu

Users will be able to register as a candidate by inputting their name into the program when prompted. After that, the user will return to the main menu.

#### View Candidate Menu

Users will be shown all the registered candidate’s information such as their name, candidate ID, party, division and vote count.

### Voter Program

#### Main Menu

Users will see 5 options available. The first option will be to view candidates, second option will be to register as a voter, third option will be to vote, fourth option will be to view voting results and summary and the fifth option will be to exit the program.

#### View Candidate Menu

Users will see 4 options. The first option is to view all candidates in all division, the second option is to view all candidate in a specific division. The user will be prompt with an input to choose which division the user would like to view. The third option is to view all candidates based on party. The user will be prompt to choose which party the user would like to view. Lastly the fourth option is to go back to the main menu.

#### Register Voter Menu

Users will be prompt to enter their first name, last name, desired division and age to register as a voter. If the users age is below 19 years old, the user will be returned to the main menu with a text saying that the user is not eligible to be a voter.

#### Vote Menu

Users will be prompt to enter their voter ID, which is their full name. If the voter ID exists, the user will be shown a list of candidates and their information who are in the same division as the voter. To vote, the user will input the candidate ID whom they would want to vote. If their input is valid, the program will show that they have voted for the candidate and return to the main menu. For invalid inputs, the program will display a text saying that the voter ID or Candidate ID does not exists and return back to the main menu. If the user has voted, the program will return to the main menu and display a text saying that the user have voted.

#### View Voting Results and Summary Menu

Users will be shown 3 options. The option will display the candidate who have the maximum and minimum vote by displaying their name, candidate ID, party, vote count, percentage of vote and the total of vote. The first option is to view all candidates in all division. The second option is to view all the candidates based on division where the user is prompt to choose between four options each being Division 1 to Division 4.