ASSIGNMENT-2

Project Brief:

The assignment is about practical application of Tamil Nadu E-system using C language. All of the program's codes were done from the unique ideas of team members and their assumption of the instructions posted in the GCR PDF, and no external E-system code has been referred or used while coding for this program.

Team Members:

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NOTE:-To compile multiple source files (addcandidate.c and votecandidate.c) into single program, we have made respective header files (addcandidate.h and votecandidate.h) to make functions in those source files be available as library functions in those header files. Then those headers are included in the main source file (Assignment 2 E-system Team #Samuela,Merlin.c), and the source files' functions are accessed in the main source file as library functions of respective header files.

Short Explanation of the Program:

When the voting machine is run, it'll first ask to press ENTER key. After pressing it, it'll take the user to welcome screen where 2 menu options will be offered asking if user is a candidate or a voter. If user presses 1, it'll take him/her to candidate module, and if user presses 2, it'll take them to voting module. If some other key is pressed, it'll print error message and show the welcome screen again. The screen will keep getting refreshed/cleared every time user presses a menu option and according to wherever function for clearing screen is applied. The welcome screen offering the above menu options will continue to show up infinite times until the user presses quit button in either candidate module or voting module. All of these are covered in the main source file (Assignment 2 E-system Team #Samuela,Merlin.c) .

Task 1 -Candidate module:

This is made for candidates who are standing/will be standing in the election. It'll offer 3 menu options- Add candidates, View candidates, and Quit. All of these are covered in the source file addcandidate.c

1. When 1 is pressed by user, it'll take them to candidate registration portal. First it'll ask for name of user to check if a candidate with that name already exists in candidate list. If candidate list is not there(empty), it'll create one. If entered name is already in candidate list, it'll say that candidate is already registered and take user back to welcome screen. Suppose entered name is not in candidate list. Then it'll ask user to enter their party name and division number (division number ranges from 1 to 4, and division is basically a constituency). No two candidates belonging to the same party can stand in the same division, and the program will check accordingly. If details entered by user is such that he/she is

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trying to stand in the same division where someone else from their same party is already standing, it'll print according error message and will take user back to welcome screen. If no such situation occurs and all the details entered by the user adhere to the rules, it'll generate candidate ID for the newly registered candidate and the details will be stored in the candidate list. Candidate ID is made by taking the first 3 letters of that person's party name, converting those 3 letters to uppercase, and attaching a two digit randomly generated number at the end of those 3 letters. Candidate vote count will be set to zero by default. After registering candidates, it'll print message that candidate has registered successfully and will take user back to welcome screen.

2. When 2 is pressed by user, it'll take them to candidate list portal and display full candidate list and show details like candidate name, ID, party, and division. Candidate votes won't be shown as we have assumed that election hasn't started yet (anyway, I merely followed PDF instructions).

3. When 3 is pressed, it'll print message "good luck for election. Goodbye" and then end the whole program. If any key other than 1,2, or 3 is pressed, it'll print error message and take user back to welcome screen.

Task 2 -Voting module:

This is for the public. It offers 5 menu options- View candidates, Register voter, Vote, View voting results and summary, and Quit. All of these are covered in the source file votecandidate.c

1. When user presses 1, it'll take user to view candidate list portal where 3 menu options will be given- view full candidate list, view division-wise candidate list, and view party-wise candidate list, and the user has to press 1,2, or 3 respectively. When user
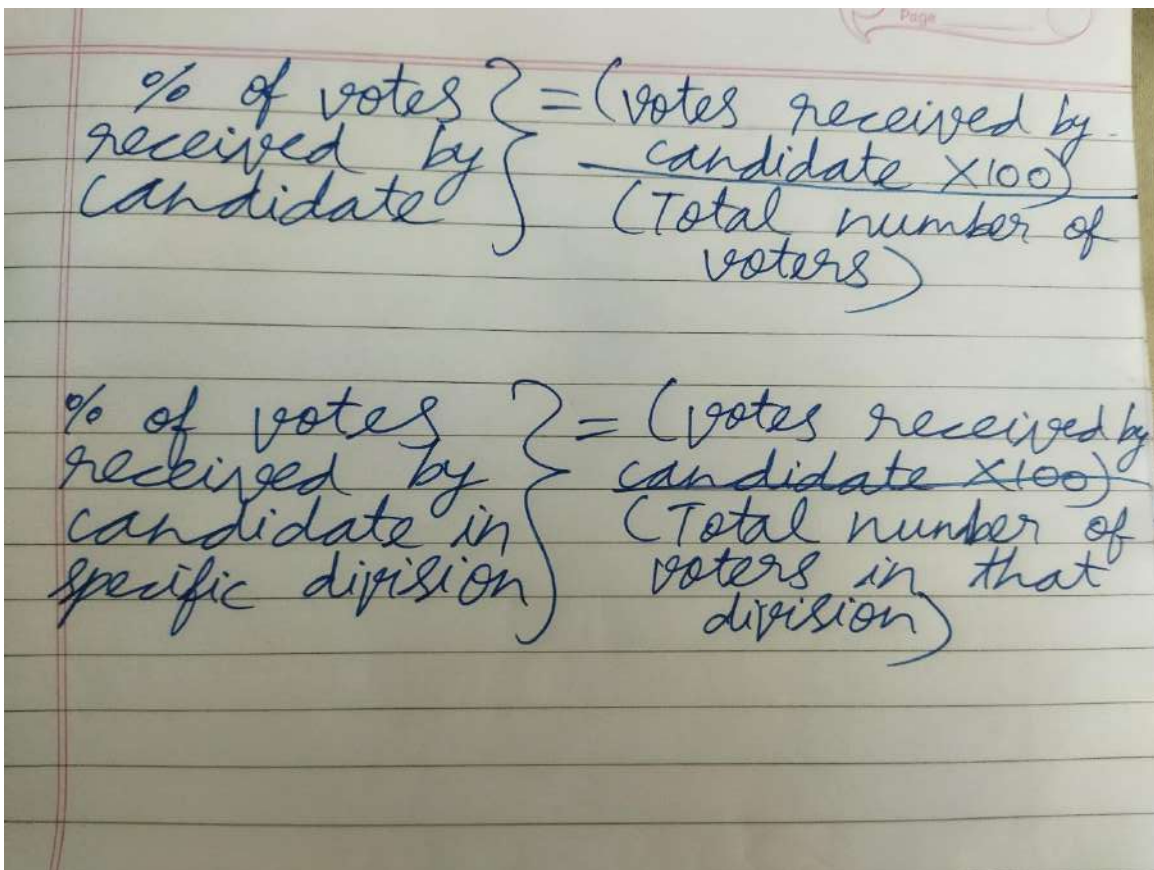
views full list, details of all candidates will be shown where their name, ID, party, division and vote count will be displayed. When user views division-wise list, the program will ask user to enter division number and it'll display details of candidates in those division. If candidate enters wrong division number, it'll print error message and show welcome screen again. When user views party-wise list, it'll ask user to enter party name. If no such party is found in candidate list, it'll say "party not found". If party is found, it'll print list of all candidates belonging to that party. If some other button is pressed, it'll print error message and show welcome screen.

2. When user presses 2, it'll take to voter registration portal. First it'll ask user to enter name, and if name is already present in voter list, it'll say voter is already registered and show welcome screen again. If voter list is empty, it'll create one. If user is not a registered voter, it'll ask for age and division. If age is less than 18 or if entered division number is invalid, it'll print appropriate error message and show welcome screen again. If all entered details are valid, it'll proceed to generate voter ID and store all details in voter list and asks voter to remember their ID while displaying their voter ID. Voter status is set to "N" by default (means voter hasn't voted yet). Voter ID is generated by removing all whitespaces in the voter's name. If no whitespace characters are found in name, it'll attach @EVM# at end of voter name and that is their voter ID. Example- if voter name is Sam, then their voter ID is Sam@EVM# .If voter name is Sam Abi, voter ID will be SamAbi .

3. When user presses 3, it'll take to voting portal. Only a registered voter can vote, and they can vote only once. It'll ask user to enter their voter ID, and it'll check if voter is registered voter by checking if someone with that ID exists in voter list and if it exists, it'll further check if their voting status is "N". If those conditions aren't satisfied, it'll print appropriate error message

and welcome screen will be displayed. If those conditions are satisfied, it'll show candidates' details from voter's division and ask voter to enter name of candidate they want to vote (we are not asking voter to enter ID of candidate they want to vote because there are chances that candidate ID may not be unique). If voter tries to vote for a candidate in another division by entering a candidate name who's standing in a different division, it'll print error message and display welcome screen. The same goes for the situation where voter enters incorrect name of candidate etc. If voter enters name of candidate in his/her division as displayed in the list shown to them, voting status of voter will be changed to "Y" (means they have already voted and can't vote again), and vote count of that candidate will be increased by 1. Both voter list and candidate list will be updated accordingly.

4. When user presses 4, it'll take to voting results and summary portal. It'll display 2 menu options- view voting results of all candidates, and view voting results of candidates in a specific division, for which user has to press 1 or 2 respectively. When 1 is pressed, it'll show number of candidates, number of total votes received, and number of eligible voters. It'll also display details of candidates who got highest and lowest votes in each division along with their full details, and full result list will also be displayed having details like candidate name, ID, party, division, votes received, and percentage of votes received. If user presses 2, it'll ask user to enter division number, and will display voting results and summary similar to above one, but only for that specific division entered by user. If wrong division number is entered, it'll print according error message and welcome screen will be displayed. If invalid buttons are pressed, it'll show error message and take to welcome screen.

NOTE:- *To calculate percentage of votes received, we have used the below formula based on our assumption that even though not all voters will vote, they too should be considered since they are legitimate voters. So for denominator we are putting total number of voters (since all voters are legitimate, total votes will be considered as equal to total number of voters even if all voters don't vote) instead of total number of votes currently received in the election (in Google, the latter one only is used, but we've used the former one due to our assumptions and varied perspective).*

$$\text{\% of votes received by candidate} = \frac{(\text{votes received by candidate} \times 100)}{(\text{Total number of voters})}$$

$$\text{\% of votes received by candidate in specific division} = \frac{(\text{votes received by candidate} \times 100)}{(\text{Total number of voters in that division})}$$

5. When user presses 5, it'll print "Thank you for visiting. Goodbye!", and the whole program will end. If some other

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invalid button is pressed, it'll print error message and display welcome screen.

Unique Features of the Program:

- The program will always display real date and time at the top-right corner of the command window.
- All the displayed text will be in different colors to make it look good and easy to read.
- The screen will be cleared automatically when pressing different menu options to make it easy for user to use the E-System machine.
- While registering as voter, if voter's name has no whitespace characters, the unique way at attaching @EVM# at end of voter's name will be implemented to generate voter ID.
- Appropriate validations are done throughout the entire program, and error message is also printed accordingly.
- The program will keep running without crashing, and quit option is given for user to exit program any time.

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Identification of Variables, Constants, and Functions:

Variables/ Constants/ Functions	Identification
struct voters	It is used for registration of voters in register_voter() function, and is a global declaration(although declaring it locally inside register_voter() function is also fine). It is used inside votecandidate.c source file. It's members are- 1. voter_id which is a character array used for storing the voter's ID in the form of string. 2. voter_name which is a character array used for storing the voter's name in the form of string. 3. status which is a character datatype member used for storing the status of voter (i.e) whether the voter has voted or not. In register_voter() function, status will be set to N (means not voted) by default. 4. voter_div is an integer datatype member used for storing division number of voter. 5. age is an integer datatype

	member used for storing the age of voter. Finally, voter is a variable of struct voters used for getting voter information during voter registration.
red(), yellow(), green(), blue(), purple(), cyan()	These are void type functions used to get colored text in red, yellow, green, blue, purple, and cyan color respectively.
screen_clear()	It is a void type function used for clearing screen using system("cls") in TurboC compilers. To clear screen in GCC/G++ compilers, use system("clear") instead.
real_clock()	It is a void type function used for displaying real/actual date and time.
full_candidate_list()	It is a void type function used for displaying full candidate list in votecandidate.c source file.
div_list()	It is a void type function used for displaying division-wise candidate list in votecandidate.c source file.
div_flag	It is an integer datatype variable used in div_list() and div_result()

	functions and is used to check whether division number entered by user is correct or not. It's initialized to 1, and if entered value of division is from 1 to 4, it'll be reset to 0. If it remains set to 1, it'll print error message.
division	It is a character datatype array used for storing the input division number by user in the form of string in a few functions throughout the entire program.
line	It is a character datatype array usually used in many functions of the program to store line of respective text file in the form of a string, one at a time.
buf, buffer	They are character datatype arrays usually used in many functions of votecandidate.c and addcandidate.c respectively to store the line in respective text file till ; is encountered in the form of a string, one at a time.
token, value	They are character datatype pointers usually used in many functions of votecandidate.c and addcandidate.c respectively to store a particular part of the line in respective text file broken by

	strtok() function in the form of a string, one at a time.
struct Candidate	It is usually used in many functions of votecandidate.c to store candidate details after getting them from respective text files. It's members are- 1. Cand_id which is a character array used for storing the candidate's ID in the form of string. 2. Cand_name which is a character array used for storing the candidate's name in the form of string. 3. Cand_par which is a character datatype member used for storing the party name of candidate. 4. Cand_div is an integer datatype member used for storing division number of candidate. 5. Cand_count is an integer datatype member used for storing the number of votes received by that candidate. 6. Cand_per is a float datatype member used for storing the percentage of

	votes received by that candidate. Finally, Cand is an array of structures used for storing all candidates' information during.
par_list()	It is a void type function used for displaying party-wise candidate list in votecandidate.c source file.
par_flag	It is an integer datatype variable used in par_list() function and is used to check whether party name entered by user exists or not. It's initialized to 1, and if entered party name is found in the candidate list text file, it'll be reset to 0. If it remains set to 1, it'll print error message.
party	It is a character datatype array used for storing the input party name by user in par_list() function.
view_candidates()	It is a void type function in votecandidate.c which offers the menu to choose to view list of all candidates and list of candidates in a particular division and party.
register_voter()	It is a void type function in votecandidate.c through which a

	voter is allowed to register for voting. It'll collect voter details, check if the person is eligible to become a voter, and after verifying he/she is eligible to register as voter, it'll store their details in voter table (list of voters text file) and generate their unique voter ID using which they can vote in the future. If voter is not eligible to vote, it'll print appropriate error message.
dup_flag	It is an integer datatype variable used in register_voter() and add_cand() functions, and is used to check whether the name entered by user exists or not (i.e) if the person is already a registered voter/registered candidate. It's initialized to 0, and if entered name is found in the voter list/candidate list text file, it'll be reset to 1 and it'll print error message.
no_space_flag	It is an integer datatype variable used in register_voter() function, and is used to check whether the name entered by user has space or not. It's initialized to 1, and if entered name is found to have space, it'll be reset to 0. If it remains set to

	1, while generating unique voter ID it'll signal the program to concatenate another string which is @EVM# stored in character array called str at the end of the inputted name, and that will be the voter ID of that person.
voting()	It is a void type function in votecandidate.c which allows registered voters to vote once through their voting ID for any candidate in their division. It'll do appropriate validations and print error messages if candidate is not registered voter/ has already voted/ doesn't enter correct name of candidate he/she wants to vote.
i,j,k	These are integer datatype variables mostly used for iteration in looping statements throughout the entire program.
id	It is a character datatype array used for storing the input voter ID in voting() function. It is used to check if the input voter ID is in the voter list or not i.e. if the voter is a registered voter or not.
name	It is a character datatype array

	used for storing the input candidate name to whom the voter wishes to vote in voting() function. It is used to check if the input candidate name is valid or not.
vote_flag	It is an integer datatype variable used in voting() function. It is initialized to 1, and is used to check if the voter is eligible to vote. If voter's status is "N" and their ID is also found in list, vote_flag is reset to 0. Otherwise it'll remain as 1 and will not allow user to vote.
voter_is	It is an integer datatype variable used in voting() function. It is used to store position of voter in voter list so that it can used to change status of voter from "N" to "Y" in the list later on after they have successfully voted.
val	It is an integer datatype variable used in voting() function. It is used to increment the vote count of candidate (since Cand[i].Cand_count will be in the form of a string) to whom the voter has given their vote to.
voted	It is an integer datatype variable used in voting() function. It is

	initialized to 0, and is used to check if voter has successfully voted or not. If voter has successfully voted, it'll be reset to 1. If it remains set to 0, then voter has not voted successfully due to not adhering to voting rules, and their status will remain as "N".
voting_result()	It is a void type function in votecandidate.c which allows the user to view voting results and summary and shows 2 menu options. If user wants to view results of all candidates (menu option 1), it'll call full_result() function. If user wants to view election results in a specific division(menu option 2), it'll call div_result() function.
full_result()	It is a void type function in voting_result() function which allows the user to view voting results and summary of all candidates.
total_cand	It is an integer datatype variable initialized to 0 and used in full_result() function, and is used to store the value of total number of candidates in candidate list.

total_voter	It is an integer datatype variable used in full_result() function, and is initialized to 0. It is used to store the value of total number of voters in voter list.
total_votes	It is an integer datatype variable used in full_result() and div_result() functions, and is initialized to 0. It is used to store the value of total number of votes received by all candidates in candidate list.
highest1, highest2, highest3, highest4	These are integer datatype variables used in full_result() function, and are initialized to -1 .They are used to compare and check which candidate has the highest number of votes in division 1,2,3 and 4 respectively.
lowest1, lowest2, lowest3, lowest4	These are integer datatype variables used in full_result() function, and are initialized to 1. They are used to compare and check which candidate has the lowest number of votes in division 1,2,3 and 4 respectively.
struct winner	It is used for storing details of candidate who gets the highest number of votes in full_result() and div_result() functions. It's members are similar to struct

	Candidate. Variables declared using struct winner datatype are win1, win2, win3, win4, and win.
struct last	It is used for storing details of candidate who gets the lowest number of votes in full_result() and div_result() functions. It's members are similar to struct Candidate. Variables declared using struct last datatype are loss1, loss2, loss3, loss4, and loss.
struct Voter	It is similar to struct voters, but is used locally inside many functions of votecandidate.c source file. It's members are V_id, V_name, V_age, V_div, and V_status, and the array containing these structures is V. This is actually a shorter form of struct voters in terms of members' and variable's names since the names of members and variables are much lengthier compared to those in struct Voter. We haven't replaced struct voters with struct Voter for the sake of clarity since struct voters can be easily understood because of the detailed names given to it's members and variables.

div_result()	It is a void type function in voting_result() function which allows the user to view voting results and summary of candidates in a specific division after user inputs division number in command window.
total_cand_div	It is an integer datatype variable initialized to 0 and used in div_result() function, and is used to store the value of total number of candidates in candidate list from the division entered by user.
total_voter_div	It is an integer datatype variable used in div_result() function, and is initialized to 0. It is used to store the value of total number of voters in voter list from the particular division inputted by the user.
highest, lowest	These are integer datatype variables used in div_result() function, and are initialized to -1 and 1 respectively. They are used to compare and check which candidate got the highest and lowest votes respectively in the division inputted by user.
voter_menu()	It is a void type function in votecandidate.c which will be

	called in the main source file, and all other functions of votecandidate.c will be executed through this function only.
option	It is an integer datatype variable usually used throughout the program to get input on which menu option the user has chosen.
add_cand()	It is a void type function in addcandidate.c , and is used for registration of candidates.
num, upper, lower, random	All of these are used in generation of random number during creation of candidate ID in add_cand() function. num, upper, and lower are integer datatype variables, and random is a character array. While generating random number, lower and upper are used to assign lower and upper limits respectively of the range within which the random number is generated. Here, lower and upper are initialized to 10 and 99 respectively. The generated random number is assigned to num, and it's value is copied to random as a string through sprintf() library function.
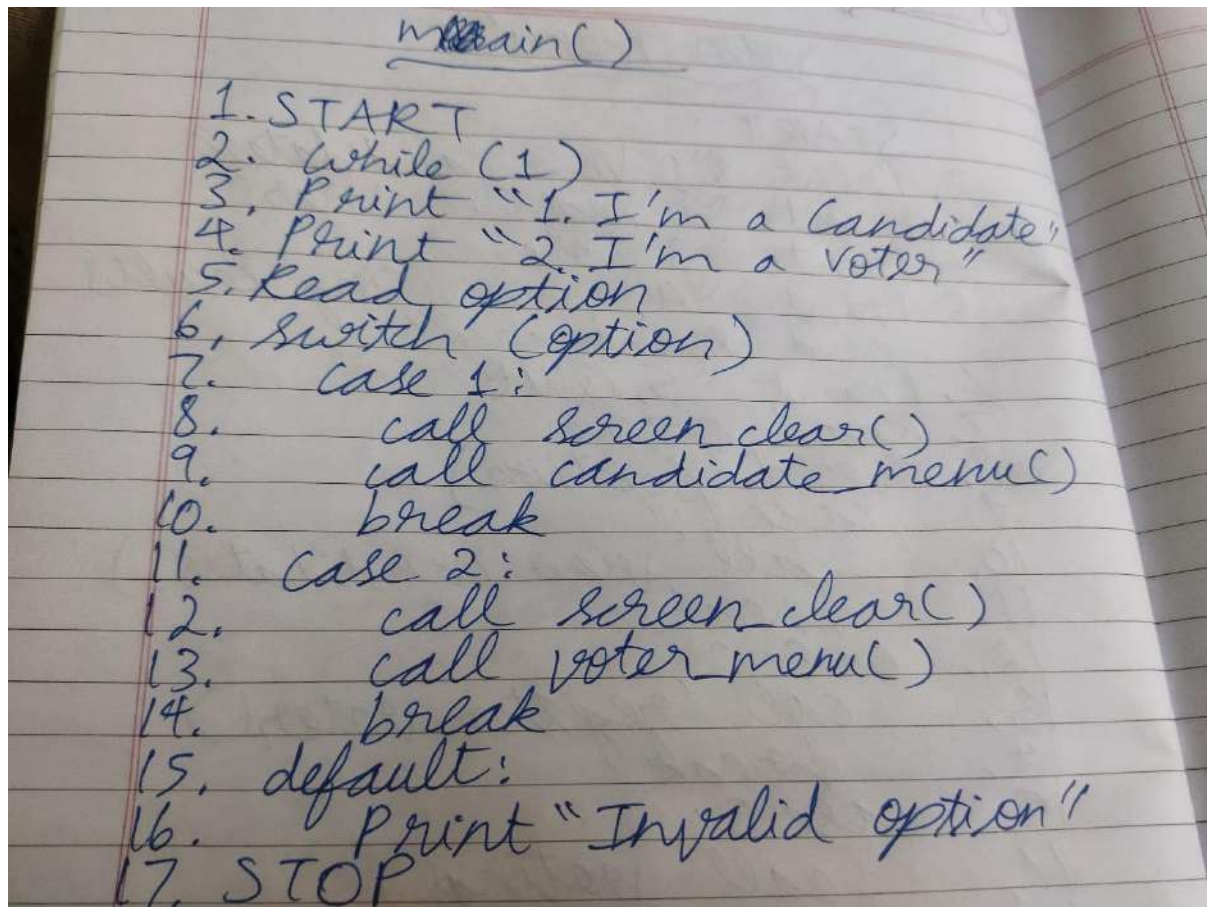
view_cand()	It is a void type function used in addcandidate.c to view full candidate list.
candidate_menu()	It is a void type function used in addcandidate.c through which all other functions of addcandidate.c are executed, and this is the function that'll be called into the main source file to execute the functions in addcandidate.c source file.
temp	It is a character datatype array used in some places of the program to temporarily copy some string into itself.
nope	It is an integer datatype variable which is initialized to 0, and used in add_cand() function to check if someone from the same party as the registering candidate is already standing in the same division as that candidate. If this is true, nope is reset to 1 and it'll not allow registration of that candidate.

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Peer Assessment:

Name	Task done
Merlin Might V S	addcandidate.c file, addcandidate.h file, red() function, blue() function, green() function, yellow() function, purple() function, cyan() function
Samuela Abigail Mathew	Compiling all codes into single program, Assignment 2 E-system Team #Samuela,Merlin.c file, votecandidate.c file, votecandidate.h file, real_clock() function, screen_clear() function, generation of unique candidate ID in addcandidate.c file, performing validation to see if candidates from the same party are standing in the same division in addcandidate.c file

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Pseudo Code Algorithm:

```
main()
1. START
2. While (1)
3. Print "1. I'm a Candidate"
4. Print "2. I'm a Voter"
5. Read option
6. Switch (option)
7.     case 1:
8.         call screen_clear()
9.         call candidate_menu()
10.        break
11.    case 2:
12.        call screen_clear()
13.        call voter_menu()
14.        break
15.    default:
16.        Print "Invalid option"
17. STOP
```

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For task 1:-

For viewing full candidate list

full_candidate_list ()

1. START
2. If fptr ← fopen ("candidate_list.txt" ← NULL
3. Print "candidate list is empty"
4. Print ("\n CANDIDATE ID \t \t NAME \t \t \t PARTY NAME \t \t DIVISION \t VOTES\n")
5. while fgets (line, sizeof (line), fptr)
6. If fscanf (fptr "%[^.]s", buf)
7. token ← strtok (buf, "|")
8. If feof (fptr)
9. break
10. while token != NULL
11. strcpy (cand [i]. cand_name, token)
12. token ← strtok (NULL, "|")
13. strcpy (cand [i]. cand_par, token)
14. token ← strtok (cand[i] cand_id, token)
15. token = strtok (NULL, "|")
16. cand [i]. cand_div ← token
17. token ← strtok (NULL, "|")
18. cand [i]. cand_count ← token
19. token ← strtok (NULL, "|")
20. Print cand [i]. cand_id, cand[i]. cand_name, cand[i]. cand_par, cand[i]. cand_div, cand[i]. cand_count
21. i++
22. fclose (fptr)
23. STOP

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Candidate registration

```
void add_cand() function
START
Declare char temp[5] = " ", random[3], line[500]
Declare char buffer[1024]
Initialize int dup_flag = 0, nope = 0, i = 0, j, k, num,
upper = 99, lower = 10
Struct candidate
        char id[45]
        char name[45]
        char par[45]
        int div
        int count
        c[100]
File pointer fp = fopen ("candidate_list.txt", "r")
If fp equal to Null
    fp = fopen ("candidate_list.txt", "w")

Green() function
Print Enter Candidate name
getchar()
Read name
For k equal to 1, k less than 2, increment of k
while fgets (buffer, 1024, fp)
    char pointer ptr = strstr (buffer, name)
    If ptr not equal to null
        dup_flag equal to 1
        break
    If dup-flag
```

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```
red() function
    Print ~~please~~ ~~enter~~ Already registered as candidate!
    break

Print Enter candidate party name
getchar()
Read party
Print Enter division number (1-4)
Read division
If division greater than 4 or division less than 1
    red() function
    Print please enter correct division number
    break
rewind (fp)
while (fgets (line, sizeof (line), fp)
    If value = strtok & buffer "I"
    If feof (fp)
        break
```

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while

value not equal to null

string copy name , value of name

value= ~~equal~~ strtok of null, I

string copy value of par

value = strtok of null, I

string copy value of Id

value = strtok of null, I

c[i].div = value

value = strtok of null, I

c[i].count = value

value = strtok of null, I

If atoi c[i].div equal to division and string

compare party c[j].par equal to 0

nope equal to 1

break

increment of i

If nope

red () function

Print Only 1 candidate from a party can

stand in a division

break

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for j equal to 0, j less than 3, increment of j

    If party j is in lowercase

        temp[j] = party[j] - 32

    else

        temp[j] = party[j]

srand (time(0))

Num = (rand() % (upper - lower + 1)) + lower;

String print in file copy integer to string
Concatenating temp with random to get alphanumeric
                             candidate ID

Print your candidate ID is

purple() function
print candidate id

file close fp

fp = f open ("candidate_list.txt", "a")

initialize count equal to 0

Read In file name, party, candidate id, division,
                                      count

yellow() function

Print candidate registered successfully!

file close fp

END.

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Candidate menu function

Void candidate_menu () function

START

Declare integer option

blue() function

Print Welcome to Tamilnadu state Electoral Commission E-system

real_clock() function (calling to display time)

cyan() function

Print t1. Add candidate

Print t2. View candidate

Print t3. Quit

Print Please select a choice

yellow() function

Print Enter your choice

Read Option

Switch case based on Option

Case 1

   add_cand()

   break

Case 2

   View_cand()

   break

Case 3

   green() function

   Print Good luck for the election. Goodbye

   exit(0)

   break

Default

   red() function

   Print Invalid selection, Please try again

END

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For task 2:-

full_candidate_list()

```
1. START
2. If fptr ← fopen ("candidate list.txt)
       ← NULL
3.     Print "candidate list is empty"
4. Print ("\n CANDIDATE ID \t \t
   NAME \t \t \t PARTY NAME \t \t DIVISION
   \t VOTES \n")
5. while fgets (line, sizeof (line), fptr)
6.     If fscanf (fptr, "%[^;]s", buf)
7.         token ← strtok (buf, "|")
8.     If feof (fptr)
9.         break
10.    while token != NULL
11.        strcpy (cand [i]. cand_name,
           token)
12.        token ← strtok (NULL, "|")
13.        strcpy (cand [i]. cand_par, token)
14.        token ← strtok (cand [i] cand_id,
           token)
15.        token = strtok (NULL, "|")
16.        cand [i]. cand_div ← token
17.        token ← strtok (NULL, "|")
18.        cand [i]. cand_count ← token
19.        token ← strtok (NULL, "|")
20.        Print cand [i]. cand_id,
       cand [i]. cand_name, cand [i]. cand_par
       , cand [i]. cand_div, cand [i]. cand_count
21. i++
22. fclose (fptr)
23. STOP
```

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```
1. START
2. If fptr ← fopen("candidate_list.txt")
    ← NULL
3.    Print "Candidate list is empty"
4. Read division
5. while fgets(line, sizeof(line), fptr)
6.    If fscanf(fptr, "%[^\n]s", buf)
7.      token ← strtok(buf, "|")
8.    If feof(fptr)
9.      break
10.   while token != NULL
11.     strcpy(cand[i].cand_name, token)
12.     token ← strtok(NULL, "|")
13.     strcpy(cand[i].cand_par, token)
14.     token ← strtok(cand[i].cand_id, token)
15.     token = strtok(NULL, "|")
16.     cand[i].cand_div ← token
17.     token ← strtok(NULL, "|")
18.     cand[i].cand_count ← token
19.     token ← strtok(NULL, "|")
20.   If strcmp(cand[i].cand_div, division) ← 0
21.     div_flag ← 0
22.       print cand[i].cand_id,
        cand[i].cand_name, cand[i].cand_
        , cand[i].cand_count
22.   i++
23.   If div_flag ← 1
24.     Print "Enter correct division
      number"
```

par-list()

1. START
2. If fptr ← fopen ("candidate list"
   ← NULL
3. Print "candidate list is empty"
4. Read party
5. while fgets (line, sizeof (line), fptr)
6. If fscanf (fptr, "%[^;]s", buf)
7. token ← strtok (buf, "|")
8. If feof(fptr)
9. break
10. while token != NULL
11. strcpy (cand[i].cand_name, token)
12. token ← strtok (NULL, "|")
13. strcpy (cand[i].cand_par, token)
14. token ← strtok (cand[i].cand_id, token)
15. token = strtok (NULL, "|")
16. cand[i].cand_div ← token
17. token ← strtok (NULL, "|")
18. cand[i].cand_count ← token
19. token ← strtok (NULL, "|")
20. If strcmp(cand[i].cand_par, party) ← 0
21. par_flag ← 0
22. Print cand[i].cand_id, cand[i].cand_name, cand[i].cand_div, cand[i].cand_count
23. i++
24. If par_flag ← 1
25. Print "party not found"
26. fclose(fptr)
27. STOP

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view_candidates()

```
1. START
2. Print ("\t1. View all candidates\n")
3. Print ("\t2. View candidates by
   division\n")
4. Print ("\t3. View candidates by
   party\n")
5. Read option
6. Switch (option)
7. case 1:
8.      call screen_clear()
9.      call full_candidate_list()
10.     break
11. case 2:
12.     call screen_clear()
13.     call div_list()
14.     break
15. case 3:
16.     call screen_clear()
17.     call par_list()
18.     break
19. default:
20.     Print ("Invalid choice")
21. STOP
```

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register_voter()

```
1. START
2. for k ← 1 to 2 do
3. Read voter.voter_name
4. file ← fopen ("voter_list.txt", "r")
5.     If file ← NULL
6.         file ← fopen ("voter_list.txt", "w")
7. while fgets (line, sizeof(line), file)
       != NULL
8.         ptr ← strstr (line, voter.voter_name)
9.         If ptr != NULL
10.            dup_flag ← 1
11.            break
12. fclose (file)
13. If dup_flag ← 1
14.     Print "Already registered"
15.     break
16. Read voter.age
17.     If voter.age < 18
18.         print "Not eligible"
19.         break
20. Read voter.voter_div
21.     If voter.voter_div < 1 OR
    voter.voter_div > 4
22.         Print "Invalid division"
23. len ← strlen (voter.voter_name)
24. strcpy (temp, voter.voter_name)
25. for i ← 0, j ← 0 to len do
26.     If temp[i] ← ' ' AND
    temp[i] != NULL
27.         for j ← i to len do
28.             temp[j] ← temp[j+1]
29. end for j ← len
30.     len --
```

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```
31.    no_space_flag = 0
32. end for i ← len
33. temp[j] ← '\0'
34. If no_space_flag ← 1
35.       strcpy (temp, voter. voter_i
36.       strcat (temp, str)
37.       strcpy (voter. voter_id, temp)
38. Else
39.       strcpy (voter. voter_id, temp)
40. Print voter. voter_id
41. voter. status ← 'N'
42. fptr ← fopen ("voter_list.txt", "a
43.     If fptr ← NULL
44.         print "No voters yet"
45.     fprintf (fptr, "\n %s| %s| %d |%d
      |%c;", voter. voter_name,
   voter. voter_id, voter.age, voter.voter_di
      , voter. status)
46. fclose (fptr)
47. end for k ← 2
48. STOP
```

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Voting function

```
voting()

1. START
2. Read id
3. file ← fopen ("voter_list.txt", "r")
4. If file ← NULL
5.     print "No voters yet"
6. for k ← 1 to 2 do
7. while (fgets (line, sizeof (line), file)
8.     If fscanf (file, "%[^:]s", buf)
9.         token ← strtok (buf, "|")
10.    If feof (file)
11.        break
12.    while token != NULL
13.        strcpy (V[i].V_name, token)
14.        token ← strtok (NULL, "|")
15.        strcpy (V[i].V_id, token)
16.        token ← strtok (NULL, "|")
17.        V[i].V_age = token
18.        token ← strtok (NULL, "|")
19.        V[i].V_div = token
20.        token ← strtok (NULL, "|")
21.        V[i].V_status = token
22.        token ← strtok (NULL, "|")
23.        If strcmp (V[i].V_id, id ← 0
           AND strcmp (V[i].V_status, "N")
           ← 0
24.            vote_flag ← 0
25.            voter_is ← i
26.            strcpy (division, V[i].V_div)
27.        i++
28.    If vote_flag ← 1
29.        print "You can't vote"
30. fptr ← fopen ("candidate_list.txt", "r")
```

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```
31. If fptr ← NULL
32.     Print "Candidate list is empty"
33. If fp ← fopen ("temp_cand.txt")
        ← NULL
34.     Print "Error"
35. If FP ← fopen ("temp_voter.txt")
        ← NULL
36.     Print "Error"
37. while fgets (line, sizeof(line), fp)
38.     If fscanf (fptr, "%[^:]" &...)
39.         token ← strtok (buf, "|")
40.     If feof (fptr)
41.         break
42.     while token != NULL
43.         strcpy (cand[j].cand_name, token)
44.         token ← strtok (NULL, "|")
45.         strcpy (cand[j].cand_par, token)
46.         token ← strtok (NULL, "|")
47.         strcpy (cand[j].cand_id, token)
48.         token ← strtok (NULL, "|")
49.         cand[j].cand_div ← token
50.         token ← strtok (NULL, "|")
51.         cand[j].cand_count ← token
52.         token ← strtok (NULL, "|")
53.         If strcmp (division, cand[j].cand_div) ← 0
54.             Print cand[j].cand_id, cand[j].cand_name, cand[j].cand_par, cand[j].cand_count
55.         j++
```

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```
56.  Read name
57.  rewind (file)
58.  rewind (fptr)
59.  i ← 0   j ← 0
60.  while (fgets (line, sizeof (line),
     fptr)
61.     If fscanf (fptr, "%[^,]s" buf)
62.        token ← strtok (buf, "|")
63.     If feof (fptr)
64.        break
65.     while token != NULL
66.        strcpy (cand [j].cand_name,
        token)
67.        token ← strtok (NULL, "|")
68.        strcpy (cand [j].Cand_par
        token)
69.        token ← strtok (NULL, "|")
70.        strcpy (cand [j].Cand_par,
        token)
71.        token ← strtok (NULL, "|")
72.        Cand [j].Cand_div = token
73.        token ← strtok (NULL, "|")
74.        Cand [j].Cand_count = token
75.        token ← strtok (NULL, "|")
76.     If j ← 0
77.        fprintf (fp, "\n")
78.     If strcmp (name, Cand[j].cand
        ← 0 AND strcmp (division,
        Cand[j].Cand_div) ← 0
79.        val ← atoi (Cand[j].Cand_count
80.        val ++
81.        voted ← 1
82.        fprintf (fp, "%s|%s|%s|%s|
        %d.\n", Cand[j].Cand_name,
        Cand[j].Cand_par, Cand[j].Cand
```

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```
                              , Cand[j].Cand_div, val
                              Cand[j].Cand_cou

83.    Else
84.        fprintf(fp, "%s|%s|%s|%s|
           %s\n", Cand[j].Cand_name
           Cand[j].Cand_par, Cand[j].Cand
           , Cand[j].Cand_div,
           Cand[j].Cand_count
85.    j++
86.    Do similarly for voters
87.        If  r<0
88.            fprintf(FP, "\n")
89.        If  i<voter.is AND
           voted<1
90.            strcpy(V[i].V_status, "y"
91.            Print details inside file
92.        Else
93.            Print details inside file
94.    i++
95.    fclose(fptr), fclose(fp), fclose
       fclose(file)
96.    If voted<1
97.        Print "Voted successfully"
98.        remove("candidate-list.txt"
99.        remove("voter-list.txt"
100.       rename("temp_cand.txt,
           "candidate-list.txt"
101.       rename("temp_voter.txt,
           "voter-list.txt")
102. Else
103.       print "Enter correct name
           of candidate you want to vote"
104. STOP
```

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voting_result()

1. START
2. Read option
3. switch (option)
4.   case 1:
5.   call screen_clear()
6.   call full_result()
7.   break
8.   case 2:
9.   call screen_clear()
10.   call div_result()
11.   break
12. default:
13.   print "Invalid option"
14. STOP

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full_result()

```
1. START
2. If "fptr ← fopen ("candidate_list
   "r") ← NULL
3.    Print "candidate list is empt
4. If file ← fopen ("voter_list.txt,
   "r") ← NULL
5.    Print "No voters yet"
6. for k ← 1 to 2 do
7. while fgets (line, sizeof (line) file
8.    If fscanf (file, "%[^.]s", buf
9.       token ← strtok (buf, "|")
10. If feof (file)
11.    break
12. total_voter ++
13. fclose (file)
14. while fgets (line, sizeof (line)
15.    If fscanf (fptr, "%[^.]s", buf
16.       token ← strtok (buf, "|")
17. If feof (fptr)
18.    break
19. while token != NULL
20.    strcpy (Cand[i]. Cand_name,
       token)
21.    token ← strtok (NULL, "|")
22.    strcpy (Cand[i]. Cand_par,
       token)
23.    token ← strtok (NULL, "|")
24.    strcpy (Cand[i]. Cand_id,
       token)
25.    token ← strtok (NULL, "|")
26.    Cand[i]. Cand_dive ← token
27.    token ← strtok (NULL, "|")
```

28.
29.
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40.
41.
42.
43.
44.
45.
46.

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```
28.   Cand[i].Cand_count ← token
29.   token ← strtok (NULL "/")
30.   total_votes += atoi (Cand[i].
      Cand_count)
31.   If (atoi (Cand[i].Cand_div)
      ← 1   AND  highest 1 <
      atoi (Cand[i].Cand_count)
32.     highest 1 = atoi (Cand[i].
      Cand_count)
33.     strcpy (win1.name,
      Cand[i].Cand_name)
34.     strcpy (win1.id, Cand[i].
      Cand_id)
35.     strcpy (win1.par, Cand[i].
      Cand_par)
36.     win1.Count ← atoi (Cand[i]
      .Cand_count)
37.   Similarly do for win2, win3
      , win4
38.   If atoi (Cand[i].Cand_div)←1
      AND  lowest1 > atoi (Cand[i].
      Cand_count)
39.     lowest1 ← atoi (Cand[i].Cand)
40.     strcpy (loss1.name, Cand[i].
      Cand_name)
41.     strcpy (loss1.id, Cand[i].Cand_id)
42.     strcpy (loss1.par, Cand[i].Cand_
      par)
43.     loss1.count ← atoi (Cand[i].
      Cand_count)
44.   Similarly do for loss2, loss3,
      loss4
45.   i++
46.   total_card ← i
```

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47. Print total_cand, total_votes, total_votes
48. Print win1.name, win1.id, win1.par, win1.count, win1.percent.
49. Similarly Print details of win2, win3, win4, loss1, loss2, loss3, loss4
50. Print cand[i].cand_id, cand[i].cand_name, cand[i].cand_par, cand[i].cand_dir, cand[i].cand_count, cand[i].cand_per
51. fclose (fptr)
52. STOP

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div_result()

1. START
2. If fptr ← fopen ("candidate_list...
   ← NULL
3.   Print "Candidate list is empty"
4. If file ← fopen ("voter_list.txt"
   ← NULL
5.   Print "Voter list is empty"
6. Read division
7. for k ← 1 to 2 do
8.   while fgets (line, sizeof (line), file)
9.   If strcmp (V[i].V_div, division) ← 0
10.   total_voter_div ++
11.   i++
12. i ← 0
13. while fgets (line, sizeof (line) file
14.   If strcmp (Cand[i].cand_div, division) ← 0
15.   total_cand_div ++
16.   total_votes += atoi (Cand[i].cand_count)
17.   div_flag ← 0
18.   If (highest ⟨ atoi (Cand[i].cand_count)
19.   highest ← atoi (Cand[i].cand_count)
20.   strcpy (win.name, Cand[i].cand_name)
21.   strcpy (win.id, Cand[i].cand_id)
22.   strcpy (win.par, Cand[i].cand_par)
23.   win.count ← atoi (Cand[i].cand_count)

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```
24. If lowest > atoi(cand[i].
25.     lowest ← atoi(cand[i].cand
26.     strcpy(loss.name,
            cand[i].cand_name
27.     strcpy(loss.id, cand[i].cand.
28.     strcpy(loss.par, cand[i].cand.
29.     loss.count ← atoi(cand[i].
            cand_count)
30. i++
31. If div_flag < 1
32.     Print "Incorrect division"
33.     break
34. Print total_cand_div,
        total_voter_div, total_votes
35. Print win.name, win.id,
        win.par, win.count,
        win.percent
36. Print loss.name, loss.id,
        loss.par, loss.count,
        loss.percent.
37. rewind(fptr)
38. while fgets(line, size(line)
        , fptr)
39.     If strcmp(cand[i].cand_div
            , division) < 0
40.         cand[i].cand_per
            ← (atoi(cand[i].cand_count)
            *100)/total_voter_div
41.         Print cand[i].cand_id,
            cand[i].cand_name, cand[i].cand.
            , cand[i].cand_count,
            cand[i].cand_per
42. i++
43. fclose(fptr), fclose(file)
44. STOP
```

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voter_menu()

1. START
2. Print "1. View candidates"
3. Print "2. Register Voter"
4. Print "3. Vote"
5. Print "4. View voting results and summary"
6. Print "5. Quit"
7. Read option
8. switch (option)
9.   case 1:
10.   call view_candidates()
11.   break
12.   case 2:
13.   call register_voter()
14.   break
15.   case 3:
16.   call voting()
17.   break
18.   case 4:
19.   call voting_result()
20.   break
21.   case 5:
22.   call screen_clear()
23.   Print "Goodbye"
24.   Exit
25.   break
26.   default:
27.   Print "Invalid choice"
28. STOP

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Working screenshots:

"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

```
*************Press ENTER key to start Machine***************
```

"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

```
*********WELCOME to Tamil Nadu State Electoral Commission E-system*********    **************************
                                                                                 Fri Feb 25 20:05:04 2022
                                                                              **************************


*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

********************PLEASE select a choice********************

Enter your choice: 1
```

"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

```
*********WELCOME to Tamil Nadu State Electoral Commission E-system*********    *****************************
                                                                                 Fri Feb 25 20:06:32 2022
                                                                              *****************************


        1. Add Candidate
        2. View Candidates
        3. Quit

*****************PLEASE select a choice*****************

Enter your choice: 1
```

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Registration of candidate

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

NOTE- No two candidates belonging to the same party can stand in the same division

Enter Candidate Name: Sudha Sharma

Enter Candidate Party name: All India Party

Enter Division number (1-4): 4

Your Candidate ID is: ALL71

Candidate registered successfully!


********WELCOME to Tamil Nadu State Electoral Commission E-system*********      ***************************
                                                                                 Fri Feb 25 20:08:57 2022
                                                                                ***************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

********************PLEASE select a choice********************

Enter your choice:
```

Error message when candidate is already registered

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

NOTE- No two candidates belonging to the same party can stand in the same division

Enter Candidate Name: Sam

Already registered as candidate!


********WELCOME to Tamil Nadu State Electoral Commission E-system*********      ***************************
                                                                                 Fri Feb 25 20:09:54 2022
                                                                                ***************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

********************PLEASE select a choice********************

Enter your choice:
```

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Error message when candidate tries to stand in a division where another candidate from the same party is already standing

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

NOTE- No two candidates belonging to the same party can stand in the same division

Enter Candidate Name: Samuela

Enter Candidate Party name: All India Party

Enter Division number (1-4): 1

Only 1 candidate from a party can stand in a division!


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********    ***************************
                                                                               Fri Feb 25 20:21:25 2022
                                                                               ***************************


*****************WHO ARE YOU?***********************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

Error message when registering candidate enters invalid division

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

NOTE- No two candidates belonging to the same party can stand in the same division

Enter Candidate Name: Danny

Enter Candidate Party name: AIDMK

Enter Division number (1-4): 7

Please enter correct division number!


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********    ***************************
                                                                               Fri Feb 25 20:25:06 2022
                                                                               ***************************


*****************WHO ARE YOU?***********************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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AI & DS Department

Full candidate list display in candidate portal

CANDIDATE ID	NAME	PARTY NAME	DIVISION
IND33	Sankar Kumar	Indian National Congress	3
BAH91	Rajendran Shekar	Bahujan Samaj Party	2
COM31	Sri Govindaraj	Communist Party of India	3
IND63	Chandran Pranav	Indian National Congress	4
ALL11	Sekar Ganesh	All India Party	1
DRA51	Babu T	Dravida Munnetra Kazhagam	2
PAT81	Mohammed Ali	Pattali Makkal Katchi	3
BHA67	Shobana S	Bahujan Samaj Party	1
BAH33	K T Ravikumar	Bahujan Samaj Party	3
COM42	Hari Gopal G	Communist Party of India	4
IND12	Ebenezer Sundar	Indian National Congress	1
ALL52	Sekar Guru	All India Party	2
DRA42	Vijay Bhaskar	Dravida Munnetra Kazhagam	1
PAT22	Mohan Selvakumar	Pattali Makkal Katchi	1
IND97	Ragav Mishra	Indian National Congress	2
ALL54	Gourav Prakash	All India Party	3
BAH68	Sunil Kumari	Bahujan Samaj Party	4
ALL71	Sudha Sharma	All India Party	4

```
*********WELCOME to Tamil Nadu State Electoral Commission E-system*********    **************************
                                                                               Fri Feb 25 20:26:59 2022
                                                                              **************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

********************PLEASE select a choice********************

Enter your choice:
```

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Voter portal


```
*********WELCOME to Tamil Nadu State Electoral Commission E-system**********    ***************************
                                                                                    Fri Feb 25 20:29:06 2022
                                                                                ***************************

        1. View Candidates
        2. Register Voter
        3. Vote
        4. View Voting Results and Summary
        5. Quit

*****************PLEASE select a choice*****************


Enter your choice:
```

List of candidates menu option in voter portal


```
*****************WELCOME to List of Election Candidates*******************    ***************************
                                                                                 Fri Feb 25 20:29:50 2022
                                                                             ***************************

        1. View all candidates
        2. View candidates by division
        3. View candidates by party

********************PLEASE select a choice*********************


Enter your choice:
```

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View all candidates option

"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

CANDIDATE ID	NAME	PARTY NAME	DIVISION	VOTES
IND33	Sankar Kumar	Indian National Congress	3	1
BAH91	Rajendran Shekar	Bahujan Samaj Party	2	0
COM31	Sri Govindaraj	Communist Party of India	3	0
IND63	Chandran Pranav	Indian National Congress	4	1
ALL11	Sekar Ganesh	All India Party	1	0
DRA51	Babu T	Dravida Munnetra Kazhagam	2	2
PAT81	Mohammed Ali	Pattali Makkal Katchi	3	0
BHA67	Shobana S	Bahujan Samaj Party	1	1
BAH33	K T Ravikumar	Bahujan Samaj Party	3	0
COM42	Hari Gopal G	Communist Party of India	4	0
IND12	Ebenezer Sundar	Indian National Congress	1	0
ALL52	Sekar Guru	All India Party	2	0
DRA42	Vijay Bhaskar	Dravida Munnetra Kazhagam	1	0
PAT22	Mohan Selvakumar	Pattali Makkal Katchi	1	0
IND97	Ragav Mishra	Indian National Congress	2	0
ALL54	Gourav Prakash	All India Party	3	0
BAH68	Sunil Kumari	Bahujan Samaj Party	4	0
ALL71	Sudha Sharma	All India Party	4	0

```
*********WELCOME to Tamil Nadu State Electoral Commission E-system*********    ***************************
                                                                                Fri Feb 25 20:30:36 2022
                                                                              ***************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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View candidates in a specific division option

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"
Enter division number: 1

Candidates from division 1 are:

CANDIDATE ID            NAME                        PARTY NAME      VOTES

ALL11               Sekar Ganesh        All India Party         0

BHA67               Shobana S           Bahujan Samaj Party     1

IND12               Ebenezer Sundar     Indian National Congress            0

DRA42               Vijay Bhaskar       Dravida Munnetra Kazhagam           0

PAT22               Mohan Selvakumar        Pattali Makkal Katchi           0


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********      ***************************
                                                                                  Fri Feb 25 20:32:31 2022
                                                                                 ***************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

When wrong division number is entered

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"
Enter division number: 6

Candidates from division 6 are:

CANDIDATE ID            NAME                        PARTY NAME      VOTES
Enter correct division number!


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********      ***************************
                                                                                  Fri Feb 25 20:33:40 2022
                                                                                 ***************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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AI & DS Department

View candidates from a specific party option

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"
Enter party name: Indian National Congress

Candidates from party Indian National Congress are:

CANDIDATE ID                NAME                      DIVISION      VOTES

IND33                   Sankar Kumar                  3             1

IND63                   Chandran Pranav               4             1

IND12                   Ebenezer Sundar               1             0

IND97                   Ragav Mishra                  2             0



*********WELCOME to Tamil Nadu State Electoral Commission E-system*********    ****************************
                                                                              Fri Feb 25 20:34:51 2022
                                                                              ****************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter
********************PLEASE select a choice********************

Enter your choice:
```

But if entered party name isn't found in candidate list

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"
Enter party name: fdg

Candidates from party fdg are:

CANDIDATE ID                NAME                      DIVISION      VOTES

Party not found!


*********WELCOME to Tamil Nadu State Electoral Commission E-system*********    ****************************
                                                                              Fri Feb 25 20:36:29 2022
                                                                              ****************************

*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter
********************PLEASE select a choice********************

Enter your choice:
```

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Voter registration

```
******************WELCOME to Voter Registration Portal*********************        ***************************
                                                                                      Fri Feb 25 20:37:29 2022
                                                                                   ***************************


*You should be at least 18 years old to register as voter.
*Your division number should be from 1 to 4.
*While entering name, please leave space in case of initials. Example- L Sasha



Enter your full name: Dion Agriche

Enter your age: 20

Enter your division number: 3


You have successfully registered as a voter!
Here is your voter ID, PLEASE keep it carefully: DionAgriche


*********WELCOME to Tamil Nadu State Electoral Commission E-system*********        ***************************
                                                                                      Fri Feb 25 20:37:49 2022
                                                                                   ***************************


*****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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Voter ID generation using @EVM# for voters having name without whitespace


```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

*****************WELCOME to Voter Registration Portal*********************     *****************************
                                                                               Fri Feb 25 20:39:12 2022
                                                                               *****************************

*You should be at least 18 years old to register as voter.
*Your division number should be from 1 to 4.
*While entering name, please leave space in case of initials. Example- L Sasha


Enter your full name: Scarlet

Enter your age: 19

Enter your division number: 2


You have successfully registered as a voter!
Here is your voter ID, PLEASE keep it carefully: Scarlet@EVM#


*********WELCOME to Tamil Nadu State Electoral Commission E-system*********     *****************************
                                                                               Fri Feb 25 20:39:32 2022
                                                                               *****************************

*****************WHO ARE YOU?*************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

When voter is already registered, it'll print error message


```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

*****************WELCOME to Voter Registration Portal*********************     *****************************
                                                                               Fri Feb 25 20:41:39 2022
                                                                               *****************************

*You should be at least 18 years old to register as voter.
*Your division number should be from 1 to 4.
*While entering name, please leave space in case of initials. Example- L Sasha


Enter your full name: L Sasha
Already registered as voter!


*********WELCOME to Tamil Nadu State Electoral Commission E-system*********     *****************************
                                                                               Fri Feb 25 20:41:43 2022
                                                                               *****************************

*****************WHO ARE YOU?*************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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When inputted age is below 18


```
*****************WELCOME to Voter Registration Portal********************        ***************************
                                                                                Fri Feb 25 20:42:49 2022
                                                                                ***************************


*You should be at least 18 years old to register as voter.
*Your division number should be from 1 to 4.
*While entering name, please leave space in case of initials. Example- L Sasha



Enter your full name: sam

Enter your age: 2

You are not eligible to be vote!


*********WELCOME to Tamil Nadu State Electoral Commission E-system*********       ***************************
                                                                                Fri Feb 25 20:42:54 2022
                                                                                ***************************


*****************WHO ARE YOU?*************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

When inputted division is wrong


```
*****************WELCOME to Voter Registration Portal********************        ***************************
                                                                                Fri Feb 25 20:43:47 2022
                                                                                ***************************


*You should be at least 18 years old to register as voter.
*Your division number should be from 1 to 4.
*While entering name, please leave space in case of initials. Example- L Sasha



Enter your full name: Sam Abi

Enter your age: 34

Enter your division number: 9

Invalid division number!


*********WELCOME to Tamil Nadu State Electoral Commission E-system*********       ***************************
                                                                                Fri Feb 25 20:44:25 2022
                                                                                ***************************


*****************WHO ARE YOU?*************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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Voting by a registered voter

When an unregistered voter tries to vote/already voted voter tries to vote/entered voter ID is wrong


```
*****************WELCOME to Election Voting Portal************************    ****************************
                                                                              Fri Feb 25 20:47:15 2022
                                                                              ****************************


*You can vote only once
*You can vote for any candidate standing in your division


Enter your voter ID: LSasha

Sorry! You can't vote due to any of the following reasons-
*You are not a registered voter
*You have already voted


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********   ****************************
                                                                              Fri Feb 25 20:47:19 2022
                                                                              ****************************


*****************WHO ARE YOU?*************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice**********************

Enter your choice:
```

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When voter tries to vote for someone not in their division


```
                                                 ****************************
*You can vote only once
*You can vote for any candidate standing in your division


Enter your voter ID: RoxanaAgriche

You are from division 3
Candidates from your division are:

CANDIDATE ID            NAME                    PARTY                   VOTES

IND33           Sankar Kumar            Indian National Congress          1

COM31           Sri Govindaraj          Communist Party of India          0

PAT81           Mohammed Ali            Pattali Makkal Katchi        0

BAH33           K T Ravikumar           Bahujan Samaj Party          0

ALL54           Gourav Prakash          All India Party        0


Enter name of candidate you want to vote: rfdg

Please enter correct name of candidate you want to vote!


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********    ****************************
                                                                               Fri Feb 25 20:49:54 2022
                                                                               ****************************

****************WHO ARE YOU?************************
        1. I'm a Candidate
        2. I'm a Voter

********************PLEASE select a choice*********************

Enter your choice:
```

Voting results portal


```
*********************WELCOME to Voting Results Portal*********************    ****************************
                                                                             Fri Feb 25 21:00:03 2022
                                                                             ****************************

        1. View results of all candidates
        2. View results of candidates in a specific division

*********************PLEASE select a choice*********************

Enter your choice:
```

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Voting results of all candidates

```
Voting results and summary from all divisions:

Total candidates contesting in this election: 18
Total number of eligible voters: 12
Total votes received in this election: 7

Candidate who secured highest votes in division 1:
Candidate Name: Shobana S
Candidate ID: BHA67
Party: Bahujan Samaj Party
Votes received: 1
Percentage of votes: 8.000000

Candidate who secured least votes in division 1:
Candidate Name: Sekar Ganesh
Candidate ID: ALL11
Party: All India Party
Votes received: 0
Percentage of votes: 0.000000

Candidate who secured highest votes in division 2:
Candidate Name: Babu T
Candidate ID: DRA51
Party: Dravida Munnetra Kazhagam
Votes received: 2
Percentage of votes: 16.000000

Candidate who secured least votes in division 2:
Candidate Name: Rajendran Shekar
Candidate ID: BAH91
Party: Bahujan Samaj Party
Votes received: 0
Percentage of votes: 0.000000

Candidate who secured highest votes in division 3:
Candidate Name: Sankar Kumar
Candidate ID: IND33
Party: Indian National Congress
Votes received: 2
Percentage of votes: 16.000000
```

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```
Candidate who secured least votes in division 3:
Candidate Name: Sri Govindaraj
Candidate ID: COM31
Party: Communist Party of India
Votes received: 0
Percentage of votes: 0.000000

Candidate who secured highest votes in division 4:
Candidate Name: Chandran Pranav
Candidate ID: IND63
Party: Indian National Congress
Votes received: 1
Percentage of votes: 8.000000

Candidate who secured least votes in division 4:
Candidate Name: Hari Gopal G
Candidate ID: COM42
Party: Communist Party of India
Votes received: 0
Percentage of votes: 0.000000

Full voting results of the election:
```

CANDIDATE ID	NAME	PARTY NAME	DIVISION	VOTES	PERCENTAGE OF VOTES
IND33	Sankar Kumar	Indian National Congress	3	2	16.000000
BAH91	Rajendran Shekar	Bahujan Samaj Party	2	0	0.000000
COM31	Sri Govindaraj	Communist Party of India	3	0	0.000000
IND63	Chandran Pranav	Indian National Congress	4	1	8.000000
ALL11	Sekar Ganesh	All India Party	1	0	0.000000
DRA51	Babu T	Dravida Munnetra Kazhagam	2	2	16.000000
PAT81	Mohammed Ali	Pattali Makkal Katchi	3	1	8.000000
BHA67	Shobana S	Bahujan Samaj Party	1	1	8.000000
BAH33	K T Ravikumar	Bahujan Samaj Party	3	0	0.000000
COM42	Hari Gopal G	Communist Party of India	4	0	0.000000
IND12	Ebenezer Sundar	Indian National Congress	1	0	0.000000
ALL52	Sekar Guru	All India Party	2	0	0.000000
DRA42	Vijay Bhaskar	Dravida Munnetra Kazhagam	1	0	0.000000
PAT22	Mohan Selvakumar	Pattali Makkal Katchi	1	0	0.000000
IND97	Ragav Mishra	Indian National Congress	2	0	0.000000
ALL54	Gourav Prakash	All India Party	3	0	0.000000
BAH68	Sunil Kumari	Bahujan Samaj Party	4	0	0.000000
ALL71	Sudha Sharma	All India Party	4	0	0.000000

```
*********WELCOME to Tamil Nadu State Electoral Commission E-system**********    ***************************
                                                                                Fri Feb 25 21:08:08 2022
                                                                               ***************************

*****************WHO ARE YOU?*************************
        1. I'm a Candidate
        2. I'm a Voter

*********************PLEASE select a choice*********************

Enter your choice:
```

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Division-wise voting results

```
"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

Enter division number: 4

Voting results and summary from division 4:

Total candidates contesting in this division: 4
Total number of eligible voters in this division: 1
Total votes received in this division: 1

Candidate who secured highest votes:
Candidate Name: Chandran Pranav
Candidate ID: IND63
Party: Indian National Congress
Votes received: 1
Percentage of votes: 100.000000

Candidate who secured least votes:
Candidate Name: Hari Gopal G
Candidate ID: COM42
Party: Communist Party of India
Votes received: 0
Percentage of votes: 0.000000

Full voting results of division 4:

CANDIDATE ID              NAME               PARTY NAME      VOTES   PERCENTAGE OF VOTES

IND63          Chandran Pranav     Indian National Congress       1      100.000000

COM42          Hari Gopal G        Communist Party of India       0      0.000000

BAH68          Sunil Kumari        Bahujan Samaj Party       0    0.000000

ALL71          Sudha Sharma        All India Party      0    0.000000


*********WELCOME to Tamil Nadu State Electoral Commission E-system**********   ***************************
                                                                              Fri Feb 25 21:10:45 2022
                                                                              ***************************
```

Quitting in voter portal

"D:\Samuela\Assignment 2 (E-system)\bin\Debug\Assignment 2 (E-system).exe"

```
Thank you for visiting. Goodbye!


Process returned 0 (0x0)   execution time : 828.213 s
Press any key to continue.
```

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Quitting in candidate portal

```
Good luck for the election. Goodbye!


Process returned 0 (0x0)   execution time : 5.771 s
Press any key to continue.
```

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AI & DS Department