Software Requirements Specification

For

Online Voting System

Prepared by

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Table of contents

1. INTRODUCTION

Elections enable every adult citizen of the country to participate in the process of government formation. we must have observed that elections are held in our country frequently. These include elections to elect members of the Lok Sabha, Rajya Sabha, State Legislative Assemblies (Vidhan Sabhas) Legislative Councils (Vidhan Parishad) and of, President and Vice-President of India. Elections are also held for local bodies such as municipalities, municipal corporations and Panchayati Raj justifications. Election is a complex exercise. It involves schedules rules and machinery.

With the advent of technology and Internet in our day to day life, we were able to offer advanced voting system to voters both in the country and outside through our online voting system[3]. We wish to propose an online voting system. Online voting is accessible across a variety of devices such as smartphones, tablets, and computers, making the entire voting process as simple as a click of a button or a tap on a screen. This also means the election can be accessed from anywhere in the world.Online voting can handle multiple modalities,and provide better scalability for large elections [4].Gone are the days you spend an entire meeting trying to pick a date when everyone is in town for the election. For example, if members are on vacation, they can simply log into the software and vote while lounging on the beach. This is also extremely beneficial for larger organizations with members living in different parts of the country. It avoids the burden of having to locate and rent out multiple polling sites or pay for a large number of mail ballots. All members can cast their ballot from the comfort of their home during the voting hours.

1.1 Purpose of the Project

Online voting tools and online election voting systems help you make important decisions by gathering the input of your group in a way that's systematic and verifiable.

- It's a good idea to use an online voting system to:
- Elect your leadership
- Gather anonymous feedback from your employees.
- Vote on yearly budgets.
- Alter your operational procedures and by laws

The main purposes of Onilne Voting System include:

- Provision of improved voting services to the voters through fast, timely and convenient voting.
- Reduction of the costs incurred by the Kenyan Electoral Commission during voting time in paying the very many clerks employed for the sake of the success of the manual system.

- Check to ensure that the members who are registered are the only ones to vote. Cases of "Dead People" voting are also minimized.
- Online voting system (OVS) will require being very precise or cost cutting to produce an effective election management.

- Therefore crucial points that this (OVS) emphasizes on are listed below.

- Require less number of staff during the election.
- This system is a lot easier to independently moderate the elections and subsequently reinforce its transparency and fairness.
- Less capital, less effort, and less labor intensive, as the primary cost and effort will focus primarily on creating, managing, and running a secure online portal.
- Increased number of voters as individual will find it easier and more convenient to vote, especially those abroad.

1.2 Target Beneficiary

By using this project we wish to target the common people who face difficulties in going to the voting booths to cast their respective votes. Online voting allows people in today's mobile and digitally advanced society to participate in the democratic process over the internet. The POLYAS online voting system offers the highest levels of transparency, control, security and efficiency of election processes. Online votings provide voters with a comfortable and secure voting experience and allow election organizers to save resources in planning their next election.

1.3 Project Scope

It is focused on studying the existing system of voting in India and to make sure that the people's vote is counted, for fairness in the elective positions. This will produce:

Less effort and less labor intensive, as the primary cost and focus is on creating, managing and running a secure web voting portal.

Increasing number of voters as individuals will find it easier and more convenient to vote, especially those abroad.

1.4 References

1) https://nios.ac.in/media/documents/srsec317newE/317EL18.pdf
2) https://www.polyas.com/online-voting/benefits-online-voting

3) Kaliyamurthie KP, Udayakumar R, Parameswari D, Mugunthan SN. Highly secured online voting system over network. Indian Journal of Science and Technology. 2013 May;6(6):4831-6.

4) Anand A, Divya P. An efficient online voting system. International Journal of Modern Engineering Research. 2012 Jul;2(4):2631-4.

5) Election Attitude: How Internet Voting Leads to a Stronger Democracy Book by John R Patrick.

2. PROJECT DESCRIPTION

2.1 Reference Algorithm

Different classes are created for various functionalities. Different libraries are used . OOPS concepts are being used .

2.2 Data/ Data structure

This project will incorporate OOPs concepts as well as concepts of data structures as well. It will also be connected with a database containing information about voters and their information.

2.3 SWOT Analysis

Strengths:-

1. Voting in any language convenient to the voter.
2. Electronic voting eliminates queue during voters' registration and voting.
3. It will also help in saving time and paperwork

Weaknesses:-

1. Poor ICT infrastructure
2. Lack or pressure group in support of electronic voting system
3. Technology acceptance

Opportunities:-

1. Increase in number of voters
2. Social distance is supported

Threats:

1. Security issues
2. Data breach
3. Political threats

2.4 Project Features

In the coding phase -Core Java is used for front- end.

User can register using name , gender , national identity number , password , City, email , mobile number.

Registered members can caste vote by filling details like candidate name , organization and symbol.

2.4 User Classes and Characteristics

Admin

- Registration
- Login

Voter

- Candidates
- Place of Election
- Date of Voting
- Time of Voting

Contact

- By Email
- By Mobile Phone
- By Twitter
- By Post

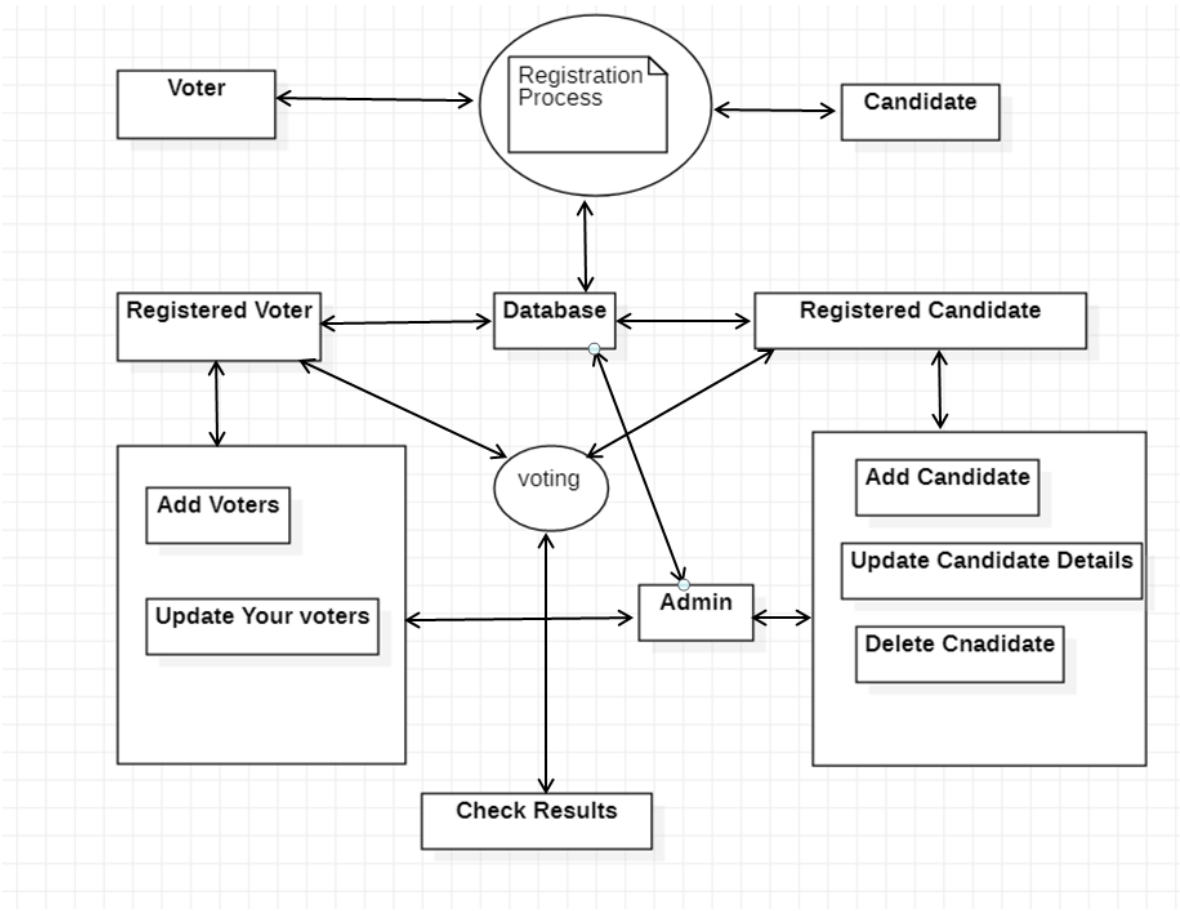
Updates

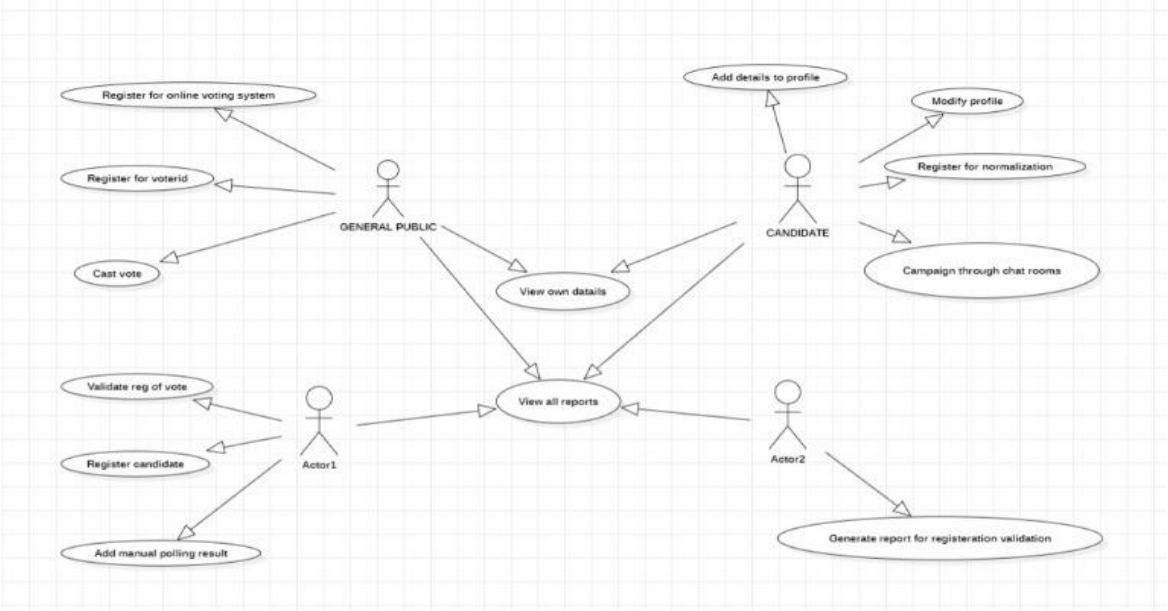
Logout

2.5 Design and Implementation Constraints

Throughout the project we will be using Java in frontend to demonstrate the coding of application and My SQL is used for backend in the project.

2.6 Design diagrams





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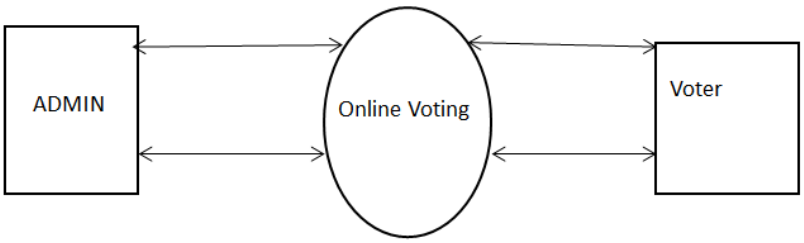
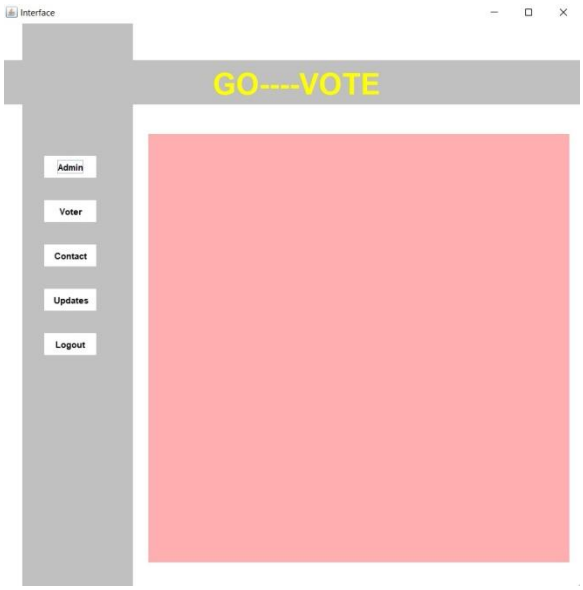
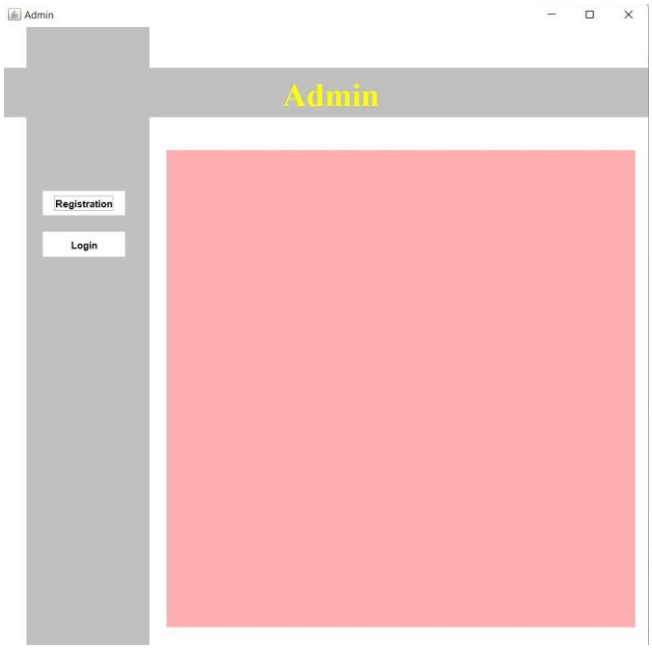
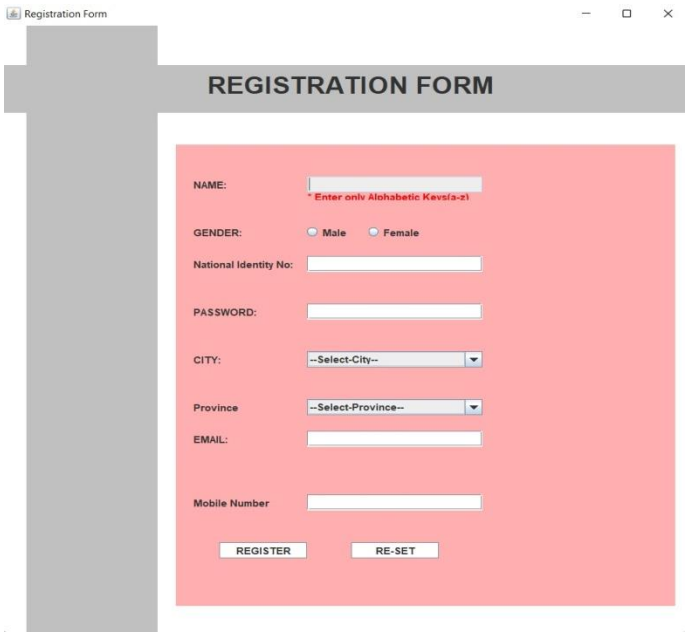


2.7) Output:



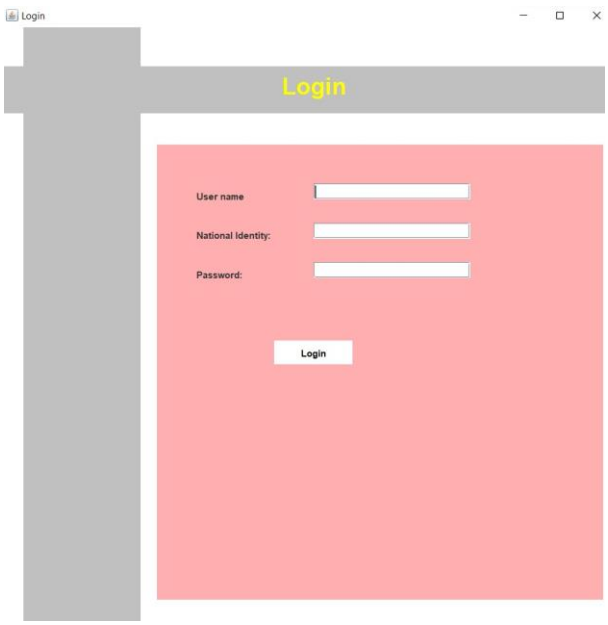
Admin module :



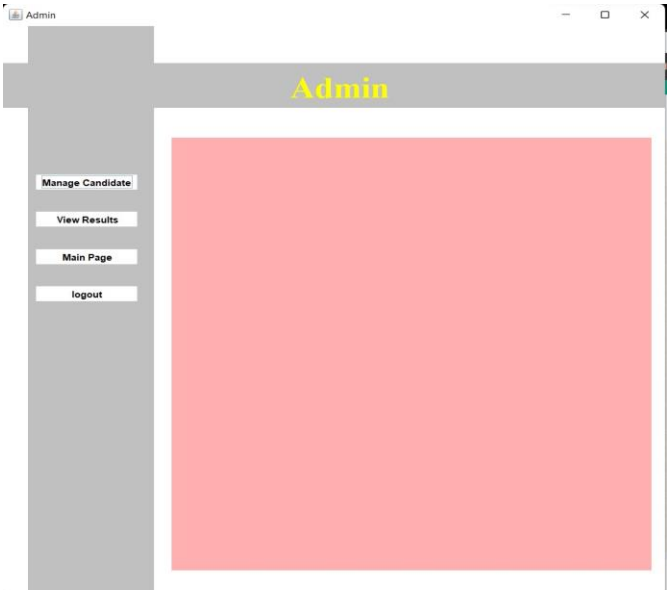

Registration Form
REGISTRATION FORM
NAME:
* Enter only Alphabetic Keys(a-z)
GENDER:
Male
Female
National Identity No:
PASSWORD:
CITY:
--Select-City--
Province
--Select-Province--
EMAIL:
Mobile Number
REGISTER
RE-SET

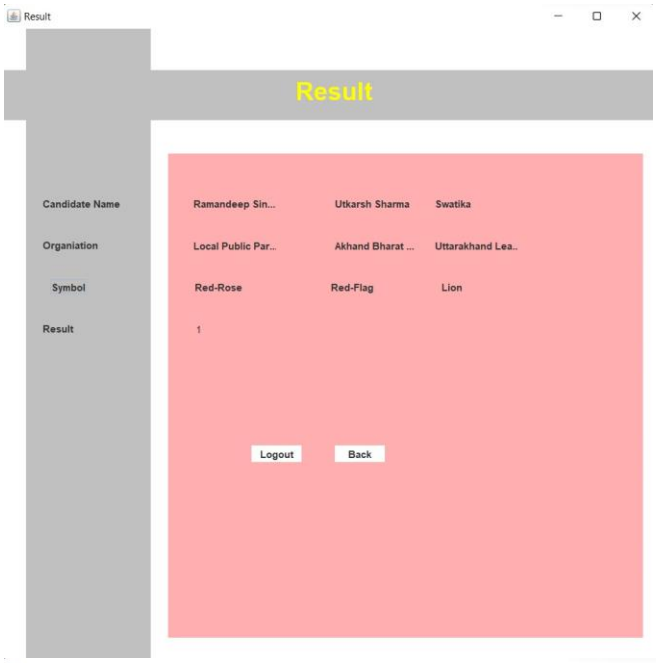

Message
Your are Registered
OK

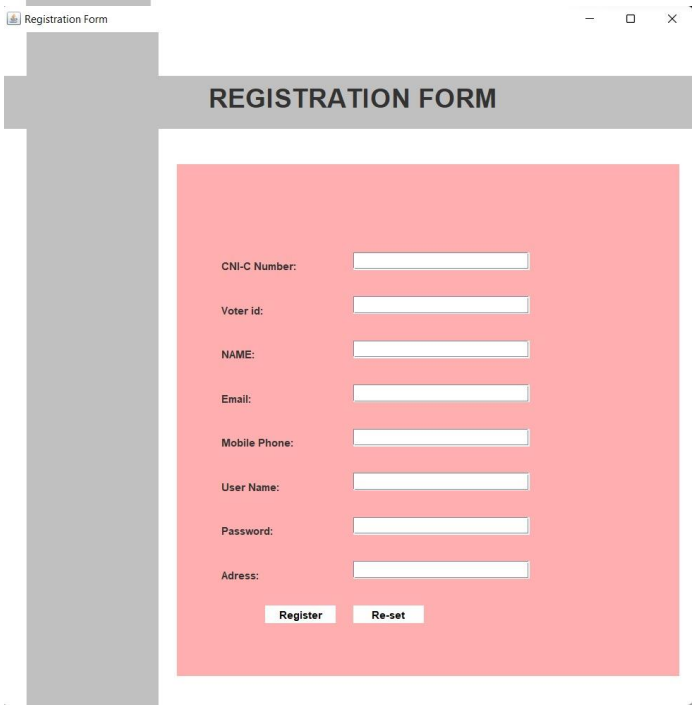

Select an Option
Do you Want to Login?
Yes
No
Cancel


Login
Login
User name
National Identity:
Password:
Login

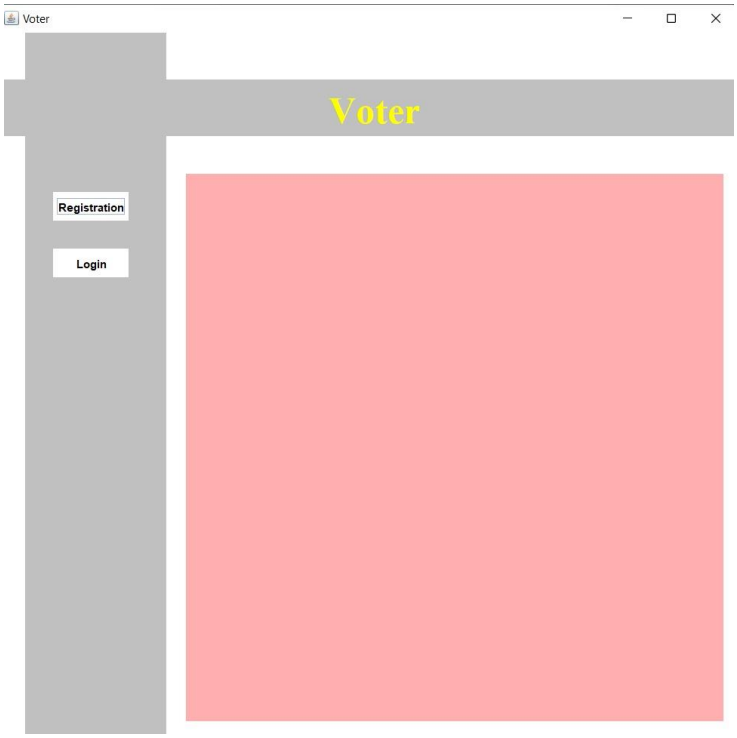

Message
Login Successful
OK

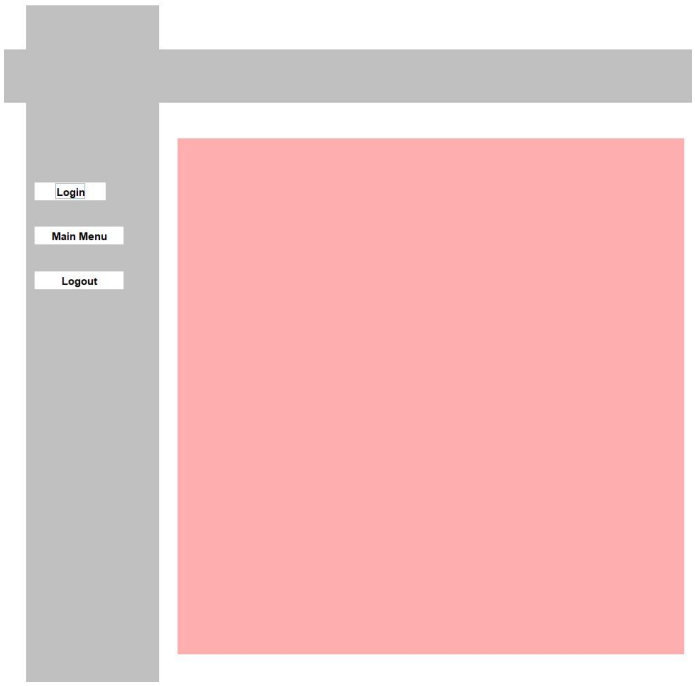

Admin
Admin
Manage Candidate
View Results
Main Page
logout

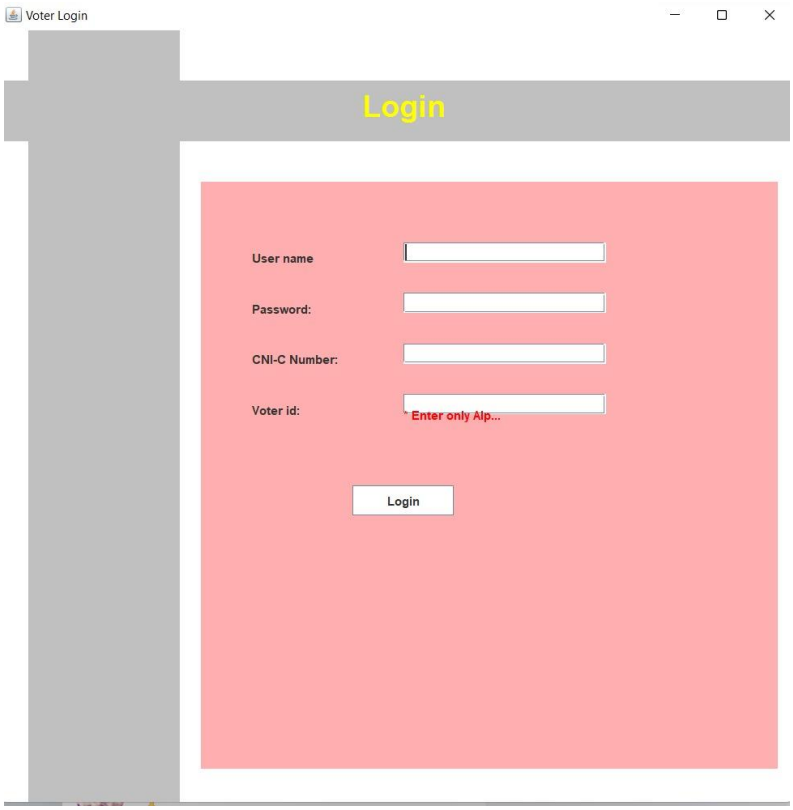

Result
Result
Candidate Name
Ramandeep Sin...
Utkarsh Sharma
Swatika
Organiation
Local Public Par...
Akhand Bharat ...
Uttarakhand Lea...
Symbol
Red-Rose
Red-Flag
Lion
Result
1
Logout
Back


Registration Form
REGISTRATION FORM
CNI-C Number:
Voter id:
NAME:
Email:
Mobile Phone:
User Name:
Password:
Adress:
Register
Re-set

VOTER :

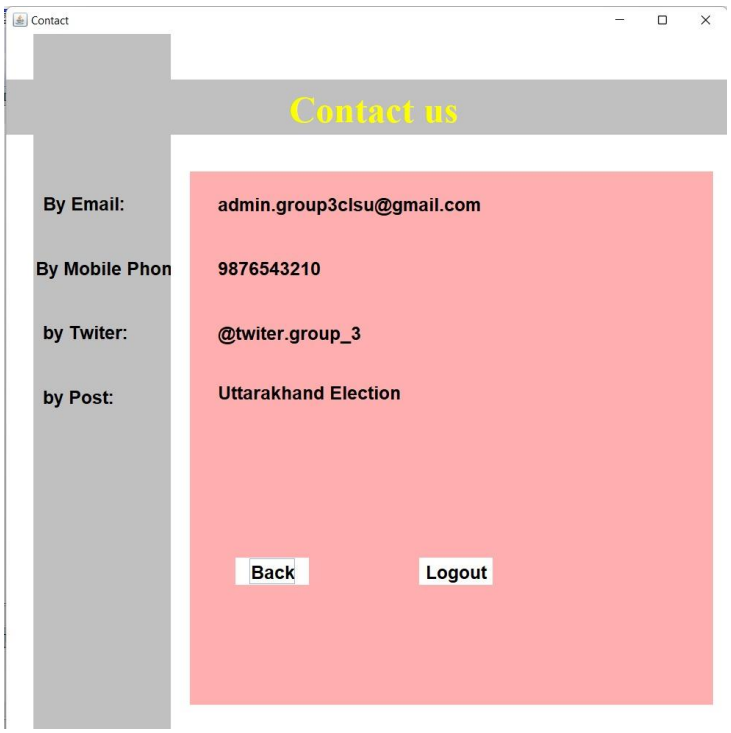

Voter
Voter
Registration
Login


Login
Main Menu
Logout

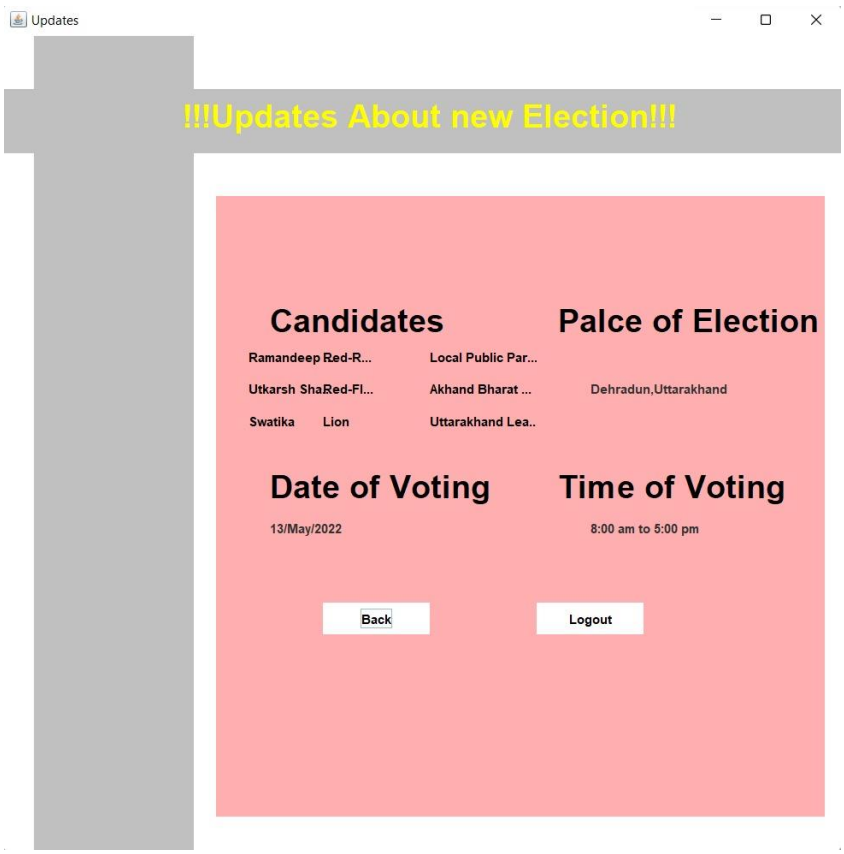

Voter Login
Login
User name
Password:
CNI-C Number:
Voter id:
* Enter only Alp...
Login


Result
Caste Vote
Click on given Symbol name(front the Candidate name) for give vote to your Favourite Candidate: Thanks:
Candidate Name
Organiation
Symbol
Ramandeep Sin...
Local Public Par...
Red-Rose
Utkarsh Sharma
Akhand Bharat ...
Red-Flag
Swatika
Uttarakhand lea...
Lion
Logout
Back

Contact :



Updates :



2.8 Assumption and Dependencies

The user should have a device
Required Documentations
Internet Access

3. SYSTEM REQUIREMENTS

3.1 User Interface

All registered voters in the database as per their access rights and privileges will be displayed.The registration should be done prior to the voting date to enable data update in the database.

3.2 Software Interface

After the validity of a user being citizen of India has been confirmed by the system administrator , the citizen is then registered as a voter. After registration , the voter is assigned a secret voter Id with which he/she can use to log into the system and vote .

- **Web browsers**: Mozilla Firefox, Google chrome, Opera and Internet

3.3 Database Interface

There is a database using MYSQL is maintained in which all the names of voter with complete information is stored.MYSQL DBMS allows combination extraction , manipulation and organization of data in the voters's database.

4. NON FUNCTIONAL REQUIREMENTS

4.1 Security requirements

Foreign experience revealed that they are often confronted by security issues while the online voting system is running. The origin of the security issues was due to not only outsider (such as voters and attackers) but also insider (such as system developers and administrators), even just because the inheritance of some objects in the source code are unsuitable. These errors caused the voting system to crash.
The proposed solutions were correspondingly outlined to hold back these attacks. For example, to avoid hacker making incursion into the voting system via network, we can design our system to transmit data without network. Another example is to limit voter to input particular data, so that

we can prevent the command injection from running.

4.2 Performance requirements

User with basic computer skills should be able to use the system and the system should be robust.

4.3 Software Quality Attributes

• Availability: The scheduler will tell whether it will execute the tasks it is assigned to perform.

•Adaptability: The scheduler is capable of being adapted for different specific environments without applying actions other than those provided for this purpose for the software considered.

• Reliability: Measure if the product is reliable enough to sustain in any condition. Should give the correct results consistently. Product reliability is measured in terms of working of the project under different working environments and different conditions.

• Maintainability: Different versions of the product should be easy to maintain. For development, it should be easy to add code to the existing system, should be easy to upgrade for new features and new technologies from time to time.

• Usability: This can be measured in terms of ease of use. The application should be user-friendly. It should be easy to learn. Navigation should be simple.

• Portability: This can be measured in terms of Costing issues related to porting, Technical issues related to porting, and Behavioral issues related to porting.

• Correctness: The application should be correct in terms of its functionality, calculations used internally and the navigation should be correct. This means that the application should adhere to functional requirements.

• Flexibility: Should be flexible enough to modify. Adaptable to other products with which it needs interaction. Should be easy to interface with other standard 3rd party components.

• Interoperability: It is capable enough for easy exchange of data or services with other systems. Different modules can work on this scheduler with different platform, different databases and protocol conditions.

• Reusability: Software reuse is a good cost-efficient and time-saving development method. Different code library classes should be generic enough to be easily used in different application modules. Divide the application into different modules so that modules can be reused across the application.

• Robustness: The code is able to cope with errors during execution and cope with erroneous input.

• Testability: The system should be easy to test and find defects. If required, it should be easy to divide into different modules for testing.

5. OTHER REQUIREMENTS

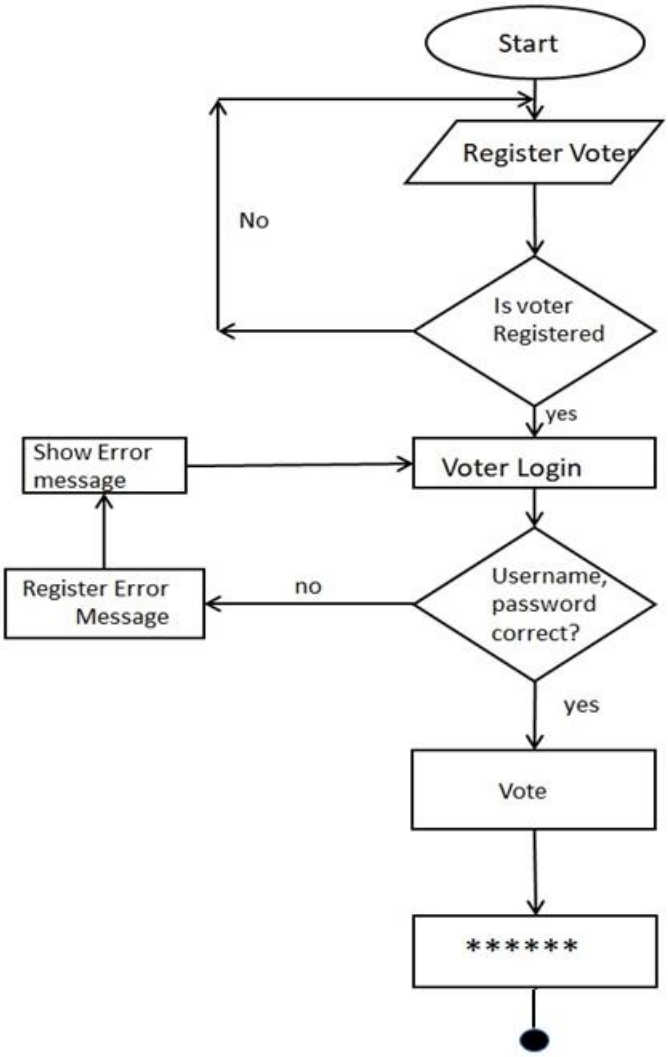
1) Registration of the Voter depends upon the information filled by the user.

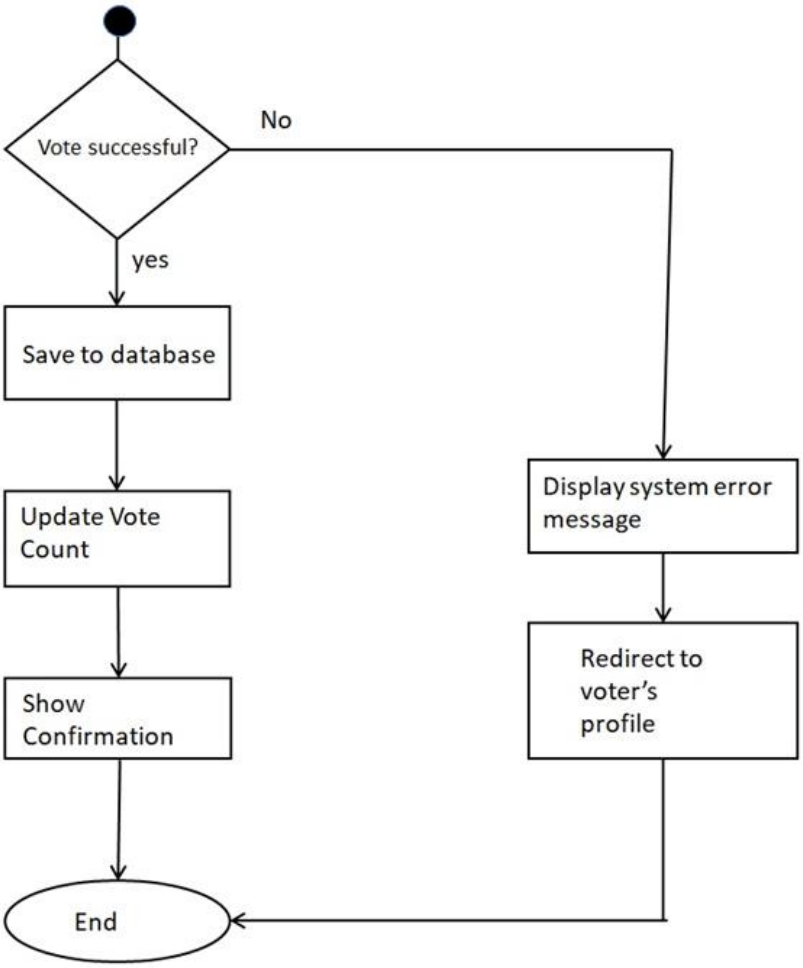
2) Voter is given a unique ID and PASSWORD.
3) In the DATABASE information of every voter is stored.
4) Database shows the information of every user.

Appendix A: Glossary

OVS- Online Voting System

Appendix B: Analysis Model




Vote successful?
No
yes
Save to database
Update Vote Count
Show Confirmation
Display system error message
Redirect to voter's profile
End

Background of Study

The Online voting system (OVS) also known as e-voting is a term encompassing several different types of voting embracing both electronic means of counting votes. Electronic voting technology can include punched cards, optical scan voting systems and specialized voting kiosks (including self contained direct-recording electronic voting systems or DRE). It can also involve transmission of ballots and votes via telephones, private computer networks, or the internet. Online voting is an electronic way of choosing leaders via a web driven application. The advantage of online voting over the common "queue method" is that the voters have the choice of voting at their own free time and there is reduced congestion. It also minimizes on errors of vote counting. The individual votes are submitted in a database which can be queried to find out who of the aspirants for a given post has the highest number of votes.

This system is geared towards increasing the voting percentage in India since it has been noted that with the old voting method (the Queue System), the voter turn out has been a wanting case. With system in place also, if high security is applied, cases of false votes shall be reduced.

With the "ONLINE VOTING SYSTEM", a voter can use his\her voting right online without any difficulty. He \She has to register as a voter first before being authorized to vote. The registration should be done prior to the voting date to enable data update in the database.

However, not just anybody can vote. For one to participate in the elections, he/she must have the requirements. For instance, he/she must be a registered citizen i.e. must be 18 and above years old. As already stated, the project 'Online Voting' provides means for fast and convenient voting and access to this system authorized to vote. The registration should be done prior to the voting date to enable data update in the database

However, not just anybody can vote, For one to participate in the elections, he/she must have the requirements. For instance, he/she must be a registered citizen i.e. must be 18 and above years old. As already stated, the project 'Online Voting' provides means for fast and convenient voting and access to this system is limited only to registered voters.

Internet voting systems are appealing for several reasons which include; People are getting more used to work with computers to do all sorts of things, namely sensitive operations such as shopping and home banking and they allow people to vote far from where they usually live, helping tireduce absenteeism rate.

Old Methods Of Voting

1. Paper-based voting: The voter gets a blank ballot and use a pen or a marker to indicate he want to vote for which candidate. Hand-counted

ballots is a time and labor consuming process, but it is easy to manufacture paper ballots and the ballots can be retained for verifying, this type is still the most common way to vote.

2. Direct recording electronic voting machine: This type, which is abbreviated to DRE, integrates with keyboard; touch screen, or buttons for the voter press to poll. Some of them lay in voting records and counting the votes is very quickly. But the other DRE without keep voting records are doubted about its accuracy.

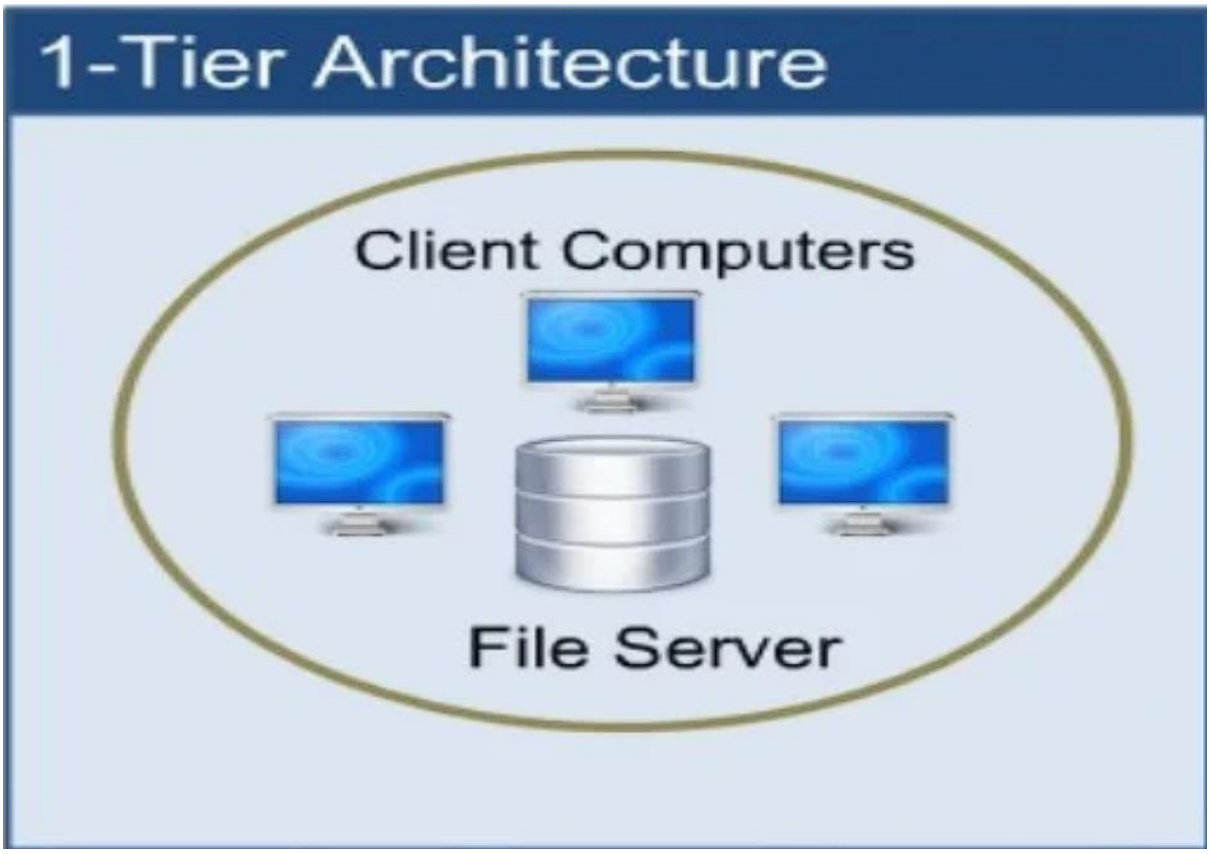
Problems with the Existing Voter Registration System

The problems of the existing manual system of voting include among others the following:

1. Expensive and Time consuming: The process of collecting data and entering this data into the database takes too much time and is expensive to conduct, for example, time and money is spent in printing data capture forms, in preparing registration stations together with human resources, and there after advertising the days set for registration process including sensitizing voters on the need for registration, as well as time spent on entering this data to the database.
2. Too much paper work: The process involves too much paper work and paper Storage which is difficult as papers become bulky with the paper size.
3. Errors during data entry: Errors are part of all human beings; it is very unlikely for humans to be 100 percent efficient in data entry.
4. Loss of registration forms: Some times, registration forms get lost after being filled in with voters' details, in most cases these are difficult to follow-up and therefore many remain unregistered even though they are voting age nationals and interested in exercising their right to vote.
5. Short time provided to view the voter register: This is a very big problem since not all people have free time during the given short period of time to check and update the voter register.
6. Above all, a number of voters end up being locked out from voting.

Architecture

One tier architecture



Data Base tables:-

This project uses many tables:

- Admin
- Voter
- Contact
- Updates
- Logout