

DISTRIBUTED ONLINE VOTING SYSTEM

19CSE312 Distributed Systems





Team Members

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Project Area

Domain : E-Governance

Sub-Domain: Secure Online Voting, Digital Identity Verification

Technologies Used :

- Frontend : HTML, CSS, JavaScript
- Backend : PHP
- Database : MySQL
- Authentication : Aadhar number verification (manual matching)
- Security : Sessions, Input Validation, Password encryption



Problem Statement & Motivation

Problem Statement:

Manual voting processes are prone to inefficiencies and vulnerabilities:

- Voter impersonation
- Booth capturing
- Long queues
- Accessibility issues for elderly, disabled, or remote users

Motivation:

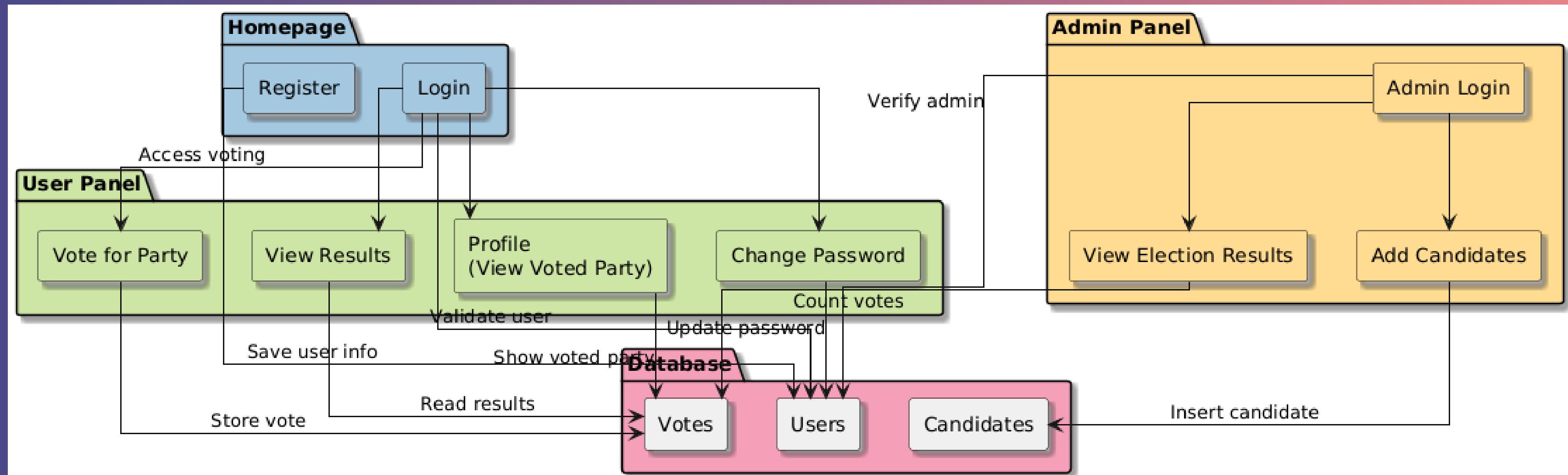
- Enable voting from home/remote places
- Ensure every eligible citizen can vote only once
- Use unique Aadhar number to ensure identity and prevent fraud
- Reduce cost, time, and manpower in traditional voting

Objectives : Develop a user-friendly web interface for voters and administrators

- Ensure secure authentication using Aadhar number
- Prevent duplicate voting using backend logic
- Implement role-based access control (voter vs admin)
- Allow admin to monitor and publish election results
- Maintain data integrity and restrict unauthorized access



System Architecture - Block Diagram



System Architecture

Voter Interface :

- Register using Name, Aadhar Number, Credentials
- Login & Cast Vote (only once)
- View Live Vote Graph after voting

Admin Panel :

- Add Candidates
- Monitor Total Votes
- View Final Results (with graph)

Security:

- Aadhar-based manual verification
- bcrypt Password Encryption
- Session Management
- Input Validation to prevent attacks



System Architecture :

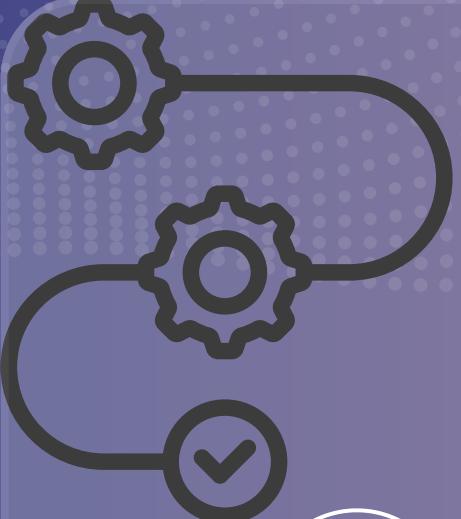
Backend Components :

- PHP scripts handle authentication, voting logic, and session management
- MySQL database manages:
- Voter info
- Candidate list
- Votes cast

Security Layers :

- Session tracking to prevent multiple voting
- Basic input sanitization
- Future provision for OTP/email verification





WORKFLOW

01

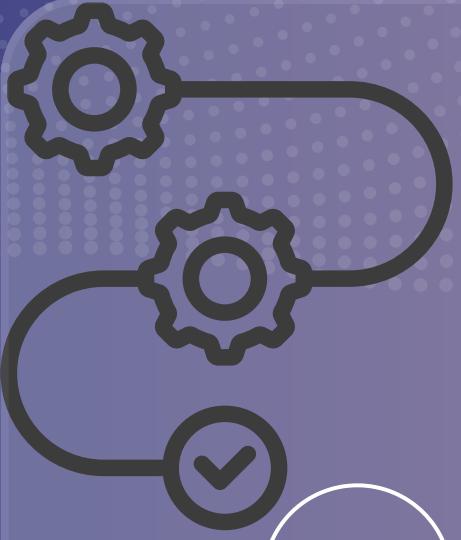
Registration Phase:

- User signs up with name, Aadhar number, phone number, and password.
- Aadhar number and phone number are validated for format and uniqueness.
- OTP verification is done on the phone number.
- Password is hashed and data is securely stored in the database.
- Confirmation message is sent upon successful registration.

02

Login Phase :

1. User logs in using Aadhar number or phone number with password.
2. Password is verified against the stored hash.
3. On success, a secure session or JWT token is generated.
4. Failed attempts are limited to prevent brute-force attacks.
5. Optional OTP-based 2FA can be enabled for added security.



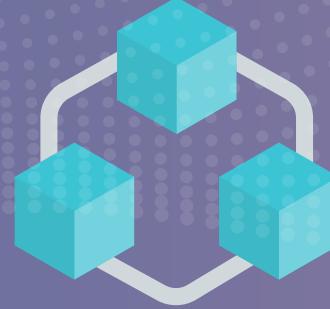
WORKFLOW

03 Voting Phase:

- System verifies user session and checks if the user has already voted.
- If not voted, displays the list of eligible candidates.
- User selects a candidate and submits their vote.
- Vote is recorded in the database and user status is marked as "voted".
- User receives confirmation, and further voting is disabled.

04 Login Phase :

- Admin logs in using secure credentials.
- Can add, edit, or delete candidate records.
- Monitors real-time voting status and statistics.
- Views total votes per candidate.
- System automatically or manually declares the winner based on vote count.



KEY MODULES

Voter Module:

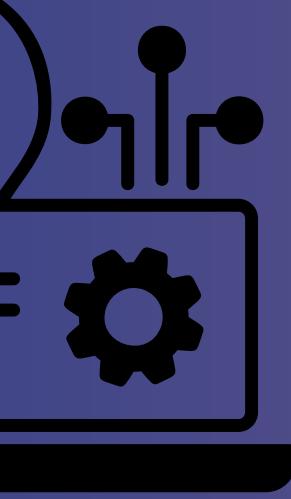
- Registration
- Login
- View candidate list
- Cast vote (only once)
- View result

Admin Module:

- Admin login
- Add/view candidates
- Monitor total votes
- Publish results

Security Module:

- Aadhar-based verification
- Session control
- Duplicate vote prevention
- Input sanitization



ALGORITHM

VOTING ALGORITHM

1. Accept login credentials (Aadhar & password)
2. Match credentials from the database
3. Check if has_voted = false
4. If true → allow voting, update vote count and mark has_voted = true
5. Else → deny access to voting page

ADMIN LOGIC :

1. Login with special role credentials
2. Fetch and display vote counts from DB
3. Sort and determine the winner

USER INTERFACE - Homepage

The screenshot displays the homepage of the SecureVote online voting platform. At the top, there is a dark blue header bar with the SecureVote logo and the text "SecureVote - Your Trusted Online Voting Platform". Below the header, a navigation bar contains three items: "Home" (selected), "Results", and "Admin Login". The main content area features a large central box with a checkmark icon and the heading "Welcome to SecureVote", followed by the subtext "Your trusted online voting platform for fair and transparent elections". Below this are two buttons: "Login" and "Register". Further down, there are three smaller boxes: "Secure Voting" (with a shield icon), "Verified Identity" (with a person icon), and "Real-time Results" (with a chart icon). Each box has a brief description. At the bottom, a large blue banner displays the "Next Election Countdown" with a timer showing "07 00 00 00" and "Days Hours Minutes Seconds".

SecureVote - Your Trusted Online Voting Platform

Home Results Admin Login

Welcome to SecureVote

Your trusted online voting platform for fair and transparent elections

Login Register

Secure Voting

Military-grade encryption ensures your vote remains confidential and tamper-proof.

Verified Identity

Robust authentication prevents duplicate voting and ensures one person, one vote.

Real-time Results

View live election results with beautiful visualizations after polls close.

Next Election Countdown

07 00 00 00

Days Hours Minutes Seconds

USER INTERFACE - Register



SecureVote - Your Trusted Online Voting Platform

[!\[\]\(e7d355f3419b5614c98e5627b7544acf_img.jpg\) Home](#) [!\[\]\(a579b697b66d5b32e3c1edc28e88c7c1_img.jpg\) Results](#) [!\[\]\(991bc5544d36d9c05b62b19091550fdc_img.jpg\) Admin Login](#)

Register for Voting

First Name

Last Name

Username

Aadhar Card Number

12-digit Aadhar number without spaces or hyphens

Password

Password must be at least 6 characters long

Confirm Password

I'm not a robot 
reCAPTCHA
Privacy + Terms

Register

Already have an account? [Login here](#)

USER INTERFACE - Login

The screenshot shows the login page of the SecureVote platform. At the top, there's a dark blue header bar with the SecureVote logo and the text "SecureVote - Your Trusted Online Voting Platform". Below the header is a navigation bar with links for "Home", "Results", and "Admin Login". The main content area features a "Login for Voting" form. The form has two input fields: "Username/Aadhar" and "Password", both with placeholder text. A "Login" button is located below the password field. At the bottom of the form, there's a link for users who don't have an account. The footer of the page includes the SecureVote logo, social media icons for Facebook, Twitter, Instagram, and LinkedIn, and a copyright notice: "© 2025 SecureVote. All rights reserved." The URL "localhost/Online-voting-system-project-in-php-master/admin_login.php" is visible at the very bottom of the browser window.

SecureVote - Your Trusted Online Voting Platform

Home Results Admin Login

Login for Voting

Username/Aadhar

Enter your username/Aadhar number

You can use your username or Aadhar number

Password

Enter your password

Login

Don't have an account? Contact the administrator

Your trusted online voting platform for fair and transparent elections.

f t i n

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localhost/Online-voting-system-project-in-php-master/admin_login.php

USER INTERFACE - Voting

The image shows the SecureVote user interface for a voting session. At the top, there is a dark blue header bar with the SecureVote logo, a navigation menu with links for Home, Results, Profile, Password, and Logout, and a user profile section showing 'kavya'. Below the header is a large white rectangular area containing a 'Welcome kavya' message in a dark grey box. The main content area is titled 'Make Your Vote' and asks 'What is your favorite political party?'. It lists five options with radio buttons: BJP, CONGRESS, AAP, NOTA, and NIRDLY. A green 'Submit Vote' button is located below the list. A small note at the bottom of the form says 'Your vote is confidential and important'. At the very bottom of the page is a dark footer bar with the SecureVote logo, the text 'Your trusted online voting platform for fair and transparent elections.', social media icons for Facebook, Twitter, Instagram, and LinkedIn, and the copyright notice '© 2025 SecureVote. All rights reserved.'

SecureVote

Home Results Profile Password Logout

Welcome kavya

Make Your Vote

What is your favorite political party?

BJP

CONGRESS

AAP

NOTA

NIRDLY

Submit Vote

Your vote is confidential and important

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USER INTERFACE - Result

 SecureVote

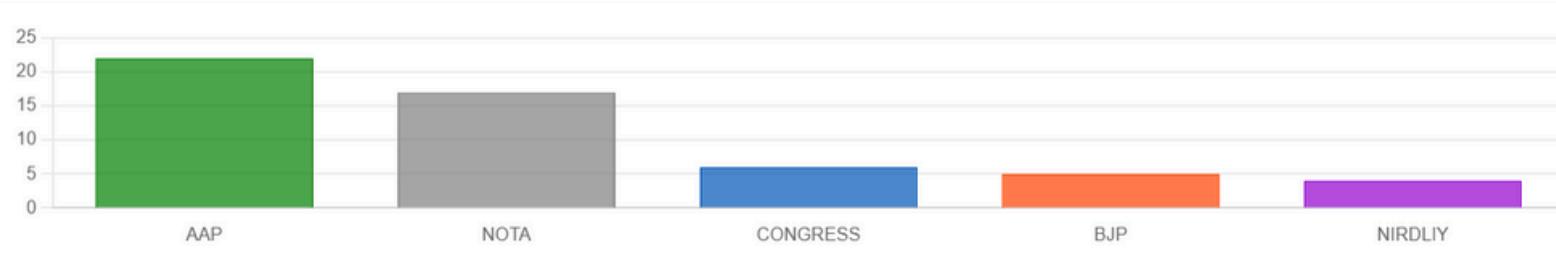
[!\[\]\(f9640f02d06b604c50c1e3a558a31388_img.jpg\) Home](#) [!\[\]\(d9d98187a25260cd1316acead95958b1_img.jpg\) Results](#) [!\[\]\(5e91ce58ee8e9ab2222ea2dcf7128599_img.jpg\) Profile](#) [!\[\]\(0fee90055c33b690097ce6e49c052bde_img.jpg\) Password](#)  kavya  Logout

Election Results

Party	Votes	Percentage	Progress
AAP	22	40.7%	<div style="width: 40.7%; background-color: #2e7131;"></div>
NOTA	17	31.5%	<div style="width: 31.5%; background-color: #007bff;"></div>
CONGRESS	6	11.1%	<div style="width: 11.1%; background-color: #ffc107;"></div>
BJP	5	9.3%	<div style="width: 9.3%; background-color: #ffc107;"></div>
NIRDLY	4	7.4%	<div style="width: 7.4%; background-color: #ffc107;"></div>

Total votes: 54

Results Overview



Party	Votes
AAP	22
NOTA	17
CONGRESS	6
BJP	5
NIRDLY	4



Your trusted online voting platform for fair and transparent elections.

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USER INTERFACE - Admin Page

Dashboard

Manage Candidates

View Results

Logout

Voting Results Dashboard

Total Candidates 5

Total Voters 2

Votes Cast 2
100% turnout

Print Results

Detailed Results

Position	Candidate	Party	Votes	Percentage
Election	AAP	Aam Aadmi Party	22	40%
Election	NOTA	None of the Above	17	30.91%
Election	BJP	Bharatiya Janata Party	6	10.91
Election	CONGRESS	Indian National Congress	6	10.91
Election	NIRDLY	Independent Candidate	4	7.27

Last updated: 2025-06-08 09:07:27

Admin Actions

Warning: These actions are restricted to administrators only.

Export Results

Reset Votes

ADVANTAGES :

Digital Voting: Removes dependency on physical presence

1. Transparency: Admin can't modify user votes
2. Security: One person, one vote via Aadhar check
3. Time-saving: Votes counted instantly, results declared faster
4. Scalable: Can be extended for elections across states or universities



Future Enhancements :

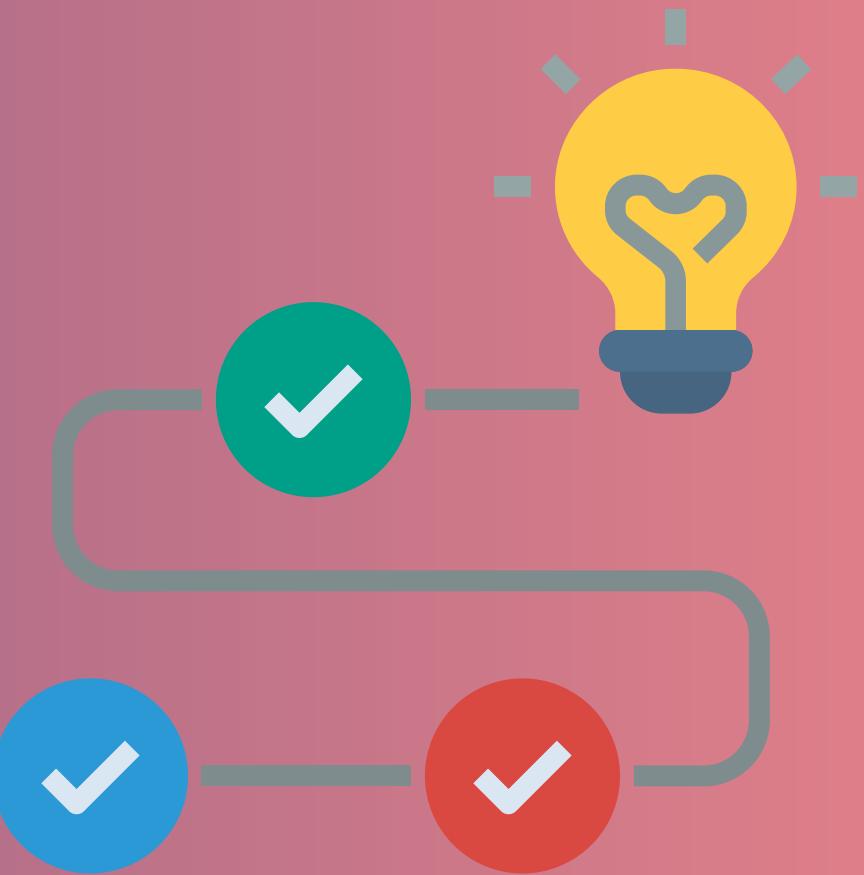
OTP Verification using mobile/email to add second-factor authentication

1. Biometric or Face Authentication for high security
2. Blockchain-based vote logging for immutable records
3. Cloud hosting for high availability and scaling
4. Real-time dashboards for admin and public viewing
5. Email confirmation after casting the vote



CONCLUSION :

1. Developed a secure and user-friendly online voting system
2. Ensures voter authenticity using Aadhar verification
3. Prevents duplicate voting and manual errors
4. Improves accessibility for remote and disabled users
5. Ready for future enhancements like OTP and blockchain



Thank
you