MKSSS's Cummins College of Engineering for Women, Pune

(A.Y. 2021-22)

Database Management System Lab

Report: Voting Management System

eVote portal is an online voting technique where citizens above the age of 18 are able to give their vote without physically going to the polling stations. There is a database maintained with data about the voters such as their names, phone numbers, email addresses and date of births. Upon registering users can login into the page using their phone number and a set password and cast a vote with the help of information displayed about the election parties. This complete information is stored and maintained and the system makes sure to append the vote count accurately and changes the status of the voter from “Non-voted” to “Voted” after casting the vote.

Significance of this system

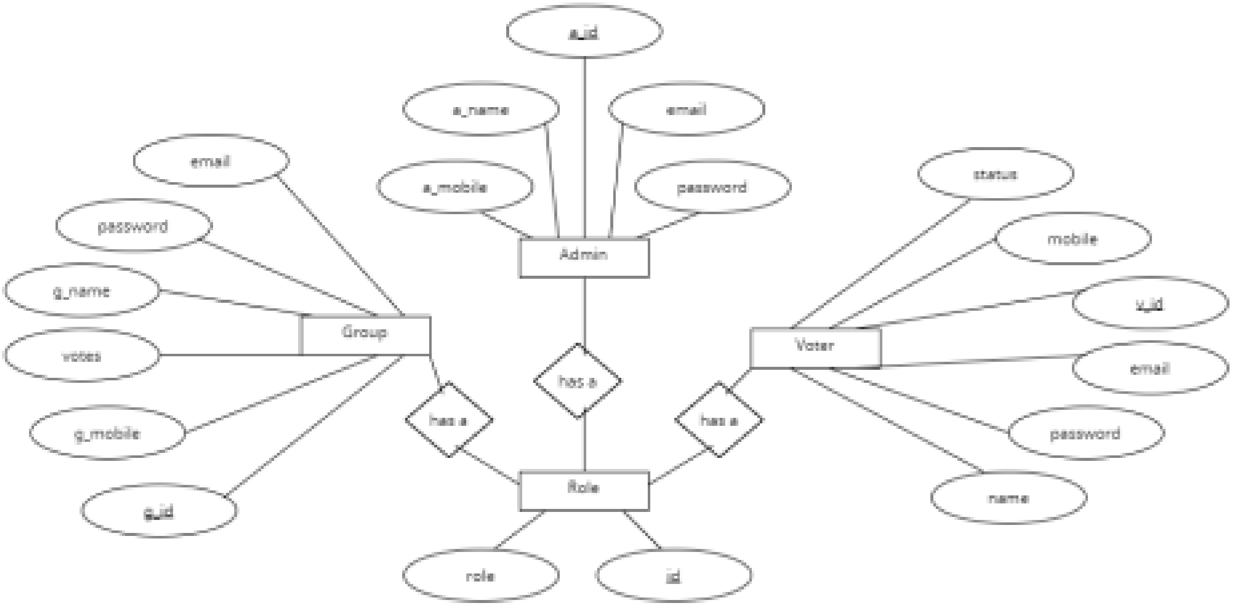
- Online voting is an electronic way of choosing leaders through a web-based application. Its advantage over physical voting polls is that the voters can vote at their own free time and reduces congestion.

- Computing the total votes at the end of the election is also easier if the entire process is done online.
- In addition, physical voting requires voters waiting in queues and authorities assigned to regulate and maintain all voters. Therefore less staff is required. ● System is easily maintained and ensures transparency and fairness. ● The number of citizens who vote also increases as eVoting gives them an option to vote anywhere anytime. It is also discreet.

Software Requirements

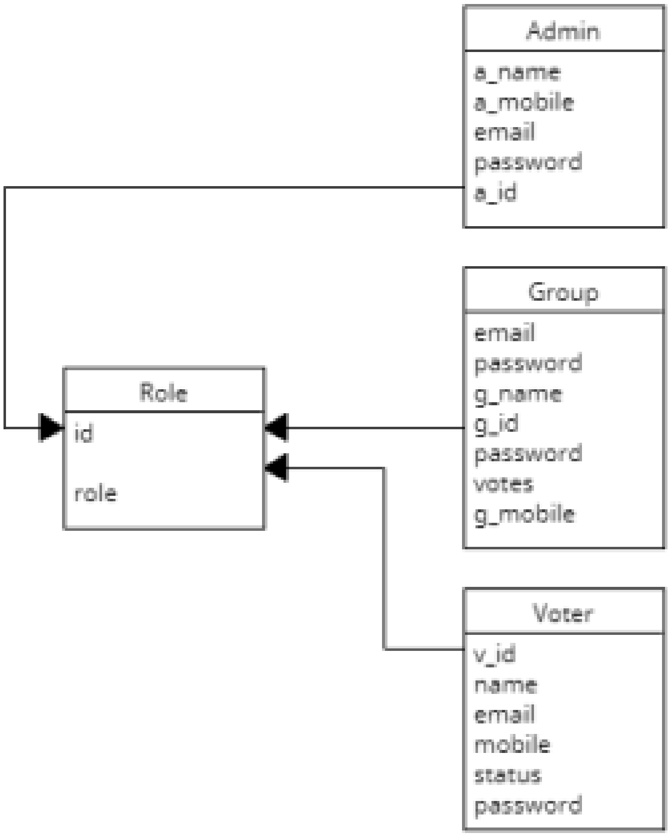
- **HTML** : HTML(HyperText Markup Language) is the standard markup language for Web pages. With HTML you can create your own Website. HTML is easy to learn.
- **CSS** : CSS(Cascading Style Sheets) is the language we use to style an HTML document. CSS describes how HTML elements should be displayed. ● **PHP** : PHP is a popular general-purpose scripting language that is especially suited to web development. Fast, flexible and pragmatic, PHP powers everything from your blog to the most popular websites in the world.
- **PHPMYADMIN** : phpMyAdmin is a free software tool written in PHP, intended to handle the administration of MySQL over the Web. It supports a wide range of operations on MySQL and MariaDB. Frequently used operations can be performed via the user interface, while you still have the ability to directly execute any SQL statement.
- **MYSQL** : It allows combination, extraction, manipulation and organization of data in the voter’s database. It is platform independent and therefore can be implemented and used across several devices such as windows, linux and is compatible with various hardware mainframes. It is fast in performance, stable and provides business value at a low cost.

ER Diagram



The above diagram depicts four entities, Voter, Admin, Group and Role. The former three having has a relationship with the latter. Their primary keys being v_id, a_id, g_id and id.

Relational Diagram



Domain Constraints

- All the attributes shown in the diagram are made 'NOT NULL' so the user has to fill these details to proceed to the next action. As all the fields are required fields without the input being given the action is not performed.
- Entity constraints state that no primary key can have NULL value. As the result of the above mentioned statement no primary key has NULL value maintaining the integrity of the database.
- Referential integrity constraints are specified between two relations and are used to keep the tuples in two relations consistent. Here id in Role acts has a foreign key to the v_id, g_id and a_id attributes in the tables Voter, Group and Admin respectively. This gives us the Relational Integrity constraint.
- Here a data type check is performed which limits the values that can be stored in

it. For example id is of int data type so it cannot have any text value. The mobile attribute should have 10 integers as specified. These checks give us the domain constraint.

Queries and relational algebra

- For login we first checked mobile and password using the following query:
  *select * from User where mobile='$mobile' and password='$pass';*
  ��$_{\textbf{mobile = “\$mobile” and password = “\$pass”}}$**(User)**

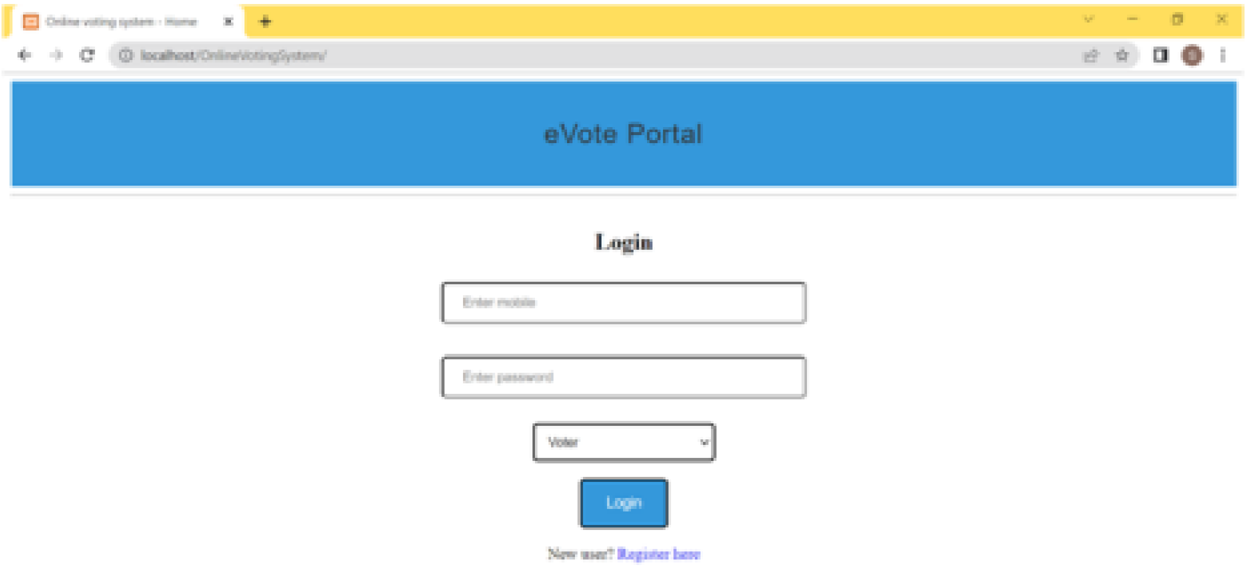
  Similarly for updating information we have to verify the mobile number to match the specific tuple. We use the following query.
  *select * from user where mobile='$cmob'*
  ��$_{\textbf{mobile = “\$mobile”}}$ **(User)**

- Some other queries we used are:
  1. UPDATE user set votes='$total_votes' where id='$gid';
  2. INSERT INTO user (name, mobile, password, email, photo, status, votes,
  role) values('$name', '$mobile', '$pass', '$email', '$image', 0, 0, '$role'; 3.
  UPDATE user SET email='$email' where mobile='$cmob';
  4. DELETE FROM user WHERE mobile='$mobile';

- By relational algebra we can verify if the IDs given are unique or not. Intersection of Amin, Voter or Group should not give any value i.e.
  $\prod_{\textbf{a\_id}}\textbf{(Admin)} \cap \prod_{\textbf{v\_id}}\textbf{(Voter) = NULL}$
  The union of the above-mentioned relations of the ID attribute will give us the same output as we will get by selecting the ID attribute from the Role table.

Working and Functionality

The home page directs us to the login page from where you can register or login if you have already registered.

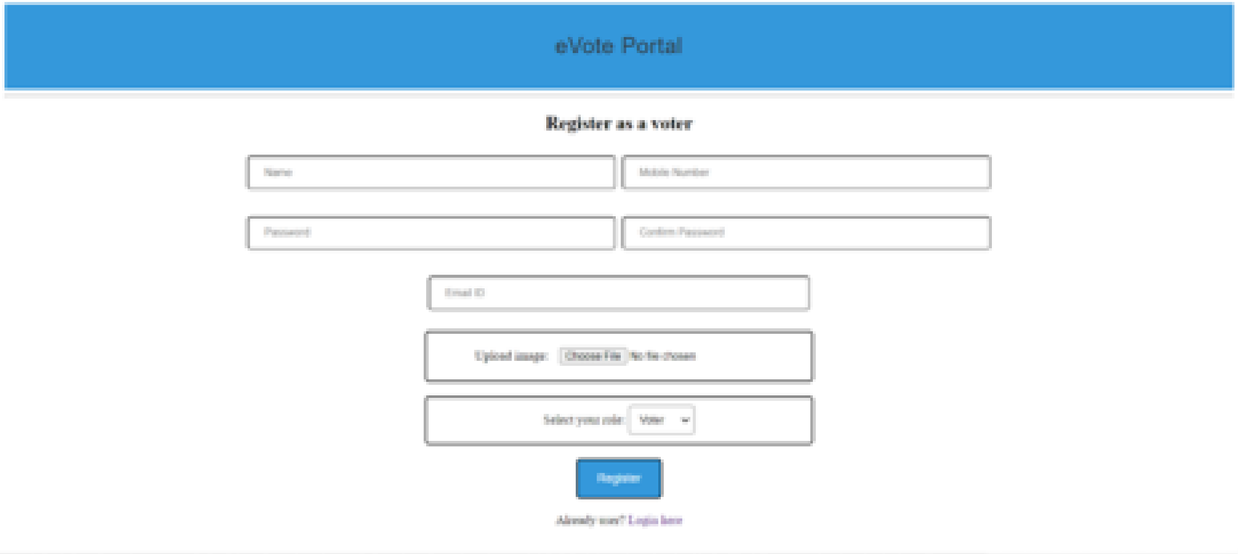


eVote Portal

Login

New user? Register here

When clicked on Register here we are redirected to a registration page. If the user has already registered he can go back to the home page and login by clicking on the Login here.

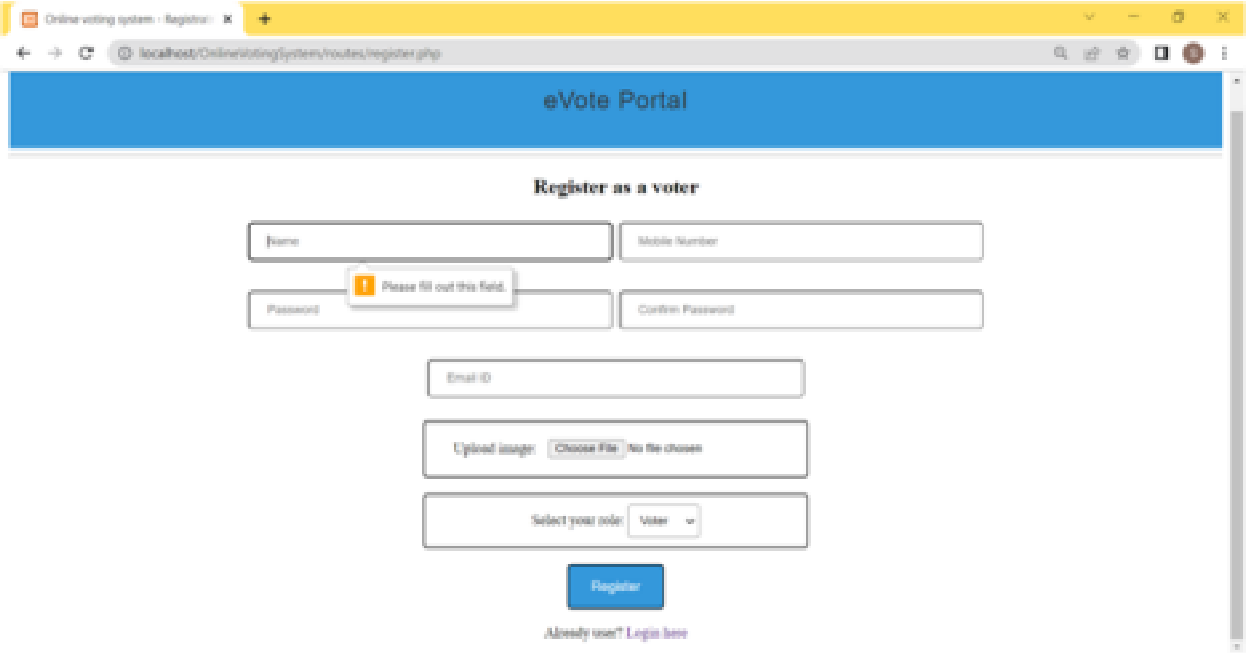


eVote Portal

Register as a voter

Already user? Login here

Here a user can give appropriate inputs according to his/her role as admin, voter or a group. If the user fails to input some field he/she receives a message.

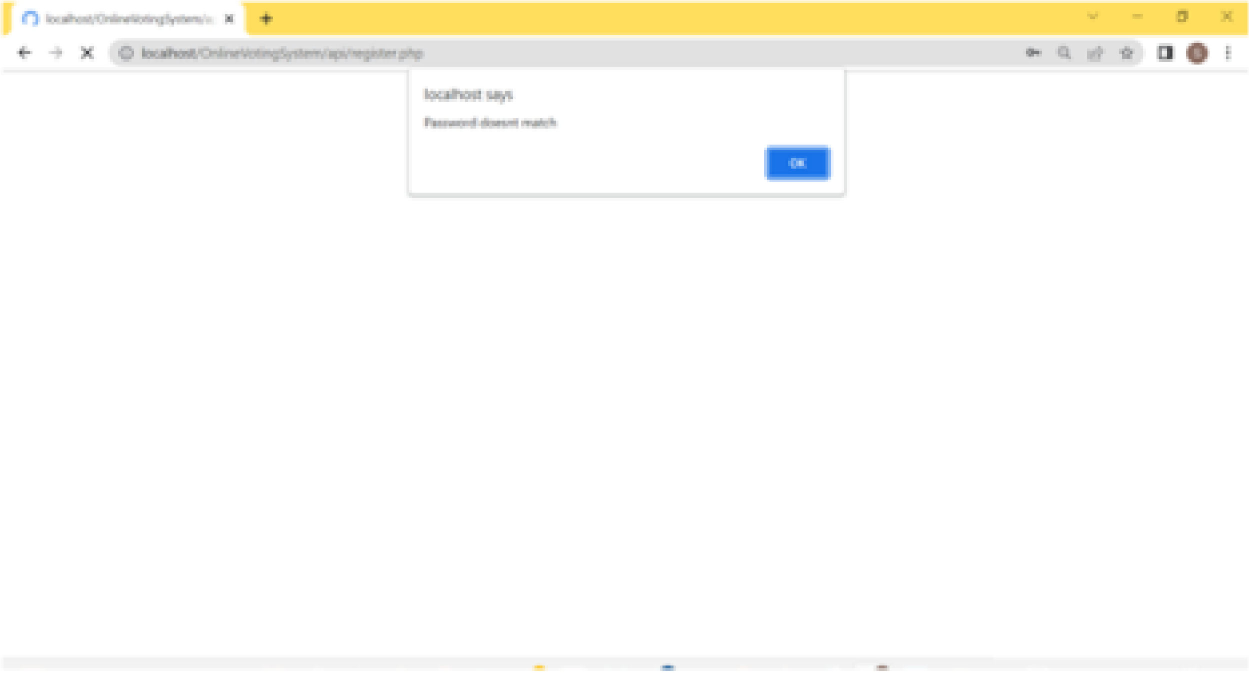


eVote Portal

Register as a voter

Please fill out this field.

If the password confirm does not match, user will get an alert and he will be redirected to the registration page to confirm the password again.

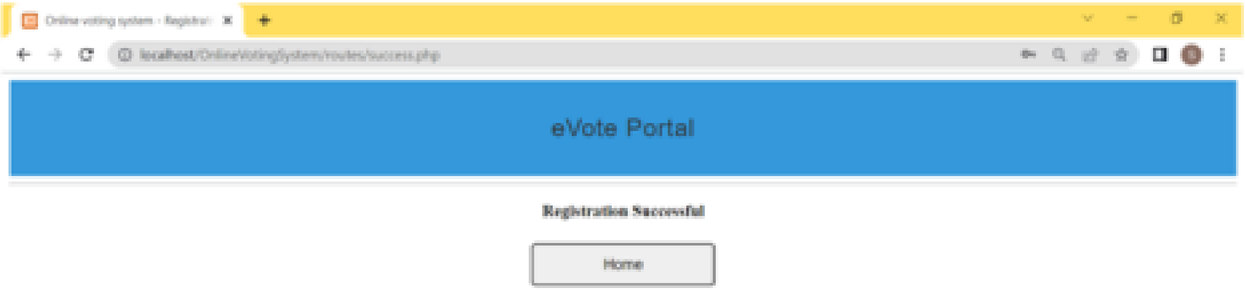


localhost/OnlineVotingSystem/a
localhost/OnlineVotingSystem/api/register.php
OK

localhost says

Password doesnt match

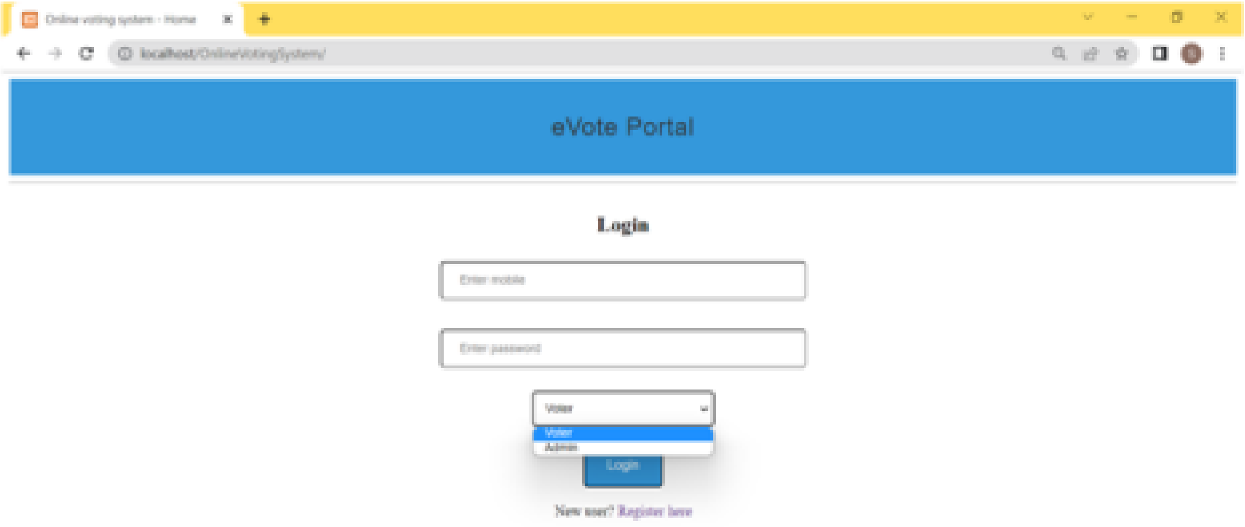
After a successful registration, a confirmation page for the same appears.


Online voting system - Registrat
localhost/OnlineVotingSystem/routes/success.php
Home

eVote Portal

Registration Successful

By clicking on the home page the user is redirected to the home page where he can login to proceed. A user can login as Admin or a Voter.

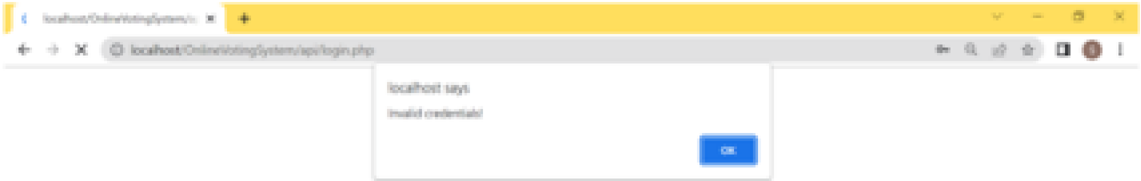


eVote Portal

Login

New user? Register here

If the login and/or password does not match an alert is generated for invalid credentials.

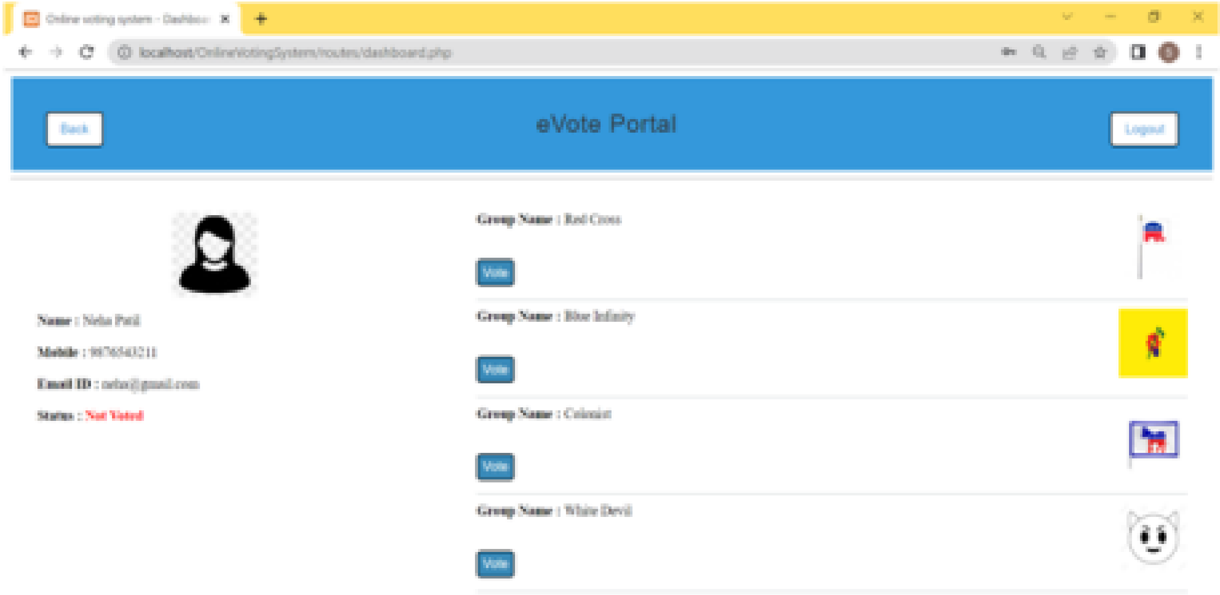


localhost/OnlineVotingSystem/a
localhost/OnlineVotingSystem/api/login.php

localhost says

Invalid credentials!

If the user successfully logins as a Voter the following page appears. Initially the status of the voter is Not Voted.



Online voting system - Dashboa
localhost/OnlineVotingSystem/routes/dashboard.php
Back
eVote Portal
Logout
Vote
Vote
Vote
Vote

Name : Neha Patil

Mobile : 9876543211

Email ID : neha@gmail.com

Status : Not Voted

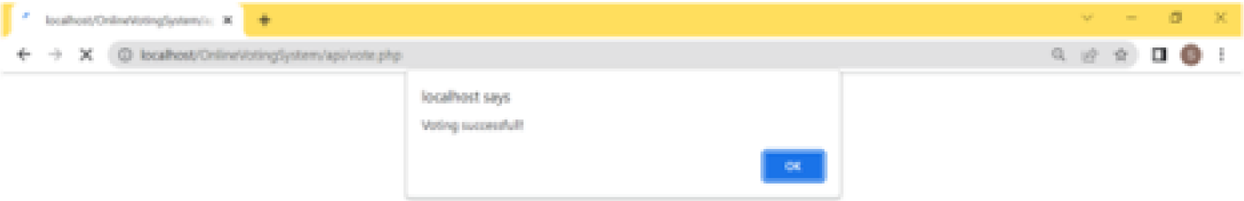
Group Name : Red Cross

Group Name : Blue Infinity

Group Name : Colonist

Group Name : White Devil

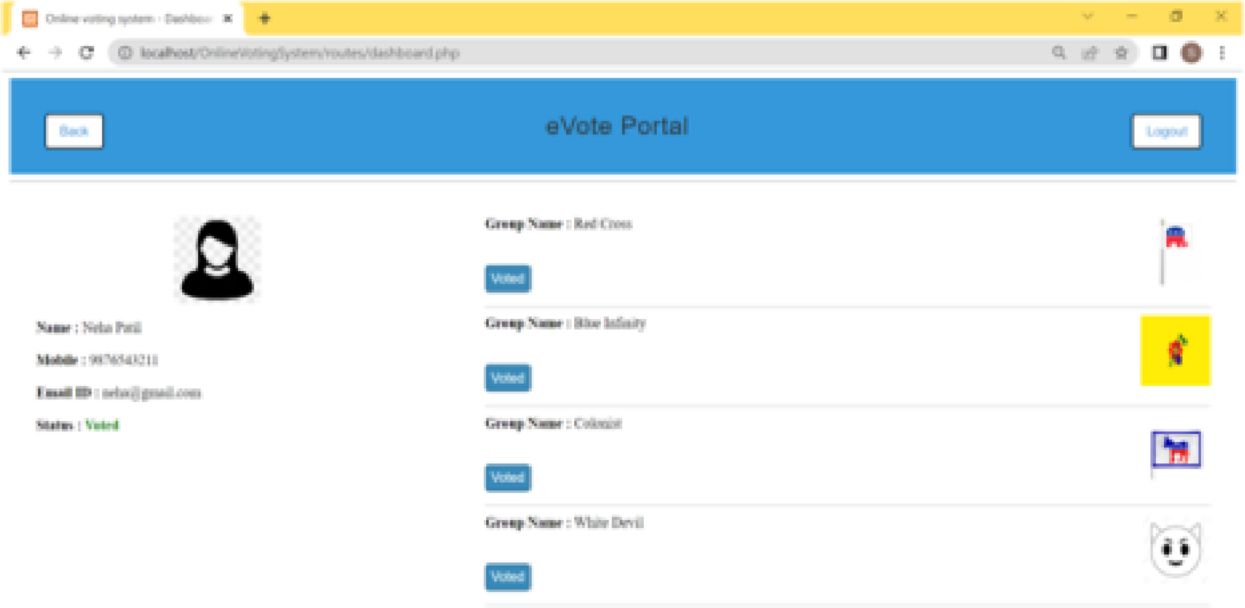
Users can click on the vote button to vote for any group. After clicking on the vote button the user is notified of successful voting.



localhost says

Voting successfull!

After voting the status is updated to Voted and the user becomes ineligible to vote again. They can’t give multiple votes.


Online voting system - Dashboard
localhost/OnlineVotingSystem/routes/dashboard.php
Back
eVote Portal
Logout
Voted
Voted
Voted
Voted

Name : Neha Patil

Mobile : 9876543211

Email ID : neha@gmail.com

Status : Voted

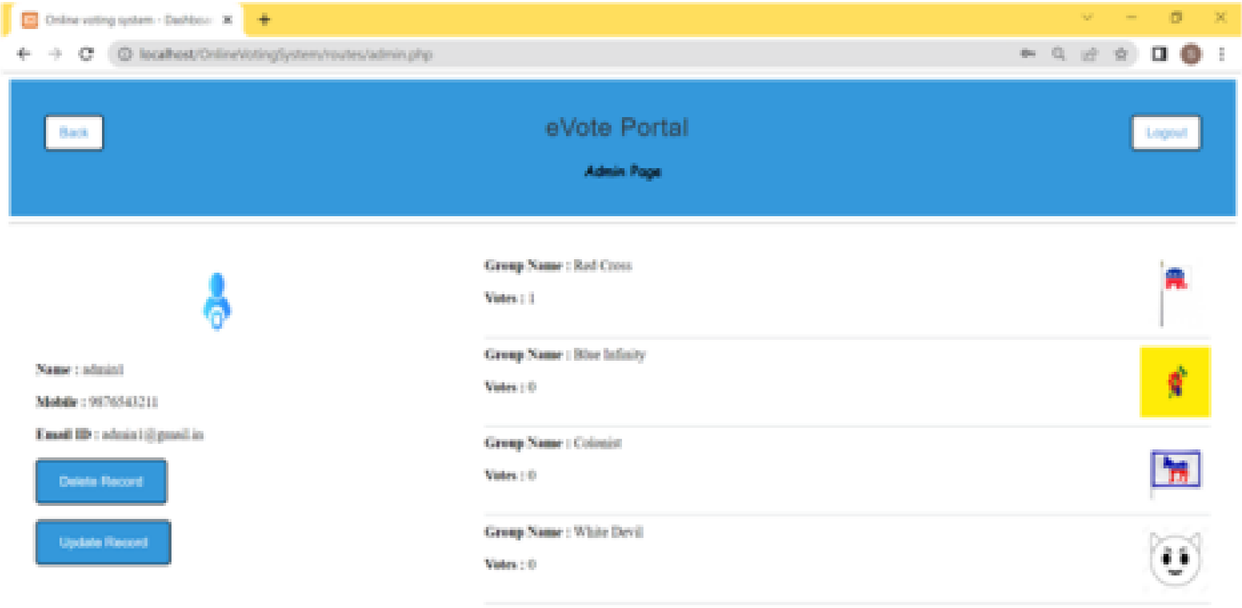
Group Name : Red Cross

Group Name : Blue Infinity

Group Name : Colonist

Group Name : White Devil

If a user successfully logins as an Admin, he is not able to see the votes but view poll results, update and delete records.


Online voting system - Dashboard
localhost/OnlineVotingSystem/routes/admin.php
Back
Logout

eVote Portal

Admin Page

Name : admin1

Mobile : 9876543211

Email ID : admin1@gmail.in

Delete Record
Update Record

Group Name : Red Cross

Votes : 1

Group Name : Blue Infinity

Votes : 0

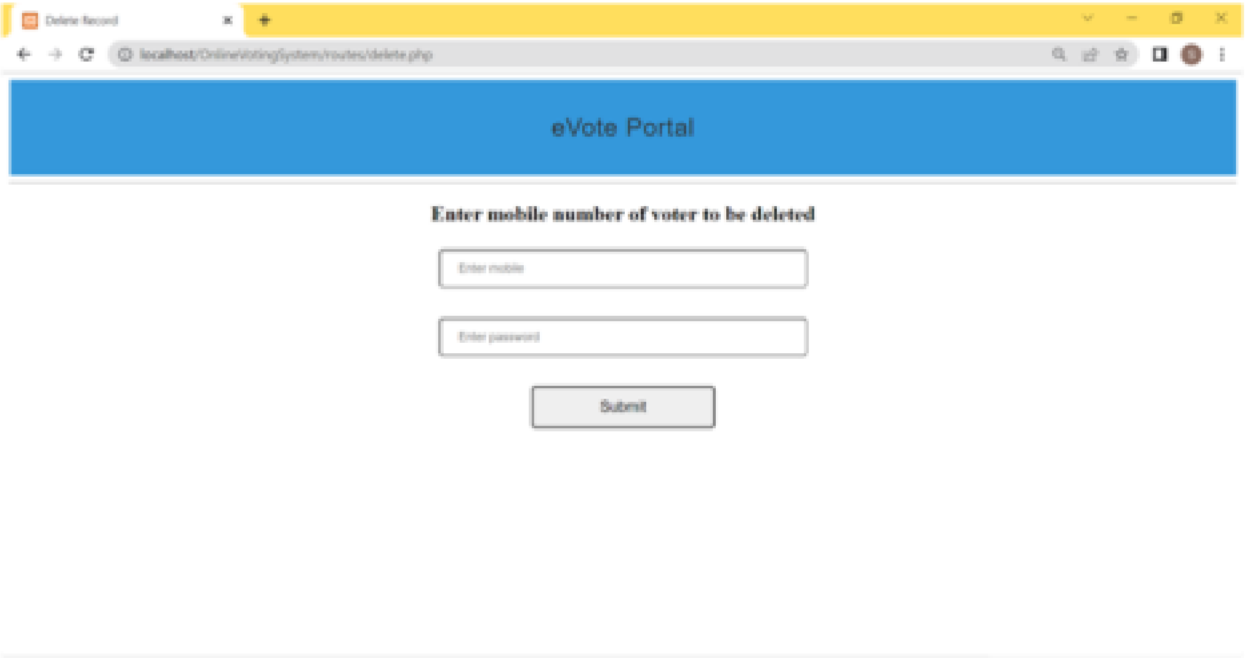
Group Name : Colonist

Votes : 0

Group Name : White Devil

Votes : 0

By clicking on the Delete Record button admin is redirected to a page where he can enter the phone number and password whose record admin wishes to delete.



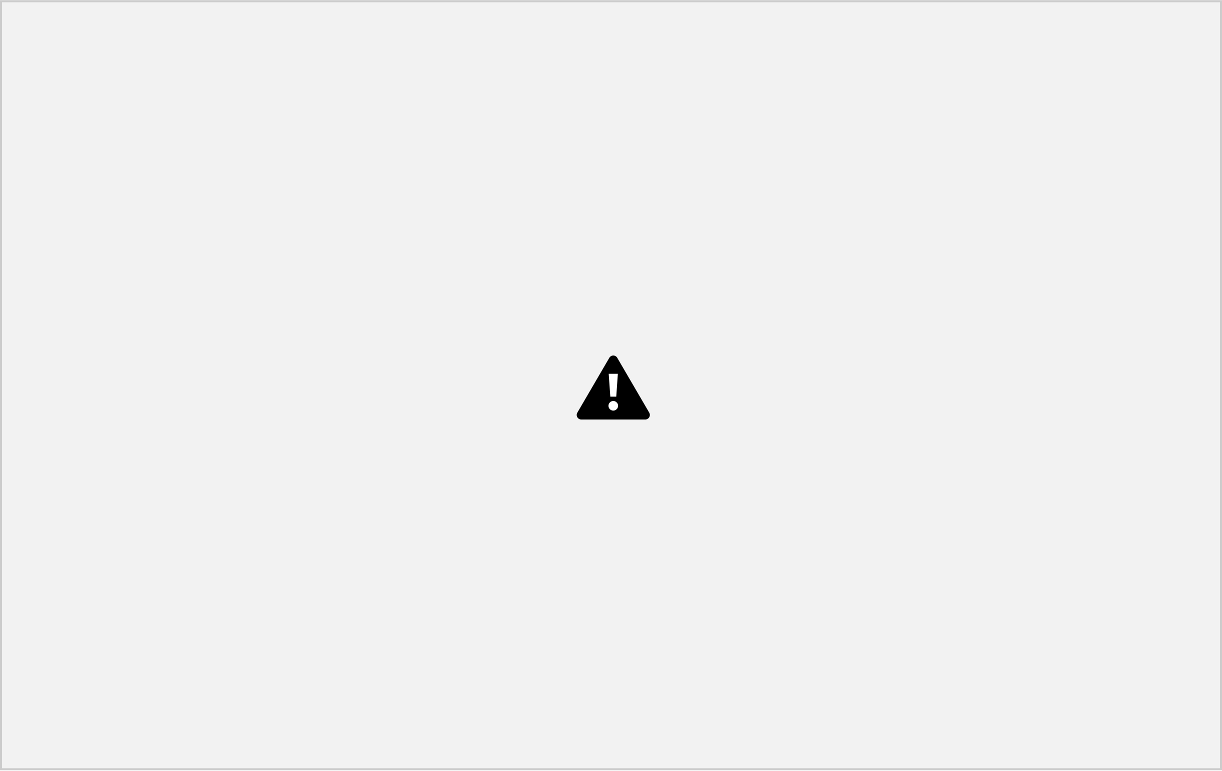
eVote Portal

Enter mobile number of voter to be deleted

If an invalid phone number is entered an alert is given.

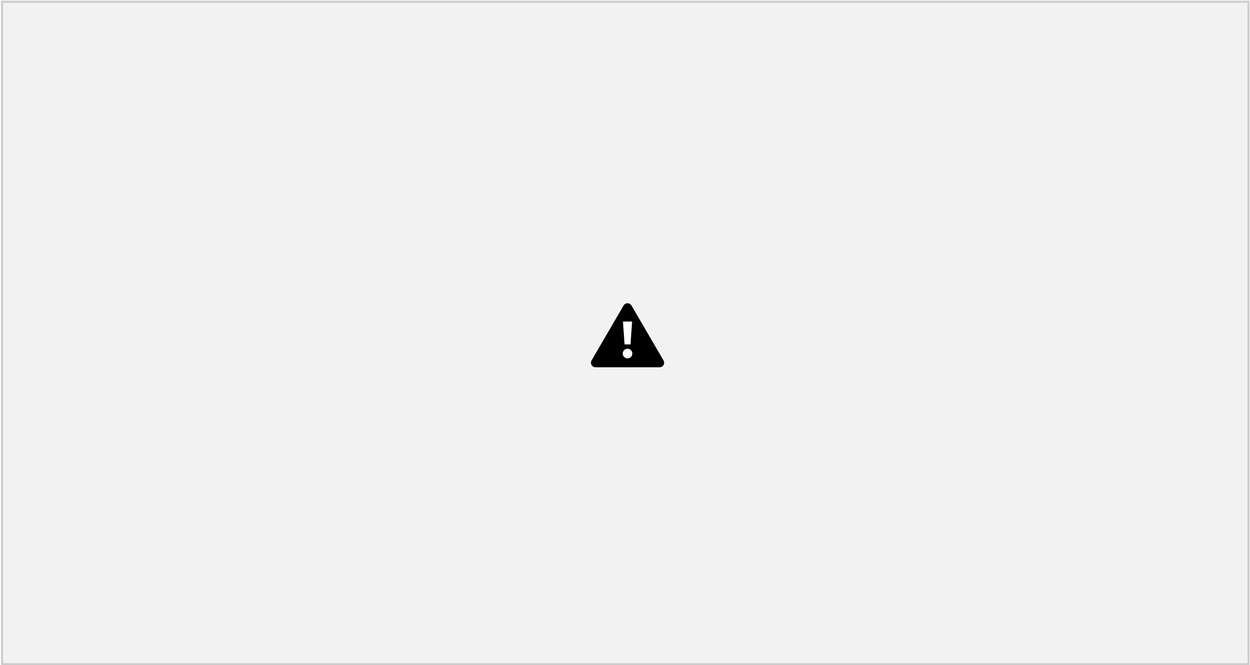
Similarly on successful entry a confirmation is given to the user.

This deletion of the record is reflected in the database, as we can see below the phone was present in the database earlier, later it was deleted.



After deletion:

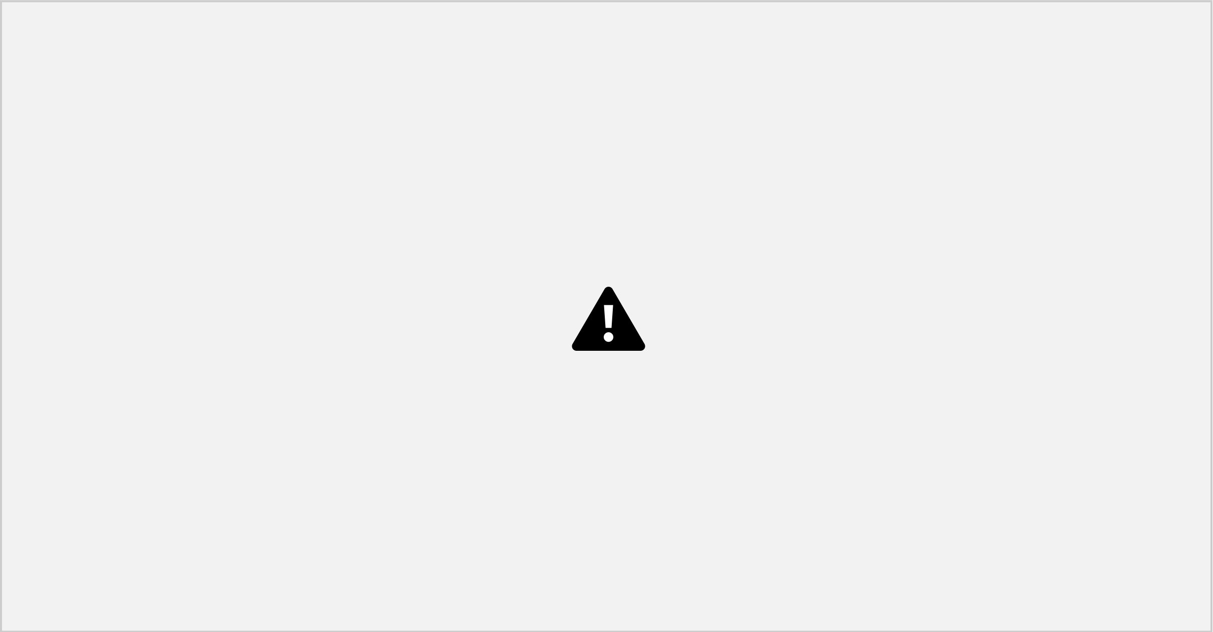
On clicking Update Record button Admin is redirected to a different page where he can update the details.



Here the user has to first confirm the current details, if the current record is not matched the user is notified.

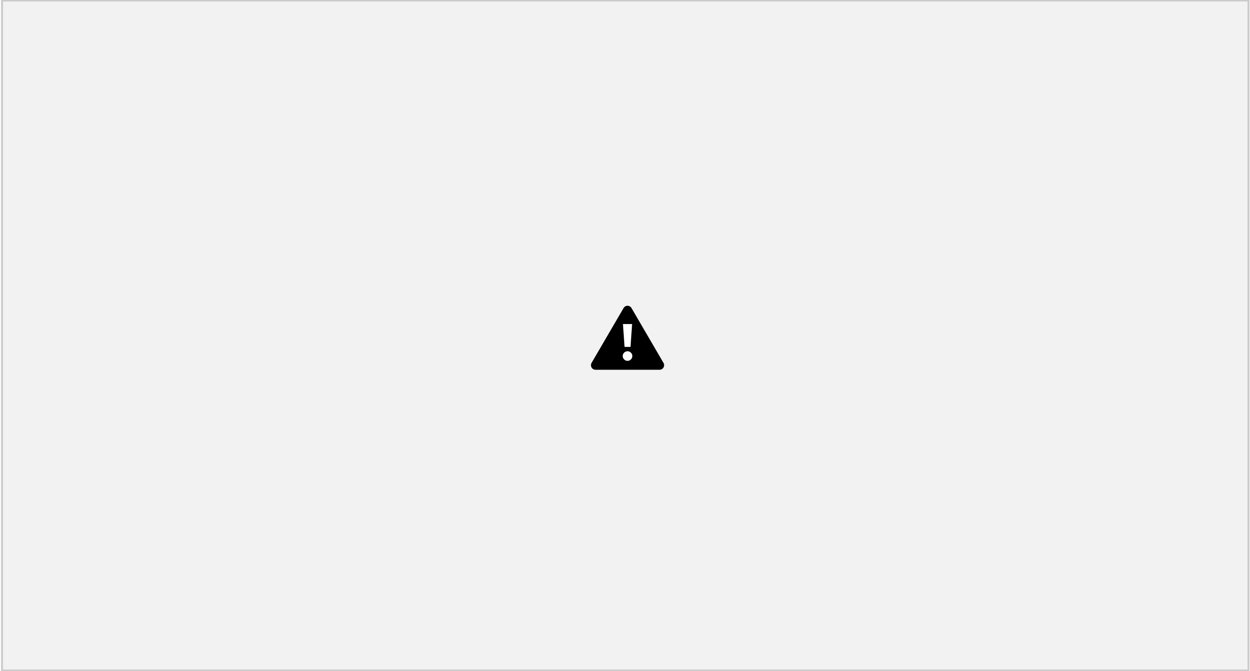
Similarly if the password is not matched, the user is notified too.

After the valid details are entered a confirmation message is generated for successful update.

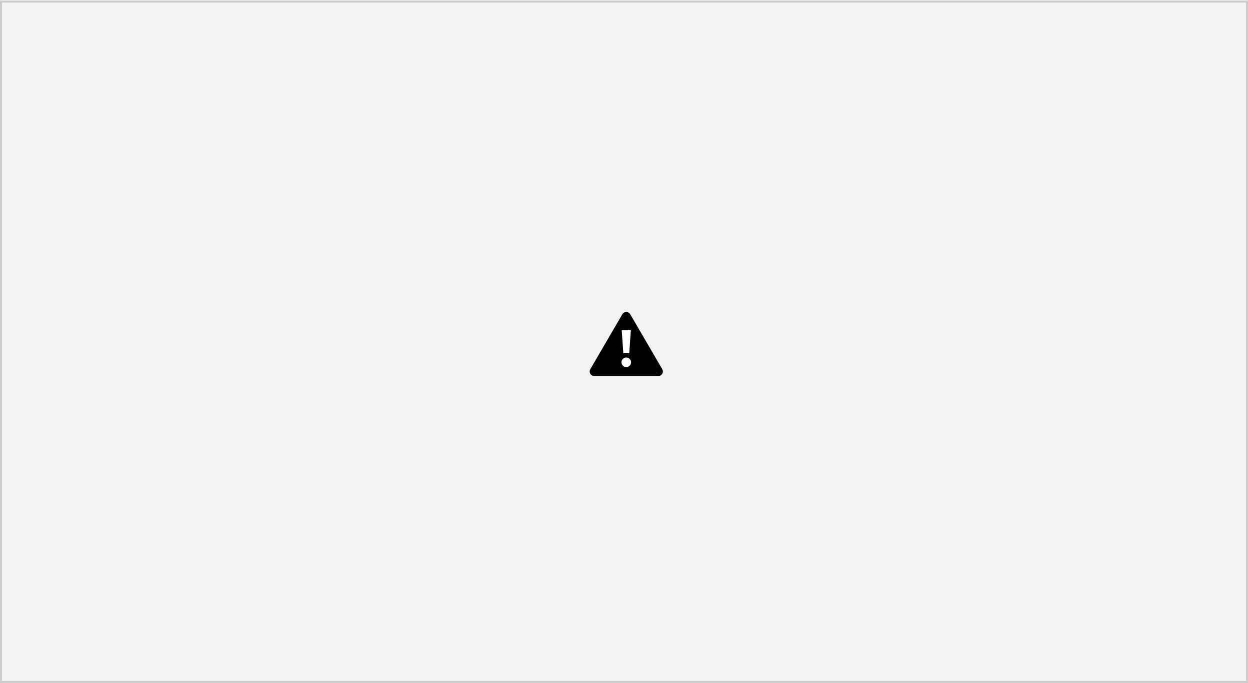


The updated record is reflected in the database.

Before updating the record:



After updating the record:



Conclusion

The online voting management system will manage the voter’s information by which a voter can login and cast a vote. The system incorporates features providing the tools for maintaining voter’s every vote and it can count the total number of votes a party gained. There is a database maintained in which all the names of the voters with their complete information is stored.

New voters can register and vote and even update their profile. By the online voting system, the percentage of people who vote significantly increases. The system helps reduce cost and time consumed by the traditional physical polling system. It's very easy to use and is maintained by admins who ensure a smooth voting process for everybody.

Team

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