Group Project : Online Voting System

Project plan: Create a secure platform for user registration, candidate information, and casting votes. Includes key features of Joins for candidates, voters, and voting records; enforced one-time voting per user;secure login for voting; transactions for vote submission.

Entities

CREATE TABLE users (

id INT AUTO\_INCREMENT PRIMARY KEY,

username VARCHAR(50) UNIQUE,

password VARCHAR(255) NOT NULL,

email VARCHAR(100) UNIQUE,

registration\_date TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

This table stores information about registered users

id: A unique identifier for each user.

username: A unique username for the user.

password: A hashed password for the user.

email: A unique email address for the user.

registration\_date: The timestamp when the user registered.

CREATE TABLE candidates (

id INT AUTO\_INCREMENT PRIMARY KEY,

name VARCHAR(100) NOT NULL,

description TEXT,

party VARCHAR(50),

election\_date TIMESTAMP DEFAULT CURRENT\_TIMESTAMP

);

This table stores information about the candidates running in the election.

id: A unique identifier for each candidate.

name: The name of the candidate.

description: A brief description of the candidate.

party: The political party the candidate represents.

election\_date: The timestamp when the candidate entered the election.

CREATE TABLE votes (

id INT AUTO\_INCREMENT PRIMARY KEY,

user\_id INT,

candidate\_id INT,

vote\_time TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(id) ON DELETE CASCADE,

FOREIGN KEY (candidate\_id) REFERENCES candidates(id) ON DELETE CASCADE,

UNIQUE(user\_id)

);

This table stores vote information, linking users to the candidates they voted for.

id: A unique identifier for each vote.

user\_id: A reference to the user who cast the vote.

candidate\_id: A reference to the candidate who received the vote.

vote\_time: The timestamp when the vote was cast.

CREATE TABLE logs (

id INT AUTO\_INCREMENT PRIMARY KEY,

user\_id INT,

action VARCHAR(255),

ip\_address VARCHAR(45),

user\_agent VARCHAR(255),

timestamp TIMESTAMP DEFAULT CURRENT\_TIMESTAMP,

FOREIGN KEY (user\_id) REFERENCES users(id) ON DELETE SET NULL

);

This table tracks user actions, such as logging in or voting.

id: A unique identifier for each log entry.

user\_id: A reference to the user who performed the action.

action: The action performed by the user (e.g., logged in, voted).

ip\_address: The IP address of the user when the action was performed.

user\_agent: The user agent string identifying the browser or device.

timestamp: The timestamp when the action occurred.

Technical Details / Database design

SELECT c.name, COUNT(v.id) AS total\_votes

FROM candidates c

LEFT JOIN votes v ON c.id = v.candidate\_id

GROUP BY c.id;

SELECT v.id AS vote\_id, u.username, c.name AS candidate\_name, v.vote\_time

FROM votes v

JOIN users u ON v.user\_id = u.id

JOIN candidates c ON v.candidate\_id = c.id;

Left Join on votes and candidates to count the amount of votes casted for each candidate

Join on users an voter id to ensure one-time voting

Join attaching candidate to vote

We can use the database to:

* Register users.
* Track votes for candidates.
* Log user actions such as voting.

Source Files

Onlinevotingsystem2.sql : Creation of database,joins and inputs of candidates

db.php : Established database connection

Login.php: Page to login with registered credentials

Register.php : Page to register creating a username,password and providing an email

Vote.php : Page for registered users to cast their vote and enforces one time voting rule

Results.php: Displays vote count for each candidate (only visible to admin)