01/12/2024

Project Outline

E-VOTING SYSTEM

Submitted by:

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Introduction (Aim or Motivation

This project aims to develop a secure, efficient, and user-friendly e-voting system that allows users to register, authenticate, and cast their votes in a transparent and reliable manner. The primary motivation is to digitize the voting process while ensuring data integrity and preventing unauthorized access.

Background (Research & Project Selection)

In a digital era, traditional voting methods are often time-consuming and prone to errors or fraud. Research indicates that electronic systems can streamline the process, reduce costs, and improve participation rates. The project was selected to address these challenges by creating an e-voting system with functionalities for voter registration, candidate management, and real-time election reporting.

Programming Language : C

Core Features:

- Voter registration with validation of name, email, and roll number.
   - Candidate registration with unique IDs.
   - Secure login for voters and administrators.
   - Voting functionality with prevention of duplicate votes.
   - Real-time election results display.

Problem Analysis:

Key challenges addressed include:
- Validating user inputs (e.g., email, date of birth, and roll number).
- Preventing unauthorized access with a secure password system.
- Ensuring the system can handle edge cases, such as invalid inputs or duplicate entries.

Solution Design (Project Detail, Functionality, and Features)

1.Modules and Features

- *Voter Module:* Handles registration, login, and voting processes.
  - *Admin Module:* Allows candidate registration, viewing election reports, and system management.

2.Input Validations:

- Name must contain only letters and spaces.
  - Email must follow a valid format with "@" and ".".
  - Date of Birth ensures voters are at least 18 years old.
  - Roll number format is validated to ensure consistency.

3.Functional Flow:

- Admin registers candidates.
  - Voters register and log in to cast votes.
  - The system prevents multiple votes by the same voter.
  - Election results are dynamically calculated and displayed.

Implementation & Testing

1.Implementation Steps:

 - Defined data structures (Voter, Candidate) for efficient information storage.
   - Implemented modular functions for validation, registration, and voting.
   - Secured admin access with password protection.

2.Testing Scenarios:

   - Input edge cases (e.g., invalid email formats, incorrect date inputs).
   - Stress testing with maximum voters and candidates.
   - Functional testing of voting and result display.

3.Functional Flow:

- Admin registers candidates.
   - Voters register and log in to cast votes.
   - The system prevents multiple votes by the same voter.
   - Election results are dynamically calculated and displayed.

Project Breakdown Structure (Workload distribution with timeline)

TASK	ASSIGNED TO	TIMELINE
Voter Module Development	Rameen Ramzan	Week 1 – Week 2
Admin Module Development	Umama Zubair	Week 2 – Week 3
Integration & Testing	Both Members	Week 4

Results (Output screenshots)

- **Voter Registration Screen:** Displays successful registration with a unique voter ID.
- **Candidate Registration Screen**: Lists all registered candidates.
- **Voting Screen**: Confirms successful vote casting.
- **Election Results:** Displays candidate names with vote counts.

```
C:\Users\UMZ\OneDrive\Desktop\PFvf\New folder\Project VF.exe
2.  Name: John Doe
    Candidate ID: C4560
3.  Name: James Carter
    Candidate ID: C1113
4.  Name: Marie Simmons
    Candidate ID: C4865
5.  Name: David Lee
    Candidate ID: C2053
6.  Name: Daniel Wilson
    Candidate ID: C9367
7.  Name: Ava Anderson
    Candidate ID: C1332
8.  Name: Sophia Williams
    Candidate ID: C5696
9.  Name: Claire Mitchell
    Candidate ID: C6100
10. Name: Johnathan Smith
    Candidate ID: C7965

Enter the candidate ID to vote for: C4865

Confirm your vote for:
Candidate Name: Marie Simmons
Candidate ID: C4865
```

```
                        -------E-Voting System=====---
Kindly enter your choice:
1. Voter
2. Admin
3. To exit the program.
2
Enter the password (You have only 3 attempts): admin2024
You have been logged in successfully.

=============================
1. Register Candidates
2. View Candidates
3. View Election Report
4. View Voters
5. Start Voting
6. End Voting
7. Announce Winner
8. Return to main menu
=============================
5
Voting process has started.
Kindly enter your choice:
1. Voter
2. Admin
3. To exit the program.
1

=============================
1. Register yourself
2. Login (if already registered)
3. View Candidates
4. Cast a vote
5. Return to main menu
=============================
2
Enter your registration ID: UZ03052006
Enter your password: Umamazuba#3
Login successful! Welcome, Umama Zubair.
Enter your voter registration ID: UZ03052006

---=== Available Candidates ===---
1. Name: Ethan Parker
   Candidate ID: C4309
2. Name: John Doe
```

```
Candidate Name: Sophia Williams
Party Name: Progressive Change Party
Candidate ID: C5696
Votes: 0

Candidate Name: Claire Mitchell
Party Name: Workers Party
Candidate ID: C6100
Votes: 1

Candidate Name: Johnathan Smith
Party Name: National Democratic Party
Candidate ID: C7965
Votes: 1

Do you want to return to the main menu? (y/n): _
```

```
Candidate Name: Sophia Williams
Party Name: Progressive Change Party
Candidate ID: C5696
Votes: 0

Candidate Name: Claire Mitchell
Party Name: Workers Party
Candidate ID: C6100
Votes: 1

Candidate Name: Johnathan Smith
Party Name: National Democratic Party
Candidate ID: C7965
Votes: 1

Do you want to return to the main menu? (y/n): _
```

```
Kindly enter your choice:
1. Voter
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Enter the password (You have only 3 attempts): admin2024
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4. View Voters
5. Start Voting
6. End Voting
7. Announce Winner
8. Return to main menu
============================
4
---===Registered Voters===---
Name: Umama
Date of Birth: 00-00-0000
Voter ID: U
Roll Number:
Kindly enter your choice:
1. Voter
2. Admin
3. To exit the program.
```

```
Kindly enter your choice:
1. Voter
2. Admin
3. To exit the program.
2
Enter the password (You have only 3 attempts): admin2024
You have been logged in successfully.

=============================
1. Register Candidates
2. View Candidates
3. View Election Report
4. View Voters
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6. End Voting
7. Announce Winner
8. Return to main menu
=============================
4
---===Registered Voters===---
Name: Umama
Date of Birth: 00-00-0000
Voter ID: U
Roll Number:
Kindly enter your choice:
1. Voter
2. Admin
3. To exit the program.
```
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Conclusion (Summary & Discussion)

The e-voting system demonstrates a practical solution for digitizing the election process. The project highlights the importance of secure data handling and user-friendly interfaces. Future enhancements could include real-time analytics, blockchain-based vote storage, and multilingual support. Overall, the system provides a robust framework for small-scale digital elections.