

Electronic Voting Machine (EVM) Project Report

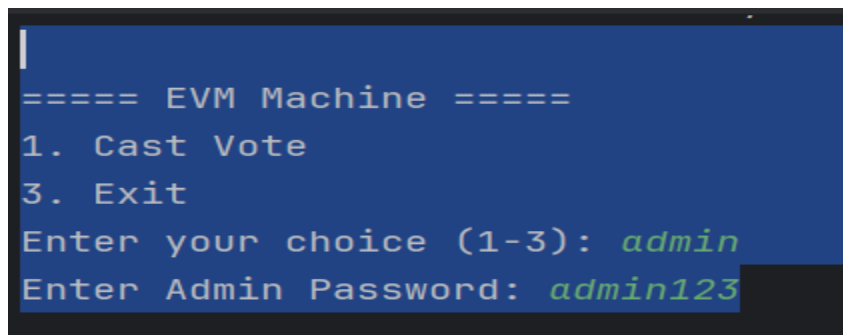
1. Introduction: The Electronic Voting Machine (EVM) project is a Python-based system designed to facilitate secure and efficient electronic voting. This system enables voters to cast their votes electronically, ensuring accuracy, transparency, and integrity in the electoral process. The project consists of multiple functionalities, including voter registration, candidate management, voting, and result calculation.

2. Objectives

- To develop a user-friendly electronic voting system.
- To ensure only registered voters can participate in elections.
- To prevent duplicate voting.
- To securely store votes and provide accurate results.
- To allow administrators to manage candidates and voters efficiently.

3. System Features

The system consists of two main modules:

A screenshot of a terminal window with a dark blue background and white text. The text displays the EVM Machine menu with options 1. Cast Vote and 3. Exit. It shows the user entering 'admin' for their choice and 'admin123' for the admin password.

```
==== EVM Machine ====  
1. Cast Vote  
3. Exit  
Enter your choice (1-3): admin  
Enter Admin Password: admin123
```

i. Vote Casting Module

- Allows a voter to cast their vote.

ii. Admin Module

- The admin function is hidden.
- Type "admin" to enter the admin module.
- Then, enter the admin password.
- The default password is admin123.

A. Vote casting Module:

```
===== EVM Machine =====
1. Cast Vote
3. Exit
Enter your choice (1-3): 1
Enter your Name: momo
Enter your Voter ID: 0005

===== Cast Your Vote =====
1. ABDUL HAKIM - Mark: DARIPALLAH
2. HAFIZ UDDIN - Mark: LANGOL
Enter the candidate's serial number to vote: 1
Your vote has been successfully recorded!
```

- a. To vote, you must enter your name and ID.
- b. If the name and ID don't match, you cannot cast a vote.
- c. Each voter can cast only one vote.
- d. Then, you will see the list of candidates.
- e. To cast your vote, enter the candidate's number.

B. Admin Module

```
===== ADMIN PANEL =====
1. Manage Candidates
2. Manage Voters
3. View Election Results
4. Return to Main Menu
Enter your choice (1-4):
```

This panel allows you to perform the following actions:

- a. Manage candidates.
- b. Manage voters.
- c. View election results.
- d. Add, view, search, and delete candidates.
- e. Add, view, search, and delete voter records.
- f. Display election results, including vote counts and the winner.

(1) Manage candidates:

```
===== CANDIDATE MANAGEMENT =====  
1. Add Candidate  
2. View All Candidates  
3. Search Candidate by Name  
4. Delete Candidate  
5. Return to Admin Menu  
Enter your choice (1-5):  
EVM > data > ≡ voters.txt
```

Allowing to do:

1. Add Candidate:

To add a candidate, provide the following details:

- I. Enter Candidate Name
- II. Enter Symbol/Mark
- III. Enter Party Name

2. View All Candidates

3. Search Candidates by Name

4. Delete Candidate

5. Return to Main Menu

(2) Manage Voters:

```
===== Voter Management =====  
1. Add Voter  
2. View All Voters  
3. Search Voter by Name  
4. Delete Voter  
5. Return to Admin Menu  
Enter your choice (1-5):
```

Allowing to do:

1. Add voter

To add voter provide:

- a. Enter Voter Name:
- b. Enter Voter ID:
- c. Enter Birth Day (DD MM YYYY):

2. View all voter

3. Search voter by name

4. Delete voter

5. Return to admin menu

(3) View Election Results:

```
|===== Results Menu =====  
1. View Results  
2. Delete All Results  
3. Exit
```

Providing two options:

1. Viewing result.

```
===== Election Results =====  
ABDUL HAKIM (Mark: DARIPALLAH, Candidate SI_NO: 1) - Votes: 3 (100.00%)  
HAFIZ UDDIN (Mark: LANGOL, Candidate SI_NO: 2) - Votes: 0 (0.00%)  
1 (Mark: 1, Candidate SI_NO: 3) - Votes: 0 (0.00%)  
  
🏆 Winner: ABDUL HAKIM (Mark: DARIPALLAH, Candidate SI_NO: 1) with 3 votes!
```

It show the number and percentage of vote for each candidate, show winner candidate with vote.

2. Erasing all result.

This section providing to delete all vote to admin . But must enter admin password.

Data Storage

All data stored in a folder named data with three files.

- Candidate data is stored in candidates.txt with the format:
SI_NO:1 Candidate Name:ABDUL HAKIM Mark:DARIPALLAH Party:JAMAYAT
- Voter data is stored in voters.txt with the format:
ID:0001 Name:alim Birth-date:15 11 2000
- Votes are stored in votes.txt in the format:
Voter_ID Candidate_Serial
-

4. Implementation The project is implemented using Python with file handling for data storage. The core functions include:

- is_registered_voter(voter_id, name): Ensures only valid voters can vote.
- has_voted(voter_id): Checks if a voter has already cast a vote.
- cast_vote(): Handles the voting process securely.
- add_candidate(), view_candidates(), search_candidate(), delete_candidate(): Manage candidates.
- add_voter(), view_voters(), search_voter(), delete_voter(): Manage voter records.
- calculate_results(): Computes and displays election results.

5. Security Measures

- Prevents duplicate voter registration.
- Ensures a voter can vote only once.
- Validates correct input formats.
- Secures stored data from unauthorized modifications.

6. Results and Analysis The system provides a fair and reliable voting platform. Test cases have been conducted to verify:

- Only registered voters can vote.
- Voters cannot vote more than once.
- Admins can manage voter and candidate data effectively.
- Results are calculated correctly based on stored votes.

7. Conclusion The EVM project successfully provides an efficient, secure, and transparent electronic voting solution. It eliminates common voting irregularities such as multiple voting and manual counting errors. Future enhancements could include a graphical user interface (GUI) and database integration for better performance and security.

8. Future Improvements

- Implementing a database system for better data management.
- Adding a graphical user interface (GUI) for enhanced usability.
- Introducing encryption fingerprint biometric techniques for securing vote data.
- Enhancing authentication with biometric or OTP verification.

This project serves as a foundation for developing more advanced electronic voting systems suitable for larger-scale elections.