ONLINE VOTING SYSTEM

A PROJECT REPORT
For
Mini Project (KCA353)
Session (2023-24)

Submitted by

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Submitted in partial fulfilment of the
Requirements for the Degree of

MASTER OF COMPUTER APPLICATION

Under the Supervision of
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(Associate Professor)

Submitted to

DEPARTMENT OF COMPUTER APPLICATIONS
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(FEBRUARY-2024)

CERTIFICATE

Certified that **Rhythm Dhingra (2200290140123)** has carried out the project work having "**Online Voting System"** (**Mini Project-KCA353**) for **Master of Computer Application** from Dr. A.P.J. Abdul Kalam Technical University (AKTU) (formerly UPTU), Lucknow under my supervision. The project report embodies original work, and studies are carried out by the student himself/herself and the contents of the project report do not form the basis for the award of any other degree to the candidate or to anybody else from this or any other University/Institution.

Date: 28th Feb 2024

Rhythm Dhingra (2200290140123)

This is to certify that the above statement made by the candidate is correct to the best of my knowledge.

Date: 28th Feb 2024

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ABSTRACT

The project “Online Voting System” aims at making the voting process easy in any type of elections. Presently voting is performed using ballot paper and the counting is done manually, hence it consumes a lot of time. There can be possibility of invalid votes. All these make election a tedious task. In recent times in India, due to elections the second wave of COVID transmission also made huge loss of human lives. In our proposed system voting and counting is done with the help of computer in Online. It saves time, avoid error in counting and there will be no invalid votes. It makes the election process easy. It also avoids the process of physical touching or visiting any places and so in the time of pandemic too it will be more helpful to conduct elections. The system deals with the online voting and its details. Allows the user to vote for the candidate online. Can get the details of the candidate and voter as well. Without the wastage of time the citizen can vote the respective candidate. In present existing system we are using ballot paper and counting the number of votes, it takes the lot of time to for the existing process, to overcome the drawbacks in the existing system this particular system was proposed to mark our work much easier and to reduce wastage of time. And more over we doesn’t gets the accurate results in the present existing system. So there is a need for Online Voting Systems.

ACKNOWLEDGEMENTS

Success in life is never attained single-handedly. My deepest gratitude goes to my project supervisor, **Dr. Shashank Bhardwaj** for his/ her guidance, help, and encouragement throughout my project work. Their enlightening ideas, comments, and suggestions.

Words are not enough to express my gratitude to Dr. Arun Kumar Tripathi, Professor and Head, Department of Computer Applications, for his insightful comments and administrative help on various occasions.

Fortunately, I have many understanding friends, who have helped me a lot on many critical conditions.

Finally, my sincere thanks go to my family members and all those who have directly and indirectly provided me with moral support and other kind of help. Without their support, completion of this work would not have been possible in time. They keep my life filled with enjoyment and happiness.

Rhythm Dhingra

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CHAPTER 1

INTRODUCTION

1.1 OVERVIEW

1.1.1 Mobility

The voter should not be restricted to cast his ballot at a single poll-site at his home precinct.

Realistic: He shall be able to vote from any poll-site within the nation.

Unrealistic/Expensive: He shall be able to vote from any county-controlled kiosk (situated at public places such as banks, shopping malls, etc.) within the nation. (Unrealistic because of logistical and cost issues).

• Infeasible: He shall be able to vote from virtually anywhere using an Internet connection. (Infeasible both for technical security issues as well as social science issues).

1.1.2. Convenience

The system shall allow the voters to cast their votes quickly, in one

session, and should not require many special skills or intimidate the voter (to ensure Equality of Access to Voters).

1.1.3. User-Interface

The system shall provide an easy-to-use user-interface. Also, it shall not disadvantage any candidate while displaying the choices (e.g., by requiring the user to scroll down to see the last few choices).

1.1.4. Transparency

Voters should be able to possess a general knowledge and understanding of the voting process.

1.1.5. Auto ID generated

Voter or a user firstly need to send an id generate request to the admin then admin will authenticate and verify the details and after that only auto id will be generated and provide to the voter. Then only he/she can get the “Id” else their request will be discarded.

1.1.6. Accuracy

The system shall record and count all the votes and shall do so correctly

.

1.1.7. Eligibility

Only authorized voters, who are registered, should be able to vote.

1.1.8. Uniqueness

No voter should be able to vote more than once.

1.1.9. Auditability

It should be possible to verify that all votes have been correctly accounted for in the final election tally, and there should be reliable and demonstrably authentic election records, in terms of physical, permanent audit trail (which should not reveal the user’s identity in any manner).

1.1.10. Voter Confirmation

The voter shall be able to confirm clearly how his vote is being cast, and shall be given a chance to modify his vote before he commits it.

1.1.11. To issue Receipt or not

The system may issue a receipt to the voter if and only if it can be ensured that vote-coercion and vote-selling are prevented, so that he may verify his vote at any time and also contend, if necessary.

1.1.12. No Over-voting

The voter shall be prevented from choosing more than one candidate / answer.

1.1.13. Under-voting

The voter may receive a warning of not voting, but the system must not prevent under voting.

1.1.14. Provisional Ballots

The voter shall be able to vote with a provisional (electronic) ballot if he has some registration problems, which could be counted if verified by the authorities later.

1.1.15. Documentation and Assurance

The design, implementation, and testing procedures must be well documented so that the voter-confidence in the election process is ensured.

1.1.16. Cost-effectiveness

Election systems should be affordable and efficient.

1.2 NEED OF NEW SYSTEM

Online Voting System is a web-based voting system that will help us to manage our elections easily and securely. In this system the voter does not have to go to the polling booth to cast their vote. They can use their personal computer to cast their votes. There is a database which is maintained in which all the name of the voters with their complete information is stored. The System Administrator registers the voters by the generation of ID. After registration, the voter is assigned a ID with which he/she can use to login to the system and cast his/her vote. If invalid/wrong details are submitted, then the person is not registered to vote. After the user successfully registers them, the admin provides them an ID. The site will be activated only on the day of voting.

Once the user logs in, they will be provided with an auto generated id which has to be entered by the user before casting his/her vote. respective. The advantage of online voting is that the voters have the choice of voting at their own free time and there is reduced congestion. It also minimizes on errors of vote counting. The individual votes are submitted in a database which can be queried to find out who of the aspirants for a given post has the highest number of votes

1.3 OBJECTIVES

This describes the motive behind the development of the project

- Reviewing the current voting process
- Coming up with an automated voting system in India.
- Implementing an online voting system.
- Validating the system to ensure that only eligible voters are allowed to vote.
- the key factor is even the pandemic cannot strip of our rights

1.4 METHODOLOGY

This model is choosing on the basis of the nature of the project and application. The methods and tools to be used and the controls and deliverables those are required.

The model to be used in "Online Voting System" is Waterfall Model

The Water fall model is a software development model in which a system development is viewed as flowing downwards through the phases of the system development process. The waterfall methodology is powerful, précised and through. It has a number of phases that have to be implemented in a sequential manner.

The phases which come under the waterfall model as follows: -

- Feasibility
- Analysis
- Design
- Implement
- Test
- Maintenance

CHAPTER 2

FEASIBILITY STUDY

A feasibility study for an online voting system is a crucial step in assessing whether the proposed system is viable, practical, and worth pursuing. Here are key aspects to consider in the feasibility study:

2.1 TECHNICAL FEASIBILITY

2.1.1 System Architecture

Evaluate whether the technical infrastructure required for the online voting system is feasible and scalable. Consider the necessary hardware, software, and network requirements.

2.1.2 Security Measures

Assess the feasibility of implementing robust security measures, including encryption, authentication, and protection against cyber threats. Ensure that the system can prevent fraud and maintain the integrity of the voting process.

2.2 ECONOMIC FEASIBILITY

2.2.1 Cost-Benefit Analysis

Conduct a thorough cost-benefit analysis to determine if the benefits of implementing an online voting system outweigh the associated costs. Consider initial development costs, ongoing maintenance expenses, and potential savings compared to traditional voting methods.

2.2.2 Return on Investment (ROI)

Evaluate the expected ROI over the long term, considering factors such as increased efficiency, reduced administrative costs, and enhanced accessibility.

2.3 LEGAL AND REGULAR FEASIBILITY

2.3.1 Compliance

Assess the legal and regulatory landscape to ensure that the proposed online voting system complies with local, state, and national laws. Address concerns related to voter privacy, data protection, and other relevant regulations.

2.3.2 Security Standards

Verify that the system meets or exceeds established security standards for electronic voting to gain trust from stakeholders and the public.

2.4 OPERATIONAL FEASIBILITY

2.4.1 User Acceptance

Evaluate the willingness of voters to adopt and accept the online voting system. Consider the level of digital literacy and accessibility for different demographics.

2.4.2Training and Support

Assess the feasibility of providing adequate training and support to election officials, voters, and other stakeholders. Ensure that the system is user-friendly and can be easily navigated.

2.5 SOCIAL FEASIBILITY

2.5.1 Public Perception

Consider public attitudes and perceptions towards online voting. Address concerns related to security, trust, and transparency.

2.5.2 Inclusivity

Evaluate the system's ability to be inclusive and accessible to all eligible voters, including those with disabilities or limited access to technology.

2.6 SCHEDULE FEASIBILITY

2.6.1 Timeline

Develop a realistic timeline for the development, testing, and implementation of the online voting system. Consider any regulatory approvals, pilot programs, and necessary adjustments.

2.6.2 Election Cycle Integration:

Assess the feasibility of integrating the online voting system into existing election cycles without disrupting the established processes.

2.7. ENVIRONMENTAL FEASIBILITY:

2.7.1 Sustainability

Consider the environmental impact of implementing an online voting system. Assess factors such as reduced paper usage and transportation-related emissions.

2.7.2 Risks and Contingencies

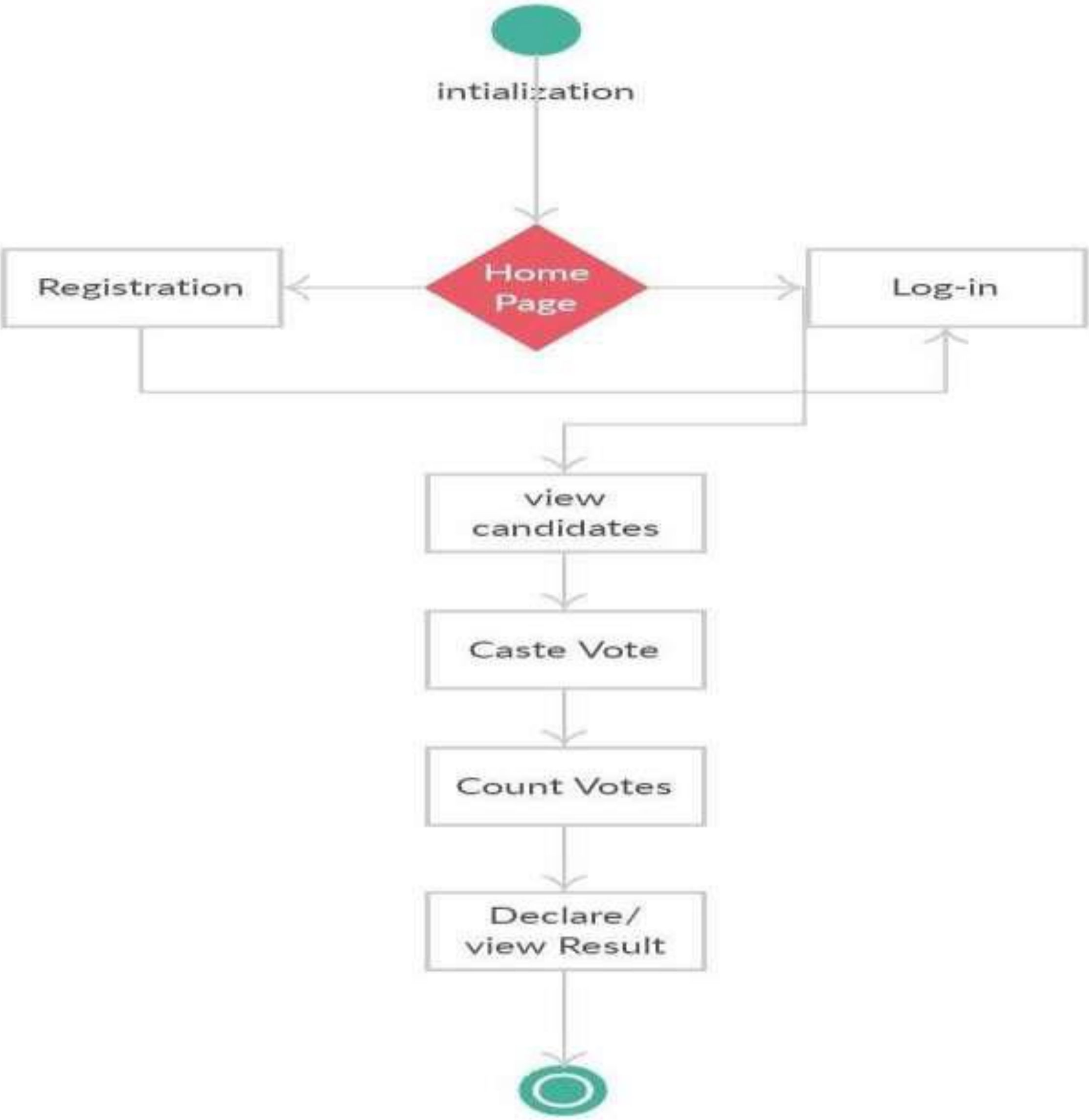
Identify potential risks and challenges associated with the implementation of the online voting system. Develop contingency plans and mitigation strategies to address these risks.

CHAPTER 3

SYSTEM DESIGN

3.1. STATE TRANSITION DIAGRAM

State Transition Diagram are also known as Dynamic models. As the name suggests, it is a type of diagram that is used to represent different transition (changing) states of a System. It is generally used to graphically represent all possible transition states a system can have and model such systems.


intialization
Home Page
Registration
Log-in
view candidates
Caste Vote
Count Votes
Declare/ view Result

3.2 DFD

A data flow diagram is graphical tool used to describe and analyze movement of data through a system. These are the central tool and the basis from which the other components are developed. The transformation of data from input to output, through processed, may be described logically and independently of physical components associated with the system. These are known as the logical data flow diagrams. The physical data flow diagrams show the actual implements and movement of data between people, departments and workstations. A full description of a system actually consists of a set of data flow diagrams. Using two familiar notations Yourdon, Gane and Sarson notation develops the data flow diagrams. Each component in a DFD is labeled with a descriptive name. Process is further identified with a number that will be used for identification purpose. The development of DFD'S is done in several levels. Each process in lower level diagrams can be broken down into a more detailed DFD in the next level. The lop-level diagram is often called context diagram. It consists a single process bit, which plays vital role in studying the current system. The process in the context level diagram is exploded into other process at the first level DFD. The idea behind the explosion of a process into more process is that understanding at one level of detail is exploded into greater detail at the next level. This is done until further explosion is necessary and an adequate amount of detail is described for analyst to understand the process. Larry Constantine first developed the DFD as a way of expressing system requirements in a graphical from, this lead to the modular design.

A DFD is also known as a "bubble Chart" has the purpose of clarifying system requirements and identifying major transformations that will become programs in system design. So it is the starting point of the design to the lowest level of detail. A DFD consists of a series of bubbles joined by data flows in the system.

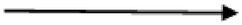
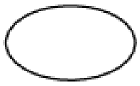
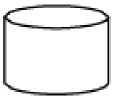
SYMBOL	NOTATIONS
	flow of data
	data-source / sink
	Process
	Database

Table 1 DFD list of figures

Level-0 Data Flow Diagram

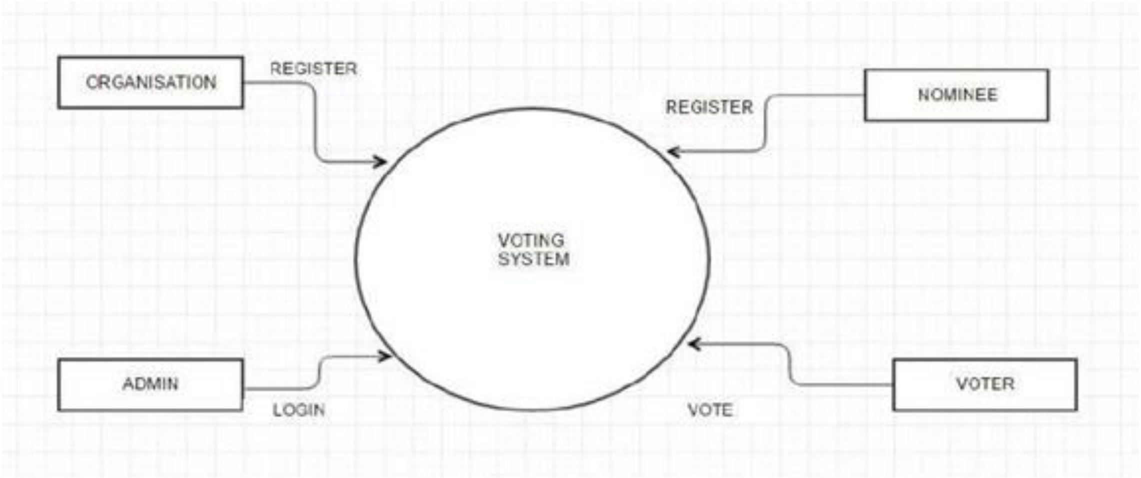


Figure 3 Level-0 Data Flow Diagram

Level-1 Data Flow Diagram

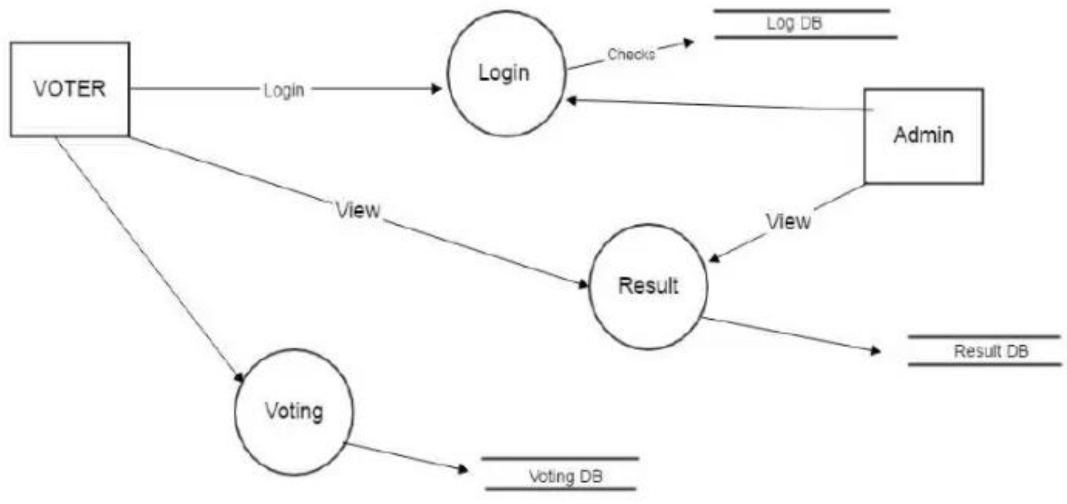


Figure 4 Level-1 Data Flow Diagram

Level-2 Data Flow Diagram

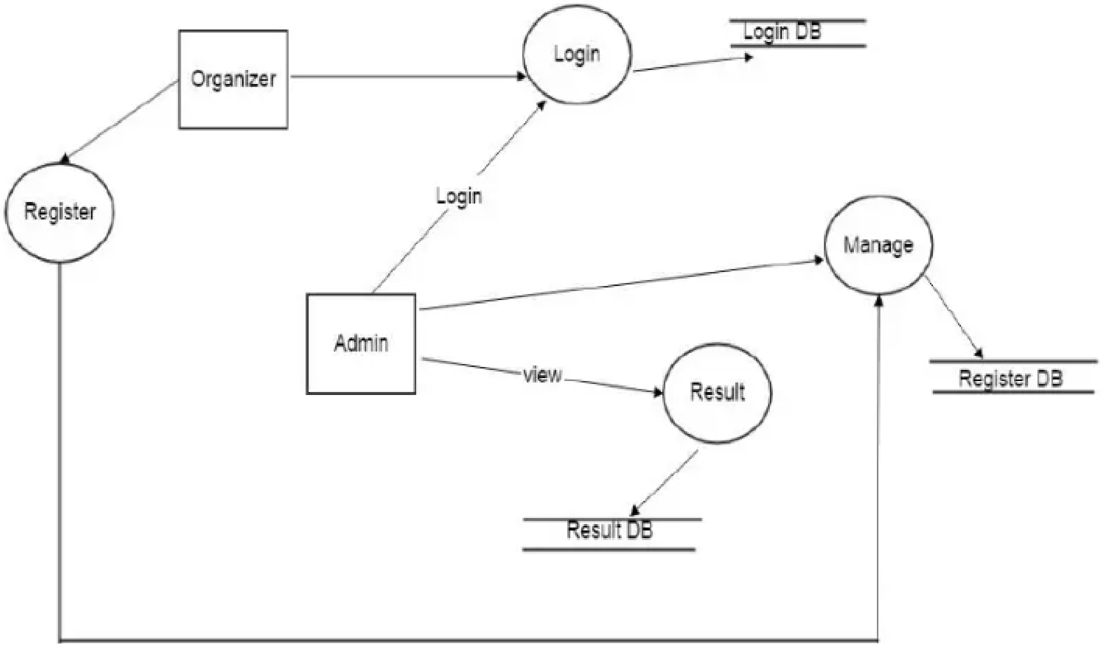


Figure 5 Level-2 Data Flow Diagram

3.3 ENTITY RELATIONSHIP DIAGRAM (ERD)

3.3.1. ERD

It is a detailed logical representation of the data for an organization and use three main constructs i.e. data entities, representation & its own associated attributes.

3.3.2. ENTITIES

An entity is a fundamental thing of an organization about which data may be maintained. An entity has its own identity, which distinguishes it from each other entity.

3.3.3. RELATIONSHIPS

A relationship as a reason for associating two entity types.

3.3.4. ATTRIBUTES

It is a properties or characteristics of an entity that is of interest to the organization.

SYMBOL	NAME	DESCRIPTION
▭	RECTANGLE	Use to represent an entity.
◇	DIAMOND	Show the representation between two entities.
⬭	BUBBLE	Use to represent the attributes of an entity.

Table 2 List of ERD

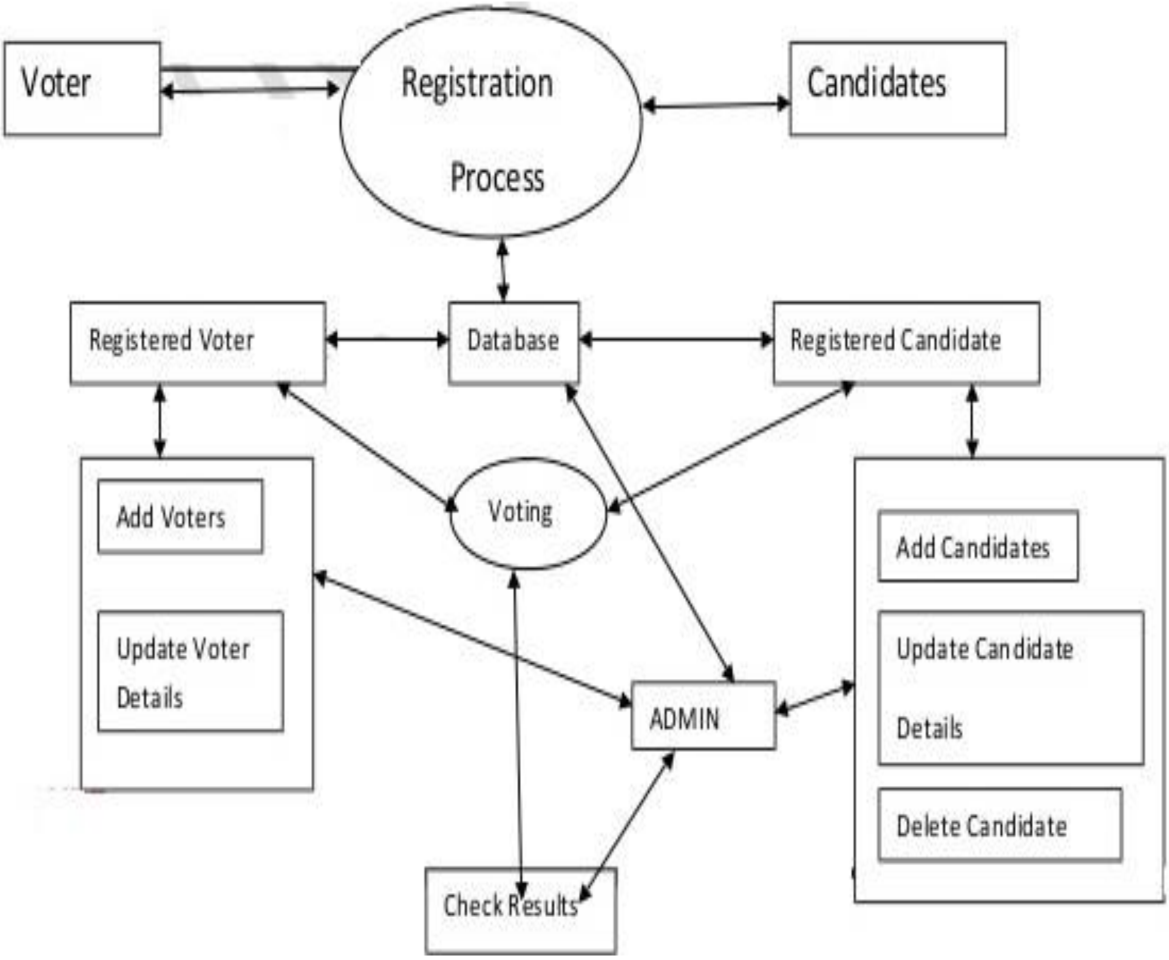


Figure 6 Entity Relationship Diagram

3.4 CLASS DIAGRAM:

Class diagrams are a type of UML (Unified Modeling Language) diagram used in software engineering to visually represent the structure and relationships of classes in a system. UML is a standardized modeling language that helps in designing and documenting software systems. They are an integral part of the software development process, helping in both the design and documentation phases.

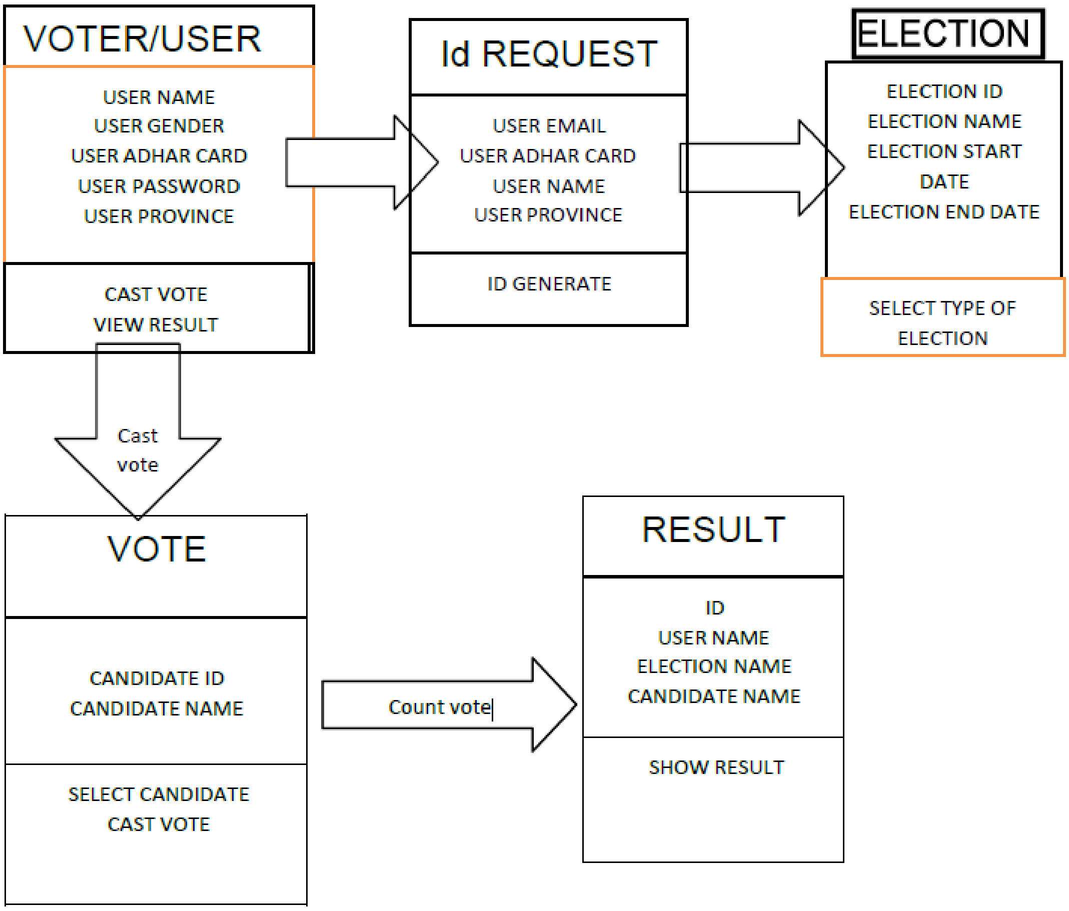


Figure 7: Class Diagram

3.5 Use Case Diagram:

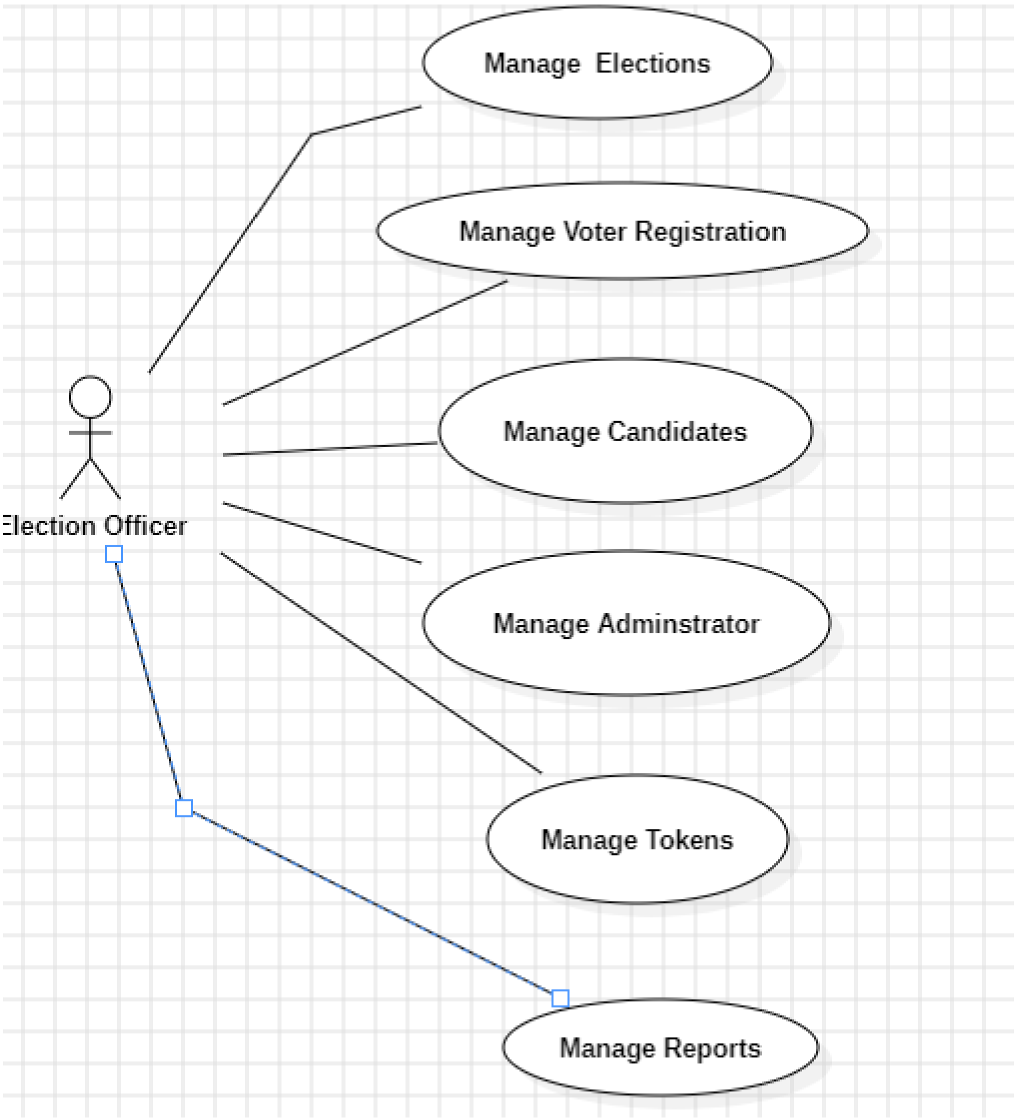


Figure 8 Use Case Diagram

3.6 DATABASE TABLES:

3.6.1 Database & File Design

3.6.1.1Database Files / Tables Diagram

3.6.1.2 Database Management System (DBMS)

A database is a collection of related data which represents some aspect of the real world. A database system is designed to be built and populated with
data for a certain task.
DBMS has the following characteristics −

• **Real-world entity**

A modern DBMS is more realistic and uses real-world entities to design its architecture. It uses the behavior and attributes too. For example, a school database may use students as an entity and their age as an attribute.

• **Relation-based tables**

DBMS allows entities and relations among them to form tables. A user can understand the architecture of a database just by looking at the table names.

• **Isolation of data and application**

A database system is entirely different than its data. A database is an active entity, whereas data is said to be passive, on which the database works
and organizes. DBMS also stores metadata, which is data about data, to ease its own process.

• **Less redundancy**

DBMS follows the rules of normalization, which splits a relation when any of its attributes is having redundancy in values. Normalization is a mathematically rich and scientific process that reduces data redundancy.

• **Consistency**

Consistency is a state where every relation in a database remains consistent. There exist methods and techniques, which can detect attempt of leaving database in inconsistent state. A DBMS can provide greater consistency as compared to earlier forms of data storing applications like file-processing systems.

• **Query Language**

DBMS is equipped with query language, which makes it more efficient to retrieve and manipulate data. A user can apply as many and as different filtering options as required to retrieve a set of data. Traditionally it was not possible where file-processing system was used.

3.4.1.2 Relational Database Management System(RDBMS)

A relational database management system (RDBMS) is a collection of programs and capabilities. RDBMS store data in the form of tables,
with most commercial relational database management systems using Structured Query Language(SQL) to access the database.

3.6.1 Candidate details table

Name	**Type**	**Collation**	**Attributes**	**Null**	**Default**	**Comments**
id	int(11)			No	*None*	
election_id	int(11)			Yes	*NULL*	
candidate_name	varchar(255)	utf8mb4_general_ci		Yes	*NULL*	
candidate_details	Text	utf8mb4_general_ci		Yes	*NULL*	
candidate_photo	text	utf8mb4_general_ci		Yes	NULL	
inserted_by	varchar(255)	utf8mb4_general_ci		Yes	NULL	
inserted_on	date			Yes	NULL	

Table 4: Candidate Details Table

3.6.2 Users Table:

Name	Type	Collation	Attributes	Null	Default	Comments
id	int(11)			No	*None*	
Username	varchar(255)	utf8mb4_general_ci		Yes	NULL	
contact_no	varchar(45)	utf8mb4_general_ci		Yes	NULL	
Password	text	utf8mb4_general_ci		Yes	NULL	
user_role	varchar(45)	utf8mb4_general_ci		Yes	NULL	

Table 5: Users Table

3.6.3 Elections Table:

Name	Type	Collation	Attributes	Null	Default	Comments
id	int(11)			No	*None*	
election_topic	varchar(255)	utf8mb4_general_ci		Yes	NULL	
	int(11)			Yes	*NULL*	

no_of_candidates						
starting_date	date			Yes	NULL	
ending_date	date			Yes	NULL	
Status	varchar(45)	utf8mb4_general_ci		Yes	NULL	
inserted_by	varchar(255)	utf8mb4_general_ci		Yes	NULL	
inserted_on	date			Yes	NULL	

Table 6: Elections Table

3.6.4 Voting Table

Name	Type	Collation	Attributes	Null	Default	Comments
id	int(11)			No	*None*	
election_id	int(11)			Yes	NULL	
voters_id	int(11)			Yes	*NULL*	
candidate_id	int(11)			No	None	
vote_date	Date			Yes	NULL	
vote_time	Time			Yes	NULL	

Table 7: Voting Table

CHAPTER 4

SYSTEM DEVELOPMENT

4.1 PURPOSE

4.1.1 Program Development

The purpose of the program development phase is to build a robust online voting system. The front end will be developed using HTML 5.0, CSS, and JavaScript to create a user-friendly interface. The back end will be implemented in PHP, and MySQL will be used for database connectivity.

4.1.2 Testing and Debugging

Software testing is a critical element of software quality assurance and represents the ultimate review of specification, design, and coding. In fact, testing is the one step in the software engineering process that could be viewed as destructive rather than constructive.

4.1.2.1 STRATEGIC APPROACH TO SOFTWARE TESTING

The software engineering process can be viewed as a spiral. Initially, system engineering defines the role of software and leads to software requirement analysis where the information domain, functions, behavior, performance, constraints, and validation criteria for software are established. Moving inward along the spiral, we come to design and finally to coding. To develop computer software we spiral in along streamlines that decrease the level of abstraction on each turn.

4.1.2.2 Unit Testing

Unit testing focuses verification effort on the smallest unit of software design, the module. The unit testing we have is white box oriented and some modules the steps are conducted in parallel.

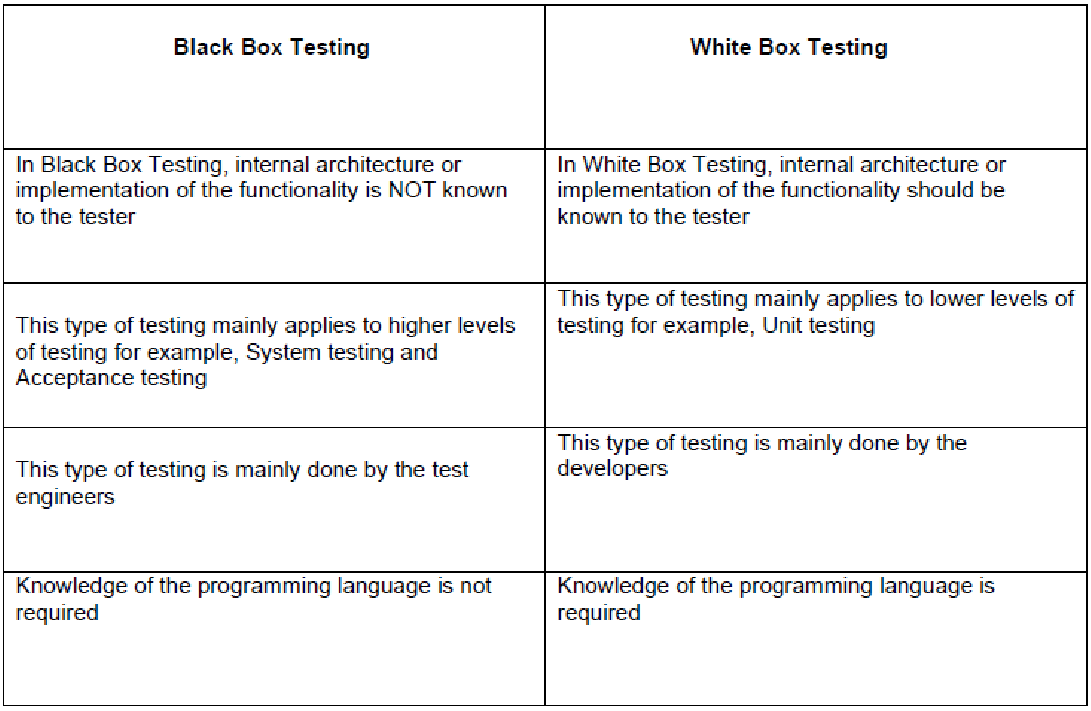
4.1.2.2.1 WHITE BOX TESTING

White-box testing, also known as clear box testing, glass box testing, transparent box testing, and structural testing, is a method of software testing that tests internal structures or workings of an application, as opposed to its functionality (i.e. black-box testing). In white-box testing, an internal perspective of the system, as well as programming skills, are used to design test cases. The tester chooses inputs to exercise paths through the code and determines the expected outputs. This is analogous to testing nodes in a circuit, e.g. in-circuit testing (ICT). White-box testing can be applied at the unit, integration, and system levels of the software testing process. Although traditional testers tended to think of white-box testing as being done at the unit level, it is used for integration and system testing more frequently today. It can test paths within a unit, paths between units during integration, and between subsystems during a system–level test.

4.1.2.2.2 BLACK BOX TESTING

Black Box Testing is a software testing method in which the functionalities of software applications are tested without having knowledge of internal code structure, implementation details, and internal paths. Black Box Testing mainly focuses on input and output of software applications and it is entirely based on software requirements and specifications. It is also known as Behavioral Testing.

Difference between White Box and Black Box Testing

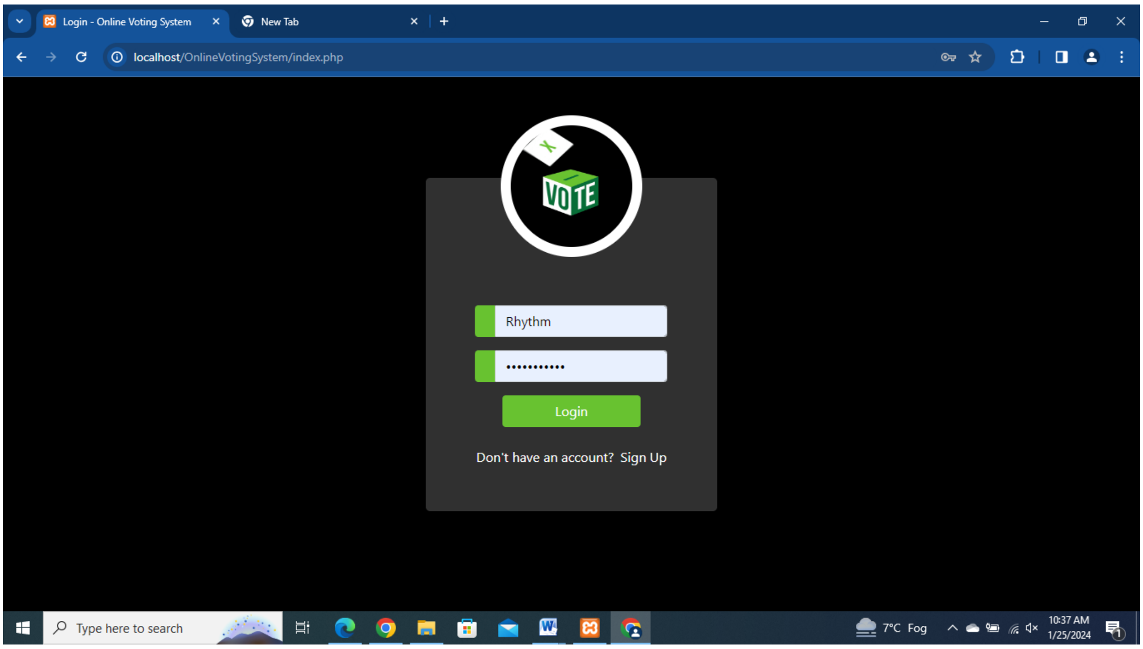


Black Box Testing	White Box Testing
In Black Box Testing, internal architecture or implementation of the functionality is NOT known to the tester	In White Box Testing, internal architecture or implementation of the functionality should be known to the tester
This type of testing mainly applies to higher levels of testing for example, System testing and Acceptance testing	This type of testing mainly applies to lower levels of testing for example, Unit testing
This type of testing is mainly done by the test engineers	This type of testing is mainly done by the developers
Knowledge of the programming language is not required	Knowledge of the programming language is required

CHAPTER 5

FORM DESIGN

5.1 LOGIN PAGE:



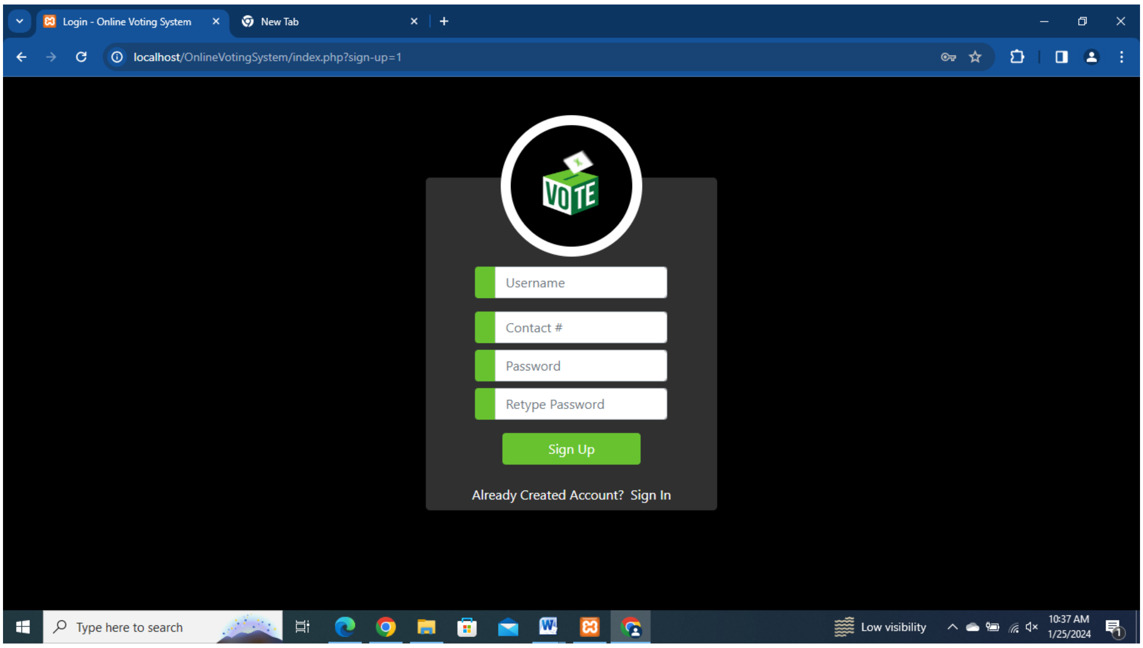
Login - Online Voting System
New Tab
localhost/OnlineVotingSystem/index.php
VOTE
Login
Type here to search
7°C Fog
10:37 AM
1/25/2024

Rhythm

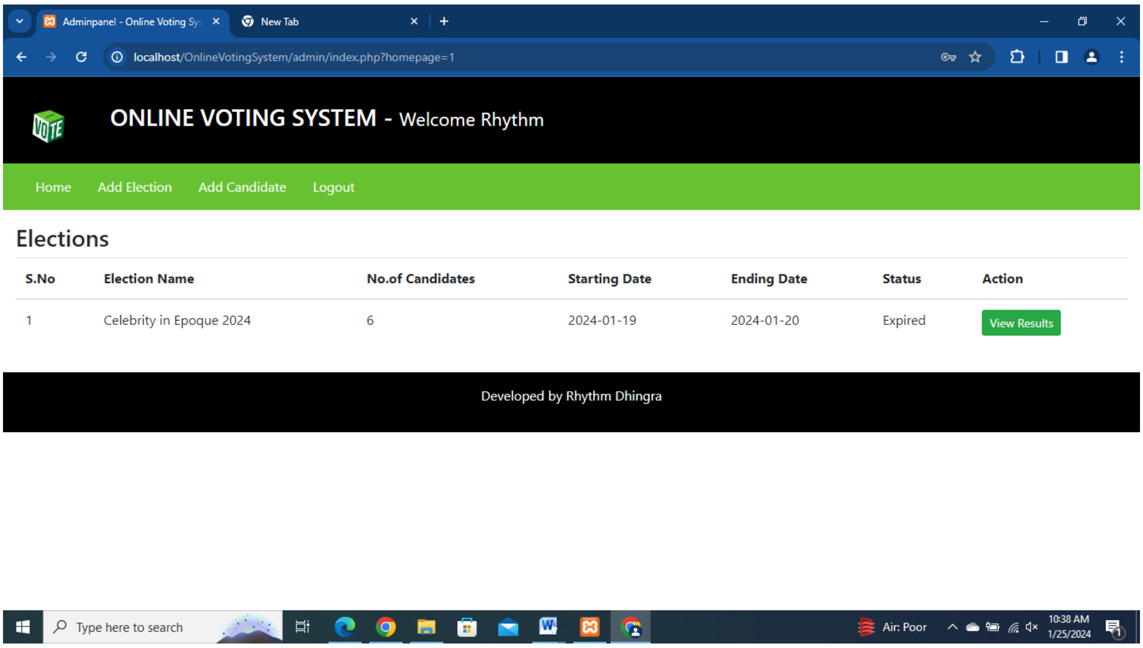
•••••••••••

Don't have an account? Sign Up

5.2 USER REGISTRATION PAGE:


Login - Online Voting System
New Tab
localhost/OnlineVotingSystem/index.php?sign-up=1
VOTE
Username
Contact #
Password
Retype Password
Sign Up
Already Created Account? Sign In
Type here to search
Low visibility
10:37 AM
1/25/2024

5.3 ADMIN DASHBOARD:



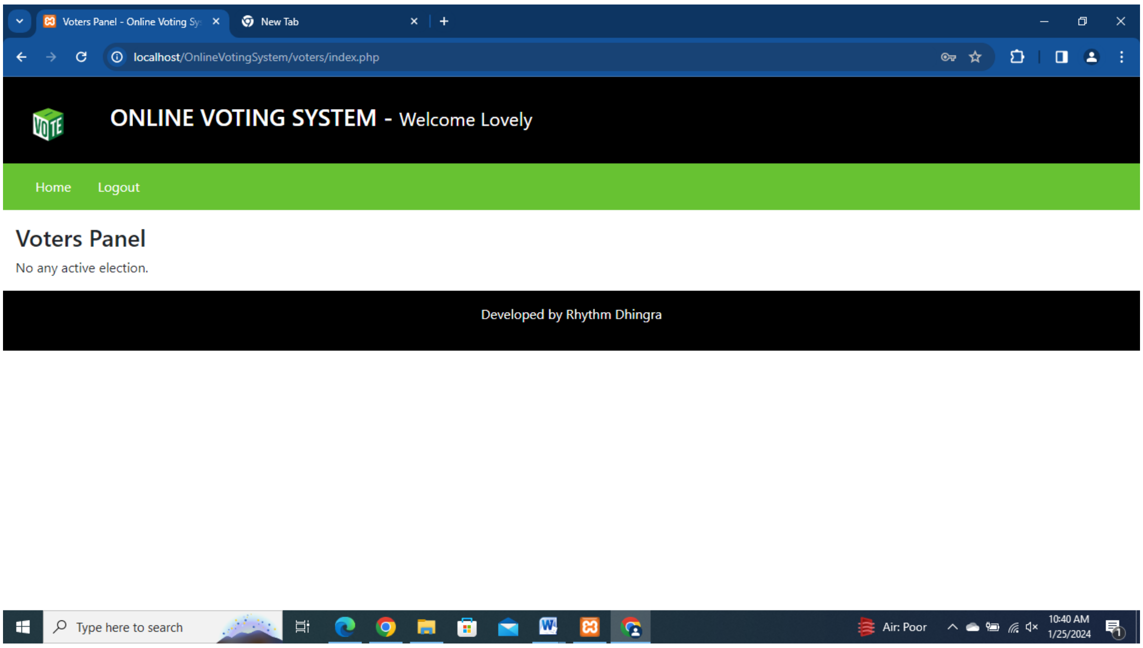
ONLINE VOTING SYSTEM - Welcome Rhythm

Elections

S.No	Election Name	No.of Candidates	Starting Date	Ending Date	Status	Action
1	Celebrity in Epoque 2024	6	2024-01-19	2024-01-20	Expired	View Results

Developed by Rhythm Dhingra

5.4 USER DASHBOARD:



Voters Panel - Online Voting Sy

localhost/OnlineVotingSystem/voters/index.php

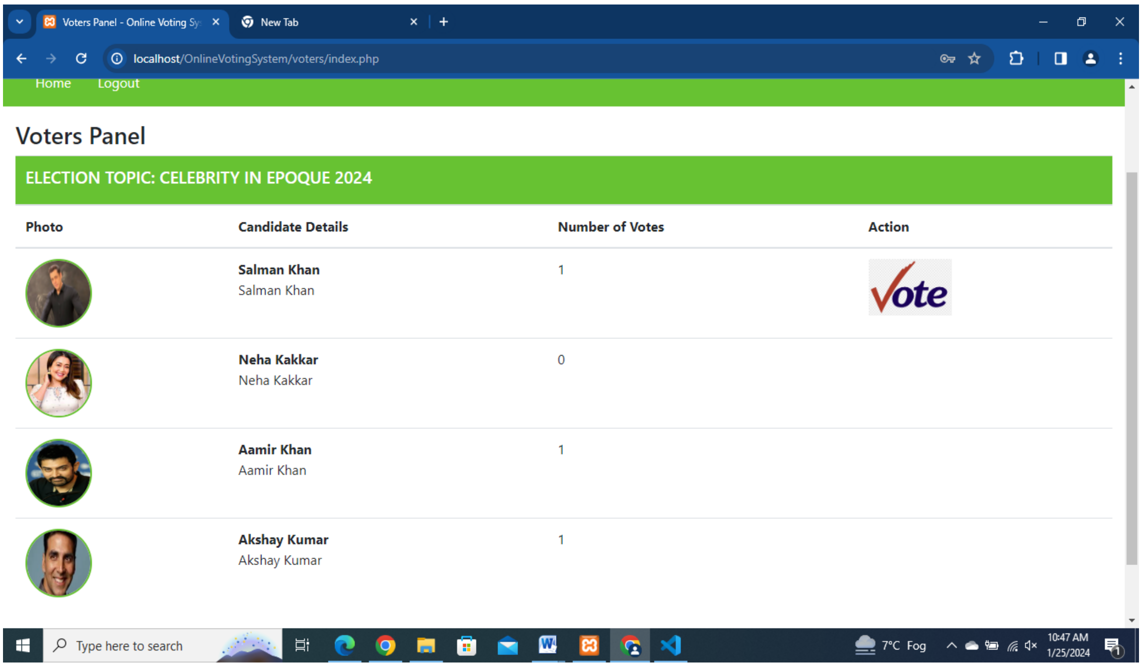
ONLINE VOTING SYSTEM - Welcome Lovely

Voters Panel

No any active election.

Developed by Rhythm Dhingra

5.5 CASTING VOTE:



Voters Panel - Online Voting Sy
New Tab
localhost/OnlineVotingSystem/voters/index.php
Home
Logout
Type here to search
7°C Fog
10:47 AM
1/25/2024

Voters Panel

ELECTION TOPIC: CELEBRITY IN EPOQUE 2024

Photo	Candidate Details	Number of Votes	Action
	Salman Khan Salman Khan	1	Vote
	Neha Kakkar Neha Kakkar	0	
	Aamir Khan Aamir Khan	1	
	Akshay Kumar Akshay Kumar	1	

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